COOPERATIVE EXTENSION SERVICE
UNIVERSITY OF MARYLAND AT COLLEGE PARK
UNIVERSITY OF MARYLAND EASTERN SHORE

FACT SHEET

Maryland Soybean Basis and Price Information

Fact Sheet 496

Kevin McNew
Extension Marketing Specialist
Department of Agricultural and
Resource Economics
University of Maryland at College Park

The local basis, defined as the cash price minus futures price, reflects important information about regional supply and demand for a commodity. Soybean basis estimates can be used by farmers, grain marketing firms, processors, and feed buyers to forecast regional prices, make production or storage decisions, or assess different soybean purchasing alternatives. This fact sheet gives estimates of soybean basis and cash prices for seven regions in Maryland.

Methodology and Interpretation

Tables 1-7 display the 5-year average monthly soybean basis for seven different regions: Baltimore, western Maryland, central Maryland, southern Maryland, the upper Eastern Shore, the lower Eastern Shore, and southeastern Pennsylvania. The regional average cash price bid is collected each Wednesday by the Maryland Department of Agriculture and published in the Maryland Grain and Livestock Report. Regional prices were collected for the marketing years 1990-91, 1991-92, 1992-93, 1993-94, and 1994-95. For each day that a cash price is quoted, the array of futures prices for that day is merged with the cash price to construct a profile of basis values. The basis is computed by taking the difference between a regional cash price and the futures price for a specific contract month. Monthly average basis values are computed for each contract month and then averaged over the 5 marketing years. The average and standard deviation (SD) of the basis for the 5 years is presented in the tables.

The columns for tables 1-7 represent the futures contract month while table rows signify the calendar month of the marketing season. For example, in table 1, the intersection of the September row and the March column is -19 and would be read as follows: "In the calendar month of September, the average basis for the March futures contract is 19 cents under." Or, alternatively, "In September, the March futures price is on average 19 cents higher than the cash price." The nearby basis can be obtained from the left-hand entry in every row.

Associated with each average basis estimate is a standard deviation. The SD represents the variability of the basis estimates. As a general rule, the actual basis is likely to fall within plus or minus one SD of the average basis. An optimistic basis is the average basis estimate plus the SD, while a pessimistic basis estimate is the average basis minus the SD. If the basis is normally distributed, 67 percent of the time the actual basis will fall within the bounds of the optimistic and pessimistic basis values.

Issued in furtherance of Cooperative Extension work, acts of May 8 and June 30,1914, in cooperation with the U.S. Department of Agriculture, University of Maryland at College Park, and local governments. Thomas A. Fretz, Director of Cooperative Extension Service, University of Maryland at College Park.

Using the Basis Tables: Some Examples

In this section various examples are presented that show how the basis tables may be used.

(I) Harvest-Time Storage Decisions

For deciding whether to store soybeans after harvest it is important to recognize the market signals that encourage storage. The first thing to examine is the current harvest-time basis. Is the current basis stronger or weaker than normal? A general rule, which can improve storage profitability, is to store soybeans whenever the harvest-time basis is below the pessimistic basis level and sell soybeans if the basis is above the optimistic basis value. A producer harvesting soybeans in November would want to compare the current December basis with the average December basis in October. For Baltimore, the average January basis in November is -1 cent with a SD of 10 (see table 1). A basis less than -11 (i.e., -1-10) is a good indicator to store. In contrast, a strong basis (i.e., higher than 9) is a good indicator to sell soybeans at harvest in lieu of storing.

The second piece of important information for analyzing a post-harvest storage decision is the current "storage futures price." Simply stated, the storage futures price represents what the futures market is willing to pay to have soybeans stored from a nearby contract month to a distant contract month; it is computed from the price spread between consecutive contracts (i.e., distant futures price minus nearby futures price). For example, suppose that in November the January and March soybean prices are 600 and 610 cents per bushel, respectively. Given these prices, the market is willing to pay 10 cents to store soybeans from January to March. This price is for storage in delivery locations for the Chicago futures market but it can be useful for determining storage prices for Maryland.

