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# MINNESOTA AGRICULTURAL ECONOMIST

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## Outlook for Farming in 1983

by Paul Hasbargen and Kenneth Egertson

### The Setting

Expectations of people in agriculture at the start of 1983 range from pessimistic to cautiously optimistic. The pessimism stems from the following facts and projections:

- Record grain stocks in the United States. Corn carryover, for example, increased from about 1 billion bushels on October 1, 1981 to 2.4 billion bushels last October—and it is expected to rise to almost 3.5 billion bushels this October *before* the 1983 crop is harvested.
- The slowdown in export growth during the past year due to the worldwide recession and the strengthening dollar.
- The declining land prices of the past two years.
- The expected cyclical expansion in hog numbers that would bring down prices and incomes for this currently healthy farm enterprise.
- Large federal deficits expected in 1983 and beyond, which will put budget pressure on farm programs.
- The severely depressed farm income of the past two years, caused by high interest rates, rising production costs and declining grain prices.
- The USDA's published projections of continued low farm income in 1983.

Alternatively, one can be cautiously optimistic concerning farm income improvements for 1983 because of the following facts and expectations:

- Many more producers will participate in the government set-aside program in 1983. This will result in higher grain prices as well as greater price protection for more farmers. Also, the new PIK (payment-in-kind) option will attract enough additional set-aside acreage to reduce

grain carryover stocks by October 1, 1984.

- Given the apparent change in policy of the Federal Reserve Board, and the subsequent recent large increases in the money supply, the dollar is more likely to weaken than to strengthen relative to the currencies of most of our trading partners. This, plus some economic recovery from the current worldwide recession

will add some impetus to agricultural exports.

- Increases in the money supply are usually followed by increases in commodity prices.
- Sharply lower short-term interest costs (following the looser money supply stance of the Fed) as well as lower fertilizer and fuel prices will, along with the reduction in planted acreage, reduce farm costs on many Minnesota farms in 1983.



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- Reduced crop production expected from participation in the PIK program will help bring grain prices in the 1983-84 marketing year up to local loan levels—an increase of 5 to 10 percent over the current marketing year.
- The combination of reduced crop expenses plus improved crop prices will significantly increase the incomes of those crop producers *who did not* participate in the 1982 farm program. (Those who did participate last year will actually be looking at somewhat lower crop returns since the loan level for participation in the Farmer Owned Reserve will be lower for the 1983 crop.)
- Land prices have declined because of lower farm earnings, declining inflation rates and higher interest rates. Interest rates have dropped and the two declining indexes are likely to turn up again in the year ahead, bringing a halt to declining land prices.
- Many farmers' tight cash flow is delaying hog expansion—permitting a second good hog income year in 1983.
- The PIK program permits reduced government outlays for commodity programs at the same time it supports farm incomes. Additional cuts in agricultural program supports are quite unlikely given the changing mood of Congress from "cost-cutting" to again "stimulating the economy" and protecting those in financial trouble.
- In contrast with USDA's early estimates of continued low farm earnings for 1982, early indications from Minnesota farm records show significant improvement in 1982 earnings over the large losses shown in 1981. The difference between farm management record results and the USDA farm income estimates stem primarily from the way inventory valuations of marketable grain and livestock are handled. Our farm management summaries value market livestock and grain at prices prevailing at the beginning of the year and at the end of the year to calculate changes in inventories. In contrast, USDA values the beginning and ending inventories at the *same* prices—which results in essentially an inventory *volume* change rather than a *value* change.

And, because the inelastic demand for farm commodities usually changes farm product values in the *opposite* direction from volumes, the USDA farm income change estimates usually lag behind actual accrual based farm income changes by one year. Large grain price breaks that occurred in 1981 were picked up in all farm management record summaries that year. By contrast, USDA showed increased net farm income in 1981 and delayed the decrease until 1982. Farm management summaries will show significant income increases in 1982 based on fairly stable grain inventory prices between January 1, 1982 and January 1, 1983 in contrast to the declining prices of the previous year.

