

Large supplies of meats, grains cut recent food price increases

Food prices helped to hold down the overall rate of inflation during the first half of 1981, although a resurgence took place in the third quarter; weather conditions and long-term production decisions are major factors in agricultural markets

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Food price increases accelerated to double-digit rates in 1978 and 1979, slowed somewhat through early 1980, then rose sharply during the second half of the year because of a severe summer drought. Price hikes were much more moderate through the first half of 1981, primarily reflecting the large output and lower feed costs of meat and poultry producers. However, increases accelerated again during June–September 1981, spurred by an upturn in meat prices.

The Consumer Price Index (CPI) for food rose at a 4.5-percent seasonally adjusted annual rate during the first 6 months of 1980, then surged at a 16.3-percent pace for the rest of the year. In the first half of 1981, however, food prices at retail edged up at a 1.0-percent annual rate. Price increases accelerated from June to September, as the CPI for foods recorded a 10.9-percent yearly rate of advance. (See table 1.) At the producer level, food prices declined somewhat in the first half of 1980, then rebounded at a 16.9-percent annual rate during the second half. From December 1980 to September 1981, the Producer Price Index for finished consumer

foods slowed to a 3.0-percent yearly pace.

Food prices constitute 17.3 percent of the CPI for all items and 23.1 percent of the Producer Price Index for finished goods. Historically, food prices have been more volatile than other prices, alternately rising rapidly and contributing to inflation, then stabilizing or falling and thus moderating inflation. Food prices rose faster than non-food prices at both the retail and producer levels during 1978. Since the second quarter of 1979, they have risen more slowly than other prices in every quarter except for the third quarter of 1980 and, for the PPI only, the third quarter of 1981, when non-food producer prices showed their smallest increase since fourth-quarter 1972.

The following discussion focuses on some of the most significant price movements for foods and food-related commodities during the last 2 years. In some cases, we will refer to earlier periods to facilitate an understanding of the fundamental market forces underlying food price changes. Because many agricultural products normally follow multi-year production and marketing cycles, a longer term perspective enhances trend analysis. Seasonally adjusted data are used as a rule; however, unadjusted figures are cited where there is no stable seasonal pattern of price movement.

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Beef prices react to competition, weather

Beef and veal prices rose more than 20 percent in both 1978 and 1979. After declining at a seasonally adjusted 10.1-percent annual pace in the first half of 1980, the CPI for beef and veal climbed at a 22.8-percent rate from June to December. The index then fell at an annualized 14 percent through the first half of 1981. By the end of the third quarter, however, retail prices for beef and veal had turned up significantly, reflecting a surge in producer prices.

Processors' prices for beef and veal declined in 4 of the 5 quarters from December 1979 through March 1981; the exception was the third quarter of 1980, when searing summer heat damaged pastures and slowed cattle weight gains. Generally falling prices in 1980 and early 1981 reflected the large-scale liquidation of stock by cattle owners in the face of climbing interest rates and intense price competition from pork and poultry producers.

The U.S. Department of Agriculture estimates that the typical cattle production cycle lasts about 10 years—6 years of supply increases and 4 years of declines. Because it takes 28 months from the time a choice beef animal is bred to the time it is ready for sale, cattle producers cannot adjust to changing price and profit conditions as rapidly as poultry and pork producers. The last

full cattle cycle began in the late 1960's, when cattle producers were encouraged by rising beef prices to boost production. This expansion resulted in a record U.S. stock of 132 million cattle in 1975. The subsequent liquidation of large cattle herds greatly affected the 1980-81 supply.

In 1980, beef production was 1 percent above year-earlier levels, the first over-the-year advance since 1976. (See table 2.) This resulted from a 0.4-percent increase in cattle slaughter and, more importantly, a record-setting average dressed beef carcass weight¹ of 635 pounds. Dressed slaughter weights were relatively large in the first half of 1980, averaging nearly 643 pounds. Because the market for fed cattle was slow, many of these animals were over-finished when they were finally sold. At the same time, favorable weather conditions contributed to relatively heavy weights for nonfed slaughter cattle. The average dressed weight in the second half of 1980 fell to 628 pounds, in large part because of the drought, but had recovered to nearly 645 pounds by September 1981.

