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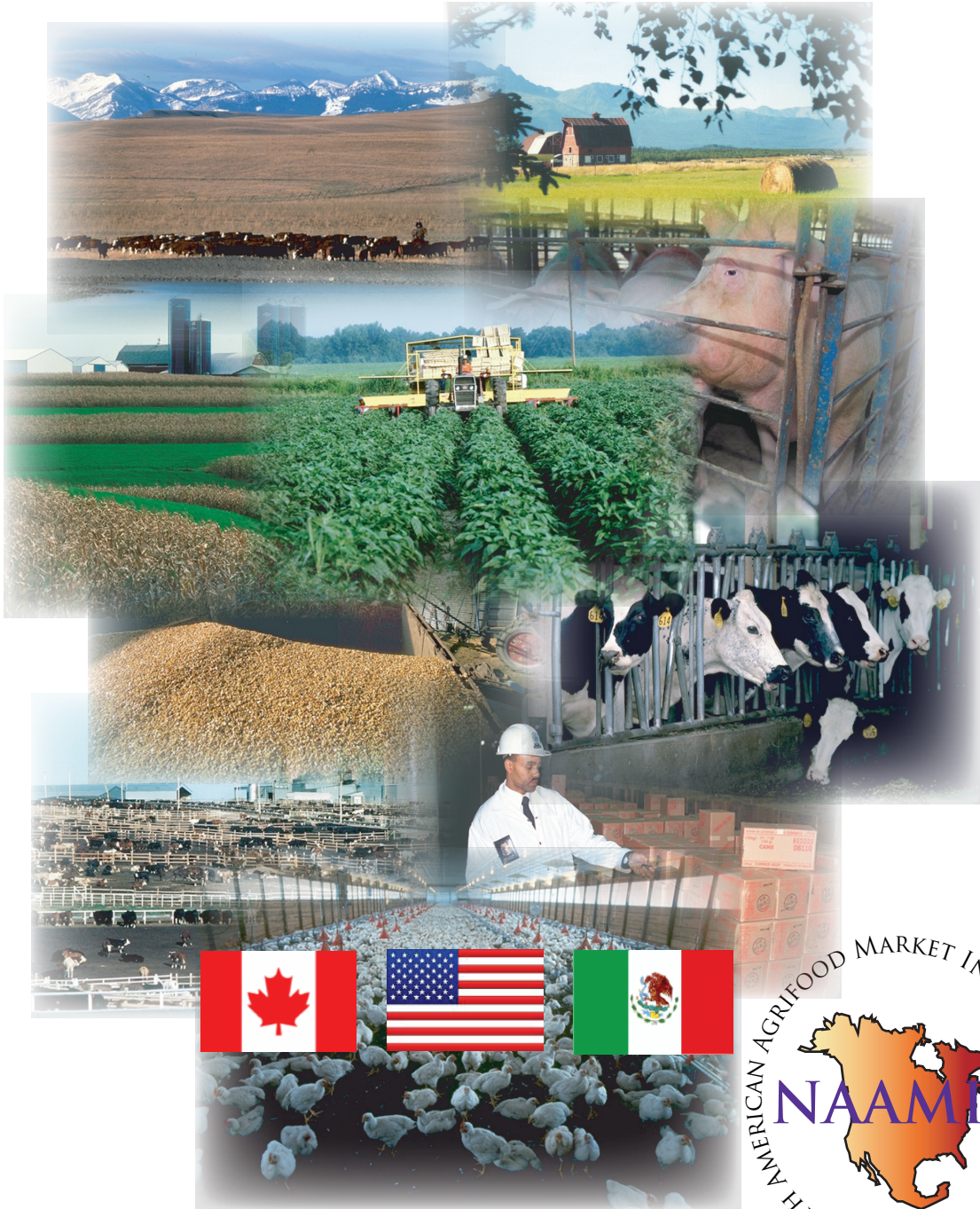
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Third Annual North American Agrifood Market Integration Workshop

Achieving NAFTA Plus

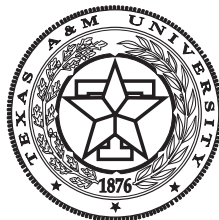


Third Annual North American Agrifood Market Integration Workshop

Achieving NAFTA Plus



Edited by:
Karen M. Huff,
Karl D. Meilke,
Ronald D. Knutson,
Rene F. Ochoa,
and James Rude



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Karen M. Huff,
Karl D. Meilke,
Ronald D. Knutson,
Rene F. Ochoa,
and James Rude

Page Layout/Cover Design by:
David P. Ernstes
Agricultural and Food Policy Center, Texas A&M University

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*I. Karen M. Huff (University of Guelph) II. Karl D. Meilke (University of Guelph)
III. Ronald D. Knutson (Texas A&M University) IV. Rene F. Ochoa (Texas A&M University)
V. James Rude (University of Manitoba) VI. Friesens (Altona)*

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NAAMIC Coordinating Committee

- *Gloria Abraham – IICA-México*
- *Karen Huff – University of Guelph*
- *Ronald D. Knutson – Texas A&M University*
- *Karl D. Meilke – University of Guelph*
- *Rene F. Ochoa – Texas A&M University*
- *James Rude – University of Manitoba*
- *Renée Schwartz – United States Department of Agriculture*
- *Tulay Yildirim – Agriculture and Agri-Food Canada*
- *Steven Zahniser – United States Department of Agriculture*

Background and Purpose of the Workshop



.....

*Karen M. Huff, Karl D. Meilke, Ronald D. Knutson,
Rene F. Ochoa, and James Rude*

INTRODUCTION

This volume of papers presents the proceedings of the Third North American Agrifood Market Integration Workshop organized by the North American Agrifood Market Integration Consortium (NAAMIC). NAAMIC consists of a group of agricultural economists from Canadian, Mexican, and United States universities and governmental agencies including Agriculture and Agri-Food Canada (AAFC), the Mexican Ministry of Agriculture or SAGARPA (Secretaría de Agricultura, Ganadería, Desarrollo Rural, Pesca, y Alimentación), and the US Department of Agriculture (USDA). NAAMIC’s mandate is to encourage frank and open discussion among policy-makers, agrifood business leaders, and academics on any agrifood-related market integration issues that arise among the NAFTA members.

Since NAFTA was formed more than a decade ago, many changes have occurred in the global economic and policy environment. Examples include the formation of the World Trade Organization, the expansion of the European Union, the proliferation of regional trade agreements, and the emergence of China and Brazil as major competitive forces in world agrifood markets. Unchanged is the use of domestic agricultural programs by each of the NAFTA countries to bolster farm income and to protect their farmers from foreign competition. These conditions raise the question of whether achieving future market integration gains within NAFTA will require significant changes to the Agreement. Such changes are referred to in this volume as “NAFTA Plus,” meaning that they extend beyond the current framework of the existing North American Free Trade Agreement and/or its strategies and operating procedures. These changes could involve the negotiation of a customs union but are more likely to entail largely unilateral moves in the direction of a customs union, as

well as bilateral and trilateral cooperation on cross border issues. Making such fundamental changes will enhance economic efficiency and improve living conditions in all three countries but at the same time it will expose some NAFTA farmers and agribusinesses to new competitive forces, requiring governments to consider the much ignored issues of transition or adjustment policies to facilitate these trade, market integration, and agricultural policy changes.

In the two previous NAAMIC workshops, suggestions were made on how to improve the effectiveness and efficiency of NAFTA in achieving further market integration in its agrifood sectors. The third NAAMIC workshop went beyond those recommendations by questioning NAFTA's role within the global marketplace. The chapters included in this volume discuss specific strategies for increasing the international competitiveness of NAFTA's agrifood sectors while achieving greater levels of market integration within the region.

THE CHAPTERS

The third NAAMIC workshop was held in June 2006 in Calgary, Alberta. Seven groups of authors were commissioned to contribute on a variety of topics related to NAFTA and the global agrifood marketplace, each followed by formal comments from discussants representing academia, the agrifood industry, producers and producer groups, and government policy-makers. These contributions were developed into chapters two through eight. In addition to the formal discussions, each presentation generated a great deal of informal dialogue among workshop participants both during the formal meetings and at the informal receptions that concluded each workshop day. A brief overview of the remaining chapters contained in this volume follows.

The Future of NAFTA

The opening chapter by Karl Meilke of the University of Guelph, James Rude of the University of Manitoba and Steven Zahniser of the Economic Research Service (ERS) of the USDA considers what could be done to further advance and improve integration in the North American agrifood sector. This chapter initially explores the main options available for deeper integration of NAFTA including: 1) doing nothing; 2) pursuing strategic trilateralism; 3) pursuing strategic trilateralism in the direction of a customs union; 4) creating a NAFTA customs union; and 5) creating a NAFTA common market. Subsequent sections in the chapter focus on specific areas in which further integration could take place, including trade policy, domestic agricultural policies, dispute resolution, regulatory coordination, and the labor market. The chapter concludes that developing the physical, legal, and institutional infrastructure needed to facilitate freer trade in goods, services, and labor within NAFTA will likely be done

on a unilateral basis by each NAFTA country, but member governments could move NAFTA closer to a customs union through close consultations and some coordination of effort.

Challenges and Opportunities from Outside NAFTA

The next two chapters in the book consider the rapid changes taking place in the agrifood economies of both Brazil and China, and the challenges and opportunities NAFTA faces as a result. The chapter by Constanza Valdes of ERS-USDA, Elisio Contini and Ivan Wedekin of the Brazilian Ministry of Agriculture, and Arnaldo Chibbaro of the Inter-American Institute for Cooperation on Agriculture (IICA) examines the remarkable export performance of the Brazilian agrifood sector and the policy and trade reforms that helped make this possible. Simulation results from this chapter suggest that Brazil would stand to benefit from more open agrifood trade with the NAFTA countries.

Scott Rozelle of Stanford University, Daniel Sumner of the University of California-Davis, Mechel Paggi of the California State University-Fresno, and Jikun Huang of the Center for Chinese Agricultural Policy at the Chinese Academy of Science in Beijing consider the implications of China's growing domestic demand for fruits and vegetables on both its domestic horticultural industry and international trade. Despite many challenges, China's horticultural output has grown quickly over the past decade and the big question that remains is whether the industry can keep pace with domestic demand and go on to become a player in the global marketplace, or whether constraints on land, water, and labor will lead to opportunities for international horticultural producers, such as those in the NAFTA countries, to help supply China's market.

Transitional Policies to Facilitate Trade and Domestic Agricultural Policy Changes

Knutson et al. point out that strengthening NAFTA and achieving freer trade in agrifood both within NAFTA and globally will require substantially reducing or eliminating domestic farm subsidies and the eventual termination of specific farm program entitlements that require high tariffs to shelter producers from import competition. The remaining four chapters in this volume deal with actual and proposed policies designed to assist farmers who may be adversely affected in the short-run by a decrease in subsidies, the removal of tariffs, and/or the dismantling of certain commodity programs.

In 1984, in response to an economic crisis, the New Zealand government introduced extensive economywide reforms which included the complete removal of farm revenue and input subsidies. The chapter by Ralph Lattimore, a Senior Fellow of the New Zealand Institute of Economic

Research (NZIER), describes the lead up to this situation, how the New Zealand government implemented the reforms, and how the agricultural sector responded and adjusted. The chapter provides a positive assessment on how the agricultural sector is performing more than twenty years later. The lessons to be learned from the case of agricultural policy reforms in New Zealand include: 1) if farmers must be subsidized, income grants or deficiency payments are superior to import protection and/or programs that give farm organizations control over market demand; 2) subsidy removal need not have a large negative impact on farmland prices, at least in the longer-run; 3) the adjustment to the new regime can be made easier for farmers by providing support and advice for renegotiating finances with their bankers; 4) farm incomes will recover; and 5) adjustment in the New Zealand case was complicated by the fact that the country was facing a serious economic crisis and the timing and sequencing of the reforms were dictated by political realities rather than good planning; so when possible it is better to plan and implement farm program reforms under good economic times rather than waiting until the economy demands them.

The possibility that future agrifood trade liberalization within NAFTA and globally through the WTO will hurt less competitive agricultural producers requires the consideration of introducing programs designed to ease these producers' transition out of agriculture. The United States government recently expanded its Trade Adjustment Assistance (TAA) program to farmers in order to assist farmers who are harmed financially by import competition arising due to actions taken by the US government, such as the removal of border protection or the signing of a new free trade agreement. The chapter by Richard Blabey, formerly of the USDA Foreign Agricultural Service, describes the history of TAA in the US and how it was applied to agriculture. TAA for farmers authorized the USDA to provide producers with information and technical assistance to help them adjust to import competition by improving their production and marketing activities, by producing alternative commodities, and also through the provision of job retraining. This chapter concludes that TAA educational and technical assistance for farmers is not trade distorting, making the program a viable option for facilitating more extensive trade liberalization.

Looking specifically at sugar production in the US, David Orden, a senior research fellow at the International Food Policy Research Institute (IFPRI) and professor of agricultural economics at Virginia Tech, considers options for buying out the US government support program for sugar. Despite the US government's recent successful buyouts of both the tobacco and peanut support programs, the chapter concludes that sugar policy reform would be more difficult to achieve. The tobacco and peanut programs had more narrowly defined benefits – through the use of production quotas – than the broader support policies associated

with sugar. The majority of tobacco and peanut producers supported the buyouts, and domestic producers were the beneficiaries of the reforms, not foreign producers and domestic consumers which would be the case with sugar. The chapter also considers recent reforms to sugar policy in the European Union and concludes that a US buyout of its sugar program, although difficult to achieve, would provide long-term savings for taxpayers, enhanced transition support to farmers, and a basis on which to pursue more open global agricultural markets.

The next chapter in the book by Richard Barichello of the University of British Columbia, and John Cranfield and Karl Meilke of the University of Guelph considers options for the reform of Canada's supply management programs for dairy products, poultry, and eggs. Neither the Uruguay Round nor the current Doha Development Agenda of the WTO negotiations has or is likely to result in major changes in the operation of supply management in Canada. However, this chapter presents a number of possible options the Canadian government could use to start reforming these programs today so that the industry is in a position to successfully compete within NAFTA and the global marketplace in 2020 and beyond.

FUTURE NAAMIC ACTIVITIES

This workshop is the third annual workshop planned by NAAMIC to coincide with the final stages of NAFTA's implementation. The NAAMIC workshops provide an excellent opportunity to stimulate dialog among government, industry, and academic players about issues of concern and ways these issues can be addressed. The contributions presented in this volume are a good example of this kind of discussion. As this volume goes to press many questions remain unanswered about the future direction of not only NAFTA, but the multilateral trading system as well. Hopefully, the reader is now better prepared to understand the challenges the NAFTA members face in order to take full advantage of more complete and secure access to each other's markets and the global marketplace.

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The Search for “NAFTA Plus”



Karl Meilke, James Rude, and Steven Zahniser¹

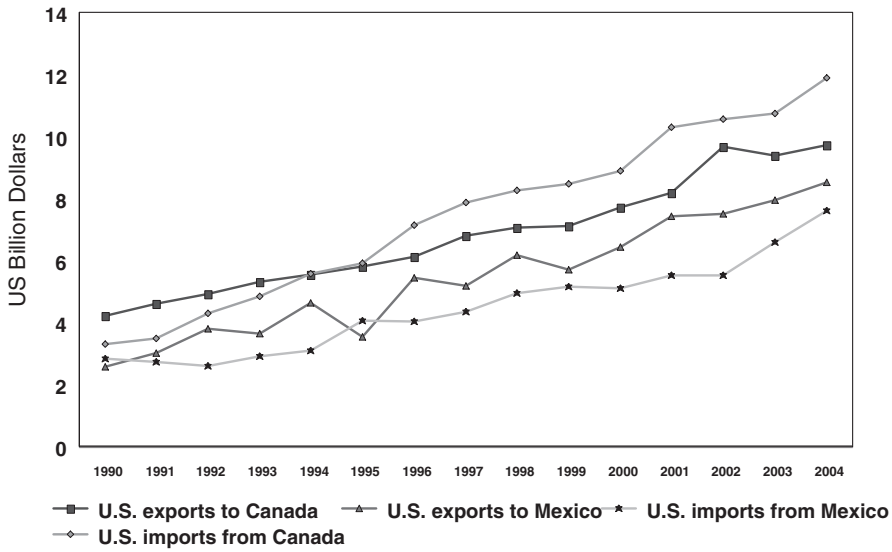
INTRODUCTION

More than 12 years after the initial implementation of the North American Free Trade Agreement (NAFTA) in 1994, agricultural trade among the Agreement’s signatories – Canada, Mexico, and the United States (US) – continues to grow at an impressive pace (figures 2.1 and 2.2). Between 1993 and 2004, this trade increased at a compound annual rate of 7.8 percent, surpassing \$39 billion in 2004. With NAFTA’s implementation nearly complete, however, there are concerns that the easy gains in economic efficiency and market integration have already been accomplished and that additional steps are necessary to ensure that further gains are achieved. This poses a distinct challenge to the NAFTA governments, since NAFTA and its predecessor accord – the Canada-US Free Trade Agreement (CUSTA), implemented in 1989 – did not create trilateral institutions with the supranational authority to facilitate the deepening of the new trading environment, in contrast to the European Economic Community when it was formed in 1958 (Harvey). In fact, it can be argued that the successful negotiation and approval of the two agreements was predicated on not creating strong supranational institutions.

What NAFTA did create was a set of mechanisms and organizational structures that preserved the national sovereignty of its member countries. To resolve disputes related to the Agreement’s investment and services provisions, the application of national antidumping (AD)

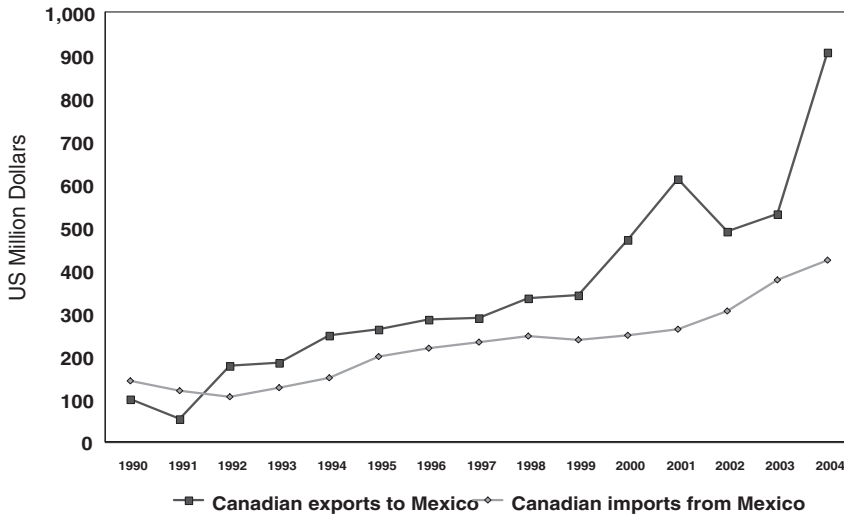
¹ The authors would like to thank William Coyle, John Dunmore, Anne Efland, William Kandel, Barry Krissoff, Mary Anne Normile, and John Wainio for their critical feedback and suggestions. The opinions expressed in this chapter are those of the authors and do not necessarily reflect the opinions of the institutions with which the authors are affiliated.

Figure 2.1: US agricultural trade in the NAFTA region.



Sources: United Nations (Canadian data) and Foreign Agricultural Trade of the United States database.

Figure 2.2: Canada-Mexico agricultural trade.



Sources: United Nations (Canadian data) and Foreign Agricultural Trade of the United States database.

and countervailing duty (CVD) laws, and the Agreement's general interpretation, NAFTA established a number of formal dispute resolution mechanisms. To facilitate regulatory coordination among the NAFTA governments, the Agreement set up an extensive set of committees and working groups, some of which directly address issues related to the agrifood sector (Green et al.). To create additional opportunities for integration, the NAFTA governments mutually agreed to adjust the Agreement's rules of origin and expedite the implementation of some trade provisions.

Economic integration of the North American agrifood sector has proceeded at a brisk pace in this institutional setting. Continued population growth and sustained periods of economic expansion in each NAFTA country have bolstered consumer demand and forced new economic arrangements in the agrifood sector. In a policy environment in which trade is much freer and cross-border business activities are more secure, firms have reorganized their activities around continental markets for inputs and outputs. This development is visible not only in agrifood trade but also in cross-border investments, alliances among firms, and changes in the retail and transportation sectors. Legal and illegal migration flows from one NAFTA country to another continue to be substantial, and parts of the Canadian and US agrifood sectors rely heavily on foreign-born workers from Mexico and other countries.

Indeed, there is a clear sense that economic integration under NAFTA is outpacing the policy process. The NAFTA panels that review national AD and CVD determinations have by and large functioned as intended, overturning some determinations and affirming others, but the completion of panel operations and implementation of panel decisions are taking much longer than the official timelines suggest. Moreover, because there are no clear rules aligning the dispute resolution processes of NAFTA and the World Trade Organization (WTO), a temptation exists for the losers of one dispute resolution process to seek a costly "do-over" under the other process. A small number of disputes have had extremely long lives. Notable examples include the Canada-US softwood lumber dispute,² the Mexico-US sugar and sweetener disputes, and the successful challenge at the WTO to the US Byrd Amendment.³

In the regulatory arena, mid-level officials and policy specialists from the NAFTA governments work together on technical agrifood issues on a regular basis within the context of NAFTA's committees and

² In September 2006, Canada and the US finalized a market sharing agreement to govern softwood lumber shipments from Canada. This apparent conclusion to a decades-long dispute opens questions as to the role of voluntary export restraints within a free trade area.

³ The Byrd Amendment to the US Tariff Act of 1930 awarded antidumping and countervailing duties, previously deposited in the US Treasury, to US producers who supported the trade remedy actions that resulted in these duties.

working groups. But serious regulatory conflicts have required the active participation of high-level officials and the creation of new administrative structures, such as the bilateral consultative committees on agriculture, to direct and manage policy initiatives (Green et al.). Unusually difficult regulatory issues of the recent past – such as bovine spongiform encephalopathy (BSE) (Leroy, Weerahewa, and Anderson; Sparling and Caswell) and the Salmonella outbreaks linked to Mexican cantaloupes during 2001-03 (Green et al.) – have not been forgotten by the parties adversely affected by those events, even though the response of the NAFTA governments to these crises eventually led in the direction of greater policy coordination.

The difficulty in managing economic relations among the NAFTA members has led some people in both government and the private sector to call for additional government actions to build upon NAFTA. These actions would lead to the formation of what is sometimes referred to as “NAFTA Plus.” Many of the more developed proposals have come from Canadian groups, such as the Canadian Council of Chief Executives and the C.D. Howe Institute,⁴ but observers from each NAFTA country have offered ideas about what should follow NAFTA (Council on Foreign Relations; Saldaña). However, not everyone has climbed aboard the NAFTA Plus bandwagon, and several recent books sharply critical of further integration (Barlow; Faux) have had strong sales in Canada and the US. In Mexico, some groups are advocating the renegotiation of NAFTA’s provisions for corn and beans. Nevertheless, the level of economic integration in North America has become so great that even many of NAFTA’s critics have recognized that the likelihood of completely undoing this process is close to nil (Jackson).

This chapter considers what could be done to advance and improve integration in the North American agrifood sector. Because these ideas build upon the integration already achieved under NAFTA, we think of them as potential elements of NAFTA Plus. The chapter is organized as follows. The next section outlines the main options for deeper integration, while subsequent sections focus on specific areas in which further integration could take place, including trade policy, domestic agricultural policies, dispute resolution, regulatory coordination, and the labor market. The final section summarizes the chapter’s main points and offers conclusions.

⁴The Canadian Council of Chief Executives is a not-for-profit, non-partisan organization composed of the CEOs of Canada’s largest companies with total annual gross revenues exceeding C\$750 billion annually. The C.D. Howe Institute is a national, nonpartisan, nonprofit organization that aims to improve Canadians’ standard of living by fostering sound economic and social policy.

OPTIONS FOR DEEPER INTEGRATION

Regardless of what governments do, the deepening of North American economic integration will continue through initiatives in the private sector. The big question is whether the NAFTA governments will try to get in front of the process, and if so, how? For people interested in the agrifood sector, there is another important question: What role will the sector play in the deepening of North American integration? Hufbauer and Schott argue that agriculture is the make-or-break issue for both multilateral and regional trade agreements, despite the fact that agriculture only accounts for about ten percent of total merchandise trade among the NAFTA countries.

Several factors complicate the pursuit of further integration in the North American agrifood sector. First, each NAFTA member maintains its own agricultural policy, and the resulting policy differences have led to a variety of trade disputes, as well as considerable subsidy envy in Canada and Mexico following the passage of the 2002 Farm Security and Rural Investment Act (US Farm Act) (Barichello, Josling, and Sumner; Hufbauer and Schott; Meilke and Sarker; Thompson; Wainio, Young, and Meilke).

Second, agriculture is the only sector where significant tariff and quota barriers will remain on trade within the NAFTA region after the Agreement is fully implemented. These exceptions primarily stem from CUSTA, which excluded several important commodities from the process of Canada-US trade liberalization: US imports of Canadian dairy products, peanuts, peanut butter, cotton, sugar, and sugar-containing products and Canadian imports of US dairy products, poultry, eggs, and margarine.

Third, the task of creating NAFTA Plus will necessarily compete with other pressing issues for the attention of decision-makers – particularly in the US, where security concerns have predominated for the past five years. In her seminal essay, Dobson argues that only a “Big Idea” will capture the attention of US policy-makers. She proceeds to outline three Big Ideas: 1) a customs union; 2) a common market; and 3) a “strategic bargain” in which the US and Canada pursue deeper integration without relinquishing national sovereignty. In Dobson’s view, Mexico would be involved in these efforts “when practical,” and Mexico and the US would be expected to work on improving their bilateral relationship at the same time that Canada and the US were addressing their bilateral concerns. Below we describe a number of economic alternatives available to the NAFTA members including each of the Big Ideas suggested by Dobson.

Doing Nothing

Doing nothing is an extremely unappealing option, especially for Canada and Mexico. First, US security concerns have the potential to conflict with cross-border economic activities (Lukas). This is not in the economic interests of any NAFTA country, and a trilateral approach to security and trade is an obvious area for cooperation. Second, the increasing willingness of the US to enter into bilateral and regional trading arrangements with countries outside NAFTA reduces the tariff preferences enjoyed by Canada and Mexico. While Mexico has made similar arrangements with many of these countries, Canada generally has not, and this may diminish Canada's attractiveness as a site for business operations linked with the rest of the global economy. Third, if multilateral trade negotiations do not bear fruit in the near future, then a deepening of the NAFTA relationship may be the easiest avenue toward the improved economic efficiency required to meet increased competition from China, Brazil, and elsewhere. Finally, a successful conclusion of the Doha Development Agenda is likely to place additional constraints on agricultural policies, which might facilitate moves by the NAFTA countries to reduce expenditures on trade-distorting support programs.

Strategic Trilateralism

The NAFTA governments are already pursuing the strategic bargain suggested by Dobson, and this approach has the potential to make important contributions to integration if pursued in a sustained fashion. Over the past several years, the NAFTA governments have worked to provide a stronger trilateral structure for the programming and implementation of policy coordination, with an eye on the much broader economic and security dimensions of the Canada-Mexico-US relationship. In March 2005, the NAFTA governments unveiled the Security and Prosperity Partnership for North America (SPP), in which they pledged to "develop new avenues of cooperation that will make our open societies safer and more secure, our businesses more competitive, and our economies more resilient" (Joint Statement by President Bush, President Fox, and Prime Minister Martin). Ten different working groups operate under the SPP's umbrella, and one of these is responsible for agrifood issues.

An implicit part of the strategic bargain is the notion that economic integration will be driven primarily by market forces and private interests. Thus, the formal role of the NAFTA governments in agrifood integration currently is limited to regulatory coordination, dispute settlement through existing NAFTA and WTO panel processes, and ad hoc arrangements to address specific agrifood issues.

Strategic Trilateralism in the Direction of a Customs Union

This approach assumes that the NAFTA governments do not immediately pursue the establishment of a customs union but instead make trade policy changes in concert that would approximate the circumstances of a customs union. Such an initiative would involve the harmonization of selected external tariffs, the elimination of some but not all rules of origin, and attempts to harmonize domestic policies. Harmonization does not imply that policies are identical, but it might represent mutual recognition of each of the other country's procedures. It might involve the creation of NAFTA-specific institutions without strong supranational powers, such as an organization to coordinate animal and plant health issues or a joint economic analysis unit. It might also involve a series of sectoral accords where integration would proceed more quickly in some industries, on either a bilateral or trilateral basis. One goal of this approach would be to lay the groundwork for the creation of a customs union at some point in the future.

A Customs Union

A customs union could be either "shallow" or "deep." A shallow customs union would require the adoption of common external tariffs, elimination of rules of origin on NAFTA trade, and the elimination of the remaining tariff barriers on agrifood trade. A deeper customs union would have common rules concerning administered protection (i.e., antidumping and countervailing duties) that apply to third country trade but not to NAFTA trade, agreement on the sharing of revenues obtained from tariffs and administered protection, and a common approach to the trade preferences extended to developing countries. Formation of a customs union in North America would require the NAFTA countries to address some difficult issues, including the treatment of Cuba, the harmonization of tariff rates with developing countries where the NAFTA members have established preferential tariff regimes, and the need to create at least some new supranational institutions.

A Common Market

Creation of a North American common market would require the free flow of goods, capital, and people within the NAFTA region, as well as the establishment of common economic policies and supranational institutions. Through their trade and investment provisions, CUSTA and NAFTA have done a great deal to facilitate the free flow of goods and capital among the NAFTA partners. But the prospects for formally integrating the labor markets of the NAFTA countries and thus achieving a common market in the immediate future are dim. Immigration reform is a highly contentious issue in the US, and the comfort level of Canada

and Mexico with a unified labor market has not been established. These arguments lead us to the conclusion that strategic trilateralism in the direction of a customs union – where deeper economic integration is achieved by the NAFTA countries without undermining political autonomy – is the most realistic short-term alternative for achieving greater integration in the North American agrifood sector. This would involve unilateral moves by individual NAFTA members that are consistent with the formation of a customs union and cooperation in areas where there are mutual gains. The remainder of this chapter focuses on what we see as essential and doable within such a strategic bargain.

TRADE POLICY

Trade flows are the most obvious conduit for further integration. Since most of the gains associated with tariff elimination and the reduction of trade barriers among the NAFTA countries have already been achieved, any further improvements in efficiency would require deeper integration. A movement toward the next level of integration, a customs union, would entail the adoption of a common external tariff, harmonization of external trade policies, the sharing of customs duties, and compatible customs procedures.

A common external tariff would have two broad effects. First, lowering external tariffs to the lowest level among the three members would increase efficiency. Second, a common external tariff would eliminate the need for rules of origin and the transactions costs associated with those procedures. All free trade agreements (FTAs) have rules of origin in order to prevent non-member countries from taking advantage of the concessions made by the FTA's members by exporting goods to the member country with the lowest tariff and then transshipping those products to the member countries with higher tariffs. Restrictive rules of origin increase administrative costs, complicate border inspections, decrease trade and investment, and lessen the predictability of the policy environment for cross-border economic activities (Goldfarb).

Rules of origin are costly because governments incur administrative costs to implement them and traders incur compliance and extra production costs to meet their requirements. Some exporters choose to pay the nonpreferential Most Favoured Nation (MFN) duties rather than incurring the extra costs of proving origin. In a study of a potential customs union involving Canada and the US, Ghosh and Rao find that eliminating NAFTA's rules of origin in all sectors could increase Canadian GDP by 1.1 percent and US GDP by 0.1 percent.⁵ The same study finds

⁵ The model captures the allocative inefficiency of diverting trade from nonNAFTA members to members, thereby distorting input choices from low-cost to high-cost sources. To capture these inefficiencies, the authors lower the MFN rates to the NAFTA rates in Canada, Mexico, and the US. The average reductions are 2.11 percentage points in Canada, 0.6

that the largest impact from a customs union comes from removing restrictive rules of origin (82 percent of the total effect) rather than harmonizing tariffs (18 percent of the total effect).

However, we are not convinced that rules of origin are an important impediment to NAFTA agrifood trade. We suspect that rules of origin are only a minor problem in agricultural trade because most agricultural products are produced with inputs that are sourced within the NAFTA region. An agricultural product is specified to originate in the NAFTA countries when it is grown, harvested, wholly produced, or substantially transformed there. For agricultural goods, substantial transformation occurs when processing causes a product to shift from one tariff classification to another (US Department of Agriculture, Foreign Agricultural Service, 2005).⁶ A number of food and agriculture-related products, however, face potential problems with rules of origin: peanut-based products, sugar-based products, dairy products, vegetable oils, citrus juices, manufactured tobacco products, and textile fibers.

The NAFTA tariff utilization rate is the proportion of the trade of a product that takes place using NAFTA preferences divided by total trade of that product between two NAFTA members. Several studies – Kunimoto and Sawchuk (2005); Goldfarb; and Cadot et al. – provide estimates of utilization rates for agricultural products that are less than 75 percent. Low utilization rates may indicate that exporters are avoiding the added transaction costs of complying with rules of origin. However, given the calculation method used in these studies, low utilization rates may also reflect a large number of MFN duty free imports in the denominator of the utilization ratio. Our understanding is that if MFN imports not subject to duties are removed from the calculation, the utilization rates will approach 100 percent – indicating that the costs of complying with rules of origin are not a significant trade barrier.⁷

How feasible is it to move to a common external tariff? The practicality of this reform depends on the number of tariff provisions that the NAFTA members would reconcile. Coordination would involve aligning: 1) MFN tariffs across the three member countries; 2) the generalized preferential tariffs that are applied to developing countries; 3) FTAs that members have signed with countries outside NAFTA; and 4) special rates applied to countries with which members do not maintain normal trade relations.

percentage points in the US, and 5.72 percentage points in Mexico.

⁶ This definition of substantial transformation is less restrictive than other criteria such as minimum value added and other detailed technical requirements. On this basis, the rules for agriculture are less restrictive than for other sectors.

⁷ Discussions with John Wainio, senior agricultural economist with USDA's Economic Research Service, suggest utilization rates of 99-100 percent for US agricultural imports from Canada and Mexico. The use of NAFTA tariff utilization rates as a proxy for costs of rules of origin is not an effective measure to the extent that rules of origin cause trade diversion with respect to agricultural inputs away from third country markets.

Table 2.1: Selected MFN tariffs by member.

	Canada	US	Mexico
Live cattle	0%	1%	15%
Live swine	0%	0%	23%
Beef carcasses (fresh)	26%	26%	20%
Pork carcasses (fresh)	0%	0%	20%
Hams (fresh or chilled)	0%	0%	20%
Chickens (fresh/chilled)	238%*	5%	240%
Butter	299%*	91%*	20%
Cheddar	246%*	38%*	20%
Wheat	1%**	3%	67%
Corn	0%	0%	198%*
Barley	1%**	2%	118%*
Potatoes	1%	2%	251%*
Apples	0%	0%	23%
Raspberries	0%	5%	23%
Soybeans	0%	0%	15%
Canola/rapeseed	0%	2%	0%
Sugar beet/cane	6%	90%*	100%
Crude soyoil	%	19%	10%
Crude rapeoil	6%	6%	10%
Malt extract	36%	10%	10%
Uncooked pasta	0%	0%	10%
Strawberry jam	13%	2%	45%
Other peanuts	6%	132%*	23%

Source: Inter-American Development Bank (IADB).

Notes: * Over-quota tariffs.

** In-quota tariffs.

Specific tariffs have been converted to *ad valorem* equivalents by using unit import values.

The more coordinated the MFN tariff lines are between member countries, the easier it should be to convert to a common tariff structure. Canada's average MFN tariff is 4.4 percent versus 4.6 percent for the US. Furthermore, many of the MFN tariff lines involve duty free trade (49 percent of Canadian tariff lines and 35 percent of US tariff lines) (Kunimoto and Sawchuck 2004). So from an aggregate perspective, Canada and the US do not have a great distance to go in forging a common schedule of MFN tariffs. However, the devil is in the details, with over 8,000 tariff lines that would have to be reconciled.

As always, agriculture presents an obstacle to liberalization. The largest tariff differences among the NAFTA countries are in agricultural

Table 2.2: Simple average tariffs by chapter (2002).

Chapter	Category	Canada	US	Mexico
1	Live Animals	1	1	14
7	Edible vegetables and roots	3	9	19
8	Edible fruits and nuts	1	5	22
9	Coffee, tea	1	1	26
10	Cereals	14	2	49
11	Product of milling industry	4	4	21
12	Oilseeds	1	8	7
15	Animal / vegetable fats and oils	5	1	21
16	Preparations of meat	17	4	23
18	Cocoa and cocoa preparations	4	6	19
19	Preparations of cereals, flours	4	9	16
20	Preparations of vegetables	6	11	23
21	Misc. edible preparations	7	8	33
22	Beverages, spirits and vinegar	7	2	27
24	Tobacco and products	7	91	51

Source: Inter-American Development Bank (IADB).

products. Table 2.1 illustrates some of these differences for a selection of commodities. Although dairy is an import-sensitive sector in both Canada and the US, Canadian dairy tariffs range from 200 to 300 percent, while US tariffs are less than 100 percent. The US and Mexico each treat sugar as a sensitive product with tariffs roughly equal to 100 percent, compared with six percent in Canada. Both Canada and Mexico treat poultry as a sensitive sector, with tariffs roughly equal to 240 percent, compared with 5 percent in the US. Other sensitive sectors are unique to the member country: US peanuts (130 percent) and tobacco (350 percent), and Mexican maize (200 percent). Aggregating tariff lines reduces some of the differences among the NAFTA members, but even at the two digit HS tariff chapter level, significant differences persist in the MFN tariffs. Table 2.2 illustrates simple averages of the *ad valorem* tariffs for selected tariff chapters.

Large differences in MFN tariffs are not the only challenge that a common trade policy regime would present; negotiators also would have to harmonize the entire tariff rate quota (TRQ) mechanism for sensitive products. This would involve establishing a common quota volume and reaching agreement on administering preferential access. Mexico notified 11 TRQs to the WTO, Canada notified 21, and the US notified 54 (WTO, 2000). Table 2.3 illustrates the number of products that have been notified as TRQs by each NAFTA member.⁸ The beef sector is an example of a partially coordinated trade policy by Canada and the US. Both countries

⁸ Each “product” in table 2.3 might have several tariff lines associated with it.

Table 2.3: Tariff rate quotas by country.

Canada	US	Mexico
Broiler hatching eggs	Beef	Poultry meat
Chicken, live and meat	Milk and cream	Pig and poultry fat
Turkey, live and meat	Butter	Dried milk
Beef and veal	Dried milk	Hard and semi-hard cheese
Fluid milk	Dairy mixtures	Potatoes
Cream	Evaporated/condensed milk	Beans
Concentrated milk	Dried whey	Wheat
Yogurt	Butter oil substitutes	Barley
Powdered buttermilk	Cheese (8 types)	Corn
Dry whey	Green whole olives	Coffee
Other milk constituents	Peanuts	Sugar
Butter and dairy spreads	Sugars, syrups and molasses	
Cheese	Raw cane sugar	
Other dairy	Cocoa powder	
Ice cream	Chocolate crumb	
Eggs and products	Infant formula	
Wheat	Mixes and dough	
Barley	Peanut butter and paste	
Wheat products	Satsuma	
Barley products	Mixed condiments	
Margarine	Ice cream	
	Animal feed containing milk	
	Tobacco	
	Cotton	

Source: World Trade Organization (WTO).

have notified a beef TRQ to the WTO and employ an over-quota tariff of 26.5 percent. It would be possible, but not easy, to establish a common quota volume. However, as there is only partial overlap in the number and types of TRQs, aligning these measures across members would be problematic.

Given the significant problems associated with negotiating market access for sensitive agricultural products at the WTO, it is unlikely that any form of complete MFN tariff harmonization or a common approach to applying and administering existing TRQs would be possible. Harmonizing preferential tariffs applied to developing countries complicates the development of a common external tariff because Canada and the US provide preferential access to different sets of developing countries. Furthermore, the countries where Canada and the US do not maintain normal trade relations also differ: Canada does not have normal relations with Libya and North Korea; while the US lacks normal relations with Cuba and North Korea.

One of the biggest problems with harmonizing trade policies involves the many different FTAs that the NAFTA members have negotiated. All three countries have signed FTAs with Chile, Costa Rica, and Israel, but these agreements contain different obligations. Mexico has the broadest set of FTAs including the European Union, the European Free Trade Association, and Japan. It also has signed bilateral agreements with Chile, Bolivia, Costa Rica, and Nicaragua; with Venezuela and Colombia; and with Guatemala, Honduras, and El Salvador. The US has negotiated FTAs with Australia, Bahrain, the countries of the Central America Dominican Republic Free Trade Agreement (Costa Rica, Dominican Republic, Guatemala, Honduras, Nicaragua, and El Salvador), Chile, Jordan, Morocco, Oman, Peru, and Singapore, and it is negotiating additional agreements with Colombia, Ecuador, Malaysia, Panama, the South African Customs Union, South Korea, Thailand, and the United Arab Emirates. A full customs union would require the reconciliation of the rules of origin used in each FTA.

A common trade policy is not the only method to facilitate trade flows between member countries. Another approach would be to streamline and reduce the need for routine customs clearance. Concerns with national security and increased vigilance can impede trade flows and everyday commerce. To reduce the possibility of this occurring, the US secured “Smart Border” agreements with Canada in December 2001 and Mexico in March 2002. Although these documents are largely action plans for identifying and addressing risks, several specific programs are involved. The Advance Commercial Information (ACI) program is a Canadian program that requires the electronic provision of information about incoming air and marine cargo shipments to the Canada Border Services Agency 24 hours in advance of shipping. The Free and Secure Trade (FAST) program, which involves all three NAFTA countries on a bilateral basis (Canada-US and Mexico-US), streamlines border crossing for low-risk commercial traffic. The FAST program facilitates the movement of preapproved goods across the border through preapproved importers, carriers, and registered drivers. Inspections and compliance are established away from the border. The intent of FAST is to reduce uncertainty and accelerate the process of clearing the border while reducing the cost of compliance (Canadian Border Services Agency). Preclearance programs that move the point of inspection to the location of production should free up border inspection resources for policing security issues. To date, however, there is not much information on the efficacy of the preclearance program.

Is further integration with respect to harmonizing trade policy possible? At their annual meeting in 2006, the NAFTA trade ministers called for a review of measures to improve the benefits that duty free access can

provide. Included among the measures under review are rules of origin. The NAFTA Working Group on Rules of Origin has already made progress in reforming these measures over the last two years, and further reforms are expected (US Department of State). In terms of a common external tariff, the NAFTA countries already have a de facto sectoral customs union with respect to certain data-processing equipment so that exporters do not have to establish the origin of their products (Goldfarb).

With these promising antecedents, what degree of integration can be expected? Since there are a number of trade sensitive sectors in both manufacturing and agriculture, a sectoral approach is probably the best that can be expected. Where tariff rates are close and reform is politically feasible, it may be possible to develop a common trade policy. In beef, Canada and the US already have a common external tariff. Further reform could include harmonizing TRQs or creating a common tariff for other meats in addition to beef. Where public policy might be the most useful is in streamlining border procedures. If border security costs create large impediments to trade, the incremental gains from a customs union may be small. Moving inspections back from the border could free resources for increased border security.

A North American customs union would almost certainly involve bringing those agricultural commodities excluded from NAFTA's original project of trade liberalization more fully into the agreement (Huff, Meilke, and Wigle). Eliminating tariff and quota restrictions on these commodities could take place gradually, perhaps over a 15-year period, and if this reform were to be pursued now, it would subject these commodities to competitive pressure within the NAFTA region prior to the end of the next round of multilateral trade negotiations. While this change would be fought by vested interests, it may be preferable to having these industries be unprepared for competition from outside the NAFTA region. Several possible alternatives are consistent with liberalization, and these are considered in more detail by Barichello, Cranfield, and Meilke.

DOMESTIC AGRICULTURAL POLICIES

The requirement to harmonize domestic policies is only associated with an economic union, so lower levels of integration such as a customs union do not require any attempt to synchronize policies. Gifford (p.34) states that "NAFTA is not predicated on common policies. Instead specific commitments are undertaken and it is presumed that members will make the domestic policy changes necessary to bring them into conformity with the trade agreement provisions." Nonetheless, ever since the signing of CUSTA, a number of commentators have called for some form of farm policy convergence. Part of the motivation for these calls to action is a perceived disparity in the level of support going to the farm sector of

Table 2.4: Value and composition of producer support in NAFTA, 2004.

	Canada		Mexico		US	
	Bil. Dol.	Percent	Bil. Dol.	Percent	Bil. Dol.	Percent
Value of Production	24.2		29.8		225.4	
Producer Support Estimate (PSE)						
Market price support	2.6	46.5	2.4	44.5	16.1	34.8
Payments based on output, area planted, animal numbers or input use	1.3	22.3	1.8	33.1	15.5	33.4
Payments based on historical entitlements or input constraints	0.6	10.2	1.2	22.4	12.8	27.6
Payments based on overall farming income	1.2	20.7	-	-	2.0	4.3
Other	0.1	0.3	-	-	-	-
Total PSE	5.7	100.0	5.4	100.0	46.5	100
General Services Support Estimate (GSSE)						
Research, development and agricultural schools	0.5	29.8	0.3	41.0	2.8	8.1
Infrastructure	0.4	21.0	0.1	10.7	6.0	17.5
Marketing, promotion and inspection services	0.9	49.2	0.4	47.3	22.8	66.7
Other	-	-	0.0	1.0	2.5	7.7
Total GSSE	1.8	100.00	0.8	100.0	34.1	100.0
Total of PSE and GSSE	7.5		6.3		80.6	
PSE (percent of total)		21.0		17.0		18.0
GSSE (percent of total)		7.4		2.7		15.1

Source: OECD, 2005.

each NAFTA member (Loyns, Knutson, and Meilke 1995, 1998; Loyns, Meilke, and Knutson; Loyns et al. 1997, 2001; Thompson). This raises several questions:

- 1) Are support levels dramatically different among NAFTA members?
- 2) If support levels are different, does it matter to integration?
- 3) What are the pressures for and against policy harmonization?
- 4) Is the harmonization of domestic agricultural policies practical?

The usual measure of farm subsidies is the Producer Support Estimate (PSE) prepared by the Organization for Economic Cooperation and Development (OECD 2005). In 2004, Canada provided its farmers with support and protection equal to 21 percent of the farm value of production; comparable numbers for Mexico and the US were 17 and 18 percent, respectively. Table 2.4 describes domestic support of the NAFTA members. The aggregate transfer includes a number of measures which may or may not be directly received by farmers and may or may not affect production decisions. The OECD disaggregates the support estimates to provide a better indicator of how government programs may affect production and markets.

First, the General Services Support Estimate (GSSE) is an annual monetary transfer to agriculture but not to individual producers. This transfer is generally associated with the provision of services whose benefits are broadly shared such as research, inspection, marketing,

and promotion. These programs are frequently associated with Annex 2 of the WTO Agreement on Agriculture (alias the “green box”), since the measures are generally assumed not to affect production decisions directly and are considered to be minimally trade-distorting. Table 2.4 shows that the absolute level of GSSE spending is considerably higher in the US than in Mexico or Canada, even on a proportional basis. Provision of these goods lies at the heart of a nation’s sovereign right to develop policy and deliver programs. While there may be economies of scale resulting from common NAFTA funding and delivery of agricultural services with broad benefits, harmonization in this area would require close cooperation among the NAFTA governments in an area where they have rarely worked together in the past.

The PSE consists of two elements: 1) the difference between domestic and world prices multiplied by the amount of the commodity produced (market price support), and 2) budgetary transfers. In aggregate, Canada and Mexico have higher shares of market price support than the US, but the distribution of budgetary transfers versus market price support varies by commodity (table 2.4).⁹ Typically, trade analysts view the discipline of market price support in a multilateral context as an issue to be dealt with by the domestic support and market access disciplines of the WTO Agreement on Agriculture. For this reason, it is unlikely that the effects of policy instruments, as measured by market price support, would be addressed through integration efforts of a regional trade agreement. However, a common external tariff should significantly help to harmonize the effects of market price support.

Budgetary transfers are paid to farmers based on “what they produce, the area of land farmed, or to input suppliers to compensate them for charging lower prices to farmers” (OECD 2004, p.4). These payments either can be based on current utilization or on historic rates or entitlements. Payments based on historic levels cannot be affected by producer behavior and the logic is that farmers should not change their behavior to get more of these payments. As a consequence, these fixed transfers have been recognized as potentially less distorting (WTO Agreement on Agriculture, paragraph 6, Annex 2). Roughly one-third of US transfers are based on historic entitlements (table 2.4). A smaller share of Mexican and Canadian transfers are based on this fixed criteria (22 and ten percent, respectively). In Canada, policy reform has involved moving away from commodity specific programs to payments based on overall farm income

⁹ US government expenditures are focused on grains and oilseeds, while livestock products receive little direct support (table 2.5). Mexican government support is likewise skewed towards crops with the 57 percent PSE for oilseeds being particularly high. Canadian government support for crop producers is generally well below that of the US. The high PSE for beef (25 percent) in Canada is atypical (up from 12 percent in 2002) due to government support programs that responded to the BSE crisis in 2003 (LeRoy, Weerahewa, and Anderson). All three countries provide considerable support to their milk producers, primarily through border measures.

Table 2.5: Producer support estimates, by commodity, 2004, percent.