- Given the above expectations for higher grain prices, greater program participation, lower crop expense outlays, and continued strong hog prices, we are cautiously optimistic about income increases in 1983 for Minnesota farmers.

### Cash Flows For 1983 Livestock Operations

The livestock sector was relatively more profitable than the crop sector in 1982—and will remain so in 1983. Table 1 shows cash flow projections for major livestock enterprises in 1983. The item "cash costs" includes all equipment and machinery repairs associated with the enterprise as well as purchased feeds. A price of \$2.40 is used on corn to reflect some storage costs from January levels. Hay prices vary greatly by location (from \$30 to \$100 per ton in February), so budgets with hay should be adjusted to better reflect local conditions.

Returns over cash costs, before interest, are available to pay scheduled principal and interest payments, for family living, and for down payments on new capital purchases.

The dairy enterprise was more profitable in 1982 than in 1981 because of lower feed costs. Continued low feed costs should keep this enterprise well in the black during 1983, even though milk prices could be lower. The budgets in table 1 use a \$12.50 milk price—which presumes a 50¢ reduction from January levels. If the current court injunction that prevents USDA

from collecting the 50¢ assessment from dairy farmers is upheld and no new price reduction legislation is passed, the average Minnesota milk price will be close to \$13/cwt.

Hog enterprise earnings were very good the past year—up sharply from the loss levels of 1981. The tight financial position of many farmers and the cautious attitudes of producers and credit people alike is dampening hog expansion efforts in 1983. With prices near \$60 during the first half of 1983 and declining to about \$50 in the last quarter of the year, an average hog price of \$54-\$55 can be anticipated. As indicated in table 1, such a price will result in above average cash flow returns to all types of hog operations in 1983. Caution would be appropriate for hog feeding where pigs are bought this summer for late fall sale, since prices could drop rapidly between August and December bringing losses to fall feeding operations.

The beef enterprises were faced with some unusual conditions in 1982. A mid-cycle adjustment in cow numbers was triggered in late 1981 when feeder prices were not high enough to cover the increasing costs of keeping beef cows. Reduced red meat supplies early in 1982 gave rise to high choice steer prices with subsequent excellent returns on fed cattle sold during the spring. However, all cattle prices dropped in late 1982 and fall feeder prices were again too low to cover 1982 cow herd costs, causing beef cow owners to continue liquidation of cow herds last fall. Beef cow numbers were down 3 percent, according to USDA's January 1, 1983 cattle inventory estimates. All cattle and calves were down by less than half of 1 percent because feeder animals over 500 pounds were up by 6.6 percent. Higher placements on feed last fall will likely limit recovery in choice steer prices to the low to mid-\$60s until mid-year. If the economy makes significant enough gains to bring up consumer confidence, third quarter prices and feeding returns could be better than indicated by the feeding budgets in table 1. But, as indicated in the table, risk of loss is high in all feeding programs.

Cow herds will likely lose money for the third straight year in 1983. Steer calf prices will need to surpass 80¢ before most cow herds start making money. This will likely occur in 1984

