

Purdue University

Purdue e-Pubs

Historical Documents of the Purdue
Cooperative Extension Service

Department of Agricultural Communication

10-1-1978

Guidelines for Farm Decision-Making in a Period of Uncertainty

John E. Kadlec

Follow this and additional works at: <https://docs.lib.purdue.edu/agext>

Kadlec, John E., "Guidelines for Farm Decision-Making in a Period of Uncertainty" (1978). *Historical Documents of the Purdue Cooperative Extension Service*. Paper 668.
<https://docs.lib.purdue.edu/agext/668>

For current publications, please contact the Education Store: <https://mdc.itap.purdue.edu/>

This document is provided for historical reference purposes only and should not be considered to be a practical reference or to contain information reflective of current understanding. For additional information, please contact the Department of Agricultural Communication at Purdue University, College of Agriculture: <http://www.ag.purdue.edu/agcomm>

This document has been made available through Purdue e-Pubs, a service of the Purdue University Libraries. Please contact epubs@purdue.edu for additional information.

Edm-yes

EC-456

**guidelines
for
farm
decision-making
in
a period
of
uncertainty**

**Cooperative Extension Service
Purdue University . West Lafayette, Indiana**

Historic Document

Historic Document

guidelines for farm decision-making in a period of uncertainty

John E. Kadlec, Extension Agricultural Economist



These are uncertain times in agriculture. Farm product prices have reached record levels, declined and are now fluctuating widely. Costs of farm inputs have increased drastically. Many farmers are considering major investments to capitalize on possible high product prices and to avoid the higher costs which will result if inflation continues.

The economic situation around the world is also uncertain. A series of favorable crop years in the current economic setting could result in substantial declines in farm product prices. So, one who borrows heavily to buy land, buildings or machinery to hedge against farm resource price increases could be caught short. In the event of declining farm product prices, there might be two or three years when prices of land, buildings and machinery do not increase, and land prices could decline.

These uncertainties create great risks. But they also create opportunities for profit if one uses a management strategy appropriate for the times. These guidelines may be helpful in developing such a strategy:

Guidelines for Decision-Making

Managing a farm business in a period of uncertainty is the art of being sufficiently aggressive to capture profits, but, at the same time, sufficiently conservative to avoid a financial crisis if events do not materialize as hoped. The best balance between being aggressive or conservative is determined largely by individual goals and the kinds of odds placed on the favorability or unfavorability in the economic situation.

1 Reassess your goals, especially those of risk and profit.

Conditions were so stable from 1956-1972 that many farmers developed a "feel" for the amount of risk and profit associated with most actions. But now there is so much variability that a farmer can no longer safely "fly by the seat of his pants." It is necessary to make a complete analysis before making a decision.

The first consideration is "Where are you going?" It is important to list your goals in order of priority—current income, capital accumulation, leisure, etc. Then decide for yourself. . . What level of risk is acceptable? What is the value in personal satisfaction of an additional \$1,000 income? What is the loss in satisfaction from a similar decrease? After you decide on your basic goals, the next question is "What will the operating environment be like?"

2 Study the economic and physical environment and place odds on the likelihood of various outcomes during the next five year.

Currently, capable, well-informed people are making widely different forecasts about farm product prices, inflation, weather and other business environment factors. This probably means that there is a reasonable chance for each of these predictions to occur. You need to assess the probabilities next year and for the next five years of:

- Higher farm product prices
- Farm product prices near present levels
- Lower farm product prices
- Highly variable farm product prices

- Good weather
- Poor weather
- Normal weather

- Increasing farm input costs
- Stable farm input costs
- Decreasing farm input costs
- Variable farm input costs

- Ample supplies of farm inputs
- Spot shortages of some inputs
- Critical shortages of some inputs

These probabilities are difficult to assign, but they are one of the basic ingredients of operating and investment decisions and therefore, you need to make careful judgements.

3 Evaluate the consequences of alternative product price, yield and cost possibilities before making major decisions.

In a period of uncertainty, decisions should be made, not only on the basis of what you judge is most likely to occur, but also considering the probabilities and consequences of a decision for each of the different situations that may occur. Computerized decision making and budgeting tools can be helpful for making these calculations quickly.

Table 1. Ability to Make Mortgage Payments, Owner Operated Farm (Borrowed \$1000/Acre at 9% for 20 Years).

Corn yield bu./acre	Dollars per acre remaining* after all costs and mortgage payments when corn price is —			
	\$1.80	\$2.20	\$2.60	\$3.00
130	-\$35	\$17	\$69	\$121
110	-71	-27	17	61
90	-107	-71	-35	-1

*Dollars per acre remaining are after all costs, including machinery depreciation, operator labor and management, and land interest, principal and tax payments. No allowance is made for the \$800 equity in land.

For example, if you are considering purchasing a farm for \$1,800 per acre and plan to borrow \$1,000 per acre, it would be desirable to budget cash flow and profit for a variety of corn price and yield situations (Table 1) and estimate the odds of each of these happenings.

