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USDA 1994 OUTLOOK FOR FEED GRAINS

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I. Introduction

Good Morning! Growing up on my family's farm in Kansas, I often heard my parents and neighbors using the expression "rain makes grain." In August 1992, I made a computer poster of that saying and hung it on my office door. After I returned from a trip home in late July this year, I was urged by my colleagues to retire the sign. However, I do expect to display that poster again--perhaps as soon as next summer!

I don't want to dwell too much on the events which have brought us to the current supply and demand situation for feed grains, but they do merit some discussion, since they have dramatically altered the market outlook relative to a few months ago.

II. Impact of Floods and Drought on 1993/94 Feed Grain Supplies

USDA's first projections for U.S. feed grains last May pointed to continued ample supplies for 1993/94. Production was projected at 245 million tons, and with carryin stocks forecast at 63 million, supplies were projected to reach 310 million tons. Feed grain supplies were 312 million tons in 1992/93, following harvest of a record crop. The large projected 1993/94 supplies, combined with little change in total use implied carryout stocks would decline only marginally, exceeding 60 million tons. Ending stocks of corn were projected to remain in excess of 2 billion bushels. As a result, feed grain prices were expected to remain near year earlier levels with farm corn prices forecast to average near \$2.05 per bushel.

However, the outlook for supplies deteriorated from that point on. Spring field work was delayed by wet conditions which persisted from last fall through the winter. A cool, wet spring hampered field work in the Corn Belt and Plains States until the last half of May. Only 40 percent of the corn crop had been planted on May 16, compared with an average rate of about 75 percent. Rains returned to the Midwest early in June and persisted through August. As a result, some crops did not get planted and some were destroyed by the floods.

However, floods and the problems associated with excessive moisture were not the only maladies affecting feed grains this season. Excessive dryness gripped much of the eastern and southeastern States, causing reduced yields and higher than normal abandonment or cutting for silage. Feed grain yields in 1993/94 are forecast at 2.3 million tons per acre, 20 percent below last year's record. Forecast corn yield of 103.1 bushel per acre are down 22

percent, sorghum yields of 63.6 bushels are down 13 percent, barley yields of 58.9 bushels are down 6 percent, and oats yields of 54.6 bushels are down 17 percent from last year's records.

Lower harvested area of feed grains as a proportion of planted area has also contributed to lower production this year. Harvested corn acreage of 63.1 million is 87.5 percent of plantings, down from 90.9 percent last year. Feed grain area harvested of 83.7 million acres is 83.5 percent of planted area, down from 88.7 percent last year. This represents about 5 million additional acres of abandonment or cut for silage, compared with a year ago.

Feed grain supplies for 1993/94 are currently forecast at 258 million tons, 17 percent below a year ago. Corn supplies of 8.6 billion bushels are down 18 percent from a year ago and the lowest since 1983/84. Sorghum supplies of 795 million are down 15 percent, oats supplies are down 16 percent, while barley supplies are down only 1 percent from a year earlier.

III. Outlook for 1993/94 Feed Grain Demand and Prices

Feed grain use is divided into three categories, food, seed and industrial (FSI), feed and residual, and exports. Sharply lower feed grain supplies for 1993/94 will require lower total use. However, due to the unique characteristics of demand in each market, the adjustments will not be shared evenly.

Food, seed, and industrial uses have historically been insensitive to changes in supplies. In the post-1975/76 period, FSI uses have trended higher, uninterrupted even by the severe droughts in 1983 and 1988. FSI use of feed grains is forecast to increase by 1 million tons in 1993/94 to 45 million. FSI use of corn, which usually accounts for about 85 to 90 percent of total FSI uses of feed grains, is forecast to increase about 40 million bushels to 1.55 billion in 1993/94. The impact of the Clean Air Act Amendments of 1990, which increased demand for fuel ethanol, accounts for much of this growth in corn milling. FSI uses of other feed grains are expected to remain near last year's level.

Livestock producers who buy feed have only recently seen their costs rise. As a result, the latest livestock inventory and meat production statistics do not yet indicate a major decline in feed demand. Adjustments will be made, however, and feed and residual use of feed grains is expected to decline.

The latest *Hogs and Pigs* report indicated lower hog production in 1993/94. The December 1992-May 1993 pig crop was down 4 percent from a year earlier and the June-August 1993 pig crop was down 8 percent. In addition, farrowing intentions for September-November 1993 were down 3 percent from a year earlier. Thus, feed demand in the hog sector is likely to decline as pork production declines over the coming months.

