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Marketing Management:

Guidelines for Farm Level Wheat Sales Decisions



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MARKETING MANAGEMENT:
GUIDELINES FOR FARM LEVEL WHEAT SALES DECISIONS

by

James C. Cornelius*

The financial risk associated with variations in commodity prices is a major concern to agricultural producers. Wheat farmers in the Pacific Northwest have experienced periodic financial losses and gains due to the instability of wheat prices since 1972. As illustrated in Figure 1, the most dramatic fluctuation in wheat prices occurred in the 1973/74 and 1974/75 marketing years.¹ Wheat prices seemed to settle down in the mid-1970s, but have become relatively more volatile during the 1979-to-1982 period.

The price of wheat is important to the grower to the extent that price, along with yields, determines farm income. Over the ten-year time period from 1972 to 1982, the net worth of most wheat farmers has been maintained in times of low prices due to off-setting appreciation of land value. High interest rates in 1981 and 1982 have stopped increases in land values, such that real estate appreciation alone may no longer offset operating losses. In addition, within and between crop years, wheat price fluctuations have created instability in cash flows for the farming enterprise and may disrupt long range management plans and financial commitments.

The ability of producers to grow a crop of wheat seems greater, in many cases, than their ability to satisfactorily sell it. Although producers recognize the importance of the marketing function, they are frustrated by their seeming inability to achieve better marketing through their traditional sales decisions.

The Unpredictability of Wheat Prices

Many of the decisions that must be made about wheat marketing relate to the timing of sales. Figure 1 illustrates that since 1973, monthly variations of up to 50 cents per bushel have been relatively common in the price received by wheat growers. Furthermore, price levels and movements are unpredictable. Table 1 is a listing of the monthly average high and low white wheat prices over the past twelve years. In the 1981/82 marketing year, for example, the lowest average monthly price occurred in December, and the highest average monthly price occurred in November. These monthly prices are not adjusted to include storage costs. Notice in Table 1 that the marketing year highs and

*Extension Marketing Specialist and Assistant Professor, Department of Agricultural and Resource Economics, Oregon State University.

¹The marketing year, as reported by the U.S. Department of Agriculture (USDA), extends from June 1 through May 30 of the following year.

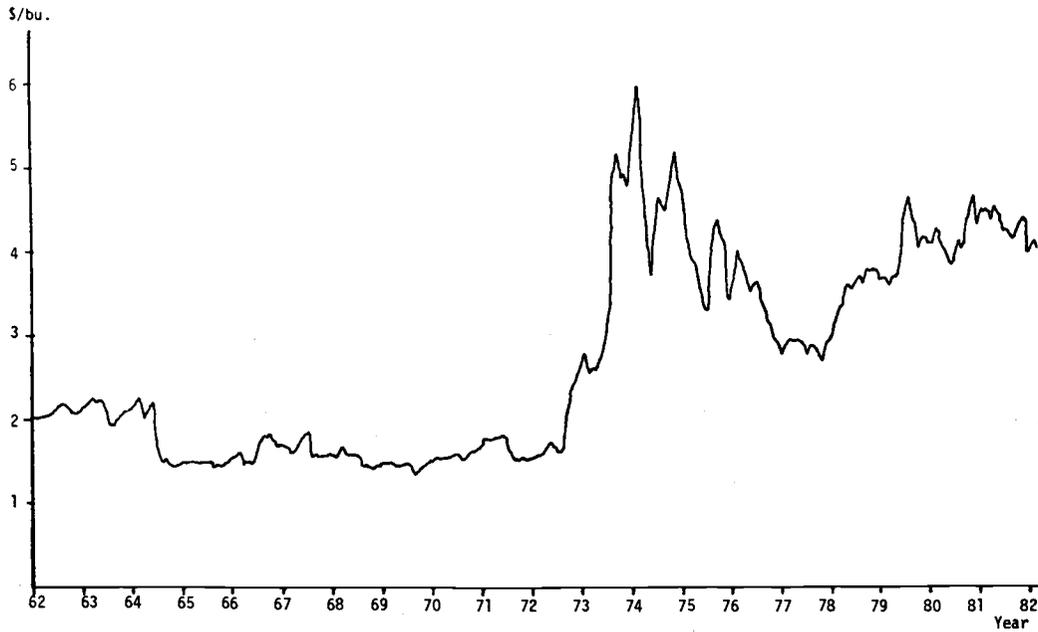


Figure 1. Monthly average Portland cash white wheat prices, 1962-1982.

