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**PROCEEDINGS OF A SYMPOSIUM
ON
GLOBAL GRAIN DISTRIBUTION
SYSTEMS: IMPEDIMENTS TO
INCREASED EXPORTS**



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GRAIN TRANSPORTATION AND DISTRIBUTION RESEARCH NEEDS IN
GRAIN IMPORTING COUNTRIES: THE CASE OF THE SOVIET UNION

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In the last twenty years, there has been a major shift in the pattern of U.S. grain exports. Table 1 shows the five largest importers of U.S. corn, wheat and soybeans in selected years. Before the grain export revolution of 1972, U.S. exports centered around Western Europe and PL 480 shipments to the developing countries. Since then, Japan, Korea and the Soviet Union have emerged as the major buyers of U.S. grain. Except for soybeans, Western Europe has become largely self-sufficient and, in fact, presents major competition to the United States for corn and wheat sales in much of the world, particularly in the Middle East. The battle of subsidies to grain producers has been a major preoccupation for governments but the fact of life is that Europe will not be a market for the United States.

It is impossible to look at the changed patterns without considering the political and economic underlinings. The distribution of food is vital to any nation's health and stability. To the extent feasible, the distribution of food should be separated from politics but we do not live in a perfect world. Politics, in fact, play almost as important a part in market growth or decline, as does weather. Later, we will discuss the Soviet Union at some length, but the news of the last few weeks from the Soviet Union dramatically underlines the importance of food distribution in a country that has for far too long had a different set of priorities.

The major events affecting U.S. grain exports during the last two decades can be summarized as follows:

1. The decision of the Soviet Union in 1971 to provide feedgrains for its animal industry and to spend hard currency to import grain.
2. The continuing rise of the Chinese population together with the desire of producers to raise more profitable vegetables on the scarce arable land and the gradual change in eating habits to more bread, more western fast foods, and more proteins.
3. The prosperity of Japan, Korea and Taiwan has led to the desire for more meat and poultry -- at the relative expense of rice and fish. Since the prosperity is due in substantial part to the open U.S. market for their

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Table 1. Top five importers of U.S. corn, wheat and soybeans in selected crop years.

Crop	Rank	Crop Years		
		1969-70	1979-80	1988-89
Wheat	1	Japan	USSR	USSR
	2	India	Japan	Japan
	3	Korea	Africa	Korea
	4	Brazil	EC*	Pakistan
	5	Venezuela	Brazil	India
Corn	1	EC	EC	USSR
	2	Japan	Japan	Japan
	3	Korea	E. Europe	Korea
	4	Mexico	USSR	Taiwan
	5	Canada	Korea	Egypt
Soybeans	1	EC	EC	Japan
	2	Japan	Japan	EC
	3	Taiwan	Taiwan	Taiwan
	4	Canada	E. Europe	Korea
	5	Israel	China	Mexico

*EC stands for EC-12 as it exists in 1990.

Source: U.S. Department of Agriculture, "Grain Market News", Agricultural Marketing Service, Independence Missouri, July 24, 1970, October 30, 1970, October 3, 1980, November 7, 1980, September 24, 1989 and October 2, 1989.

goods, it is fitting and no political accident that the U.S. is a prime source for increase in feedgrain imports.

4. Lastly, the 1980 grain embargo, which did not stop grain from going to Russia, did change the Soviet dependence on the United States as their primary source. The embargo encouraged European governments to make sure of their own selfsufficiency and it caused shock waves to the U.S. infrastructure that brought bankruptcies to transportation industries and essentially halted all new investment in facilities and equipment. Only in the past few months, are there positive signs of new investment in an industry that cannot afford either obsolescence or disrepair.

You will note that none of the above is due to an act of God, to good or bad weather, or to good or bad luck. The industries of grain exports and food distribution are due to man made political and economic decisions. This audience should play a key role in the process.

In 1954, corn exports totalled 65 million bushels. Today, we can and have done that in one week. Who in this audience can remember grain shipments in boxcars? At the Continental elevator at Galveston, 12 man crews worked day in and day out discharging between 20 and 25 1,800-bushel boxcars. When hopper cars were introduced in the early 1960s, there was major resistance on the part of shippers and receivers alike to use them because of the sudden obsolescence of boxcar unloaders. But growth, the need for speed, the increasing cost of labor and a need for profits forced the change. In 1970, gigantic iron monsters grew out of the Mississippi River channel at New Orleans, monsters called barge unloaders, that allowed us to do in one hour what formerly took eight hours. We all have watched the replacement of ocean going vessels in much of the world, -- all except in the United States -- from 12-15,000 ton twin-deckers to 55,000-60,000 tons bulk carriers which has reduced costs for loading, for discharge, and for transport.

All of this was done before 1980. Since that time, the clock has largely stopped, growth has certainly stopped, and the lack of investment and of creativity in the U.S. grain distribution system is a major warning sign for the future.

