Tracking the Performance of Marketing Professionals: 1995-2000 Results for Corn and Soybeans

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by

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DISCLAIMER

The advisory service marketing recommendations used in this research represent the best efforts of the AgMAS Project staff to accurately and fairly interpret the information made available by each advisory service. In cases where a recommendation is vague or unclear, some judgment is exercised as to whether or not to include that particular recommendation or how to implement the recommendation. Given that some recommendations are subject to interpretation, the possibility is acknowledged that the AgMAS track record of recommendations for a given program may differ from that stated by the advisory service, or from that recorded by another subscriber. In addition, the net advisory prices presented in this report may differ substantially from those computed by an advisory service or another subscriber due to differences in simulation assumptions, particularly with respect to the geographic location of production, cash and forward contract prices, expected and actual yields, storage charges and government programs.

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Abstract

The purpose of this research bulletin is to summarize the pricing performance of professional market advisory services for the 1995-2000 corn and soybean crops. The pricing performance results over 1995-2000 suggest several key findings. First, advisory programs in corn do not consistently beat market benchmarks, but they do consistently beat the farmer benchmark. Second, advisory programs in soybeans tend to beat both market and farmer benchmarks. Third, in terms of 50/50 revenue, advisory programs only marginally beat market benchmarks, but consistently beat the farmer benchmark. Overall, there is mixed evidence that advisory programs as a group outperform market benchmarks, while substantial evidence exists that advisory programs as a group outperform the farmer benchmarks. Caution should be used when considering the results, due to the relatively small sample of crop years available for analysis. In particular, the presence of sharp downward price trends in most crop years makes it difficult to determine whether the 1995-2000 sample provides a statistically reliable picture of future differences in pricing performance.

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Introduction

Farmers in the US consistently identify price and income risk as one of the greatest management challenges they face. Surveys suggest that numerous farmers view professional market advisory services as an important tool in managing price and income risk. As a result, there is a need to develop an ongoing "track record" of the performance of market advisory services to assist farmers in identifying successful alternatives for marketing and price risk management. The Agricultural Market Advisory Service (AgMAS) Project was initiated in 1994 with the goal of providing such information.

The purpose of this research bulletin is to summarize the pricing performance of professional market advisory services for the 1995-2000 corn and soybean crops. The results for 1995-1999 were released in earlier AgMAS research reports, while the results for the 2000 crop year are new. At least 23 advisory programs are included in the evaluations for each commodity and crop year. While the sample of advisory services is non-random, it is constructed to be generally representative of the majority of advisory services offered to farmers. Two indicators of pricing performance are presented. The first indicator is the proportion of advisory programs that beat benchmark prices. The second indicator is the average price of advisory programs relative to benchmarks. Both market and farmer benchmarks are considered in the evaluations. Complete details on data collection, computation of net advisory prices and benchmarks and pricing performance tests can be found in the AgMAS research report by Irwin, Martines-Filho and Good (2002).

At the outset, it is important to point out that only six crop years are available to analyze market advisory service pricing performance. From a purely statistical standpoint, samples with ten or fewer observations typically are considered "sparse." On the surface, this suggests the sample may not contain enough information to draw conclusions about advisory service pricing performance. There are several reasons why this may not be the case. First, Anderson (1974) explored the reliability of sparse data sets in an agricultural setting and found the surprising result that even as few as three or four observations can be useful. Second, even though the number of crop years is limited, at least 23 advisory programs are tracked for each crop year. This has the potential to substantially increase the information provided by the sample. Third, from a practical, decision-making standpoint, samples with six observations often are considered adequate to reach conclusions. The results of university crop yield trials represent a well-known example. A typical presentation of the results includes only current year yields and two-year or three-year averages. In many cases, even the two-year and three-year averages cannot be presented because of turnover in the varieties tested from year-to-year.[1] Despite the limitations, this type of yield trial data is widely used by farmers in making variety selections. On balance, then, it seems reasonable to argue that the six years of data currently available on advisory

[1] The University of Illinois Variety Testing program is a well-known example of this type of yield trial. The results of this research program can be found at http://www.cropsci.uiuc.edu/vt/.

service pricing performance may be used to make some modest conclusions. Caution obviously is in order given the possibility of results being due to random chance in a relatively small sample of crop years.

Computing the Returns to Marketing Advice

In order to evaluate the returns to the marketing advice generated by advisory services, the AgMAS Project purchases a subscription to each of the programs offered by a service.[2] The information is received electronically via websites, e-mail or satellite service (DTN). Staff members of the AgMAS Project read the information provided by each advisory program on a daily basis. As a result, "real-time" recommendations are obtained.

After AgMAS staff collects the stream of recommendations for a particular crop year, all of the (filled) recommendations are aligned in chronological order. Next, the returns to each recommendation are calculated in order to arrive at a net price that would be received by a farmer precisely following the marketing advice (as recorded by the AgMAS Project). This net price is the weighted-average cash sale price plus or minus gains/losses associated with futures and options transactions plus market loan program benefits. Brokerage costs are accounted for, as are the costs of storing any portion of the crop beyond harvest.

In order to simulate a consistent and comparable set of results across the different market advisory programs, certain explicit assumptions are made. These assumptions are intended to accurately depict "real-world" marketing conditions. Key assumptions for the results presented in this bulletin include: i) with a few exceptions, the marketing window for a crop year is 24 months in length and runs from September of the year before harvest through August after harvest, ii) cash prices and yields refer to a central Illinois farm, iii) storage is assumed to occur at commercial elevators, and iv) marketing loan recommendations made by advisory programs are followed wherever feasible.

The next step in evaluating pricing performance is specification of objective standards of performance. These objective standards typically are referred to as "benchmarks." It is commonplace to compare performance to benchmarks in other economic contexts, such as financial investments. Some of the best-known stock investment benchmarks are the Dow-Jones Industrials Index, S&P 500 Index and the Wilshire 5000 Index.

Two different types of benchmarks are developed for the performance evaluations. Efficient market theory implies that the return offered by the market is the relevant benchmark. In the context of this study, a market benchmark should measure the average price offered by the market over the pricing window of a representative farmer who follows advisory program recommendations. Both a 24-month and a 20-month market benchmark are specified in order to test the fragility of performance results to different market benchmark assumptions. The first market benchmark averages cash price over the entire 24-month marketing window, which

[2] The term "advisory program" is used because several advisory services have more than one distinct marketing program.

begins on September 1 of the year prior to harvest and ends on August 31 of the year after harvest. The second market benchmark is computed by simply deleting the first four months of the 24-month pricing-window from the computations of the average market price. Behavioral market theory suggests that the average return actually achieved by market participants as an appropriate benchmark. In the context of the present study, a behavioral benchmark should measure the average price actually received by farmers for a crop. A farmer benchmark is specified based upon the USDA average price received series for corn and soybeans in Illinois. All benchmarks are computed using the same assumptions applied to advisory program track records. Note that the same simulation assumptions applied to advisory service track records (e.g., storage costs) are applied to the market and farmer benchmarks.

Net Advisory Prices and Benchmarks for 1995 - 2000

Net advisory prices and benchmarks for the 1995-2000 crop years are reported in Tables 1 and 2. In order to obtain a consistent set of net advisory prices and benchmarks for the entire sample period, commercial storage costs are assumed. It is not possible to present parallel results assuming on-farm variable costs of storage, because the AgMAS Project first computes net advisory prices and benchmarks under this alternative storage cost assumption for the 2000 crop year. See the previously mentioned AgMAS research report by Irwin, Martines-Filho and Good for 2000 crop year results that assume on-farm variable costs of storage. Also note that some of the market advisory services included in the tables are not evaluated for all six years.

