

# **The Importance of Basis in Marketing Soybeans:**

## **A 10-Year Soybean Basis Study for Six Tennessee Regions**



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### **Introduction: Marketing Alternatives**

Soybean farmers face a variety of marketing alternatives each year. Selling to a grain buyer at harvest is one way to sell soybeans. Another alternative is to store soybeans (either commercially or on-farm) and sell them later. Farmers may also set a price for their soybeans before harvest by signing a cash-forward contract with a grain buyer. The contract specifies the quantity, price, grade, quality and date of delivery. Because prices have been historically lowest during harvest, storing and cash-forward contracting are ways to price soybeans before or after the harvest season, in hopes of achieving higher prices.

The futures market also gives farmers the opportunity to price soybeans outside the harvest season. Hedging using the futures market involves producers selling contracts on the futures exchange in the month when their soybeans will be sold. For example, if a farmer planned to sell soybeans at harvest in November, hedging would involve selling a November futures contract at any time prior to the expiration date of the November contract. Expiration dates are defined as the “business day prior to the 15<sup>th</sup> day of the trading month” (CBOT). Hedging can be done as much as 18 months prior to harvest.

The size of futures contracts varies according to the commodity and the exchange. The Chicago Board of Trade (CBOT) soybean contracts are for 5,000 bushels. Farmers can choose how much of their crop they wish to hedge by the number of contracts they sell. For example, if a farmer planned to produce 20,000 bushels and hedge half of the expected production, two contracts would be sold. By selling a futures contract, the farmer’s hedging account, established through a qualified broker, increases in value if the price on the CBOT falls. For example, if a farmer sold (hedged) a soybean contract when the November futures price was trading at \$6.00, and the price dropped to \$5.90, the farmer’s account would gain \$0.10/bu on the number of bushels hedged. Therefore, hedging protects the farmer when prices go down. As prices drop on the futures market, the farmer’s local selling price will generally drop also. So by hedging, even though the farmer’s local selling price has dropped, the hedging account through the broker increases in value. If, however, the price went up to \$6.10, the farmer’s account would drop by \$0.10/bu, and the farmer would have to send money to the broker to cover the decline in the account. When prices go up, the local selling price will also generally increase, but the farmer loses money on the brokerage account.

Regardless of whether prices increase or decrease after the farmer hedges, the net effect is basically the same. When prices increase while hedging, there is the lost opportunity of gaining a higher price had the hedging decision not been made. Therefore, the hedging decision limits price risk, but does not necessarily bring about the highest possible return. Farmers using hedging to limit price must also consider its impact on profitability, or whether the hedged price offers a profit. In general, limiting risk will reduce profits over time. But in any one year, a farmer may not be able to accept prices below a certain level, and hedging will allow the farmer to limit revenue losses that lower prices would bring. Hedging may also allow farmers to take advantage of a short-run market situation where prices are historically high by establishing a price well above a break-even level.

Farmers can also hedge using the options market. Options allow farmers to select a price at which they can hedge. These prices, called “strike prices,” can be purchased through the CBOT at the same 5,000-bushel increments and in the same months as the futures market offers. Farmers can hedge with options by buying a put option for a unique strike price. The cost of the option is called a “premium.” For example, assume there is a \$6.00 November put option with a cost (premium) of \$0.12 /bu. The farmer could buy the put option for \$600 (\$0.12/bu x 5,000 bu). The farmer, in effect, has purchased the right or option to sell a November futures contract for \$6.00 at any time before the November option contract expires. Options generally expire in the month prior to the underlying futures contract; however, the exact date of expiration does vary. Farmers should check with a broker before buying options to determine the exact closing date for the desired option month. If the underlying November futures price drops below \$6.00, there will be intrinsic or exercise value in the option. For example, if the November futures price fell to \$5.80, the farmer who had purchased a \$6.00 put option could sell a November futures contract for \$6.00 and buy it back at \$5.80, making \$0.20/bu. on the transaction. After the premium cost of \$0.12 is subtracted, the farmer would net \$0.08/bu. This process, called “exercising the option,” can be done at any time before the expiration of the option contract. If the November futures price rose to \$6.20, the farmer would not choose to exercise the option, because there would be a loss of \$0.20/bu. The farmer can simply allow the option to expire if the futures price never drops below the strike price. The farmer paid the \$0.12/bu premium up front for the right to exercise or not exercise the option.

Option strike prices themselves are traded on the CBOT, and farmers may choose to “offset” a purchased put option rather than exercise the right to sell a futures contract. Offsetting is accepting the trading value of the option premium instead of the difference between the strike price purchased and the futures contract price. Prior to the expiration, the traded option’s premium value will generally not equal the difference between the strike price and the futures price, because there is an element of risk included in the option premium due to the time remaining before the option expires. As the option approaches its expiration date, this time value will decrease to zero, and offsetting or selling the earlier-purchased put option will net the same as exercising, if commission charges are the same for either alternative. The majority of options with value are offset rather than exercised, and the following examples assume that the offset premium is equal to the difference between the strike price and the underlying futures contract.

## How Basis Impacts Hedging

For farmers who wish to manage price risk by hedging, the relationship between the quoted futures price on the CBOT and the local selling price must be understood. The difference between the CBOT futures price and the local cash price is called “basis.” When the CBOT futures price is above the local cash price, the basis is “negative,” and when the local cash price is above the CBOT futures price, the basis is positive. For price risk management purposes, it is not so important whether the local basis is positive or negative. Rather, it is important for the farmer to know at the time the hedging decision is made whether the local basis will be positive or negative when the hedge is completed. The hedge is completed when the underlying commodity (soybeans, for example) is sold and the futures contract is bought back. What the farmer needs to calculate is the net-hedged price, or the futures price adjusted for the basis at the time when the hedge is completed.

For farmers who sell in locations where the local price is higher than the futures price, the net-hedged price that the farmer receives will be higher than the futures price. Alternatively, in locations where the local cash-selling price is below the futures price, the net hedged price the farmer receives will be less than the futures price. For example, assume that in May a farmer sells (hedges) a November futures contract at \$6.00. At harvest that fall, the futures price has dropped to \$5.60. Because the farmer sold the contract in May at \$6.00, the contract can now be bought back at \$5.60, and the farmer nets \$0.40/bu., or \$2,000 for a 5,000-bushel contract. However, if the farmer sells soybeans locally for \$5.50/bu., or 10 cents below the futures price, the farmer nets only \$5.90/bu. (\$5.50 local cash price plus the \$0.40/bu. made on the hedge) for the 5,000 bushels covered by the futures contract instead of the \$6.00 price hedged in May. Alternatively, had the local price been \$5.70, or \$0.10 above the CBOT futures price of \$5.60, the farmer would have netted \$6.10/bu., or \$5.70 local cash plus the \$0.40/bu. from the hedge.

If the farmer in the above example had been expecting a negative \$0.10 basis at the time of sale in the fall, then the resulting \$5.90 net price received would not have been a surprise, rather it would have been included in the calculation in

May. So, in the above example, when the farmer sold a futures contract in May, the expected basis should have been included in the net price expectation.