Table 1. Distribution of Seasonal High and Low Monthly Average Portland White Wheat Prices, 1970/71 - 1981/82

Marketing Year	Month												\$/Bu		
	J	J	A	S	O	N	D	J	F	M	A	M	High	Low	Range
1970/71		L										H	1.82	1.53	0.29
1971/72	H					L							1.75	1.54	0.21
1972/73		L						H					2.80	1.60	1.20
1973/74	L								H				6.01	3.13	2.88
1974/75					H							L	5.17	3.48	1.69
1975/76	L			H									4.39	3.33	1.06
1976/77	H						L						3.60	2.78	0.82
1977/78					L							H	3.60	2.75	0.85
1978/79	L											H	3.91	3.60	0.31
1979/80		H										L	4.67	3.91	0.76
1980/81	L					H							4.68	3.92	0.76
1981/82						H	L						4.42	4.00	0.42
TOTALS															
Highs	2	1	0	1	1	2	0	1	1	0	0	3			
Lows	4	2	0	0	1	1	2	0	0	0	0	2			

lows do not occur with a reliable degree of predictability. Seasonal lows tend to be clustered in the May, June, and July period, but for the 12 year period shown, seasonal high prices have been distributed almost randomly in the June to May period. Daily and weekly prices are even more volatile than monthly averages.

The apparent randomness of high and low prices during a marketing year points out an important fact: there is not a consistent single "best" time of the year to sell white wheat if the objective is the highest price. That is, it is not possible to consistently hit the seasonal high by selling in, say, November.

The reasons behind the unpredictability of the high and low prices -- and therefore the variability in prices -- are the result of economic and political factors that occur outside the control of the wheat producer. For example, Portland white wheat prices increased in October and early November of the 1981/82 marketing year on the rumor of a large pending export sale to India. Subsequently, prices fell sharply in late November when the sale to India was lost, and the wheat market was already under pressure from high interest rates and political unrest in Poland.

The price of white wheat in the Pacific Northwest is influenced by changes in the U.S. and world wheat markets, but supply and demand conditions specific to Pacific Northwest white wheat may cushion or exaggerate the other effects. Moreover, changes in the variables that affect the price of Pacific Northwest white wheat are often random. This random nature of market forces creates price uncertainty, or risk, for the producer trying to sell wheat. This complicates sales decisions. When to sell? How much to sell? There does not seem to be a simple or obvious solution. In fact, many wheat producers wonder if it makes any difference how they sell wheat.

It does make a difference. The sales decision, or marketing plan, has a significant influence on prices received; it is not totally a random process. Different marketing plans are needed for different farm management objectives. There probably is no single "best" way to sell wheat that accounts for the objectives of all wheat producers in the Pacific Northwest. However, recent research has demonstrated that the average farm price received can be increased, and marketing risk decreased, through the careful selection of a marketing strategy compatible with farm management goals.

What is a Marketing Strategy?

A market plan or strategy defines how to make sales decisions in order to meet a marketing objective. A marketing strategy tells you how to choose from the marketing alternatives available. It should indicate when to sell, how much, and at what price levels. Two important steps, then, necessary in developing a marketing strategy are first to identify marketing alternatives available, and second, to formulate marketing objectives.

There are numerous farm-level marketing alternatives available for white wheat. As the term is used here, a marketing alternative is defined as the sales activity that results in a change of ownership. For example, a traditional marketing alternative for wheat has been to sell the wheat for cash at harvest.

Marketing Alternatives

The different marketing alternatives can be grouped into three categories: 1) sell at harvest; 2) store or hold wheat for later sale in anticipation of a speculative gain; and 3) contract the wheat for sale prior to harvest or, in the case of stored wheat, later delivery. Each of these basic alternatives has advantages and disadvantages.

Sale at Harvest. Selling wheat for cash at harvest insures cashflow to meet operating costs during the busy summer/fall season. Maintenance of quality is no longer the responsibility of the producer with a harvest sale, there is no need for extensive storage or holding facilities on the farm, and it is relatively simple. To its disadvantage, selling for cash at harvest rarely gets the season's high price, often results in congested delivery conditions, and does not allow income adjustments for tax purposes.

