

**THE POST-COMMODITY PROGRAM WORLD:  
PRODUCTION ADJUSTMENTS OF MAJOR U.S. FIELD CROPS**

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## **THE POST-COMMODITY PROGRAM WORLD: PRODUCTION ADJUSTMENTS OF MAJOR U.S. FIELD CROPS**

Whatever its form, the 1995 farm bill will continue the evolution toward greater reliance on the market. This article examines the consequences of this trend for the seven field crops which receive deficiency payments: barley, corn, cotton, oats, rice, sorghum, and wheat. These crops account for a majority of both farm program expenditures and crop acreage in the U.S.

Perspective on the consequences is gained by examining the response of farmers to the flex acreage provision enacted in 1990. This provision reduced the number of program base acres on which a farmer receives deficiency payments by 15 percent; however, any crop could be planted on these so-called normal flex acres except fruits, vegetables, and others designated by the Secretary of Agriculture. A producer also could voluntarily flex an additional 10 percent of a program crop's base acreage. Crops grown on flex acres are eligible for price support and/or marketing loans, if they exist for the crop. Elimination of deficiency payments removes a substantial part of government support from these crops because current loan rates are 30 percent or more below the target prices which determine deficiency payments.

### **DATA**

Producer decisions regarding normal flex acres (NFA) during crop years 1992, 1993, and 1994 are analyzed. Data for 1991 are not included. The reason is that flex provisions were waived for winter wheat because the crop was planted before the 1990 farm bill was passed. Farmer responses to voluntary flex acres are not examined because the farmer still has the option to remain in the program on these acres. Thus, voluntary flex acres provide only limited evidence on a world without deficiency payments.

The analysis focuses on (1) the share of a state's total NFA for all seven crops that was idled and (2) the share of a state's NFA for each crop planted back to the same crop (for example, corn NFA planted to corn). To reduce potential distortions caused by a small number of NFA, states are excluded which had less than 1,000 normal flex acres, either for all crops in the case of the first calculation or for the particular crop in the case of the second calculation.

#### **SHARE OF NORMAL FLEX ACRES IDLED**

In interpreting the data, it is assumed that farmers rationally adjust their cropping decisions to maximize profits. Thus, the share of NFA idled provides an indicator of the marginal competitiveness of the state in crop production -- its marginal competitiveness is greater the smaller the share of NFA idled. In other words, given the prices which existed in 1992-1994, idling NFA is assumed to imply that planting no crop was the most profitable use of NFA. A caveat is that for some states, such as California and Florida, the restriction on planting fruits and vegetables may cause the share of NFA idled to be larger than if this restriction did not exist.

Figure 1 presents the share of a state's total NFA that was idled. Considerable variation exists, ranging from 1.9 percent for Illinois to 69.5 percent for Nevada. Nevertheless, several distinct regional patterns emerge. First, states along the Ohio and Mississippi River, as well as the middle Atlantic states, idled the smallest share of NFA. In most of these states less than 10 percent of NFA was idled. On the other hand, the northeast, mountain, Pacific, and southern plains states, plus West Virginia and Florida, idled the largest share of NFA. In most of these states more than one-third of NFA was idled. The southeast, northern plains, and lake states fell between these two groups.

Share of NFA idled for the seven individual crops generally follows the same regional patterns depicted in Figure 1. This similarity across crops is not surprising because marginal agricultural use is a function of the inherent productivity of the land, which in turn is correlated with geographic area. For example, the relatively large percentage of NFA idled in the mountain and Pacific states probably is due in part to the inability to profitably produce a crop in a low rain-fall area.

#### **SHARE OF NORMAL FLEX ACRES PLANTED BACK TO THE SAME CROP**

Share of NFA planted back to the same crop is an indicator of the state's marginal competitiveness in producing the crop -- marginal competitiveness is greater the larger the share of a crop's NFA planted back to itself. Examination of this share reveals two distinct groups. For the U.S., 69, 55, and 50 percent of cotton, corn, and wheat NFA, respectively, were planted back to the same crop. In contrast, for sorghum, rice, barley, and oats the average shares were 32, 30, 24, and 17 percent, respectively. These ratios suggest that corn, wheat, and cotton are more competitive than the other four crops.