Feed demand in the beef sector is expected to remain strong, since the number of cattle on feed are expected to remain above a year earlier. Cattle on feed October 1, 1993 were 9 percent higher than last year, while yearling feeder

cattle supplies outside feedlots were down 12 percent. Feeder calf supplies continue to show a modest increase with calf supplies outside feedlots up 1 percent from a year ago. Higher prices for feed, excellent pasture and range conditions in most areas on November 1, 1993, and a good start on winter wheat may encourage holding cattle on pasture longer next spring, reducing the grain feeding period. Nevertheless, larger numbers of cattle are expected to keep feed demand in this sector strong.

Poultry output is expected to rise in 1993/94 as broiler producers continue to increase the number of eggs set and chicks hatched. Broiler production is forecast to increase about 5 percent in 1993/94 as producers have responded to favorable returns to date. Higher feed prices may hamper this growth rate. Since broilers convert feed very efficiently, their grow rates are generally less affected relative to other livestock sectors. Turkey production is forecast to increase about 1 to 2 percent in 1993/94.

Including all livestock classes, the index of grain consuming animal units in 1993/94 is expected to be about 1 percent higher than last year. However, feed use, expressed in feed and residual per animal unit, is expected to fall. Feed and residual use of feed grains is expected to decline about 7 percent in 1993/94. Corn is expected to account for all the loss, declining 450 million bushels or 8.5 percent. Higher prices for feed grains are expected to boost wheat feeding in 1993/94, especially following the wheat harvest next summer. On an September-August year, total feed and residual disappearance of wheat and feed grains in 1993/94 is forecast at 153 million tons, down about 3 percent from 1992/93. Feed and residual use of grains would be about 1.8 million tons per animal unit, about the same as in 1991/92 but well above the 1.6 million in 1983/84.

The prospects for coarse grain trade in 1993/94 are weak. Although global coarse grain supplies in 1993/94 are forecast to decline almost 55 million tons, most of the decline is due to the smaller U.S. crop. However, higher foreign production is forecast to push foreign coarse grain supplies higher. With foreign consumption to remain about the same as in 1992/93, world coarse grain trade is expected to decline about 3 percent to 85.7 million tons. A prospective drop in corn exports will be partially offset by a significant gain in barley exports. World coarse grain ending stocks are forecast to fall 43 million tons, with most of the decline occurring in the United States. This would be the lowest carryout stocks since 1983/84, while the ratio of global stocks-to-use is forecast at 13.9 percent, the lowest since 1973/74.

The outlook for U.S. feed grain exports is poor due to the small U.S. crop, weak global import demand, and increased competition. Among major competing exporters, production is up in Canada, China, Australia and the EC. The largest gain is in Canada as more normal growing conditions supported higher yields and harvesting of a larger area. Canada's barley crop is up 21 percent and corn up 39 percent. China's corn exports are expected to increase 4 percent and reach a record for the fourth consecutive year. China is currently the largest foreign corn exporter.

U.S. feed grain exports in 1993/94 are forecast at 42.6 million tons, down 17 percent from estimated 1992/93 exports. Smaller corn exports, forecast at 1,350 million bushels account for most of the decline, but sorghum exports are also forecast to drop 27 million bushels to 250 million.

Based on the above analysis, total feed grain use is expected to decline 20 million tons, or 8 percent, to 230 million. Ending stocks in 1993/94 are forecast at 28 million tons, about 35 million lower than carryin stocks and the lowest since 1975/76. Forecast ending corn stocks of 881 million bushels would be the lowest carryout since 1975/76 and just 11.4 percent of projected 1993/94 use. Ending stocks of sorghum, forecast at 78 million bushels, would be the second lowest since 1975/76, while barley stocks, forecast at 117 million and oats stocks, at 91 million, would be the lowest in the last 20 years.

The extremely low carryout stocks of feed grains are expected to boost prices in 1993/94. Prices received by farmers for corn are forecast to average between \$2.35 and \$2.75 per bushel, up from \$2.07 last year. Sorghum farm prices are forecast to average between \$2.15 and \$2.55 per bushel, up from \$1.89 a year ago. Barley and oats prices are expected to increase only modestly due to the large portion of these crops already marketed. Barley prices received by farmers are forecast to average between \$1.95 and \$2.15 per bushel, compared with \$2.05 per bushel last year, and oats prices received by farmers are forecast to average between \$1.35 and \$1.45 per bushel, up from \$1.32.

IV. Outlook for 1994/95 Feed Grain Supplies

The first USDA projections of 1994/95 supply and demand of feed grains will be released next May. Today, I will talk about the prospects for the future, providing some insights to supply and demand conditions which are likely to exist next year within the context of what we know today. Negotiations continue on agricultural and trade policy in the Uruguay Round of GATT (General Agreement on Tariffs and Trade) while the North American Free Trade Agreement (NAFTA) has just received ratification by Congress. NAFTA is expected to have an impact on the U.S. feed grain outlook for 1994/95. However, the impact of a successful conclusion to GATT by the end of this year would depend upon the specific provisions and when they would go into effect.

