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Processing or Exports: Which Path for U.S. Grain?

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Iowa is the center of the world’s most productive corn and soybean region. Along with Illinois and Indiana to the east, Minnesota and South Dakota to the north, Nebraska to the west, and Missouri to the south, this region produces an abundance of low-cost feed that when used by the highly efficient U.S. meat and dairy sectors provides consumers with low-cost food. The traditional view of agriculture in this region is one in which domestically produced grain is fed to domestically produced livestock that is slaughtered for domestic consumption. The surplus grain is then exported to support domestic livestock sectors in other countries.

The current reality of midwestern agriculture is far different from this traditional organization. Under NAFTA, the livestock sectors of Canada, Mexico, and the United States have become much more integrated, with increased trade in feed, meat, and live animals. Meat exports outside of North America have also increased dramatically, as countries comply with international trade agreements and open their borders to lower-cost imports.

Minnesota provides a hint that we may continue this trend away from reliance on exports markets for our surplus grains. The Minnesota Corn Growers Association has a long-term goal of not exporting any unprocessed corn, soybeans, or wheat outside the state’s borders. Expanded soybean crushing facilities, new ethanol plants, and increased support for livestock operations are all part of Minnesota’s plan to achieve this objective. Other states are also pushing for increased utilization of grain as a means of adding income, jobs, and opportunities in rural America.

But increased domestic utilization is not a certainty. Opposition to modern livestock operations in many parts of the Corn Belt could drive the domestic livestock industry out of the region or even out of the country. Incentives for biofuels or other value-added processes may disappear. As is often the case, the future direction of Corn Belt agriculture will depend in part on markets and technology and in part on government policy. A domestic emphasis on grains processing and utilization has many policy implications; a review of recent trends helps set the stage for evaluating some of these choices.

**Is Domestic Corn and Soybean Use Increasing?**

The best way to measure how the importance of domestic use has changed over time is to express annual use as a proportion of total supply available in a given year. Figure 1 (page 3) shows that the share of U.S. corn used domestically has increased by an average of about two-thirds of a percentage point each year since 1986. Over this period the supply of corn has increased by about 17 percent. This means that domestic use of corn over this period has grown significantly faster (at about 2.2 percent per year) than has the supply of corn.

The share of U.S. soybeans used domestically has remained relatively stable at about 59 percent. This stability in share does not mean that there has been no change, however. Both production and utilization have increased by about 2.4 percent per year. The large increase in U.S. soybean production over this period was brought about by changes in federal commodity policy. Most observers feel that further increases in the supply of U.S. soybeans is unlikely given the slowdown in growth of soybean yields relative to corn yields and given that available land suitable for more soybean production is limited. Thus, if domestic use of soybeans continues to expand, then it is likely that the picture for soybeans in the future will resemble the corn trend shown in Figure 1.

Figure 2 (page 3) shows that all domestic uses of corn have increased in relative importance since 1990, with ethanol use increasing by the largest amount. One explanation for this trend is that the amount of meat produced in the United States from domestically produced feed has increased dramatically over this period, with pork exports increasing by 1.5 billion pounds and beef exports (pre-BSE) increasing by 1.2 billion pounds. For
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PROCESSING OR EXPORTS: WHICH PATH FOR U.S. GRAIN?

Both corn and soybeans. Thus, local soybeans, non-feed use is rising but is still of quite minor importance.

RURAL BENEFITS FROM INCREASED DOMESTIC UTILIZATION OF GRAIN

A benefit of increasing domestic utilization of corn and soybeans is enhanced economic activity in rural areas of the United States. Crop production techniques continue to use more machinery, chemicals, and biotechnology and less labor. The problem for rural areas is that the production of machinery, chemicals, and new biotech products occurs largely in urban areas, whereas the displacement of labor occurs in rural areas. Processing of crops through livestock production, biofuel plants, soybean processing plants, and other value-added endeavors puts jobs and income into rural areas. Put simply, a billion bushels of corn that is sold overseas means far fewer rural jobs than a billion bushels of corn that is processed domestically.

The second benefit from increased domestic utilization is higher prices. Of course, any increase in demand for crops will result in higher prices. But an increased share of production that is used domestically will also increase local prices by a strengthening of basis.

