PHREC 12 - 20

Historical Crop Prices, Seasonal Patterns, and Futures Basis for the Nebraska Panhandle 1992-2012

Photo by: Gary Stone, Banner County, NE

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There are, collectively, in excess of 1.7 million acres in corn, wheat, sorghum, proso millet, dry edible beans, sunflowers, alfalfa hay, and other specialty crops grown in the Nebraska Panhandle. The unique geographic, ecological and demographic features of the area have a significant influence on crop prices and create a dynamic and unique market. This publication provides a basic price analysis for significant crops in the Nebraska Panhandle to help growers and other stakeholders make the best possible marketing and production decisions.

Wheat and corn occupy the largest number of acres, accounting for a combined total of just over 800 thousand harvested acres in the 2007 Agriculture Census. These two crops are both traded on the futures commodity markets, granting the ability to compare local cash prices to national futures prices to establish local basis. The other crops discussed and analyzed here (proso millet, sorghum, alfalfa hay, pinto beans, and great northern beans) do not have an underlying futures contract.

Some of the primary objectives of this work is to capture the price trends of the included commodities, to identify seasonal patterns, and to establish a historical basis for corn and wheat.

Data Description

Local cash prices for corn, wheat, proso millet, and dry edible beans are collected each week on Friday from local area elevators. These weekly prices are used as the representative price for that week. These weekly prices are aggregated into monthly and yearly averages. Grain sorghum and alfalfa hay prices are collected monthly from the USDA NASS and are aggregated into yearly averages. Prices are presented in a "crop year" format such that each respective crop table or figure may begin with a different month, determined by the harvest date when new crop product becomes available on the market. Note that reported cropping years have been adjusted from previous versions of this report to match USDA reported cropping years.

Corn futures (ELEC Corn) prices are reported by the Chicago Board of Trade (CBOT), while wheat futures (HRW Wheat) are collected from the Kansas City Board of Trade (KCBT). Futures prices are reported as the near-by contract, collected each Friday and aggregated into monthly and yearly averages. Near-by futures price is the reported price of upcoming contract. Contract months are March, May, July, September, and December for both corn and wheat.

The remainder of this section will discuss each of the analysis tools utilized to interpret the reported prices: indices, standard deviations, and basis.

Price Indices

To describe local seasonal price trends, a monthly price index has been developed for each crop. Price indices provide a summary of the relationship between the price for each month and the average price for the crop year. Monthly price changes which tend to repeat from year to year are reflected by the average seasonal index. A monthly price index of 1.00 or 100% implies that the price for that month is equal to the average price for the year, while a monthly index of 0.90 or 90% indicates the price is 10% below the average price for the year. Equation 1 shows how the monthly price indices are calculated:

Equation 1

$$Monthly\ Price\ Index = \frac{Monthly\ Price}{Annual\ Avg.Price}$$

For example the price index for September 2011/12 corn is 1.03 or 103% of the annual average:

Equation 2

$$Monthly\ Price\ Index = \frac{6.61}{6.40} = 1.03$$

This price index suggests that the monthly average corn price for September 2012 was 3% above the annual average corn price for the 2011/12 crop year.

Price indices are a useful in forecasting future prices when a year is assumed to be "a normal crop year", a year where historical patterns are expected to be in effect. The forecast price for a month in the future can be determined by calculating the relative difference from the current month to a specific future month. The calculation for this price estimate is as follows:

Equation 3

$$\begin{matrix} Forecasted \\ Price\ in \\ Future\ Mo. \end{matrix} = \frac{\begin{matrix} Historical\ Index\ of \\ Future\ Mo. \end{matrix} \times \begin{matrix} Price\ in \\ Current\ Mo. \end{matrix}}{Index\ in\ Current\ Mo.}$$

Equation 3 illustrates an example of forecasting the future price of corn in the month of March for the month of June assuming "a normal year". Given the March 5 year seasonal average index of 1.01 and a June index of 1.09 and a current price of $6.25/bu. the forecasted or expected corn price for June is $6.75/bu:

Equation 4

$$June\ Price = \frac{1.09\ \times 6.25}{1.01} = 6.75$$

This procedure gives the forecasted price with consideration only to average local seasonal influence. Projecting prices in the future depends on more than historical data and simple price indices. Supply and demand factors such as production levels, export levels, quantity in storage or carry over, and prices of competing commodities and government programs are also important in estimating prices. However, this calculation can be useful for ballpark estimates.

