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International Agricultural Trade and Policy Center

**THE IMPACT OF THE REDUCTION IN THE
AUSTRALIAN ORANGE-JUICE TARIFF**

By

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PBTC 02-6

December 2002

POLICY BRIEF SERIES



**UNIVERSITY OF
FLORIDA**

Institute of Food and Agricultural Sciences

INTERNATIONAL AGRICULTURAL TRADE AND POLICY CENTER

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Abstract: After substantial reduction in the Australian orange juice tariff, citrus growers in that country shifted their efforts away from Valencia orange production towards Navel oranges intended for the fresh market. Australia has been successful in penetrating the world market for fresh oranges. Given the large size of the orange industry in Florida, however, it is unlikely that Florida growers could follow the same model if the U.S. orange juice were substantially reduced or eliminated.

Keywords: Oranges, Tariffs, Australia

THE IMPACT OF THE REDUCTION IN THE AUSTRALIAN ORANGE-JUICE TARIFF

Mark G. Brown and Thomas H. Spreen¹

Introduction

Oranges are the dominant variety of citrus grown in Australia accounting for 79% and 78% of total Australian citrus production in 2000-01 and 2001-02, respectively (Table 1). Australian orange production has nearly tripled since the early 1960s growing from 177,832 metric tons (MT) in 1961 to 509,973 MT in 2000 (Table 2). Production reached a high point in 1993 when 616,496 MT were produced. Australian orange production accounts for about 1% of world production (Table 3), and its 2000 production (equivalent to 12.5 million 90-pound boxes) was about 43% the size of Polk county's 2000-01 orange production level (29.3 million boxes).

Both fresh and processed orange segments are important in Australia. In recent year, however, the fresh segment has been expanding while the processing segment has been trending downward. The share of oranges utilized for processing has declined from approximately 60% in the latter half of 1980s and early 1990s to approximately 40% in recent years, while fresh utilization has grown (Table 4). Domestic fresh consumption has been relatively flat while fresh exports have more than tripled since the mid 1980s. Major export markets for oranges include Hong Kong, Malaysia, Singapore, Japan, New Zealand and the U.S.

About 60% of Australia's oranges are Valencias and 40% are Navels. Navel oranges are primarily grown for the fresh market (typically the fresh utilization rate is 60% to 65%), while

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Valencia oranges are primarily utilized for processing (typically the processed utilization rate is 70%).

In past years, Australia had protected its orange processing industry imposing various tariffs on orange juice imports. However, since 1982 this protection has been reduced. Notably, from 1988 to 1996, the tariff was reduced from an ad-valorem rate of 35% to 5%. The Australia ad-valorem tariff is applied to the value of the product at the port of export, not the CIF (cost-insurance-freight) value or the value at the port of export plus transportation/insurance costs. The impact of this tariff reduction on Australia's orange-juice industry is considered in the next section.

Impacts of Orange-Juice Tariff Reduction

Lower orange-juice tariff levels have resulted in reduced orange-juice prices for Australian growers, resulting in massive eradication of Valencia trees, reduced Valencia tree planting rates and a refocus from the Valencia juice market to the Navel fresh fruit export market. Australia is a price taker in the world orange-juice market dominated by Brazil and Florida. Hence, the 35% ad-valorem tariff in 1988-89 increased the world orange-juice price by 35% for Australian buyers, in contrast to the present situation where the tariff increases price by just 5%. Thus, reduction of the Australian tariff since 1988 would have been expected to reduce the price of orange juice in Australia by 30%, all else constant. Other factors, however, were not constant with Brazil and Florida orange-juice production increasing notably during the 1990s, resulting in decreases in the world orange-juice price. Thus, lower Australian orange-juice prices following the reduction of the

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tariff are a result of both reduced tariff rates and lower world orange-juice prices. Elton, Hutton and Mullen indicate that processed orange prices fell below production costs in the 1990s. The USDA also reports processed prices at “very low” levels with some producers receiving prices well below the cost of production (USDA, FAS, “Australia Citrus Annual 2002,” #AS2014, 5/1/2002).

Australia’s non-bearing Valencia orange tree levels have declined from over a million in the mid to late 1980s to 189,000 in 1998-99 (Table 5). The 1998-99 Valencia non-bearing tree population is 83.7% lower than the 1985-86 level. In contrast non-bearing Navel orange tree levels have increased from 585,000 in 1985-86 to over a million in the mid 1990s. The total orange tree population grew from the mid 1980s through the early 1990s, but declined moderately since the mid 1990s. Based on data for the major production areas in Australia, these trends have continued in more recent years (Table 6).