As shown in Table 1, the average advisory price for corn ranges between $2.02 per bushel in 1999 and $3.03 per bushel in 1995. Range statistics reveal that net advisory prices for corn vary substantially within individual crop years. The most dramatic example is 1995, where the minimum is $2.29 per bushel and the maximum is $3.90 per bushel. Even in years with less market price volatility, it is not unusual for the range of prices across advisory programs to be nearly a dollar per bushel. The three alternative benchmark prices for corn are shown at the bottom of Table 1. The variation in benchmark prices from year-to-year is similar to that of average net advisory prices. However, there can be substantial differences in benchmark prices for a particular crop year. For example, the 24-month market benchmark in 1998 is $2.24 per bushel, while the USDA farmer benchmark is only $1.97 per bushel.

As reported in Table 2, the average advisory price for soybeans ranged from $5.45 per bushel in 2000 to $7.27 per bushel in 1996. Similar to corn, the range of individual net advisory prices within a crop year is substantial. The most dramatic example is 1999, where the range in advisory prices approaches $2.50 per bushel. The three alternative benchmark prices for soybeans are shown at the bottom of Table 2. The variation in soybean benchmark prices from year-to-year is similar to that of average net advisory prices. Once again, there can be substantial differences in benchmark prices for a particular crop year.

Since many subscribers to market advisory services produce both corn and soybeans, it is relevant to examine a combined measure of corn and soybean pricing performance for each market advisory program. One way to aggregate the results is to calculate the per-acre revenues implied by the pricing performance results. The per-acre revenue for each commodity is found

by multiplying the net advisory price for each market advisory service by the actual central Illinois corn or soybean yield for each year. A simple average of the two per acre revenues is then taken to reflect a farm that uses a 50/50 rotation of corn and soybeans.

Table 3 contains the combined corn and soybeans revenue results. The lowest average advisory revenue, $298 per acre, occurred in 2000, while the highest average advisory revenue, $369 per acre, occurred in 1996. Given the results for corn and soybeans, the large range of individual advisory revenues within a crop year is not surprising. Nonetheless, it is startling to see the possible economic impact of following the best versus the worst performer in a given crop year. For example, in three of the six crop years (1995, 1999 and 2000), the range in advisory revenue exceeds $100 per acre.

Advisory Service Pricing Performance Over 1995-2000

Before considering the pricing performance results, a couple of important issues need to be discussed. First, the results presented in this section address the performance of market advisory programs as a group. In other words, average pricing performance across all programs is considered. This is a different issue than the pricing performance of a particular advisory program. Simply put, it is inappropriate to make performance inferences for an individual advisory program based on aggregate results. Second, farmers subscribe to market advisory programs for a variety of reasons. For example, Pennings, Good, Irwin and Gomez (2001) survey farmer-subscribers and find that the two highest rated uses of market advisory programs are marketing information and market analysis. While the quality of marketing information and market analysis is likely to be positively correlated with the marketing recommendations evaluated in this section, this does not necessarily have to be the case. It is possible that advisory programs provide valuable information and analysis to farmer-subscribers, yet fail to exhibit superior pricing performance.

Directional Performance

The first, and simplest, indicator of pricing performance is the proportion of advisory programs that beat the market or farmer benchmarks. Positive performance is indicated if the proportion of advisory programs beating a benchmark exceeds 50%, the proportion one would observe if advisory performance is random, like flipping a fair coin. A noteworthy feature of this "directional" indicator is that it is not influenced by extremely high or low advisory prices or revenue.

The proportion of advisory programs in corn, soybeans and 50/50 advisory revenue above the benchmarks over 1995-2000 is presented in Table 4. Considering corn first (Panel A: Table 4), there is some variation in the proportion of net advisory prices above the two market benchmarks for individual crop years, particularly 1998, but the patterns are similar overall. There also does not appear to be any discernable trend in the proportions for either benchmark over the six crop years. The average proportion for 1995-2000 is 51% versus the 24-month benchmark and 59% versus the 20-month benchmark, indicating a slight to marginal chance of advisory prices in corn beating market benchmark prices. In contrast, the proportion of net

advisory prices above the USDA farmer benchmark exceeds 50% each crop year and appears to increase somewhat over time. The average proportion above the USDA farmer benchmark over 1995-2000 is 74%. This is substantially higher than the average proportions versus the market benchmarks and indicates a sizeable chance of market advisory programs generating net prices higher than the USDA farmer benchmark.

Moving to soybeans (Panel B: Table 4), there is more variation in the proportion of net advisory prices above the two market benchmarks for individual crop years. Particularly sharp differences are observed in 1998 and 1999, where the spread between the proportions is between 26 and 45 percentage points. There also appears to be a noticeable downward trend in the proportions versus the 24-month benchmark. No clear trend is apparent for the proportions versus the 20-month benchmark. Despite these differences for individual crop years, the average proportions for 1995-2000, 61% versus the 24-month benchmark and 70% versus the 20-month benchmark, both indicate a better than average chance of advisory prices beating market benchmark prices in soybeans. Once again, the proportions above the USDA farmer benchmark are all above 50% and appear to increase somewhat over time. The average proportion above the USDA farmer benchmark over 1995-2000 is 74%, the same as for corn. This indicates a sizeable chance of market advisory programs generating net prices in soybeans higher than the USDA farmer benchmark.

Given the combined nature of 50/50 advisory revenue, it is not surprising that revenue proportions (Panel C: Table 4) typically are between those of corn and soybeans. The average proportion for 1995-2000 is 57% versus the 24-month benchmark and 66% versus the 20-month benchmark, indicating a marginal to better than average chance of advisory revenue beating market benchmark revenue. The proportion of advisory revenues above the USDA farmer benchmark exceeds 50% each crop year and averages 77% over 1995-2000. This indicates a sizable chance of advisory revenue beating USDA farmer benchmark revenue. It is interesting to note that 100% of the advisory programs in 1998 generated revenue that exceeded the USDA farmer benchmark, despite the fact that less than 100% did so in corn and soybeans. This simply reflects a situation where some programs had gains above the farm benchmark in one commodity that more than offset the losses below the benchmark in the other commodity.

Overall, the directional performance results over 1995-2000 suggest several key findings. First, advisory programs in corn do not consistently beat market benchmarks, but they do consistently beat the farmer benchmark. Second, advisory programs in soybeans tend to beat both market and farmer benchmarks. Third, in terms of 50/50 revenue, advisory programs only marginally beat market benchmarks, but consistently beat the farmer benchmark. So, the results provide mixed performance evidence with respect to market benchmarks and consistently positive evidence with respect to the USDA farmer benchmark.

Average Price Performance

The second indicator of pricing performance is the difference between the average price of advisory programs and the market or farmer benchmarks. This indicator takes into account both the direction and magnitude of differences from the benchmarks. The results found in Tables 5 and 6 basically tell the same story as those based on the proportion beating the benchmarks. Average differences from market benchmarks for corn over 1995-2000 (panel A: Table 5) are small, ranging from zero to three cents per bushel.[3] At 11¢ per bushel, the average difference from the farmer benchmark for corn is larger. Average differences for soybeans over 1995-2000 (panel B: Table 5) are even larger for both types of benchmarks, ranging from 13 to 17¢ per bushel versus market benchmarks and equaling 22¢ per bushel versus the farmer benchmark. Average differences for 50/50 advisory revenue range from three to seven dollars per acre for market benchmarks over 1995-2000 (Table 6). The average revenue difference versus the USDA farmer benchmark is $14 per acre. Note that the average differences can mask considerable variability across the benchmarks within a crop year and across crop years. A dramatic example of this occurred in 1998 for soybeans (Panel B: Table 5), where the average difference from the 24-month market benchmark is –4¢ per bushel, while the average difference from the USDA farmer benchmark is +64¢ per bushel.

