North Central
Region

**FARM MANAGEMENT
EXTENSION WORKSHOP**

FARM MANAGEMENT:
CHALLENGES AND RESPONSIBILITIES
FOR A NEW AGE
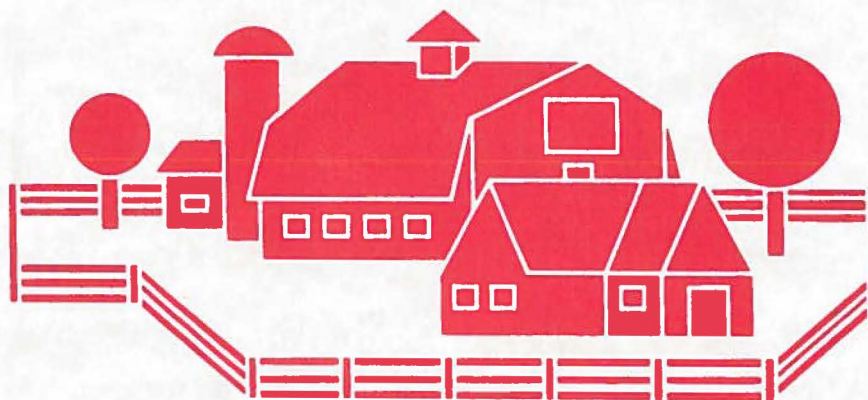
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MANAGEMENT MARKETING INTERFACE: EXTENSION PROGRAMS

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INTRODUCTION

The marketing production interface is steeped in economic theory, but the principles integrating marketing and management have only recently been applied to the farm problem by extension economists. Further, past research mostly examined marketing or production problems separately. Complexity of issues and a price stabilizing farm policy nullified the need to examine these relationships and to integrate them into an extension program.

In this paper the need for an integrated farm management/marketing (MM) program is examined. In this context, economic theory is briefly reviewed, reasons for the prior separation of MM programming for grain and livestock farmers are discussed, and the current interest in and the components of an integrated MM program are reviewed. A simple prescription for developing an integrated MM program is not provided in this paper. Instead, some of the issues are identified.

Economic Theory

The interface between production and marketing is well established in economic theory. A competitive market is comprised of a large number of buyers and sellers. The demand curve represents the preferences of buyers while a segment of the supply curve represents the seller's marginal cost curve. In equilibrium, prices ration a product or service to a buyer and direct production for the seller.

A basic economic principle is that production should occur when the expected price of the product or service is at least equal to the average variable cost. The decision on what to produce, corn or soybeans, for example, should be based on the expected profit for the two respective enterprises
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Reasons for the Separation of MM Programming

Although the above logic is as old as economic theory itself, farm management and marketing specialists often separte management and marketing programming. During the 1950 to 1980 period, many farm management specialists emphasized record keeping techniques, improved production methods and cost minimization plans. Marketing specialists, on the other hand, provided instruction on economic outlook, marketing alternatives such as forward contracts and hedges and on basis. A 1982 USDA marketing task force survey indicated that marketing specialists presented outlook and situation type

meetings 38 percent of the time, futures and forward contracting meetings 20 percent of the time, cooperative, direct marketing and marketing order programs 24 percent of the time while other topics were presented 18 percent of the time (Table 1). A limited number of risk management marketing programs were also presented to farmers.

Nearly 48 percent of all farmers who attended marketing programs chose the outlook and situation topic; an additional 19 percent elected to attend meetings on "Other" topics while 12 percent attended marketing through cooperatives meetings. Only 13 percent of the farmers attended futures trading and forward contracting meetings. Farmers, the authors argued, prefer the outlook and situation meetings because they perceive the information to be very useful as a prescription or a "quick fix" for solving problems.