Standard Deviations

Standard deviations (σ) are a statistical method of expressing variation. In this case the degree of variation of prices and the indices. Standard deviations (σ) are estimated for each month over a 5 year period. The formula for the standard deviation is expressed in Equation 5:

Equation 5

$$\sigma = \sqrt{\frac{\sum_{i=1}^{N}[y - E(y)]^2}{N - 1}}$$

where *y* is the observation (reported monthly average), *E(y)* is the expectation of y (5-year average), and N is the number of observations in the sample (N=5). In this report, Excel was used to calculate σ with the STDEV.S formula for each month over the 5 year period from 2007/08-2011/12.

Assuming the data are normally distributed, confidence intervals at the 68%, 95%, and 99% levels can be calculated. With the estimated σ, confidence intervals are constructed showing range of prices or indices at each percentage level. The larger the value of the σ, the more variation is present. The 68% confidence level range for June wheat, with a σ of 1.90 and a 5 year average price of $5.90 would be calculated as follows:

Equation 6

$$5.90 \pm 1.92 = \begin{matrix} 3.98 \\ 7.82 \end{matrix}$$

This indicates that with 68% confidence, the June Panhandle wheat price will range from $3.98 to $7.82 per bushel. A similar statement can be developed for each month by adding the σ to the reported 5 year average of the upper limit and subtracting the σ from the 5 year average for the lower limit. Higher level confidence intervals are calculated as follows

Equation 7

$$95\% = 5 \text{ Year Average } \pm (2 \times \sigma)$$
$$99\% = 5 \text{ Year Average } \pm (3 \times \sigma)$$

Standard deviations are especially useful when calculated from price indices. Seasonal price trends are easily identified through price index standard deviations. A 68% confidence interval illustration has been developed for each commodity to show seasonal variation in prices throughout the crop year.

Grain Basis

Understanding basis is essential to making marketing decisions in the local corn and wheat markets. Basis is defined as the difference between the local cash price and the underlying futures contract for the given commodity. In this context, basis is calculated as follows:

Equation 8

$$Basis = \begin{matrix} Local\ Cash \\ Price \end{matrix} - \begin{matrix} Near - by \\ Futures\ Price \end{matrix}$$

Basis movements and patterns are critical for determining the actual price expected from

hedging commodities. If basis is stronger or weaker than expected, significant gains or losses can be incurred from a hedging program. Much of the basis in commodity markets can be explained by spatial differences between cash markets and delivery points for futures contracts. The basis should reflect the cost of transporting the crop from the local elevator to the nearest delivery point. Corn basis calculations in this publication reflect prices in the western North Platte River valley and must consider additional supply and demand factors that are unique to this market. A large number of cattle are fed in the area, creating an excess demand situation for corn. The excess demand causes the basis to be stronger in the valley than what may be available outside the valley.

The following sections will discuss each of the major crops in the Nebraska Panhandle.

Corn

The corn crop year runs from September through August. Prices remained fairly steady in 2011/12, with a monthly average price between $5.78/bu. and $6.06/bu. from September through June. However, drought conditions dramatically raised area corn prices to record highs in July ($7.71/bu.) and August ($7.99/bu.), surpassing the 2010/11 record of $7.45/bu. High corn prices at the end of the year increased the annual average to $6.40/bu., a record average(Table 1).

Historically, corn prices are highest from March to August with 5 year average price index range from 1.01-1.09. This premium usually drops off as harvest approaches and expectations for production are realized. The lowest seasonal prices are found in October through December as corn is being delivered from the combine and increasing demand during this time from the local feedlot industry. Figure 1A shows the annual price index and corresponding standard deviations for corn. September has the least predictable prices ($\sigma = 0.28$). March on the other hand, only shows a σ of 0.03, indicating a traditionally more stable month for corn prices.

Corn basis for 2011/12 ranged from 0.30 under to 0.07 over, resulting in the strongest annual basis average in 5 years at 0.19 under. A stronger basis indicated the need for corn in the Panhandle this year, partly due to drought conditions. The 5 year corn basis average peaks in August at 0.21 under. April had has the weakest basis with a 5 year average of 0.46 under. August also shows the greatest amount of variation in corn basis, with a high of 0.30 over and a low of 0.56 under (Figure 1B).

