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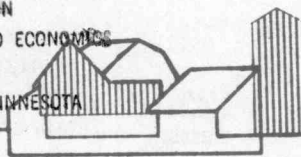
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### Drought triggers food price concerns

Widespread drought conditions have raised concerns about the implications for crop production this year and the resulting pressures that might be forthcoming in retail food prices. While field crops, fruits, and vegetables have suffered varying degrees of irreversible damage from the drought, it is, as yet, difficult to assess the extent of overall production losses that will result. Nevertheless, most observers are expecting an acceleration in retail food prices. While it is difficult to project the amount of acceleration, a review of food price trends associated with past droughts offers hope that any pending drought-related surge in food prices may be fairly modest and short-lived.

Much of the United States is feeling the effects of this year's drought, regarded by some as shaping up to be the worst since the 1930s. The hardest hit areas stretch from the upper Plains States, through the Great Lakes States and the Corn Belt, and into states in the south and southeast. Although conditions in these areas vary, it is clear that such field crops as hay, oats, barley and spring wheat have suffered extensive, irreversible damage and that the grazing capacity of pasture and rangeland has been substantially reduced. In addition, several major vegetable crops grown for processing in the Great Lakes region, such as peas, sweet corn, and beans, have also suffered extensive setbacks this year. Corn and soybeans, the major field crops in the Corn Belt and most Great Lakes states, are also under considerable stress and, as of late June, in crucial need of rain. But except in areas where the drought prevented planting or caused poor seed germination, corn and soybean plants are capable of making considerable recoveries from drought stress if subsequent conditions improve. Time is running out for the needed improvement in moisture conditions, particularly for corn, and longer-range weather forecasts are not encouraging. Yet if weather conditions were to turn for the better, soybean prospects could improve considerably.

It is always difficult to assess drought damage prior to completion of the actual harvest. But the difficulties this year have been compounded by the unusually early occurrence of the drought. The droughts of past years have been concentrated more in the summer months. The unusually dry conditions of this year became evident by spring and have grown progressively

worse. The early drought of this year may result in yield damage to a wider variety of field and food crops than has been the case in past "summer" droughts. But there are no recent historical comparisons by which to judge the damage from a drought that extends from early spring until well into the summer.

The table on page 2 summarizes the trends in prices received by farmers and in retail prices for food and all consumer items (as measured by the Consumer Price Index) that were associated with major droughts in 1974, 1980, and 1983. National average per acre corn and soybean yields fell sharply in each of those years, with the 1983 declines of 28 percent for corn and 17 percent for soybeans marking the steepest declines. Both farm and consumer price trends in past droughts varied widely. Much of that variation probably was due to different underlying trends in the farm sector and the overall economy. In evaluating the relevancy of past drought-related price trends to the developments that might unfold with this year's drought, it is important to recall the different underlying trends that were associated with the earlier droughts. With respect to overall economic trends, both the 1974 and the 1980 drought occurred at a time when the economy was experiencing very sluggish growth and brief periods of recession. In contrast, the 1983 drought occurred in the early stages of an economic recovery that has continued to the present. The 1974 and the 1980 droughts also coincided with periods of double-digit inflation that stemmed largely from the twin episodes of an "energy crises". The developments leading up to the 1974 drought were also unique in that price controls, originally imposed in 1971, were winding down. In contrast, the 1983 drought coincided with a far more modest inflation rate that more nearly parallels the 4 percent rise in consumer prices leading up to this year's drought.

The past droughts were also associated with differing trends in the value of the U.S. dollar with respect to other major foreign currencies, a factor that has some relevancy in the response of foreign demand for U.S. farm commodities to a drought. The 1974 drought coincided with a weakening dollar that, in general, continued to drift down to a bottom at about the time of the 1980 drought. By the time of the 1983 drought, the value of the dollar was substantially higher and eventually peaked in early 1985. Subsequent declines

### Trends in farm and consumer prices associated with past drought years

	Year before drought	Year of drought		Year after drought
		First 2 quarters	Entire year	
<b>1974 Drought</b>				
Time interval	1973-II to 1974-II	1974-II to 1974-IV	1974-II to 1975-II	1975-II to 1976-II
%change in*				
Farm prices**	3.3	8.8	2.1	4.8
CPI-food	15.5	5.2	8.1	4.4
CPI-all items	10.6	6.1	9.7	6.1
<b>1980 Drought</b>				
Time interval	1979-II to 1980-II	1980-II to 1980-IV	1980-II to 1981-II	1981-II to 1982-II
% change in*				
Farm prices**	-8.4	11.2	9.6	0.2
CPI-food	7.0	5.5	9.0	4.7
CPI-all items	14.5	4.5	9.8	6.8
<b>1983 Drought</b>				
Time interval	1982-II to 1983-II	1983-II to 1984-IV	1983-II to 1984-II	1984-II to 1985-II
%change in*				
Farm prices**	-3.9	-0.5	5.0	-7.8
CPI-food	2.2	0.3	3.3	2.5
CPI-all items	3.3	2.1	4.3	3.7

\*All percent changes are based on the differences between the beginning and ending quarterly averages for the quarters indicated.  
 \*\*Figures shown for the 1974 drought are based on the index of prices received by farmers for all farm products. For the 1980 and 1983 droughts, the figures are based on the index of prices received by farmers for food commodities.

have pulled the dollar down to levels nearly comparable to the 1980 lows.

