FRB CHICAGO

AGRICULTURAL LETTER

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Farm machinery and equipment sales

Farm machinery and equipment sales remained depressed in 1986, continuing the downtrend that has affected the industry throughout the 1980s. Farm and Industrial Equipment Institute (FIEI) figures indicate that all major farm equipment items suffered unit sales declines, registering drops of 6 to almost 30 percent from the previous year's depressed sales. Despite another year of substantial cuts in inventory, stocks of farm machinery remain large. With farmer expenditures on machinery and equipment projected to stabilize near last year's level in 1987, it appears that the industry will again be characterized by limited production schedules and lackluster sales.

Substantial year-to-year declines were recorded for the major farm machinery items covered in the FIEI report. Unit sales of farm tractors with 40 or more horsepower fell more than 19 percent in 1986, compared to a year-earlier drop of 12 percent. The largest declines occurred in sales of four-wheel drive tractors, which were down 30 percent from the year-earlier level. Unit sales of two-wheel drive tractors showed a year-to-year drop of almost 19 percent.

Other types of farm machinery and equipment registered similarly large declines. In 1986, unit sales of self-propelled combines fell another 9 percent. Sales of combination grinder-mixers and corn heads were both down 6 percent from the previous year, while mower conditioner sales were off 3 percent. Furthermore, small balers and forage harvesters recorded sales declines of 18.5 and 12 percent, and windrower sales were 28 percent below the 1985 level.

Farm machinery and equipment sales last year fared considerably better in the five District states than in the nation as a whole. Farm tractor sales in the region were down from a year earlier, but by less than 13 percent. Unit sales of two-wheel drive tractors with more than 40 horsepower were down about 11 percent, while sales of four-wheel drive units dropped almost a third from the previous year. Combine sales in District states, however, rose 10.5 percent from 1985, while sales of corn heads and forage harvesters in 1986 were near their year-earlier levels. Unit sales of small balers, windrowers, combination grinder-mixers, and mower conditioners registered substantial year-to-year gains ranging from 16 to 23 percent.

Despite the improving sales in District states last year, the industry has experienced a prolonged slump in sales. Since 1979, the last relatively strong sales year for the industry, farm equipment purchases have been limited by high financing costs, lower earnings, financial stress among many farm borrowers, and government programs that remove acreage from production. Through last year, these factors had contributed to declines in unit sales of farm tractors and combines, the two major farm equipment items, of 66 and 76 percent, respectively, from 1979 levels. Sales declines in other types of farm machinery and equipment over the seven-year period ranged from 57 percent to 85 percent. Highlighting the effect of this decline on the industry, total expenditures by farmers on farm machinery last year totaled about $4.5 billion, down from expenditures of almost $12 billion in 1979.

Plant closings, labor problems, and further cuts in production schedules during 1986 allowed the industry to trim inventories despite the additional declines in unit sales. Ending inventories of farm tractors with 40 or more horsepower were down almost a fourth for the second consecutive year. December combine inventories were down more than 36 percent from a year earlier and less than half of the inventory held at the end of 1984. Among other types of machinery, inventories of forage harvesters, windrowers, combination grinder-mixers, and corn heads declined by 35 to 40 percent during 1986, while inventories of

Unit sales of new farm machinery

	1979	1985	1986
Tractors			
Two-wheel drive			
40-99 HP	65,000	37,842	30,848
100-139 HP	40,932	7,300	5,149
140 HP or more	21,603	10,400	9,113
Four-wheel drive	11,455	2,912	2,037
Total	138,990	58,454	47,147
Self-propelled combines	32,246	8,411	7,660
Small balers	18,750	7,038	5,734
Forage harvesters	12,451	2,460	2,164
Mower-conditioners	25,600	11,243	10,898
Windrowers	8,615	2,026	1,461
Grinder-mixers	11,673	1,914	1,797
Corn heads	22,374	5,016	4,716

mower-conditioners fell about 26 percent. Inventories of small balers showed the smallest year-to-year decline, falling almost 15 percent from a year earlier.

Although inventories remain large by historical standards, the substantial declines of the last few years have brought farm machinery and equipment stocks into closer alignment with the depressed level of sales. At year end 1986, inventories of farm tractors stood at about 83 percent of the previous twelve months' sales. But compared to the 50 to 60 percent range typical in the late 1970s, tractor inventories remain large. Similarly, combine inventories at the end of the year equaled about 56 percent of 1986 sales, well below last year's ratio of 80 percent, but still higher than the inventory-to-sales ratios of the late 1970s that ranged from a fourth to a third. Ending inventories of balers, forage harvesters, mower-conditioners, and windrowers, which typically equaled 75 percent or more of a year's sales in the late 1970s, all exceeded the unit sales levels of the previous twelve months. Inventories of corn heads and grinder-mixers, however, did fall to about 60 and 70 percent of 1986 sales. Nevertheless, it appears that manufacturer's production schedules, in the absence of a significant and unexpected pickup in demand, will continue at a curtailed level this year as the industry works to reconcile inventories and output with low sales volume.