Figure 1A: Monthly price index for corn, 2007-2012

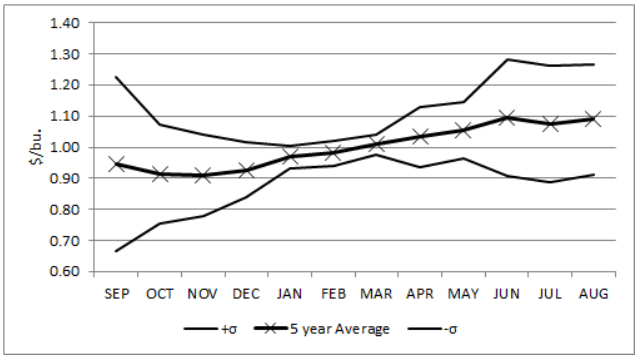
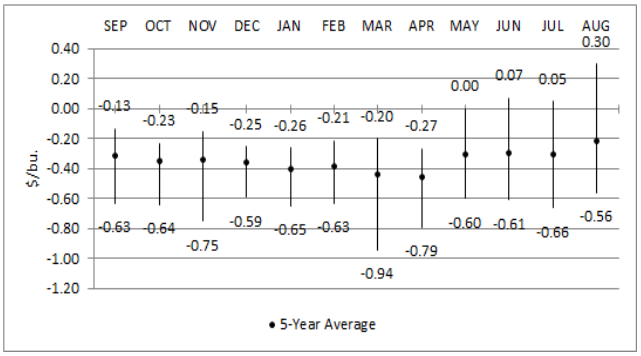


Figure 1B: Historical corn basis, 2002-2012



Wheat

Over the past 10 years, the yearly average local wheat price has ranged from a low of $3.17/bu. in the 2002/03 crop year to $7.71/bu. in the 2007/08 crop year (Table 2). The 2011/12 crop year was the second highest average price of $6.37/bu. in the ten year period. The 2011/12 local wheat price started strong but leveled out in the early months of the crop year and remained

steady from October through June. There is a $0.97/bu. difference from the 5 year average monthly high of $6.60/bu. (March) to the average monthly low price of $5.63/bu. (July).

The monthly price index for 2011/12 shows a high of 1.21 in June to a low of 0.95 in April. This is inconsistent with the 5 year average monthly price index (Figure 2A). The monthly price index shows that the 5 year average low in October and November at 0.95 and 5 year monthly price index high of 1.07 in March. The greatest variation in the monthly price index can be found in June (σ=0.40) and least variation in March (σ=0.06).

Monthly 5 year average wheat basis varies between $1.16/bu. under and $0.88/bu. under (Table 2). The greatest spread in basis is experienced in October with a $1.67/bu. from the strongest to the weakest basis, in the 5 year period from 2007/08 to 2011/12 (Figure 2B).

Figure 2A: Monthly price index for wheat, 2007-2012

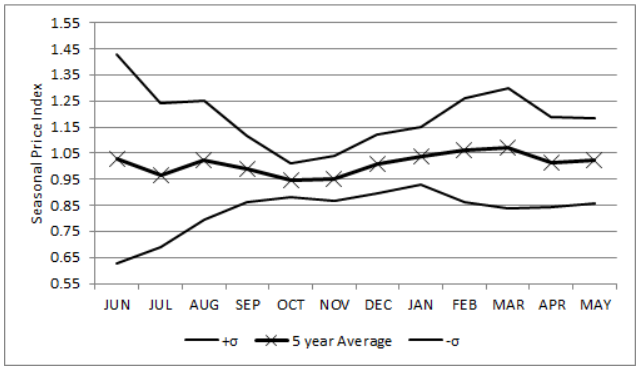
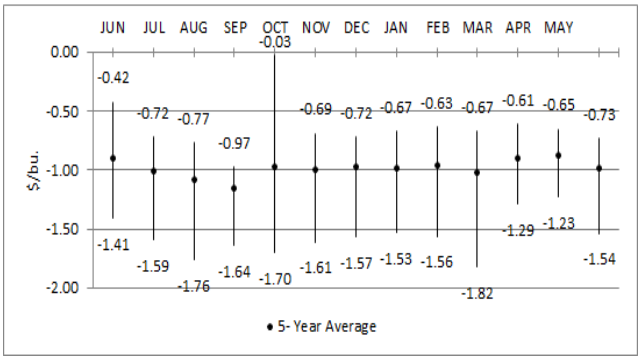