These calculations, viewed in light of your goals, financial position and risk preference, will help provide a basis for a decision. What would be the consequence of a deficit? Could this deficit be covered with income from another part of the business, liquidation of inventory, reduction in living expenses or delaying machinery replacement? Would a deficit or a series of deficits cause grave financial problems or even liquidation? What is the value in satisfaction from the additional cash from higher prices and yields? These types of considerations are the basis for wise investment decisions.

4 Be aware of the increased risk resulting from higher capital and other costs and from widely fluctuating prices.

Capital invested per commercial Indiana farm has tripled from 1970 to 1976 and will probably be about five times as much in 1980 as it was in 1970 (Table 2). Also, interest rates have increased since 1970. The net result is that annual capital costs per farm in the late 70's are over four times as great as they were prior to 1970.

Table 2. Average Characteristics and Earnings of Indiana Farm Account Farms.*

Item	1955-59	1960-64	1965-69	1970-72	1975-77	Projected 1980
Acres per farm:						
Total acres	279	352	450	506	602	650
Tillable acres	224	272	378	427	517	600
Acres in corn	91	120	208	257	294	350
Bushels corn produced per acre	73	93	101	107	108	112
No. of feeder cattle bought per farm	18	28	47	49	138	150
No. of hogs raised per farm	264	335	415	503	934	1000
Capital invested per farm:						
in real estate	\$58,993	\$82,836	\$160,173	\$203,712	\$570,177	\$900,000
in machinery and equipment	9,417	11,645	19,339	25,823	53,775	70,000
in livestock, grain and supplies	19,086	25,870	41,570	61,802	134,189	140,000
TOTAL	\$87,496	\$120,351	\$221,082	\$291,337	\$758,141	\$1,110,000
No. of men per farm	1.68	1.72	1.88	1.99	2.19	2.40
Net farm income	\$ 7,356	\$ 12,011	\$ 23,110	\$ 32,055	\$ 66,107	\$60-80,000
Income to labor and management	\$ 3,001	\$ 5,994	\$ 12,056	\$ 17,488	\$ 28,200	\$11-31,000
Rate earned on investment	4.3%	5.6%	6.5%	6.9%	6.0%	5%-7%

*These data were prepared by the Purdue University farm management staff. Each column is an "average" profile of a full time, highly competitive crop and livestock farm based on Indiana farm account records. Land prices are record book values and are typically 75 percent of market values. Machinery investment is based on depreciated book values.

Let's look at a specific example to see the impact. The average farm investment of Indiana Farm Account keepers for the period 1970-72 was \$291,337. In 1980, it is projected to be \$1,110,000 (Table 2). If the annual interest rate was 7.5 percent for the period 1970-72, capital cost per farm was \$21,850. If, in 1980, the interest rate is 9 percent, capital cost per farm will be \$99,900 and even if interest is 7.5 percent, capital cost will be \$83,250. The capital cost per man will be \$34,688 to \$41,625 (depending on the interest rate) in 1980, compared to \$11,000 in 1970-72.

This has important implications for the farm operator. First, he will need more capital. If he borrows this capital, he will have an increased intermediate and long term debt commitment because most of the investment is in land, buildings and machinery. So, he has increased vulnerability in the case of declining prices or crop failure.

It is quite likely that agricultural product prices will continue to fluctuate widely. Therefore, you may need to take action to limit risk, depending on your risk preference and debt-equity ratio.

Those who have accumulated land over the years have probably had a substantial increase in net worth because of increased land prices. Also they may have locked-in lower interest rates on long-term land mortgages. Many of these farmers are in a strong financial position and can stand lower product prices better than farmers who have acquired land more recently.

5 Take steps to keep risk at levels in line with your goals and capital position.

Risk aversion is not the only goal of farmers. All of the following steps will not be acceptable to every farmer and some of these actions might decrease income. But these are some things that can be done to control risk:

- Implement big decisions in small steps over time (i.e., spread sales, buy land a little at a time, build buildings over a period of years).
- Calculate cash flows for a range of price and yield possibilities before making long-term debt commitments for land, buildings or machinery.
- Use appropriate marketing strategies for the price and production situation—contracting or storage.
- Give production efficiency and marketing first priority and second priority to volume.
- Arrange for debt repayment periods to be as long as allowable by credit institutions.
- Time debt repayment to coincide with sales of crops and livestock. Credit institutions often can allow much more flexibility in timing of payments than is used by borrowers.
- Keep in a liquid financial position. This means

careful control of borrowing for resources which must be paid for more quickly than they are depleted, and caution about the purchase of resources which would sell for substantially less than they cost.

- Diversify by producing both crops and livestock.
- Crop share rather than cash rent.
- Lease rather than buy. This could include hiring custom work rather than buying all needed machinery.
- Do some work for guaranteed pay.
- Jointly own or swap equipment with neighbors.
- Cut down on the percent and amount borrowed; avoid over-extension in debts for land and buildings at high interest rates.
- Find a partner with money or equipment to exchange for labor and management.
- Minimize production risk by having adequate amounts of labor and machinery to get the job done on time.
- Participate in the Government Farm Program

6 Give operating considerations first priority and second priority to investment.

In the period ahead, remember that you are producers of agricultural products first, and investors in land, buildings and machinery second. Use capital to attain production. Then as you have an economic sized unit and excess funds, you may want to put more emphasis on investments.