The basis tables can be used to calculate the average storage price. The average storage futures price can be obtained by taking the nearby basis and subtracting a distant basis. Using Baltimore as an example, in the calendar month of November the average price of storage between January and March is as follows:

January basis in November - March basis in November
(-1) - (-9) = 8

Thus, in November the average price of storage is 8 cents per bushel for 2 months or 4 cents per month. On any given day one can obtain the current storage futures price by looking at the difference between consecutive futures contract prices. Higher than average storage prices indicate it is a good year to store, while lower than normal prices indicate that it is not good to store.

(II) Optimal Selling Month of Stored Grain

The basis tables can also be used to calculate the average return to soybean storage. By placing soybeans in storage after harvest and simultaneously selling a distant futures contract, a producer earns a return whenever the contracted basis increases over the season. Thus, instead of storage returns being dependent on cash price appreciation, a hedged storage position earns profits if a contract month basis increases over the season. Using Baltimore as an example, suppose a producer wants to store soybeans from November to February. The futures side of this hedging decision is to sell the March contract in November and, when the beans are sold in February, buy back the March futures contract. The return to storage accounts for the short futures position and long cash position. On average, this return is as follows:

March basis in February - March basis in November
21 - (-9) = 30

Thus, on average, storing from Novenber to February earns 30 cents per bushel when hedging with a March futures contract.

The tables can also be used to calculate the optimal month to sell stored soybeans. Assuming a producer harvests in November and has a storage cost of 4 cents per month, average storage profit is equal to

the average storage return (i.e., basis appreciation) for each month less storage cost. This is illustrated below using the Baltimore May soybean basis. Average return is given by the amount of appreciation in the May basis from November (i.e., harvest) until the beans are sold. For example, the average return in January is 23 cents per bushel and reflects the difference between the May basis in January (6 cents) and the May basis in November (-17 cents).

Baltimore Average Soybean Storage Profit With 4 Cents/Month Storage Cost and Storing In November

Selling Month	Average Return (Cents/Bushel)	Total Storage Cost (Cents/Bushel)	Average Profit (Cents/Bushel)
December	12	4	8
January	23	8	15
February	30	12	18
March	31	16	15
April	31	20	11

The producer's optimal selling month is February, since that month has the highest average profit. This only illustrates what the best strategy would be on average. For any given year, it may be best to sell grain at a different time during the season.

Price Information

Table 8 gives the average monthly soybean cash price for the seven regions. These values are reflected in figures 1-3 for various regions. Harvest-time soybean prices for November tend to be highest in Baltimore, while the lowest prices occur in southern and western Maryland. The price differential at harvest tends to be about 35 cents per bushel from high to low price regions. By March, the differential has diminished to 30 cents, making interregional sales less profitable.

Table 1. Average Baltimore Soybean Basis: 1990-95.

	Futures Contract Month					
Calendar Month	*November*	*January*	*March*	*May*	*July*	*September*
September	0	-9	-19	-25	-30	-14
	(4)[1]	(5)	(6)	(7)	(8)	(14)
October	4	-6	-16	-24	-30	-21
	(6)	(9)	(11)	(12)	(13)	(15)
November		-1	-9	-17	-23	-17
		(10)	(13)	(16)	(19)	(23)
December		11	2	-5	-11	-6
		(9)	(13)	(16)	(18)	(25)
January			13	6	-1	2
			(9)	(13)	(15)	(26)
February			21	13	6	7
			(5)	(8)	(11)	(20)
March				14	6	6
				(2)	(6)	(19)
April				14	7	7
				(11)	(15)	(28)
May					9	10
					(15)	(28)
June					8	7
					(13)	(22)
July						13
						(19)
August						-4
						(3)

[1]Standard deviation given in parentheses. All values are in cents per bushel.

