

# 1998 Income Management for Crop Farmers

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The fall of 1998 has brought a precipitous drop in grain prices, with harvest-time corn prices below \$2.00 per bushel and soybean prices in the \$5.00 per bushel range. At these price levels, few grain farmers will cover the total cost of producing grain. And many farmers' net incomes will decline from 1997 levels, potentially leading to cash flow shortfalls in late 1998 and through the 1999 planting season.

Our purpose in writing this paper is to describe ways in which farmers can manage lower incomes resulting from grain price declines. We do this by first discussing cash flow management during the next several months prior to planting. Then we describe the likely need for more use of pre-harvest risk management strategies when marketing the 1999 crop.

## Cash Flow Considerations Prior to Planting

The first step in cash flow management is to project cash flow in the months before planting. This will require estimating receipts from crop sales, expenses associated with drying and storing the current crop, expenses associated with planting the upcoming crop, disbursements for family living, and obligations resulting from income tax liabilities. One area requiring particular attention this year is income tax liabilities.

### *Income tax liabilities*

Grain farmers may be expecting reductions in 1998 income tax liabilities commiserate with the drop in grain prices. Reduced tax liabilities will not occur on all farms.

Most grain farmers file tax returns for a calendar year using a cash basis of accounting. Given the cash basis, only sales of grain matter in calculating tax liabilities and, therefore, price declines will not be reflected in tax liabilities until grain is sold. This distinction is important for farmers who sold some or all of the 1997 crop during periods of relatively high prices during 1998. During the first quarter of 1998, for example, cash prices were above \$2.60 per bushel for corn and above \$6.50 for soybeans. If significant amounts of grain sales occurred at these prices, tax liabilities could be much higher than seems justified by the current low grain prices.

Farmers can have their tax advisors project 1998 tax liabilities. Some shifting of 1998 tax liabilities to 1999 can occur by altering purchases and sales through the remainder of 1998. Specific issues of concern for the remainder of 1998 are:

1. **Prepaid production expenses.** Some farmers pay for seed, fertilizer, and other inputs in the year prior to planting to take advantage of dealer discounts. It might be tempting to discontinue this practice this year to conserve on cash. However, doing so will increase 1998 tax liabilities. Farmers who previously have prepaid production expenses may consider continuing to do so, particularly those farmers who have relatively high 1998 taxable income.
2. **Marketing loans.** Current low grain prices cause marketing loans and loan deficiency payments authorized under the Federal Agricultural and Improvement Act of 1996 to be attractive alternatives. If a loan is taken out in 1998, proceeds of the loan will be taxable in 1998 for farmers who previously elected to treat marketing loans as income in the year the loans are received. This

election of treating loans proceeds as taxable income in the year proceeds are received can not be changed and may have been made previously when marketing loans were obtained. A later paper in this series will provide more detail on income tax implications of the marketing loan and loan deficiency payment programs. Farmers who chose this accounting election may consider waiting to take a marketing loan until 1999 in order to avoid paying having the loan proceeds increase 1998 tax liabilities.

### *Cash flow management*

Cash flow projections will indicate whether or not cash shortfalls will occur. Some farmers who have strong financial positions will not have cash shortfalls. Others will. The recommended process is to first use cash balances in checking, savings, and money market accounts to cover the shortfalls. If shortfalls still exist, credit sources can be used. Credit sources include 1) extending operating loans into 1999 and 2) refinancing existing debt to lengthen the repayment period and thereby reducing the current debt repayment.

If these financial responses are exhausted and cash shortfalls still exist, capital outlays and production expenses will need to be reduced. The challenge is to reduce these outlays while not jeopardizing future profitability. Some strategies are to:

1. **Postpone capital outlays on machinery and equipment.** Machinery purchases represents sizable amounts on most farms. Hence reducing machinery purchases will reduce cash outlays.
2. **Take out marketing loans on stored grain.** This strategy is particularly useful for farmers who can use the proceeds from marketing loans to reduce balances of operating loans with higher interest rates, thereby reducing interest expenses. The loan will have to be repaid at the lower of the posted county price or the loan rate plus interest. Further price declines likely will reduce the posted county price. Therefore, taking out a loan preserves protection against future price declines on stored grain. Of course, the income tax impacts mentioned above should be considered before taking out a marketing loan. For a more complete discussion marketing loans see Brad Lubben and Darrel Good's paper describing the 1998 marketing loan program ("1998 Market Loans and Marketing Strategies", Department of Agricultural and Consumer Economics, University of Illinois, available at <http://w3.aces.uiuc.edu/ACE/FarmIncome/>, September 1998).
3. **Reduce crop production expenses.** It might be possible to reduce production expenses without impacting crop yields and hence profitability. The two largest variable costs of producing grains are fertilizers and pesticides. Therefore, focusing on these areas likely will result in the most reductions. One potential area is on phosphorus and potassium fertilizer expense. Some fields have high soil phosphorus and potassium nutrient levels such that fertilizer applications can be reduced without having much impact on yields.

### **Pre-harvest Risk Management Strategies**

Pre-harvest risk management strategies include combinations of selling futures contracts, forward pricing grain, buying put options, and buying crop insurance. This year's low commodity prices suggest that more farmers should consider using pre-harvest risk management strategies when marketing 1999's crop production. This additional need occurs for three reasons.

