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U.S. Crop Farmers' Use of Market Advisory Services

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ABSTRACT. This study reports that Market Advisory Services (MAS) are used by about 82% of commercial US crop producers, based on the results of a recent survey. Only 43% of MAS users rely on a single service, while the other 57% subscribe to multiple services. MAS users' profiles in terms of their (1) demographic characteristics, (2) risk attitude, and (3) marketing behavior are presented. The results indicate that MAS users can be differentiated based on their location and use of computers, though

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not on age and farm size. MAS users are shown to be significantly more risk seeking than non-users. Furthermore, MAS users apply significantly more forward-pricing techniques, but are no different from non-users in terms of marketing frequency. [Article copies available for a fee from The Haworth Document Delivery Service: 1-800-HAWORTH. E-mail address: <docdelivery@haworthpress.com> Website: <<http://www.HaworthPress.com>> © 2006 by The Haworth Press, Inc. All rights reserved.]

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Surveys done in Market Advisory Services (MAS) report that a growing number of U.S. farmers subscribe to market advisory services. Among the participants at Purdue's Top Farmer Workshop, the share of subscribers grew from 53 percent in 1997 to 62 percent in 2001. Davis and Patrick (2000) report that 39 percent of farmers in Mississippi and 49 percent of farmers in Indiana used marketing consultants or subscribed to market information services in 1999. Along with the increased use of market advisory services for management decisions, U.S. farmers are willing to spend increasing amounts of money to receive this advice. Among Purdue's Top Farmer Workshop participants, annual expenses on marketing advice moved from the fourth highest expense for consultants to the second highest from 1991 to 2001, growing in absolute terms from \$755 to \$3,455. The majority of respondents that used marketing consultants in Coble et al.'s (1999) survey indicated that they spent \$1,000 or more on marketing advice in 1998. It appears that the increasing importance of MAS in the decision-making process of U.S. farmers is part of an overall trend towards increased firm reliance on external consultants in operational capacities, as pointed out by some researchers (e.g., Henderson, 1990; Venkatesan, 1992).

Previous studies have focused primarily on the pricing performance of MAS in corn, soybeans and wheat (e.g., Martines-Filho, Good, and Irwin, 2001; Irwin, Martines-Filho, and Good, 2003). Limited evidence is available on the usage of marketing advisory services. Pennings et al. (2004, 2005) examine factors that determine the impact of MAS on farmers' marketing decisions. They argue that perceived MAS performance, the way in which MAS recommendations are delivered, and the match between a particular MAS and an individual farmer's marketing philosophy are important factors explaining the impact of MAS recommendations. Other studies evaluating the use of consulting advice and

information (e.g., Ortmann et al., 1993; Jones, Battle, and Schmitkey, 1989) found that the use of consulting advice may be affected by the operator's age, farm size, farm ownership, education and risk aversion, among other factors. Ortmann et al. (1993) revealed that farmers rate their marketing management skills lower than their other management skills. They also found that marketing sources of information were ranked lower than other sources of information, which may indicate that the needs of farmers are not being met in this area. These findings emphasize the need to investigate further the drivers of MAS use.

The purpose of this study is to provide new and more comprehensive evidence about U.S. crop farmers' usage of MAS. More specifically, in this study, we (1) provide background information on market advisory service industry; (2) identify the levels of MAS usage by commercial U.S. farmers; (3) profile farmers who use MAS based on (a) demographic characteristics, (b) risk attitude, and (c) marketing behavior. These issues are examined based on the results of a survey of U.S. commercial agricultural producers, conducted in January/February 2000. The study concludes by providing practical implications of the survey findings for advisory services, extension programs, and research.

OVERVIEW OF THE U.S. MARKET ADVISORY SERVICE INDUSTRY

Market advisory services first began to emerge in the U.S. in the mid-1970s (Doane Agricultural Services being the one exception), following the huge run-up in commodity prices due to several extreme and highly unusual developments that contributed to historic market volatility.¹ Some of the first MAS included Farmers Grain and Livestock, in Des Moines, Iowa; Top Farmers of America, in Milwaukee, Wisconsin; Doane Agricultural Services, in St. Louis, Missouri; and Professional Farmers of America (ProFarmer) in Cedar Falls, Iowa. Doane Agricultural Services preceded all of the other companies by several decades, as it was formed in the 1930s. However, the primary focus of Doane in its early years was on farm management, rather than marketing advice. The first companies geared toward giving specific marketing advice were Farmers Grain and Livestock and Top Farmers of America. ProFarmer initially started with market and policy information and moved later into the specific market advice area.

