Advisory Service Marketing Profiles for Corn in 2001

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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.

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Abstract

This report presents marketing profiles and loan deficiency payment/marketing loan gain profiles for the advisory services followed by the AgMAS Project for the 2001 corn crop. Marketing profiles are constructed by plotting the cumulative net amount priced under each program's set of recommendations throughout the crop year. Loan deficiency payment/marketing loan gain (LDP/MLG) profiles are constructed by plotting the cumulative percentage of the crop on which the LDP/MLG was claimed during the crop year.

Marketing profiles provide information to evaluate the style of advisory services in several ways. The percentage of crop priced is a measure of within-crop year price risk. The higher the proportion of a crop priced, the lower the sensitivity of the farmer's position value to crop price changes. For example, when 100% of the crop is priced there is no price sensitivity, which means that changes in price do not affect the value of the farmer's position. On the other hand, when the amount priced is 0%, the value of the farmer's position will vary in the same proportion as the change in price. Marketing profiles, therefore, allow investigating the evolution of price sensitivity under each service's set of recommendations along the marketing window.

Marketing profiles also provide other useful information. The number of steps in the profile lines and the location of these steps in the marketing window provide information about timing, frequency and size of recommended transactions. It is also possible to determine from the marketing profile figures how intensely a program uses options markets, since when options positions are open the profile line is irregular. In the same way, LDP/MLG profiles provide information about the size and timing of LDP/MLG claims.

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Introduction

Marketing decisions are an important part of farm business management. Farmers are interested in the possibility of enhancing farm income and reducing income variability when marketing crops. There are many tools to assist farmers in such marketing decisions. Several surveys, including Patrick, Musser and Eckman (1998) and Schroeder et al. (1998), report that farmers specifically viewed one of these tools, professional market advisory services, as an important source of marketing information and advice. It is often thought that advisory services can process market information more rapidly and efficiently than farmers to determine the most appropriate marketing decisions, but limited research has been conducted in the area.

In 1994, the Agricultural Market Advisory Service (AgMAS) Project was initiated at the University of Illinois with the goal of providing unbiased and rigorous evaluation of advisory services for producers. Since its inception, the AgMAS Project has collected real-time marketing recommendations for about 25 market advisory services and analyzed the performance of these services. In a recent publication, Irwin, Martines-Filho and Good (2003) evaluate corn and soybean advisory services over 1995-2001 and their results show that, when both average price and risk are considered, only a small fraction of services for corn and a moderate fraction for soybeans outperform market benchmarks. On the other hand, a majority of the services outperform a farmer benchmark for both crops.

AgMAS comparisons of net price received among advisory services are an important source of information for farmers in selecting an advisory service. However, pricing performance is not the only relevant aspect in the evaluation of advisory services. Pennings et al. (2004) show that the nature of the recommendations made by advisory services also is an important factor in the way farmers evaluate services. They suggest that the nature of the recommendations can be thought of as the "marketing philosophy" or "marketing style" of an advisory service.[1] Marketing style is defined by the tools that a service recommends and the complexity of the recommended marketing strategies. For example, recommendations may differ as to whether or not futures and options contracts are used, frequency of transactions and average amount per transaction. Farmers and other market observers are familiar with the idea that advisory services have different marketing styles. Williams (2001) identifies the marketing styles of five prominent advisors, labeled somewhat colorfully, as the banker, race car driver, astronaut, sprinter and insurance agent.

It is reasonable, then, to assert that farmers will prefer to follow a service with a style that matches their personal approach to marketing. However, objective information about advisory service marketing style has been quite difficult for farmers to obtain in the past. The research

[1] This terminology is adapted from the financial industry, where investments such as mutual funds and hedge funds typically are grouped by investment objective or "style."

found in several AgMAS reports provides a useful starting point.[2] Bertoli et al. (1999) examine corn and soybean marketing style from two perspectives for the services evaluated by the AgMAS Project in 1995. The first is the construction of a detailed "menu" of the tools and strategies used by each of the advisory services in 1995. The menu describes the type of pricing tool, frequency of transactions and magnitude of transactions. The second is the development of a daily index of the net amount sold by each market advisory service. To construct such an index, the various futures, options and cash positions recommended for a service on a given day are weighted by the respective position "delta." Daily values of the index are plotted for the entire 1995 crop year, generating the marketing "profile" for a service. Martines-Filho et al. (2003a, 2003b) extend Bertoli's original research by constructing corn and soybean marketing profiles and loan deficiency payment/marketing loan gain (LDP/MLG) profiles for all advisory programs tracked by the AgMAS project for the 1995-2000 crop years.

The purpose of this report is to present marketing profiles and loan deficiency payment/marketing loan gain profiles for the advisory services followed by the AgMAS Project for the 2001 corn crop. In addition, the average profiles for 1995-2000 found in Martines-Filho (2003a) are updated through the 2001 crop year. As noted above, marketing profiles are constructed by plotting the cumulative net amount priced under each service's set of recommendations throughout the crop year. LDP/MLG profiles are constructed by plotting the cumulative percentage of the crop on which the LDP/MLG was claimed during the crop year. Finally, note that this report is not intended to be a complete analysis of advisory service marketing style in corn. Further analysis is required to categorize services by the types of tools and strategies used, as well as their typical marketing profile. Ultimately, the goal is to determine style categories for advisory services based on objective, quantitative factors. Previous studies of mutual fund and hedge fund style provide useful models for this effort (e.g., Sharpe, 1992; Brown and Goetzmann, 1997; Brown and Goetzmann, 2001).

The remainder of this report is organized as follows. First, the data collection procedures and assumptions employed by the AgMAS Project to evaluate advisory services' recommendations are presented. Second, the construction of marketing and LDP/MLG profiles is explained. Finally, the individual crop year profiles for the advisory services in corn for 2001 are presented, along with average, maximum and minimum profiles across 1995-2001.

Data Collection

The marketing profiles presented in this report are based on data generated by the AgMAS Project. This section describes briefly the AgMAS data collection procedure. For a more complete explanation, refer to Irwin, Martines-Filho and Good (2003).

The market advisory services evaluated by the AgMAS Project do not comprise the population or a random sample of market advisory services available to farmers. Neither approach is feasible because no public agency or trade group assembles a list of advisory services that could be considered the "population." To assemble the sample of services for the

[2] In a related study, McNew and Musser (2002) study the pre-harvest pricing behavior of farmer marketing clubs in Maryland over 1994-1998. They find that farmers tend to forward price significantly less than that predicted by risk minimization hedging models and that the amount hedged varies substantially across marketing years.

AgMAS Project, five criteria were developed to define an agricultural market advisory service and a list of services was assembled.

The first criterion is that marketing recommendations from an advisory service must be received electronically in real-time, in the form of satellite-delivered pages, Internet web pages or e-mail messages. Services delivered electronically generally ensure that recommendations are made available to the AgMAS Project at the same time as farm subscribers.

The second criterion used to identify services is that a service has to provide marketing recommendations to farmers rather than (or in addition to) speculators or traders. Some of the services tracked by the AgMAS Project do provide speculative trading advice, but that advice must be clearly differentiated from marketing advice to farmers for the service to be included.

The third criterion is that marketing recommendations from an advisory service must be in a form suitable for application to a representative farmer. That is, the recommendations have to specify the percentage of the crop involved in each transaction and the price or date at which each transaction is to be implemented.

The fourth criterion is that advisory services must provide "one-size fits all" marketing recommendations so there is no uncertainty about implementation. While different programs for basic types of subscribers may be tracked for an advisory service (e.g., a cash only program versus a futures and options hedging and cash program), it is not feasible to track services that provide "customized" recommendations for individual clients.

The fifth criterion addresses the issue of whether a candidate service is a viable, commercial business. This issue has arisen due to the extremely low cost and ease of distributing information over the Internet, either via e-mail or a website. It is possible for an individual with little actual experience and no paying subscribers to start a "market advisory service" by using the Internet. The specific criterion used is that a candidate advisory service must have provided recommendations to paying subscribers for a minimum of two marketing years before the service can be included in the AgMAS study.

Having assembled a sample of advisory services, the process of collecting recommendations begins with the purchase of subscriptions to each of the services. The information is received electronically, via satellite, websites or e-mail. Staff members of the AgMAS Project record the information provided by each advisory service on a daily basis. For the services that provide multiple daily updates, information is recorded as it is provided through the day.

Some advisory services offer two or more distinct marketing programs. This typically takes the form of one set of advice for marketers who are willing to use futures and options, and a separate set of advice for farmers who only wish to make cash sales.[3] In this situation,

[3] Some of the programs that are depicted as "cash only" have some futures-related activity, due to the use of hedge-to-arrive contracts, basis contracts and options.

recommendations under each program are recorded and treated individually as distinct strategies to be evaluated.

At the end of the marketing period, all of the (filled) recommendations are aligned in chronological order. The advice for a given crop year is considered complete for each advisory program when cumulative cash sales of the commodity reach 100%, all futures positions covering the crop are offset, all option positions covering the crop are either offset or expire, and the advisory program discontinues giving advice for that crop year.

The final set of recommendations attributed to each advisory program represents the best efforts of the AgMAS Project staff to accurately and fairly interpret the information made available by each advisory program. In cases where a recommendation is considered 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 program, or from that recorded by another subscriber.

Marketing Assumptions

In order to evaluate the advisory services' recommendations certain explicit assumptions need to be made. The assumptions are intended to accurately depict "real-world" marketing conditions facing a representative central Illinois corn and soybean farmer. Key assumptions are explained in this section. Complete details on all assumptions can be found in Irwin, Martines-Filho and Good (2003).

First, a two-year marketing window, from September 1st of the year previous to harvest through August 31st of the year after the harvest, is used in the analysis. Note that throughout the remainder of this report, the term "crop year" is used to represent the two-year marketing window.

Second, since most of the advisory program recommendations are given in terms of the proportion of total production (e.g., "sell 5% of 2000 crop today"), some assumption must be made about the amount of production to be marketed. When making transactions prior to harvest, the actual yield is unknown, and the expected yield is employed to compute the bushel amount for each transaction. The expected yield for each year is based upon a log-linear trend regression model of actual yields. It is assumed that after harvest begins farmers have a reasonable idea of actual realized yield. The assumed actual yield corresponds to the Central Illinois Crop Reporting District yield.

Since harvest occurs at different dates each year, estimates of harvest progress as reported for central Illinois are used. Harvest progress estimates typically are not made available soon enough to identify precisely the beginning of harvest, so an estimate is made based upon available data. Specifically, the date on which 50% of the crop is harvested is defined as the mid-point of harvest. The entire harvest period then is defined as a five-week window, beginning two and one-half weeks before the harvest mid-point, and ending two and one-half

weeks after the harvest mid-point. To compute the bushel amount for each transaction, the percentage recommended is multiplied by the expected yield, if the position is opened before the first day of harvest, or by the actual yield, if the position is opened after the first day of harvest. This procedure implicitly assumes that the "lumpiness" of futures and/or options contracts is not an issue. Lumpiness is caused by the fact that futures contracts are for specific amounts, such as 5,000 bushels per CBOT corn futures contract. For large-scale farmers, it is unlikely that this assumption adversely affects the accuracy of the results. This may not be the case for small- to intermediate-scale farmers, who are less able to sell in 5,000-bushel increments.

In some cases, the AgMAS Project stopped following a program, either because the program went out of business or it stopped making recommendations for farmers. In such cases, it is assumed that cash bushels after the date of discontinuation are sold in equal amounts over the remaining days of the marketing window. Any futures or options positions that remain open on the date of discontinuation are closed on that date using settlement futures prices or options premiums.

Construction of Marketing Profiles

The marketing profile of an advisory program for a given crop year is constructed by plotting the cumulative net amount priced during the marketing season. The amount priced depends on the various positions recommended by the program. It is necessary to weight the different recommended transactions in some way to compute a daily index of the amount priced.

The computation of the percentage of the crop priced from cash, forward contract or futures positions is straightforward. Specifically, the percentage of the crop sold under cash, forward contracts or short futures can be added to compute total percentage priced. Likewise, the percentage of grain owned under long futures positions is subtracted.[4] For example, on a given pre-harvest day, assume that since the beginning of the crop year a service has recommended selling futures for 30% of expected production, cash forward contracting another 20% and, later, buying futures for 10% of the expected production. The value of the index on that day would be 40% (30% + 20% - 10%).

On the other hand, put and call options represent a more complicated situation since they are not straightforward purchases or sales of grain. To compute the percentage of the crop priced from positions in options markets, a measure of option risk, called "delta," is employed. The option delta indicates how much the option price will change per unit change in the price of the underlying asset, in this case, the futures price. The next section explains how deltas for calls and puts are computed and used in the computation of the daily index of the amount priced.

Option Deltas

Option deltas are computed using Black's model (Black, 1976), which is a valuation model for futures options. Black's model computes the premium for calls and puts on futures as

[4] Short refers to a "sell" position in the market. Long refers to a "buy" position in the market.

a function of the risk-free interest rate, time to expiration, and the relationship between the option strike price and the price of the underlying futures contract:

(1) $$c = e^{-rT}[F_0 N(d_1) - XN(d_2)]$$

(2) $$p = e^{-rT}[XN(d_2) - F_0 N(d_1)]$$

(3) $$d_1 = \frac{\ln(F_0 / X) + s^2 T / 2}{s\sqrt{T}}$$

(4) $$d_2 = d_1 - s\sqrt{T}$$

where c is the theoretical value of a call, p is the theoretical value of a put, F_0 is the price of the underlying futures contract, X is the option's exercise price, T is the time to expiration as a proportion of a year, s is the annualized volatility of underlying futures contract, r is the annual continuously compounded risk-free interest rate, e is the exponential function, *ln* is the natural logarithm function and $N(d_i)$ is the cumulative normal density function.

Based on Black's valuation model, it is possible to compute how much the option price (c or p) will change when the futures price (F_0) changes. This measure is called option delta (Δ).[5] The formulas to compute the options delta are as follows:

(5) $$\Delta_{call} = e^{-rt} N(d_1)$$

(6) $$\Delta_{put} = e^{-rt}[N(d_1) - 1].$$

In this study, a two-step procedure is used to estimate options deltas. First, equation (1) or (2) is employed to compute the "implied" volatility of the underlying futures prices. Option premiums and futures prices are obtained from the Chicago Board of Trade for each day that an option position is opened. The risk-free interest rate employed is the three-month Treasury bill rate, obtained from the Federal Reserve Bank of St. Louis. Implied volatility is computed by solving equations (1) or (2) for the volatility that equates the observed market premium with the model value. Since it is not possible to invert equations (1) and (2) to express volatility as a function of the rest of the parameters, an iterative search is applied to find the implied volatility values.[6] Then, the estimated volatilities are used in formulas (5) and (6) to obtain the delta values for the recommended option positions.

The delta for option contracts changes every daily, since the futures price will likely change from one day to the next. Time-to-expiration will, of course, decrease as time passes and even volatility may change with time. Therefore, deltas employed in the construction of the marketing profiles are updated on a daily basis.

[5] Delta formulas are formally derived by taking the partial derivative of the value function (equations 1 and 2) with respect to the futures price (F_0).

[6] Implied volatility is estimated using *Fincad XL* software.

Long calls have positive delta values, since they represent the right to buy the underlying asset in the future at the pre-agreed price, and therefore, become more valuable as the futures price increases. The deltas for call options must take values between 0 and 1. Calls that are deep-in-the-money have deltas close to one, and those which are deep out-of-the money have deltas close to zero. Near-the-money calls have deltas close to 0.5. Long puts have negative deltas values, since they represent the right to sell the underlying asset at the strike price, and hence, the position becomes more valuable as the futures price decreases. Deltas for put options must fall between -1 and 0. Deep-in-the-money puts have deltas near -1 and deep-out-of-money puts have deltas of 0. Near-the-money puts have deltas close to -0.5. The deltas for short calls and puts are just the negative of the delta values for the corresponding long positions.

As mentioned earlier, delta indicates approximately how much the option price will change per unit of change in the price of the underlying asset. For example, if the delta for a December corn futures call is 0.8, a $0.10/bushel increase in the December corn futures price will increase the option value by $0.08/bushel. Options deltas can also be interpreted as the equivalent position in the underlying asset in terms of price action sensitivity. For example, if an individual holds a long call on a corn futures contract for 5,000 bushels, a call delta of 0.5 indicates that the call position is equivalent, in terms of price action sensitivity, to a long position in the futures contract for 2,500 bushels of corn. If the price of December corn futures increases by $0.10/bushel, both the value of the call contract and the position in long futures increase by $250, indicating that they are equivalent in terms of price risk. This notion of delta is used to compute the cumulative net amount priced from positions in options markets. The equivalent long futures position is obtained by multiplying the size of the option position by its delta and the negative of this amount corresponds to the amount priced from that specific option. The next section presents the details of the computation of the index of the cumulative amount priced, where deltas are employed to convert an option position into the equivalent amount priced by futures positions.

Computation of the Cumulative Net Amount Priced

Option deltas allow all positions in cash, forward and futures and options markets recommended by a program to be combined into an index of the cumulative percentage of a crop priced for each day in the marketing window. The index value for an advisory program on day t is based on the transactions recommended by that program since the beginning of the crop year up to day t. For the pre-harvest period, the index reflects the amount priced as a percentage of the expected yield. Equation (7) presents the index computation for the pre-harvest period (for t between the first day of the marketing window and the day before the first day of harvest):

$$I_t = FC_t^{pre} + SF_t^{pre} - LF_t^{pre} - \sum_{i=1}^{n} \Delta_{it} O_{it}^{pre} \tag{7}$$

where I_t represents the cumulative percentage of grain priced as of day t for a specific program, FC_t^{pre} is the percentage of expected production sold under forward contracts since the beginning of the crop year as of date t, SF_t^{pre} is the percentage of expected production sold under open short futures contracts as of day t, LF_t^{pre} is the percentage of expected production bought under open long futures contracts as of day t, O_{it}^{pre} is the percentage of expected production sold or bought

under each open option contract *i* and Δ_{it} is the delta for each option contract *i* on day *t*. Note that the negative sign on the last term in equation (7) reflects the fact that deltas for long puts and short calls (grain sales) are negative and deltas for long calls and short puts (grain purchases) are positive.

It is assumed that farmers learn the actual yield on the first day on harvest. At this time, the total production is known and so, the percentage of grain priced before harvest is adjusted. For example, suppose that the expected yield for a certain crop year is 100 bushel/acre and the pre-harvest percentage priced based on this yield is 50%. Suppose that harvest arrives and the actual yield turns out to be 125 bushel/acre. The amount priced on the first day of harvest becomes 40% (50%*100/125). Hence, for the period after harvest, the index considers positions opened before harvest as based on actual yield. Equation (8) shows the computation of the index in the post-harvest period (for *t* between the first day of harvest and the last day in the marketing window):

$$(8)\ I_t = \left[FC_t^{pre} + SF_t^{pre} - LF_t^{pre} - \sum_{i=1}^{n} \Delta_{it} O_{it}^{pre} \right] * \frac{\hat{y}}{y} + C_t^{post} + FC_t^{post} + SF_t^{post} - LF_t^{post} - \sum_{i=1}^{n} \Delta_{it} O_{it}^{post}$$

where the superscript *pre*, as before, indicates the percentage of a crop priced from positions opened before harvest (based on expected yield), the term $(\hat{y} / y)$ converts percentages of expected yield to percentages of actual yield and the superscript *post* in the last five terms indicates that the terms refer to percentage of grain priced from positions initiated post-harvest (based on actual yield). The term C_t appears only with *post* superscript, since it represents the cumulative amount of grain sold in the cash market as of day *t*, and cash sales can only be made when the crop is available to the farmer after harvest.

The treatment of three other types of contracts should be mentioned as special cases. First, percentages of the crop sold through basis contracts are recorded on the date the cash price is determined (by setting the futures price). This results in basis contracts being treated the same as forward contracts, except that the percentages are not recorded when the basis contract is first entered, but when the final cash price is established. Second, percentages of the crop sold through hedge-to-arrive contracts (HTA) are recorded on the date the futures price is set. Thus, HTA contracts are treated the same as selling futures contracts on the same date. Third, percentages of the crop sold through delayed pricing contracts are recorded on the date the cash price is established, which typically occurs after delivery.

Cross-Hedges

Cross-hedging is a marketing tool that can be recommended by an advisory program, and occurs when a program includes within the set of recommendations for one commodity a transaction in another commodity market. For example, on August 2nd, 2001 one service recommended cross-hedging corn production in November 2001 soybean futures contracts. This type of positions is based on the fact that prices for different commodities are correlated, that is, they move together. Advisory programs made only a few cross-hedge recommendations during

the years considered in this study. In the cases where a cross-hedge is recommended, the percentage priced from such a position in futures or options markets is computed as:

$$SF_{jt} = b_{kt} SF_{kt} \tag{9}$$

$$LF_{jt} = b_{kt} LF_{kt} \tag{10}$$

$$LF_{jt} = b_{kt} \Delta_{kt} O_{kt} \tag{11}$$

where subscript *k* indicates that the position is opened in commodity *k* market for a certain percentage of commodity *j* and b_{kt} is the change in commodity *k* futures price per unit change in commodity *j* futures price at time *t*. The term b_{kt} is estimated by ordinary least square regression of the natural logarithm of *k*'s futures price against the natural logarithm of *j*'s futures price. The data employed for the regression starts the first day the futures contract is traded and continues until the day before date *t*. Because the double-log functional form is used, the estimated slope coefficient $\left(\hat{b}_{kt}\right)$ can be interpreted as the estimated percent change in commodity *k*'s futures price for a one-percent change in commodity *j*'s futures price. In the case of cross-hedging with options, a long position in the futures market for the commodity for which the recommendation was implemented is computed by multiplying the size of the option position (O_{kt}) times the b_{kt} coefficient and the option's delta $\left(\Delta_{kt}\right)$.

Example of Marketing Profile Construction

A simple example of the construction of marketing profiles is considered in this section to facilitate understanding of the procedures used to develop actual marketing profiles for advisory services. The example is based on the following hypothetical set of corn recommendations for the 2001 crop year:

Date	Recommendation
4/25/01	Sell December corn futures for 30% of expected production.
6/26/01	Buy December corn put options with a strike price of $1.90/bushel for 50% of expected production.
7/27/01	Close futures position opened on April 25th by buying December corn futures.
8/20/01	Close options position opened on June 26th by selling December corn $1.90/bushel put options.
8/20/01	Sell 50% of expected production using a forward contract.
3/19/02	Sell all the unsold production in the cash market (51.46%).

Figure 1 presents the marketing profile for this set of recommendations. Since the first transaction was made on April 25th, the net amount priced from the beginning of the crop year to this date equals 0%. On April 25th the profile line in Figure 1 makes the first step, and the quantity priced becomes 30%, since short corn futures have been recommended for 30% of expected production. The index computation according to equation (7) for April 25th is:

t = 4/25/01

$$FC_t^{pre} = 0\% \qquad SF_t^{pre} = 30\% \qquad LF_t^{pre} = 0\% \qquad O_{it}^{pre} = 0\%$$
$$I_t = 0\% + 30\% - 0\% - 0\% = 30\%.$$

The index value is the same until June 26th when long puts are recommended for 50% of the expected production. Note in Figure 1 that on June 26th the profile line has the second step, and on the dates following, the line takes values lower than 80% (30% + 50%). This happens because the absolute value of the put delta is always lower than one. For example, on the date that the put position is opened, the December corn futures price is $2.0375/bushel, which is higher than the strike price of $1.90/bushel, and therefore, the option is out of-the-money. The option delta on June 26th is -0.28, indicating the position is equivalent to a 14% (0.28*50%= 14%) short position for expected production. For June 26th the value of the index is computed as:

t = 6/26/01

$$FC_t^{pre} = 0\% \qquad SF_t^{pre} = 30\% \qquad LF_t^{pre} = 0\% \qquad O_{1t}^{pre} = 50\% \qquad \Delta_{1t}^{pre} = -0.28$$
$$I_t = 0\% + 30\% - 0\% - 50\%(-0.28) = 44\%.$$

For the period of time when the put option position is open, the line becomes irregular, reflecting the fact that option delta changes every day.

The cumulative percentage changes substantially on July 27th, when there is a step down in the marketing profile line. On this date, the futures position is closed by buying futures, and hence, the amount priced decreased by 30%. From this date to August 20th the line represents the amount priced only from the long put option position on 50% of the expected production. The value of the index on July 27th is computed as:

t = 7/27/01

$$FC_t^{pre} = 0\% \qquad SF_t^{pre} = 0\% \qquad LF_t^{pre} = 0\% \qquad O_{1t}^{pre} = 50\% \qquad \Delta_{1t}^{pre} = -0.06$$
$$I_t = 0\% + 0\% - 0\% - 50\%(-0.06) = 3\%$$

On August 20th the put position is closed and 50% of the expected production is sold under forward contracts, so the amount priced becomes 50%:

t = 8/20/01

$$FC_t^{pre} = 50\% \qquad SF_t^{pre} = 0\% \qquad LF_t^{pre} = 0\% \qquad O_{1t}^{pre} = 0\%$$
$$I_t = 50\% + 0\% - 0\% - 0\% = 50\%.$$

For the 2001 corn crop, September 17th is the first day of harvest, and therefore, on this date the percentage priced is adjusted to reflect actual yield. The expected yield for 2001 is 152.4 bushel/acre and the actual yield is 157 bushel/acre. Since the actual yield is higher than expected, the proportion priced decreases on the first day of harvest to reflect this adjustment. Note in Figure 1 that there is a small step down on the first day of harvest, and the value of the index, according to Equation (8), becomes 48.54%:

t = 9/17/01

$$FC_t^{pre} = 50\% \qquad SF_t^{pre} = 0\% \qquad LF_t^{pre} = 0\% \qquad O_{1t}^{pre} = 0\% \qquad \hat{y} = 152.4 \qquad y = 157$$

$$C_t^{post} = 0\% \qquad FC_t^{post} = 0\% \qquad SF_t^{post} = 0\% \qquad LF_t^{post} = 0\% \qquad O_{1t}^{post} = 0\%$$

$$I_t = [50\% + 0\% - 0\% - 0\%] * (152.4/157) + 0\% + 0\% + 0\% - 0\% - 0\% = 48.54\% .$$

The last recommendation in this example occurs on March 19th, 2002, when remaining production (51.46 %) is sold in the cash market and the amount priced becomes 100%:
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t = 3/19/02 to t = 8/30/02

$$FC_t^{pre} = 50\% \qquad SF_t^{pre} = 0\% \qquad LF_t^{pre} = 0\% \qquad O_{1t}^{pre} = 0\% \qquad \hat{y} = 152.4 \qquad y = 157$$

$$C_t^{post} = 51.46\% \qquad FC_t^{post} = 0\% \qquad SF_t^{post} = 0\% \qquad LF_t^{post} = 0\% \qquad O_{1t}^{post} = 0\%$$

$$I_t = [50\% + 0\% - 0\% - 0\%] * (152.4/157) + 51.46\% + 0\% + 0\% - 0\% - 0\% = 100\% .$$

Further Issues

There are three additional issues associated with interpretation of the marketing profiles that should be noted. The first is related to the use of option deltas to compute the net amount priced for option positions. Technically, delta is valid only for "infinitesimal" price changes, which means that delta may be an imprecise measure when large price changes are considered. For example, if an option position for 50% of the crop with a delta of 0.28 is recommended, it will be equivalent, in terms of price sensitivity, to a long position in the underlying futures contract for 14% (50%*0.28) of the crop. This equivalence, though, strictly holds only for small futures price changes. There is no hard and fast rule for what constitutes "small" versus "large" futures price changes. The key point is that the approximation becomes systematically less reliable the larger the price change considered. Please note that the approximation is not likely to be a significant concern since option delta estimates are updated daily and corn and futures price changes usually are constrained by daily price limits.

The second interpretation issue is associated with basis risk, which is uncertainty associated with the difference between the local cash price and the futures price. In constructing marketing profiles, the amount priced under futures contracts is treated the same as a forward contracts, even though pricing under futures contracts is subject to basis variability whereas this is not the case for pricing under forward contracts. This does not create a problem in constructing marketing profiles because the profiles are based on quantity priced, not on price levels, and hence, basis risk is not a consideration. However, when interpreting marketing profiles, it is important to recognize that different forms of pricing may be reflected in the same marketing profile at different points in time.

The third interpretation issue is associated with spread risk, defined as uncertainty about the price difference between futures contracts with different expiration dates. Spread risk is a consideration when a hedging strategy involves two transactions: first selling futures with a nearby expiration date and later rolling-over the position to another contract with expiration closer to the delivery date of the grain. When constructing marketing profiles, the futures

positions are treated separately as one-transaction hedges. This does not create a problem in constructing marketing profiles because the profiles are based on quantity priced, not on price levels, and hence, spread risk is not a consideration. Once again, when interpreting marketing profiles, it is important to recognize that different forms of pricing may be reflected in the same marketing profile at different points in time.

Construction of LDP/MLG Profiles

The 1996 "Freedom-to-Farm" Act established a loan deficiency payment program for several agricultural commodities, including corn. Under this program, if market prices are below a Commodity Credit Corporation loan rate, farmers can receive payments from the US government for the difference between the loan rate and the market price. Since there is considerable flexibility in the way the loan payment can be claimed by the farmer, there is the opportunity for advisory programs to give recommendations for the implementation of this program. In those years when the market price is lower than the loan rate, the use of the loan program is an important part of marketing strategies, since loan programs recommendations can have a big effect on the net price received. Furthermore, most of the advisory programs evaluated in the AgMAS Project make recommendations about loan deficiency payments and marketing loan gain (LDP/MLG) when market prices drop below the loan rates. To provide information about the ways that advisory services recommend claiming the deficiency payments, LDP/MLG profiles are developed for 2001. Averages LDP/MLG profiles across programs are also developed for the years 1998-2001. Only in these crop years are corn prices below loan rates during part of the marketing window. The "LDP/MLG profile" for each advisory service is constructed by plotting the cumulative percentage of the crop on which the LDP/MLG is reclaimed along the marketing window. The construction of these profiles is simpler than the construction of marketing profiles described in the previous section, but some explanation is needed about the computations.

Specific decision rules are needed regarding pre-harvest forward contracts because it is possible for an advisory program to recommend taking the LDP on those sales before the grain is actually harvested and available for delivery in central Illinois. To begin, it is assumed that amounts sold for harvest delivery with pre-harvest forward contracts are delivered first during harvest. Since LDPs must be taken when title to the grain changes hands, LDPs are assigned as these "forward contract" quantities are harvested and delivered. This requires assumptions regarding the timing and speed of harvest. Earlier it was noted that a five-week harvest window is used to define harvest. This window is centered on the day nearest to the mid-point of harvest progress in central Illinois as reported by NASS. Various assumptions could be implemented regarding harvest progress during this window. Lacking more precise data, a reasonable assumption is that harvest progress for an individual representative farm is a linear function of time. Then, it is assumed that, starting on the first day of harvest, grain becomes available for delivery in equal amounts per day along the five-week harvest period. When forward cash sales have been made, the grain that becomes available is assumed to be delivered to cover these contracts and LDP/MLGs are assumed to be claimed at the delivery time. Other assumptions regarding the claim of LDP/MLGs for grain priced under futures and option contracts can be found in Irwin, Martines-Filho and Good (2003).

Summary of Marketing and LDP/MLG Profiles for Corn, 1995 – 2001 Crop Years

The figures in this report present marketing and LDP/MLG profiles from each advisory program followed in 2001 by the AgMAS Project for corn and their respective average profiles between 1995 and 2001. In certain cases the average profiles are presented for some, but not all seven crop years, because the program began to be tracked after the 1995 crop year. Table 1 presents a list of the programs whose 2001 marketing and LDP/MLG profiles are presented in this study. The reason why some programs are not included in all years over 1995-2001 also is listed in the "comments" column of this table.

Figures 2.1 through 28.4 present the marketing and LDP/MLG profiles for individual programs in alphabetical order. For the programs that were tracked for more than two years, the average, maximum and minimum amount priced is computed and presented as a chart after the individual crop year figure.

The scale for the vertical axis of the figures generally runs from a negative 25% to a positive 125%, since, for the majority of the programs, the net amount priced varies between these two levels. However, a few programs have more extreme values of the percentage priced. Note that the amount priced is a measure of within-crop year price risk, as the higher the proportion of a crop priced, the lower the sensitivity of the value of the farmer's position to crop price changes. When 100% of the crop is priced there is no price sensitivity, which means that changes in price do not affect the value of the farmer's position. At the other extreme, when the amount priced is 0%, the value of the farmer's position will vary in the same proportion as the change in price, that is, if corn price increases by 5%, the value of the farmer's position will also increase by 5%. A proportion of grain sold higher than 100% is called over-hedging, and is actually an overall short position in the corn market. In this case, price changes have the opposite effect on the farmer's position value. If corn price increases, the value of the farmer's position decreases and *vice versa*. For some programs it is possible to find a negative amount priced, indicating a net long position greater than total production. This can be interpreted as the farmer owning even more grain than expected or actual production. In this case, price sensitivity is even greater than with 0% of grain priced. For example, if the proportion of grain sold is -50%, when corn prices decrease by 10%, the value of the farmer's position decreases 15%.

The marketing profiles also provide other useful information. The number of steps in the profile lines and the location of these steps along the marketing season provide information about timing, frequency and size of recommended transactions. It is also possible to determine from the figures how intensely a program uses options markets, since, because deltas change daily, the profile line is irregular when options positions are open. In the same way, LDP/MLG profiles provide information about the size and timing of LDP/MLG claims.

Figures 29.1 through 37.2 contain the averages, maximums and minimums for marketing and LDP/MLG profiles across all advisory programs tracked in each crop year from 1995 to 2001. Figure 36.1 contains the marketing profile grand average, maximum and minimum across all services over the 1995–2001 crop years. Figure 36.2 compares the grand average to 24- and 20-month market benchmark profiles. Market benchmarks are those employed by the AgMAS project in the advisory services performance evaluation, and they measure the average price

offered by the market to farmers during the marketing window. Under the 24-month market benchmark, the crop is sold in approximately equal amounts each day along the two-year marketing window beginning on September 1st of the year before harvest and ending on August 31st of the year after harvest. Under the 20-month benchmark the crop is sold in approximately equal amounts every day during the period that begins on January 1st of the year of harvest and ends on August 31st of the year after harvest. Figure 37.1 contains the LDP/MLG profile grand average, maximum and minimum across all services over the 1998 – 2001 crop years. Finally, figure 37.2 compares the LDP/MLG grand average, to the 24 and 20-months market benchmark LDP/MLG profiles. Note that those figures where average marketing profiles and LDP/MLG profiles are developed the first day of harvest shown as an average of the first day of harvest across the set of years included in the chart.