Basis is the difference between the local price and the price in some other location, usually a central buying point or a commodity exchange. In grain surplus regions, local prices will be below prices at these buying points because of transportation costs. In general, the farther that grain has to travel from a surplus region, the lower will be the local price. The price must be lower for grain from surplus regions to enable it to compete on a delivered price with grain from other regions. In grain deficit areas, local prices will be higher than prices at central buying points. Otherwise, grain would not flow into the area to cover the deficit.

It is possible for an area to switch from grain surplus to grain deficit. For example, southern Minnesota generally grows surpluses of both corn and soybeans. Thus, local prices in these areas are generally much below prices on the Chicago Board of Trade. But the short 2003 soybean crop has turned this region into a soybean deficit area. In late June and early July of this year, Minnesota Soybean Processors in Brewster, Minnesota, paid nearly $1.50 more per bushel than prices quoted on the Chicago Board of Trade. In contrast, bids for soybeans delivered in October were about $0.30 less per bushel than Chicago prices, which indicates an expectation that the 2004 crop will return soybean surpluses to this region.

The direct link between local prices in surplus areas and transportation costs explains why modernizing the lock and dam system on the Upper Mississippi River is of such importance to U.S. corn and soybean producers in the Corn Belt. Such an investment would lower the cost of transporting surplus grain to overseas markets, thereby increasing local prices.

POLICY CHOICES

Increased domestic utilization of grain offers the twin benefits of increased rural vitality and higher local grain prices. So if Congress wants to increase rural economic development it would seem logical that it pass policies that encourage domestic uses of corn and soybeans while de-emphasizing policies that encourage grain exports.

Congress could choose many policy incentives that would encourage increased domestic utilization and rural vitality but that would not enhance national wealth. For example, Congress could give pork producers a marketing loan at $75 per cwt. This would perhaps triple feed use and jobs in the pork industry, but the cost of such a program would make it a foolish policy choice. Are there sensible policy choices that can accomplish the same goal?

Two roles of government that are consistent with an objective of maximizing national wealth—and that can help determine the direction of Corn Belt agriculture—are investments in...
transportation infrastructure and investments in research. Both of these are examples of what economists call “public goods”—goods of benefit to all that are underprovided by the private sector because full benefit from consuming them cannot be captured by producers.

Investment in research can enhance domestic utilization of corn and soybeans in many ways. The number-one customer of corn and soybeans is the domestic livestock industry. Research into more efficient production and manure-handling techniques that can lower the off-site impacts of large facilities, thereby decreasing rural opposition to new facilities, would expand the domestic demand for feed.

The largest potential growth in domestic utilization of corn and soybeans is the substitution of renewable plant-based products for petroleum-based products. Fuels, solvents, lubricants, plastics and building materials can all be made from plants. But often the costs of producing the substitute products are much greater than the prevailing prices of the petroleum-based products. Research that can lead to the development of new, more efficient processes for converting plants into new products can clearly help achieve the goal of increased domestic utilization.

The key decision about transportation investments is where to place the focus: on lowering the cost of moving grain out of surplus regions or on moving value-added products that are produced in surplus regions. Given that the railroads are privately owned and operated, the government has relatively little influence over rail investments. However, the public owns the road system and determines how the Missouri and Mississippi rivers are operated.

As a general rule, if the objective is to encourage processing in grain surplus regions, then encouraging grain exports by lowering the cost of moving grain to export ports does not make sense. From this perspective, improvements in the lock and dam system on the Mississippi River for the purpose of lowering the cost of moving grain would be counterproductive, as would continued management of the Missouri River as a grain-moving artery.

Transportation investments that reduce the cost of moving such value-added products as meat and new plant-based fuels are consistent with an objective of encouraging domestic utilization. Thus, maintenance of the interstate highway system in rural areas and investments in more efficient links between railroads, highways, and port facilities should be supported for this policy prescription. A prime example of such an investment is the $2.4 billion Alameda Corridor that links the nation’s rail system with the ports of Long Beach and Los Angeles. This investment has lowered the cost of shipping chilled pork from midwestern packinghouses to Japan.

A continued decline in the importance of export markets for corn and soybeans will have large economic and political impacts. The economic impacts will be largely positive for grain surplus regions in the Midwest and Great Plains as more processing and livestock facilities are constructed. The political impacts are more uncertain. Corn Belt grain farmers have been among the strongest advocates for international trade agreements because their fortunes have traditionally been tied to foreign demand for their products. As direct export demand for grain becomes less important, will this support fade? If it does, then U.S. trade negotiators will find it more difficult to make trade deals that are in our nation’s interest.