The early MAS were created in order to provide farmers with marketing information in an environment of increased market volatility.

During the intervening years, these companies generally have gone through four evolutionary stages:

Stage I: providing fundamental and technical market information, newsletters, and marketing tool seminars;

Stage II: providing specific marketing recommendations in addition to stage I services;

Stage III: providing electronic access via services such as the Data Transmission Network (DTN); and

Stage IV: providing individual electronic access via e-mail and the Internet, as well as offering “customized” marketing recommendations for individual clients.

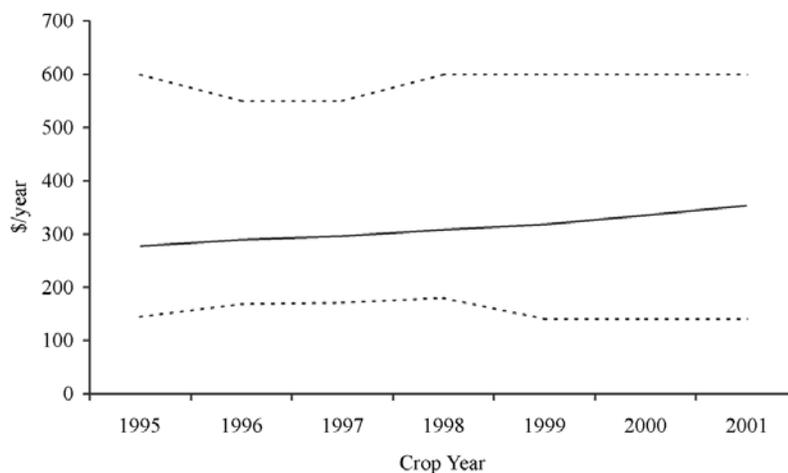
Overall, MAS may be described as firms whose primary business is to provide marketing information to farmers in order to help them decide how, when, and where to market their crops and livestock. As noted above, the central focus of advisory services is on providing market information, analysis, and specific marketing recommendations to subscribers. Related services often provided by such firms include market and government policy information, seminars on marketing tools and techniques, and, in some cases, speculative futures and options trading advice. Marketing recommendations range from the relatively simple (e.g., sell 50% of 2003 soybean production today in the cash market) to the highly complex (e.g., if futures reach \$3.25/bushel, sell 75% of expected 2004 corn production by purchasing December 2004 corn put options with a strike price of \$3.50/bushel; to offset part of the cost of the put options write an equal amount of call options on March 2005 corn futures with a strike price of \$3.75/bushel). Recommendations vary substantially across services in a given crop year, and, in many cases, within a crop year for an individual MAS (Bertoli et al., 1999; Martines-Filho et al., 2003a,b; Colino et al., 2004a,b).

These services are delivered for a fee in the form of newsletters, hotlines, websites, or e-mails. The fee structure typically differs between “basic” and “customized” marketing programs. A basic program provides market analysis, information, and what is probably best described as “one-size-fits-all” or “generic” marketing recommendations. A customized program generally provides marketing recommendations tailored to individual client needs, direct access to market analysts, as well as the information provided to basic service subscribers. Statistics on the subscription fees for the advisory services tracked by the AgMAS Project at the University of Illinois during the 1995 through 2001 crop

years are shown in Figure 1.² These fees represent the fixed annual cost for a basic program and average about \$300/year for this period. The range of fees is skewed upwards with minimum fees around \$140-\$180/year and maximum fees of about \$550-\$600/year. This data indicates that the cost of basic programs is relatively small compared to whole farm revenue for most commercial-size farm operations. Irwin, Martines-Filho and Good (2002) report that subscription costs in 2001 average less than one-tenth of a percent of total advisory revenue for a 2,000-acre, central-Illinois corn and soybean farm, and about two-tenths of a percent for a 500-acre farm. Available data on the cost of customized programs is sketchier. Information from advisory service websites and other promotional material indicates fees are charged based on anticipated production, either on a per acre or per bushel basis. A typical fee is in the range of three to five cents per bushel. In contrast to the cost of a basic package, costs for a customized package may be substantial. For example, costs for a 2,000-acre corn/soybean farm could easily be as high as \$7,000/year (assuming a production of 150,000 bushels of corn, 50,000 bushels of soybeans, at a \$0.03/bushel fee for corn and a \$0.05/bushel fee for soybeans).³

