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Perceptions of Marketing Strategies: Producers versus Extension Economists

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Extension marketing economists commit substantial resources to outlook and market analysis. Producers demand this information and use it to make production and marketing decisions. This study analyzes responses to a marketing survey of producers and extension marketing economists to discern similarities and differences in their perceptions regarding market timing, futures market efficiency, and risk management. Producer and extension perceptions are consistent with regard to several marketing issues, although they are not always consistent with published research results. Both producers and extension economists disagree that producers will receive a lower average price by forward contracting, and many do not believe hedging reduces risk and lowers expected return. Extension marketing economists rate risk reduction as a less important goal of marketing strategies than do producers.

Key words: extension marketing perceptions, marketing strategies, producer marketing perceptions

Introduction

Results of a recent survey indicate university extension marketing economists spend 74% of their time informing and educating producers regarding outlook, market analysis, and price risk management (Anderson and Brorsen). The survey further reveals that many extension marketing economists perceive producer clientele can use extension price forecasts to make money by trading futures. In contrast, however, considerable research suggests commodity futures markets are generally efficient, or that inefficiencies are not large enough for producers to profit through arbitraging—raising questions that may challenge extension specialists' perceptions. The survey results also report extension economists believe market timing strategies are available that would increase producer selling prices. Again, research generally does not support this contention. Because extension economists are the university's closest link to producers, it is important to determine whether producer perceptions regarding market efficiency are consistent with extension views.

The objective of this study is to test whether producer perceptions about futures markets, price forecasting, market risk management, and market timing signals are consistent with those of extension marketing economists as identified by Anderson and

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Brorsen. In addition, we draw implications as to whether producers' perceptions are more consistent or less consistent with published research than those of extension economists.

Producers have demonstrated interest in commodity outlook and price risk management information. Given extension marketing economists' perceptions about futures markets, price forecasts, and market timing strategies, what are the perceptions of producers surrounding these same issues? Since extension marketing economists have considerable direct contact with agricultural producers, and because they are a major source of market information for producers, the two groups might be expected to have similar opinions regarding marketing strategies. Two possible scenarios prevail. First, if producers accept extension economists' opinions, both groups would have similar perceptions about futures markets, price forecasting, and market timing signals. Alternatively, if producers' perceptions are not consistent with those of extension, the reason for this disparity needs to be identified and addressed. Is it because producers know differently? Or is it because extension is ineffective at disseminating information?

To undertake this investigation, survey data were collected from two groups of producers: (a) attendees of an "Agricultural Land Value" extension conference in August 1996, and (b) attendees of a "Cattle Profit" extension conference in August 1997. Both conferences were held at Kansas State University. Producers were presented with a set of questions about futures markets, price forecasting, market risk management, and market timing signals similar to those posed to extension economists in the survey conducted by Anderson and Brorsen. Producers' responses to the survey questions are evaluated to determine if they are statistically different from the responses of extension economists.

Results of this study are important for several reasons. First, if the views of producers and extension economists are mutually compatible, and these jointly held perceptions deviate from research results, it is imperative this educational gap be better understood and eventually filled. Is the research sound? Or are the assumptions made in conducting marketing research too rigid and oversimplified to provide meaningful results, as suggested by some extension economists (Anderson and Mapp)? If we accept research results, can practitioner attitudes also be correct, or should greater effort be made to change them? If perceptions of producers and extension economists differ, we need to explore which are more consistent with published research and why. If extension perceptions are more consistent with research, then the issue is one of education and research dissemination: research builds knowledge, and extension specialists teach producers. However, if producer perceptions are supported by research, this may signal a problem of extension's misperception of futures markets, price forecasts, and market timing. On the other hand, differences in producer marketing goals and extension economists' perceptions of those goals may contribute to divergence in attitudes regarding specific marketing strategies between the two groups.

Survey Data

Data from two separate surveys were compiled to compare extension economists' and producers' perceptions related to price forecasts and risk management. The data pertaining to extension economists were obtained from a survey conducted by Anderson

and Brorsen. They attempted to survey all extension marketing economists in the U.S. during the spring of 1996, resulting in a sample size of 78. Sixty-five marketing economists responded to the survey. Of these 65 survey responses, five were incomplete and thus were not used. Twenty-six respondents worked primarily with commodities not having futures contracts. Since our focus is on futures market strategies, and all producers in our survey produced crops and/or livestock having futures markets, survey responses of those extension economists working primarily in commodities without active futures markets (e.g., fruits, vegetables, and dairy) were not used here. For purposes of our investigation, this resulted in 34 usable extension economist completed surveys taken from the Anderson and Brorsen study. The average appointment of these 34 economists was 70.7% extension marketing, 16.1% other extension, 7.9% research, and 5.3% teaching. The greatest average commodity responsibility area represented by this group was corn (16.5%), followed by feeder cattle, slaughter cattle, wheat, soybeans, and hogs.

The second survey data set was obtained from producer surveys conducted at an extension Agricultural Land Value conference in August 1996, and a Cattle Profit conference in August 1997, both held at Kansas State University. A subset of the same marketing questions posed to extension economists by Anderson and Brorsen was used to query the producers.¹ A total of 255 individuals attended the two conferences and all were asked to complete a survey. Seventy-nine surveys were not returned, 75 respondents were not producers (they were agribusiness managers and agricultural service professionals), six producer surveys were incomplete, and four producers attended both conferences and so were only included once. This resulted in 91 usable surveys where producer respondents identified their primary occupations as farming, cattle feeding, and/or ranching.