When viewing performance results, it is always important to assess whether the nature of the sample information or the comparisons biases the results in one direction or the other. There is in fact a systematic trend in corn and soybean price movements during the sample period that has an important impact on the tests results. Figure 1 shows the average pattern of corn and soybean prices over the 24-month marketing window for the 1995-2000 crop years. These charts are based on the same harvest equivalent forward and spot cash prices (including marketing loan benefits) used to compute net advisory prices and the market benchmarks. The downward trend in corn and soybean prices over the 24-month window is substantial, with pre-harvest highs in corn and soybean prices averaging about 70¢ and 90¢ per bushel, respectively, higher than post-harvest lows. A marketing strategy that systematically priced more heavily in the pre-harvest period relative to the post-harvest period would have generated much higher returns than a strategy that did not.

Next, consider the average "marketing profiles" found in Figure 2 for corn and soybeans over the 1995-1999 crop years.[4] The marketing profiles show the average amount of corn and soybean crops priced (sold) by market benchmarks, advisory programs and farmers on a cumulative basis, each day over the two-year period beginning in September of the year before harvest and ending August of the year after harvest. Since USDA marketing weights represent grain deliveries rather than pricing, a hypothetical marketing profile for farmers also is included.

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[3] Differences are calculated as advisory price minus benchmark price. So, a positive difference indicates an advisory price above the benchmark price, and *vice versa*.

[4] A detailed explanation of the construction of the marketing profiles and results for individual advisory programs and crop years can be found in Martines-Filho *et al.* (2002a, 2002b). Note that these reports do not contain marketing profiles for the 2000 crop year. The AgMAS Project will compute the 2000 profiles at a later date.

It is based on a similar marketing window as the market benchmarks and advisory programs, but reflects substantially less pricing in the pre-harvest period. In light of the downward price trends, the marketing profiles make it is easy to understand why market benchmarks and advisor programs generated higher prices than the farmer benchmark over the last six crop years.

The key question is whether the price trends and marketing patterns of the last six years provide a reliable picture of the future. Scenario analysis is helpful in illustrating the range of possible outcomes. Consider first a scenario where future upward price trends offset the downward price movements of the last six crop years and advisors and farmers do not significantly change their marketing behavior. Future performance results under this scenario will be just the opposite of those for the last six crop years because farmers will benefit relatively more than advisors from the upward price trends. Of course, it is possible for advisory programs to outperform farmers in an environment of rising prices if they time strategy changes better than farmers. Consider an alternative scenario where downward price trends continue to be the norm and advisors and farmers do not significantly change their marketing behavior. Future performance results basically will be the same as those observed over the 1995-2000 sample period. Farmers could equal the performance of advisors under a downward price trend scenario if they systematically increase pre-harvest pricing. These scenarios show that future performance differences could range from complete reversal to no change, depending on future price trends.

In sum, it is difficult to know whether a high degree of confidence should be placed on the average price results for 1995-2000. Pricing performance depends on a complex set of variables that include corn and soybean price behavior, advisory service strategies and the marketing behavior of farmers. It is on open question whether the behavior of these variables in the last six crop years provides a reliable guide for the future. The persistence of downward price trends generally observed over 1995-2000 is an especially hotly debated issue. While the results clearly provide some evidence on the pricing performance of advisory programs, there is simply no replacement for a larger sample of crop years when attempting to reach firm conclusions. In particular, more observations are needed on crop years with rising prices. Longer-term evidence on the performance of farmers versus the market would also be especially helpful.

Even if average price results for 1995-2000 persist into the future, the results will be open to differing interpretations. The reason is that the definition of "skill" and "luck" in pricing performance depends on the market theory considered. Based on efficient market theory, marketing skill is defined only as the component of average advisory price that exceeds a market benchmark. The component of average advisory price represented by the difference between the market benchmark price and the farmer benchmark price is considered luck. If this difference is positive, it should not be attributed to the marketing skill of advisory programs under efficient market theory because a simple no-information strategy of marketing equal amounts each time period could have achieved the same results. Based on behavioral market theory, marketing skill is defined as the entire difference between the average advisory price and the farmer benchmark, assuming the difference is positive. A luck component is not defined in this framework. Regardless of the source of performance improvement over the farmer benchmark, it is regarded as marketing skill.

Figure 3 shows the division of average price performance over 1995-2000 into skill and luck components based on efficient market theory and behavioral market theory. The number at the top of each bar is the average difference between advisory price or revenue and the USDA farmer benchmark over 1995-2000 (see Tables 5 and 6). The skill and luck components are computed as a proportion of this average difference to facilitate comparison across prices and revenue. Based on efficient market theory and the 24-month market benchmark (Panel A), only 5% of the 11¢ per bushel average difference between advisory prices and the farmer benchmark is attributed to skill. The comparison is more favorable for soybeans, with about 50% of the 22¢ per bushel average difference between advisory prices and the farmer benchmark in soybeans attributed to skill. About 25% of the $14 per acre average difference between advisory revenue and farmer benchmark revenue is attributed to skill. The components attributed to skill versus luck are higher for the 20-month market benchmark (Panel B), but do not change conclusions markedly. In contrast, behavioral market theory (Panel C) attributes all of the average differences between advisory programs and the farmer benchmark to skill. The differing interpretations cannot be reconciled, as they reflect profoundly different views about market behavior

Please note that the AgMAS research report by Irwin, Martines-Filho and Good (2002) contains additional pricing performance results. In particular, the additional results show that consideration of risk tends to weaken performance results based only upon average price and that it is difficult to predict the pricing performance of advisory programs from past performance.

Summary and Conclusions

The purpose of this research bulletin is to summarize the pricing performance of professional market advisory services for the 1995-2000 corn and soybean crops. Two indicators of performance are presented. The first indicator is the proportion of advisory programs that beat benchmark prices. Between 51 and 59% of the programs in corn have net advisory prices above market benchmarks over 1995-2000, while 74% of the programs have prices above farmer benchmarks. Performance is stronger in soybeans. Between 61 and 70% of advisory programs in soybeans have advisory prices above the market benchmarks over 1995-2000 and 74% are above the farmer benchmarks. Between 57 and 66% of advisory programs have revenue above the market benchmarks over 1995-2000, while 77% have revenue above the farmer benchmark. The results provide mixed performance evidence with respect to market benchmarks and consistently positive evidence with respect to the USDA farmer benchmark.

The second indicator is the difference between the average price of advisory programs and the market or farmer benchmarks. The results basically tell the same story as those based on the proportion beating the benchmarks. Average differences from market benchmarks for corn over 1995-2000 are small, ranging from zero to three cents per bushel. At 11¢ per bushel, the average difference from the farmer benchmark for corn is larger. Average differences for soybeans over 1995-2000 are even larger for both types of benchmarks, ranging from 13 to 17¢ per bushel versus market benchmarks and equaling 22¢ per bushel versus the farmer benchmark. Average differences for advisory revenue range from three to seven dollars per acre for market

benchmarks over 1995-2000. The average revenue difference versus the USDA farmer benchmark is $14 per acre.

The pricing performance results over 1995-2000 suggest several key findings. First, advisory programs in corn do not consistently beat market benchmarks, but they do consistently beat the farmer benchmark. Second, advisory programs in soybeans tend to beat both market and farmer benchmarks. Third, in terms of 50/50 revenue, advisory programs only marginally beat market benchmarks, but consistently beat the farmer benchmark. Caution should be used when considering the results, due to the relatively small sample of crop years available for analysis. In particular, the presence of sharp downward price trends in most crop years makes it difficult to determine whether the 1995-2000 sample provides a reliable guide to future differences in pricing performance.