Table 2. Average Western Maryland Soybean Basis: 1990-95.

	Futures Contract Month					
Calendar Month	*November*	*January*	*March*	*May*	*July*	*September*
September	-27	-36	-45	-52	-57	-40
	(7)1	(10)	(13)	(15)	(16)	(16)
October	-26	-36	-46	-53	-60	-51
	(7)	(9)	(11)	(13)	(15)	(16)
November		-36	-44	-52	-58	-52
		(15)	(18)	(21)	(24)	(29)
December		-33	-41	-48	-54	-49
		(15)	(18)	(22)	(25)	(33)
January			-35	-43	-49	-46
			(11)	(14)	(16)	(26)
February			-27	-35	-42	-42
			(10)	(13)	(16)	(24)
March				-31	-39	-26
				(9)	(12)	(8)
April				-26	-33	-33
				(8)	(9)	(18)
May					-29	-28
					(5)	(18)
June					-24	-25
					(9)	(15)
July						-23
						(23)
August						-23
						(10)

[1]Standard deviation given in parentheses. All values are in cents per bushel.

Table 3. Average Central Maryland Soybean Basis: 1990-95.

	Futures Contract Month					
Calendar Month	*November*	*January*	*March*	*May*	*July*	*September*
September	-21	-30	-40	-46	-51	-36
	(3)[1]	(4)	(7)	(8)	(9)	(17)
October	-17	-28	-37	-45	-52	-43
	(5)	(8)	(10)	(12)	(13)	(15)
November		-28	-36	-44	-50	-44
		(13)	(15)	(18)	(21)	(26)
December		-17	-25	-32	-39	-33
		(11)	(14)	(17)	(20)	(29)
January			-14	-21	-28	-25
			(10)	(11)	(13)	(25)
February			-4	-12	-19	-18
			(2)	(3)	(7)	(19)
March				-8	-16	-16
				(6)	(11)	(24)
April				-7	-14	-14
				(7)	(12)	(26)
May					-16	-15
					(9)	(22)
June					-11	-13
					(7)	(16)
July						-8
						(20)
August						-15
						(7)

[1]Standard deviation given in parentheses. All values are in cents per bushel.

Table 4. Average Southern Maryland Soybean Basis: 1990-95.

	Futures Contract Month					
Calendar Month	*November*	*January*	*March*	*May*	*July*	*September*
September	-28 (2)[1]	-37 (5)	-46 (7)	-52 (9)	-58 (10)	-41 (16)
October	-27 (2)	-37 (6)	-47 (8)	-54 (10)	-61 (12)	-52 (12)
November		-38 (10)	-46 (14)	-54 (17)	-60 (20)	-54 (25)
December		-28 (11)	-36 (14)	-43 (17)	-49 (20)	-44 (27)
January			-17 (9)	-25 (10)	-31 (12)	-28 (24)
February			-13 (7)	-21 (7)	-28 (9)	-27 (19)
March				-15 (2)	-23 (5)	-23 (18)
April				-15 (6)	-21 (10)	-21 (21)
May					-19 (6)	-18 (19)
June					-15 (4)	-13 (14)
July						-14 (11)
August						-26 (9)

[1]Standard deviation given in parentheses. All values are in cents per bushel.

Table 5. Average Upper Eastern Shore Soybean Basis: 1990-95.

	Futures Contract Month					
Calendar Month	*November*	*January*	*March*	*May*	*July*	*September*
September	-24 (4)[1]	-33 (7)	-42 (10)	-48 (11)	-54 (12)	-37 (16)
October	-23 (5)	-33 (8)	-42 (11)	-50 (13)	-57 (15)	-48 (14)
November		-30 (14)	-38 (17)	-46 (21)	-52 (23)	-46 (29)
December		-20 (8)	-28 (11)	-35 (14)	-42 (17)	-36 (28)
January			-17 (7)	-24 (10)	-31 (13)	-28 (25)
February			-9 (4)	-17 (7)	-24 (11)	-23 (24)
March				-12 (6)	-20 (10)	-20 (24)
April				-9 (7)	-16 (12)	-16 (27)
May					-14 (12)	-13 (25)
June					-15 (10)	-16 (20)
July						-14 (13)
August						-19 (7)

[1]Standard deviation given in parentheses. All values are in cents per bushel.