Commodity	Country		
	Canada	Mexico	US
Corn	24	25	27
Oilseeds	16	57	24
Sugar	-	42	56
Wheat	13	24	32
Beef	25	7	4
Milk	52	29	39
Pork	8	2	4
Poultry	4	8	4

Source: OECD (2005).

(21 percent), while only a small share of the transfers are made as fixed historic entitlements (table 2.4). Mexico and the US transfer one-third of their payments either to current production or input use (table 2.4).¹⁰ Therefore each member has taken a different route to policy reform. Although subject to debate, many of the reforms move in the direction of being less distorting. But the routes taken by each country take different forms: generally available programs (Canada) versus fixed payments (US and Mexico). Therefore, convergence of policies is unlikely, given that the governments view their sovereign right to make policy as unalienable and consider their own reforms to have been in the right direction. The lesson that we take away from this review of support levels is that a country's philosophy towards farm policy, the instruments used to implement farm policy, and public perceptions will limit the potential to develop more common domestic agricultural programs under the NAFTA.

Even with institutional differences among the three countries restraining a convergence in policy, there are similarities that can contribute to an informal harmonization. Specifically, each government operates a "countercyclical" program that provides additional support when commodity prices (or net farm revenue, in the case of Canada) decline (Zahniser, Young, and Wainio). These programs do not just stabilize income; they also have a significant support element that transfers income to producers. Thus, significantly higher commodity prices over an extended period of time may reduce the size of countercyclical payments. The Food and Agriculture Policy Research Institute (FAPRI), which is traditionally conservative in its price projections, is forecasting a nearly 30 percent increase in the price of corn over the next five years. Much of the increase is predicated on rapidly expanding demand for corn by US ethanol producers, rising from 1.6 billion bushels in 2005/06 to 2.6 billion bushels in 2010/11, an increase of 66 percent.

¹⁰ The OECD recognizes these types of payments as more distortionary.

Stronger grain prices could provide an opportunity to modify farm programs and permanently lower support levels. Under FAPRI's assumptions, net outlays of the US Commodity Credit Corporation could fall from \$20.8 billion in 2006 to \$14.8 billion in 2011. However, what goes up in commodity markets can also come down, as the second half of the 1990s so rudely reminded farmers and agrifood policy-makers. The political willingness to impose permanent reductions in support on the agricultural sector has been difficult to maintain.

Another factor that could contribute to informal policy harmonization is a successful conclusion of the Doha Development Agenda. Improved market access and reduced tariffs should (somewhat) reduce the market price support element of each member's domestic support. Harmonization formulas for reduction of domestic support will target US domestic programs. To the extent that any new disciplines bite, the US may have to consider minor modifications to its agricultural policies.¹¹ Given the nature of the US and Canadian policy-making processes, any changes made to domestic agricultural programs are likely to be formulated and implemented on a unilateral basis. A new multilateral agricultural agreement is unlikely to force Mexico to modify its farm programs, as that country has ample room for additional expenditures under its current ceiling on trade-distorting agricultural support. In addition, Mexico designates itself as a developing country at the WTO. Thus, Mexican commodities classified as "special products" may be exempted from further tariff liberalization as part of a new agreement.

Over the next several years, the NAFTA governments will make substantial changes to their domestic agricultural programs. Only three years ago, Canada introduced the Canadian Agricultural Income Stabilization (CAIS) Program, and plans are now afoot to either reform or replace this program. The Mexican Congress is considering a legislative proposal that would create a new multiannual framework for Mexico's farm programs, and the country's new president, who took power in December 2006, may chart a new course in Mexican agricultural policy. US policy-makers are already working on the successor to the 2002 Farm Act, and in 2005, the US government solicited extensive public comments about the possible direction of this legislation.

None of the potential changes mentioned above resemble a movement by the NAFTA countries toward a common agricultural policy or even increased coordination of their domestic agricultural policies. Thus, farm policy initiatives in the immediate future are likely to be taken up on a unilateral basis. One unattractive option that NAFTA members could pursue would be to increase support on an individual commodity basis to the highest level provided by the NAFTA countries – a race to the top.

¹¹ Brink predicts that even with new disciplines none of them will bind.

Indeed, Mexico already is devoting greater resources to its countercyclical program, the Subprogram of Direct Supports to Target Income, which was implemented partially in response to the 2002 US Farm Act (Zahniser 2006). While a race to the top might be attractive to the recipients of such support, the major result would be higher asset values, higher cost structures, and potential conflicts with the disciplines of the WTO. Moreover, it might make the NAFTA countries less competitive with emerging low-cost suppliers of agrifood products in other parts of the world.

Given these considerations, possible policy modifications that could move the NAFTA countries in the direction of a customs union and make the region more competitive in the international marketplace include:

- 1) Common applied external tariffs on all agricultural and food products, with the possible exception of those commodities classified as “sensitive” in the WTO negotiations. This could be accomplished by reducing the applied tariff of each NAFTA country to the level of the lowest bound tariff among the NAFTA members. By keeping bound tariffs unchanged, no negotiating room in the WTO would be lost.
- 2) Gradual elimination of all domestic support tied to the current production of specific commodities or to the use of specific inputs, perhaps over a ten-year period. Making program expenditures on a fixed historical and perhaps declining base, as well as shifts to whole farm programs are possible elements of this approach.
- 3) Joint operation and cost sharing of programs relating to infrastructure, marketing and promotion, inspection services, and other areas. Such an effort would encourage industries in the NAFTA countries to consider the free-trade area as their relevant “domestic” market and non-NAFTA countries as their shared export market.
- 4) Cooperation in providing transition programs to farmers who are displaced by changes in farm policy. This effort could contain a special focus on poor rural households in Mexico.

DISPUTE SETTLEMENT

Specifying a mutually agreeable method to settle disputes was one of the more difficult aspects of the CUSTA and NAFTA negotiations. During the CUSTA negotiations, Canada sought a new trading regime that would have sharply limited the use of administered protection.¹² Canada was not successful in this effort, but in the “decision at midnight,” the two countries accepted the historic compromise of allowing binational panels

¹² AD actions are brought against firms in foreign countries that are selling in the import market at prices below those charged in the home country, or below their full cost of production including a margin for profit. A CVD action is brought by domestic producers against foreign producers who are alleged to benefit from unfair government subsidies.

to review administered protection rulings rather than national courts of appeal (Hart, Dymond, and Robertson). The issue was revisited during the NAFTA negotiations, but in the end, NAFTA essentially adopted the procedures found in CUSTA.¹³

Unlike the WTO, which has one dispute settlement “path,” NAFTA contains six separate dispute settlement processes, each of which is tailored to a different set of issues (table 2.6). Further complicating matters, some disputes are adjudicated at both the WTO and NAFTA, and in several instances, cases have been contested in both venues simultaneously. With respect to AD and CVD determinations, the NAFTA members retain the right to appeal findings either through the binational NAFTA panel process or through national appellate courts, but not both.

In order to limit this discussion, we focus our comments on the administered protection rulings that are the purview of Chapter 19 of NAFTA. Few economists view AD laws as having a solid grounding in economic theory, and the economists’ fan club for CVDs is not much bigger (Boltuck and Litan; Ikenson; Kerr; Meilke and Sarker; Stiglitz). Nevertheless, administered protection is enshrined in both NAFTA and the WTO. Public perceptions of the extent to which agrifood trade disputes arise among the NAFTA countries often do not match reality. Fortunately, there are two reviews of agrifood disputes (Wainio, Young, and Meilke [WYM]; and Barichello, Josling, and Sumner [BJS]) as well as Hufbauer and Schott’s general summary of all disputes to help set the record straight.

A starting point for addressing the effects of AD/CVD determinations is to ask how many products are currently subject to AD duties or CVDs. It may be surprising to some observers that as of 16 February 2006, the US had only eight AD/CVD orders in place against Canada (none of which were on agrifood products) and 12 against Mexico (only one of which was on agrifood, and that one was suspended). Contrast this with 60 orders in place against China (six on agrifood) and 20 orders against Italy (two on agrifood). Similarly, as of 31 March 2005, Canada had six orders in place against the US (three on agrifood) and two against Mexico (none on agrifood).

Of course, the number of orders in place at a particular point in time underestimates the economic costs of trade disputes because the number does not capture the expectations that a case will be filed, the cost of any preliminary duties imposed, and the huge legal expenses of defending against an administered protection case, even if the exporter “wins” the

¹³ Our discussion is limited to trade in goods. Trade in services, investment measures, and government procurement also figured prominently in the CUSTA negotiations. The importance of dispute settlement for agrifood products was an early concern, as illustrated by a conference held at the University of Guelph in 1987 (University of Guelph).

Table 2.6: NAFTA dispute settlement provisions.

Provision	Purpose	Use	Decision Method	Remedy
NAFTA, Chapter 11	To settle investor-state disputes over property rights	13 active cases, 12 previous arbitrations	Three member tribunal	Monetary relief to the winning party. Arbitral awards are final and national governments are required to enforce the findings.
NAFTA, Chapter 14	To settle disputes in the financial sector	None	Three member panel	Can suspend benefits in the financial services sector.
NAFTA, Chapter 19	To determine if antidumping and countervailing duty determinations by national administered protection agencies are consistent with their national laws. Procedure substitutes for appeals through national courts.	31 active cases, 77 completed cases	Five member panel	National administered protection agencies are required to reconsider their decisions in light of the panel's findings. Final compliance rests with the national administered protection agencies.
NAFTA – Chapter 19 – Extraordinary Challenge Procedure	Appeal process for Chapter 19 NAFTA panel findings. Grounds for appeal are: bias or gross misconduct by a panel member; panel seriously departed from a fundamental rule of procedure; or panel manifestly exceeded its powers.	3 completed cases	Three judges or former judges	The committee's decisions are binding and require reconsideration of national administered protection agencies decisions so they are not inconsistent with the panels ruling.
NAFTA, Chapter 20	To resolve government-to-government disputes regarding NAFTA's application and interpretation.	3 panels	Five member panel if it reaches arbitration	Panel offers non-binding recommendations.
NAFTA, North American Agreement on Environmental Cooperation	To mediate environmental disputes where there has been a persistent pattern of failure to enforce environmental law	No cases	Arbitral panel	Panel can require implementation of action plan to ensure enforcement of environmental laws. Failure to comply can lead to suspension of NAFTA benefits.
NAFTA, North American Agreement on Labor Cooperation	To ensure each member enforces its labor laws	31 cases submitted to national administrative offices	Committee of experts and an arbitral panel	Fines or suspension of trade benefits (Mexico and US) for disputes dealing with child labor, minimum wages, and occupational safety.
World Trade Organization	To determine if NAFTA members rules, procedures, and findings are consistent with WTO rules and commitments		Three person panel chosen from a permanent roster of persons who are not citizens of countries party to the dispute	Bring offending measure into compliance with ruling; pay compensation or face suspension of benefits.

Source: Hufbauer and Schott.

case. After examining the record of trade disputes between 1982 and 2002, WYM (pp. 1050-51) came to the following conclusions:

- 1) When trade in all goods is considered, the NAFTA countries were subject to far fewer investigations by other NAFTA countries than import shares might suggest.
- 2) The agricultural sectors of the NAFTA countries have utilized AD/CVD laws more frequently to contest imports from other NAFTA countries than to contest imports from nonmember countries.
- 3) Only 12 percent of investigations by NAFTA countries of nonagricultural imports were directed at other NAFTA countries, compared with 37 percent of investigations of agricultural imports.

Over a more recent time period (1989-2003), BJS (pp. 1-4) report these findings:

- 1) The annual number of Canada-US agricultural disputes was constant, but the ratio of the number of disputes to the value of bilateral agricultural trade fell by at least one-half.
- 2) As measured by complaints to domestic authorities, Canada-US trade disputes are disproportionately high in agriculture.
- 3) Although agriculture is fertile ground for trade disputes compared with nonagricultural trade, Canada-US trade is no more contentious than US and Canadian trade with other countries.
- 4) Most Canada-US agricultural disputes arise from competitive frictions rather than major policy or institutional differences.

The two reviews show that trade disputes among NAFTA members on goods trade are lower than their trade shares would predict, but that agriculture accounts for a disproportionately high number of the disputes. The explanation for WYM's finding that the NAFTA countries are more likely to contest imports from bloc countries and BJS's opposite finding is likely due to the inclusion of data from the early 1980s in the WYM study that is excluded in the BJS study. It is also important to note that some trade disputes involving a small subset of commodities never seem to go away. The most glaring example is the softwood lumber dispute between Canada and the US, which persisted for more than 20 years, prior to the market sharing agreement signed in September 2006.

Based on this summary, it could be argued that agrifood trade disputes among the NAFTA countries have been blown out of proportion. Using historical data for actual AD/CVD cases, it is difficult to identify an increasing level of protectionism. Unfortunately, it takes only a few high profile disputes to turn public opinion against freer trade. In addition, while the economic costs of trade disputes may be small in relation to the total value of trade, the costs can be devastating to the firms and

workers directly involved in those disputes. As Stiglitz notes, “the filing of harassment cases intended to impose purely temporary trade restraints and legal costs on foreign exporters...are particularly effective because of the asymmetries in legal costs borne by domestic plaintiffs and foreign defendants.” These actions threaten the goal of a free trade area where products are expected to move as easily among countries as they do within countries so that the benefits of trade and specialization can be fully realized.

For these reasons, it is important to examine current trade remedy laws to see if they could be modified to lessen their effects on trade flows. Three alternatives to the current dispute settlement provisions are discussed in rising order by degree of ambition: 1) quick fixes to current procedures; 2) a step beyond current procedures; and 3) total replacement of administered protection on NAFTA trade.

Quick Fixes to Current Procedures

The goal of Chapter 19 in NAFTA is to provide a more impartial and faster review of administered protection decisions than is possible using domestic courts. Under the rules of Chapter 19, panels have 315 days to submit their final decisions, but Hufbauer and Schott report that no panel has met this deadline and NAFTA decisions average around 700 days. Much of the delay revolves around the initial formation of panels. Drawing upon the work of Herman; Hufbauer and Schott; and Macroy, we identify several possibilities for making the dispute settlement provisions of NAFTA work faster and better.

First, there could be a single NAFTA Secretariat, a single NAFTA headquarters, and a common staff, funded by each member government. Second, there could be a mutually agreed roster of panelists that handles all NAFTA disputes and receives remuneration sufficient to attract the best minds. Third, to the extent that there are differences in the NAFTA members' interpretation and application of WTO administered protection laws, the Secretariat could work to help harmonize these views. Fourth, the NAFTA Secretariat could be bolstered by creating an economic analysis division, which would have as its objective the analysis of key economic policies in the member governments from a NAFTA perspective. Such a division would provide increased transparency of government actions and illuminate the trilateral effects of policy instruments. For example, a comprehensive trilateral analysis of grain and oilseed policies in the NAFTA members could contribute greatly to the policy debate in this area. The NAFTA economics division would have to operate at arms length from the member governments but be responsive to requests from member governments for research, as well as monitoring policy developments in each nation. If the member governments were willing,

all of these changes could be made quickly, make the current system work better, and not infringe in any way on national sovereignty.

A Step beyond Current Procedures

To move beyond the changes suggested above would require more than cosmetic changes to administered protection laws. A first step might be to negotiate a number of sectors that would waive their rights to use administered protection laws against NAFTA members.¹⁴ For example, it has been extremely rare for an agrifood trade dispute to involve a finished food product – an antidumping duty on US baby food shipments to Canada being a rare example. A second step would be to adopt WYM’s suggestions to “tweak” the administered protection rules as they apply to NAFTA trade by: 1) increasing the *de minimus* level; 2) increasing the level of negligible imports; 3) restricting the size of the duty to the level sufficient to address injury instead of the full amount of the dumping or subsidy margin (Moschini and Meilke; Van Duren); 4) changing the calculation of the duties to account for the subsidy practices of the industry bringing the case; and 5) requiring an evaluation of the impact of duties on the general interest of the free trade area.

A third step would be to develop different rules for agricultural products than for manufacturing products. Loyns (2006) argues that current AD rules are ill-suited for agriculture and should be set aside completely or modified to better fit the unique characteristics of agriculture. At the very least, these rules could take into account the fact that agriculture is a cyclical industry and that “dumping” prevails at the bottom of nearly every production cycle when the standard of comparison is market price versus the full cost of production. Since these cycles are common to the three NAFTA members and the likelihood of predatory pricing in primary agricultural products is small, major changes to AD rules could be implemented to limit their application to primary agricultural trade. The case for maintaining the right to levy CVDs is somewhat stronger because the farm subsidies of one NAFTA government can have harmful effects on producers in other NAFTA countries. The use of a higher *de minimus* standard and a higher threshold for establishing injury should sharply reduce the number of successful undertakings.

A fourth step that could reduce the number of administered protection cases and their associated economic costs would be to give the economic analysis division of the NAFTA Secretariat the power to determine if a case has enough merit to move forward and if preliminary duties should be collected. Although national administered protection agencies could still “try” the case, it would remove from domestic industries the almost

¹⁴ The actual negotiations would presumably involve tariff lines that would not be subject to administered protection actions.

unconstrained right to have their cases heard. This proposal is bound to be controversial since it would take power away from national administered protection agencies by ceding it to a supranational body.

Total Replacement of Administered Protection under NAFTA

Before NAFTA can evolve into a customs union, the member countries will have to eliminate the use of administered protection laws on intra-bloc trade. MacLaren and Josling suggest that a common competition policy is the logical replacement for AD actions. Currently, a Florida firm that ships tomatoes to Michigan can be engaged in a common business practice that is judged to be “unfair” if the product then moves across the border from Michigan into Ontario. If industries are organized on a NAFTA basis, as is the case with nearly all industries upstream and downstream from primary agricultural production, then concerns about anticompetitive behavior could also be tackled on a NAFTA basis using common definitions and rules concerning mergers, acquisitions, and anticompetitive behavior.

To convince the NAFTA members to give up antidumping measures and at least limit the use of countervailing duties, Hufbauer and Schott have suggested the creation of a special agricultural safeguard. The idea is a simple one: in the event of an import surge, a temporary “snapback” to some positive tariff level would be implemented.¹⁵ Such a safeguard would have several advantages: 1) there would be no requirement or need to judge the imports as “unfair;” 2) the rules and the remedy would be transparent; 3) if the exporting firm has control of the shipments, it could increase prices to avoid the imposition of the duty and capture the rents associated with the duty, rather than having the importer capture the rents; and 4) the snapback duties would be time-limited. A safeguard would address BJS’s contention that more trade disputes result from competitive frictions (import surges) than from policy differences.

Still, great care would have to be taken in specifying the parameters of the safeguard measure to ensure that it was less trade disruptive than the AD/CVD measures it was replacing. Two examples make this clear. The first deals with the definition of an import surge – should this be ten percent, 25 percent, or perhaps 50 percent? The second deals with the question of to what level the tariffs, many of which are currently zero, should snapback. The snapback tariff could be set equal to the importing country’s MFN tariff rate, but these rates are often very high for agrifood commodities, and in some instances they differ substantially across the NAFTA members.

¹⁵ The snapback provisions could also be triggered by a decline in import prices. Grant and Meilke analyze the use of a WTO special agricultural safeguard mechanism for developing countries.

REGULATORY COORDINATION¹⁶

The NAFTA governments have actively pursued regulatory coordination in the agrifood sector throughout the NAFTA period. The text of NAFTA specified the creation of an extensive set of committees and working groups, and several of these committees have focused on the coordination of regulatory issues concerning the agrifood sector, including the Committee on Sanitary and Phytosanitary Measures and its constituent working groups and the Working Committee on Agricultural Grading and Marketing Standards. Many of these committees and working groups continue to meet, and over the years they have made important contributions to economic integration. But the NAFTA governments also have pursued regulatory coordination in other venues, sometimes as a substitute for the NAFTA committees and working groups.

Green et al. identify two major approaches to regulatory coordination by the NAFTA governments. “Workaday cooperation” encompasses the day-to-day interactions of the NAFTA governments and usually features the rank-and-file staff and mid-level managers of the agriculture, environment, and trade ministries of each government. In contrast, “strategic bilateralism” describes the efforts of higher-level officials to provide more top-down leadership, sometimes by forming new organizational structures such as the consultative committees on agriculture and often in response to more contentious issues. Because regulatory issues tend to be bilateral in nature, “strategic trilateralism” has been less common than “strategic bilateralism,” and workaday cooperation usually involves only two countries at a time.

Given the complexity of the subject matter and the significant public health, environmental, and economic concerns at stake, regulatory coordination is rarely easy. But by bringing their collective expertise and leadership to bear, the NAFTA governments have accomplished much in the area of regulatory coordination for the agrifood sector.

Examples include:

- 1) a common trinational approach to the mitigation of risks associated with BSE;
- 2) a phytosanitary framework that allows for the export of fresh Hass avocados from certain municipalities in the Mexican State of Michoacán to the entire US by 2007;

¹⁶ Regulatory coordination was one of the main themes of the 2005 NAAMIC Workshop (Huff et al.). This section draws in part on a background paper prepared for that workshop by Green et al.

- 3) contingency plans by Canada and the US in case there is another outbreak of potato wart;
- 4) the sharing of scientific studies, administrative evaluators, and the like by pesticide regulators of the NAFTA governments (this practice is called “work sharing”); and
- 5) a memorandum of understanding between Mexico and the US that allows for the differentiated treatment of prospective Mexican cantaloupe exporters based on the producer’s food safety record.

As stated in the introduction, the NAFTA governments are striving to provide an even stronger framework for the programming and implementation of policy coordination through the Security and Prosperity Partnership for North America (SPP). As part of the SPP, the NAFTA governments established a Food and Agriculture Working Group, whose agenda encompasses seven major initiatives on regulatory coordination (table 2.7). The group’s activities are guided by a detailed work plan, replete with over 60 “milestones” to be accomplished, timelines, and status reports. These elements reflect a long-run vision (one to two years) of what the member governments intend to accomplish, a short-term plan of action (usually less than one year) that specifies and schedules the next steps to be taken, and performance standards and evaluations (the milestones and status reports) to assure that the long-term vision is fulfilled.

Progress in implementing the work plan varies by initiative, depending in part on the extent to which the initiative builds upon pre-existing activities and organizational structures. For instance, efforts to resolve differences in pesticide maximum residue limits and to conduct joint reviews of pesticides (initiative 1.3) are crisply defined and well on their way to completion, in large part because they incorporate activities of the NAFTA Technical Working Group on Pesticides, one of the working groups within the NAFTA Committee on Sanitary and Phytosanitary Measures. The SPP also draws upon pre-existing initiatives of the North American Plant Protection Organization (NAPPO) and the North American Biotechnology Initiative (NABI), two organizations whose activities overlap those of the NAFTA committees and working groups.

The funding concerns of one or more NAFTA governments are another factor that determines the direction and pace of regulatory coordination, with less well-funded initiatives tending to stall. The establishment of a plant health laboratory network to identify equivalent methodologies for the detection, identification, surveillance, and risk assessment of plant diseases and pests (initiative 2.2) has been put on hold due to funding uncertainties, and funding issues also have been raised about aspects of initiatives 1.1, 1.2, and 2.3. The challenge for the NAFTA governments is to be selective in setting the agenda for regulatory coordination, giving

Table 2.7: Initiatives and selected accomplishments and activities of the SPP's Food and Agriculture Working Group.

Initiative	Key Accomplishments	Selected Ongoing Activities
1.1. Establish or identify a North American food safety coordinating mechanism to facilitate the cooperative design and development of common standards (where appropriate), the review of existing food safety standards with a view to removing differences (where warranted and appropriate), and the sharing of information on food safety matters.	The Working Group assigned this task to itself (January 2006) and drafted a list of standards to review (March 2006).	In addition to reviewing standards, the Working Group is exploring ways to coordinate activities better within Codex Alimentarius.
1.2. Cooperate on a North American basis to speed up identification, management and recovery from food safety, animal and plant disease hazards.	Creation of harmonized North American import approach to management of BSE (June 2005). Completed propagative material standard for plant protection (October 2005).	Pilot program is underway to issue plant health certificates electronically. Countries are reviewing protocols for transit of animal products through another country and the designation of disease-free zones.
1.3. Resolve differences in pesticide maximum residue limits that may be barriers to trade and undertake joint reviews of pesticide registrations	Collaborative data collection on pest control products for "minor crops" (most fruits, vegetables, and nuts; September 2005).	Joint reviews of pest control products for "minor crops." Development of long-term trade-irritant-and-risk reduction strategy for pulses.
2.1. Work co-operatively within the established North American Foreign Animal Disease laboratory network to identify methodologies and recognize equivalent diagnostic performance and identification methodologies for select animal diseases, such as bovine espongiform encephalopathy (BSE) and Avian influenza.	Training course for Mexican laboratory diagnosticians on bovine tuberculosis (September 2005).	Contacts established to identify methodologies and recognize equivalent diagnostic performance for certain animal diseases.
2.2. Establish a plant health laboratory network to identify equivalent methodologies for the detection, identification, surveillance, and risk assessment of plant diseases and pests.	Initiative delayed due to funding concerns.	
2.3. Identify appropriate group or vehicle to facilitate implementation of food safety laboratory initiatives such as to assess and recognize equivalence, as appropriate, of analytical methods based on agreed method performance criteria and to enhance quality assurance for priority areas of food safety hazards	Implementation of Food Emergency Response Network course for microbiological and chemical disciplines (June 2005)	Identification of appropriate group or vehicle is underway. Participation of all three countries in general laboratory procedures and courses offered by Canada and Mexico.
3.1. Continue cooperative effort within North American Biotechnology Initiative (NABI) for initiation, coordination and prioritization of various biotech activities	NABI participants have discussed steps for pilot program for transboundary movement of genetically modified corn (September 2005).	Canada-U.S. regulatory exchanges to be expanded to include Mexico; training workshops to be held in Mexico for risk assessors.

Source: Security and Prosperity Partnership, Food and Agriculture Working Group.

priority to those projects that can be both feasible and have a meaningful impact, and in large part working within existing budget allocations. But the creation and operation of new trinational institutions to support regulatory coordination, such as the plant health laboratory network envisioned by the Food and Agriculture Working Group, is likely to require additional planning and perhaps an infusion of additional funds.

Even with the creation of the SPP, regulatory coordination by the NAFTA countries continues to be an exercise of national sovereignty and thus falls squarely within the strategic bargain outlined by Dobson. Each country retains the right to determine the appropriate level of protection for its

citizens and its plant and animal resources and to design and implement the measures necessary to achieve that level of protection. The big question regarding the future of North American regulatory coordination is whether the NAFTA countries would at some point be willing to entrust some aspects of regulatory coordination to a supranational institution. So far, the NAFTA governments have expressed little interest in such an endeavor.

IMMIGRATION AND THE LABOR MARKET

NAFTA has had an important direct and indirect impact on factor markets through the elimination of tariff and quota barriers, but the Agreement generally does not address the cross-border movement of people within the NAFTA region. One important exception to this rule is Chapter 16 of NAFTA, but that chapter focuses on the temporary visits of business persons and professionals and has nothing to say about the temporary visits of other workers or the more permanent moves of migrants. Judging from the hundreds of thousands of persons who travel from one NAFTA country to another each year for the purposes of employment, it is clear that the labor markets of the NAFTA countries already have undergone a substantial degree of integration. Because of public concerns about the size of legal and illegal immigration to the US and security concerns about the ease with which potential terrorists could enter the country, US policy-makers are considering major changes to immigration law and its enforcement which would affect this integration.

Cross-border movements of workers may be divided into three main categories: 1) persons who receive legal residency status from the host country; 2) persons who receive permission to work temporarily in the host country; and 3) undocumented migration. The latter category includes not only persons who entered a country illegally, but also legal entrants who obtain employment in violation of the terms of their entry visas. In each NAFTA country the laws and regulations governing immigration are by and large separate from NAFTA, and in most instances, they predate the Agreement.

Each year, the US and Canada grant legal or permanent residency to thousands of people from their fellow NAFTA countries. In Fiscal Year 2005 (October 2004-September 2005), the US granted legal residency to over 1.1 million people. Of these, 14 percent were born in Mexico and two percent were born in Canada (Jefferys and Rytina, p.3). Similarly, Canada granted permanent residency to nearly 236,000 people in 2004. The US was the country of origin for five percent of these individuals, while Mexico was the country of origin for less than one percent (Citizenship

and Immigration Canada). Not all of the persons who become legal residents intend to work in their host country, at least not immediately. Examples include spouses who do not work outside of the home, minor-age children, and senior citizens. Nevertheless, the long-term effect of granting residency to so many people is a substantial shift in labor from one NAFTA country to another. The largest component of these movements is people moving from Mexico to the US.

Both Canada and the US operate programs that allow for the temporary employment of nonimmigrant foreigners in the agrifood sector. In the US, the H-2A temporary agricultural program “establishes a means for agricultural employers who anticipate a shortage of domestic workers to bring nonimmigrant foreign workers to the US to perform agricultural labor or services of a temporary or seasonal nature” (US Department of Labor, Employment, and Training Administration). In Fiscal Year 2004, the US admitted over 22,000 workers as part of this program (US Department of Homeland Security, Office of Immigration Statistics, p.103). Thus, the H-2A program satisfies only a small portion of US demand for agricultural labor. In Canada, the government operates the Caribbean Commonwealth and Mexican Seasonal Agricultural Workers Program. More than 10,000 Mexicans participated in the program in 2002, generating some \$80 million in remittances. The terms of work under the program are not to exceed eight months at a time, although many workers participate from one year to the next. Producers of fruits, vegetables, and tobacco are among the program’s beneficiaries. In addition, the Mexican government instituted an agricultural visitor program in 1997 that allows Guatemalans to perform farm work in the State of Chiapas, which directly borders Guatemala. This program allows for multiple border crossings and seems to allow for the long-term employment of its participants (Secretaría de Gobernación, Instituto Nacional de Migración).

Of particular concern in the US are the substantial flows of undocumented migration, particularly from Mexico. Because undocumented migration is not legally sanctioned, there are no statistics available to measure the size of this phenomenon with a high degree of accuracy. A recent estimate placed the undocumented population in the US at roughly 12 million in March 2006 (about four percent of the total population), with 56 percent of undocumented persons originating in Mexico (Passel). In contrast, Canada’s undocumented population is estimated to be about 300,000 persons, or less than one percent of the total population. Few of these individuals are believed to be from Mexico. In turn, Mexico is a conduit for undocumented migration from other parts of the world, including Central America, and there are undoubtedly undocumented persons working in Mexico.

The number of undocumented persons employed by the US agrifood sector is not known with any greater precision. In 2005, US agriculture employed an average of about 1,047,000 farm workers, based on quarterly estimates from USDA's National Agricultural Statistics Service, and this number fluctuated from a low of 749,000 in January to a high of 1.3 million in July. Data from the US Department of Labor's National Agricultural Workers Survey suggest that about one-half of the hired labor force in crop agriculture is undocumented (Carroll et al., p.7). The food processing and food service industries are also believed to employ a substantial number of undocumented persons. In 1999, the US government implemented an initiative called Operation Vanguard with the aim to deport persons working without legal authorization in the meatpacking industry, but the operation was suspended following complaints from meatpackers, the Hispanic community, and the Social Security Administration (Migration Dialogue).

The US Congress is considering a number of legislative proposals in the area of immigration. These proposals share a common aim to restrict undocumented migration and the employment of undocumented migrants in the future, but they offer different approaches to the undocumented migrants who are already in the US (Martin). A bill passed by the House of Representatives in December 2005 – the Border Protection, Antiterrorism, and Illegal Immigration Control Act (H.R. 4437) – would not provide undocumented persons with any “amnesty” or legal residency (US House of Representatives), while several proposals advanced in the Senate would give them the opportunity to apply for guest worker visas and perhaps citizenship (depending on the proposal) under certain circumstances. As of December 2006, the House and the Senate had not yet forged a compromise.

For the undocumented workers who already work in the US agrifood sector and the firms that employ them, any change that would legalize their employer-employee relationship would have a number of benefits. Entering the US illegally can be a costly and dangerous undertaking. Over the last decade, thousands of persons from Mexico and other countries have died while trying to enter the US from Mexico. In Fiscal Year 2005, 472 persons perished in this fashion, according to statistics from the US Border Patrol (US Government Accountability Office). Many perils arise from the stark landscape – deserts, mountains, and rivers – that migrants traverse in order to avoid detection by US authorities. In order to increase their chances for success, many migrants hire the services of professional people smugglers known as “coyotes.” The charge for a coyote's services runs in the neighborhood of \$2,000 per crossing, and interacting with this illegal industry presents additional risks to the migrant, including rape, robbery, and abandonment. Thus, for undocumented migrants, gaining

the ability to work legally in the US would eliminate the transaction costs and tremendous dangers associated with illegal migration and facilitate casual trips by the migrant across the border to visit family and so forth.

For the employer, legalization would assure the continued services of their undocumented employees, for some time at least, and remove the possibility of legal sanctions for employing undocumented migrants, especially if the enforcement of immigration laws is intensified. Over the past year, a number of producers and producer organizations have expressed concern that they will not have sufficient laborers, particularly during key stages of the production cycle, and have cautioned against tighter immigration restrictions and more vigorous enforcement of immigration laws. Such concerns are not new, of course, and have been expressed for the better part of the last century. Nevertheless, some observers have cautioned that the competitiveness of some portions of the US agrifood sector stems from migrant labor (Green et al.).

There are several challenges in addressing the issue of undocumented migration. First, there is widespread acknowledgement among social scientists who study international migration that such migration is a cumulative process driven in part by the formation of migration networks (Massey et al.; Taylor; Sprouse; Zahniser 1999). A migration network consists of those persons among a prospective migrant's friends, relatives, and other contacts who possess the ability to lower the costs and risks of migration or to provide contacts with respect to employment, housing, and other subjects in the migrant's intended destination. Since successful migrants often become resources in this fashion for future migrants, a guest worker program or amnesty for undocumented migrants could quite possibly lead to additional migration – legal or illegal – in the future.

Second, the differences between persons on opposite ends of the US immigration debate are almost impossible to reconcile. On one extreme are persons who are highly critical of the large size of legal and illegal immigrant flows to the US. Many of these persons feel shortchanged by the current level of enforcement of immigration laws and are strongly opposed to any program that would extend legal immigration status to persons currently in the US illegally. On the other extreme are persons who have few reservations about granting legal immigration status to a large group of workers with extensive roots in the US. While there is room for policy-makers to forge an agreement, any bargain in the area of immigration law and its enforcement, strategic or not, is guaranteed to disappoint someone profoundly.

CONCLUSIONS

NAFTA is about to conclude one important phase of its existence and begin another. The implementation of NAFTA's agrifood provisions will be complete on 1 January 2008, so any subsequent actions to advance the process of market integration in the North American agrifood sector will have to come from something other than the text of NAFTA – actions that would form NAFTA Plus.

This chapter has examined several possible avenues for building NAFTA Plus in the agrifood sector, with the notion that work in some of these areas could form the strategic bargain among the NAFTA countries that Dobson suggests. During NAFTA's second decade, commercial interests are likely to lead further market integration in the North American agrifood sector, while government's main role is likely to be the creation of the physical, legal, and institutional infrastructure needed to facilitate the freer exchange of goods, services, and labor. Most of these actions are likely to be taken on a unilateral basis, but with close consultations and some coordination, they could move the member governments closer to establishing a customs union.

Agriculture will continue to be a difficult sector in which to make progress. This stems from the fact that some primary producers view their markets as being largely domestic rather than trilateral. In addition, protectionist sentiments run deep in each NAFTA country. Domestic agricultural programs were designed when agrifood trade among NAFTA members and international agrifood trade as a whole were a small fraction of what they are today. Still, at an aggregate level, the support provided directly to producers by the NAFTA members is similar, as are tariffs at an aggregate level. All three countries have devised income support programs that contain a countercyclical element and are at least partially decoupled from production decisions. It also appears that each member nation will be mounting a biofuels program in an effort to diversify away from petroleum-based products. In each of these areas, as well as in the development and funding of WTO "green box" programs, cooperation and consultation among the NAFTA members would seem crucial.

If the eventual goal is to form a customs union, the NAFTA countries need to begin the process of reducing external tariffs to the lowest level among the NAFTA members and to simplify rules of origin. In order to facilitate adjustment, the external tariffs for sensitive products might be initially exempted. These few remaining exceptions to free trade within NAFTA need to be addressed and brought into the fold, perhaps with a long phase-in period. Government support programs judged to be trade-distorting in the WTO will be under increasing international pressure for elimination, and the NAFTA countries could move ahead of the field

by eliminating these programs over the next decade. At the same time, transitional assistance programs should be examined carefully to see if they provide the appropriate amount and form of support required by individuals exiting the industry or adjusting to new market conditions (Barichello, Cranfield, and Meilke; Blabey; Orden).

With large and growing trade flows among the NAFTA members, trade disputes are bound to emerge. While a legitimate case can be made that the problems associated with trade disputes have been overblown, it is also true that a few high profile disputes have the potential to sour the entire trading environment and inflict large costs on affected industries. NAFTA contains a number of dispute settlement provisions and processes. Merging these processes into a single dispute settlement path, coupled with a NAFTA Secretariat and tribunals that are sufficiently funded to provide quality decisions in a more timely fashion, could help to ease tensions associated with integration. In addition, a NAFTA economic analysis division could examine economic problems and issues from a NAFTA perspective and provide greater transparency for complex agrifood policy issues.

Regulatory coordination will continue to be a challenging area, but there are a number of initiatives underway that have the potential to facilitate trade. It would appear that regulations will continue to be addressed primarily through workaday cooperation. Still, NAFTA's working groups need to receive support from senior officials and sufficient funding to make it possible for them to complete the tasks they are assigned.

Freer movement of labor among the NAFTA countries is controversial and concerns far more than the agrifood sector. At present, professional workers can move relatively easily among the member countries, while less skilled workers face huge barriers. Some types of primary agricultural production and food processing rely heavily on foreign, sometimes seasonal workers. Programs to facilitate the movement of these individuals among NAFTA members and at the same time reduce illegal immigration will again require cooperation.

Given the strong reservations of some North Americans about unifying the continental labor market and implementing a common agricultural policy, the idea of a North American common market is well ahead of its time. One should not forget, however, that many observers thought that a free trade area encompassing Canada, Mexico, and the US was out of the question not that long ago. If NAFTA eventually evolves along the lines of the European Union, first into a customs union and then into a common market, the agrifood sectors of Canada, Mexico, and the US will have many opportunities to play a proactive role in further integration.

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Brazil's Agrifood Exports: More Opportunities from NAFTA Expansion?



*Constanza Valdes, Elisio Contini, Ivan Wedekin,
and Arnaldo Chibbaro¹*

INTRODUCTION

Brazil enjoys a low-cost resource base for agricultural production and has easily raised output by expanding area and increasing productivity. Production expansion has exceeded the rate of increase in consumer demand. The domestic agrifood industry – production agriculture plus processing and distribution of food products – has undergone a process of rapid modernization, fueled by policy changes as well as capital inflows with accompanying transfer of new technology, and the development of supply chains. These changes have resulted in further reductions in production costs and greater efficiency, which in turn have increased exports. As a result, Brazil is an important trading partner and competitor of the NAFTA members and other Western Hemisphere countries.

Brazil's world trade position also reflects a sustained effort to expand trade and diversify its agrifood product trade and foreign markets. By playing an active role in the GATT Uruguay Round negotiations, through membership in the CAIRNS group, and the leadership shown in the Doha Round negotiations through the formation of the Group of 20 (G-20), Brazil has worked to liberalize global agricultural and food product trade.

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In addition to being a World Trade Organization (WTO) member, Brazil has several trade agreements in effect, including MERCOSUL (Southern Common Market Trade Agreement) and bilateral agreements with Peru, Cuba, Mexico, Trinidad and Tobago, Guyana, India, and the South African Customs Union. MERCOSUL, which was envisioned as a customs union among Brazil, Argentina, Paraguay, and Uruguay in 1991, led to the adoption of the Common External Tariff (CET), which applies to most goods.

Participation in the global, regional, and bilateral trade agreements noted above has led to varying degrees of harmonization of trade policies among the members, by reducing and/or eliminating trade barriers and harmonizing trade requirements. However, Brazil still remains blocked from important markets in the North American Free Trade Agreement (NAFTA) and East Asia regions due to sanitary and phytosanitary (SPS) restrictions. SPS restrictions have negatively impacted exports of nonprocessed meat due to the animal disease status of Brazil, while oilseeds are periodically denied entry into some import markets due to contamination with fungicides. The SPS restrictions faced by Brazil have resulted in faster development of the meat processing sector, thereby enabling greater exports of processed meats. Despite these constraints, Brazil is now the world's largest exporter of beef, poultry meat, sugar, ethanol, coffee, orange juice, and tobacco.

In line with the theme for the third annual North American Agrifood Market Integration Workshop to consider options for expanding NAFTA integration and the implications for trade, this chapter examines the impact on Brazil and NAFTA members from achieving broader economic integration under a NAFTA-Brazil regional trading agreement. In the scenario considered in this chapter, changes to exports and imports will be examined assuming elimination of tariffs and tariff-equivalents for agricultural commodities being traded among NAFTA members and Brazil in a manner that could be described as an augmented NAFTA with Brazil as a member and full implementation of the NAFTA. The focus of the analysis is on major traded products including soybeans, rice, wheat, other grains (predominantly maize), meats (beef, poultry, and pork meat), vegetables, fruits, nuts, and sugar. The analysis seeks to capture possible trade creation/diversion due to the implementation of a regional trade agreement between NAFTA and Brazil.

THE IMPORTANCE OF BRAZIL'S AGRIFOOD SECTOR

Over the past decade, Brazil has been consolidating its position as an important agrifood producer and major food supplier to international markets. Production agriculture accounted for ten percent of the country's gross domestic product (GDP) in 2005, but with the associated supply

Table 3.1: Brazil's agrifood exports and GDP, 1995-2005.

Year	Agrifood Exports (bil. \$)	Total GDP (bil. \$)	Per Capita GDP (\$)	Agricultural GDP (bil. \$)	Agriculture as a share of total GDP
					(percent)
1995	11.82	704.14	4,440.28	56.11	8.0
1996	12.94	774.86	4,806.96	58.51	7.6
1997	15.90	807.22	4,932.32	57.58	7.1
1998	14.61	787.35	4,739.12	58.18	7.4
1999	13.77	536.32	3,179.51	39.57	7.4
2000	12.75	601.94	3,515.92	42.78	7.1
2001	16.08	510.09	2,932.87	37.99	7.4
2002	16.79	460.12	3,604.32	35.86	7.8
2003	21.01	506.29	2,831.43	44.96	8.9
2004	27.30	603.86	3,326.21	54.57	9.0
2005	30.92	795.65	4,323.31	66.06	8.3
Growth Rates (%)					
1995-2005	8.59	-2.61	-3.48	-1.10	---
2000-2005	19.52	5.89	3.40	10.47	---

Sources: Banco Central do Brasil; Confederação da Agricultura e Pecuária do Brasil.

chain, the agrifood sector accounted for 28 percent of the country's GDP (Confederação da Agricultura e Pecuária do Brasil). The agrifood sector also generates 27 percent of total exports and employs 18 million people, equivalent to 37 percent of the labor force.

Agrifood exports and agricultural GDP have both grown faster than total exports and national GDP, respectively, since 1995 (table 3.1). Brazilian agrifood exports increased from about \$12 billion in 1995 to \$31 billion in 2005, with an annual growth rate of 8.6 percent. With devaluation of the currency in 1999 and 2001, total GDP declined, but has since rebounded, reaching \$795.65 billion or \$4,323 per capita. The share of agricultural GDP in total GDP rose between 2001 and 2004 and fell off a bit in 2005. Per capita income growth was negative during 1995-99, a trend that was reversed by economic reforms in 1999 (Gasques and Conceição).

POLICY REFORMS BRING MACROECONOMIC STABILITY AND FARM SECTOR EXPANSION

The rapid expansion of Brazilian agriculture and significant growth of the agrifood sector began to take place in the mid-1980s when the import-substitution industrialization policy regime, which channeled resources to the industries and services sectors to the detriment of agriculture, was abandoned. The economic liberalization policies adopted in 1985 sought

to eliminate domestic and export taxes on basic crops and livestock products and quantitative restrictions on soybeans and meat (beef, pork, and poultry) exports. The privatization of state enterprises and increased domestic support to agriculture also contributed to the sector's growth.

However, the most significant economic factor affecting agricultural output in Brazil since the mid-1990s was introduction of the successful "Real Economic Stabilization Plan." Before 1994, Brazil experienced inflation levels generally well above 1,000 percent a year. To halt inflation, a new currency, the Real, was introduced, which was initially pegged to the US dollar and later followed a "crawling peg" policy of nominal depreciation of the Real against the dollar. The "Real Plan" stabilized the economy, reducing inflation to around five percent per year and set off a domestic demand boom that lasted for five years. In early 1999, Brazil adopted a floating exchange rate. The Real depreciated considerably, making Brazil an attractive low-cost supplier of food and agricultural products. That stimulus led to rapid expansion in soybean and meat production. Producer incentives and other forms of domestic support also contributed to the growth of agriculture.

Total support for Brazilian agriculture has varied over time and included support to producers, provided mostly through preferential credit and some tax exemptions to the sector. The financing of general services to agriculture, such as storage, marketing, distribution, agricultural research, and infrastructure has also been beneficial to Brazilian agriculture. Some of these direct and indirect subsidies and economic incentives still differ at the local, state, and federal levels and across commodities and sectors. More recent measures of support have focused on marketing and storage subsidy schemes through the use of hedging operations with the government helping producers engage in hedging. A recent study by the OECD estimates producer support – measured by the Producer Support Estimate indicator – at three percent of farm income during the 2002-04 period, a level comparable to the support provided in Australia (four percent) and New Zealand (two percent), and well below the OECD average of 30 percent.

The macroeconomic reforms under the "Real Plan" and the resulting economic and political stability during the 1990s along with rising incomes and elimination of remaining barriers to foreign direct investment (FDI) facilitated the entry of multinational companies into Brazil. Since then, foreign investment in Brazil's agrifood sector has been significant. For example, in 2005, Brazil received 35 percent of all foreign investment in the Latin American region. The single most important source of FDI has been the United States due to the proximity of Brazil to the US and their complementary cropping seasons (Banco Central do Brasil). Total FDI flows into Brazil during 2004 to the agrifood sector totaled \$113 billion,

second only to China among developing countries. Central Bank data reveals that Brazilian food manufacturing industries are less dependent on foreign capital in comparison to other manufacturing industries.

The introduction of multinationals and acquisition and mergers with domestic companies gave rise to a very dynamic food processing sector in Brazil (Jank, et al.). The sector is now expanding beyond Brazil's borders. For example, in January 2004, Brazil created a partnership with a Jamaican company to develop a \$7.7 million ethanol project through which Brazil will produce sugarcane-derived ethanol for export to the United States. Similar plans for joint Brazilian ethanol projects in Trinidad and Tobago and in El Salvador have also been announced.

In addition to establishing demand for primary agricultural products for processing and exporting, multinationals stimulated investment in agricultural research and development of integrated supply chains that link inputs with commodity production and distribution. Multinationals have also contributed directly to production increases by granting credit to producers to buy inputs (fertilizers, seeds, and chemicals), alleviating some of the difficulties that Brazilian producers have in seeking credit from commercial banks.

BRAZIL URGES GLOBAL AND REGIONAL TRADE POLICY REFORMS

Brazil has been an active participant in world trade policy reforms, supporting establishment of the WTO, leading a group of developing-country exporters (the G-20) in their demands for further reductions in trade-distorting agricultural policies and, within the CAIRNS Group pushing for elimination of export subsidies for agrifood products. In addition to WTO-related trade policy reform, Brazil's active participation in regional trade integration is reflected by the signing of the 1991 MERCOSUL regional trade agreement with Argentina, Uruguay, and Paraguay.

In 2001, the MERCOSUL Agreement expanded to include Chile and Bolivia as associated members. Under the MERCOSUL framework, Brazil has also signed various bilateral economic complementation agreements (with Mexico in July 2002, the Andean Community in December 2002, Peru in August 2003, and the group formed by Colombia-Ecuador-Venezuela in December 2003), as well as various other bilateral trade agreements (with the Andean Community in August 1999, Cuba in December 1999, Guyana in June 2001, and Trinidad and Tobago in June 2001). As a MERCOSUL member, Brazil is also in the process of negotiating a trade agreement with the European Union (EU) that will include agricultural commodities. MERCOSUL has also signed a preferential trade agreement with India (January 2004) and is in the process of negotiating a trade

Table 3.2: Brazil's agrifood exports and GDP, 1995-2005.

	Brazil		Other MERCOSUL	
	Bound	Applied	Bound	Applied
Beef (fresh/chilled/frozen)	55.0	11.5	35.0	11.5
Beef (prepared)	55.0	17.5	35.0	17.5
Pork (fresh/chilled/frozen)	55.0	11.5	35.0	11.5
Pork (prepared)	55.0	17.5	35.0	17.5
Broilers (whole and parts, frozen)	35.0	11.5	26.0	11.5
Prepared chicken meat	55.0	17.5	35.0	17.5
Soybeans	35.0	4.8	35.0	4.8
Soymeal	35.0	7.5	35.0	7.5
Soyoil	35.0	12.8	35.0	15.4
Sugar (raw)	35.0	17.5	35.0	18.8
Sugar (refined)	35.0	17.5	35.0	28.8
Ethanol	35.0	21.5	35.0	21.5
Corn	48.3	9.5	35.0	9.5
Wheat	55.0	10.0	35.0	6.0
Rice	55.0	11.5	35.0	11.5

Sources: Banco Central do Brasil; Confederação da Agricultura e Pecuária do Brasil.

agreement with the South African Customs Union (SACU), which includes Botswana, Lesotho, Namibia, South Africa, and Swaziland.