Overall, the results provide an interesting picture of the performance of market advisory programs in corn and soybeans. There is mixed evidence that advisory programs as a group outperform market benchmarks. In contrast, substantial evidence exists that advisory programs as a group outperform the farmer benchmarks. Whether the superior performance of advisory programs versus the farmer benchmark is attributed to skill or luck depends on the theoretical perspective. Efficient market theory favors a luck interpretation, while behavioral market theory favors a skill interpretation.

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A Cautionary Note on the Use of AgMAS Net Advisory Prices and Benchmarks

The net advisory prices and benchmarks computed by the AgMAS Project are designed to reflect "real-world" marketing conditions and assure that net advisory service prices and benchmarks are computed on a rigorously comparable basis. This latter point is especially important, as performance evaluations must compare "apples to apples" and not "apples to oranges." Comparison problems may arise if prices computed by an individual farmer, or another market advisory service, are compared to AgMAS net advisory prices and benchmarks.

First, and foremost, AgMAS net advisory prices and benchmarks are stated on a harvest equivalent basis. This means that spot cash prices for post-harvest sales are adjusted for storage costs, which include physical storage charges, shrinkage charges and interest opportunity costs. The impact of this assumption is illustrated in the top panel of Figure 4 for corn and the bottom panel for soybeans. The top line in each chart shows the 2000 harvest cash price for each crop (corn: $1.64 per bushel; soybeans: $4.56 per bushel). The bottom line reflects a cash sale at the same harvest price one to eleven months after harvest, with the cash price adjusted for commercial costs of storage. As a specific example, consider a six-month storage horizon for corn. In this case, the cash price of the sale six-months after harvest is assumed to be $1.64 per bushel, the same as the harvest cash price (equivalent to saying cash prices do not change over the six-month storage period). However, the harvest equivalent price for the sale six months after harvest is only $1.34 per bushel after adjusting for commercial storage costs. Thus, the difference between unadjusted and adjusted post-harvest prices in this example is 30¢ per bushel, a substantial difference by any standard. The magnitude of the difference is larger for longer storage horizons and for soybeans relative to corn. Note also that the difference will not be as large if on-farm variable costs of storage are assumed instead of commercial costs.

This discussion should make clear the potential pitfalls in comparing the unadjusted average cash price for an individual farmer or another market advisory service to the harvest equivalent advisory prices and benchmarks computed by the AgMAS Project. If such a comparison is made, it is not difficult to imagine a scenario where it is mistakenly concluded that the performance of the farmer or market advisory service is superior to the advisory services, market benchmarks and farmer benchmarks included in the AgMAS Project.

Second, AgMAS evaluations assume a particular geographic location. Specifically, the evaluation is designed to reflect conditions facing a representative central Illinois corn and soybean farmer. This means comparisons made by farmers or advisory services in other areas of the US may not be valid, because yields and basis patterns may be quite different. The differences in yields and basis patterns could have a substantial impact on prices computed for farmers or advisory services in another area. The resulting bias could be either up or down relative to AgMAS advisory prices and benchmarks, depending on local conditions.

Third, wherever feasible, marketing loan recommendations from advisory programs are followed by the AgMAS Project. Consequently, marketing loan payments or benefits are incorporated into net advisory prices. Market and farmer benchmark prices also include marketing loan payments or benefits. Hence, it would not be appropriate to compare prices for

individual farmers or another market advisory service if marketing loan payments or benefits are not included in the prices or included in some other way.

In sum, it is inappropriate to directly compare prices for individual farmers or another market advisory service to AgMAS net advisory prices or benchmarks unless the same assumptions are used. To make valid comparisons, AgMAS assumptions regarding storage costs, yield, basis, and marketing loans have to be applied.

Table 1. Pricing Results for 36 Market Advisory Programs, Corn, 1995-2000 Crop Years, Commercial Storage Costs

Market Advisory Program	1995 Net Advisory Price	1996 Net Advisory Price	1997 Net Advisory Price	1998 Net Advisory Price	1999 Net Advisory Price	2000 Net Advisory Price
			---$ per bushel (harvest equivalent)---			
Ag Alert for Ontario	N/A	2.47	N/A	N/A	N/A	N/A
Ag Profit by Hjort	3.08	2.49	2.00	2.05	1.89	N/A
Ag Review	2.59	2.76	2.57	2.25	2.12	2.03
AgLine by Doane (cash only)	3.15	2.65	2.33	2.22	2.08	2.18
AgLine by Doane (hedge)	N/A	2.61	2.29	2.32	2.13	2.26
AgResource	3.90	3.12	2.07	2.21	2.49	2.78
Agri-Edge (cash only)	3.07	2.62	2.15	N/A	N/A	N/A
Agri-Edge (hedge)	3.15	3.10	2.35	N/A	N/A	N/A
Agri-Mark	3.62	2.73	2.13	1.97	2.03	2.06
AgriVisor (aggressive cash)	3.30	2.83	2.43	2.25	2.12	2.23
AgriVisor (aggressive hedge)	3.10	2.58	2.41	2.05	1.99	2.23
AgriVisor (basic cash)	2.72	2.65	2.34	2.16	2.10	2.21
AgriVisor (basic hedge)	2.90	2.63	2.33	2.03	2.07	2.21
Allendale (futures & options)	N/A	2.75	2.38	2.09	2.10	1.91
Allendale (futures only)	2.46	2.08	2.55	2.36	2.20	2.17
Brock (cash only)	2.74	2.70	2.34	2.10	2.09	1.98
Brock (hedge)	2.29	2.39	2.64	2.40	2.03	2.29
Cash Grain	N/A	N/A	N/A	N/A	2.06	2.06
Co-Mark	N/A	N/A	N/A	N/A	N/A	2.03
Freese-Notis	2.95	2.87	2.22	2.23	1.78	2.07
Grain Field Report	3.19	N/A	N/A	N/A	N/A	N/A
Grain Marketing Plus	N/A	N/A	N/A	N/A	N/A	1.79
Harris Weather/Elliott Advisory	3.16	2.28	N/A	N/A	N/A	N/A
North American Ag	3.22	N/A	N/A	N/A	N/A	N/A
Pro Farmer (cash only)	3.16	2.64	2.19	2.09	1.66	1.91
Pro Farmer (hedge)	3.05	2.67	2.28	2.19	1.69	1.83
Progressive Ag	N/A	2.53	2.26	1.93	1.93	2.12
Prosperous Farmer	2.91	N/A	N/A	N/A	N/A	N/A
Risk Management Group (cash only)	N/A	N/A	N/A	N/A	2.10	2.20
Risk Management Group (futures & options)	N/A	N/A	N/A	N/A	1.97	2.19
Risk Management Group (options only)	N/A	N/A	N/A	N/A	1.98	2.16
Stewart-Peterson Advisory Reports	2.90	2.46	2.09	2.02	1.90	1.81
Stewart-Peterson Strictly Cash	2.92	2.68	2.32	2.28	1.95	1.94
Top Farmer Intelligence	3.17	2.44	2.15	2.12	2.10	2.38
Utterback Marketing Services	N/A	N/A	2.74	2.51	2.08	2.39
Zwicker Cycle Letter	3.15	2.56	2.40	2.03	N/A	N/A
Descriptive Statistics:						
Average	3.03	2.63	2.32	2.17	2.02	2.13
Median	3.08	2.64	2.33	2.16	2.07	2.16
Minimum	2.29	2.08	2.00	1.93	1.66	1.79
Maximum	3.90	3.12	2.74	2.51	2.49	2.78
Range	1.61	1.04	0.74	0.58	0.83	0.99
Standard Deviation	0.33	0.22	0.18	0.15	0.16	0.21
Market Benchmarks						
24-Month Average	2.90	2.65	2.33	2.24	2.05	2.09
20-Month Average	3.07	2.66	2.27	2.12	1.97	2.01
Farmer Benchmark						
USDA Average Price Received	3.06	2.50	2.23	1.97	1.93	1.95

Notes: N/A denotes "not applicable" -- program did not exist or was not evaluated for that marketing year. Net advisory prices and benchmark prices are stated on a harvest equivalent basis. A crop year is a two-year marketing window from September of the year previous to harvest through August of the year after harvest.