Secretary Espy announced revisions to the 1994/95 corn program on November 15, 1993, that will encourage larger planted area in 1994/95. The Secretary used discretionary authority to further reduce the corn ARP to zero percent in response to revised forecasts of 1993/94 supply, demand and carryout stocks. Thus, producers are not required to set aside any feed grain acreage in 1994/95 to receive program benefits, the first time since 1981. However, unlike the 1981 program: 1) over 4 million acres of corn base will remain idled under the Conservation Reserve Program; 2) additional base acreage will likely be idled under the 0/92-85 provisions; and 3) participant plantings are limited to their base acreage plus flexible acres (up to 25 percent of other crop acreage bases) available on the farm.

Before discussing the prospects for feed grain demand, I want to examine the potential for production and supplies. Given the limited time, I will focus my comments on corn, since it accounts for most of the feed grain supply and use. However, we will be happy to address questions about sorghum, barley, and oats during the discussion period.

While lower feed grain set asides provide the potential for larger planting in 1994/95, market returns also play an important role. Flex acreage options for program crops allow program participants to adjust plantings more or less than changes in ARP's might imply. While many factors enter into producers' planting decisions, relative prices suggest that fewer soybeans may be grown on corn base acres next year. In the spring of 1993, the ratio between soybeans and corn farm prices averaged about 2.7-to-1. A soybean-to-corn price ratio above 2.5 to 2.6 generally shifts corn acres to soybeans in the Midwest. Farm prices during October 1993 resulted in a ratio of 2.6-to-1. Closing March futures prices for corn and soybeans on November 19, 1993, yielded a soybean-to-corn price ration of 2.4.

Relative prices between wheat and corn show a similar pattern. Generally, prices received by winter wheat producers just before and during most of the planting season were similar to a year ago. However, higher corn and soybean prices likely lead to some switching to these crops in parts of the Midwest. The ratio of average farm prices in March 1993 for winter wheat and corn in the Corn Belt (excluding Iowa) was 1.5-to-1, while in October it was 1.2-to-1. The wheat-to-corn ratio using closing March future prices for Chicago wheat and Chicago corn on November 19, 1993, was 1.2-to-1. A similar pattern holds for spring wheat prices relative to corn. If these patterns hold in the months ahead and barley prices follow corn prices higher, barley plantings could increase relative to spring wheat.

In addition to market returns and farm program factors, some acreage that was flooded last summer may not be in condition to plant next spring. For participating farmers, land in this category may be enrolled as 0/92 acreage.

When the above factors are taken together, corn plantings next spring could reach 79 to 81 million acres. This also assumes normal weather between now and next summer, allowing for a normal planting season. Assuming normal weather next summer and fall, harvested corn acreage could reach 71.5 to 73.5 million acres. Using a trend yield of 122 bushels per acre, 1994/95 corn production would be between 8,725 and 8,950 million bushels. Carryin stocks of about 900 million bushels plus expected production and imports would result in 1994/95 corn supplies between 9.6 and 9.9 billion bushels, up 1 to 1.3 billion but 0.7 to 1 billion below 1992/93 supplies.

V. Prospects for 1994/95 Feed Grain Demand

Increased FSI use of feed grains is expected to continue in 1994/95. The Clean Air Act Amendments of 1990 require ozone nonattainment areas to implement plans to reduce ozone formation starting in January 1, 1995. Ozone nonattainment areas, which include 9 major metropolitan areas, plus other regions which have indicated they will opt-in to the reformulated gasoline

program, account for about two-thirds of motor vehicle fuel used annually. One choice these areas have is to use reformulated gasoline, which is required to contain at least 2 percent oxygen by weight. This added demand for oxygenates, such as ethanol, will help boost FSI use of corn to almost 1.7 billion bushels.

Feed demand in 1994/95 will depend on how livestock producers survive the higher feed prices this year. Early spring 1994 development of pasture and forage crops may be necessary to carry some stock through these low supplies of feed grains. Based on our projection for 1993/94, cow-calf producers are not expected to initiate a liquidation of their breeding stock. Therefore, larger numbers of feeder animals are expected to be placed in feedlots. As a result, beef production in 1994/95 is likely to increase about 3 percent.

Pork production in 1994/95 is likely to be down 1 to 2 percent during the first half of the year, but may rebound in the last half in response to higher hog prices and lower feed prices. Feed demand by pork producers is likely to be down marginally to unchanged in 1994/95.

Poultry production is expected to grow again in 1994/95. Broiler producers are likely to increase production 3 to 5 percent as returns improve with lower feed costs. Turkey producers are also likely to expand production, but at about half the rate of broiler producers.

Total grain consuming animal units in 1994/95 are likely to increase slightly, as fewer hogs and milk cows nearly offset larger poultry and beef units. Therefore, demand for feed grains will increase in 1994/95. With larger supplies of corn, feed and residual use could rebound to 5.0-5.2 billion bushels.