Table 6. Average Lower Eastern Shore Soybean Basis: 1990-95.

	Futures Contract Month					
Calendar Month	*November*	*January*	*March*	*May*	*July*	*September*
September	-16 (7)[1]	-25 (9)	-34 (11)	-41 (13)	-46 (14)	-29 (17)
October	-18 (6)	-28 (9)	-38 (11)	-46 (14)	-52 (15)	-43 (14)
November		-26 (14)	-35 (17)	-42 (21)	-49 (24)	-43 (29)
December		-15 (8)	-23 (10)	-31 (14)	-37 (17)	-31 (28)
January			-9 (7)	-17 (11)	-24 (14)	-21 (27)
February			0 (6)	-8 (10)	-15 (14)	-14 (26)
March				-1 (10)	-9 (14)	-10 (27)
April				0 (11)	-7 (16)	-7 (30)
May					-6 (15)	-4 (29)
June					-4 (13)	-5 (23)
July						-4 (16)
August						-10 (10)

[1]Standard deviation given in parentheses. All values are in cents per bushel.

Table 7. Average Southern Pennsylvania Soybean Basis: 1990-95.

	Futures Contract Month					
Calendar Month	*November*	*January*	*March*	*May*	*July*	*September*
September	-13 (15)[1]	-22 (18)	-31 (20)	-38 (22)	-43 (24)	-26 (27)
October	-16 (12)	-26 (13)	-35 (14)	-43 (16)	-50 (17)	-42 (22)
November		-32 (12)	-41 (14)	-48 (17)	-54 (19)	-47 (27)
December		-24 (10)	-33 (13)	-40 (16)	-46 (18)	-40 (27)
January			-17 (8)	-25 (11)	-31 (15)	-28 (28)
February			-8 (6)	-16 (10)	-23 (14)	-22 (25)
March				-12 (6)	-19 (10)	-20 (22)
April				-8 (7)	-15 (12)	-15 (26)
May					-17 (5)	-17 (17)
June					-8 (10)	-10 (20)
July						-5 (20)
August						-6 (16)

[1]Standard deviation given in parentheses. All values are in cents per bushel.

Figure 1. Seasonal Average Cash Soybean Price for Western Maryland and Southeastern Pennsylvania: 1990-95.

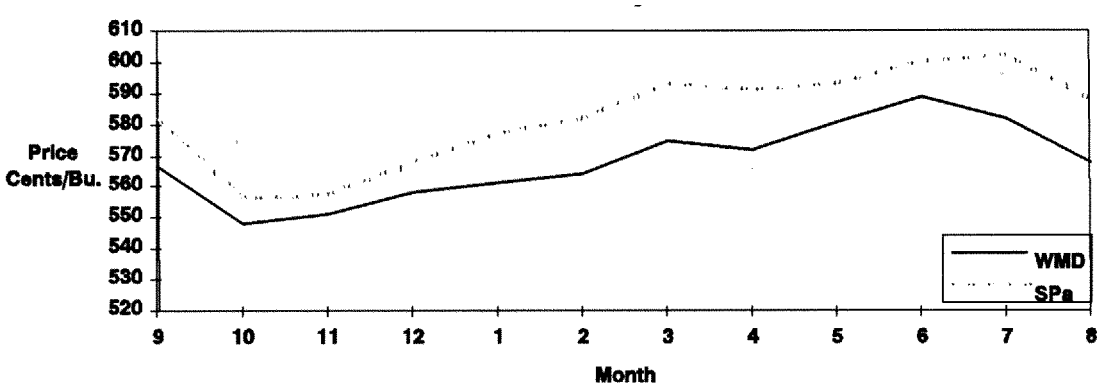

Figure 2. Seasonal Average Cash Soybean Price for Southern, Central and Baltimore Maryland: 1990-95.