Table 2. Pricing Results for 35 Market Advisory Programs, Soybeans, 1995-2000 Crop Years, Commercial Storage Costs

Market Advisory Program	1995 Net Advisory Price	1996 Net Advisory Price	1997 Net Advisory Price	1998 Net Advisory Price	1999 Net Advisory Price	2000 Net Advisory Price
			---$ per bushel (harvest equivalent)---			
Ag Alert for Ontario	N/A	7.37	N/A	N/A	N/A	N/A
Ag Profit by Hjort	6.77	7.13	6.16	5.26	5.34	N/A
Ag Review	6.59	7.37	6.19	5.11	4.68	5.23
AgLine by Doane (cash only)	6.59	7.40	6.32	5.65	5.45	5.46
AgLine by Doane (hedge)	N/A	N/A	N/A	5.60	5.45	5.32
AgResource	6.92	7.29	6.47	6.17	7.10	6.83
Agri-Edge (cash only)	6.70	7.28	6.06	N/A	N/A	N/A
Agri-Edge (hedge)	6.62	7.18	6.25	N/A	N/A	N/A
Agri-Mark	7.94	7.18	6.68	5.71	5.60	5.60
AgriVisor (aggressive cash)	6.38	7.28	6.33	5.55	5.48	5.35
AgriVisor (aggressive hedge)	6.97	7.40	6.14	5.77	5.40	5.29
AgriVisor (basic cash)	6.42	7.06	6.35	5.55	5.48	5.31
AgriVisor (basic hedge)	6.78	7.46	6.14	5.79	5.40	5.25
Allendale (futures only)	6.21	7.30	6.67	5.90	5.64	5.68
Brock (cash only)	6.27	7.20	6.31	5.65	5.68	5.23
Brock (hedge)	5.66	6.99	6.93	6.58	6.33	5.41
Cash Grain	N/A	N/A	N/A	N/A	5.99	5.40
Co-Mark	N/A	N/A	N/A	N/A	N/A	5.53
Freese-Notis	6.40	7.13	6.15	5.81	5.32	5.46
Grain Field Report	6.84	N/A	N/A	N/A	N/A	N/A
Grain Marketing Plus	N/A	N/A	N/A	N/A	N/A	5.23
Harris Weather/Elliott Advisory	6.85	6.80	N/A	N/A	N/A	N/A
North American Ag	6.44	N/A	N/A	N/A	N/A	N/A
Pro Farmer (cash only)	6.69	7.31	6.29	5.74	5.51	5.28
Pro Farmer (hedge)	6.78	7.49	6.47	5.85	5.81	5.55
Progressive Ag	N/A	7.80	6.65	5.71	5.68	5.00
Prosperous Farmer	6.51	N/A	N/A	N/A	N/A	N/A
Risk Management Group (cash only)	N/A	N/A	N/A	N/A	5.51	5.53
Risk Management Group (futures & options)	N/A	N/A	N/A	N/A	5.70	5.46
Risk Management Group (options only)	N/A	N/A	N/A	N/A	5.51	5.51
Stewart-Peterson Advisory Reports	6.09	7.37	6.22	6.36	6.00	5.45
Stewart-Peterson Strictly Cash	6.28	7.13	6.33	5.96	5.42	5.24
Top Farmer Intelligence	6.20	6.84	6.08	6.32	6.23	5.76
Utterback Marketing Services	N/A	N/A	6.99	6.13	6.14	5.27
Zwicker Cycle Letter	6.89	7.67	6.59	5.76	N/A	N/A
Descriptive Statistics:						
Average	6.59	7.27	6.38	5.82	5.67	5.45
Median	6.59	7.28	6.32	5.77	5.51	5.40
Minimum	5.66	6.80	6.06	5.11	4.68	5.00
Maximum	7.94	7.80	6.99	6.58	7.10	6.83
Range	2.28	1.00	0.93	1.47	2.42	1.83
Standard Deviation	0.42	0.23	0.26	0.34	0.45	0.33
Market Benchmarks						
24-Month Average	6.26	7.08	6.30	5.86	5.50	5.42
20-Month Average	6.39	7.21	6.22	5.64	5.30	5.38
Farmer Benchmark						
USDA Average Price Received	6.59	7.17	6.17	5.18	5.39	5.29

Notes: N/A denotes "not applicable" -- program did not exist or was not evaluated for that marketing year. Net advisory prices and benchmark prices are stated on a harvest equivalent basis. A crop year is a two-year marketing window from September of the year previous to harvest through August of the year after harvest.

Table 3. Revenue Results for 35 Market Advisory Programs, 1995-2000 Crop Years, Commercial Storage Costs

Market Advisory Program	1995 50/50 Advisory Revenue	1996 50/50 Advisory Revenue	1997 50/50 Advisory Revenue	1998 50/50 Advisory Revenue	1999 50/50 Advisory Revenue	2000 50/50 Advisory Revenue
			---$ per acre (harvest equivalent)---			
Ag Alert for Ontario	N/A	359	N/A	N/A	N/A	N/A
Ag Profit by Hjort	326	355	283	282	280	N/A
Ag Review	292	382	324	293	282	285
AgLine by Doane (cash only)	326	374	310	304	298	301
AgLine by Doane (hedge)	N/A	N/A	N/A	310	302	305
AgResource	377	407	295	316	371	381
Agri-Edge (cash only)	323	369	291	N/A	N/A	N/A
Agri-Edge (hedge)	327	403	310	N/A	N/A	N/A
Agri-Mark	382	375	304	287	297	295
AgriVisor (aggressive cash)	330	385	317	304	302	303
AgriVisor (aggressive hedge)	331	369	311	294	289	301
AgriVisor (basic cash)	297	366	311	297	300	300
AgriVisor (basic hedge)	315	374	306	293	296	299
Allendale (futures only)	277	327	334	320	312	306
Brock (cash only)	295	373	311	295	304	281
Brock (hedge)	255	344	346	340	315	309
Cash Grain	N/A	N/A	N/A	N/A	310	290
Co-Mark	N/A	N/A	N/A	N/A	N/A	291
Freese-Notis	310	385	298	308	271	293
Grain Field Report	333	N/A	N/A	N/A	N/A	N/A
Grain Marketing Plus	N/A	N/A	N/A	N/A	N/A	265
Harris Weather/Elliott Advisory	332	331	N/A	N/A	N/A	N/A
North American Ag	327	N/A	N/A	N/A	N/A	N/A
Pro Farmer (cash only)	329	371	300	296	266	276
Pro Farmer (hedge)	324	377	310	306	276	276
Progressive Ag	N/A	374	313	284	292	286
Prosperous Farmer	310	N/A	N/A	N/A	N/A	N/A
Risk Management Group (cash only)	N/A	N/A	N/A	N/A	301	305
Risk Management Group (futures & options)	N/A	N/A	N/A	N/A	295	302
Risk Management Group (options only)	N/A	N/A	N/A	N/A	291	301
Stewart-Peterson Advisory Reports	300	358	291	306	297	272
Stewart-Peterson Strictly Cash	306	370	310	316	287	277
Top Farmer Intelligence	319	345	292	313	318	325
Utterback Marketing Services	N/A	N/A	354	337	315	314
Zwicker Cycle Letter	332	373	321	292	N/A	N/A
Descriptive Statistics:						
Average	319	369	311	304	299	298
Median	324	372	310	304	297	299
Minimum	255	327	283	282	266	265
Maximum	382	407	354	340	371	381
Range	128	80	71	58	105	116
Standard Deviation	27	19	17	15	20	22
Market Benchmarks						
24-Month Average	304	366	310	311	297	293
20-Month Average	317	371	304	296	286	286
Farmer Benchmark						
USDA Average Price Received	320	357	300	274	285	279

Notes: N/A denotes "not applicable" -- program did not exist or was not evaluated for that marketing year. Net advisory revenues and benchmark revenues are stated on a harvest equivalent basis. A crop year is a two-year marketing window from September of the year previous to harvest through August of the year after harvest.