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Table 1. Market Advisory Programs Tracked by the AgMAS Project, Corn, 1995-2001 Crop Years

Market Advisory Program	Crop Year 1995	1996	1997	1998	1999	2000	2001	Comments
Ag Alert for Ontario		✓						Included in 1996. After further review, deemed not directly applicable to US producers and dropped.
Ag Financial Strategies							✓	Established service first tracked for the 2001 crop year.
Ag Profit by Hjort	✓	✓	✓	✓	✓			Went out of business at the end of August 2000.
Ag Review	✓	✓	✓	✓	✓	✓	✓	Included for all corn crop years to date.
AgLine by Doane (cash only)	✓	✓	✓	✓	✓	✓	✓	Included for all corn crop years to date.
AgLine by Doane (hedge)		✓	✓	✓	✓	✓	✓	New program for corn in 1996.
AgResource	✓	✓	✓	✓	✓	✓	✓	Included for all corn crop years to date.
Agri-Edge (cash only)	✓	✓	✓					Went out of business at the end of January 1998.
Agri-Edge (hedge)	✓	✓	✓					Went out of business at the end of January 1998.
Agri-Mark	✓	✓	✓	✓	✓	✓		Stopped providing specific recommendations regarding cash sales. Dropped after 2000 crop year.
AgriVisor (aggressive cash)	✓	✓	✓	✓	✓	✓	✓	Included for all corn crop years to date.
AgriVisor (aggressive hedge)	✓	✓	✓	✓	✓	✓	✓	Included for all corn crop years to date.
AgriVisor (basic cash)	✓	✓	✓	✓	✓	✓	✓	Included for all corn crop years to date.
AgriVisor (basic hedge)	✓	✓	✓	✓	✓	✓	✓	Included for all corn crop years to date.
Allendale (futures & options)		✓	✓	✓	✓	✓	✓	New program for corn only in 1996.
Allendale (futures only)	✓	✓	✓	✓	✓	✓	✓	Included for all corn crop years to date.
Brock (cash only)	✓	✓	✓	✓	✓	✓	✓	Included for all corn crop years to date.
Brock (hedge)	✓	✓	✓	✓	✓	✓	✓	Included for all corn crop years to date.
Cash Grain					✓	✓		Went out of business at the end of September 2000.
Co-Mark						✓	✓	Established service first tracked for the 2000 crop year.
Freese-Notis	✓	✓	✓	✓	✓	✓	✓	Included for all corn crop years to date.
Grain Field Marketing							✓	Established service first tracked for the 2001 crop year.
Grain Field Report	✓							Stopped providing specific recommendations regarding cash sales. Dropped after 1995 crop year.
Grain Marketing Plus						✓	✓	Established service first tracked for the 2000 crop year.
Harris Weather/Elliott Advisory	✓	✓						Stopped providing specific recommendations regarding cash sales. Dropped after 1996 crop year.
North American Ag	✓							Stopped providing specific recommendations regarding cash sales. Dropped after 1995 crop year.
Northstar Commodity							✓	Established service first tracked for the 2001 crop year.
Pro Farmer (cash only)	✓	✓	✓	✓	✓	✓	✓	Included for all corn crop years to date.
Pro Farmer (hedge)	✓	✓	✓	✓	✓	✓	✓	Included for all corn crop years to date.
Progressive Ag		✓	✓	✓	✓	✓	✓	Established service first tracked for the 1996 crop year.
Prosperous Farmer	✓							Stopped providing specific recommendations regarding cash sales. Dropped after 1995 crop year.
Risk Management Group (cash only)					✓	✓	✓	Established service first tracked for the 1999 crop year.
Risk Management Group (futures & options)					✓	✓	✓	Established service first tracked for the 1999 crop year.
Risk Management Group (options only)					✓	✓	✓	Established service first tracked for the 1999 crop year.
Stewart-Peterson Advisory Reports	✓	✓	✓	✓	✓	✓	✓	Included for all corn crop years to date.
Stewart-Peterson Strictly Cash	✓	✓	✓	✓	✓	✓		This Program was discontinued at the end of October 2000.
Top Farmer Intelligence	✓	✓	✓	✓	✓	✓	✓	Included for all corn crop years to date.
Utterback Marketing Services			✓	✓	✓	✓	✓	Previous to 1997, did not make clear enough recommendations to be tracked.
Zwicker Cycle Letter	✓	✓	✓	✓				Merged with AgriVisor for the 1999 crop year and no longer included.

Note: A crop year is a two-year marketing window from September of the year previous to harvest through August of the year after harvest.

Figure 1. Example of Corn Marketing Profile Construction

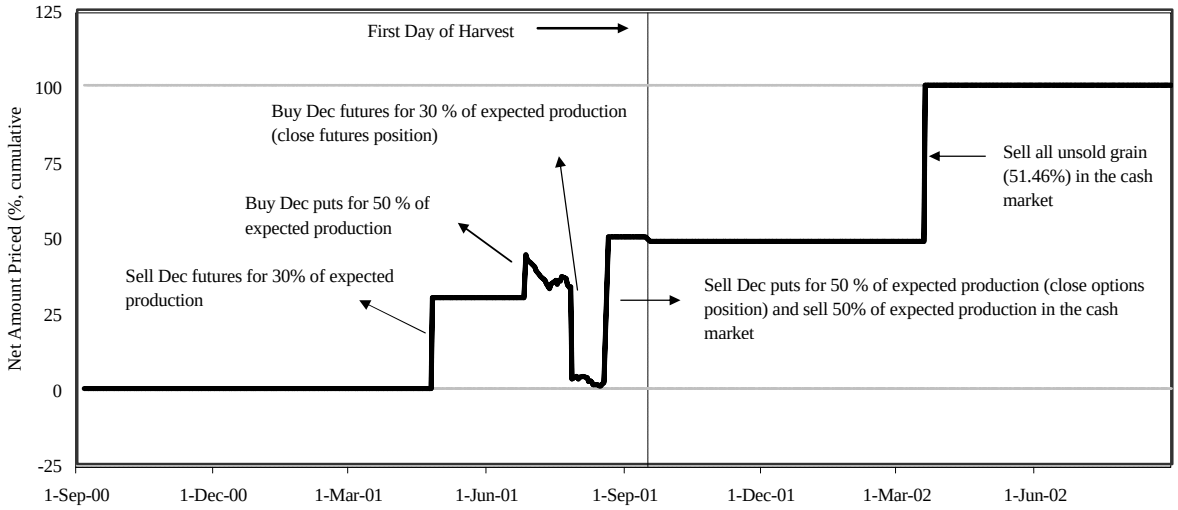


Figure 2.1 Corn Marketing Profile, AgFinancial Strategies, 2001 Crop Year

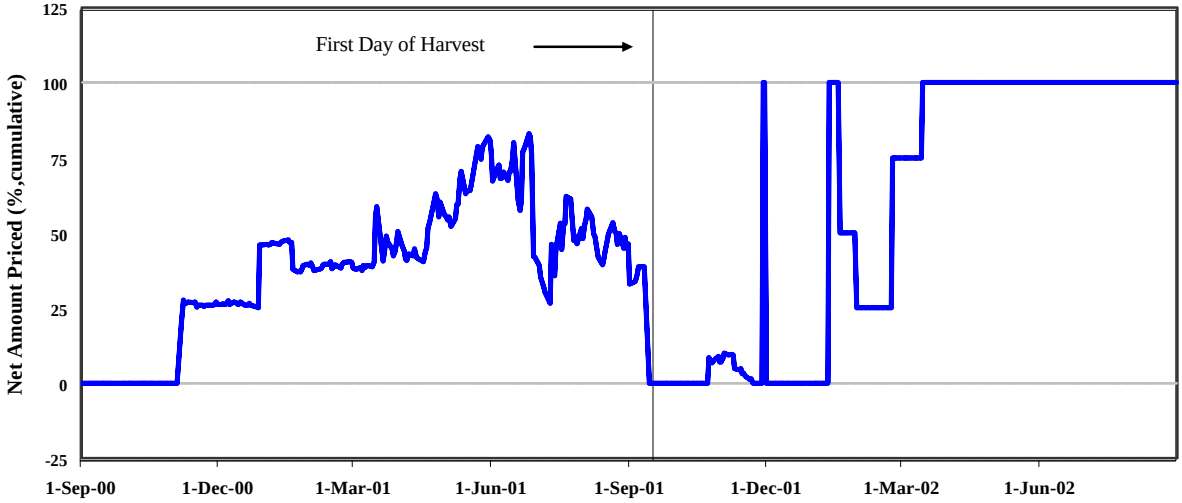
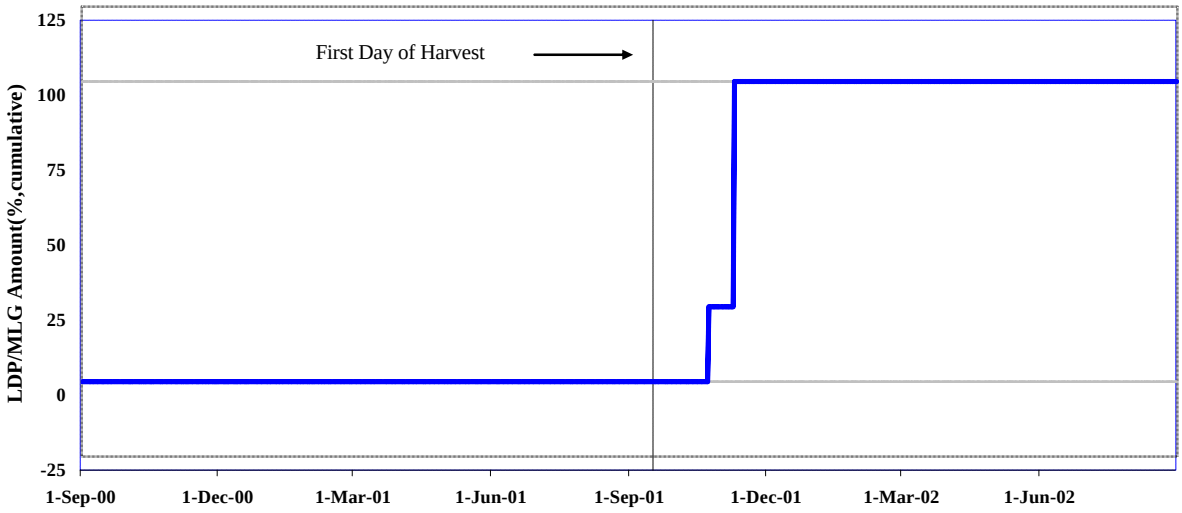


Figure 2.2 Corn LDP/MLG Profile, AgFinancial Strategies, 2001 Crop Year



Note: LDP stands for loan deficiency payment and MLG stands for marketing loan gain.

Figure 3.1 Corn Marketing Profile, AgReview, 2001 Crop Year

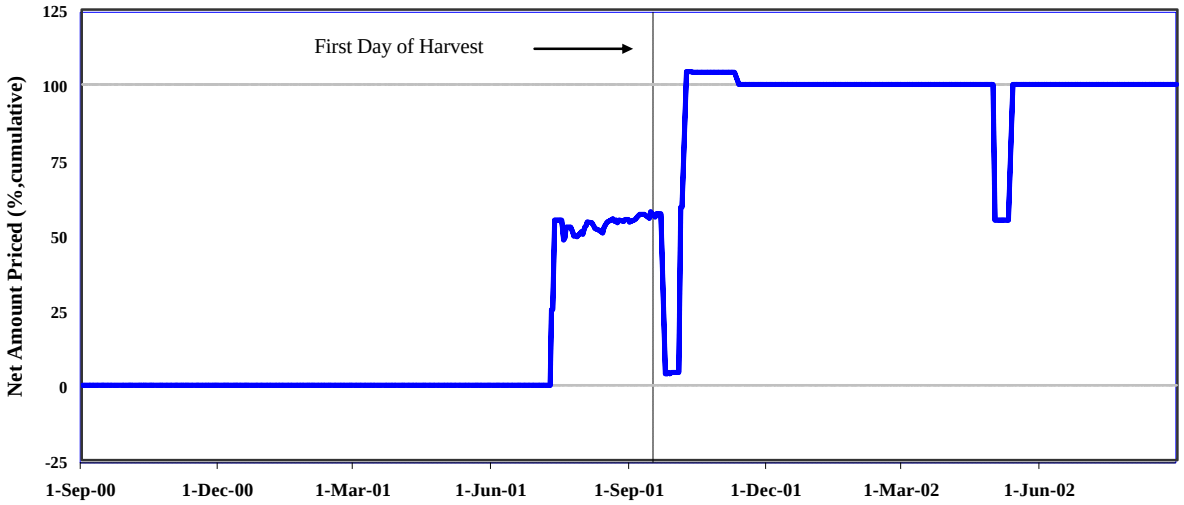
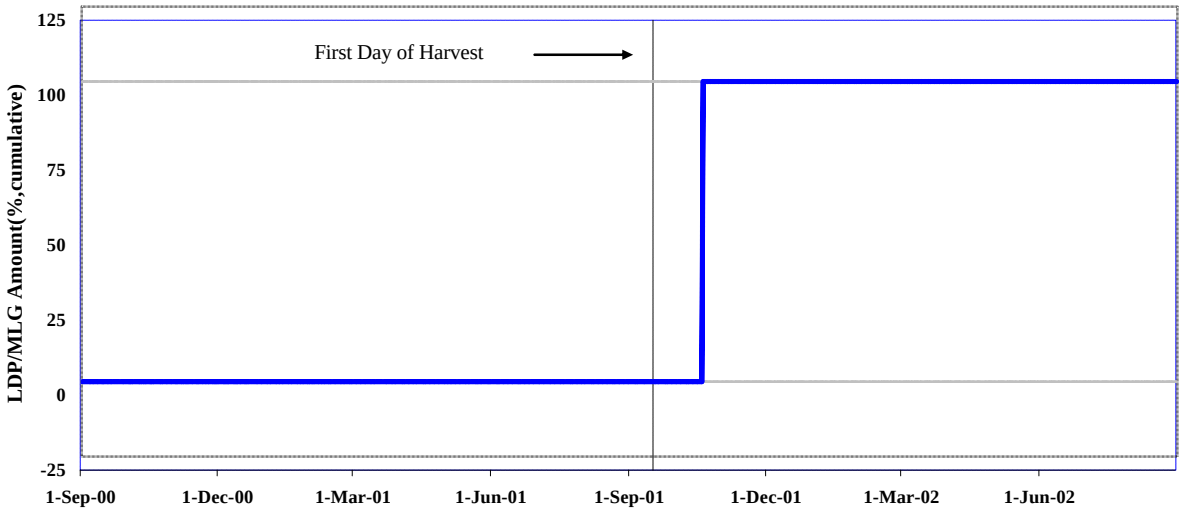


Figure 3.2 Corn LDP/MLG Profile, AgReview, 2001 Crop Year



Note: LDP stands for loan deficiency payment and MLG stands for marketing loan gain.

Figure 3.3 Corn Marketing Profile, Ag Review, 1995-2001 Crop Years

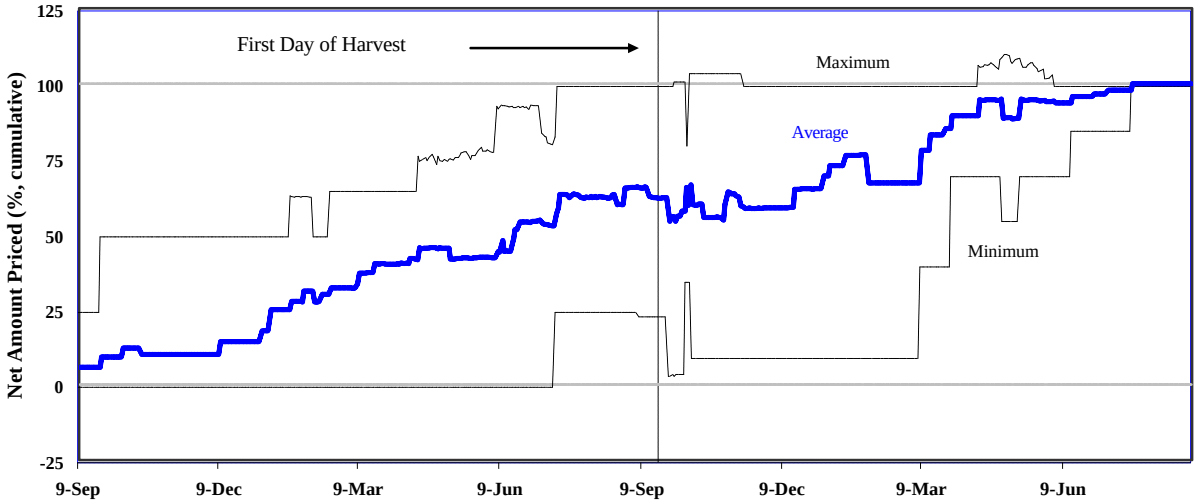
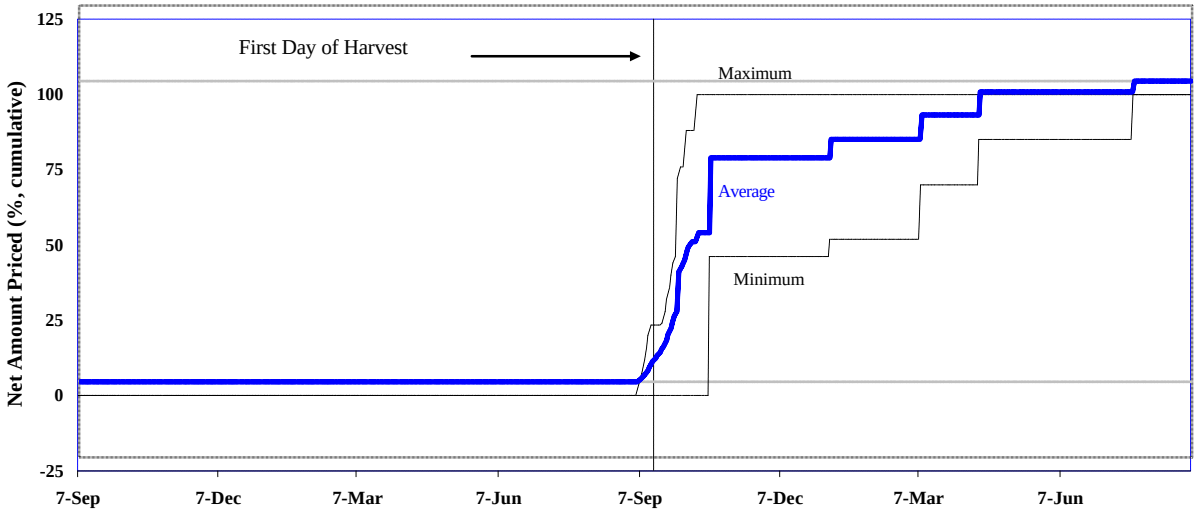


Figure 3.4 Corn LDP/MLG Profile, Ag Review, 1998-2001 Crop Years



Note: LDP stands for loan deficiency payment and MLG stands for marketing loan gain.

Figure 4.1 Corn Marketing Profile, AgLine by Doane (Cash Only), 2001 Crop Year

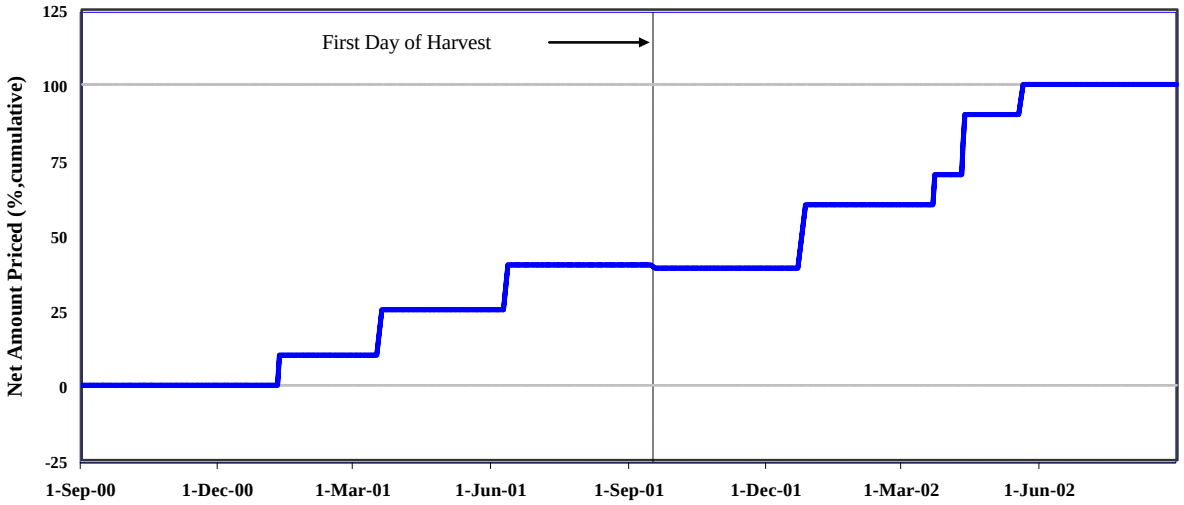
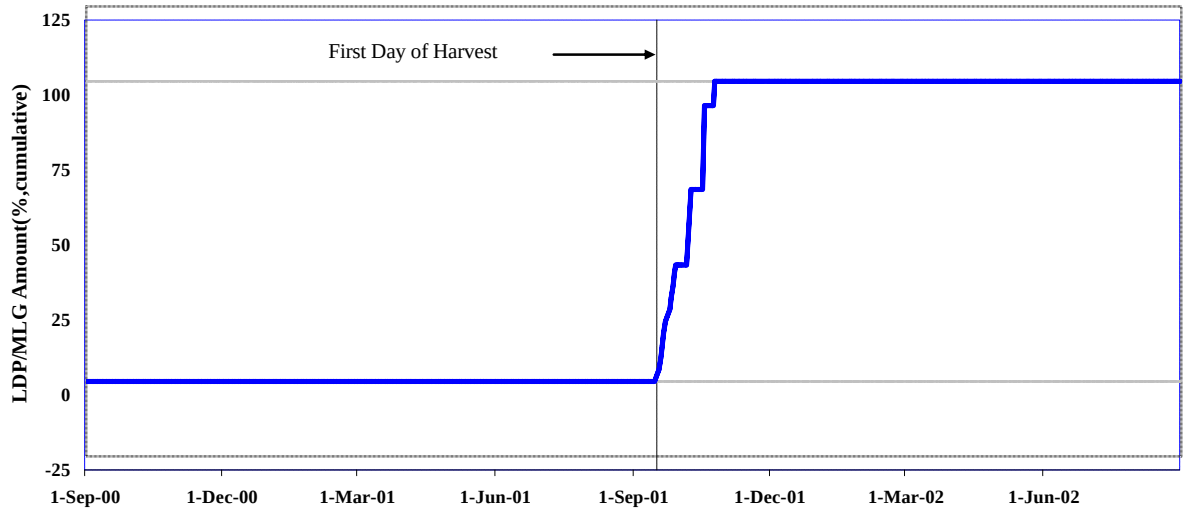


Figure 4.2 Corn LDP/MLG Profile, AgLine by Doane (Cash Only), 2001 Crop Year



Note: LDP stands for loan deficiency payment and MLG stands for marketing loan gain.

Figure 4.3 Corn Marketing Profile, AgLine by Doane (cash only), 1995-2001 Crop Years

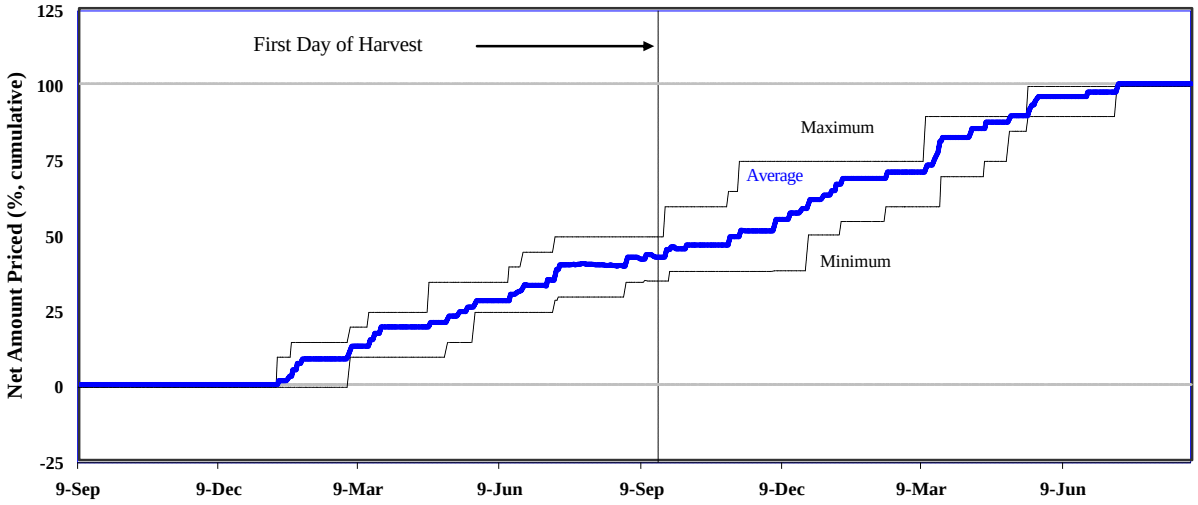
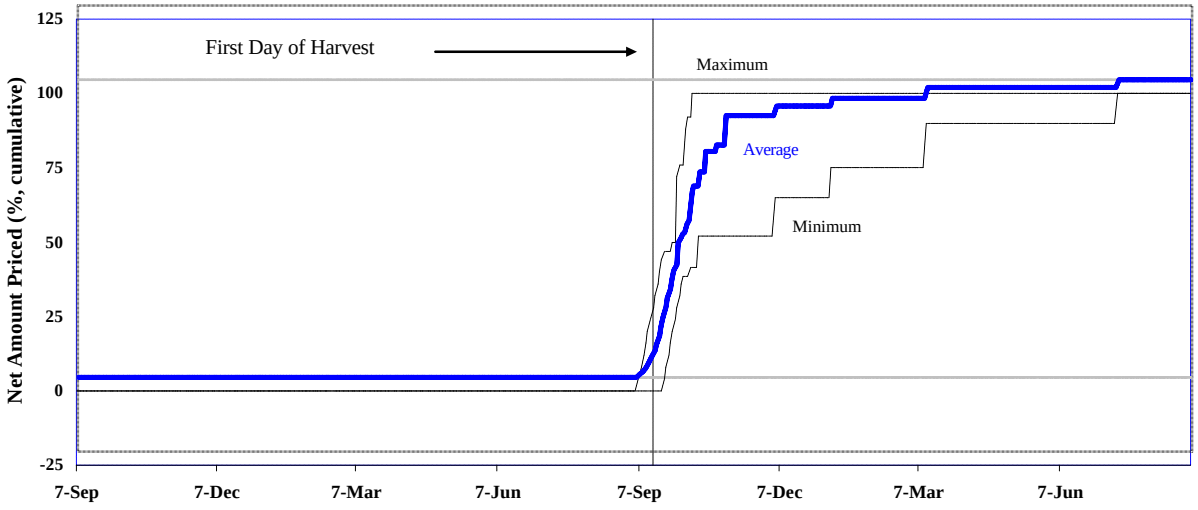


Figure 4.4 Corn LDP/MLG Profile, AgLine by Doane (cash only), 1998-2001 Crop Years



Note: LDP stands for loan deficiency payment and MLG stands for marketing loan gain.

Figure 5.1 Corn Marketing Profile, AgLine by Doane (Hedge), 2001 Crop Year

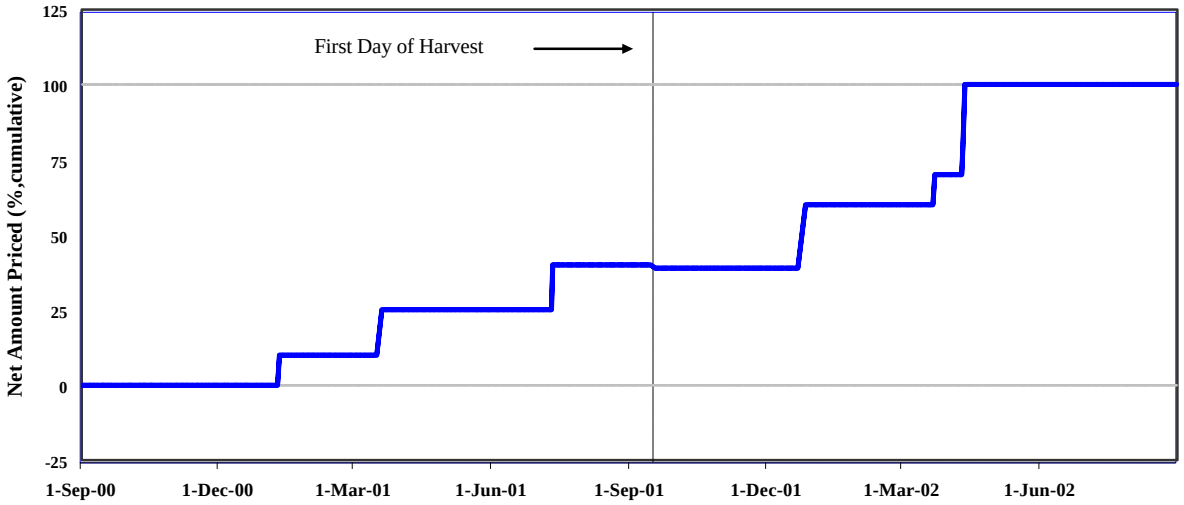
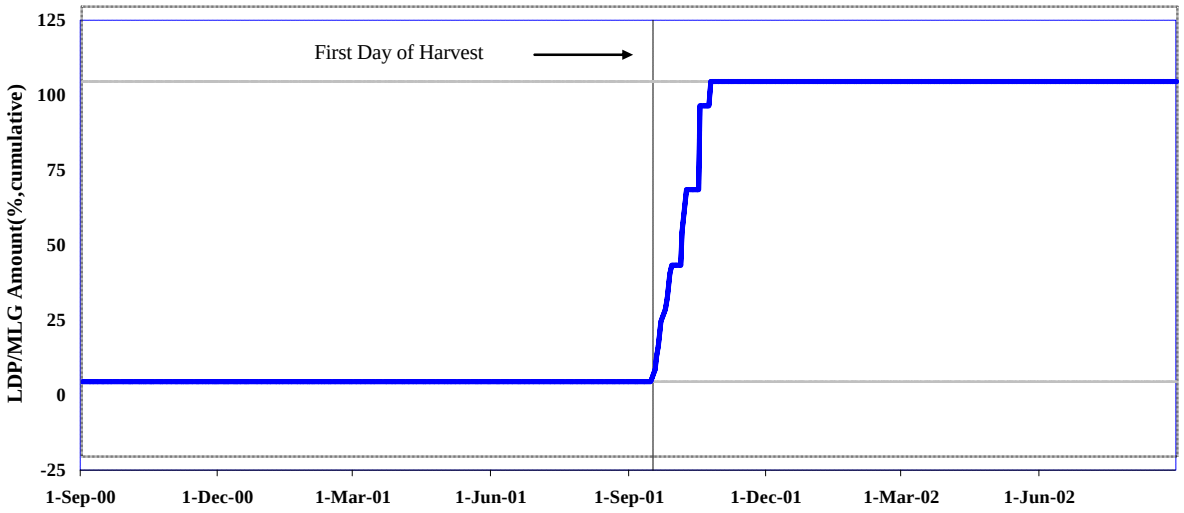


Figure 5.2 Corn LDP/MLG Profile, AgLine by Doane (Hedge), 2001 Crop Year



Note: LDP stands for loan deficiency payment and MLG stands for marketing loan gain.

Figure 5.3 Corn Marketing Profile, AgLine by Doane (hedge), 1996-2001 Crop Years

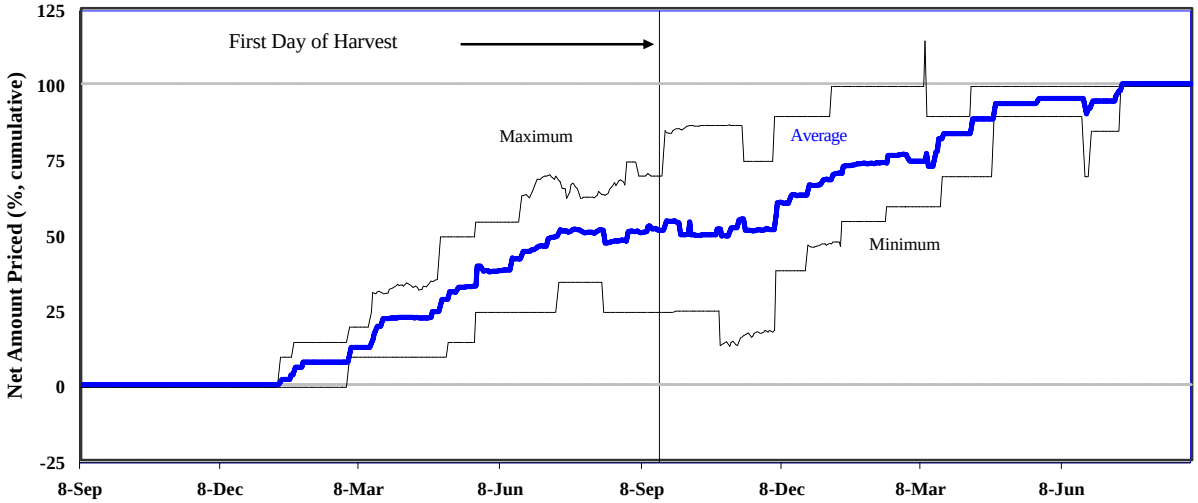
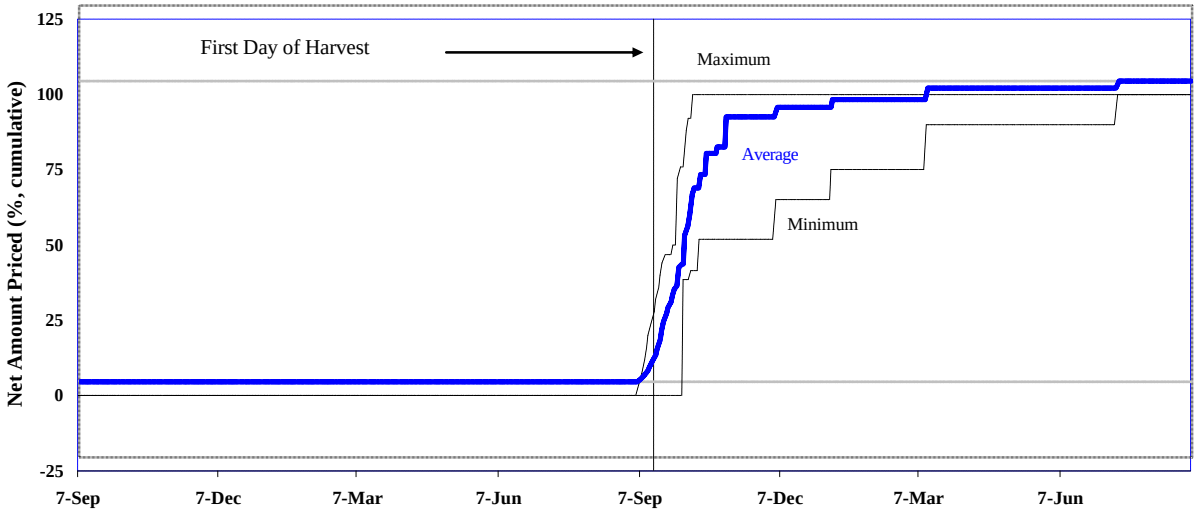


Figure 5.4 Corn LDP/MLG Profile, AgLine by Doane (hedge), 1998-2001 Crop Years



Note: LDP stands for loan deficiency payment and MLG stands for marketing loan gain.