Options also utilize the futures market, and basis impacts farmers’ net price when using options to manage price risk. For example, assume a farmer purchased a November put option at a \$6.00 strike price in May, and at harvest time the November futures price was \$5.50. The farmer could offset the option by selling the option back at \$0.50. If the local basis were a negative \$0.10, the farmer would sell the soybeans for \$5.40, netting \$5.90 for the amount of soybeans that were hedged. Because of the negative basis, the farmer didn’t realize the \$6.00 strike price, but \$5.90, less the cost of the option premium purchased in May. And, like the hedging example, had the local basis been positive, the farmer would have realized more than the \$6.00/bu. strike price, before the option expense was deducted. It is therefore crucial that farmers know what basis to expect when they sell their grain if they use either the futures market or options to manage price risk.

## What Determines Basis?

Basis is determined by several factors, including supply/demand conditions, transportation, storage and handling facilities, location, quality and competition (Farmer). In years when supply is relatively low and/or demand is relatively high, both local and futures prices will likely increase. But local cash prices may increase more quickly than the CBOT futures price, resulting in a stronger (more positive or less negative) basis. Alternatively, if supplies are relatively high and demand is relatively low, the local basis may weaken (become less positive or more negative).

Transportation cost also impacts basis. As transportation cost increases, the local basis will widen, as buyers pay less at the local market. In general, the transportation cost in any year won’t affect the CBOT futures price. Therefore, as the transportation cost increases, the basis would be expected to become more negative or less positive.

The basis may also weaken if local storage facilities become full during the harvest season. For this reason, the basis may change weekly or daily during the harvest season. If local storage and handling facilities are full, the basis will likely weaken, as the buyers have no place to put the soybeans.

Location can also affect basis. In Tennessee, the basis is usually stronger along the Mississippi River due to its proximity to Gulf shipping facilities, and less expensive transportation. Farmers further away from the Mississippi River would expect a weaker basis, as buyers have to incur transportation costs to get the soybeans to the river.

Soybean quality can impact basis. For example, if a farmer’s soybeans are generally above the standard quality (No. 2 yellow soybeans), the resulting basis will likely be stronger than the average for the location. Likewise, if the quality is lower, the local cash price will likely be below the average for the area, and would result in a weaker basis.

Local competition from grain buyers will also affect basis. For example, in an area where there are local uses for soybeans (processing, feed, etc.) the basis will likely be stronger (less negative or more positive) compared to areas where all the

soybeans must be shipped out to other areas for use. In areas where there are several buyers for soybeans, the basis can be even stronger, enhanced by the level of competition among the buyers.

Because all the factors that affect basis can change from day to day and from year to year, the basis itself is subject to change frequently. For farmers to use the futures market as a price management tool, having an estimate of their local basis is critical.

## Basis Data Collection and Sources

Tennessee farmers have many selling locations across the state. The Tennessee Department of Agriculture reports soybean prices in six districts: Memphis, Northwest Barge Points, Northwest, Southwest, Upper Middle and Lower Middle. Cash prices from each of these districts are reported daily throughout the year. For much of the year (from the middle of January through September), forward-contract prices for November delivery are also reported by district.

These daily and forward-contract prices were collected for the time period 1993 through 2002. Prices were also collected from the Chicago Board of Trade for the same time period for both the November futures price and the nearby (or the “spot” month) futures price. The nearby futures price is the closest monthly traded futures price relative to the current date. For example, in February the nearby soybean futures month would be March, in June the nearby futures month would be July, etc.

From these data, bases were calculated under two formats. First, bases for the current cash price versus the nearby futures contract price were calculated for all six reporting districts. Also, bases for the current cash contract harvest price being offered versus the November futures price were calculated for the six reporting districts. The bases were calculated three days per month during the 10-year period. Bases were calculated on the 1<sup>st</sup>, 11<sup>th</sup> and 21<sup>st</sup> day of each month. If these days fell on a non-trading or reporting day, the closest day with available prices was used to calculate the bases.

## Results

Results of these bases calculations are reported in Tables 1 through 12 in the Appendix. Tables 1 through 6 are bases for the local cash price versus the nearby futures price for each district. Tables 7 through 12 are bases for the cash-forward contract offerings versus the November futures contract price. Six basis numbers are reported for each date over the 10-year period: the highest (most positive or least negative); the lowest (most negative or least positive); the average; the largest positive move from the date to the date 10 days prior to it; the largest negative move from the date to the date 10 days prior to it; and the average move from the date to the date 10 days prior to it.

Overall, the data verify the expected results. For example, the NW Barge Point and Memphis average bases are generally positive (Tables 1 and 2). Other districts’ average bases are generally negative. It was expected that both Memphis and NW Barge Point would have lower transportation costs involved in shipping soybeans to areas with a soybean deficit, due to their

proximity to river barge traffic, and therefore their bases would be higher relative to Tennessee buying locations away from the Mississippi River.

For example, Table 3 lists the NW Tennessee basis results. On April 11, the highest observed basis over the 10-year period was  $-\$0.02$ , the lowest was  $-\$0.19$  and the average was  $-\$0.09$ . Also, on April 11, the largest basis gain compared to April 1 over the 10-year period was  $\$0.05$ , the largest loss was  $\$0.06$  and the average basis move from April 1 to April 11 was  $\$0.01$ .

## Using the Data: A Hedging Example

The following example represents one way Tennessee soybean farmers can use this information. Assume a NW Tennessee farmer intends to hedge 5,000 bushels of soybeans on May 11. The November futures price is trading at  $\$6.00$ . The expected (10-year average) basis from Table 3 on October 21, the farmer’s expected sale date at harvest, is  $-0.15$ , or 15 cents below the November futures market price. So the expected net price on the hedged soybeans before commission is  $\$5.85$  per bushel, or  $\$6.00$  less the  $\$0.15$  expected basis. Below are six different outcomes of the hedge, depending on the basis, the cash market price and the futures price. First, assume that the farmer sold soybeans at harvest on October 21, with an expected basis of  $-\$0.15$ , under two scenarios – the market price increasing, and the market price decreasing:

### Price Increases, “Expected” Basis

November Futures Price:	$\$6.50$
Basis:	$-\$0.15$
Local Cash Sales Price:	$\$6.35$
Gain from Hedge:	$-\$0.50$
Net Sales Price:	$\$5.85$

### Price Decreases, “Expected” Basis

November Futures Price:	$\$5.50$
Basis:	$-\$0.15$
Local Cash Sales Price:	$\$5.35$
Gain from Hedge:	$\$0.50$
Net Sales Price:	$\$5.85$

In the above example, it made no difference whether the price increased or decreased. The farmer received the expected hedged price of  $\$5.85$  because the basis was  $-\$0.15$  as expected. With the increasing price, the hedging account lost  $\$0.50$ /bu. as the futures price increased from  $\$6.00$  when the farmer hedged in May, to  $\$6.50$  when the farmer bought back the futures contract and sold soybeans in November. The local cash price, however, reflects the increased market price and made up for the loss on the futures market.

With the decreasing price, the futures price dropped to  $\$5.50$  in November, with the hedging account gaining  $\$0.50$ /bu. The cash price dropped, however, along with the futures market, and the net price was the same as in the increasing price scenario. There could be some difference in the net price between the two scenarios. In the increasing price scenario, it is likely that the farmer would have to send in margin money, as the account lost money on the futures market. There would

likely be some interest charge on the money sent to the broker during the time period from May to November when the account would be settled.