As a result of the move away from Valencia to Navel oranges, Australian orange-juice production has trended downward since the early 1990s (Table 7). This decline, however, has been moderated by two factors. One is the growth in Navel orange production and its contribution to processing through packinghouse eliminations; the second factor is the growth in fresh orange-juice (NFC) consumption which now accounts for 30% to 35% of total orange-juice consumption in Australia. The Australian industry hopes that increasing NFC demand will stabilize Valencia orange production.

With the reduction in the orange-juice tariff and lower world orange-juice prices, frozen concentrate orange juice (FCOJ) imports have increased sharply from 5,323 MT @ 65 degree Brix in 1985-86 to 23,448 MT in 2001-02, although the variation in import levels over this period has been relatively large ranging from 1,621 MT in 1986-87 to 42,415 MT in 1997-98.

As a result of the growth in FCOJ imports, orange-juice consumption increased by over 70% from 1985-86 to 2001-02. Australia's orange-juice production as a percent of orange-juice consumption has declined sharply from 82% in 1985-86 to 46% in 2001-02. Again, over this period there has been substantial variation in this percentage.

Implications for the Florida Orange-Juice Industry

If the U.S. tariff on FCOJ were eliminated the impact on the U.S. orange-juice price would be expected to be similar to the price impact in Australia resulting from the 30% tariff reduction there. The U.S. tariff on FCOJ² is about \$.289 per pound solids (PS) which is equivalent to a CIF ad-valorem rate of 27% based on the current Florida bulk FCOJ price of 1.07/PS. The U.S. and Australian tariffs can be compared either as ad valorem rates or dollar per pound solids levies. Consider a dollar comparison which requires transforming the Australian ad-valorem tariff to dollars per pound solid. Recall that the Australian tariff is applied to the price of the product at the port of export which in general would be the Brazilian FOB price. When the U.S. is a net importer of FCOJ, the Brazilian FOB price would be expected to be equal to the U.S. or Florida price minus the \$.289/PS tariff minus transportation costs of about \$.10/PS. Hence, in this case, the Brazilian price would be expected to be \$.68/PS, and a 30% reduction in the Australian tariff in context of this price is equal to \$.20/PS. For each \$.10/PS increase in the U.S. and Brazil FOB prices, the Australian tariff in dollars would increase by \$.03/PS; thus, for example, if the U.S. FOB price were \$1.27/PS,

² The U.S. also imposes a \$.166/PS tariff on NFC. Domestic producers of this product are also naturally protected by relatively high transportation costs of importing this product.

the Australian tariff would be \$.26/PS.³ Under the assumption that the U.S. is a price taker in the world orange-juice market, eliminating the U.S. tariff would be expected to reduce the U.S. price by \$.289/PS which would be greater than the \$.20/PS impact (or perhaps somewhat larger depending on the world price) on the Australian price due to the 30% reduction in their ad-valorem rate. The U.S., however, being both a large producer and buyer of orange juice is not a price taker in the world market. Both Spreen, Brewster and Brown, and Brown, Spreen and Lee have estimated that elimination of the U.S. FCOJ tariff would result in a decrease in the U.S. price of orange juice of \$.20/PS to \$.21/PS or roughly equivalent to the Australian tariff reduction at current prices.

The large reduction in Australian Valencia orange planting levels following the reduction of the Australian orange-juice tariff and lower prices suggests that Florida orange tree planting may also decline sharply with elimination of the U.S. tariff. In the study by Brown, Lee and Spreen, reduced Florida planting levels consistent with the Australian experience were considered. Florida orange production over the period from 2001-02 through 2021-22 was projected to decrease from 237 to 136 (198) million boxes, assuming zero planting levels (assuming planting levels are reduced by 50%). In addition, with orange-juice prices currently at relatively low levels, eliminating the tariff may reduce the U.S. price below the cost of production for some growers, resulting in some of these growers going out of business.

As in Australia, the U.S. orange processing industry has been and would be expected to continue to be supported by NFC consumption. High transportation costs of importing NFC would

³ This analysis assumes that the U.S. continues to be a net importer. However, as the U.S. moves in the direction of a net exporter the difference between the U.S. and Brazilian FOB prices would be expected to narrow.

be expected to limit NFC imports and help support U.S. NFC prices and grower returns for oranges utilized for processing. As in Australia, the Florida orange processing industry may become more focused on NFC production.

The impact of eliminating the U.S. FCOJ tariff would be expected to differ from the Australia experience with respect to fresh market opportunities. While Australia citrus growers were able to refocus to a notable extent on fresh Navel production, opportunities for the Florida orange industry to move in this direction are limited. Fresh orange consumption in the U.S. has been relatively flat with growth in the availability of other types of fresh fruit. Additionally, California's dominance as a fresh orange supplier limits the potential for Florida to move more oranges in fresh channels. Overall, the magnitude of Florida's orange processing sector relative to its fresh sector—Florida processes about 95% of its oranges with the remaining 5% utilized fresh—indicates the impact of eliminating the U.S. tariff on the Florida orange industry would be very different than in Australia. In short, the portion of the Florida orange crop that is utilized in processed form can not be turned into fresh orange sales.