Table 4. Proportion of Advisory Programs above Benchmarks for Corn, Soybeans and 50/50 Advisory Revenue, 1995 - 2000 Crop Years, Commercial Storage Costs

Crop Year	Number of Programs	Proportion of Programs Above Market Benchmark: Central Illinois 24-Month Average	Proportion of Programs Above Market Benchmark: Central Illinois 20-Month Average	Proportion of Programs Above Farmer Benchmark: USDA Average Price Received for Illinois
		---%---		---%---
Panel A: Corn				
1995	25	76	56	56
1996	26	38	38	73
1997	25	52	64	68
1998	23	30	52	91
1999	26	54	69	77
2000	27	56	74	78
1995-2000 Average	152	51	59	74
Panel B: Soybeans				
1995	25	84	72	52
1996	24	83	58	71
1997	23	57	65	74
1998	22	32	77	95
1999	25	60	96	88
2000	26	46	54	65
1995-2000 Average	145	61	70	74
Panel C: 50/50 Revenue				
1995	25	76	60	56
1996	24	67	54	79
1997	23	57	70	70
1998	22	27	64	100
1999	25	52	80	80
2000	26	58	69	81
1995-2000 Average	145	57	66	77

Notes: A crop year is a two-year marketing window from September of the year previous to harvest through August of the year after harvest. Average proportions for 1995-2000 are computed over the full set of advisory programs. As a result, averages of individual crop year proportions may not equal the average proportions reported for 1995-2000.

Table 5. Comparison of Average Net Advisory Prices and Benchmark Prices for Corn and Soybeans, 1995 - 2000 Crop Years, Commercial Storage Costs

Crop Year	Number of Programs	Average Net Advisory Price	Market Benchmark: Central Illinois 24-Month Average	Market Benchmark: Central Illinois 20-Month Average	Farmer Benchmark: USDA Average Price Received for Illinois	Difference Between Advisors and Market Benchmark: Central Illinois 24-Month Average	Difference Between Advisors and Market Benchmark: Central Illinois 20-Month Average	Difference Between Advisors and Farmer Benchmark: USDA Average Price Received for Illinois
			---$ per bushel (harvest equivalent)---			---¢ per bushel (harvest equivalent)---		
Panel A: Corn								
1995	25	3.03	2.90	3.07	3.06	14	-4	-3
1996	26	2.63	2.65	2.66	2.50	-2	-4	12
1997	25	2.32	2.33	2.27	2.23	-1	5	9
1998	23	2.17	2.24	2.12	1.97	-8	5	20
1999	26	2.02	2.05	1.97	1.93	-3	5	9
2000	27	2.13	2.09	2.01	1.95	4	11	18
1995-2000 Average	152	2.38	2.38	2.35	2.28	0	3	11
Panel B: Soybeans								
1995	25	6.59	6.26	6.39	6.59	33	6	1
1996	24	7.27	7.08	7.21	7.17	19	6	10
1997	23	6.38	6.30	6.22	6.17	9	16	21
1998	22	5.82	5.86	5.64	5.18	-4	18	64
1999	25	5.67	5.50	5.30	5.39	18	37	28
2000	26	5.45	5.42	5.38	5.29	2	6	15
1995-2000 Average	145	6.19	6.07	6.02	5.97	13	17	22

Notes: Net advisory prices and benchmark prices are stated on a harvest equivalent basis. A crop year is a two-year marketing window from September of the year previous to harvest through August of the year after harvest. Averages for 1995-2000 are computed over the full set of advisory programs. As a result, averages of individual crop year prices or differences may not equal the averages reported for 1995-2000.

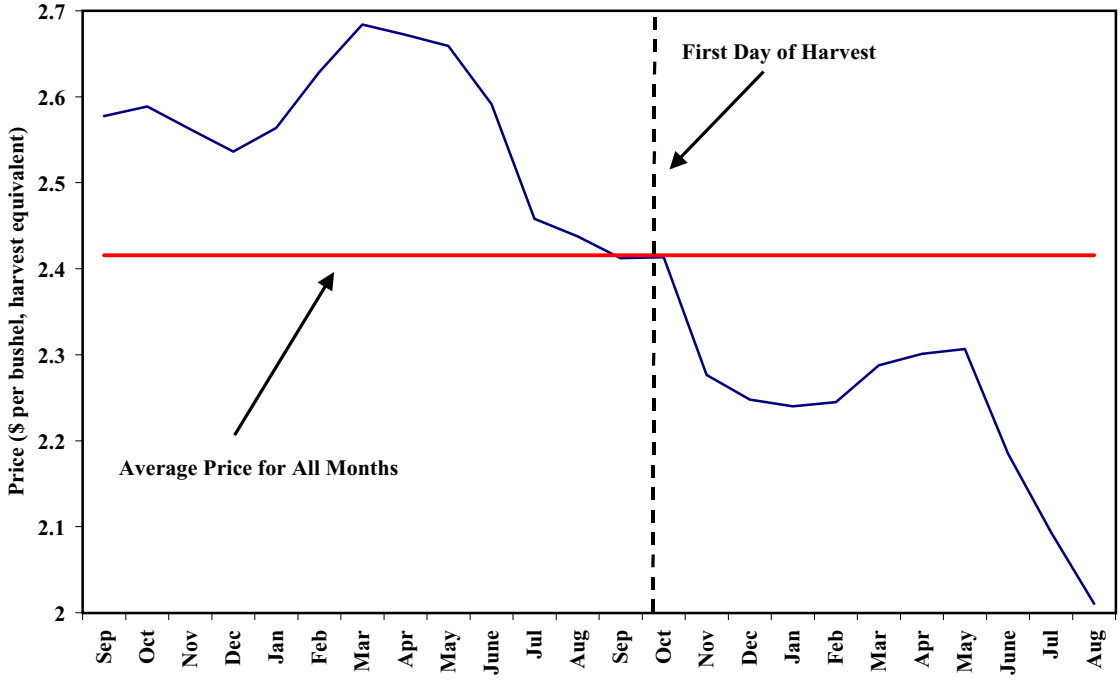
Table 6. Comparison of Average 50/50 Advisory Revenue and Benchmark Revenues, 1995 - 2000 Crop Years, Commercial Storage Costs

Crop Year	Number of Programs	Average 50/50 Advisory Revenue	Market Benchmark: Central Illinois 24-Month Average	Market Benchmark: Central Illinois 20-Month Average	Farmer Benchmark: USDA Average Price Received for Illinois	Difference Between Advisors and Market Benchmark: Central Illinois 24-Month Average	Difference Between Advisors and Market Benchmark: Central Illinois 20-Month Average	Difference Between Advisors and Farmer Benchmark: USDA Average Price Received for Illinois
			---$ per acre (harvest equivalent)---			---$ per acre (harvest equivalent)---		
1995	25	319	304	317	320	15	2	-1
1996	24	369	366	371	357	2	-2	11
1997	23	311	310	304	300	1	7	11
1998	22	304	311	296	274	-6	8	30
1999	25	299	297	286	285	2	13	14
2000	26	298	293	286	279	4	11	18
1995-2000 Average	145	316	313	310	303	3	7	14

Notes: Net advisory revenue and benchmark revenue are stated on a harvest equivalent basis. A crop year is a two-year marketing window from September of the year previous to harvest through August of the year after harvest. Averages for 1995-2000 are computed over the full set of advisory programs. As a result, averages of individual crop year revenues or differences may not equal the averages reported for 1995-2000.