Figure 6.1 Corn Marketing Profile, AgResource, 2001 Crop Year

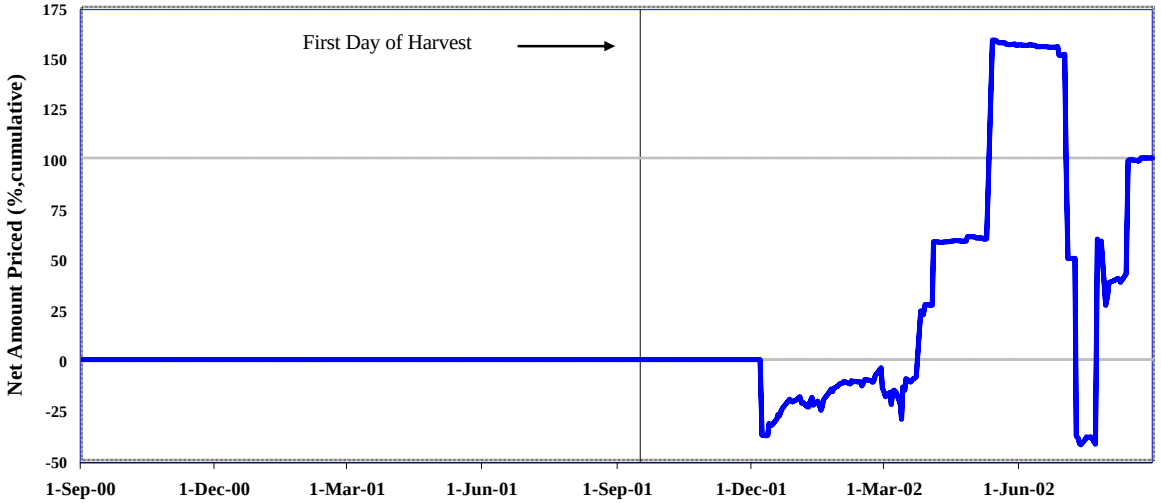
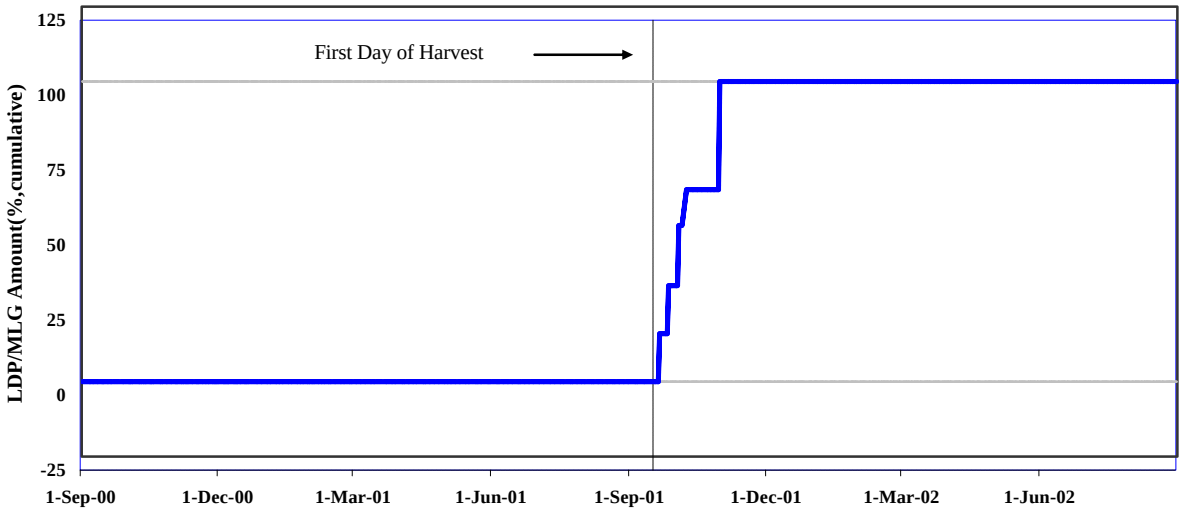


Figure 6.2 Corn LDP/MLG Profile, AgResource, 2001 Crop Year



Note: LDP stands for loan deficiency payment and MLG stands for marketing loan gain.

Figure 6.3 Corn Marketing Profile, AgResource, 1995-2001 Crop Years

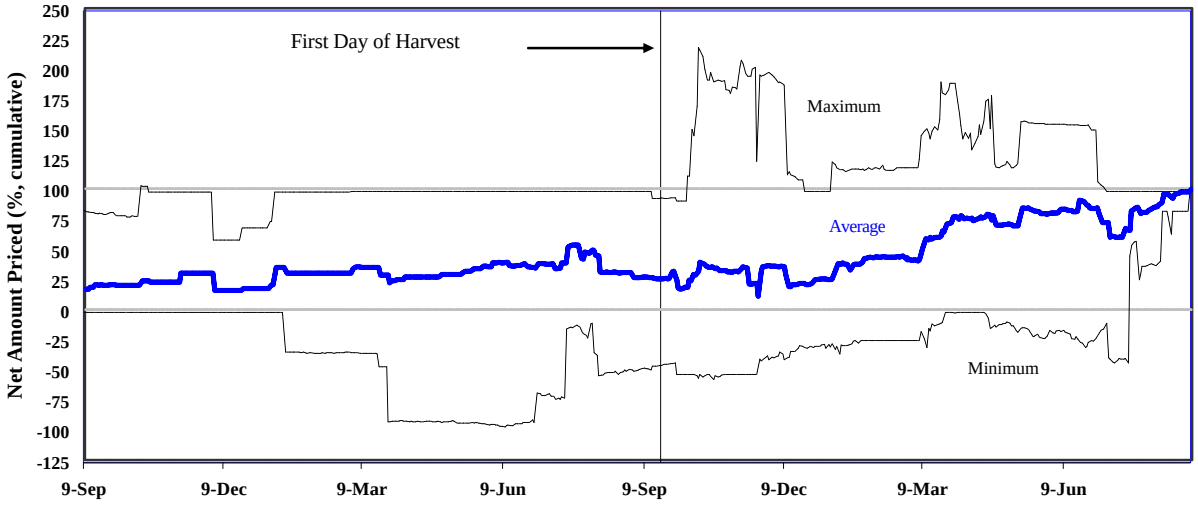
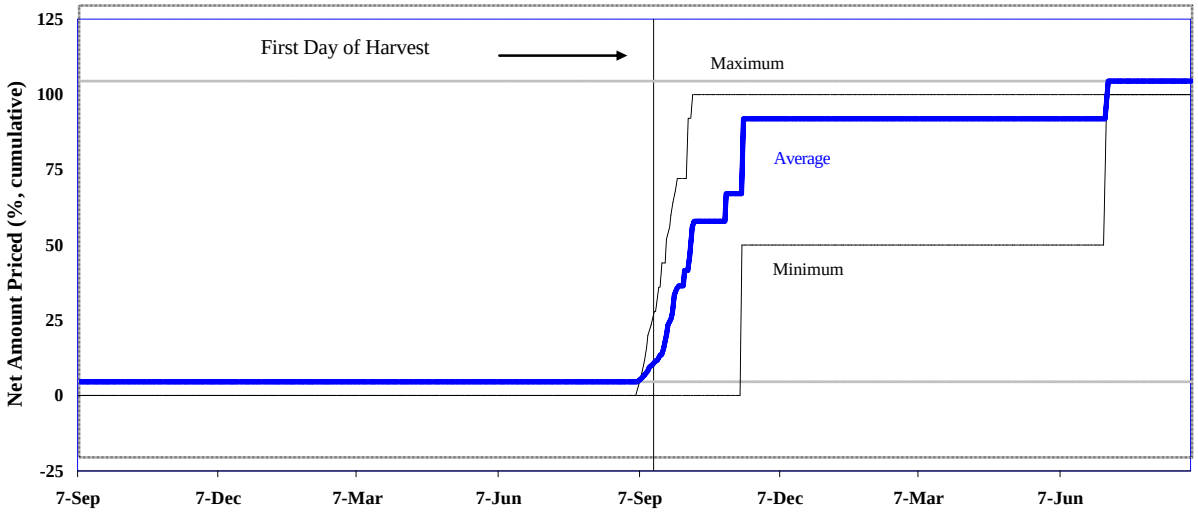


Figure 6.4 Corn LDP/MLG Profile, AgResource, 1998-2001 Crop Years



Note: LDP stands for loan deficiency payment and MLG stands for marketing loan gain.

Figure 7.1 Corn Marketing Profile, AgriVisor (aggressive cash), 2001 Crop Year

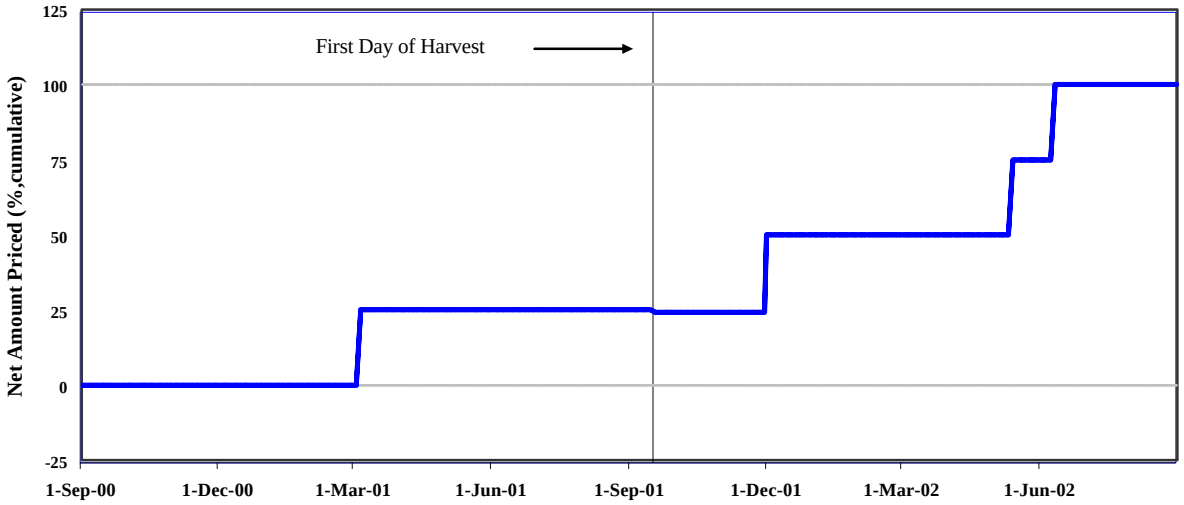
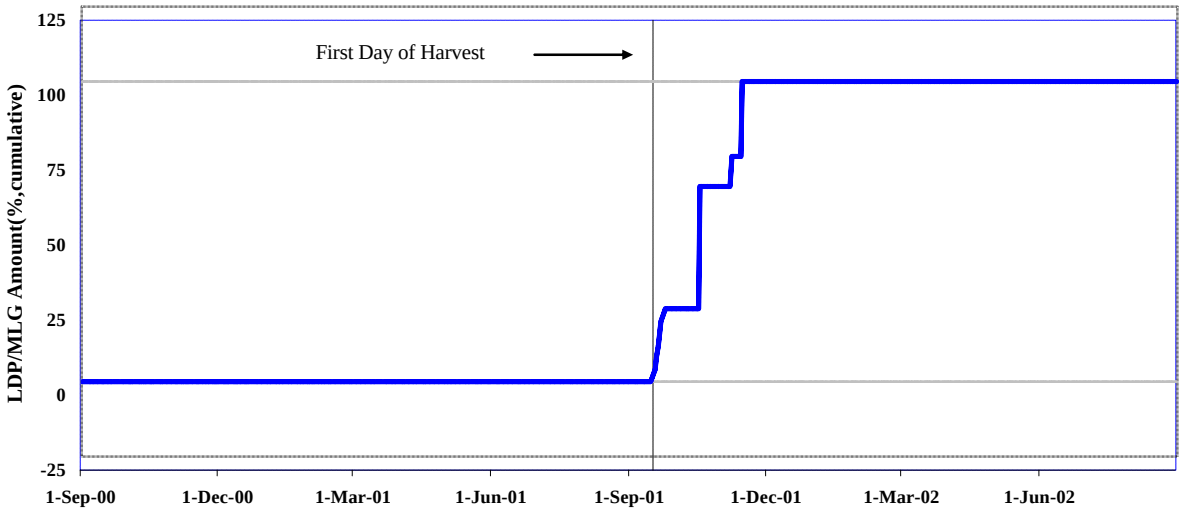


Figure 7.2 Corn LDP/MLG Profile, AgriVisor (aggressive cash), 2001 Crop Year



Note: LDP stands for loan deficiency payment and MLG stands for marketing loan gain.

Figure 7.3 Corn Marketing Profile, AgriVisor (aggressive cash), 1995-2001 Crop Years

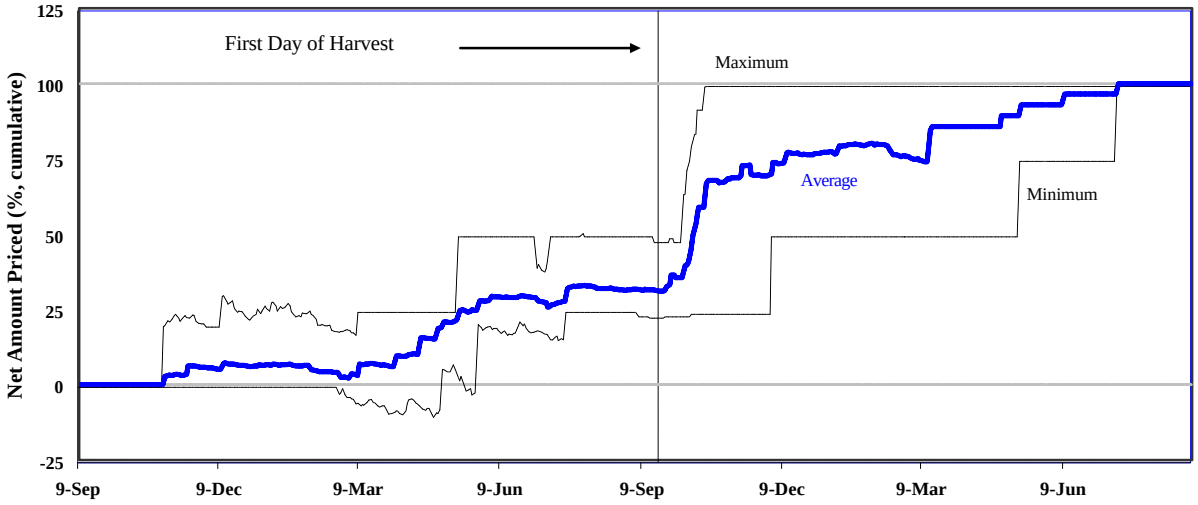
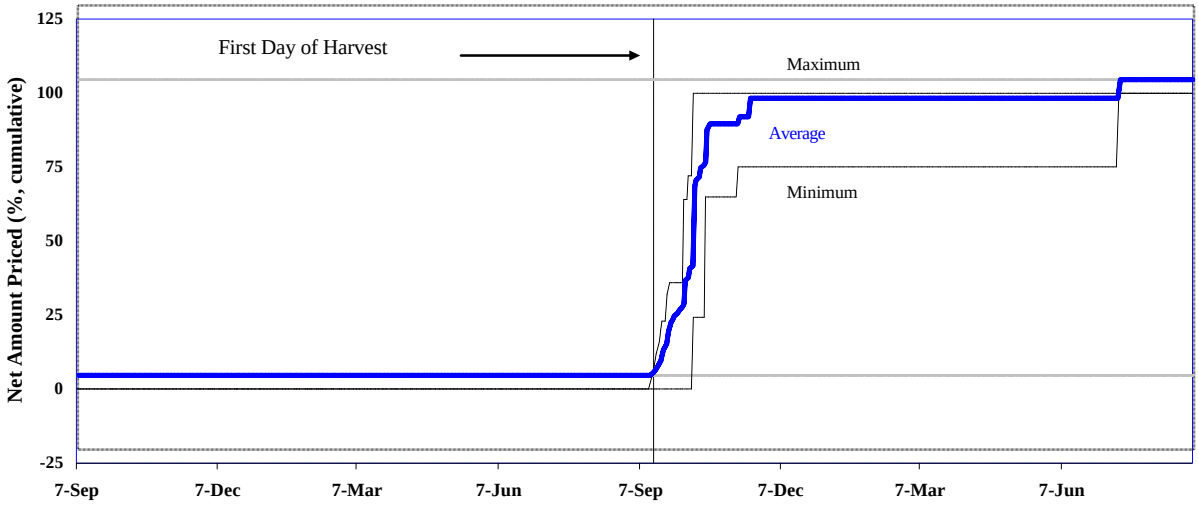


Figure 7.4 Corn LDP/MLG Profile, AgriVisor (aggressive cash), 1998-2001 Crop Years



Note: LDP stands for loan deficiency payment and MLG stands for marketing loan gain.

Figure 8.1 Corn Marketing Profile, AgriVisor (aggressive hedge), 2001 Crop Year

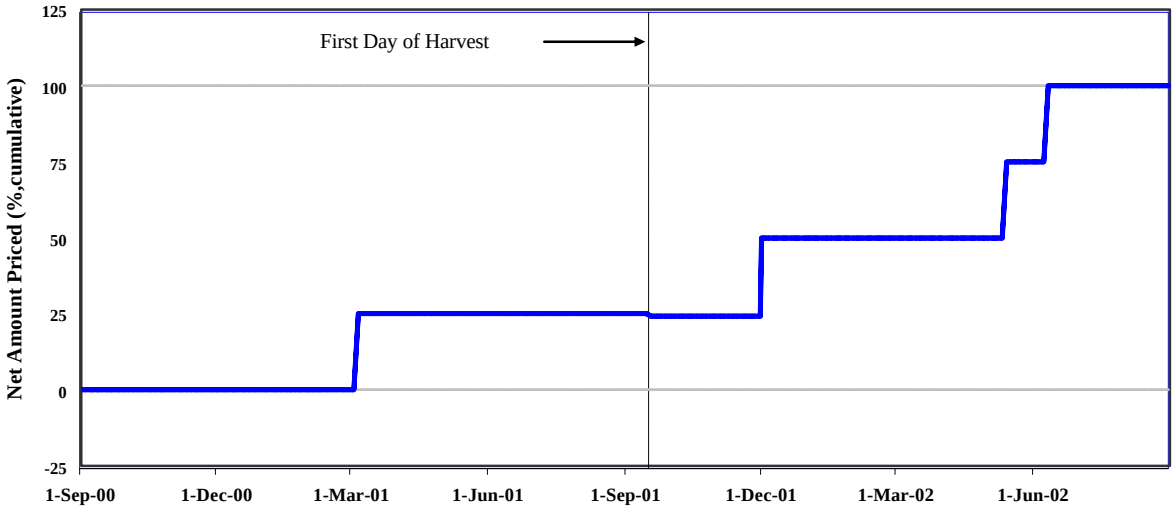
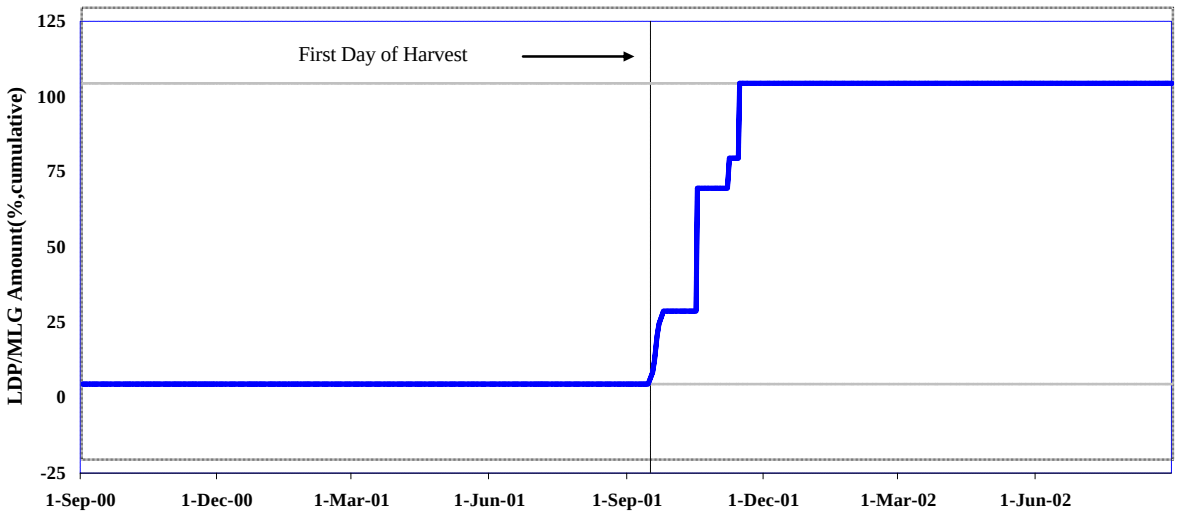


Figure 8.2 Corn LDP/MLG Profile, AgriVisor (aggressive hedge), 2001 Crop Year



Note: LDP stands for loan deficiency payment and MLG stands for marketing loan gain.

Figure 8.3 Corn Marketing Profile, AgriVisor (aggressive hedge), 1995-2001 Crop Years

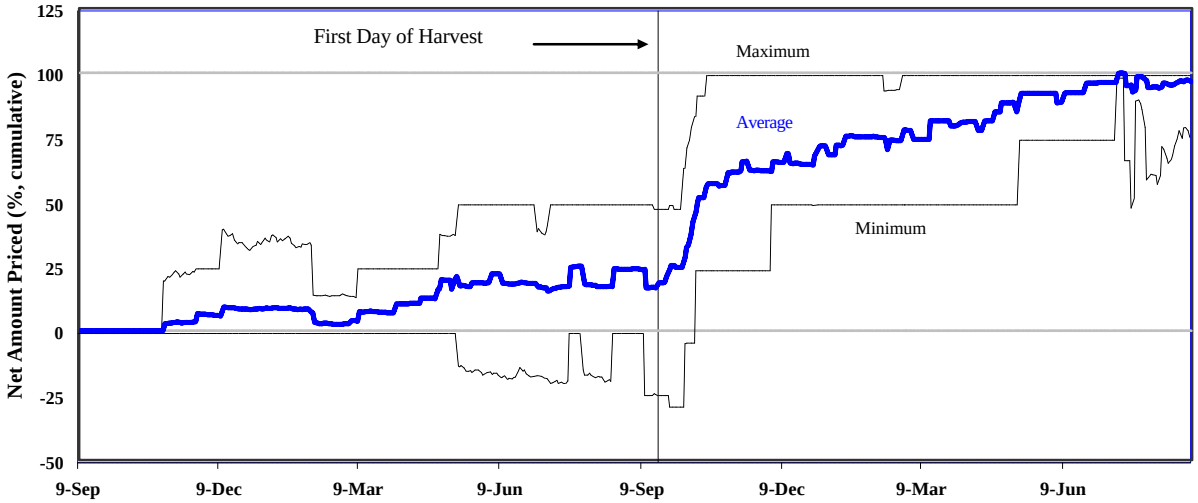
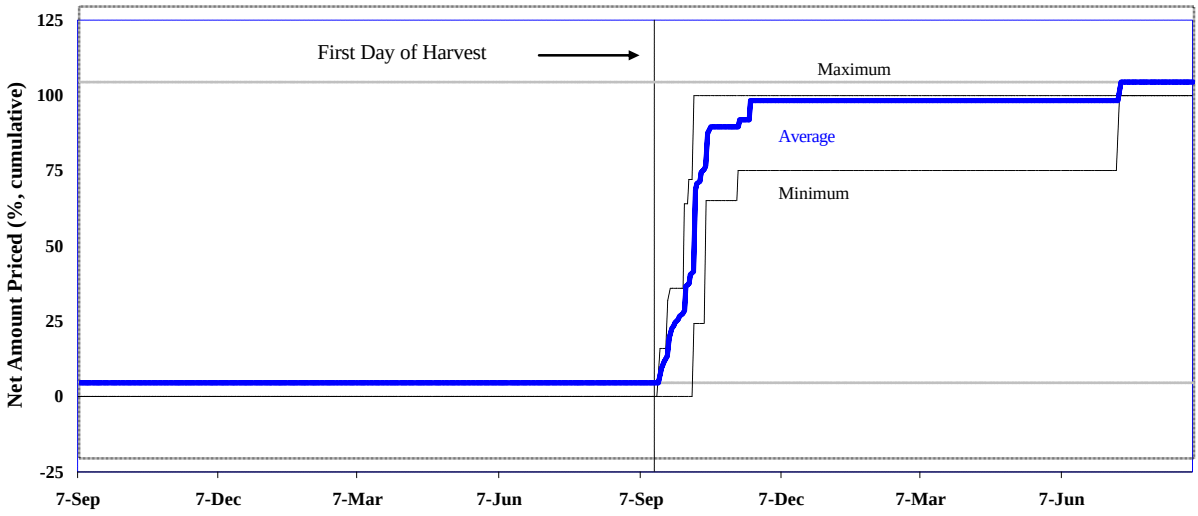


Figure 8.4 Corn LDP/MLG Profile, AgriVisor (aggressive hedge), 1998-2001 Crop Years



Note: LDP stands for loan deficiency payment and MLG stands for marketing loan gain.

Figure 9.1 Corn Marketing Profile, AgriVisor (basic cash), 2001 Crop Year

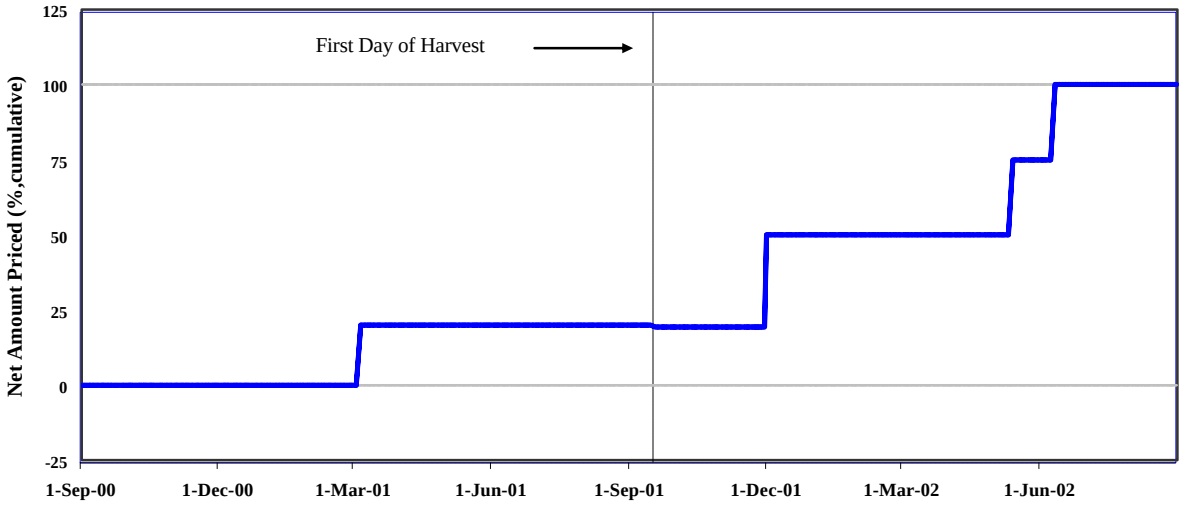
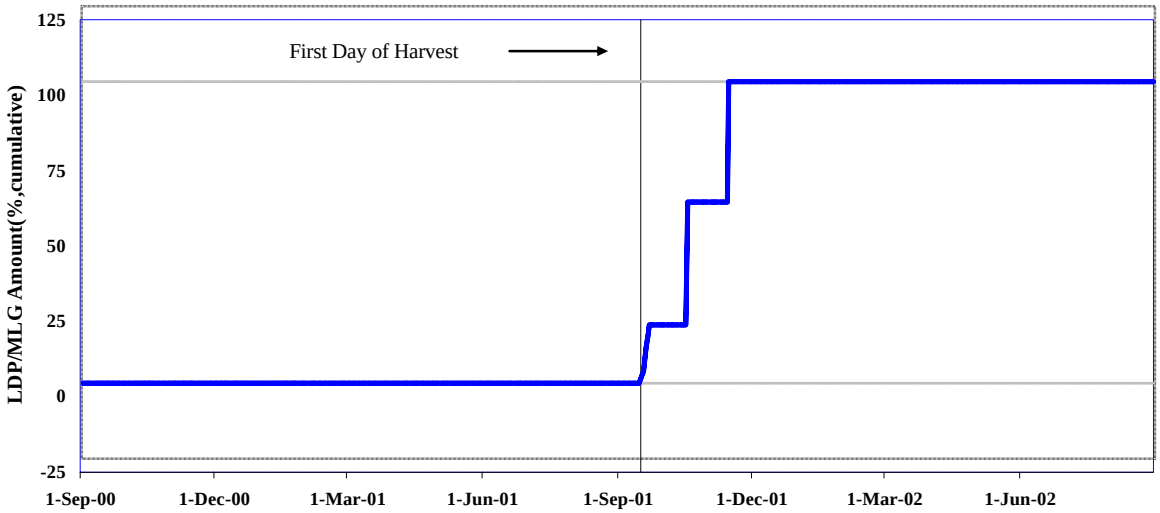


Figure 9.2 Corn LDP/MLG Profile, AgriVisor (basic cash), 2001 Crop Year



Note: LDP stands for loan deficiency payment and MLG stands for marketing loan gain.

Figure 9.3 Corn Marketing Profile, AgriVisor (basic cash), 1995-2001 Crop Years

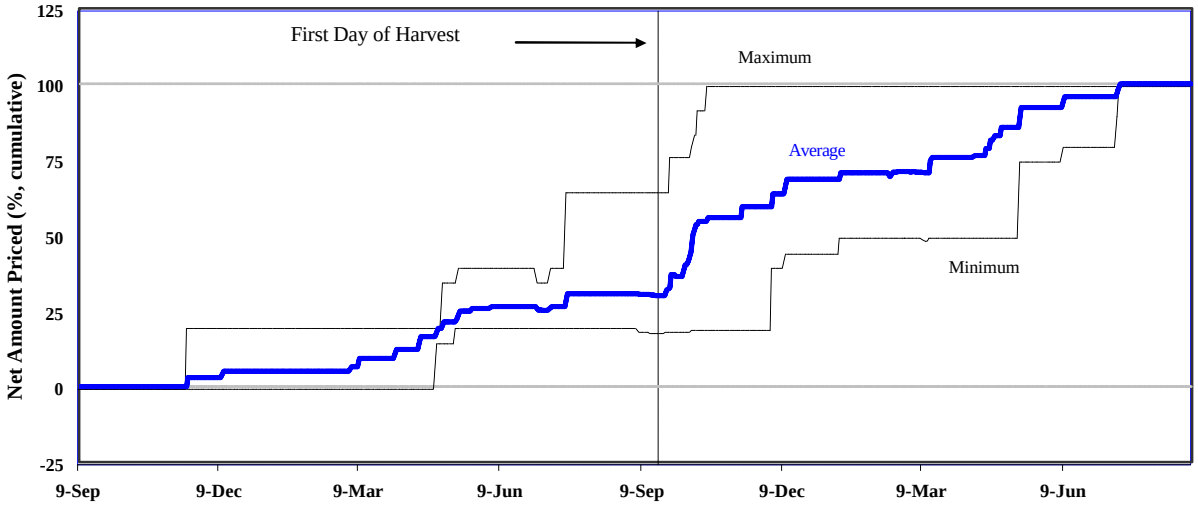
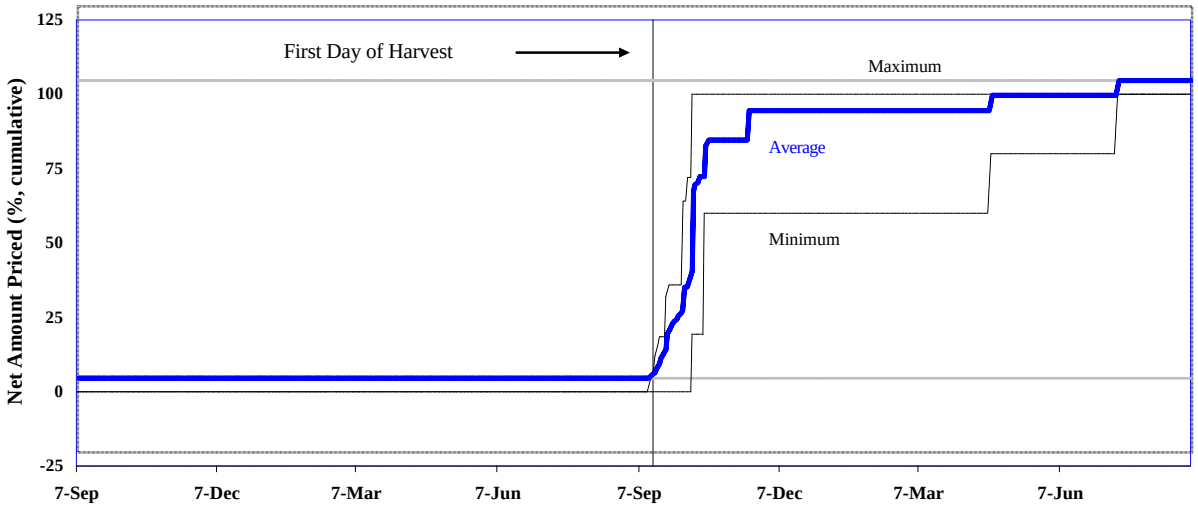


Figure 9.4 Corn LDP/MLG, AgriVisor (basic cash), 1998-2001 Crop Years



Note: LDP stands for loan deficiency payment and MLG stands for marketing loan gain.

Figure 10.1 Corn Marketing Profile, AgriVisor (basic hedge), 2001 Crop Year

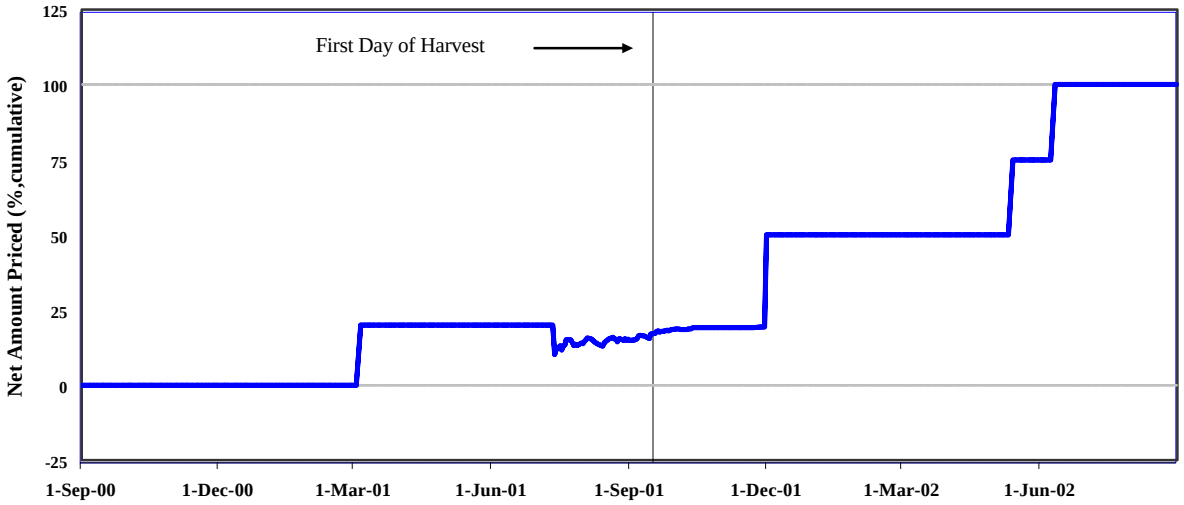
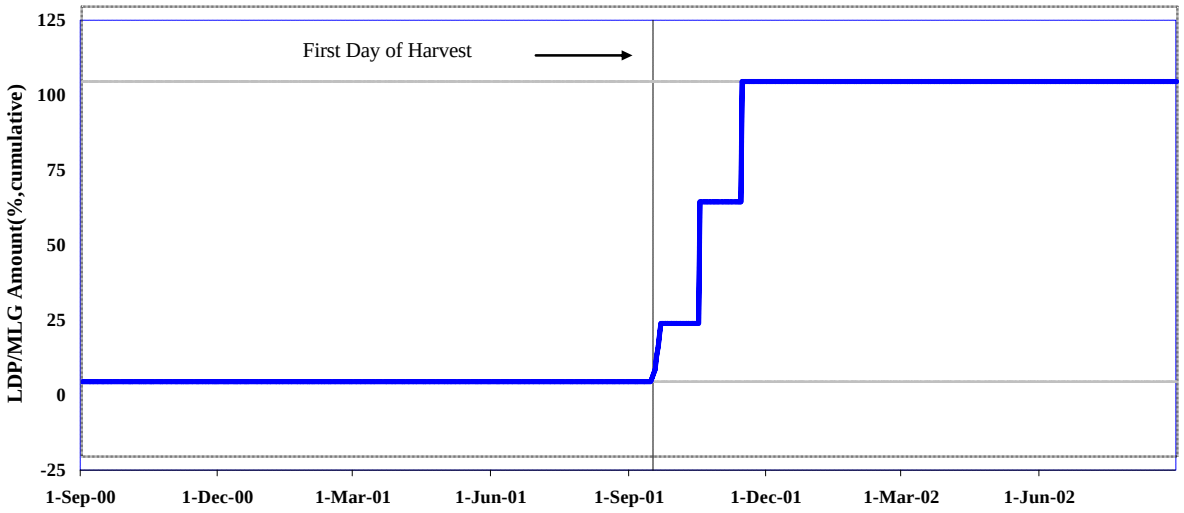


Figure 10.2 Corn LDP/MLG Profile, AgriVisor (basic hedge), 2001 Crop Year



Note: LDP stands for loan deficiency payment and MLG stands for marketing loan gain.

