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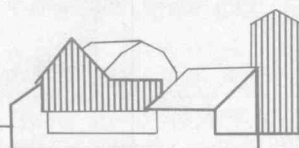
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FRB CHICAGO

**AGRICULTURAL LETTER**

FEDERAL RESERVE BANK OF CHICAGO

September, 1991

Number 1820

The corn and soybean harvest in perspective

The U.S. Department of Agriculture recently released updated estimates of this year's anticipated corn and soybean harvest. As most observers expected, the latest estimates were lowered 2 to 3 percent from the projections made in August. The revised estimates imply that this year's drought-stressed corn and soybean harvest will be down 8 and 5.5 percent, respectively, from last year. Despite lackluster forecasts for usage during the 1991/92 marketing year, the smaller harvest portends smaller carryover stocks a year from now and higher average prices in the interim.

The latest estimates indicate that U.S. farmers will harvest nearly 7.30 billion bushels of corn this year, down from 7.93 billion last year. The estimate assumes some 68.7 million acres of corn will be harvested for grain at an average yield of just over 106 bushels per acre. The acreage estimate, if achieved, would mark a rise of nearly 3 percent from last year and be the highest since 1986. The indicated per acre corn yield would be down from the near-record of 118.5 bushels last year and the fourth lowest of the last 13 years. In the last three major drought years of 1980, 1983, and 1988, corn yields fell to 91.0, 81.1 and 84.6 bushels per acre, respectively.

The estimate of soybean production was placed at nearly 1.82 billion bushels, down from last year's harvest of 1.92 billion bushels. Farmers are expected to harvest some 58.6 million acres of soybeans this fall, up nearly 4 percent from last year. Soybean yields are forecast to average 31.0 bushels per acre, down from last year's near-record of 34.0 bushels but well above the 26 to 27 bushels per acre experienced during the major drought years of the 1980s.

Harvest prospects in states comprising the Seventh Federal Reserve District vary considerably. In terms of state averages, per acre yields in Wisconsin and Michigan are holding up fairly well. Alternatively, farmers in Indiana and Illinois are experiencing some heavy yield losses. But even in those two harder-hit states, per acre corn and soybean yields are expected to average 25 percent or more above the lows set in earlier drought years. For the five District states combined, the average corn yield this year is expected to drop to 106 bushels per acre. In comparison, District-wide corn yields since the start of the 1980s have ranged from a low of 78 bushels (in 1988) to a high of 129 bushels (in 1986) and averaged 113 bushels per acre. The soybean yield for the five District states is expected to average 35.7 bushels per acre, down from the near-record of

40.0 bushels last year but well above the most recent low of 28.6 bushels experienced in the 1988 drought year.

In addition to comparisons with the harvests of past years, this year's crops are also being judged on how well they will stack up with usage in the months ahead. To a considerable extent, the bullish price implications of this year's drought losses have been countered by the sharp downturn in exports that emerged over the past year and the added uncertainties that recently surfaced about export shipments in the future. Current estimates indicate that corn exports during the 1990/91 marketing year that ended with August were off more than a fourth from the near-record of 2.37 billion bushels reached the year before. Domestic use of corn, in contrast, rose about 5 percent and closely approximated the peak of 6.04 billion bushels set three years ago. Since the decline in exports exceeded the rise in domestic usage, total disappearance of corn for the 1990/91 marketing year retreated to 7.75 billion bushels from the all-time high of 8.11 the year before.

Soybean usage during the past year exhibited a 10 percent decline in exports and a 3.4 percent rise in the amount of soybeans crushed domestically into oil and meal. The export tally, now estimated at 560 million bushels, was the second lowest for any year since the mid-1970s and well

