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An Assessment of the Feasibility of Dairy Producer and Dairy Processor Alternative Contractual Arrangements

By

Evan Kinser and Bob Cropp*

October 1998

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* The authors are Research Assistant and Professor respectively, both in the Department of Agriculture and Applied Economics at University of Wisconsin-Madison.

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An Assessment of the Feasibility of Dairy Producer and Dairy Processor Alternative Contractual Arrangements.

Introduction

Whether through contractual arrangements or vertical integration, coordination between food producers and food processors has been going on for decades. For example, practically all broilers are raised under contractual arrangements with or vertical integration by feed suppliers or poultry processors (Drabenstott). Nearly 65 percent of fresh vegetables and 95 percent of processed vegetables are produced under contracts with vegetable processors. Vertical integration by feed suppliers and meat processors in hog production and/or contractual arrangements with hog producers is accelerating (Reynolds and Reilly). From 1991 to 1994 the percent of market hogs produced under contract almost doubled, moving from 8.9 percent to 16.6 percent (NPPC).

Increased coordination can improve marketing and food processing efficiency. Maximizing efficiency becomes difficult, however, when each producer independently makes production and marketing decisions – especially since food processors desire a specific quality and quantity of a commodity, to be produced for a given time period. Doing so enables them to better utilize processing, storage, and manufacturing facilities and, by extension, improves efficiency. It also would enable processors to better fulfill the demands of buyers for a more consistent supply of high quality food products at lower cost.

Fluid milk and dairy products production, processing, and marketing may potentially follow this coordination trend. Other than membership contracts with dairy cooperatives, quantity and/or price contracts between dairy producers and dairy cooperatives or investor-oriented dairy processors have not been used. It is possible that potential gains from increased coordination and interests in contractual relations between dairy producers and dairy processors may differ from that of the meat industry. Still, two major forces could push the dairy industry toward some type of contract system: change in federal dairy policy and producer desire for price protection.

Federal dairy policy is undergoing dramatic evolution. From 1950 until 1981, dairy product and, in turn, farm level milk prices were supported at relatively high levels under the federal dairy price support program. As a result, little price or market risk existed in the dairy industry. Since 1981, the government has drastically reduced the federal dairy price support program. The support price, which was $13.10 per hundredweight in 1981, was reduced to $10.10 per hundredweight by 1990. The support price in 1998 was $10.05. Without these high support levels, the market determines product and on-farm prices. This has resulted in increased volatility and uncertainty in dairy product and farm-level milk prices (Appendix A).

Prior to 1981, government involvement virtually assured farmers a profit, if the dairy producers' cost to produce milk was below the support price. But, the change to market-oriented dairy policy has brought about significant changes. First, lower and more volatile milk prices have increased market risk. Second, dairy producers, in an attempt to profitably adjust, have

modernized and expanded their operations. Ironically, increased market price risk exposure may prevent dairy producers from obtaining necessary financing for modernization and expansion. Many institutions are reluctant to finance operations facing price uncertainty, often denying loans or proposing prohibitive interest rates. Consequently, dairy producers and milk processors interest in contracting is expected to grow as the industry seeks to address this increased price risk.

While this paper focuses on the dairy producer side of risk management, milk buyers do have incentives to offer cash forward contracts for producers to lock milk prices on anticipated production. Milk buyers need to have a steady supply of milk to ensure maximum efficiency of their plants. By offering contracts, processors can ensure they have a supply of milk, and they could also use the contracts to control the cost of the milk they purchase.

Price volatility and uncertainty prompted the industry to seek potential risk management solutions. The dairy industry turned to a time-tested vehicle: futures and options contracts. The Chicago Board of Trade organized futures markets for grains in 1848. The first attempt to establish a futures market in the dairy was by the New York Coffee, Sugar, and Cocoa Exchange (CSCE). (The CSCE merged with New York Cotton Exchange on June 10, 1998 to form the New York Board of Trade). The CSCE established cheese and nonfat dry milk futures and options contracts in June of 1993. The close correlation between cheese and milk prices led some to believe that producers and cheese manufacturers could use cheese futures and options to protect milk prices and the value of inventories; respectively. However, the fact that dairy producers did not understand the inherent link between milk price and cheese price and because the dairy industry, in general, had little understanding of price risk management, cheese futures contracts acceptance was slow.

The delivery mechanism also hampered efforts to develop the cheese futures market. In most futures markets less than 2 percent of contracts actually end in delivery. Most are offset with an opposing trade (i.e. if originally bought then offset with sale and vice versa). Delivery becomes a big concern in markets with little trading activity. The fear being, once a position is entered, the offsetting trade will not be available and delivery will be required. With cheese, fears were particularly acute for dairy producers selling cheese futures to protect against falling milk prices. If producers were unable to offset their position, they would be required to deliver cheese – a product they do not produce and would have to purchase. The delivery issue and the fact that the contract was relatively large (equal to about 420,000 pounds of milk) were too large a hurdle to clear.

With lackluster trading in cheese, the CSCE introduced fluid milk contracts in September 1995, and the Chicago Mercantile Exchange (CME) followed in June 1996. This contract, like cheese and nonfat dry milk contracts, was a delivery contract. It was thought this would be ideal for producers, they could use it as a marketing tool and the contract would set the minimum farm pay prices under the Federal Milk Marketing Orders (FMMO), the Basic Formula Price (BFP). The BFP is the estimated weighted average pay price for Grade B (manufacturing grade milk) milk by butter, milk powder, and cheese plants located in Minnesota and Wisconsin. The BFP sets the minimum price for Grade A (fluid quality milk) milk used for Class III, (milk used to make cheese) in the FMMO. And, the BFP serves as a mover of the minimum pay prices of the other

classes of milk, Class I (beverage) and Class II (soft manufactured products). In the early life of the fluid milk contract, the contracts did track the BFP. However, as milk supply was limited in the summer and fall of 1996 the fluid contract traded at a significant premium to the BFP. During this time the contract appeared to be tracking the value of an extra load of Grade A milk in the Upper Midwest available to be shipped to the deficit Southeastern fluid market.

The Fluid Milk Futures had three major drawbacks. First, most producers have contracts with their current milk buyer for all of their marketable milk. Second, the contract delivery time was only five days before the end of the month. Because of these two problems, most producers wanted to offset their position before getting to the delivery period, however not all were able and had to make deliver milk. Finally, because the fluid milk contract sometimes reflected the BFP and at other times extra shipments, considerable basis risk existed. Basis is the difference between the cash price, in this case farm pay prices, and the futures price. For example, producers who sold contracts saw more futures losses than cash gains. Unpredictable basis led many producer users to decide this was the not ideal tool for them to use to protect farm milk prices.

Basis problems with the fluid milk contact and delivery concerns with the cheese and/or milk contracts led the industry to develop a cash settled futures contract tied to the Basic Formula Price (BFP) as announced by the United States Department of Agriculture (USDA). A cash-settled futures contract does not require delivery of the underlying commodity. Instead, any gain or loss in the position is simply adjusted with cash to an index. This cash settled BFP contract began trading at the CSCE in April 1997 with the contract size of 100,000 pounds and at the CME in July 1997 with the contract size of 200,000 pounds. BFP futures have enjoyed more success than their predecessors have, largely because most people in the industry understand the BFP and its impact on milk prices. This included producers, processors, cooperatives, and even end users. And, cash settlements have put to rest concerns about unwanted deliveries.

The need for risk management in the butter market brought about the introduction of butter futures contracts from both exchanges. The butter contract is a physical delivery contract, meaning it requires delivery of butter if held until the end. The CME began trading butter in September 1996, and the CSCE began in October 1996.

The success of the cash settled BFP futures led the CME to develop a cash-settled cheese futures contract. This contract, which began trading in October 1997, settles to the National Agricultural Statistics Service (NASS) 40-pound block cheddar cheese price (a survey of cheese transitions across the country) for the last week of the contract month. Other cash-settled dairy commodity contracts are being considered.

Futures markets provide dairy producers and processors an opportunity to offset price risk. Further, milk buyers can use the futures market to offer cash forward contracts to their patrons/producers. Cash forward contracts allow producers to lock in a milk price before they produce the milk. The first cash forward milk contracting program began when Alto Dairy Cooperative and Blimling and Associates, a dairy consulting firm in Cottage Grove, Wis., received a grant from the Wisconsin Department of Agriculture, Trade and Consumer Protection. The grant called for a pilot study on the use of the cheese futures contracts to offer cash forward

contracts to Alto's dairy producers. This pilot study ran from August 1, 1994, through September 30, 1996. Alto's success led other dairy cooperatives to offer cash forward contracts.