First, this year's low commodity prices may deplete cash balances and credit reserves. Having cash and credit reserves are highly effective ways of mitigating impacts of low commodity prices. However, when these reserves do not exist, as may occur after this year, farmers will have to rely on other means of

managing risk. Pre-harvest risk management strategies can provide the substitute.

Second, grain prices during the 1999 harvest period may vary over a wide range. Chicago Board of Trade (CBOT) futures and options provide an indication of this range. On September 28, 1998, the settlement prices for the December 1999 corn contract was \$2.50 per bushel and the November 1999 soybean contract was \$5.80. The \$2.50 corn price and the \$5.80 soybean price provide good indicators of what the most likely futures prices will be next fall. On the same day, options prices indicate the following possible range and probabilities for corn futures prices during the fall of 1999:

Table 1. Projected CBOT corn futures prices for harvest-time 1999.

<b>Futures price</b>	<b>Percent of time below</b>
\$1.48	5%
1.93	20
2.21	35
2.46	50
2.72	65
3.05	80
3.69	95

From table 1, the chance that corn futures price will be below \$1.48 per bushel during the 1999 harvest period is 5 percent. There is a relatively high chance that corn prices could be below \$2.00, with prices below \$1.93 having a chance of 20 percent. This table suggests that there is a one in five chance of corn prices being at or below current grain prices. Conversely, there is a twenty percent chance of prices being above \$3.05. The overall message is that considerable uncertainty exists about futures prices in fall 1999.

Third, a number of new crop insurance products have been introduced over the past several years, including income protection (IP) insurance and Crop Revenue Coverage (CRC) insurance. These products pay indemnities when revenue falls below a target level. Because of the newness of the products, many farmers have not investigated how the new contracts will fit into their operations. The 1999 crop year may be the year for investigating these products.

### ***Pre-harvest risk management strategies suggestions***

Use of pre-harvest risk management strategies can reduce the chances of low incomes due to both low prices and low yields. We can not make general recommendations of pre-harvest risk management strategies suitable to all farms. Use of these strategies will depend on the ability of the farm to withstand adverse price and yield situations. Moreover, the impacts of these strategies on reducing risks will vary from farm to farm because potential yield outcomes vary farm to farm and because the correlation between price and yield outcomes varies from different locations. However, the following two general pieces of advice can be given.

First, to provide the most downside gross income protection a farmer must use a combination of strategies that protects against low yields and low prices. Examples of risk management strategies that provide this protection include the IP and CRC insurance products. In addition combining yield insurance with selling futures or buying put options provides revenue coverage. An example would be purchase of Group Risk Plan (GRP) insurance and selling futures contracts. GRP insurance pays an indemnity when

county level yields fall below a trigger yield. Selling futures contracts will protect against futures contracts moving downwards.

Second, impacts of pre-harvest risk management strategies should be evaluated before entering into the strategy. To provide this evaluation, a software program called AgRisk has been developed jointly at The Ohio State University and the University of Illinois. This program projects possible gross revenue outcomes under different risk management strategies that a farmer specifies. In projecting gross revenue, a farm's past yields are used to determine likely yield outcomes and up-to-date market information is used to project possible price outcomes. This program is available in beta version at the following www site (<http://www-agecon.ag.ohio-state.edu/AgRisk/AgRisk.htm>).

AgRisk will give the average gross revenue at harvest-time and value-at-risk, which measures downside gross revenue potential. Table 1 shows AgRisk gross revenue projections for a farm located in Piatt county, Illinois, raising 500 acres of corn and 500 acres of soybeans. For harvest-time 1999, expected gross revenue is \$333,876, given that the farm engages in no risk management strategies. This strategy has a 5 percent value-at-risk of \$244,883, indicating that there is a 5 percent chance that revenue will be below \$244,883. Selling 10,000 bushels of corn at a \$2.50 would increase the 5 percent value-at-risk from \$244,312 to \$247,312, indicating that engaging in this contract would reduce downside risk.

Table 2. 1999 Harvest-Time Gross Revenue Projections for a 1,000 acre Piatt County Farm.

<b>Strategies</b>	<b>Expected Gross Revenue</b>	<b>5 percent Value at Risk</b>
No Contracts	\$333,876	\$244,883
Sell 10,000 bushels of corn on futures	\$333,256	\$247,312

### *Summary*

Low commodity prices during the fall of 1998 may reduce income leading to cash shortfalls on some farms. Cash shortfalls can be dealt with by reducing cash balances, using credit reserves, and cutting production expenses. As a result of these cash shortfalls, some farmers may deplete cash and credit reserves, causing a need to consider using additional pre-harvest risk management strategies during the marketing of the 1999 crop. Consideration should be given to strategies that provide both yield and price protection. Examples include purchases of IP and CRC insurance, and purchases of yield insurance combined with sales of future contracts, use of forward contracts, or purchases of put options.

<sup>1</sup>[University of Illinois, Department of Agricultural and Consumer Economics](#), 1301 W. Gregory Drive, 326 Mumford Hall, Urbana, IL 61801, October 1998.

<sup>2</sup>See Lattz, Dale, "1998 Farm Incomes Expected to Slide Significantly from 1997", Department of Agricultural and Consumer Economics, University of Illinois, available at <http://w3.aces.uiuc.edu/ACE/FarmIncome/>, Sept. 1998.

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