

## THE POTENTIAL EFFECTS OF THE CORN BLIGHT ON OKLAHOMA'S AGRICULTURE

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In recent weeks a new and more virulent form of southern leaf blight has attacked the corn crop in the Midwest. In response to a possible corn shortage this fall, corn futures have developed substantial strength. The December option increased approximately \$.13/bu. during the last half of August, and the cash price at Chicago for No. 2 yellow corn was about \$.20/bu. higher than at the same time last year.

Although corn is not a major crop in Oklahoma, wheat, milo, and barley are ample substitutes for corn as feed grains. Thus, a reduced corn supply can have a large impact upon Oklahoma's feed grain and livestock enterprises as well as upon meat prices to the consumer in the year ahead. The object of this report is to present an overview of what some of the implications may be for Oklahoma.

### The Supply of Corn and Other Feed Grains

The September 1 estimate of the 1970 corn crop was 4,403 million bushels. This was down from August 1 estimate of 4,693 million bushels and reflects both dry weather in the Western Corn Belt and the effect of the leaf blight.

Compared to last year's crop of 4,578 million bushels, the damage appears substantial, but in relation to the 1964-68 average of 4,168 million bushels the crop does not look too bad. However, exports and the use of last year's crop have been very heavy this year. Consequently, the October 1 carry-over of an estimated 950 million bushels is the

smallest since 1967.

Although it has not attracted as much interest as corn, the production of grain sorghum is estimated at only 688 million bushels. Combined with a record amount of sorghum being fed to livestock this year and large exports, the estimated carry-over of 250 million bushels is also the smallest carry-over since 1967.

Oat production is less than in 1969. However, the carry-over of oats is at a record high. Barley production is about the same as last year, with carry-over stocks slightly higher than in the recent past. Oklahoma barley production is up.

Translating the September 1 Crop Report estimates into supplies of total feed grains gives an estimate of approximately 216 million tons. This is substantially smaller than last year's 224.6 million tons but larger than the 1964-68 average of 209.4 million tons. In summary it looks as though corn and grain sorghum are going to be in shorter supply than last year, but adequate supplies of barley and oats will be available.

### Potential Increase in Demand

The demand for feed grains--corn in particular--is expected to increase as a result of the increase in swine farrowing and fed cattle numbers. The 1970 fall pig crop is estimated to be about 17 percent larger than the 1969 crop. For the nation as a whole, this increase is expected to amount to some 7,000,000 additional pigs to be finished with grain from the 1970

crop. If we assume a 1:4 feed conversion on hogs, a total of 880 pounds of feed will be required to feed each animal to market weight. In the aggregate, an additional 102 million bushels of corn will be required to feed the additional hogs.

Of these 7 million additional hogs, 2.5 million pigs are expected in the 10 major corn belt states. This means that 37 million bushels of additional corn will be necessary for feeding the increased pig crop in the Corn Belt alone.

The cattle situation is less definite. Cattle place on feed as of August of 1970 numbered 4 percent larger in the 6 states which report monthly placements (Texas, California, Arizona, Iowa, Nebraska, Colorado). Of these six states, Nebraska and Iowa reported 148,000 more cattle on feed than at this time a year ago. This represents an increase of 5.4 percent. If the other Corn Belt states have increased cattle on feed by a somewhat similar percentage, then we can expect an increase in the short-term Corn Belt demand for feed grains of about 8 million additional bushels of corn.

In the aggregate, 45,000,000 additional bushels of corn will be required to meet the feeding needs of Corn Belt beef and pork producers during the winter feeding season.

The effect of supply demand relationships on the market price for corn is illustrated in Figure 1. The line  $S_0$  represents the corn supply of 5.69 billion bushels available for the 1969-70 feeding year. Facing this kind of supply, prices have averaged about \$1.15 during the season with demand as shown by the line  $D_0$ . This is shown at point A where supply and demand curves intersect. Assuming that increased demand is illustrated by  $D_1$ , the estimated average price for the current season would be  $P_1$  or \$1.35 as shown by point B, if the supply was equal to last year. With the supply decreased to  $S_1$  or 5.13 billion bushels, price would rise to point C with projected demand or to point D under last year's demand.

