FRB CHICAGO

AGRICULTURAL LETTER

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Tractor and combine sales up in 1993

Reports from the Equipment Manufacturers Institute show that farm tractor sales gained momentum last spring after suffering through a relatively slow winter. Unit retail sales of tractors rated at 40 or more horsepower went on to post a gain of 9 percent for 1993, reversing a two-year decline. Combine sales also improved early in the year, but a flood-related slowing in the second half limited the rise for all of last year to 2 percent. These gains enabled farm machinery and equipment manufacturers to increase production and employment levels, and buoyed prospects for further sales gains this year. However, both farmers and manufacturers will face additional cost pressures down the road due to the new clean air regulation.

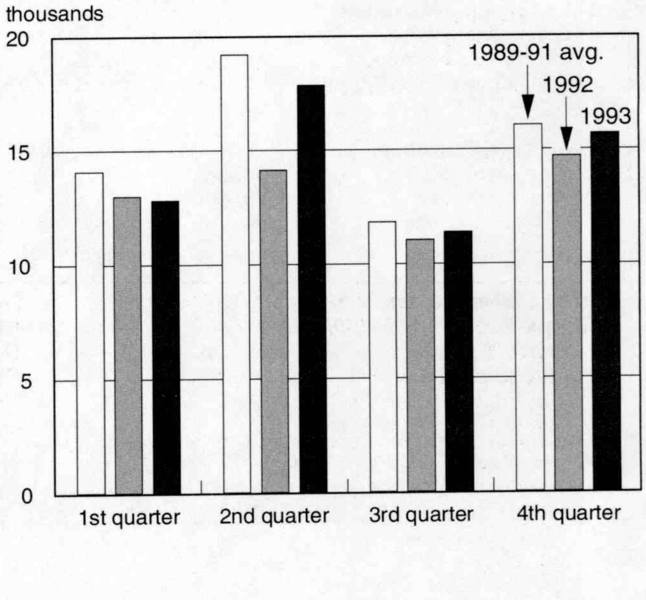
The year-over-year decline registered by unit tractor sales during the first quarter of last year was contrasted sharply by the advance registered during the second quarter. Unusually poor sales in March dropped the first-quarter total to the lowest level in five years. However, sales strengthened during the second quarter and posted a large gain (26 percent) over the low year-earlier level that accounted for most of the increase for all of 1993. But despite the improvement, second-quarter tractor sales were still 7 percent below the 1989-91 average. The year-over-year gain narrowed to 3 percent during the third quarter as concern over crop yields mounted, but finished with a robust increase of 7 percent in the final quarter. For all of 1993, unit sales totaled 57,800, compared to nearly 53,000 the year before.

The year-over-year improvement in unit sales was paced by gains for larger tractors. Two-wheel-drive tractors with over 99 horsepower rose more than one-fifth to reach 19,000 units. At 3,300 units, sales of four-wheel-drive tractors were up nearly 25 percent. However, sales of these larger tractors were still well below the 1989-91 average. In contrast, smaller tractors with 40 to 99 horsepower were fairly steady performers. At about 35,500 units, sales were up nearly 3 percent from the previous year and near the average for 1989 through 1991.

Combine sales appeared to be making a comeback through much of 1993 after suffering a 20-percent drop the previous year. For the January through August period, unit retail sales of self-propelled combines were up 15 percent. But the recovery stalled over the next three months as farmers reassessed their needs for new harvesting equipment in light of the flood damage to crops in the Midwest and the drought damage in the Southeast. For the year, the number of combines sold came in at 7,860, about 2 percent higher than the year before, yet nearly 20 percent below the 1989-91 average.