Speculation. Storing wheat for speculative gain recognizes the potential for higher prices after harvest. In addition, this alternative allows for more flexibility and control in marketing decisions. Holding grain often requires additional storage facilities, retains responsibility for quality, incurs storage and interest costs on invested capital, and, most importantly, is a speculative position. There is no guarantee of higher prices. There are numerous marketing alternatives that might be considered speculative. For example, the extreme case is simply "trying to hit the top of the market," an alternative that is only concerned with trying to sell at the highest price. A less extreme speculative marketing alternative might be the predetermined decision to sell wheat in January, or at any other time after harvest in the marketing year.

Forward Contracting. Contracting for sale prior to harvest or delivery is a marketing alternative used primarily to establish price in advance of delivery and thereby reduce price risk. Contracting also guarantees a market outlet if storage capacity is a concern. Contracts do reduce flexibility in marketing decisions in that once the contract is entered into, other more attractive alternatives may be foregone. Contracts for sale prior to harvest or delivery are most common in the form of forward delivery contracts with grain elevators, whereby the price and delivery date are agreed upon in advance of the physical delivery of the wheat. Hedging on the futures market is another type of forward contracting, although basis risk in the Pacific Northwest has discouraged futures hedging. Forward contracts are generally considered to be risk management marketing alternatives.

Government Programs. The federal government periodically offers wheat and various other agricultural producers an assortment of marketing-related programs. These "farm programs" such as The Agricultural and Food Act of

1981, Public Law 97-98, are established by Congress, and administered through the USDA's Agricultural Stabilization and Conservation Service (ASCS). Normally, each new farm program has a duration of four years and the terms, conditions, benefits and costs of each four-year program have varied considerably.

As a wheat marketing alternative, the farm program has offered incentives including loans, land diversion payments, target price protection, the farmer-owned reserve, and, more recently, the payment-in-kind program. Eligibility to receive these benefits may require participation in acreage reduction programs in some years. The specific participation requirements and program benefits are subject to annual adjustments by the Secretary of Agriculture, based on market conditions forecast for the coming year.

The loan programs -- either the basic or reserve -- can be used to provide cashflow, yet still allow for sales at higher prices. The farmer-owned reserve is more restrictive in that national average wheat prices must reach a predetermined level before the loan can be redeemed without penalty. The target price, and associated deficiency payment, is essentially a price support mechanism, but is designed to be a "safety net" against financial disaster, rather than a guarantee of break-even operations for the wheat producers.

One of the biggest drawbacks to participation in the farm program is the acreage reduction requirement. Reducing acreage will reduce total wheat production, and gross sales may be lowered. Price expectations thus become an important consideration when using the farm program in wheat marketing decisions.

This listing of wheat marketing alternatives is by no means complete. Various combinations of alternatives and individual applications result in a much larger number of alternatives. Furthermore, new alternatives are continually being explored by producers. All alternatives are not available to all producers, however. From the point of view of developing a marketing strategy, alternatives are important in that they define the types of sales that are available to form a strategy. The alternative or alternatives that are selected prescribe how a particular marketing strategy will be executed.

Marketing Objectives

Once the wheat marketing alternatives are identified and evaluated, it is necessary to assess the objectives desired in the overall farming enterprise. These are called marketing objectives. In many marketing discussions it is implied that only one objective -- highest price -- is important. This is rarely the case. From the point of view of the farm enterprise, income and associated profitability are very important, but so is a cashflow that is consistent with the financial needs of the enterprise. Other marketing objectives that may be important include factors such as growth of the farm enterprise, simplicity of marketing activities, or possibly the standard of living to be supported by the outcome of marketing decisions.

One of the most important concepts to deal with in marketing objectives is the risk attitude of the decision maker, or the risk attitude of the interests he represents. The risk attitude may be dictated by a lending institution, cashflow commitments, or contractual farming obligations. Even though an individual producer may be a real "gambler," a heavy debt load and cashflow requirements may restrict him from using marketing alternatives which are inherently speculative. On the other hand, an individual with low cashflow requirements and a strong financial situation may still opt for a relatively low-risk marketing strategy because of a basically conservative attitude towards business operations. Thus, the ability and willingness for a decision maker to accept risk is tied to both economic conditions and personal convictions.