The pattern of price change for live cattle was about the same as that cited earlier for beef and veal at the processor level. Prices fell during most of 1980, except during the summer when the heat drove up grain and feed prices. Record interest rates further increased production costs late in the year. However, a glut of pork and poultry prevented beef prices from rising enough to cover these cost increases. Feedlot owners also operated at a loss during the year, despite falling prices for the cattle they purchased for fattening.

During the first half of 1981, an unusually high average dressed weight of nearly 644 pounds held beef production above the corresponding 1980 level. And, while the slaughter of fed animals declined slightly from 12.1 million head in 1980 to 11.9 million in 1981, there was a sharp rise, from 1 million to 1.6 million, in nonfed slaughter as a result of inadequate grazing capacity. Large supplies of other red meats and poultry, coupled with a sluggish economy, also contributed to lower prices for cattle during the first quarter. However, during the second quarter of 1981, the prices of slaughter animals turned up as supplies of both hogs and cattle declined, and demand by beef packers improved.

Pork prices follow beef trends

Like beef and veal prices, retail pork prices fell in the first half of 1980, climbed rapidly in the second half, and declined through May 1981 before turning up in the third quarter. They decreased sharply during periods of abundant supplies even though consumers were substituting pork for more costly beef. Prices surged in mid-1980, when intense summer heat resulted in slow weight gains and a large number of hog deaths.

The pork market in 1980-81 was very volatile, gener-

Table 1. Changes in retail and producer prices for selected foods, September 1979-81

Commodity and index	Relative importance, Dec. 1980	Percent change		Compound annual rate, seasonally adjusted except as noted, for 3 months ended—					
		Sept. 1979 to Sept. 1980	Sept. 1980 to Sept. 1981	1980		1981			
				Sept.	Dec.	Mar.	June	Sept.	
Consumer foods: ¹									
CPI	100.0	10.1	6.5	19.7	13.1	2.1	-0.1	10.9	
PPI	100.0	8.5	3.3	31.0	4.3	1.6	.5	7.0	
Beef and veal:									
CPI	9.8	9.2	-1.1	48.8	1.4	-19.4	-8.2	32.6	
PPI	12.1	3.6	-4.6	35.0	-11.6	-30.6	10.7	21.5	
Pork: ²									
CPI	4.7	7.8	6.9	87.2	12.0	-12.5	-7	34.2	
PPI	6.5	12.6	6.6	171.7	-2.7	-21.9	23.6	37.6	
Poultry:									
CPI	2.3	17.4	-2.7	89.0	10.3	-18.6	-11.7	13.0	
PPI	3.3	31.9	-16.5	262.0	-15.3	-22.7	-9.8	-17.7	
Sugar and sweets: ³									
CPI	2.9	28.0	.1	33.8	39.5	-11.1	-25.0	8.0	
PPI	4.8	57.2	-27.7	21.2	-1.9	-37.6	-28.6	-37.5	
Roasted coffee: ²									
CPI8	0	-19.0	-5.7	-30.0	-27.7	-6.8	-8.8	
PPI	3.6	-6.2	-11.6	-20.2	-21.0	-1.8	-22.7	1.9	

¹ Includes items not listed. The CPI includes prices of food away from home, which accounts for about 31 percent of the food index. The PPI for finished consumer foods does not reflect restaurant prices.

² Not seasonally adjusted in the CPI.

³ "Sugar and confectionery" in the PPI. Not seasonally adjusted in the PPI.

NOTE: Monthly data for the PPI have been revised through May 1981 to reflect the availability of late reports and corrections by respondents. For this reason, some of the figures shown above and elsewhere in this report may differ from those previously published.

ally characterized by large supplies and increased production costs. During the 1970's, most years had been profitable for pork producers; the pork production cycle (9 to 10 months) is considerably shorter than the cattle cycle, and permits more rapid adjustments to changing market conditions. But while the domestic inventory of hogs and pigs shrank for the first time in 4 years, the 64.5 million head count as of December 1980 was still relatively large. Thereafter, pork production remained high despite operating losses. At the same time, burdensome interest rates discouraged storage of meat, adding to already ample supplies.