Given the nature of the conferences (a registration fee of \$150/person was charged), producer respondents do not represent a random sample of producers. However, their attendance suggests the respondents are likely more familiar with extension education programs than producers selected at random, which strengthens any conclusions about differences between producers and extension economists. Table 1 summarizes demographic information about the producer survey respondents. On average, they were 10 years younger, had three more years of formal education, and had much larger farm operations than typical Kansas producers (U.S. Department of Commerce; Goodwin and Schroeder). Most producers used computers (82%), and 44% indicated they had access to the Internet.

Survey respondents from the Agricultural Land Value conference reported much higher use of forward contracting and futures hedges and options than revealed by most previous studies, whereas the Cattle Profit conference attendees used these methods less than respondents to previous surveys (table 2). The Agricultural Land Value conference participants were primarily crop producers, and those participants in the Cattle Profit conference were mostly cattle producers. Forward contracting was used by 64% of the Agricultural Land Value conference participants, which is similar to 74% of the 62 producers that attended the Top Farmer Crop Workshop at Purdue University

¹ The wording of some questions and statements across the two surveys differed slightly to reduce chances of respondent confusion. For example, some questions in Anderson and Brorsen referred to how extension economists perceived producers' perceptions, whereas our survey required the producers to respond with their own perceptions. Thus, some survey statements were modified accordingly.

Table 1. Demographic Information for Producer Respondents Attending Agricultural Land Value Conference and Cattle Profit Conference, Kansas State University (N = 91)

Producer Characteristics	Average	Minimum	Maximum
Age	43	21	72
Years of Formal Education ^a	16	12	21
Total Acreage (crops and pasture)	3,067	420	22,260
Computer Use (%)	82	—	—
Internet Access (%)	44	—	—
Internet Access (times per month) ^b	15	1	50

Note: Because summary statistics data were not statistically different across the two producer groups, they were combined here.

^a For years of formal education: 12 = high school graduate, 16 = college graduate, etc.

^b For those who indicated they had access to the Internet.

Table 2. Characteristics and Percentages of Producers Using Various Marketing Methods Across Studies

Description	PREVIOUS STUDIES				PRESENT STUDY: Conference Attended	
	Asplund, Forster, & Stout	Goodwin & Schroeder	Musser, Patrick, & Eckman	Shapiro & Brorsen	Agric. Land Value	Cattle Profit
Year Study Conducted	1987	1992	1993	1985	1996	1997
Forward Contract (%)	42	45	74	NA	64	18
Hedge (%)	7	11	53	63	45	21
Options (%)	NA	19	35	NA	56	18
Formula (%)	NA	NA	NA	NA	NA	21
No. Respondents	353	537	62	41	55	36
Farm Type	Crop	Crop & Livestock	Crop	Crop	Primarily Crop	Primarily Cattle
Geographic Location	Ohio	Kansas	Indiana	Indiana	Kansas	Kansas

in 1993 (Musser, Patrick, and Eckman). However, this is greater usage of forward contracting than reported in other studies (table 2). Futures hedges were used by 45% and options by 56% of the producers responding to the Agricultural Land Value conference survey—percentages which are also considerably greater than those found in previous surveys. Forward contracting, hedging, options, or formula pricing were each used by less than 22% of the Cattle Profit conference attendees. This suggests lower usage of futures by cattle producers relative to crop producers. However, of the 16 Cattle Profit conference respondents who were either stockers and/or cattle feeders, 37% hedged and 32% used options, indicating higher usage of futures markets by cattle stockers and feeders relative to cow-calf producers.

Table 3. Summary Statistics of Producer Marketing Methods, Sources of Marketing Information, and Use of Price Forecasts (N = 91)

Survey Questions	Conference Attended	
	Ag Land Value (N = 55)	Cattle Profit (N = 36)
	— Crop —	— Cattle ^a —
Approximately what percentage of your production do you typically price using:		
Cash sale only	53%	74%
Forward contracting	17%	5%
Futures options	14%	6%
Futures hedging	8%	5%
Feed to own livestock	7%	NA
Formula	NA	9%
Other	1%	4%
Rank the top <i>five</i> sources you use to formulate price expectations from 1 to 5 (where 1 = most important and 5 = least important). ^b		
Marketing advisory services, newsletters	3.1	5.0
Futures markets	3.3	4.0
Electronic information provider (DTN, etc.)	4.3	4.6
University outlook meetings/newsletters	4.4	6.3
Farm magazines	6.4	7.0
Peers (farmers, businessmen)	6.7	6.5
Commodity merchants (grain or cattle buyers)	6.9	6.5
Radio/TV commentators	6.9	6.4
Commodity brokers	7.1	7.1
None—I sell at harvest no matter the price	8.5	8.5
I use price forecasts to help make production decisions.	80%	92%
I use price forecasts to determine precise timing of cash buy/sell decisions.	73%	78%
I forward price or hedge based on price forecasts.	71%	41%

^aNumbers do not sum to 100% because some producers used both hedging and formula pricing for the same cattle.

^bItems not ranked by respondents were assigned ranked values of 8.5 (the average of a rank of 6 to 11).

Table 3 summarizes producer survey responses to various marketing questions. Consistent with previous research (Goodwin and Schroeder), nearly all producer survey respondents (91% of crop producers and 88% of cattle producers) used cash markets to price at least a portion of their crop and livestock sales. The average percentage of crops sold in the cash market was 53% compared to 74% for cattle.