Underlying trends in the farm sector also varied widely in past droughts. Carryover stocks of grains and oilseeds had already been pulled down to extraordinarily low levels just prior to the drought-reduced 1974 harvest, reflecting the initial surge in exports that followed the resumption of U.S. grain sales to the USSR in mid 1972. These conditions helped trigger an explosion in retail food prices well ahead of the 1974 drought. The tonnage of U.S. agricultural exports continued to grow rapidly (despite periodic embargoes) reaching a peak in the fiscal year that ended with the 1980 drought. By that time, an expanded domestic crop acreage and a marked 5-year liquidation of the beef cow herd (largely triggered by the tight grain supplies of the mid 1970s) had permitted a rebuilding of carryover stocks to more traditional levels. With exports weakening in the early 1980s (a trend that continued through fiscal 1986) carryover stocks continued to accumulate, reaching levels widely regarded as too burdensome. In retrospect, however, the large carryover stocks minimized the supply disruptions that followed the 1983 shortfall in production; a shortfall that reflected both extensive drought damage to per acre yields and the sharp cuts in crop acreage from the introduction of the "Payment-in-Kind" Program that year. Over the intervening years, carryover stocks have been replenished to "burdensome" levels and then pulled somewhat lower by farm program-induced cuts in acreage and

the recent upturn in exports. As a buffer against the uncertainties of the 1988 drought, carryover stocks of grain are large, roughly comparable to the situation leading up to the 1983 drought. Carryover stocks of soybeans, however, more nearly equate with the relatively tight situation the 1974 drought.

While trends in farm and consumer prices have varied in past droughts, some interesting tendencies are still apparent. For instance, trends in retail food prices more nearly parallel the inflation rate (as reflected in the CPI for all items) than the far more volatile index of prices received by farmers. Moreover, in each of the three most recent drought episodes, the rise in retail food prices over a four-quarter period beginning with the onset of the drought was less than the rise recorded in the overall Consumer Price Index. And in each case, the rise in retail food prices moderated considerably over a four-quarter period beginning a year after the onset of the drought.

Major droughts typically lead to an acceleration in the rate of food price increases. But several factors tend to dampen the rise at the retail level and to limit the time period over which the rise occurs. A major factor that damps the drought-related surge in food prices relates to the comparatively minor share of retail food expenditures that is represented in the farm value of raw food commodities. On average over the past four years, the farm value of domestically-produced raw food commodities has been equivalent to about 26 percent of all consumer food expenditures, including expenditures in food-service establishments. In terms of a fixed market basket of domestically-produced foods acquired in grocery stores, the farm value component averaged only slightly higher, 31 percent. The remaining share encompasses the assorted costs of processing, shipping, packaging, and retailing food beyond the farm gate. Moreover, for foods that tend to have the biggest cuts in supply due to a drought (such as cereals and bakery products, oilseeds, fruits and vegetables) the farm value component accounts for an even smaller share of the retail value. Hence, as long as food processing and distribution costs are held in line, a surge in the farm value of foods would normally translate into a much smaller rise at retail.

Various production responses that might be triggered by a drought also tend to damp the amount and duration of any resulting surge in retail food prices. As has been the case this year, prices of crops most directly affected by the drought-reduction in supplies tend to rise sharply with the onset of the drought and remain at a high level for several months. For most grains and oilseeds, the higher crop prices encourage expanded plantings for the next production cycle, both domestically and elsewhere in the world. Domestically, the crop production response next year to



**The farm value of most foods represents a minor share of the retail cost**

	Farm value as percent of retail cost*
Overall market basket of food	31
Cereals and bakery products	9
Fresh fruits	24
Fresh vegetables	26
Processed fruits and vegetables	20
Fats and oils	24
Meats	46
Poultry	52
Dairy products	45
Eggs	60

Source: USDA.

\*Average of annual data for 1984-1987

a drought this year could be enhanced considerable if, as expected, government price support programs are altered to permit a large share of the roughly 54 million acres of cropland held out of production this year to be planted next year. While the production response is about a year for most field crops raised domestically, different crop planting and harvesting schedules in Southern Hemisphere countries can shorten the world-wide production response to about 6 months.