Today, the market-advisory service industry in the U.S. is approaching maturity with dozens of firms offering services to producers. There are serious challenges to would-be entrants, because of the strongly

FIGURE 1. Subscription Fees for Advisory Services Tracked by the AgMAS Project, 1995-2001



established customer positions of existing firms. While evaluating their market shares is outside the scope of this paper, informal evidence suggests that the industry leaders include ProFarmer, followed by Doane and Brock Associates. In the business of providing marketing information, MAS compete with each other; traditional sources of information, such as university extension services, magazines, and newspapers (among others); and new sources, such as E-Markets (<http://www.e-markets.com>).

SAMPLE CHARACTERISTICS AND THE LEVELS OF MAS USE

The empirical evidence on farmers' use of MAS was generated through a survey of US crop farmers conducted in January/February 2000. The survey instrument was sent to 3,990 farmers in the Midwest, Great Plains, and Southeast.⁴ The sample of addresses was drawn from directories kept by a U.S. firm that delivers agricultural market information and MAS via satellite. The questionnaires were sent on January 21, 2000, and the cut-off date for returning questionnaires was March 10, 2000. A total of 1,399 usable questionnaires were sent back, yielding a response rate of 35%. The details of survey development and execution are discussed in Pennings et al. (2002).

The demographic characteristics of survey respondents reported in Table 1 suggest that the survey respondents can be classified as relatively large commercial farmers. The scale of the farm operation of the survey respondents was about four times the national average (as reported by the 1997 Census of Agriculture) if measured by total acreage, and about five times the national average if measured by gross annual sales. On average, the respondents farmed nearly 2,000 acres and had gross annual sales exceeding \$500,000. Most had annual sales above \$100,000. The survey respondents were, on average, somewhat younger than the overall population of U.S. farmers: 44 versus 54 years of age. The highest concentration (52%) of survey respondents was in the Midwest, followed by the Great Plains (30%), and the Southeast (18%). The principal crops for this group of farmers were corn, soybeans, and wheat. A total of 56 % of the respondents reported that they also had livestock in their farm operation. This group of farmers appears similar to commercial farmers described in previous surveys in terms of age (43 years in Shroeder et al., 1998) and farm size (1,732-1,450 acres in Patrick et al., 1996; an average of 1,572 acres in Goodwin and Schroeder, 1994; and \$473,850 average gross income in Coble et al., 1999). The

TABLE 1. Percentage Distribution of Demographic Characteristics of Survey Respondents Relative to Population of U.S. Farmers from the 1997 Census of Agriculture

Characteristics	Survey	Census
Total acres (owned and rented)		
Less than 499	1%	81%
500-999	5%	9%
1,000-1,999	44%	5%
Over 2,000	49%	5%
Average acres	1,929	487
Gross annual farm sales		
Less than \$50,000	0%	74%
\$50,000-\$99,999	1%	8%
\$100,000-\$499,999	55%	15%
\$500,000-\$999,999	26%	2%
Over \$1,000,000	17%	1%
Average Dollars	550,275	102,970
Age		
Under 25	1%	1%
25-34	17%	7%
35-44	40%	19%
45-49	18%	12%
50-59	20%	24%
60-64	4%	11%
65 and older	2%	26%
Average Age	44	54
US regions		
Midwest	52%	
Great Plains	30%	
Southeast	18%	

Note. Number of observations is 1,399.

respondents to the survey were similar to participants of the Coble et al. (1999) survey in terms of their usage of futures and options contracts, with about 30 percent of producers reporting the use of these forward pricing tools. The use of forward pricing techniques reported by the respondents of our survey was much less than described in the studies of Patrick et al. (1998) and Schroeder et al. (1998), which reflect more general characteristics of the sample used in the current study.