**Table 1. Income Opportunities in Livestock—1983**

| ENTERPRISE<br>Unit                               | DAIRY           |                 | COMPLETE<br>HOGS | FEEDER<br>PIGS  | HOG<br>FEEDING |
|--------------------------------------------------|-----------------|-----------------|------------------|-----------------|----------------|
|                                                  | Avg.<br>Cow     | Good<br>Cow     | Litter           | Litter          | Pig            |
| Production                                       | 11,000#         | 15,000#         | 7.6 pigs         | 8.0 pigs        | 195#           |
| Price (buy/sell)                                 | \$ 12.50        | \$ 12.50        | \$ 54.00         | \$ 55.00        | \$ 55.00       |
| Other Sales                                      | 233.00          | 250.00          | 61.00            | 41.00           | —              |
| <b>TOTAL SALES</b>                               | <b>1,608.00</b> | <b>2,125.00</b> | <b>948.00</b>    | <b>470.00</b>   | <b>72.00</b>   |
| <b>CASH COSTS</b><br>(excluding interest)        | 475.00          | 520.00          | 320.00           | 243.00          | 28.00          |
| <b>VALUE OF FARM FEEDS*</b><br>(at market price) | 765.00          | 813.00          | 252.00           | 72.00           | 25.00          |
| <b>RETURN OVER LISTED COST*</b>                  | 368.00          | 792.00          | 376.00           | 155.00          | 20.00          |
| <b>INTEREST COST</b>                             |                 |                 |                  |                 |                |
| Operating                                        | 5.00            | 5.00            | 16.00            | 6.00            | 1.00           |
| Livestock                                        | 84.00           | 210.00          | 16.00            | 12.00           | 2.00           |
| Salable Equipment                                | —               | —               | —                | —               | —              |
| <b>TOTAL INTEREST</b>                            | <b>89.00</b>    | <b>215.00</b>   | <b>32.00</b>     | <b>18.00</b>    | <b>3.00</b>    |
| <b>EXPECTED NET + CASH FLOW</b>                  | <b>\$279.00</b> | <b>\$577.00</b> | <b>\$344.00</b>  | <b>\$137.00</b> | <b>\$17.00</b> |
| Key Management                                   |                 |                 |                  |                 | buy/sell       |
| Variable                                         | milk/cow        | milk/cow        | feed/gain        | pigs/litter     | margins        |
| Effect of a 10% change                           | ±\$134          | ±\$183          | ±\$25            | ±\$47           | ±\$7           |
| <b>RISK OF LOSS</b>                              | low             | very low        | very low         | low             | moderate       |

\*Prices—corn at \$2.40, silage at \$21, and hay at \$70 on the following amounts:

|             |     |     |     |    |      |
|-------------|-----|-----|-----|----|------|
| corn, bu.   | 100 | 120 | 105 | 30 | 10.5 |
| hay, ton    | 4.8 | 4.8 | —   | —  | —    |
| silage, ton | 9   | 9   | —   | —  | —    |

| ENTERPRISE<br>Unit                               | CATTLE FEEDING             |                | WINTERING<br>CALF | GRAZING<br>STEER | BEEF<br>COW           |
|--------------------------------------------------|----------------------------|----------------|-------------------|------------------|-----------------------|
|                                                  | Calf                       | Yearling       | Steer             | Steer            | Cow                   |
| Production, gain                                 | 600#                       | 450#           | 200#              | 125#             | 300#                  |
| Price (buy/sell)                                 | \$67/\$63                  | \$62/\$64      | \$67/\$66         | \$66/\$60        | \$67.00               |
| Other Sales                                      | —                          | —              | —                 | —                | \$83.00               |
| <b>TOTAL SALES</b>                               | <b>360.00</b>              | <b>302.00</b>  | <b>128.00</b>     | <b>38.00</b>     | <b>284.00</b>         |
| <b>CASH COSTS</b><br>(excluding interest)        | 85.00                      | 82.00          | 16.00             | 10.00            | 50.00                 |
| <b>VALUE OF FARM FEEDS*</b><br>(at market price) | 171.00                     | 138.00         | 86.00**           | pasture          | 147.00**<br>& pasture |
| <b>RETURN OVER + LISTED COST</b>                 | 104.00                     | 82.00          | 28.00             | 28.00            | 87.00                 |
| <b>INTEREST COST</b>                             |                            |                |                   |                  |                       |
| Operating                                        | 8.00                       | 6.00           | 1.00              | —                | 4.00                  |
| Livestock                                        | 42.00                      | 34.00          | 15.00             | 19.00            | 70.00                 |
| Salable Equipment                                | —                          | —              | —                 | —                | —                     |
| <b>TOTAL INTEREST</b>                            | <b>50.00</b>               | <b>40.00</b>   | <b>16.00</b>      | <b>19.00</b>     | <b>74.00</b>          |
| <b>EXPECTED NET + CASH FLOW</b>                  | <b>\$54.00</b>             | <b>\$42.00</b> | <b>\$12.00</b>    | <b>\$9.00</b>    | <b>\$13.00</b>        |
| Key Management                                   |                            |                |                   |                  |                       |
| Variable                                         | -----buy/sell margins----- |                |                   |                  | lbs/cow               |
| Effect of a 10% change                           | ±\$36                      | ±\$32          | ±\$13             | ±\$4             | ±\$20                 |
| <b>RISK OF LOSS</b>                              | high                       | high           | high              | moderate         | high                  |