Figure 10.3 Corn Marketing Profile, AgriVisor (basic hedge), 1995-2001 Crop Years

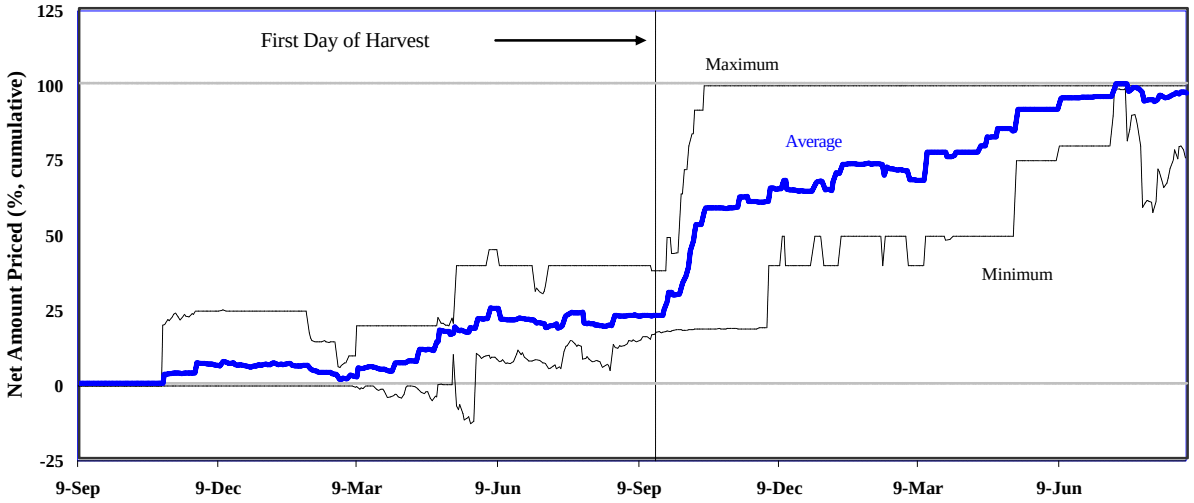
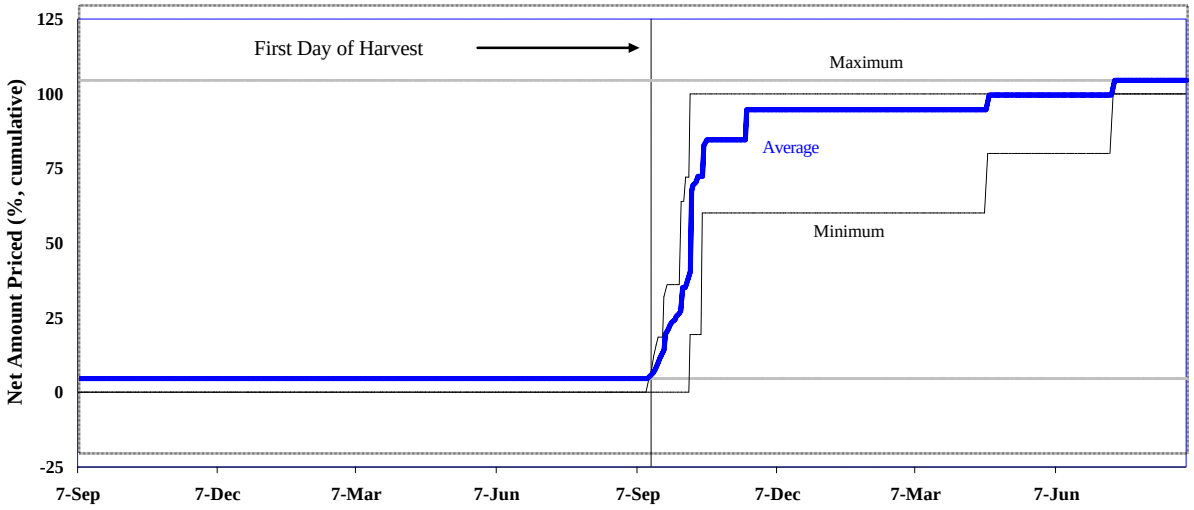


Figure 10.4 Corn LDP/MLG, AgriVisor (basic hedge), 1998-2001 Crop Years



Note: LDP stands for loan deficiency payment and MLG stands for marketing loan gain.

Figure 11.1 Corn Marketing Profile, Allendale (futures & options), 2001 Crop Year

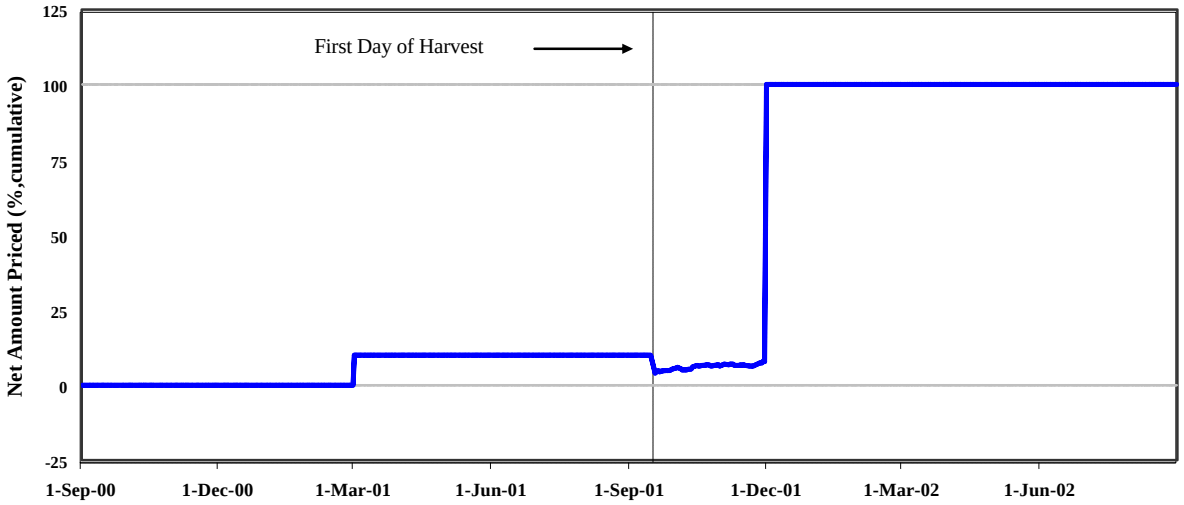
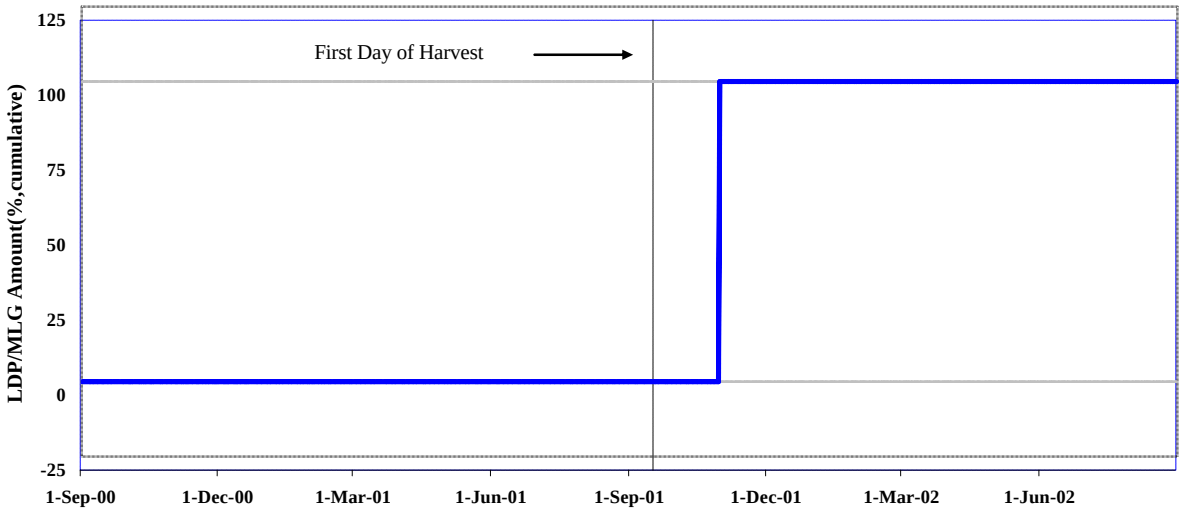


Figure 11.2 Corn LDP/MLG Profile, Allendale (futures & options), 2001 Crop Year



Note: LDP stands for loan deficiency payment and MLG stands for marketing loan gain.

Figure 11.3 Corn Marketing Profile, Allendale (futures & options), 1996-2001 Crop Years

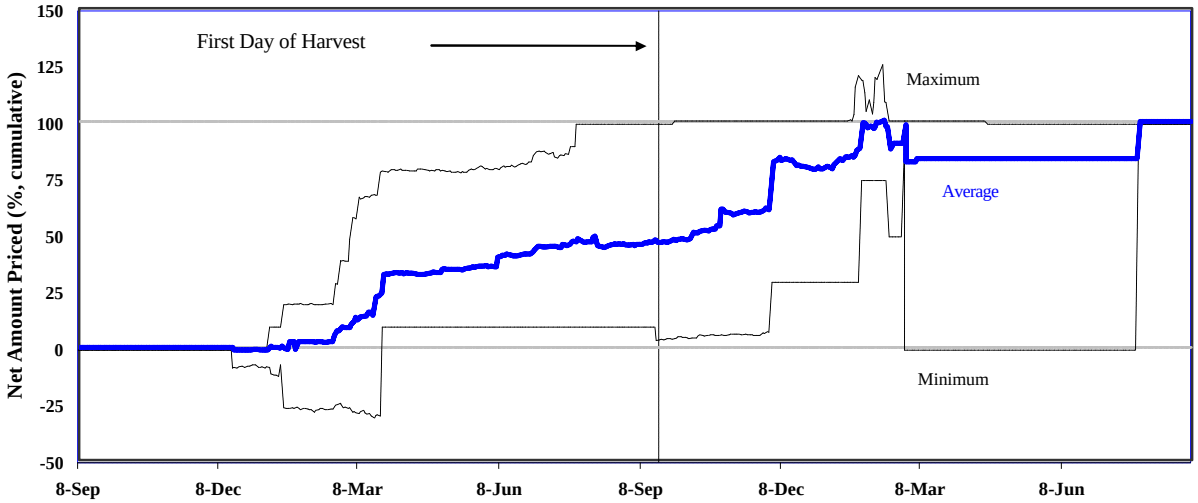
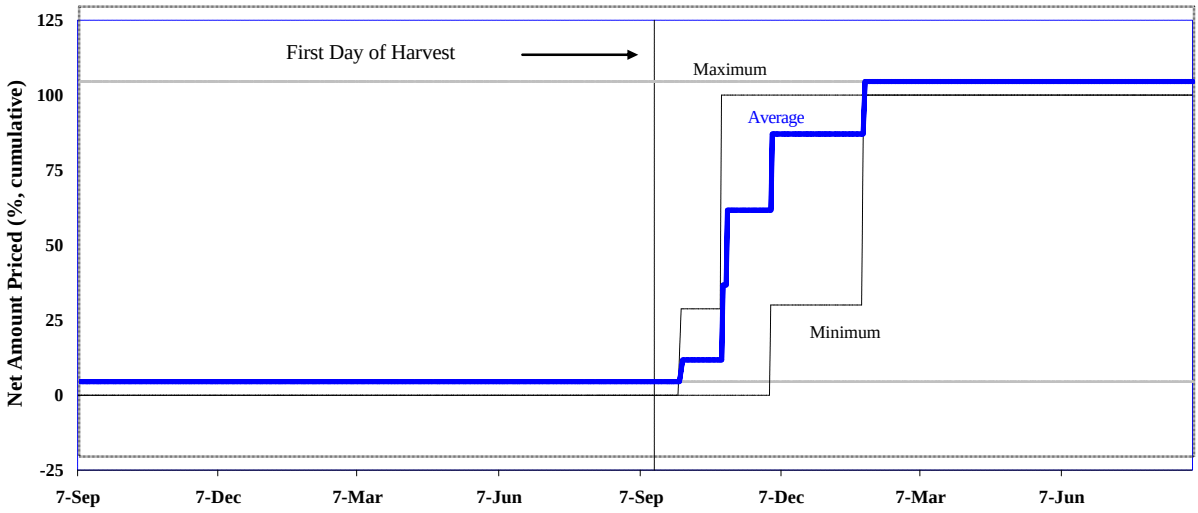


Figure 11.4 Corn LDP/MLG, Allendale (futures & options), 1998-2001 Crop Years



Note: LDP stands for loan deficiency payment and MLG stands for marketing loan gain.

Figure 12.1 Corn Marketing Profile, Allendale (futures only), 2001 Crop Year

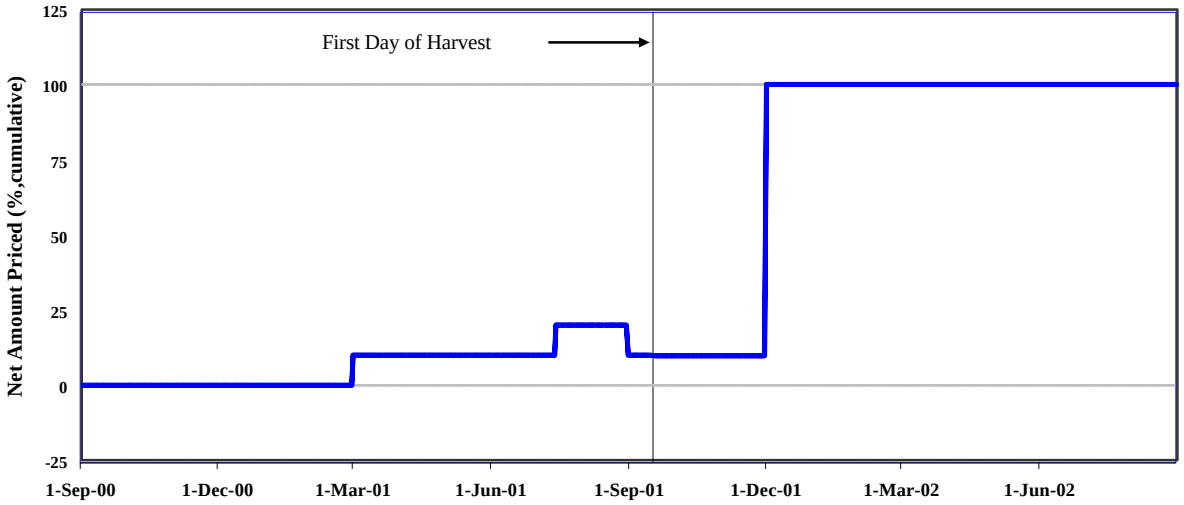
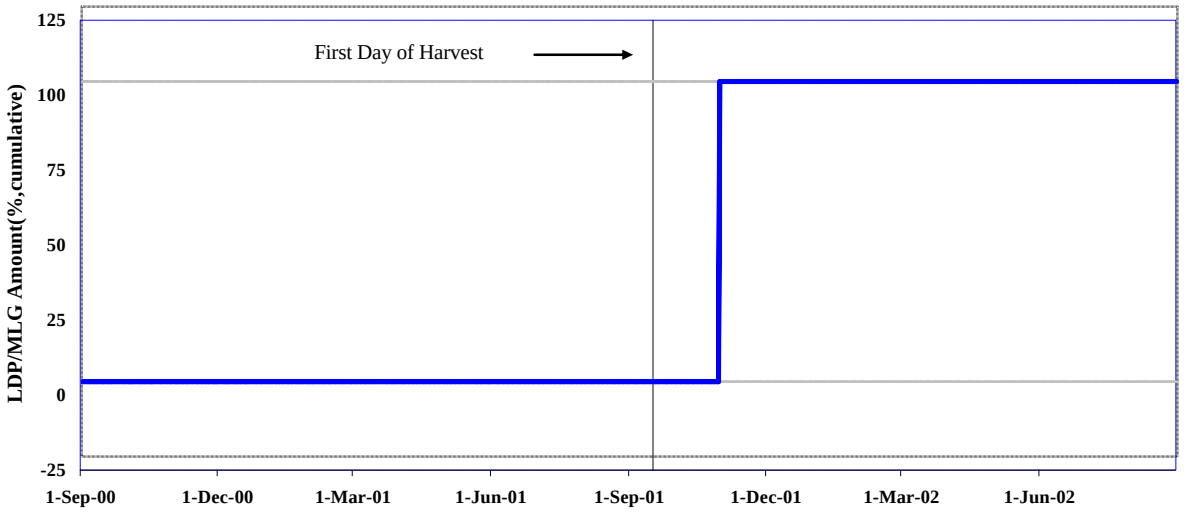


Figure 12.2 Corn LDP/MLG Profile, Allendale (futures only), 2001 Crop Year



Note: LDP stands for loan deficiency payment and MLG stands for marketing loan gain.

Figure 12.3 Corn Marketing Profile, Allendale (futures only), 1995-2001 Crop Years

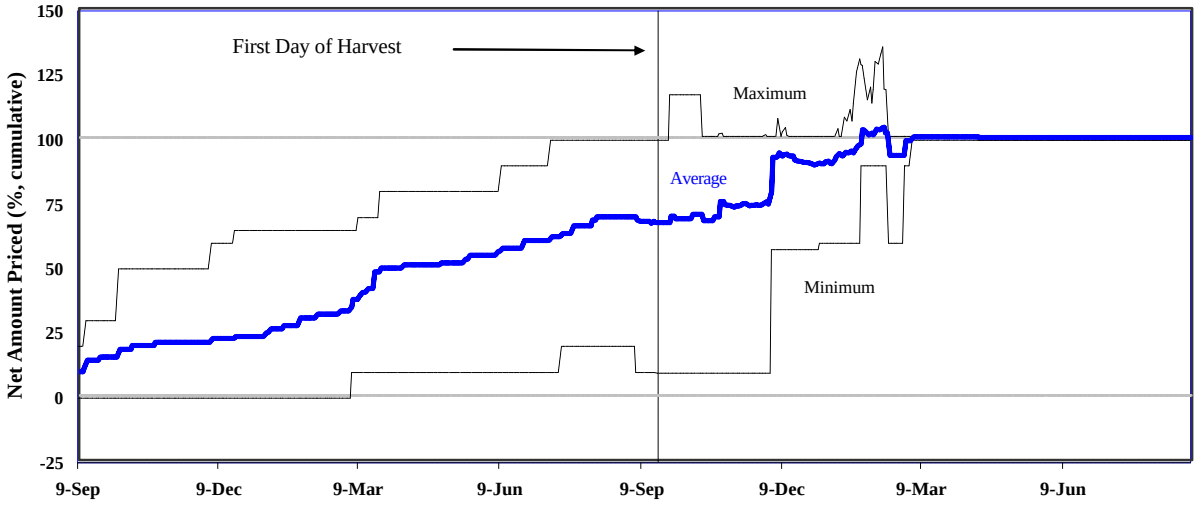
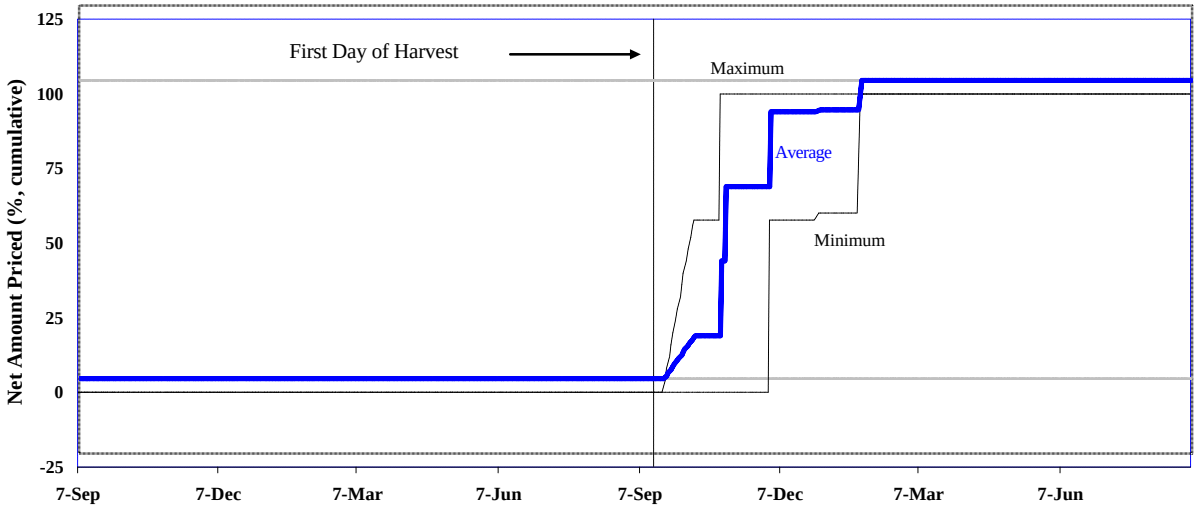


Figure 12.4 Corn LDP/MLG, Allendale (futures only), 1998-2001 Crop Years



Note: LDP stands for loan deficiency payment and MLG stands for marketing loan gain.

Figure 13.1 Corn Marketing Profile, Brock (cash only), 2001 Crop Year

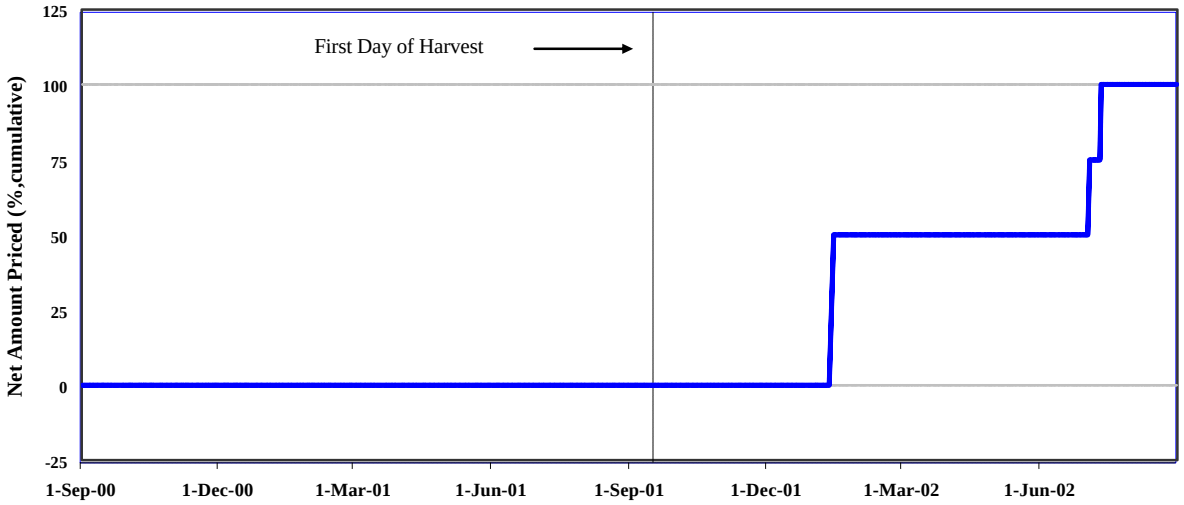
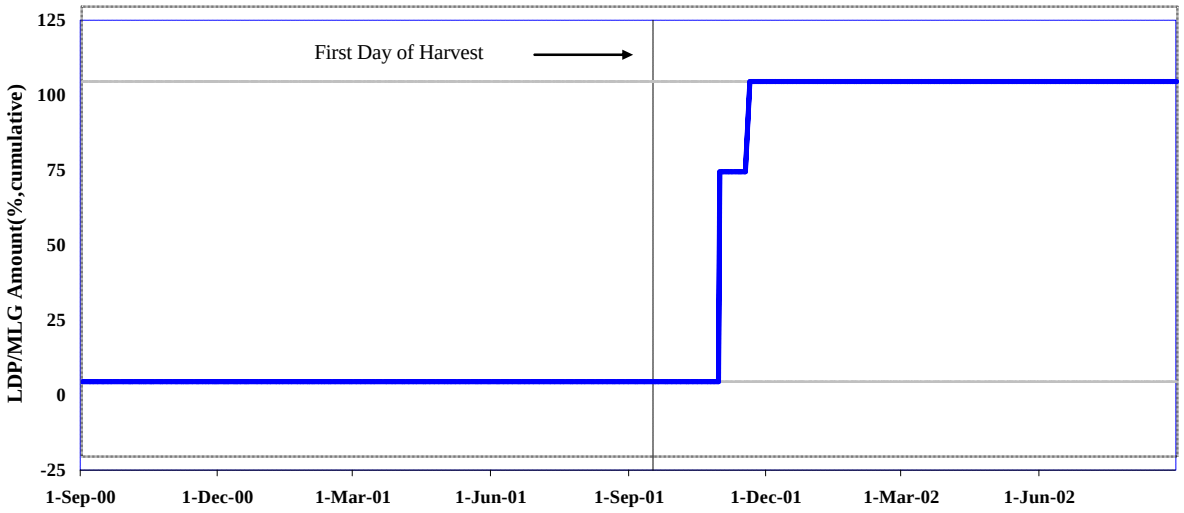


Figure 13.2 Corn LDP/MLG Profile, Brock (cash only), 2001 Crop Year



Note: LDP stands for loan deficiency payment and MLG stands for marketing loan gain.

Figure 13.3 Corn Marketing Profile, Brock (cash only), 1995-2001 Crop Years

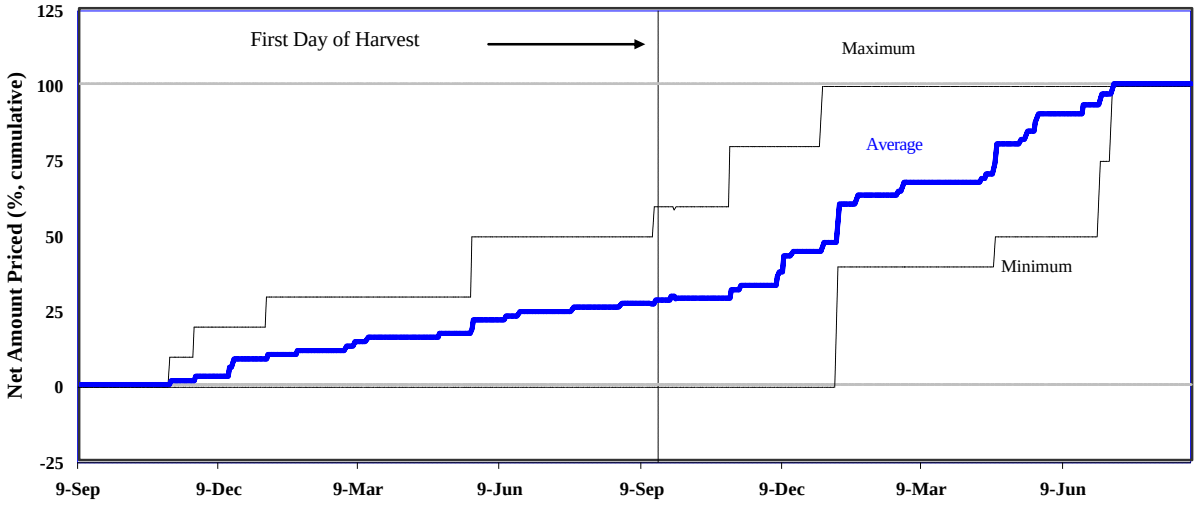
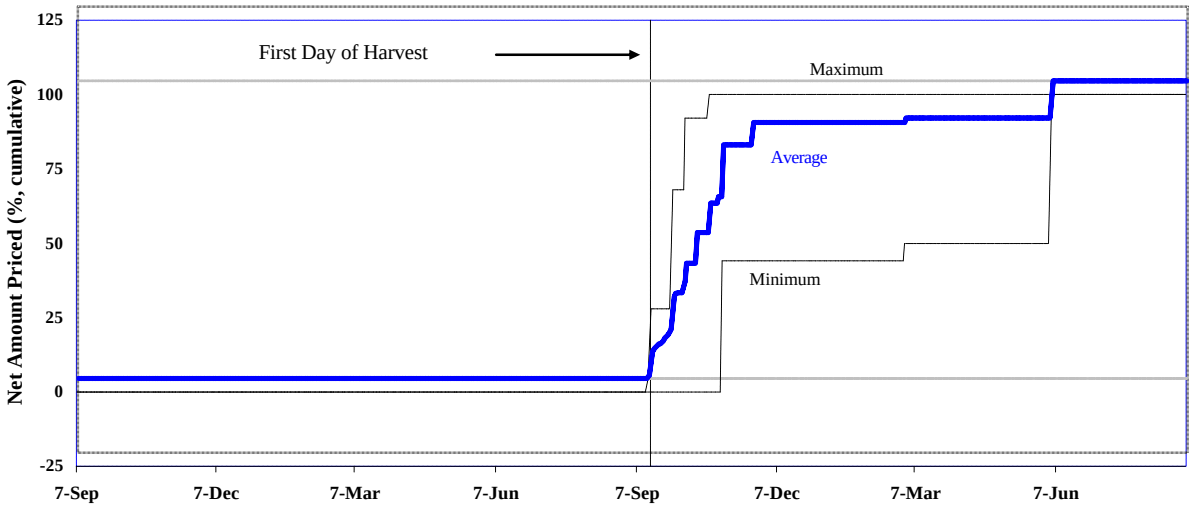


Figure 13.4 Corn LDP/MLG, Brock (cash only), 1998-2001 Crop Years



Note: LDP stands for loan deficiency payment and MLG stands for marketing loan gain.

Figure 14.1 Corn Marketing Profile, Brock (hedge), 2001 Crop Year

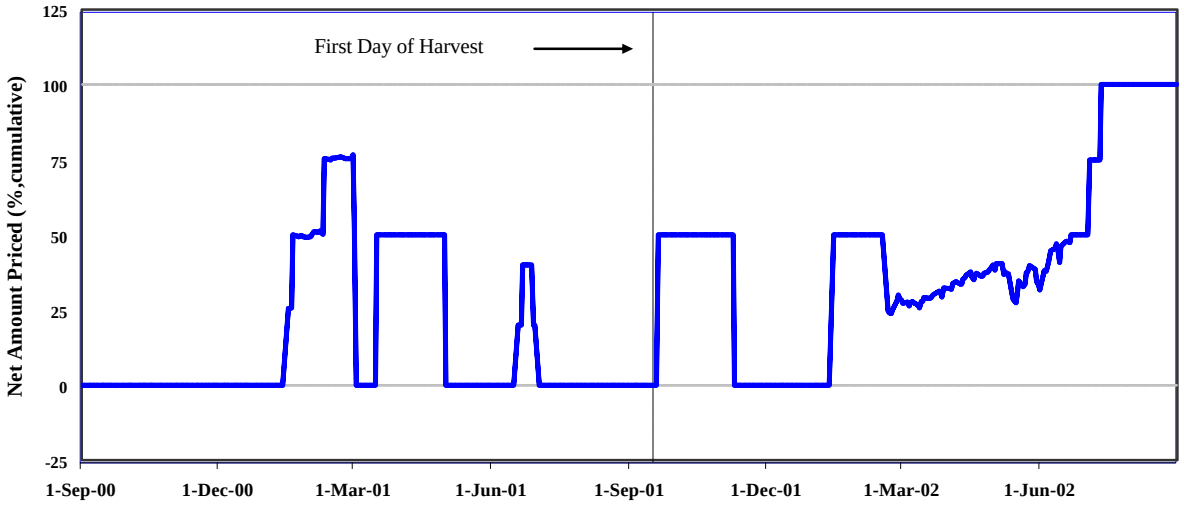
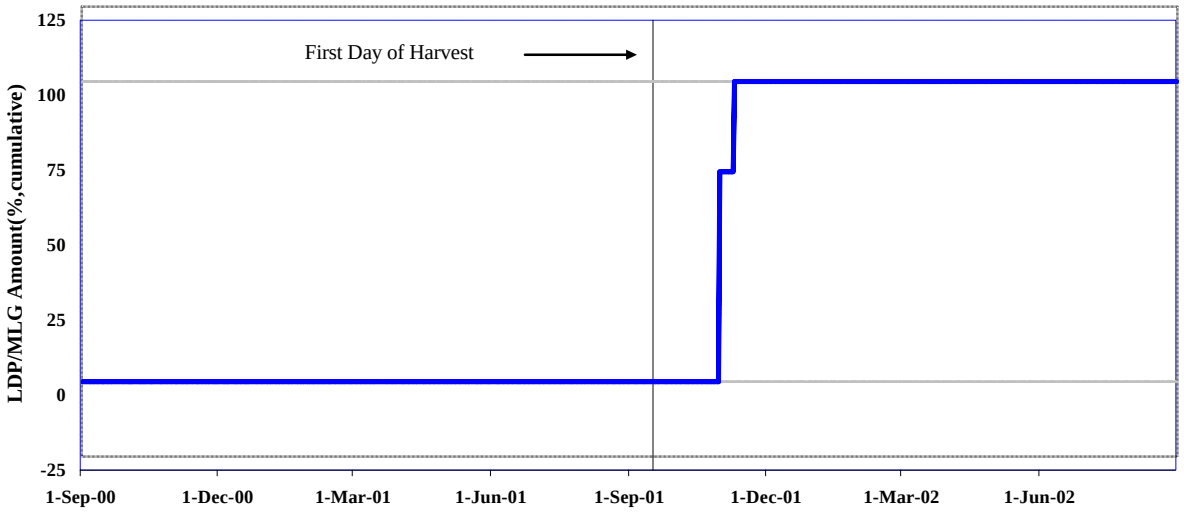


Figure 14.2 Corn LDP/MLG Profile, Brock (hedge), 2001 Crop Year



Note: LDP stands for loan deficiency payment and MLG stands for marketing loan gain.

