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PUTTING BALANCE IN U.S. COMMODITY PROGRAMS

— by Leo V. Mayer —

> Federal commodity programs protect participating farmers against declines in commodity prices that come with overproduction. While observers can always ask whether or not the degree of protection is correct, no one can deny that the policies have accomplished their major purposes and stand as tribute to the ability of policy makers to deal with economic adversity. Few observers have asked the opposite question: can the commodity programs also protect farmers against underproduction and crop loss? This article expands this question and provides an example of how the programs can be modified so that producers are protected from the effects of crop losses, as well as over production.

When Congress wrote the 1990 Farm Bill, questions were raised on how best to provide farmers with protection against drought. Academicians as well as the Secretary of Agriculture argued the different options. Professors Barnaby and Skees outlined "the case for crop insurance" on these pages (*CHOICES*, Second Quarter 1990). In their view, "federally subsidized crop insurance is appealing because it provides for more efficient allocation of society's resources than does free disaster assistance."

At about the same time, the U.S. Department of Agriculture recommended that Congress "repeal legislation for the Federal Crop Insurance Program" and pass legislation for the Federal Crop Insurance Program" and pass legislation that would "pay producers in the event of an area-wide catastrophic loss" (*1990 Farm Bill: Proposals of the Administration*, USDA, 1990). Eligibility for the new program included all crops currently covered by the FCIC plus hay and forage, over 93 percent of the all U.S. cropland.

Neither proposal was entirely satisfactory. Congressional interest leaned toward crop insurance. Other interests, concerned over the cost implications of subsidized crop insurance and subsidized disaster aid, favored a single federal disaster program. The lack of consensus suggests that other ways of providing drought protection should be explored.

Revising Traditional Programs

The question taken up in this article is whether existing farm support programs can be revised to help provide income protection in drought years? The 1980s made it clear that target price and marketing loan programs do little to protect farmers who are

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caught up in adverse weather situations. This should not have been a surprise since traditional farm legislation was designed to protect farmers against crop surpluses, not crop failure.

But the perversity of the programs became more apparent as a succession of drought years befell farmers in the 1980s. Congress responded by passing special drought legislation in 1983, 1986, 1988, and 1989. In the middle of this period, Congress passed the 1985 Farm Bill which extended the traditional price and income support programs until 1990. The 1990 Farm Bill extended these programs until 1995, including the federal crop insurance program, but left open the possibility of further changes.

One possible way to replace federal crop insurance is to modify traditional price and income support programs to protect farmers during adverse weather years. One means of accomplishing this is to adjust target prices up in drought year and down in "normal" years. The size of the adjustment would vary depending on the severity of the drought.

Such a concept might work as follows: Each year, a target yield would be established for each crop that is covered by a target price/deficiency payment program. With unfavorable weather and yields that are less than the target yield, target prices would be raised with the amount determined by the difference between the target yield and the actual yield. With favorable weather and yields that exceed target yields, target prices would be lowered. This adjustment would increase income protection for farmers in drought years. It would also provide some budget savings for the government in years of unfavorable weather.

In recent years, farm programs have helped protect farm income in approximately seven years out of each decade. In the other three years, drought caused production to decline, prices to rise and deficiency payments to fall. Congress offset the drop in farm income by passing special drought legislation. The proposal outlined here would remove the need for special drought legislation. Crop insurance would continue to be available from commercial insurance companies to the extent it is economically feasible.