\*Prices—corn at \$2.40, silage at \$21, and hay at \$70 on the following amounts:

|             |    |     |     |   |   |
|-------------|----|-----|-----|---|---|
| corn, bu.   | 45 | 50  | 8   | — | 5 |
| hay, ton    | —  | .25 | 1.5 | — | 3 |
| silage, ton | 3  | —   | —   | — | — |

\*\*Used \$45 per ton of hay fed

RETURN OVER LISTED COSTS shows how much net cash farm income is likely to be increased as opposed to selling farm produced feed at the indicated market prices during 1983. This is available for debt repayments, family living, and/or new investments. However, since some debts could be paid sooner if livestock are sold, interest is another variable cash cost that can be avoided if the enterprise (or part of it) is discontinued. Actual interest costs saved might vary significantly between farms but, if interest cost could be decreased as shown, the EXPECTED NET CASH FLOW shows the expected contribution of this enterprise to overhead costs during 1983. However, note the risk rating.

and 1985. Meanwhile, the earnings from cow herds can be enhanced by overwintering calves at gains of about 1.5 pounds per day for sale in the spring when feeder prices are at their seasonal highs.

### Cash Flows For 1983 Crop Operations

Returns from crop production declined in 1982 for those who did not participate in the government set-aside program. Returns increased for those who did participate. Net returns from the crop sector in Minnesota can be expected to increase in 1983 if yields are maintained. We expect improved returns of (1) better average prices in 1983 than in '82 and (2) reduced crop expenditures.

Table 2 shows 1983 cash flow projections for the production of three major cash crops in Minnesota. The projections are made on a per bushel basis to better illustrate how the "best crop" choice changes with the relative yields expected in different areas.

Minnesota corn acreage declined from 7.7 million acres in 1981 to 7.3 million in 1982. Yield per harvested acre went up from 110 to 113 bushels—a new record. Planted acreage could drop to nearly 6 million acres in 1983. Participation in the government corn program is expected to be higher in Minnesota and other western corn belt states than in the eastern corn belt, where corn prices are higher and yield variations tend to be lower. However, enough participation is expected on the national level to bring 1983/84 corn prices up to local loan levels. For Minnesota, these are in the \$2.40-\$2.55 range. Currently, with Chicago March futures near the \$3 level, such Minnesota prices can be locked in on the futures market or through direct contracting. Therefore, we use a sales price of \$2.45 per bushel in making the cash flow projections in table 2.

Farm records from different areas of the state show surprisingly close variable cash production costs when calculated on a per bushel basis. The variations among farms in an area are much larger than are the difference between areas. We expect that variable crop production costs per acre grown will be about the same in 1983 as in 1982 since lower prices of fuel and fertilizer plus lower interest costs will

**Table 2. Opportunities in Crop Production—1983**

|                                              | Corn   | Soybeans | Wheat  |
|----------------------------------------------|--------|----------|--------|
| Unit of production                           | bu.    | bu.      | bu.    |
| Price 1983-84                                | \$2.45 | \$5.70   | \$3.60 |
| Value per bushel                             | 2.45   | 5.70     | 3.60   |
| Variable cash costs/bushel                   | 1.30   | 2.20     | 1.65   |
| Retruns over cash costs                      | 1.15   | 3.50     | 1.95   |
| Return if in government program <sup>1</sup> | 1.25   | —        | 2.15   |
| Returns per acre given yields of:            |        |          |        |
| C-130, S-45, W-45                            | 163    | 158      | 97     |
| C-100, S-40, W-40                            | 125    | 140      | 86     |
| C-75, S-25, W-45                             | 94     | 88       | 97     |

<sup>1</sup>Includes value of government payments and reflects the fact that average cash costs per base acre decline as some are put into conservation uses.

about offset increases in other costs.