Concluding Comments

Reduction in Australia's orange-juice tariff in the late 1980s and the 1990s and the resulting adjustments in the Australian orange industry provide a case study for analyzing the potential impact of eliminating the U.S. orange-juice tariff on the Florida orange-juice industry. Australia's tariff reduction resulted in lower processed orange prices and was a major factor underlying the sharp reduction in Valencia orange tree planting levels. The Australian orange industry has been able to refocus on fresh sales with export opportunities in Asia and the U.S. Growth in NFC orange juice

consumption has been another factor alleviating the impact of the tariff reduction. Australia's NFC market may help stabilize Valencia orange production.

Based on the Australian experience, it is likely that Florida would experience major reductions in orange-juice prices, orange tree planting levels and orange-juice production if the U.S. orange-juice tariff were eliminated. In contrast to Australia, opportunities for expanding sales of fresh Florida oranges would be limited. On the other hand, the NFC segment is expected to provide increasing support to the Florida orange-juice industry as in Australia. But FCOJ, predominately imports, would still be expected to account for a major part of the overall orange-juice market in the U.S. given its cost advantage, limiting the size of the NFC business and ultimately the Florida orange processing sector.

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Table 1. Australian citrus production.

Item	Quantity		Share of Total Citrus		Share of Total Oranges	
	2000- 01	2001-02	2000-01	2001- 02	2000-01	2001- 02
	- - 1,000 metric tons - -		- - - - - % - - - - - -			
Navel Oranges	246	185	31.3	33.8	39.4	43.3
Valencia Oranges	378	242	48.0	44.2	60.6	56.7
TOTAL ORANGES	624	427	79.3	77.9	100.0	100.0
Mandarins	116	75	14.7	13.7		
Lemons/Limes	33	31	4.2	5.7		
Grapefruit	14	15	1.8	2.7		
TOTAL CITRUS	787	548	100.0	100.0		

SOURCE: Australian Citrus Growers, Inc. (web site: <http://www.austcitrus.org.au>).

Table 2. Australia orange area and production.^a

Year	Area Harvested	Production
	- hectares -	- metric tons -
1961	15,996	177,832
1962	15,996	177,832
1963	16,503	202,634
1964	16,983	190,184
1965	17,439	235,922
1966	17,828	198,931
1967	17,828	232,455
1968	18,371	214,370
1969	19,464	263,845
1970	19,379	234,347
1971	19,300	322,424
1972	19,000	291,014
1973	18,700	351,904
1974	18,200	310,036
1975	17,800	341,042
1976	17,700	361,522
1977	18,000	321,674
1978	18,300	356,538
1979	18,500	368,554
1980	19,400	392,092
1981	20,600	424,494
1982	21,200	376,317
1983	21,800	409,995
1984	22,400	391,841
1985	23,300	444,953
1986	22,700	486,000
1987	24,100	503,760
1988	24,100	478,918
1989	24,900	399,248
1990	25,200	487,177
1991	25,700	453,262
1992	26,400	469,881
1993	27,300	616,496
1994	28,200	582,095
1995	26,900	517,242
1996	27,000	442,077
1997	27,400	522,622
1998	27,000	499,784
1999	26,200	445,840
2000	26,600	509,973

^aFAOSTAT data in this table differ somewhat from those in Tables 2 and 3 but indicate the long-range trend. SOURCE: Food and Agriculture Organization of the United Nations, FAOSTAT (agricultural data).

Table 3. Australian and world orange production.

Country	1999-00	
	Quantity	Share of Total
	-- 1,000 metric tons --	-- % --
Australia	616	1.0
United States	11,040	17.3
Brazil	18,360	28.8
Other	33,684	52.9
WORLD	63,700	100.0

SOURCE: Food and Agriculture Organization of the United Nations, "Citrus Fruit, Fresh and Processed, Annual Statistics 2001."

Table 4. Supply and utilization of Australian oranges.

Season	Production	Imports	Exports	Consumption	Processed	Processed Share of Production
----- 1,000 metric tons -----						-- % --
1985-86	519	7	42	168	316	60.9
1986-87	475	7	47	162	273	57.5
1987-88	394	15	41	135	233	59.1
1988-89	544	9	32	209	312	57.4
1989-90	458	4	45	142	275	60.0
1990-91	485	4	71	123	295	60.8
1991-92	612	6	81	135	402	65.7
1992-93	578	7	90	155	340	58.8
1993-94	651	7	91	217	350	53.8
1994-95	416	7	80	148	195	46.9
1995-96	589	13	117	185	300	50.9
1996-97	556	12	113	190	265	47.7
1997-98	448	8	111	155	190	42.4
1998-99	515	13	111	188	229	44.5
1999-00	624	13	143	192	302	48.4
2000-01	437	9	150	136	160	36.6
2001-02	591	13	150	180	274	46.4

SOURCE: USDA: various "World Horticultural Trade and U.S. Export Opportunities" and Attache reports.