Figure 2B: Historical wheat basis, 2002-2012

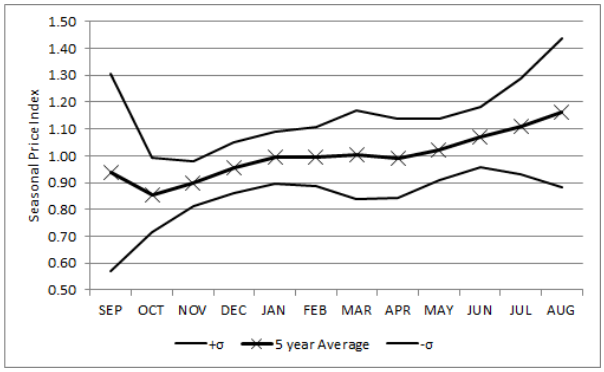


Proso Millet

Proso millet remains a non-program crop and is more likely to follow market signals, influencing Panhandle region acreage and expected prices. This commodity has had a history of volatility. Prices have ranged as low as $3.25/cwt. in February through March of 2001/02, to the previous records of $15.72 in November 2002 (Table 3). The 2011/12 crop year exhibited the highest average monthly prices in the last ten years, with prices upwards of $10.00, reaching a record high monthly average of $21.20/cwt. in August.

The monthly price index for proso millet ranges from a 5 year average high of 1.16 in August to 0.86 in October (Figure 3). The greatest uncertainty in proso millet pricing is September (σ = 0.37), and the most certainty is found in November (σ = 0.08).

Figure 3: Monthly price index for proso millet, 2007-2012



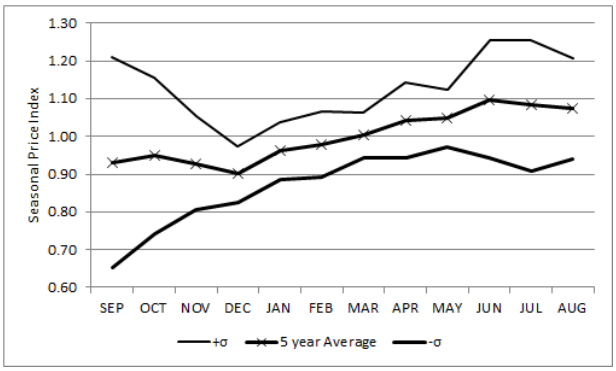
Sorghum

The past 5 years have had sorghum prices range from $4.86/cwt. in September 2009 to

$13.00/cwt. in August 2012 (Table 4). The 5 year monthly average high is $8.54/cwt. in April and a low of $7.23/cwt. for December.

The monthly price index for sorghum shows the lowest prices in December, as a new crop begins to enter the market. The monthly price index low is 0.90, while the high index value peaks at 1.10 in June. Figure 4 shows the average seasonal price variation over the crop year. The greatest variation in sorghum prices can be found September ($\sigma = 0.28$) and October ($\sigma = 0.21$), while March shows the least variation ($\sigma = 0.06$).

Figure 4: Monthly price index for sorghum, 2007-2012

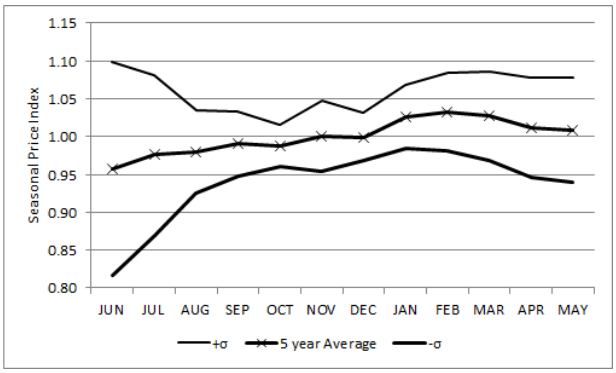


Alfalfa Hay

Alfalfa prices tend to be determined by weather factors, supply of all harvested forages, livestock inventories, bale size, and the quality of the product. Over the past 5 years, the average annual state price of alfalfa has varied from $78.92/ton in 2009/10 to $125.25/ton 2011/12 (Table 5). There is little variation in the 5 year monthly average price for alfalfa hay, suggesting a fairly stable market. June has the lowest monthly 5 year average at $85.25/ton and February has the highest monthly 5 year average at $96.80/ton.

Market stability is illustrated in Figure . June ($\sigma = 0.14$) and July ($\sigma = 0.11$) host the most uncertainty for alfalfa prices during the peak growing season. For the remainder of the cropping year (August through May) σ ranges from 0.03 to 0.07.