Figure 1. Average Monthly Prices of Corn and Soybeans, Central Illinois, 1995 - 2000 Crop Years, Harvest Equivalent Prices Using Commercial Storage Costs and Marketing Loan Benefits Included

Panel A: Corn



Panel B: Soybeans

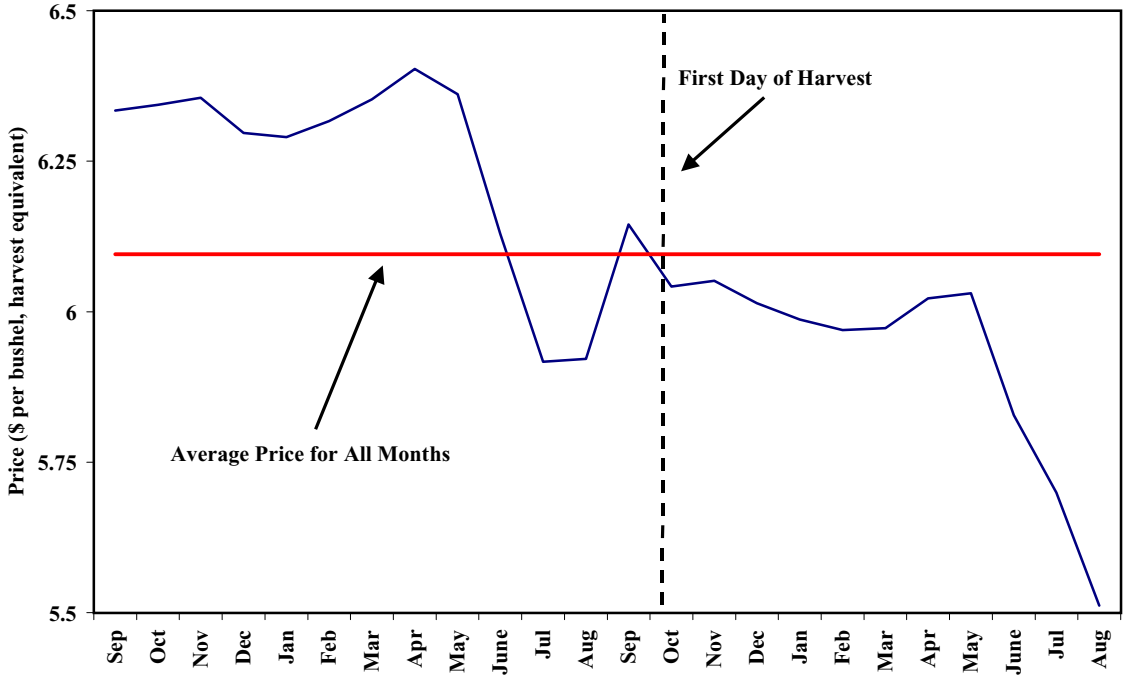
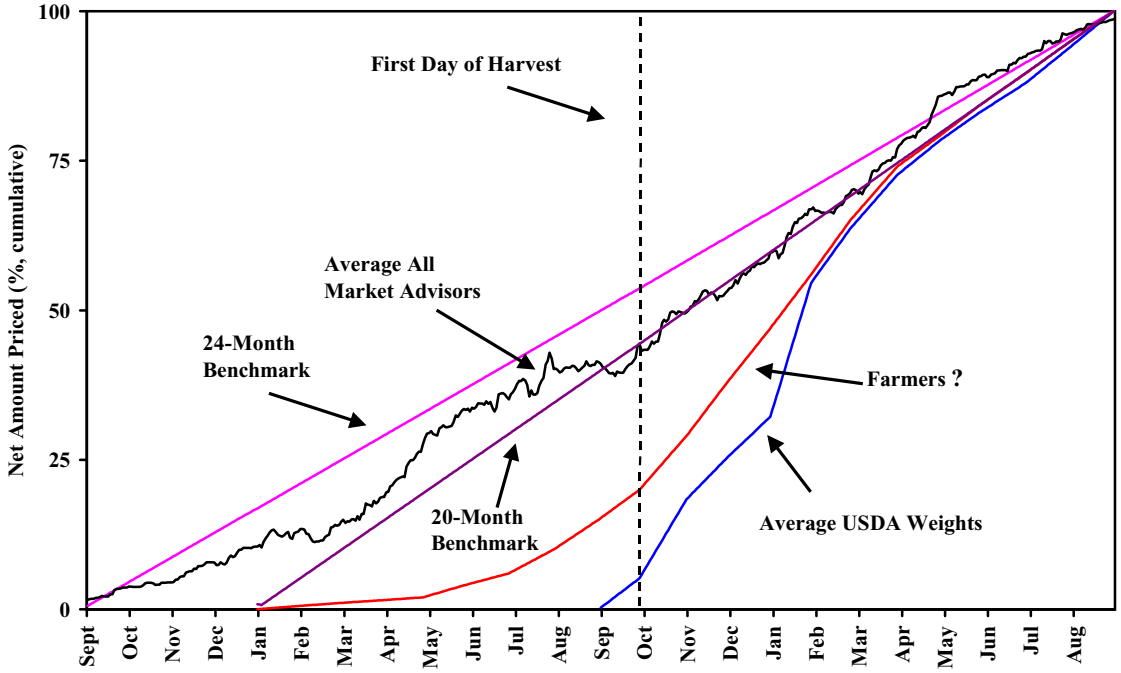


Figure 2. Marketing Profiles for the 24-Month Benchmark, Advisory Programs and Farmers, Corn and Soybeans, 1995 - 1999 Crop Years

