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FARM BILL 02 CHOICES

The Law of Unintended Consequences

BY CARL R. ZULAUF AND MELISSA R. WRIGHT

The FAIR Act was to introduce market-driven efficiencies to farming. Did it introduce policy-driven inefficiencies instead — or is it a matter of perspective?

The Federal Agricultural Improvement and Reform Act of 1996 (FAIR) eliminated annual acreage set-asides and gave producers of grains and cotton the freedom to plant or not plant any crop except fruits and vegetables. Indeed, comparing acreage data from 2000 to averages from 1991-1995 (the period covered by the 1990 Farm Bill) shows that farmers changed their cropping patterns (Table 1). First, oilseed acreage, notably soybeans, increased. Second, food grain acreage, specifically wheat, declined. Third, feed grain acreage declined and shifted to corn, as barley, oats, and sorghum acreage decreased.

What lies behind these shifts? Some believe that the provisions of FAIR, specifically the marketing loan program, are responsible.

Reason for Concern

FAIR offers farmers two main benefits: annual direct income payments, called Agricultural Market Transition Act, or AMTA payments, and access to marketing loans.

The former is a fixed payment based on pre-FAIR acreages and yields. AMTA payments are available for barley, corn, upland cotton, oats, rice, sorghum, and wheat. Farmers receive payments whether or not they plant a crop of any type, so long as they do not expand fruit and vegetable acreage.

Marketing loans set a price floor equal to the world price on food grains, wheat, rice, upland cotton, soybeans, and a number of minor oilseed crops. A farmer's entire output of these crops is eligible for marketing loan support. Marketing loans thus influence the decision to plant a specific crop. In turn, the relationship between the marketing loan program and possible changes in cropping patterns becomes a critical policy variable.

We calculated expected per-acre net return for these crops by subtracting the average U.S. variable cash cost of production per acre from the marketing loan rates times the per acre yield for the 2000 crop year. This generates a per-acre net return above variable cash costs for the average U.S. producer of these crops.

FAIR passed after the planting season for the 1996 winter wheat crop, but while planting decisions for spring seeded crops were underway. Thus, 1996 is in effect a transition year between the 1990 Farm Bill and FAIR, and our calculation of expected net returns starts with the 1997 crop year.

USDA reports per acre costs of production for only certain crops, including barley, corn, upland cotton, oats, rice, sorghum, soybeans, and wheat. While 2000 per-acre production cost data was unavailable when we conducted this analysis, changes in the price of crop production inputs were minimal between 1999 and the early part of 2000. Therefore, the absence of 2000 cost-of-production data should not impair the analysis.

Table 2 shows calculated net cash returns along with acreage changes (from Table 1) for eight crops. Acreage increased for soybeans, corn, and cotton — three of the

four highest return crops. It decreased for three of the four lowest return crops — oats, barley, and sorghum. The correlation between acreage changes and the expected net cash return per acre from the marketing loan is 0.77–statistically significant at the 98 percent level. This degree of positive correlation is consistent with the idea that the marketing loan program provides incentives to change planting decisions.

And Now For a Little Perspective

The preceding analysis frames the reason for concern, but an assessment of the impact of the marketing loan program on cropping patterns requires a comparison of actual acreage with the acreage farmers would have planted if the marketing loan program did not exist. This comparison is difficult because cropping patterns in the absence of a marketing loan program cannot be observed, only estimated. Rather than attempting a formal empirical analysis, we provide two relatively simple analyses to try to bring perspective to the concern about the impact of the marketing loan program on cropping patterns.

The first analysis addresses whether the observed shift in cropping patterns is consistent with market signals that were apparent before FAIR was enacted. Are the changes in acreage consistent with the net returns earned by producers who did not participate in farm programs during the 1990 Farm Bill period (1991-1995)? Put another way, was the market already calling for the acreage shifts that came in response to the elimination of acreage set-aside and cross-compliance provisions?

The second analysis addresses whether the net returns offered by the market for the 2000 crops are consistent with the observed shift in cropping patterns. This investigation relies on the fact that a marketing loan rate does not place an absolute floor under the price of a commodity. Instead, price is allowed to seek the level that clears supply and

demand. Are the observed acreage changes consistent with the net returns earned from the market? This is a conservative evaluation. Acreage shifts in response to prior incentives should reduce the incentive for further shifts. The market should try to bring about equilibrium. Thus, the correlation between current returns and past acreage shifts should be lower than the correlation between past returns and past acreage shifts, and the range in net returns among the crops should narrow over time.