Application to Corn and Wheat

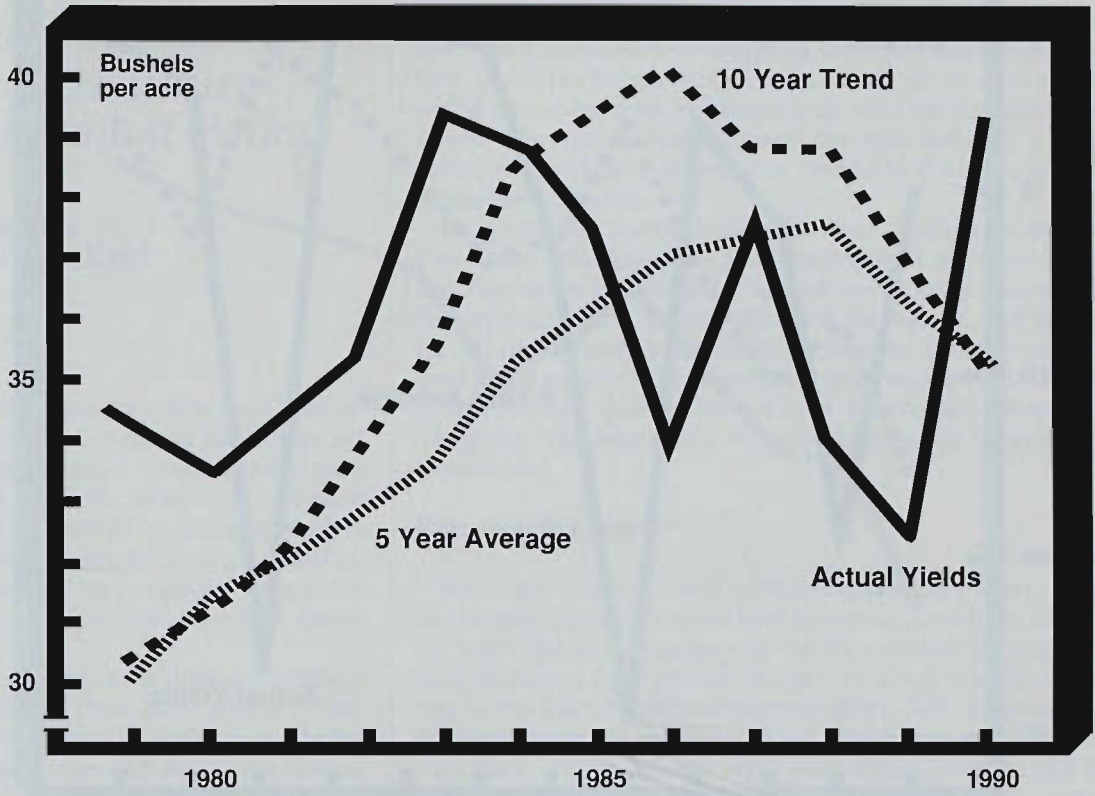
Could such a policy mechanism be made to work to the satisfaction of farmers, and their legislators and still fall within federal budget constraints? The following example helps answer this question, by examining how such a policy would have worked had it been in place over the past decade. The assessment begins with the development of target yields for 1979 through 1990. Corn and wheat are used in the example. The yields used for each crop are national averages (Table 1).

Table 1 – Comparison of actual yields and "target" yields, for alternative projection methods for wheat and corn

Method used to calculate "target yields"	Number of years Above "target"	actual yields Below "target"	Sum* of annual difference
(bushels)			
Wheat			
5 year average	9	3	+15.7
10 year trend	7	5	+ 4.9
20 year trend	8	4	+ 4.3
Corn			
5 year average	9	3	+58.4
10 year trend	8	4	- 4.2
20 year trend	9	3	- 8.4

*Algebraic

Figure 1 - Wheat



yields. One is to use the simple average of past crop yields over the preceding few years. The target yield for 1984, for example, might have been the 5-year average of actual yields for the years 1979 through 1983 and for 1991 the 5-year average of actual yields for the years 1986 through 1990.

A second method is based on a trend line drawn through actual yields for some number of past years—perhaps ten years or twenty years. With this method, a target yield for 1984, for example, would have been based on a trend extrapolation of actual yields for 1974 through 1983 (or 1976 through 1983).