Cash crop producers should fare a little better in 1983 than in 1982. Grain prices will be up more than production costs. However, returns will still be very marginal and the major gains from the crop sector will stem from the fact that a much greater proportion of Minnesota farmers will participate in the government set-aside programs.

High debt farms will get some relief from significantly lower interest rates, but this group will be hard pressed to meet cash flow needs again in 1983.

Farmers with superior marketing as well as production skills will have an opportunity to increase their farm earnings again in 1983.

The \$1.30 figure used in table 2 includes interest on operating costs—until March of 1984—insurance, and repairs as well as the usual crop production inputs. Subtracting this from the March sale value of \$2.45 leaves a return of \$1.15 per bushel raised for the average individual not participating in the government program.

Our analysis of the program for corn suggests that, on most farms, returns can be increased 5 to 10 percent on all corn base acres by participation in the government program at anywhere from the 20 percent to the 50 percent level. The 50 percent level (includes 30 percent in the payment-in-kind portion) usually pencils out a bit better than the 20 percent level, while also requiring less labor and entailing less production risk. But forward pricing is advised—perhaps in March of 1984—on the PIK bushels that can be taken next March so as to remove the price risk on those bushels that can't be put under government loan.

It might be noted that cash rents have been bid as high as \$1 per bushel

of expected corn yields in some areas in recent years. With a corn price of only \$2.45, such a bid in 1983 would leave only 25¢ per bushel to pay for machinery overhead and labor. Since machinery depreciation alone averages at least this much, cash rents of about 80¢ per bushel of corn yield expected are needed to permit some return to pay labor and interest on machinery investment. Also, if annual land payments amount to more than 80¢ per bushel of normal corn yield, cash flow problems can be expected.

The returns shown at the bottom of table 2 for several different yield levels presume participation in the government program. Note that returns are simply calculated by multiplying the expected yield times the expected returns over cash costs per bushel of expected yield—even though all base acres will not be planted on farms that participate in the program.

Finally, it should be pointed out that if actual production falls short of expected yields, net returns per bushel will drop since variable cash costs per bushel produced will increase. Also, in areas where expected farm yields drop below 75-80 bushels per acre, average variable cash costs will likely be higher than the \$1.30 used in table 2.

Minnesota soybean acreage increased from 4.46 million acres in 1981 to 4.95 million in 1982. The state average yield increased from 32 bushels per acre in 1981 to 36 in 1982.

The USDA expects that total U.S. production of soybeans in 1983 will be near the 1982 level of 2.28 billion bushels. Total use during the 1983-84 marketing year is now projected to about equal production. If these expectations unfold, U.S. average farm level bean prices would likely show only a

modest inflationary gain over the expected \$5.50 to \$5.75 of the current marketing year. Minnesota prices would be 10¢ to 20¢ lower than the U.S. price. Currently, future quotations are more bullish than this. Fall pricing opportunities exist at \$5.60 to \$5.80, with March hedging options close to \$6, given the normal basis of 60¢ to 70¢ from most Minnesota locations. Consequently, we are using a soybean price in table 2 that is *lower* than February hedging opportunities but *higher* than current outlook expectations.

Variable costs on a per bushel basis varied more between areas on beans than on corn in 1980 and 1981 (1982 records are still being summarized). However, the variation from \$1.80 per bushel in one record keeping group to \$2.50 in another appeared to be due to yields either higher or lower than normal. Early record results for 1982 indicate that per bushel costs were held to near 1981 levels because of the generally higher bean yields in 1982. A slightly lower average yield in 1983 would put average variable costs near the \$2.20 shown in table 2.