The larger percent for cotton may reflect the relative change in loan rates since the early 1980s. Compared with the average loan rate for the 1982-84 crops, the average loan rate for the 1992-94 crops was 35 percent lower for rice, 31 percent lower for the feed grains and wheat, but only 18 percent lower for cotton. Crops planted on NFA are eligible for price support or marketing loans. Thus, the smaller decline in the cotton loan rate means there is a higher floor under cotton returns, making cotton a relatively more attractive crop.

Turning to the individual crops, different stories emerge for each one. For corn, the dominant pattern is that states which currently produce the most corn have the highest share of

corn NFA planted back to corn (Figure 2). For example, 62 percent of corn NFA in the five largest corn producing states (Iowa, Illinois, Nebraska, Minnesota, and Indiana) was planted back to corn. In contrast, the 20 smallest corn producing states planted only 26% of corn NFA back to corn. These results clearly imply that corn production will further concentrate in the largest states as government supports decline.

For wheat, the dominant pattern is that the share of wheat NFA planted back to the crop increases the further north the state (Figure 2). To illustrate, for states on the southern U.S. border, 32 percent of wheat NFA was planted back to wheat. In contrast, for states on the northern U.S. border, 60 percent of wheat NFA was planted back to wheat.

A west-to-east pattern emerges for cotton (Figure 2). Forty-eight percent of cotton NFA is planted back to cotton in Arizona, California, and New Mexico, compared with 79 percent for the old cotton belt states of Alabama, Arkansas, Georgia, Florida, Louisiana, Missouri, Mississippi, North Carolina, South Carolina, Tennessee, and Virginia. These data suggest that some cotton production will migrate back to the old cotton belt as government support declines.

Only three states have more than 25 percent of oats NFA planted back to oats: Maine, Illinois, and Pennsylvania (Figure 3). These states account for less than two percent of base acres in oats. Barley exhibits no definitive patterns, but there are tendencies for the share of barley NFA planted back to barley to be highest in the middle Atlantic states and to increase the further north the state (Figure 3). Sorghum exhibits the same pattern as corn (Figure 3). Texas, Kansas, and Nebraska, which account for three-quarters of sorghum production, had 34 percent of their sorghum NFA in sorghum. In contrast, the 15 smallest states had only nine percent of their sorghum NFA in sorghum.

For rice, a striking difference exists between Texas and the other four largest producing states: Arkansas, Louisiana, California, and Mississippi (Figure 3). Share of rice NFA planted back to rice averages 34 percent for the latter four states, but is only 3.5 percent for Texas. This indicates that Texas is at a competitive disadvantage in producing rice relative to the other large rice producing states.

## **IMPLICATIONS AND CONCLUSIONS**

In deriving implications and conclusions, it is important to remember that prices will adjust to reflect changes in supply resulting from idling or shifting production. This dynamic reaction will limit the amount of land idled or shifted to another crop. Nevertheless, the substantial differences by state in the percent of normal flex acres idled and planted back to the same crop suggest the following consequences of moving to less government support for the seven farm program crops which receive deficiency payments:

- Significant adjustments will occur at state and regional levels. For example, production of the seven field crops will concentrate in states along the Mississippi and Ohio Rivers, or the south in the case of cotton. Field crop production will contract in the southern plains, mountain, Pacific, and northeast states.
- Some cropland, especially in more marginal regions, will shift to grazing. Other cropland will shift to trees. These uses will be consistent with comparative advantage in land use. Little land will lie idle, although some currently marginal grazing land may return to its natural state.
- As production of corn, wheat, oats, barley, and sorghum concentrates in fewer states, they will move toward joining cotton and rice as regional crops. Consequently, national political power

of the seven crops likely will decline. Instead, the individual crops will increasingly look to individual states for economic assistance and political favors.

→ With beef, dairy, and hog production moving south and west, the concentration of feed grain production in the central states implies that efficiency of the U.S. transportation sector will become increasingly important to the efficiency of U.S. livestock production.