Only a limited number of private processors, however, currently offer cash forward contracts. The limited number is because of FMMO provisions, which require non-cooperative milk buyers to pay their producers at least the established federal order minimum price. Therefore, if the contract price with a producer is less than the minimum federal order price at the time of delivery, the milk buyer is forced to pay the higher federal order price.

Cash forward contracting allows the producer an alternative pricing mechanism. Until futures began trading dairy producers only had one pricing option: which milk buyer to choose. With the start of dairy futures trading, producers could hedge their production. However, to hedge profitably, cash flow issues must be tackled. If a producer had milk hedged at a profitable level and the prices continue to rise, that producer would be subject to margin calls, money required to maintain his positions in the futures markets. This could be a problem since the profit on the milk might not be realized for several months in the future, so the producer would have to come up with cash from somewhere to maintain that position. An advantage of forward contracting is that it allows a producer to price his/her future milk production and not worry about margin calls. Currently many producers belong to a cooperative, in hopes that the cooperative will pay them the maximum possible for the milk. Producers may now choose to belong to a dairy cooperative to take advantage of cash forward contracts.

Another major force that may push price risk management alternations is structural changes occurring in the dairy industry. With lower and more volatile milk prices there will be considerable pressure to identify and adapt alternative dairy farm technologies and dairying systems that offer the opportunity of reducing the cost of producing a hundredweight of milk. These new dairy systems frequently mean a larger dairying operation. But increased market price risk exposure affects the ability of dairy producers to obtain financing for more efficient dairying systems. If clearly there is a trend towards larger dairy operations in Wisconsin, then maybe there will be increased interest in contracts that not only assure markets but also reduce the lenders' risk of financing the operators by insulating to some degree dairy producers from price risks.

Objectives

This study focused on three objectives.

1) To determine dairy producers knowledge of dairy risk management tools
2) To determine dairy producers interest in use of these risk management tools
3) To identify characteristics of producers interested and/or willing to contract a portion of their milk production

Hypothesis tested

Increased price risk is stimulating producer interest in some type of contracting system that provides insulation against price fluctuations. Dairy producers are curious to learn about how to

enter into a contract with milk processors for a specified quantity of milk delivered at a specified price at some point in the future.

Methodology

The results in this paper are the product of a survey questionnaire mailed to a random sample of 3,192 Wisconsin Grade A dairy producers. The random sample was obtained from the Wisconsin Statistical Service, Wisconsin Department of Agriculture, Trade and Consumer Protection. The sample was selected by first selecting a random Wisconsin dairy producer and choosing every nth record after that. The surveys were mailed in late November 1997 and a reminder postcard was sent in the second week of December. Appendix B contains the survey instrument.

The survey was designed to discern dairy farmer knowledge of price risk management tools and gauge their interest in forward contracting. In designing the survey, a conscious effort was made to keep it simple for respondents to complete. The survey contained few open-ended questions. Moreover, few questions required producers to research records or make calculations.

The questions focused on three areas. The first focus was on general information. Respondents were asked to provide their age, education level, annual pounds of milk sold, cost of production, type of milk buyer (cooperative, marketing group, or private), debt level relative to assets, future plans, and enterprise(s) beside dairy. Producers were also asked about their outlook on profitability, perception of price risk, current knowledge of the futures market, and interest in learning more. The second focus -- and core -- was on price risk management. In this section producers were asked several questions relating to their interest in using dairy risk management tools. It also included a question about availability of forward contract programs and, for those who had access, how producers were using these programs. The section concluded with questions asking producers to indicate what percent of their milk they would forward contract at different prices. This section was divided into two time periods: the first and second halves of the year. The last focus asked questions about computer use, interest in software and market information sources for risk management, and provided space for producer's comments and/or concerns.

Of the 3,192 surveys mailed, 588 usable responses were received for a response rate of 18.4 percent. The data were analyzed using econometrics that involved several different multinomial tools. A 95 percent confidence interval was used to determine the significance of various relationships.

Respondents Characteristics

Over 64 percent of the respondents were between the age of 36 and 55 (Table 1). Seventeen percent of respondents were under the age of 36, while 18.6 percent were over the age of 55.

Table 1: Distribution of Respondents by Age

Age	*Number*	*% of total*
Under 25	9	1.5
26 - 35	91	15.5
36 - 45	202	34.5
46 - 55	175	29.9
56 - 65	83	14.2
Over 65	26	4.4

Forty-nine percent of the respondents had a high school education or less (Table 2). About 51 percent of the respondents had some type of education beyond high school, with about 14 percent holding a college degree.

Nearly one-third of the respondents indicated they had annual milk sales under 750,000 pounds (Table 3). Almost 46 percent had annual milk sales between 750,000 pounds and 1.5 million pounds. Twenty-one percent of the respondents marketed greater than 1.5 million pounds annually.

About 46 percent of the respondent listed a cost of milk production less than $11.00 per hundredweight, while 10 percent had a cost of production between $11 and $12 per hundredweight (Table 4). Twenty-one percent indicated a cost of production over $12 per hundredweight. Those producers not knowing their cost of production totaled 23 percent.

Sixty percent of the respondents marketed their milk through a cooperative (Table 5). About one-third sold to a private processor and 6.9 percent marketed through a bargaining organization.

Table 5: Distribution of Respondents by Type of Milk Buyer

Type of Buyer	*Number*	*% of total*
Cooperative	350	60.1
Private Processor	192	33.0
Bargaining Organization	40	6.9

Almost 39 percent of the respondents would be classified as being in excellent financial shape, as a general rule by having a debt load less than 25 percent of assets (Table 6). About 39 percent had debt-to-asset ratio between .25 and .50, and 22 percent had debt greater than 50% of assets.

Table 2: Distribution of Respondents by Education Level

Education Level	*Number*	*% of Total*
Some High School	24	4.1
High School	262	44.9
Some College	74	12.7
Technical School	144	24.7
College Graduate	70	12.0
Post Graduate	9	1.5

Table 3: Distribution of Respondents by Amount of Milk Sold Annually

1,000 lbs of mik	*Number*	*% of Total*
Under 500	72	12.5
500 - 750	114	19.8
750 - 1,000	140	24.3
1,000 - 1,500	125	21.7
1,500 - 2,000	51	8.8
2,000 - 5,000	55	9.5
5,000 - 10,000	16	2.8
over 10,000	4	0.7

Table 4: Distribution of Respondents by Cost of Producing 100 pounds of Milk

Cost per 100 lbs.	*Number*	*% of Total*
under $9	73	12.8
$9 - $10	86	15.1
$10 - $11	102	17.9
$11 - $12	58	10.2
$12 - $13	53	9.3
$13 - $14	39	6.8
Over $14	28	4.9
Unknown	131	23.0

Table 6: Distribution of Respondents by Percent Debt/Asset Ratio

Debt/Asset Ratio	*Number*	*% of total*
No Debt	96	17.0
Under .25	123	21.7
.26 - .30	76	13.4
.31 - .40	70	12.4
.40 - .50	76	13.4
.51 -. 60	56	9.9
.61 - .70	42	7.4
Over .70	27	4.8

Forty-six percent of respondents plan to maintain current herd size for the next five years (Table 7). Nineteen percent plan to expand during the same period, while 16.3 percent plan to exit the industry and 18.6 percent were undecided on what they plan to do within the next five years.

About 30 percent of the respondents had an optimistic view of their dairy enterprise profitability over the next five years (Table 8). Just over 25 percent were pessimistic and 44.4 percent were neutral in their outlook on profitability.

Respondents were asked about their current knowledge of the futures markets. The question used was subjective to respondent's interpretation of how much knowledge qualified for any particular level. Nonetheless, data showed only a relatively small percentage – 6.5 percent -- of respondents claiming to be comfortable with these markets (Table 9). Only 2.3 percent indicated they were experienced with the futures markets. Fifty-eight percent did indicate they had some knowledge, while one third indicted they had no knowledge.