There are two important differences in the grain industries of the Soviet Union and the United States. The first is the geography -- most of the Soviet Union is north of our northern border -- resulting in a short growing season. The second is that for a variety of reasons, ranging from historical to political and covering the entire social fabric, the Soviets never had the spurt in investment and innovation that characterized the United States before 1980. Please understand it is not due to any shortage of brain power. The first of the modern grain export elevators was built by Grady Goodpasture in Houston in the early 1960s and his concepts became a model for all the elevators built since then. He admittedly took many of his ideas from his trips to the Soviet Union

and his study of elevators there. In the 1970s, when the Soviet demand for our grain was greater than our capacity to ship, it was the future General Director of the Soviet grain buying organization, ExportKlheb, who worked with our industry in the utilization of coal hopper cars and coal loading piers to expedite the shipment of wheat from the Midwest to the Atlantic seaboard.

The food situation in the Soviet Union is almost an unmitigated horror story. The press does not exaggerate. In fact, the reports greatly understate the problems. The irony is that the quality of the raw agricultural materials, particularly in the southern part of the Soviet Union, is very good and the bread, while boring, is generally still acceptable.

The lack of food supplies in the Soviet Union is dramatized by the recent announcement of limiting food in Moscow to those with Moscow passports. This underlines the most depressing aspect of Soviet life, the need of the Soviet citizen to carry an internal passport. The official excuse for this degrading regulation always has been the possibility of what is now happening; that the absence of control would allow everyone to raid the capitol for needed supplies. While the need for control may be there, the effect on human dignity is devastating. No one treats the Russian worse than they treat themselves and the substitution of control for incentives makes an entire civilization lethargic and inefficient. Even hard currency restaurants, at times, have no meat, poultry, or fish. Choice is not a word that translates in that kind of society.

The Soviet Union is woefully short of data on its agricultural sector. When the Soviets report crop size, it is more a reflection of what they think of the USDA estimate than anything else. The same is true of the Soviet Union grain transportation and distribution system. It is very difficult, if not impossible, to obtain accurate numbers on import port capacity and the number of covered hopper and boxcars, as well as the number of trucks and barges. Even if we knew these capacities, the state of repair is anyone's guess. But we do know that there are major transportation and distribution problems between production fields the consumer locations and between import ports and points of consumption. We also know the following:

1. Expensive and efficient discharge equipment exist at some ports. But ships carrying imported grain often sit on demurrage because of a near complete lack of storage at import ports. Thus, if railroad cars are not immediately available, the vessels simply cannot be unloaded. In Leningrad, for example, the off load port capacity is about 30,000 tons per day or one million tons per month. Since there is no port storage at Leningrad, all grain must be unloaded directly into rail cars. Thus, there is significant congestion at Leningrad when imports are high. All major ports have little or no storage capacity. This was a major problem in January-February, 1990, when the Soviets, after contracting for a major share of their grain deliveries, found they had no place to store the grain.

2. Covered hopper cars are very scarce. Feed mill operators indicate that most of the ingredients they receive comes in boxcars. The percent of ingredients received in covered hopper cars ranges from 15 to 50 percent depending on which feed mill operator is asked.
3. The Soviets have an excellent rail network. It carries a large quantity of passenger and freight traffic. Nevertheless, there are huge rail transport problems. The large amount of passenger and freight service creates major logistic problems for grain transport. Cooperative and state farms involved in the feed industry do not get blended products when they need them. It is not unusual for them to have corn and no soybean meal and vice versa. In many instances, they use much higher valued wheat either because it has spoiled or other grains are not available. Flour mills are not able to carry a continuous supply of wheat because transportation schedules are not coordinated with flour mill needs. The Soviets have a very antiquated system of tracking rail car movements and a very low level of computerization in tracking rail cars. Finally, the Soviets have a wider track gauge than exists in Europe and the United States. This wider gauge was a security measure following World War II to prevent any marauding German trains getting past the border. This wider gauge affects grain shipments from Western Europe, especially from Austria, Hungary and Yugoslavia from whom the Soviets have purchased considerable quantities of grain.
4. Truck transportation is very poor for grain. Most trucked grain is hauled in single-axle dump trucks. These small dump trucks create huge physical losses and their limited capacity creates very high costs, especially at harvest time. There are few tandem-axle trucks and even fewer tractor-semitrailer trucks.
5. There is an inland waterway system between the Black Sea and Moscow. However, little, if any, grain moves on this system.
6. The new crop lands in the East do not create supplies for European Russia because of major harvesting and transportation problems. Up to 25 percent of the grain combines are idle during harvest because of shortages of repair parts. Much of the grain spoils because of inadequate storage, and transport capacity. Large quantities are lost during transport in dump trucks over dirt roads.