Four important factors explain the separation in marketing and management programming. First, the United States government pursued a feed and food grain program which stabilized grain prices and directly influenced livestock prices. Since the expected price could be forecast with reasonable certainty, farm management specialists could concentrate on the "what to produce issues" from a cost minimization perspective. In support of the farm management effort, marketing specialists examined seasonal outlook information from a micro perspective. Second, grain storage and transportation capacities were in short supply during the harvest season. Predictably, weak bases appeared during the harvest period and then strengthened throughout the storage period covering storage, transportation and carrying charges. After the farm management specialists analyzed what to produce, the marketing specialists helped farmers maximize incomes by emphasizing the building of storage facilities, the importance of monitoring basis and by emphasizing the importance of selecting the best marketing alternatives. Third, the farm sector's debt to asset ratio was sound. Inflation in land value protected many grain and livestock farmers as more debt could be accumulated to offset potential cash flow problems. Because the cash flow problem and its uncertainty was offset by inflating land prices, neither farm management or marketing specialists wove the financial issues into a farm marketing management plan. Lastly, farmers demanded prescription answers, or wanted "quick fixes" for their problems. Since meetings on such topics as outlook provided readily useable information, farmers enthusiastically attended these programs while meetings with more abstract and complex subject matters drew relatively small audiences. A 1979 USDA study confirmed this observation. In that publication, it was argued that farmers regarded short-term outlook reports as more important than longer run economic, base-building educational programs. The latter programs were relatively more complex, required more time to learn and were more than a simple prescription-type presentation. For this reason, marketing and management specialists avoided tying the two complex disciplines together to supply the desired prescription program to farmers

.

INTEGRATED MM PROGRAMS

Current Interest in MM Programs

Because of major changes in the grain and livestock economies, the simple prescription program now provides inadequate solutions for very complex problems. Changes in feed and food grain policies, for example, allow prices

to both fluctuate annually and seasonably. Answering the question, 'what to produce?', requires farmers to forecast price movements and to examine price risks. Proposed USDA policy would eliminate price supports for feed and food grains. If Congress supports the USDA proposal, future grain prices and feed costs will be determined solely by international demand and supply relation- ships.

Currently, U.S. grain prices and feed costs are partly influenced by international supply and demand conditions. For example, countries in Europe, Asia and the southern hemisphere have significantly increased the supply of grain they are producing. In addition, debts and inadequate supplies of gold and foreign currency prevents some countries from importing grains. The increase in the supply of grain and the decrease in demand causes world and U.S. grain prices to decline. Any future change in world economic conditions will in part cause grain prices and feed costs to fluctuate in the U.S. adding risk to the 'what to produce' question.

U.S. farmers have also increased farm storage capacities significantly, while grain firms and transportation companies increased he supply of trans- portation facilities. These changes have altered the predictability of the basis patterns. In recent years, for example, the improvement in basis has not necessarily guaranteed a profitable return to cover storage, transporta- tion, and carrying charges. Risks associated with basis movements should be carefully analyzed in relation to storage costs and carrying charges.

Recent changes in monetary policy and the existence of the national debt have generated record high interest rates. Not only has this policy increased production costs, but flexible interest rates add risk to future production decisions. Compounding this problem has been the deflating value of farm land and the resulting unacceptable farm debt to asset rations. Many farmers cannot survive the prevailing bad times by borrowing more from financial institutions. Therefore, the risk of financial failure and/or cash flow needs of farm firms must be factored into the farm plan.

Current MM Programming Efforts in Extension

As indicated in the 1982 USDA survey, extension economics recognized that changes were occurring and, therefore, introduced a limited number of integrated MM programs to farmers. Work sheets such as the examples presented in Table 2 have been presented to audiences for nearly ten years. Farmers were encourage to estimate fixed and variable production costs, to forecast prices from outlook and situation information and to use these data to answer the questions 'what to produce' and 'how much to produce'. The notion of price risk was introduced to the farmer, but applied, well defined and accurate measures of price risk were not available. An effort to overcome this limitation was introduced by A Gene Nelson in a paper entitled, "Risk, Uncertainty and Making Marketing Decisions". In this and similar works, farm audiences were encouraged to assign probabilities to selected sets of prices.

Farmers were also encouraged to select the best marketing alternative based on debt to asset ratios and cash flow needs. That is, farmers were instructed to assign some risk of financial failure based on their existing

debt to asset ratio and to plan sales based on cash flow obligations. A proxy for financial risk failure was often based on the required percentage return on assets to cover interest charges and repayment obligations.