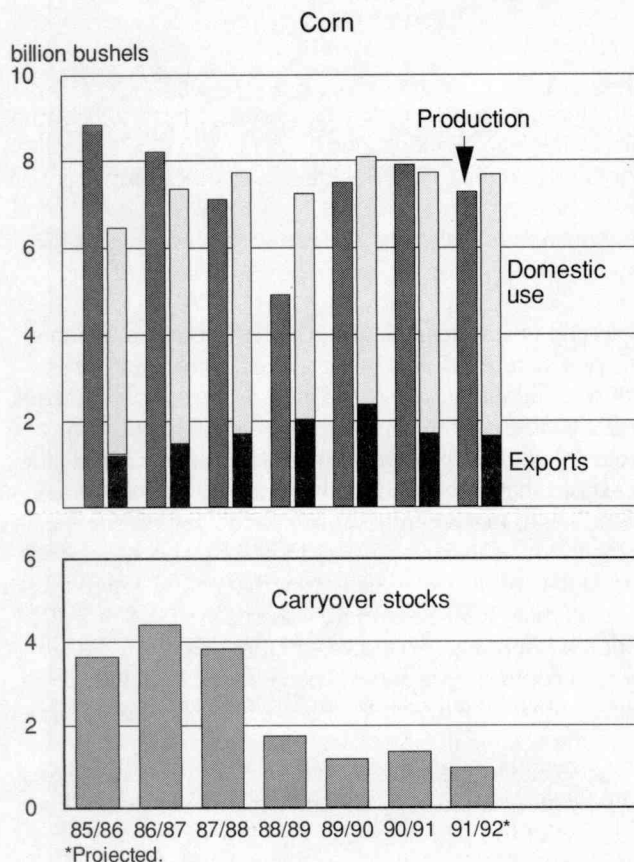
1991 corn and soybean production estimates for District states

	Bushels per acre			Total production*	
	1985-89 average	1990	1991*	Million bushels	Percent change**
Corn					
Illinois	120	127	105	1,166	-12
Indiana	119	129	93	525	-25
Iowa	119	126	112	1,322	-15
Michigan	98	115	105	242	1
Wisconsin	104	118	115	356	1
District states	116.3	125.4	106.3	3,611	-14
United States	111.6	118.5	106.1	7,295	-8
Soybeans					
Illinois	37.5	39.0	34.0	309	-13
Indiana	36.5	41.0	35.0	155	-10
Iowa	38.6	41.0	38.0	331	2
Michigan	32.8	38.0	35.0	49	12
Wisconsin	33.2	41.0	37.0	20	15
District states	37.3	40.0	35.7	864	-5
United States	32.1	34.0	31.0	1,817	-5

*USDA projections as of September 12.

**From previous year.

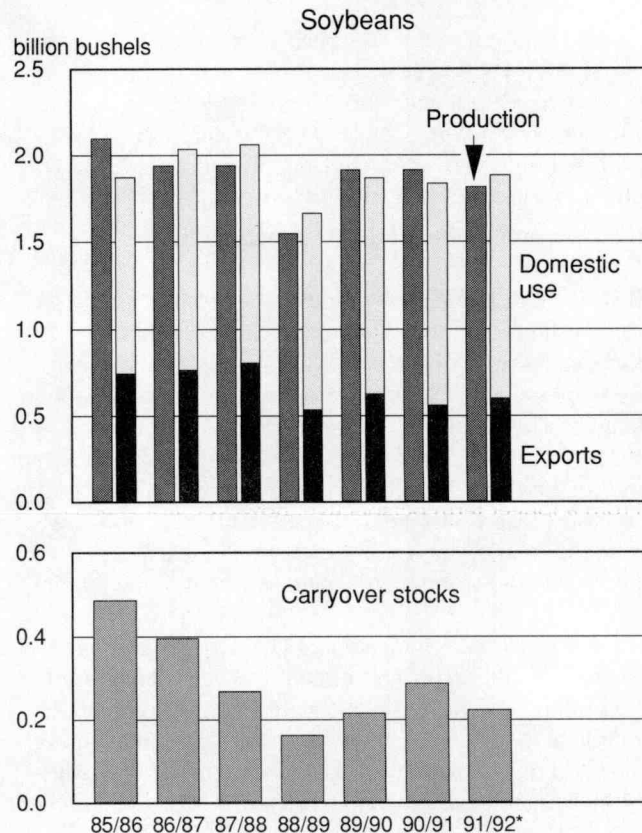
Production, usage, and carryover stocks



short of the 1981/82 peak of almost 930 million bushels. The 1990/91 estimate of crushings and other domestic usage, at 1.28 billion bushels, matches the high set four years ago. Total usage of soybeans during the past year declined slightly and, at 1.84 billion bushels, was the third or fourth lowest since the late 1970s.

Corn and soybean usage in the year ahead will be bounded by the supplies provided from this year's harvest and the available carryover stocks. Within that constraint, however, projections of usage in the year ahead are subject to numerous uncertainties. In particular, the restructuring of the political and economic ties among the republics of the USSR pose numerous questions about export shipments. It is widely assumed that the restructuring will add considerably to the bottlenecks that often plague the internal distribution of food and other commodities in that part of the world. The resulting food shortages in some republics could be further aggravated by the lack of hard currencies (by which to acquire imports) and by the USSR's smaller grain harvest this year. But to what extent those needs for more imports will translate into commercial and/or government-assisted exports of U.S. grains and soybeans is unknown at this juncture.