The MERCOSUL Agreement established a CET for 85 percent of the 9,371 tariff line products traded between the partners (table 3.2). It also provided for a ten-year transitional phase for the Agreement to be fully implemented. Some sensitive products were exempted from the Agreement: sugar, automobiles and parts, capital goods, and communications equipment.

Despite Brazil's active pursuit of trade liberalization, the import tariffs of its trading partners remain fairly high (see figure 3.1). The global average applied tariff for agrifood products is 19 percent. There is, however, significant variation in applied tariffs for different product groups. The highest average rates are for products in which Brazil has an export interest, including tobacco, processed meats, and prepared food. Brazil's average agrifood applied tariff is 12 percent, about two-thirds the global average of all countries.

BRAZIL'S EXPORT PERFORMANCE EXCEEDS EXPECTATIONS

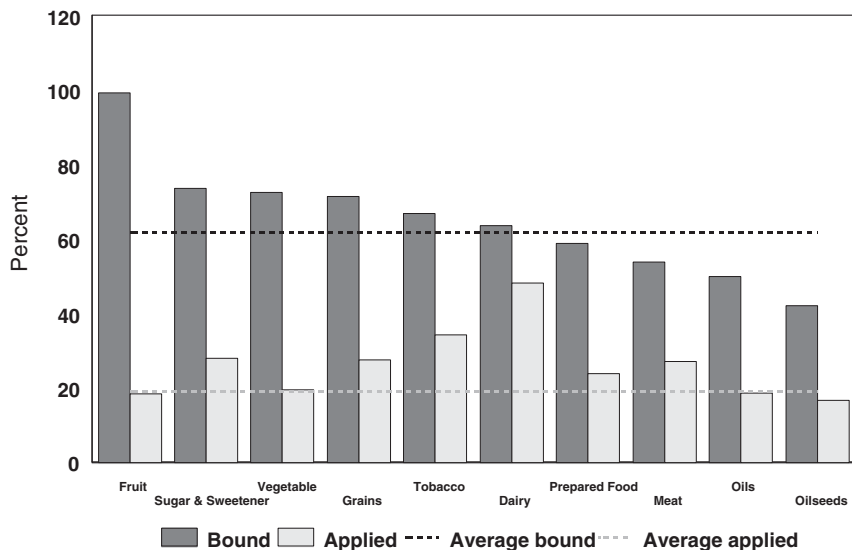
The combined effects of sound macroeconomic policies, reduced distortions in production agriculture, increased domestic demand for primary products due to the entrance of multinationals, and the subsequent competitive pressure on domestic companies have been positive factors

in Brazil's agrifood export performance. This performance is even more extraordinary when one takes into account the high tariffs on Brazil's imported production inputs (e.g., fertilizers, insecticides) and relatively high tariffs on Brazil's exported products in importing countries.

Brazil is now the third largest exporter (in value terms) of agrifood products in the world, after the EU and the United States. Exports of major commodities have grown at phenomenal rates since 2000 (table 3.3). This growth has been accompanied by changes in the direction and composition of agrifood exports, moving away from exports of tropical products such as coffee and orange juice, to processed products (meats, soybean products). As a result, in 2005, Brazil was the number one exporter of sugar, ethanol, coffee, orange juice, tobacco, beef, and poultry meat; the second largest exporter of soybeans and soymeal; and the fourth largest exporter of pork and maize. Major markets for Brazilian agrifood products are the European Union (34 percent share), China (eight percent), Russia (nine percent), and the United States (six percent).

Brazil's overall trade surplus in 2005 reached an all time high of \$42 billion, a 25 percent increase over a year earlier, with agriculture playing a major role. Brazil's agrifood sector accounted for over two-thirds of the 2005 trade surplus at \$27.5 billion (figure 3.2). An agrifood trade surplus of that magnitude makes Brazil the largest agricultural surplus trader in

Figure 3.1: Global agrifood product import tariffs.



Source: Regmi.^a

Note: ^a Tariff averages calculated using Agricultural Market Access Database and WTO Member-submitted *ad valorem* equivalent estimates.

Table 3.3: Brazil's dominance in world agriculture, 2005 rankings.

	World rank in exports	World rank in production	Global exports market share (%)	Exports in 2005 (million \$)	Annual Growth Rates 2000-2005 (%)
Sugar	1	1	42	3,919	20
Ethanol	1	1	51	766	79
Coffee	1	1	26	2,533	11
Orange juice	1	1	80	796	4
Tobacco	1	1	29	1,380	15
Beef	1	2	24	2,944	32
Poultry	1	3	35	3,770	31
Soybeans	2	2	35	5,345	22
Soymeal	2	2	25	2,865	13
Pork	4	4	13	1,252	40
Corn	4	3	35	121	48

Sources: USDA Foreign Agricultural Service; Global Trade Information Services data.

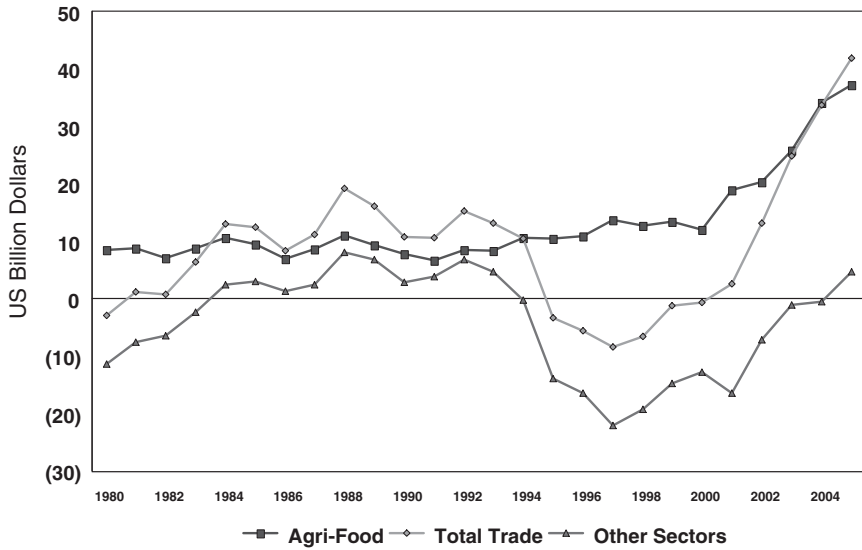
Notes: Harmonized codes: sugar (1701), ethanol (2207), coffee (0901), orange juice (2009), soybeans (1201), beef (0201/0202/160250), poultry meat (0207/160231/160232/160239) pork (0203/160241/160242/160249), soymeal (2304), corn (1005), and tobacco (2401). Rankings and market share include the EU-25.

the world (GTIS data). The value of Brazil's 2005 agrifood exports reached \$30.9 billion, led by soybeans and products, sugar, ethanol, beef, pork, and poultry. Brazil also imports commodities that it does not produce competitively, including wheat. However, the value of those imports was \$3.4 billion in 2005, equivalent to only 11 percent of the value of agrifood exports.

Agrifood trade includes primary bulk commodities, semi-processed products, horticultural products, and processed food products. Primary bulk product exports grew eight percent annually during 1997-2005, compared to nine percent annually for processed products and five percent annually for semi-processed products (figure 3.3). Horticultural products, which include fruits, vegetables, flowers, nuts, and spices, have grown at a rate of ten percent per year since 1997; however, the volume of horticultural exports is low as SPS regulations restrict access to foreign markets.

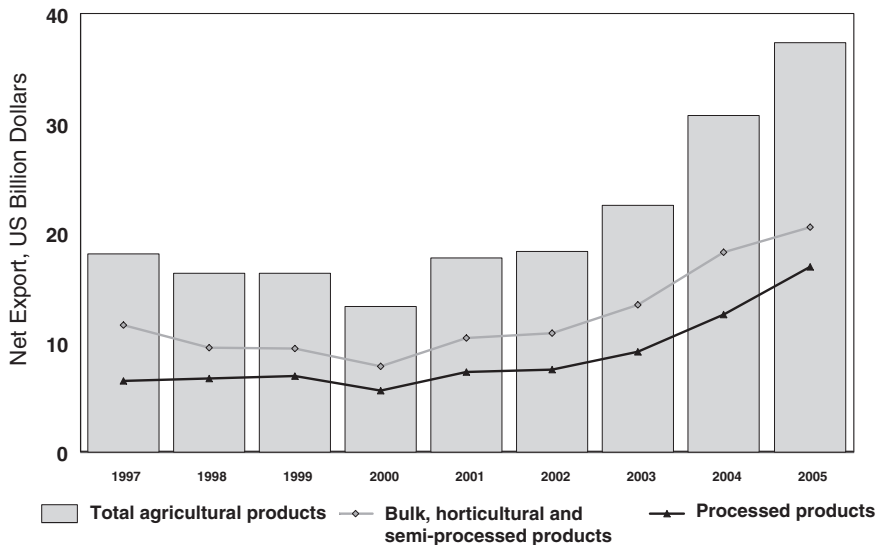
Since 2000, growth of Brazil's agrifood product exports has exceeded historical rates, with the value of processed agrifood product exports rising by an average of 20 percent per year. Between 2004 and 2005, the growth in exports of processed products accelerated even more, rising by 33 percent. This phenomenal growth has shifted historical trade shares dramatically, with processed agrifood products now accounting for 44 percent of agrifood exports and primary bulk commodities accounting for 25 percent.

Figure 3.2: Net trade balance of Brazilian exports.



Source: Calculations by USDA, Economic Research Service using Global Trade Information Services data.

Figure 3.3: Brazil's net unprocessed and processed agrifood exports.



Source: Calculations by USDA, Economic Research Service using Global Trade Information Services data.

AGRIFOOD PRODUCT PRODUCTION ENABLES AGRIFOOD EXPORTS

The strong growth in Brazilian agrifood exports was possible because production of major crops (soybeans, corn, rice, edible beans, and wheat) doubled between 1970 and 1990, and doubled again between 1990 and 2005, reaching an all-time high of 108 million metric tons (MMT) in 2005. Production of minor field crops (cotton, oats, bran, and millet) accounted for an additional 15.4 MMT in 2005. The growth of edible beans and rice – major food staples – followed population increases, whereas the growth in soybean and corn production was linked to rapid growth in feed demand and rising profitability of soybean production.

Increases in crop production during the 1980s and 1990s were due almost entirely to yield growth, whereas after 1999, when the new exchange rate policy was adopted and regional policies encouraged production of soybeans in frontier regions, growth in crop production was due almost entirely to the expansion of area planted (Brandão, Castro de Rezende, and da Costa Marques). Rising foreign demand for meats produced with soybean meal, paired with low production costs and favorable exchange rates resulted in historically high producer income from soybean production. In 2005, soybeans were planted on 23 million hectares (56.7 million acres) compared to 12 million hectares in the early 1990s. In 2005, Brazil produced 59 MMT (2.168 billion bushels) of soybeans, representing 26 percent of global soybean output. In the same year, Brazil's exports exceeded 35 percent of global soybean trade. The EU, China, Iran, and Taiwan are the largest customers for Brazilian soybeans.

In the case of soymeal, the United States, Brazil, and Argentina are the major exporters. Increases in Brazil's soybean meal exports are limited by strong growth in domestic meal consumption, due to rapid expansion of the poultry and pork sectors, and by capacity constraints in the domestic soybean crushing industry. The EU is the largest customer for Brazilian soybean meal, followed by Iran and Thailand.

In the case of maize, yields are low by international standards – below 7,000 kg per hectare – due to lack of commercial varieties suitable to Brazil's tropical climate. Maize continues to present poor prospects in the major producing areas of the agricultural frontier in the Center West where profits are extremely low due to high costs, poor roads, and poor infrastructure. As a consequence, poultry producers in some years have been forced to import maize to supplement scarce domestic supplies, jeopardizing Brazil's traditional net exporting position for maize.

In contrast, production of sugarcane and its products (sugar and ethanol) are major contributors to agricultural GDP – the total value of production

in 2005 was equivalent to 23 percent of Brazilian agribusiness gross income (Confederação da Agricultura e Pecuária do Brasil) and 15 percent of total agricultural export revenues. The growth in the sector resulted from the government mandated Proálcool program or Programa Nacional do Álcool (Brazil's national alcohol program), initiated in 1975 to regulate the ethanol content in gasoline. Simultaneously, credit and tax-exemption programs also spurred sugarcane production. As a result, Brazil is now the world's largest producer, consumer, and exporter of sugarcane, sugar, and ethanol. Brazil accounts for 60 percent of global raw sugar trade, 51 percent of world ethanol trade, and 38 percent of refined sugar traded internationally. Major Brazilian markets for raw sugar last year included Russia, Nigeria, Canada, and the United States. Major markets for Brazilian refined sugar included Middle Eastern and African countries, while major markets for Brazilian ethanol were the EU, India, and Japan.

With one of the world's largest commercial herds, at 170 million head, Brazil is the world's second largest commercial beef producer, yielding nearly eight MMT in 2004 compared with 11.3 MMT produced in the United States. Brazil's production system is based on grass with less than three percent of production located in feedlots. During the 2001-2003 period, Brazil was the fourth-largest beef exporter in terms of value, and the third-largest beef exporter in terms of volume. In 2004, Brazil became the world's largest beef exporter (by volume), surpassing Australia and the United States, with one-third in processed beef and two-thirds in fresh, frozen, and chilled beef. Total Brazilian beef exports represent 12 percent of the total value of Brazil's agricultural exports. Major Brazilian markets for fresh/chilled/frozen meats include the EU, Russia, Chile, Egypt, and Iran. Major markets for Brazilian processed meats are the EU and the United States.

SIMULATION OF NAFTA-BRAZIL TRADE LIBERALIZATION

To assess the likely agricultural production and trade impacts of tariff elimination among Brazil and the NAFTA countries, we simulate a hypothetical agricultural trade liberalization scenario using the Global Trade Analysis Project (GTAP) model developed by Hertel and Tsigas. The GTAP model is a global trade, comparative static, computable general equilibrium (CGE) model, which estimates production and trade effects in the base year – currently 2001. The model includes, among other sectors, rice; wheat; other grains (mainly maize); vegetables, fruits, and nuts; oilseeds; beef; other meats (poultry and pork meat); and sugar. Regional groupings used in this analysis include NAFTA members (United States, Canada, and Mexico), Brazil, other MERCOSUL members (Argentina, Uruguay, and Paraguay), MERCOSUL plus members (Chile and Bolivia),

Table 3.4: Average applied MFN agricultural tariff rates, used in the NAFTA-Brazil trade liberalization scenario.

	Paddy rice	Wheat	Other grains	Fruits, Vegetables, Nuts	Oilseeds	Red meats	Other meats	Sugar
NAFTA	6.00	3.10	0.18	1.55	4.84	4.11	3.21	53.51
Brazil	10.0	10.0	8.0	8.0	8.0	16.0	16.0	16.0
Other MERCOSUL	10.0	10.0	8.0	8.0	8.0	16.0	16.0	16.0
Chile and Bolivia	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Other Western Hemisphere	17.66	0.00	9.46	24.11	10.74	15.87	21.20	19.50
Rest of the World	4.70	0.99	96.62	9.58	31.81	75.37	17.31	25.09

Sources: GTAP database and USITC.

other Western Hemisphere (other Central and South American countries), and all other countries grouped in a “rest of the world” region.

The scenario employed simulates a hypothetical free trade agreement in agriculture between NAFTA members and Brazil. In this scenario, Brazil and NAFTA members eliminate import tariffs on agricultural goods traded between Brazil and NAFTA members while continuing to apply most-favored-nation (MFN) tariffs to goods from most other countries in the world. Specifically, the NAFTA members apply MFN tariffs to goods from all other countries in the world, including Argentina, Paraguay, and Uruguay (the other MERCOSUL members), while Brazil applies MFN tariffs to goods from countries that are not members of either NAFTA or MERCOSUL.

Quantitative restrictions between Brazil and NAFTA countries are eliminated by converting existing quotas to estimated tariff equivalents. The work of the US International Trade Commission (USITC), which calculates the gap between the US and world prices of raw sugar, serves as the basis for reforming quantitative restrictions in the scenario analysis. The average applied agricultural MFN tariff rates, as calculated for use in the NAFTA-Brazil trade liberalization scenario are shown in table 3.4. The analysis does not consider changes to domestic agricultural support policies that are likely to be adopted in response to trade liberalization.

The SPS restrictions in place during the base period between Brazil and each NAFTA member country are assumed to remain in place in the simulation. The effects of the SPS restrictions are implicit in the base-year trade flows for fruits, vegetables, and nuts (FVN); beef, and other meat (pork and poultry meat) and in the point-of-origin import demand elasticities. Since the SPS restrictions remain in place in the scenario, the results may overestimate Brazil’s trade export expansion.

The simulated trade impacts reflect trade creation – new trade among Brazil and the NAFTA countries that results from lower tariffs within the region and trade diversion – increased trade between Brazil and

Table 3.5: Percent changes in the volume of Brazil's exports from NAFTA-Brazil trade liberalization.

	Paddy rice	Wheat	Other grains	FVN	Oilseeds	Red meats	Other meats	Sugar
NAFTA	0.01	0.00	-0.02	3.40	8.81	27.12	5.80	1074.3
Other MERCOSUL	0.00	-0.02	-0.07	-1.31	-0.13	-0.88	-9.46	-0.86
Chile, Bolivia	0.00	0.00	-0.12	-0.01	-0.96	-6.18	-0.23	-0.03
Other W Hemisphere	-0.21	0.00	-0.37	-0.70	-4.09	-2.30	-3.50	-0.99
Rest of the World	-0.02	-0.03	-16.70	-8.40	-93.32	-68.43	-137.30	-61.83

Sources: GTAP simulation results.

Table 3.6: Percent changes in the volume of Brazil's imports from NAFTA-Brazil trade liberalization.

	Paddy rice	Wheat	Other grains	FVN	Oilseeds	Red meats	Other meats	Sugar
NAFTA	0.16	22.74	1.62	6.88	0.44	3.36	13.89	5.08
Other MERCOSUL	5.22	-15.84	0.45	1.69	2.39	2.91	-0.57	-0.29
Chile, Bolivia	0.00	0.00	0.00	0.01	0.00	0.01	-0.14	0.00
Other W Hemisphere	0.00	0.00	0.00	-0.01	0.00	0.01	-0.12	-0.02
Rest of the World	0.04	-0.04	-0.01	-0.09	0.01	0.03	-3.28	-0.74

Sources: GTAP simulation results.

NAFTA that takes place at the expense of trade with third countries such as the countries and country groupings in the Western Hemisphere and the rest of the world. The simulated impacts on exports and imports are summarized in tables 3.5 and 3.6, respectively.

The hypothetical NAFTA-Brazil trade liberalization scenario would reflect the sustained effort of both regions to expand trade and diversify their agrifood product trade and foreign markets. As Brazil faces reduced import tariffs from NAFTA members, it would increase its exports to NAFTA and divert trade away from nonparticipating regions in the Western Hemisphere, rest of the world, and to a lesser extent to other MERCOSUL members, which currently benefit from their preferential agreement with Brazil. NAFTA members would gain increased access to the Brazilian market with the elimination of Brazilian tariffs, with individual effects varying by commodity.

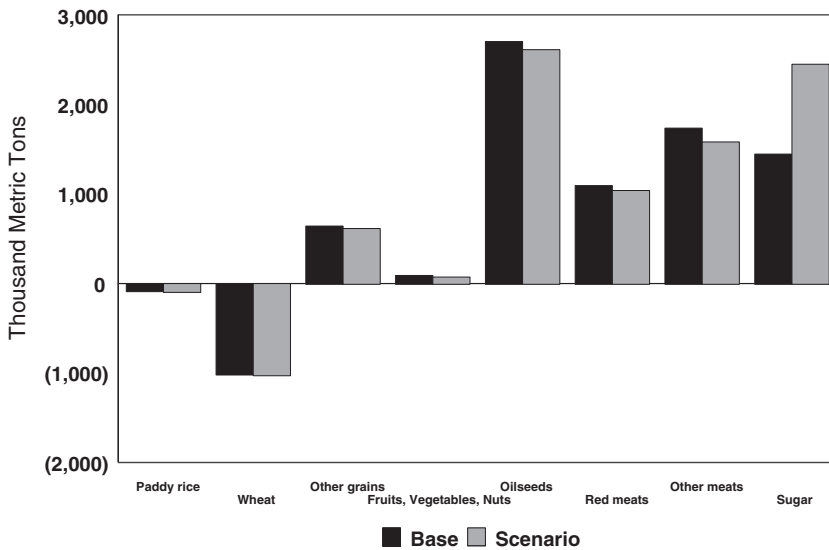
The hypothetical scenario of trade liberalization will give rise to changes in Brazil's crops, meats and processing sectors. As expected, elimination of the high tariffs applied to sensitive commodities by NAFTA members results in large increases in Brazil's exports of these commodities to the NAFTA markets and significant changes in the relative farm prices within Brazil. Conversely, elimination of high tariffs in Brazil leads to higher exports from NAFTA members into Brazil. Brazil remains a net exporter of most agricultural and food processing commodities in which it currently has a large global market share (i.e., maize; soybeans; meats; fruits, vegetables, and nuts; and sugar) and a net importer of rice

and wheat, commodities in which Brazil does not have a comparative advantage (figure 3.4).

Elimination of the NAFTA average applied agricultural tariff rate on sugar used in the scenario and estimated at 53.5 percent, results in a ten-fold increase in the quantity of Brazil’s sugar processing exports to the NAFTA markets. This large increase in Brazil’s exports to NAFTA members is concurrent with a reduction in exports to the rest of the world, other Western Hemisphere countries and MERCOSUL countries, as Brazil still faces high tariffs for its sugar in these markets, since sugar was one of the products excluded from the CET regime under MERCOSUL. In this scenario, productive resources in Brazil move away from other crops and into sugarcane production. As a result, production of sugarcane rises by 10.4 percent, which represents a 24.6 percent increase in industrial production of raw and refined sugar, in order to supply the expanded export market.

Brazil remains a net importer of rice under NAFTA-Brazil scenario analysis. Elimination of Brazil’s ten percent tariff leads to a 0.2 percent increase in the quantity of rice imported from NAFTA and a 5.2 percent increase in the volume of rice imports from neighboring MERCOSUL countries (namely Uruguay, Argentina and Paraguay). Proximity of the markets and the existing CET which allows for duty free rice imports

Figure 3.4: Brazil net exports.



into Brazil from MERCOSUL makes them a more competitive supplier of rice to Brazil. NAFTA's share of the Brazilian market for rice has fluctuated, ranging from 35 percent of total imports into Brazil, to less than one percent of Brazilian rice imports. In the past, NAFTA members have been able to ship more rice into Brazil when rice supplies were tight within MERCOSUL. In Brazil, a possible regional trading agreement with NAFTA would lead to a 0.3 percent decline in the import price of rice, and a 5.9 percent increase in domestic demand for imported rice. In recent years, rice producers in Brazil, already facing higher production costs, have responded to increased competition from abroad and competition from sugarcane in southern Brazil by shifting land from rice into sugarcane, which is more profitable, ultimately resulting in a 9.1 percent contraction in domestic rice output.

The scenario results indicate that the elimination of Brazil's ten percent tariff on wheat imports from NAFTA would result in a 22.7 percent increase in wheat imports from NAFTA members (the US and Canada) and a 15.8 percent decrease in imports from MERCOSUL. Just over half of Brazil's consumption needs are met by imports making Brazil's one of the world's largest wheat importers. Overall, Brazil remains a net importer of wheat, with an 8.3 percent increase in domestic demand for imported wheat. In the scenario analysis, wheat production in Brazil falls by 9.4 percent. In the case of other cereals, Brazil remains a net exporter although total exports fall by three percent with lower availability of other cereals from domestic sources as land planted to other cereals is diverted to sugarcane.

Elimination of the current tariff on fruits, vegetables, and nuts (FVN) in Brazil of eight percent would lead to a 6.7 percent increase in imports from NAFTA members. However, Brazil would remain a net exporter of FVN. Current tariffs on fruits, vegetables, and nuts (FVN) from Brazil in the US and Canada are less than two percent while Mexico maintains high tariffs on FVN from Brazil. Brazil's exports to NAFTA members increase by 3.4 percent and decline to the rest of the world by 8.4 percent and to its other MERCOSUL partners by 1.3 percent.

Given Brazil's comparative advantage in oilseed production, Brazilian oilseeds remain competitive internationally. With elimination of the tariff, oilseed exports to NAFTA members (mostly Mexico) would increase by 8.8 percent, diverting trade away from the rest of the world. Similar to the case with other cereals, production shifts out of oilseeds into sugarcane, resulting in lower Brazilian oilseed production.

In the scenario results, Brazil would remain a strong net exporter of red and other meats products, with an increase of 27 percent in exports to the NAFTA market. However, since the SPS restrictions that are

assumed to remain in place are not explicitly captured by the model, the results may overestimate Brazil's trade export expansion. These results assume continuation of existing SPS restrictions, which means that Brazil's trade with NAFTA members would be limited due to the presence of FMD and Newcastle Disease in some regions of the country. Brazil's exports of red and other meats products to other markets decline as these markets maintain high tariffs on red and other meats products from Brazil, since they are not participants in the regional trade agreement (16 percent tariff averages in other Western Hemisphere countries and over 75 percent tariff average in the rest of the world).

Additional Factors Not Captured by the NAFTA-Brazil Trade Liberalization Simulation

The GTAP simulation results do not take into account recent trade agreements signed in the Western Hemisphere. For example, the United States has negotiated bilateral trade agreements with Peru and Colombia and on 24 May 2006, Venezuela signed a protocol to become a full member of MERCOSUL within four years. This protocol details a timetable for Venezuela to adopt MERCOSUL's common external tariff and any necessary internal legislation. Further, the United States signed a trade agreement with five Central American countries (Costa Rica, El Salvador, Guatemala, Honduras, and Nicaragua) and the Dominican Republic in 2004 (CAFTA-DR). Prior to the agreement more than 80 percent of US imports from the Central American countries and the Dominican Republic already entered the United States duty free and approximately 99 percent of agricultural imports from the six countries entered the United States duty free. The CAFTA-DR provides reciprocal access for US products and services and will not be subject to periodic renewal. These new agreements are likely to reduce Brazil's net export gains by displacing some of Brazil's products in other hemispheric countries' markets.

Given Brazil's membership in MERCOSUL, a NAFTA-Brazil free trade agreement would open up indirect access to the NAFTA market to MERCOSUL's other members (Argentina, Uruguay, Paraguay) without any tariff liberalization on their part. Consequently, any NAFTA-Brazil free trade negotiations would need to include rules of origin to prevent such an occurrence from happening.

While market opening between Brazil and NAFTA (i.e., tariff removal) will induce some structural adjustments in production and labor markets – and over the long-run encourage export diversification and more technology-intensive industries – several constraints could hinder further long-term growth in Brazilian processed and high-value agrifood exports. Supply-side constraints include adverse macroeconomic shocks, ongoing transportation and marketing bottlenecks, financial constraints,

and a slowdown in the expansion of agricultural land. On the demand side, rising consumer demand for high-value foods plus the growth of Brazil's biofuel industry could reduce the availability of Brazil's exportable surpluses.

CONCLUSIONS

The growth in Brazil's agrifood sector has been mostly attributed to macroeconomic stability (inflation control), accelerated currency devaluations from 1999 to 2004, and economywide trade and regulatory reforms that have encouraged investment in Brazilian agriculture as well as domestic policies (regional credit and tax exemption programs) that have provided incentives to producers and processors. Over the next decade, with continuous investments in the agrifood sector and expansion of arable land brought into production, Brazil is expected to continue to be a major player in world agrifood markets.

The growing presence of multinational firms in Brazil will enhance the competitiveness of Brazil's domestic agrifood companies, placing Brazil in an excellent position to benefit from participation in an expanded NAFTA. The capacity to produce new and more varied agrifood products, the export know-how of multinational companies and the low-cost base in Brazil will contribute to future growth in agrifood exports.

Under a hypothetical NAFTA-Brazil trade liberalization scenario, with the exception of sugar, production effects in NAFTA members are minimal and Brazil faces larger production adjustments. In addition, the simulation results do not take into account changes in SPS restrictions that would surely limit Brazil's ability to increase exports of beef and fruit and vegetables to NAFTA countries. Further, restrictions in Brazil's land expansion rate due to financial constraints and environmental concerns, and a lack of harmonization in marketing and food safety standards and regulations may diminish Brazil's export performance.

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Rising Demand, Trade Prospects, and the Rise of China's Horticultural Industry



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*Scott Rozelle, Daniel A. Sumner, Mechel Paggi,
and Jikun Huang*

INTRODUCTION

Rising incomes, migration, and changing food-retailing venues are creating dramatic changes in China's food economy – especially in urban areas. During the past decade, there have been sharp rises in the consumption of, among other food items, horticultural commodities. For example, the demand for fruit by urban consumers rose from 40 kilograms (kg) per capita in 1997 to 60 kg per capita in 2004, while the consumption of high-valued vegetables rose from 113 kg per capita in 1997 to 123 kg per capita in 2004 (CNBS).

At the same time, further pressures on the food sector are being exerted by changes in policies governing China's external economy. Beginning in the 1980s, China's leaders have gradually liberalized agricultural trade (Huang and Chen). Nominal rates of protection (NPRs) have fallen steadily over the past two decades – falling for maize and wheat, for example, from more than 80 percent to less than 20 percent (Huang, Rozelle and Chang). Both formal tariffs and nontariff barriers have fallen significantly, driving down the NPRs. Bilateral trade agreements and China's accession to the WTO have likewise provided increased access to the markets of China's trading partners. Simulation analysis demonstrates that with market liberalization, there is downward pressure on the price of grains, edible oils, and other staples, but new export opportunities help strengthen the prices of fruits and vegetables (Rosen, Huang, and Rozelle).

The main question that we examine in this chapter is whether policy-makers, farmers, and traders in China have met and will be able to meet

the growing demand for high-valued fruits and vegetables. Such questions, of course, have great implications for producers of fruits and vegetables in the US and other nations.

To answer these questions, we explore three main issues. First, we briefly describe changes to China's policy approach to managing agriculture. The objective of this inquiry is to understand how the environment within which producers make decisions has changed during the past two decades. Second, we track the changes in agricultural supply in China. In this section we seek to understand how producers have responded over the past ten years to rising demand in both the domestic and external economies. Finally, we examine both enabling factors and constraining elements that will either push China towards or inhibit China from becoming the major supplier of horticultural products domestically and globally.

CHINA'S CHANGING POLICY ENVIRONMENT

Despite launching a series of radical reforms including decollectivization and the removal of restrictions on rural markets, reformers in the 1980s had no intention of forfeiting control over key commodities, such as grain, to market forces (Sicular). Agricultural planners did little, even in the mid-1980s, to encourage grain bureau employees to pursue the potential profits from out-of-plan grain trade (permitted beginning in 1985), and grain system enterprises did not participate in the state-owned enterprise reforms. Managers of grain outlets in many cities could not engage in commercial activities beyond the sales of staple goods. Fixed, low urban ration prices dampened the supply of high quality grain. When out-of-plan prices rose in 1988 and 1989 and shortages of grain threatened, leaders directed grain officials to stabilize supplies. They also pressured producers to sell their surplus through state channels, actively suppressed free market trade, and blockaded shipments to regions of the country, such as Guangdong Province and other southern deficit regions, which had ignored the central government directives to maintain high levels of grain production. Leaders maintained high production levels with a multiplicity of policies such as mandatory delivery quotas, sown area targets, political rewards for high grain output, increased investment in infrastructure, and subsidies to producers.

It was not until after the 1990s that China's leaders were presented with a unique opportunity to deepen market reforms. As food became plentiful, agricultural officials began to liberalize prices and markets to raise the efficiency of China's rural economy, increase rural incomes, and reduce the budget burden at a time when urban consumers were demanding higher quality grain (Rozelle et al.). When market liberalization finally did happen, it happened steadily and affected food markets in both urban and rural areas. In the first stage of the urban reforms, officials eliminated

controls over the physical flow and price of grain. Grain rationing and planned inter-provincial grain transfers were abolished. In addition, signaling one of the most fundamental shifts in urban grain policy, many city officials made retail outlets less reliant on fiscal support and gave outlet managers and other personnel the chance to take advantage of new commercial opportunities in the liberalizing urban food economy. Private and quasi-private trading classes were created who were buying and trading, at least at the margin, on the basis of market prices and sourcing from whomever and wherever they wanted.

At the same time, officials launched an equally ambitious set of reforms in rural areas in the early 1990s. In different parts of China, and at different times, policy-makers reduced mandatory delivery quotas and eliminated the implicit tax on farmers by raising the procurement price to market levels. Between the 1980s and the end of the 1990s, the elimination of the grain quota reduced the implicit tax on China's farmers from more than 30 billion Chinese yuan to zero (Huang, Rozelle, and Wang). While the quota reforms were quite well publicized, the commercialization of the grain system in rural areas proceeded more unobtrusively, much in the same way as it did in urban areas. In the end, China's grain marketing system was completely reformed and now operates with little intervention by the government. Indeed, Huang, Rozelle, and Chang show that after 2000, prices behave very much like those in a market-oriented economy.

Similar policies were being executed for other commodities, although at different paces. State procurement of edible oils, livestock commodities, and other crops, including fruits and vegetables, were mostly discontinued in the 1980s. Cotton and sugar were gradually liberalized in the mid-1990s. By the late 1990s, tobacco was about the only commodity that had not been decontrolled on both the price and procurement side.

Trade Policies

In addition to important changes in the domestic economy, there have been a number of other fundamental reforms to China's international trading system. Lower tariffs and rising imports and exports of agricultural products began to affect domestic terms of trade in the 1980s. In the initial years, most of the fall in protection came from a reduction in the commodities that were controlled by single desk state traders (Huang and Chen). In the case of many products, competition among nonstate, foreign trade corporations began to stimulate imports and exports (Martin). Although some major agricultural commodities were not included in the move to decentralize trade, the moves spurred exports of many agricultural goods. In addition, policy shifts in the 1980s and 1990s also changed the trading behavior of state traders. Leaders allowed the state traders to increase imports in the 1980s and 1990s.

Moves to relax the rights to access import and export markets were matched by actions to reduce the taxes that were being assessed at the border. After the fall of restrictions on imports and exports of many of China's agricultural commodities, a new effort began in the early 1990s to reduce the level of formal protection. The simple average agricultural import tariff fell from 42.2 percent in 1992 to 23.6 percent in 1998 to 21 percent in 2001 (Rosen, Huang, and Rozelle).

Overall, trade distortions in the agricultural sector have declined substantially in the past 20 years (Rosen, Huang, and Rozelle). Much of the falling protection in agriculture has come from decentralizing authority for imports and exports, relaxing licensing procedures for some crops (e.g., moving oil and oilseed imports away from state trading firms), and changing foreign exchange rates. Other trade policies have reduced the scope of nontariff barriers (NTBs), lowered real tariff rates at the border, and expanded import quotas (Huang and Chen). Despite this real, and in some areas, rapid set of reforms, the control of commodities that leaders consider to be of national strategic importance such as rice, wheat, and maize remains with policy-makers to a large extent (Nyberg and Rozelle). Given the changes made prior to the nation's accession to the WTO, it is not surprising that while it was a major event in China (and has had effects on many sectors), in its most basic terms WTO accession was really a continuation of previous policies. Hence, the commitments embodied in China's WTO accession agreement in the agricultural sector – increased market access, less distorting domestic support, and export subsidy reductions – are exactly what China was already doing in the 1990s.

Shifting Priorities

At the same time that the institutional environment was changed by the series of previously discussed reforms, leaders have been gradually changing the fundamental goals of their policy actions. Throughout the Socialist Era (1950 to 1978), China's Grain First policies unambiguously placed national food security, in the guise of self-sufficiency, as the nation's primary agricultural target and this continued throughout the 1980s and early 1990s as agricultural leaders explicitly gave national food security top priority. Policies allowing grain blockades to prevent commodities from flowing from one province to another in the late 1980s and the Governor's Rice Bag policy, both of which encouraged sub-national governments to invest heavily in grain production, are examples of policies that were willing to sacrifice efficiency in order to achieve high levels of domestic grain and other staple production (Rozelle et al.). Local measures that fined farmers for not producing grain, gave input purchase priority for producing government-priority crops, and encouraged community leaders to apply pressures to farmers were all condoned or at least implicitly advocated,

despite clearly documented negative income consequences for producers (Sicular; Rozelle and Boisvert).

In recent years, however, there has been a gradual, but accelerating movement to shift the goal of rural policy from grain first to income first. In the late 1990s, for the first time, local leaders and farmers were encouraged to transform the structure of their farms from ones producing grain and subsistence crops to commercially-oriented enterprises. Loan programs were created to provide investment funding for the production of cash crops and other agricultural activities. The extension system broadened its mandate to promote nontraditional crops, including horticultural crops.

With the recognition that rural incomes were lagging dangerously behind urban ones, the government of Hu Jintao and Wen Jiabao chose to make the transformation of the rural economy and raising of rural incomes one of the key planks of their economic platform. Their efforts included reductions in taxes, expansion of subsidy programs, investment in rural public goods, and most importantly, the evolution of a new ethos that not only allowed, but promoted activities that would lead to higher rural incomes. Both domestic and trade policies have begun to encourage producers to move towards crops and other activities in which China has a comparative advantage and which have higher profit rates. In this regard, the expansion of horticultural crop production area has been encouraged.

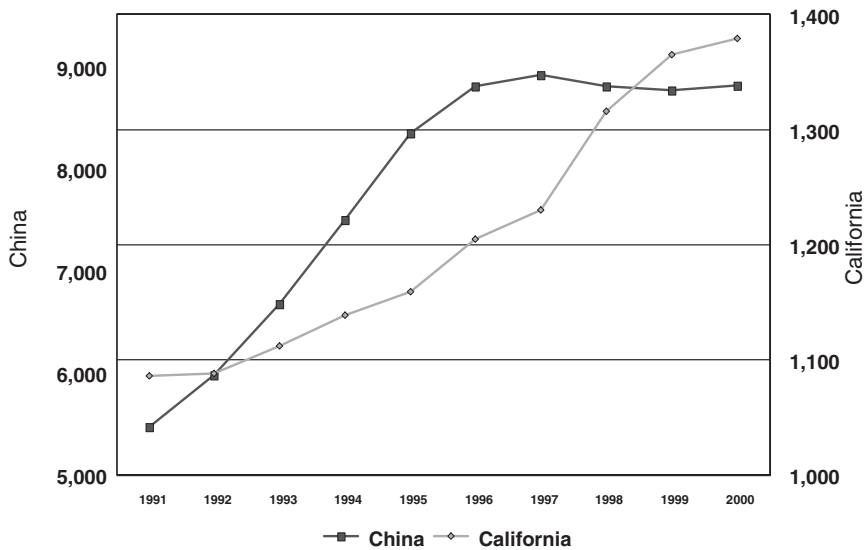
THE NEW HORTICULTURAL ECONOMY

In response to rising demand by consumers and the new policy environment, China's producers have reacted to a degree that would have been difficult to predict. The changes in sown area of vegetables illustrate more than anything the responsiveness of producers to appropriate incentives (figure 4.1, panel A). The sown area under vegetable production more than doubled between 1990 and 2000, increasing by more than eight million hectares (20 million acres). In fact, to put it into perspective, as seen from figure 4.1, Chinese vegetable area increased by the equivalent of a new California about every two years during the 1990s. Moreover, there has been expansion in production of almost every major type of vegetable crop. For example, tomato and garlic area nearly tripled during the 1990s and the rate of change has accelerated since 2000.

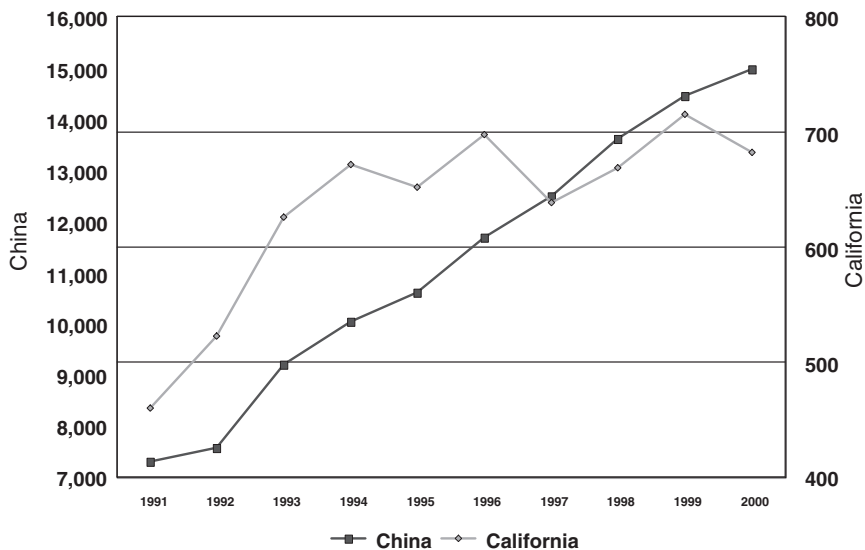
Although most producers still invest relatively low levels of capital into their farms, there is rising investment, especially in greenhouse technologies. Visits to the field show that the range of technologies remains great. While there are many dirt wall backed structures covered with cheap plastic and warmed by coal-burning pot bellied stoves, there

Figure 4.1: Sown area of vegetables and fruit in China and California, 1991 to 2000 (1000 Hectares).

Panel A. Vegetables



Panel B. Orchards



Source: Huang, Dong and Rozelle.

are beginning to be state-of-the-art, integrated, climate-controlled greenhouse facilities.

Similar shifts in production are seen in the case of fruit (figure 4.1, panel B). In the early 1990s, sown area of fruit crops almost doubled from about five million hectares in 1990 to almost ten million hectares in 1995. In the late 1990s, although the growth of sown area slowed, farmers began to invest in upgrading their orchards through grafting, pulling and replanting, and improved agronomic care. Despite China being known as a country that is short of land and that has historically planted grain ahead of all other crops, on a percentage basis, China has more than twice the share of area allocated to fruit production (over five percent) relative to other major producing countries (e.g., two percent in both the US and the EU).

Specialization in China's Villages

Few authors have attempted to quantify the gains from market liberalization in China. Impediments to such an exercise include the short period of available data for analyses and the inability of standard methodologies and indicators of market liberalization to separate efficiency gains of market reform from overall gains in the reforming economy. Nonetheless, there is some evidence that isolates the effect of liberalization reforms on the emergence of markets and productivity of farmers. DeBrauw, Huang, and Rozelle show a positive effect of the increased role of markets on productivity and other authors find a similar result (Lin; Fan). In all three of these papers, the authors conjecture that the gains are due in part to increasing specialization.

In order to try to understand whether or not specialization has occurred since the mid-1990s when markets began to emerge, a national representative survey of 400 communities (in 100 counties and six provinces) was conducted in 2004 (Huang, Rozelle and Chang). The survey of community leaders asked whether farmers in their villages were specializing in any particular crop or livestock commodity. The question concerned the period between 1995 and 2004. If respondents answered affirmatively, they were then asked to identify the commodity in which they were specializing. If farmers in the community were specializing in a cropping activity, the area sown to the specialty commodity was requested.

The results of the survey show that specialization has been occurring in China's agricultural sector. Between 1995 and 2004, the percentage of villages specializing in an agricultural commodity increased and this was true in every province (table 4.1, columns 1 and 2). On average, 30 percent of China's villages were specializing in 2004, up from 21 percent

Table 4.1: Percentage of villages and sown area with specialization by region.

	Percentage of villages ^a specializing		Percentage of sown area ^b	
	1995	2004	1995	2004
Hebei	18	19	20	24
Henan	22	23	4	9
Shanxi	51	74	11	22
Shaanxi	4	5	23	32
Inner Mongolia	9	17	38	40
Liaoning	15	32	13	29
Average	21	30	14	24

Source: Huang, Rozelle, and Wang.

Notes: ^a Villages are counted as “specializing” if they answered “Yes” to the question: “Are farmers in your village specializing in any particular crop or livestock commodity?”

^b Only includes sown area of villages that are specializing.

in 1995. Although the percent of villages that specialize has risen in all sample provinces, some (e.g., Liaoning, Inner Mongolia, and Shanxi) have risen faster than others (e.g., Hebei, Henan, and Shaanxi). The percent of area sown to specialty crops has also risen across the sample average from 14 percent of total sown area in 1995 to 24 percent in 2004 (columns 3 and 4). Over half of this specialization has been in villages that are specializing in vegetables. Interestingly (and perhaps surprisingly), the propensity to specialize is not correlated with either income levels or the geographical location of the village, implying that poorer farmers may be equally or even more responsible for the rise of specialization, a finding that is consistent with another study by Wang et al.

The Performance of the Export Sector

Although the export segment of the horticultural economy in China remains small, it is important for several reasons. First, because the international horticultural export market tends to be fairly thin, even small shifts from the domestic to the export sector can have dramatic impacts on the international market. In addition, the great gaps between the export market and its demand for high-quality, reliable, and safe products and the relatively simple domestic market mean that there are many things to be learned from those firms that face international

competition. Finally, to the extent that importers are able to source fruit from international markets, it provides a yardstick for measuring the efficiency of the sector and its ability to compete with the quality products that enter from abroad. In sum, the external sector of China's horticultural market represents a potentially lucrative segment of the market to be captured, a source of knowledge, and a source of market discipline (Rozelle, Huang, and Sumner).

Exports Since 1995 fresh vegetable exports have increased steadily. The most rapid rise came in the years after China's accession to the WTO in 2001. The pace of expansion slowed in 2004 and 2005. China is emerging as the world's dominant supplier of garlic, carrots, and onions/shallots. Although fresh vegetable exports have risen rapidly, processed vegetable exports have always been higher (since 1995) and have remained higher (up to 2005). Growth has been rapid in the tomato paste and frozen vegetable product categories. Processed and preserved vegetable categories, although still large, have grown more slowly.

When looking at two of China's largest export products – onions/shallots and garlic – it can be seen that the destinations, although broad, are largely nearby markets. In the case of onions/shallots exports mainly go to Japan, Malaysia, and Russia. In the case of garlic, with the exception of Brazil, most of the large markets are also nearby (e.g., Japan, South Korea, Malaysia, and Southeast and South Asia).

Imports Although China is the fourth largest agricultural export destination for the US (after Canada, Mexico, and Japan) and remains a growing market for US exports. Almost all of the \$5.5 billion in exports from the US are made up of bulk commodities – soybeans (29 percent), vegetable oils (15 percent), cotton and wool (17 percent), hides (12 percent), and grains (five percent). Fruit imports have grown slowly in recent years. Vegetable imports into China fell sharply after the late 1990s and remain at around 20 million metric tons.

Trade Trends: A Shift toward Labor-intensive Export Commodities

When we take all of China's agricultural imports and exports and divide them into two groups – those that are labor-intensive (e.g., fruits, vegetables, and livestock/aquaculture products) and those that land-intensive (e.g., grains, edible oils, fiber products, sugar, and hides), we can see the striking bifurcation of the import and export trends. In the early 1980s, China was a net exporter of both labor-intensive and land-intensive commodities. Since then, however, China has begun to export increasing amounts of labor-intensive commodities and import increasing amounts of land-intensive commodities. Clearly, given China's abundant supply of labor in the rural economy, it has been moving towards commodities in which it has a comparative advantage.

Table 4.2: Cropping patterns and the role of horticultural crops in greater Beijing, 2000 and 2004.

	Concentric Circle Sample Region											
	Greater Beijing (total)		40 km		60 km		80 km		100 km		140 km	
	2000 (%)	2004 (%)	2000 (%)	2004 (%)	2000 (%)	2004 (%)	2000 (%)	2004 (%)	2000 (%)	2004 (%)	2000 (%)	2004 (%)
Grain	68	58	64	52	63	47	68	62	72	64	72	62
Cash crop	10	14	9	12	9	13	9	11	9	14	12	17
Horticultural crops ^a	22	29	27	36	28	39	23	27	18	22	16	21
Vegetables	4	6	4	4	4	9	6	7	2	3	4	6
Fruit	13	16	19	26	13	13	12	16	13	16	10	11
Nuts	5	7	4	6	11	17	5	5	3	3	2	5

Source: Huang and Rozelle.

Note: ^aSown area for horticultural crops includes area sown to vegetables, fruit, and nut orchards.

The Actors in the Horticultural Economy – A View from the Villages

This part of the chapter draws heavily on survey work from a randomly selected set of villages in Greater Beijing (Wang et al.). Caution needs to be exercised for several reasons. First, this is a region that is not at the heart of the export economy and it is in the northern part of the country. Therefore, one needs to be careful about making conjectures about the rest of China from this sample. However, in defense of the sample, it is, to our knowledge, the first fully spatially selected, random sample of horticultural producers in China. It gives the first regionally representative profile. With these data, we describe the actors that make the horticultural economy work in China's rural areas including: 1) producers; 2) traders; and 3) local officials. In further support of the findings of this survey, preliminary analysis of recent field work and data collection in Shandong Province (the horticultural basket of China) confirms the results (Huang and Rozelle).

Producers The rising demand for horticultural products (henceforth, the term used to describe vegetables, fruits, and tree nuts) and the changing production environment are beginning to change production patterns from grain into other crops (table 4.2, columns 1 and 2). The total sown area of grain fell between 2000 and 2004 from 68 to 58 percent. In contrast, cash crops (which include mainly crops such as cotton and peanuts – crops that are not the focus of our study) rose by four percentage points. During the same period, the area sown to horticultural crops rose by seven percentage points (from 22 percent in 2000 to 29 percent in 2004). Vegetable output rose by two percentage points; fruit production – the crop category accounting for by far the largest share of horticultural crops in the Greater Beijing area – rose by three percentage points; and nut production rose by two percentage points.