We calculated net returns for the 2000 crop year using USDA's estimate of the average U.S. yield and the mid-range of USDA's expected season average prices reported in January 2001's World Agricultural Supply and Demand Estimates and Crop Production reports. The net return for a particular year is affected by uncontrollable factors, especially weather. Since weather was reasonably good overall for U.S. crop production during 2000, its impact on the average farmer (the focus of this analysis) should be minimal.

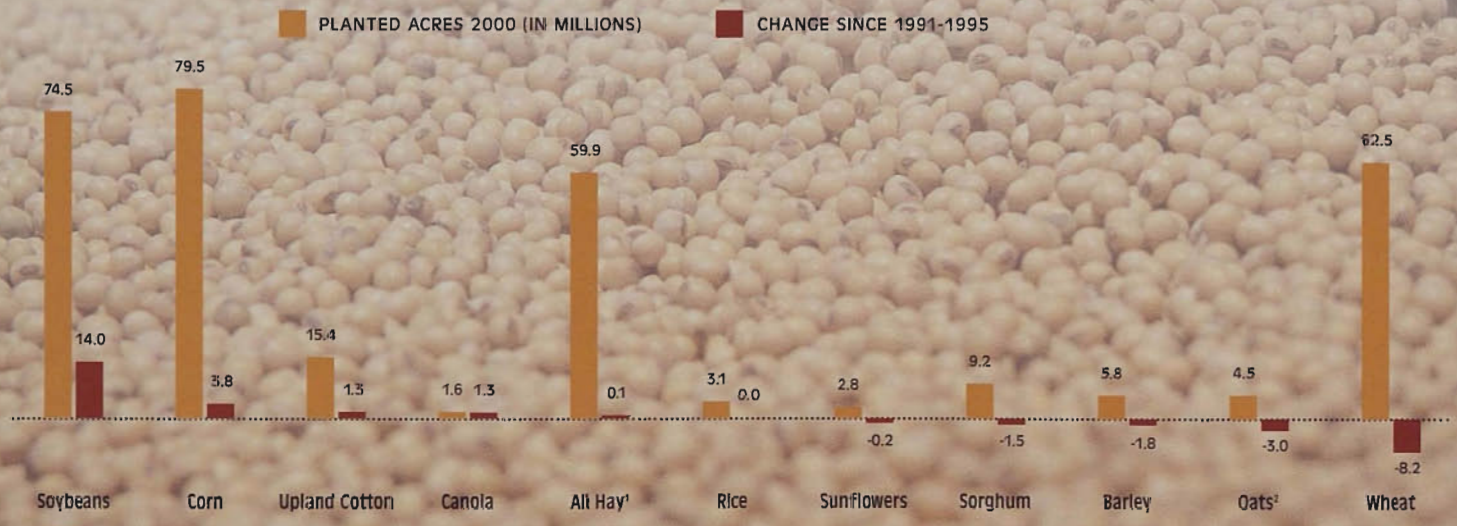
Table 3 shows average net returns for non-participants in farm programs during 1991 to 1995 and net cash returns provided by the market for the 2000 crop. As expected, the shift in cropping patterns resulted in a smaller range in net cash returns offered by the market for 2000 than for 1991 to 1995. Nevertheless, per acre net cash returns from the market in 2000 ranges from $5 for rice to $100 and $104 for corn and soybeans, respectively. Furthermore, for all eight crops, net returns earned by non-participants in the 1990 Farm Bill exceeded the net returns earned from the market for the 2000 crop. This is consistent with the 5.5 million acre increase in harvested principal crop acreage between 1991 to 1995 and 2000.

The correlation between average net returns for non-participants during 1991-1995 and changes in planted acres between 1991-1995 and 2000 is 0.72 (again, statistically significant). This finding suggests that the market was signaling for the shift in acres even before FAIR, but under the 1990 Farm Bill provisions, program participants could not make these adjustments without giving up farm program benefits.

The correlation between the net returns provided by the market for the 2000 crop and acreage changes between 1991-1995 and 2000 is 0.63, (statistically significant at the 90 percent level). As expected, the changes in cropping patterns have resulted in this correlation being lower than the correlation estimated using the returns for 1991-1995. Nevertheless, the correlation estimated using the returns for 2000 suggests that the shifts in cropping patterns observed between 1991-1995 and 2000 are consistent with the returns offered by the market in 2000.

TABLE 1

Changes in Planted Acres of Major Field Crops, U.S., 1991-1995 to 2000



1 Projected harvested acres 2 Oats is often seeded as a cover crop that is not harvested. Projected harvested acres of oats in 2000 is 2.3 million or 1.7 million fewer acres than the average harvested acres for the 1991 through 1995 crops.