If livestock numbers are adjusted downward in response to high corn prices

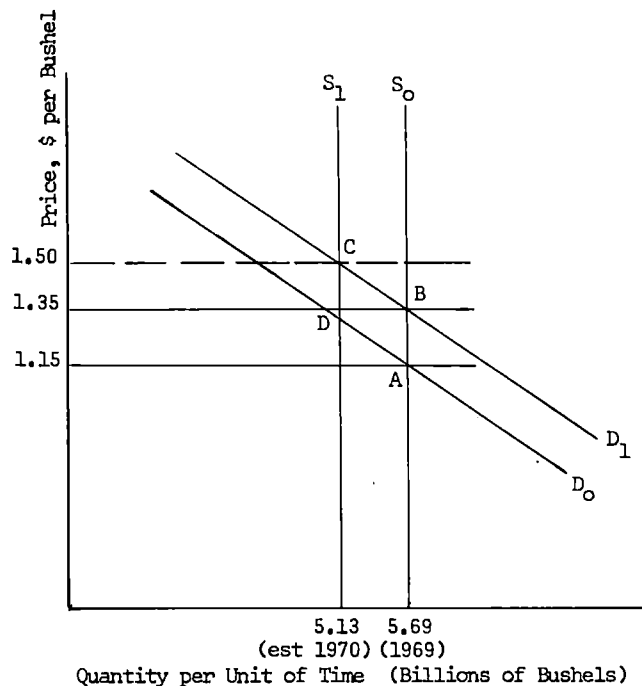


Figure 1. Hypothetical Supply and Demand Curves for Corn.

the increase in demand won't be as great as that shown by curve  $D_1$ . Consequently, a decline in demand or an increase in supply would place equilibrium price somewhere in a range between A and C as long as we continue to assume that demand is above  $D_0$  and supply less than  $S_0$ . These price estimates are averages for the United States and local prices will vary according to prevailing conditions.

#### Livestock Inventory Adjustment to High Corn Prices

Assuming substantial blight damage does materialize and corn prices are high this fall, one result will be that livestock inventories will be culled more intensively. In response to higher feed costs, hog inventories would be reduced; particularly since this year's pig crop is up 17 percent from a year ago. If this inventory adjustment results in a substantially larger flow of red meat to market centers, it is quite likely that the short-run effect of the corn blight would be to lower hog prices this fall.

To get a better view of how this will have further impact on feeder cattle, we need to analyze the movement of Oklahoma

cattle. Oklahoma ranks second in the nation in the number of mother cows on ranges. When the calves from these cows reach 500-600 pounds which is normally required for them to move into feedlots, our surplus supply has historically moved north into the Corn Belt area of Iowa, Illinois, Indiana and Ohio.

Since a significant portion of Oklahoma produced feeder calves are eventually fattened in Midwestern feedlots, it is appropriate to investigate the impact of higher corn prices in the Midwest on the demand for Oklahoma feeder calves. The Midwestern farmer will be influenced in his decision to fatten cattle by both the expected price of fat cattle and feed costs, i.e. corn prices. As corn prices increase relative to fat cattle prices, the option of feeding the corn becomes less attractive relative to the option of selling corn. In addition the large number of pigs on the ground will require large quantities of corn for fattening. Since these pigs are already on location, the desirability of importing feeder cattle will be reduced. Thus one of the consequences of high corn prices should be that fewer Midwestern farmers will choose to fatten cattle. The result will be to reduce that portion of the demand for Oklahoma feeder calves which comes from the Midwest.

The potential effect on feeder cattle prices could depend on the level of feeding which is carried on in the High Plains region. When the prices of feeder cattle dip lower, the High Plains feeders are likely to expand their placements. This action will offset some of the decline in demand which is likely in the Corn Belt.

The price for fat cattle is expected to remain strong, mainly due to continued

high levels in per capita income. Historically, higher feed prices have been associated with higher prices for fat cattle. This phenomenon occurs when beef tonnage is reduced because of higher feeding costs. However, High Plains feeders are expected to expand their placements if and when the price for feeder cattle dip. This action will offset the probable decline in demand for feeder calves in the Corn Belt, and will help to retain the total tonnages of beef on the market and prevent significant increases in fat cattle prices.

#### SUMMARY

With adequate supplies of barley, oats, and wheat, substitution among feed grains may become more prevalent. Wheat, especially, is an excellent substitute when its price is at the level we have seen the last 6 months. Milo will still be the major feed fed Oklahoma's cattle and swine, but its price will be increased due to the outside pressure bidding the price up.

The High Plains feedlot operator will likely be faced with a cheaper source of cattle inputs, but also will probably be faced with higher feed prices resulting from the corn deficiency. His overall advantage will have to be weighted between these two factors to see whether he is better off or worse off.

If the corn blight virus is serious and corn production is substantially cut, Oklahoma farmers will be affected also. Since Oklahoma furnishes a large volume of the cattle inputs for corn-belt operations, the feeder cattle market in Oklahoma will likely tend to lower prices while feed grains may go higher. Available wheat pasture would enable producers to add more pounds of beef before cattle are placed in feedlots.

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