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Risk-free farming?

by Bruce A. Babcock, Center for Agriculture and Rural Development,
babcock@iastate.edu, 515-294-6785, Chad Hart
chart@iastate.edu, 515-294-9911

The direction of U.S. farm policy changed with the passage of the 2002 farm bill and the 2000 Agricultural Risk Protection Act. Previous farm bills, together with the old crop insurance program, had gradually

moved the crops sector toward greater market orientation, with farmers taking on more market risk in exchange for greater planting flexibility. But the beginning of this decade brought with it increased protection against both adverse price movements and crop losses. These policy changes were brought about largely at the behest of farm commodity organizations, who argued that they needed increased protection against the vagaries of weather and market conditions. As we will demonstrate, the reduction in risk that U.S. crop farmers obtain from crop insurance and commodity programs is now so dramatic that we may have entered a new era of risk-free farming.

The U.S. proposals for farm policy reform to the World Trade Organization (WTO) would, if adopted, move U.S.

farm policy back toward its previous trajectory of greater market orientation. However, the WTO talks have stalled, so it is worthwhile to take a step back and assess where U.S. policy currently stands. We use illustrations of the distribution of returns with and without government programs to show the impacts of these programs on farm financial risk in a single growing season. The assessment begins with a review of the U.S. farm policy legislation process and whom it most benefits.

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Handbook Updates

For those of you subscribing to the *Ag Decision Maker Handbook*, the following updates are included.

Historic Cash Corn and Soybean Prices – A2-11 (2 pages)

Livestock Enterprise Budget Prices – B1-20 (1 page)

Livestock Enterprise Budgets – B1-21 (23 pages)

Please add these files to your handbook and remove the out-of-date material.

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What type of producer benefits from U.S. farm policy?

Evidence would suggest that U.S. farm policy is primarily designed to meet the interests of commodity associations. Early in 2001, Larry Combest, then the chairman of the House agriculture committee, asked the National Corn Growers Association, the National Cotton Council, the American Soybean Association, the Rice Growers Association, the Wheat Growers Association, the National Barley Growers Association, and other associations what farm program provisions they wanted to see in the new farm bill. Chairman Combest, along with the members of the House and Senate agriculture committees, then designed a bill to meet their wishes. The legislation passed through Congress and was signed into law by the president in May 2002.

These commodity associations are national associations of farmers. It seems self-evident that the associations represent the interests of their farmer-members. But typically, the association leaders are chosen from the most successful farmers, who often have large, well-financed operations with lower-than-average costs and higher-than-average volumes.

Profit incentives in a commodity system lead crop producers to focus on low costs and high yields. Thus, commodity organizations, who are led by the most successful commodity producers, will tend to support farm policies that support the kinds of farm operations that are most successful in a commodity system.

Mechanisms of support and financial impacts

Here, we focus on the subsidies that producers of corn, wheat, oilseeds, rice, cotton, barley, and grain sorghum receive. We examine corn in detail to show how farm programs and crop insurance affect revenue and we include wheat and cotton for comparison. In addition to farm program payments, 75 percent of U.S. corn was insured under the U.S. crop insurance program in 2003. The most popular product was a form of revenue insurance whereby the insurance guarantee increases if the harvest price is greater than the projected harvest price at

Figure 1. Histogram of net revenue for a representative corn farm

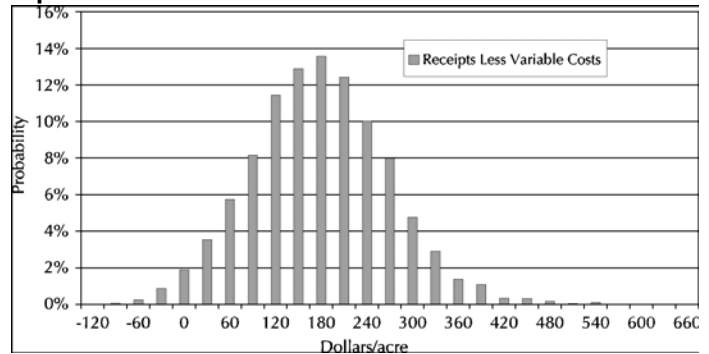
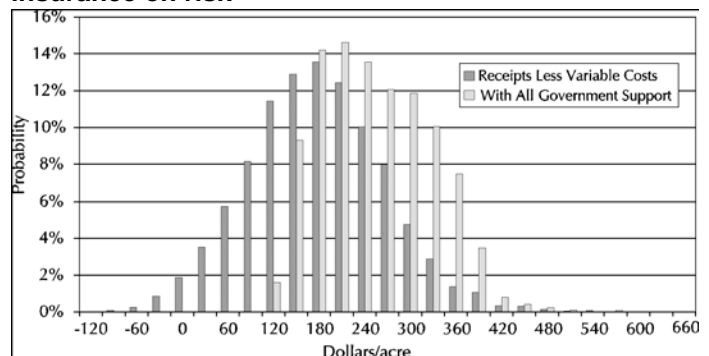