The next example reflects two scenarios when the worst basis from Table 3 occurs under increasing and decreasing prices. From the example above, the farmer was expecting a  $-\$0.15$  basis on a hedge price of  $\$6.00$ , to net  $\$5.85$ . From Table 3, over the 10 years from 1993 to 2002, the worst or weakest basis was  $-\$0.30$ . If that were to happen, regardless of whether prices increased or decreased, the farmer would only net  $\$5.70$ , less commission. Commission charges generally are in the range of 1 to 2 cents per bushel for hedging accounts.

#### Price Increases, "Worst" Basis

November Futures Price:	\$6.50
Basis:	$-\$0.30$
Local Cash Sales Price:	\$6.20
Gain from Hedge:	$-\$0.50$
Net Sales Price:	\$5.70

#### Price Decreases, "Worst" Basis

November Futures Price:	\$5.50
Basis:	$-\$0.30$
Local Cash Sales Price:	\$5.20
Gain from Hedge:	\$0.50
Net Sales Price:	\$5.70

The final hedging example is of the best or strongest basis over the 10-year period. Again from Table 3, the best basis is  $\$0.11$ . If that basis had occurred, the farmer would net  $\$6.11$  from the hedged soybeans under either price scenario.

#### Price Increases, "Best" Basis

November Futures Price:	\$6.50
Basis:	\$0.11
Local Cash Sales Price:	\$6.61
Gain from Hedge:	$-\$0.50$
Net Sales Price:	\$6.11

#### Price Decreases, "Best" Basis

November Futures Price:	\$5.50
Basis:	\$0.11
Local Cash Sales Price:	\$5.61
Gain from Hedge:	\$0.50
Net Sales Price:	\$6.11

The 10 years of basis data give farmers an idea of the range of possible bases when hedging soybeans. However, in the future there may be conditions where the actual basis for a particular year may be higher or lower than those indicated in the data tables.

## Basis Risk in Hedging

It is possible to quantify the hedging basis risk using data from Table 3. From the example above, the expected basis was  $-\$0.15$ /bu, and the worst basis was  $-\$0.30$ /bu. If a farmer were to plan crop sales based on a  $-\$0.15$  basis and the basis actually turned out to be  $-\$0.30$  at the time the hedge was terminated,

the farmer in effect received  $\$0.15$ /bu. less than expected. If the farmer based the farm and family's spending decisions on receiving the  $-\$0.15$  basis, a restructuring of spending and/or debt would likely have to be done. For example, a farmer hedging 10,000 bushels of soybeans would realize a shortfall of  $\$1500$  if the basis were  $\$0.15$  weaker than had been expected. In developing a marketing and financial plan, therefore, the weakest basis scenario should be considered.

Tables 7 through 12 list bases for cash-forward contracting prices versus the November futures contract. Data are not consistently available for October through January. These bases measure the difference in contract prices for harvest delivery compared to the harvest (November) futures price. For example, in Table 9 for NW Tennessee, the cash forward contract price for fall delivery on May 1 has been as high as  $\$0.16$  and as low as  $\$0.38$  under the November futures price. From 1993 to 2002, the average on May 1 was  $\$0.26$  under the November futures price. On May 1, 2003 the local cash contract offering in NW Tennessee for November delivery was  $\$5.36$ , while the November futures market price was  $\$5.53$ . The resulting basis was  $-\$0.17$ , or 17 cents under the futures market price. The basis that day was  $\$0.09$  higher than the average of  $-\$0.26$  and only one cent lower than the 10-year highest or best basis. That information likely signals local buyers bidding up their price relative to the futures market price to attract more contracts for fall soybean delivery. It would also indicate a time when farmers might want to consider contracting some of their expected production.

If the farmer was looking ahead 10 more days and trying to decide whether to contract on May 1 or later, the May 11 basis information may help the farmer in making the decision. Still in Table 9, on May 11, the largest increase in basis during the 10-year period was  $\$0.15$ , while the largest decline was  $\$0.21$ . The farmer would have to assess whether the uncertainty in the basis was enough to indicate the need to contract on May 1 instead of waiting until May 11. The fact that the basis was so high relative to the average on May 1 would also be of help in making the decision.

## Option Example

Commodity options offer producers a marketing tool that sets a price floor while allowing unlimited price gains. However, basis also impacts option proceeds. For example, consider a farmer who in May buys a November put option to cover 5,000 bushels of soybean production. The option strike price was  $\$6.00$ , with a premium of  $\$0.20$  per bushel. From Table 3, if we assume an October 21 harvest date, we would expect a basis of  $-\$0.15$ . Therefore, the farmer would expect to net  $\$5.65$  per bushel on the soybeans ( $\$6.00$  strike price less  $\$0.20$  premium less  $\$0.15$  basis). In the example below, the basis is assumed to be as expected, or  $-\$0.15$  at the sale date of October 21. When the price increases, the option becomes worthless, the premium falls to zero, and the farmer would simply let the option expire. If the local cash price is  $\$6.35$ , the farmer would net  $\$6.15$ /bu, after accounting for the option premium purchased in May. Contrary to the hedge example, there is no loss with options on the futures market when the price goes up. Therefore, the net price can increase as the

market price increases. When the price decreases, however, the option can be offset. In this example, the option premium would be at least \$0.50, as the futures market is \$0.50 below the option strike price (\$5.50 futures vs. the \$6.00 strike price). The gain from offsetting the option (selling back the put option for \$0.50) plus the local cash price (\$5.35) less the option premium (\$0.20) nets the expected \$5.65/bu. So, if the price drops, the option will provide a floor for prices, given the basis experienced at the time of sale.

**Price Increases, “Expected” Basis**

November Futures Price:	\$6.50
Basis:	-\$0.15
Local Cash Sales Price:	\$6.35
Less Option Premium:	\$0.20
Plus Option Proceeds:	\$0.00
Net Sales Price:	\$6.15

**Price Decreases, “Expected” Basis**

November Futures Price:	\$5.50
Basis:	-\$0.15
Local Cash Sales Price:	\$5.35
Less Option Premium	\$0.20
Plus Option Proceeds:	\$0.50
Net Sales Price:	\$5.65

Now, assume that at harvest time, the basis turns out to be the worst for the October 21 date, or -\$0.30. The following two examples represent the worst basis when prices increase and decrease.

**Price Increases, “Worst” Basis**

November Futures Price:	\$6.50
Basis:	-\$0.30
Local Cash Sales Price:	\$6.20
Less Option Premium:	\$0.20
Plus Option Proceeds:	\$0.00
Net Sales Price:	\$6.00

**Price Decreases, “Worst” Basis**

November Futures Price:	\$5.50
Basis:	-\$0.30
Local Cash Sales Price:	\$5.20
Less Option Premium	\$0.20
Plus Option Proceeds:	\$0.50
Net Sales Price:	\$5.50

When the price increased, the November futures price of \$6.50 was above the strike price, and the option was worthless. When the price decreased, however, the futures price of \$5.50 was \$0.50 below the strike price, netting \$0.50 per bushel. The \$5.50 net price was \$0.15 below the expected price of \$5.65, because the basis turned out to be -\$0.30 per bushel at harvest instead of the expected -\$0.15.