Table 7: Distribution of Respondents by Future Plans for their Dairy Enterprise over the next 5 years

Future Plans	*Number*	*% of total*
Maintain	268	46.0
Expand	111	19.1
Exit	95	16.3
Unknown	108	18.6

Table 8: Distribution of Respondents by Outlook on Profitability for their Dairy Enterprise over the next 5 years

Outlook	*Number*	*% of total*
Optimistic	171	29.9
Neutral	254	44.4
Pessimistic	147	25.7

Table 9: Distribution of Respondents by Knowledge of Futures Markets

Knowledge Level	*Number*	*% of total*
None	190	33.22
Some	332	58.04
Comfortable	37	6.47
Experience	13	2.27

Analysis and Results

The analysis was done, as previously indicated, using econometric tools. A 95 percent confidence interval was used to determine significant relationships. Because of small sample sizes, respondents were regrouped according to characteristics as show in Table 10.

Table 10: Grouping of Respondents Characteristics for Analysis

Age	Education Level	Size of Operation
Under 35	Some high school and high school graduates	Under 750,000
36 45	Some College and Technical School	750,000 - 1,000,000
46-55	College Graduate and Post Graduate	1,000,001 - 1,500,000
Over 55		Over 1,5000,001

Percent Debt	Milk Buyer	Cost per Cwt.
No Debt & under 25%	Cooperative and Bargaining Group	Under $9.00
26 - 30%	Private Processor	$9.00 - $10.00
31 - 40%		$10.00 - $11.00
41 - 50%		$11.00 - $12.00
Greater then 50%		Over $12.00
		Unknown

The analysis attempts to draw some conclusions about the relationships between the general characteristics of respondents and different items of interest. This was done in two different ways. First, the analysis was done using multiple factors (characteristics). This was done in an attempt to account for any correlation between the characteristics, which could be missed in the singular analysis. To double check relationships, generally multiple factor analysis was followed with singular analysis for characteristics that did not show significant relationships in the first analysis.

An analysis of the characteristics follows: first the test is defined, then the statistical results, and finally interpretation of the results.

Milk Production: Cost per Hundredweight

Test: Cost of milk production per hundredweight as it relates to the operation size, relative debt load, operator age, and education level. Only the respondents listing a cost of production were included.

Results:

- No significant relationship between the cost of production and either education level or operation size.
- Significant positive relationship between cost and both relative debt load and age

Interpretation:

- As relative debt increased so did production costs, which seems obvious, since higher debt means higher interest costs. Thus possibly higher overall costs.
- As age increased so did production costs. This relationship between age and cost of production is less obvious. One possible explanation: older producers may be less aggressive in managing cost.

Test: The relationship between knowing cost of milk production and the operation size, operator age, relative debt load and education level.

Results:

- No significant relationships existed among the characteristics whether taken together or individually. The closest was relative debt load, significant at 93 percent confidence interval.

Interpretation:

- This was positive indicating as debt load increased the likelihood of knowing the cost of production also increased. This relationship seemed logical, since the more leveraged the more critical it is for an operation to know its costs, in order to make better business decisions.

Operation size

Test: Relationships between respondents' characteristics and the operation size.

Results: Only relative debt had a significant relationship. This relationship was positive.

Interpretation: As relative debt increased, so did the operation size. A possible explanation could be as operations expand, debt is incurred to finance the expansion.

Respondents' Outlook for Dairy Enterprise Profitability

The distribution of respondents by outlook on profitability over the next five years is shown in Table 8.

Test: Relationship between the respondents' outlook and the respondent general characteristics.

Results: (Table 11)

- No significant relationship between the general characteristics and producers having a neutral outlook.
- Respondents who had either an optimistic or pessimistic outlook the same characteristics had significant relationships but they were opposing
- Respondents with an optimistic outlook had a positive relationship with operation size and negative for both cost of production and operator age.
- Respondents with a pessimistic outlook had a negative relationship with operation size and positive for both cost of production and operator age.

Table 11: Relationship between Respondents' Outlook on Profitability and General Characteristics.

Characteristics	*Optimistic*	*Neutral*	*Pessimistic*
Size	Positive	None	Negative
Cost	Negative	None	Positive
Age	Negative	None	Positive
Debt	None	None	None
Education	None	None	None

Interpretation: The relationships that are significant are informative, but hardly a surprise.

- Respondents were more likely to be optimistic as operation size increased, as cost of production was lower, and they were younger.
- Just the opposite was true for respondents with a negative outlook on profitability. It is interesting that there was no significant relationship between debt load and outlook for profitability.

Respondents' Future Plans

The distribution of respondents' answers to their plans in the next five years was shown in Table 7.

Test: Respondents' future plans were analyzed for relationships with the general characteristics.

Results: (Table 12)

- Those who plan to expand and those who plan to exit have opposite relationships to the same characteristics. For example, the operation size had a positive relationship with those who were planning to expand, and had a negative relationship with those who planned to exit.
- Operator age had an opposite impact, negatively related to respondents planning expanding and positively correlated to those planning to exit.
- Relative debt was negatively related to those who were planning to maintain operation size and positive to those planning expansion.

Table 12: Relationship between Respondents' Future Plans and General Characteristics

Characteristics	*Maintain*	*Expand*	*Exit*	*Unknown*
Size	None	Positive	Negative	None
Cost	None	None	None	None
Age	None	Negative	Positive	None
Debt	Negative	Positive	None	None
Education	None	None	None	None

Interpretation: As age increased, respondents were more likely to plan an exit. Smaller operators are also more likely to exit. It is interesting too that size and age were significant for

both those who plan to expand and those who plan to exit, but relative debt load was significant for only those who planed to expand. Often, it is assumed debt is a main reason for exiting the industry. According to these results relative debt load does not appear to precipitate thoughts of exit, while other exits appear to be mostly retirements. Already large dairies were more likely to expand, which isn't unexpected, given that they also were more likely to be optimistic than pessimistic. It is interesting that neither production cost nor education level was a significant factor in respondents' future plans.

Knowledge about Futures Markets

Because few respondents indicated comfort or experience with futures, those two responses were combined with those respondents who marked "some knowledge" of futures in this analysis. Thus, the analysis pertains to either yes respondents had at least some knowledge of futures markets or no they did not.

Test: Relationship between the respondent's knowledge of futures and respondent general characteristics.

Results:

- Operator age had a positive relationship
- Relative debt had a negative relationship.

Interpretation: As operator age increased, respondents were more likely to be knowledgeable about futures markets. It is interesting that those with more relative debt were less likely to have knowledge of futures markets, since income stability is a critical factor for highly leveraged farms and risk management tools (ex. futures) are necessary for income stability. But, from this analysis, it does not appear futures markets were being used to manage this risk. The analysis also indicates that education is not correlated with futures markets knowledge.

Respondents using Selling Price Risk Management Tools

Of the total respondents, 112 (19 percent), indicated they used some type of selling risk management tool, whether futures, options, cash forward contracts, or some combination. The majority of use was in the grain industry (Table 13). Almost 80% of the respondents that use selling risk management tools used them either in corn or soybeans. Ten percent had used a risk management tool to protect milk prices. Respondents mostly employed cash forward contracts, with 73 percent who used selling risk management tools going that route (Table 14). Fifteen percent of this group used futures while 12 percent used options. Forward contracting's relative popularity might be attributed to its simplicity verses the other alternatives.

Table 13: Distribution of 112 Respondents who use Selling Price Risk Management Tools by commodities

Commodity	*Number*	*% of total*
Corn	85	49.1
Soybeans	51	29.5
Livestock	9	5.2
Milk	18	10.4
Other	10	5.8

Table 14: Distribution of 112 Respondents who use Selling Price Risk Management Tools by Types of Risk Management Tool

Tool Used	*Number*	*% of total*
Cash Forward	149	73.0
Futures	31	15.2
Options	24	11.8

Test: The collective and independent relationship between education level, operator age, operation size, cost of production and relative debt load and the use of selling price risk management tools.

Result: Operation size had a significant positive relationship in both collectively and independently.

Interpretation: The larger the operation, the more likely it was to employ some type of selling price risk management tool. A relationship between either education level and/or the use of selling risk management tools would have been logical, but wasn't seen in this analysis. Education level, operator age and relative debt load, according to this analysis, are unrelated to the use of selling price risk management tools.

Respondents using Input Price Risk Management Tools

There were 150 (25.5 percent) of respondents indicated that they used some type of input-price risk management tool. The distribution of use was fairly evenly distributed between the popular feed ingredients listed. Twenty-six percent of those who used input price risk management tools used input risk management tools to protect the purchase cost for corn, 31 percent for cottonseed, 32 percent for soybean meal, and 10 percent for other miscellaneous commodities (Table 15). As with selling price risk management tools, cash forward contracts were used significantly more (Table 16). Ninety percent of those who used input price risk management tools used cash forward contracts, 6 percent used futures, and 4 percent used options.