While this analysis is most applicable to understanding regional changes in U.S. agriculture as farm programs are reduced, the low percentage for the U.S. of oats, barley, sorghum, and rice normal flex acres planted back to the same crop suggests that U.S. agriculture may not be a world-class competitor in these crops. One implication is that U.S. feed grain production will become even more concentrated in corn, continuing a long run trend which has seen corn's share of U.S. feed grain production grow from 72 percent in 1960-1964 to 88 percent in 1990-1994. A second implication is that irony may best describe U.S. trade policy toward rice, where U.S. market opening efforts may mostly benefit foreign producers. In conclusion, as the evolution to freer markets continue, the old adage may once again apply: it is often more pleasurable to wish for something, than to actually have it.

Figure 1. Share of Normal Flex Acres Idled, All Program Crops, U.S., 1992-1994

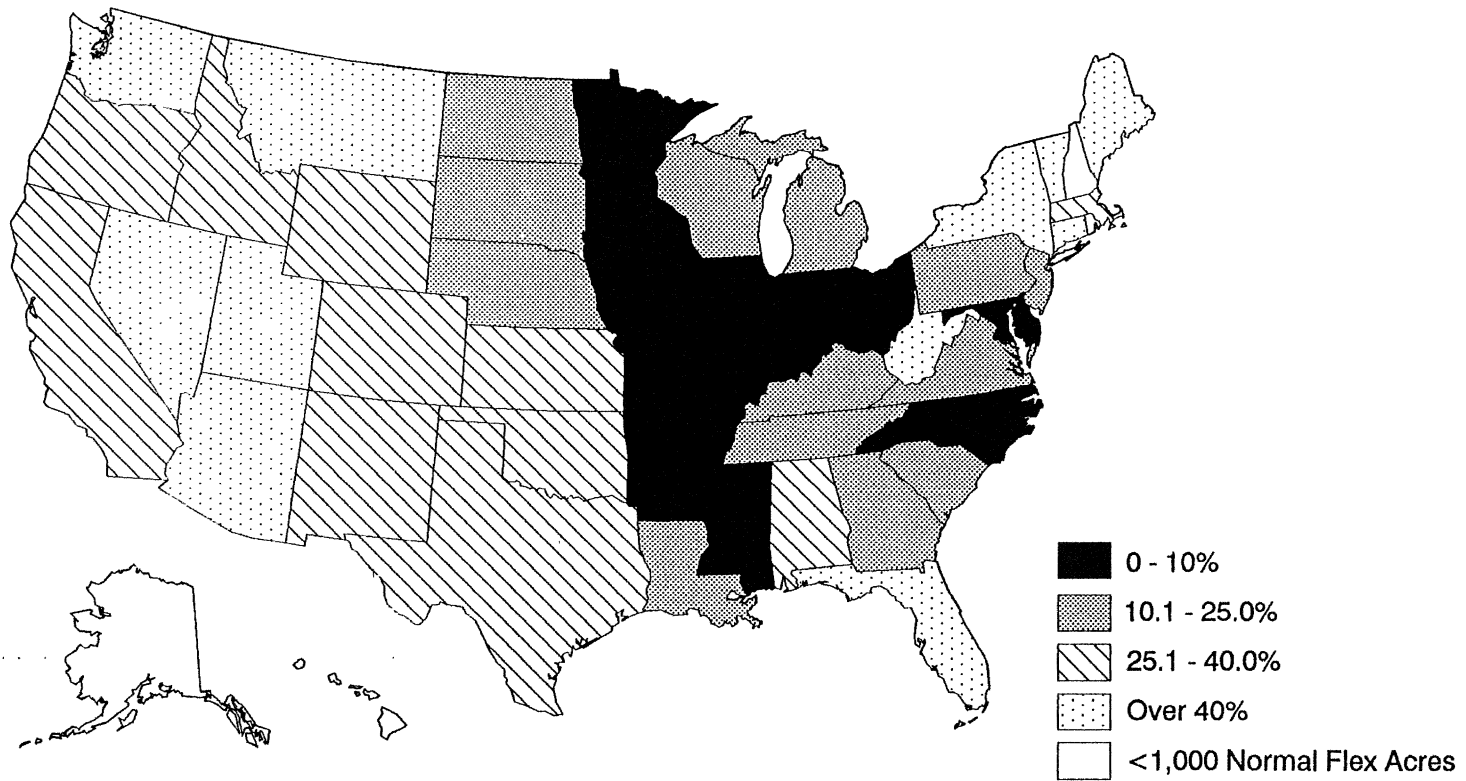




Figure 2. Percent of Corn, Wheat, and Cotton Normal Flex Acres Planted Back to the Same Crop, U.S., 1992-1994