Table 4.3: Contribution of sampling areas by income category (quartiles) to horticultural production in greater Beijing, 2000 and 2004.

Crops	Very Poor		Poor		Above average		Rich	
	First Quartile (1-25)		Second Quartile (26-50)		Third Quartile (51-75)		Last Quartile (76-100)	
	2000	2004	2000	2004	2000	2004	2000	2004
	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
Horticultural Crops	15	23	31	32	33	25	20	19
Vegetables	9	12	25	29	53	47	12	12
Fruit	16	25	37	37	34	24	14	14
Nuts	21	30	17	19	8	9	54	42

Source: Huang and Rozelle.

While production trends for the entire Greater Beijing area fairly closely match the rise in horticultural demand in China's urban areas, in this chapter we are most interested in the types of farmers who are participating in supplying the horticultural crops. In fact, as table 4.2 shows, when information on the typical farmer engaged in farming inside each of the concentric circles is compared (i.e., farmers close to Beijing compared to those far from Beijing), it can be seen that farmers in all areas are adjusting their production structures (table 4.2, columns 3 to 12). In particular, while the average farmer in all areas reduced his/her share of area sown to grain by ten percentage points (68 to 58 percent, row 1), as might be expected (Fafchamps and Shilpi), farmers in the first two circles – 40 and 60 kilometer (km) circles – reduced the share of area sown to grain by 12 to 16 percent, exceeding farmers in the other three circles that are farther away from Beijing who made reductions of six to ten percent. In other words, although the production of horticultural crops rose everywhere, the largest rise in the share of a village's land allocated to horticultural crops was in the 40 and 60 km circles. Interestingly, while the increase in the share of horticultural crops in the 40 km circle mainly came from fruit (19 to 26 percent), the rise in the 60 km circle came from vegetables and nuts (four to nine percent for vegetables and 11 to 17 percent for nuts).

While the relatively smaller rise in horticultural area share for remote areas is what one may expect, the most significant finding, based on our data, is that poor farmers are increasing their share of the production of horticultural crops (table 4.3). To show this, we divided villages into four quartiles, according to each village's reported income per capita. Between 2000 and 2004, we found that farmers in the very poor and poor categories (those farmers living in villages with incomes below the median income level) increased their share of total sown area of horticultural crops (top row). In fact, by 2004, farmers in very poor and poor villages produced more than one-half (55 percent) of the horticultural crops in the Greater Beijing area. Even more significantly, farmers in the very poor villages increased their share of vegetables, fruits, and nuts between 2000 and 2004 (rows 2 to 4, columns 1 and 2).

A similar picture emerges when examining different types of horticultural crops (table 4.3, row 2, columns 5 and 6). In the case of fruit, production was dominated by farmers in the very poor and poor villages. In contrast, farmers in average income villages produced most of the vegetables. One of the most interesting findings in table 4.3 is that the richest farmers were not the driving force (or beneficiary) of increased production of vegetables, fruits, and nuts.

Hence, we have strong evidence that the rise of horticultural production in the Greater Beijing area has not followed the trends that have been observed in other developing countries (e.g., Farina and Machado). Our data show that farmers in very poor and poor villages have not been left out. In fact, especially in the case of the very poor, they have been the driving force behind the rise in the supply of fruit and nuts. Moreover, there is no evidence – even for vegetable crops – that richer farmers have dominated production. Indeed, farmers living in the richer villages (above average and rich) have lost their share in all categories of horticultural crops (e.g., 65 to 59 percent for vegetables, 48 to 38 percent for fruits, and 62 to 51 percent for nuts). In 2004, the richest 25 percent of farmers only cultivated 19 percent of the region's horticultural area.

A profile of the typical horticultural producer in China shows that the emerging competitor in the world's horticultural industry is actually a small, poor, and uneducated farmer who is labor-rich, faces low wages, and is highly commercialized. Rough calculations suggest that there are probably more than 40 million households engaged in commercial production of fruit, nuts, and vegetables in China.

The average household involved in horticultural production consists of four people, only three (at most) of which are typically of working age. Each family generally has one person working off the farm in a wage-earning job or running a small, non-farm business. The head of the household (typically the husband) is, on average, 42 years old with one year of post-elementary education. In total, a typical vegetable producer's total farm assets are worth only \$700 (at nominal exchange rates). The house in which the producer lives is his/her most valuable asset making up about 75 percent of the household's total assets and is worth less than \$8000 (Huang and Rozelle).

Although no individual in China owns his/her own land (land belongs to the village and is contracted to households for a period of 30 years for no rent), all farm households have access to what amounts to their own land. The typical vegetable producer (and the same is true for fruit producers) only has one acre (six mu). This acre of land is typically divided into five different plots. Vegetables are typically planted on three of the five plots

while the farmer usually plants wheat, corn, or rice on the remaining plots to use for his household's annual grain consumption (although it is possible to buy grain on local markets). Only four percent of land that is planted to vegetable crops is rented.

When asked who decides what to plant, the average farmer answered that he/she decides him/herself in nearly 95 percent of the cases. In the remaining five percent of the cases, the local village had invested in a greenhouse in the late 1980s or early 1990s and was renting the land with the greenhouse out to the farmer. In other words, no one is telling farmers what to plant and there are almost no subsidies given by the government to farmers.

Because of the small size of land and access to family labor, the typical farmer and his family spend about 312 man-days working in vegetable production each year. After subtracting costs, an average vegetable farmer earns about two dollars per day. In addition to family labor, during harvest or other particularly busy times, the typical horticultural farmer hires laborers for 42 man-days per year. The laborers are paid the equivalent of \$3.2 per man-day for working ten hours per day (about 32 cents per hour).

From these figures it is easy to see why the typical producer in China has such low costs. Additionally, the average horticultural producer has been farming all of his/her life and is a commercial producer, selling about 97 percent of production.

Traders and Marketers The surprises on the supply side are matched by surprises on the procurement side (table 4.4). Although there has been much discussion about the potential implications of the rise of modern supply chains in developing countries and the effect of their procurement agents on welfare in rural areas (Reardon et al.), according to our data, supermarkets have been completely absent as buyers in China. Indeed, not one of the 201 village leaders that we interviewed reported the presence of supermarkets in the procurement of any vegetable products (table 4.4, panel A, column 1). Likewise, village leaders reported that only two percent of procurement from vegetable farmers was from specialized suppliers and only two percent was from processing firms (columns 2 and 3). Hence, in the Greater Beijing area in 2004, only four percent of all vegetable sales were procured by those operating in firms that could be described as part of a modern supply chain.

Even when we look at data on the second buyer in the supply chain, the modern supply chain played a fairly minor role (table 4.4, panel C, columns

Table 4.4: Supply and marketing channels of horticultural markets in greater Beijing area, 2004.

		Modern supply chains				Traditional supply chains				Other supply chains	
		Super markets	Specialized suppliers	Processing firms	Small traders	Farmers sell in local periodic markets	Cooperatives	Consumers direct purchase from farmers	Others ^a		
Horticultural Crops	0	2	2	79	8	0	7	2			
Vegetables	0	3	5	82	5	0	1	3			
Fruit	0	1	1	75	11	0	9	3			
Nuts	0	6	0	88	3	0	3	0			
Panel B: Location of first transaction (percent)											
		Farmer's fields		Village center	Roadside	Periodic market	Wholesale markets	Urban wetmarkets	Others ^b		
Horticultural Crops	65	9	3	6	11	4	2				
Vegetables	64	0	3	6	18	9	0				
Fruit	60	12	3	9	12	3	2				
Nuts	86	11	0	0	0	0	4				
Panel C: Second-time buyers (percent)											
		Modern supply chains				Traditional supply chains				Other supply chains	
Super markets	Specialized suppliers	Processing firms	Small traders	Traders sell to consumers in periodic markets	Cooperatives	Others					
Horticultural Crops	3	3	10	49	13	22					
Vegetables	6	0	6	57	11	20					
Fruit	1	2	9	46	16	26					
Nuts	3	10	19	50	6	12					

Source: Wang et al.

Notes: ^a“Others” (first time buyers) includes purchases by agents of hotels or restaurants, gifts to other farmers, or procurement by organized groups (such as enterprises for distribution to their workers).

^b“Others” (second time buyers) includes sales to other villages and sales to market sites that supply processing and other food firms.

1 to 3). When asked to whom the first buyer sells, supermarkets were involved in just three percent of the volume. Specialized supply firms also accounted for only three percent. Processing firms were the second buyer for ten percent of the volume of vegetable crops. Hence, in total, even by the second link of the marketing chain, modern supply chains have played a relatively minor role, accounting for only 16 percent of the volume. Therefore, in summary, it is safe to say that in the Greater Beijing sample villages, despite the rise of demand for high-valued vegetable products, and despite the rapid emergence of supermarkets in urban areas, modern supply chains were almost nonexistent in 2004 at the producer end of the marketing chain.

So, the main story of vegetable marketing in China in 2004 is the domination of traditional supply channels by small traders. According to our data, fully 79 percent of the first-time buyers of vegetables were small traders (table 4.4, panel A, row 1, column 4). These small traders, who during the harvest season can be seen throughout areas that are producing vegetables, entered the village itself and bought directly from farmers. Almost all sales are spot market transactions, in which the commodity was exchanged for cash. In another eight percent of cases, farmers took their crops, as they have done for hundreds of years, to local markets to sell to local consumers and traders (column 5 and for a related point see Rozelle and Huang). In Shandong Province, recent fieldwork suggests that more farmers take their horticultural crops to local wholesale markets. Though similar to the case of transactions in the village, trade occurs between the farmer and a small trader who happens to have a stall in the market rather than traveling from village to village looking for sellers.

The supply chain penetrates far into the villages of the Greater Beijing area (table 4.4, panel B). While some of the traders bought from farmers in local markets (about six percent), most of them went directly to the farmer. In fact, when aggregating procurement by traders in farmers' own fields (65 percent), at the village center (nine percent) or at the side of the road near the village (three percent), more than 75 percent of all procurement took place inside or immediately next to the boundary of the village (row 1 in panel B). Only 15 percent of first time sales took place in formal wholesale markets (11 percent) or urban wet markets (four percent).

Finally, small traders not only make up the first link in the marketing chain, but 49 percent of second buyers also are small traders (table 4.4, panel C, column 4). In other words, in nearly half of the cases, small traders bought from farmers and sold their vegetables to a second small trader. In addition, 13 percent of small traders took their vegetables to a nearby retail market and to sell their goods to consumers (column 5).

Using data from a 2000 Rural China Household Survey data set collected by the Center for Chinese Agricultural Policy and the University of California, Davis (Huang and Rozelle), we present a profile of the typical horticultural trader in China. Among other sections of the national representative rural household survey, one part focused on family-run businesses and carefully enumerated the income and expenses, assets and liabilities, and working hours of more than 350 small micro-enterprises, including more than 50 small trading firms. In this section, we assume that horticultural traders are similar to traders who are operating in other industries.

According to the dataset and other supplemental interviews, most small traders in the Greater Beijing area were from three poor provinces, Hebei, Henan, and Anhui (Wang et al.). On average, small traders worked in small groups or trading firms of three to four people. On average, small traders had only seven years of education with an average age of over 30 years old, which is older and less well-educated than the average migrant to China's largest cities. In almost all cases, the employees/partners working in the same small trading firm were either relatives or fellow villagers – people that could be relied upon to work hard and trusted to work for the good of the firm. Moreover, despite the long hours of work per day for about eight months of the year, the average annual income of traders was only about 3200 yuan per person. If this was their only source of income and if we assume each small trader had to support, on average, a single dependent, this placed them at the high international poverty line (about two dollars per day in purchasing power parity terms). Hence, these small traders can be thought of as poor themselves and willing to engage in labor-intensive economic activities, including traveling long distances to procure fruit and vegetable crops from farmers.

Based on the data, an average six-man trading firm typically had three people in the rural areas going from village to village locating sources of supply. When a deal was struck, the traders would find an independent trucker. Traders typically possessed a cell phone list with hundreds of trucker names and numbers. The hired truck was loaded with produce owned by the trading firm and sent to a nearby wholesale market. At the wholesale market the trucker would be met by the “urban” side of the trading team. This person would unload the truck into a stall that had been rented in the market and begin selling the product. There were typically two or three other such employees in the firm, working individually in each market of a city.

Local Government and the Role of Policy Despite the heavy intervention that occurred during the 1980s and early 1990s in the agricultural production sector, in today's horticultural economy there is

almost no active government involvement. There is little intervention or regulation of the production sector, the procurement/trading sector, and the transportation sector. Some processing plants, which are almost 100 percent in the private sector, have received some assistance from the government such as access to cheap land or preferential access to loans, although mostly at market-set interest rates. In addition, it is our perception (although this needs more research) that access to government land and loans helps make some investors profitable but does not help others. There is little effort to rescue failing firms. There is little intervention or regulation of the retail sector for fresh fruits and vegetables. Such observations are consistent with others who have spent a lot of time in the field researching the horticultural economy (Crook 2005).

While the unregulated nature of China's economy may allow producers to make decisions on cropping and investment without having to deal with bureaucratic regulation, the government also is absent in the more productive roles. For example, in our survey of vegetable producers, we found that only one-half of vegetable farmers had ever seen an extension agent with regards to vegetable production or marketing matters. In a typical year, only one in eight farmers ever saw an extension agent (Huang and Rozelle).

Historically, the government has not supported farmer cooperatives (Shen et al.), but during the past five years there has been a new effort to allow cooperatives to develop and they have begun to grow. Between 2000 and 2003 the number of cooperatives, which mostly support production and marketing of vegetables and fruit, more than doubled. However, when looked at in another way, this growth is fast in part because it is starting from such a small base. Even after the fast growth experienced since 2000, by 2003, only eight percent of villages had any cooperative organization. In villages with cooperatives, less than one-third of the farm households had joined. Hence, over the 200 million farm households in China, fewer than two percent were members of cooperatives. When compared to the US, Japan, and South Korea, where most farm households belonged to cooperatives during their developmental years, China lags far behind.

In short, although China's horticultural producers are endowed with cheap labor, they get little government support. Most of their villages are very poor, have inferior infrastructure (transport and communications), and have almost no extension support. Few belong to cooperatives, so they are facing China's very competitive markets on their own – with very few subsidies from the government.

Table 4.5: Summary statistics for sample households and villages, 2004.

Variable	Unit	Concentric circle sample region					
		Total	40 km	60 km	80 km	100 km	140 km
No. of sample households	households	494	143	60	111	90	90
Cultivated land per capita ^a	ha	0.14	0.09	0.07	0.16	0.13	0.17
Share of households that belong to a cooperative	%	1.05	2.68	0	3.58	0.59	0
Share of laborers that have off-farm job ^b	%	35	42	53	24	43	31
Average days of per laborer of those that have off-farm job	day	96	111	125	67	122	82
Share of off-farm income in net income ^c	%	40	44	61	25	50	34
Household size	persons	3.98	4.06	4.19	3.70	4.46	3.77
Size of household labor force	persons	2.82	2.75	2.89	2.72	3.09	2.72
Income per capita	yuan	2913	3881	2974	2299	3085	2752
No. of sample villages	number	201	40	40	41	40	40
Average distance from village to the nearest county road	km	4.95	2.46	3.51	6.09	6.30	4.65
Share of villages that are within 5 kilometers of a paved road	%	79	86	76	77	80	78
Share of households that have cell phone	%	48	66	53	42	50	43

Source: Wang et al.

Notes: ^aCultivated land includes all farmer-managed land, including contracted land and land rented in, but excluding land rented out.

^bLabor includes all able bodied persons 16 to 65 years old and excludes persons within this age bracket that are at school.

^c“Net income” includes cropping net income, off-farm net income and other sources of net income.

Why Is China's Horticultural Production and Procurement Dominated by Small Farmers and Small Traders?

As noted above, although horticultural production grew along with domestic demand for fruits and vegetables and the emergence of supermarkets in urban areas, there has been almost no penetration by modern wholesalers or retailers into rural communities. Fewer than six percent of first-time buyers and fewer than 16 percent of second buyers can be identified as members of modern supply chains, in the form of supermarkets, professional suppliers, or processing firms. Instead, China's horticultural economy is dominated by traders who are themselves poor and small, typically operating in firms of four to six people who earn low wages. Moreover, unlike the evidence found in other countries, it appears that in China, far from being hurt by the rise of supermarkets and the horticultural boom that has come with it, the poor, small farmers in our sample appear to have gained. The richest farmers, in contrast, played a smaller role in 2004 than in 2000. Clearly, it appears that this is a special case of "Producing Horticultural Crops with Chinese Characteristics."

So what makes China special? While a full analysis and more definitive conclusions would require more research, it is our opinion that there are seven characteristics of China's horticultural economy that produce these surprising results. First, China's land holdings and those in our sample (table 4.5, row 2) are relatively equal. In our sample, the average farm size of the largest 20 percent of farmers was only 0.36 hectares (ha) per capita.

Second, there are almost no farmer cooperatives to allow farmers to act in concert with one another. In our sample, only 11.4 percent of villages reported that they had a horticultural or general farm cooperative and only 1.05 percent of farmers said that they belonged to a cooperative (table 4.5, row 3, column 1). These numbers, as it turns out, are remarkably similar to figures for all of China reported by Shen et al. using data from a national representative sample of more than 2000 villages. Because of characteristics one and two, it is easy to see why it could be so difficult for supermarkets and other modern supply firms to deal with farmers given their atomistic size and the absence of organization. Clearly, the transaction costs of contracting or direct procurement would be high.

The third characteristic relevant to explaining the role of small, poor farmers in the rise of China's horticultural economy is that although land is relatively equally allocated across all communities in China, there are still differences. In the case of horticultural producers, farm households in poorer more remote areas had relatively more land (0.17 ha/capita) than those in areas nearer to the richer urban center (0.09 ha/capita – row 2, columns 2 and 6).

Fourth, there are differences in the access that these households have to labor. Although horticultural farmers in our sample had the same family size as those not engaged in horticultural farming, the main difference was due to differential access to off-farm jobs (rows 4 to 7). Farm households located nearest to Beijing had a higher percentage of their labor force involved in off-farm employment (42 percent for those nearest versus 31 percent for those furthest away) and they worked a larger number of days per year (111 for those nearest versus 82 for those furthest away). The same was true when dividing the sample between better off households and poorer households. Poorer households had more land and labor available for use in producing horticultural crops. Hence, when considering the third and fourth characteristics together, it is easy to see why poor farmers have increased their share of area devoted to production of many of the horticultural crops – they are relatively land and labor rich, the two key factors in the production of horticultural crops.

The fifth characteristic contributing to the propensity for poorer farmers to increase their participation in the horticultural economy is the fact that this activity is almost completely unregulated within China. The sixth characteristic is that China's road and communication networks have improved remarkably over the past ten years (table 4.5, rows 11 to 13). These two characteristics mean that small traders working with a limited amount of capital, using extremely large amounts of low-cost labor, and utilizing the relatively efficient road and communication infrastructure appear to be out-competing all other would-be procurement agents. According to our interviews with the small traders and producers, the competition among small traders is fierce and profit margins are almost always razor thin. There is little above normal profits available to attract new, more innovative entrants. Interestingly, in this type of small trader-dominated system, there is little or no effort being made to impose or monitor quality or safety standards directly on producers.

Finally, the seventh characteristic is that China remains a relatively poor nation and its consumers so far have not placed a high premium on either food safety or obtaining a standard product. Although there is a rising middle class, most urban consumers still live in households earning an annual disposable income of around \$1000 per capita. Many consumers are becoming increasingly stressed with rising payments in other expenditure categories such as housing, automobile ownership, education, and health care.

The combination of extremely competitive wholesale markets, the low price premium for quality, and the high transaction costs that would have to be borne should a supermarket want to maintain tight control over its horticultural supply means that China still relies on traditional wholesale channels for the procurement of horticultural products.

As a result, standardization and safety in China's food system suffer. However, this may be good news for small poor farmers because they are adept at supplying the traditional wholesale markets. Although one must remember how fast China is changing in so many areas; if any of these seven characteristics changed, China's horticultural economy may change as well. Such a change, like so many other things in China, could be very fast.

COMPETITIVENESS TODAY; CONSTRAINTS TOMORROW?

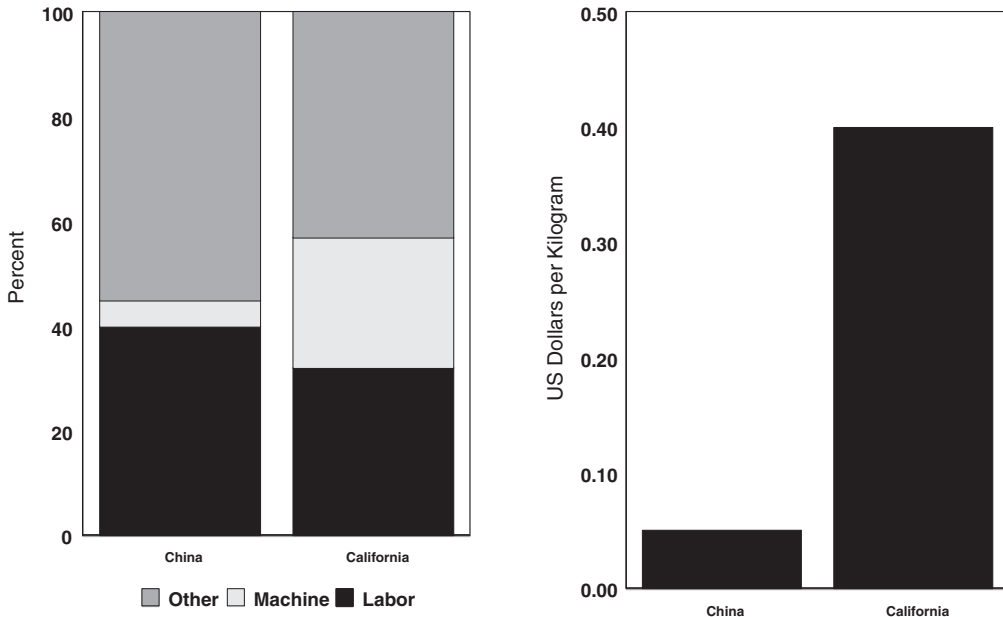
This section looks at the strengths and potential weaknesses of China's horticultural economy. First, past productivity performances are analyzed in order to identify the source of China's advantages. Then, a number of possible constraints are considered. By understanding the factors that can enable or constrain the growth of China's horticultural economy, we can better project what may happen in the future.

Productivity Increases

We begin the analysis by examining detailed cost of production data for seven vegetable crops in China's major production areas (Huang and Rozelle). The data are from a survey executed in all of China's main horticultural producing provinces by the National Price Bureau. On average, data from ten to 15 provinces is available for each crop. The survey began in 1990 and we gained access to data through 2003. The family's own labor in the cost data was accounted for at the equivalent of about two dollars per day (although this changes over time). Yields are reported in kilograms per mu, where a mu is equal to one-sixth of an acre (one-fifteenth of a hectare). Huang and Rozelle present data for eggplant, capsicum (green/bell peppers), field-cultivated tomatoes, greenhouse-cultivated tomatoes, field-cultivated cucumbers, greenhouse-cultivated cucumbers, and potatoes.

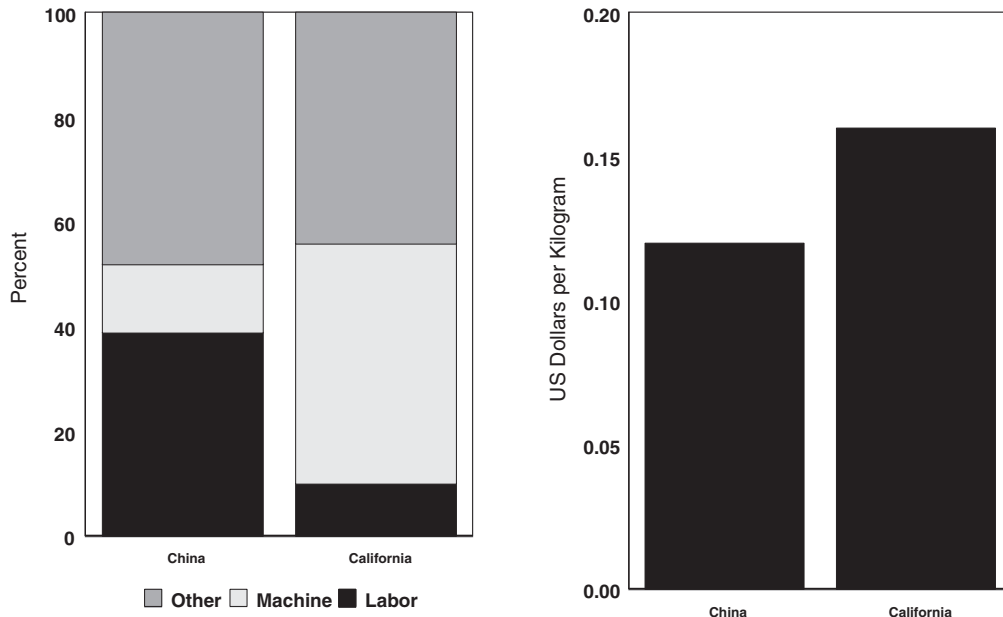
Although there are differences across crops and years, there are some important patterns and trends in the productivity of China's horticultural sector. The survey data dealt with both vegetable and fruit production and they showed a similar pattern. Between the early 1990s and early 2000s, yields (kg/mu) rose. In addition, output per person-day of labor rose steadily over the study period. Importantly, after initially rising in the early 1990s, total production cost per ton of output tended to fall (or at least stay constant) since the late 1990s, and the share of labor in the total cost of production rose over time. Two factors accounted for the rise in the cost share of labor: 1) as demand for vegetables rose, farmers placed more intense effort into their commercial production of vegetables; and 2) the wage applied to family labor rose. In addition, the shares of material (non-labor) cost accounted for by fertilizer and pesticides rose. Finally,

Figure 4.2: Cost of production of bell peppers in China and California.



Source: Huang, Dong, and Rozelle.

Figure 4.3: Cost of production of Japonica rice in China and California.



Source: Huang, Dong, and Rozelle.

although seed costs were relatively high; farmers bought most of their seed from the market and there were no regulations on seed prices.

When all of these facts are put together, it is clear that horticultural production in China has become more efficient. The amount of labor employed is enormous, but it is being used more effectively in producing vegetables. In other work done by the Center for Chinese Agricultural Policy (Wang et al.), it has been shown that when a farm moves into vegetable production, its cropping income rises substantially, although this implies increases in use of family labor and may divert labor from other activities.

Cost Comparisons with California Two figures (figures 2 and 3) provide a comparison of the costs of production between crops grown in California and China. The data for China were collected by a research team under our direction and put into cost categories that were designed to be similar to cost of production categories collected by the University of California's cost of production extension surveys (Huang and Rozelle). The left panel in figure 4.2 shows that a high percentage of the cost of vegetable production in China and California comes from labor. When this is so, the right side of the panel shows that China's producers have a large absolute cost advantage in production at the farm gate (that is, not counting marketing and processing costs). In figure 4.3, costs for rice are compared (short and medium grain rice that is produced in both northern China and northern California). In the case of rice, the share of costs in California that are made up of labor is lower than for vegetables (left-hand panel of figure 4.3). As a result, when comparing the farm gate cost of production, the costs in China and California are almost the same (right-hand panel). This clearly shows that in crops that are labor-intensive, China has an enormous cost advantage.

The cost advantages also show up in consumer food prices (table 4.6). While the prices of rice and poultry are about one-half of what they are in the United States, the retail food prices of tomatoes and apples are only about one-eighth as high. Quality differences certainly exist, but these are also disappearing.

Potential Constraints

China's producers also face many constraints. While it is beyond the scope of this chapter to analyze these in depth, it is an important area of research to see what factors are likely to hold back China's growth as a horticultural producer. In this section, we examine three possible constraints.

Table 4.6: Comparison of food prices between China and the US.

	China	US
Average food spending per person per year, 2003	\$262	\$5,050
Average retail price, 2005	\$ per pound	
Rice	.33	.58
Poultry	.58	1.07
Pork	.89	3.05
Tomatoes	.22	1.55
Apples	.12	.99

Sources: ERS estimates based on China National Bureau of Statistics, China National Development and Reform Commission, and US Bureau of Labor Statistics data.

Water scarcity is one of the key problems that affects northern China, an area that covers 40 percent of the nation's cultivated area and houses almost half of the population (Crook 2000). Water scarcity in China has risen both because of limited water supply and increasing water demand. Water availability per capita in northern China is only around 300 cubic meters per capita, which is less than one-seventh of the national average and far lower than the world average (Ministry of Water Resources). Past water projects have tapped almost all of the region's surface water resources. At the same time that irrigated cultivated area has expanded, the rapidly growing industrial sector and an increasingly wealthy urban population have demanded rising volumes of water (Crook 2000). As a result, surface supplies are becoming increasingly stressed and groundwater resources are diminishing in large areas of northern China (Wang, Huang, and Rozelle). For example, between 1958 and 1998 groundwater levels in the Hai River Basin fell by up to 50 meters in some shallow aquifers and by more than 95 meters in some deep aquifers (Ministry of Water Resources).

Since many horticultural crops use water relatively intensely, it seems plausible that as water becomes increasingly scarce, horticultural crop production could be hurt. In a study by officials on the use of water pricing policies to dampen the demand for water (Huang et al.), it was found that in order to substantially curb demand, the price of water would need to be raised substantially. They found that if water prices rose substantially a large amount of the sown area would come out of production. If water pricing policies were used aggressively and the area of horticultural crops declined, future horticultural supply could have trouble keeping up with demand.

Other findings from the Huang et al. study suggest that as water becomes scarcer, producers may choose to idle lower-valued wheat land when

setting aside sown area. In its place, farmers could shift into horticultural land. Although horticultural crops are water-using, they are relatively more labor-using. If the price of water rose, farmers may shift into those crops that use the relatively inexpensive factor (i.e., horticultural crops). In fact, cross sectional data ranked by the price farmers pay for water shows that as the price of water rises, farmers produce more horticultural crops. Hence, in this indirect way, as water becomes scarcer, horticultural supply may actually rise.

The size of China's farms also may be a potential binding constraint. There are now tens of millions of producers of horticultural crops in China. China's farm sizes are small and getting smaller. The very nature of China's production, trading, and trucking sectors means that ensuring food safety, quality, and reliability will be difficult, when we recognize that the costs of monitoring and providing assurance for food safety rise as the number of farms rise and their size falls. As the demand for food safety rises, the current level of quality assurance may become unacceptable. If this happens, and farm sizes are not able to adjust and other mechanisms are not found to certify and provide traceability for high quality, safe food, China may have trouble meeting both domestic and export demand.

Of course, China's most important advantage is its low labor costs. Rural wages have remained remarkably low over the past 20 years, in large part because China restricted the off-farm work of rural residents. As China develops, rural wages must rise. Indeed, our personal observations in the field suggest that the real hourly/daily wage rose between 2004 and 2005. China's comparative advantage in labor-using horticultural commodities will remain for some time. But if China's wages continue to grow at five to seven percent per year for two or three decades, China will lose some of its low-cost advantage.

SUMMARY

Policy changes and economic factors have played a remarkable role in triggering China's move into the horticultural market. As demand has risen, a more market-oriented policy has allowed China's farmers to respond and supply massive quantities of fruits, vegetables, and nuts. Small farms and poor farmers who sell to poor traders have supplied most of the production. Tens of millions of individuals are involved in the sector. The shift into horticultural crops has had many consequences, most of them positive. Incomes have risen, farm output has diversified, the quantity and quality of fruits and vegetables have risen, and China's production for its domestic market has expanded into the international arena. In fact, China's horticultural sector has grown far faster than anyone might have expected just ten years ago.

While many of the enabling conditions will persist, China's horticultural economy still faces large challenges. The availability and cost of water, land, and labor could all in some way undermine the sector's competitiveness. This will not happen soon, but it is possible, indeed probable, that in the long-run, China will not remain competitive in the production of many agricultural commodities. Until that time, however, there will be a race between China's ability to supply what consumers want and the increasing pace of domestic demand. If the supply side wins, China's producers will enjoy the fruits of both supplying the large domestic market and exporting. If the demand side pulls ahead, there will be opportunities for international horticultural producers to sell to China's market.

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Trade Adjustment Assistance for Farmers: Implementation and Lessons Learned



Richard J. Blabey

INTRODUCTION

On 2 August 2002, the Congress passed the Trade Act of 2002 (Public Law 107-210) creating a new program called Trade Adjustment Assistance for Farmers (TAA). The Trade Act charged the Secretary of Agriculture with the responsibility to implement TAA and appropriated \$90 million to the US Department of Agriculture (USDA) for each of the Fiscal Years 2003 through 2007 to carry out the program. TAA thus became the most recent member of a family of Federal programs helping workers, businesses, and communities adjust to import competition.

The underlying premise of trade adjustment assistance was new to the USDA. Farm programs traditionally supported either commodity prices or farm incomes and covered multiple years, usually for the life of a Farm Bill. While income tests and payment limitations were applicable, the personal financial need of a farmer was not particularly relevant. Rich farmers, as well as poor farmers, benefited from the programs. TAA, on the other hand, only applied to farmers who were harmed financially by import competition during a specific marketing year.

The Trade Act authorizes the Secretary of Agriculture to provide agricultural commodity producers TAA if imports, of like or directly competitive articles, during a marketing year contribute importantly to a decline in average producer prices of more than 20 percent from the average price for the five previous marketing years. The Act gives the Secretary discretionary authority to decide what “like or directly competitive articles” are and what “contribute importantly” means in terms of trade impact. USDA must therefore evaluate the effect of low-cost imports on domestic producer prices. TAA is not about redressing unfair foreign trade practices. Instead, TAA is primarily intended to

address actions taken by the producer's own government, in particular, the approval of new free trade agreements and the removal of border protection.

As conceived, TAA could not be appended to any existing USDA program. It had to be created from scratch, using the authorities, provisions, and limitations of the Trade Act, which had to be organized into a coherent and manageable set of administrative procedures. Establishing a program structure and rules for public participation meant drafting a regulation under Title 7: Agriculture, Part 1580 of the Code of Federal Regulations (CFR) that complied with the intent of Congress and defined terms, yet allowed for some administrative flexibility. The regulation needed separate analyses of its civil rights impact and a cost-benefit analysis. TAA required internal guidelines and procedures for reaching official decisions that assured producers due process. It needed links to USDA's existing network of farm programs. Hundreds of USDA employees in local offices had to be trained to support TAA. Software for managing documents and issuing payments had to be written and integrated with USDA records in compliance with the President's new E-Gov and E-File programs.¹ TAA petition and application forms had to be designed and approved by the Office of Management and Budget (OMB). To promote public awareness, USDA had to issue press releases, design internet websites, and publish brochures.

In creating TAA, USDA did not attempt to reinvent the wheel or create a new bureaucracy; only one full-time position was created for the program. Instead, USDA incorporated into 7 CFR 1580 many definitions and administrative controls already tested and used by the government. The Department adopted the Harmonized Tariff Schedule of the United States (HTS) as the basis for identifying and describing agricultural commodities. It adopted a process similar to that of the International Trade Commission (ITC) for reviewing and evaluating producer petitions for import relief. It eventually dispersed TAA tasks and services among various departmental agencies by administrative agreements.

During TAA's development and implementation, USDA kept two overriding goals in mind. The first was to deliver assistance to producers as rapidly as possible. The second was to administer TAA fairly and equitably. What follows in this chapter, is a discussion of how these goals were achieved, beginning with some background perspective and concluding with some lessons learned from providing approximately \$30 million in training and financial assistance to 11,800 producers during Fiscal Years (FY) 2004-2005. The discussion is organized under the following headings: 1) TAA's legislative and regulatory background; 2)

¹ E-Gov and E-File utilize internet-based technology to make it easier for the public to interact with the government. President Bush signed into law the E-Government Act of 2002 on 17 December 2002.

how seafood got covered by TAA; 3) certifying petitions within 40 days; 4) determining “like or directly competitive” imports; 5) filing TAA petitions: how difficult is it; 6) filing TAA petitions: for producer representatives, it is not so simple; 7) providing technical assistance at a reasonable cost; 8) the net income test: cash allowances and job training; and 9) some lessons learned.

Finally, this chapter does not discuss the effectiveness of TAA. Currently, evaluation data is being collected from producers for use by OMB’s Program Assessment Rating Tool. USDA has established performance goals to measure TAA outcomes. The results should become publicly available in late 2006.

TAA’S LEGISLATIVE AND REGULATORY BACKGROUND

The concept of providing income support and retraining benefits to workers adversely affected by trade agreements harkens back to the Trade Expansion Act of 1962 and the Kennedy Round of multilateral trade negotiations. However, few workers actually benefited from trade adjustment assistance programs until the Trade Act of 1974 significantly increased the generosity of TAA benefits and expanded worker eligibility. In 1976, when these new provisions became fully operational, TAA covered 62,000 workers at a cost of \$79 million.

During the 1980s, amendments to the Trade Act of 1974 expanded cash benefits, putting them on a par with unemployment benefits. The Reagan administration, however, tightened enforcement of the eligibility rules. A 1986 amendment added a job search requirement, and a 1988 amendment required workers to participate in training in order to receive cash benefits.

In 1993, Congress created the North America Free Trade Agreement Transitional Adjustment Assistance (NAFTA-TAA) as leverage to secure NAFTA’s passage. The major differences between regular TAA and NAFTA-TAA were that NAFTA-TAA covered secondary workers² and did not require workers to prove that increases in imports caused them to lose their jobs when employers moved employment to Canada or Mexico.

The focus of TAA from the beginning has been on displaced workers. However, it has also included minor provisions for aiding firms and communities. In 1978, the Department of Commerce (DOC) established 12 regional TAA Centers to help firms develop business plans for dealing with import competition. If a plan were approved, the firm would be eligible for a matching grant of up to \$75,000 to fund certain aspects of the plan, such as market research, information technology consulting, product development, and quality programs.

² Secondary workers are those employed by industries that produce inputs for the primary industry affected by the imports.

During the 1990s, TAA provided relatively generous support to a limited number of workers. Groups of three or more workers, or their representatives, could apply to the Department of Labor (DOL) to have the workers in their firm certified as eligible for benefits. These included up to 52 weeks of cash assistance beyond that provided by unemployment insurance and job training for up to two years. By 2001, spending on total benefits exceeded \$200 million (Baicker and Rehavi).

That same year, the Senate Finance Committee expected to begin work on a bill to renew “Fast Track” negotiating authority, which would be renamed “Trade Promotion Authority” (TPA).³ Because of the stagnant economy, TAA was regarded as potentially helpful in shoring up support for TPA. The minority staff⁴ therefore began to prepare a bill updating TAA that merged the existing TAA and NAFTA-TAA programs and broadened worker eligibility. Among numerous changes providing additional benefits to unemployed workers, the maximum period for receiving TAA cash benefits was extended to 78 weeks. The plan was to join the new TAA bill to the separate bill renewing TPA prior to its final passage by the House and Senate.

To broaden bipartisan support for TPA, the staff also incorporated into the draft TAA bill a separate TAA for Farmers bill (S.1100) that was introduced 26 June 2001.⁵ Backers of S.1100 maintained that, because farmers were businessmen, they could not qualify as unemployed workers, and that farmer needs were not met by the DOC’s TAA for Firms program. Interestingly, S.1100 defined an agricultural commodity to mean “any agricultural commodity (including livestock, fish, or harvested seafood) in its raw or natural state.” The new TAA bill was introduced on 19 July 2001 and referred to the Committee on Finance. On 4 February 2002, the Trade Adjustment Assistance for Workers, Farmers, Fishermen, Communities and Firms Act of 2002 was reported out of committee and placed on the Senate Legislative Calendar as S.1209. Chapter 6 authorized the farmers’ program in USDA, and Chapter 7 authorized an almost identical program for fishermen in the DOC. Under the farmers’ program, S.1209 defined an agricultural commodity to mean “any agricultural commodity (including livestock), except fish as defined in section 299(1) of this Act, in its raw or natural state.”⁶

³ TPA would require Congress to hold up-or-down votes on new trade agreements without amendment.

⁴ Senate committees are served by both Republican and Democratic staff members. Because Democratic senators were the minority in the Senate, the committee’s minority staff were Democrats, who wanted to increase benefits for workers who had lost their jobs because of imports.

⁵ The bill’s sponsors were Senators Grassley, Baucus, Conrad, Daschle, (Frank) Murkowski, Lincoln, and Kerry.

⁶ Chapter 7 begins with Section 299, and defines “commercial fishing, fish, fishery, etc.” to have the same meanings as such terms in the Magnuson-Stevens Fishery Conservation and Management Act (US Code).

A number of features of the workers' program were applied to the new farmers' program. Under TAA for Farmers a group of farmers, like a group of workers, could petition the government for relief. The requirement that producer prices decline by more than 20 percent modeled the requirement that workers show a decline of at least 20 percent in wages or hours to qualify for benefits. The requirement that the Secretary of Agriculture make a petition determination within 40 days was consistent with the DOL's requirement. Farmers, like workers, must receive technical assistance before becoming eligible for a cash allowance. A farmer's maximum annual cash allowance of \$10,000 mirrors the cap on TAA's wage insurance for workers.

In July 2002, separate TPA bills passed both the Senate and the House and then went to the House-Senate Conference Committee to resolve differences. There, the conferees decided not to incorporate S.1209 in its entirety into the final TPA bill (Trade Act of 2002). Instead, they made selected amendments to the Trade Act of 1974. Among them was Chapter 6, TAA for Farmers, but not Chapter 7, TAA for Fishermen.

Passage of the Trade Act of 2002 on 2 August presented USDA with a conundrum. TAA did not fit well into any single USDA agency. Instead, program elements were scattered around the Department. The Trade Act explicitly charged the USDA Cooperative State Research, Education, and Extension Service (CSREES) with delivering technical assistance. However, the Farm Services Agency (FSA) possessed the expertise to manage farm programs and issue payments to producers. FSA also had offices in areas where farmers lived. The Foreign Agricultural Service (FAS) managed import control and trade preference programs. The Economic Research Service (ERS) could evaluate the economic impact of imports but did not manage programs.

In late October of that year USDA decided that FAS would direct the program and that it would be run by the Import Policies and Programs Division (IPPD), which supervised the Department's sugar and dairy product import programs. A USDA-wide task force was assembled to assist FAS in setting up the program. On 3 January 2003 Secretary Veneman delegated to the FAS Administrator authority to manage TAA.

As time passed, Senate supporters of TAA became concerned that USDA was proceeding too deliberately. On 27 January, Senators Grassley, Baucus, and Conrad sent a letter to Secretary Veneman expressing their dismay that she would fail to meet the deadline mandated by Congress in the Trade Act to establish a trade adjustment assistance program for farmers by 3 February, 2003! They wrote:

This delay makes it highly unlikely that any of the \$90 million appropriated by Congress for fiscal 2003 will reach the intended beneficiaries of this program (Congress Daily).

On 6 February, Senator Baucus repeated his concern on the Senate floor stating:

The Trade Act of 2002 renewed the President's trade promotion authority after a lapse of eight years. In exchange for Congress' - and the nation's - renewed commitment to trade liberalization, the President agreed to expand the trade adjustment assistance program to better meet the needs of those who might be negatively impacted by trade. A critical part of the President's commitment was the creation of a trade adjustment assistance program for farmers, ranchers, and other agricultural producers. ...After decades of trying without success to squeeze farmers into eligibility rules designed for manufacturing workers it was time to try something new. Something, that would help farmers adjust to import competition before they lost their farms. ...So last summer the President made a commitment - to the Congress and to the American agricultural community - to make this program a reality. I think it is fair to say that this was one of just a few key elements that got the President those critical few votes he needed to pass TPA in the House and to pass it with a strong bipartisan vote in the Senate. ... And now I say to the President, and to Secretary Veneman: the farmers and ranchers of Montana - and indeed throughout America - continue to wait for your Administration to fulfill this commitment.

USDA soon accelerated its efforts. Before TAA could be implemented, it needed to undergo "rule-making," which required publication of a proposed rule, a public comment period, and publication of a final rule. Because producers would be asked to provide USDA information on their petitions and applications, TAA had to comply with the Paperwork Reduction Act's provisions regarding public information collection and newly imposed reporting burdens.

On 28 February, IPPD completed a first draft of the TAA proposed rule and sent it to USDA's Office of General Counsel for review. Following a further review by the OMB, FAS published the proposed rule, including the Paperwork Reduction Act notice of information collection, in the Federal Register on 23 April. The public had 30 days to submit comments regarding any aspect of the rule and notice. Resolving the issue related to the eligibility of salmon fishermen (discussed below) slowed "rule-making" for about a month in late June and early July. As the program took shape, the Administrator of FAS signed separate Memoranda of Understanding with ERS, FSA, CSREES, and the Agricultural Marketing Service (AMS)

to provide TAA support. FAS finally launched TAA on 20 August 2003, with publication of the final rule in the Federal Register. TAA took just over one year to get underway.

HOW SEAFOOD GOT COVERED BY TAA

Probably the most surprising early outcome of TAA is the fact that its leading beneficiaries have been fishermen. Programs to support and regulate the fishing industry have been traditionally based in the DOC, in particular the National Oceanographic and Atmospheric Administration (NOAA). To be sure, USDA played a role in nurturing the growth of the fish farming industry, especially the catfish industry in the South. However, the DOC always exercised the government's leadership role in the area of fisheries and international seafood trade. Then, early in the 1980s USDA became increasingly active in supporting the fishing sector's exports. This reflected the fact that while DOC funding for export promotion programs was slowly drying up, Congress was providing new money to USDA to enhance the export programs managed by FAS. Since the 1950s, the foreign market development programs of FAS had focused on raw agricultural commodities, such as wheat, feedgrains, oilseeds, and cotton. The new funding, however, was directed more and more at promoting the exports of value-added, processed, and semi-processed products. Thus, fish and seafood exporters began to gravitate toward FAS for assistance. In the 1980s, the Alaska Seafood Marketing Institute (ASMI) began applying for and receiving grants to promote salmon exports to Europe and Japan.⁷ In addition to promotional funding, fish and seafood exporters found other USDA programs opening up to them. In the 1990s, the DOC ceased sponsoring US seafood exhibits at international trade shows. FAS immediately filled the gap and began recruiting US seafood exporters to exhibit their products in FAS pavilions at international food and beverage shows, alongside companies displaying US red meat and poultry. Fish and seafood exporters were also welcomed to participate as members of FAS-sponsored foreign sales missions.

The coverage of certain fishermen by TAA therefore appears to be in keeping with a longer-term trend. USDA's attraction to the fishing sector is clear. It has funded programs that can serve the sector's needs. However, export promotion and import relief are fundamentally different, and in 2003 USDA was not seeking to expand its services to fishermen. To gain access to TAA, the fishing and seafood sector needed some forceful political intervention, and that is what it got.

As mentioned earlier, the Trade Act of 2002 did not include S.1209's Chapter 7, TAA for Fishermen. Instead, Section 143 of the Act states:

⁷ In fiscal year 2005, FAS allocated to ASMI \$3.5 million under the Market Access Program.

Not later than 1 year after the date of enactment of this Act, the Secretary of Commerce shall conduct a study and report to Congress regarding whether a trade adjustment assistance program is appropriate and feasible for fishermen. For purposes of the preceding sentence, the term “fishermen” means any person who is engaged in commercial fishing or is a United States fish processor.⁸

Therefore, when FAS published its proposed rule in the Federal Register, TAA did not cover fishermen, but only covered aquaculture because of that industry’s established position in the farm sector. Public comment regarding the coverage of aquaculture was favorable, and it remained in the final rule sent to OMB for a second review. This meant that not only catfish farmers, but also Maine’s Atlantic salmon farmers, would be eligible to petition for TAA.

In June, Alaska’s new Senator, Lisa Murkowski, became aware that fishermen of wild Pacific salmon in her state would not be eligible to petition for TAA. Frank Murkowski, her father and one of the original sponsors of the Senate’s TAA for Farmers bill, had appointed Lisa to fill his vacant Senate seat after he won Alaska’s gubernatorial election. She would have to run for election in November 2004 in order to keep the seat. Lisa Murkowski therefore needed to produce results in Washington to offset the charges of nepotism being heard back in Alaska.

Alaska’s fishermen had not found TAA programs particularly useful. Fishermen generally did not qualify for benefits as unemployed workers because they either operated their own vessels or shared in the catch. At the DOC, the Economic Development Administration certified for awards just one fishing firm in the Northwest in 2001 and only four in 2002. Senator Murkowski’s staff contacted USDA and insisted that Alaska’s salmon fishermen be covered by TAA. USDA countered that the Trade Act did not authorize TAA for open water fishermen. Furthermore, the public comment period had ended, and it was too late to make any changes to the rule reflecting the wishes of Alaska’s salmon fishermen. The matter was soon resolved, however, when the White House indicated that it wanted Alaska’s salmon fishermen covered.

To do so, USDA needed to solve two problems. The first was finding a compromise that would satisfy Senator Murkowski without extending TAA to all US fishermen. The rule needed to express a general principle of commodity eligibility that would cover Alaska salmon, without mentioning salmon *per se*. Otherwise, it would be seen as arbitrary and discriminatory. The second problem was justifying the change so late in the rulemaking process.

⁸ A year later, the DOC recommended against TAA for fishermen as inappropriate and unnecessary.