About 82% of the survey respondents (1,053 respondents) used MAS and 18% (232 respondents) did not use MAS. The Midwest was characterized by the highest use of MAS (85%), followed by the Southeast (80%) and the Great Plains (78%). The distributional information found in Table 2 shows that only 43% of the MAS users relied on a single MAS, while the other 57% subscribed to multiple services. This observation implies that the majority of MAS users rely on a portfolio of services and the impact of individual MAS may be difficult to differentiate. The survey revealed that respondents switched MAS once every 3.3 years. This means that MAS must find a new pool of subscribers approximately every three years. Only 28% of MAS users reported that they had never switched MAS. The other 72% of MAS users seem to be chasing “the hot advisor.”

Switching among different MAS may also be motivated by producers’ trying to find a specific MAS that fits their particular needs. Table 3 describes the usage and evaluation of specific MAS by survey respondents. These data reveal that ProFarmer, Brock and AgLine by Doane had the highest historical usage rates. The usage rates reported by

TABLE 2. Market Advisory Services Usage by Survey Respondents

Characteristics	Frequency	Observations	%
Number of services used			
	1	596	43
	2	521	37
	3	192	14
	4	57	4
	> 5	33	2
Total		1399	100
Switching (times a year)			
	> 2	22	2.2
	2	26	2.6
	1	59	5.9
	0.5	153	15.4
	0.33	150	15.1
	0.25	84	8.4
	0.2	125	12.6
	0.1	96	9.6
	0	280	28.1
Total		995	100

TABLE 3. Producers' Use and Evaluation of Specific Market Advisory Services

Market Advisory Service	Ever Used		Familiarity		Marketing Style		Satisfaction	
	Percent*	Rank	Mean**	Rank	Mean***	Rank	Mean****	Rank
AgLine by Doane	35	3	4.22	3	4.72	10	5.75	6
AgriVisor Services Inc.	17	8	3.15	8	5	9	5.14	10
Brock Associates	37	2	4.87	2	6.17	1	6.24	4
Freese-Notis Weather	20	7	3.59	5	5.76	5	5.45	8
ProFarmer	69	1	6.34	1	5.8	4	6.26	3
AgResource Company	23	6	3.5	6	6.01	2	6.58	2
Allendale Inc.	26	4	3.86	4	5.97	3	5.98	5
CommStock Investments Inc.	10	9	2.61	10	5.57	7	7.07	1
Brent Harris Elliot Wave	10	10	2.64	9	5.61	6	5.29	9
Stewart-Peterson	26	5	3.21	7	5.27	8	5.67	7
Another MAS	47							
No MAS at all	18							

Notes: * Describes a percentage of all producers (N = 1399) that have ever used a specific MAS.

**Based on a 1 to 9 scale with 1 = Not at all familiar, 9 = Very familiar. Includes responses of all producers.

***Based on a 1 to 9 scale with 1 = Conservative, 9 = Aggressive. Includes responses of all producers.

****Based on a 1 to 9 scale with 1 = Very dissatisfied, 9 = Very satisfied. Includes responses of producers that have tried a particular MAS.

MAS stands for market advisory service.

farmers were closely correlated with familiarity with specific MAS (ρ of rankings equal 0.94). According to Table 3, farmers were most familiar with ProFarmer, one of the oldest MAS, and least familiar with CommStock Investments Inc. and Brent Harris Elliott Wave, some of the newer MAS. Historical MAS usage is only moderately correlated with farmer satisfaction (ρ of rankings equal 0.35). CommStock Investments, one of the least-used MAS, received the highest satisfaction rating. Farmers were also highly satisfied with AgResource, ProFarmer, and Brock Associates, some of the most commonly used MAS. Overall, respondents appear to be moderately satisfied with the 10 advisory services listed in Table 3.

Selection of specific MAS may be influenced, among other factors, by the farmers' perception of their own marketing style. Table 3 demonstrates that Brock Associates, AgResource Company, and Allendale Inc. are considered the most aggressive MAS, while AgLine by Doane,

AgriVisor Services Inc., and Stewart Peterson are perceived as the most conservative. Interactions with farmers during the pre-study period revealed that farmers appear to associate MAS aggressiveness with the intensity of use of futures and options markets, rather than with cash market instruments. Both Brock Associates and AgLine by Doane are among the most commonly used MAS; therefore both aggressive and conservative features may be attractive to different farmers. Because most farmers subscribe to multiple services, the determinants of the use of specific MAS are difficult to disentangle. Therefore, the remainder of the paper concentrates on factors that drive producers' decisions to use MAS in general.