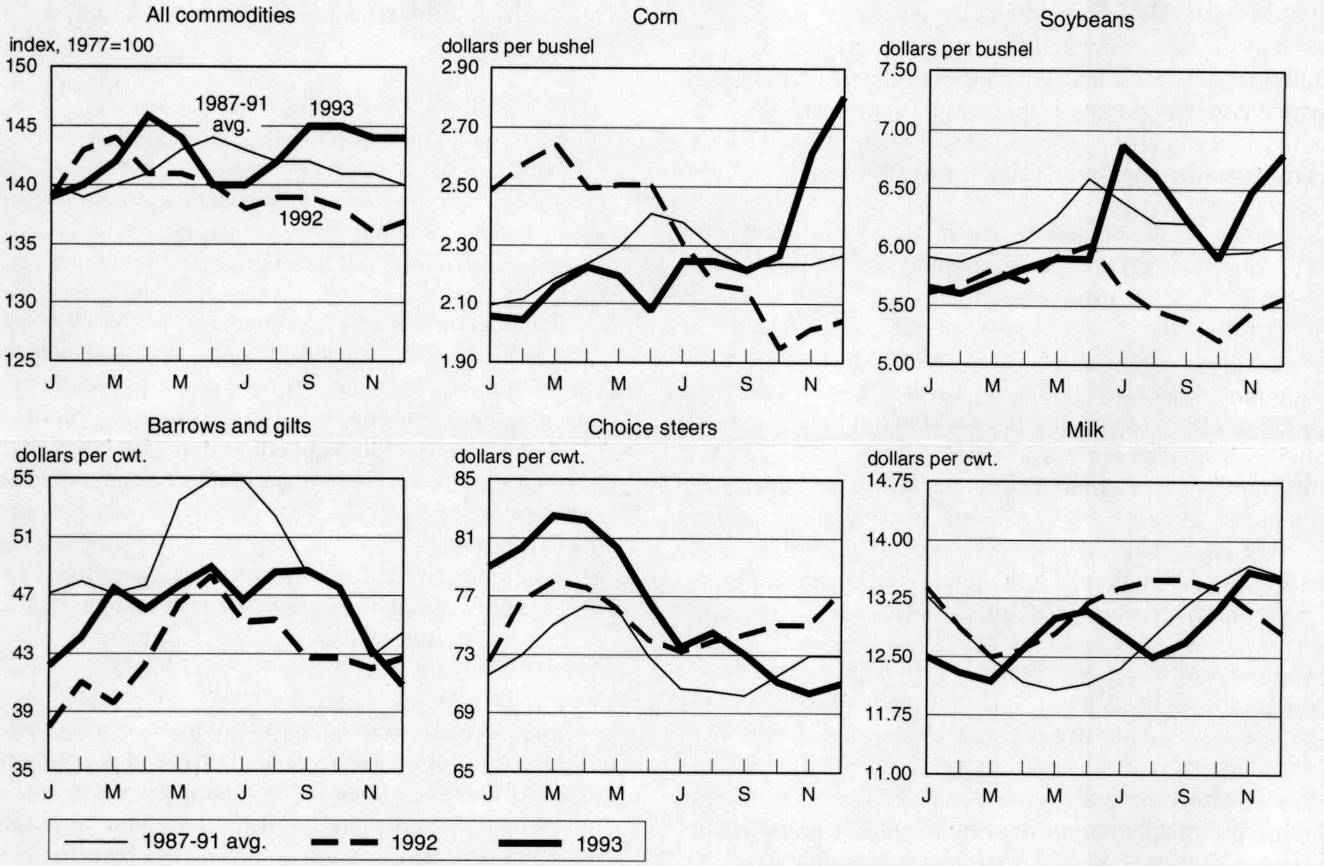
The gains in tractor and combine sales probably reflect the financial performance of the farm sector, which generally improved last year despite the adverse weather patterns. Farm earnings were strengthened by increases in livestock receipts and government payments. Crop prices rose, offsetting to some degree the effect of lower corn and soybean production. Moreover, cash expenses displayed only a slight gain last year after posting a modest decline in 1992. Consequently, estimates from the U.S. Department of Agriculture (USDA) indicate that net cash income improved for the second straight year in 1993, reaching a level of $59 billion. In addition, both farm asset values and farm sector equity have shown modest increases over the past two years. Farm debt levels have also registered only minor increases in recent years. These developments were further complemented by declining interest rates, which have retreated to the lowest level in years. But farmers also faced higher prices on machinery and equipment, which likely had a moderating effect on sales. The USDA's index of prices paid by farmers for tractors and self-propelled machinery averaged nearly 4 percent higher during 1993 as compared to a year earlier, and the index for other machinery and implements posted a similar gain.