If producers are likely to be influenced by extension economists' perceptions of marketing, presumably they need to be exposed to extension outlook. To discern producer exposure and familiarity with extension outlook, producers were asked to rank the top five sources they use to formulate price expectations. In responding to this

question, the Agricultural Land Value conference attendees reported the following top five sources: (a) marketing advisory services, (b) futures markets, (c) electronic information, (d) university outlook, and (e) farm magazines. For the Cattle Profit conference participants, the top five sources were: (a) futures markets, (b) electronic information, (c) marketing advisory services, (d) university outlook, and (e) radio and television (table 3). These rankings are not entirely consistent with those found by Schnitkey et al., where the top source of farm marketing information for Ohio producers was radio broadcasts, and where Cooperative Extension ranked 12th out of 16 sources. However, the question asked in our survey was specifically related to price expectations, whereas the question surveyed by Schnitkey et al. related to marketing information in general, and as such did not include futures markets.

Batte, Schnitkey, and Jones (using survey data similar to Schnitkey et al.) found that the use of professional sources for marketing information was greater by producers below age 50, with a college education, and a farm size of 600 acres or more. These characteristics describe the producer groups surveyed in our study. The importance of futures markets in producer price expectations is consistent with conclusions of Eales et al., who found that producer price expectations for corn and soybeans were consonant with futures prices. Of note, based on responses to our survey questions, is that both university extension and futures markets were important sources of information used by these producers to formulate price expectations. In fact, extension information plays an important role in all of the top ranked sources for price expectations noted by our survey respondents.

More than 70% of the respondents in each producer group indicated they use price forecasts to make production and precise buy/sell timing decisions (table 3). This suggests producers rely on price forecasts to help them make decisions—consistent with what extension economists perceived regarding the primary reason producers attend outlook meetings (Anderson and Brorsen). Considerably more Agricultural Land Value conference participants (71%) than Cattle Profit conference participants (41%) used price forecasts to forward price.

Comparison of Producer and Extension Economist Perceptions

Frequency distributions of producers' and extension economists' responses to various statements characterizing marketing and futures market perceptions are provided in figures 1–10. Included with each figure are mean responses, a *t*-statistic testing the null hypothesis that mean responses are the same, and a χ^2 statistic testing the null hypothesis that response distributions are the same. Categorical responses to each statement are numerically coded on a 1–5 scale, with 1 = strongly agree, 2 = agree, 3 = indifferent, 4 = disagree, and 5 = strongly disagree. With the exception of figure 1, producer survey participants from the two different conferences had response averages and distributions that were not statistically different for responses to all survey statements graphically illustrated here.

Both producers and extension economists generally do not feel that farmers will receive lower average prices by forward contracting (figure 1). However, extension economists disagree more strongly than producers. This is the only statement for which

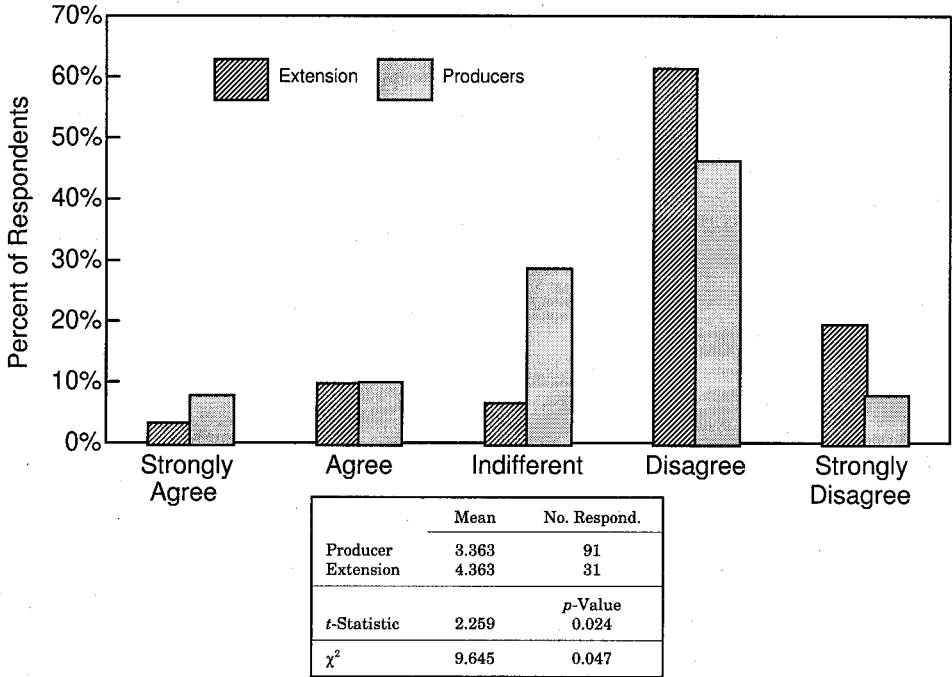


Figure 1. Farmers will receive a lower average price by forward contracting than by not forward contracting