The use of a 5-year average removes the year to year variation in yields but it results in target yields that are generally low. This comes from the “backward looking” nature of the average during a period when yields are generally rising. When average yields are used as a base, target prices are reduced in most years.

The calculation of target yields using a trend line also removes the variation in crop yields. However, this method looks to the future and accounts for the upward trend in crop yields. With

this method, the positive and negative differences between target yields and actual yields become more equal over time.

Impact on Target Price

The amount of impact on target prices depends on two factors: one is the size of the differences between the target yield and the actual yields and the other is the amount of payment adjustment (measured here in cents per bushel) added or subtracted for each bushel of yield difference.

The 10-year trend yields are used to demonstrate the concept and were used for the estimate shown in Table 2. The amount of adjustment per bushel is established arbitrarily at three cents for each bushel of corn yield difference and seven cents for each bushel of wheat yield difference.

As expected, the variation in payment rates is large in drought years and relatively small in most other years. For wheat, the largest increases occur in 1986 and 1989. In 1989 the target wheat yield based on a 10-year trend is 37.1 bushels per acre. The actual wheat yield in that year was 32.8 bushels, or a differential of -4.3 bushels. At 7 cents a bushel, this would have added 30 cents to the target price for wheat in 1989.

For corn, 1983 and 1988 were drought years in which this hypothetical policy change would have increased the target price. In 1988, the target corn yield based on a 10-year trend was 117.8 bushels. The actual yield was 84.6 bushels giving a difference of 33.2 bushels. At 3 cents a bushel, this would have added nearly \$1.00 to the deficiency payment to make it \$1.36.

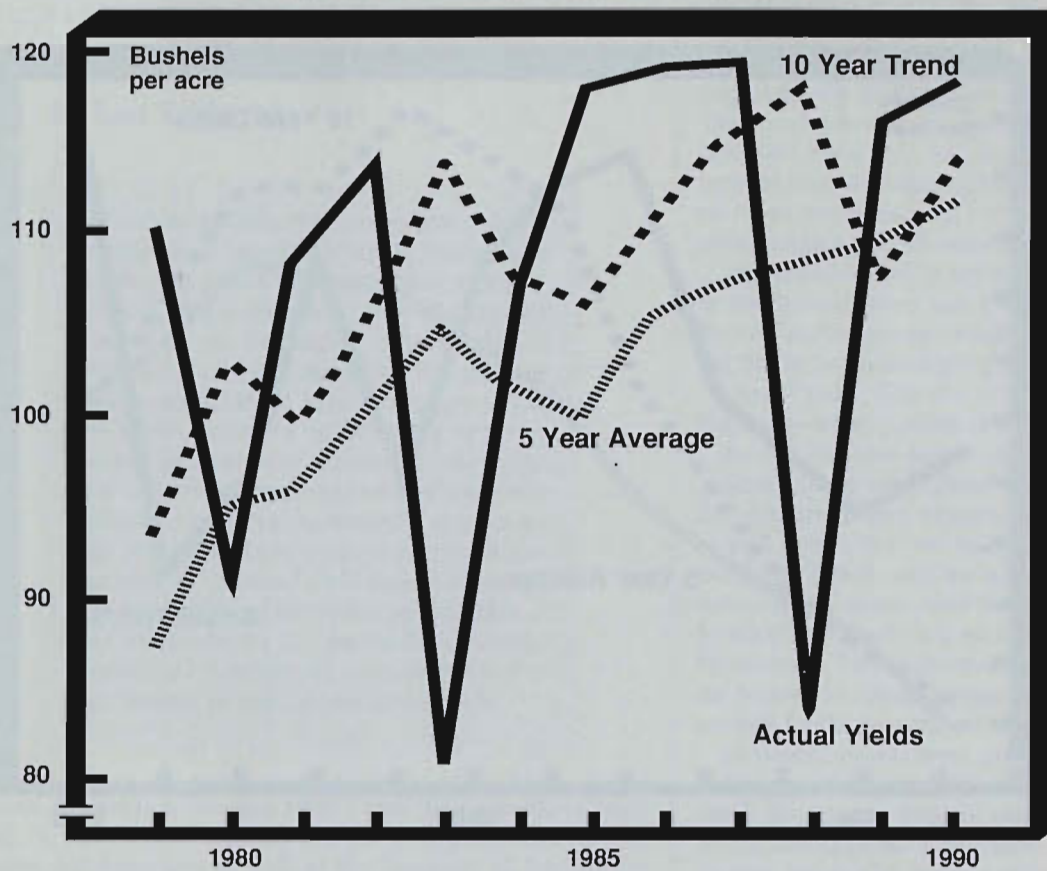
As indicated on the last line of Table 2, over the entire 1979 through 1989 period, this adjustment process would have provided a modestly higher amount of deficiency payments for corn of