Now, assume the “best” basis of Table 3 on October 21 of \$0.11 using the same price alternatives as the above example.

**Price Increases, “Best” Basis**

November Futures Price:	\$6.50
Basis:	\$0.11
Local Cash Sales Price:	\$6.61
Less Option Premium:	\$0.20
Plus Option Proceeds:	\$0.00
Net Sales Price:	\$6.41

**Price Decreases, “Best” Basis**

November Futures Price:	\$5.50
Basis:	\$0.11
Local Cash Sales Price:	\$5.61
Less Option Premium	\$0.20
Plus Option Proceeds:	\$0.50
Net Sales Price:	\$5.91

In this example, with a positive basis of 11 cents, the local price is actually above the futures price. When the price increases, after subtracting the option premium, the net price is \$6.41. When the price drops, there are option proceeds, because the futures price is below the strike price. The net sales price is \$5.91, \$0.26 higher than the expected price, due to the basis being \$0.26 higher than expected. While the net price ranges are large due to the range of the underlying bases chosen, the basis range is still significantly smaller than the range of possible prices.

**Summary**

It was shown with 10 years of price data how basis could impact farmers’ decision-making and net price. Basis risk also impacts the farmer’s bottom line, reducing expected income when the basis weakens. The data reveal that bases differ within a district during the marketing year and vary among districts based on transportation cost and supply/demand factors. While basis is not the only important factor in efficiently marketing soybeans in Tennessee, for those farmers who use marketing tools such as cash-forward contracting, options or hedging on the futures market, basis estimates provide a good source of information to help in their decision-making process.

**References**

Chicago Board of Trade (CBOT), “Contract Specs,” CBOT Internet Site.

Farmer, Charles M., “Cash-Futures Price Relationships as Guides for Better Grain Marketing Decisions,” The University of Tennessee Agricultural Extension Service Publication PB1206, June, 1986.

## Appendix: Basis Tables

	<b>Table 1. Soybean Local Cash Price vs. Nearby Futures Memphis, 1993-2002 10-day Difference Calculations</b>					
	High Bases	Low Bases	Average Bases	Largest + Difference	Largest - Difference	Average Difference
1-Jan	0.19	0.07	0.15	0.12	-0.01	0.04
11-Jan	0.25	0.01	0.15	0.07	-0.10	0.00
21-Jan	0.22	0.00	0.12	0.02	-0.10	-0.03
1-Feb	0.21	0.03	0.13	0.06	-0.02	0.02
11-Feb	0.20	0.04	0.12	0.04	-0.05	-0.01
21-Feb	0.17	0.04	0.12	0.02	-0.05	-0.01
1-Mar	0.22	0.08	0.14	0.09	-0.04	0.02
11-Mar	0.28	0.01	0.13	0.13	-0.12	-0.01
21-Mar	0.15	0.01	0.07	0.02	-0.24	-0.06
1-Apr	0.14	-0.04	0.05	0.01	-0.09	-0.02
11-Apr	0.09	-0.02	0.04	0.02	-0.05	-0.01
21-Apr	0.11	-0.03	0.05	0.04	-0.02	0.01
1-May	0.13	-0.06	0.05	0.04	-0.04	0.00
11-May	0.14	-0.17	0.02	0.04	-0.13	-0.03
21-May	0.08	-0.07	0.01	0.16	-0.12	-0.01
1-Jun	0.13	-0.05	0.04	0.20	-0.04	0.02
11-Jun	0.17	-0.19	0.01	0.12	-0.17	-0.02
21-Jun	0.10	-0.06	0.02	0.23	-0.15	0.00
1-Jul	0.13	-0.16	0.01	0.08	-0.18	-0.01
11-Jul	0.11	-0.24	0.00	0.10	-0.10	-0.01
21-Jul	0.23	-0.37	0.02	0.13	-0.13	0.03
1-Aug	0.12	-0.05	0.05	0.32	-0.14	0.02
11-Aug	0.13	-0.18	0.01	0.03	-0.18	-0.04
21-Aug	0.96	-0.26	0.11	0.97	-0.14	0.11
1-Sep	0.69	-0.03	0.12	0.33	-0.27	0.01
11-Sep	0.49	-0.02	0.10	0.08	-0.20	-0.02
21-Sep	0.45	-0.16	0.05	0.19	-0.20	-0.05
1-Oct	0.22	-0.06	0.05	0.21	-0.23	0.00
11-Oct	0.18	-0.08	0.06	0.12	-0.06	0.01
21-Oct	0.19	-0.05	0.06	0.04	-0.07	0.00
1-Nov	0.20	-0.08	0.10	0.18	-0.03	0.04
11-Nov	0.18	-0.04	0.11	0.06	-0.06	0.01
21-Nov	0.18	0.04	0.11	0.12	-0.07	0.00
1-Dec	0.20	-0.10	0.11	0.11	-0.25	0.00
11-Dec	0.30	-0.03	0.14	0.10	-0.04	0.03
21-Dec	0.18	-0.01	0.12	0.04	-0.20	-0.04

Sources: Tennessee Department of Agriculture, Chicago Board of Trade

**Table 2. Soybean Local Cash Price vs. Nearby Futures  
Northwest Tennessee Barge Points, 1993-2002  
10-day Difference Calculations**

	High Bases	Low Bases	Average Bases	Largest + Difference	Largest - Difference	Average Difference
1-Jan	0.22	-0.06	0.12	0.08	-0.23	0.00
11-Jan	0.19	0.00	0.12	0.11	-0.07	0.01
21-Jan	0.23	-0.05	0.10	0.05	-0.10	-0.03
1-Feb	0.16	0.02	0.10	0.07	-0.04	0.01
11-Feb	0.15	-0.06	0.09	0.02	-0.08	-0.01
21-Feb	0.15	-0.09	0.09	0.03	-0.04	-0.01
1-Mar	0.15	-0.01	0.08	0.08	-0.05	0.01
11-Mar	0.17	-0.01	0.07	0.07	-0.09	-0.01
21-Mar	0.09	-0.11	0.02	-0.01	-0.16	-0.05
1-Apr	0.14	-0.13	0.00	0.02	-0.11	-0.03
11-Apr	0.08	-0.11	0.01	0.06	-0.05	0.01
21-Apr	0.10	-0.19	0.02	0.04	-0.08	0.00
1-May	0.13	-0.16	0.03	0.07	-0.04	0.02
11-May	0.14	-0.40	0.00	0.06	-0.24	-0.04
21-May	0.21	-0.23	0.00	0.17	-0.15	0.00
1-Jun	0.11	-0.27	-0.01	0.11	-0.04	0.01
11-Jun	0.13	-0.27	0.02	0.10	-0.02	0.03
21-Jun	0.13	-0.28	0.02	0.05	-0.15	-0.01
1-Jul	0.16	-0.07	0.05	0.34	-0.12	0.02
11-Jul	0.16	-0.06	0.05	0.06	-0.03	0.01
21-Jul	0.11	-0.15	0.03	0.09	-0.14	-0.03
1-Aug	0.12	-0.08	0.04	0.19	-0.08	0.01
11-Aug	0.20	-0.16	0.01	0.05	-0.16	-0.05
21-Aug	0.28	-0.23	0.03	0.41	-0.14	0.04
1-Sep	0.13	-0.07	0.01	0.22	-0.24	-0.03
11-Sep	0.11	-0.71	-0.08	0.06	-0.75	-0.11
21-Sep	0.08	-0.26	-0.05	0.78	-0.22	0.03
1-Oct	0.07	-0.23	-0.07	0.19	-0.16	-0.01
11-Oct	0.23	-0.19	-0.04	0.16	-0.04	0.03
21-Oct	0.21	-0.16	-0.03	0.07	-0.02	0.03
1-Nov	0.17	-0.12	0.00	0.18	-0.16	0.03
11-Nov	0.13	-0.04	0.03	0.11	-0.09	0.03
21-Nov	0.12	-0.09	0.04	0.13	-0.07	0.01
1-Dec	0.15	0.02	0.07	0.10	-0.02	0.02
11-Dec	0.25	0.01	0.10	0.12	0.00	0.04
21-Dec	0.19	0.04	0.11	0.11	-0.12	0.02