In considering the size of this year's harvest and the numerous uncertainties regarding usage in the months ahead, USDA analysts believe that corn exports in the 1991/92



marketing year will drift somewhat lower while soybean exports could recover some of the losses experienced during the past year. Domestically, USDA analysts expect the expansion now underway for livestock and poultry will lead to increased feed usage. However, total use of corn in the year ahead is expected to be unchanged. Alternatively, total use of soybeans is expected to rise 3 percent to about 1.89 billion bushels.

With usage expected to exceed production, carryover stocks of corn by the end of the 1991/92 marketing year are likely to fall to 1.10 billion bushels, down from the 1.53 billion now estimated to have been on hand as of September 1 and the lowest since the end of the 1983/84 marketing year. Soybean stocks are projected to retreat to a three-year low of 250 million bushels. In recognizing both the projected tightening in carryover stocks and the uncertainties behind the production and usage forecasts, the USDA suggests that corn prices during the 1991/92 marketing year might average somewhere between \$2.40 and \$2.80 a bushel. In comparison, corn prices averaged \$2.30 during the past year and \$2.36 during the 1989/90 marketing year. Soybean prices, which averaged about \$5.75 a bushel the last two marketing years, are forecast to average somewhere between \$5.25 and \$6.75 a bushel during the current marketing year. During the first two weeks of September, corn and soybean prices in central Illinois averaged a little over \$2.40 and \$5.75 a bushel, respectively.

Capital expenditures

Capital expenditures by farmers have been trending upward since 1986. But lower farm earnings and evidence of a leveling-off in tractor and combine sales have damped prospects for further sizable gains this year. Recent estimates compiled by the U.S. Department of Agriculture show that gross capital expenditures by farmers approximated \$13.4 billion in 1990, up 6 percent from the previous year. About 60 percent of the total represented expenditures for tractors and other farm machinery and equipment. So far this year, unit retail sales of tractors are down 8 percent while combine sales are up 4 percent.

Capital expenditures by farmers last year were up nearly 60 percent from the cyclical low recorded in 1986 (in nominal dollar terms) the highest for any year since 1981. From a longer term perspective, however, last year's expenditures fell short of the levels that prevailed during the latter half of the 1970s and early 1980s. During the speculative-boom conditions that occurred in agriculture during the 1970s, annual capital expenditures in the farm sector rose three-fold and peaked at \$20.1 billion in 1979.

Most components contributed to last year's increase in capital expenditures. The exception was expenditures for trucks and autos which were essentially unchanged from the \$2.5 billion recorded the year before. Expenditures for service buildings and structures in 1990 rose 5 percent to \$1.6 billion while expenditures for land improvements rebounded 16 percent to reach \$1.1 billion. Expenditures on farm tractors rose 4 percent in 1990 to an estimated \$2.9 billion. Expenditures on other farm machinery and equipment rose 8 percent to over \$5.3 billion. The distribution of the latter amount by type of farm machinery and equipment is not specified in the estimates of capital ex-

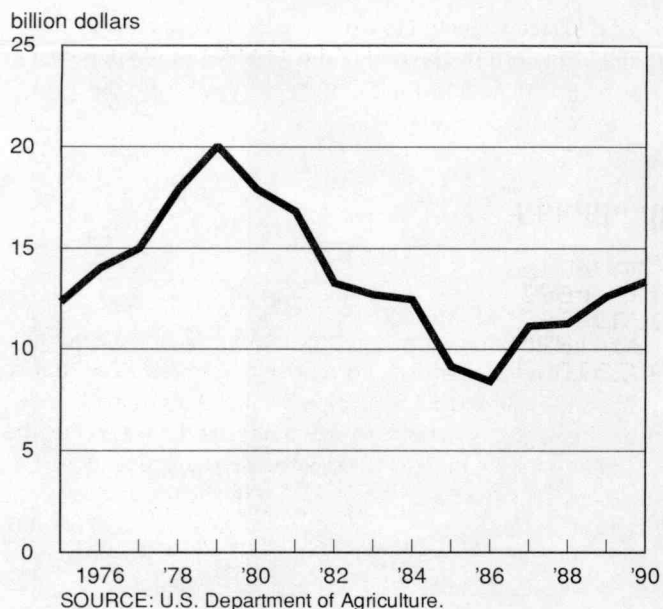
penditures. However, the USDA's Farm Costs and Returns Survey suggests that harvesting equipment accounts for 25 to 30 percent of the expenditures for farm machinery and equipment other than tractors. Another 16 percent is typically for haying equipment. Expenditures to acquire equipment for tillage, planting, and applying chemicals absorbs about 20 percent. The remainder is distributed among livestock and poultry equipment, machine accessories and shop equipment, and miscellaneous machinery and equipment.