DRIVERS OF MAS USAGE

While the previous studies demonstrate a growing importance of market advisory services, limited research has been done on what drives farmers' decisions to use MAS. Previous studies that addressed the use of consulting advice in general (e.g., Jones, Battle, and Schnitkey, 1989) suggest that the decision to use external information sources may be affected by relevant economic and socioeconomic characteristics, which include farm size, ownership structure, degree of innovativeness, expansion plans of the operator, operator's age, education, and employment status. Ortmann et al. (1993) demonstrated that gross sales, presence of a livestock enterprise, use of computers, percentage of assets invested off farm, the farmer's rating of consultants and of other information sources for production decisions, demand for risk management information in production and overall farm management, and self-ratings of management skills in production and marketing relative to other farmers were relevant to farmer's use of private consultants. These characteristics may be classified into the following categories: (1) demographic characteristics, (2) risk attitudes, (3) marketing behavior.

Demographic characteristics that influence the use of market advisory services include the operator's characteristics, such as age, primary occupation, and use of computers, as well as farm characteristics, such as size and location. Age is included as a measure of experience and innovativeness. It is hypothesized that younger, less experienced producers would be in greater need for advice. Younger producers also tend to be more innovative and thus may be more likely to try new sources of marketing information, such as market advisory services. Additionally, younger producers have longer planning horizons and are able to spread the learn-

ing costs of using MAS over a longer period. All these hypothesized relationships would imply a negative relationship between age and the use of MAS. Primary occupation of producer (crop/livestock production versus other activities) was used as a proxy of the producer's involvement in the farming operation. Jones et al. (1989) detect a negative relationship between off-farm employment and the use of general external information. Thus, producers whose primary occupation is in production agriculture (crop/livestock production), rather than other activities, are hypothesized to be in a greater need for marketing advice. The use of computers reflects the level of education, innovativeness, and a potential for increased returns to consultant services, and is therefore expected to have a positive relationship with the use of MAS.

Farm size is hypothesized to be positively related to the use of MAS. The returns of a MAS recommendation are likely to be greater for producers managing larger farms, as they produce larger volumes of output, and hence any gain in market price due to the use of MAS can be realized over larger output. Furthermore, the quasi-fixed costs associated with using MAS (subscription fee and monitoring the recommendations of MAS) can be spread over greater volumes of output for producers managing larger farms. Location of the farm may influence the use of MAS due to availability of MAS and relevance of MAS advice to the primary crops grown in different parts of the county.

Farmers' risk attitudes also affect the need for marketing advice. Risk attitude is defined here as the extent to which farmers (dis)like price risk. It is hypothesized that more risk-averse producers would be more attracted to risk-reducing properties of MAS. Risk attitude is a psychological construct that can be measured by a set of items (e.g., questions). This study uses a multi-item scale adapted from Pennings and Smidts (2000) to measure risk attitude. Producers were asked to indicate their agreement with the following statements on a nine-point scale ranging from "Strongly Disagree" (1) to "Strongly Agree" (9): (1) I am willing to take high financial risks in order to realize higher average yields; (2) I like taking big financial risks; (3) I am willing to take high financial risks when selling my crops, in order to realize higher average profits; and (4) I accept more risk in my farm business than other farmers.

However, risk must be perceived before a producer can respond to it. A producer's assessment of the risk inherent in his/her operation may be referred to as perceived risk exposure (Pennings and Wansink, 2004). A greater perceived risk exposure is expected to cause increased MAS usage. Several proxies for risk perception are used in this study, namely, the producer's belief that selling crops is risky and the purchase of crop

insurance in the last two years and diversification of the farming enterprises. Producers who believe that they are exposed to considerable risk when selling crops will indicate greater risk perception. The effect of the use of crop insurance is ambiguous: on the one hand, the benefits of the crop insurance may lead to the indication of lower risk exposure by producers. Alternatively, its purchase alone may reflect greater risk perception on the part of those producers. Coble, Heifner, and Zuniga (2000) observe that yield insurance products exhibit a complementary relationship with risk-reducing measures such as hedging, while revenue insurance products act as substitutes to hedging at some levels of coverage. Goodwin and Schroeder (1994) also detect a complementary relationship between crop insurance participation and forward pricing adoption. Diversification (combination of crop and livestock enterprises rather than strictly crop or strictly livestock operations) indicates a relatively lower risk exposure. On the other hand, diversification may reflect a more complex organization structure of a farming operation with limited resources devoted to the marketing function, which may be in greater need for marketing advice. Thus, the relationship between diversification of farm operations and the use of MAS is ambiguous.