The first problem was solved by extending TAA coverage to US fish and seafood products, as long as they competed against imports that were produced by aquaculture. Alaska's wild salmon would qualify because they competed against imports of farmed salmon. The rule would allow "qualified fishermen" to petition for TAA benefits. It would define a "qualified fisherman" to mean "a person whose catch competes in the marketplace with like or directly competitive aquaculture products and report net fishing income to the Internal Revenue Service."

The second problem was resolved by reopening the period for public comment. On 2 July, FAS published the proposed rule for a second time in the Federal Register, requesting public comments by 9 July. Senator Murkowski's office in Alaska was prepared and launched a media campaign soliciting comments in support of TAA coverage for salmon fishermen. In all, 47 respondents provided FAS such views. As a result, FAS incorporated into the final rule the changes needed to provide "qualified fishermen" TAA. FAS then sent the final rule once again to OMB for clearance.

On 15 August, Senator Murkowski learned from Josh Bolton, Director of OMB, that TAA would soon be published in the Federal Register, and that it would allow open water salmon fishermen to petition for benefits. In a press statement she said:

Alaska fishermen are farmers. Rather than grow crops in fields, they harvest our seafood crops from the seas. They clearly deserve the exact same aid that farmers receive when they face lower commodity prices because of foreign competition. I have been asking for such assistance for months. By this decision the Administration has understood and accepted our arguments and has decided to give Alaska fishermen the aid they deserve. I really appreciate the efforts of the President, of Mr. Bolton at OMB, of Secretary Veneman at the Department of Agriculture and the US Trade Representative's Office to make this aid a reality for Alaska's thousands of fishermen who directly earn their livings from the sea. (SitNews)

Soon after, the United Fishermen of Alaska (UFA) filed a petition for TAA on behalf of Alaska's salmon fishermen. When it was certified in October, Senator Murkowski made the announcement, thanking Agriculture Secretary Veneman and OMB Director Bolton. She encouraged her constituents to sign up immediately for benefits, and during the 90-day application period, over 4,000 salmon fishermen did. They would all receive training and almost \$6.3 million in TAA payments.

In April 2004, as the election campaign for US Senator got underway in Alaska, the UFA's board voted to endorse Lisa Murkowski. Lisa Murkowski

defeated Tony Knowles in the race for senator in November 2004. Support for TAA undoubtedly contributed to her election victory. However, the impact of Senator Murkowski's efforts on behalf of her constituents extended well beyond Alaska. The rule change ultimately allowed successful petitions to be filed by salmon fishermen in the state of Washington and shrimp producers in nine southeast and Gulf coast states.

CERTIFYING PETITIONS WITHIN 40 DAYS

After producers file a petition, the Trade Act allows FAS only 40 days to make a determination whether or not increases in imports contributed importantly to a decline of more than 20 percent in average producer prices. The short 40-day fuse helps speed the delivery of assistance to producers. Timing is critical. Most producers do not have the financial resources to survive years of low prices. TAA must be made available before the farmers and fishermen face bankruptcy. Some administrative delay is inevitable. Producer price data is usually not published until many months after the end of the marketing year. Technical assistance may require changes in cultural practices that are by nature slow to implement. Therefore, TAA compresses the time taken for analyzing a petition to the bare minimum.

Making a fair and reasonable determination in such a short period of time presents a tremendous challenge. Price and import data must be collected and assessed, and market factors affecting supply and demand must be analyzed and evaluated. When planning began for TAA, FAS realized immediately that it needed a staff of commodity analysts to evaluate petitions. They would have to be ready to analyze at a moment's notice any petition that was filed. While FAS employs many agricultural economists, ERS was the obvious source of analytical support for TAA. FAS and ERS signed a Memorandum of Understanding (MOU), whereby ERS agreed to take on the responsibility of providing trade impact studies within 20 days of the petition's filing.

The FAS/ERS MOU addresses both the content and scope of the impact studies. As for content, ERS follows a uniform analysis protocol, which poses three questions. The first two questions are clear-cut. ERS verifies the petitioner's claim that average producer prices during the most recent marketing year fell more than 20 percent below the average of the previous five marketing years, and that imports of like or directly competitive articles increased during the most recent marketing year.

When a petition is filed, FAS provides ERS the agricultural commodity, identified by HTS code, and the codes of like or directly competitive articles that are being imported. Regarding prices, the TAA regulation mandates using official data published by the National Agricultural Statistics Service (NASS), whenever possible. Therefore, ERS does not

have to evaluate the merits of competing price series that may or may not support the price decline. If NASS does not publish official data, ERS checks other credible data sources for prices. Regarding imports, ERS verifies the increase by checking the volume of imports by HTS code number reported by the Bureau of the Census. The increase in the most recent marketing year must be at least one unit over the previous marketing year.

If the petition fails either the price test or the import test, ERS reports the finding to FAS and concludes its analysis. However, if the petition satisfies both tests, then ERS must evaluate possible causes for the decline in prices. If the producers request a hearing, FAS provides ERS whatever information it obtains from the producers. In practice, ERS analysts usually attend the hearings. ERS prepares a standardized report using various templates that provide supply and distribution data and prices.

The report first evaluates and discusses factors, other than imports, that might contribute to a decline in producer prices. These might be changes in domestic production, shipping patterns, consumer demand, quality, market segmentation, and exports. These factors may be described as “contributing” or “contributing importantly” to the decline in producer prices. The report then evaluates the impact of imports. Because the FAS Administrator is solely responsible for determining if imports “contributed importantly” to the decline in prices, the ERS report simply describes imports as either “contributing,” or “not contributing” to the decline in prices. Thus, the protocol relieves ERS from drawing a conclusion that would infringe on the authority of the FAS Administrator to make this determination. In addition, it shields ERS from appearing to make program-related decisions for USDA, which might raise concerns regarding the objectivity of its economic analysis.

The ERS report is sent to the Petition Review Committee for the next step in the petition review process. The committee’s job is to recommend to the Administrator whether or not certification of the petition is warranted. Its members, four senior USDA economists, one each from FAS, FSA, AMS, and the Office of the Chief Economist, provide the Administrator a recommendation that benefits from a broad, USDA-wide perspective. The committee’s work is facilitated by three factors. The first is the standardized ERS report format, which expedites rapid analysis and understanding of the basic economic issues in play. Secondly, the committee members review all petitions. This yields a consistent interpretation of what it means for imports to make an “important contribution” to a price decline. Thirdly, the committee conducts the hearings that producers may request within the first ten days after filing their petitions. The members are therefore able to question the petitioners directly about market conditions.

Because of the strict, step-by-step petition evaluation process, the FAS Administrator has been able to either certify or deny petitions based on the best analysis possible within the 40-day deadline. The process provides every petition fair and equitable treatment. It is important for another reason. The Administrator's determination to certify or deny a petition is final. TAA has no petition appeal process because the appropriation is fixed. If funding is insufficient, benefits must be prorated. Appeals could delay the distribution of benefits to producers covered by certified petitions, an outcome that would be both unfair and undesirable.

DETERMINING "LIKE OR DIRECTLY COMPETITIVE" IMPORTS

One of the most critical questions confronting trade adjustment assistance is how to determine what "like or directly competitive" articles are. Simply put, TAA cannot begin to function without a process for resolving this question. Almost every program element hinges on making this determination efficiently and effectively. For example, FAS cannot identify the intended beneficiaries of TAA without a link between imported articles and domestic commodities. Furthermore, the question must be answered before any analysis of trade impact can be made.

Finally, the definition of like or directly competitive articles affects the overall size of the program. If a broad definition were adopted, more articles would qualify as like or directly competitive. The result is an expanded range of program possibilities. If a narrow definition were adopted, fewer petitions would pass muster.

The Trade Act of 2002 authorizes the Secretary of Agriculture to decide what a like or directly competitive article is. The TAA regulation took a conservative approach and adopted a somewhat narrow definition of like or directly competitive. The final rule defines articles like or directly competitive to generally mean "products falling under the same HTS number used to identify the agricultural commodity in the petition."

The HTS is a very useful guide for identifying agricultural commodities. By using it, TAA takes advantage of a well-established system for classifying agricultural goods that starts with general categories under chapters identified by two digits and ends with very specific articles identified by as many as ten digits. In the HTS, almost all agricultural products that are imported by the United States in any significant volume are identified by a ten-digit code.

Under TAA, the petitioner must identify their product by its HTS number. Choosing the appropriate code is one of the most important decisions that the petitioner must make. The commodity identified by HTS code determines what price series and what import data will be used to evaluate

the petition. It therefore directly affects the petition's success or failure in winning certification.

The petitioner may identify their commodity quite specifically, or they may choose a more generic identity by selecting a code of less than ten digits. By doing so, they may strengthen their case for assistance if a significantly larger volume of imports is covered by the more generic code. On the other hand, the case for TAA may be lost if composite prices for all the goods classified under the more generic code do not decline by more than 20 percent from the average of the previous five years.

This, in fact, happened to a petition filed by the Southeastern Fisheries Association (SFA) on behalf of Florida shrimp producers for the 2002 marketing year. The SFA petition copied petitions filed by producers in other southeast and Gulf coast states. However, Florida shrimpers alone catch "rock shrimp." The prices of this species were strong throughout 2002. Consequently, when all shrimp prices were averaged, the composite did not fall below 80 percent of the previous five-year average, and FAS denied the petition. When SFA filed a new petition for marketing year 2003, it excluded "rock shrimp" from the petition's commodity code list. This time FAS certified it.

TAA's use of HTS codes also simplifies the import test. Imports must increase by volume during the marketing year for a petition to be certified. If the Bureau of Census data shows imports decreasing during the marketing year, the petition is automatically rejected. In some cases, the commodity is found within a "basket category" in the HTS. To deal with this, ERS may use country-of-origin data to estimate import volumes in its report to the Petition Review Committee. If the imports are fresh produce, ERS may use USDA plant quarantine inspection data.

World trade in agricultural goods has been shifting away from the exchange of raw farm commodities and toward greater trade in semi-processed and processed goods. US producers often compete with semi-processed and processed imports. If TAA were to limit like or directly competitive articles solely to products imported under the same HTS code as the raw commodity produced by the petitioners, it would be too restrictive. For agricultural trade adjustment to be credible, it must therefore address the treatment of processed or semi-processed goods. During rule-making, FAS received ten public comments favoring a less restrictive definition of like or directly competitive articles so that TAA would be able to address the competition from processed or semi-processed goods.

TAA clearly needed flexibility. USDA therefore created a procedure for considering semi-processed and processed goods as like or directly competitive articles. The procedure, however, puts the burden of proving that the processed goods are "like or directly competitive" on the shoulders

of the producers. If they believe this to be the case, they may request a public hearing to present supporting evidence. The FAS Administrator may, after the hearing, amend the terms of the original petition and consider semi-processed or processed products to be “like or directly competitive” articles.

The process is triggered when the petition indicates that the “like or directly competitive” article is found in another chapter of the HTS. IPPD invites the producers to present their evidence at a hearing before the Petition Review Committee. Hearings are usually held in Washington, DC, but if this is inconvenient, hearings may be conducted by phone or teleconference. During the hearing, the producers may call on the services of expert witnesses. Committee members may ask the producers questions about how their raw commodities and the imported goods are marketed, processed, and distributed. Following the hearing, the Committee immediately recommends to the Administrator whether or not TAA should regard the subject imports as like or directly competitive. The Administrator’s determination is published in the Federal Register.

Such determinations create a body of precedent for TAA, which is useful for guiding future program determinations. As these accumulate, the original narrow definition of a “like or directly competitive” article is slowly expanding. So far, the Administrator has determined that fresh salmon and frozen salmon fillets are directly competitive; so are fresh potatoes and frozen French fries, clementines and navel oranges, catfish and Vietnamese basa and tra, fresh and canned olives, frozen processed and fresh shrimp, fresh and frozen wild blueberries, and Concord grapes and grape juice.

FILING TAA PETITIONS: HOW DIFFICULT IS IT?

According to the Trade Act of 2002, a group of agricultural commodity producers, or their duly authorized representative, must file a petition for adjustment assistance. Thus, producers must take the first step to initiate TAA. USDA’s role is reactive. How are producers handling this responsibility of preparing and filing petitions? Can their duly authorized representative do a better job? The answers to these questions are discussed below and in the following section.

TAA is modeled after the DOL’s TAA for Workers program. If a worker loses his or her job due to import competition, the individual is expected to file an application for benefits. Most workers are aware of their rights to file for unemployment benefits at the DOL. TAA for Workers, in some ways, supplements unemployment insurance. A group of three workers must file a petition for assistance, which the DOL must certify before the workers can apply for and receive allowances and job retraining.

Under TAA for Farmers, a group of three producers must file a petition. On the petition they must identify the commodity adversely impacted by imports, the beginning and ending dates of the marketing year, and the impacted area within the United States.⁹ In addition, the petition must provide average producer prices for the most recent marketing year and each of the five previous marketing years, and a statement justifying why the petitioners should be considered eligible for adjustment assistance.

At this point two provisions of the Trade Act clash. The Act requires USDA to analyze and evaluate the case for assistance, much like a judge. The Act also requires USDA to “provide whatever assistance is necessary to enable groups to prepare petitions or applications for program benefits” (Sec. 295 (a)). These provisions present a potential conflict-of-interest, threatening the objectivity and credibility of the program.

To deal with this problem, FAS compartmentalized TAA responsibilities within USDA. The responsibility for advising producers belongs to IPPD. As it turns out, most producers need assistance in finding the correct code for their commodity in the HTS; deciding between a single state, multiple state, or nationwide petition; and in properly identifying the beginning and ending dates of their marketing year. If imports are semi-processed or processed goods, IPPD advises the producers regarding the scheduling of a hearing before the Petition Review Committee.

On occasion, IPPD may inform the producers that their petition does not satisfy the Trade Act’s requirements. For example, producers have submitted petitions with prices that did not show a 20-percent decline in the most recent marketing year from the five-year average. A fish species may not be competing with a farmed import. The marketing-year period may be invalid. A quick check of imports may show that they actually declined during the most recent marketing year. The commodity may not be an agricultural product covered by TAA. The petition may duplicate one that has already been filed by other producers. During TAA’s first two years, IPPD returned 31 petitions accompanied by statements explaining why they did not meet the filing requirements. Because of this screening process, all petitions that are actually filed have a reasonable chance of certification.

However, not all producers request assistance from IPPD. Some have received help in preparing their petitions from employees of state departments of agriculture, Land Grant universities, and the local Extension Service. Public institutions, however, may not submit the petitions.

In conclusion, most producers need some help in preparing a petition for TAA, but this is readily available from IPPD or other local sources.

⁹ The “impacted area” may be one or more states.

Because IPPD plays no role in evaluating petitions, it can provide effective guidance without compromising the integrity of the program.

FILING TAA PETITIONS: FOR PRODUCER REPRESENTATIVES, IT IS NOT SO SIMPLE

The Trade Act states that a petition for a certification of eligibility may be filed by a group of agricultural producers or by their “duly authorized representative.” The Act defines duly authorized representative to mean “an association of agricultural commodity producers.”

Unlike individual producers, producer organizations generally have the staff and resources to file petitions that contain proper HTS codes, suitable price series, and well-reasoned justification statements. Producer organizations filed 18 out of the 21 petitions that were certified during TAA’s first three years. However, not all producer organizations are willing to file petitions for adjustment assistance on behalf of their members. Those that do, sometimes discover that the process poses hidden dangers.

One reason why an organization might not file is that it is also an importer of the like or directly competitive article. This may be the case of an agricultural cooperative that owns a processing plant, which from time to time imports the competitive product. The imports may be necessary for blending in order to maintain consistent quality standards or to compensate for short harvests. In general, managers of cooperatives that own processing facilities are careful to prevent their imports from undercutting the economic interests of member producers. However, at times this can be difficult and complex.

During 2005, a group of Concord grape producers in Pennsylvania, New York, and Ohio petitioned for TAA arguing that imports of unfermented Concord grape juice from Canada were depressing their grape prices. The producers in the area sold almost all of their grapes to two juice processors, one of which is owned by a cooperative, Welch Foods Inc. (Welch’s). In filing their successful petition, the farmers received no assistance from Welch’s. By 2006, Welch’s changed its position and filed petitions for Concord grape producers in Washington State and Michigan. In these petitions Welch’s identified the like or directly competitive imports more generically as grape juice.

Another cooperative, Sunkist Growers, Inc., faced a different sort of problem, but the result was similar. In 2004, a group of California navel orange growers filed a petition claiming that imports of Spanish clementines were responsible for declining prices. The Administrator determined that clementines were like or directly competitive articles. Like Welch’s, Sunkist Growers played no role throughout the petitioning

process. When the Administrator eventually denied the petition, attributing low prices to overproduction, the story heard in Washington was that Sunkist had been dubious all along regarding the merits of the petition.

This may have been true, but why not file anyway? The cost would have been negligible, compared to the potential benefits that might have accrued to member growers, had FAS certified the petition. Was Sunkist's stand based on either pride or principle? The cooperative produces and exports citrus all over the world. It prides itself on the quality of its fruit. Would it want to state publicly that its navel oranges could not compete in the United States with Spanish clementines? Secondly, Sunkist Growers applies for and receives government assistance to promote its citrus sales overseas. In 2005, FAS, which administers USDA's Market Access Program (MAP), allocated \$2.1 million to Sunkist to conduct promotional activities. MAP is intended to help producers take advantage of opportunities to access markets and reach new customers around the world (USDA). In Fiscal Year 2005, FAS awarded \$140 million to 70 US trade organizations.¹⁰ Many of these producer-related organizations may find it awkward to submit petitions to FAS, asserting that their products cannot compete with imports in the US market.

Grower organizations that do file petitions must finesse some tricky issues, which if not handled properly, can cause them significant problems. To avoid complaints from their membership, they need to understand how the particulars of the petition affect producer allowances. The amount of the allowance is directly related to the severity of the price decline. This decline can vary greatly depending upon how the petition describes the impacted area.

To understand this requires some explanation. TAA recognizes that imports can have a different price impact across North America depending upon the locality and the time of year. Thus, a national average price test may not make much sense as a trigger for TAA. For example, imports may adversely affect only those producers farthest from the major markets. Imports that arrive at the beginning of the marketing year may only affect producers who deliver their commodities during this period of generally higher prices.

Therefore, TAA employs the Secretary's discretionary authority in the Trade Act and allows the national average price to be the average price for an area encompassing less than 50 states. Using this device, TAA can focus on helping producers who are facing the brunt of import competition in these impacted areas, which may be just a single state.

¹⁰ Welch Foods Inc. received \$667,000 in MAP funding.

An authorized representative needs to consider the pros and cons of filing a single, “national” petition, which would cover the entire production area, or multiple petitions, which would cover only those areas most affected by imports. The single petition, if certified, would result in a uniform payment rate for all eligible producers. Under the multiple-petition scenario, producers in areas receiving the lowest prices would receive higher payments. Producers in other areas would receive lower payments. The danger of filing a national petition is that it effectively reduces the potential cash allowance that would be paid to the organization’s hardest hit members in order to ensure benefits to those less affected by imports, or possibly not harmed at all. Depending upon the variation of prices across the production area, a uniform payment for all could lead to turmoil within an organization over the unfairness of the result.

In 2004, the shrimp industry faced the above dilemma, and resolved it by filing separate state petitions. The payment rates for allowances varied from one cent per pound in Alabama to 16 cents per pound in Texas. The Administrator denied state petitions that year from Mississippi and Florida because average producer prices fell less than 20 percent. Therefore, before filing a petition, a nationwide producer organization should consider the various payment rates that result from filing state or regional petitions.¹¹

A second issue that producer representatives need to deal with is the selection of the precise commodity to be identified in the petition. For example, the members of the association may produce various classes of the same commodity. Instead of prices varying by geographic location, producer prices may vary from one class to another depending upon how well they compete with the imports. This was the issue confronted by Alaska’s salmon industry. The United Fishermen of Alaska, after considerable thought and discussion, filed a single petition that identified Pacific salmon as the commodity. Alaskan fishermen actually catch five species of Pacific salmon, each having its own price series reflecting somewhat different supply and demand characteristics. The UFA petition identified farmed Atlantic salmon fillets from Chile as the like or directly competitive import. When the petition was certified, USDA announced a uniform payment rate for Pacific salmon based on a weighted average of landed prices for all five species. The fact that many Alaskan fishermen catch more than one species of salmon may have been a factor influencing UFA’s decision to file one petition.

¹¹ Through FY 2006, only the Catfish Farmers of America has filed a “national” petition, which listed 18 states, roughly the entire US production area.

PROVIDING TECHNICAL ASSISTANCE AT A REASONABLE COST

Technical assistance is at the core of TAA. The Trade Act of 1974 described positive adjustment as taking place when the domestic industry is able to compete successfully with imports, or when the domestic industry experiences an orderly transfer of resources to other productive pursuits. The Trade Act of 2002 authorized USDA to provide to producers information and technical assistance that will assist them in adjusting to import competition. This assistance includes providing “producers information regarding the feasibility and desirability of substituting one or more alternative commodities for the adversely affected agricultural commodity; and technical assistance that will improve the competitiveness of the production and marketing of the adversely affected agricultural commodity, including yield and marketing improvements” (Sec. 296 (a) (1)(D)).

The Act designated the Extension Service as responsible for providing TAA’s broadly described training and technical assistance benefits. In fulfilling its role, CSREES must cope with two provisions in the Act. The first is that producers must first receive their technical assistance in order to qualify for a cash allowance and become eligible for DOL job retraining benefits. The second is that all technical assistance is free. Therefore, CSREES must carefully control costs while expediting technical assistance, because producer cash allowances and technical assistance draw from the same \$90 million appropriation.

The TAA regulation states that “producers shall have an opportunity to meet at least once with an Extension Service employee within 180 days of petition certification” (7 CFR 1580.302). This 180-day requirement is not in the Trade Act, but it is in keeping with the Act’s intent to provide rapid assistance to producers. In addition, the 180-day deadline for delivery of Extension Service training permits TAA cash allowances to be administered on a fiscal year basis. By rule, petitions must be filed by 31 January. Therefore, all petitions are either certified or denied by mid-March (40 days later). By mid-September (180 days later) all Extension Service training is completed, thereby allowing all producers to certify that they have received technical assistance prior to the end of the fiscal year on 30 September.

The challenge for CSREES is that it must be prepared to offer technical assistance to producers of any commodity, in any state, within six months of petition certification. CSREES has done this by careful planning and delivery of technical programs using every tool available to educators and trainers. When a petition is being reviewed, CSREES alerts the Digital Center at the University of Minnesota and its four Regional Centers for Risk Management Education (RME), located at the University of

Delaware, Texas A&M University, the University of Nebraska, and Washington State University, that they may have to provide technical assistance to producers beginning 45 days after the petition's expected date of certification.

If the petition is certified, the Digital Center is responsible for coordinating and storing electronically all research and education materials related to the commodity. These may be off-the-shelf or newly developed as part of the TAA technical assistance and delivery program. The Digital Center maintains a TAA website (www.taaforfarmers.org) on which it posts documents and training schedules.

The appropriate RME prepares a seminar and technical assistance package, which is based on a standardized format. It includes information about the status of world markets, ways to increase crop value, marketing alternatives, evaluating the viability of the farm business, and analyzing production costs. From time to time, it may be augmented. For example, the package for shrimp producers contained extra information about how to improve post-harvest quality. For Alaska salmon producers, the RME at Washington State University contracted the Sea Grant Marine Advisory Program of the University of Alaska at Fairbanks to prepare an "Alaskan Salmon Technical Assistance Manual." In addition, the workshops provide links to further training opportunities and advise producers how to apply for and receive other Federal assistance and services, including employment services and training benefits under TAA for Workers.

The RME then schedules multiple workshops and notifies each TAA applicant of their time and location. If attendance at the workshop is not feasible, Extension Service agents may provide the assistance one-to-one, either at the producer's place of business or at the local Extension Service office or center. In Alaska, between 20 January and 30 June 2004, ten trainers working for the Marine Advisory Program delivered 245 workshops in 83 communities. To reach fishermen in remote villages, the trainers conducted 56 workshops by audio conference.¹²

The seminar and technical assistance package developed by CSREES and its Extension Service partners is low-cost and can be delivered to thousands of producers within a few months time. However, technical assistance specialists and the RME Center Directors concluded after TAA's first year that effective trade adjustment, which often requires behavioral change on the part of producers, seldom results from workshops of two or three hours. Adjustment requires more intensive technical assistance that is applicable to the producer's individual situation. Such assistance, furthermore, must extend beyond the end of the fiscal year.

¹² In the case of Alaska salmon, FAS waived the requirement that producers must meet a trainer at least once in person to qualify for a cash allowance because of the unique challenge posed by Alaska's geography.

Beginning in 2004, CSREES began planning a program of more intensive and individualized technical assistance. It is called "Phase II Assistance" to distinguish it from the program of workshops, now called "Phase I Assistance." For producers, the new program is optional and not a prerequisite for any other program benefit. Phase II Assistance may last 18-24 months in order to allow sufficient time for producers to apply and test new techniques and knowledge. So far, producer response has been favorable. For example, 80 percent of the Idaho potato farmers, who attended Phase I Assistance workshops, stated that they were interested in more intensive and customized technical assistance.

TAA technical assistance, which is expected to be a significant benefit over the long-run, must be paid for out of the annual \$90 million appropriation. The Trade Act mandates that it be provided at no cost to applicants. CSREES has controlled costs by emphasizing group-training sessions for Phase I Assistance. Workshops cost on average less than \$100 per applicant trained. The training module now being deployed for Phase II Assistance is expected to cost \$2,000 per producer. CSREES estimates that TAA expenditures for Fiscal Years 2004-2007 including the fixed costs of setting up and maintaining training modules, websites, and data bases will probably total less than six million dollars.

THE NET INCOME TEST: CASH ALLOWANCES AND JOB TRAINING

At first glance, TAA appeared similar to other USDA farm programs administered by CSREES and FSA. As a result, officials in USDA, as well as producers across the United States, easily misunderstood how the program differed from traditional farm programs. Once operational, many producers discovered that they would not receive a cash allowance, which they anticipated would be a major benefit. By not receiving the allowance, they were also ineligible for DOL job retraining programs. The primary reason these producers did not receive a cash allowance was their failure to satisfy TAA's net income test.

For over half a century, farm programs tried to bolster commodity prices and incomes by means of various market intervention measures, deficiency payments, and more recently, direct income support payments. Benefits were usually based upon the producer's production history. No matter what their economic circumstances, farmers could count on financial assistance after they signed up for the programs at their local FSA county office. The more they produced, or were capable of producing, the more assistance they usually received, up to certain caps or limits.

Producers apply for TAA at the same FSA county offices, but TAA works quite differently. To be sure, all producers become eligible for technical

assistance. This, however, is the only universal benefit. TAA introduces something new. Only applicants who pass a needs test qualify for full benefits. The Trade Act of 2002 states that payment of an allowance shall be made to a producer if the “producer’s net farm income (as determined by the Secretary) for the most recent year is less than the producer’s net farm income for the latest year in which no adjustment assistance was received...” (Sec. 296 (a)(1)(C)).

Therefore, producers have to prove economic hardship to be eligible for cash allowances. In particular, a producer’s net farm (or fishing) income must be less than that earned before imports caused a precipitous drop in prices. By limiting job-retraining benefits to only those producers eligible for a cash allowance, the Trade Act made this benefit available only to those producers who are at potential risk of losing their farms and businesses. On the other hand, if TAA were to use loss of gross income, or even net income related to the certified commodity, practically all applicants would qualify for cash allowances and job retraining.

TAA’s net farm income test is consistent with TAA for Workers. Under the DOL program, benefits are offered to individuals who have lost their jobs, and consequently, their paychecks. If the worker is a member of a household, the lost job means loss of household income. The Trade Act substitutes a decline in net farm income for the loss of a worker’s job. The net income test is likewise consistent with the notion that when import competition is overwhelming, the wisest course of action may be seeking alternative employment. Producers suffering a loss in net income are thus able to apply for DOL job retraining benefits. Helping producers make the transition from agriculture or fishing to other occupations, distinguishes TAA from traditional farm programs.

To implement the net farm income test, TAA accepts Internal Revenue Service (IRS) rules that define net farm and fishing income. By using IRS rules and documents, TAA accomplishes a number of objectives. First, TAA’s administration is facilitated. Secondly, TAA avoids placing any new paperwork burden on applicants. Producers have already prepared and submitted the relevant tax forms to the IRS by the time they apply for TAA. Thirdly, IRS tax returns are legally enforceable documents. Finally, by reporting net farm and fishing income on their Federal income taxes, applicants are self-certifying that they are engaged in serious businesses.

Even though the above interpretation of the Trade Act seems fair and reasonable, many producers disagree. They feel that sharply declining prices are sufficient evidence of economic hardship and need. At most, they think that the net income test should only take into account income

and expenses related to producing and marketing the commodity covered by their petition. However, their appeals to the US Court of International Trade have so far been denied.¹³

SOME LESSONS LEARNED

New programs risk public disappointment and unintended consequences, and TAA was no exception. When it was implemented in 2003, the USDA launched a publicity campaign. The Trade Act of 2002 mandated a proactive approach, stating:

The Secretary shall provide full information to agricultural commodity producers about the benefit allowances, training, and other employment services available under this title and about the petition and application procedures, and the appropriate filing dates, for such allowances, training, and services (Sec. 295 (a)).

In its campaign, USDA highlighted TAA's maximum \$10,000 cash allowance. Unfortunately, this raised unrealistic expectations among producers that they would receive large checks. Two factors served to dash these hopes. First, the net income test disqualified about one-third of applicants from receiving any payment at all. Secondly, the Trade Act's formula for calculating the allowance resulted in payments falling well short of \$10,000. On average, producers eligible for allowances in 2004 and 2005 received \$2,800 and \$3,800, respectively. TAA payments were not the income supplement that producers had anticipated.

Technical assistance presented other expectation issues. Most petitions were filed by producer associations. The leaders of these organizations tend to be the most progressive and prosperous producers. Thus, they may have already tapped out the knowledge and expertise of local Extension Service agents and, consequently, discount the potential value in TAA's free seminars.

Beginning in early 2004, the USDA began taking steps to correct these problems. News releases and announcements now place less emphasis on the \$10,000 allowance and place more on technical assistance, which has been enhanced by introducing Phase II Assistance. The result should be more realistic expectations regarding payments and more useful and effective technical assistance available to all producers.

Secondly, launching public programs can be easier than terminating them. When TAA was in early development, OMB expressed concern that a commodity, once certified, might be difficult to de-certify. Without effective sunset provisions, TAA might evolve into a new entitlement

¹³ The Trade Act of 1974 specifies the US Court of International Trade in New York as the court of TAA appeal. Producers have filed 62 appeals over the denial of benefits. Most have involved the net income test.

program. As more petitions were certified, TAA would soon exceed its \$90 million appropriation, thereby triggering the prorating of benefits as required by the Trade Act.

This scenario, however, has so far failed to develop. The experience of the first three years indicates that commodities have difficulty sustaining their eligibility. The reason for this is implicit in the petition approval criteria, in particular, the two related to imports and prices. By law, the Administrator must determine that increases in imports of like or directly competitive articles have contributed importantly to a decline in average prices of more than 20 percent during the marketing year. Therefore, FAS immediately denies recertification if the volume of imports during the subsequent marketing year does not increase by at least one unit over the previous year.¹⁴ A petition is also denied recertification if the average domestic producer price rises above the 20 percent trigger.

The import and price criteria, which are both transparent and absolute, have proven to be highly effective in terminating programs. The Administrator does not have to make the more subjective, and possibly more difficult, determination that increases in imports of like or directly competitive articles are no longer “contributing importantly” to the decline in prices. By strictly applying these two criteria, FAS decertified all 17 petitions that were approved in 2004 and 2005.

Thirdly, net farm income can be a useful measure of need as demonstrated by TAA. Unlike adjusted gross income, which primarily measures farm size, net income can reveal a farm’s economic viability and competitiveness. Drafters of US farm policy, who want to promote or reward producer competitiveness in future farm programs, should consider how they might use net farm income criteria to identify which producers should be the beneficiaries of these programs.

Finally, TAA had not yet fully proven itself as useful for facilitating trade liberalization, even after three years of activity. Because of stable prices, relatively few farm commodity petitions have been filed successfully. Only rice has been a candidate for TAA among the major grain, oilseed, and livestock commodities, and it was rejected.¹⁵ However, future ratification of a number of bilateral trade agreements now being negotiated could result in petitions that might demonstrate TAA’s value more precisely.

In any event, the 2002 Trade Act’s five year appropriation for TAA will expire at the end of Fiscal Year 2007. Should Congress extend TAA? The answer may well depend upon whether or not the US Government intends to restart multilateral trade negotiations, which are stalled at the present time. Before resuming the negotiations, Congress must

¹⁴ This is the most common cause for denying subsequent-year certification.

¹⁵ The Administrator determined that imports did not contribute importantly to the decline in producer prices.

extend the life of TPA, which is also about to expire. To round up the necessary votes for TPA, the proponents of trade liberalization may need to assure industries put at potential risk that they will be compensated, if harmed. As for agriculture, providing additional cash support to farmers may not be a feasible option. Such assistance can distort markets and is considered contrary to trade liberalization goals. TAA educational and technical assistance, on the other hand, is not considered to be trade distorting. Since its inception, TAA has demonstrated its ability to educate producers about import competition and expected future trends. This has encouraged some producers to make the transition out of farming and fishing. TAA has provided others with the technical know-how to enable them to survive and prosper in a more competitive marketplace. As for its cash allowances, they are too modest to be trade distorting. TAA remains, therefore, a viable option for facilitating future trade liberalization. In addition, TAA is an emergency rapid response program. Lack of a sufficient number of petitions for assistance during the past three years is not a sufficient rationale for terminating the program. The more prudent course for Congress is to extend TAA beyond 2007.

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APPENDIX

A compilation of statistics relating to Trade Adjustment Assistance.

Appendix Table 5.1: TAA - FY 2004 petitions.

Petitions/ Commodities	State(s)	Applicants (No.)	Eligible for allowances and DOL training (No.)	Payment rate (\$/lb)	Payment ('000 \$)
Wild blueberries	ME	94	93	0.028	208
Pacific salmon	AK	4,140	2,527	0.03	6,287
Pacific salmon	WA	209	147	0.07	129
Farmed catfish	^a	256	230	0.003	513
Shrimp	NC	99	63	0.05	97
Shrimp	SC	53	48	0.108	162
Shrimp	GA	69	64	0.13	160
Shrimp	AL	54	45	0.01	23
Shrimp	TX	1,168	1,097	0.16	4,632
Shrimp	AZ	1	1	0.16	1
Lychees	FL	20	14	0.53	75
Shrimp ^b	FL	163	110	0.06	280
Total (12/5)	22	6,323	4,436		12,585

Source: FAS internal data (2006).

Notes: ^aIncluded: AL, AR, FL, GA, ID, IL, KS, KY, LA, MS, MO, NV, NC, OH, OK, SC, TX, and UT.

^bPetition is for marketing year 2003. Other shrimp petitions are for marketing year 2002.

Appendix Table 5.2: TAA - FY 2004 petitions re-certified in FY 2005 for a subsequent year.

Petitions/ Commodities	State(s)	Applicants (No.)	Eligible for allowances and DOL training (No.)	Payment rate (\$/lb)	Payment ('000 \$)
Pacific salmon	AK	1,930	1,007	0.031	3,424
Pacific salmon	WA	90	49	0.021	10
Shrimp	NC	66	47	0.08	60
Shrimp	SC	89	51	0.25	272
Shrimp	GA	84	45	0.39	223
Shrimp	AL	133	81	0.04	176
Shrimp	TX	1,228	1,024	0.28	6,251
Shrimp	AZ	1	1	0.28	10
Lychees	FL	24	20	0.554	114
Total (9/3)	9	3,645	2,325		10,540

Source: FAS internal data (2006).

Appendix Table 5.3: TAA - FY 2005 new petitions.

Petitions/ Commodities	State(s)	Applicants (No.)	Eligible for allowances and DOL training (No.)	Payment rate (\$)	Payment ('000 \$)
Shrimp	LA	743	574	0.056/lb	1,469
Shrimp	MS	248	159	0.108/lb	513
Olives	CA	303	224	23.17/ton	622
Potatoes	ID	341	295	0.035/cwt	650
Concord grapes	NY, PA, OH	182	102	30.06/ton	122
Total (5/4)	7	1,817	1,354		3,376

Source: FAS internal data (2006).

Appendix Table 5.4: TAA - FY 2005 petitions re-certified in FY 2006 for a subsequent year.

Petitions/ Commodities	State(s)	Applicants (No.)	Eligible for allowances and DOL training (No.)	Payment rate (\$)	Payment ('000 \$)
<i>None</i>					
Total (0/0)	0	0	0		0

Source: FAS internal data (2006).

Appendix Table 5.5: TAA - FY 2006 new petitions.

Petitions/ Commodities	State(s)	Applicants (No.)	Eligible for allowances and DOL training (No.)	Payment rate (\$)	Payment ('000 \$)
Avocados	FL			0.006/lb	
Concord grapes	MI			9.80/ton	
Concord grapes	WA			18.10/ton	
Snapdragons	IN			0.627/bunch	
Total (4/3)	4				

Source: FAS internal data (2006).

Appendix Table 5.6: TAA - Phase I, technical training.

Petition	States	No. Producers
Wild blueberries	Maine	93
Pacific salmon ^a	Alaska	4,337
	Washington	1,162
	Oregon	144
	California	136
	Other	237
	Total salmon	6,016
Shrimp	Alabama	63
Shrimp	Georgia	99
Shrimp	North Carolina	96
Shrimp	South Carolina	83
Shrimp	Texas	2,033
Shrimp	Arizona	1
Shrimp	Florida	163
Shrimp	Louisiana	714
Shrimp	Mississippi	225
	Total shrimp	3,477
Catfish	^b	256
Lychee	Florida	20

Source: Mark R. Bailey and Kenneth W. Stokes, personal communications with author (2006).

Notes: ^aBecause numerous Alaska and Washington fishermen live outside the production area, CSREES provided workshops and training to producers in 42 states and 6 foreign countries.

^bCSREES provided training in AL, AR, FL, GA, IL, KS, KY, LA, MS, MO, NC, OH, OK, SC, and TX.

Farm Subsidy Reform Dividends



*Ralph Lattimore*¹

INTRODUCTION

A great deal has been written on the subject of “Farming without Subsidies” in New Zealand (NZ). This chapter draws heavily on that work, particularly Evans et al.; Federated Farmers; Gould; Johnson and Forbes; Lattimore; Meat and Wool NZ; Rayner and Lattimore; Morrison, Johnson, and Frengley; Sandry and Reynolds; Silverstone, Bollard, and Lattimore; and Vitalis. Dalziel and Lattimore has a comprehensive bibliography of the business, economics, sociology, and political science literature on the subject.

Twenty years later, the results of the farm subsidy reforms are clear. Sufficient time has passed for technological improvements to be generated and adopted. The macroeconomic climate is much more stable than it was in the 1980s. It is now possible to confirm that there is a dividend payable from subsidy reform. Johnson and Forbes estimate that the rate of total factor productivity growth more than doubled from 0.7 percent over the high subsidy period, 1972-84, to 1.9 percent thereafter. Real farm incomes have now recovered and in some cases are significantly higher than they were during the period of high subsidies. Likewise, real (inflation adjusted) farmland prices are higher than they were under the high subsidy regime.

Nevertheless, in 2006, there are a number of cyclical problems facing NZ farmers. Incomes are down in many sectors, some key costs are rising rapidly, the exchange rate was ten to 15 percent overvalued in

¹ Rebecca Harald and Kay Cao of the NZ Ministry of Agriculture greatly assisted with data retrieval. The chapter benefited from comments from Gary Hawke, Vangelis Vitalis, Peter Gardiner, and Robin Johnson with the usual disclaimer.

2004/2005, new bureaucratic procedures abound, and what subsidies government does grant are much more likely to go to film makers, sports events, or yachtsmen than they are to farmers – yet aside from the usual antigovernment chatter at stock sales, there is no groundswell to push for renewed subsidies.

The reason for this is that New Zealand farmers now know that business life without major subsidies anywhere in the private sector is not perfect but it is “as good as it gets.” Importantly, there is also now a more systematic policy framework in place to deal with the new issues that will inevitably rise. Perhaps the key element stimulating this view is the freer market environment that farmers face. New Zealand farmers now operate in an environment where they are closer to world market prices and costs than they have been for many decades. Those world market prices are, of course, highly distorted by foreign agricultural policy interventions but even given that, New Zealand farmers can make their own judgments about where to invest and where to disinvest. They face market risks on outputs and inputs including attendant foreign political risks, but they haven’t faced large domestic political risks for 15 years. In other words, New Zealand farmers now operate in the same sort of general economic environment as North American farmers but without having to submit much farm policy control to the state. This increased economic freedom is obviously important to farm efficiency in New Zealand even though it is difficult to quantify.

In this more market-oriented environment, New Zealand farmers have expanded output rapidly based on accelerating productivity trends and associated higher incomes. As this chapter will show, their contribution to the performance of the national economy has increased as agricultural productivity has grown more rapidly than outside of agriculture in recent years. For example, there are only half the number of breeding ewes there used to be, but the quantity of lamb produced is roughly the same. Productivity improvements across the whole farming industry have led to record high farmland prices as farmers compete for resources for their investment plans. Their living standards exceed those of many highly subsidized farmers in other countries. It has been a painful process for some farmers getting to this point and a few colleagues have been lost along the way. However, they don’t want to go back.

How did these subsidies arise in the first place? The New Zealand farm sector was initially granted some subsidies on inputs from the later part of the 19th century – but they were very low in producer subsidy equivalent (PSE) terms. This was done in an attempt to offset the extra costs on farming resulting from tariffs on imports of farm inputs. This “import substitution policy with farm subsidy compensation” was ramped up significantly in 1938 under the first Labor Government. An import

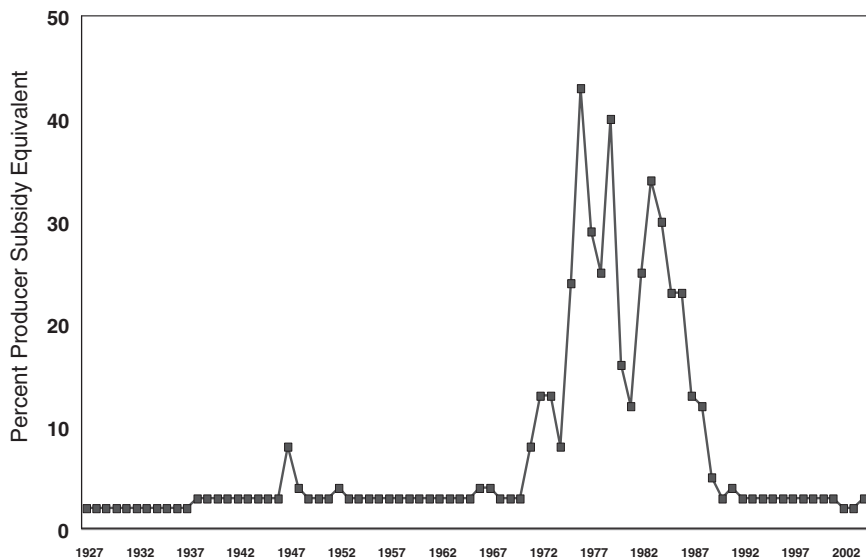
selection policy was introduced at that time which prohibited imports of competing goods, as was occurring in many other countries. Subsidies to farmers were not high initially with the Producer Subsidy Equivalent less than five percent but overall economic growth suffered as a result.

There was a major attempt to rebalance this industry policy set in the late 1960s.² Initially, new export subsidies were provided for nontraditional exports in attempts to diversify the economy in the face of British entry to the European Economic Community (EEC). In the early 1970s farm subsidies on inputs gradually started to rise to counteract the negative economic impacts of British entry and increased oil prices. In the late 1970s, large farm output subsidies were added for selected goods, especially for sheepmeat and wool. The PSE in the sheep industry rose to around 45 percent in the early 1980s – on a par with EU and North American levels (figure 6.1).

Output subsidies, mainly in the form of deficiency payments, constituted the highest share of total agricultural assistance over the period 1972-84. The output subsidies tended to vary inversely with world prices so that in any particular year, the major commodities received different proportions of input and output subsidies. Table 6.1 presents the subsidy shares for

² There was a previous attempt, in the early 1950s, which was aborted (Rayner and Lattimore).

Figure 6.1: New Zealand farm subsidies.



Source: author estimates.

Table 6.1: New Zealand farm subsidies (PSE) by commodity, 1984.

Type of subsidy	Sheepmeat	Wool	Beef	Dairy
Output subsidies (%)	88	43	13	15
Input subsidies (%)	12	57	87	85
PSE (%)	90	19	13	13

1984. It needs to be noted that, like highly subsidized farm sectors in other countries, smaller farm subsectors (like horticulture, most other crops and pigs) received very few subsidies relative to the larger subsectors (sheep, beef, and dairying).

Farm subsidy reform in New Zealand is a very special case in the following sense. Prior to 1984, there were severe distortions in financial markets and an associated overvalued exchange rate and high inflation. So, in addition to removing farm subsidies and reducing import protection, the economic reform package involved radical financial deregulation – a floating exchange rate and the removal of interest rate controls. Accordingly, farm interest rates rose to around 25 percent (from 11 percent or less) just as subsidies disappeared. The resulting extra farm costs added considerably to farm financial stress – lowering net farm incomes and farmland prices much more than the simple removal of farm subsidies would have done.

In the next section the discussion turns to why New Zealand farm subsidies were initially raised so high, why and how they were quickly removed after 1984, and what have been the resulting effects on the NZ farm sector.

NZ AGRICULTURAL POLICY REFORMS

Pressures for Reform

The problems that led to the complete removal of agricultural subsidies had their origins in the aftermath of World War Two. Unlike most OECD countries, New Zealand continued the isolationist economic policy that had been introduced during the Great Depression. It extended wartime-like price control systems and added additional monopoly marketing boards in the late 1940s. There was no political mandate for change – growth boomed as a result of high commodity prices and the joke was told that all the unemployed were known to the Minister of Labor on a first-name basis. Around the early 1950s, New Zealand had the third highest per capita income in the world.

In this environment, industries were responding to distorted trends in world market signals and the import selection policy tended to stifle the incentive to import best practice technology, especially in manufacturing

and in the service sector. The farm sector was caught in a major policy-induced cost-price squeeze – farm export prices were too low and costs were too high in New Zealand dollar terms.

With this badly structured economy, New Zealand slipped to around 24th place in the world per capita income rankings over the next 30 years (Gould). Britain's entry to the EEC hit New Zealand hard as did the first two oil shocks – harder than they needed to, because the interventions had distorted world market signals and industries responded too slowly in the right direction.

By 1984, there were also severe macroeconomic imbalances. High levels of government foreign borrowing had resulted in credit rating downgrades and attempts were being made to offset the large twin deficits with price, wage, and interest rate controls. The rate of economic growth was poor and underlying inflation was still around 20 percent per year.

Within agriculture, high sheep subsidies had led to nonsaleable surpluses of sheepmeat, farm development on very marginal land, food quality problems arising from import controls, and concern over the lack of agricultural diversification and the lack of product development for both the domestic and export markets. The US government added its stimulus by complaining about New Zealand agricultural subsidies and threatening countervailing action on exports.

There were some moves to correct policy imbalances in agriculture even as farm subsidies were being raised. For example, there were moves from the late 1970s to the early 1980s to deregulate controls on the meat processing industry and the wheat industry. However, while there is no clear date when farm subsidy removal started, the rate of removal was accelerated from 1984. It was also announced before the 1984 election that the large output subsidies would have to be removed.

However, for all this, the real stimulus for economic reform and subsidy removal was the existence of a foreign exchange crisis in 1984 just prior to the election (Rayner). The incumbents lost the election and the fourth Labor Government won in a landslide. The economic crisis led to the appointment of Sir Roger Douglas as Minister of Finance with equally market-oriented deputies in key associated portfolios.³ Sir Roger was given a very free hand for nearly four years to initiate economywide reforms. Furthermore, it is not surprising that a Labor Government should begin reforms with a strong emphasis on removing farm subsidies because the rural community was not a key supporter of the Labor Party.

³ Prior to the election, Douglas had not received unequivocal support within his Party for his pro-market ideas but the crisis was sufficiently grave to consolidate support for his appointment to the finance ministry (Rayner).

Overcoming Resistance

As just outlined, the high farm subsidies in New Zealand were partial compensation for the import selection policy and attendant policy interventions. After thirty years of policy analysis, the interconnected nature of the policy problem was well understood – import selection raised farm costs and farm subsidies partially compensated by lowering some costs and raising some farm revenues. In the late 1960s, the major farmer organization had initially agreed to, and then withdrawn support for, a freer import regime. They were content to continue receiving offsetting subsidies, at least on inputs. Farmers knew that the compensation was only partial – subsidies were a poisoned chalice.

With this background, the government was able to structure a set of reforms in 1984 that often provided prospective benefits to farmers in the form of lower costs at the same time as they withdrew farm revenue subsidies. The farmers union (Federated Farmers of New Zealand) strongly supported the two-sided deal, just as they had in 1968, but this time they did not renege.

The government promise of freer imports in return for farm subsidy elimination had more credibility in 1984 because moves had been underway for some years to reduce import protection. Perhaps the most important catalyst was the signing of the free trade agreement with Australia in 1983. This Australia New Zealand Closer Economic Relations Trade Agreement (ANZCERTA) includes all food and agricultural products⁴ and a joint food standards authority to prevent nontariff barriers arising. This agreement resulted in the tendering of increasing quantities of bilateral import licenses across a broad range of products, and the eventual removal of these quotas. Farmers could be more confident this time that the economic reforms would go to the core of the problem.