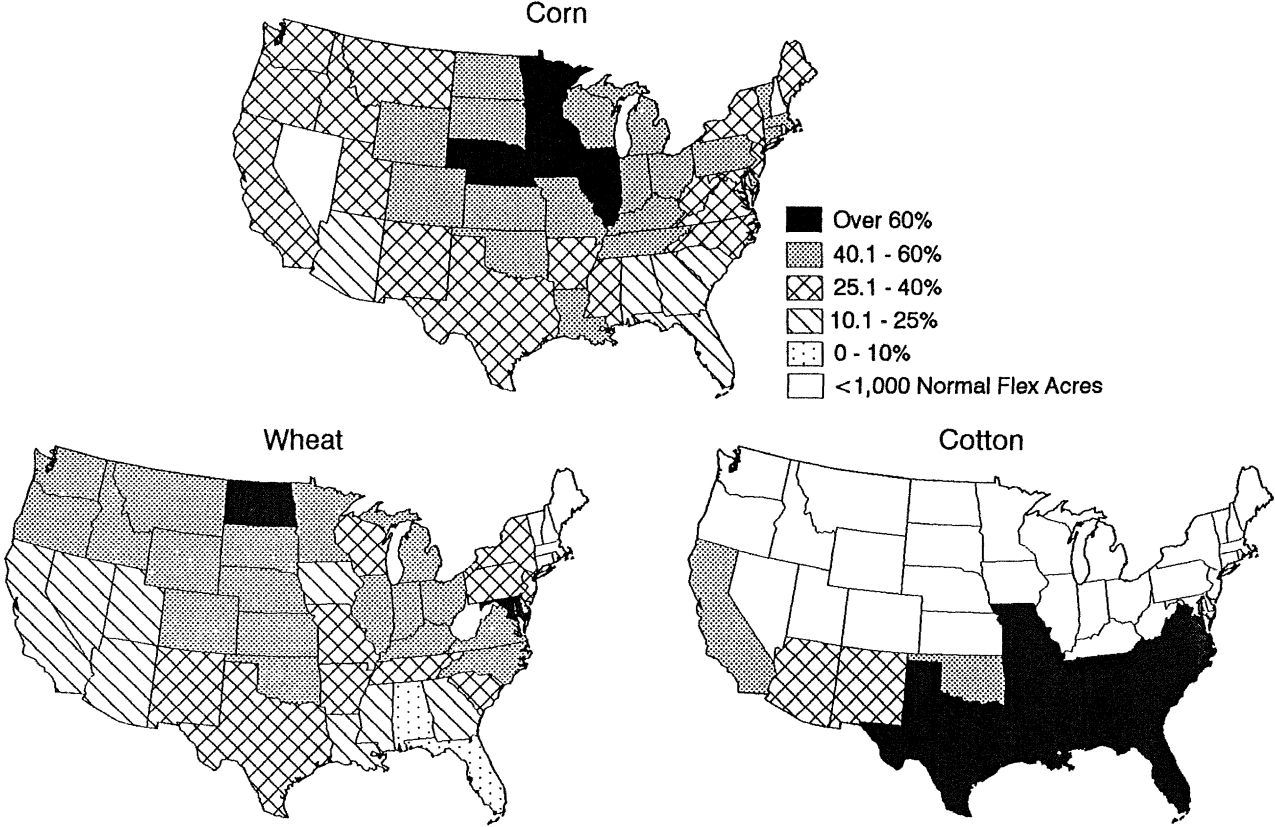


Figure 3. Percent of Oats, Barley, Sorghum and Rice Normal Flex Acres Planted Back to the Same Crop, U.S., 1992-1994

6