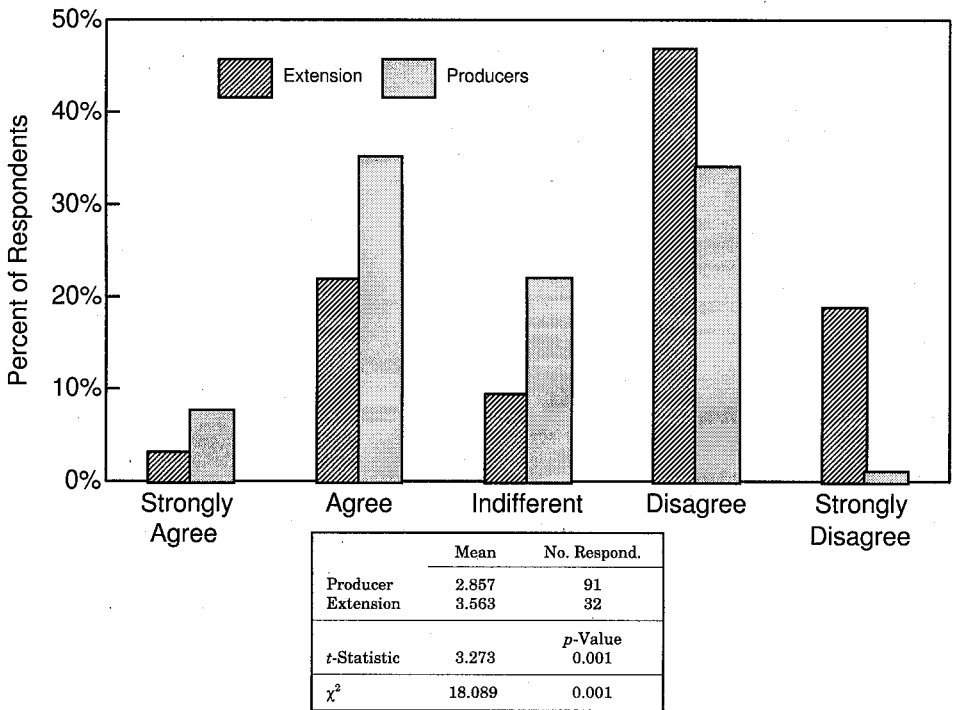


Figure 2. Hedging reduces risk and lowers expected returns

producers' views differ statistically across the two conferences; Agricultural Land Value attendees tend to disagree, with an average response ranking of 3.6, and Cattle Profit participants are indifferent, with an average ranking of 3.1. Extension and producers' views are in contrast with research that suggests forward contracting results in a lower price than cash sales (Brorsen, Coombs, and Anderson; Elam; Ward, Koontz, and Schroeder). This survey statement may have been interpreted by respondents to imply that every year forward contract prices would be less than eventual cash price—which of course is not true. Thus, this result (as with all the results reported here) could reflect respondents interpreting the survey questions differently than intended.

The second survey statement (figure 2) was designed to discern perceptions regarding whether hedging reduces risk and mean returns. Producers tend to be indifferent to agreeing that hedging reduces risk and mean returns, whereas extension economists tend to disagree with the statement. Both the means and distributions of producer and extension economist perceptions are statistically different from each other. It is unclear why the perceptions differ. Producers' perceptions are more consistent with theoretical and empirical research reporting that over long periods of time, futures hedging reduces mean and variance of returns (e.g., Berck; Bond and Thompson; Kahl; McKinnon; Schroeder and Hayenga; Zulauf et al.). However, if responses to this statement were given with regard to revenue risk—which includes production as well as price risk—then more consistency or less consistency with empirical research is indeterminable. That is, small amounts of hedging reduce risk, but large amounts increase risk (Lapan and Moschini). This may explain the bimodal response in figure 2. Further, respondents may believe (as Kolb found) that futures prices do not contain implicit risk premiums. Specifically, they may have ignored transactions costs and disagreed with the second clause of the statement.

Both producers and extension economists tend to perceive that market timing strategies exist that allow producers to increase prices received (figures 3 and 4). To systematically profit from market timing strategies, a forecaster must be able to forecast more accurately than the futures market. This contradicts the efficient market hypothesis that market price reflects all relevant information (Fama). Considerable research exists, especially for crops, supporting the efficient market hypothesis in agricultural commodity markets (Garcia, Hudson, and Waller; Kastens and Schroeder; Kolb). In addition, futures price forecasting accuracy generally exceeds that of extension economists and large econometric models (Kastens, Schroeder, and Plain; Just and Rausser). Is the research flawed? Are assumptions so poor and models so inflexible that they fail to adequately capture the dynamics of commodity market timing used by practitioners (Brorsen and Irwin)? Are the survey questions merely misunderstood? Or are extension economists' and producers' perceptions really inconsistent with research results?

Both producers and extension economists believe selling multiple years' crops at one time is not necessarily recommended (figure 5). They also do not generally believe they make money on futures transactions using forecasts available to them (figure 6). However, 32% of the extension economists believe that producers make money from price forecasts they provide, while 36% of the economists disagree with this statement. Interestingly, extension economists specializing in grain outlook tend to agree more strongly with this statement (with an average response of 2.6) than livestock outlook specialists (with an average response of 3.7). This is particularly noteworthy because published research has found that grain futures markets are generally more efficient