Marketing behavior is another factor that influences the need for marketing advice. Marketing behavior is defined as the activities employed by farmers to market their crops. Marketing behavior has two important dimensions that we will focus on in this study: (1) the instrument chosen to sell the crop (e.g., cash market transaction, forward contract, futures contract, etc.) and (2) the frequency with which farmers market their crops (i.e., frequency of trading). Marketing behavior can be measured in terms of the level of use of the forward-pricing techniques and marketing frequency. The level of use of forward-pricing techniques is measured as a percentage of farmers using these techniques. Marketing frequency refers to the number of times that producers typically price their crops during the marketing year. Producers who are more active marketers, i.e., use more forward-pricing tools and price their crops more frequently, are hypothesized to be more likely to use MAS.

MAS USER PROFILES

Based on the factors hypothesized to influence the use of MAS described in the previous section, MAS users may be described in terms of their demographic characteristics, risk attitudes and marketing behavior. In this section, ANOVA analysis is used to test whether the factors

TABLE 4. Profile of MAS Users versus Non-Users Based on Demographic Characteristics

Characteristics	Users	Non-Users	F-test	Significance
Age (Years)	43	44	0.275	0.600
Farmers	99%	99%	0.028	0.868
Use a computer	69%	60%	6.479	0.011
Average farm size (Acreage)	1,936	1,928	0.005	0.945
Average farm size (Sales)	573,764	551,204	0.019	0.890
Midwest	57%	48%	5.208	0.023
Great Plains	34%	42%	4.598	0.032
Southeast	9%	10%	0.135	0.714

Note. Based on 1,053 observations for users and 232 observations for non-users.

hypothesized to influence the use of MAS are able to differentiate MAS users from non-users. Table 4 presents a profile of MAS users in terms of their demographic characteristics. This table demonstrates that MAS users tend to be slightly younger than non-users (43 vs. 44 years old), though this difference is not statistically significant. Ninety nine percent of both users and non-users of MAS have a primary occupation in crop and/or livestock production. Our inability to show any difference with regard to primary occupation may be caused by characteristics of the sample used in this study, with very few respondents involved in off-farm activities. Consistent with our hypothesis, a significantly greater share of MAS users used computers in their business (69 vs. 60 percent). While MAS users on average had larger operations than non-users, both in terms of acreage and gross sales, the difference was not statistically significant. About 57% of MAS users and 48% of non-users were from the Midwest, indicating a larger use of MAS in this part of the country. The Great Plains were represented by a larger share of non-users relative to users (42 vs. 34%), indicating a smaller use of MAS in this part of the country. Representatives of the Southeast comprised about 10% of both users and non-users. These geographic differences of MAS use could be related to the crops grown in these particular regions, as MAS put a lot of emphasis on corn and soybean marketing, which are produced predominantly in the Midwest. This analysis reveals that demographic characteristics are limited in differentiating MAS users from non-users.

While MAS users and non-users may not differ significantly in terms of age and farm size, Table 5 shows that they are different in terms of

TABLE 5. Profile of MAS Users versus Non-Users Based on Risk Attitudes and Perceptions

Attitudes/Perceptions	Users	Non-Users	F-test	Significance
I am willing to take higher financial risks in order to realize higher average yields*	6.34	6.68	4.483	0.034
I like taking big financial risks*	3.32	3.67	5.801	0.016
I am willing to take higher financial risks when selling my crops, in order to realize higher than average returns*	5.48	5.93	6.332	0.012
I accept more risk in my farm business than other farmers*	4.62	4.99	3.977	0.046
During the past two years I have purchased crop insurance**	90%	87%	1.738	0.188
Selling my crops is risky*	6.05	5.93	0.837	0.360
Diversification (crop+livestock)**	40%	46%	2.371	0.124

Notes. Based on 1,053 observations for users and 232 observations for non-users.