Sources: Tennessee Department of Agriculture, Chicago Board of Trade



**Table 3. Soybean Local Cash Price vs. Nearby Futures  
Northwest Tennessee, 1993-2002  
10-day Difference Calculations**

	High Bases	Low Bases	Average Bases	Largest + Difference	Largest - Difference	Average Difference
1-Jan	0.11	-0.09	0.00	0.05	-0.01	0.03
11-Jan	0.07	-0.09	0.01	0.04	-0.09	0.00
21-Jan	0.10	-0.13	-0.03	0.06	-0.10	-0.03
1-Feb	0.30	-0.11	0.00	0.26	-0.03	0.04
11-Feb	0.03	-0.10	-0.03	0.02	-0.29	-0.03
21-Feb	0.03	-0.09	-0.02	0.05	-0.03	0.01
1-Mar	0.04	-0.09	-0.04	0.05	-0.07	-0.02
11-Mar	0.02	-0.13	-0.06	0.04	-0.07	-0.02
21-Mar	0.00	-0.20	-0.10	0.00	-0.15	-0.04
1-Apr	0.01	-0.24	-0.11	0.02	-0.08	-0.01
11-Apr	-0.02	-0.19	-0.09	0.05	-0.06	0.01
21-Apr	0.03	-0.17	-0.08	0.03	-0.02	0.01
1-May	0.05	-0.14	-0.08	0.04	-0.03	-0.01
11-May	0.04	-0.19	-0.09	0.09	-0.04	0.01
21-May	0.11	-0.27	-0.10	0.11	-0.15	-0.01
1-Jun	-0.02	-0.26	-0.11	0.11	-0.06	0.01
11-Jun	0.03	-0.27	-0.09	0.16	-0.02	0.03
21-Jun	-0.01	-0.21	-0.10	0.05	-0.11	-0.02
1-Jul	-0.01	-0.19	-0.10	0.05	-0.09	0.00
11-Jul	0.05	-0.21	-0.10	0.07	-0.08	0.01
21-Jul	-0.02	-0.28	-0.09	0.11	-0.10	0.00
1-Aug	0.04	-0.14	-0.08	0.23	-0.11	0.03
11-Aug	0.07	-0.31	-0.13	0.05	-0.31	-0.09
21-Aug	0.96	-0.47	-0.06	1.14	-0.17	0.09
1-Sep	0.00	-0.28	-0.14	0.26	-1.24	-0.10
11-Sep	-0.04	-0.79	-0.19	0.08	-0.51	-0.05
21-Sep	-0.01	-0.38	-0.20	0.78	-0.24	0.00
1-Oct	-0.02	-0.33	-0.18	0.16	-0.10	0.02
11-Oct	0.14	-0.34	-0.17	0.16	-0.06	0.02
21-Oct	0.11	-0.30	-0.15	0.07	-0.03	0.03
1-Nov	0.02	-0.30	-0.13	0.18	-0.15	0.03
11-Nov	0.02	-0.22	-0.10	0.14	-0.07	0.02
21-Nov	-0.03	-0.24	-0.10	0.14	-0.09	0.01
1-Dec	0.03	-0.21	-0.07	0.14	-0.01	0.04
11-Dec	0.12	-0.13	-0.03	0.09	0.00	0.03
21-Dec	0.03	-0.08	-0.03	0.12	-0.12	0.01

Sources: Tennessee Department of Agriculture, Chicago Board of Trade

**Table 4. Soybean Local Cash Price vs. Nearby Futures**  
**Southwest Tennessee, 1993-2002**  
 10-day Difference Calculations

	High Bases	Low Bases	Average Bases	Largest + Difference	Largest - Difference	Average Difference
1-Jan	-0.04	-0.19	-0.11	0.45	0.00	0.12
11-Jan	-0.05	-0.27	-0.12	0.07	-0.07	0.01
21-Jan	-0.05	-0.45	-0.19	0.04	-0.45	-0.11
1-Feb	-0.08	-0.44	-0.20	0.07	-0.09	0.00
11-Feb	-0.09	-0.45	-0.20	0.30	-0.03	0.02
21-Feb	-0.13	-0.45	-0.22	0.02	-0.30	-0.05
1-Mar	-0.10	-0.46	-0.20	0.30	-0.04	0.05
11-Mar	-0.11	-0.35	-0.19	0.46	-0.23	0.02
21-Mar	-0.14	-0.40	-0.23	0.02	-0.19	-0.05
1-Apr	-0.12	-0.45	-0.25	0.13	-0.45	-0.05
11-Apr	-0.08	-0.40	-0.26	0.10	-0.19	-0.02
21-Apr	-0.08	-0.40	-0.23	0.23	-0.02	0.05
1-May	-0.09	-0.40	-0.25	0.30	-0.14	0.00
11-May	-0.08	-0.49	-0.25	0.10	-0.27	-0.03
21-May	0.01	-0.45	-0.29	0.19	-0.21	-0.03
1-Jun	-0.11	-0.44	-0.29	0.30	-0.06	0.03
11-Jun	-0.11	-0.44	-0.26	0.17	-0.30	0.00
21-Jun	-0.07	-0.45	-0.30	0.01	-0.33	-0.06
1-Jul	-0.07	-0.41	-0.29	0.17	-0.10	0.01
11-Jul	-0.11	-0.59	-0.30	0.40	-0.33	0.01
21-Jul	-0.11	-0.39	-0.25	0.23	-0.05	0.04
1-Aug	-0.13	-0.31	-0.23	0.18	-0.01	0.06
11-Aug	-0.09	-0.41	-0.22	0.09	-0.18	-0.01
21-Aug	0.34	-0.43	-0.17	0.75	-0.17	0.07
1-Sep	0.36	-0.35	-0.15	0.18	-0.06	0.03
11-Sep	-0.08	-0.93	-0.29	0.13	-1.29	-0.17
21-Sep	-0.15	-0.30	-0.24	0.78	-0.10	0.11
1-Oct	-0.13	-0.40	-0.26	0.02	-0.40	-0.07
11-Oct	0.07	-0.40	-0.25	0.20	-0.11	0.01
21-Oct	0.05	-0.43	-0.25	0.08	-0.03	0.01
1-Nov	-0.08	-0.35	-0.22	0.10	-0.22	0.03
11-Nov	-0.08	-0.38	-0.24	0.00	-0.06	-0.03
21-Nov	-0.12	-0.31	-0.22	0.35	-0.05	0.05
1-Dec	-0.05	-0.45	-0.21	0.12	-0.35	-0.01
11-Dec	0.03	-0.40	-0.21	0.08	-0.07	0.01
21-Dec	-0.09	-0.45	-0.20	0.12	-0.12	0.00