The level of farm capital expenditures likely to occur this year is difficult to project. The available evidence, although limited, suggests the trends for various components could be mixed. The expansion underway among hog farmers, coupled with the increased number of cattle in feedlots and the modest rebuilding of beef cow herds, implies that livestock producers are spending more on buildings and structures and the equipment needed to complement those facilities. Conversely, dairy farmers have probably cut back on capital expenditures as a result of sharply lower earnings this year. Moreover, reports from the Equipment Manufacturers Institute (EMI) note a weaker performance in unit retail sales of farm tractors and combines.

The monthly EMI reports show that combine sales were particularly strong during the spring months, no doubt reflecting some concessional sales programs to reduce inventories among dealers and manufacturers. But the pace slackened considerably in July, limiting the year-over-year gain in unit retail sales of combines for the first seven months of 1991 to 4 percent. Tractor sales also picked up in May and June, but not enough to offset declines earlier in the year. As a result, unit retail sales of farm tractors with 40 or more horsepower through July were off 8 percent from a year ago. In terms of the impact on dollar expenditures to acquire machinery and equipment, the decline in unit sales was especially apparent for the large tractors. For instance, unit sales of four-wheel drive tractors through July were off more than a fifth.

Gary L. Benjamin

Capital expenditures by farmers



AGRICULTURAL LETTER (ISSN 0002-1512) is published monthly by the Research Department of the Federal Reserve Bank of Chicago. It is prepared by Gary L. Benjamin, economic adviser and vice-president, and members of the Bank's Research Department, and is distributed free of charge by the Bank's Public Information Center. The information used in the preparation of this publication is obtained from sources considered reliable, but its use does not constitute an endorsement of its accuracy or intent by the Federal Reserve Bank of Chicago.

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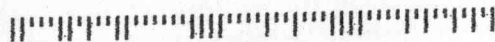
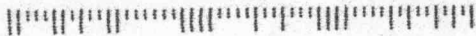
Selected agricultural economic indicators

	Latest period	Value	Percent change from		
			Prior period	Year ago	Two years ago
Receipts from farm marketings (\$ millions)	April	13,752	-6.3	3	12
Crops*	April	5,725	3.4	10	20
Livestock	April	6,790	-8.1	-2	5
Government payments	April	1,237	-29.1	-1	17
Real estate farm debt outstanding (\$ billions)					
Commercial banks	March 31	17.5	1.5**	4	11
Farm Credit System	June 30	29.2	0.3**	-1	-5
Life insurance companies	December 31	10.8	1.4**	12	12
Nonreal estate farm debt outstanding (\$ billions)					
Commercial banks	March 31	32.0	-2.7**	9	13
Farm Credit System	June 30	11.2	6.8**	6	12
Interest rates on farm loans (percent)					
7th District agricultural banks					
Operating loans	July 1	11.19	-1.8**	-6	-10
Real estate loans	July 1	10.43	-1.2**	-6	-10
Commodity Credit Corporation	September	6.00	-5.9	-23	-25
Agricultural exports (\$ millions)	June	2,653	-14.2	-18	-13
Corn (mil. bu.)	June	105	-12.6	-48	-53
Soybeans (mil. bu.)	June	37	-6.6	4	17
Wheat (mil. bu.)	June	66	-22.8	-26	-28
Farm machinery sales^p (units)					
Tractors, over 40 HP	July	4,227	-34.5	-2	4
40 to 100 HP	July	3,082	-25.7	-1	4
100 HP or more	July	1,145	-50.2	-4	2
Combines	July	534	-54.1	-45	-39

*Includes net CCC loans.

**Prior period is three months earlier.

^pPreliminary



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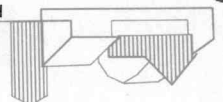
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