Figure 14.3 Corn Marketing Profile, Brock (hedge), 1995-2001 Crop Years

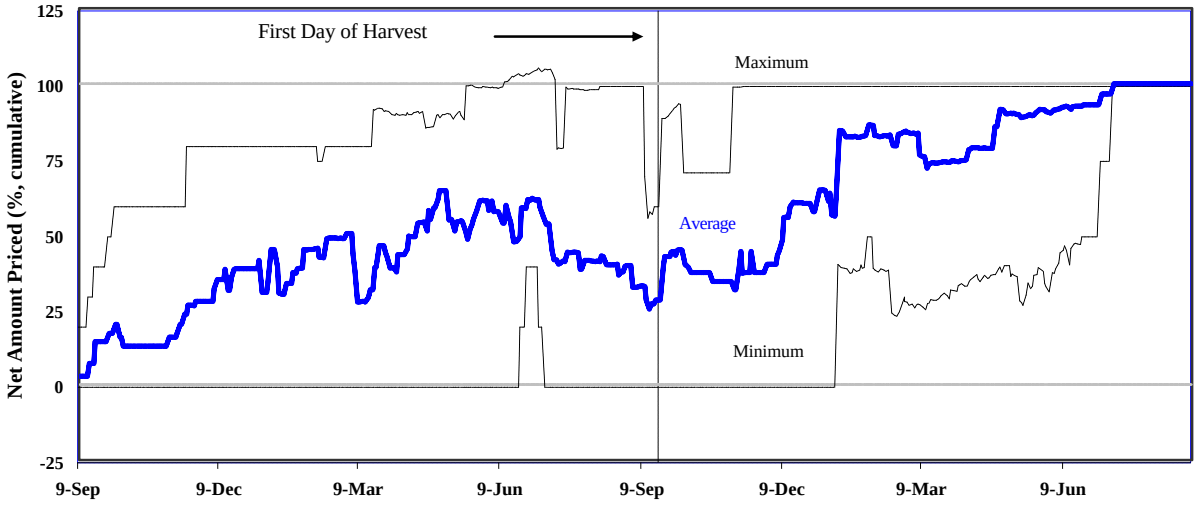
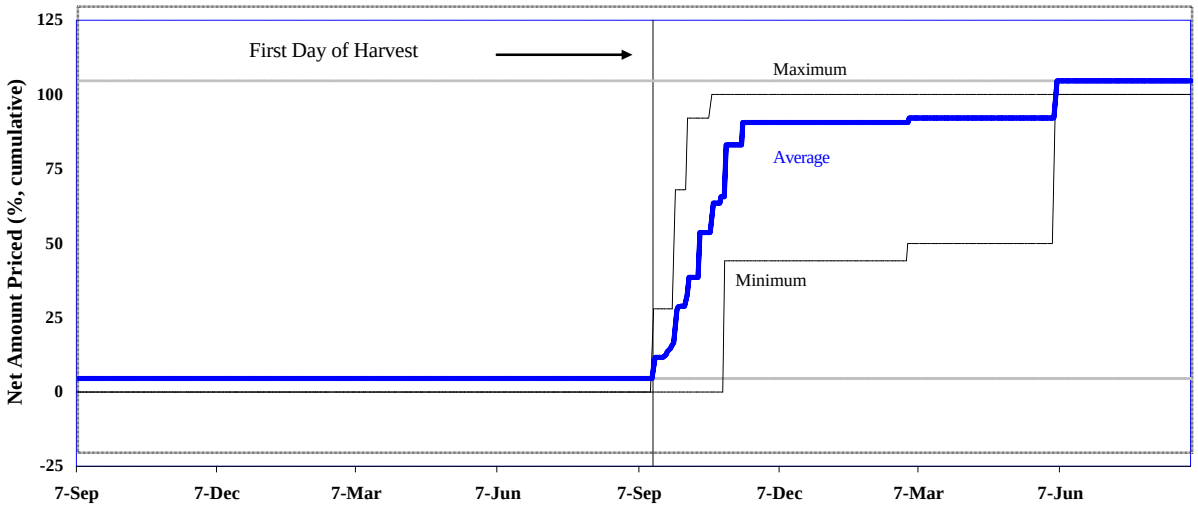


Figure 14.4 Corn Marketing Profile, Brock (hedge), 1998-2001 Crop Years



Note: LDP stands for loan deficiency payment and MLG stands for marketing loan gain.

Figure 15.1 Corn Marketing Profile, CoMark, 2001 Crop Year

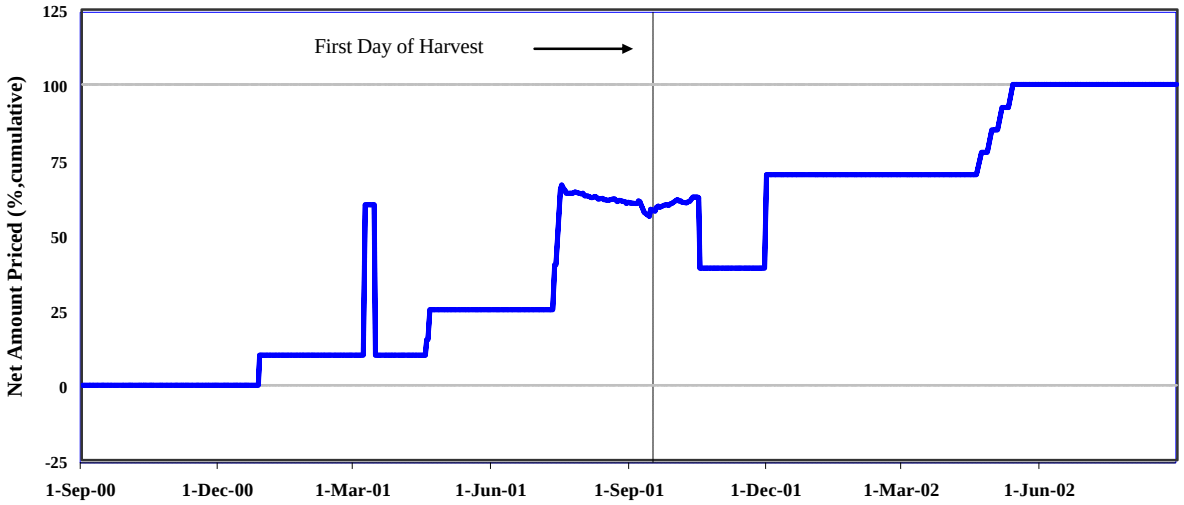
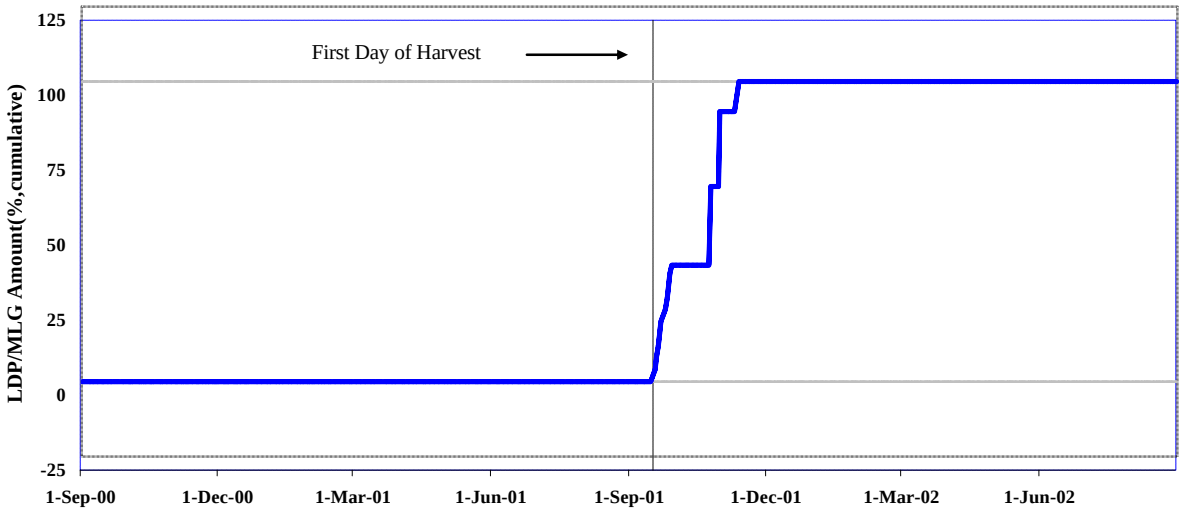


Figure 15.2 Corn LDP/MLG Profile, CoMark, 2001 Crop Year



Note: LDP stands for loan deficiency payment and MLG stands for marketing loan gain.

Figure 15.3 Corn Marketing Profile, Co-Mark, 2000-2001 Crop Years

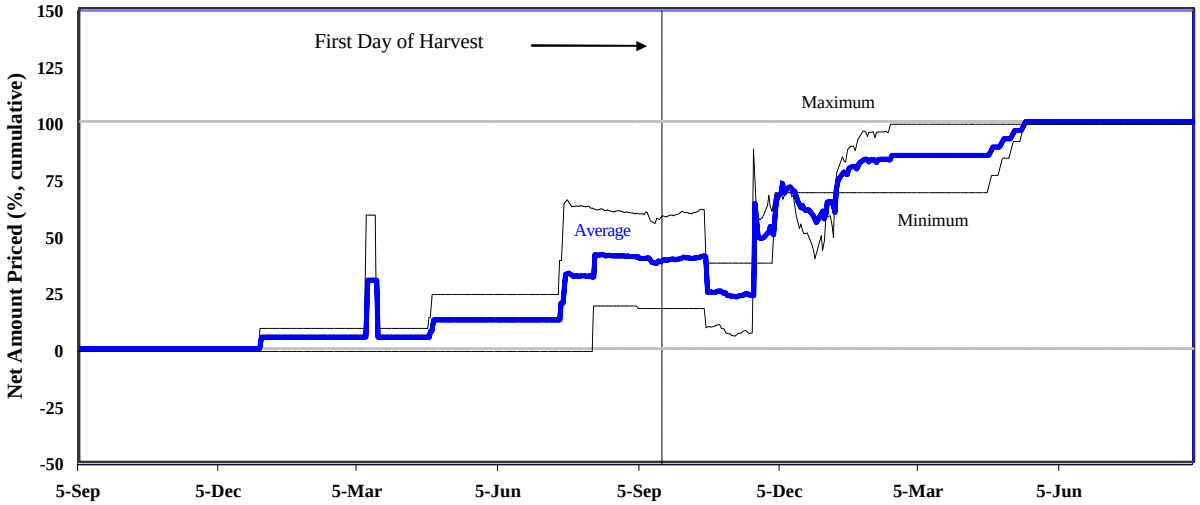
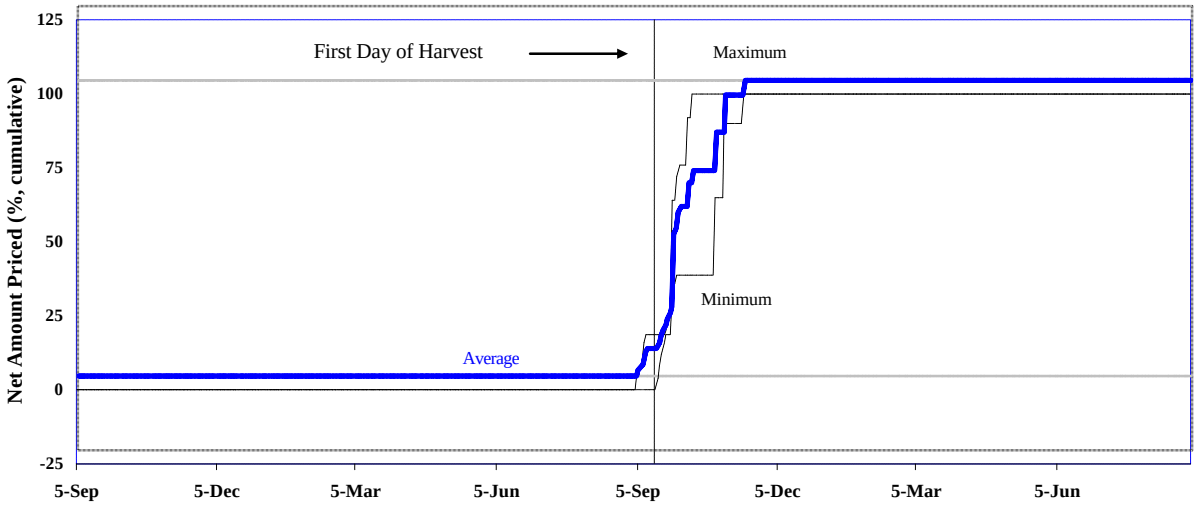


Figure 15.4 Corn LDP/MLG, Co-Mark, 2000-2001 Crop Years



Note: LDP stands for loan deficiency payment and MLG stands for marketing loan gain.

Figure 16.1 Corn Marketing Profile, Freese-Notis, 2001 Crop Year

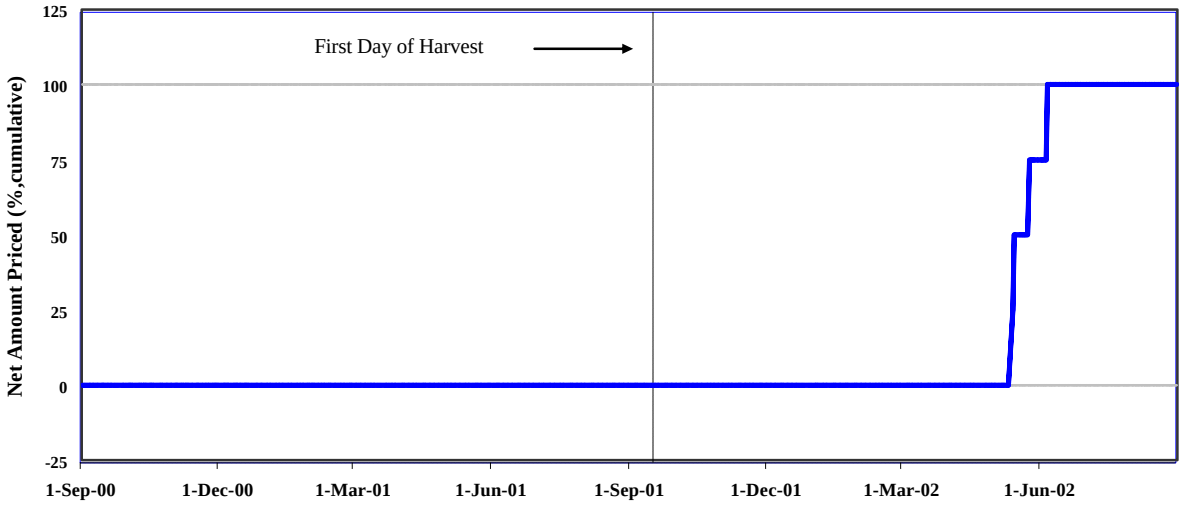
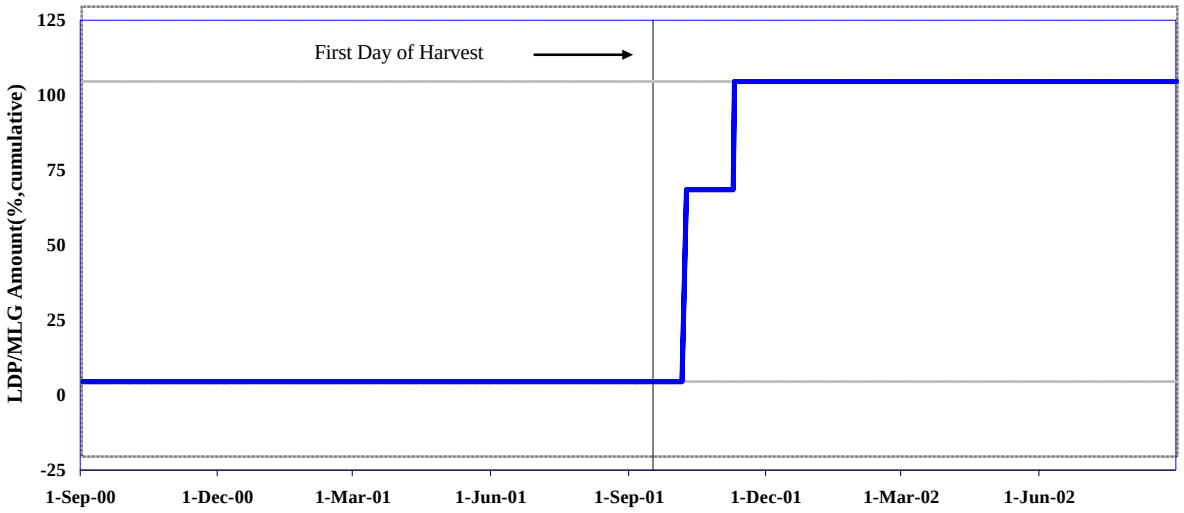


Figure 16.2 Corn LDP/MLG Profile, Freese-Notis, 2001 Crop Year



Note: LDP stands for loan deficiency payment and MLG stands for marketing loan gain.

Figure 16.3 Corn Marketing Profile, Freese-Notis, 1995-2001 Crop Years

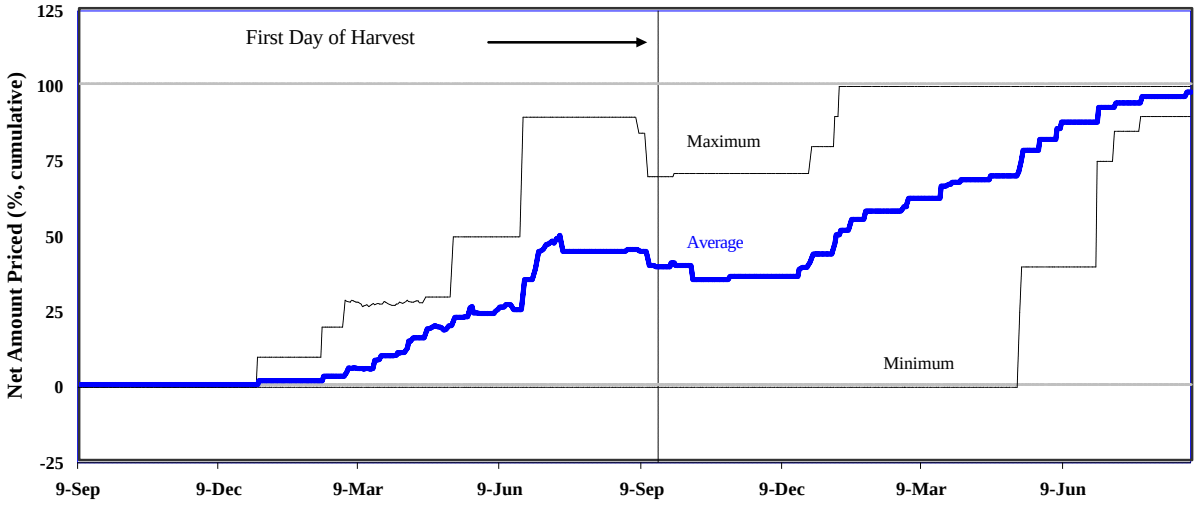
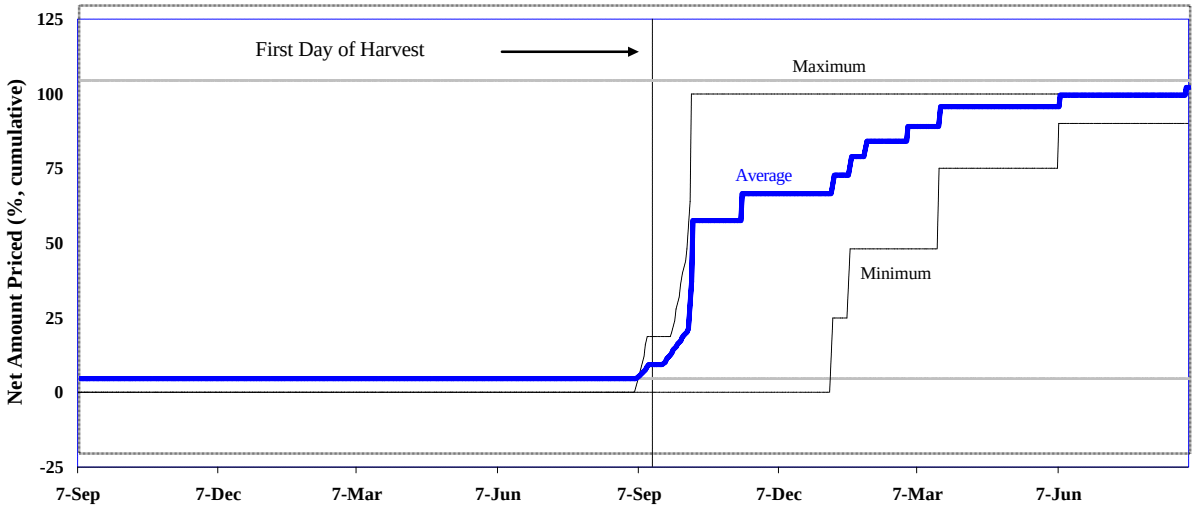


Figure 16.4 Corn LDP/MLG, Freese-Notis, 1998-2001 Crop Years



Note: LDP stands for loan deficiency payment and MLG stands for marketing loan gain.

Figure 17.1 Corn Marketing Profile, Grain Field Marketing, 2001 Crop Year

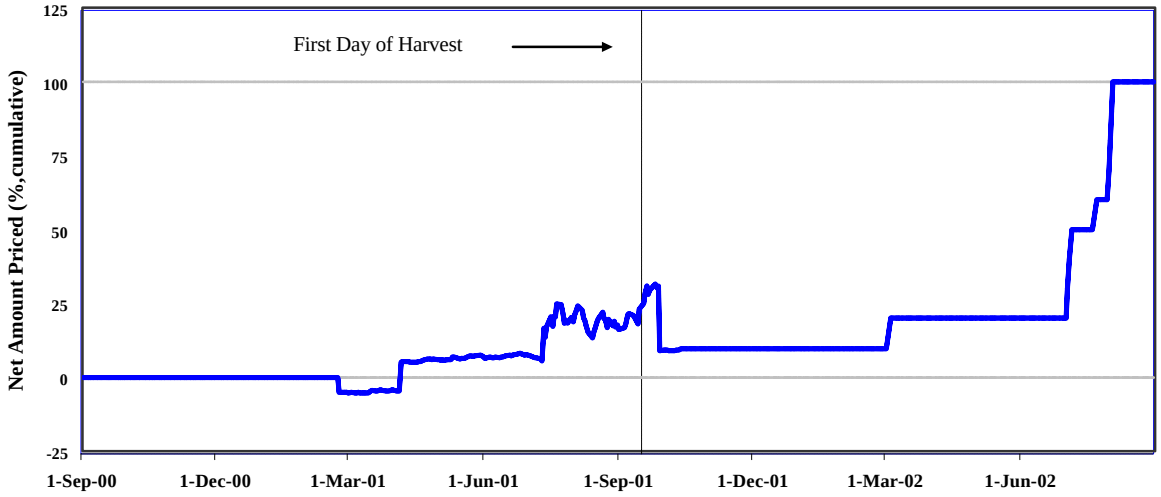
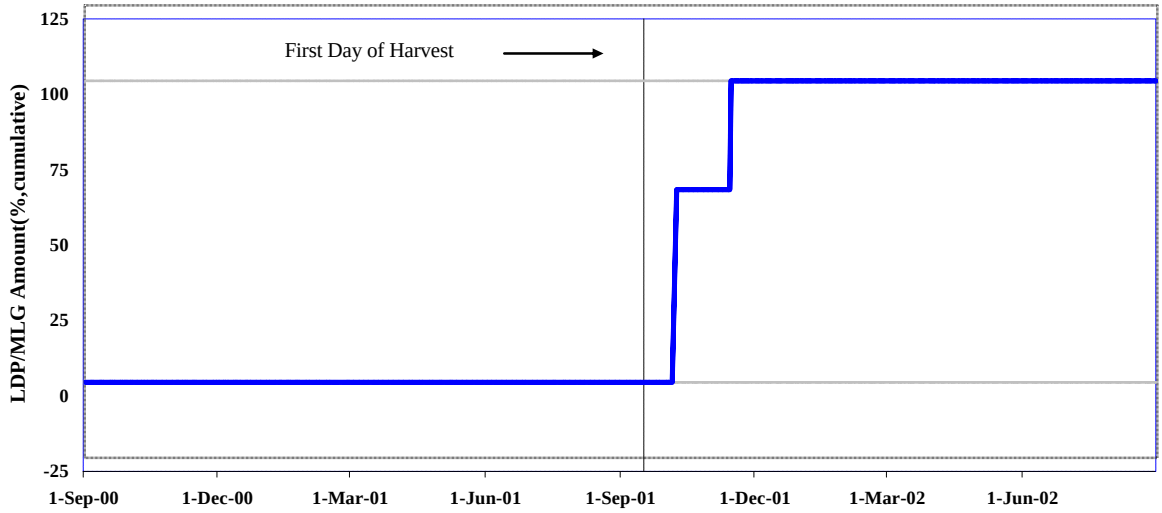


Figure 17.2 Corn LDP/MLG Profile, Grain Field Marketing, 2001 Crop Year



Note: LDP stands for loan deficiency payment and MLG stands for marketing loan gain.

Figure 18.1 Corn Marketing Profile, Grain Marketing Plus, 2001 Crop Year

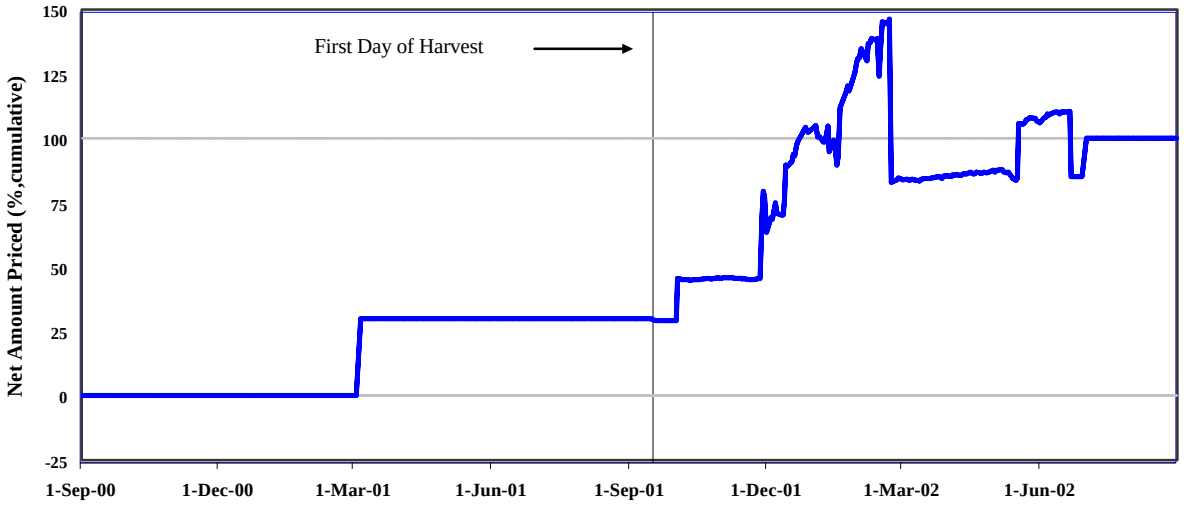
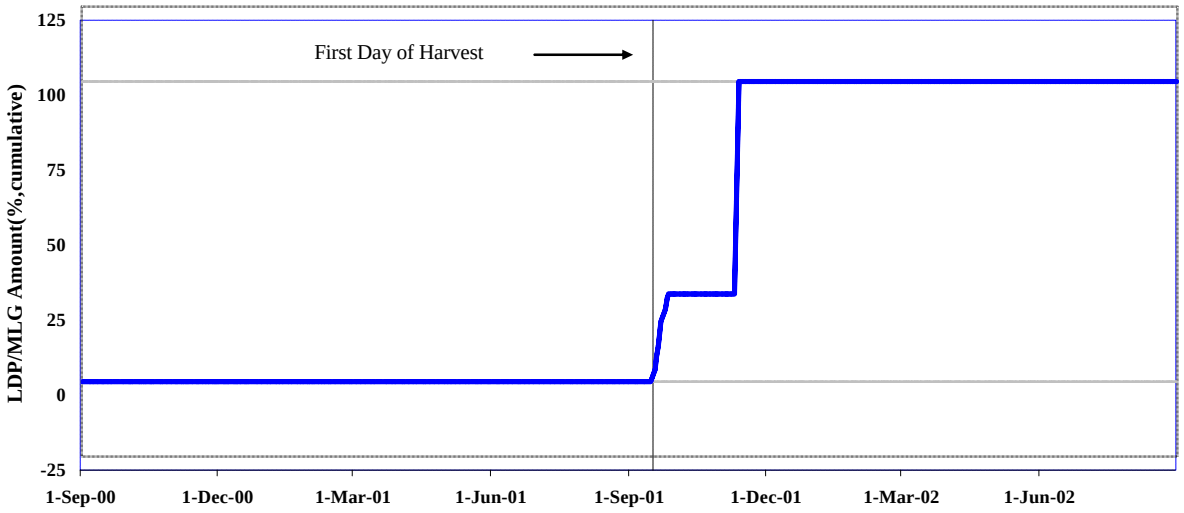


Figure 18.2 Corn LDP/MLG Profile, Grain Marketing Plus, 2001 Crop Year



Note: LDP stands for loan deficiency payment and MLG stands for marketing loan gain.

Figure 18.3 Corn Marketing Profile, Grain Marketing Plus, 2000-2001 Crop Years

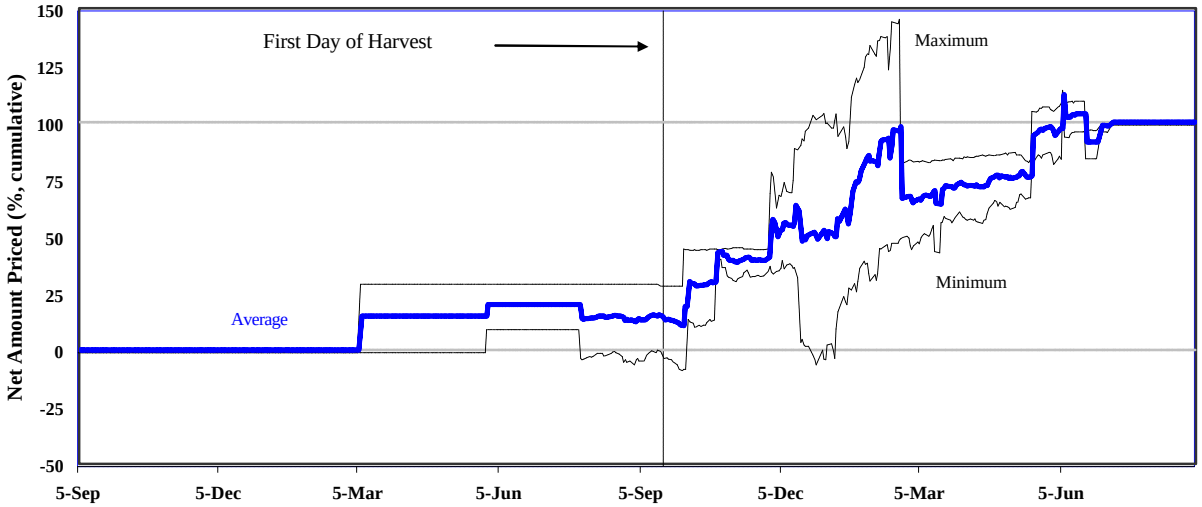
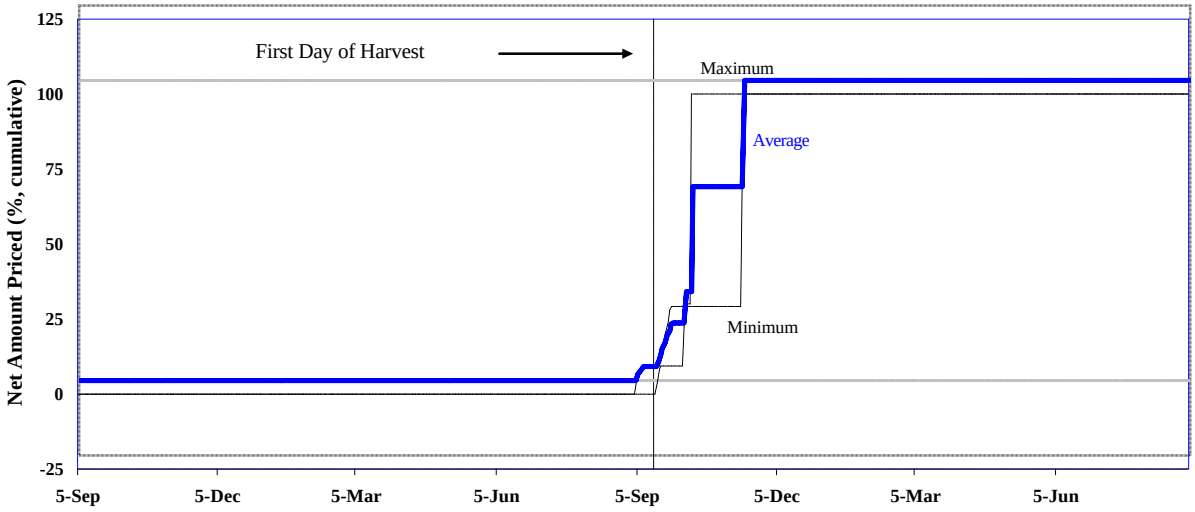


Figure 18.4 Corn LDP/MLG, Grain Marketing Plus, 2000-2001 Crop Years



Note: LDP stands for loan deficiency payment and MLG stands for marketing loan gain.

Figure 19.1 Corn Marketing Profile, Northstar Commodity, 2001 Crop Year

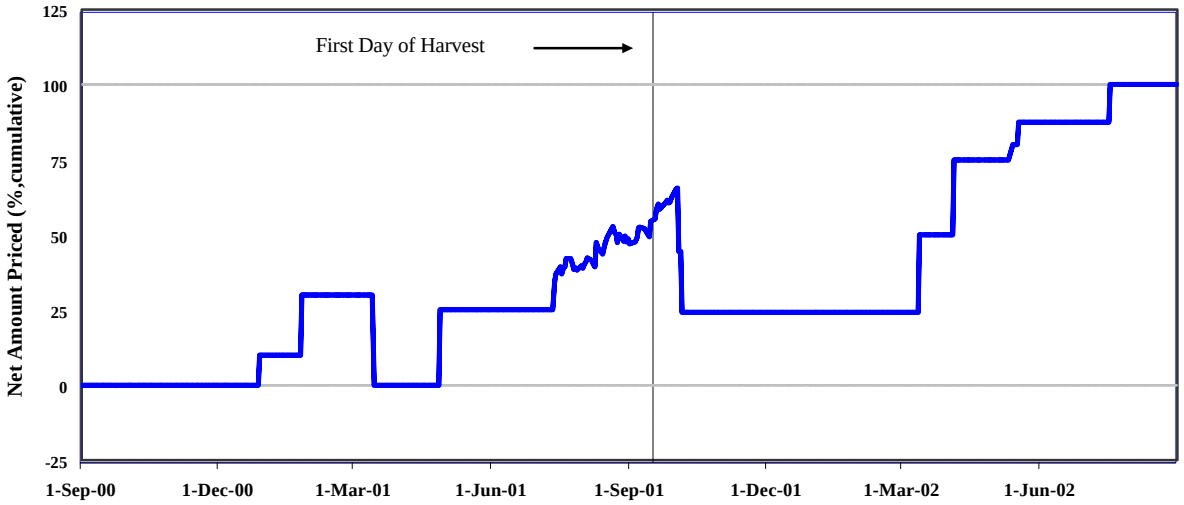
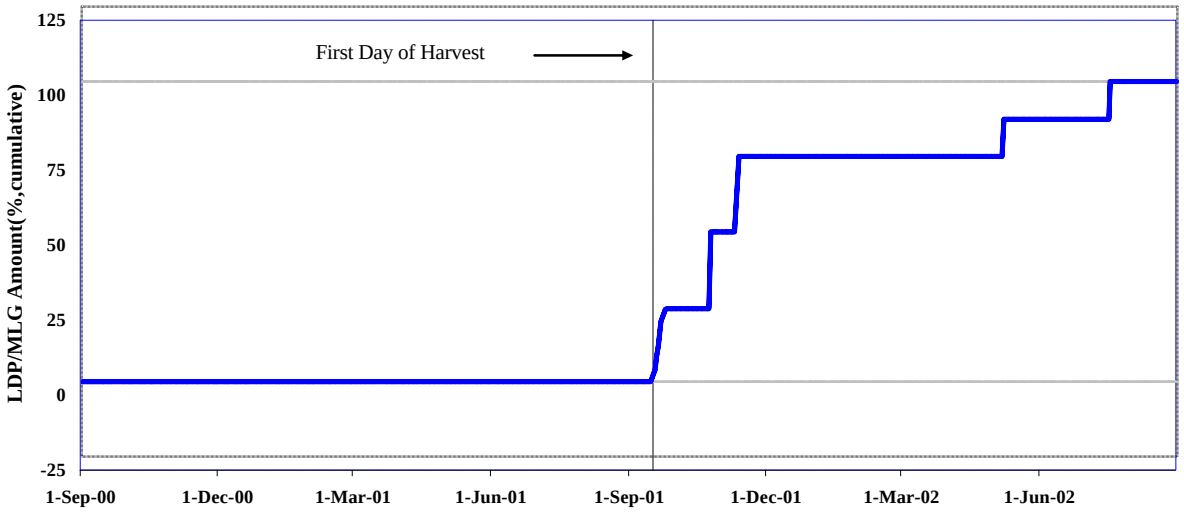


Figure 19.2 Corn LDP/MLG Profile, Northstar Commodity, 2001 Crop Year



Note: LDP stands for loan deficiency payment and MLG stands for marketing loan gain.