The changing character of the industry in recent years has greatly influenced prices, as well as breeding and marketing decisions. There appear to be divergent interests between large producers, with temperature-controlled piggeries and other sophisticated equipment, and smaller farmers, who face more severe credit and cost problems. The relatively high fixed capital costs incurred by larger producers constitute an incentive for them to maintain output even in the face of higher operating costs. During 1977, producers with 500 or more hogs accounted for 35.3 percent of total production; by 1980, this share had increased to 42.3 percent. Future retail pork prices will also be greatly influenced by those packers who are marketing boxes of vacuum-packed chunks; this practice, pioneered by beef packers, reduces the need for butchers in retail outlets.

Poultry producers have flexibility

The poultry component of the CPI declined at a seasonally adjusted annual rate of 8.5 percent in the first half of 1980, then turned up at a 44.4-percent yearly pace in the second half. The 1980 summer heat affected chickens much more than other livestock, and millions of chickens died. During the first half of 1981, retail poultry prices decreased at a 15.2-percent annual rate, but rebounded at an annualized 13 percent over the quarter ended September 1981.

The poultry production period is even shorter than

the pork cycle. Because the time from fertilization to market-ready chicken is only about 11 weeks, poultry farmers can respond quickly to changing market conditions. However, in anticipation of a cutback in pork supplies, poultry producers have expanded operations in recent years, even in the face of unfavorable prices. For example, during the spring of 1981, producers estimated that they were losing as much as 12 cents per chicken sold, largely because of earlier increases in the costs of grains and energy. Nonetheless, broiler production in the first half of 1981 was 4 percent above that for the same period in 1980.

Grains, oilseeds, and animal feeds

Prices for grains and feeds turned down in 1981, following 3 years of general increase. Even soybean prices, which had displayed no clear trend in recent years, began to fall sharply in late 1980 and continued to edge down in most subsequent months. (See table 3.) This widespread easing of crop prices reflected both short-term influences, such as good weather and weak export demand, as well as long-term cyclical factors.

The 1970's witnessed a tremendous expansion of world trade in grains and oilseeds. The share of U.S. farm cash receipts accounted for by exports grew from an average of 13.9 percent in the 1960's to 22.1 percent during the 1970's. By 1980, this proportion was approaching 30 percent. As a result, farm prices have become increasingly sensitive to conditions abroad.

Export demand boosts prices. During the summer of 1972, the Soviet Union purchased massive amounts of American grain to alleviate a drought-related shortage. Wheat prices climbed rapidly as a result, and by January 1974 were 4 times their June 1972 level. The reaction in the corn market was more delayed; prices began to rise in late 1972, then tripled over the next 2 years. The declining exchange value of the U.S. dollar during this time further stimulated foreign demand for grains and soybeans, and consequent price increases.

The explosion of grain prices during 1972-74 pushed up prices for bread, animal feeds, livestock, and meats; this ultimately translated into a substantial increase in the overall rate of inflation. As a result, U.S. farm policy, which historically had been directed toward limiting acreage planted, disposing of chronic surpluses, and supporting prices, was modified to encourage farmers to maximize crop production. This move and the incentive of higher crop prices did lead to bigger domestic harvests. Soon, however, harvests abroad also improved, grain markets were swamped with excess supplies, and wheat and corn prices tumbled from late 1974 through the summer of 1977. During the latter year, the government reinstated price supports, and initiated a new program to help farmers purchase their own grain storage

Table 2. Annual commercial production of beef, pork, and chicken broilers, 1971-81

[In millions of pounds]

Year	Beef	Pork	Broilers
1971	21,697	14,606	7,724
1972	22,218	13,460	8,147
1973	21,088	12,578	8,025
1974	22,844	13,583	8,126
1975	23,673	11,314	8,127
1976	25,667	12,219	9,067
1977	24,986	13,051	9,418
1978	24,010	13,209	10,129
1979	21,261	15,270	11,219
1980	21,470	16,431	11,334
1981 ¹	22,006	15,452	11,997

¹ Data are preliminary.

SOURCE: U.S. Department of Agriculture.