Figure 5: Monthly price index for alfalfa hay, 2007-2012



Dry Edible Beans

Historically, the Nebraska Panhandle has been a major producer of pinto and great northern beans, with a small number of acres of other bean classes. Dry bean acres vary from one year to the next based on relative dry bean prices and regional growing conditions. The dry bean market has been relatively volatile over the past twenty years, with large swings in pricing from one year to the next. These large swings are

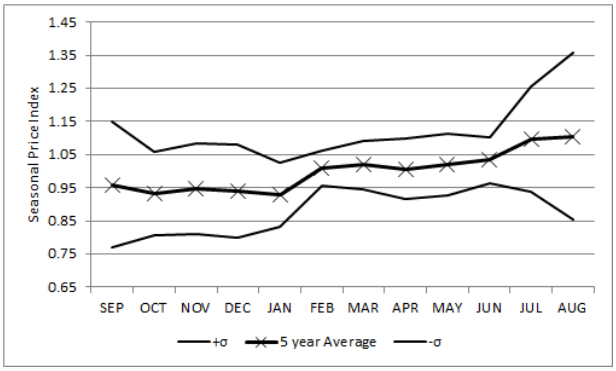
caused by ease of changing acreage numbers and export market prices for the product.

Pinto Beans

Pinto beans have had a similar price pattern in the past 5 years showing consistent local prices from January through April, increasing from July through August, and returning to a declining prices September through December. However, the 2011/12 crop year was an inverted traditional pattern as prices increased from September through February, then remained constant through July, and dipping slightly in July and August. Area pinto beans reached a record high price of $50/cwt., maintaining this price level from March through July this year (Table 6).

The greatest variation in pinto bean prices can be found prior to bean harvest in August (σ = 0.25) and. September (σ = 0.19). The lowest prices of the season can be found in fall. September through January holds a monthly price index between 0.96 and 0.93. Late summer, July and August, has the highest monthly price index at 1.10.

Figure 6: Monthly price index for Pinto Beans, 2007-2012



Great Northern Beans

Monthly average great northern bean prices range from $33/cwt. to $36.20/cwt. (Table 6). The 2011/12 cropping year was also strong for this dry bean, showing prices upwards of $40/cwt. until the final month of the crop year. The 2011/12 cropping year set a record price of $42.00/cwt. that was held from October through July. High prices resulted in a record average annual price of $42.54. The last time area prices exceed $37.00/cwt. was April through September 2008.

From September through February the price index ranges from 0.99 to 0.95. The remainder of the cropping year ranges from 1.01 to 1.05. The greatest variation in prices for great northern beans can be found in August (σ =0.17) and September (σ =0.14). March (σ = 0.04) and April (σ = 0.05) show the least variation in

Figure 7: Monthly price index for Great Northern Beans, 2007-2012

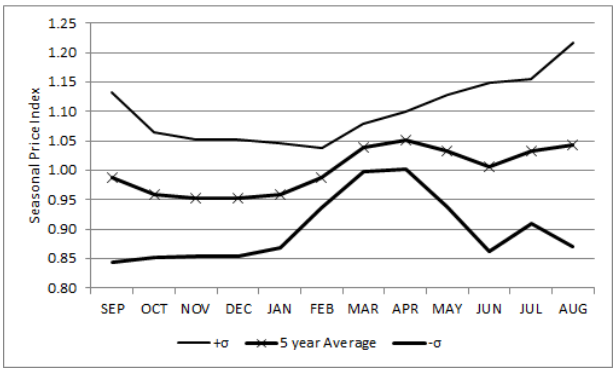


Table 1: Average monthly Western Nebraska corn cash prices, Chicago ELEC corn futures prices, basis, and monthly price index ($/bu.)