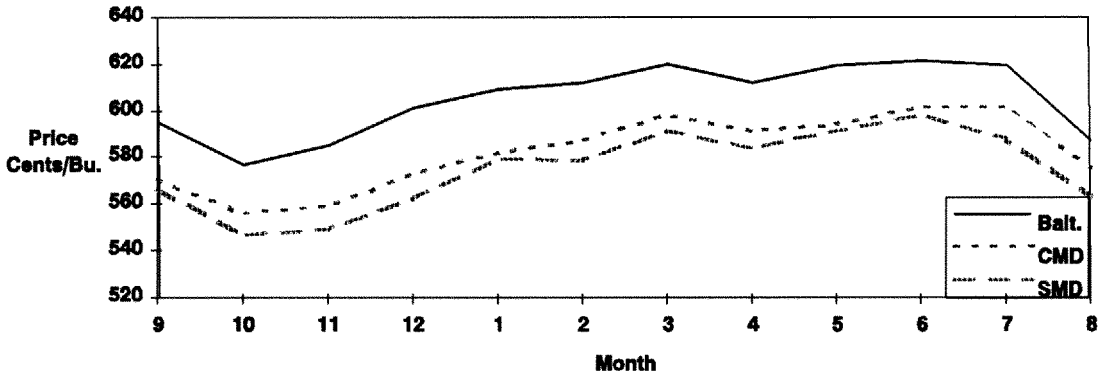

Figure 3. Seasonal Average Cash Soybean Price for Upper and Lower Eastern Shore Maryland: 1990-95.

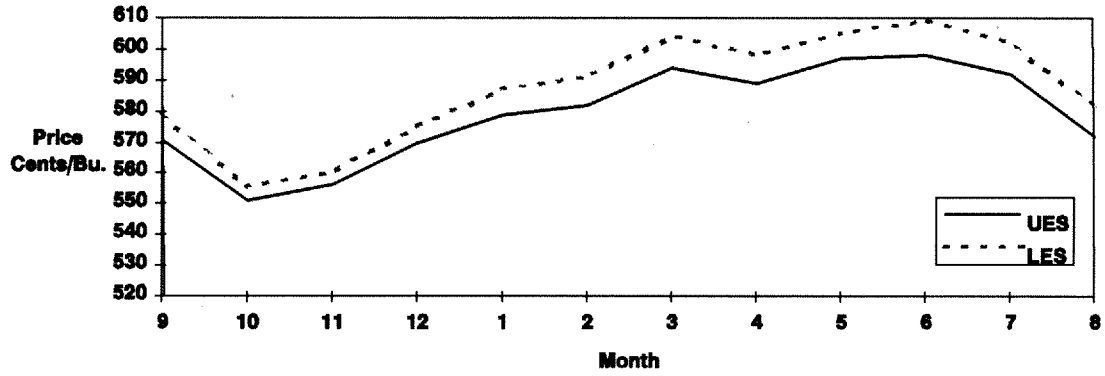

Table 8. Seasonal Average Cash Soybean Prices: 1990-95.

Month	Balt.	WMD	CMD	SMD	UES	LES	SPa.
September	595	567	570	567	571	579	582
October	577	548	556	547	551	555	556
November	585	551	559	549	556	560	557
December	601	558	573	562	570	575	568
January	609	561	582	579	579	587	577
February	612	564	587	578	582	591	582
March	620	575	598	591	594	604	593
April	612	572	591	584	589	598	591
May	619	581	594	591	597	605	593
June	621	589	601	598	598	609	600
July	619	582	601	588	592	602	602
August	587	568	575	563	572	581	588