Unit sales of tractors with 40 or more horsepower



1993 in perspective

Farm Commodity Prices



	Units	1987	1988	1989	1990	1991	1992	1993[1]
Production								
Corn	bil. bu.	7.13	4.93	7.53	7.93	7.48	9.48	6.34
Soybeans	bil. bu.	1.94	1.55	1.92	1.93	1.99	2.19	1.83
Wheat	bil. bu.	2.11	1.81	2.04	2.74	1.98	2.46	2.40
Beef	bil. lbs.[2]	23.6	23.6	23.1	22.7	22.9	23.1	23.1
Pork	bil. lbs.[2]	14.4	15.7	15.8	15.4	16.0	17.2	17.1
Poultry	bil. lbs.[2]	19.7	20.4	21.9	23.5	24.7	26.2	27.4
Milk	bil. lbs.	142.7	145.2	144.2	148.3	148.5	151.7	151.5
U.S. Agricultural Exports[3]								
Bulk commodities	bil. dol.	14.7	19.4	22.3	21.8	17.6	19.6	18.9
Intermediate products	bil. dol.	7.3	8.6	8.9	8.6	8.5	9.2	8.9
Consumer-oriented goods	bil. dol.	6.0	7.4	8.4	9.8	11.4	13.5	14.6
Total	bil. dol.	27.9	35.3	39.5	40.1	37.5	42.3	42.5
Farm Sector Earnings								
Cash income	bil. dol.	165.1	172.9	179.8	186.8	184.7	187.9	191
Cash expenses	bil. dol.	109.4	118.4	125.1	130.9	131.4	130.2	132
Net cash income	bil. dol.	55.8	54.5	54.7	55.9	53.3	57.7	59
Net farm income[4]	bil. dol.	39.7	38.8	46.9	46.5	40.0	48.6	44
Farm Sector Balance Sheet								
Assets	bil. dol.	772.6	801.1	829.7	848.3	842.2	861.5	878
Debt	bil. dol.	144.4	139.4	137.2	137.4	138.9	139.3	143
Equity	bil. dol.	628.2	661.6	692.4	710.9	703.3	722.2	735

[1]Preliminary estimates for some items.
[2]Carcass weight for beef and pork; ready-to-cook weight for poultry.
[3]For fiscal years ending September 30.
[4]Combines cash and noncash earnings and expenses and an accounting for inventory changes.

The relentless rise in farm machinery and equipment prices is likely to extend into the future, in part because of standards now being written by the Environmental Protection Agency (EPA) to regulate emissions from off-road machinery. This action was prompted by a study authorized by the Clean Air Act Amendments of 1990 which concluded that off-road engines and vehicles make a significant contribution to air pollution. The EPA is therefore developing new standards for compression-ignition engines, which will affect many engines built for use in farm tractors and combines. These regulations pertain only to new engines and manufacturers will be required to certify that EPA standards have been met. Implementation is staggered across different engine size categories in order to utilize existing emission-control technology for larger engines currently used in on-road vehicles and to spread out the development costs associated with smaller engines. Compliance is required first for engines which range from 175 to 750 horsepower and are manufactured after January 1, 1996. The new standards for engines of 100 to 174 horsepower will go into effect January 1, 1997, while new engines ranging from 50 to 99 horsepower must be in compliance after January 1, 1998. New engines rated over 750 horsepower must meet the new standards by January 1, 2000. A USDA report indicates a unit cost increase—on average—of about $170 for farm-use engines is likely.

Buoyed by the pick-up in purchases of farm tractors and combines, manufacturers of farm machinery enjoyed larger sales and increased their workforce in 1993. According to a report by the U.S. Department of Commerce, the value of shipments from farm equipment manufacturers rose nearly 6 percent to reach $9.6 billion dollars. Exports jumped 17 percent from the year-earlier level and accounted for a quarter of the value of shipments. The gains in shipments also helped end a two-year decline in employment at farm machinery and equipment manufacturers. Average monthly employment rose about 3 percent to 71,000 last year. However, the number of workers was still well below the peak level registered over a decade ago. In 1979, employment stood at 159,000. But the financial problems that struck farmers in the 1980s soon spread to farm machinery suppliers. Consequently, the total workforce suffered a 60-percent decline from 1979 to 1986 as overcapacity was squeezed out of the industry.