YEAR	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	Annual Average
Average monthly cash price of corn, Western Nebraska, 1992-2012.													
1992/93	2.13	2.08	2.02	2.02	2.05	2.02	2.10	2.15	2.12	2.07	2.22	2.27	2.10
1993/94	2.24	2.29	2.47	2.66	2.67	2.75	2.71	2.62	2.62	2.66	2.38	2.18	2.52
1994/95	2.12	2.12	2.07	2.15	2.21	2.23	2.29	2.38	2.43	2.54	2.70	2.71	2.33
1995/96	2.79	2.76	2.84	3.01	3.02	3.30	3.39	3.79	4.24	4.54	4.65	4.55	3.57
1996/97	3.73	2.90	2.55	2.61	2.55	2.62	2.72	2.73	2.65	2.53	2.36	2.42	2.70
1997/98	2.49	2.50	2.49	2.49	2.51	2.56	2.55	2.49	2.49	2.45	2.36	2.02	2.45
1998/99	1.84	1.90	1.97	1.95	1.95	1.90	1.93	1.92	1.93	1.94	1.82	1.83	1.91
1999/00	1.78	1.69	1.69	1.66	1.79	1.90	1.94	1.98	2.09	2.06	1.92	1.74	1.85
2000/01	1.71	1.81	1.90	1.97	2.03	2.02	2.10	2.04	1.98	1.95	2.04	2.09	1.97
2001/02	2.07	1.94	1.92	1.94	1.96	1.96	1.95	1.95	1.99	2.03	2.23	2.55	2.04
2002/03	2.84	2.73	2.67	2.66	2.58	2.58	2.56	2.57	2.59	2.52	2.26	2.15	2.56
2003/04	2.14	2.00	2.15	2.26	2.42	2.61	2.81	2.89	2.86	2.98	2.71	2.42	2.52
2004/05	2.49	2.19	1.93	1.91	1.87	1.88	1.99	1.90	1.92	2.02	2.04	1.88	2.00
2005/06	1.74	1.63	1.62	1.72	1.85	1.92	1.91	2.02	2.17	2.15	2.18	2.10	1.92
2006/07	2.17	2.74	3.27	3.47	3.61	3.97	3.94	3.53	3.72	4.03	3.51	3.48	3.45
2007/08	3.36	3.23	3.52	3.91	4.43	4.68	4.96	5.44	5.40	6.44	5.84	4.94	4.68
2008/09	4.97	3.83	3.54	3.44	3.64	3.39	3.51	3.53	3.82	3.72	2.81	2.93	3.59
2009/10	2.96	3.49	3.55	3.55	3.35	3.20	3.36	3.19	3.31	3.11	3.35	3.64	3.34
2010/11	4.25	4.88	4.78	5.27	5.72	6.25	6.11	6.68	6.76	7.09	6.79	7.45	6.00
2011/12	6.61	6.06	6.07	5.78	5.96	6.17	6.32	6.11	6.01	6.06	7.71	7.99	6.40
5-Year Average	4.43	4.30	4.29	4.39	4.62	4.74	4.85	4.99	5.06	5.28	5.30	5.39	4.80
σ	1.45	1.17	1.13	1.06	1.18	1.46	1.40	1.56	1.46	1.76	2.14	2.25	1.38
Average monthly ELEC CORN near-by Chicago futures prices, 2007-2012.													
2007/08	3.49	3.52	3.81	4.18	4.78	5.11	5.40	5.96	6.00	7.05	6.50	5.50	5.11
2008/09	5.24	4.06	3.73	3.69	3.90	3.60	3.71	3.88	4.17	4.09	3.29	3.29	3.89
2009/10	3.29	3.79	3.88	3.98	3.82	3.62	3.73	3.55	3.67	3.48	3.73	4.05	3.72
2010/11	4.88	5.52	5.53	5.86	6.37	6.88	7.05	7.47	6.76	7.28	6.74	7.15	6.46
2011/12	6.80	6.36	6.22	6.04	6.24	6.40	6.55	6.38	6.21	5.99	7.76	8.03	6.45
Average monthly corn basis, Western Nebraska, 2007-2012.													
2007/08	-0.13	-0.29	-0.29	-0.27	-0.35	-0.43	-0.44	-0.52	-0.60	-0.61	-0.66	-0.56	-0.43
2008/09	-0.27	-0.23	-0.19	-0.25	-0.26	-0.21	-0.20	-0.35	-0.35	-0.37	-0.48	-0.36	-0.29
2009/10	-0.33	-0.30	-0.33	-0.43	-0.47	-0.42	-0.37	-0.36	-0.36	-0.37	-0.38	-0.41	-0.38
2010/11	-0.63	-0.64	-0.75	-0.59	-0.65	-0.63	-0.94	-0.79	0.00	-0.19	0.05	0.30	-0.46
2011/12	-0.19	-0.30	-0.15	-0.26	-0.28	-0.23	-0.23	-0.27	-0.20	0.07	-0.05	-0.04	-0.19
Strongest	-0.13	-0.23	-0.15	-0.25	-0.26	-0.21	-0.20	-0.27	0.00	0.07	0.05	0.30	-0.19
Weakest	-0.63	-0.64	-0.75	-0.59	-0.65	-0.63	-0.94	-0.79	-0.60	-0.61	-0.66	-0.56	-0.46
5-Year Average	-0.31	-0.35	-0.34	-0.36	-0.40	-0.38	-0.44	-0.46	-0.30	-0.29	-0.30	-0.21	-0.35
Monthly price index for corn, Western Nebraska, 2007-2012.													
5-Year Average	0.95	0.91	0.91	0.93	0.97	0.98	1.01	1.03	1.05	1.09	1.07	1.09	
σ	0.28	0.16	0.13	0.09	0.04	0.04	0.03	0.10	0.09	0.19	0.19	0.18	

Table 2: Average monthly Western Nebraska wheat cash prices, Kansas City HRW futures prices, basis, and monthly price index. ($/bu.)