Panel A: Corn



Panel B: Soybeans

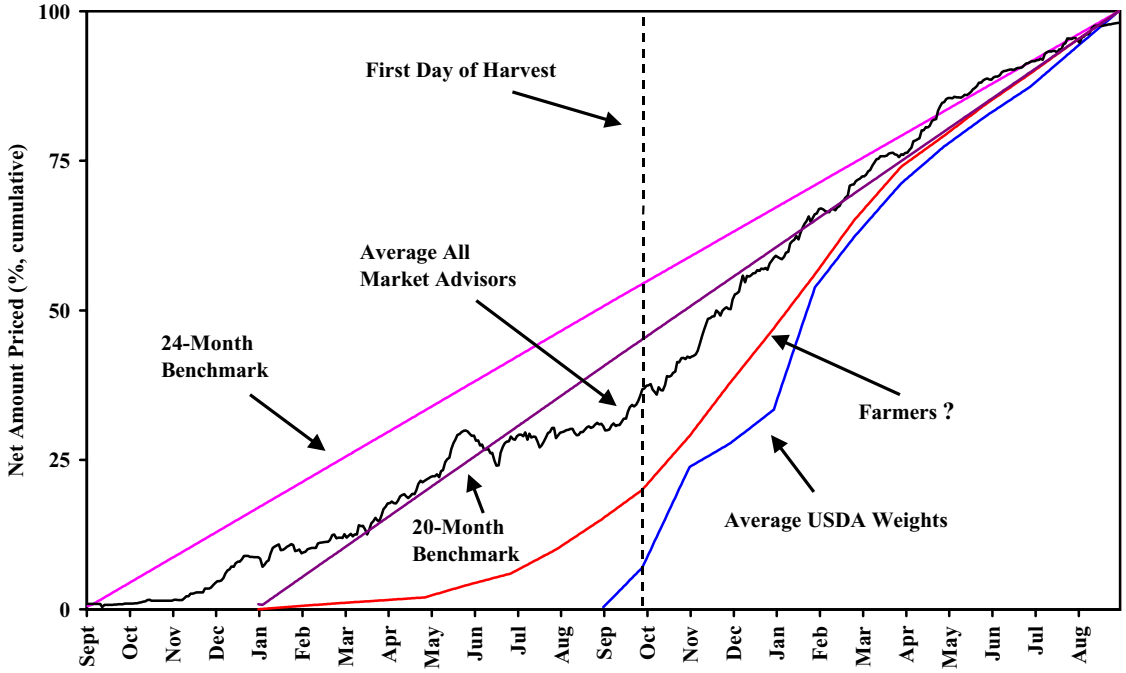
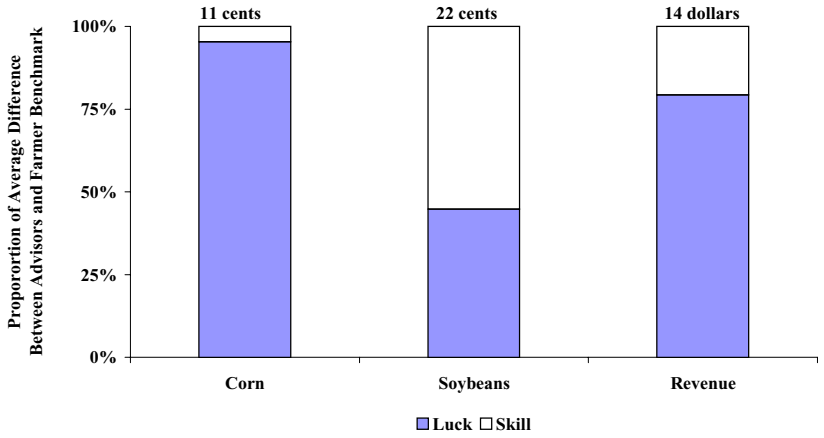
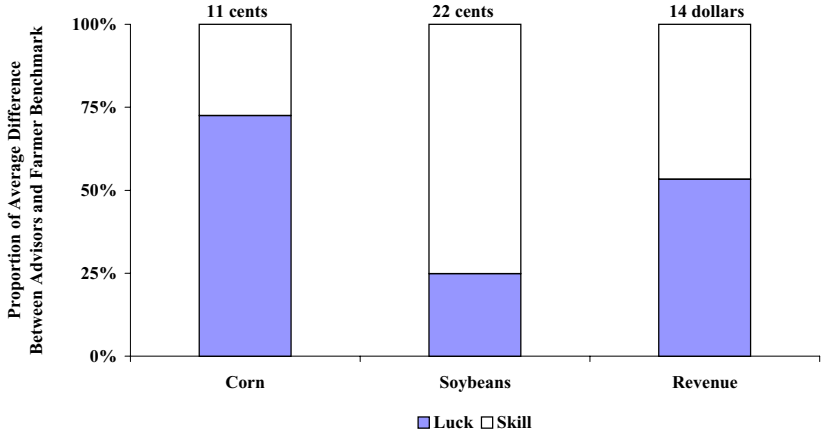


Figure 3. Skill and Luck Components of the Difference Between Average Advisory Price or Revenue and the Farmer Benchmark, Corn, Soybeans and 50/50 Advisory Revenue, 1995-2000 Crop Years

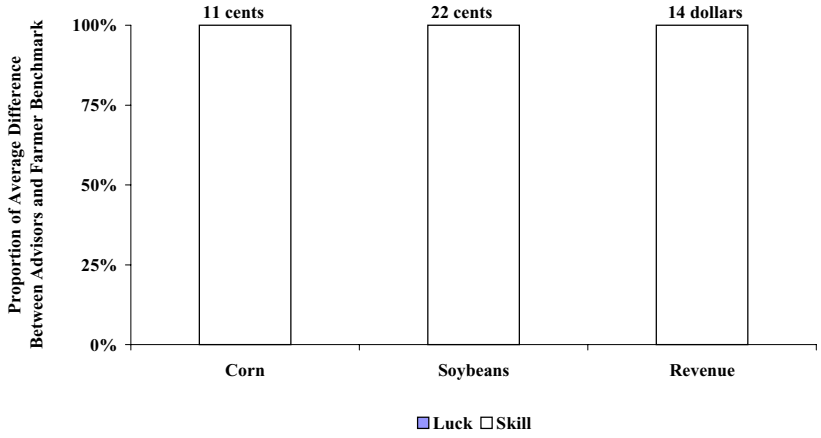
Panel A. Efficient Market Theory: 24-Month Benchmark



Panel B. Efficient Market Theory: 20-Month Benchmark



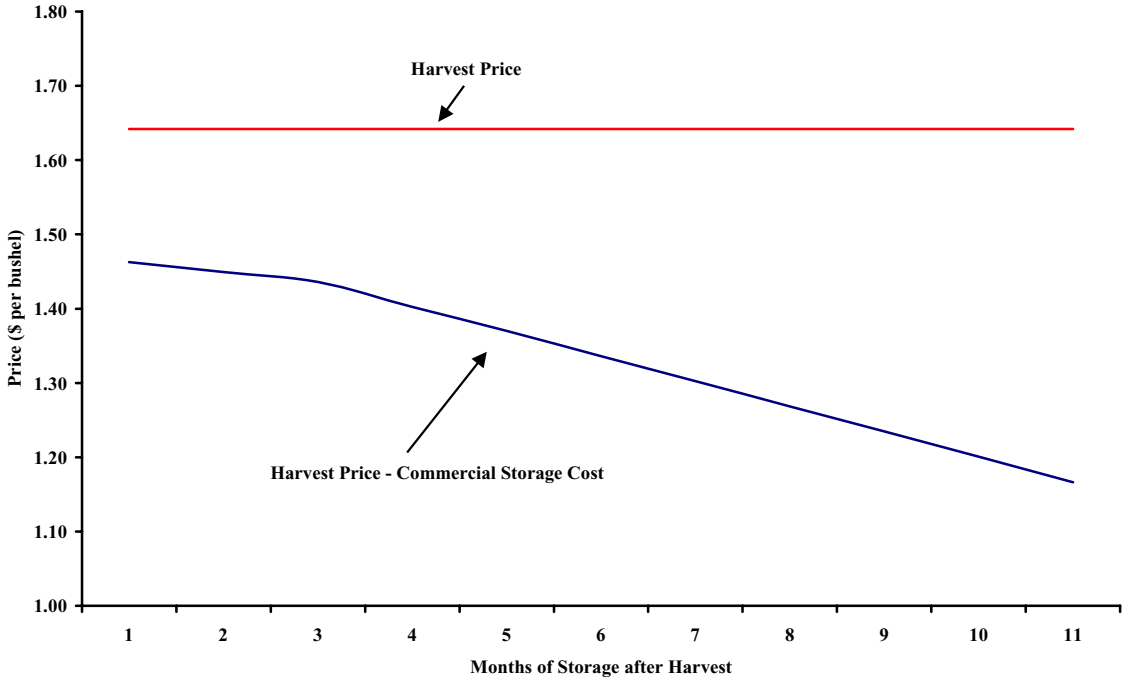
Panel C. Behavioral Market Theory



Note: The figures at the top of each bar represent the average difference between advisory prices and the USDA farmer benchmark. For ease of interpretation, skill and luck components are presented as proportions of this average

Figure 4. Storage Cost Comparison for Corn and Soybeans, Central Illinois, 2000 Crop Year

Panel A: Corn



Panel B: Soybeans