USDA forecasts of expenditures on farm machinery point to little change this year, with expenditures stabilizing between $4.1 and $4.7 billion. Although 1987 unit sales may not register drops as large as those of the last few years, the factors that have contributed to the seven-year slide in sales will continue to weigh heavily on the market. Despite expected improvement in overall farm sector income, the financial condition of many farmers remains stressed, limiting their ability to increase capital expenditures. In addition, sales of good used equipment by farmers trying to adjust their financial positions continue to compete with new equipment sales. USDA estimates also point to an increase of about 11 percent in after-tax farm machinery investment costs due to the new tax law. Finally, government farm programs are likely to remove more acreage from production in 1987. Acreage reduction, paid land diversion and the Conservation Reserve Program (CRP) diverted about 45 million acres from production last year. Greater participation and higher set-aside options for government support programs in 1987, along with efforts to expand the CRP could boost the total to nearly 70 million acres this year. With fewer acres being planted, demand for additional machinery will be dampened again this year.

Peter J. Heffernan

Downturn in milk production may end late this year

Recent USDA reports show that milk production continues below year-earlier levels, a trend that began in mid-1986. Paced by large first-half gains, milk production for all of last year reached a new high of 144 billion pounds, up 1 percent from the year before. But production in the second half of last year was down 3.5 percent from the year before and reports from 21 major dairy states imply a somewhat larger cut for the first two months of this year. With the reduction in dairy cow and heifer numbers from the whole-herd Milk Termination Program (MTP), milk production will continue below year-earlier levels for the next several months. But with the herd liquidation phase of that program ending in September, the downturn in milk production may end in the fourth quarter. The possibility that the downturn will end adds to the more critical issue of whether the MTP production cut, coupled with further gains in commercial use of milk, will reduce the milk surplus enough to preclude a reduction in the milk support price next year.

Developments in milk production and commercial disappearance will be watched closely this year for clues as to a possible change in milk support prices on January 1, 1988. Existing legislation mandates that the support price of manufacturing grade milk, currently at $11.35 a hundredweight and scheduled to drop to $11.10 in October, must be cut another 50 cents on January 1 if net CCC price support purchases of dairy products in 1988 are projected to exceed 5 billion pounds, milk equivalent. Alternatively, the support price must be raised 50 cents if 1988 CCC purchases are expected to drop below 2.5 billion pounds. Because of the success of the MTP in cutting milk production and continuing gains in commercial

Milk production in District states

	1984	1985	1986 Amount	1986 Change
	(------billion pounds-----)			(percent)
District states				
Illinois	2.56	2.72	2.80	2.9
Indiana	2.31	2.42	2.46	1.7
Iowa	3.80	4.06	3.88	-4.4
Michigan	5.35	5.57	5.40	-2.9
Wisconsin	23.50	24.70	25.20	2.0
Subtotal	37.53	39.46	39.74	0.7
Other top states				
California	15.30	16.77	17.24	2.8
Minnesota	10.33	10.84	10.61	-2.1
New York	11.44	11.73	11.74	0.1
Ohio	4.65	4.87	4.94	1.4
Pennsylvania	9.42	9.98	10.15	1.7
Texas	3.85	3.97	4.09	3.0
Washington	3.47	3.75	3.76	0.3
United States	135.45	143.15	144.08	0.7

disappearance, CCC purchases have fallen sharply. While the likelihood of a forecasted drop to the 2.5 billion level for 1988 is considered to be small, the possibility of a projection close to the critical 5 billion level now appears quite high.

Latest USDA projections suggest that milk production this year will decline about 2 percent. On a quarterly basis, however, the projections indicate that the year-over-year decline will narrow from 4 percent in the first quarter to about 0.5 percent this summer and be followed by a slight year-over-year gain in the fourth quarter. Prospects for declines through the summer months are clearly supported by the smaller cow and heifer numbers and the remaining herds to be sold this year by farmers in the MTP. As of the beginning of this year, the inventory of dairy cows was down 5.6 percent from a year earlier while the inventory of dairy heifers held for entry into the dairy herd was down nearly 9 percent. The cow and heifer inventory combined was off about 1 million head, equivalent to two-thirds of the roughly 1.5 million head of cows, heifers, and dairy calves scheduled to be sold through slaughter markets or for export by exiting dairy farmers enrolled in the MTP. Given the planned pattern of herd-disposal by MTP participants, the above comparison suggests that the expansion in dairy cow numbers among non-MTP participants was, at best, modest last year and less than some analysts had expected.