Table 5. Australian bearing and non-bearing trees.

Season	Navels			Valencias			Total		
	Bearing	Non-Bearing	Total	Bearing	Non-Bearing	Total	Bearing	Non-Bearing	Total
----- 1,000 trees -----									
1985-86	1,569	585	2,154	3,130	1,166	4,296	4,725	1,761	6,486
1986-87	1,667	663	2,330	3,533	1,179	4,712	5,228	1,853	7,081
1987-88	1,704	772	2,476	3,452	1,092	4,544	5,183	1,874	7,057
1988-89	1,708	913	2,621	3,648	1,003	4,651	5,384	1,928	7,312
1989-90	1,765	959	2,724	3,734	880	4,614	5,528	1,851	7,379
1990-91	1,856	979	2,835	3,906	763	4,669	5,801	1,753	7,554
1991-92	1,960	1,079	3,039	4,056	578	4,634	6,062	1,668	7,730
1992-93	2,106	1,039	3,145	4,246	446	4,692	6,410	1,514	7,924
1993-94	2,213	1,043	3,256	4,297	396	4,693	6,587	1,475	8,062
1994-95	a	a	a	a	a	a	a	a	a
1995-96	a	a	a	a	a	a	a	a	a
1996-97	a	a	a	a	a	a	a	a	a
1997-98	2,109	1,119	3,228	4,077	365	4,442	6,214	1,511	7,725
1998-99	2,468	937	3,406	3,849	189	4,038	6,336	1,151	7,488
1999-00	a	a	a	a	a	a	a	a	a
2000-01	a	a	a	a	a	a	a	a	a

^aData not available for all regions.

SOURCE: Australian Citrus Growers, Inc., various "Australian Citrus Growers Annual Reports."

Table 6. Australian bearing and non-bearing trees – Riverina (NSW), Sunraysia (Victoria), Riverland (SA).^a

Season	Navels			Valencias			Total		
	Bearing	Non-Bearing	Total	Bearing	Non-Bearing	Total	Bearing	Non-Bearing	Total
----- 1,000 trees -----									
1994-95	2,039	1,066	3,105	4,550	395	4,945	6,589	1,461	8,050
1995-96	1,583	1,053	2,636	3,604	345	3,949	5,187	1,398	6,585
1996-97	1,989	1,089	3,078	3,985	362	4,347	5,974	1,451	7,425
1997-98	2,254	895	3,149	3,873	221	4,094	6,127	1,116	7,243
1998-99	2,317	877	3,194	3,727	178	3,905	6,044	1,055	7,099
1999-00	2,385	850	3,235	3,722	149	3,871	6,107	999	7,106
2000-01	2,476	912	3,388	3,642	122	3,764	6,118	1,034	7,152

^aTrees for New South Wales (NSW), Victoria and South Australia (SA) account in aggregate for around 85% to 90% of Australian orange production.

SOURCE: Australian Citrus Growers, Inc.

Table 7. Australian orange-juice stocks, production, imports, exports and consumption.

Season	Beginning Stocks	Production	Imports	Exports	Consump- tion	Ending Stocks	Production Share of Consumption
----- 1,000 metric tons -----							-- % --
1985-86	0	21,528	5,253	592	26,189	0	82
1986-87	0	19,330	1,621	1,060	19,891	0	97
1987-88	0	16,953	22,659	2,003	27,787	9,822	61
1988-89	9,822	22,705	10,993	1,596	30,200	11,724	75
1989-90	11,724	20,012	5,532	1,636	27,845	7,787	72
1990-91	7,787	21,468	14,284	988	27,669	14,882	78
1991-92	14,882	29,253	6,975	998	32,803	17,309	89
1992-93	17,309	24,742	11,178	1,174	34,684	17,371	71
1993-94	17,371	25,469	12,504	1,501	35,661	18,183	71
1994-95	18,183	14,190	21,009	1,587	36,149	15,647	39
1995-96	16,015	22,918	21,662	1,939	42,000	16,656	55
1996-97	16,273	19,833	25,582	1,628	43,965	16,095	45
1997-98	16,095	14,370	42,415	1,881	43,965	27,035	33
1998-99	27,035	17,214	21,990	2,557	43,965	19,717	39
1999-00	19,717	22,609	23,267	2,670	44,942	17,981	50
2000-01	17,981	11,979	25,361	2,430	44,942	7,949	27
2001-02	7,949	20,513	23,448	2,443	44,942	4,525	46

SOURCE: USDA: various "World Horticultural Trade and U.S. Export Opportunities" and Attache reports.