Table 15: Distribution of 150 Respondents who use Input Price Risk Management Tools by Commodity

Commodity	*Number*	*% of total*
Corn	66	26.4
Cottonseed	77	30.8
Soybean Meal	81	32.4
Other	26	10.4

Table 16: Distribution of 150 Respondents who use Input Price Risk Management Tools by Types of Risk Management Tool used

Tool Used	*Number*	*% of total*
Cash Forward	229	89.8
Futures	16	6.3
Options	10	3.9

Test: The relationship between input price risk management tools and the operator age, operation size, cost of producing milk, relative debt load, and education level.

Results:

- Operation size had a significant positive relationship.
- Operator age had a significant negative relationship.
- Education level had a significant positive relationship
- Neither production cost nor relative debt load had a significant relationship with the use of input price risk management tools.

Interpretation: As operation size increased the likelihood of using an input price risk management tool increased. Larger farms are more vulnerable even with little changes in input prices because they are more likely to purchase large quantities of commodities. Operator age's negative relationship indicates older producers are less likely to use input price risk management tools. Operator age was not significant for the use of selling price risk management tools. One possible explanation for the difference could be the newness of selling risk management tools in the dairy industry and the presumption that older producers are less receptive to change. The more educated the operators, the more likely to use input risk management tools, and again there

was no relationship earlier between education and use of selling price risk management tools. No explanation for this difference seems obvious.

Test 2: The relationship between the use of input price risk management tools and production cost and relative debt level independently

Results:

- Debt had a significant positive relationship.
- Cost had no significant relationship.

Interpretation: As relative debt level increased respondents were more likely to use input price risk management tool. According to this analysis the use of input price risk management tools is not related to the production costs. This is logical, since price risk management tools are not necessarily better input price, they simply enable more input price control.

Test 3:

Analysis was done to see if the use of an input price risk management tool increases the likelihood of using selling price risk management tools.

Results: Positive significant relationship between the use of input price risk management tools and the use of selling price risk management tools.

Interpretation: Those who use input price risk management tools are more likely to also use selling price risk management tools. This is logical, because one of the factors that should be considered in using selling price risk management tools is knowing the costs of production. Without the use of some type of input cost management tool the use of a selling risk management tool could put a seller in a dangerous situation. Profit is a function of the price of the output sold minus the cost of production. With price of the output protected profits could be reduced because input costs rise. However, it is scary for the same reason, to see relative debt load was not significantly related to use of input price risk management tools but was significant for use of selling price risk management tools. What makes this more alarming is the thought that these farms are facing cash demands to service the debt, but do not appear to be locking in input cost before locking in selling prices.

Milk Price Risk Management

There were only 18 (3 percent) of the respondents who indicated that they used some type of milk-price risk management tool. The majority used forward contracts (Table 17). It is not surprising to see the smallest used futures or options. Some of the hesitation to use futures was pointed out in the early part of this paper (ex. delivery concerns, low relationship between some future prices and actual milk price, and concern over margin calls). But these are not valid concerns for hedging with either options or forward contracts.

Table 17: Distribution of 18 Respondents who used Price Risk Management Tools to protect milk prices

Tool Used	*Number*	*% of total users*	*% of total producers*
Forward Contract	10	47.6	1.7
Futures	5	23.8	0.9
Options	6	28.6	1.0

Out of those 18 using milk price risk management tools, five used some type of selling price risk management tool for a commodity other than milk, and seven indicated they used some type of input risk management tool. Fourteen indicated they had at least some knowledge of the futures markets and three indicated they were experienced.

Test: The relationship between operation size, cost of milk production, relative debt load, education level, and operator age and the use of milk price risk management tools.
Results: None had a significant relationship at the 95 percent confident level.
Interpretation: This may well be because of the small number of observations.

Test 2: The relationship between the use of milk price risk management tools and the respondent's general characteristics individually.
Results: Education had a significant positive relationship.
Interpretation: Education's significant relationship is logical, since it typically takes a higher level of understanding to try new things. It would be expected that relative debt load would be significant, because highly leverage farms should be concerned about income stability to manage that level of debt. But the finding of no significant relationship between respondents' other characteristics and the use of milk price risk management tools still may be due to the small number of respondents using these tools.

Milk Cash Forward Contacting

Milk cash forward contracts were available to 101 (17 percent) of the respondents, but only 10 (1.7 percent) have used it. Some respondents indicated they did not know if their milk buyer had a forward contracting program and some left it blank, possibly because they did not know either. For those using cash forward contracts the range of use was from 10 percent to 50 percent of an individual's monthly milk production, with an average of 30 percent. Twenty-three (23 percent) of those who have a program and have not used it indicated they would in the future. The survey also asked the reason(s) for not presently using the available program. Almost 26 percent indicated that they "did not know how to use the cash forward contract program" (Table 18). About 22 percent indicated they "did not use it because of undesirable prices" and 27 percent indicated they "did not see the usefulness of the contracts." Just over 16 percent indicated some other response. One of the more prevalent "other" responses was the concern over producing enough milk to participate in the program.

Table 18: Distribution of Respondents' Reasons for not using Milk Buyer's Cash Forward Contracting Program

Reason	*Number*	*% of total*
1) Undesirable Prices	24	21.8
2) Don't understand how	28	25.5
3) Don't see the usefulness	30	27.3
4) Too Complicated	10	9.1
5) Other	18	16.4

Test: Analysis of all the characteristics (operation size, cost of production, operator age, relative debt load, and education level) and the reasons for not using milk cash froward contracts.

Results: (Table 19)

- A significant positive relationship between "undesirable prices" and both the cost of production and the relative debt load.
- "Don't understand how to use a cash forward contract program" had a positive relationship with debt.
- "Don't see the usefulness in cash forward contracting program" had no significant relationship between respondents' characteristics.
- There was a significant positive relationship between cash forward contracting being "too complicated" and both the cost of production and the operator age.

Table 19: Significant relationships between reasons for not using milk buyer's cash forward contract and characteristics of respondents

	Reason 1	Reason 2	Reason 3	Reason 4
Size	NONE	NONE	NONE	NONE
Cost	POSITIVE	NONE	NONE	POSITIVE
Age	NONE	NONE	NONE	POSITIVE
Debt	POSITIVE	POSITIVE	NONE	NONE
Education	NONE	NONE	NONE	NONE

Interpretation:

- As either production cost or relative debt increased so did the likelihood of a respondent to mark "undesirable prices". They view the cash forward prices being offered as inadequate in lieu of their costs.
- As debt load increased respondents were more likely to indicate they "did not understand how to use the program" and that the program had "undesirable prices." The fact that they perceived the prices as undesirable is logical since higher debt has a high correlation with higher cost, which, as was pointed out earlier, also has a relationship with this response. No clear explanation exists for debt having a relationship with not understanding how to use the program, in fact it is counter intuitive because there is a positive relationship between debt and the use of selling risk management tools. It is possible they are used to other tools and not cash forward contracting, but that goes against the distribution use among selling risk management tools.
- When either operator age or production cost increased so did the likelihood of the respondents marking "too complicated". There is no apparent connection of why this is so for cost, but it is logical that older producers may be less open or interested in new ideas.

Summary: Table 19 summarizes the outcome when each characteristic is compared to the reasons given. None indicates that there is no relationship, while positive means as the characteristic increase the likelihood of that response being given also increases.

Corn Growers Price Risk Management

There were 169 (29 percent) of the respondents that in addition to dairying grow and sell corn. Of the total number of corn growers, 64 (about 39 percent), used some type of price risk management tool to protect corn prices. About 35 percent of the respondents who grew and sold corn used forward contracts, seven percent used futures and four percent used options (Table 20). Of corn growers using risk management tools, 76 percent used forward contracts, 15 percent used futures and nine percent used options.

Table 20: Distribution of 169 Respondents who grew and sold corn and used Price Risk Management Tools to Protect Corn Prices by Tool

Tool Used	*Number*	*% of total growers*
Forward Contract	59	34.9
Futures	12	7.1
Options	7	4.1

When the relationship between the use of these price risk management tools for these respondents and the education level, operator age, and relative debt load was measured collectively, no significant relationships were found.