YEAR	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	Annual Average
Average monthly cash price of wheat, Western Nebraska, 1992-2012.													
1992/93	2.58	2.48	2.58	2.77	3.09	3.19	3.45	3.37	3.24	3.16	3.08	2.89	2.99
1993/94	2.88	2.85	2.78	2.83	2.96	3.20	3.52	3.38	3.20	3.03	2.99	3.01	3.05
1994/95	3.01	2.96	3.13	3.46	3.67	3.62	3.64	3.47	3.41	3.27	3.30	3.47	3.37
1995/96	3.85	4.33	4.05	4.28	4.53	4.59	4.73	4.60	4.92	5.00	5.85	6.09	4.74
1996/97	5.39	4.78	4.43	4.05	4.05	3.92	4.01	4.00	3.95	4.02	4.09	3.93	4.22
1997/98	3.61	3.09	3.28	3.29	3.18	3.13	3.07	3.02	3.07	3.06	2.89	2.80	3.12
1998/99	2.60	2.39	2.15	2.10	2.48	2.63	2.66	2.68	2.46	2.53	2.47	2.35	2.46
1999/00	2.36	2.04	2.11	2.16	2.05	2.06	1.99	2.13	2.19	2.16	2.07	2.14	2.12
2000/01	2.25	2.23	2.22	2.37	2.66	2.75	2.81	2.89	2.78	2.80	2.81	2.80	2.61
2001/02	2.70	2.63	2.55	2.58	2.66	2.71	2.71	2.75	2.70	2.71	2.69	2.65	2.67
2002/03	2.93	3.41	3.76	4.45	4.58	4.14	3.80	3.56	3.58	3.38	3.25	3.36	3.68
2003/04	2.93	2.67	3.11	3.01	3.03	3.36	3.50	3.56	3.52	3.56	3.63	3.58	3.29
2004/05	3.38	3.19	2.87	3.13	3.08	3.17	3.38	3.24	3.17	3.29	3.04	3.11	3.17
2005/06	3.09	2.98	3.00	3.13	3.30	3.17	3.38	3.48	3.77	3.76	3.88	4.35	3.44
2006/07	4.34	4.67	4.27	4.35	4.73	4.76	4.63	4.44	4.62	4.62	4.54	4.52	4.54
2007/08	5.00	5.40	5.80	6.86	7.64	7.20	8.69	8.68	9.76	11.04	8.75	7.64	7.71
2008/09	8.24	7.53	7.62	6.61	5.06	4.88	4.84	5.32	4.86	4.87	4.87	5.57	5.86
2009/10	5.54	4.59	4.21	3.66	3.97	4.39	4.25	4.08	3.86	3.88	3.76	3.74	4.16
2010/11	3.40	4.07	5.27	5.73	5.58	5.73	6.67	7.29	7.87	6.95	7.77	8.10	6.20
2011/12	7.33	6.58	7.27	6.80	6.19	6.15	6.00	6.07	6.19	6.26	5.78	5.83	6.37
5-Year Average	5.90	5.63	6.03	5.93	5.69	5.67	6.09	6.29	6.51	6.60	6.19	6.18	6.00
σ	1.92	1.42	1.41	1.35	1.36	1.10	1.74	1.77	2.36	2.75	2.05	1.75	1.26
Average monthly HRW near-by Kansas City futures prices, 2007-2012.													
2007/08	5.42	6.12	6.57	7.86	8.70	8.04	9.41	9.35	10.39	11.74	9.36	8.29	8.44
2008/09	8.92	8.43	8.57	7.69	5.09	5.68	5.64	6.16	5.67	5.64	5.68	6.40	6.63
2009/10	6.31	5.53	5.22	4.76	5.09	5.44	5.32	5.21	4.97	5.01	4.87	4.97	5.23
2010/11	4.81	5.66	7.03	7.37	7.28	7.34	8.24	8.82	9.43	8.77	9.06	9.05	7.74
2011/12	8.52	7.47	8.15	7.77	7.13	6.83	6.72	6.79	6.89	6.93	6.44	6.56	6.77
Average monthly wheat basis, Western Nebraska, 2007-2012.													
2007/08	-0.42	-0.72	-0.77	-1.00	-1.06	-0.84	-0.72	-0.67	-0.63	-0.70	-0.61	-0.65	-0.73
2008/09	-0.68	-0.90	-0.95	-1.08	-0.03	-0.80	-0.80	-0.84	-0.81	-0.77	-0.81	-0.83	-0.78
2009/10	-0.77	-0.94	-1.01	-1.10	-1.12	-1.05	-1.07	-1.13	-1.11	-1.13	-1.11	-1.23	-1.06
2010/11	-1.41	-1.59	-1.76	-1.64	-1.70	-1.61	-1.57	-1.53	-1.56	-1.82	-1.29	-0.95	-1.54
2011/12	-1.20	-0.88	-0.89	-0.97	-0.94	-0.69	-0.72	-0.72	-0.70	-0.67	-0.66	-0.72	-0.70
Strongest	-0.42	-0.72	-0.77	-0.97	-0.03	-0.69	-0.72	-0.67	-0.63	-0.67	-0.61	-0.65	-0.70
Weakest	-1.41	-1.59	-1.76	-1.64	-1.70	-1.61	-1.57	-1.53	-1.56	-1.82	-1.29	-1.23	-1.54
5- Year Average	-0.90	-1.01	-1.08	-1.16	-0.97	-1.00	-0.98	-0.98	-0.96	-1.02	-0.90	-0.88	-0.96
Monthly price index for wheat, Western Nebraska, 2007-2012													
5-Year Average	1.03	0.97	1.02	0.99	0.95	0.95	1.01	1.04	1.06	1.07	1.02	1.02	
σ	0.40	0.27	0.23	0.13	0.06	0.09	0.11	0.11	0.20	0.23	0.17	0.16	