Figure 2. Effect of government programs and crop insurance on risk



planting time. The most popular coverage level is 75 percent coverage (the farmer takes the first 25 percent loss before payments begin). At the 75 percent coverage level, farmers pay only 45 percent of the actuarially fair premium, which is defined as the premium that over time would generate enough total dollars to pay all insurance claims. Thus farmers receive a subsidy equal to 55 percent of the actuarially fair premium.

Before examining the financial effects of the various government programs, let's look at a representative farm's financial picture without farm programs. At planting time, U.S. farmers do not know either the price they will receive for their crops or what their harvested yield will be. To capture this uncertainty, we build a representative farm and repeat a crop year 5,000 times and record the outcome. There are 5,000 different yield and price outcomes. We chose a representative corn farm in Boone County, Iowa, with a local expected farm price set at \$2.15/bushels (bu) and an expected yield of 150 bu per acre (ac). The standard deviation

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of price is set at \$0.45/bu and the standard deviation of yield is 43 bu/ac.

A histogram constructed from the 5,000 revenue draws is shown in Figure 1. The histogram shows the range of possible revenue outcomes as well as the probability of outcomes. Variable costs of \$150 are subtracted so that the distribution shows net revenue. One measure of the amount of risk that a farmer faces is the probability that revenue will not be adequate to cover a certain level of variable production costs. A farmer who covers variable costs has some money left over to pay off fixed expenses. Figure 1 shows that that average net returns for this corn farmer are about \$163/ac. There is a very low probability (4 percent) that net returns are negative. On average, this farmer will have approximately \$163 left over to pay all other expenses, including land, fixed machinery expenses, and management. For a cash renter, land costs would increase variable costs and the entire histogram would shift to the left, which demonstrates the increased risk that cash renters face relative to owner-operators.

Most other U.S. crop farmers face relatively more risk than this corn farmer. Iowa corn farmers have the advantage of highly productive soils and a natural hedge between price and yield. When yield is low, the price is likely to be higher than expected, thus buffering the negative impacts of low yields. And low prices are

likely caused by a bumper crop in Iowa, which helps insulate Iowa corn farmers from financial trouble.

Impact of government programs and crop insurance

Now let's look at the effects of government programs on the financial risks of this farm. The effects of all the programs are revealed by comparing the distribution of market plus government receipts to the distribution shown in Figure 1.

Figure 2 shows the aggregate effect of these programs on a farmer's risk. As can be readily seen, the amount of risk that this farmer faces is now significantly reduced and the expected returns over variable costs are dramatically increased. Average net returns increase 46 percent to about \$239/ac with the programs in place. Perhaps the best way to characterize the effects of the programs is that with the programs in place there is now less than a one-in-six chance that total revenue will fall below \$163/ac, which is the average revenue without the programs. As shown in Figure 2, there is no chance that farmers in Boone County will not be able to cover their non-land variable costs. It is in this sense that we can speculate that corn farming in Boone County has become "risk free."



Lessons from Australian agriculture

by Mike Duffy, Associate Director for the Leopold Center for Sustainable Agriculture, mduffy@iastate.edu, 515-294-6161

I recently had the opportunity to spend a month in Victoria, Australia, in the south east part of the country. My visit came at the request of the Australian government to help evaluate its family farms program. The government is concerned about the loss of family farms and began the program to get a better understanding of the subject and to determine what could or should be done about it.

Throughout my career I have had the opportunity to visit farms and meet agriculturalists from many countries. This was my first opportunity to spend an extended time in such an outwardly different agricultural situation. Victoria has a more moderate climate than Iowa, but its soils by comparison are very poor. They face serious problems of water availability and excess salinity. As a result most agriculture involves grass-based animal production,

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