Douglas would use this strategy of “take and give” repeatedly – with great political effect. For example, it was announced that a consumption tax (goods and services tax or GST) would be introduced and that income taxes would be reduced at the same time. There was hardly any resistance to the introduction of the new tax and, in contrast to other countries, no exemptions to GST had to be made to gain acceptance.

The government was also astute in not dismantling agricultural marketing boards in the early stages of the reforms. These boards, particularly the Dairy Board, were held in high regard by many farmers because they had been around for a long time, were cooperative in nature, and appeared

⁴ A notable feature of the ANZCERTA agreement is the way a food standards arrangement embedded in the agreement can be manipulated to exclude a politically important product to Australia, namely, apples. Australia has been able to continue refusing to import NZ apples since 1983 and the disagreement seems, finally, headed to the WTO disputes tribunal.

to act as political and economic safety nets. The boards were retained (in fact, a new one was added for kiwifruit) in spite of the strong suspicion in analytical circles that the boards implicitly hindered product and market development rather than aided it (i.e., that they were export taxes rather than export subsidies).

The government also took a number of actions to assist farmers in small but important ways. A subsidy was introduced to assist in pulling out unprofitable varieties of wine grapes. In addition, the government subsidized a farm finance appraisal program to assist farmers (and banks) faced with difficult financing questions in the face of some dramatic declines in farm viability. Drought relief packages were readily agreed to, government shares in agricultural infrastructure (like irrigation schemes) were sold to farm groups at discounted prices and a government fund of past fertilizer import profits was handed over to farmer control for R&D purposes. None of these measures were costly but they began to breed a culture of farmer control using their own funds based on the Douglas principle of shifting risk to firms in the best place to manage it (i.e., circumventing government failure).

The economic reform program captured a great deal of political and popular press after 1984 because it was so extensive. Some attention was drawn away from the associated adjustment costs by the introduction of nuclear-free legislation and the high profile breakup of the Australia-New Zealand-United States joint defense arrangement. This was led by the Prime Minister, David Lange, who supported the Finance Minister politically in many ways, over the period of radical reform.

Compensation Arrangements

In the context of current international discussions regarding the fate of small farmers when (if) farm subsidies are reduced, it is perhaps helpful to understand that New Zealand agricultural policy has always made a fairly clear distinction between commercially viable farm units and farms that do not provide a significant proportion of household income. The latter are called “hobby farms” or “lifestyle blocks” even though in the aggregate, they produce a sizeable proportion of farm output. In New Zealand, most commercial farmers are full-time working owners and very little private farmland is rented. Compensation payments were limited to full-time working farmers.

Compensation for policy changes was quite modest in the New Zealand case. This was aided by the fact that private banks had a natural inclination not to bankrupt too many clients – their balance sheets were heavily skewed towards farm debt and the market for farmland was softening very quickly in the face of very high interest rates.

As already noted, the government assisted Federated Farmers with farm finance appraisals and individual farmer negotiations with banks. The government-owned Rural Bank made interest and principal concessions to selected borrowers based on the likelihood of the farm returning to profitability in the future. After the Rural Bank was sold to the private sector, the government replaced these concessions with some interest rate subsidies on private loans. The Rural Bank also assisted with seasonal finance in the tight financial market around 1986. Social welfare assistance, not usually available to the self-employed, was made available to very low-income farmers to underpin basic living expenses for a few years.

Where a commercial farmer appeared to have no hope of recovering financial viability, an exit package was provided by the government. It comprised a grant of the family car and household furniture plus a cash grant that constituted a reasonable deposit on a house in town. Surprisingly, few such packages were required. As well, redundant farm employees were able to use standard relocation subsidies provided by the central government to move to new jobs.

Immediate Impacts

The output subsidy removal impacted most acutely in 1986. Sheepmeat and wool prices fell dramatically (figure 6.2) as a result of the withdrawal of output subsidies. Input prices rose where input subsidies were withdrawn (particularly for fertilizer and credit). In that year, the real incomes of sheep and beef farmers (those with the highest output subsidies) fell 60 percent from the previous year. Dairy farmer incomes fell by 25 percent mainly as a result of rising debt servicing costs and the removal of fertilizer subsidies.

Farmland prices had been falling in real terms since 1982. In 1985, they were 30 percent lower than the peak and 50 to 65 percent lower by the time they bottomed out in 1987.⁵ It is estimated that over the period 1985-89, around five percent of commercial farmers were declared bankrupt or simply left the farm.

Farm families survived the crisis by cutting costs, increasing revenue (including off-farm employment), and restructuring farm debt using the facilities created by the government. Fertilizer use dropped nearly 50 percent over the period 1985-87 without a major drop in productivity. This is possible in New Zealand because the main fertilizer is phosphate and on many soils it has a strong residual effect. Repairs and maintenance and machinery and equipment purchases were postponed. Farm employees

⁵ Farmland prices were 50 percent lower for dairy farmers and 65 percent lower for sheep and beef farms.

were laid off resulting in the greater use of family labor and the adoption of additional labor-saving practices.

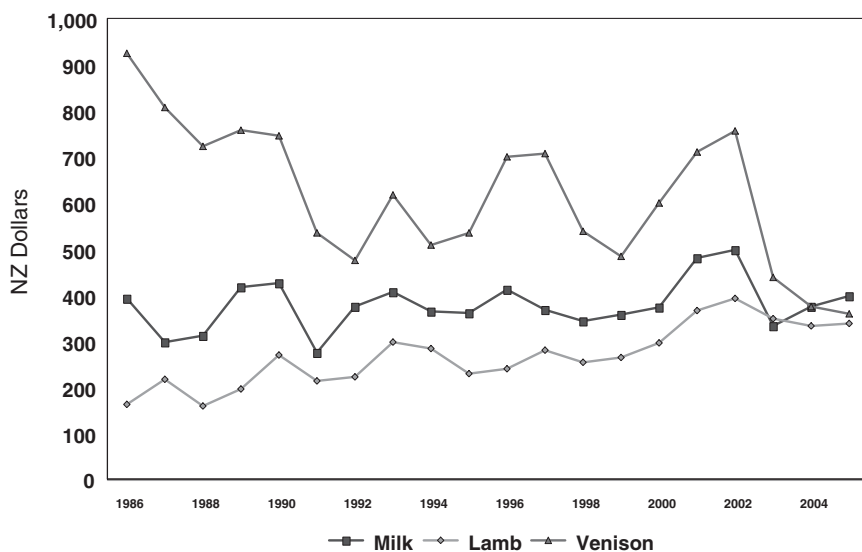
Farmers and their wives took part-time work off the farm and diversified farm enterprises where they could – given the financial constraints. “Farm Stay” accommodation blossomed at this time as farmers moved out of sheep into a wide range of other farm enterprises – farm forestry, deer, dairying, goats, wine grapes, kiwifruit, and rural tourism. Large areas of marginal land were taken out of production and some land was sold for lifestyle blocks or leased to outside investors for forestry and other enterprises.⁶ Two booming sectors at the time were plantation forestry and wine (figure 6.3).

Did Retail Food Prices Fall?

The farm output subsidies in the exportable sectors of agriculture took the form of deficiency payments (Supplementary Minimum Prices). Accordingly, their introduction did not affect market prices for agricultural products in wholesale and retail markets. However, dairy products, meat, and some other food prices were also protected by import

⁶ It has been interesting in more recent years to see some lifestyle blocks being bought back by commercial farmers as farm profitability recovered in the 1990s.

Figure 6.2: Real commodity prices in New Zealand.



Source: New Zealand Ministry of Agriculture and Forestry.

licensing and tariffs for a period. The removal of these import restrictions led to some retail price reductions and increasing consumer choice. To the extent that food processing firms in these sectors had monopoly power in New Zealand, prices would only have fallen to import parity rather than export parity, but this is not a large differential in the absence of nontariff barriers.

A number of New Zealand agricultural products, however, are import substitutes. Wheat and eggs are two such examples. In both cases, production and pricing before 1984 (actually 1981 in the case of wheat) were highly controlled by marketing boards with extensive powers to promote self-sufficiency. Both industries were completely deregulated and commodity prices fell (figure 6.4). This had noticeable effects on the retail price of eggs. It probably also reduced bread and flour prices though it would have been masked by the high value-added beyond the farm gate for these products.

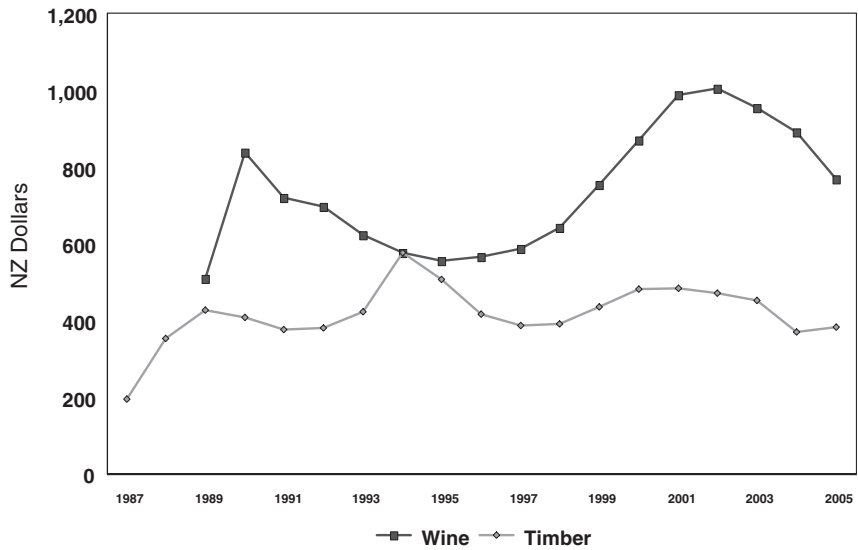
The liberalization of imports had very noticeable effects on the variety of foods available in supermarkets. Prior to this time, margarine had only been available in New Zealand with a doctor's prescription! The varieties of dairy products, meat, fruits, vegetables, and many other food products expanded a great deal after the 1980s.

Sector Profile, Then and Now

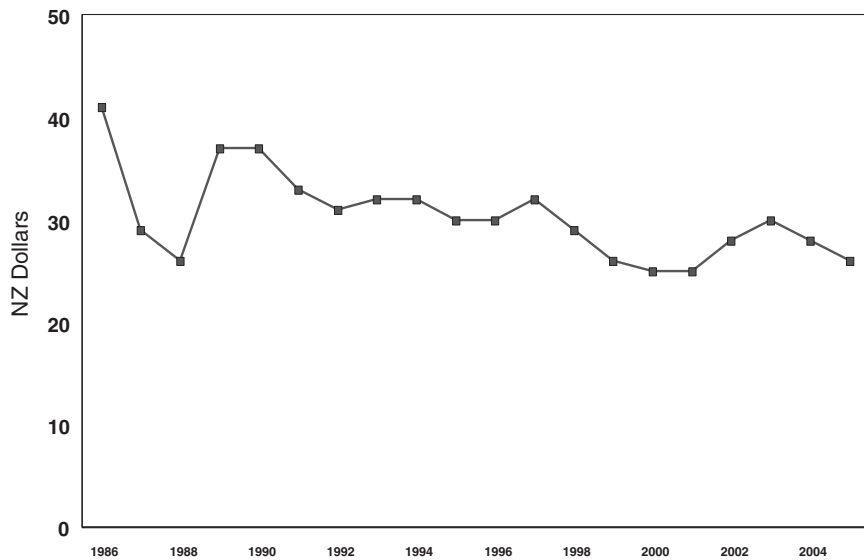
We expect economic development processes to gradually involve a shift of resources from the primary sector to manufacturing and finally to the service sector. This path has been followed in New Zealand but in a somewhat different fashion for two reasons. First, the relative strength of New Zealand's comparative advantage in agriculture is greater than for most other developed countries. Secondly, the import substitution bias of policy in New Zealand was greater over the post-World War Two period than it was in any other developed country.

In this context it is interesting to look at agriculture's share of GDP and agriculture's share of exports. In 1966, agriculture's share of GDP was 13.9 percent. It fell monotonically to 5.7 percent in 1987 when economic reforms were being enacted. Since then, agriculture's share has risen. In 2002, it was 7.6 percent of total GDP from farming alone. These shares are confined to value-added on farms only, and do not include major contributions to GDP from the food processing sector and other industries strongly allied to farming.

In 1960, agricultural exports represented over 90 percent of total exports. This figure fell to just over 60 percent by 1986. This decline reflected the

Figure 6.3: Real wine and timber prices in New Zealand.

Source: New Zealand Ministry of Agriculture and Forestry.

Figure 6.4: Real wheat prices.

Source: New Zealand Ministry of Agriculture and Forestry.

sectoral diversification expected as a result of the development process and the bias against agriculture in industry policy. Following the removal of farm subsidies, agriculture's export share has continued to fall but at a much reduced pace – in 2005 it was fairly stable at around 55 percent of total merchandise exports. In addition, the proportion of value-added exports has significantly increased.

The number of commercial farms grew following the removal of subsidies, from 77,000 in 1984 to around 80,000 during 1986-93. Over this period, pastoral farms got larger while many farms that diversified into deer and horticulture got smaller. There are currently around 66,000 commercial farms, in part, as a result of amalgamations of farm units in the expanded dairy industry.⁷

The size of the farm labor force trended downwards to around 109,000 full-time equivalent workers (FTEs) and working owners in the early 1970s. Increasing farm subsidies resulted in an expanding agricultural labor force, peaking in 1983 at 127,000 FTEs. It has since declined to around 102,000 FTEs in 2004. Over the period since 1984, labor productivity has risen by around 85 percent. This is one of the best indicators of changes in farmers' incomes since subsidies were removed, as more than one-half the farm labor force is made up of working owners.

The land devoted to livestock and arable farming has declined from 14 million hectares in 1984 to around 12 million hectares in 2003. At the same time, livestock (overwintered) on this land has been reduced from around 110 million stock units to 100 million stock units – but they are much more productive animals. The productivity of breeding ewes has risen over 60 percent since 1991 (in terms of kilograms of lamb produced per breeding ewe) while the quantity of milksolids produced per dairy cow has risen over 20 percent. Land devoted to horticulture has risen from 87,000 hectares in 1984 to 121,000 hectares in 2003 while the area of plantation forests on farms rose by around 350,000 hectares after 1984.

The quality of food products improved in some areas as a direct result of the reforms. One example is the case of wheat. Prior to 1981, New Zealand pursued a self-sufficiency policy in wheat, with import quotas supporting a domestic price set by fiat. Each year, farmers were offered a basic price for wheat delivered to the nearest train (ensuring that wheat was not grown in the most productive regions).

Quality differentials tended to reflect the ease with which the various types of wheat could be grown and less to do with consumer preferences. Furthermore, wheat farmers were able to influence wheat breeding research ensuring that new varieties were developed to suit growing

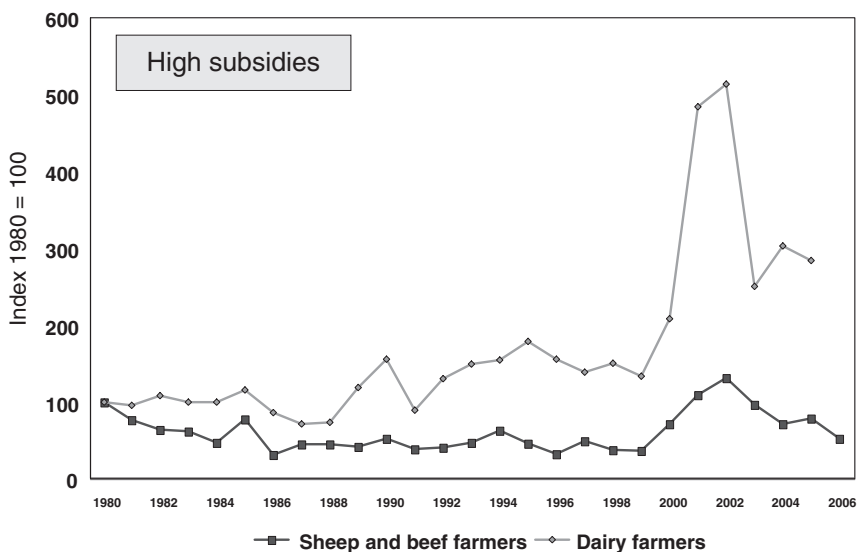
⁷ Farm numbers also reduced as a result of changing statistical definitions.

conditions, rather than millers, bakers, and consumers. The result was that most of the wheat grown in New Zealand had low baking scores by world standards and this was reflected in bread quality. The deregulation of the wheat industry resulted in some reduction in New Zealand's level of self-sufficiency but an increase in the quality of wheat grown.

Dairy farmer incomes started to recover from 1988 and the improvement accelerated after 1991. Sheep and beef farmer incomes improved more slowly from 1987 (figure 6.5). Both farm types received a setback during the Asian Crisis as this region contains a very important set of farm markets for New Zealand. More recently, there have been some spectacular rises (and falls) in farmer incomes. The large rise in 2001 for dairying triggered more major conversions of sheep farms to dairy farms.

Farmland prices bottomed out in 1988 (figure 6.6), and immediately began to recover. Again the recovery was slowest for sheep farmland prices but this is not surprising given the relative trend in sheep and beef farmer incomes and the fact that many sheep farms are on the extensive margin of the agricultural sector. Around 1996 there was some speculative activity in dairy and arable farmland. This activity was sufficient to attract the attention of the central bank governor and the ensuing interest rate hikes resulted in some of those gains being lost. The falls in dairy farmland prices after 1997 are also partly the result of lower export prices around

Figure 6.5: New Zealand farmers' real incomes.



Source: author estimates based on Dexcel data.

the time of the Asian Crisis. The upward trends in farmland prices resumed starting in 2001.

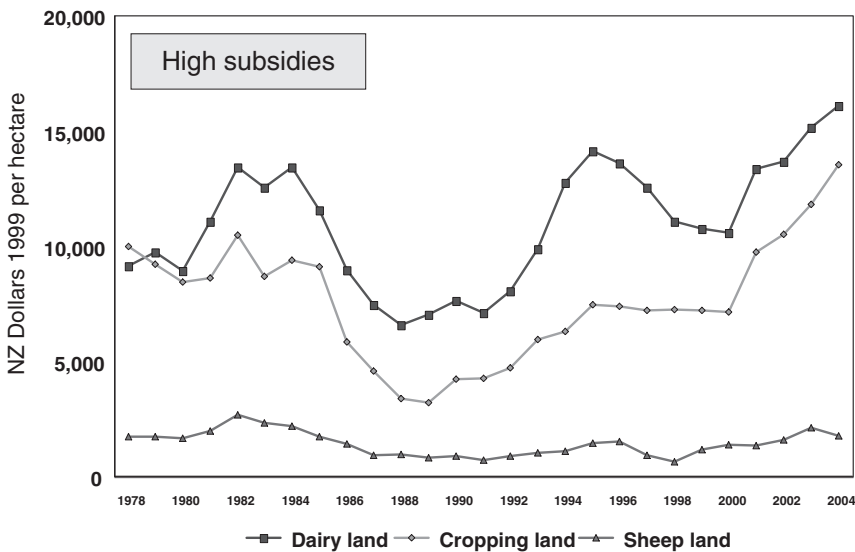
Avoiding New Income Support

The economic reforms set out to create a “level playing field” for all industries including agriculture (with minor exceptions still under discussion like textiles and apparel) and adopting a “market led approach”. This was achieved by about 1997. At the same time governments have reformed monetary, taxation, competition, and fiscal policy to ensure they are more transparent and more goal-focused. With the removal of exchange rate distortions and virtually all import protection, there is now a new culture developing that sees no need to treat the business of farming any differently from any other business.⁸ Accordingly, pleas for special treatment are now more likely to be subjected to objective efficiency and equity tests than was previously the case. It is a harder filter to penetrate, and discourages industry groups from trying.

New Zealand governments, like all governments, are always on the lookout for a worthy infant industry. However, the record of past poor public investments in “think big” projects and “picking winners” is still

⁸ In economic terms, the foreign exchange restraint has been removed.

Figure 6.6: Real farmland values in New Zealand.



Source: author estimates based on Meat and Wool NZ data.

remembered (though the memory is probably decaying). The government over the last 15 years has redirected its fiscal efforts towards improvements in infrastructure including education and research. In agriculture, these efforts are most apparent in biotechnology research, telecommunications accessibility, international market support, international relations, occupational safety, environmental policy, training, and competition policy.

Until recently, governments have been constrained by the high fiscal costs associated with the major fallout from the economic reforms – unemployment. During the reform period 1984-91, unemployment rose from four percent to 11 percent (the level it peaked at during the Great Depression). It has taken nearly 15 years to get unemployment rates back to below four percent and at high cost in terms of education, mentoring, and training subsidies. A second fiscal constraint is that GDP per capita is significantly lower than that of the countries New Zealand emulates in health, education, and welfare standards. This puts considerable strain on government budgets and makes it difficult to gain priority for industry assistance unless it is seen to have generic or eye-catching appeal.

Finally, there is the need for growth. New Zealand cannot afford to have too many resources, in important sectors, misallocated by distorting policy interventions. If resources cannot earn a profitable return at world market prices, they must be encouraged to move. The failures of farm subsidies and import selection in this regard are reminders of impediments to growth.

Impacts on Agribusiness

The agribusiness sector was generally liberated by the broad ranging economic reforms, and for the same sorts of reasons farmers have come to appreciate (Sandrey and Reynolds p. 233). Business had been hampered by the repressed financial sector and policy uncertainty generally. They welcomed the macroeconomic stability, more neutral taxation system, and the freedom to import.

Business also benefited from labor market deregulation at the end of the reform period but the deregulation of the meat processing industry meant increased wage flexibility in that large food processing industry even before the reforms had started.

Inflation and fiscal control that gradually took hold in the 1990s created greater certainty for business. The new environment has, however, brought a new challenge in the form of fluctuating real exchange rates under the floating exchange rate regime. Farmers and agribusiness got

a taste of this problem in the late 1980s when the floating rate began to appreciate just at the time subsidies were being removed.

Competition policy has had both positive and negative effects. It has provided more cover for smaller agribusiness firms but, at times, it has hampered the merger expansion plans of large firms. Large New Zealand agribusiness firms are not large by world standards and some view competition policy constraints as barriers to increasing international competitiveness. The case of the formation of the dairy cooperative, Fonterra, is illustrative. When government allowed Fonterra to be formed by merging two very large cooperatives, it required an exemption from competition law. This was granted but subject to quite restrictive behavioral constraints in New Zealand to try to prevent monopsonistic actions in the raw milk market. Given that Fonterra is only about the fourteenth largest dairy company in the world, in a country with one of the strongest comparative advantages in dairying, some view competition law as unduly restrictive.

The changing composition of farm output and general market deregulation (in wheat, for example) opened the way for significant change in agribusiness. Farmer cooperatives bought out the last remaining multinational meat processing companies in New Zealand. There were many mergers and new entrants in the bakery and cereal industry, wineries, forestry, beverages, dairy products, agricultural research, banking, the farm input supply industry, and in fertilizers. Competition policy ensured that competitiveness was not reduced, and in many instances, markets involving agribusiness firms have become more competitive.

Lessons from Providing Compensation

The compensation offered to farmers was provided in a timely and credible fashion, involving, as it did, a partnership with Federated Farmers. To the extent possible, farm subsidies were only continued (e.g., interest writeoffs and holidays) in cases where the farm was thought to be viable at world market prices. To this extent it was efficient in not blocking the transfer of valuable resources within the agricultural sector or between agriculture and other sectors. Where this criteria could not be met, exit grants which quickly freed up resources, also appear to have been efficient. No compensation was offered for the loss of quota rents (with the minor exception of tobacco).

It is always more difficult to assess the equity aspects of compensation packages in farming because farmers have traditionally been amongst the wealthiest individuals in New Zealand society. The exit package does not

appear extravagant in this context. It might also be viewed as sufficient given that many of the farmers who found themselves with negative equity probably would have had to leave farming even if the subsidies had remained – the reforms merely accelerated the process. This latter argument, however, is implicitly using the relative wealth position of the nonfarming community as the comparison for horizontal equity. If one uses the relative wealth of farmers who survived the subsidy removals as the comparison, it is easy to come to quite a different conclusion. Farmer-banker negotiations led to banks making decisions on who would survive and who would not. Both groups often had negative equity at realistic market prices. The judgment must have involved strong subjective elements and the wealth outcomes today are quite different. Farmers who survived the bank negotiation have current wealth levels measured in the millions, whereas the farmers who exited have a fraction of that wealth level.

The adequacy of farmer compensation in the New Zealand case also needs to be judged in the context of the economic reforms. The reforms were a response to a crisis and while the compensation was offered in a timely fashion, the programs were put together hastily and developed as extensions of existing social welfare programs with their traditional levels of support. That, of course, may be the most equitable basis upon which to design farmer compensation.

Winners and Losers – How Well Were They Predicted?

The winners in agriculture from the economic reforms are those farmers (the majority) who withstood the short-term adjustment costs and stayed in farming long enough for farm incomes and farmland prices to recover. They won in large part because they developed and adopted new technology to boost farm productivity. This is best indicated by the acceleration in total factor productivity (TFP) illustrated in figure 6.7. TFP is the ratio of value-added in farming to an index of primary factor inputs. Here the primary factors for New Zealand farming are land, labor, farm machinery and equipment, the stock of female breeding animals, and the stock of fertilizer (the historic three-year moving average of fertilizer applied).

As shown in the figure, there appears to have been almost a doubling of TFP from the highly subsidized period, 1972-84, to the unsubsidized period thereafter. Some perspective on these TFP growth rates may be gained by considering that at a TFP growth rate of 1.5 percent per annum, it would take nearly two generations to double a farmer's income but at 2.5 percent, it would only take one generation.

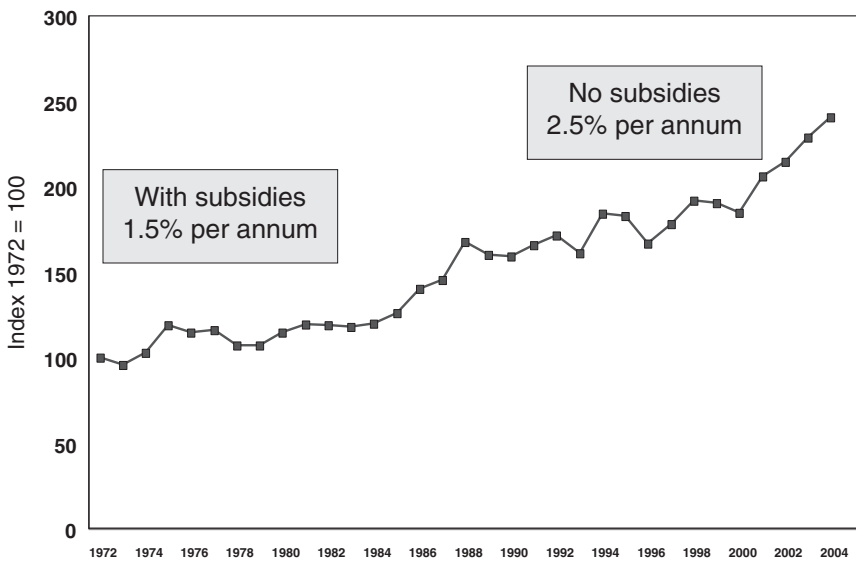
The losers were those farmers who left or were forced out of the industry while farmland prices remained low. There were some farmer suicides and

there was a high incidence of personal and social anxiety in rural areas. Farm employees who were laid off had to find alternative employment, often in other regions.

Government overestimated the number of farms that would be declared bankrupt or otherwise forced off their farms. During the reforms, the government forecast that around 20 percent of farmers would lose their farms. However, only about one percent of farmers took exit packages and about five percent of farmers left the land over the period 1985-89. These numbers are not significantly greater than the normal rate of farm bankruptcies.

Outside the farm sector, workers with lower skills bore the brunt of the adjustment costs emanating from the economic reforms. Some ethnic minorities were heavily represented in this group: as groups they were also in the process of undergoing structural social changes. It took more than 15 years for the labor market performance indicators of these groups to normalize.

Figure 6.7: New Zealand total factor productivity rates.



Source: author estimates.

CASE STUDY: THE NZ DAIRY INDUSTRY

Institutional Structure

Changes in the New Zealand dairy industry provide one example of the changes in market orientation that resulted from the reforms. Prior to 1984, the industry was controlled by a statutory marketing board with monopoly export rights. In addition, the Dairy Board administered New Zealand's bilateral dairy quotas. The industry was also protected by import restrictions on dairy products under the import selection regime. Some dairy farmer inputs (credit and fertilizer, for example) were subsidized and deficiency payments on output were provided for a short period after 1978. As mentioned earlier, the subsidies were removed quickly after 1984 but the Dairy Board structure remained until 2001. Throughout the 1990s there were large scale amalgamations of dairy cooperatives in anticipation of the removal of the Board. In 2001, only four companies remained – two very large companies and two small companies.

In that year, the government agreed to allow the two large companies to form a single cooperative – Fonterra. The Dairy Board was abolished and the bilateral trade quotas it administered were given to the three cooperative dairy companies. Westland and Tatua sold their shares in the quotas to Fonterra. In 2006, under accusations by the EU and other trading partners that Fonterra was a State Trading Enterprise, the New Zealand government agreed to phase out the company's trade quotas and institute a new allocation mechanism (yet to be decided).

In agreeing to the formation of the monopsonistic company, the government imposed a set of restraints on Fonterra in the domestic market for raw milk. Under those regulations, Fonterra is obliged to sell reasonable quantities of raw milk to competing dairy companies at cost. This was done in order to offset the market power of the company domestically.

Competitive Position

A number of new private dairy processing companies have been established since 2001, gaining a foothold by using the regulations. There has also been some threat of shareholder movement (and actual movement) to and away from Fonterra.

The industry appears to have adapted to the new structure with little difficulty. Companies are free to compete in the export market, save in the areas where New Zealand's bilateral quotas apply. Tatua dairy

cooperative is a specialist producer of industrial and pharmaceutical ingredients from milk while Westland has a product range more similar to Fonterra. The new dairy companies tend to be aiming at special cheese markets at home and abroad.

There are no major competition issues in New Zealand at present and the regulations appear to be robust enough to deal with future eventualities. Furthermore, the dairy companies are in the process of cooperating on some research and development programs of common interest.

Growth Opportunities

There are growth opportunities for the smaller companies to attract dairy farmer shareholders away from Fonterra and to explore domestic and international market developments. Given that export market opportunities will likely be greatest in emerging markets like China and India (where NZ has no import quota rights), these companies will only be disadvantaged by the high cost of establishing market beach-heads. Fonterra has the size and existing market linkages to expand in these new markets but it is vulnerable to smaller companies picking off suppliers at home.

If Michael Porter is right about the existence of external economies in world markets, the New Zealand economy will benefit from this competition at home. On the other hand, if Schumpeter is right, New Zealand might still gain if the size distribution of the dairy companies doesn't change too much.⁹

On questions regarding the future of dairying, I'd like to quote a much wiser person. Chou En-Lai is reputed to have once said that "It is still too soon to tell what lessons can be learnt from the French Revolution." That seems to be a very reasonable position to take here too. More seriously, given the current world market prospects, dairying is one of the most competitive industries in New Zealand. Furthermore it has grown in competitiveness in recent years, bidding significant resources away from other sectors of the economy. If the market (international protectionism) changes and/or the rate of technological progress weakens then the dairy industry will shrink. If the opposite occurs (and the industry is working hard on that) the dairy industry will increase value-added but grow little in terms of milk output – that's what farming without subsidies is designed to effect.

⁹ Schumpeter argued that one advantage of monopolies is their ability to finance research and development from economic rents.

FINAL COMMENTS

There are a number of important lessons that can be drawn out of the New Zealand experience with subsidies.

The first lesson is that, if it is imperative to subsidize farmers, the best policy instrument is an income grant or a deficiency payment – policies that do not give control of market demand to farm organizations. Protection from imports is the worst policy response because consumer welfare is lost in terms of higher prices and in terms of lower product quality and selection. Trade policies steer the sector in the wrong direction in product and market development terms and they impede the entry of international best-practice technology.

The second lesson is that the removal of subsidies does not necessarily mean a large drop in farmland prices, unless agricultural reforms are carried out in the midst of severe monetary tightening (as in New Zealand). In the New Zealand case, sheep and beef farmers had a PSE averaging 44 percent in 1983/84. Dairy farmers had a PSE averaging 15 percent. Both sets of subsidies were removed and interest rates rose from around ten percent to over 20 percent. The short-term response was a 65 percent fall in sheep land values and a 50 percent fall in dairy land values. If we equate the 29 percent differential in PSE level with the 15 percent differential in land price reduction, then it implies that a one percent fall in the level of PSE will cause a short-term decline of only 0.5 percent in land prices – with most of the land price fall in the New Zealand case due to financial deregulation and higher interest rates. This is a very rough back-of-the-envelope calculation but it may be in the ballpark given that a doubling of interest rates will halve the present value of an annuity.

A third lesson is that farmers are much more likely to survive the adjustment period if they have access to the best possible support and advice when negotiating with their bankers. If the subsidy level has been very high then radical restructuring of balance sheets will be necessary. The associated business plan has to be marketed well to financial institutions.

The fourth lesson is that farm incomes and farmland prices will recover. They will recover faster, the greater is the scope for farmers to make essential new investments – and that is very difficult during the survival phase following reform. In other words, the sooner efficient farmers can be put back into a viable commercial position (given the new market realities) the faster the recovery will be. The dividend from farm subsidy reform in New Zealand has been large, so it is worth investing in recovery to gain it more quickly.

The fifth lesson does not normally apply to developed country cases. The overall New Zealand economic reform program was technically inefficient in the sense that it imposed unnecessary costs on farmers. Net farm incomes and farmland prices did not have to fall as much as they did in the short-term. Unfortunately, for farmers, New Zealand policy generally was in crisis and the timing and sequencing of the reforms was dictated by political realities rather than good planning. Where reforming countries already have a reasonably stable macroeconomic environment, farm subsidy removal would be much less painful than it was in New Zealand.

The New Zealand case provides a cautionary note on the equity of compensation. It appears as though the exit grant for farmers in New Zealand was based on a horizontal equity rule that compared their position with citizens generally – they had access to a new home, a car, and the household furniture. This approach probably resulted in the shareholders of banks paying a higher proportion of adjustment costs than would have otherwise been the case.

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Feasibility of Farm Program Buyouts: Is it a Possibility for US Sugar?



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*David Orden*¹

INTRODUCTION

As the Doha Round of WTO negotiations unfold, achieving substantial liberalization of agricultural trade remains elusive. One reason is that just a few years after the WTO Uruguay Round agreements put a set of multilateral trade and subsidy rules in place for agriculture, the level of US farm subsidies rose sharply. Simultaneously, some developing countries with smaller fiscal resources responded by raising applied tariffs to shield their domestic farmers from declining agricultural prices. Continuation of high subsidies in developed countries matched by high tariffs in developing countries remains a possible result of domestic and WTO policy decisions. A more desirable outcome would be the globally efficient and welfare-enhancing solution of low subsidies and low protection.

This chapter explores a policy option that the United States might use to reduce the long-run cost of subsidies and facilitate the liberalization of agricultural trade, while providing substantial transition support to farmers. The focus is on whether reforms to decouple farm support programs, which are supposed to reduce their production and trade-distorting effects, can be made more convincing through a long-term buyout that would end farm subsidies. Buyouts have not been feasible in the past but recent reforms for several specialty crops provide evidence of what might be done (Alston and Sumner; Barichello, Cranfield, and Meilke; Orden and Diaz-Bonilla). Estimates are provided of the potential

¹ This chapter draws on a research project about a “new generation” of farm policy tools funded by the US Department of Agriculture (USDA), Economic Research Service. An initial presentation was made at the USDA Agricultural Outlook Forum, 24 February 2005. The opinions expressed in this chapter are those of the author and should not be attributed to USDA or the International Food Policy Research Institute. The author thanks Fuzhi Cheng and Owen Wagner for research assistance and Ed Young, Paul Westcott, Erik Dohlman, John Nash, and Eugenio Diaz-Bonilla for helpful review comments.

cost of a buyout of the main US 2002 Farm Bill supports of fixed direct payments, counter-cyclical payments, and marketing loan benefits. The recent EU sugar reform, which includes some buyout dimensions, is also examined and the feasibility of a buyout of US sugar protection is considered. Buyouts of this type should be on the agenda in discussions of the next Farm Bill.

RECENT US BUYOUTS: PEANUTS AND TOBACCO BUT NOT SUGAR

A number of recent policy reforms around the world have provided buyouts. In the United States, contrasting recent policy outcomes among the historically similar peanut, tobacco, and sugar support programs provides some evidence about the conditions conducive to a buyout and its consequences. Very briefly, the 2002 restructuring of the peanut program included a buyout of production quota rights together with new direct and counter-cyclical payments; the 2004 tobacco buyout ended production quotas and eliminated the loan rate program without implementing new payment mechanisms. There has been relatively little reform of the generous US support program for sugar (Brown, Thurman, and Snell; Dohlman et al.; Tiller, Snell, and Blake; Womak 2004a, 2004b).

One lesson from the two recent US reforms is that narrowly defined benefits, specifically production quotas, may be easier to buy out than broader support policies. Binding quota rights were bought out both for peanuts and tobacco, whereas sugar marketing allotments that are only intermittently binding have not been bought out.

The onset of reform aligns closely with the reduction of the benefits obtained by participants in the old program. The pressure from reduced quotas and revenue was most severe for tobacco and the tobacco buyout was the most complete. The unique characteristics surrounding tobacco also explain the more complete buyout of tobacco support compared to peanuts. Domestic tobacco producers had been less successful than peanut or sugar producers in securing restrictions on imports to protect their quota rents. The substantial health-cost-related transfers financed by manufacturers, importers and consumers in the 1998 Master Settlement Agreement (MSA) are also unique to the tobacco industry. This set the precedent for financing the tobacco buyout with specific assessments instead of general tax revenue. Had this precedent not existed, the higher cost of the tobacco buyout (\$9.6 billion over ten years) compared to peanuts (about four billion dollars including ongoing payments) might have blocked its enactment. The health issues associated with tobacco consumption also contributed to the outcome of full elimination of the support programs for producers.

In contrast, peanut producers were able to align ongoing support with the cash payment programs for other crops.

Consumers have influenced whether buyouts have occurred to the extent that their demand behavior contributes to declining benefits under the quota program. But the political condition necessary for the buyouts in the United States appears to be the emergence of substantial support for reform among producers. Emergence of such opinion is obviously related to the shrinkage of benefits. Producers excluded from having quotas also tend to favor reform. This is especially evident in the case of producers of what were “additional” peanuts, who gained in 2002 by becoming eligible for a stronger support program. The opinion among producers in favor of reform does not have to be unanimous. In both the peanut and tobacco cases, minorities of producers in high-cost production regions opposed elimination of the location-specific quotas.

It is also the case that while a buyout may be conducive to liberalization of trade policy, the peanut and tobacco buyouts benefited domestic not foreign producers. The United States was already a net peanut exporter of additionals – imports were artificially drawn in primarily because of the high domestic price under the quota program. In the case of tobacco, total US output is likely to rise with the buyout, displacing imports.

In terms of compensation, the buyout payments have been quite lucrative in the recent reforms, especially given the circumstances of declining benefits to quota owners that have provided the reform triggers. The quota buyout payments for peanuts and the quota and total (quota owner and operator) buyout payments for flue-cured and burley tobacco are compared to a seven-year average (1995-2001) of pre-buyout poundage quota rental rates in table 7.1.

For peanuts the lump-sum payment of \$0.55/pound made available in the 2002 Farm Bill is equivalent to an infinite stream of payments of \$0.026/pound at a five percent discount rate. This is about 70 percent of the average of past quota rental rates. Alternatively, the quota buyout payment is equivalent to the average of annual past rental payments, discounted at five percent, made for a period of 24 years. The buyout payments exceed this potential future payment stream to the extent that domestic peanut prices might have fallen had the earlier program continued. Likewise, the buyout payments exceed this future rental revenue stream under the old program if the quantity eligible for sale in the domestic market would have continued to decline under its continuation.

For tobacco, the ten-year stream of annual buyout payments is first discounted back at a five percent rate to an equivalent initial lump sum. This reduces the payment from the nominal \$7.00 to \$5.68 per pound, as

Table 7.1: Value of the peanut and tobacco buyouts (per pound of quota).

	Peanuts	Flue-cured	Burley
7-Year Simple Average Quota Rent (1995-2001)	\$0.037	\$0.471	\$0.411
		\$7.00 Tobacco Buyout	
Quota Buyout Present Value	\$0.550	\$5.675	\$5.675
Equivalent Infinite Annuity	\$0.026	\$0.270	\$0.270
Years for Average Rent	24	16	21
		\$10.00 Tobacco Buyout	
Quota Buyout Present Value	--	\$8.108	\$8.108
Equivalent Infinite Annuity	--	\$0.386	\$0.386
Years for Average Rent	--	34	56

Sources: Womach (2003) and author's calculations. Present values, infinite annuities, and years for average rent are based on a five percent discount rate.

shown in table 7.1. The lump sum payment is equivalent to an infinite stream of payments of \$0.27/pound, about 57 percent of the average of past quota rentals for flue-cured tobacco and about 66 percent for burley tobacco. The lump sum payment is more than double the private market prices that had prevailed for sales of quota rights before the reform. It is equivalent to discounted average rental payments for 16 and 21 years for flue-cured and burley tobacco, respectively. Including the three dollar payments to growers (also discounted to an up-front lump sum), raises the equivalent number of years of past rentals covered (to 34 and 56 years for flue-cured and burley, respectively). Again, the buyout is more lucrative for producers to the extent that tobacco prices or quota allocations were likely to have continued to fall under continuation of the old program.

THE EU SUGAR REFORM

Under internal pressure for reform within the CAP, the Everything But Arms (EBA) initiative for least-developed countries, and further pressure from a successful challenge to its past sugar program in the WTO, the EU is undertaking a rather substantial sugar policy reform (Commission of the European Commission). In the WTO case, the panel and Appellate Body ruled that the EU re-exports of sugar imported under preferential agreements from African-Caribbean-Pacific (ACP) countries counted against the EU export subsidy limits, that the EU was in violation of these limits in quantity and value terms, and that its sugar quota system ("A" and "B" quota sold at supported domestic prices) cross-subsidized its "C" sugar sold at world prices. Under the reforms being taken, A and

B quotas are to be combined and punitive levies will be imposed to limit total production.

Although production quotas are retained, the EU reform is substantial. Domestic prices for raw sugar are to decline from Euros (€) 496.8 to €355.2 per metric ton (MT) (\$0.27 to \$0.19 per pound using an exchange rate of \$/€ = 1.20). EU domestic sugar production is anticipated to fall from 19.7 million MT (16.7 under A and B quotas and 3.0 in category C) to around 12 million MT (Economic Research Service). Domestic sugar farmers with A and B quota are to be compensated for the price decline with annual decoupled payments averaging nearly 65 percent of the price difference. The payments are tied to the farmer not to the land and are nontransferable except through inheritance. These direct payments lack the finality of a fixed buyout, but the annual level of compensation to farmers is in the range observed for the infinite annuity values of payments versus annual quota rental rates for the US peanut and tobacco buyouts. The EU sugar reform is scheduled to remain in effect through 2014-15, with total anticipated annual payments about €1.5 million. Thus domestic producers have short-term assurance of their payments but are not assured of their permanence. Moreover, if the planned restructuring program fails to curb production sufficiently to bring the EU into compliance with its WTO commitments with sustainable domestic stock levels, further quota restrictions can be applied on a proportional basis.

The second interesting feature of the EU reform is its transition compensation program for sugar processing plants. Processors may sell their production rights for prices as high as €730 per MT for a plant that is dismantled in 2006-07 or 2007-08, and lesser payments through 2009-10 or for less than full dismantling. Plants that remain in production will be assessed temporary fees to largely pay for the industry restructuring (€126.4 per MT in 2006-07, €173.8 per MT in 2007-08 and €113.3 per MT in 2008-09). Total cost of the buyout of processing capacity is anticipated to exceed €5 billion. While total EU quota production will fall, provision is made for reallocation to efficient producers and processors of 1.1 million MT of new quota (limited by country-specific caps). The new quota rights have to be purchased for a fee also set at €730 per MT. Thus, while the processing plant closure buyout is expected to be taken in relatively inefficient sugar supplying areas, a net shift of production is facilitated toward areas that are most efficient in production and processing. Specific Member Countries and geographic areas are anticipated to be affected by termination or reduction of production and additional regional assistance payments are provided to facilitate the sugar program reform.

Foreign sugar producers with preferential access to the EU market will face a similar price decline under the EU reform. There is a possibility of some adjustment compensation for these countries, but foreign producers are not assured of specific payments. Representatives of the high-cost preferential access countries likely to be negatively impacted by the lower EU sugar prices have objected to the low level of assistance they might receive. Other (lower cost) foreign producers anticipate gains from the EU reform as the volume of their exports increases.

The EU sugar reform has dimensions for farmers of what Orden, Paarlberg, and Roe have called a “cash out” (partial reform that reduces the intrusiveness of farm programs over the long-run by offering their beneficiaries a continuous stream of cash compensation payments) rather than a buyout (a quick termination of support entitlements made feasible by significant but temporary compensation up front in the form of a large cash windfall). But the EU sugar reform is less gradual, and being undertaken more definitely within a short time period, than the slow cash out of the main commodity support programs that has occurred since the 1960s in the United States. The EU buyout of sugar processing capacity differs from the US peanut and tobacco program buyouts in two dimensions. First, in the US cases there was no buyout scheme for processors, even though geographic shifts in production were anticipated from high-cost to low-cost areas. Second, although the elimination of sugar processing capacity is being accommodated with clear buyout payments, it is only a partial buyout – the entire industry is not being paid to close down.

Overall, with its abrupt cash out and partial buyout dimensions, the EU is undertaking a rather substantial sugar program reform. The EU is anticipated to increase annual net imports of sugar from -0.8 million MT (net exporter) to 3.5 million MT (net importer) by 2015. World sugar prices are anticipated to rise as a result of the EU reform, benefiting low-cost producers in these markets. Thus, the EU sugar reform provides an example of the feasibility of sharp reform facilitated by direct payments, the basic idea of a buyout.

FEASIBILITY OF A LARGER US BUYOUT

So far there has not been a convincing buyout proposal for the main farm support programs in the United States or European Union. The fixed payments adopted in the US 1996 Farm Bill provided a windfall to farmers in a year of high market prices, but that legislation failed to ensure a buyout in three respects: a budget baseline remained in place for future farm program spending, the permanent farm program legislation from 1949 and related acts was retained, and the 1996 Farm Bill took no other steps to bind the actions of a future Congress. When

farm commodity prices fell, the next Congress quickly stepped in with additional payments.

A buyout of the 2002 US farm programs could focus on the fixed direct payments, the counter-cyclical payments, and/or the loan rate price guarantees (marketing loan benefits). The fixed direct payments provide a narrowly-defined benefit which increases the feasibility of a buyout. Bringing their eventual elimination would ease concerns about continued subsidization but would accomplish the least economically or institutionally. This is because either the fixed payments or a buyout replacement are relatively decoupled and are WTO green box policies.

A buyout of the counter-cyclical payments would accomplish more, since these payments are a particularly contentious form of decoupling likely to have some production stimulating effects. A buyout of counter-cyclical payments would let the United States abandon the WTO blue box, potentially allowing simplification and improved transparency of the WTO rules for agriculture. The value to producers of counter-cyclical payments is not as certain as the fixed payments under the 2002 Farm Bill, but there is an upper bound because the payments are made on fixed quantities and at per-unit levels no greater than the difference between the target price and the sum of the loan rate and per-unit fixed payment rate for each commodity. Farmers who succeeded politically in building the counter-cyclical payments into the 2002 Farm Bill to address what they viewed as an inadequate safety net in the 1996 legislation are not clamoring to eliminate these new payments. But government fiscal deficits that had eased when the 2002 Farm Bill was enacted have increased again. So farm program spending will be under scrutiny. A Doha Round WTO agreement could also constrain the current counter-cyclical payments.

Table 7.2 provides information on the potential costs for a buyout of the fixed and counter-cyclical payments. Results are shown separately for a buyout (for all commodities aggregated) of the fixed direct payments, the maximum possible counter-cyclical payments, and the expected counter-cyclical payments as evaluated by the Economic Research Service, USDA (USDA, Farm Services Agency; Young et al.). Under the 2002 Farm Bill, for example, fixed direct payments over six consecutive years (crop years 2002-2007) have an average annual value of \$5.292 billion and a discounted present value (at a five percent discount rate) of \$28.198 billion (row 1).

Buyout payments shown in table 7.2 are assumed to be made in equal nominal installments over ten years, as in the tobacco case. The buyout costs shown in row 2 are those required to compensate for annual payments made for 25 years at the average level of the 2002 Farm Bill

Table 7.2: Possible buyouts of the US 2002 Farm Bill direct and counter-cyclical payments.

	Fixed direct payments ^a	Counter-cyclical payments	
		Maximum possible ^b	Projected level
billion dollars.....		
2002 Farm Bill payments (crop years 2002-2007)	5.292 (average) 28.198 (lump sum)	7.302 (average) 38.787 (lump sum)	3.505 (average) 18.303 (lump sum)
Buyout payments ^c over ten years equivalent to annual payments at 2002 Farm Bill level for 25 years	9.659 (annual) 78.311 (lump sum)	13.328 (annual) 108.065 (lump sum)	6.398 (annual) 51.870 (lump sum)
Infinite annuity ^d equivalent of buyout payments	3.729 (annual)	5.146 (annual)	2.470 (annual)

Notes: ^aFixed direct payments and projected counter-cyclical payments are from USDA, Farm Services Agency and Young.

