The Grain Pricing Model computes the probability of receiving selected cash prices for corn and soybeans. Projections are based on Chicago Board of Trade futures prices and put option premiums.

**Inputs**
The input screen on the following page asks for current futures prices and put option premiums for the commodity (corn or soybeans) analyzed. Entries are made to cells that contain numbers with blue font. The following are brief explanations of each input section.

**Date**
Enter today’s date, which automatically updates the “Contract month” column.

**Crop**
Select the commodity to be examined in the analysis: corn or soybeans.

**Basis**
The basis is the difference between a futures contract price and the current cash price. For example, if the current cash price for corn is $2.00 per bushel and today’s December futures contract is $2.10 per bushel, the basis is calculated by subtracting the futures price from the cash price: $2.00 - $2.10 = -$0.10. The input screen on the following page shows a basis of $.25 for December 2004 because the user in this example can get a cash price of $1.70 per bushel for corn on the same day the December futures contract is trading for $1.95 per bushel ($1.70 - $1.95 = -$0.25). NOTE: Enter the opposite value of the basis into the program. For example, if the basis is -$0.25, enter “$.25”. If it’s $.25, enter “-$0.25”.

**Futures Prices**
Futures contract prices can be found at the Chicago Board of Trade website (www.cbot.com). They serve as estimates for the cash price for the month of the contract. Enter today’s current prices. Do not use the default prices as these correspond only to the example provided.
Put Premiums
The put premiums are taken from the Chicago Board of Trade. The “Strike Price” is calculated from data entered. These premiums are used to estimate the variability of prices. *Be sure to enter current put premiums. Do not use the default put premiums as these correspond only to the example.*

Projected Prices
The table on the following page estimates the probability of the cash price being less than a price determined by the user (reference price). Probability data are generated using options prices and the Black-Scholes option-pricing model. The Projected Prices table is comprised of four columns:

1) **Month**: Contract month analyzed.

2) **Expected Price**: The projected price based on the contract month’s current futures price and basis.

3) **Reference Price**: An input column that allows the user to enter a price for calculating the probabilities shown in the fourth column.

4) **Percent Time Price Will Be Below Reference Price**: Estimates the likelihood that the cash price will be less than the reference price. The higher the probability, the greater the risk of receiving a cash price below the reference price.
According to the above example, the model calculates an expected cash price of $2.16 for September 2005. There is a 54% chance that the actual cash price in September 2005 will be less than the reference price of $2.16.

**Possible Prices by Month**
The below chart estimates the likelihood of the average cash price for the month analyzed falling within a certain range. Clicking on the “Month to graph prices” drop-down box allows the user to select a different month. According to the model, there is an 8% chance that the average cash price for the month of March 2005 for corn will be higher than $2.10 per bushel and a 10% chance the average cash price will be between $2.00 and $2.10 per bushel.
The “Percent time price will be between” table, located in the lower left corner, estimates the probability of prices falling within the range of two selected prices in a chosen month. The probability (Percent) changes as prices are entered next to “Price 1” and “Price 2”. “Price 1” and “Price 2” are input cells where the user can enter a price range to analyze.

The table to the right estimates the likelihood that the cash price and profit will fall below a certain per-bushel price. The example on the previous page estimates that 25% of the time the average cash price in March 2005 will be less than $1.72, resulting in a -$.12 difference between $1.72 and the March 2005 reference price entered by the user ($1.84).