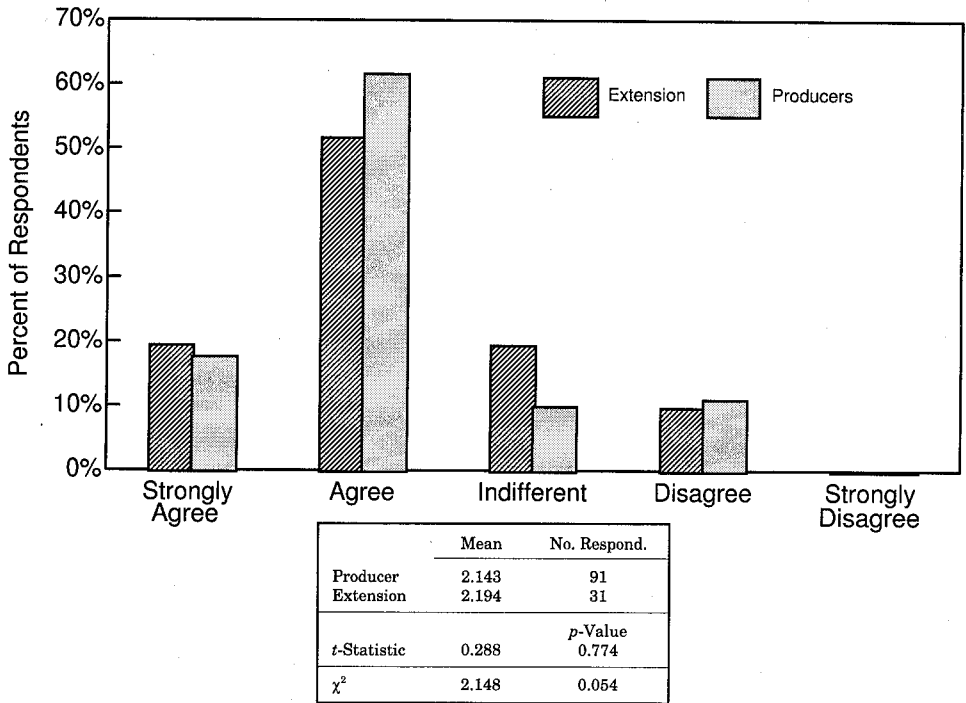


Figure 3. Preharvest hedging strategies are available which allow farmers, on average, to receive a higher price than always selling at harvest

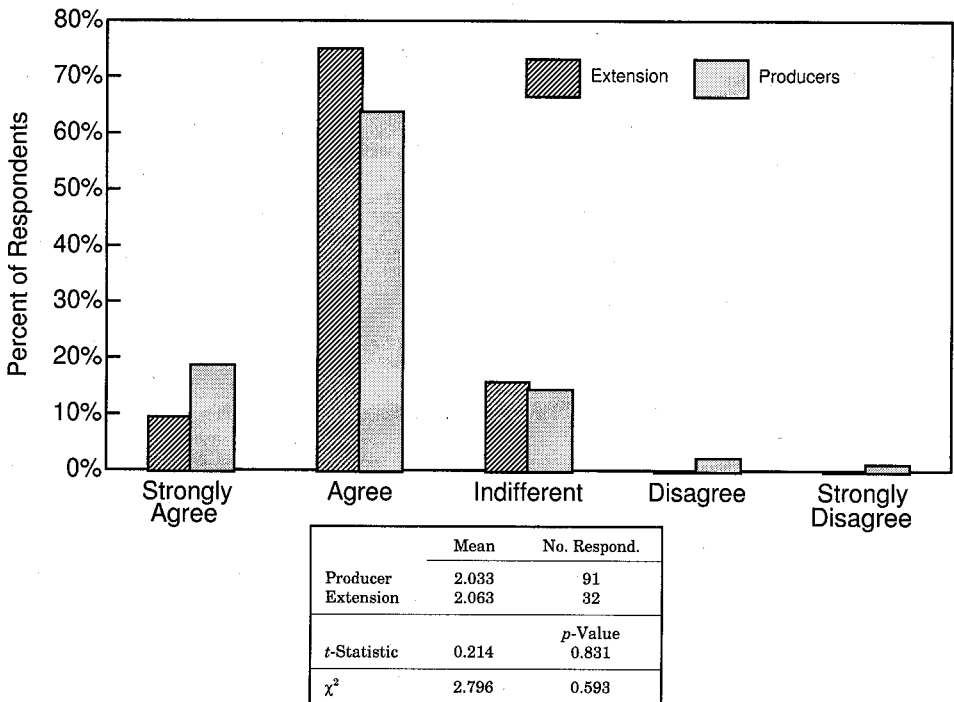


Figure 4. There are market timing strategies available to farmers which allow them to increase price received