Figure 20.1 Corn Marketing Profile, Pro Farmer (cash only), 2001 Crop Year

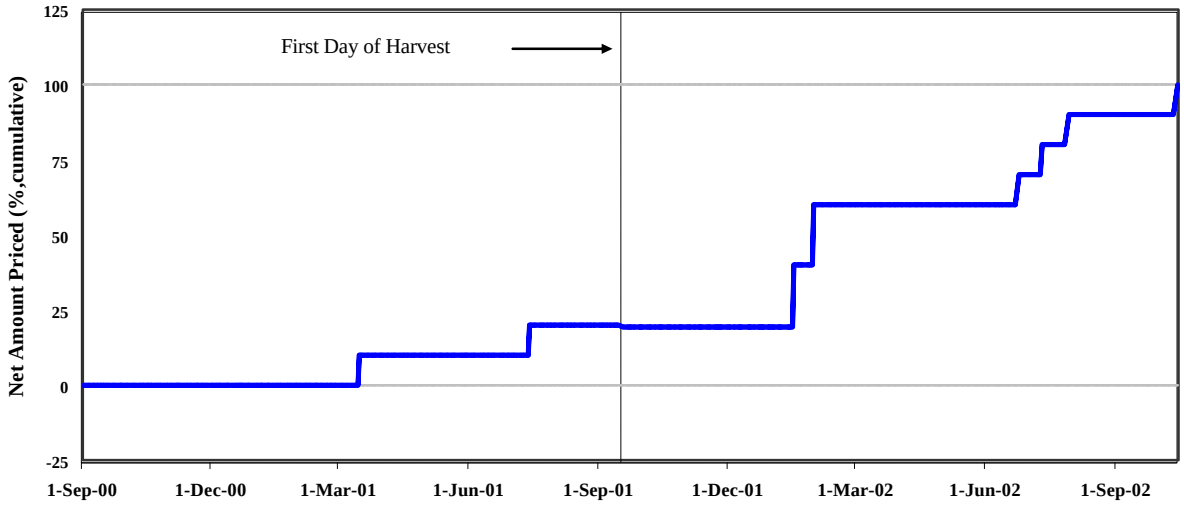
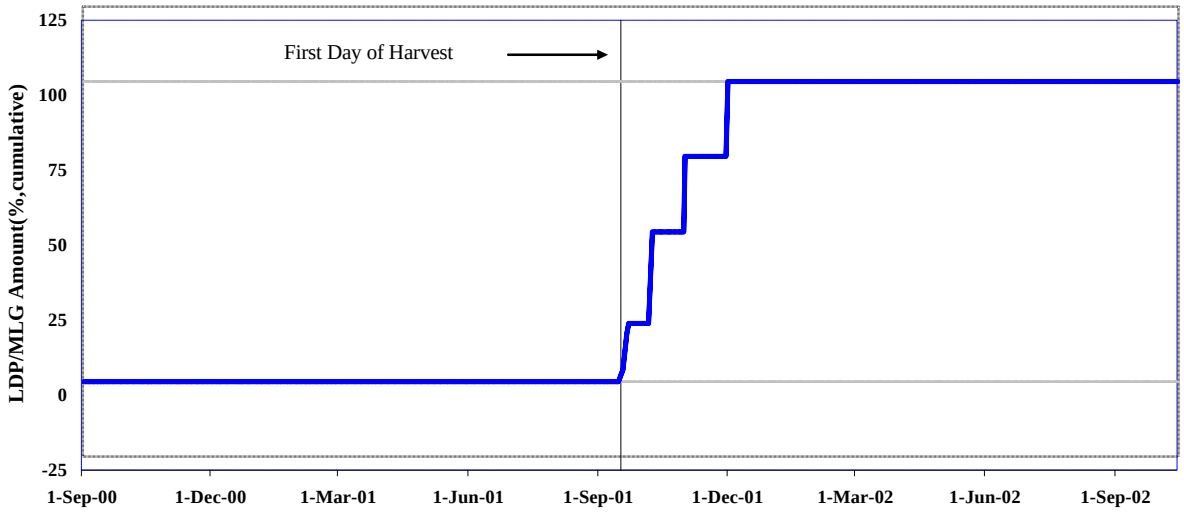


Figure 20.2 Corn LDP/MLG Profile, Pro Farmer (cash only), 2001 Crop Year



Note: LDP stands for loan deficiency payment and MLG stands for marketing loan gain.

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Figure 20.3 Corn Marketing Profile, Pro Farmer (cash only), 1995-2001 Crop Years

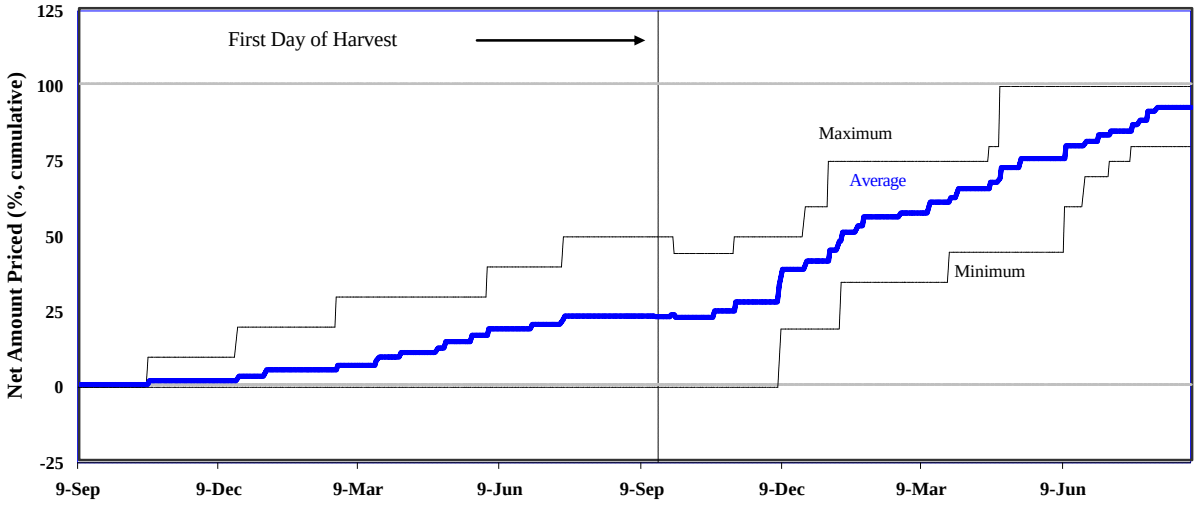
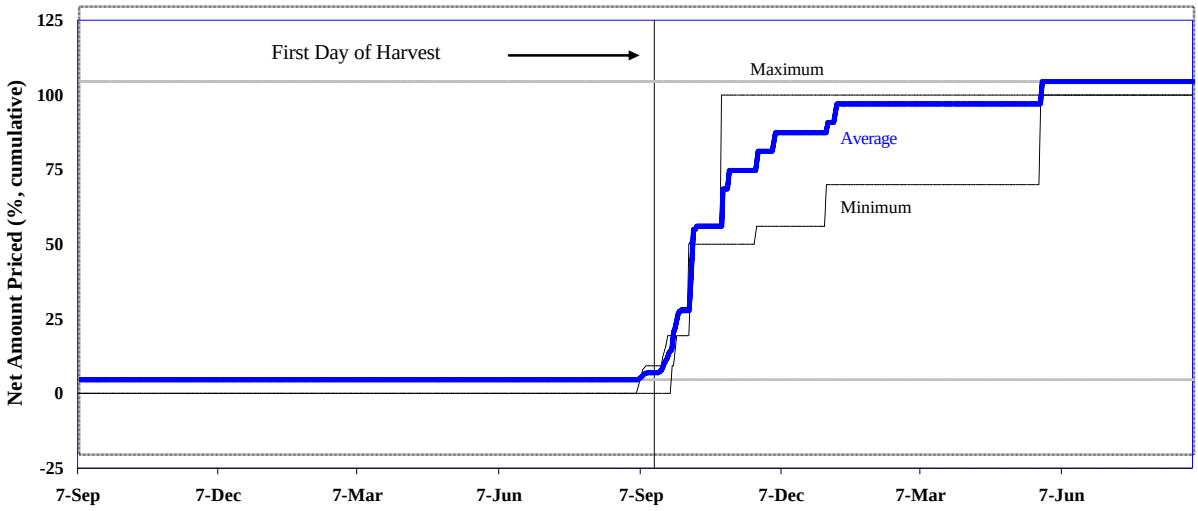


Figure 20.4 Corn LDP/MLG, Pro Farmer (cash only), 1998-2001 Crop Years



Note: LDP stands for loan deficiency payment and MLG stands for marketing loan gain.

Figure 21.1 Corn Marketing Profile, Pro Farmer (hedge), 2001 Crop Year

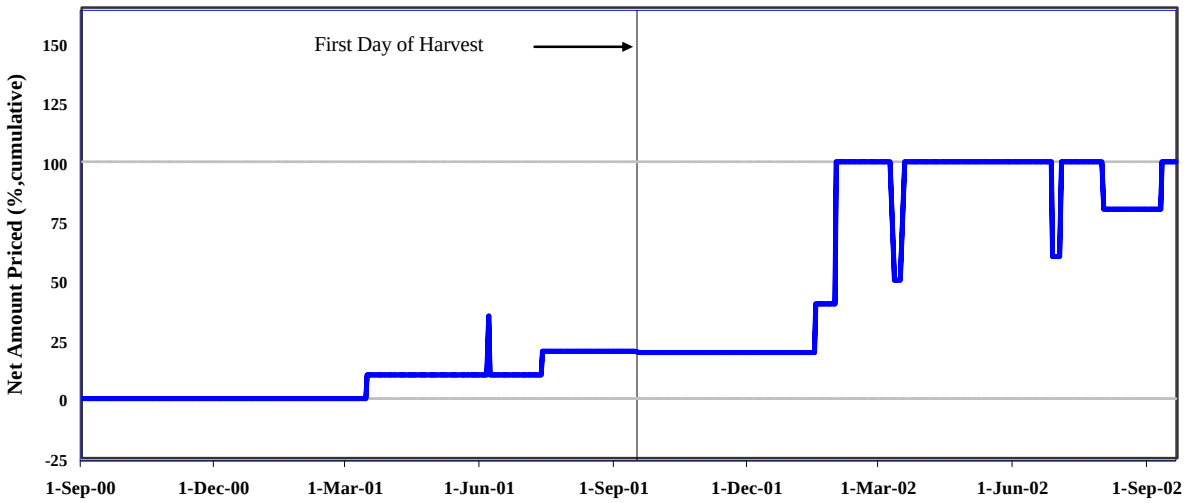
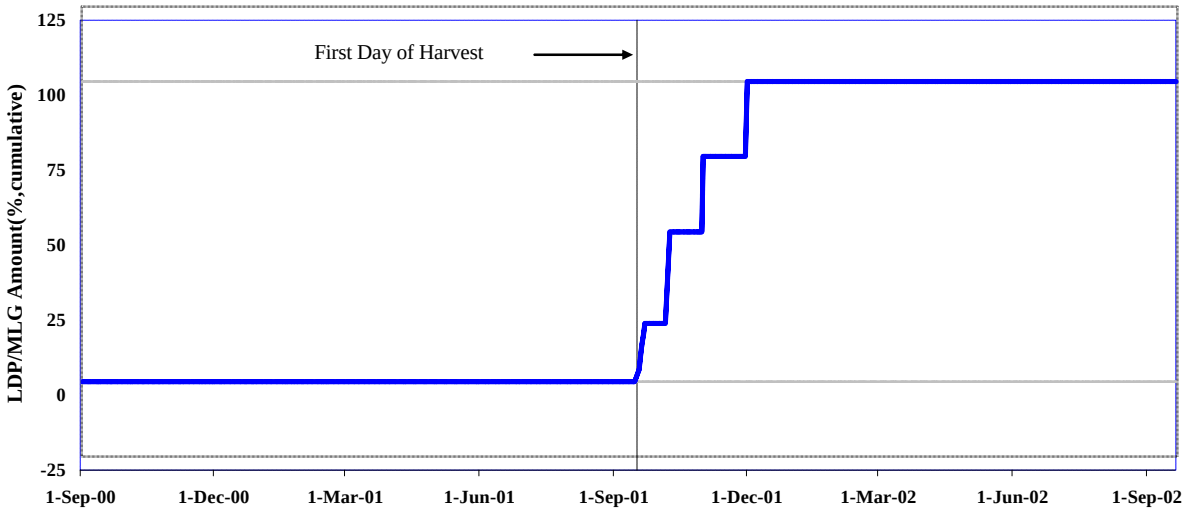


Figure 21.2 Corn LDP/MLG Profile, Pro Farmer (hedge), 2001 Crop Year



Note: LDP stands for loan deficiency payment and MLG stands for marketing loan gain.

Figure 21.3 Corn Marketing Profile, Pro Farmer (hedge), 1995-2001 Crop Years

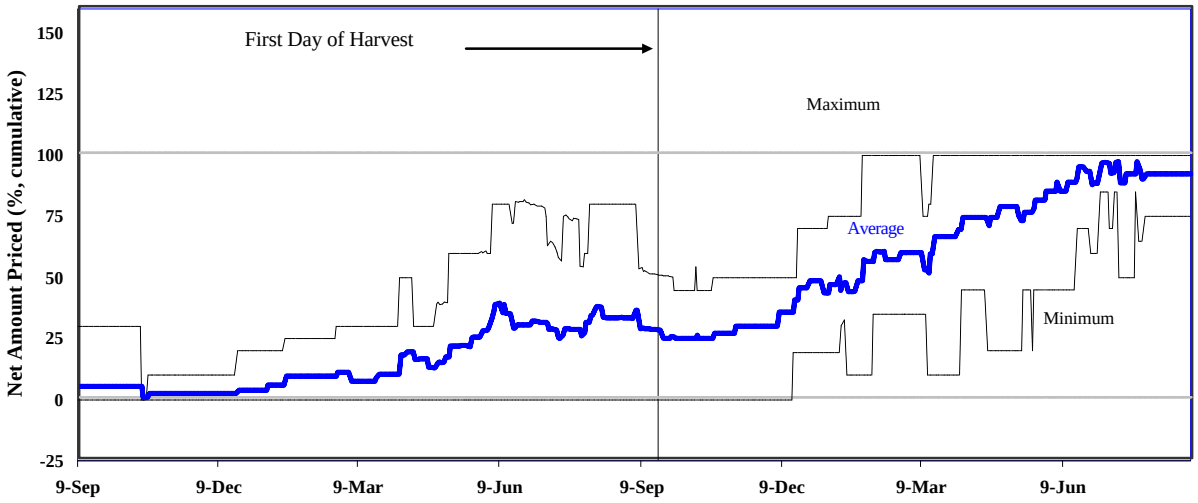
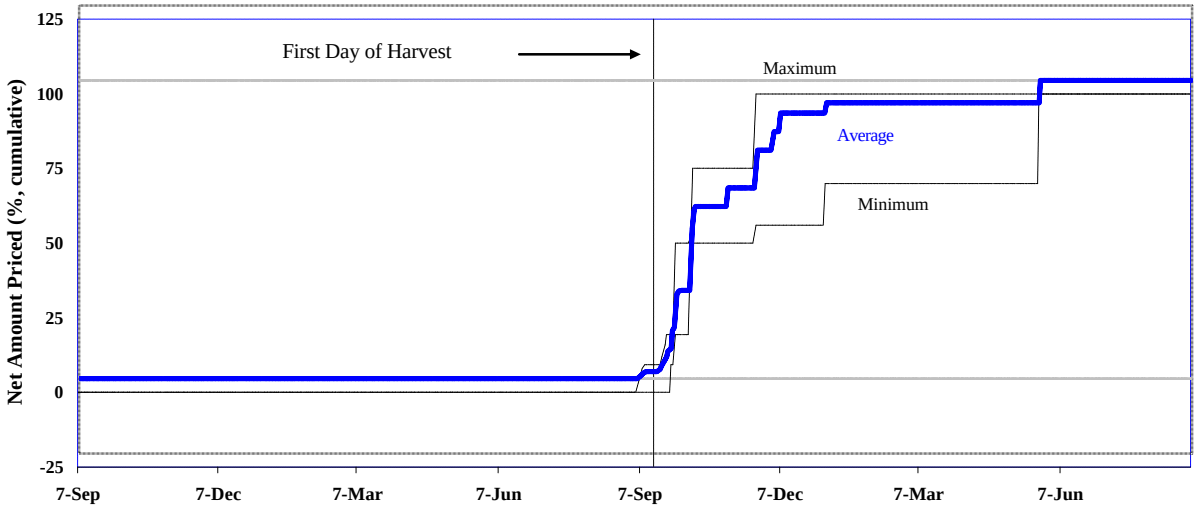


Figure 21.4 Corn LDP/MLG, Pro Farmer (hedge), 1998-2001 Crop Years



Note: LDP stands for loan deficiency payment and MLG stands for marketing loan gain.

Figure 22.1 Corn Marketing Profile, Progressive Ag, 2001 Crop Year

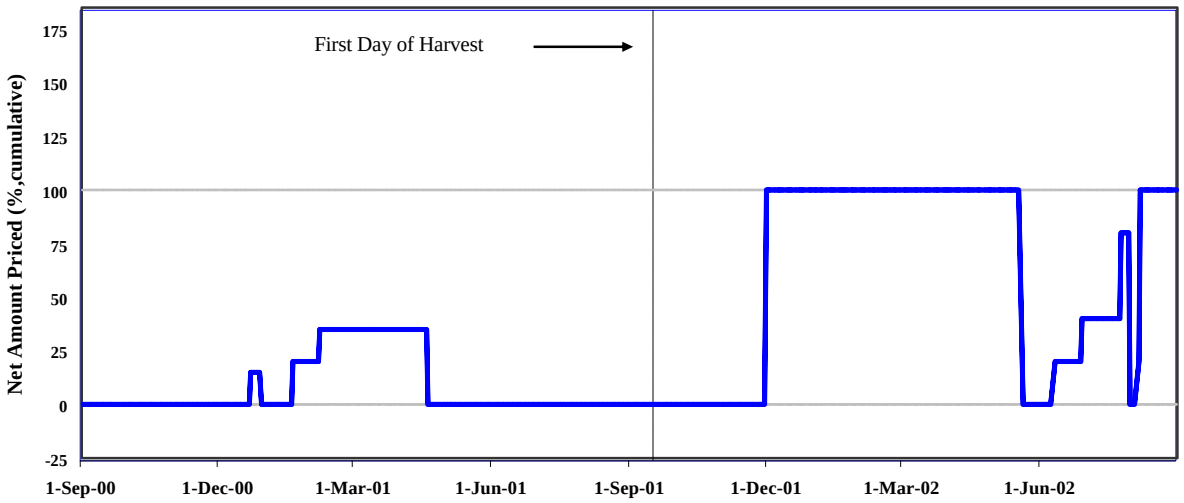
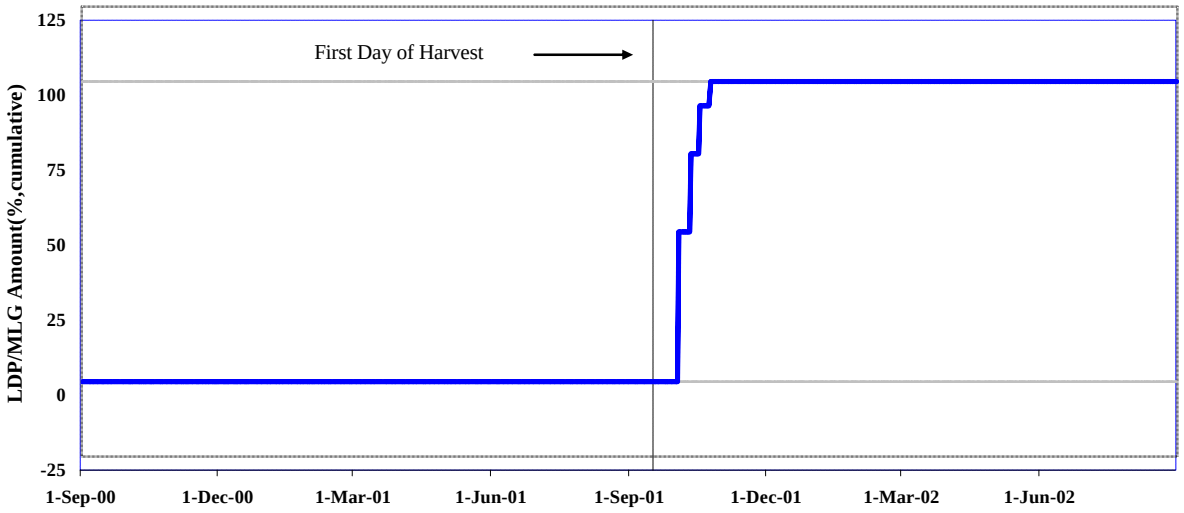


Figure 22.2 Corn LDP/MLG Profile, Progressive Ag, 2001 Crop Year



Note: LDP stands for loan deficiency payment and MLG stands for marketing loan gain.

Figure 22.3 Corn Marketing Profile, Progressive Ag, 1996-2001 Crop Years

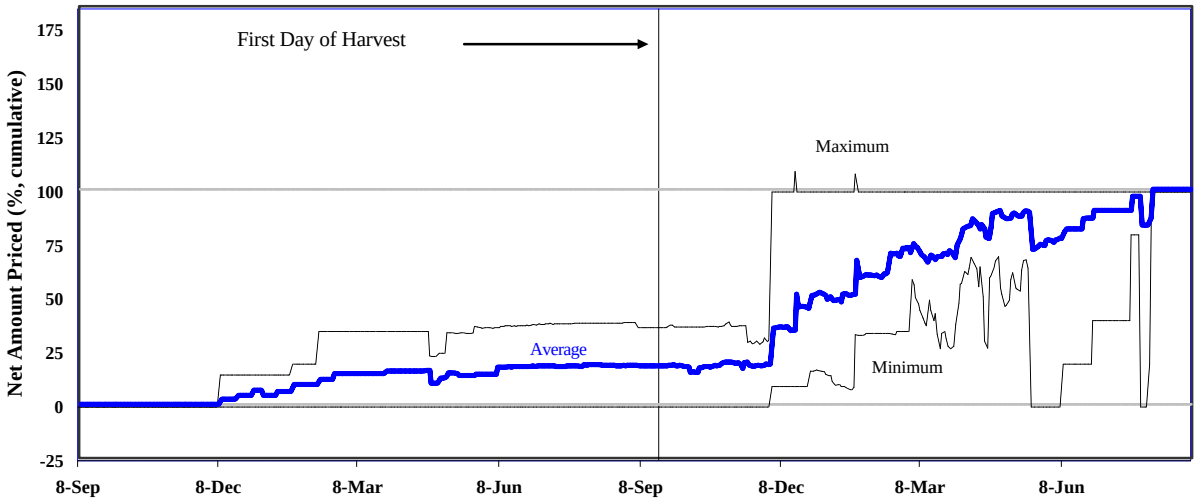
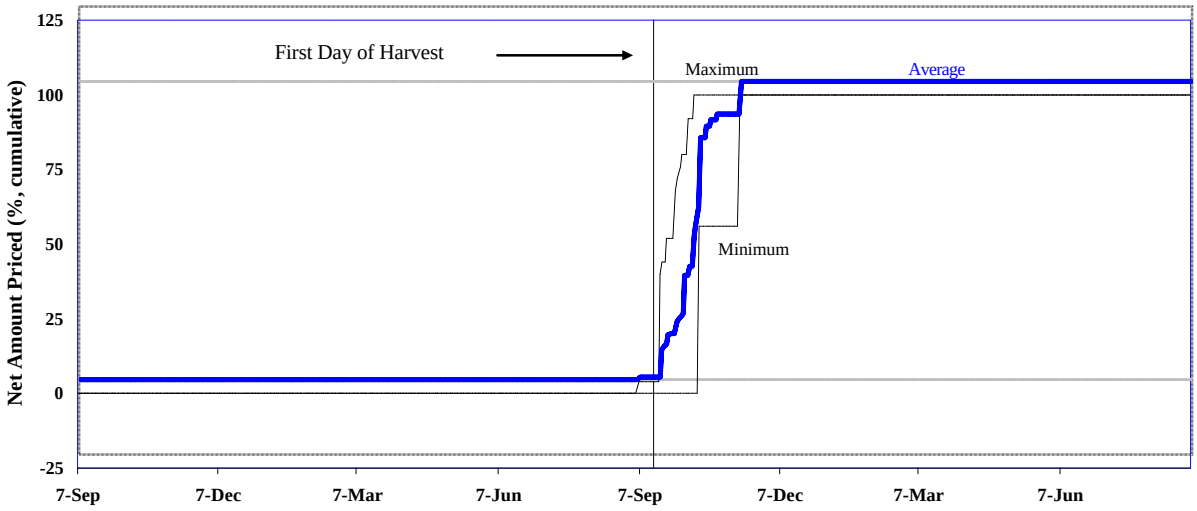


Figure 22.4 Corn LDP/MLG, Progressive Ag, 1998-2001 Crop Years



Note: LDP stands for loan deficiency payment and MLG stands for marketing loan gain.

Figure 23.1 Corn Marketing Profile, RMG (cash only), 2001 Crop Year

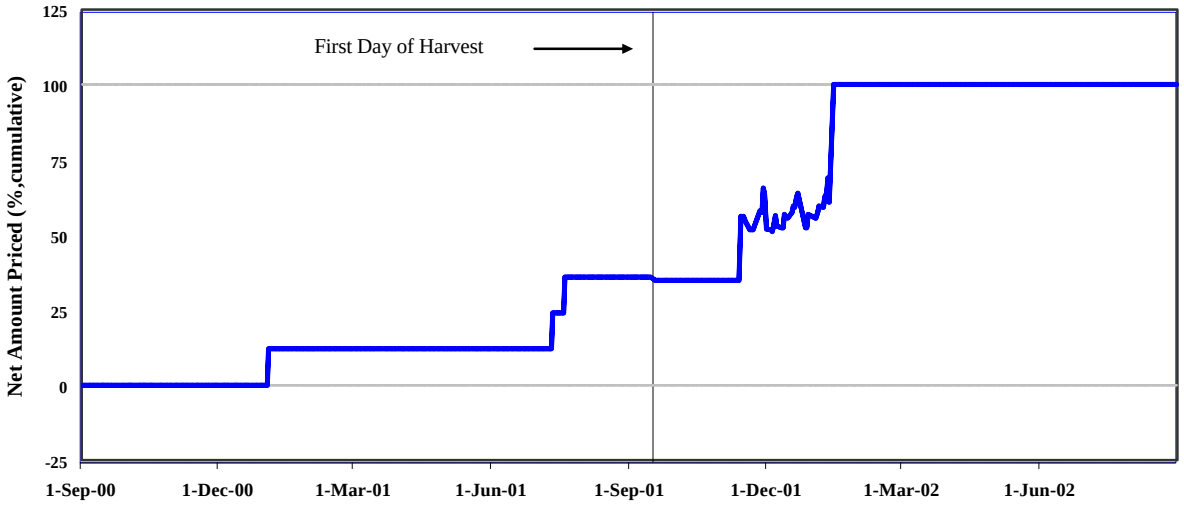
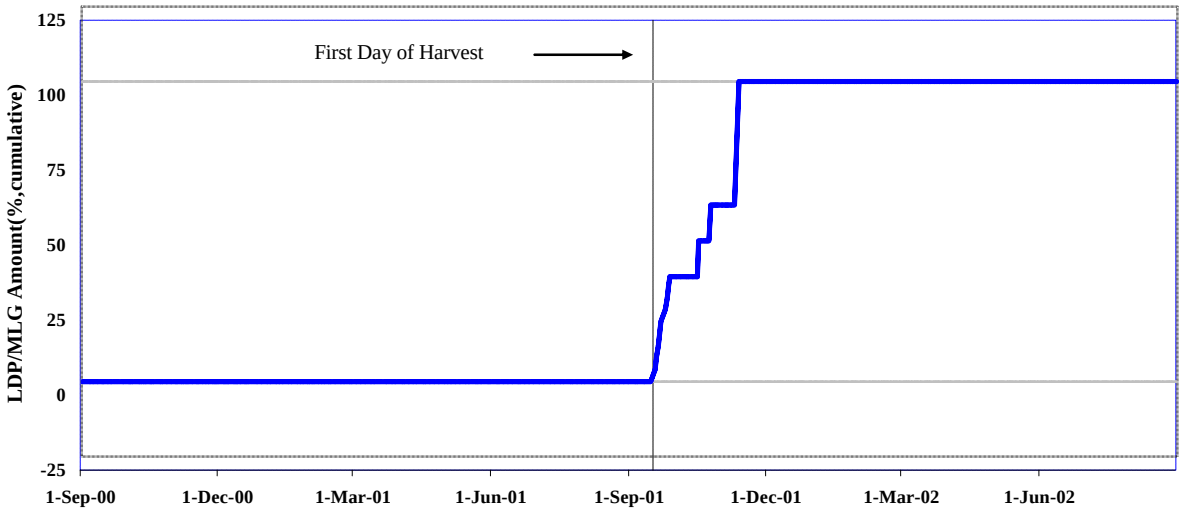


Figure 23.2 Corn LDP/MLG Profile, RMG (cash only), 2001 Crop Year



Note: LDP stands for loan deficiency payment and MLG stands for marketing loan gain.

Figure 23.3 Corn Marketing Profile, RMG (cash only), 1999-2001 Crop Years

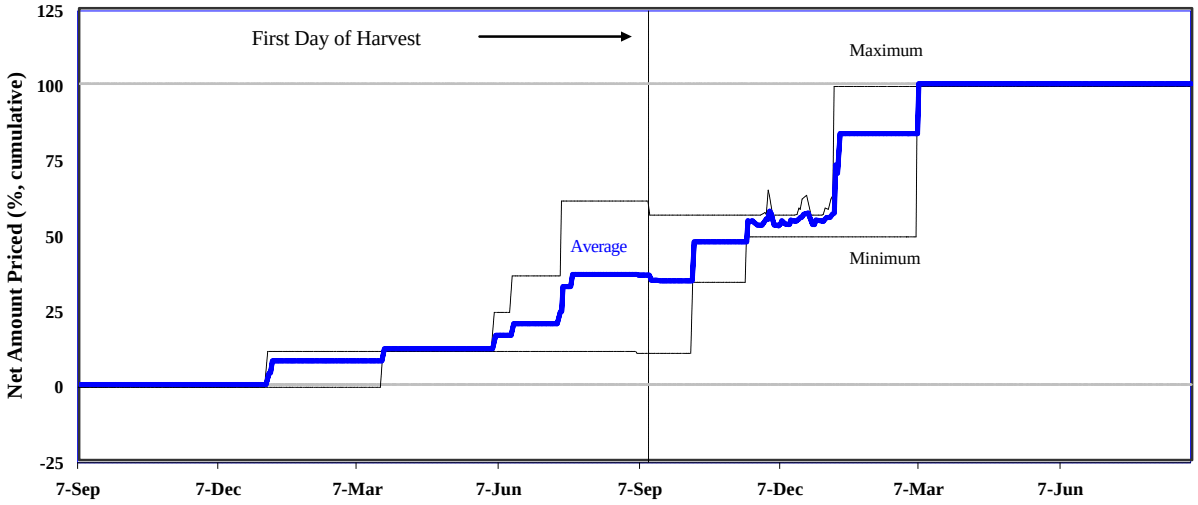
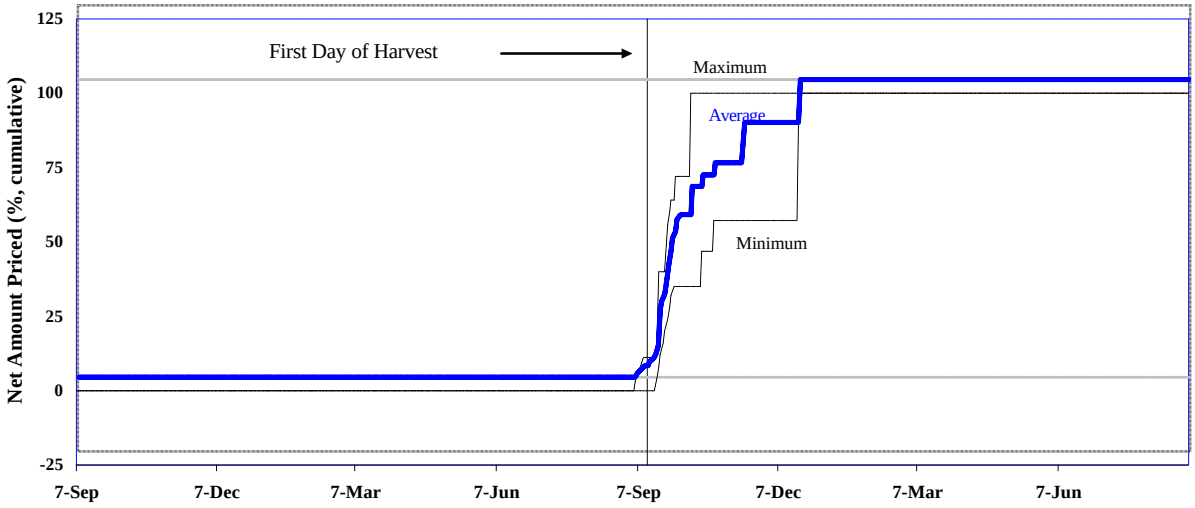


Figure 23.4 Corn LDP/MLG, RMG (cash only), 1999-2001 Crop Years



Note: LDP stands for loan deficiency payment and MLG stands for marketing loan gain.