In order to develop marketing objectives, it is helpful to first identify, on paper, the nature of your financial and personal objectives in marketing. Financial objectives benefit from a good set of farm records in order to determine costs, cashflow, and desired returns. With a careful estimate of production costs, it is possible to estimate a "price objective" in your marketing decisions. Identify the price that meets financial and personal goals, and use this price objective as a target or reference in pricing decisions. Realistically, it is important to recognize that you may not cover all costs of production plus a desired profit in the market place. If you find that your price objective is consistently higher than the market price offered, you may have to reassess your costs, efficiency, and long-term objectives.

Developing a Market Strategy

So far, the discussion has centered on two important components of a marketing strategy; marketing alternatives available and marketing objectives. It is possible to formulate marketing strategies given this knowledge, although -- as will be discussed -- additional information may further improve their effectiveness.

It is helpful to develop "decision rules" that aid the implementation of your marketing strategy. Using a simple example, selling all of your wheat at harvest is a simple cash sale marketing strategy and it has a simple decision rule; sell at harvest. If the associated pros and cons of mandatory sale at harvest are compatible with your marketing objectives, marketing management decisions are greatly simplified, as is your strategy. The biggest drawback to this marketing plan is its inflexibility. The price of wheat may be very high at harvest in one year and relatively low in the next. In other words, mandatory sale at harvest does not take into account price variability, which is one of the biggest problems in wheat marketing.

It is more effective to develop marketing strategies that allow some flexibility for risk management. An example of a more flexible strategy is as follows: 1) sell part of the crop at harvest in order to generate a cashflow at that time; 2) forward contract some portion of the crop in order to generate at least a return to storage; and 3) speculate on the remaining portion of the crop with the hope of realizing a windfall gain due to price

increases. Such a selection of marketing alternatives might define the decision maker's strategy in meeting farm management goals given price uncertainty. The decision rules to be followed should reflect a combination of price outlook, risk attitude, and marketing skill. Using the above case where sales were split among three marketing alternatives, an example of decision rules is as follows: 1) sell one-third of the crop at harvest at the current cash price; 2) forward contract one-third of the crop for January delivery if the forward contract price when adjusted for storage exceeds the harvest delivery price; 3) store and hold the remaining one-third of the crop for speculation, keying sales to a price increase of ten percent above harvest time price when adjusted for storage costs. The individual components in this decision rule must be adjusted to fit individual objectives and alternatives available. In this case, part of the strategy was a fixed decision rule --sell one-third at harvest -- while the remaining two components were tied to price levels. The strategy recognizes both price uncertainty and cashflow needs. It would be wise in this case to adjust the marketing strategy if there were changes in economic conditions.

Decision rules that are tied to wheat price levels place greater emphasis on good economic forecasting. Developing decision rules tied to a \$6 per bushel wheat objective when the market realities are closer to \$3.50 a bushel is not a realistic marketing strategy. A price objective may be tied to your costs, forward delivery contract prices, current cash prices, or many other factors. Technical market analysis, such as price charting, is frequently used as a means of establishing price objectives.

A marketing strategy can employ price objectives in a variety of ways. For example, the entire crop might be sold when market prices reach a predetermined level. Or, a small portion of the crop might be sold when market prices reach, say, 90 percent of the objective, and successive sales made if the market price continues to rise. This latter technique is called "scaling" sales, and can be an effective way to manage price risk in the short run.

From the standpoint of a marketing strategy, wheat price expectations are very important. If you feel the current situation and future outlook points inevitably towards some weakness in farm prices in the coming marketing year, you should establish a strategy of taking advantage of current prices. Immediate cash sale, forward delivery contracts reflecting current market conditions, or other risk avoidance alternatives are in order.

At the other extreme, if you envision a stronger farm price developing over the longer term, alternatives such as storage at harvest for later sale, or delayed pricing contracts better fit your strategy. If the market uncertainty is such that you would sooner "wait and see," then alternatives such as commodity loans under the farm program, or limited sales to meet financial needs may be more appropriate. One danger of the "wait and see" strategy is that after a few weeks or months of "waiting," you can be drawn into a speculative or holding position where you are really just speculating on higher prices. In this case, you may want to adopt a strategy of reassessing marketing plans every few weeks to insure that your marketing actions are consistent with your price expectations.