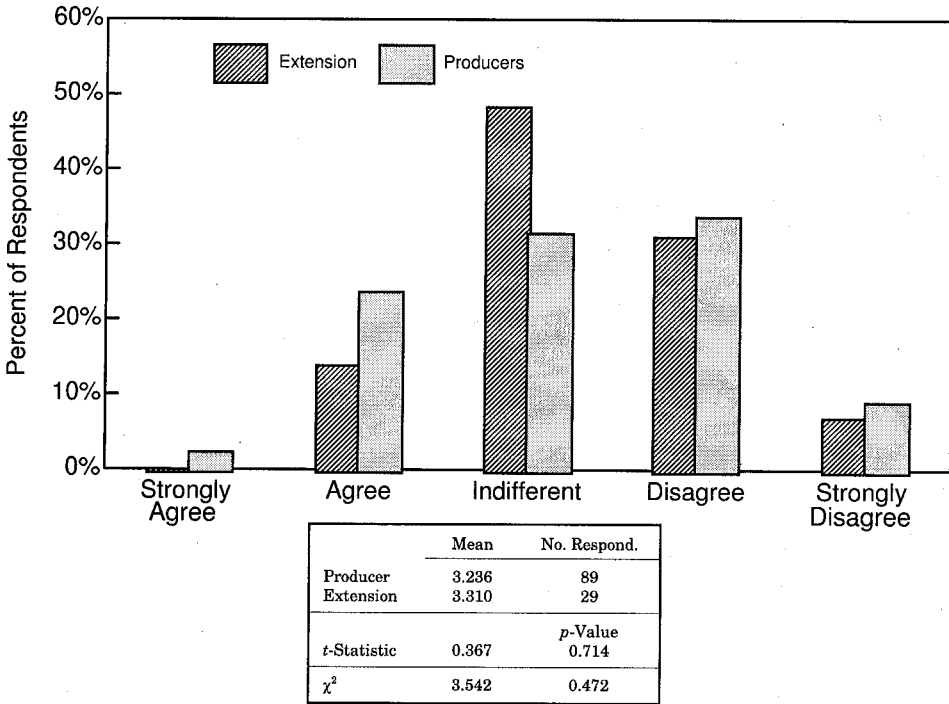


Figure 5. When prices are above the five-year average, a farmer should sell more than one year's production

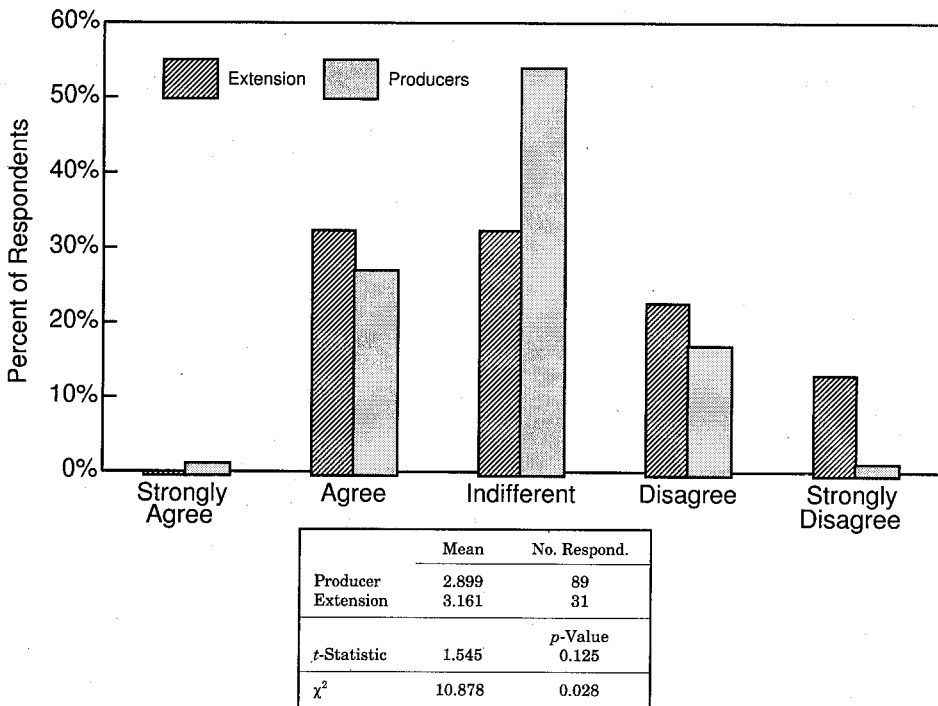


Figure 6. I make money on futures transactions using price forecasts available to me

than livestock futures markets (Garcia, Hudson, and Waller). Extension economists demonstrate wide variation in the level of confidence they place in their own forecasts. Yet, most producers indicated an "indifferent" response (figure 6), revealing they do not believe they can sort accurate from inaccurate forecasts.

Figures 7 and 8 suggest a distinction between producers' and extension economists' perceptions regarding marketing methods. Both groups largely disagree that farmers who do not use futures are poor marketers, indicating a producer's nonuse of futures markets does not imply the producer is a poor marketer (figure 7). However, extension economists largely agree that farmers who use futures markets are good marketers, whereas producers tend to be indifferent or slightly disagree with this statement (figure 8). This means extension economists are more likely than producers to categorize a producer as a "good" marketer if that producer uses futures markets. Producers who use forward pricing techniques tend to have larger operations, are more highly educated, and have attended risk management seminars (Goodwin and Schroeder), and perhaps this is the source of extension economists' perceptions.

In addition to differences in perceptions regarding futures usage and marketing success, producers also have different goals in their marketing strategies than extension economists perceive. Most producers agree that their primary marketing strategy is to reduce risk (figure 9); in contrast, extension economists are sharply divided on their response to this statement. Considering the bimodal responses of extension economists in figures 6 and 9, could it be that some economists focus on risk reduction and downplaying forecasting, while others concentrate on forecasting, believing gains to producers accrued from using their forecasts are more important than risk reduction?

Even though extension economists are sharply divided on the importance of risk reduction in marketing strategies (figure 9), when focus turns to the long run (figure 10), they generally recognize the importance of risk reduction. Nonetheless, results depicted in figure 10 are consistent with those in figure 9 in that producers place more emphasis on long-term risk reduction than do extension economists.

Implications for Extension and Research

Grain and livestock producers are avid users of extension outlook and marketing information. Extension economists are considered authorities in the area of market information. Therefore, perceptions of extension economists regarding price forecasting, futures markets, market timing strategies, and price risk management influence producers' perceptions. In five out of 10 survey questions, perceptions of producers and extension economists were not statistically distinguished from each other. This may indicate extension delivery is generally working. It also suggests that efforts to convey research results to producers do not necessarily have to focus on changing the educational format.