Test: When each were examined separately
Results: Again, there were no significant relationships. However, if the confidence interval was reduced by 1 percent to 94 percent confident, relative debt load had a significant positive relationship.
Interpretation: As relative debt level increased dairy farmers who grew and marketed corn were more likely to use some type of price risk management tool to protect corn prices. There was no significant relationship between the level of knowledge about the futures markets and the use of these risk management tools, which would have been a logical correlation. Another missing logical relationship was the relationship between age and education with the use of price risk management tools.

Soybean Growers Price Risk Management

There were 89 (15 percent) of the respondents who grew and sold soybeans in addition to dairying. Of the total number of soybean growers, 37 (about 41 percent) used some type of price risk management tool to protect soybean prices. Forward contracts was used by about 76 percent of those who used risk management tools or about 39 percent of all those who indicated they grew and sold soybean. Futures were only used by about six percent of the soybean growers and about seven percent of them used options (Table 21).

Table 21: Distribution of 89 Respondents who grew and sold soybean and used Price Risk Management Tools to Protect Soybean Prices by Tool

Tool Used	*Number*	*% of total growers*
Forward Contract	35	39.3
Futures	5	5.6
Options	6	6.7

Like corn, the relationship between, education level, operator age, and relative debt load with risk management had no significant relationships. When looking at each factor independently again none had a significant relationship. When comparing the different knowledge levels of the futures market there was not a significant relationship to the use of risk management.

Interests in Use of Milk Price Risk Management

The survey asked respondents to surmise the potential for future involvement in milk price risk management.

a) Producers whose current milk buyer offered a Cash Forward Contract:
Of the 101 (17 percent) of respondents with a forward contracting program available to them, only 10 (1.7 percent) have participated. Some 23 (23 percent) others indicated their intention to use forward contracts in the future.

Test: The relationship between respondent general characteristics and their reason(s) for not using the cash forward contract program.

Results: Those responding "don't understand how" and "undesirable prices" had a significant positive correlation.
Interpretation: Respondents indicating they "don't understand how" to use forward contracts as the reason for not using them were more likely to indicate plans to employ these same contracts in the future. This implies some producers anticipate learning more about cash forward contracts and then implement the contracts. The answer that "undesirable prices" was significantly correlated with the interest price risk management implies some respondents may believe that, over the course of time, prices may be at levels that will be attractive.

Test: The correlation between respondent characteristics collectively and their interest in using cash forward contracts in the future.
Results: The operation size had a significant positive relationship.
Interpretation: As the operation size increased, so did the likelihood of using cash forward contracts in the future.

Test: The correlation between respondent characteristics individually and their interest in using cash forward contracts in the future.
Results: Relative debt load was the only factor showing a positive significant relationship.
Interpretation: As relative debt increased so did interest in using the cash forward program in the future, while no other characteristic had significant impact. This is informative that age and education did not seem to have an impact on these producers (that currently have programs available) interest in future use.

b) Producers whose current milk buyer did not offer Cash Forward Contracts
Those without access to forward contracting programs, were asked ask if they were interested in having such a tool available. Two hundred sixty-five (54 percent) of the respondents in this category indicated they would be interested in their milk buyer offering a forward contracting program.

Test: The relationship between respondents who had used selling and/or buyer price risk management tools for other commodities, along with respondents general characteristics and respondents' interest in a milk forward contracting program.
Results:

- Respondents who had used selling price risk management tools had a significant positive relationship with respondents' interest in a milk forward contracting program.
- Respondents who had used buyer-price risk management tools for other commodities had a significant positive relationship with respondents' interest in a milk forward contracting program.
- Operation size and relative debt load had a significant positive relationship with respondents' interest in a milk forward contracting program.
- Operator age had a significant negative relationship with respondents' interest in a milk forward contracting program.

Interpretation: As operator age increased, respondents were less likely to be interested in their milk buyer providing a forward contracting program. This fits logically with people's desire for things to stay the same and older people may be less interested in change. It is logical that

people's use of both buying and selling price risk management tools increases their interest in a milk forward contracting program. As operation size and relative debt load increased so did the interest in a forward contracting program.

c) Producers interest in a Dairy Option Program

All respondents were asked if they were interested in participating in a government sponsored pilot program to establish an individual floor milk price. This question was an attempt to detect producer interest in what was recently announced by the federal government as the Dairy Options Pilot Program (DOPP). Broadly outlined, the DOPP will essentially subsidize put option purchases. The USDA will reimburse a percentage of the option premium cost, as well as a fee for transaction costs ostensibly encouraging producers comfort with price risk management tools. Buying puts essentially establishes a floor for the producers milk price. There were 321 (55 percent) of the respondents who indicated they would consider participating in such a program.

Test: The relationship between respondents general characteristics, those who had a cash forward contracting program, the use buying price risk management tools for other commodities and the use of selling price risk management tools in other commodities and interest in participating in a pilot program.

Results:

- Those who had a cash forward contracting program, those who had been involved with buying price risk management tools for other commodities and those using selling price risk management tools in other commodities were more likely to be interested in participating.
- Operator's age was negatively correlated with interest in participating in a pilot program
- Operation size and relative debt were both positively correlated with interest in participating in a pilot program.

Interpretation: Older operators were less interested in participating in a pilot program. Generally older people are less interested in trying new things, so this outcome is as expected. Larger operations and those operations with greater debt loads were more interested in participating.

Respondent's Interest in Learning about the Futures Markets

Respondents were asked if they were interested in learning more about futures markets. About 65 percent of respondents indicated they were interested in learning more.

Test: The relationship between respondents' general characteristics and respondents' interest in learning about the futures markets.

Results:

- Operator's age of producer had significant negative relationship.
- Operation size and relative debt load both had significant positive relationships

Interpretation: Younger respondents with larger operations and who were carrying more debt were more likely to be interested in learning about the futures. Older producers might be less open to new things. Education level does not seem to be related to producer's interest in learning about the futures.

Respondents with a Computer

Of the 588 respondents 306 (52 percent) had a computer.

Test: Comparing those who had computers against general characteristics (operation size, cost of production, operator age, relative debt load, and education level).

Results:

- Education level and operation size both had a positive relationship
- Operator age had a negative relationship

Interpretation: As the operation size increases so did the likelihood of having a computer. The more educated the operators, the more likely they had a computer. The older the operator, the less likely they had a computer. Each of these relationships seem logical. Younger, more educated people would be more likely to have computers. And, larger operations have more information to be processed increasing the need for a computer.

Test: Independently comparing those who had computers against general characteristics that didn't have significant results above.

Results: Relative debt load had a significant positive relationship

Interpretation: As debt increased so did the likelihood of having a computer. A logical explanation for this is not clear other than the fact that larger operations also had more relative debt load and because of that need to track information better.

Of the 306 that had computers 204 (67 percent) the computer owners said they would use software that could help them "make milk-marketing decisions" if it were available. It is impressive that respondents were interested in using technology to maker better decisions.

Sources of Market Information

As producers attempt to make marketing decision, they will need to better understand market conditions. Respondents were asked to indicate where they currently get market information. Respondents got their information from multiple sources (Table 22). Because of the limited amount of marketing that is currently done in milk, this market information was most likely related to grain and/or input commodities. It is not a surprise to see broadcast media and print media were by far the number one source with 66 percent and 73 percent of the respondents, respectively, indicating these as sources. The second source, 31 percent of the respondents indicated, was calls to local markets for information. Only six percent of the respondents have a DTN or other electronic service, while another 6.5 percent used the Internet. About two percent got their information from

Table 22: Respondents Sources of Market Information

Information Source	*Number*	*% of total users*
Broadcast Media (radio & Television)	370	65.6
Print Meida (Magazines, Newspapers, & ect.)	412	73.0
Internet	32	5.7
Call local market (elevator, feed company, etc.)	176	31.2
DTN or other electonic service	34	6.0
Don't Receive any	32	5.7
Other	10	1.8

sources not listed on the survey and about six percent indicated they did not receive any market information.

Marketing Clubs

Fifty-one percent of the respondents were "unaware, but interested in learning more about marketing clubs." (Table 23) Almost 18 percent of the respondents were "unaware and uninterested," and 12 percent were "aware and not interested" in marketing clubs. Twenty respondents (about 4 percent) were aware of clubs and either "have been or are currently" involved. Of these, nine responded that the clubs helped them learn about the use of futures and options while three did not think they did. The remaining eight did not respond to the question.