Table 3. Changes in producer prices for grains, feeds, and livestock, 1979-81

Grouping	Percent change		Compound annual rate, seasonally adjusted except as noted, for 3 months ended				
	Sept. 1979 to Sept. 1980	Sept. 1980 to Sept. 1981	1980		1981		
			Sept.	Dec.	Mar.	June	Sept.
Grains:							
Wheat	3.5	5.1	36.0	-0.6	-4.3	1.1	13.9
Corn ¹	26.4	20.2	194.8	3.7	3	0	-57.9
Soybeans	17.4	19.0	374.6	-25.2	35.7	9.1	1.6
Feeds:							
Grain by-product feeds	7.1	13.4	106.9	14.1	40.0	48.8	-26.5
Vegetable cake and meal feeds	25.0	13.8	436.1	-19.4	-39.7	14.0	4
Formula feeds	7.0	8.3	88.4	4.6	24.6	5.0	-6.3
Miscellaneous feeds except pet food ²	(²)	12.7	351.2	13.2	36.9	4.4	1.6
Livestock:							
Cattle	7	5.5	44.0	14.2	33.4	36.4	2.2
Hogs	20.6	6.0	299.8	-7.2	-50.2	150.7	8.7
Live poultry	38.9	18.4	303.6	1.4	32.7	8.2	29.0

¹ Not seasonally adjusted.² Data not available.

facilities. It was hoped that by enabling farmers to withhold their crops from the market in times of low prices, the new program would help to stabilize prices and farm earnings in the future.

The recent years. Wheat and corn prices reversed their slide and began to rise substantially in late 1977, as poor overseas harvests and the declining value of the dollar again boosted sales and commodity prices. In response, farmers devoted more acreage to wheat and corn during 1978-81. (See table 4.)

For the most part, soybean prices moved independently of grain prices during the second half of the 1970's. Because U.S. soybean exports faced increased competition from Brazilian products, the large upward trend in corn and wheat prices during 1978-80 was not followed by soybeans.

Prices for grains and oilseeds turned down somewhat in late 1979 and early 1980 because of good harvests. However, the drought in mid-1980 caused severe damage to corn and soybean crops; total production and per-acre yields for both were nearly one-fifth below year-earlier levels. During third-quarter 1980, prices for corn advanced 31 percent and for soybeans, 47.6 percent. Because most of the winter wheat crop (which accounts for about 70 percent of total annual wheat production) had already been harvested by summer, and the remaining spring wheat fields were not affected as badly by the drought, wheat prices rose considerably less than those for other grains and oilseeds.

The sharp increase in animal feed prices during the third quarter of 1980 reflected both reduced harvests of the commodities from which they are manufactured and the damage caused to pasture lands by the intense summer heat. However, feed prices turned down in late 1980 and early 1981, in part because the relatively mild winter in livestock feeding areas dampened demand.

From late 1980 through the spring of 1981, prices for wheat and corn generally receded. A reduction in export demand resulted from the appreciation of the U.S. dollar in currency markets. At the same time, exceptionally high interest rates, which discouraged speculation in grain markets and induced firms to minimize their holdings of grain, lessened domestic demand. Soybean prices likewise decreased over this period, for similar reasons. However, the rate of descent was much steeper than that for grains, because bumper harvests in Brazil glutted the world market. A further negative impact on grain, soybean, and feed prices was the above-mentioned weakened demand for animal feeds.

Weather was relatively moderate during the summer of 1981, and rain was sufficient to permit steady growth. Prices for grains, oilseeds, and feeds plummeted as harvest estimates were raised throughout the summer. The latest statistics available indicate record production of wheat and corn, reflecting both increased area planted and higher yields per acre. Corn prices fell very sharply during the third quarter; wheat prices also declined, although not as rapidly. The soybean harvest was greater than in 1980, although smaller than in 1979, and prices edged down only slightly from June to September. Nevertheless, by the close of third-quarter 1981, prices for wheat, corn, and soybeans were almost as low as those prevailing before the 1980 summer drought.

Sugar prices reflect changing consumption patterns

The United States imports over a third of its sugar. A complex series of price supports and loan programs, combined with tariffs and duties, normally keeps domestic sugar prices above world prices. But because these supports constitute a floor rather than a ceiling, any large increases in world prices are quickly reflected in domestic markets.