The following examples illustrate the use of the proxy to estimate financial risks. Assume that for every $5.00 worth of assets, the individual farmer must generate $0.20 to cover interest and repayment obligations. A four percent return on assets would be required. It is argued that this individual has limited financial risk as average returns to agriculture approximates four percent. On the other hand, if this individual had only $3.00 world of assets and needed $0.20 to cover interest and repayment obligations, nearly a seven percent return would be required on assets. For this latter example, the changes for financial failure would have increased relative to the former example. This proxy serves only as a warning and does not assign specific probabilities for financial failure, a definite limitation of the procedure.

After entering the financial information, farmers were also instructed to forecast basis. Historic basis averages and variances were good proxies for making this forecast. Finally, the equivalent cash price for each marketing alternative was determined, losses or profits were estimated and the cash flow generated from each marketing alternative was estimated. These work sheets thus provided some guidelines to answer the questions 'what and how much to produce'; however, the joint probability of success or failure could not be estimated.

Risk management and marketing materials, which develop joint probability models, are currently being released for use in extension. For example, John Ikerd published a "Risk Management Through Options Teachers' Guide" as part of the series on Agricultural Commodity Options. A publication by Kim Anderson and John Ikerd entitled, "Risk Related Management Strategies" uses a budgeting model to examine the additive effects of yield risk, financial risks and price risks. To be successfully used, these models must effectively illustrate to farmers how they can use probabilities to solve short-term as well as long-run problems. In other words, farmers' perception that only prescription programs are important must be eliminated. As evidenced by recent farm management programming efforts, it is not easy to eliminate such perceptions. To date, farmers have resisted the efforts of farm management specialists who tried to introduce the probability concept into their Farm Business Management plans for livestock and grains. Similar resistance was also in evidence when probabilities were introduced into Monthly Cash Flow and Resource Budgeting plans.

SUMMARY

The evidence suggests that grain and livestock producers will continue to confront production, marketing and financial risks in the foreseeable future. The important variables which must be identified include production yield and quality risks, marketing price and basis risks, financial risks and storage quality risks. To date, practical methods for measuring these individual risks have not been thoroughly developed. In most cases it is presumed that these risks are normally distributed, therefore, farmers are instructed to intuitively assign probability coefficients to selected prices, yields and debt to asset ratios.

For most risk models, the above probabilities are then examined individually. That is, one examines yield risk, price risk, or the basis risk. The additive and/or interactive effects of risk are not examined. An example of an interactive risk effect is, what changes occur in the probabilities assigned to price risks when there is a major increase or decrease in yields or a major change in the U.S. financial markets?

The models developed by Anderson and Ikerd do examine the additive effects of yield, prices and financial risk. In addition, interactive effects of risk may be incorporated into the model.

Most models do not incorporate the benefits and costs of crop and price insurances and their effect on production, marketing and financial risks. To have a fully integrated management marketing program, the interactive risk effects and the benefits and costs of insurances must be factored into the models. Further, the models must have practical meaning and application for the end user, the producer. Unless the farmer perceives that there is both short-term and long-run benefits from the use of these models, he will not participate in management marketing programming. Developing models which have practical value, may be the most difficult component in the preparation of the integrated management marketing programs.

TABLE 1   <u>Total Marketing Meetings By Subject and Attendance</u>

Type of Educ. Mktg. Program	No. of Programs	Ave. Attend.	Avg. Length of Prog. Hours	Total Number Attending					
				Producers	Youth	Elev. Oper.& Brokers	Other	Total	%
Outlook and Situation	2,291	49.7	1.72	92,372	2,294	4,824	14,808	113,898	48
Futures Trading	957	23.5	4.03	20,459	330	700	964	22,454	9
Forward Contracting	260	30.9	3.09	7,405	251	255	128	8,039	4
Marketing Through Cooperatives	662	43.7	3.35	24,409	875	1,278	2,370	28,932	12
Direct Marketing	555	18.1	3.32	9,286	77	26	682	10,071	4
Marketing Orders	242	41.8	2.54	9,044	282	0	786	10,112	4
Others	1,045	42.3	2.69	29,897	1,428	1,386	11,487	44,198	19
Total	6,012	39.5	———	192,872	5,537	8,469	31,225	237,704	100

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<u>An Analysis of Producing Marketing Educational Programs</u>, Prepared for USDA Marketing
Task Force, April 1, 1982

Table 2:

Form 1. Marketing Alternatives and Strategies

Price Forecast, Production and Storage Costs and Target Price

Marketing Objectives:

1.