Price projections for white wheat are available from numerous sources in the Pacific Northwest. The Economic Research Service of the USDA makes projections for overall U.S. farm level wheat prices four times a year. These forecasts are reported in the USDA publication Wheat Outlook and Situation.² More specific forecasts of white wheat price in the Pacific Northwest are available through Extension Service Agricultural Marketing Specialists. Price forecasts are also available from a variety of private sources, some of which are free and some of which are on a paid subscription basis. Regardless of the source, even the best forecasts are not 100 percent reliable. Forecasts should be used as guidelines and not as absolutes.

Effectiveness of Different Marketing Strategies

The effectiveness of different marketing strategies, the proof that it "does make a difference how you sell your wheat," is demonstrated in the findings of a research project conducted at Oregon State University.³ The objective of this research was to determine if white wheat marketing effectiveness can be improved given the range of marketing alternatives and strategies available.

The procedure adopted to test this objective was to measure how well various marketing plans would have performed given the price variability in the marketing years 1972/73 through 1979/80. Seventy-three different marketing strategies were tested in the research, ranging from the traditional strategies such as sale at harvest, or sale of portions of the crop at various intervals in the marketing year, to relatively more sophisticated strategies emphasizing risk management and wheat price outlook.

The marketing strategies were simulated with computer modeling in order to specify sales at a given point in time over the marketing year according to the marketing alternative selected. Portland prices for No. 1 white wheat were used for cash prices in these sales, and Chicago futures prices were selected as a proxy for forward delivery contracts, because adequate data were lacking for representative Portland forward delivery contracts. Prices received through each strategy were adjusted for storage and interest.

Eight marketing years for white wheat are represented in the 1972 to 1980 time period. As a result, the variability of price received from a given marketing strategy over this eight year time period was viewed as representative of the price risk associated with that strategy. The average

²Wheat Situation and Outlook is published four times a year, and is available for an annual subscription fee of \$9.00 from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

³Dickens, Mike. "An Evaluation of Alternative Wheat Marketing Strategies for PNW Soft White Wheat Producers." Unpublished Masters thesis, Department of Agricultural and Resource Economics, Oregon State University, Corvallis, Oregon, December 1981.

price received from each strategy over each of the eight marketing years was calculated along with its variability or "risk," and both pieces of information used to judge the effectiveness of an individual strategy. Selected strategies are listed in Table 2, showing the comparison of average price and price variability. Strategy number one (sell entire production at harvest), resulted in an average sale price of \$3.72 a bushel. Over the eight marketing years represented, the sale price received with this strategy had a standard deviation of \$1.01 per bushel. Standard deviation is a statistical measure of variability. It indicates that in two-thirds of the eight marketing years, the price generated by harvest time sales varied within \$1.01 per bushel above and below the \$3.72 per bushel average.

Risk and Return

The standard deviation can also be viewed as an indicator of risk. The higher the standard deviation, the greater the variability in prices resulting from that particular marketing strategy. Strategy nine, for example, which stipulated sale in equal increments at three different months of the year, had an average price of \$3.57 per bushel and standard deviation of 84 cents per bushel. By comparison, sale at harvest (strategy one) resulted in a higher average price but with more variability than sale in equal increments in August, December, and March (strategy nine).

The relationship between average price received and standard deviation can be considered the "risk-return" trade off. The comparison between the two strategies explained above is typical of the risk-return trade off. Generally, the higher the return -- in this case average price -- the higher the risk, or standard deviation. This can be visualized using Figure 2, where risk and return are charted for the strategies listed in Table 2. Notice that as average price (measured on the vertical axis) increases, the resulting risk (the horizontal axis) also increases, such that a high return strategy also has a high risk, whereas a low return strategy has relatively lower risk.

The nature of the relationship between risk and return is important from the perspective of price objectives. Notice that higher average prices can generally be obtained only through taking greater risks. There does not appear to be any strategy that guarantees a very high price at a very low risk. Even strategy 71, which illustrates the very highest cash price that could have been obtained using perfect hindsight, still has a relatively high variability. For any two strategies with the same average return, however, one may have a significantly lower risk than the other, and would therefore be more desirable from the point of view of the risk averse decision maker.

Overall, it is not possible to select a single "best" marketing strategy from those tested. Rather, this must be expressed in terms of risk attitude. For those who are willing and able to incur greater financial risk, there are clearly strategies which perform better than others. But not everyone can or wants to take high risks in marketing. In that case, there are relatively lower risk strategies which are preferable to others.