Projections by analysts at the U.S. Department of Commerce indicate that the value of shipments by farm machinery and equipment manufacturers is expected to grow between 4 and 5 percent this year. The expected gain is supported by a number of factors. Due to reduced levels of grain stocks stemming from last fall's disappointing harvest, farmers are not required to set aside (idle) any of their acreage in 1994 in order to qualify for most farm income and price support programs. Along with higher crop prices, this will provide the impetus for an increase in planted acreage that will help to encourage new equipment purchases. In addition, some analysts believe a tightening in the market for used farm machinery is also underpinning an increase in sales of new equipment.

The level of capital expenditures for tractors and other machinery and equipment, though improved from the mid-1980s, remains well below the 1979 peak. According to USDA data, expenditures totaled approximately $8 billion in both 1991 and 1992. (Data for last year is not yet available, but the gains in tractor and combine sales suggest an increase is likely.) In comparison, expenditures were estimated at $11.7 billion in 1979 before declining to $4.6 billion in 1986. While the lower level of expenditures came about as part of the farm financial crisis of the early 1980s, more recent emphasis on reduced/conservation tillage practices has also been cited as a contributing factor, particularly for tractors. Furthermore, machinery purchases are easily deferred and the adversity experienced by U.S. farmers from the early 1980s to the present—falling asset values, high interest rates, drought, flood—has left the survivors with a more conservative attitude towards new acquisitions.

For the longer term, recent trade developments will help to expand the access of U.S. agriculture to world markets and provide support for domestic farm capital expenditures. This takes on added importance in light of the current trend towards a more market-oriented farm policy and the desire to reduce the farm program costs to taxpayers. The North American Free Trade Agreement (NAFTA) was approved by Congress late in 1993 and went into effect at the start of this year. In addition, negotiations for the General Agreement on Trade and Tariffs (GATT) were brought to a conclusion in December—and if approved by the legislative bodies of participating nations—will take effect in 1995. These accords will reduce trade barriers and subsidies over time, and most analysts believe U.S. agricultural exports will receive a modest boost, adding to net farm income and providing support for capital spending.

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Selected agricultural economic indicators

	Latest period	Value	Percent change from: Prior period	Year ago	Two years ago
Prices received by farmers *(index, 1977=100)*	December	144	0.0	5	5
Crops *(index, 1977=100)*	December	131	2.3	11	9
Corn *($ per bu.)*	December	2.60	6.1	32	12
Hay *($ per ton)*	December	84.20	0.7	14	22
Soybeans *($ per bu.)*	December	6.44	1.9	18	18
Wheat *($ per bu.)*	December	3.57	2.9	8	4
Livestock and products *(index, 1977=100)*	December	156	−1.3	0	1
Barrows and gilts *($ per cwt.)*	December	41.50	−4.2	−3	5
Steers and heifers *($ per cwt.)*	December	72.40	−0.7	−5	1
Milk *($ per cwt.)*	December	13.50	−0.7	5	−2
Eggs *(¢ per doz.)*	December	63.1	0.8	−2	−9
Consumer prices *(index, 1982-84=100)*	December	146	0.0	3	6
Food	December	143	0.6	3	4
Production or stocks					
Corn stocks *(mil. bu.)*	December 1	5,936	N.A.	−25	−9
Soybean stocks *(mil. bu.)*	December 1	1,554	N.A.	−15	−13
Wheat stocks *(mil. bu.)*	December 1	1,586	N.A.	0	10
Beef production *(bil. lb.)*	November	1.89	−4.5	6	4
Pork production *(bil. lb.)*	November	1.51	2.4	4	4
Milk production* *(bil. lb.)*	December	10.4	4.1	−2	0
Receipts from farm marketings *(mil. dol.)*	September	16,033	13.0	−5	9
Crops**	September	8,153	29.6	−8	8
Livestock	September	7,656	−2.2	2	8
Government payments	September	224	220.0	−57	115
Agricultural exports *(mil. dol.)*	October	3,872	20.2	−7	14
Corn *(mil. bu.)*	October	151	9.0	9	11
Soybeans *(mil. bu.)*	October	74	144.8	−25	46
Wheat *(mil. bu.)*	October	105	−3.6	−23	−17
Farm machinery sales *(units)*					
Tractors, over 40 HP	December	4,958	−9.0	13	6
40 to 100 HP	December	2,417	−22.6	5	11
100 HP or more	December	2,541	9.1	21	1
Combines	December	904	−23.3	12	3

N.A. Not applicable
*21 selected states.
**Includes net CCC loans.

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