Table 4. Selected production statistics for wheat, corn, and soybeans, 1976-81

Year	Area planted (million acres)			Area harvested (million acres)			Yield (bushels per acre)			Total production (million bushels)		
	Wheat	Corn	Soybeans	Wheat	Corn	Soybeans	Wheat	Corn	Soybeans	Wheat	Corn	Soybeans
1976	80.4	84.6	50.3	70.9	71.5	49.4	30.3	88.0	26.1	2,149	6,289	1,289
1977	75.4	84.3	59.0	66.7	71.6	57.8	30.7	90.8	30.6	2,046	6,505	1,767
1978	66.0	81.7	64.7	56.5	71.9	63.7	31.4	101.0	29.4	1,776	7,268	1,869
1979	71.4	81.4	71.6	62.5	72.4	70.6	34.2	109.7	32.1	2,134	7,939	2,268
1980	80.4	84.1	70.1	70.9	73.1	67.9	33.4	91.0	26.8	2,370	6,648	1,817
1981 ¹	88.8	84.3	68.1	80.7	74.1	66.9	34.1	109.2	31.0	2,750	8,097	2,076

¹ Data are preliminary.SOURCE: U.S. Department of Agriculture, *Agricultural Outlook*, October 1981.

Twice in the last decade world sugar prices have soared, only to plummet almost as rapidly. The principal cause of the 1974 run-up in prices was a failure of production to keep pace with demand; in 1980, the major factor was a sharp drop in production. Because sugar is a key ingredient in many processed foods, it has a broader impact on food prices than its direct consumption would indicate.

World sugar consumption grew every year for two decades prior to 1974 because of general population growth, and rising living standards in many Third World countries. However, sugar production increased more erratically. Despite record output in 1973 and 1974,² world stocks were lower at the end of the crop year in 1974 than in 1970. More significantly, stocks as a percentage of consumption fell sharply from 29.3 percent to 21.9 percent over the 1970-74 period. (See table 5.)

The shrinkage of stocks relative to consumption led to a doubling of world raw sugar prices from June 1971 to June 1973 to their highest level since 1964. Prices exploded in 1974, quintupling by year's end. Domestic prices rose more slowly at first as duties were lowered, but then climbed with world prices. However, by late 1974 it was clear that 1975 sugar production would not be as low as originally feared and total world consumption had declined for the first time in decades. As a result, prices fell sharply during the first half of 1975, although they remained above the 1973 level.

World production set new records each year from 1976 to 1978, and stocks became more closely aligned with consumption. Thus, a slight decline in production in 1979 did not seriously affect prices. In 1980, however, there was a sharp drop in output, reflecting poor harvests in several countries (most notably Cuba and the Soviet Union), and prices for raw sugar soared. World prices tripled from their 1979 level; domestic prices only doubled, however, owing to decreases in the level of import fees. In 1981, the world crop was slightly larger, but stocks fell again, this time to their lowest level since 1976 (the lowest since 1974 when expressed as a fraction of consumption).

Even so, a number of factors caused prices to start

falling by the end of 1980. World consumption declined in response to higher prices and increased use of sugar substitutes. At the same time, high interest rates and predictions of sizable output in 1982 discouraged speculation and the holding of large inventories, and many commercial users allowed their own buffer stocks to run down. Prices fell throughout the first three quarters of 1981, finally reaching early-1980 levels. Domestic prices followed the world price downward until import fees were resumed in mid-September.

As previously indicated, a peculiarity of the sugar market is the fact that close substitutes are available, the most important of which are corn syrups. Because the capacity to produce substitutes is fixed in the short run, their prices tend to rise and fall in tandem with that of sugar. However, the increased use of other sweeteners is apparently contributing to a long-term decline in per capita sugar consumption in some industrialized nations, such as the United States, Canada, and Japan, although consumption is still increasing in the Third World.

World markets determine cocoa prices

Because the United States imports all of its cocoa beans, the domestic price is determined by the world price. A small number of tropical countries are responsible for most of the world supply. The International Cocoa Agreement, designed to control supplies and prices, does not include either the Ivory Coast—currently the world's largest exporter—or the United States—the world's largest importer. Consequently, world prices depend primarily on market conditions.