Table 23: Respondent's Interest in Marketing Club
(Number and percentage of Respondents)

Club	Number	% of Total
I am unaware and uninterested	103	17.5
I am unaware, but interested in learning more	301	51.2
I am aware and not interested	69	11.7
I am aware and have been actively involved	8	1.4
I am aware and am currently involved	12	2

Test: The relationship between the response, "I am unaware and uninterested" and respondent general characteristics.

Results:

- Operation size and relative debt load both had significant negative relationships
- Operator age had a significant positive relationship.

Interpretation: Smaller farms are more likely to be "unaware and uninterested" than are larger operations. Older producers were more likely than younger to be "unaware and uninterested". Farmers with relatively low debt load were more likely to be "unaware and uninterested" than those in less favorable financial shape. Cost of production and education level did not have significant relationship to the response "I am unaware and uninterested."

Test 3: The relationship between respondent's characteristics and the response "I am unaware, but interested in learning more."

Results:

- Age had a significant negative relationship.
- Relative debt had a positive correlation.

Interpretation: These outcomes were opposite to the prior, as expected, of those that indicated "I am unaware and uninterested." Young respondents were more interested in learning about marketing clubs than older farmers. Also those with higher relative debt load were more interested in learning. Unlike the previous test, operation size did not seem to have a relationship. Education level did not have an impact in either, so it is not a good indicator of farmers interest, which relates to the fact that it also did not relate to producers interest in learning about the futures markets.

Forward Contracting Prices

Respondents were asked to indicate what level of their milk production they would forward contract at a particular price level. The price that was indicated by the producer was assumed to be the gross pay price. The first section focused on milk contracting for the period of January through June and the second part for milk contracted July through December. These two time periods were used to see if there was any seasonally in respondent's interest in forward contracting.

For the January through June time period, 175 (about 30 percent) of the respondents did not complete this question. It is possible that it was because they did not fully understand the question, it appeared to be too much work or they did not want to disclose that information. Therefore, there could be some bias in the analysis since it reflected only those who responded.

Test: The relationship between respondent's general characteristics, respondent's knowledge level of futures markets, and price level as it related to the percent of milk they would contract.

Results:

- Price, operation size, and education level all had a positive relationship.
- Cost of production and operator age were both negatively related to the percent of milk that would be contracted.
- Relative debt load and respondent's knowledge of futures market did not have significant relationships to the percent of milk respondents would contract.

Interpretation: Price's positive relationship was expected. The higher the milk price the larger the percentage of milk producers were interested in contracting. The larger the operation and more educated the operator the larger percent of milk that would be contracted. These results are not extremely unusual, but really confirm the assumptions underlying the study. Larger producers were more interested in contracting a larger share of their milk, probably because they were more higher leveraged (discussed in earlier analysis) and need to keep a consistent cash flow. However, that might not be the single explanation because relative debt load surprisingly did not have a significant relationship. It does seem logical that as operator age increased the percentage of milk contracted decreased, since older people are generally less accepting of change and using forward contracting would be definite change. The other significant relationship is logical, as cost of production increased the percentage of milk contracted decreased. Said another way to contract the same amount of milk would take a higher price for a higher cost producer. Seldom would a producer want to forward contract at a price below the cost of production.

Similar to the January through June time period, 190 (about 33%) of the respondents did not complete the July through December time period question. The same concerns apply to this analysis. The results were similar as for the previous period but not identical.

Test: The relationship between respondent's general characteristics, respondent's knowledge level of futures markets, and price level as it related to the percent of milk they would contract.

Results:

- The results were the same for price level, operation size, relative debt load, and education level as in the previous time period. (Price, operation size, and education level all had a positive relationship.)

- Cost of production had a positive relationship.

Interpretation: This indicates as the cost of production went up producers were likely to contract a larger percentage of milk. There is no real reason to expect the first half of the year to be any different from the second half. However these producers may have been more concerned that a milk price drop is more likely to occur in the second half of the year than in the first. This happened in 1996, one year previous to this survey.

Table 24 and 25 (seen on the next page) show the percent of respondent that indicated they would contract a set percent of their milk at a certain price level. For the January through June time frame the price had to be above $12.50 per hundredweight before 25 percent of the milk was contracted, over $13.50 to get 50 percent of the milk contracted and over $14.50 to get 75 percent of the milk contracted. Even at $17.50 per hundredweight almost four percent of the milk produced during the January through June time frame would not be contracted. The results are similar for the second half of the year, but it takes slightly higher prices to contract the same amount of milk, which seems logical when you think about the historical pattern of milk prices. So even at $17.50 for the July though December time frame, just over four percent of the milk would remain uncontracted. Looking at these results from a practical standpoint there have been limited opportunities in which the milk price has been at the upper end of the price range used in this survey. Therefore, it is very possible that some producers would not participate because the prices they were looking for were unavailable. It should also be pointed out that the lowest price in the survey was $11 per hundredweight. While the survey showed that 46 percent of respondents had a cost of production below $11, only about three percent of the producers would have contracted at this price.

Table 24: Percent of Total Respondents that indicated they would contract milk at a set percent and price level for January through June

Price/cwt	None	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
$ 11.00	97.1%	1.2%	0.5%	0.7%	0.0%	0.2%	0.0%	0.0%	0.0%	0.0%	0.2%
$ 11.50	94.9%	2.7%	1.0%	0.7%	0.2%	0.2%	0.0%	0.0%	0.0%	0.0%	0.2%
$ 12.00	87.9%	1.9%	5.8%	2.4%	0.0%	1.0%	0.0%	0.0%	0.0%	0.2%	0.7%
$ 12.50	80.6%	3.9%	5.6%	5.1%	1.5%	1.5%	0.5%	0.2%	0.2%	0.2%	0.7%
$ 13.00	66.3%	5.8%	5.1%	7.5%	4.4%	6.3%	1.0%	0.5%	1.2%	0.5%	1.5%
$ 13.50	56.9%	3.9%	8.2%	7.7%	6.3%	9.4%	1.9%	1.0%	1.2%	1.0%	2.4%
$ 14.00	39.0%	3.1%	7.7%	10.4%	7.0%	15.0%	4.4%	4.1%	2.7%	0.7%	5.8%
$ 14.50	33.9%	2.4%	5.3%	6.5%	8.2%	18.4%	5.1%	6.5%	4.1%	1.7%	7.7%
$ 15.00	21.5%	1.9%	4.4%	4.8%	4.8%	20.6%	6.8%	7.5%	9.2%	2.9%	15.5%
$ 15.50	19.4%	1.0%	3.6%	4.8%	2.9%	14.0%	10.4%	7.7%	10.7%	4.4%	21.1%
$ 16.00	15.7%	0.5%	1.9%	3.1%	2.4%	10.7%	6.1%	11.1%	9.7%	7.3%	31.5%
$ 16.50	13.8%	0.5%	1.2%	1.7%	2.2%	10.2%	4.4%	9.2%	11.9%	8.2%	36.8%
$ 17.00	13.6%	0.5%	1.2%	1.0%	1.2%	9.0%	2.7%	5.8%	8.5%	12.6%	44.1%
$ 17.50	3.6%	0.5%	1.0%	1.0%	0.5%	9.0%	3.1%	4.4%	7.5%	9.0%	60.5%

Table 25: Percent of Total Respondents that indicated they would contract milk at a set percent and price level for July through December

Price/cwt	None	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
$ 11.00	97.5%	1.3%	0.8%	0.0%	0.0%	0.3%	0.0%	0.0%	0.0%	0.0%	0.3%
$ 11.50	96.5%	2.0%	0.5%	0.5%	0.0%	0.3%	0.0%	0.0%	0.0%	0.0%	0.3%
$ 12.00	90.2%	2.8%	4.3%	1.3%	0.3%	0.5%	0.0%	0.0%	0.0%	0.0%	0.8%
$ 12.50	83.3%	3.3%	7.1%	3.5%	0.5%	1.3%	0.0%	0.3%	0.0%	0.0%	0.8%
$ 13.00	69.4%	6.1%	8.1%	5.8%	3.5%	4.0%	1.0%	0.5%	0.5%	0.0%	1.0%
$ 13.50	60.4%	2.8%	9.1%	8.6%	5.1%	8.8%	1.0%	0.8%	1.3%	0.3%	2.0%
$ 14.00	42.7%	3.8%	7.3%	10.6%	7.6%	14.4%	3.0%	3.5%	1.3%	0.8%	5.1%
$ 14.50	36.9%	2.3%	5.3%	7.3%	10.4%	16.2%	5.6%	5.1%	3.0%	0.3%	7.8%
$ 15.00	24.0%	1.3%	3.8%	5.3%	6.1%	19.9%	9.3%	6.6%	7.3%	0.5%	15.9%
$ 15.50	19.9%	1.8%	2.8%	3.5%	4.5%	15.4%	11.6%	7.3%	9.8%	2.0%	21.2%
$ 16.00	15.4%	0.8%	2.5%	2.3%	2.3%	10.9%	6.1%	11.4%	10.4%	6.1%	32.1%
$ 16.50	14.6%	0.5%	1.8%	2.3%	1.8%	8.6%	4.3%	9.8%	10.9%	8.8%	36.6%
$ 17.00	13.4%	0.5%	2.0%	0.5%	2.3%	6.6%	2.0%	5.8%	10.6%	10.4%	46.0%
$ 17.50	4.3%	0.5%	1.5%	0.5%	1.5%	7.3%	2.3%	4.8%	8.6%	7.8%	60.9%