^bEstimate of maximum counter-cyclical payments is from Young et al.

^cBuyout payments are assumed to be made in equal installments over ten years.

^dPresent values and infinite annuities are based on a five percent discount rate.

– this is roughly consistent with the buyout compensation provided for peanuts and tobacco. The nominal values of annual payments for which these costs are equivalent as an infinite annuity are shown in row 3.

A buyout of the fixed direct payments along the lines shown nearly doubles the annual expenditure (from \$5.292 billion to \$9.659 billion) that would have to be made for ten years compared to expenditures each year under the 2002 Farm Bill. It almost triples the present value of the payments under the 2002 bill (from \$28.198 billion to \$78.311 billion). This buyout raises short-term costs, but the annual value of equivalent payments in perpetuity (\$3.729 billion) is less than the average annual payment the 2002 Farm Bill will deliver during 2002-2007. A buyout of the maximum possible counter-cyclical payments is more costly, while a buyout of their projected value has a lower cost than for the fixed direct payments.

Marketing loan benefits are the most directly production-linked of the main commodity programs and have an uncertain level of annual expenditures depending on low market prices and current production levels. Table 7.3 provides an estimate of the marketing loan benefits delivered by the 2002 Farm Bill and the cost of a buyout of a 25 year discounted stream of payments at the average level expected under this bill.

Table 7.3: Possible buyout of the US 2002 Farm Bill marketing loan benefits.

	Marketing loan benefits ^a (billion dollars)
2002 Farm Bill payments (crop years 2002-2007)	2.970 (average) 15.774 (lump sum)
Buyout payments ^b over ten years equivalent to annual payments at 2002 Farm Bill level for 25 years	5.420 (annual) 43.945 (lump sum)
Infinite annuity ^c equivalent of buyout payments	2.093 (annual)

Notes: ^aMarketing loan benefits projected under the 2002 Farm Bill are from USDA, Farm Services Agency and Young.

^bBuyout payments are assumed to be made in equal installments over ten years.

^cPresent values and infinite annuity are based on a five percent discount rate.

Table 7.4: Cost summary for a possible buyout of the main US 2002 Farm Bill support programs (buyout over ten years of 25 years of future payments at 2002 Farm Bill levels).

	Fixed direct payments	Counter-cyclical payments (projected level)	Marketing loan benefits	Total
 billion dollars....			
Present value	78.311	51.870	43.945	174.126
Annual cost ^a	9.659	6.398	5.420	21.477
Infinite annuity ^b equivalent	3.729	2.470	2.093	8.292

Notes: ^aBuyout payments are assumed to be made in equal installments over ten years.

^bPresent values and infinite annuities are based on a five percent discount rate.

A summary of the costs of a full buyout of the direct payments, countercyclical payments, and marketing loan benefits is shown in table 7.4. The present value of a full buyout provides a measure of the economic values at stake – with or without a buyout – under legislation along lines of the 2002 Farm Bill. The estimate of the discounted value of payments for 25 years such as the 2002 bill has provided is nearly \$175 billion. Much of this payment stream is capitalized into present farmland values. The annual cost of a buyout for each of ten years is nearly \$21.5 billion. This is high, but not unprecedented, compared to past annual farm support payments. Finally, the value of the buyout as an infinite annuity is nearly \$8.3 billion. One view of a buyout is that once enacted it is equivalent to farm producers securing payments at this level forever, but without the need for subsequent political battles to secure the future payments.

Table 7.5: Cost summary for an alternative possible buyout of the main US 2002 Farm Bill support programs (buyout over ten years of 15 years of future payments at 2002 Farm Bill levels).

	Fixed direct payments	Counter-cyclical payments (projected level)	Marketing loan benefits	Total
.... billion dollars....				
Present value	57.673	38.200	32.364	128.237
Annual cost ^a	7.113	4.712	3.992	15.817
Infinite annuity ^b equivalent	2.746	1.819	1.541	6.106

Notes: ^aBuyout payments are assumed to be made in equal installments over ten years.

^bPresent values and infinite annuities are based on a five percent discount rate.

Overall, buying out farm support payments raises short-term budget costs but reduces expenditures in the long-run. Drawing on the recent buyouts for peanut and tobacco quotas, the buyout illustrated in tables 7.2-7.4 provide a relatively high level of compensation and a long transition period. Sharper, shorter buyouts could be undertaken. The costs of an alternative buyout over ten years of only 15 years of discounted payments at levels comparable to those delivered by the 2002 Farm Bill are shown, as an example, in table 7.5. This alternative buyout has a lower present value, annual cost (over ten years) and infinite annuity equivalent than the buyout shown in table 7.4. Reducing the length of the buyout payments to five years raises the annual cost of either buyout (to a total of \$38 billion for the buyout of 25 years of payments and \$28 billion for the buyout of 15 years of payments). But, it does not change the present value or infinite annuity equivalent of a buyout since these depend on the number of years of payments bought out, not on how fast the buyout takes place.

In each case, short-term costs must rise in order for a buyout to provide some compensation for the loss of payments further in the future. This can still be considered a good deal by taxpayers (who gain in the long-run) and farmers (who receive a short-term boost).

THE CASE OF SUGAR

Sugar presents a somewhat different case than the main US farm support programs. For sugar, the cost of US protection is borne not by taxpayers but by consumers, as it was for peanuts and tobacco. The sugar

program remains dependent on binding import restrictions under tariff rate quotas (TRQs) and on domestic marketing allotments that only constrain domestic production in some years. There is no established market price for rental or purchase of marketing allotments, as there was for peanut and tobacco quotas before the buyouts of those programs. And so far, domestic sugar producers have not seen their benefits erode as dramatically as peanut and tobacco quota owners. Yet, the precedent from the tobacco buyout of a temporary tax on processing of domestically produced and imported sugar provides an example of how a sugar buyout might be financed by a consumer tax.

Table 7.6 shows estimates of the order of magnitude of the cost of a sugar program buyout. Annual production is assumed to be 9.5 million tons by domestic producers and holders of TRQs (assuming buyout payments are made to longstanding sugar TRQ holders deviates from the experience for peanuts where holders of more recently granted TRQs were not given compensation). There is substantial uncertainty about how much the US prices for raw sugar would fall with a sugar program buyout. This would depend on the trade policy adopted. Column 1 draws on a recent study for the American Farm Bureau Federation that assumed a limited increase of duty-free imports (by 1.3 million tons). In this case, the domestic price falls by about \$0.019 per pound (Abler et al.). Adopting this price decline, the nominal annual value of protection lost under this scenario is \$0.355 billion, which has a discounted lump sum value for the six years of the 2002 Farm Bill of \$1.887 billion. A ten-year buyout of 25 years of anticipated producer revenue that would be lost under this trade policy would have an annual cost of \$0.647 billion and corresponding present and infinite annuity values. The cost of a more complete buyout allowing free trade would depend on the expected decline in US prices. Columns 2 and 3 show the results for assumed price wedges of \$0.06 and \$0.09 per pound, respectively.

Several aspects of the EU sugar reform are also of interest in terms of a possible US sugar program buyout. First, one issue is whether NAFTA and other trade agreements or preferential access decisions could put enough pressure on the current US program to force reform, as the EBA and WTO dispute cases did for the EU. This could occur if increased foreign access resulted in imposition of tighter domestic US marketing restrictions. As in other buyout cases, such shrinking of benefits could be a necessary condition for substantial reform. With the recent WTO ruling against Mexican taxes on corn-sweetener based soft drinks, net sugar exports from Mexico to the United States could increase. Effects of other bilateral or regional trade agreements (e.g., Thailand) remain uncertain after sugar was excluded from the US-Australia bilateral free trade agreement.

Table 7.6: Possible buyouts of US sugar protection^a.

	Partial buyout (limited trade) ^d	Full trade opening ^e	
		\$0.019 price decline	\$0.06/lb price wedge
.....billion dollars.....			
Approximate protection lost compared to period of 2002 Farm Bill ^f (crop years 2002-2007)	0.355 (average) 1.887 (lump sum)	1.140 (average) 6.053 (lump sum)	1.710 (average) 9.080 (lump sum)
Buyout payments ^b over ten years equivalent to lost protection at levels above for 25 years	0.647 (annual) 5.240 (lump sum)	2.081 (annual) 16.810 (lump sum)	3.121 (annual) 25.215 (lump sum)
Infinite annuity ^c equivalent of buyout payments	0.248 (annual)	0.798 (annual)	1.197 (annual)

Notes: ^aTable 7.6 gives approximations to the order of magnitude of the cost of a buyout of the sugar program assuming 9.5 million tons produced domestically and by TRQ holders.

^bBuyout payments are assumed to be made in equal installments over ten years.

^cPresent values and infinite annuity are based on a five percent discount rate.

^dColumn 1 reflects a price loss to these producers from limited increase in imports based on a recent study of reform with lower sugar loan rates and introduction of direct, counter-cyclical and loan benefit programs (Abler et al.).

^eColumns 2 and 3 assume a drop of US prices to world levels by the price wedge given.

^fFor consistency with the other tables, row 1 provides estimates of the value of protection lost annually and for a six-year period (of the 2002 Farm Bill). Effects of price changes on quantities produced and consumed are not incorporated in this preliminary analysis. An argument can be made that buyout compensation should only be for producer surplus lost, not gross revenue, in which case buyout payments could be lower.

Second, the EU processor buyout sets an interesting precedent. Whereas the peanut quota and tobacco program buyouts were complete across an entire industry, would there be an option for a partial buyout of the US sugar program? If a fee/compensation scheme were offered, the obvious application would be for low-cost cane producers to pay fees to continue production that would be used to buy out higher-cost beet processors. Direct buyout payments to beet growers could supplement the industry-financed partial buyout. Whereas payment limitations concerns are an obstacle to a publicly-funded buyout of the huge cane producers in the Southeast, payment limitations are less of a problem for a buyout of sugar beet producers in the Midwest and West because of the smaller size of the beet producing farms. A partial buyout along such lines does not have the appeal of definitive support program termination through a full buyout. But, such a partial buyout could facilitate enough reduction

in US domestic sugar production to accommodate stronger liberalization provisions for sugar in trade agreements, which in turn might lead broadly to more ambitious agreements. The net effect in the US case would be the same as in the EU case – to reduce domestic production and expand net imports.

ENFORCING A BUYOUT

If farm subsidy payments for the main crop programs were bought out, there is also an issue of whether any buyout could be enforced. The record from the post-1996 increase in support shows new expenditures can arise.

But, several steps can be taken that would improve the prospects for adherence to a buyout. The first would be to eliminate the permanent legislation for farm support programs. A WTO agreement built around a buyout of US counter-cyclical payments or incorporating tight limits on US amber box payments might also provide enforcement mechanisms. For sugar, a commitment to a higher TRQ or lower over-quota tariffs could lock-in lower domestic producer prices in the future. If the buyout were paid for with a temporary tax on sugar processing, consumers would only see lower prices once the tax was rescinded.

Stronger steps could also be taken to ensure the long-run credibility of a buyout of the main commodity payment programs. Contracts for buyout payments could require that the acreage for which the payments were bought out (and the output from that acreage) be ineligible for future support legislated by Congress. To ensure compliance, such contracts might be structured similarly to those by which some farmers sell their “development rights” to state and local governments for the different purpose of their land remaining in rural condition or agricultural use. The state governments have devised binding legal criteria to ensure compliance from the contract beneficiaries who have sold their development rights.

CAN THERE BE A BUYOUT IN THE NEXT FARM BILL?

Achieving beneficial multilateral liberalization of agricultural trade has remained elusive. This chapter has discussed a long-term buyout that would end farm subsidies as a policy option the United States might use to facilitate progress while providing substantial transition support to farmers.

The differing recent policy outcomes among the historically similar US peanut, tobacco, and sugar support programs provide some evidence about

the conditions conducive to a buyout and its consequences. Narrowly defined benefits, specifically quota rights, may be easier to buy out than broader support policies. The onset of reform aligns closely with a sharp shrinkage of the benefits obtained by participants in the old program. The political condition necessary for a buyout appears to be the emergence of substantial support for reform among producers, which is related to the shrinkage of benefits. While a buyout may be conducive to liberalization of trade policy, the peanuts and tobacco buyouts have benefited domestic not foreign producers.

In terms of compensation, the payments have been quite lucrative for the buyout reforms that have occurred, especially given the circumstances of declining benefits to quota owners that have provided the reform triggers. For peanuts, the lump-sum payment of \$0.55/pound is equivalent (at a five percent discount rate) to previous average quota rental payments for a period of 24 years. For tobacco, the ten-year stream of owner buyout payments is more than double the private market prices that had prevailed for sales of quota rights before the reform. It is equivalent to discounted average rental payments for 16 and 21 years for flue-cured and burley tobacco, respectively.

There has not yet been a convincing buyout proposal for the main supported farm commodities and the political environment may still be far from prompting such a reform. Yet such a reform should be on the agenda in discussions of the next Farm Bill. Buyouts of the fixed direct payments, counter-cyclical payments, and marketing loan benefits along lines similar to the peanut or tobacco quota buyouts would nearly double the annual expenditures that would have to be made for ten years compared to expenditures each year under the 2002 Farm Bill, and almost triple the present value of those payments. Thus, a buyout will raise short-term costs, but the equivalent annual payments in perpetuity will be less than the 2002 Farm Bill has delivered in recent years. A buyout of the sugar program could be modeled on the tobacco buyout with financing by a temporary tax on sugar processing. The recent EU sugar reform provides additional interesting precedents for a partial buyout of the US sugar program. Such buyouts are an investment in the future. A buyout provides long-term savings for taxpayers, enhanced transition support to farmers, and a basis on which to pursue more open global agricultural markets.

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Options for Supply Management in Canada with Trade Liberalization



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Richard Barichello, John Cranfield, Karl Meilke¹

INTRODUCTION

Supply management has been an important feature of Canadian agriculture for nearly four decades. National supply management was introduced for milk in 1972, eggs in 1973, turkey in 1974, chicken in 1978, and hatching eggs in the 1980s. Provincial marketing boards for dairy products predated the national plans by more than a decade. The birth of the marketing boards was a response to declining prices, disarray in marketing arrangements, and in the case of the poultry boards, the threat of vertical integration. The production and marketing arrangements for each of the supply managed commodities differ and can be quite complex (Barichello 2003). However, they have three key features in common: 1) prices are determined by a cost of production formula that includes imputed costs for farmer supplied labor and a return to equity and management; 2) production is limited to what the domestic market will consume at the cost-determined price; and 3) border measures are used to keep out less expensive foreign products.

Until the formation of the WTO in 1995, Canada used GATT-legal import quotas to sharply limit the quantity of foreign dairy, poultry, and egg products entering the Canadian market, including some further processed products. During the Uruguay Round, Canada “tariffied” its import quotas by converting them to tariff rate quotas (TRQs). Some additional market access was provided to exporters through the TRQs, but the over-quota tariffs, ranging from 155 to 299 percent, were high enough to prohibit imports above the minimum access amounts.

¹ Financial support for this chapter was provided by the Canadian Agricultural Trade Policy Research Network and the North American Agrifood Market Integration Consortium. The views expressed in this chapter are those of the authors and should not be attributed to the funding agencies.

In 2004, the supply managed commodities accounted for 20.4 percent (C\$7.4 billion) of farm cash receipts (C\$36.5 billion), about the same fraction of gross returns as in the early 1970s, even as the number of farms declined by about 80 percent. However, the production of supply managed commodities is unevenly distributed across Canada. Most importantly, the supply managed commodities account for 35.7 percent of Quebec's farm cash receipts, largely as a result of the concentration of milk production in this province.

During the Uruguay Round of trade negotiations, Canada was one of the strongest supporters of allowing countries that used supply management to retain the right to control imports using import quotas. However, the industry's fear of tariffication was unfounded as the TRQs that replaced the import quota regime have been effective in keeping out imports. As a result, it has been business as usual for the supply managed industries since 1995.² Although the Uruguay Round Agreement had little immediate impact, it did lay the groundwork for future trade liberalization efforts being pursued under the Doha Development Agenda (DDA) that began in 2001. Although much remains to be negotiated in the DDA, the broad outline of a final agreement is starting to take shape and it is clear that it will have some implications for Canada's supply managed commodities (Gifford; Rude and Meilke; WTO 2004, 2005, 2006b).³

The Issues

The DDA represents the ninth round of multilateral trade negotiations since 1947. Over time, the negotiations have become broader (e.g., including trade in services and intellectual property), more complex, more inclusive (the WTO now has 149 members), and have taken longer to conclude. Canada has been at the table for each round and has generally argued for a more open, rules-based trading system. The DDA is no exception, and Canada's negotiating positions are those befitting one of the world's most trade dependent nations. However, in agriculture, Canada's negotiating position has to tread the fine line between the 80 percent of Canadian agriculture that is export-oriented and the 20 percent of agriculture that is supply managed.

Since the beginning of the DDA, the position of the supply managed industries has been that over-quota tariffs should be maintained at current levels and that any increase in minimum access commitments should be minimal. The government carried this view to the Hong Kong Ministerial meeting in December 2005 and along with the G-10 ensured

² In fact, the conversion to tariff rate quotas has allowed Canada to become a significant exporter of poultry products. A short-lived attempt to export dairy products under innovative pricing schemes was judged to provide export subsidies above Canada's commitment levels by a WTO panel.

³ This chapter describes the state of the negotiations as of May 2006.

that no decisions were made with respect to the treatment of sensitive products. The WTO Draft Ministerial Declaration coming out of Hong Kong stated, “We recognize the need to agree on treatment of sensitive products, taking into account all of the elements involved” (WTO 2006b, p.2). The WTO negotiators missed the end of April 2006 deadline for agreeing on the modalities for the negotiations and one of the most contentious issues is the treatment of sensitive products. However, we are of the opinion that at the end of the negotiations, over-quota tariffs will be lowered and minimum access commitments will be increased – in Canada and all other developed member nations.

Although the exact magnitudes of the trade policy changes that will be required by the DDA are unknown, we believe that the adjustments that will be required of Canada’s supply managed industries will be small enough that they can be accommodated with limited changes in their current operations, as discussed in a subsequent section. Before discussing these adjustments, it is important to note that the DDA will set the rules for international trade in agrifood products for at least the next 15 years.⁴ In our view, the most important question facing the industry and the government following the conclusion of the DDA is whether the current supply managed system should be realigned to be consistent with the new trade rules or if more fundamental changes should be undertaken to better position the industry in 2021 and beyond. There are strong arguments for doing something more than just tweaking the current system. While the DDA reductions in over-quota tariffs will likely protect the domestic market from low cost imports under most market conditions, they almost certainly will constrain future consumer-financed domestic price increases, especially in the dairy sector. If no action is taken to reform the supply managed industries, significant over-quota tariff cuts beginning in 2021 could result in sharp decreases in domestic prices – declines that would be difficult to accommodate in a short time frame. However, if realignment of the industry began now, with a 15-year window for adjustment, the fear of falling off a cliff in 2021 can be greatly reduced. Hence, in the remainder of this chapter, we will attempt to illustrate the kind of changes the DDA may require while focusing primarily on a number of options for adjustment that we believe would leave the industry better positioned to compete in 2021 and into the future. While we fully understand that the mere suggestion that supply managed industries will have to change the way they do business is politically dangerous, we believe the analysis provided in this chapter can contribute to the policy debate suggested by Gifford.

⁴ The 15-year time horizon is calculated by assuming a DDA Agreement will be implemented in 2008, that the implementation period will last six years, and that the next Round of negotiations will begin in 2015 with its results being implemented in 2021.

Table 8.1: Marketing quota values, 1981-2004.

Year	Value of marketing quota, billion C\$				Value of total non-quota assets	Quota value / Non-quota assets	Quota value / Cash receipts from supply managed commodities
	Quebec	Ontario	Others	Canada		(percent)	(percent)
1981	1.2	2.4	0.8	4.4	109.8	4.0	1.2
1985	1.9	2.5	1.4	5.8	108.8	5.3	1.4
1990	2.7	2.5	1.7	6.9	132.3	5.5	1.4
1995	4.0	3.5	3.0	10.5	166.9	6.7	2.0
2000	7.1	6.6	4.5	18.2	211.4	9.4	2.9
2004	8.1	9.8	6.9	24.8	228.3	12.2	3.5
Average annual growth rate 1981-2004	8.7	6.3	9.8	7.8	3.2	5.0	4.8
Average annual growth rate 1995-2004	8.1	12.1	9.7	10.0	3.5	6.9	6.4

Source: Statistics Canada (2006).

If the industry agrees that fundamental changes to the supply managed system are desirable following the DDA, then it is reasonable for governments to consider providing adjustment assistance. In the third section of this chapter, we discuss a number of different ways the supply managed sectors could be reformed and the types of assistance that could be provided. In each case, we highlight the strengths and weaknesses of the various approaches. We are not proponents for any one of the suggested approaches, but feel the identification of options is an important activity to undertake in advance.

In evaluating each of the policy options, it is important to keep in mind two distinct but closely related issues: 1) the effect on incomes earned in the supply managed sectors; and 2) the effect on the wealth (net worth) of current producers in the supply managed sectors.

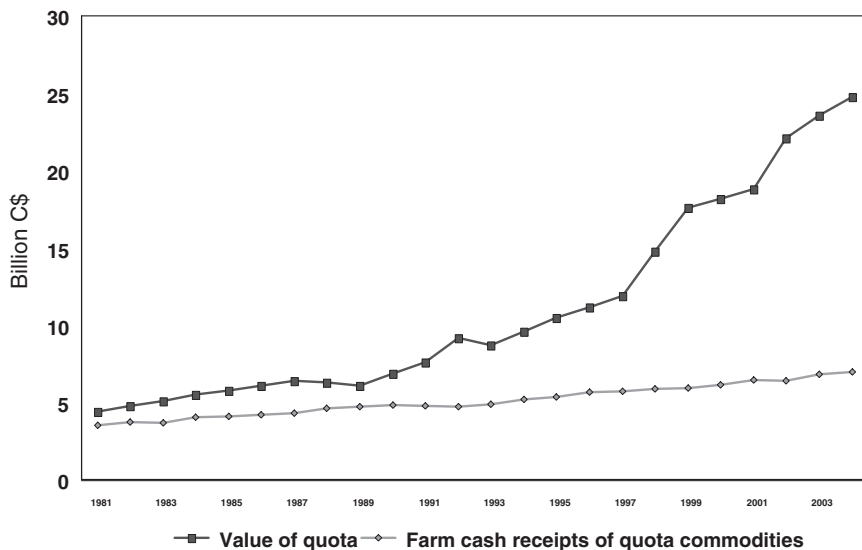
Current Situation

One pillar of supply management is a “made in Canada” price that is judged to provide a fair return to producers. This goal is accomplished by restricting the quantity of product that can be marketed to the quantity consumed at the predetermined price. However, because production is restricted to less than the quantity producers want to supply at the administered price, the “right-to-produce” takes on a value. In the early days of supply management, attempts were made to hide the value of marketing quota by only allowing “ownership” to transfer with the sale of the physical facilities where the production was occurring; or to

employ quota transfer police to try and enforce the rule that marketing quota had no value. Of course, all these rules did was turn law abiding farmers into white collar criminals. Fortunately, these rules no longer exist and marketing quota is freely bought and sold as a capital good, although restrictions still exist on the rental of production quota and on its ownership by non-farmers.

Statistics Canada estimates that the aggregate value of production quota in 1981 was C\$4.4 billion or 3.5 percent of the total non-quota assets (C\$125.9 billion) owned by Canadian farmers (table 8.1). Looked at another way, the aggregate value of production quota was 1.2 times the annual gross revenue from producing these commodities. In the 23 years between 1981 and 2004, the value of production quota has increased in all but three years. Not only has its value increased, it has increased much faster than the value of non-quota assets and the farm cash receipts received from producing supply managed commodities (figure 8.1). In 2004, the aggregate value of marketing quota was C\$24.8 billion representing 12.2 percent of non-quota total assets (C\$203.5 billion) and 3.5 times the annual gross revenue (C\$7 billion) from producing the supply managed commodities (table 8.1). Perhaps the most surprising thing shown in table 8.1 is the explosive growth in marketing quota values after 1995, especially in Ontario. Apparently, the Uruguay Round Agreement coupled with the record decline in real

Figure 8.1: Marketing quota values and cash receipts from supply managed commodities, 1981-2004.



Source: Statistics Canada (2004, 2006).

interest rates (Barichello and Klein) convinced farmers that the rents to be earned in producing milk were assured for another ten to 15 years, so that their perceived discount rate was lower than in the past.⁵

This can be seen more explicitly in an equation describing the valuation of marketing quota (Barichello 1996):

$$PQ = R (1 - d) / (r + d - g).$$

Where PQ = the capital value of the quota,

R = the annual net return of the quota, or its rental value,

r = the interest rate,

g = the growth rate in annual net returns, or in the capital value, and

d = the default risk, or the probability of a default in the government program that would cause the value of R to go to zero.

This model can explain how a bank's increased willingness to lend at some point in time can raise the price of quota because this is equivalent to supplying credit at a lower interest rate than would otherwise be offered. Likewise, a province offering an interest rate subsidy would lead to increased quota prices within that province. A farmer or group of farmers who were more optimistic about the path of future returns would be expecting a higher value of the growth rate, g, also raising the price they would be willing to pay for quota. Similarly, farmers who feel confident that the government will defend and maintain the current policy against trade policy threats, perceive a lower value of the risk factor, d, and would be willing to pay more for quota.

In using this model to explain the unusually rapid growth in quota values, it is important to note that there has been some growth in the rental value (R) resulting from steady increases in milk prices, a generalized decline in unit costs, and the shift to larger farms in an environment where economies of scale often exist. However, the three terms in the denominator are likely where the more substantial changes can be found over this time period through declines in both the real interest rate and the level of default risk, and an increase in expected capital gains. These three changes have worked in concert to significantly reduce the size of the denominator, thereby increasing the value of quota, PQ. In more recent years, it is also likely that the growth in the quota price has been sustained by expectations of government compensation in the event of policy-induced quota value losses.

⁵ Changes in lending practices have also influenced the value of production quota. Historically, lenders were cautious in lending funds using quota assets as collateral, but in recent years they have been far more willing to take on this risk, thereby eliminating any credit constraints that existed previously.

Table 8.2: Dairy farm balance sheet by province, farm sales greater than C\$500,000.

	(thousand C\$)	
	1995	2002
Alberta		
Debt	Not available (n.a.)	1,510
Equity	n.a.	3,539
Non-Quota Equity	n.a.	1,373
Debt/Non-Quota Equity	n.a.	1.1
Ontario		
Debt	436	1,520
Equity	2,329	3,830
Non-Quota Equity	1,591	1,391
Debt/Non-Quota Equity	0.3	1.1
Quebec		
Debt	548	1,216
Equity	2,435	2,801
Non-Quota Equity	1,319	990
Debt/Non-Quota Equity	0.4	1.2

Source: Mussell, et al.

The pattern of quota values illustrated in figure 8.1 is particularly striking when shown alongside sales revenues from supply managed farms for the same period (1981-2004). Farm cash receipts show steady but not dramatic growth. Given the stability in consumption within the much larger dairy sector, this growth is primarily due to steady increases in price. The quota values, however, are another matter. The nominal growth rate from 1981 to 1995 is a relatively large 6.4 percent per year, but from 1995 to 2004, the nominal growth rate jumps to ten percent per year or annual growth of 8.1 percent in real terms.

The nearly C\$25 billion in quota value represents a significant fraction of the wealth of producers of supply managed commodities, but also a significant cost of being in a position to produce these commodities, such as would be faced by a new entrant. For example, an Ontario milk producer with enough marketing quota to cover 100 cows has C\$2.5 million invested in that quota. Any policy change that reduces the per unit price of quota, or reduces the quantity of marketing quota available is going to be opposed by producers of supply managed commodities. In addition, any change in border measures is almost certain to result in calls for compensation for any loss in marketing quota value. A related aspect is the division of this increased capital value into equity and debt. With such large increases in quota value, it is not surprising that equity levels have also grown, particularly since 1995 and for larger farms (sales greater than C\$500,000). However, debt levels have grown even faster, more than doubling over the period for which data are available, from 1995-2002 (table 8.2). In 2002, for these larger farms, the ratio of farm debt to non-quota

Table 8.3: Total and subsidized exports of dairy products, Canada.

Commodity	Subsidized Exports 1999/00	Total Exports 1999/00	Commitment Level Post Uruguay Round	Total Exports (average 2002-04)	Total Exports / Domestic Consumption (average 2002-04)
	tonnes				percent
Butter	1,814	1,840	3,500	640	0.7
Skim milk powder ^a	41,576	39,109	44,953	33,580	71.9
Cheese	20,422	21,944	9,076	12,222	1.9
Other milk products	21,138	51,124	30,282	n.a.	n.a.

Sources: WTO (2001a); Statistics Canada (2005).

Notes: ^aIt is unclear why the total exports reported by Statistics Canada are smaller than the quantity of subsidized exports reported to the WTO.

equity exceeds one for Alberta, Ontario, and Quebec (1.1, 1.1, and 1.2, respectively).

Next, we consider the various proposals that negotiators are considering in the DDA and the effects they might have on Canada's supply managed industries. Following this we turn to a discussion of the options Canada might follow in the face of more liberalized trade.

The Proposals

The Doha Round negotiations on agriculture have maintained the three pillars of the Uruguay Round: 1) reduced export competition; 2) reduced domestic support and 3) increased market access. Currently, the best guides to what the negotiated outcome might be are the Framework Agreement of July 2004, the Hong Kong Draft Ministerial Declaration, and the reference papers tabled by the Chairman of the Committee on Agriculture in April and May 2006 (IPC; Rude and Meilke; WTO 2004, 2006b). We now discuss the implications of decisions taken under each of the three negotiating pillars for Canada's supply managed industries. We do this in full recognition that some of the most difficult decisions are yet to be made.

The Uruguay Round Agreement restricted the quantity (and total value) of products countries could export with the aid of export subsidies. So far, the DDA negotiators have agreed that all trade distorting forms of export competition will be eliminated by the end of 2013. This includes direct export subsidies as well as the subsidy elements of export credits and guarantees, food aid, and state trading enterprises. In the supply

managed sector, this only affects exports of dairy products since export subsidies are not used in the poultry and egg sectors.

Canada's export subsidy notifications to the WTO have been delayed and 1999/2000 is the last year for which data are available. Table 8.3 shows the level of subsidized exports (1999/2000), total exports (1999/2000), the final commitment level (post-2000/2001), the average level of exports (2002-2004), and average exports as a fraction of domestic consumption (2002-2004). In 1999/2000, Canada was exporting up to its commitment level for butter, skim milk powder (SMP), and cheese, and almost none of these products were exported without the aid of subsidies. For other milk products, subsidized exports fell below the commitment level (41.3 percent). Recently, butter exports have fallen to trivial quantities but SMP and cheese exports are near their commitment levels. While SMP exports represent a huge fraction of domestic consumption, the actual quantities are not massive – although to get rid of this much SMP domestically will require that it be sold as animal feed or new nontraditional uses will have to be found. Eliminating subsidized exports of butter will not be a problem for Canada, but cheese exports which equal about two percent of domestic consumption will be another story. Subsidized exports of other milk products also involve nontrivial quantities, but the exact magnitude relative to domestic consumption is difficult to judge, given the available data.

The DDA negotiations will significantly tighten the disciplines on domestic support. Brink provides a detailed analysis of the proposed domestic support measures and we will only review the elements most crucial to the supply managed commodities. Canada's Uruguay Round final bound aggregate measurement of support (AMS) was C\$4.3 billion and its most recent notification, for 2000, was C\$848.2 million. In addition, Canada notified C\$242.6 million in product specific support and C\$1.2 billion in nonproduct specific support that fall under the *de minimis* provisions of the Uruguay Round Agreement on Agriculture.⁶ We believe that the DDA will sharply reduce Canada's bound AMS (a 50-60 percent cut would seem in the ballpark), and will reduce the *de minimis* exemptions by around 50 percent. In addition, we feel that the DDA will require a cut in Overall Trade Distorting Support defined as the sum of: 1) the total AMS; 2) product specific *de minimis*; 3) nonproduct specific *de minimis*; and 4) blue box support. Brink predicts that Canada's 2014 ceiling on Overall Trade Distorting Support, assuming a 70 percent cut under the DDA, will equal C\$2.8 billion. However, from the viewpoint of the supply managed dairy sector, the introduction of caps on commodity specific AMS

⁶ Under the *de minimis* provisions of the Agreement on Agriculture, members are not required to make reductions to trade-distorting domestic support in any year in which the aggregate value of the product specific support does not exceed five percent of the total value of production of the agricultural product in question. In addition, nonproduct specific support which is less than five percent of the value of total agricultural production is also exempt from reduction commitments (WTO 2006a).

Table 8.4: Tariff rate quota and in-quota imports, Canada, 1998/99.

Commodity	TRQ	In-Quota Imports	Fill Rate (percent)
Dairy			
- Butter	2,750 MT	2,751 MT	100.0
- Cheese	20,411,866 MT	20,623,000 MT	101.0
- Condensed milk	11.7 MT	14.1 MT	120.5
- Cream	394 MT	326 MT	82.7
- Dry whey	3,198 MT	5,129 MT	160.4
- Ice cream	429 MT	520 MT	121.2
- Other dairy	70 MT	403 MT	575.7
- Other milk constituents	4,345 MT	4,382 MT	100.8
- Powdered buttermilk	908 MT	1,093 MT	120.4
- Yogurt	332 MT	332.3 MT	100.1
Total dairy	20,424,304 MT	20,637,950 MT	101.0
Eggs			
- Hatching eggs and chicks	7,949,000 doz.	13,893,878 doz.	174.8
- Eggs and egg products	17,950,800 doz.	23,735,864 doz.	132.2
Poultry			
- Chicken, live, meat, products	39,844 MT	58,304 MT	146.3
- Turkey, live, meat, products	5,140 MT	5,311 MT	103.3

Sources: WTO (2001b).

would have the most immediate impact. There is no AMS calculated for poultry or egg products because they do not have government determined prices. Administered prices are offered for butter and skim milk powder and these two commodities accounted for 52.4 percent (C\$444.2 million) of Canada's total AMS in 2000. A cap on product specific support will change the cost of production-based, open-ended pricing system currently used in the milk market. We also believe that Canada will want to make room in its total AMS for programs like the Canadian Agricultural Income Stabilization Program and some programs currently reported under the *de minimis* provisions of the Agreement. Essentially, the cap on product specific support means that dairy farmers, through their representatives, will need to negotiate prices with milk processors, as has often been the case in the poultry sector. This alone will likely keep milk prices from rising as rapidly as in the past.

A major goal of any trade negotiation is to create new market access for low cost suppliers. In the DDA, the market access negotiations are where progress has been most difficult and the full modalities are the least well developed at the time this is written. Still, the broad outline of a potential agreement can be discerned. Currently, access to the Canadian market for the supply managed commodities is controlled through the use of TRQs. Canada's WTO notifications lag badly, with the most recent data being for 1998/99. Table 8.4 shows the dairy, poultry, and egg products subject

Table 8.5: Minimum access as a percent of domestic consumption (2002-04).

Commodity	WTO Minimum Access ('000 MT)	Domestic Consumption ('000 MT)	Minimum Access / Domestic Consumption (percent)
Butter	3.274	88.43	3.7
Cheese	20.412	371.28	5.5
Buttermilk powder	0.908	4.18	21.7
Ice cream	.484	281.5	0.2
Yogurt	0.332	184.9	0.2
Dry whey	3.198	13.6	23.5
Chicken	39.844	948.16	4.2
Turkey	5.588	130.1	4.3
Eggs	21.37 mil. doz.	489.6 mil. doz.	4.4

Sources: WTO (2001b); Statistics Canada (2005).

to TRQs, the minimum access quantities, and the volume of in-quota imports. Fill rates in all but one case are 100 percent or greater and for some products (e.g., chicken), significantly larger than the WTO minimum access commitment. This is a result of the larger global import quotas Canada negotiated as a part of the Canada-United States Free Trade Agreement (CUSTA). Minimum access commitments in the DDA may be expressed as a percentage of some recent level of domestic consumption, although there is considerable disagreement on the exact form these commitments should take. Data on domestic consumption is not available in as much detail as the information provided in table 8.4, but table 8.5 provides an indication of how current import levels correspond to domestic disappearance figures. Access for butter and cheese represents 3.7 and 5.5 percent of 2002-2004 average consumption, respectively, while access for other dairy products range from 0.2 percent for ice cream and yogurt to over 20 percent for buttermilk powder and dry whey. The WTO minimum access commitment for chicken is 4.2 percent but actual imports under the CUSTA are nearly twice as large.

Market access commitments in the DDA will involve three different types of products: 1) normal products; 2) special products; and 3) sensitive products. Normal products will be subject to tariff cuts according to a formula designed and agreed to by the negotiators. Different tariff cutting proposals were tabled by the G-20 (table 8.6), the US; the Africa, Caribbean, and Pacific (ACP) countries; and the EU prior to the Hong Kong Ministerial. Each proposal involves the specification of four to five “tiers” or “thresholds” for tariff cuts with the size of the tariff cut becoming larger the higher the initial tariff. The G-20 proposal suggests developed countries achieve a formula cut of at least 54 percent using the criteria in table 8.6.

Table 8.6: Suggested G-20 tariff cut criteria.

Developed Countries		Developing Countries	
Initial tariff level (percent)	Tariff cut	Initial tariff level (percent)	Tariff cut
0 - 20	45%	0 - 30	25%
20 - 50	55%	30 - 80	30%
50 - 75	65%	80 - 130	35%
75 - 400	75%	130 - 375	40%
> 400	cap of 100%	> 375	cap of 150%

Source: G20.

The tariff reduction proposal tabled by the United States is more aggressive than that of the G-20 and the EU proposal is considerably less aggressive (ICTSD). However, even the EU proposal involves deeper tariff cuts for “normal” products than under the Uruguay Round. In Hong Kong, negotiators agreed that tariff cuts would fall into four bands, or thresholds, and that agreement on the depth of cuts would be reached no later than 30 April 2006.⁷ While most agricultural products will be subject to the tariff cutting formula finally accepted by member countries, special and sensitive products will be subject to a different set of tariff cutting rules. Developing countries will be allowed to specify a certain number of “special products” that will face lower tariff cuts.⁸ Some criteria have been specified for selecting “special products” including food security, livelihood security, and rural development needs. Developed countries will be allowed to specify a certain number of “sensitive products” that will also face lower tariff cuts, although no criteria have been provided to guide the selection of these products. In essence, countries will be able to self-select any product they want for sensitive treatment. Clearly, Canada is planning to specify its supply managed commodities as sensitive.

The maximum number of products a country is able to specify as sensitive will be determined as a set percentage of its total number of tariff lines. Canada has 1,346 agricultural tariff lines with approximately 123 used to specify over-quota tariffs for all types of products (table 8.7). Of these, 66 apply to supply managed commodities. Even if just the current supply managed commodities that are subject to over-quota tariffs are to be classified as sensitive, the number of sensitive products Canada is allowed to specify would have to be at least five percent of the total number of tariff lines; and this assumes the other 57 over-quota tariff lines would be subject to the normal tariff cutting formula. The US has proposed that only one percent of tariff lines should be given sensitive treatment while the EU has proposed a maximum of eight percent of tariff lines. If the negotiators reach a compromise half way between these two positions,

⁷ The April deadline was not met and the DDA negotiations were suspended in July 2006 after the negotiators were unable to agree on the modalities for the negotiations.

⁸ Developing countries will also be allowed to specify products as “sensitive.”

Table 8.7: Number of over-quota tariff lines, Canada^a.

Commodity	Number of Over-Quota Tariff Lines
Supply Managed Commodities	
- Broiler hatching eggs and chicks	2
- Eggs and egg products	8
- Chicken, live, meat and products	12
- Turkey, live, meat and products	14
- Milk and dairy products	30
- Sub-total	66
Non-Supply Managed Commodities	
- Beef and veal	6
- Wheat	2
- Barley	2
- Wheat products	30
- Bakery products	15
- Margarine	2
- Sub-total	57
Total	123

Source: Authors' calculations based on AAFC data.

Note: ^aAt the eight digit HS level.

Canada would be in a position to specify most of its over-quota tariff lines for supply managed products as sensitive.

Just because a product has been selected for sensitive treatment does not mean it is exempt from tariff cuts. In fact, over-quota tariffs will have to be cut and minimum access commitments will need to be increased. The negotiators seem to have accepted the notion that the larger the departure from the tariff cut specified by the normal product formula a commodity receives, the more in-quota access a country will have to provide for that commodity. The EU has tabled a proposal specifying the trade-off between the deviation from the normal required tariff cut and the expansion in minimum access. The EU formula is quite complicated but it results in only modest increases in minimum access commitments, less than other countries are likely to accept. Alternatively, Gifford proposes a simple trade-off in his analysis. For example, a tariff that is cut by one-half of the normal tariff cut would require a 50 percent increase in minimum access, while a tariff cut by one-third of the normal tariff cut would require a two-thirds increase in minimum access. It is also unclear whether tariff caps will apply to the tariffs for sensitive products. Table 8.8 shows the current in-quota tariffs, over-quota tariffs and current WTO minimum access commitments for Canada's supply managed commodities. In-quota tariffs are likely to be subjected to the normal tariff cutting formula in Canada. In some countries in-quota tariffs might be inhibiting imports but in Canada this does not appear to be the case and no new market access will be created by lowering in-quota tariffs.

Table 8.8: Current over-quota tariffs and WTO minimum access quantities for Canada's supply managed commodities.

Commodity	In-Quota Tariff	Over-Quota Tariff ^a (percent)	Minimum Access Amount ^b
Dairy			
- Butter	\$0.1138/kg	298.7	3,274 MT
- Cheese	\$0.0332/kg	245.6	20,411,866 MT
- Condensed milk	\$0.0284/kg	259.4	11.7 MT
- Cream	7.5%	241.3	394 MT
- Dry whey	\$0.0332/kg	208.2	3,198 MT
- Ice cream	6.7%	277.1	484 MT
- Other dairy	6.7%	267.8	70 MT
- Other products of milk constituents	6.5%	270.1	4,345 MT
- Powdered buttermilk	\$0.0332/kg	208.2	908 MT
- Yogurt	6.5%	237.5	332 MT
Eggs			
- Hatching eggs and chicks	\$0.0151/doz.	238.3	7,949,000 doz.
- Eggs and egg products	HS 0407.00.12 and HS 0407.00.19 = \$0.0151/doz.	HS 0407.00.12 – 238.3 HS 0407.00.19 – 163.5 Egg products have varying levels of specific tariffs	21,370,000 doz.
Poultry			
- Chicken, live, meat, products	\$0.019/kg	238.3	39,844 MT
- Turkey, live, meat, products	\$0.019/kg	154.7	5,588 MT

Source: AAFC.

Notes: ^aNearly every tariff line specifies the over-quota tariff as the maximum of the *ad valorem* tariff reported above and a specific tariff.

^bThe minimum access amounts reported here differ in some cases from those reported in table 3 because the figures in this table are those that apply after full implementation of the Uruguay Round Agreement.

In order to analyze the impact of a possible DDA outcome, information is required on the amount of “water” in Canada’s over-quota tariffs. The water in the tariff refers to the amount by which over-quota tariffs can be lowered but still keep imported products out of the Canadian market. In the chicken market, a 50 percent over-quota tariff cut would still leave the Canadian market protected from iced broiler imports from the United States. However, over the past few years, trade in chicken meat has evolved from trade in iced broilers to trade in chicken parts, with Brazil emerging as the world’s lowest cost provider of frozen chicken parts. As a result, from the perspective of Canadian chicken producers, even higher tariffs might be required for complete protection from imports.

Raw milk is priced about 40 percent higher in Canada than in the United States, which would be the only potential supplier of imported raw milk, so for this commodity, a tariff higher than 40 percent should keep raw

milk out of the Canadian market.⁹ Gifford suggests that a butter tariff near 200 percent would be required to totally protect the Canadian butter market from imports under most market conditions. However, it should be noted that dairy trade is taking place increasingly in milk components rather than final products like butter. Unfortunately, the data required for careful analysis of Canada's potential exposure to low cost imports is very difficult to obtain and additional analysis would be required to forecast the size of over-quota tariff cuts the supply managed commodities could withstand while maintaining nearly complete protection from imports. However, if we assume that tariff cuts of 30-50 percent to the over-quota tariffs will still maintain protection from foreign imports under most conditions and for most products, the major challenge the supply managed industries will face under the DDA will be increases in minimum access to five to ten percent of domestic consumption.

THE ECONOMICS OF TRQ LIBERALIZATION UNDER SUPPLY MANAGEMENT

The three main features of a tariff rate quota are: 1) the minimum access commitment (MAC); 2) the in-quota tariff; and 3) the over-quota tariff. A country must allow imports up to the amount specified by its minimum access commitment at the in-quota tariff, while any imports over and above the MAC are charged the over-quota tariff. By setting the over-quota tariff at a high level, countries can effectively maintain a strict quota on imports. When liberalizing TRQs under the WTO, each of these three features can be changed, although the access imported commodities have to the domestic market protected by the TRQ will generally only be affected by changes to the MAC and the over-quota tariff. Depending upon the size of the over-quota tariff cuts, real gains in access are not necessarily realized by importers.

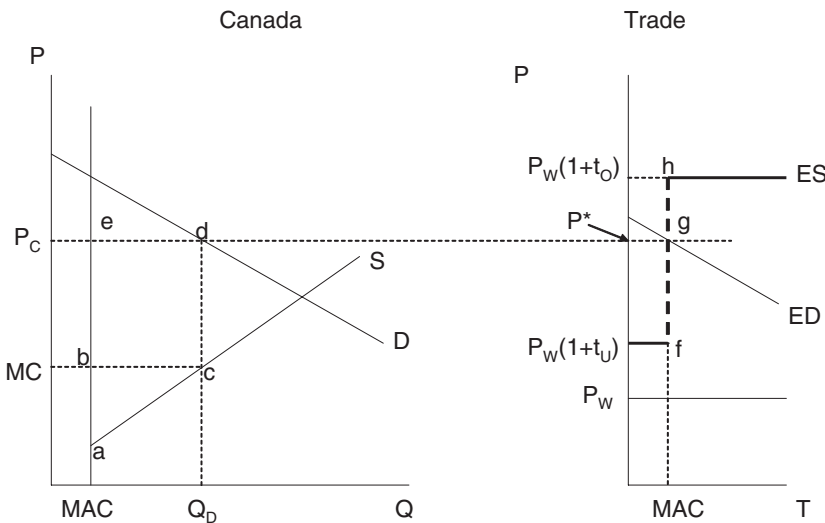
Figure 8.2 shows a stylized representation of supply management in Canadian agricultural markets. The left hand side of the figure represents Canada, while the right hand side represents Canada's interaction with other nations in the international trade arena. Supply and demand curves in the Canadian market are labeled S and D, respectively. P_c and MC represent price and marginal cost in Canada, while Q_d and MAC represent domestic demand and imports at the minimum access commitment, respectively. The difference between Q_d and MAC represents the volume of marketing quota available to domestic producers. Also note that the supply curve has been shifted to the right such that it now intersects the vertical line representing the volume of imports. Shifting Canada's supply curve to the right in this manner assumes that Canadian producers take the MAC as fixed when making profit maximizing price and output decisions

⁹ Canada's exchange rate plays an important role in determining the amount tariffs can be cut before facing import competition.

(i.e. imports are infra-marginal with respect to Canadian producers' profit maximizing decisions). The price in the Canadian market (P_c) is such that the domestic market clears (i.e., domestic supply plus imports equals domestic demand). In turn, the Canadian price equals the market clearing price in the trade panel. This market clearing price (P^*) is determined by the intersection of Canada's excess demand (ED) curve and the excess supply (ES) curve Canada faces. Excess demand represents demand for the commodity that is unfulfilled by domestic production. Excess supply represents supply of the commodity available for sale in the international marketplace from other countries. As drawn, the excess supply curve represents a small country assumption for Canada (i.e., Canada's volume of trade in the commodity does not influence world prices).

P_w represents world price and MAC represents Canada's minimum access commitment. The step-shape in the excess supply curve arises from Canada's two-part tariff in the international market. For trade volumes below the MAC, the relevant tariff is denoted as t_u (which represents the in-quota tariff). When trade exceeds the MAC, an over-quota tariff (t_o) applies (Moschini; Skully). As drawn, the market clearing price is bound between $P_w(1+t_u)$ and $P_w(1+t_o)$. For the specific case featured in figure 8.2, P^* occurs at the point where the excess demand curve intersects the vertical portion of the excess supply curve. The difference between $P_w(1+t_o)$ and P^* is referred to as the water in the tariff; it represents

Figure 8.2: Supply management in Canadian agriculture.



the reduction in the over-quota tariff required before such a reduction would affect P^* .

In figure 8.2, producer and importer benefits can be easily identified. Producer's surplus, which is the return to fixed factors of production, equals the area above the domestic supply curve, to the right of the vertical line representing imports, and below marginal cost (i.e., area abc). Since supply management uses domestic marketing quotas to ration output, quota rents accrue to domestic quota holders. The monetary value of marketing quota rents equals the area between domestic demand (Q_D) less imports (MAC), times domestic price (P_C) minus marginal cost (i.e., the area bcde).