With respect to a possible change in the support price next January, underlying trends in milk production late this year will be a crucial factor. There is a high probability that low feed costs will continue to result in heavier concentrate feeding and further gains in milk output per cow. Last year, output per cow rose 2.3 percent from the year before, paced by large gains in the first half. A comparable rate of increase is expected to prevail throughout this year.

The counterpart to continuing gains in output per cow will be the extent to which a possible expansion of cow numbers among non-MTP participants might offset the remaining herd liquidation to be completed by participants by the end of September. Herd liquidations by MTP participants this year will be only about a third as large as last year. For non-participants, USDA analysts note that the expansion incentives in terms of returns over concentrate costs will be somewhat higher in 1987 than last year but not as high as in the early 1980s. Moreover, the expansion incentives of non-participants may be tempered somewhat by the possibility of a cut in the support price of milk next January. In view of these considerations, the USDA projections suggest that dairy herd expansion by non-MTP participants will only offset a portion of the remaining herd liquidations by participants, leaving dairy cow numbers about 2 percent below year-earlier levels by the end of this year.

The other critical factor that will weigh heavily on any change in dairy support prices at the beginning of 1988 pertains to trends in commercial disappearance of milk. Last year, commercial disappearance of milk rose 2.8 percent, marking the third consecutive year of unusually strong growth. USDA analysts caution that the growth rate may slow this year. But with continued growth in the economy, low real dairy product prices, and continuing dairy promotional efforts, disappearance for all of 1987 is expected to rise 1 to 3 percent. Prospects for 1988 are highly uncertain but the longevity of the current economic expansion raises additional concerns whether growth in commercial disappearance can maintain the pace of recent years through 1988.

Cuts in milk production and continuing gains in commercial disappearance have curtailed CCC purchases of manufactured dairy products and strengthened milk prices. CCC purchases represent the balancing fulcrum between production and commercial disappearance of milk to ensure that milk prices are at or above legislated support level. Net CCC purchases declined to 10.6 billion pounds (milk equivalent) last year, down 20 percent from the year before and equivalent to 7.4 percent of all milk produced. All of the decline occurred during the second half of the year when year-over-year cuts of more than 70 percent offset sizeable gains early in the year. For this year, the USDA projects that net CCC removals will decline to the 4 to 7 billion pound range. What prospective 1988 net CCC purchases will look like by the January 1 determination date for any changes in the support price is difficult to project. But at this juncture, the USDA projections of late 1987 trends in milk production and commercial disappearance suggest that 1988 purchases might come very close to the critical level of 5 billion pounds.

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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)*	September	11,737	18.6	-2	1
Crops*	September	5,257	48.3	-15	-10
Livestock	September	6,040	-2.1	10	6
Government payments	September	440	145.8	50	327
Real estate farm debt outstanding *($ billions)*					
Commercial banks	September 30	12.4	2.7†	13	22
Federal Land Banks	September 30	39.6	-4.3†	-15	-20
Life insurance companies	November 30	11.2	-1.1†	-6	-11
Farmers Home Administration	September 30	10.9	-0.1†	1	7
Nonreal estate farm debt outstanding *($ billions)*					
Commercial banks	September 30	33.6	-1.5†	-14	-19
Production Credit Associations	September 30	12.1	-4.4†	-24	-38
Farmers Home Administration	September 30	18.7	-0.3†	0	11
Commodity Credit Corporation	September 30	15.4	-14.3†	57	138
Farm loans made *($ millions)*					
Life insurance companies	November	62	46.0	-44	144
Interest rates on farm loans *(percent)*					
7th District agricultural banks					
Operating loans	January 1	11.11	-2.0†	-13	-18
Real estate loans	January 1	10.49	-2.5†	-15	-21
Commodity Credit Corporation	March	5.88	0.0	-23	-36
Agricultural exports *($ millions)*	January	2,236	-12.9	-12	-29
Corn *(mil. bu.)*	January	104	-6.4	-38	-50
Soybeans *(mil. bu.)*	January	71	-19.1	-16	1
Wheat *(mil. bu.)*	January	77	32.0	2	-29
Farm machinery sales[p] *(units)*					
Tractors, over 40 HP	February	1,735	-45.6	-47	-36
40 to 139 HP	February	1,438	-40.6	-41	-30
140 HP or more	February	297	-61.4	-65	-56
Combines	February	73	-58.0	-68	-57

*Includes net CCC loans.
†Prior period is three months earlier.
[p]Preliminary

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