Conclusion

Few producers consider themselves comfortable and experienced category about futures. However, 58 percent of the respondents claim to have some understanding, while one-third are still without any understanding. Sixty-five percent of the respondents were interested in learning more about the future markets. Almost 26 percent of the respondents used some type of input-price risk management tool. These tools included forward contracting, use of futures and/or options for price protection. However, the majority of risk management was done with cash forward contracts. These same tools were used to protect selling prices of some commodity by 19 percent of the respondents. Again, the majority was done through cash forward contracts. When examining those producers who have used price-risk management tools to protect milk prices the numbers diminish rapidly, but some of the characteristics still hold. Only three percent of the respondents have used some type of risk management tool to protect milk prices, but like above, the majority have used cash forward contracts. Cash forward contracting programs were available to 17 percent of the respondent through current milk buyers, but less than two percent were using them. Their use ranged from 10 to 50 percent of their monthly milk production. Three reasons for not using the program receive about equal response: undesirable prices, don't understand how, and don't see the usefulness. Other responses were significant, one of the more prominent "other response", was concern over producing enough milk to meet the contract.

It is important to realize that 23 percent of those who had not used the cash forward contracting program indicated that they do plan to use them in the future. Fifty-four percent of the respondents that did not have forward contracting programs indicated they would be interested in their milk buyer providing such a program.

All respondents were asked their interest in a government subsidized pilot program to provide an individual price floor through the use of options and 55 percent were interested. Fifty-one percent of the respondent indicated they were unaware of marketing clubs, but interested in learning more. This indicates a large support for marketing clubs.

Interest in contracting with their milk buyer a percentage of milk production at a price was similar for the first half of the year and the second half. Table 24 and 25 show the percent of those producers who indicated a percent of milk that they would contract at a price. At $11 per hundredweight about three percent would contract some percent of their milk, and less than one percent would contract 50 percent or more. At $12, 10 percent would contract and just over one percent would contract 50 percent. About 30 percent of those who completed this section would contract some of their production at $13 per hundredweight with 11 percent them contracting at the 50-percent level or more. At a price of $14 or more per hundredweight over 50 percent of the respondent indicated they would have at least some percent of their milk contracted and 37 percent of them contracting at least 50 percent of their milk production. At a price of $15 per hundredweight over 75 percent of the respondents indicated they would forward contract some percent of their milk and 63 percent of them were contracting at least 50 percent of their milk production. Almost 85 percent of the producers participating in this section would contract some of their milk at $16 per hundredweight and 76 percent of them were contracting 50 percent or more of their milk production. The highest price used was $17.50 and at that level about 94

percent of the participants would forward contract at least 50 percent of their milk production and only four percent were still not interested in contracting.

There were several areas of analysis that provided insight into the type of producer that was interested in price risk management. The producers that are more likely to have an interest have the following characteristics: They are more educated, and have been using input price risk management tools, younger; have larger operations and have relative large debt loads.

Recommendations

Based on the conclusions describe above the following recommendations are offered.

1) There is clearly a lack of knowledge and understanding about the futures markets. Fifty-eight percent of the respondents claim to have some understanding, while one-third are still without any understanding. There appears to be considerable interest in learning more and in learning through marketing clubs. Sixty-five percent of the respondents were interested in learning more about the future markets and 1 percent indicated they were unaware of marketing clubs but interested in learning more. The University of Wisconsin Extension should allocate time and resources to provide educational sessions for producers to learn about the futures and to encourage producers to organize marketing clubs. The use of dairy futures, options and cash forward contracts are complicated. It takes several sessions, illustrations, and examples to comprehend and feel comfortable in using these risk management tools.

2) Results show many producers are interested in their milk buyer providing a forward contracting program. Fifty-four percent of the respondents that did not have forward contracting programs indicated they would be interested in their milk buyer providing such a program. Results also show that cash forward contracts are the price risk management tool of choice. However, of those producers who had a program available few had taken advantage of it. Therefore, it is our recommendation that milk buyers develop forward contracting programs, but also provide producer education. Their producers need to be educated on the purpose and use of this price risk management tool. It might make sense for some of the education in this area to be combined with the prior recommendation and have milk buyers work with the University of Wisconsin Extension in establishing a curriculum and educational sessions.

3) The final recommendation is for further research. The interest in marking clubs is strong. However this research was inconclusive on the actual effectiveness of these clubs. It is our belief that they are effective. However, there may be several ways in which these clubs are being organized and managed and that could have a significant impact on their effectiveness. Therefore, some further research into the types of marketing clubs including the curriculum, meeting schedule, and activities, could provide real insight into how clubs should be organize to maximize their efficiency. More research time could be spent on trying to learn more about producers contracting habits. How do they make the decision to contract? What information do they think is necessary? At this same time looking at which months producers would contract in and if there is a difference between producers contracting levels in different months and is there a difference between price levels in different months.

References:

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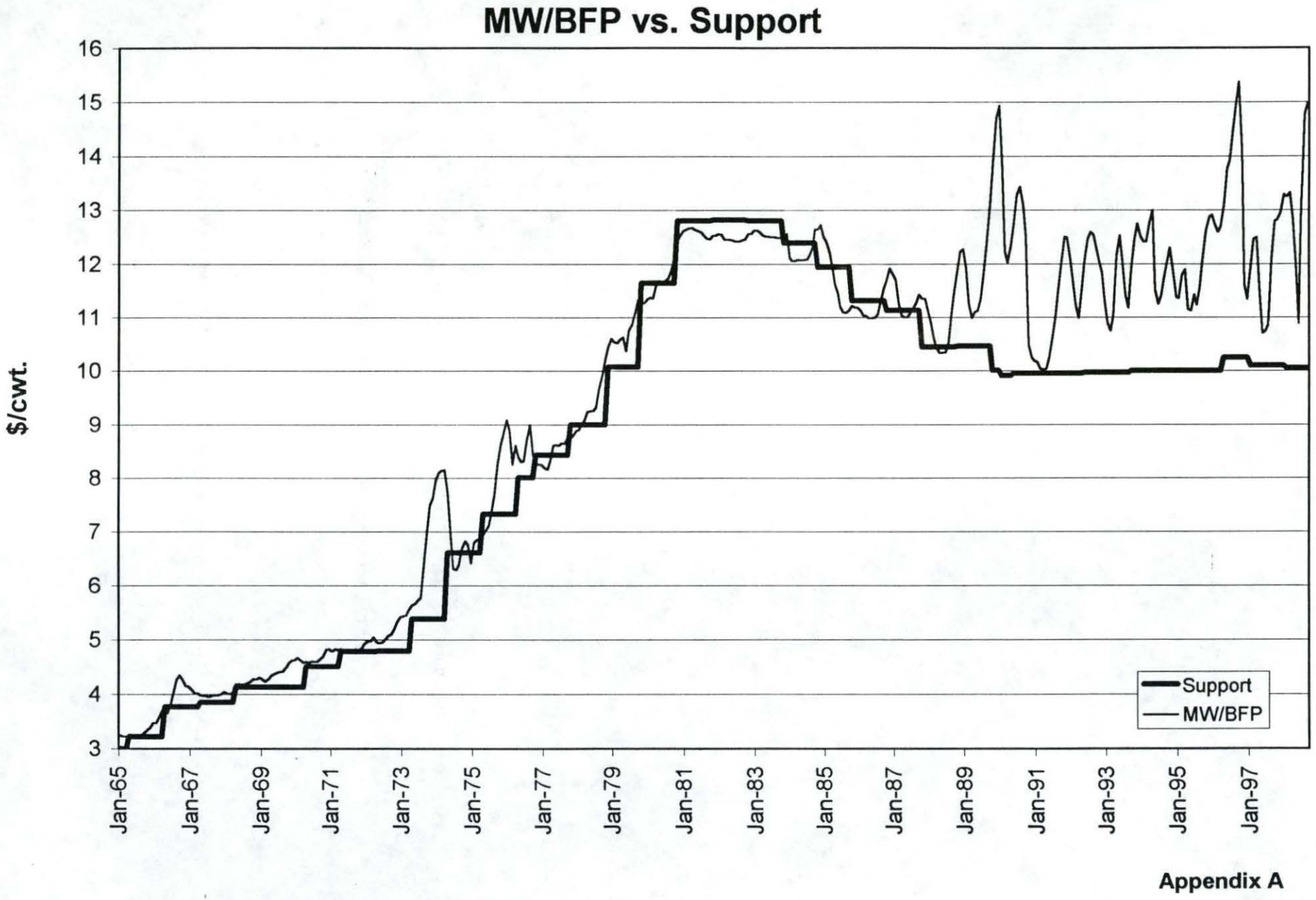
MW/BFP vs. Support
$/cwt.
16
15
14
13
12
11
10
9
8
7
6
5
4
3
Jan-65
Jan-67
Jan-69
Jan-71
Jan-73
Jan-75
Jan-77
Jan-79
Jan-81
Jan-83
Jan-85
Jan-87
Jan-89
Jan-91
Jan-93
Jan-95
Jan-97
Support
MW/BFP