Use of a TRQ scheme means that importers can earn import rents. However, the nature of the rents varies with the position of the excess demand curve relative to the excess supply curve (figure 8.2, trade panel). If the excess demand curve intersects the lower horizontal part of the stepped excess supply curve, then importers do not earn any import rents. When the excess demand curve intersects the vertical part of the stepped excess supply curve, as illustrated, importers earn import quota rents equal to the area $P^*gfP_w(1+t_U)$ and the government collects in-quota tariff revenue equal to $P^*gfP_w(1+t_U)$. If the excess demand curve intersects the excess supply curve on the upper vertical portion of the stepped excess supply function, import rents equal the area $P_w(1+t_O)hfP_w(1+t_U)$, while tariff revenues equal the difference between $P_w(1+t_O)$ and $P_w(1+t_U)$ times the volume of over-MAC imports plus the in-quota tariff revenue. How the importer rents are rationed is governed by a number of institutional-specific factors. However, it is worth noting that the rents will accrue primarily to stakeholders in Canada (specifically recipients of the Canadian import quotas).

Now let's consider the impact of the three liberalization options available for TRQs on producers of supply managed commodities in Canada. First, if the DDA requires reductions to the in-quota tariff, this action would not affect the volume of imports or producer prices and incomes; it would increase the import quota rents while reducing the tariff revenues collected by the government.

Second, if under the DDA the over-quota tariffs are reduced by no more than the amount of the water in the tariff, then producer prices, quota levels, quota values, and net incomes of producers of supply managed commodities will be unaffected by such reforms. However, if the proposed reduction in tariffs exceeds the water in the tariff, then it follows that there will be reductions in the output prices of the supply managed commodities which would result in the erosion of both producer net incomes and quota rents. These effects would be partially offset by the

resulting increases in domestic consumption of these products in response to the lower prices, which would result in equivalent increases in domestic quota levels. Despite these mitigating effects, the profit levels of producers of supply managed products appear certain to fall given that the industry would have chosen to lower prices previously if such a move would have increased profits. So it would appear that small over-quota tariff cuts will not be damaging to producers of supply managed commodities due to the existing water in these tariffs, but larger tariff decreases (those beyond the water in the tariff) could cause financial problems for these producers.

Third, if the DDA requires increases in the MACs, then domestic marketing quota levels will need to be reduced if domestic prices are to remain unchanged. The amount the quota levels would have to fall could be somewhat reduced if the industry were to lower prices under the monopoly pricing regime. In either case, producers will be made worse off through some combination of falling prices and quota levels.

OPTIONS FOR ADJUSTMENT ASSISTANCE

The Debate over Assistance

One explanation for the sharp increase in the value of marketing quota since 1995 is that quota buyers expect governments will compensate them for any loss in quota value resulting from policy changes. This outcome is not a foregone conclusion. It is unusual for governments to compensate producers for trade policy changes. There are a number of good reasons for this. First, multilateral trade policy changes are typically modest and made over an extended period of time. Second, trade policy changes are complex affecting both the price of outputs and inputs, and heightened competition in the domestic industry often results in firms finding ways to improve their productivity to become better competitors in the international market. Third, it is often difficult to know if a firm's woes are caused by trade policy changes, general economic conditions, or circumstances unique to the firm. Fourth, in a competitive economy, firms go out of business and workers are displaced for a wide variety of reasons. These firms and workers have recourse to a number of government programs to provide retraining and to soften the blow. Why should workers perceived to have been harmed by trade policy changes receive better treatment than workers who become unemployed for other reasons?

Consider the implications of the DDA and its likely time path. Even if the DDA results in over-quota tariff cuts of 50 percent, the over-quota tariff for all of Canada's supply managed commodities would remain above 100 percent, except for turkey where it would fall to 61.9 percent.

It is unlikely that the DDA will come into effect prior to 2008 and it will likely involve a five to ten year implementation period. Hence, the economic implications of the DDA will play out over the next eight to 13 years. In addition to cuts in over-quota tariffs, it would appear that some additional minimum access will have to be provided to foreign suppliers, with the possible exception of the chicken industry. In this event, the dairy industry would have to move away from cost-of-production based prices to negotiated prices in order to reduce the impact of such a change on its producers. Still, changes under the DDA of this nature will not require the elimination of supply management and Canadian domestic prices for these commodities will still be high relative to world market prices. So should this type of trade policy change require the provision of financial assistance to producers?

Perhaps the strongest argument against providing assistance, even with significant cuts in future protection, is that producers should have been aware of such risks when they purchased their marketing quota and up to this point, they have enjoyed considerable benefits from owning it. The risks inherent in purchasing quota – that the policy regime may change – are well understood by buyers, and there is evidence this risk is built into the quota price. Even the Ontario milk producer who bought his entire marketing quota as recently as 1995 could sell it today for nearly three times what he paid for it. If the value of this individual's quota should drop by as much as 25 percent as a result of the DDA, should Canadian taxpayers provide him with financial assistance for his partial loss in capital gains? Canadians who purchased Nortel stock for \$100/share and watched its value drop to \$3/share would have a quick answer to this question.

But, there is also the argument that government has a role to play in encouraging adjustment in order to lower farm prices. In fact, there are three such examples of payments to Canadian farmers following policy changes during the past three decades. The first is the \$1.6 billion payment made to Canadian farmers when the Western Grain Transportation Act was eliminated. It is important to note that: 1) this was a domestic program; 2) the subsidy was judged by some to represent less than one-third of the benefits of the program; and 3) the subsidy was eliminated overnight, with no gradual phase-out. The second example is the transition assistance provided to grape growers in Ontario and British Columbia at the time the CUSTA was signed. Payments from this program were not intended to provide "compensation" but rather to assist grape growers over a short period of time, to replace Concord and other low-quality wine grapes with vinifera grape varieties. The third example is the adjustment assistance provided to about 1000 Canadian tobacco producers so they would retire their basic production

quota permanently. Although this was a domestic and not a trade policy reform, it is still of sufficient interest to describe it in more detail.

Tobacco is a supply managed commodity in Canada, but its production base is restricted to a few counties in Ontario that currently produce all of Canada's tobacco. In the early 1970s and 1980s, about 200 million pounds of tobacco was produced annually in Ontario. However, nonsmoking campaigns at all levels of government combined with increases in cigarette taxes have had a significant effect on the Ontario industry that was geared primarily to serve the domestic market. By the early 1990s, production had dropped to less than 140 million pounds per year and a decade later to just over 100 million pounds per year. In 2005, joint federal and provincial programs were announced to permanently reduce the amount of basic production quota (BPQ) held in Ontario.¹⁰ A reverse auction was used to permanently retire 51 million pounds of BPQ. Producers were paid C\$1.72/pound for their BPQ and in return they agreed to exit the industry and not to own BPQ in the future. The total cost of removing the BPQ was C\$87.8 million dollars, or an average payment of about C\$88,000 per producer.¹¹ The program reduced the number of active tobacco producers in Ontario to 622 in 2005/06 who produced 85.3 million pounds of tobacco worth about C\$136.5 million.

Clearly the buyout program for Ontario tobacco producers had nothing to do with a change in border policy and everything to do with domestic health concerns related to smoking. The buyout price of C\$1.72/lb. is close to what it cost to buy a pound of BPQ in 2000/01, but the value of BPQ in 2004 had fallen to below C\$1/lb.¹²

There are precedents for adjustment assistance or buyouts having been provided in countries other than Canada for domestic policy changes. These include sugar in the European Union, milk in Australia and Switzerland, and peanuts and tobacco in the United States. These programs vary considerably in their characteristics. The EU sugar program is discussed only briefly here, while the Australian milk and the US peanut and tobacco programs are reviewed in more detail later in the chapter.

In the case of EU sugar reform, agreement was reached in late 2005, with reforms to be phased in from 2007, and will feature a shift away from sugar production quotas and to lower domestic sugar prices. Domestic prices will decline by 36 percent over four years bringing them close to

¹⁰ The federal program was the Tobacco Adjustment Assistance Program and the provincial program was the Tobacco Community Transition Fund. These programs were the latest in a series of government initiatives to encourage tobacco producers to diversify into other crops and/or exit the tobacco industry.

¹¹ The cost of the programs was higher than this figure because they contained elements unrelated to the buyout of BPQ.

¹² A pound of BPQ does not give a producer the right to market a pound of tobacco. In 2004, the percent "growable" of BPQ allotted was 27 percent.

the current world price for sugar. Direct decoupled payments (a “cash-out”) will be made to farmers to replace 64 percent of the income lost. In addition, factory sugar quotas will be sold back to the EU at a given schedule of prices, with the buyback price declining after two years. In addition to the cash-out payments, the EU will provide farmers with aid to adapt or exit the industry (The International Centre for Trade and Sustainable Development – ICTSD).¹³

In summarizing these various programs, there are few, if any, examples of payments made to compensate producers for trade policy changes, although the dividing line between purely domestic and purely trade policy is often blurred. Most of the adjustment schemes also have the objective of facilitating adjustment in the industries affected to build a more competitive industry in the future.

However, if it is judged politically necessary to provide adjustment assistance, the next question should be what the important characteristics of the adjustment program are. This is considered in the following section of selected program options. Perhaps the biggest question is how much assistance should be provided? A full buyout of all producers of supply managed commodities would cost C\$25 billion using 2004 quota values, and from the past 25 years of experience this cost is likely to grow over time. How should this figure be compared to the C\$1.6 billion paid to Prairie grain farmers to cover about one-third of the benefits of the freight subsidy being removed? In comparison, Australian dairy reforms involved adjustment assistance that covered only three years of annual benefits of the old scheme.

Assistance Based on the Book Value of Quota

One option, in the family of options that use quota (capital) values as the basis for calculating assistance, is to tie payments not to the current market value of marketing quota, but rather to its book value. Financially, book value is typically treated as an asset’s original purchase value less depreciation. Here, because marketing quota does not depreciate in the conventional sense and rarely loses value, book value is taken as the original value of the purchased marketing quota. This approach to providing adjustment assistance explicitly focuses on losses in capital value as measured by original cost. It follows the argument that a producer who recently purchased quota at a high value, possibly still backed by debt, is deserving of greater assistance than a producer who bought the quota at a much lower value. This argument also reflects the view that the producer who bought the quota at a low value has already received many years of benefits from his purchase.

¹³ Orden discusses the EU sugar reforms in greater detail.

This option can incorporate different rules. First, assistance can follow simply on the basis of the book value and each producer would be paid the purchase value of his quota. A key feature of this scheme is that capital gains would count for nothing in terms of adjustment assistance. An alternative rule, with a lower level of assistance, would be to take the proportional loss in current market value of quota and then apply this loss percentage to each individual's book value of his quota. One issue that could arise in administering this scheme at the individual level, is that each producer may have a portfolio of quota vintages, with a different book value for each vintage. One could then pay assistance based on the full book value of each vintage for each producer, or on the percent change (decline) in the market value times the book value of each vintage, in order to reduce the government's financial obligation. Data on book values is likely available at an individual producer level from income tax records due to the deductibility of allowed depreciation on quota purchases.¹⁴ Clearly, some administrative burden is involved with such a scheme. But if these data are not available at reasonable cost, one could calculate the average book value for a region or a commodity subgroup and pay individuals on the basis of this average. Then all producers in each subgroup would receive the same per unit payment level (based on the average book value), but the total amount of assistance would differ according to the amount of quota held.¹⁵

At least two issues arise when dealing with assistance based on book value. First, quota that was initially given to producers by the marketing board will not qualify for any assistance, as the book value is zero. Of course, producers who received their quota gratis had the benefit of higher prices without payment for all the years since that allocation, so they would not have been without an advantage. Second, as previously noted, this scheme does not provide any assistance for accumulated capital gains on the quota. Implicitly, this scheme assumes the goal of the supply management regime was to pay producers better prices with no obligation to provide for higher investment returns via capital gains on the right to produce (marketing quota).

Australian Dairy Reform Model

In 2000, the Australian dairy industry took an interesting approach to deregulation that provided real world evidence on another option for

¹⁴ Canadian farmers are allowed to depreciate 50 percent of the value of quota purchases, although this is subject to recapture on the future sale of this quota.

¹⁵ An even simpler scheme is to choose an arbitrary date and to provide payments to producers who bought their quota since that date using the book value and the assistance rules already described, and no payments to those who purchased their quota prior to that date. Although this would reduce the financial exposure of the government, it would invite criticism for being unfair to the earlier purchasers.

government policy and assistance. These reforms featured a change in fluid milk pricing, where regulatory constraints on pricing were removed, combined with the elimination of most government subsidies. The reforms removed the regulated fluid milk price premium, price discrimination and pooling across all dairy products, most interstate restrictions on milk shipments, and the government price support payments for manufacturing milk. Although there were several earlier programs to foster industry adjustment to more efficient, less restricted marketing arrangements, these measures were often implicit and their effects were diluted by production growth. In addition, the support payments encouraged imports, and they did little to reduce the balkanization of the Australian milk market (Edwards; Harris; Harris and O'Connor).

The Australian State of Victoria phased out fluid milk quotas in the 1970s, but the countrywide deregulation in 2000 was more substantial in many ways (Alston). First, the reforms were full and immediate, with the policy announcement made nine months before implementation. This “full impact approach” was in contrast to the more usual phased-in approach to reform. However, debate surrounding the reform has mostly ignored this issue and instead focused on issues of horizontal equity; how different farmers were treated by the reform and the adjustment assistance program (details below) and on processor-farmer milk pricing questions (Kingston; Parliament of South Australia). Second, the immediate reforms led to rapid declines (35-40 percent initially) in the price of fluid or non-seasonal milk (Harris). Third, an assistance scheme was devised to help replace the income that was lost due to this deregulation. The focus of these reforms was on encouraging adjustment and not on providing equity-based income support, even though farmers were allowed to spend the payments in any way they chose. However, the payments were targeted to where the larger losses occurred, namely in those regions and to those farms with heavy reliance on fluid milk production, as opposed to manufacturing milk production. The size of the payments were known in advance and scheduled to be paid quarterly over eight years, but financial market (bank) programs were offered to give farm recipients the present value of this income stream in a lump sum payment. The level of the total assistance payment was about US\$150,000 per farm, which was judged to represent about three years of income losses due to the reforms. This was not a full “buyout” for the permanent losses incurred (in present value terms), but was considered to be an appropriate sum to finance the necessary adjustments.

Fourth, these assistance payments were financed by a tax on consumers. There was no contribution from the National Treasury. Fluid milk consumers were judged to be a legitimate source of this funding because they would be the primary beneficiaries of the reforms, due to the subsequent fall in consumer fluid milk prices. The financing arrangement

was a ten-year tax that meant consumer prices would actually fall by only one-half of the expected amount during those ten years, after which the full decline would be enjoyed. In other words, consumers benefited from the reform immediately but the decline in consumer prices was phased in over two periods, one-half to be experienced immediately and the other one-half after ten years.

If this approach was applied to the Canadian dairy industry, it would be administratively feasible. Due to the pooling procedures currently used, it is possible for producers to be paid a lower price for their product and for the pool to pay out a certain sum to cover the costs of the assistance scheme, with the total pool costs being recovered through appropriate pricing to consumers. One difference in Canada would be that this scheme would cover all milk products, not just fluid milk. The costs could be pro-rated across all product pools as an extra charge on the milk in that pool and the extent of the charge could be chosen, just as it was in the Australian case. However, unlike the Australian case, because all milk products enjoy an income boost due to current trade policies, the need for regional differentiation in Canada would be less of an issue.

Compared to adjustment assistance schemes based on quota values, this scheme allows payments at less than the full value of the quota, or less than the full amount of the prospective income loss to be implemented more easily. This is important in the Canadian situation where the cost of making payments at full quota values would be C\$25 billion. It may also be important if the current quota values contain an expectation that there will be payments to producers following trade reforms of the sort we have discussed. The government may not wish to finance these expectations, and so for this reason may wish to provide a lower level of payment. This approach also allows the assistance to be determined flexibly, independent of quota values. With this flexibility, payments may be tailored to each region and type of farmer as desired.

Due to this added flexibility, this kind of scheme would be cheaper than simply buying out quota. It also shifts the financial burden of this assistance to consumers and away from the government. However, the scheme could be adapted to allow for joint financing of these costs. Some of the costs could be covered by the government if they contributed some amount to the milk price pool.

In sum, the Australian scheme adds a number of different options to adjustment assistance policy, and in particular, it provides a scheme that is even more flexible than the options chosen in Australia might suggest. This type of reform can be designed to allow for virtually any level of payments, in any form and to any group; the timing of the payments

can be readily chosen; the program can be paid for through any mix of consumer and government financing depending upon what is deemed as fair; and the reforms can involve variable timing of both the costs and the benefits.

The Two-Quota Option

If Canada anticipated that future international trade obligations would require the reduction of over-quota tariffs to relatively low levels, such as well below 100 percent, the Canadian government might wish to create a period of adjustment to assist producers in dealing with the approaching lower tariffs. This period of adjustment could assist farmers in making the necessary changes in their farm operations to respond to prices that might be considerably lower. As well, the government would be able to spread out over time any adjustment assistance it judges to be appropriate. Under such circumstances, a two-quota policy may be a useful option. This would be a voluntary scheme that would involve a gradual decline in domestic product prices to a level that would largely protect the domestic industry from imports and maintain the domestic market for Canadian producers. Alternatively, such a scheme might be useful once a trade agreement has been signed, in order to facilitate adjustment. In this latter situation, however, the length of the adjustment period would be dictated by the trade agreement and not by the choice of the Canadian government.

Such a program could work with the following details, using the dairy sector as an example. Producers would be given the choice of buying into such a scheme by selling (i.e., trading-in) their existing or “old” quota to a government agency while at the same time bidding for a new class of quota. Milk shipped under this new quota would receive a lower price than that received with the old quota. The scheme could be designed so that buying new quota would be similar to buying the right to sell on the old commercial export program that existed in some Canadian provinces prior to 2002. The two transactions – selling the old quota and buying the new quota – would be linked, as suggested by the word, trade-in. Producers wishing only to sell their existing quota could do so on existing quota exchanges as usual.

Given that this option would feature two different prices for the same product being sold only on the domestic market, it would involve pooling of the different returns. Consumers would face only the pooled price. The institutional framework of classified pricing that exists in the Canadian dairy sector would be consistent with such a pricing mechanism. The pricing would involve a schedule under which the price would gradually decline over time by whatever path the government chose.

The choice of the final price could be tied to an anticipated (or agreed-upon) tariff level. If the expected tariff was 25-40 percent, the final domestic price would have to be below the world price plus the 25-40 percent tariff in order to keep out imports. Of course, tariffs would have to be set on an individual product basis and could differ across products.

The new quota would have a lower value than the existing quota due to the fact that milk shipped under it would receive a lower price. The determination of this price could be handled privately under an offer-to-buy mechanism whereby producers would make an offer for the new quota when selling their old quota to the government at some predetermined price (such as the prevailing market price on already established quota exchanges). Alternatively, farmers could provide both an offer-to-sell price for their old quota and a bid-to-buy price for the new quota. Given the ready alternative all producers face of selling old quota on the existing quota exchange, we would expect the offer price to be very close to the existing market price for old quota. Whether the transaction involves a predetermined old quota price set by the government, or an offer price made by producers, the key variable would be the difference between the bid and offer prices. This would represent the net return to the producer from engaging in the transaction.

To make this option voluntary and commercially feasible, there would have to be a government subsidy involved. An agency that bought old quota at high prices and exchanged this for new quota at lower prices would need a subsidy to be viable. The amount of quota that could be purchased by this agency and replaced with new quota each year would depend on the level of subsidy or financing determined by the government. The size of the financial commitment would depend on the combination of the transition period desired or imposed by the trade agreement.

As the pooled milk price declines over time, consumption of dairy products would be higher than if no price changes took place. A net increase in consumption would prompt new quota to be added to the system. This could be distributed to new quota holders in the same way that new quota is handled presently – by a pro-rata increase to all (new) quota holders. This feature of the new quota (i.e., the possibility of increased allocations) would lead to a higher price than would otherwise prevail and it would increase the attractiveness of this scheme to would be participants.¹⁶

What are the attractions of such a scheme to the Canadian government? First, it does commit the government to an adjustment assistance package. In terms of advantages, it would allow for a graduated payment and the

¹⁶ If it was necessary to remove quota from the system this could be taken from old quota holders in order to further improve the attractiveness of new quota.

degree of graduation or phase-in would be decided by the government each period through its choice of how much old quota to buy. Second, by selling the new quota, there would be some revenue offset to reduce the net cost of the assistance payments. This may be a small offset, depending on the level of world prices and the tariff that is set, but its existence is good for the government nevertheless. On the negative side, subject to this offset, such a scheme does peg the assistance payments to the full value of the old quota. If the government wanted to pay only one-third or one-half of the current quota value, this would be difficult. A major disadvantage of this scheme is its cost to governments unless it is combined with a tax on the stock of old quota.

What would be the attractions of this scheme for producers? First, it would allow farmers who are willing to accept the proposed path of lower prices to continue in milk production while extracting a considerable proportion of their equity in old quota with the certainty of current quota prices. Second, the program is voluntary, so a farmer who did not want to consider operating under the lower priced market could continue with the current system. However, such a decision would be subject to many risks as future trade negotiations unfold, such as the loss of quota if minimum access levels were to rise or milk prices decline as a result of over-quota tariffs falling. Farmers who hold such a view might find this two-quota scheme to be quite attractive. Third, farmers would be able to trade in their old quota for new quota to whatever degree they wish. Finally, if the new quota was to be made available to new entrants, this would be seen as an additional attraction of such a scheme. Lower quota values, even if tied to lower milk prices, might make the industry accessible to some individuals who otherwise would not have the access to the capital needed to purchase old quota under the current system with its high quota prices.

As noted above, the scheme proposed here would not provide a retirement option for exiting farmers. That option would be available by selling old quota on the existing quota exchanges, as many farmers currently do.

United States Examples: Tobacco and Peanut Buyouts

Two US farm programs involving supply management elements – tobacco and peanuts – were ended or substantially changed in recent years and buyout options were made available. Given the similarities between these programs and supply management in Canada, they are quite relevant. These programs are similar to a full quota buyout and are discussed along with the potential buyout of the US sugar program in the chapter by Orden, so we provide only a brief overview of their elements.

Tobacco The US tobacco program buyout was clean and complete – all government support programs and restrictions were permanently terminated. Following this reform, tobacco prices were expected to fall by 25-30 percent. Payments were made both to quota holders (not necessarily farmers) and tobacco growers (including quota renters who did not own quota). Payments were spread out evenly over ten years for both groups, although lump sum payments intermediated through financial institutions were available. The total cost of the buyout to these two groups was \$9.6 billion, compared with \$2 billion in tobacco sales in recent years. Although Orden estimates the cost of the buyout to be equivalent to 15-20 years of quota rental payments, one can argue that the buyout sum was actually greater than the foregone future benefit stream, due to the widely expected future decline in tobacco prices and quota allocations. Finally, unlike most buyouts, the tobacco buyout was not financed by taxpayers but rather by assessments on tobacco manufacturers and importers. This is similar to the Australian dairy program where the government did not finance the buyout.

Peanuts Unlike tobacco, the peanut buyout was not clean and complete. Although quotas and locational growing restrictions were removed, “net” returns were expected to be similar for many farms due to the introduction of direct and countercyclical payments. Payments were made only to peanut quota holders. Peanut growers renting quota from quota owners still received government program payments and no longer needed to lease quota, therefore were not considered to require compensation payments. Buyout payments were spread out over five years at levels Orden calculated to be equivalent to about twenty-four years of quota rental payments. But it is more likely that the present value of buyout payments exceeded the foregone expected future payments due to ongoing declines in both quota allocations and peanut prices.

A Full Quota Buyout

Another possible option for Canada would be to provide adjustment assistance at a level equal to the full market value of the domestic quota. Such a scheme would be easy administer and politically attractive – some farm leaders are already arguing for this option. However, the downside of this option is the extreme cost of such an undertaking – estimated to be C\$25 billion using 2004 data. Furthermore, if this option was to be taken only after the next trade agreement forces Canada to do so, the total cost could well be much larger, using the past 20 years as a guide to annual quota value increases.¹⁷ This cost will greatly exceed the WGTA buyout of all wheat farmers in Western Canada of less than C\$2 billion.

¹⁷ The only offset to these costs would be tariff revenues from increased imports, but those revenues are likely to be very small.

Table 8.9: History of real rates of return on quota values for aggregate quota value.

Time Period	Number of Years	Real Rate of Return (compounded)
2000-2004	Past 4 years	8.0 %/year
1995-2004	Past 9 years	10.0 %/year
1990-2004	Past 14 years	9.6 %/year
1981-2004	Past 23 years	7.8 %/year

Source: Authors' calculations based on data in table 8.1.

One response to such a large expenditure would be to explore the possibility of spreading these costs out over time. If such a measure was adopted only in response to a final trade agreement, the typical phase-in period would only be five years. However, if planned far enough in advance, this option could be spread over a much longer time period such as 20 to 25 years. This could be accomplished using the two-quota option discussed previously.

Final Issues: How to Determine Assistance Levels

Many arguments for providing assistance when reforming quota-based policies are based in some way on quota capital values, but is this the correct line of reasoning? Some have suggested that Canada's quota values are inflated and may illustrate an asset bubble. If so, what kind of future profitability do these values actually reflect?

There are alternatives to basing assistance levels on quota capital values as the previous discussion indicates. Some assistance programs focus instead on foregone annual profitability with payments based on a certain number of years of foregone quota profits or rent. This is explicitly mentioned, for example, in the Australian dairy case. To address this issue, we look more closely at quota price patterns.

Table 8.9 presents the real rate of return in aggregate quota values across the four supply managed commodities for four time periods. The data look only at capital gains and ignore the annual returns or benefits from producing the commodity (i.e., the dividend payments, using a stock analogy, are not included).

First, these data show an extraordinarily high real rate of return, especially given that this ignores the production value of the quota. Although milk profitability may be growing over time, there is no question that this growth is faster than the rental return on quota or annual profits of producing milk. It would be surprising if the difference between milk prices and marginal costs are growing much faster than two percent per year. Second, as the table shows, these high rates of return are not an artifact of the last few years and are remarkably sustained, covering at

least 23 years. The main conclusion from this analysis is that current quota values do not appear to be an asset bubble.

To make sense of such asset value growth, two plausible factors can be involved in increasing the capital value faster than the rental rate. First, it could be in response to a reduction in the default risk since there is the perception that the quota regime is less subject to change in the post-Uruguay Round Agreement period. A second possibility is the expectation that if there is a change in the quota regime, governments will make available some kind of compensation to quota holders. In both cases, quota values would grow independently of actual annual profitability of production. As a result, this “expectation of payments” will increase the actual cost of assistance if these quota values are to be used as the basis for making payments. Furthermore, if the expectation that government assistance will be forthcoming becomes more widespread, this could raise quota prices still further, raising the question of whether these values are the most appropriate benchmark for determining adjustment assistance.

Implications for NAFTA Market Integration

If we look only at the potential trade liberalization resulting from the DDA, its impact on Canadian supply managed producers will be minor. There will likely be some increased imports into Canada of the supply managed commodities, but only via small increases in existing MACs. There likely will be no effect on North American market prices from such small changes, nor is there likely to be any noticeable increase in North American market integration in trade of supply managed commodities.

If we consider the potential for more serious reforms at some future date, namely reductions in over-quota tariffs beyond the water in the tariffs, such reforms would lower domestic prices. This would suggest that further integration of North American markets in these commodities will be possible. However, future import levels would still be quite uncertain. In the short run, the change in imports would depend on the domestic pricing policy adopted within Canada. Lower domestic prices will reduce the market penetration ability of imports. In the longer run, import levels will depend on the competitiveness of the Canadian supply managed sectors. It is possible that the Canadian industry will have low enough costs so that market integration could occur with small import levels. As well, the outcome clearly depends on the value of the Canadian dollar.

CONCLUSIONS

It is reasonably clear that the current DDA Round of trade negotiations is unlikely to provoke major changes in Canada’s supply management

policy. Following a successful conclusion and implementation of this round, one response from the Canadian government would be to make the necessary minor adjustments required by the DDA and continue the policy regime largely as it has operated in the past. However, the next round of multilateral trade negotiations will likely result in the need for substantial changes to domestic supply management policy including significant price declines. Canada now has a window of roughly fifteen years to prepare for these possible changes. It is in this context that this chapter examines a variety of options for adjustment of the industry so that it can successfully compete in 2020 and beyond.

Many precedents exist across countries and over time for some form of longer term adjustment assistance. Drawing on these examples and the options presented in this chapter, we draw attention to many characteristics to consider in designing an adjustment assistance scheme including:

- the size of assistance payments;
- the basis of payments, whether it be capital values or annual returns;
- the pattern of payments over time;
- the incidence of financing costs between governments and consumers;
- whether a scheme is voluntary or features across the board payments to all;
- whether the same payments are made to all producers or whether there should be differential assistance based on some criteria such as historical quota prices;
- the possibility of introducing new types of quota; and
- the administrative ease of the proposed reforms.

We suggest that special consideration be given to three of these issues. First, payments could be based on a fixed number of annual rental values, instead of on capital values. This would be preferable, given the seemingly “inflated” level of current quota market values. Second, options exist to choose the distribution or incidence of financing costs to either taxpayers, consumers, or both, and this issue should be given special attention. Third, assistance to this sector should be focused on facilitating adjustment of the industry to the competitive pressures it will likely face in the future, including lower product prices. We are confident the supply managed industries can compete in a less distorted world if given time to prepare and an encouraging policy environment.

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Program and Participants



WORKSHOP PROGRAM

Welcome

Chair: Karl Meilke – University of Guelph

Session I

Chair: Ken Clayton – USDA-AMS

The Search for NAFTA Plus

Karl D. Meilke – University of Guelph

Steven Zahniser – USDA-ERS

James Rude – University of Manitoba

Discussants

Stephen Whitney – Fruit and Vegetable Dispute Resolution Corporation

Eugenio Salinas – Consejo Mexicano de la Carne

Session II

Chair: Gloria Abraham – IICA-Mexico

Brazil's Agrifood Exports: More Opportunities from NAFTA

Expansion

Constanza Valdes – USDA-ERS

Elisio Contini and Ivan Wedekin – Ministry of Agriculture-Brazil

Arnaldo Chibbaro – IICA

Discussant

Joe Outlaw – Texas A&M University

Open Discussion

Session III*Chair: David Hope – OMAFRA*

Rising Demand, Trade Prospects, and the Rise of China's Horticultural Industry

*Scott Rozelle – Stanford University**Daniel A. Sumner – University of California (Davis)**Mechel Paggi – California State University (Fresno)**Jikun Huang – Center for Chinese Agricultural Policy*

Discussant

Brad Gilmour

Open Discussion

Session IV*Chair: Walter Armbruster – Farm Foundation*

Producer Panel

*Juan Habermann – CNA**John Hardin, Jr. – Hardin Farms**Barbara Isman – Canola Council of Canada*

Open Discussion

Session V*Chair: John Dunmore – USDA-ERS*

Trade Adjustment Assistance for Farmers: Implementation and Lessons Learned

Richard J. Blabey – USDA-FAS (retired)

Discussants

*Armando Chacón – Instituto Mexicano para la Competitividad**Jon Huenemann – Miller & Chevalier Chartered*

Open Discussion

Farm Subsidy Reform Dividends

Ralph Lattimore – NZIER

Discussants

*Mary Ledman – Keough Ledman Associates, Inc.**Yvonne Stinson – Comercio Global Consultores*

Open Discussion

Session VI*Chair: Cameron Short – AAFC*

Feasibility of Farm Program Buyouts: Is it a Possibility for US Sugar?

David Orden – IFPRI

Discussant

Ken Schwedel – Rabobank-Mexico

Options for Supply Management in Canada with Trade Liberalization

*Rick Barichello – University of British Columbia**John Cranfield and Karl D. Meilke – University of Guelph*

Discussant

Mike Nailor – Chicken Farmers of Ontario

Open Discussion

Session VII*Chair: Ron Knutson – Texas A&M University*

Discussion Panel

*Jan Dyer – AAFC**Suzanne Heinen – USDA-FAS**Antonio Ruiz – SAGARPA***PARTICIPANTS****Canada****Shiferaw Adilu**

Senior Trade Policy Analyst
 Policy Secretariat
 Alberta Agriculture, Food and Rural
 Development
 Room 300, 7000-113 Street
 Edmonton, AB T6H 5T6
 Canada
 Phone: 780.422.7196
 Email: shiferaw.adilu@gov.ab.ca

Rick Barichello

Associate Professor
 Faculty of Land and Food Systems
 University of British Columbia
 339 MCML Building
 2357 Main Mall
 Vancouver, BC V6T 1Z4
 Canada
 Phone: 604.822.3473
 Email: rick.barichello@ubc.ca

Lucie Bourque

A/Chief,
 Agri-Food Support Measurement and
 Analysis
 Agriculture and Agri-Food Canada
 Sir John Carling Building
 Floor 6, Room 6109
 930 Carling Avenue
 Ottawa, ON K1A 0C5
 Canada
 Phone: 613.759.7459
 Email: bourquell@agr.gc.ca

Maury E. Bredahl

Professor and Chair
 Food, Agricultural & Resource Economics
 204 MCLN
 University of Guelph
 Guelph, ON N1G 2W1
 Canada
 Phone: 519.824.4120 Ext. 53532
 Email: mbredahl@uoguelph.ca

Andrea Brocklebank

IKE Project Manager
 Canadian Cattlemen's Association
 #310, 6715-8th Street NE
 Calgary AB T2E 7H7
 Canada
 Phone: 403.2750.8558
 Email: brocklebanka@cattle.ca

Kelsey Chomistek

Policy Assistant
 Canadian Cattlemen's Association
 #310, 6715-8th Street NE
 Calgary AB T2E 7H7
 Canada
 Phone: 403.275.8558
 Email: chomistekk@cattle.ca

Nelson Coyle

Chief
 Policy and Strategic Planning
 Canadian Dairy Commission
 Building 55, 960 Carling Avenue
 Ottawa, Ontario
 Canada
 K1A 0Z2
 Phone: 613.792.2033
 Email: ncoyle@AGR.GC.CA

John Cranfield

Associate Professor
 Food, Agricultural & Resource Economics
 MCLN Room 305
 University of Guelph
 Guelph, Ontario N1G 2W1
 Canada
 Phone: 519.824.4120 ext. 53708
 Email: jcranfie@uoguelph.ca

Jan Dyer

Director General-Research and Analysis
 Agriculture and Agri-Food Canada
 Sir John Carling Building
 Floor 6, Room 691
 930 Carling Ave.
 Ottawa, ON K1A 0C5
 Canada
 Phone: 613.759.7904
 Email: dyerjan@agr.gc.ca

Anne Fowlie

Executive Vice President
 Canadian Horticultural Council
 9 Corvus Court
 Ottawa, Ontario K2E 7Z4
 Canada
 Phone: 613.226 4880 ext. 211
 Email: afowlie@hortcouncil.ca

Brad Gilmour

Team Leader
 Asia Pacific and Technical Issues
 International Analysis
 Agriculture and Agri-Food Canada
 Sir John Carling Building
 Floor 6, Room 6109
 930 Carling Avenue
 Ottawa, ON K1A 0C5
 Canada
 Phone: 613.759.7404
 Email: gilmourb@agr.gc.ca

Dave Hope

Assistant Deputy Minister-Regulated
 Marketing Division
 Ontario Ministry of Food, Agriculture and
 Rural Affairs
 5th Floor SW, 1 Stone Road W
 Guelph, ON N1G 4Y2
 Canada
 Phone: 519.826.3406
 Email: dave.hope@ontario.ca

Karen Huff

Associate Graduate Faculty
 University of Guelph
 47 Fentiman Ave.
 Ottawa, ON K1S 0T5
 Canada
 Phone: 613.730.2712
 Email: khuff@huffwagle.ca

Barb Isman

President
 Canola Council of Canada
 400-167 Lombard Avenue
 Winnipeg, Manitoba
 R3B 0T6
 Canada
 Phone: 204.828.2109
 Email: ismanb@canola-council.org

Gary B. Koestler

Director-Multilateral Technical Trade
 Markets and Trade
 Agriculture and Agri-Food Canada
 Sir John Carling Building
 Floor 10, Room 10109
 930 Carling Ave.
 Ottawa, ON K1A 0C5
 Canada
 Phone: 613.759.7713
 Email: koestlerg@agr.gc.ca

Gaetan Lussier

Chair
 Canadian Agri-Food Policy Institute
 9140 Rubens Cr.
 Prossard, P.Q. J4X 2H8
 Canada
 Phone: 514.949.3922
 Email: glussier@videotron.ca

Karl Meilke

Professor
 Food, Agricultural & Resource Economics
 University of Guelph
 Guelph, Ontario N1G 2W1
 Canada
 Phone: 519.824.4120 Ext. 52769
 Email: kmeilke@uoguelph.ca

Mike Nailor

Chicken Farmers of Ontario
 3320 South Service Road
 Burlington, ON L7R 3Y8
 Canada
 Phone: 905.637.0025

Carolyn Osborn

Policy Economist
 Program and Policy Analysis Branch
 Manitoba Agriculture, Food and Rural
 Initiatives
 810-401 York Ave.
 Winnipeg, MB R3C 0P8
 Canada
 Phone: 204.945.3496
 Email: cosborn@gov.mb.ca

Martin Rice

Executive Director
 Canadian Pork Council
 1101-75 Albert Street
 Ottawa, Ontario
 K1P 5E7
 Canada
 Phone: 613.236.9239
 Email: rice@cpc-ccp.com

J.A. (Joe) Rosario

Senior Policy Advisor-Policy Secretariat
 300 JG O'Donoghue Building
 7000-113 Street
 Edmonton, AB T6H 5T6
 Canada
 Phone: 780.422.2070
 Email: joe.rosario@gov.ab.ca

James Rude

Assistant Professor
 Department of Agribusiness and
 Agricultural Economics
 University of Manitoba
 353-66 Dafoe Road
 Winnipeg, Manitoba R3T 2N2
 Canada
 Phone: 204.474.9655
 Email: James_Rude@umanitoba.ca

Cameron Short

Executive Director-Policy Analysis
 Agriculture and Agri-Food Canada
 Sir John Carling Building
 Floor 6, Room 6109
 930 Carling Ave.
 Ottawa, ON K1A 0C5
 Canada
 Phone: 613.759.7426
 Email: shortc@agr.gc.ca

Judi Sigurdson

Trade Advisor-Trade and
 Intergovernmental Relations Branch
 Ministry of Agriculture and Lands
 P.O. Box 9120, Stn Prov Govt
 Victoria, BC V8W 9B4
 Canada
 Phone: 250.356.1671
 Email: Judi.Sigurdson@gov.bc.ca

Stephen Whitney

President and CEO
 Fruit and Vegetable Dispute Resolution
 Corporation
 Building 75
 Central Experimental Farm
 930 Carling Avenue
 Ottawa, Ontario K1A 0C6
 Canada
 Phone: 613.234.0982
 Email: swhitney@fvdr.com

Tulay Yildirim

Director
 Economic and Industry Analysis Division
 Research and Analysis Directorate
 Strategic Policy Branch
 Agriculture and Agri-Food Canada
 Building 74, Rm. 101
 960 Carling Avenue
 Ottawa, Ontario K1A 0C5
 Canada
 Phone: 613.759.1748
 Email: yildirimt@agr.gc.ca

United States**Lisa Anderson**

Agricultural Attaché
 Foreign Agricultural Service
 United States Department of Agriculture
 U.S. Embassy Ottawa
 Office of Agricultural Affairs
 Ottawa, Ontario
 Canada

U.S. Embassy Ottawa
 P.O. Box 5000, MS-30
 Ogdensburg, NY 13669
 USA
 Phone: 613.688.5269
 Email: Lisa.Anderson2@usda.gov

Walt Armbruster

President
 Farm Foundation
 1211 West 22nd Street, Suite 216
 Oak Brook, IL 60523
 USA
 Phone: 630.571.9393
 Email: walt@farmfoundation.org

Richard Blabey

Retired
 United States Department of Agriculture
 Food and Agricultural Service
 90 Grove Street
 Cooperstown, NY 13326
 USA
 Phone: 607.547.6013
 Email: blabey1@verizon.net

Ken C. Clayton

Associate Administrator
 Agricultural Marketing Service
 United States Department of Agriculture
 Washington, DC 20250
 USA
 Phone: 202.720.4276
 Email: Kenneth.Clayton@usda.gov

John Dunmore

Retired
 United States Department of Agriculture
 Economic Research Service
 6006 Euclid Street
 Cheverly, MD 20785
 USA
 Email: JCDUNMORE@aol.com

David P. Ernstes

Research Associate
 Agricultural and Food Policy Center
 Department of Agricultural Economics
 Texas A&M University
 2124 TAMU
 College Station, TX 77843-2124
 USA
 Phone: 979.845.7042
 Email: d-ernstes@tamu.edu

Brian Grunenfelder

Division Director
 Regional and Bilateral Negotiations and
 Agreements
 United States Department of Agriculture
 Foreign Agricultural Service
 1400 Independence Avenue, SW
 Washington, DC 20250
 USA
 Phone: 202.720.2056
 Email: Brian.Grunenfelder@usda.gov

John Hardin, Jr.

Hardin Farms
 4881 W. Rd. 200 North
 Danville, IN 46122-8990
 USA
 Phone: 317.745.5832
 Email: hardin@surf-ici.com

Jon Huenemann

Principal-International Department
Miller & Chevalier
655 Fifteenth Street, NW
Washington, DC 20005-5701
USA
Phone: 202.626.5809
Email: jhuenemann@milchev.com

Suzanne Heinen

Minister-Counselor for Ag Affairs
Foreign Agricultural Service
United States Department of Agriculture
U.S. Embassy
PO. Box 9000
Brownsville, TX 78520-0900
USA
Phone: +52 55.5080.2847
Email: suzanne.heinen@Fas.usda.gov

Ronald D. Knutson

Regents Professor Emeritus
Agricultural and Food Policy Center
Department of Agricultural Economics
Texas A&M University
TAMU 2124
College Station, TX 77843-2124
USA
Phone: 979.845.5913
Email: rknutson@tamu.edu

Mary Ledman

Principal
Keough Ledman Associates, Inc.
1642 Old Barn Circle
Libertyville, IL 60048
USA
Phone: 847.680.9693
Email: mkledman@msn.com

Rene F. Ochoa

Director General
Dirección General de Estudios del Sector
Agropecuario y Pesquero
Subsecretaría de Fomento a los
Agronegocios
Secretaría de Agricultura, Ganadería,
Desarrollo Rural, Pesa y Alimentación
(SAGARPA) Municipio Libre # 377 Piso
4, Ala B Col. Sta. Cruz Atoyac México, D.F.
03310 México
Phone: +52 55.9183.1000 x. 336600
Email: rochoa@sagarpa.gob.mx

David Orden

Senior Research Fellow
Markets, Trade, and Institutions
International Food and Policy Research
Institute
2033 K Street, NW
Washington, DC 20006-1002
USA
Email: d.orden@cgiar.org

Joe Outlaw

Professor and Co-Director
Agricultural and Food Policy Center
Department of Agricultural Economics
Texas A&M University
2124 TAMU
College Station, TX 77843-2124
USA
Phone: 979.845.5913
Email: joutlaw@tamu.edu

Mechel Paggi

Director
Center for Agricultural Business
California Agricultural Technology
Institute
California State University-Fresno
2910 E Barstow Avenue
Fresno, CA 93740-0115
USA
Phone: 559.278.4405
Email: mpaggi@csufresno.edu

Eduardo Segarra

Professor/Chair
Department of Agricultural and Applied
Economics
Texas Tech University
Lubbock, TX 79409
USA
Phone: 806.742.0277
Email: eduardo.segarra@ttu.edu

Pauline Simmons

International Economist
Asia and the Americas Division-Canada Desk
United States Department of Agriculture
Foreign Agricultural Service
1400 Independence Avenue, SW
Washington, DC 20250
USA
Phone: 202.720.1335
Email: Pauline.Simmons@fas.usda.gov

Costanza Valdes

Project Manager
Brazil Program
Economic Research Service
United States Department of Agriculture
1800 M Street NW
Room N5132
Washington, DC 20036-5831
USA
Phone: 202.694.5225
Email: cvaldes@ers.usda.gov

Steven Zahniser

Agricultural Economist
Economic Research Service
United States Department of Agriculture
1800 M Street NW
Room N5134
Washington, DC 20036-5831
USA
Phone: 202.694.5230
Email: zahniser@ers.usda.gov

México**Gloria Abraham**

Directora (Director)
 Interamerican Institute for Cooperation
 on Agriculture-IICA
 Insurgentes Sur 1106, Piso 5
 Col. Del Valle
 México, D.F. 03100
 México
 Phone: +52 55.5559.8519 ext. 235
 Email: gabraham@iica.org.mx

Patricia Aguilar

Directora de Evaluación de Políticas
 Públicas Rurales
 Centro de Estudios para el Desarrollo
 Rural Sustentable y la Soberanía
 Alimentaria (CEDRSSA)
 Cámara de Diputados
 Av. Congreso de la Unión # 66
 Edif. "F", PB
 Col. El Parque,
 Deleg. Venustiano Carranza
 México, D.F. 15969
 México
 Phone: +52 55.56.28.13.00 ext. 6138 y
 6137 ó 55.57.16.82.12
 Email: patricia.aguilar@congreso.gob.mx

Armando Chacón

Consultor
 Instituto Mexicano para la
 Competitividad
 Leibnitz # 11, Sexto Piso
 Despacho 602
 Col. Anzures
 México, D.F. 11590
 México
 Phone: +52 55.5985.1017
 Email: armando.chacon@imco.org.mx

Enrique Domínguez

Director General
 Confederación de Porcicultores Mexicanos
 Juan de la Barrera # 38
 3er Piso
 Col. Condesa
 México, D.F. 06140
 México
 Phone: +52 55.5212.1290
 Email: wera49@aol.com

Eduardo E. Palau B.

Director de Integradores
 CAADES
 Av. Juan Carrasco # 787 Norte
 Col. Centro
 Culiacán, Sin
 80000
 México
 Phone: 667.752.1637
 Email: epalaub@prodigy.net.mx

Antonio Ruiz

Subsecretario (Undersecretary)
 Subsecretaría de Desarrollo Rural
 Secretaría de Agricultura, Ganadería,
 Desarrollo Rural, Pesa y Alimentación
 (SAGARPA)
 Municipio Libre # 377
 Piso 3, Ala B
 Col. Sta. Cruz Atoyac
 México, D.F.
 03310
 México
 Phone: +52 55.9183.1000 ext. 33474
 Email: antonio.ruiz@sagarpa.gob.mx

Eugenio Salinas

Director
 Relaciones Institucionales
 XIGNUX Corporativo, S.A. de C.V.
 Cordillera de los Andes 105, Piso 4
 Col. Lomas de Chapultepec
 México, D.F.
 11000
 México
 Phone: +52.55.2623.2741
 Email: eugenio.salinas@xignux.com

Ken Shwedel

Vicepresident
 Food & Agribusiness Research
 Rabobank International-México
 Bosques Alisos # 47-B Piso 2
 Col. Bosque de las Lomas
 México, D.F. 05120
 México
 Phone: +52 55.5261.0039
 Email: ken.shwedel@rabobank.com

Yvonne Stinson

Director General
 Comercio Global Consultores, S.C.
 Amsterdam 124 Desp 404
 Mexico, D.F
 Phone: +52 55.5553.1007-1095
 Email: maehyvo@yahoo.com.mx

Rafael Zavala

Director de Propuestas Estratégicas
 Centro de Estudios para el Desarrollo
 Rural Sustentable y la Soberanía
 Alimentaria (CEDRSSA)
 Cámara de Diputados
 Av. Congreso de la Unión # 66
 Edif. "F", PB
 Col. El Parque,
 Deleg. Venustiano Carranza
 México, D.F. 15969
 México
 Phone: +52 55.5628.1300 x.6135
 Email: rafael.zavala@congreso.gob.mx

Other International Participants**Arnaldo Chibbaro S.**

Especialista Regional en Políticas y
 Comercio (Policy and Trade Regional
 Specialist)
 Secretario Técnico Administrativo
 CAS/REDPA/GINA-Sur
 Interamerican Institute for Cooperation
 on Agriculture-IICA
 Luis P. Piera 1992
 Edificio MERCOSUR
 Piso 3
 11200
 Montevideo
 Uruguay
 Phone: +59 82.410.1676 ext. 123-124
 Email: achibbar@iica.org.uy

Elisio Contini

Chefe (Head)
 Assessoria de Gestão Estratégica
 Ministério da Agricultura, Pecuária e
 Abastecimento
 Esplanada dos Ministérios, Bloco D, 7
 Andar-Sala 738
 CEP 70043-900 BRASILIA-DF
 Phone: +55 61.3218.2644
 Email: contini@agricultura.gov.br

Ralph Lattimore

Consulting Economist
 25 Sunview Heights
 RD 1, Richmond
 New Zealand 7031
 Phone: +643.544 5246
 Email: Ralph.Lattimore@xtra.co.nz

Ivan Wedekin

Secretário de Política Agrícola
Ministério da Agricultura, Pecuária e
Abastecimento
Esplanada dos Ministérios, Bloco D, 7
CEP 70043-900 BRASILIA-DF
Phone: +55 61.3218.2173, 2157
Email: ivanwedekin@agricultura.gov.br

NORTH AMERICAN AGRIFOOD MARKET INTEGRATION CONSORTIUM

Third Annual North American Agrifood Market Integration Workshop

Achieving NAFTA Plus

June 2006, Calgary, Alberta, Canada

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The third in a series of workshops organized by the North American Agrifood Market Integration Consortium designed to foster dialog among policy makers, agrifood industry leaders, and academics on agriculture and food-related market integration issues among NAFTA countries.

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