2.

3.

4.

Date _____   Commodity_____

1. Forecast or outlook price _____ $_____/bu.
                                 Month

                                _____ $_____/bu.
                                 Month

                                _____ $_____/bu.
                                 Month

                           Ave. for yr. $_____/bu.

2. Production costs
    a. Estimated variable cost $_____/bu.
    b. Estimated fixed cost $_____/bu.
    c. Total cost $_____/bu.

3. Price objective
    a. Target profit $_____/bu.
    b. Target Price (2c + 3a) $_____/bu.

4. Storage cost
        no. of months   _____
    a. Variable cost $_____/bu. $_____/bu. $_____/bu.
    b. Fixed cost $_____/bu. $_____/bu. $_____/bu.

FORM 2, MARKETING STRATEGIES AND
ANALYZING ALTERNATIVES

COMMODITY: _____   DATE: _____   TARGET PRICE: $ _____ /Bu

FINANCIAL RISK:
1) DEBT/ASSET RATIO _____
2) CASH FLOW OBLIGATION
   MONTHS

	1 $	2 $	3 $	4 $	5 $

SPREAD:
   CONTRACT MONTHS

	1.$	2 $	3 $	4 $	5 $

HISTORIC ENDING BASIS,
   CONTRACT MONTHS[1]/

	1 $	2 $	3 $	4 $	5 $

Item[2]/ $/bu.   Alternative

Delivery months

A. Forecast or
    recorded price

B. Storage cost
    or service fee

C. Foregone int.

D. Commission

E. Historic
    ending basis

F. Est. cash equiv.;
    $F = A -$
    $(B + C + D + E)$

G. Cost of production

H. Est. profit (+)
    or loss (-)
    $(H = F - G)$

[1] To be used after harvest to evaluate the change in basis.
[2] Add alternatives as needed

Table 2, cont'd

Marketing Alternatives and Strategies

Form 3, Record of One Hedging Transaction

Commodity_____   Cash Market_____   Initial Margin $_____

Exchange_____   Contract Month_____   Contract Unit _____bu.

Margin Call $_____   Total Margin $_____   Withdrawal[1] $_____

Date	Closing Futures Price	No. of Contracts	Total Value	Activity Sell	Buy	None

Price per bushel

1. Cash price $_____/bu.

2. Gain (+) or
    loss (-) on futures $_____/bu.

3. Commission $_____/bu.

4. Foregone interest $_____/bu.

5. Price per bu.

    $5 = 1 \pm 2 - (3 + 4)$ $_____/bu.

[1]/ If a profit is earned when the contract is open, the profit can be acquired from the broker and should be recorded as a withdrawal.

Table 2, cont'd

Marketing Alternatives and Strategies

Form 4, Record of Sales and Average Prices

Commodity_____   Ave. price from transactions $____/bu. (1)

                                 Ave. price paid to all farmers $____/bu. (2)

Cash flow requirement $_____.   Cash flow generated $_____.

Date of Sale or Contract	Date of Delivery	Selling Alternatives	Bushels Sold	Estimated Price	Estimated Total Value	Price	Total Value	Net Cash Price	Cash Flow
Summary	XXXX	XXXXX		XXXXX		XXXXX		XXXXX	

1) Ave. price equals total value of all sales divided by total bushels sold.

2) Ave. price paid to farmers is acquired from secondary source.

Table 2, cont'd

Form 5, Summary of Marketing Alternatives, Anticipated Cash Flow

Marketing Alternatives:

Item:

Month:

Estimated Profit (+) or Loss (-)
   Per Bu.

Estimated Profit (+) or Loss (-)
   Excluding Fixed Storage Cost,
   Per Bu.

Cash Flow Calculations

     Forecast Price

     Variable Storage

     Interest

     Commission

     Basis

     Spread

Net Cash Price Per Bu.
Bu. of Corn

Net Cash Price Per Bu.
Bu. of Corn

Total Gross

Cash Flow Requirement

Net Cash Flow

185