7 Purchase needed buildings, machinery, land and other inputs as soon as possible without overextending the business financially.

Farm input costs are likely to increase during the next five years but not so much as during 1973-75 (Table 3).

With good alternative investment opportunities for capital, there does not appear to be great benefit in investing in farm inputs only to avoid inflation. On the other hand, if the input will be needed, it is logical to purchase it early. Buy machinery, buildings, and other durable inputs early when it is practical to do so, but don't buy unnecessary inputs to hedge against inflation.

The price of land is likely to be related to changes in farm product prices and government programs.

8 Carefully reconsider the production system; the situation is changing.

The trend in crop and livestock production has been toward substitution of capital for labor. But rapid

Table 3. Estimated Indiana Cost Per Acre and Per Bushel for Corn Production in 1973 through 1977.¹

	Year			Percent Change	
	1973	1975	1977	1973-75	1975-77
Yield/Acre	110	110	110		
Direct Cost/Acre:					
Fertilizer ²	\$ 19.00	\$ 40.65	\$ 29.85	+114	-27
Limestone	1.00	1.50	1.50	+ 50	0
Seed	6.00	9.50	11.00	+ 58	+16
Herbicides & Insecticides	7.00	9.50	9.50	+ 36	0
Machine Operation ³	11.00	18.50	21.50	+ 68	+16
Interest on Operating Capital & Misc.	5.00	6.50	7.00	+ 30	+ 8
Total Direct Costs	\$ 49.00	\$ 86.15	\$ 80.35	+ 76	- 7
Indirect Cost/Acre:					
Machinery & Equipment ³	\$ 18.00	\$ 24.00	\$ 32.00	+ 33	+33
Labor & Management	23.00	27.50	31.00	+ 20	+13
Taxes & Land Maintenance	8.50	8.00	9.00	- 9	+12
Grain Storage Costs	7.50	10.00	10.00	+ 33	0
Land Cost:					
a) Assumed Value	\$600.00	\$1000.00	\$1400.00	+ 67	+40
b) Interest Rate	6%	6%	6%		
c) Cost/Acre	36.00	60.00	84.00	+ 67	+40
Total Indirect Cost	\$ 93.00	\$ 129.50	\$ 166.00	+ 39	+28
Total Cost/Acre	\$142.00	\$ 215.65	\$ 246.35	+ 52	+14
Cost/Bushel	\$ 1.29	\$ 1.96	\$ 2.24	+ 52	+14

From crop budgeting information prepared by Paul R. Robbins and Howard Doster, Department of Agricultural Economics, Purdue University.

¹This assumes above average management level.

²Assumes soils testing medium to high in phosphate and potash. Assumes application rates for N, P₂O₅ and K₂O of 135-40-60. 1977 costs estimated at 11, 18, and 8.5¢ /unit respectively

³Machinery and equipment costs computed at approximate custom rates.

increases in the price of labor-saving equipment, combined with high interest rates have made the use of labor relatively more attractive. Wages have increased but not so fast as the prices of labor-saving capital items. Hence, you may need to budget more carefully before deciding on labor-saving investments. On the other hand, you cannot afford to allow high prices for capital items to restrict volume. Also, prices of these capital items will continue to increase during the next five years. If they will be needed eventually, early purchase may be a good hedge against inflation.

Similarly the combination of ingredients in feed,

and the amount of seed, fertilizer and chemicals need to be frequently re-evaluated in light of changing price relationships.

9 Continue to give attention to decisions about time and place of marketing and purchasing.

During the next five years, widely fluctuating agricultural product prices will be likely to continue. In such a period, marketing strategies are very important. Timing of selling and buying, and checking with alternative markets are especially important.

10 **Think more broadly about alternatives.**

The events of the recent past have loosened some of the traditional structure and opened up new possibilities. The new array of land rental possibilities is an example. Now is the time to think broadly when listing alternative courses of action. There may be new possibilities available.

Summary

These uncertain times call for a management strategy involving:

- Emphasis on efficiency, buying, and selling
- Control of risk to acceptable levels
- Constant adjustment of the production system as product and input prices change.

The future cannot be predicted with certainty. And you as a manager cannot always be "right" as you look back on decisions made earlier. However, you can analyze the consequences of a decision in different kinds of future situations, which have a reasonable chance of occurring. Then you will be in a position to take actions which have a good chance taking you toward your goals; and to avoid actions which have significant odds of taking you in the opposite direction.

Historic Document

Historic Document

10/78

Cooperative Extension Work in Agriculture and Home Economics, State of Indiana, Purdue University and U. S. Department of Agriculture Cooperating. H. G. Diesslin, Director, West Lafayette, Ind. Issued in furtherance of the Acts of May 8 and June 30, 1914. It is the policy of the Cooperative Extension Service of Purdue University that all persons shall have equal opportunity and access to its programs and facilities without regard to race, religion, color, sex or national origin.