If a net cash flow of \$3.50 per bushel of beans is obtained in 1983, soybeans will be more profitable than they were in 1982 and will again be more profitable than corn in most of southern Minnesota. Annual summaries of the costs and returns of record keeping farmers in southern Minnesota show that beans were more profitable than corn in every year from 1977 through 1981. The 1982 records will likely show the same thing. And so will 1983—especially if some of the expected production is priced at levels near or above current forward price opportunities. However, given the long-term beneficial effects of a corn/soybean rotation, as opposed to continuous corn or beans, producers should limit their acreage shift from corn to beans.

Note the impact of changing the normal corn/bean yield ratio on expected relative returns between the two crops. When the yield of beans gets above 36-37 percent of the corn yield,

beans become more profitable. This is usually the case in the lower rainfall areas of southwestern Minnesota. When bean yields are below this ratio, corn becomes more profitable. This yield ratio can occur in southeastern Minnesota.

Minnesota wheat acreage declined from 3.67 million acres in 1981 to 3.24 million acres in 1982, with a somewhat larger percentage participation in the 1982 wheat diversion program than in the corn program. Yields averaged 40 bushels per acre in both years.

USDA is currently expecting sufficient participation in the 1983 wheat program to bring U.S. wheat production down about 15 percent in 1983, from the 2.8 billion bushels produced in 1982. If this large reduction is realized, carryover stocks will be reduced for the first time in several years. This in turn would permit some recovery in wheat prices over the current marketing year. Good quality spring wheat should bring \$3.50 to \$3.70 per bushel in Minnesota. December futures in the \$3.90 to \$4.00 range provide current hedging opportunities in this range—so we use a price of \$3.60 in table 2.

Again, cash costs per bushel of wheat grown can vary significantly with yields from one year to the next. Assuming relatively good yields again on the reduced acreage expected in 1983, we show a variable cash cost of \$1.65 per bushel in table 2. Participation in the 1983 wheat program should increase net returns about 10 percent on a farm's base wheat acreage.

Note that wheat becomes competitive with corn and beans only as the yields of those two crops drop relative to wheat. This happens in northwestern Minnesota. Wheat has the added advantage of requiring less cash input per acre and of showing less yield variation than the longer season crops in northern Minnesota.

Producers are encouraged to develop cash flow budgets for other crops they are considering in 1983. Crop records plus tax records will help determine past variable production costs on a per acre basis. Converting these to a per bushel basis, how do they

compare with the averages used in table 2?

Two important feed crops for livestock producers are hay and corn silage. The value of hay production in Minnesota has, in fact, surpassed the value of wheat production the past two years on a slightly smaller acreage (2.87 million of hay versus 3.18 million of wheat in 1982). The price of hay varies greatly between areas of the state and from year to year with changes in yield and quality. But since most producers feed their hay on their own farms, it simply becomes an input into livestock operations. Therefore, when doing cash flow projections, the variable cash costs of producing hay (and other farm produced feeds) can be used in the livestock budget rather than the current market value.

Variable costs of hay production have averaged about \$20 per ton on Minnesota farms. Corn silage costs have been about \$10 per ton. (Note that using variable cash costs of production to price home-produced feeds will, of course, result in unrealistically large cash flow contributions from the livestock operation. Thus, to analyze the net contribution of the livestock enterprise, market prices should be used, as was done in table 1.)

## Summary Outlook

What, then, is the outlook for agriculture in 1983? It varies by type of farm, debt level, and management level.

Hog producers are looking forward to another profitable year—but a sharp price break is probable in 1984.

Cattle feeding returns may remain marginal until near mid-year, when higher prices and profits are likely.

Beef cow herds will show some improvement over 1982 but may still fail to cover even all feed and variable cash costs. Better returns are in prospect for 1984 and 1985.

High producing dairy herds will again be quite profitable, albeit returns are likely to drop from 1982 levels—especially if milk prices are legislated downward.

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Prepared by the Agricultural Extension Service and the Department of Agricultural and Applied Economics. Views expressed are those of the authors, not necessarily those of the sponsoring institutions. Address comments or suggestions to Professor Dale C. Dahl, Department of Agricultural and Applied Economics, 1994 Buford Avenue, University of Minnesota, St. Paul, MN 55108.

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