Table 2—Actual deficiency payment rates, and “adjusted” payment using 10-year trend yields for corn and wheat

Year	Wheat			Corn		
	Actual Payment	Adjusted Payment*	Change	Actual Payment	Adjusted Payment*	Change
<i>(dollars per bushel)</i>						
1979	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
1980	0.00	0.00	0.00	0.00	0.31	+0.31
1981	0.27	0.10	-0.17	0.00	0.00	0.00
1982	0.18	0.07	-0.11	0.15	0.00	-0.15
1983	0.00	0.00	0.00	0.00	0.98	+0.98
1984	1.00	0.99	-0.01	0.43	0.44	+0.01
1985	1.08	1.23	+0.15	0.48	0.12	-0.36
1986	1.98	2.38	+0.40	1.11	0.87	-0.24
1987	1.81	1.89	+0.08	1.09	0.96	-0.13
1988	0.69	0.98	+0.29	0.36	1.36	+1.00
1989	0.32	0.62	+0.30	0.58	0.32	-0.26
1979-89	\$7.33	\$8.26	+\$0.93	\$4.20	\$5.36	+\$1.16

*Adjusted using 10-year trend target yield differentials and 7 cents for each bushel of wheat and 3 cents for each bushel of corn.

Figure 2 - Actual Yields



\$1.16/bu for the entire ten years and for wheat \$0.93/bu. Higher payments would have been received in drought years and lower payments in years of normal weather. (The very high yields achieved in 1990 would revise the estimates for the total period by a small amount.) Under this system, deficiency payment rates would increase substantially during drought years and fall modestly during years of favorable weather. If operated this way, the program would be a partially self-financing crop insurance/ disaster aid program.

State, county, or even individual farm yield data can be used as target price adjustors. To do so would increase the administrative burden, but it would make the program more sensitive to the needs of farmers experiencing different weather and crop yield conditions.

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Practical Feasibility

Making a system of adjusting target prices for variations in yield acceptable depends on how it is applied. There is no technical reason why it can not work. However, adjusting target prices at the national level and giving all producers higher payments when drought is a regional phenomenon is unlikely to receive widespread support. Growers in regions unaffected by drought would benefit twice — once with higher crop prices and again because of higher target prices. To be deemed equitable and acceptable, payments would likely have to be targeted to drought areas.

One means of accomplishing this would be to limit the application of higher target prices to counties that have been designated disaster counties.

This would make participating farmers in these counties eligible for larger target price payments during drought years. If more drought protection were desired, the current limitation on farm program payments could be lifted temporarily to accommodate to conditions in these counties.

There is one down side to restricting application to drought disaster counties. The application of the adjusted target prices would then be limited to years when yields decline, and the program would operate only to increase payments to stricken farmers. There would be no automatic reduction in payments and no budget savings in years when actual yields were above target yields.

This is a decided disadvantage at a time when there is a well-known budget crisis, but is likely not a severe enough problem to draw attention away from the other potential advantages of the proposal.