Appendix A

Wisconsin Grade A Dairy Producer Survey

Contractual Relationship between milk producers and milk buyers

November 1997, Department of Agriculture & Applied Economics

Instructions: Please check the category that best reflects you or your dairy operation. Your answers will be kept completely confidential. If you have questions of the terms used a few definitions will be provided at the end to try to clarify. **Thanks for your input**.

Question Pertaining to Your Farm Business

Operator Age:
- ___ Under 25
- ___ 26 – 35
- ___ 36 – 45
- ___ 46 – 55
- ___ 56 - 65
- ___ 66 and over

Education Level:
- ___ Some High School
- ___ High School Graduate
- ___ Some College
- ___ Technical School
- ___ College Graduate
- ___ Post Graduate

Approximate Annual Pounds of milk sold:
- ___ Under 500,000
- ___ 500,000 - 750,000
- ___ 750,001 – 1,000,000
- ___ 1,000,001 – 1,500,000
- ___ 1,500,001 – 2,000,000
- ___ 2,00,001 – 5,000,000
- ___ 5,000,001 – 10,000,000
- ___ Over 10,000,000

What is your total cost to produce 100 pounds of milk?
- ___ Under $9.00
- ___ $9.00 - $10.00
- ___ $10.00 - $11.00
- ___ $11.00 - $12.00
- ___ $12.00 - $13.00
- ___ $13.00 - $14.00
- ___ Over $14.00
- ___ Unknown

Which of the following best describes your milk buyer?
- ___ Cooperative
- ___ Private Processor
- ___ Bargaining Group

Percent Debt Relative to Assets?
- ___ No debt
- ___ Less than 25%
- ___ 26 – 30%
- ___ 31 – 40%
- ___ 41 – 50%
- ___ 51 – 60%
- ___ 61 – 70%
- ___ Greater than 70%

Future Plans for your dairy enterprise in the next 5 years?
- ___ Maintain same size
- ___ Expand herd size
- ___ Exit dairying
- ___ Unknown

If you are planning to expand in the next 5 years, by how much? _____%

Besides the dairy, do you also have other businesses on the farm? (mark all that apply)
- ___ Grow & Sell Corn
- ___ Grow & Sell Corn Silage
- ___ Grow & Sell Soybeans
- ___ Grow & Sell Wheat
- ___ Grow & Sell Oats
- ___ Grow & Sell Alfalfa
- ___ Raise & Sell Swine
- ___ Raise & Sell Beef (including dairy beef)
- ___ Others _____

Question Pertaining to Risk Management

Outlook on the profitability of your dairy enterprise over the next 5 years

___ Optimistic
___ Neutral
___ Pessimistic

Do you feel that your dairy operation is at risk with respect to the outlook for milk prices for the next 5 years?

___ Yes
___ No

Are you interested in learning more about the futures markets to manage your milk price risk?

___ Yes
___ No

Current knowledge about the futures markets?

___ None
___ Some
___ Comfortable
___ Experience

Have you used any of the following risk management tools to protect **selling prices**? (please check the boxes that apply)

	Cash Forward Contract	Hedging using the futures	Hedging using the options
Corn			
Soybeans			
Livestock			
Milk			
Other			

Have you used any of the following risk management tools to **protect feed costs**? (Please check the boxes that apply)

	Cash Forward Contract	Hedging using the futures	Hedging using the options
Corn			
Cottonseed			
Soybean Meal			
Other			
Other			

Does your milk buyer currently offer a milk price forward contracting program?

___ Yes
___ No

If **SO**, have you used it?

___ Yes
___ No

If **YES**, what is the lowest percent of a month's production you have contracted?

_____%

What is the highest percent of a month's production you have contracted?

_____%

If **NOT**, do you intend to use it in the future?

___ Yes
___ No

If you have **NOT** used it, Why Not?

___ Undesirable Prices
___ Don't understand how
___ Don't see the usefulness
___ Too complicated
___ Other _____

If your milk buyer doesn't offer a forward contracting program, are you interested in your milk buyer providing one?

___ Yes
___ No

What would be the best way for a milk buyer to provide you with the information about contracting prices?

___ Automated Phone service
___ Person by Phone
___ Fax
___ Internet
___ Mail

If the government offered a pilot program to help offset the cost of using options **to establish a floor price** under your milk price would you consider participating?

___ Yes
___ No

Question Pertaining to Risk Management cont.

How far into the future would you consider contracting your milk and what percentage of your milk **given an acceptable price**?

Time	Price	Percent
2 months	$_____	_____%
4 months	$_____	_____%
6 months	$_____	_____%
8 months	$_____	_____%
10 months	$_____	_____%
1 year	$_____	_____%
More than 1 yr	$_____	_____%

There are reports some dairy producers have formed clubs to learn together about the futures and options. What is your level of awareness of this?

___ I am unaware and uninterested.
___ I am unaware, but interested in learning more.
___ I am aware and not interested.
___ I am aware and have been actively involved.
___ I am aware and am currently involved.

If you are or have been involved in a club, has this involvement helped you learn about the futures?

___ Yes
___ No

For the next two questions, please consider what you would do if you could cash forward contract with your milk buyer for a set six month milk price with the first being January through June and the second July through December.

Please mark **ONE box PER LINE** indicating what percent of milk you would contract at the different price levels for **January through June**

Price/cwt.	None	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
$11.00											
$11.50											
$12.00											
$12.50											
$13.00											
$13.50											
$14.00											
$14.50											
$15.00											
$15.50											
$16.00											
$16.50											
$17.00											
$17.50											

Please mark **ONE box PER LINE** indicating what percent of milk you would contract at the different price levels for **July through December**

Price/cwt.	None	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
$11.00											
$11.50											
$12.00											
$12.50											
$13.00											
$13.50											
$14.00											
$14.50											
$15.00											
$15.50											
$16.00											
$16.50											
$17.00											
$17.50											

General Questions

Do you have a Computer?

___ Yes
___ No

If software was available for helping you make milk-marketing decisions would you use it?

___ Yes
___ No

How do you currently get your market information?

___ Broadcast Media (Radio & Television)
___ Print Media (Magazines, Newspapers, &etc.
___ Internet
___ Call local market (elevator, feed company, etc
___ DTN or other electronic services
___ Don't receive any
___ Other _____

Definitions

Cash Forward Contracting: Establishing a price for a product in the future with the use of a contract with the buyer or seller of that product.

Futures Hedging: Using a position in the Futures Market to establish a price for a product.

Options Hedging: Using an option, which acts like insurance in the fact that it requires an up-front premium and only pays back when catastrophe strikes, to establish a floor price for products sold or a price cap for inputs.

Thank you for participating in the survey. We appreciate your thoughtfulness and help.
Please provide any additional comments that you think would be useful.

_____

_____

_____

_____