*Mean scores for users and non-users are based on a 1 to 9 scale with 1 = Strongly disagree, and 9 = Strongly agree.

**Describes percentage of users and non-users with a certain attribute.

their risk attitudes. The results from an ANOVA analysis of all four components of our multi-item scale measuring risk attitudes reveal that MAS users have a significantly greater preference for risk than non-users. This finding contradicts our hypothesis that risk-averse producers would be attracted by the risk-reducing features of MAS. It appears that farmers who are willing to take more risk, and more likely to be involved in sophisticated marketing schemes, may be in greater need for marketing information and advice. This finding is consistent with the results of Goodwin and Schroeder (1994), who argued that farmers with more preference for risk are more likely to adopt forward pricing. It indicates that MAS are mostly used for purposes other than risk reduction. This finding is also consistent with the fact that MAS users could not be differentiated based on their risk perception (Table 5). All three measures of risk perception used in this study (use of crop insurance, belief that selling crops is risky, and on-farm diversification) were not significantly different for MAS users and non-users, rejecting our hypothesis that risk perception influences the use of MAS.

Finally, MAS users were compared with non-users in terms of their marketing behavior (Table 6). This analysis demonstrates that with the exception of minimum price contracts, MAS users applied significantly more forward-pricing techniques than non-users. This finding is consistent with the findings in previous studies (e.g., Davis and Patrick, 2000)

TABLE 6. Profile of MAS Users and Non-Users Based on Marketing Behavior

Characteristics	Users	Non-Users	F-test	Significance
Use of Forward Pricing Techniques (% of respondents)				
Pre-harvest				
Cash forward contracts	75%	63%	12.15	0.001
Hedge using futures	36%	21%	19.85	0.000
Buy a put option	30%	17%	16.71	0.000
Hedge-to-arrive contracts	17%	13%	3.049	0.081
Minimum price contracts	9%	9%	0.121	0.728
Basis contracts	32%	26%	3.197	0.074
After-harvest				
Cash forward contracts	52%	37%	16.99	0.000
Hedge using futures	27%	18%	7.104	0.008
Buy a put option	21%	16%	3.199	0.074
Hedge-to-arrive contracts	10%	6%	2.706	0.100
Minimum price contracts	8%	7%	0.499	0.480
Basis contracts	28%	17%	10.296	0.010
Marketing frequency (times per year)				
Corn	6.01	6.23	0.379	0.538
Cotton	3.47	2.56	2.709	0.103
Soybeans	5.26	5.40	0.199	0.656
Wheat	4.07	4.17	0.103	0.748

Note. Based on 1,053 observations for users and 232 observations for non-users.

that MAS use is an important determinant of the forward-pricing behavior of farmers. Because of the ambiguous causality between the use of MAS and the use of forward-pricing techniques, this finding indicates that either producers who use more forward-pricing techniques are in greater need for MAS advice, or that the use of MAS causes producers to become more active marketers of their crops. Interestingly, this distinction in marketing behavior does not hold for marketing frequency. Only cotton producers who use MAS exhibit a statistically greater frequency of marketing their crop. MAS users who produce other commodities (corn, soybeans, and wheat) tend to market their crops slightly less frequently, but not statistically differently from non-users.

SUMMARY AND CONCLUSIONS

Farmers in the U.S. continue to identify price and income risk as one of their greatest management challenges. Numerous surveys show that U.S. farmers place a high value on MAS as a source of price-risk-management information and advice. While the previous studies demonstrate a growing importance of market advisory services, only limited research has been done to identify the drivers of MAS usage. This study examined the levels of MAS use and the factors that differentiate MAS users from non-users, based on the results of a survey of crop producers. The survey questioned 3,990 farmers in the Midwest, Great Plains, and the Southeast, providing 1,399 complete responses for the purposes of this study. The sample of survey respondents is representative of large-scale commercial farmers in the US.

The survey revealed that about 82% of the respondents use MAS. The Midwest has the highest use of MAS (85%), followed by the Southeast (80%), and the Great Plains (78%). Only 43% of MAS users rely on only one MAS, while the other 57% subscribe to multiple services. The survey revealed that respondents switch MAS once every 3.3 years. These findings illustrate a substantial need for marketing information among these producers and suggest that MAS users are not particularly committed to the MAS that they use and are open to alternative sources of marketing advice. These characteristics are similar to the evidence presented in the finance literature (e.g., Chevalier and Ellison, 1997; Sirri and Tufano, 1998) that describes how "hot" money flows into and out of mutual funds. This implies that MAS have to be active in retaining their market share.