Sources: Tennessee Department of Agriculture, Chicago Board of Trade

**Table 5. Soybean Local Cash Price vs. Nearby Futures  
Upper Middle Tennessee, 1993-2002  
10-day Difference Calculations**

	High Bases	Low Bases	Average Bases	Largest + Difference	Largest - Difference	Average Difference
1-Jan	0.17	0.02	0.07	0.07	-0.08	0.01
11-Jan	0.14	0.03	0.09	0.08	-0.06	0.02
21-Jan	0.15	-0.03	0.06	0.04	-0.08	-0.02
1-Feb	0.12	-0.01	0.06	0.07	-0.02	0.01
11-Feb	0.11	-0.01	0.05	0.00	-0.03	-0.01
21-Feb	0.11	-0.01	0.05	0.03	-0.03	0.00
1-Mar	0.16	0.00	0.06	0.11	-0.02	0.01
11-Mar	0.13	-0.06	0.04	0.07	-0.14	-0.02
21-Mar	0.05	-0.15	-0.01	0.00	-0.15	-0.05
1-Apr	0.06	-0.16	-0.02	0.02	-0.12	-0.02
11-Apr	0.10	-0.12	-0.01	0.04	-0.07	0.01
21-Apr	0.06	-0.11	-0.01	0.02	-0.05	0.00
1-May	0.08	-0.06	0.00	0.07	-0.03	0.02
11-May	0.13	-0.11	-0.01	0.05	-0.06	-0.02
21-May	0.19	-0.17	-0.02	0.11	-0.12	-0.01
1-Jun	0.08	-0.17	-0.02	0.06	-0.03	0.01
11-Jun	0.09	-0.14	-0.01	0.10	-0.02	0.02
21-Jun	0.10	-0.12	-0.01	0.06	-0.13	-0.01
1-Jul	0.16	-0.12	0.00	0.04	-0.03	0.01
11-Jul	0.12	-0.11	0.01	0.09	-0.12	0.00
21-Jul	0.15	-0.18	-0.01	0.09	-0.22	-0.01
1-Aug	0.08	-0.12	-0.01	0.23	-0.08	0.02
11-Aug	0.07	-0.20	-0.04	0.05	-0.19	-0.06
21-Aug	0.72	-0.27	0.01	0.84	-0.25	0.07
1-Sep	0.21	-0.11	-0.01	0.38	-0.51	-0.02
11-Sep	0.07	-0.75	-0.11	0.06	-0.96	-0.13
21-Sep	0.05	-0.26	-0.10	0.78	-0.20	0.03
1-Oct	0.02	-0.24	-0.12	0.10	-0.11	-0.02
11-Oct	0.16	-0.23	-0.11	0.14	-0.02	0.02
21-Oct	0.15	-0.23	-0.10	0.05	-0.01	0.01
1-Nov	0.10	-0.20	-0.06	0.19	-0.20	0.05
11-Nov	0.13	-0.17	-0.05	0.12	-0.09	0.00
21-Nov	0.09	-0.12	-0.03	0.15	-0.06	0.03
1-Dec	0.14	-0.08	0.01	0.11	0.01	0.04
11-Dec	0.20	-0.03	0.04	0.12	-0.02	0.04
21-Dec	0.10	0.00	0.05	0.08	-0.12	0.01

Sources: Tennessee Department of Agriculture, Chicago Board of Trade

**Table 6. Soybean Local Cash Price vs. Nearby Futures  
Lower Middle Tennessee, 1993-2002  
10-day Difference Calculations**

	High Bases	Low Bases	Average Bases	Largest + Difference	Largest - Difference	Average Difference
1-Jan	0.03	-0.16	-0.09	0.20	-0.09	0.05
11-Jan	0.11	-0.20	-0.07	0.22	-0.16	0.01
21-Jan	0.07	-0.20	-0.10	0.15	-0.26	-0.04
1-Feb	0.05	-0.19	-0.10	0.05	-0.05	0.02
11-Feb	0.05	-0.17	-0.08	0.06	-0.06	0.01
21-Feb	0.05	-0.21	-0.07	0.20	-0.04	0.02
1-Mar	0.04	-0.20	-0.07	0.07	-0.20	0.00
11-Mar	0.03	-0.20	-0.07	0.06	-0.04	0.00
21-Mar	0.01	-0.35	-0.12	0.03	-0.15	-0.06
1-Apr	-0.05	-0.34	-0.15	0.01	-0.07	-0.02
11-Apr	-0.05	-0.35	-0.16	0.01	-0.07	-0.01
21-Apr	0.00	-0.35	-0.15	0.02	-0.05	0.00
1-May	0.04	-0.35	-0.15	0.03	-0.07	-0.01
11-May	0.03	-0.38	-0.16	0.08	-0.12	-0.01
21-May	0.09	-0.40	-0.17	0.14	-0.11	0.00
1-Jun	-0.05	-0.34	-0.18	0.06	-0.05	0.00
11-Jun	0.07	-0.34	-0.17	0.12	-0.06	0.02
21-Jun	0.00	-0.29	-0.14	0.14	-0.11	0.02
1-Jul	-0.04	-0.30	-0.14	0.06	-0.06	0.00
11-Jul	0.04	-0.43	-0.14	0.13	-0.13	-0.01
21-Jul	0.02	-0.29	-0.11	0.23	-0.12	0.04
1-Aug	0.00	-0.34	-0.09	0.29	-0.19	0.02
11-Aug	0.01	-0.41	-0.14	0.06	-0.21	-0.06
21-Aug	0.50	-0.53	-0.08	0.77	-0.24	0.07
1-Sep	0.45	-0.32	-0.05	0.34	-0.08	0.04
11-Sep	0.02	-0.83	-0.17	0.08	-1.28	-0.14
21-Sep	0.15	-0.38	-0.16	0.78	-0.20	0.03
1-Oct	0.00	-0.30	-0.20	0.13	-0.15	-0.05
11-Oct	0.04	-0.35	-0.22	0.09	-0.20	-0.02
21-Oct	0.07	-0.43	-0.21	0.03	-0.08	0.00
1-Nov	-0.04	-0.28	-0.18	0.16	-0.11	0.03
11-Nov	-0.07	-0.30	-0.19	0.09	-0.16	0.00
21-Nov	-0.02	-0.29	-0.19	0.20	-0.08	0.01
1-Dec	-0.07	-0.30	-0.17	0.13	-0.05	0.02
11-Dec	0.03	-0.25	-0.13	0.12	0.00	0.05
21-Dec	-0.02	-0.20	-0.12	0.05	-0.12	-0.01

Sources: Tennessee Department of Agriculture, Chicago Board of Trade

**Table 7. Soybean Cash-Forward Contract Price vs. November Futures  
Memphis, 1993-2002  
10-day Difference Calculations**