Table 2. Average Value and Standard Deviation for Selected White Wheat Marketing Strategies, 1972/73 - 1979/80

Strategy Number	Strategy Description	Average Value "Return"	Standard Deviation "Risk"
		(\$/bu)	(\$/bu)
71	Best cash sale possible; "perfect hindsight"	4.43	0.90
65	Flexible strategy keying sales to white wheat forecast based on carry-over stocks and demand; combinations of strategies 1, 14, and 39 depending upon risk	3.87	0.84
14	Speculate on entire crop, sell when 3-5 week moving average signals prices have peaked	3.81	0.92
1	Sell entire crop at harvest (August)	3.72	1.01
33	Hedge entire crop for December delivery; place hedge when 5-15 week moving average indicates prices have peaked	3.65	0.73
3	Store entire crop at harvest and sell in December	3.61	0.93
9	Sell 1/3 crop at harvest; store remainder, selling 1/3 in December and 1/3 in March	3.57	0.84
72	Cash sale 1/12 of crop each month	3.49	0.70
39	Hedge entire crop for March delivery; place hedge when 5-15 week moving average indicates prices have peaked	3.47	0.68
27	Sell 1/3 at harvest and hedge at harvest 1/3 for December delivery and 1/3 for March delivery	3.47	0.90
11	Sell 1/3 crop at harvest; store remainder, selling 1/3 in May and 1/3 in July	3.39	0.53
22	Forward contract (hedge) entire crop at harvest for March delivery	3.33	0.89
5	Store entire crop and sell in May	3.07	0.35