This study hypothesized that MAS users and non-users might be differentiated based on (1) demographic characteristics, (2) risk attitude, and (3) marketing behavior. ANOVA analysis was used to test these hypotheses. Of the demographic characteristics hypothesized to influence the use of MAS, only farm location and the use of computers show a statistically significant difference between MAS users and non-users. Contrary to our expectations, users of MAS cannot be differentiated based on age and farm size. While MAS users cannot be differentiated in terms of their risk perception, MAS users have been shown to be significantly more risk seeking than non-users. This finding indicates that MAS are mostly used for purposes other than risk reduction and implies that MAS may be able to expand their customer base among risk-seeking producers who may be in greater need of marketing advice. This study also demonstrates that MAS users are more active marketers in

terms of their use of forward-pricing tools, particularly futures and options. MAS users do not appear to have different marketing frequencies from non-users, except for cotton producers who tend to market their crop more often. The characteristics that differentiate MAS users, as described in this study, can be used by MAS to profile producers in order to better target their marketing efforts.

The finding that MAS users are more risk seeking than non-users also has implications for extension program development, as it contributes evidence to the ongoing debate in the agricultural economics literature about the relevance of risk-management education and research. Numerous arguments have been made that risk reduction is not of primary interest to farmers (Christensen and Wimberley, 1994), that risk only matters when a producer is in a tight financial situation or is contemplating a major change in farm operations (Patrick and De Vuyst, 1995), or that producers' primary concerns are how to use the information in order to make money (Anderson and Mapp, 1996). On one hand, these arguments emphasize the need for educational programs that incorporate information on price-enhancement opportunities available from various marketing strategies and to help producers better understand marketing information. This can be accomplished in part by incorporating more outlook information into extension programs. On the other hand, these findings indicate the importance of educating farmers about market-efficiency concepts that challenge their focus on price enhancement (e.g., Zulauf and Irwin, 1998).

The results of this study clearly show that advisory services are highly influential in the marketing decisions of large commercial farmers. If this group of farmers is deemed an important target of extension programs, then advisory services may provide an effective way to reach this audience. One approach would be to involve MAS in the design, and potentially even the delivery, of extension programs. Another approach would be to create "Train-the-Trainer" types of programs, focused on MAS staff directly. This approach has proven quite successful with other groups, such as agricultural lenders.

The results of this study also have important research implications. This study has demonstrated that MAS have a substantial impact on producer marketing decisions. Therefore, MAS use should be included in future studies of producer marketing behavior. In fact, some recent studies (e.g., Katchova and Miranda, 2004) already consider MAS use as a part of farmers' decision process regarding the use of marketing contracts. Further research on the impact of MAS on producer marketing behavior is warranted. Additionally, the survey revealed that both

aggressive and conservative advisory services might be attractive to farmers. However, objective information about the marketing styles of advisory services is quite difficult for farmers to obtain. Thus, there is a need to investigate the marketing styles of various MAS, in order to determine style categories based on objective quantitative factors. Such information may be used by farmers to improve their choice of MAS.

NOTES

1. Material in this section is based on private e-mail communication with Robert Wisner of Iowa State University.

2. The data are found in the annual AgMAS corn and soybean pricing reports published for the 1995-2001 crop years. The latest example is Irwin, Martines-Filho, and Good. Earlier reports can be accessed at the AgMAS Project website [<http://www.farmdoc.uiuc.edu/agmas/reports/index.html>].

3. Given the level of market expenditures reported by attendees at Purdue Top Farmer Workshops (\$3,455 in 2001), the cost comparisons presented here suggest that commercial farms make substantial use of customized programs.

4. The Midwest is represented by Illinois, Iowa, Minnesota, Missouri, Nebraska, Ohio, and Wisconsin. The Great Plains include Colorado, Kansas, Montana, North Dakota, Oklahoma, South Dakota, and Texas. The South East includes Alabama, Arkansas, Georgia, Kentucky, Mississippi, North Carolina, Tennessee, South Carolina, and Virginia.

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