Figure 24.1 Corn Marketing Profile, RMG (options & futures), 2001 Crop Year

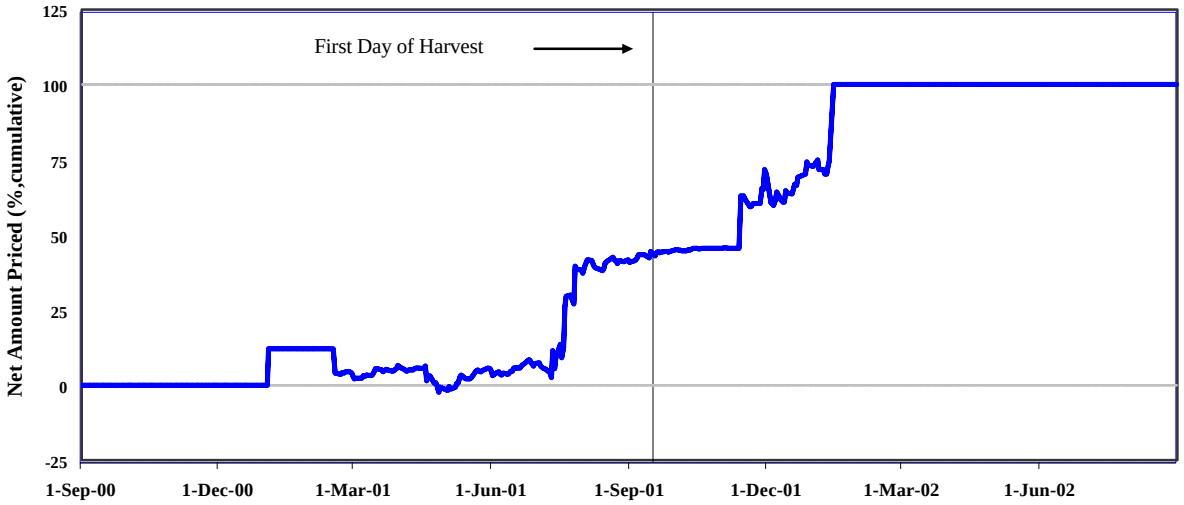
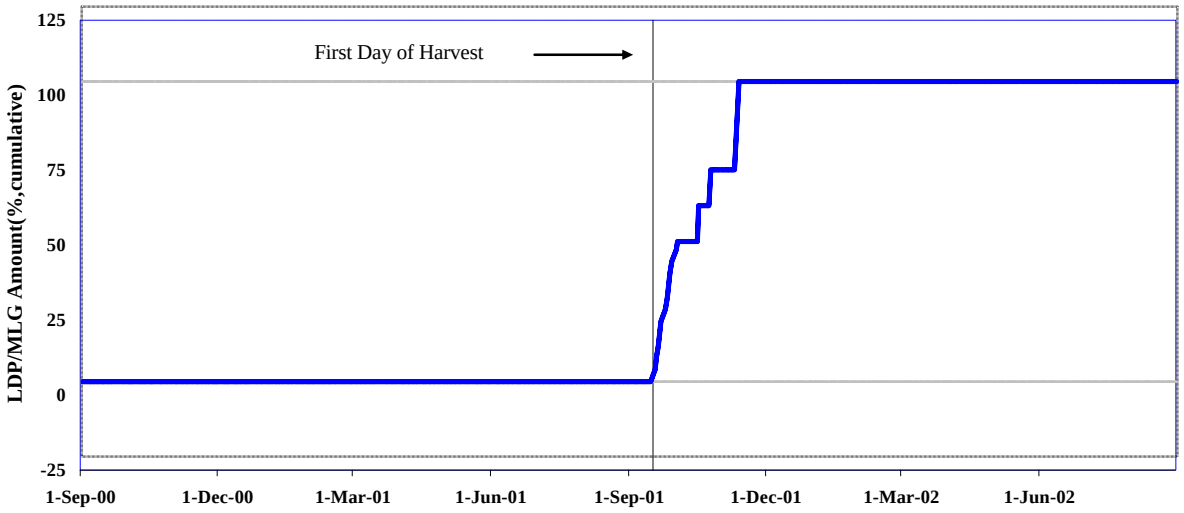


Figure 24.2 Corn LDP/MLG Profile, RMG (options & futures), 2001 Crop Year



Note: LDP stands for loan deficiency payment and MLG stands for marketing loan gain.

Figure 24.3 Corn Marketing Profile, RMG (futures & options), 1999-2001 Crop Years

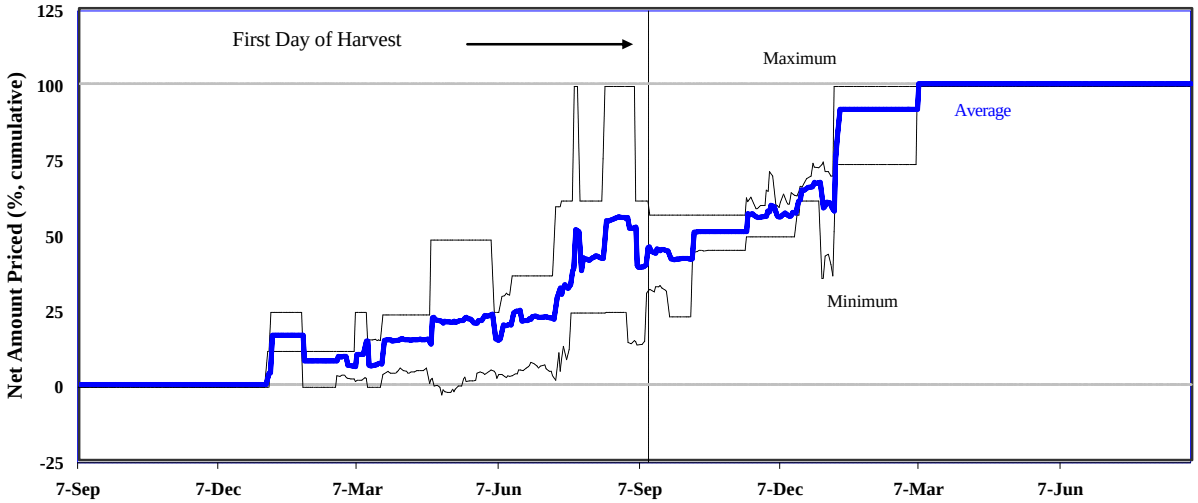
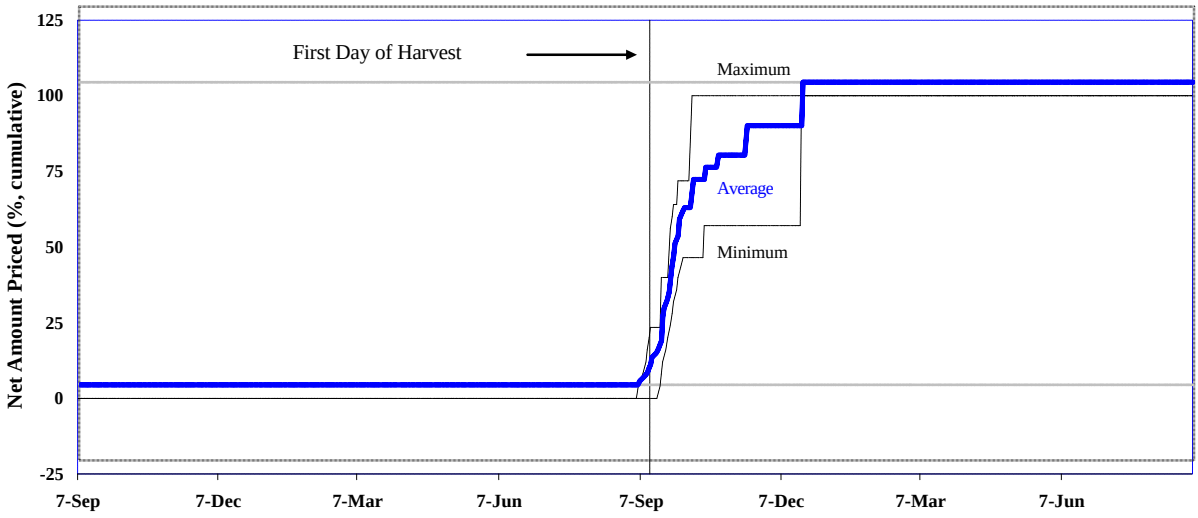


Figure 24.4 Corn LDP/MLG, RMG (futures & options), 1999-2001 Crop Years



Note: LDP stands for loan deficiency payment and MLG stands for marketing loan gain.

Figure 25.1 Corn Marketing Profile, RMG (options only), 2001 Crop Year

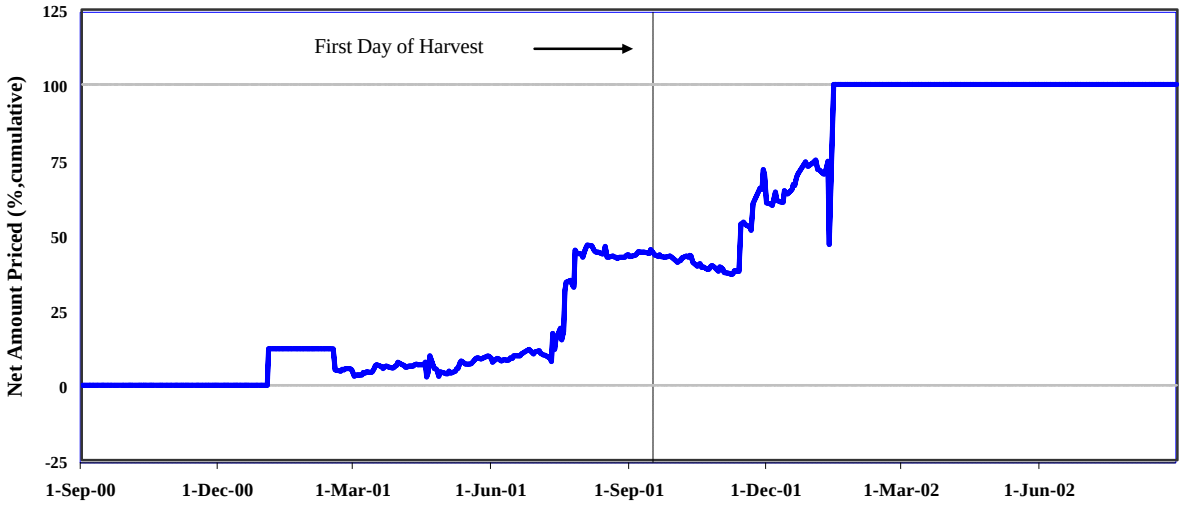
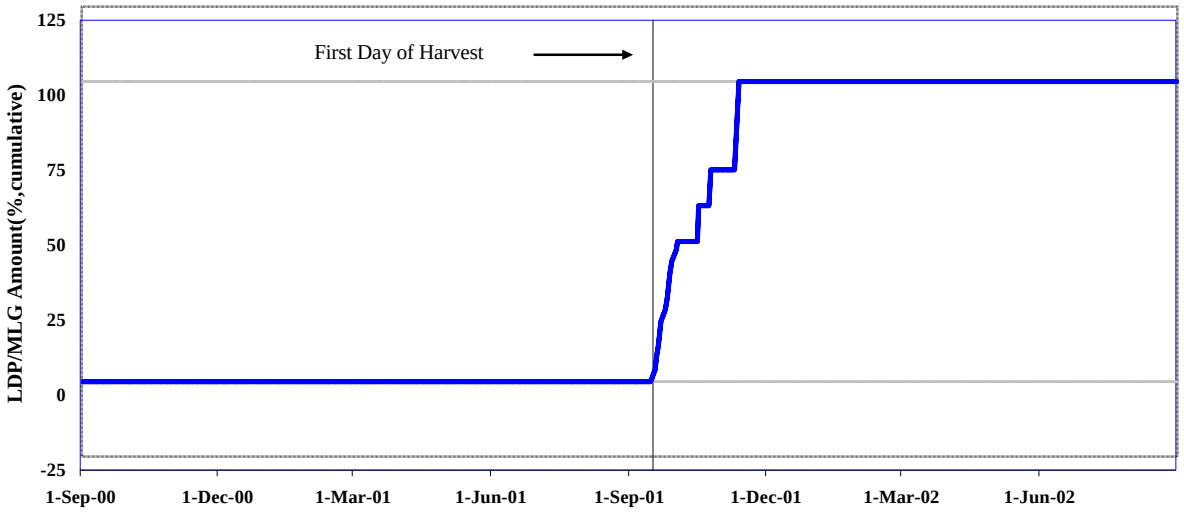


Figure 25.2 Corn LDP/MLG Profile, RMG (options only), 2001 Crop Year



Note: LDP stands for loan deficiency payment and MLG stands for marketing loan gain.

Figure 25.3 Corn Marketing Profile, RMG (options only), 1999-2001 Crop Years

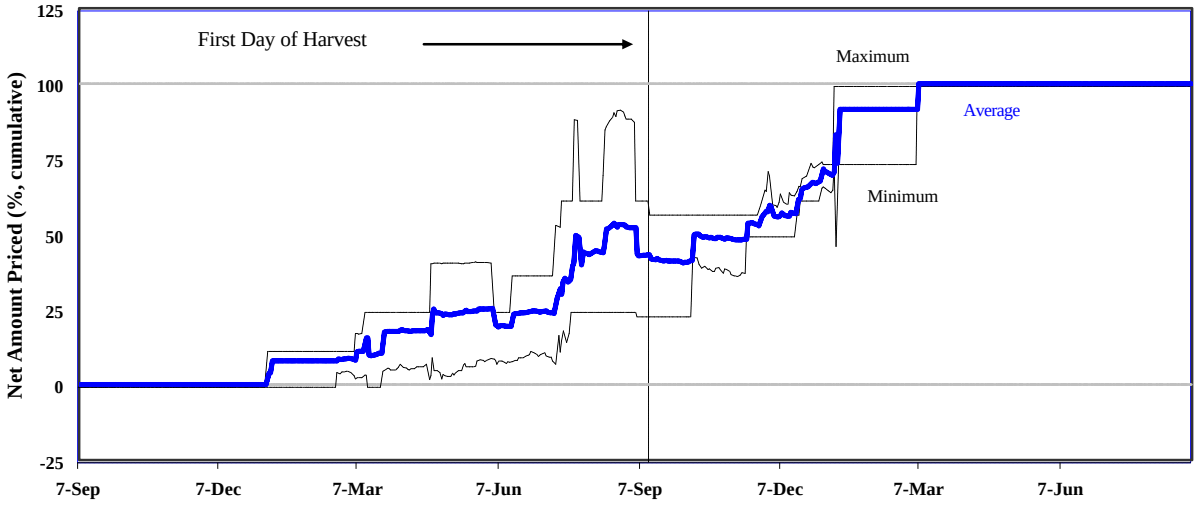
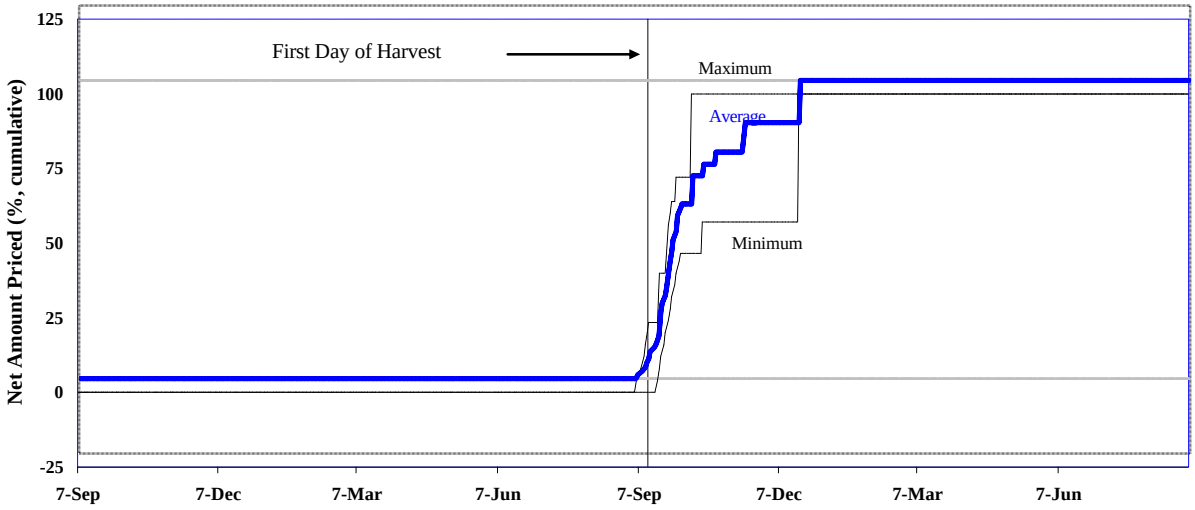


Figure 25.4 Corn LDP/MLG, RMG (options only), 1999-2001 Crop Years



Note: LDP stands for loan deficiency payment and MLG stands for marketing loan gain.

Figure 26.1 Corn Marketing Profile, Stewart-Peterson Advisory Reports, 2001 Crop Year

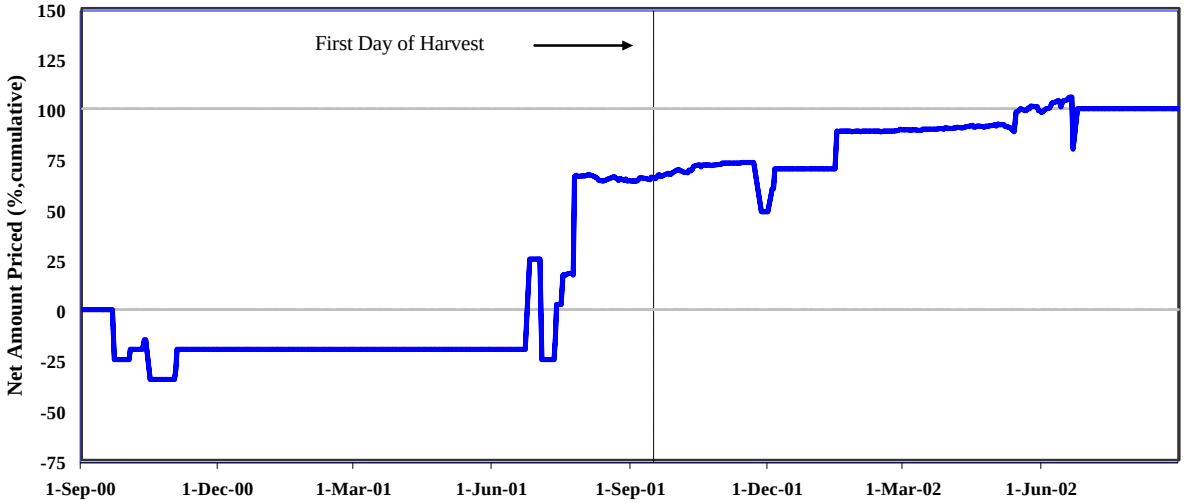
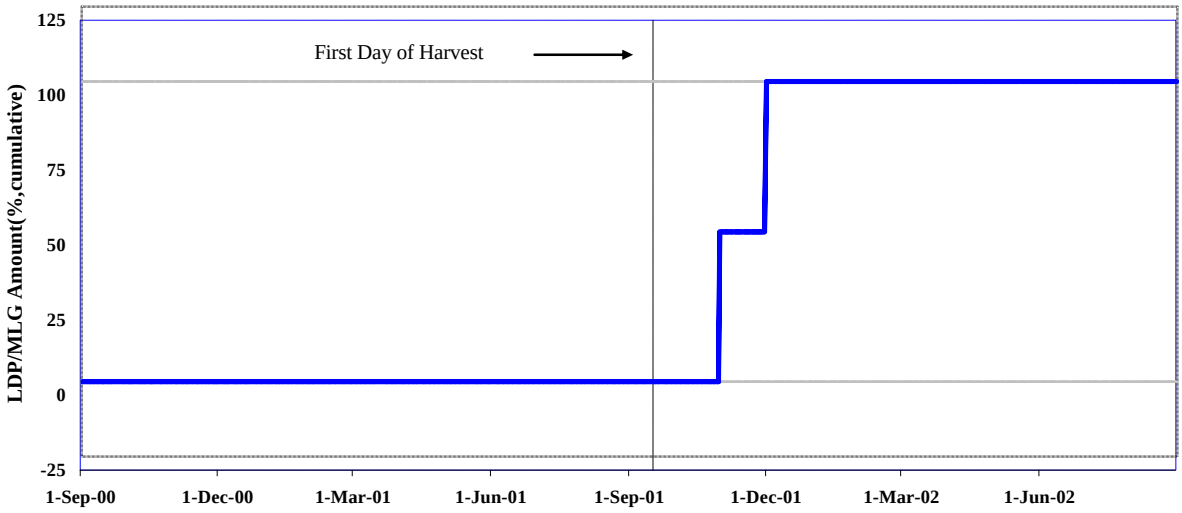


Figure 26.2 Corn LDP/MLG Profile, Stewart-Peterson Advisory Reports, 2001 Crop Year



Note: LDP stands for loan deficiency payment and MLG stands for marketing loan gain.

Figure 26.3 Corn Marketing Profile, Stewart-Peterson Advisory Reports, 1995-2001 Crop Years

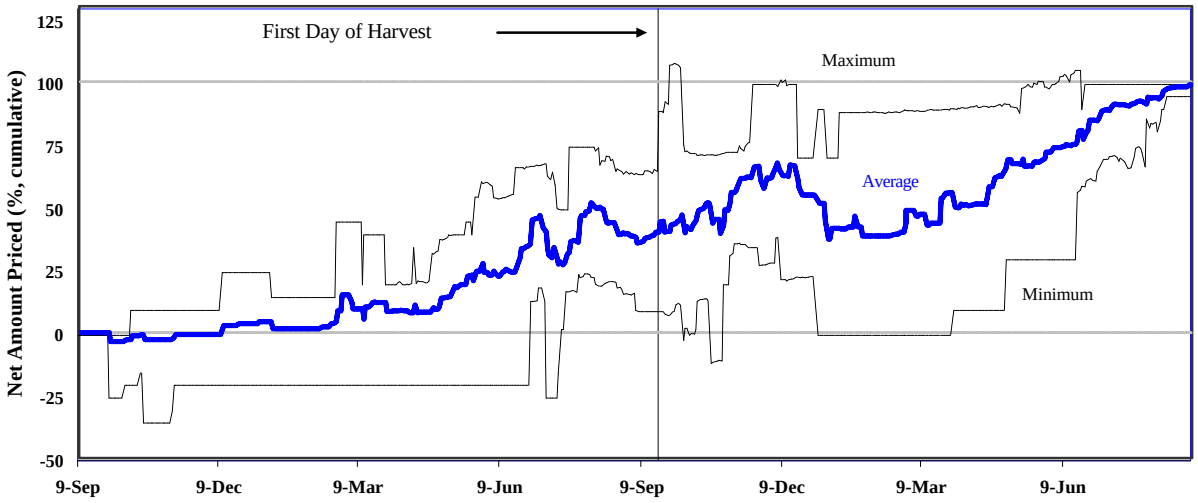
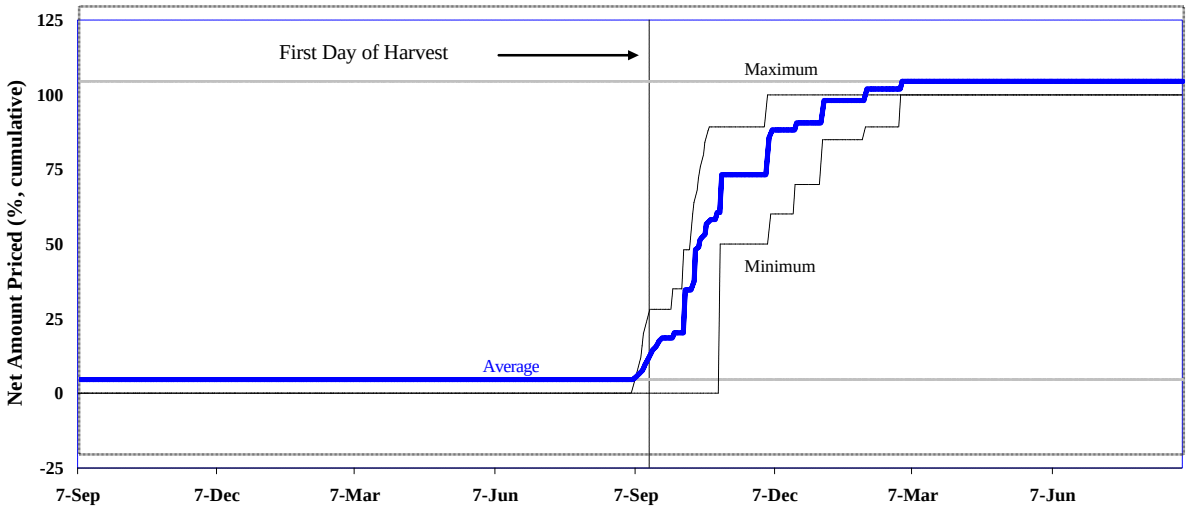


Figure 26.4 Corn LDP/MLG, Stewart-Peterson Advisory Reports, 1998-2001 Crop Years



Note: LDP stands for loan deficiency payment and MLG stands for marketing loan gain.

Figure 27.1 Corn Marketing Profile, Top Farmer Intelligence, 2001 Crop Year

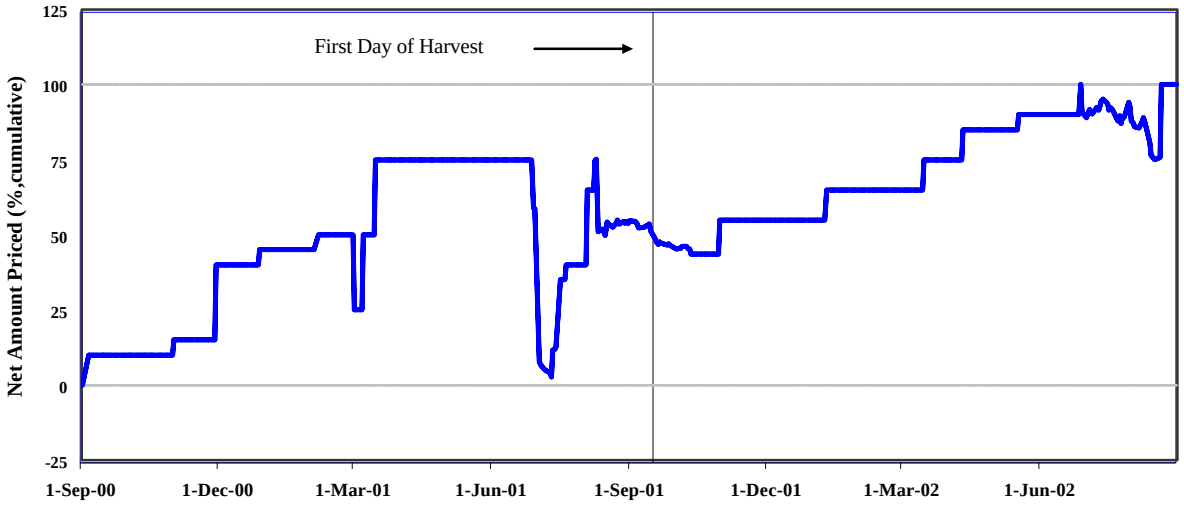
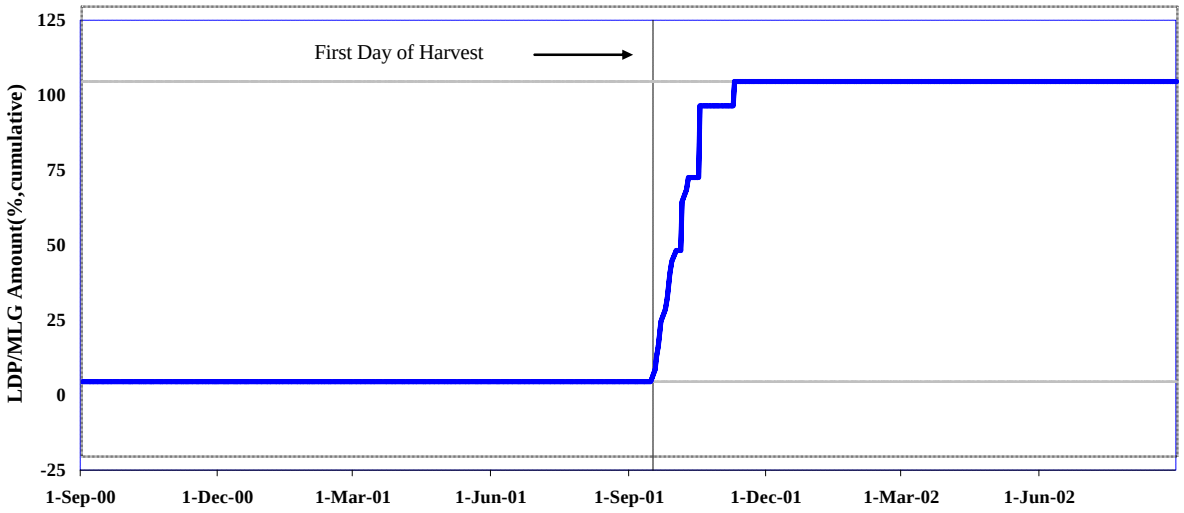


Figure 27.2 Corn LDP/MLG Profile, Top Farmer Intelligence, 2001 Crop Year



Note: LDP stands for loan deficiency payment and MLG stands for marketing loan gain.

Figure 27.3 Corn Marketing Profile, Top Farmer Intelligence, 1995-2001 Crop Years

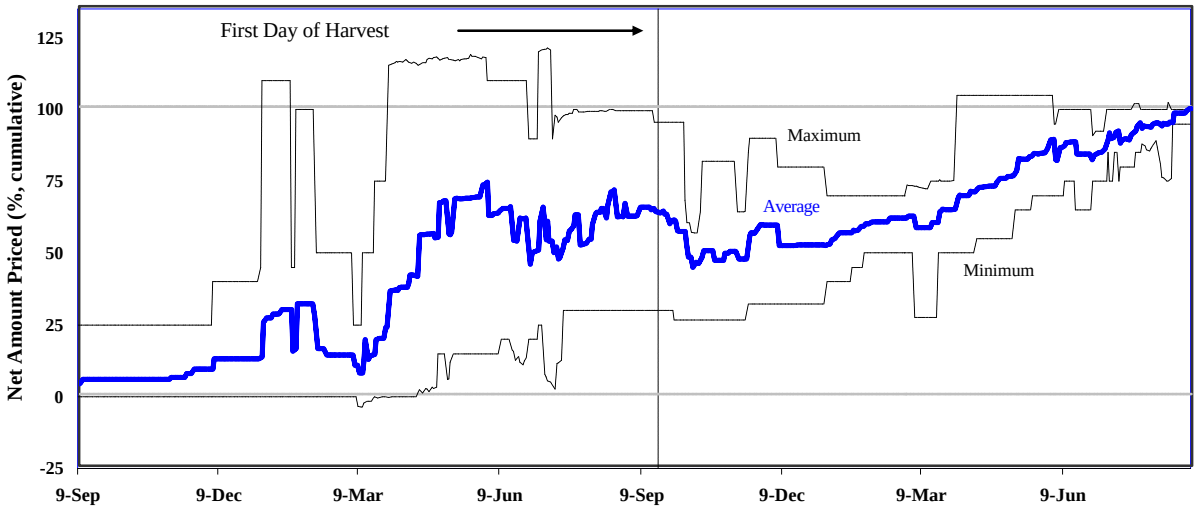
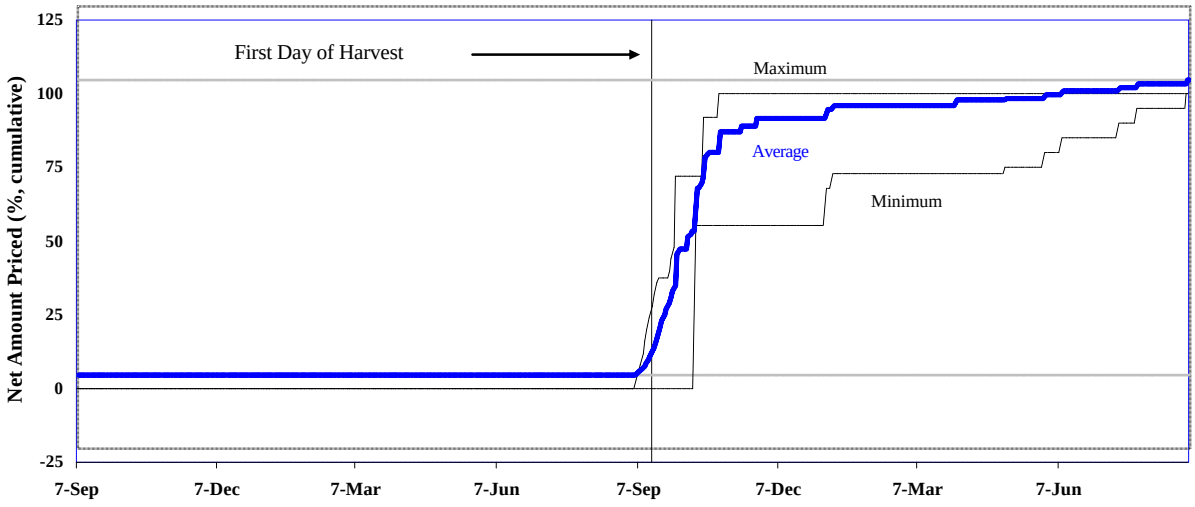


Figure 27.4 Corn LDP/MLG, Top Farmer Intelligence, 1998-2001 Crop Years



Note: LDP stands for loan deficiency payment and MLG stands for marketing loan gain.

Figure 28.1 Corn Marketing Profile, Utterback Marketing Services, 2001 Crop Year

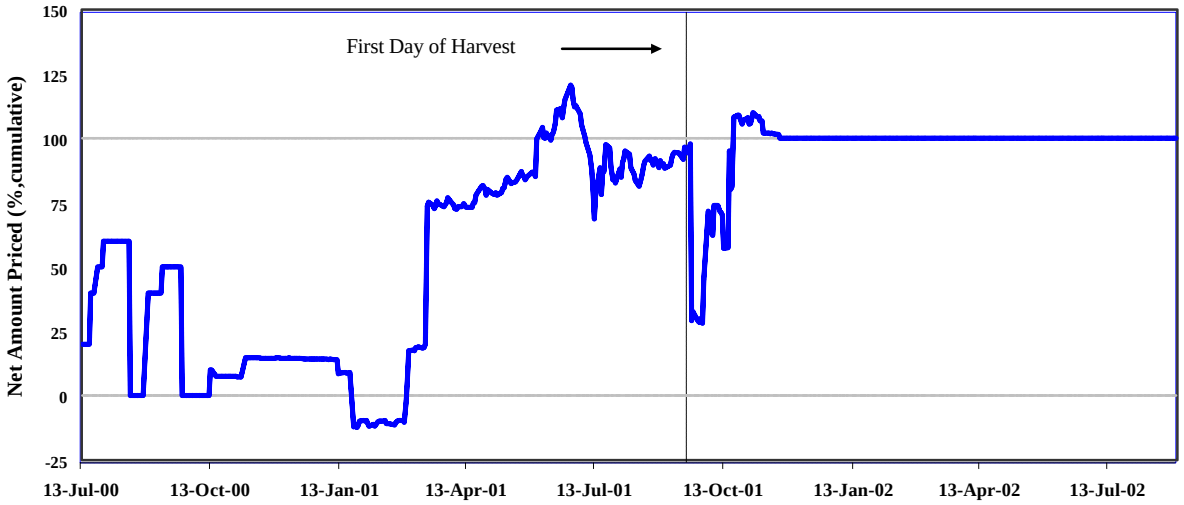
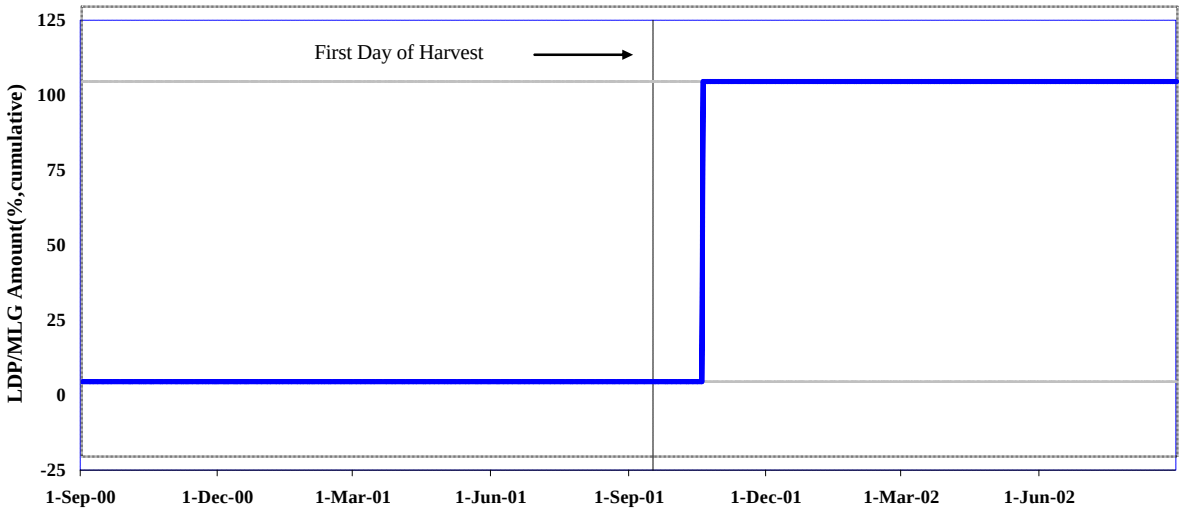


Figure 28.2 Corn LDP/MLG Profile, Utterback Marketing Services, 2001 Crop Year



Note: LDP stands for loan deficiency payment and MLG stands for marketing loan gain.