Extension economists and producers both have perceptions that are not supported by published research. Both groups believe preharvest hedging and market timing strategies exist that allow producers to increase prices received. The efficient market hypothesis and supporting research refute these contentions. Brorsen and Anderson suggest, "We have oversold our ability to forecast prices and oversold the benefits of hedging and forward contracting" (p. 90).

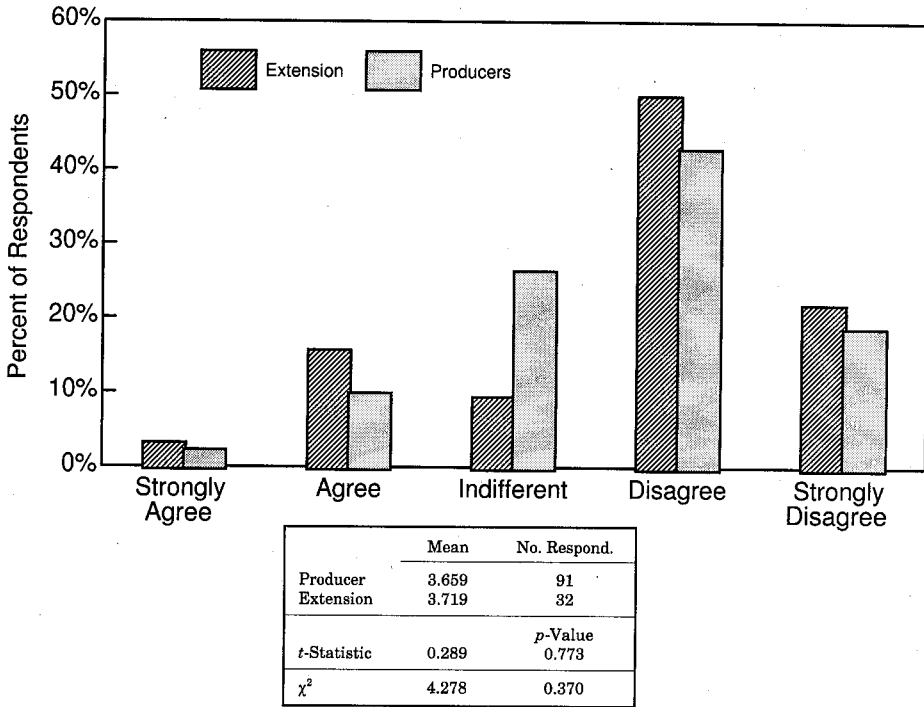


Figure 7. Farmers who do not use futures/options are poor marketers

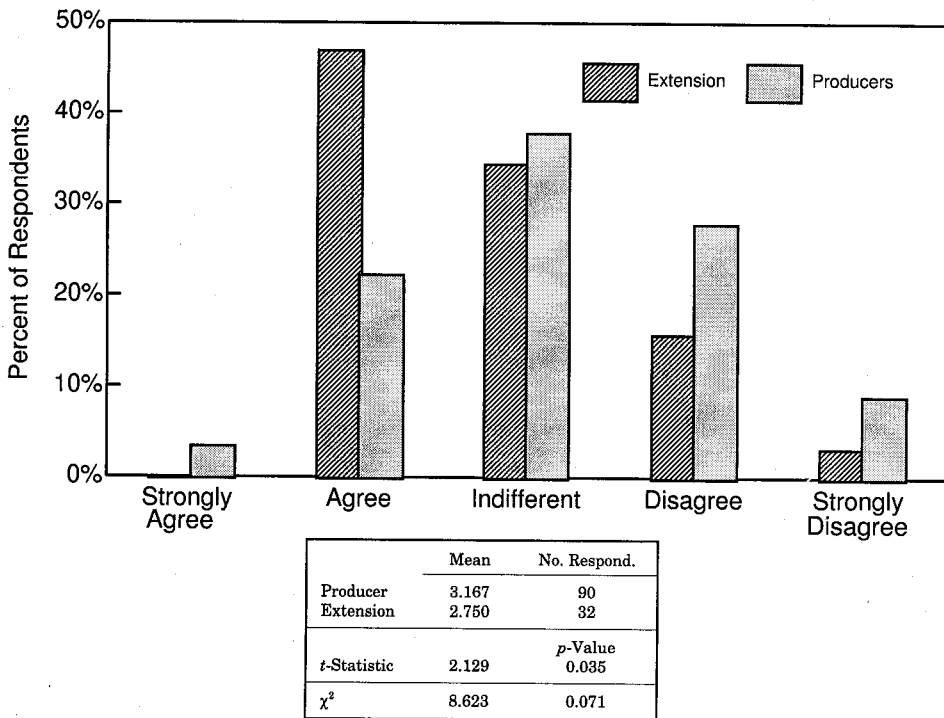


Figure 8. Farmers who use futures/options are good marketers

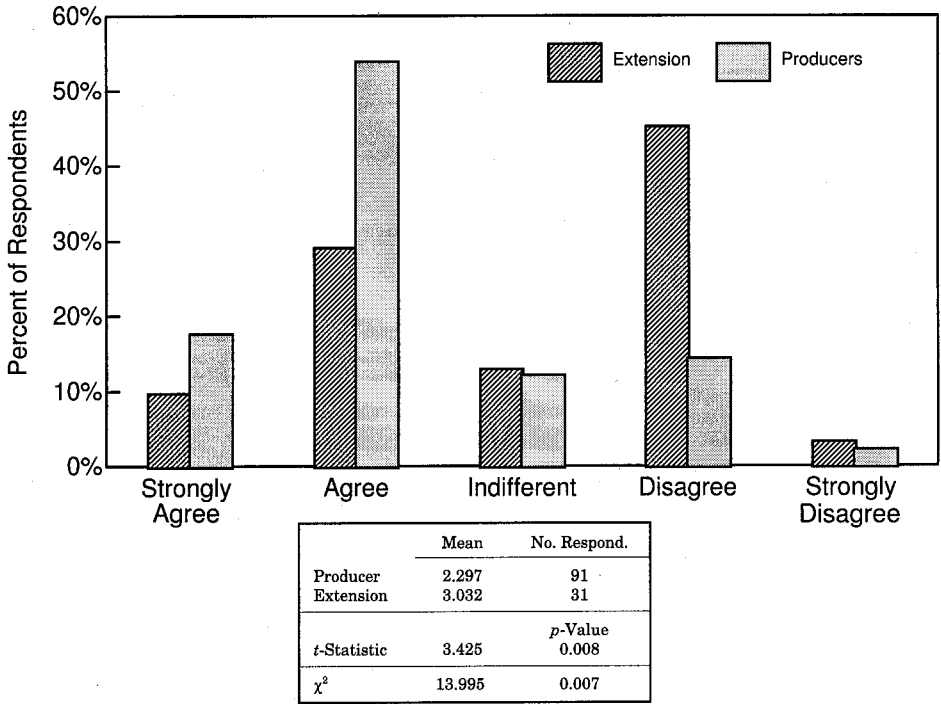


Figure 9. My primary marketing strategy is to reduce risk

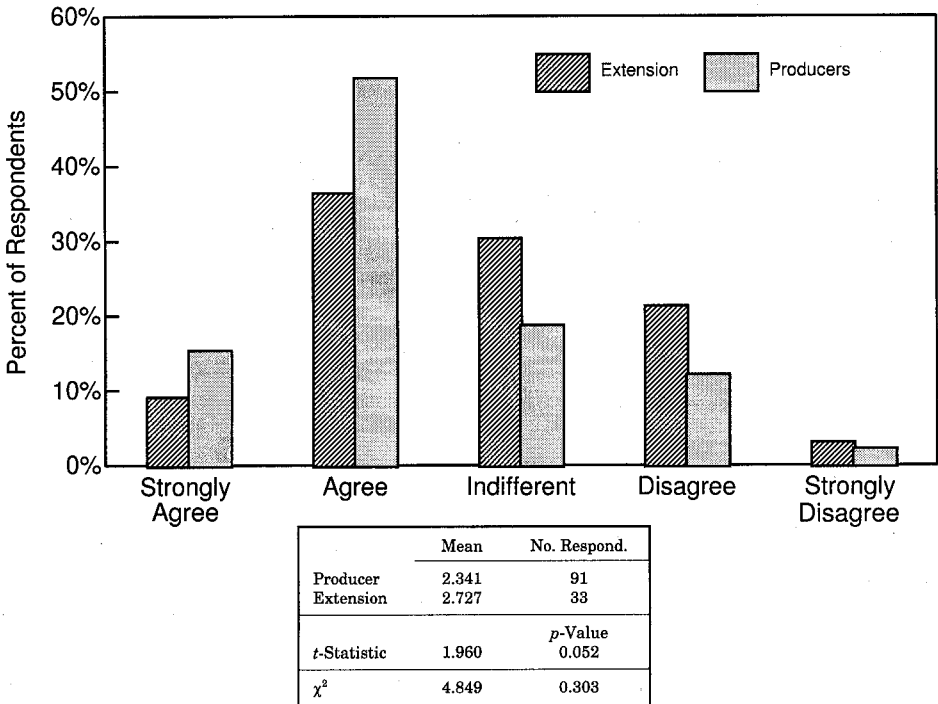


Figure 10. The goal of a marketing strategy should be to decrease long-term risk over marketing years rather than to focus on an individual year

Extension marketing economists generally perceive producers to have different marketing goals than producers themselves indicate. Producers reported a preference to reduce risk; however, many extension economists perceive that this is not the primary goal of producers. Consequently, marketing economists may be focusing on marketing programs that are not necessarily consistent with producer goals.² More attention needs to be given to developing marketing programs consistent with producers' goals.

Extension economists are sharply divided on whether their price forecasts can be traded profitably and whether risk reduction is an important goal of marketing strategies. Although it is possible that some economists are good forecasters and others are good risk reducers, producers do not generally believe forecasts they receive can be traded profitably. Therefore, forecasting economists should more effectively convey the value of their forecasts, or focus less on forecasting and more on risk management.

Why are some extension economists' marketing perceptions in conflict with published research? In a survey of extension economists, Anderson and Mapp found that many are frustrated with research published in professional journals because they feel this research has little relevance to real-world applications. Whether the current body of published research regarding market timing and pricing efficiency is correct, appropriate, wrong, misguided, or irrelevant, extension and research economists have a responsibility to work closely together to assure continued research is indeed relevant and accurate. The applied nature of agricultural economics research, combined with the strong demand for in-depth information in the industry served, underscores the need for close research-extension relationships.

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² One caveat to this finding is that the producer survey respondents represented larger than average operations, and so may have different risk preferences and perceptions than producers with average-sized operations.

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