	High Bases	Low Bases	Average Bases	Largest + Difference	Largest - Difference	Average Difference
1-Jan						
11-Jan						
21-Jan	0.00	-0.13	-0.06			
1-Feb	0.03	-0.12	-0.04	0.06	0.00	0.02
11-Feb	0.04	-0.12	-0.04	0.01	-0.01	0.00
21-Feb	0.03	-0.12	-0.04	0.02	-0.01	0.00
1-Mar	0.04	-0.10	-0.02	0.05	0.00	0.01
11-Mar	0.04	-0.10	-0.03	0.02	0.00	0.00
21-Mar	0.04	-0.10	-0.02	0.07	-0.03	0.01
1-Apr	0.04	-0.09	-0.01	0.01	-0.01	0.00
11-Apr	0.04	-0.10	-0.01	0.02	-0.01	0.00
21-Apr	0.04	-0.10	-0.01	0.02	-0.01	0.00
1-May	0.07	-0.10	-0.01	0.04	-0.02	0.00
11-May	0.08	-0.10	-0.01	0.01	-0.02	0.00
21-May	0.08	-0.09	0.00	0.04	0.00	0.01
1-Jun	0.09	-0.08	0.01	0.08	-0.02	0.01
11-Jun	0.09	-0.05	0.00	0.03	-0.09	-0.01
21-Jun	0.12	-0.07	0.00	0.03	-0.04	0.00
1-Jul	0.09	-0.07	0.00	0.04	-0.03	0.00
11-Jul	0.13	-0.07	0.01	0.04	-0.01	0.01
21-Jul	0.13	-0.07	0.01	0.01	-0.01	0.00
1-Aug	0.12	-0.06	0.01	0.03	-0.02	0.00
11-Aug	0.12	-0.05	0.02	0.04	-0.04	0.01
21-Aug	0.15	-0.08	0.01	0.03	-0.08	-0.01
1-Sep	0.15	-0.07	0.02	0.10	-0.05	0.00
11-Sep	0.16	-0.09	0.02	0.08	-0.02	0.01
21-Sep	0.16	-0.16	0.00	0.03	-0.18	-0.03

Sources: Tennessee Department of Agriculture, Chicago Board of Trade

**Table 8. Soybean Cash-Forward Contract Price vs. November Futures  
Northwest Tennessee Barge Points, 1993-2002  
10-day Difference Calculations**

	High Bases	Low Bases	Average Bases	Largest + Difference	Largest - Difference	Average Difference
1-Jan						
11-Jan						
21-Jan	-0.06	-0.22	-0.15			
1-Feb	-0.03	-0.25	-0.15	0.04	-0.12	0.00
11-Feb	0.14	-0.25	-0.14	0.17	-0.04	0.01
21-Feb	-0.02	-0.25	-0.16	0.01	-0.16	-0.02
1-Mar	-0.06	-0.24	-0.16	0.06	-0.06	0.00
11-Mar	-0.02	-0.18	-0.12	0.10	-0.03	0.04
21-Mar	0.00	-0.31	-0.15	0.02	-0.22	-0.03
1-Apr	-0.02	-0.37	-0.16	0.02	-0.06	-0.01
11-Apr	-0.02	-0.30	-0.15	0.07	-0.01	0.01
21-Apr	-0.03	-0.30	-0.16	0.03	-0.15	-0.02
1-May	0.03	-0.23	-0.14	0.10	-0.01	0.03
11-May	-0.02	-0.54	-0.17	0.07	-0.31	-0.03
21-May	-0.07	-0.20	-0.14	0.37	-0.08	0.03
1-Jun	-0.03	-0.20	-0.11	0.08	-0.01	0.03
11-Jun	0.06	-0.19	-0.09	0.17	-0.08	0.02
21-Jun	0.26	-0.22	-0.07	0.20	-0.03	0.02
1-Jul	0.13	-0.23	-0.06	0.24	-0.33	0.02
11-Jul	-0.03	-0.36	-0.11	0.00	-0.16	-0.06
21-Jul	0.01	-0.22	-0.09	0.14	-0.02	0.02
1-Aug	-0.02	-0.17	-0.11	0.06	-0.12	-0.01
11-Aug	0.19	-0.19	-0.07	0.24	-0.05	0.03
21-Aug	0.07	-0.32	-0.12	0.07	-0.23	-0.04
1-Sep	-0.03	-0.22	-0.11	0.17	-0.10	0.00
11-Sep	0.01	-0.23	-0.11	0.04	-0.04	0.00
21-Sep	0.07	-0.30	-0.14	0.06	-0.11	-0.03

Sources: Tennessee Department of Agriculture, Chicago Board of Trade

<b>Table 9. Soybean Cash-Forward Contract Price vs. November Futures</b> <b>Northwest Tennessee, 1993-2002</b> <b>10-day Difference Calculations</b>						
	High Bases	Low Bases	Average Bases	Largest + Difference	Largest - Difference	Average Difference
1-Jan						
11-Jan						
21-Jan	-0.18	-0.29	-0.24			
1-Feb	-0.17	-0.34	-0.23	0.06	-0.34	-0.07
11-Feb	0.04	-0.36	-0.23	0.21	-0.12	0.00
21-Feb	-0.15	-0.36	-0.25	0.04	-0.19	-0.03
1-Mar	-0.21	-0.31	-0.25	0.05	-0.06	0.00
11-Mar	0.10	-0.30	-0.20	0.31	-0.01	0.06
21-Mar	-0.14	-0.32	-0.24	0.01	-0.24	-0.05
1-Apr	-0.15	-0.47	-0.25	0.05	-0.15	-0.02
11-Apr	-0.15	-0.32	-0.24	0.16	-0.03	0.01
21-Apr	-0.16	-0.42	-0.26	0.04	-0.17	-0.03
1-May	-0.16	-0.38	-0.26	0.06	-0.04	0.00
11-May	-0.16	-0.57	-0.27	0.15	-0.21	-0.01
21-May	-0.18	-0.30	-0.24	0.27	-0.07	0.03
1-Jun	-0.21	-0.29	-0.25	0.06	-0.06	0.00
11-Jun	-0.12	-0.30	-0.21	0.15	-0.08	0.03
21-Jun	0.12	-0.27	-0.19	0.24	-0.04	0.03
1-Jul	0.02	-0.32	-0.21	0.22	-0.35	-0.03
11-Jul	-0.18	-0.40	-0.25	0.05	-0.21	-0.04
21-Jul	-0.12	-0.27	-0.20	0.13	0.00	0.05
1-Aug	-0.14	-0.32	-0.22	0.20	-0.09	0.00
11-Aug	0.07	-0.31	-0.19	0.24	-0.16	0.01
21-Aug	-0.13	-0.32	-0.22	0.04	-0.21	-0.03
1-Sep	-0.16	-0.34	-0.24	0.09	-0.08	-0.02
11-Sep	-0.12	-0.31	-0.22	0.08	-0.06	0.02
21-Sep	-0.11	-0.38	-0.24	0.04	-0.12	-0.02