We suggest the following research needs to help solve the Soviet Union port-to-end user transport and distribution problems:

1. A basic need is an inventory of the existing grain transportation and distribution system. This inventory should include the quantity, type, and location of grain storage and transfer facilities, the number of covered hopper rail cars, barges, and trucks used for grain transport and the kilometers and condition of railroads, rural roads and navigable waterways that can and are used for grain transportation.
2. Computer models should be developed and used to estimate the optimal quantity of port storage facilities and capacities under alternative import scenarios.
3. Models should be developed to determine the possible efficiencies under a unit-train system that is the reverse of that in existence in the United States. The reverse system would be designed to efficiently move grain and grain products from ports to flour and feed mills and to state and cooperative farms. The models could identify the optimal locations of unit-train unloading facilities for distributing grains and grain products to both large and small users. The same facilities could be used to receive domestically produced grain and this use should be included in the models.
4. Models similar to those used in the United States during the 1970s and 1980s could be used to develop an efficient domestic grain gathering system similar to that which is so efficient in gathering and shipping United States grain. This system should include the number, size and location of grain gathering elevators, as well as the optimal mix of transport modes in moving grain from farms to elevators and elevators to markets. This system would take advantage of cost economies of large trucks, unit trains and barges. It would include the identification of which roads, railroads and waterways to be improved and the optimal number of trucks, covered hopper cars and barges. Of course, this suggested research would be of no value unless there are public or private incentives for investments in these needed facilities.

Probably no part of economic life bothers Soviet official more than the need to import food. They feel that a nation that needs to import food will always be a second class power. But the Soviet Union does need to import food and will need to for the foreseeable future. They can do a lot better in increasing their own crop production and a lot better in moving it with investment in infrastructure. They can provide incentives for the producer, the processor and the transporter. But they will still need to import food. They are still north of Canada and they will always have weather problems. The best news that U.S. grain producers could receive from the Soviet Union would be two good harvests in a row in the Soviet Union. The temporary adequate supplies would mean improved food distribution and diets. The Russians like to eat

well, as do we, and would probably import more when food supplies return to normal levels.

We need to help them get over the paranoia about buying food. Raising grain is a natural blessing of this country. Moving and marketing it are acquired but vital supplementary skills. The Soviet Union has resources that are more than adequate to pay for imported grain. Oil, gas, minerals and timber are but a few of the riches that more than compensate for their problems in raising grain. Efficiency in transport and in feeding animals could also improve the diets and increase the market for U.S. grains. At the same time, a better choice of food in the shops will provide incentive for other industries in the Soviet Union and consequently improve the quality of products both for internal consumption and export earnings. It is a circle, not vicious, but with potential for all.

No matter where one turns in an economic analysis of the Soviet Union, the key words that continue to appear are incentive and choice. The lack of these which we so dearly and properly cherish in our society, is what has exposed the socialist world for what it is. The Russian people have a strong trait of loyalty -- in the 1920s, they were loyal to an ideal of social equality, in the 1930s, to an ideal of the superiority of the state, and in the 1940s, to the saving of the fatherland. But since the 1950s, they could be loyal only to fear. The advent of television, has eliminated that fear. The Russian people are now able to recognize their needs and they now understand that the goods in shops are only end products -- that to get them, they must have incentives and choices.

One way to establish some incentive and choice is to break down the monopoly of food buying. Today, only the State has the power to buy grain either from abroad or from the producer. But today a new element is being considered. At the present time, their Institute of Agriculture has commissioned a group to find a way to create a grain market in the Soviet Union -- with a multitude of buyers and of sellers. The senior author of this paper is serving with a group to study this question and the early signs are optimistic. Soviet officials know that a free grain market will mark the end of the closely held monopoly and still, for the most part, they want us to go forward. Some top government officials, of course, will attempt to sabotage the effort but the grass roots are being heard.

There are not many areas in the world the United States can look to for any increase in exports. The Soviet Union and Eastern Europe are markets that have great potential. While the news is full of stories of their public debt, we forget that their world is totally without private debt. As the democratic process unfolds, people will look for choices and improvements. We will have a chance to market a process that will build mutually reinforcing mutual dependence and new challenges.

About forty years ago the U.S. Government made a decision to provide investment funds and working capital for Europe to recover from the war. The war with the Soviet Union has been going on a lot longer but there are signs that it could be over. Slowly the people are being heard, they want the good things in life. They want choice. Almost every government agency has still some of the old inefficient bureaucratic programs. But there are an increasing number of out-spoken, articulate innovators who will help change. If the change is going to be gradual and constructive, if panic and confusion can be minimized, and repression can be avoided, the Soviet Union needs help in investment, technology and the know-how. The natural resources in the ground will pay for nothing if they are not developed, and we have more than altruism as a motive. The Russians have a saying that "a fat Russian does not dig fox-holes". To that I would add, "a fat Russian has a big appetite". We encourage this group to help improve their grain transportation and distribution infrastructure capacity to feed that big appetite with imported U.S. grains.