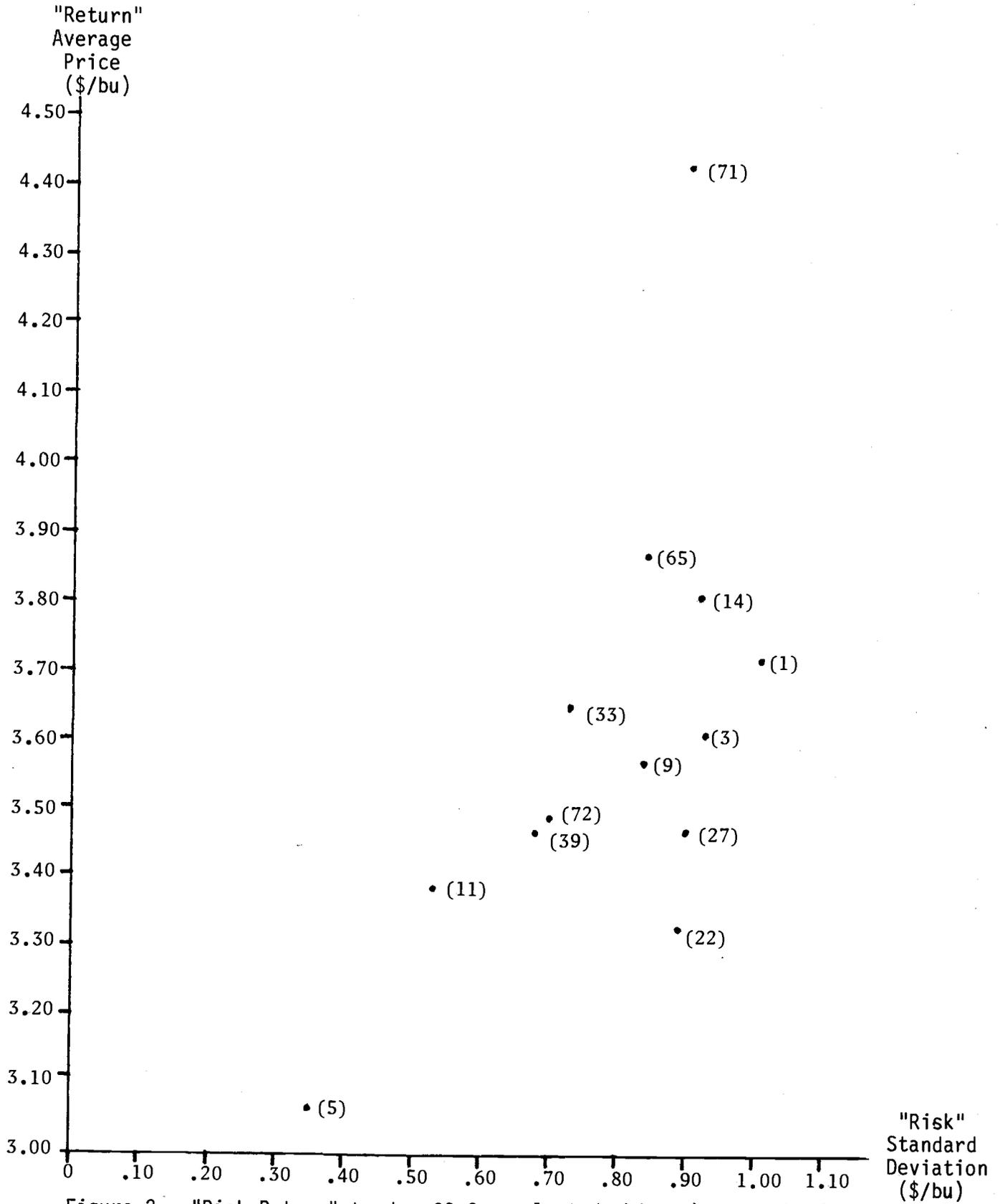


Figure 2. "Risk-Return" trade-off for selected white wheat marketing strategies, 1972-1980.

Conclusions

The major conclusions of the research described above can be summarized as follows:

- 1) The observed risk-return trade off among white wheat marketing strategies is very strong. Don't expect to reap high prices on average unless you can afford to take higher risks.
- 2) There are significant differences, both in terms of price received and price variability, among marketing strategies; it does make a difference how you sell your wheat.
- 3) Sales later in the marketing year tend to result in lower returns and lower risk, especially when holding and storage costs are considered. It is possible that farm program options may offset this to some extent, but program participation was not considered in the research.
- 4) Forward contracting is most effective when done on a selective basis. There are times when forward contracting is distinctly worse than other marketing alternatives. Simply because you have forward contracted does not mean you have a good marketing strategy. Generally, selective hedging or forward contracting for delivery in the December period resulted in higher returns and lower standard deviation than in the March, May, or July periods.
- 5) Market success can be improved by tailoring sales decisions to current market economic conditions. A marketing strategy can often be improved by adopting decision rules that depend on supply and demand variables influencing wheat prices.

Increasing marketing sophistication calls for greater skills, and greater managerial time, and this may not be compatible with all farming operations. If more sophisticated marketing strategies are desired, these can be obtained for a fee by subscribing to various marketing management services. Such services cannot perform miracles, however, and it is important that the management service clearly understands your objectives and risk bearing ability.

Implementing Your Own Wheat Marketing Strategy

Nearly all agricultural producers recognize the importance of marketing. But because the marketing decisions are often different than those involved in the production process, a wheat grower may be at a loss where to start. There are no simple "fill-in-the-blanks" solutions that will automatically solve your marketing problems. A marketing strategy, or sales plan, should tell you how you are going to reach your management objectives. At a minimum, this calls for decisions on when to sell, how much to sell, and what marketing alternatives to use.

Start by identifying your objectives. Establish a price objective. Calculate the amount of price risk that you are willing and able to carry. Next, consider the pros and cons of the various alternatives; how each alternative fits into your management plan and farming operation, as well as the likely risk-return tradeoff. The research results described above also point out the benefits to be gained from a marketing strategy that takes into account the white wheat outlook in the months ahead. Generally, if this outlook is good, the more speculative strategies can be used effectively, but if the outlook is pessimistic, a more conservative sales plan is in order. As a result, it is to your advantage to stay informed of current market developments and future outlook. Market awareness, including familiarity with marketing alternatives, government programs, and economic outlook are extremely useful in devising a strategy.

Having armed yourself with adequate background information, and with a comfortable knowledge of what your objectives are, write down a strategy for the coming year. Try to incorporate some decision rules and market objectives that will guide you through the uncertain future. With time and experience, you will likely refine and revise your original plan. The strategy should be reviewed and updated whenever there are significant changes in the market outlook, such as changes in the underlying supply and demand conditions affecting the wheat market. Lastly, don't abandon your plan just because it caused you to miss a promising sales opportunity. It is easy to make better marketing decisions from hindsight. The challenge is to improve these decisions in the future.

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