TABLE 2

Expected Return from Marketing Loan Net of Variable Cash Costs, U.S., 2000 Crop

CROP	EXPECTED MARKETING LOAN NET RETURN 2000[1]	ACREAGE CHANGE SINCE 1991-1995
	$/ACRE	MILLION ACRES
Soybeans	124	+ 14.0
Corn	96	+ 3.8
Wheat	52	- 8.2
Upland Cotton	51	+ 1.3
Sorghum	36	- 1.5
Rice	22	0.0
Oats	21	- 3.0
Barley	17	- 1.8

1 Expected net return equals average U.S. yield for 1997-1999 crops times the marketing loan rate for the 2000 crop minus average u.s. variable cash cost of production for 1999 (latest available).

TABLE 3

Return from Market Net of Variable Cash Costs, U.S., Non-Participants in 1991-1995 Farm Programs and 2000 Crops

CROP	MARKET NET RETURN FOR NON-PARTICIPANTS IN FARM PROGRAMS 1991-1995[1]	MARKET NET RETURN 2000[2]
Soybeans	140	104
Corn	148	100
Wheat	73	55
Upland Cotton	119	41
Sorghum	71	25
Rice	95	5
Oats	28	19
Barley	62	52

1 Market net return for non-participants in farm programs for each crop year from 1991 through 1995 is calculated by multiplying USDA's average U.S. yield for the year by USDA's season average U.S. price for the year, then subtracting average U.S. variable cash cost of production for the year.

2 Market net return for 2000 is calculated by multiplying USDA's January 2001 estimate of average U.S. yield by the mid-range of USDA's expected season average U.S. price, then subtracting average U.S. variable cash cost of production for 1999 (latest available).

The Market Works—Up To a Point

The three correlations estimated here are roughly the same magnitude, suggesting that much of the observed shift in planting decisions during the last five years would probably have occurred even if FAIR included no marketing loan provisions. Thus, focusing on the impact of the marketing loan program misses the bigger picture: Up to this point, at least, FAIR has allocated agricultural resources more efficiently. Furthermore, it is reasonable to speculate that had FAIR not allowed acreage to shift, producers in other nations would be planting several million more acres of soybeans.

Another reasonable speculation is that the shift in cropping patterns is not finished. In particular, given the net returns offered by the market in 2000, more acres will be planted to soybeans and corn in the future even if Congress eliminates the marketing loan program.

None of this should be construed to dismiss concern about distortions resulting from misaligned loan rates, but rather to place the concern in perspective. In fact, the acreage differences for the 2000 expected loan rate net return as opposed to the 2000 market price net return tend to confirm that there may be trouble brewing. The 2000 expected marketing loan net return ranges from $20 over the 2000 market net return for soybeans, to $35 under the 2000 market net return for barley.

In the coming crop year, acreage distortions will likely increase due to the increasing cost of nitrogen fertilizer (due in turn to the sharply higher cost of natural gas). The likely doubling-to-tripling of the price of this key input for corn production will lead farmers to increase soybean acreage at the expense of corn acreage because of the expected higher returns from the soybean loan rate.

This cost and policy-induced shift is compounded by a two-million-acre decrease in winter wheat plantings for 2001. Most of these acres are likely to go to soybeans, again because of the higher expected returns from the loan rate. Factoring in the projected large soybean crop in South America and normal growing weather in the United States raises the specter of lower soybean prices, accompanied by a major increase in loan deficiency payments to soybean producers. From a policy perspective, the difference between returns from the market and returns from the loan rate seems likely to increase, suggesting that the marketing loan rate structure is beginning to drive planting decisions. The result is policy-induced inefficiency.

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Rx: Annual Adjustments

Congress could address this problem by adjusting loan rates each year, based on changes in market prices. FAIR permits such adjustments for most program crops, with some restrictions. For example, the loan rate for soybeans is set at 85 percent of the average price for the previous 5-year period, excluding the highest and lowest market price. However, FAIR imposes both a lower bound ($4.92 per bushel) and an upper bound ($5.26 per bushel). Furthermore, as happened in 2000, the Secretary of Agriculture can override the adjustment.

A review of the history of U.S. farm policy reveals two lessons:

1. Inflexible policies only heighten problems by delaying needed adjustments, *and*
2. Congress and the President have not always been willing to forestall needed adjustments.

Although there may be a delay, U.S. farm policy has always tended toward the wishes of the market. Hopefully, these observations may eventually be codified into a basic farm policy tenet: Gradual adjustment in policy parameters is preferable to large, sporadic adjustments. This proposition supports an annual adjustment of marketing loan rates based on changes in market prices.

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