For some crops, the domestic production response to high prices caused by a drought can be less than a year. For instance, in areas of the U.S. with longer growing seasons, soybeans can be double-cropped, typically following wheat harvest. Undoubtedly, if the drought abates soon, more farmers than has been the case in recent years will attempt to double crop soybeans this year. In addition, some vegetables are characterized by a very short growing season and multiple harvests within a year. Undoubtedly, the drought-related production cuts to vegetables in the Great Lakes Region this summer will trigger expanded acreage for harvest yet this year in other vegetable producing areas of the United States, as well as in Mexico and other Central and South American vegetable producing countries. Through imports and geographical diversification domestically, the short growing season for some vegetables permits a relatively quick recovery in available supplies.

The production response of livestock farmers to a drought often partially damps, in the short run, the pressure on retail food prices. The drought-induced surge in feed costs forces some livestock and poultry producers to scale back their operations. But over varying periods of time, the scaling-back process can lead to increased supplies of, and lower retail prices for, meat. Among poultry producers, the period of increased supplies as a result of culling breeder flocks is fairly short. In a matter of a few weeks, the reduced breeder flock translates into fewer egg hatchings and, in another few weeks, reduced broiler slaughter. For hog farmers, the period is somewhat longer—a matter of six or more months—as the culling period overlaps

the time required to finish the existing "pipe-line" supplies of hogs up to slaughter weight. For cattle the period of increased supplies can be considerably longer and the drought-related bulge in supplies can be more pronounced. The more pronounced bulge in beef supplies relates to the culling of the breeding herd, the longer time period required to finish existing cattle to slaughter weight, and the alternatives for feeding cattle in commercial feedlots or on range and pasture. In times of major droughts, there is a tendency to move cattle from dried-up pastures directly to slaughter or to feedlots. While response patterns among cattlemen vary, droughts can result in a temporary swelling in beef supplies for a year or more. But since the inventory of beef cows is already at the lowest level in over two decades, any bulge in cattle marketings from this year's drought would likely be shorter than normal.

While the extent of this year's drought is not yet certain, it seems probable that retail food prices will rise faster in the months ahead. However, projections by various analysts of the extent of the acceleration vary widely. Top USDA officials have suggested that the drought might add 1 percentage point to the average annual rise in retail food prices this year and up to 2 percentage points next year. This has been translated to imply a rise of 3 to 5 percentage points this year and a rise of perhaps as much as 6 percent next year. Other analysts have forecasted even larger increases, with the majority appearing to suggest a rise of 7 to 9 percent for next year. Until the drought has played out and assessments of the damage are complete, it will be difficult to confidently predict the likely impact on retail food prices. But assuming that the overall inflation rate holds fairly stable (thus holding the line on food processing and distribution costs) historical patterns from past droughts offer some hopes that the rise in retail food prices may hold at the lower end of the range in recent projections.

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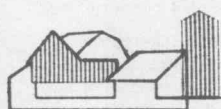
## Selected Agricultural Economic Indicators

	Latest period	Value	Percent change from		
			Prior period	Year ago	Two years ago
<b>Receipts from farm marketings (\$ millions)</b>					
Crops*	February	10,127	-23.4	-11	4
Livestock	February	4,180	-37.1	22	5
Government payments	February	5,876	-10.5	7	16
	February	71	317.6	-97	-90
<b>Real estate farm debt outstanding (\$ billions)</b>					
Commercial banks	December 31	14.5	2.6 <sup>†</sup>	14	27
Federal Land Banks	December 31	32.7	-6.9 <sup>†</sup>	-13	-27
Life insurance companies	December 31	9.89	-1.8 <sup>†</sup>	-10	-16
Farmers Home Administration	December 31	10.1	0.1 <sup>†</sup>	-3	-3
<b>Nonreal estate farm debt outstanding (\$ billions)</b>					
Commercial banks	December 31	29.1	-5.0 <sup>†</sup>	-7	-18
Production Credit Associations	December 31	9.17	-6.1 <sup>†</sup>	-15	-35
Farmers Home Administration	December 31	16.0	-1.1 <sup>†</sup>	-2	-4
<b>Interest rates on farm loans (percent)</b>					
7th District agricultural banks					
Operating loans	April 1	11.06	-2.0 <sup>†</sup>	2	-11
Real estate loans	April 1	10.47	-2.1 <sup>†</sup>	2	-11
Commodity Credit Corporation	July	7.50	3.4	9	11
<b>Agricultural exports (\$ millions)</b>					
Corn (mil. bu.)	April	3,054	-8.2	35	44
Soybeans (mil. bu.)	April	167	0.8	-10	186
Wheat (mil. bu.)	April	65	-13.0	21	-19
	April	156	3.9	115	142
<b>Farm machinery sales<sup>P</sup> (units)</b>					
Tractors, over 40 HP	May	4,264	-17.5	21	0
40 to 139 HP	May	3,382	-12.4	15	9
140 HP or more	May	882	-32.6	48	-25
Combines	May	210	15.4	91	51

\*Includes net CCC loans.

<sup>†</sup>Prior period is three months earlier.

<sup>P</sup>Preliminary



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