Figure 28.3 Corn Marketing Profile, Utterback Marketing Services, 1997-2001 Crop Years

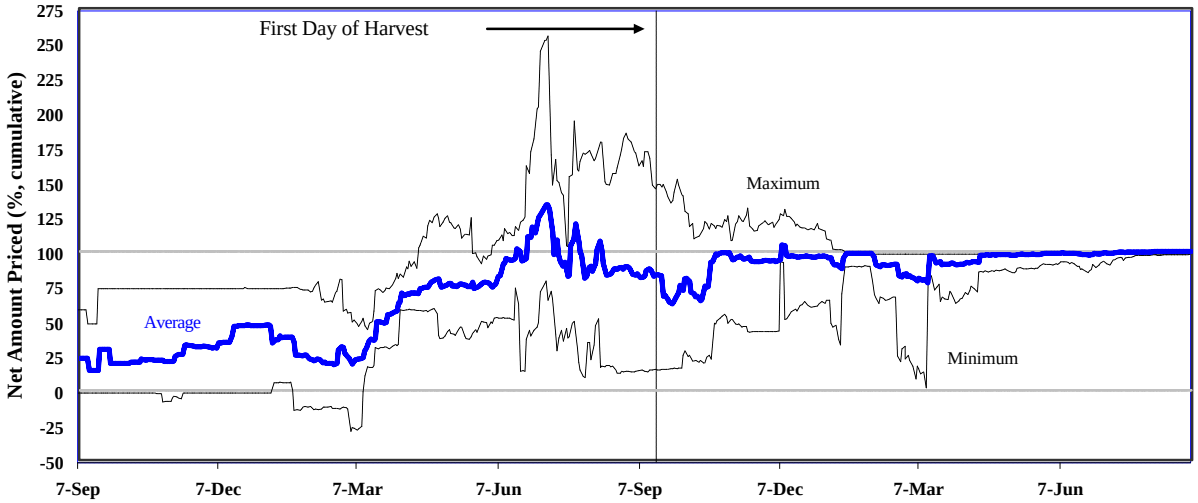
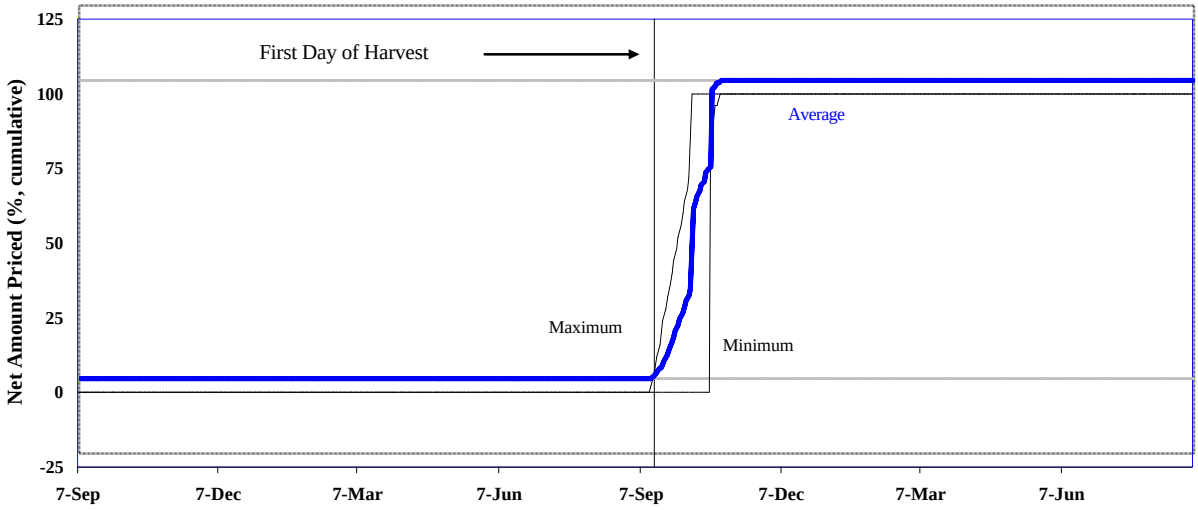


Figure 28.4 Corn LDP/MLG, Utterback Marketing Services, 1998-2001 Crop Years



Note: LDP stands for loan deficiency payment and MLG stands for marketing loan gain.

Figure 29.1 Corn Marketing Profile, All Programs, 1995 Crop Year

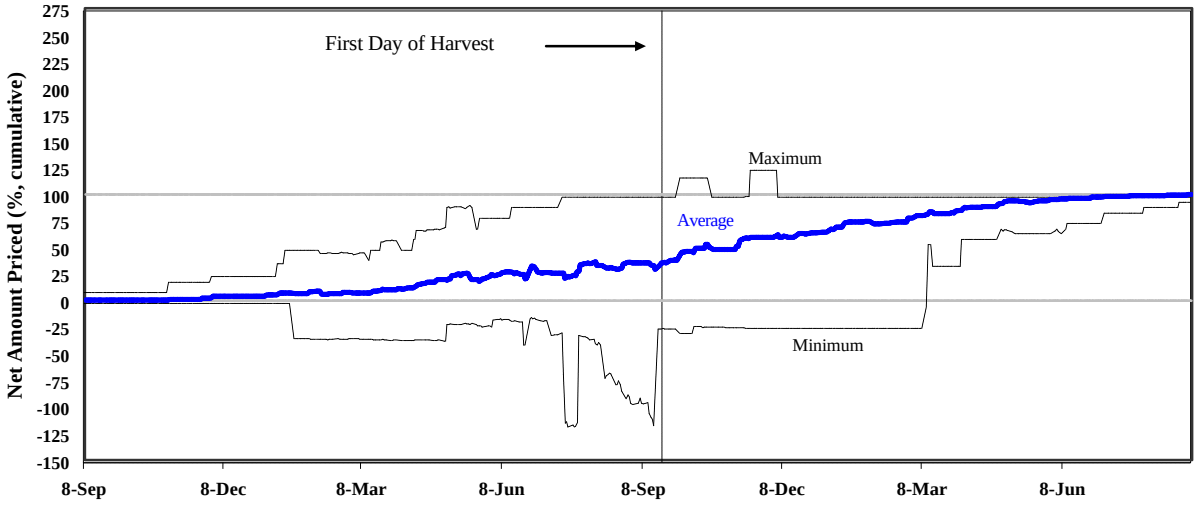


Figure 30.1 Corn Marketing Profile, All Programs, 1996 Crop Year

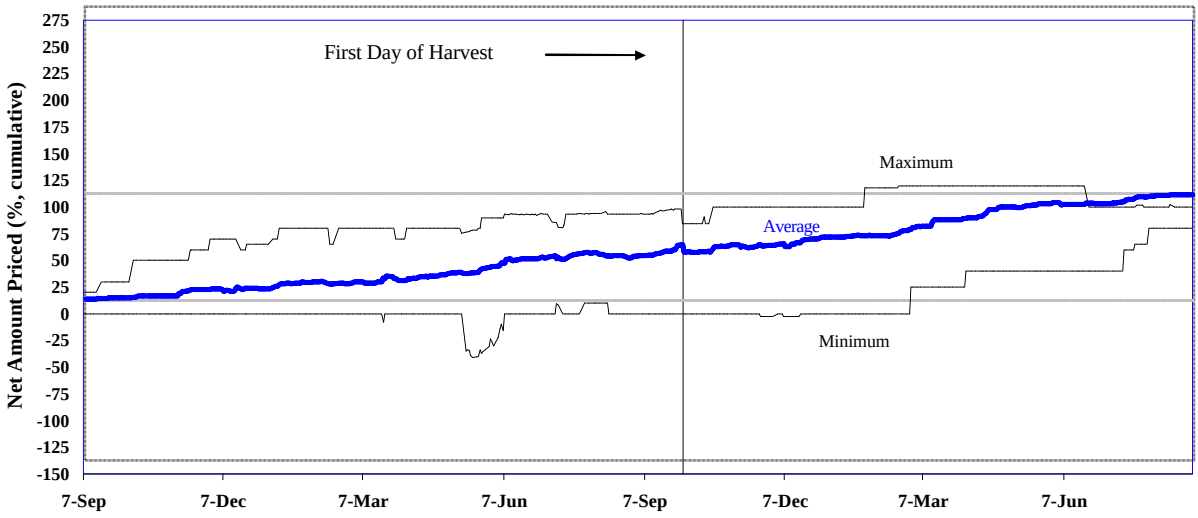


Figure 31.1 Corn Marketing Profile, All Programs, 1997 Crop Year

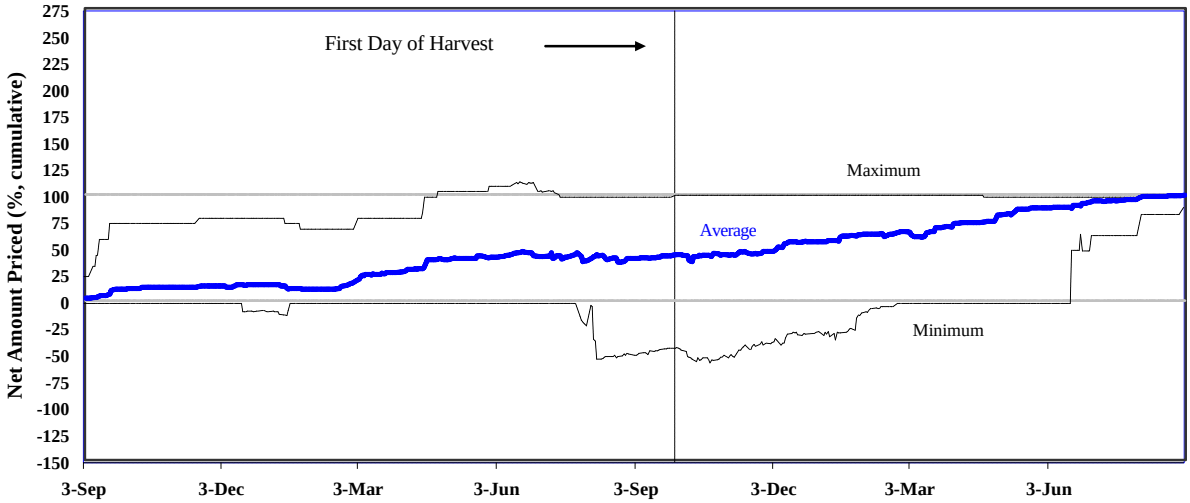


Figure 32.1 Corn Marketing Profile, All Programs, 1998 Crop Year

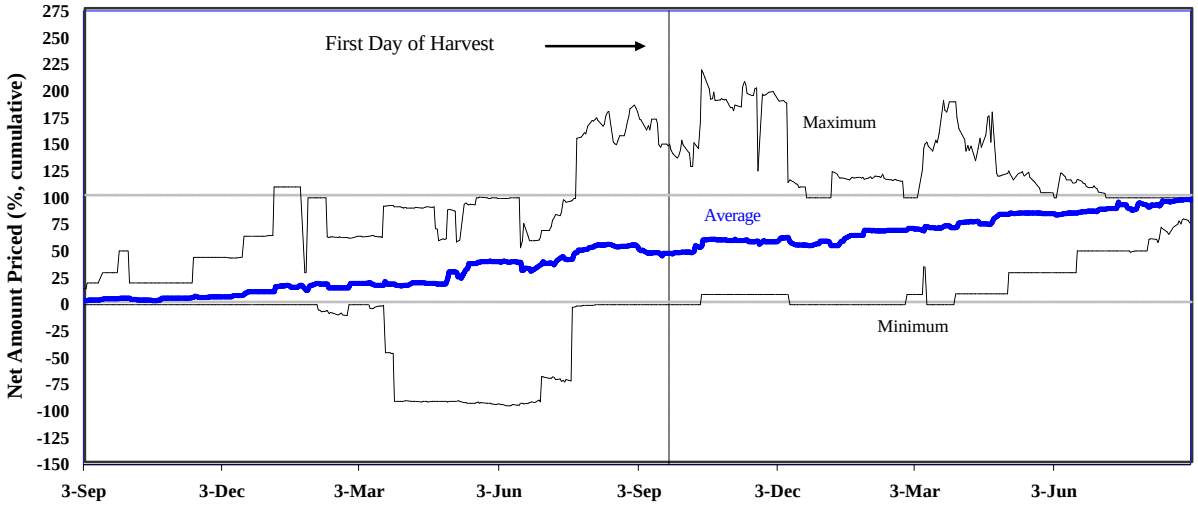
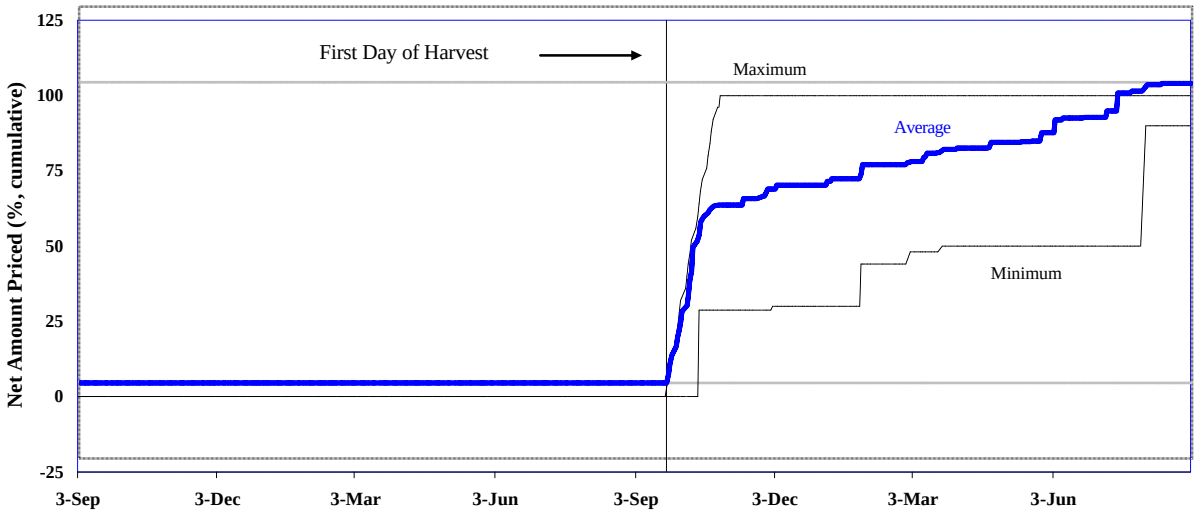


Figure 32.2 Corn LDP/MLG Profile, All Programs, 1998 Crop Year



Note: LDP stands for loan deficiency payment and MLG stands for marketing loan gain.

Figure 33.1 Corn Marketing Profile, All Programs, 1999 Crop Year

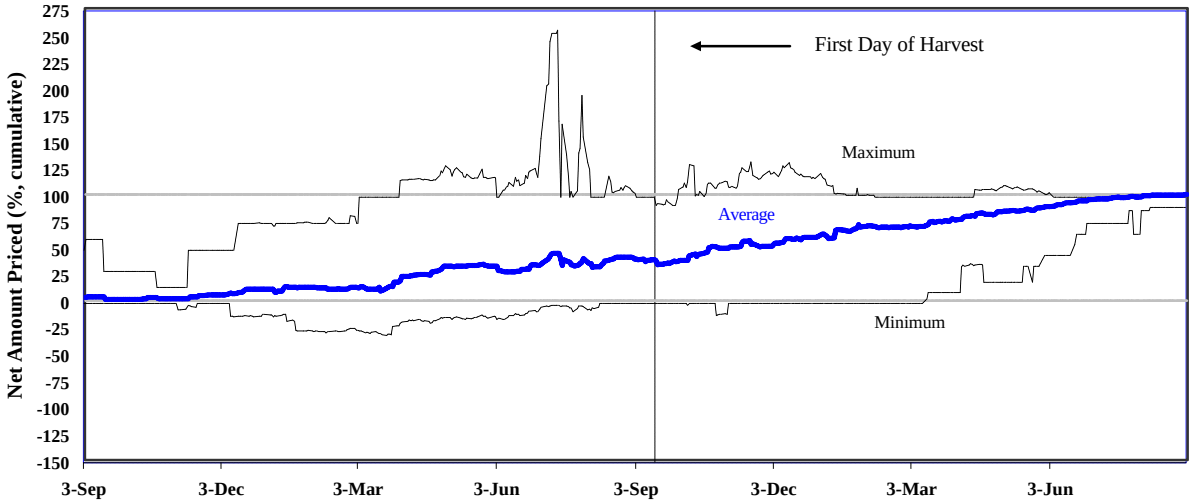
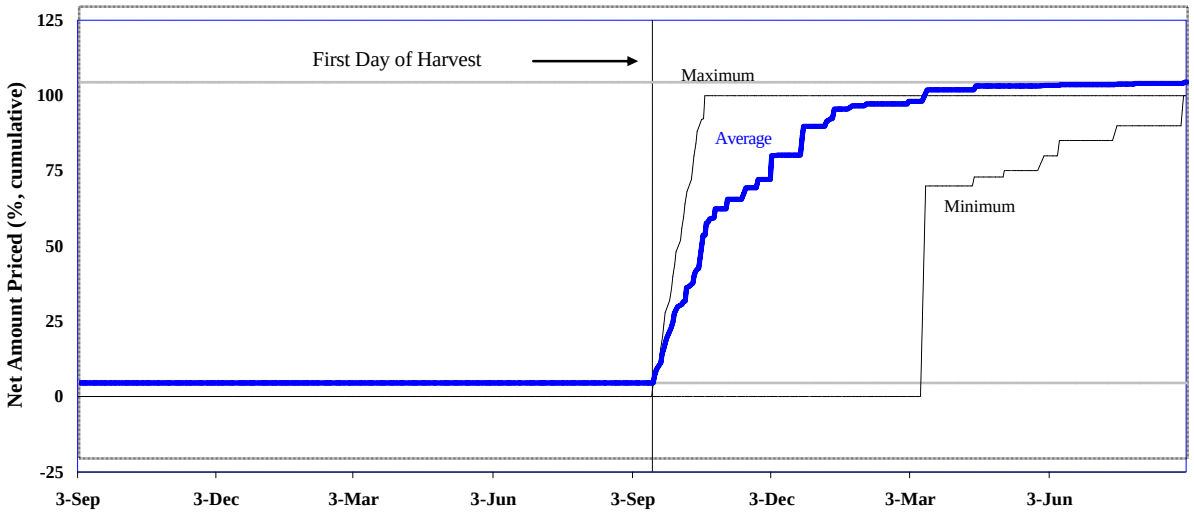


Figure 33.2 Corn LDP/MLG Profile, All Programs, 1999 Crop Year



Note: LDP stands for loan deficiency payment and MLG stands for marketing loan gain.

Figure 34.1 Corn Marketing Profile, All Programs, 2000 Crop Year

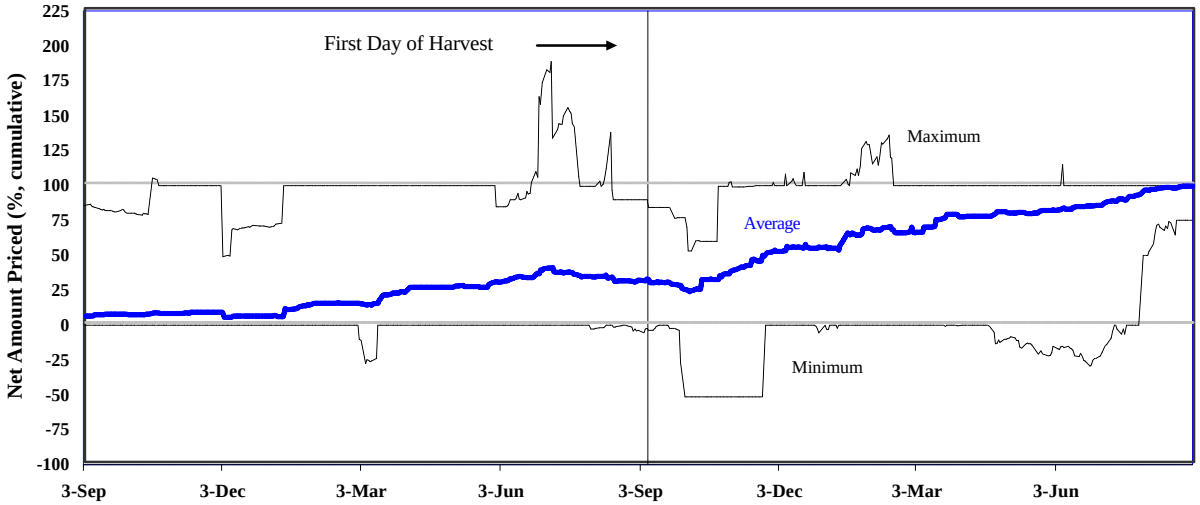
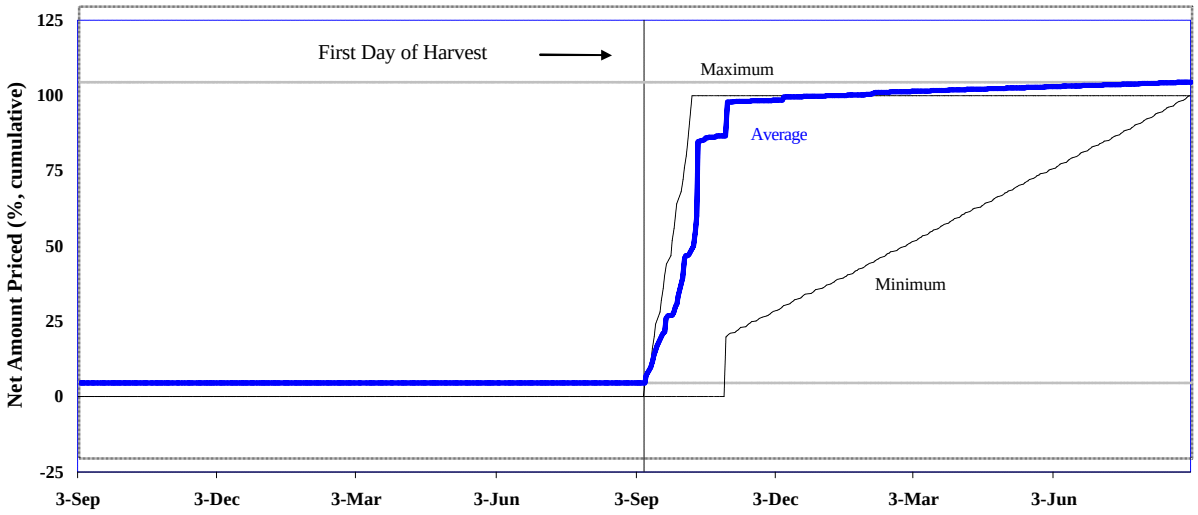


Figure 34.2 Corn LDP/MLG, All Programs, 2000 Crop Year



Note: LDP stands for loan deficiency payment and MLG stands for marketing loan gain.

Figure 35.1 Corn Marketing Profile, All Programs, 2001 Crop Year

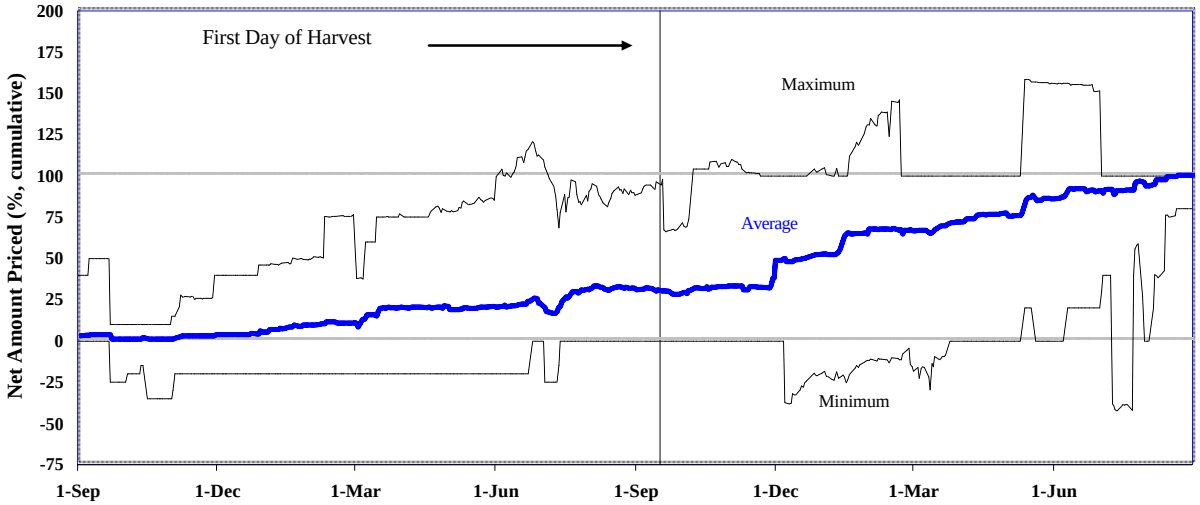
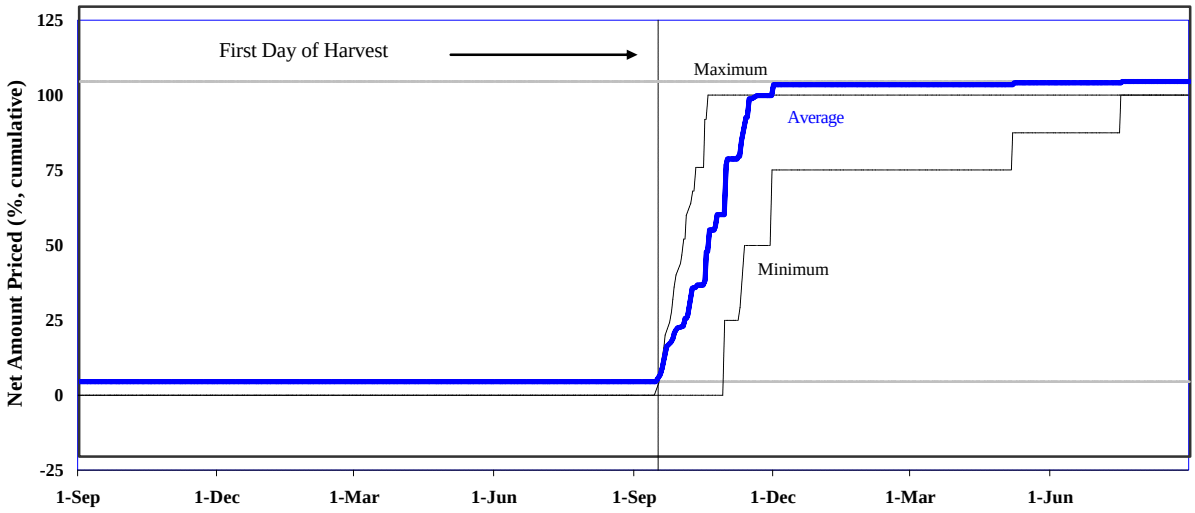


Figure 35.2 Corn LDP/MLG, All Programs, 2001 Crop Year



Note: LDP stands for loan deficiency payment and MLG stands for marketing loan gain.

Figure 36.1 Corn Marketing Profile, All Programs, 1995-2001 Crop Years

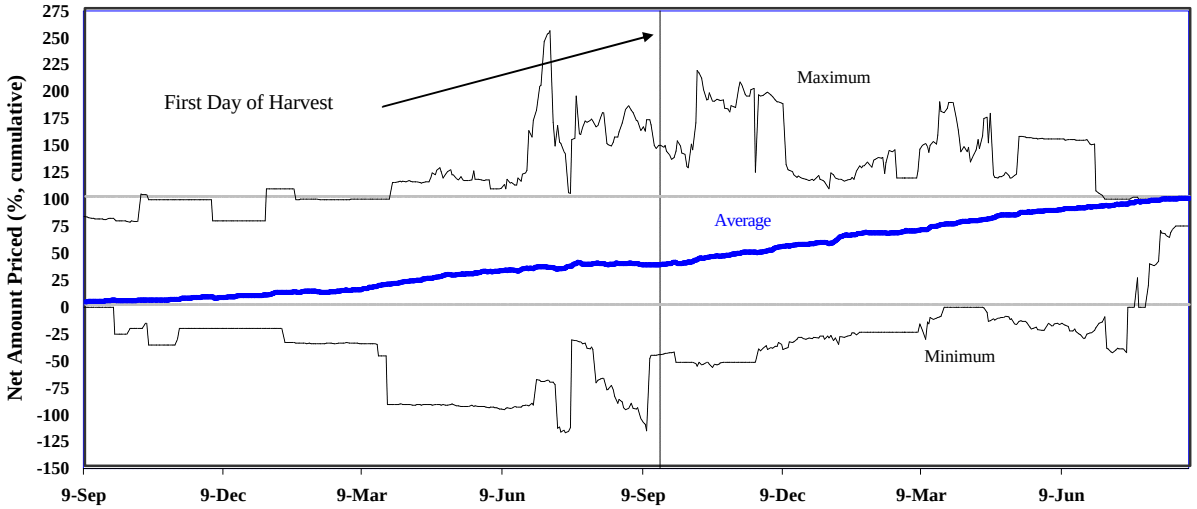


Figure 36.2 Corn Marketing Profile, Average 24- and 20-Month Market Benchmarks and All Programs, 1995-2001 Crop Years

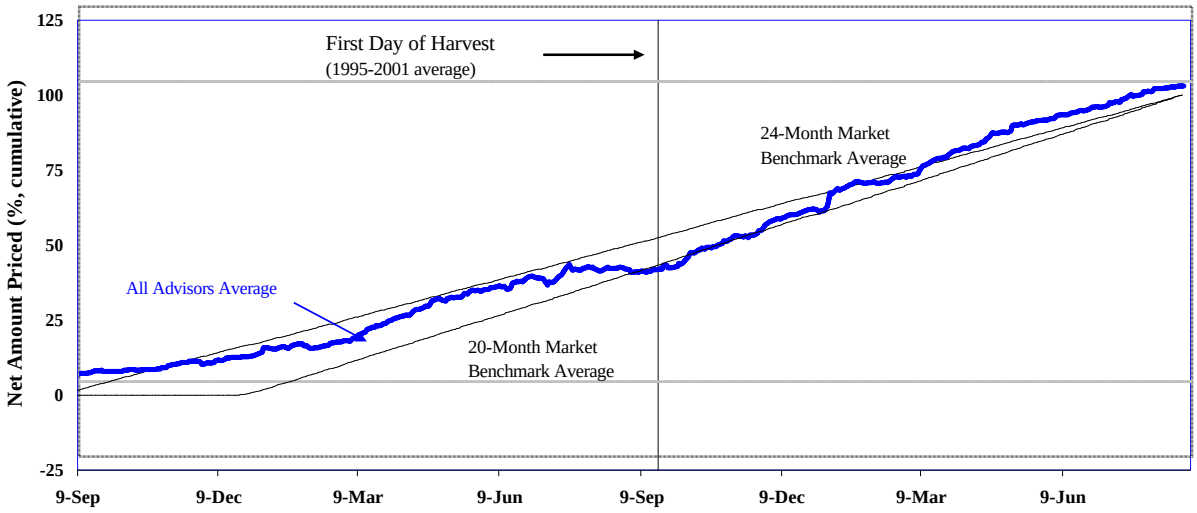
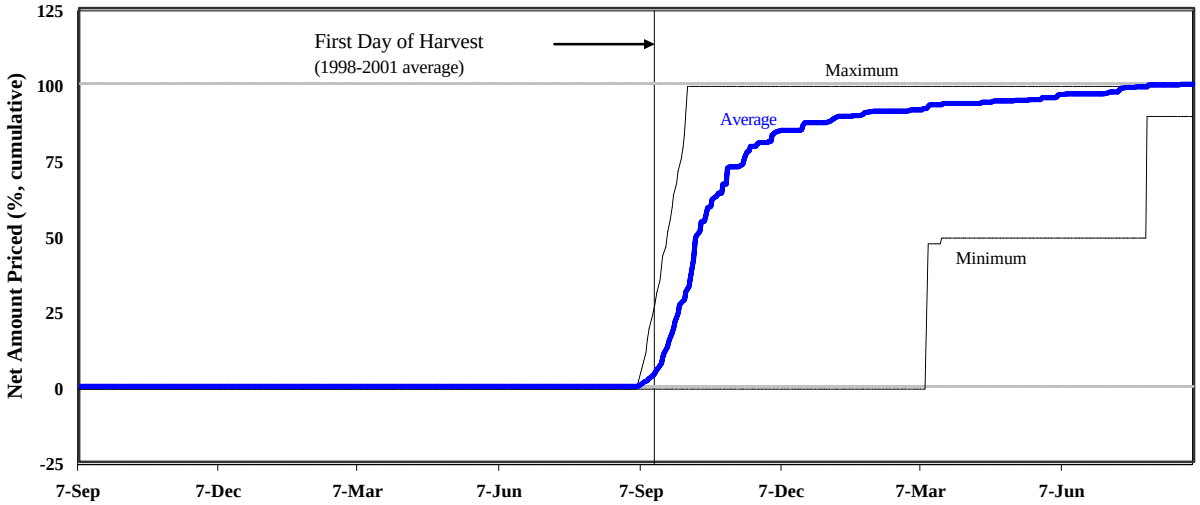
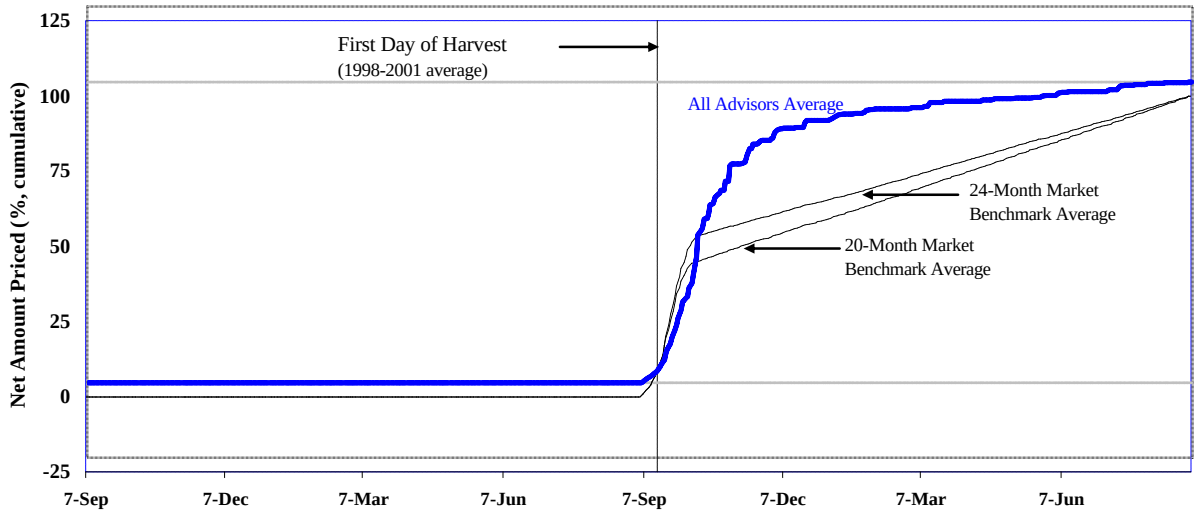


Figure 37.1 Corn LDP/MLG Profile, All Programs, 1998-2001 Crop Years



Note: LDP stands for loan deficiency payment and MLG stands for marketing loan gain.

Figure 37.2 Corn LDP/MLG Profile, Average 24- and 20-Month Market Benchmarks and All Programs, 1998-2001 Crop Years



Note: LDP stands for loan deficiency payment and MLG stands for marketing loan gain.