An early look at export prospects for 1994/95 suggests little ground for excessive optimism. A rebound in the U.S. corn crop is likely to replenish supplies and pull down export prices, improving the U.S. competitive position. However, other factors in the international arena could mean a continuation of sluggish import demand for corn and other feed grains, while export competition remains intense.

The general plane of world coarse grain trade is expected to remain depressed by the absence of large imports by the former Soviet Union (FSU). In 1989-91, Soviet coarse grain imports averaged more than 20 million tons per year. In 1992/93, imports fell to about half this level, and most of this was purchased under credit, donated, or bartered. The contraction of the livestock sector in response to cuts in subsidies, higher prices, and economic weakness has reduced FSU meat consumption and feed grain use. No quick rebound appears likely, suggesting imports will remain weak.

There is a strong likelihood that supplies of relatively low priced wheat on the world market will remain large in 1994/95. This will mean continued strong wheat imports by South Korea. In addition, smaller amounts of wheat for feed could continue to move into other markets, depending on supply and relative prices.

Over time, import demand by the developing countries is expected to expand and offset the loss of Soviet trade. Impressive economic growth and increases in meat consumption are fueling higher demand for coarse grains in a number of countries, particularly in Asia and parts of Latin America. However, in 1994/95, assuming no large import spike due to a crop shortfall, world trade is likely to experience no more than modest growth.

The outlook for U.S. exports will also be shaped by competition with other exporters. As usual, the most questions revolve around China, the largest competitor corn exporter. In previous years, expectations were typically for China's exports to weaken in the belief that increased domestic demand would outstrip supplies. Given China's rising exports in recent years, it may be reasonable to assume continued strong competition, in the short to medium run.

As for other competitors, there is considerable variability in any given year. Argentina is gradually improving its competitive status through privatization and reforms. However, this path has been bumpy and no major surge in corn or sorghum exports is likely in 1994/95. The relative prices of coarse grains and oilseeds will be important in shaping Argentina's planting decisions. Corn exports by South Africa are very hard to judge, as the country tends to jump in and out of the export market due to large variability in weather. The EC is expected to remain the world's dominant barley exporter in 1994/95, despite some changes in agricultural policies. As it works down large stocks, the EC may still be able to export significant amounts of corn as well. At this point, barley export prospects for both Canada and Australia would appear to be relatively steady around current levels, assuming no major developments in the wheat market shift more acreage out of barley and into wheat, or vice versa.

This outlook would suggest some export growth for U.S. feed grains in 1994/95, especially in corn. U.S. corn export could increase modestly, perhaps 50 to 100 million bushels.

Based on the above assumptions and analyses, total corn use would be expected to recover in 1994/95 to about 8.3 to 8.4 billion bushels. With corn supplies in the 8.7 to 9.0 billion range, ending stocks in 1994/95 would likely build to around 1.3 to 1.5 billion bushels. Higher supplies and rebuilding stocks would suggest that corn prices would average below those expected in 1993/94 but higher than the \$2.07 in 1992/93.

VI. Weather Shock Scenarios

Corn yields have been quite variable since the early 1980's. Years with record or near record yields have been followed by significant production shortfalls. Therefore, we think it is useful to look at alternative scenarios to a normal weather event.

Let's examine the prospects of a second year of reduced yields, using the acreage assumptions already developed for 1994/95. A one standard deviation shortfall in yield from trend would imply average corn yields near 110 bushels per acre. This would produce a crop in the range of 7.9 to 8.1 billion

bushels, with supplies in a range of 8.8 to 9.0 billion. If total corn disappearance were to remain at the 7.8 billion bushels currently forecast for 1993/94, carryout stocks for 1994/95 would be between 1 and 1.2 billion bushels. Average farm prices for corn would continue strong, near the levels currently forecast for 1993/94.

One caveat to this scenario is the assumption of use. Two years of corn prices near \$2.50 and above would potentially have a significant impact on growth prospects for livestock producers. The pork sector would likely make the largest adjustments, as they and the poultry sectors are relatively intense users of feed grains. Beef cattle herd expansion has been slow and is in the early-to-mid-stages and has excess grazing capacity to help make adjustments to higher feed costs.

As we experienced in 1992/93, corn yields have the potential to significantly exceed trend. If yields were to reach the 1992/93 level, or 131 bushels per acre, corn production would rebound to 9.4 to 9.6 billion bushels, pushing supplies to 10.3 to 10.5 billion. Corn supplies in this range would cause farm prices to fall in 1994/95, allowing continued growth in the livestock sectors. Total disappearance in this scenario could increase to around 8.4 billion bushels, with ending stocks building to 1.9 to 2.1 billion bushels. Ending stocks in 1992/93 were 2.1 billion and farm prices averaged \$2.07 per bushel.