Sources: Tennessee Department of Agriculture, Chicago Board of Trade

<b>Table 10. Soybean Cash-Forward Contract Price vs. November Futures</b> <b>Southwest Tennessee, 1993-2002</b> <b>10-day Difference Calculations</b>						
	High Bases	Low Bases	Average Bases	Largest + Difference	Largest - Difference	Average Difference
1-Jan						
11-Jan						
21-Jan	-0.11	-0.40	-0.22			
1-Feb	-0.11	-0.40	-0.21	0.06	-0.01	0.01
11-Feb	-0.07	-0.62	-0.20	0.17	-0.27	0.00
21-Feb	-0.10	-0.63	-0.25	0.03	-0.40	-0.08
1-Mar	-0.10	-0.59	-0.24	0.40	-0.05	0.04
11-Mar	0.00	-0.40	-0.16	0.45	-0.40	0.09
21-Mar	-0.10	-0.40	-0.21	0.00	-0.23	-0.05
1-Apr	-0.08	-0.62	-0.23	0.06	-0.40	-0.07
11-Apr	-0.08	-0.40	-0.21	0.28	-0.06	0.03
21-Apr	-0.06	-0.65	-0.27	0.02	-0.34	-0.07
1-May	-0.06	-0.64	-0.26	0.40	-0.04	0.04
11-May	-0.06	-0.40	-0.20	0.23	-0.39	-0.01
21-May	-0.04	-0.40	-0.22	0.02	-0.09	-0.01
1-Jun	-0.01	-0.41	-0.19	0.40	-0.02	0.06
11-Jun	-0.01	-0.45	-0.23	0.01	-0.40	-0.07
21-Jun	-0.03	-0.43	-0.19	0.40	-0.03	0.07
1-Jul	0.00	-0.40	-0.19	0.03	-0.13	-0.01
11-Jul	-0.01	-0.40	-0.22	0.02	-0.14	-0.02
21-Jul	0.02	-0.63	-0.24	0.15	-0.40	-0.02
1-Aug	0.18	-0.40	-0.12	0.81	-0.02	0.10
11-Aug	0.02	-0.40	-0.19	0.02	-0.40	-0.05
21-Aug	0.03	-0.40	-0.19	0.01	-0.07	-0.01
1-Sep	0.02	-0.45	-0.16	0.03	-0.05	-0.01
11-Sep	0.03	-0.40	-0.19	0.06	-0.06	0.01
21-Sep	0.03	-0.35	-0.17	0.40	-0.07	0.03

Sources: Tennessee Department of Agriculture, Chicago Board of Trade



**Table 11. Soybean Cash-Forward Contract Price vs. November Futures  
Upper Middle Tennessee, 1993-2002  
10-day Difference Calculations**

	High Bases	Low Bases	Average Bases	Largest + Difference	Largest - Difference	Average Difference
1-Jan						
11-Jan						
21-Jan	-0.08	-0.25	-0.15			
1-Feb	-0.08	-0.25	-0.15	0.04	-0.09	-0.01
11-Feb	0.13	-0.28	-0.15	0.22	-0.14	0.00
21-Feb	-0.08	-0.28	-0.17	0.02	-0.21	-0.03
1-Mar	-0.09	-0.24	-0.16	0.13	-0.05	0.02
11-Mar	0.19	-0.24	-0.11	0.32	-0.04	0.06
21-Mar	-0.04	-0.25	-0.15	0.11	-0.27	-0.05
1-Apr	-0.07	-0.39	-0.19	0.01	-0.25	-0.06
11-Apr	-0.07	-0.25	-0.16	0.25	-0.01	0.04
21-Apr	-0.09	-0.36	-0.20	0.01	-0.22	-0.05
1-May	-0.09	-0.28	-0.19	0.08	-0.07	0.01
11-May	-0.08	-0.61	-0.20	0.15	-0.33	-0.01
21-May	-0.10	-0.25	-0.18	0.48	-0.08	0.03
1-Jun	-0.08	-0.25	-0.15	0.09	0.00	0.02
11-Jun	-0.05	-0.25	-0.16	0.08	-0.09	-0.01
21-Jun	0.19	-0.29	-0.13	0.24	-0.04	0.04
1-Jul	0.07	-0.30	-0.15	0.18	-0.32	-0.02
11-Jul	-0.07	-0.39	-0.17	0.11	-0.17	-0.02
21-Jul	0.06	-0.30	-0.15	0.17	-0.10	0.03
1-Aug	-0.06	-0.30	-0.17	0.09	-0.12	0.00
11-Aug	0.11	-0.35	-0.14	0.20	-0.07	0.01
21-Aug	-0.05	-0.35	-0.16	0.01	-0.18	-0.03
1-Sep	-0.07	-0.35	-0.19	0.08	-0.12	-0.02
11-Sep	-0.05	-0.35	-0.17	0.11	-0.03	0.01
21-Sep	0.00	-0.30	-0.15	0.09	-0.11	0.01

Sources: Tennessee Department of Agriculture, Chicago Board of Trade

<b>Table 12. Soybean Cash-Forward Contract Price vs. November Futures</b> <b>Lower Middle Tennessee, 1993-2002</b> <b>10-day Difference Calculations</b>						
	High Bases	Low Bases	Average Bases	Largest + Difference	Largest - Difference	Average Difference
1-Jan						
11-Jan						
21-Jan	-0.05	-0.20	-0.11			
1-Feb	-0.03	-0.20	-0.11	0.11	-0.20	-0.01
11-Feb	0.08	-0.44	-0.11	0.11	-0.24	-0.01
21-Feb	-0.03	-0.48	-0.13	0.01	-0.11	-0.02
1-Mar	-0.05	-0.45	-0.16	0.03	-0.22	-0.03
11-Mar	0.13	-0.20	-0.07	0.38	-0.01	0.11
21-Mar	-0.02	-0.20	-0.10	0.01	-0.15	-0.03
1-Apr	0.03	-0.57	-0.12	0.05	-0.37	-0.04
11-Apr	-0.02	-0.20	-0.10	0.38	-0.17	0.02
21-Apr	-0.01	-0.60	-0.16	0.09	-0.41	-0.06
1-May	0.00	-0.59	-0.16	0.01	-0.03	0.00
11-May	0.02	-0.52	-0.13	0.31	-0.10	0.03
21-May	0.04	-0.20	-0.09	0.37	-0.03	0.05
1-Jun	0.06	-0.20	-0.08	0.11	-0.10	0.02
11-Jun	0.04	-0.35	-0.12	0.01	-0.22	-0.05
21-Jun	0.05	-0.20	-0.08	0.23	0.00	0.05
1-Jul	0.08	-0.20	-0.09	0.03	-0.08	-0.02
11-Jul	0.07	-0.21	-0.12	0.04	-0.13	-0.02
21-Jul	0.09	-0.29	-0.10	0.17	-0.09	0.01
1-Aug	0.06	-0.30	-0.07	0.20	-0.03	0.04
11-Aug	0.08	-0.30	-0.11	0.02	-0.21	-0.04
21-Aug	0.10	-0.30	-0.10	0.08	-0.06	0.00
1-Sep	0.09	-0.26	-0.11	0.11	-0.11	-0.01
11-Sep	0.10	-0.22	-0.10	0.06	-0.03	0.01
21-Sep	0.09	-0.25	-0.12	0.12	-0.20	-0.02

Sources: Tennessee Department of Agriculture, Chicago Board of Trade

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