World production of cocoa beans fluctuated widely over the last 10 years. Harvests were especially small in 1973 and 1977,³ boosting prices to new highs from which they never fully retreated. Production increased sharply from 1978 through 1981, with new records set in each of the last 2 years. As a result, prices declined sporadically from their late 1977 peak. Over the same period, consumption lagged behind production, and surpluses were recorded in every year since 1978; in particular, U.S. per capita consumption fell by almost a fourth from 1972 through 1977, and remained near the

1977 level through 1980. Over the years, periods of high cocoa prices have encouraged a gradual switch to chocolate substitutes. Consumption was further discouraged during 1980 by the rapid rise in the price of sugar, an important ingredient in most products containing cocoa.

Cocoa bean prices fell during most of 1980. Stocks reached record levels in 1981, and by June prices had fallen to their lowest level since 1976. The 1982 harvest, forecast to be large, may lead to the fifth consecutive year of surpluses, despite recent increases in per capita consumption in response to lower prices for both sugar and cocoa. Nevertheless, speculation regarding renewed efforts by the International Cocoa Agreement signatories to support prices caused an upturn in prices in the third quarter of 1981.

Coffee price trends

The United States imports virtually all of its coffee, 75 percent of which comes from Latin America. Therefore, the domestic price at the producer level follows the world price. Although there is an International Coffee Agreement, it is generally regarded as ineffective in moderating price swings as the supply situation changes. Consumers do not often see the effects of world price developments immediately because of long time lags as green coffee beans move from stockpiles to roasters. And the frequent use of coffee as a loss leader in retail stores also helps to divorce consumer price trends from producer price movements.

World coffee prices showed only moderate fluctuations during the early 1970's. However, in mid-1975, a number of developments adversely affected the world coffee crop. Most notable were a severe frost in coffee-producing regions of Brazil, which reduced that nation's 1976 output by 60 percent,⁴ and civil war in Angola, which resulted in a long-term 75-percent drop in pro-

Table 5. Selected global sugar statistics, annual world production, consumption, and stocks of sugar, selected years, 1965-82

[Million metric tons, raw value]

Crop year ¹	Production	Consumption	Ending stocks	Ending stocks as a percent of consumption
1965	64.5	58.3	16.6	28.5
1970	71.2	71.1	20.8	29.3
1971	70.7	73.5	19.0	25.9
1972	71.4	74.9	17.0	22.7
1973	75.1	77.7	17.3	22.3
1974	80.0	80.0	17.5	21.9
1975	78.5	77.0	19.1	24.8
1976	81.7	79.2	21.2	26.8
1977	86.3	81.9	25.0	30.5
1978	92.5	86.2	29.8	34.6
1979	91.2	89.6	30.6	34.2
1980	84.2	89.5	23.6	26.4
1981	86.8	88.4	21.3	24.1
1982 ²	95.8	92.0	25.1	27.3

¹ Crop year September through August, but includes the sugar harvests of several Southern Hemisphere countries which begin before September.

² Data are preliminary.

Source: U.S. Department of Agriculture.

duction. With supplies curtailed, coffee prices registered sharp increases until 1977, then declined until another, much less severe Brazilian frost in 1979 caused a brief surge. Prices fell to the 1979 pre-frost level during 1980 and the first half of 1981, as supplies again became plentiful. Another frost in Brazil during July 1981, although potentially severe, will not affect production and prices until the 1982 harvest.

Domestic per capita coffee consumption declined by nearly 40 percent from 1962 through 1981, while soft drinks, tea, and juices increased in popularity. Coffee consumption dropped sharply in 1977 because of high prices, recovered for 2 years, then resumed its downward trend in 1980. By 1981, it had reached its lowest level since records were started in 1950. □

FOOTNOTES

¹ A glossary of some of the technical terms used in this section:

— *Dressed beef carcass weight* represents the weight of slaughtered animals after removal of hides, hoofs, and internal organs.

— *Fed or feeder cattle* are animals given a diet of grains and formula feeds while in feedlots to enhance meat quality prior to marketing.

— *Nonfed cattle*, commonly called grass-fed cattle, are those that graze in crop fields already harvested or in pastures.

— *Over-finished cattle* are fed cattle with a high fat-to-meat ratio.

² Crop years ending August 31.

³ Crop years ending September 30.

⁴ Crop year beginning July 1.