Table 3: Average monthly Western Nebraska proso millet cash prices and monthly price index. ($/cwt.)

YEAR	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	Annual Average
Average monthly cash price of proso millet, Western Nebraska, 1992-2012.													
1992/93	4.17	6.16	7.39	7.51	7.26	7.64	7.22	7.01	6.64	6.09	6.59	7.06	6.73
1993/94	7.20	8.71	11.01	11.76	13.95	17.27	21.35	22.52	20.02	20.02	18.02	8.01	14.99
1994/95	7.86	7.76	7.99	7.26	5.51	5.01	5.01	4.76	4.76	4.84	5.39	6.01	6.01
1995/96	5.51	6.26	7.26	6.26	7.50	7.00	7.25	7.75	8.00	7.50	7.00	5.25	6.88
1996/97	5.50	4.00	4.25	4.25	4.40	4.56	4.19	4.00	4.13	4.35	4.35	4.25	4.35
1997/98	4.19	4.25	4.25	4.25	4.19	4.00	4.00	4.00	4.00	4.05	4.10	4.25	4.13
1998/99	3.95	4.00	4.31	4.60	4.50	4.25	4.00	4.13	4.25	4.25	4.06	4.19	4.21
1999/00	3.80	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.70	5.25	7.23	4.00
2000/01	9.39	10.07	9.61	9.19	8.57	7.06	5.57	5.88	5.78	4.82	4.66	4.15	7.06
2001/02	3.71	3.75	3.69	3.47	3.33	3.25	3.25	3.25	3.64	4.28	7.30	12.84	4.65
2002/03	13.13	15.15	15.72	15.50	13.00	13.00	13.00	13.00	13.00	4.95	4.36	5.29	11.59
2003/04	5.91	5.35	5.39	5.88	5.99	6.09	6.49	6.45	6.54	6.46	5.41	4.89	5.90
2004/05	4.70	4.93	6.16	6.63	6.05	5.71	4.95	4.84	5.49	5.75	5.59	5.96	5.56
2005/06	6.33	6.10	5.56	5.50	5.53	5.44	4.75	4.75	4.88	5.25	6.00	6.55	5.55
2006/07	7.00	7.75	8.47	8.43	8.56	8.69	9.00	8.60	8.50	8.63	9.40	8.31	8.45
2007/08	7.75	8.55	8.75	9.00	9.19	10.10	10.88	11.00	10.75	10.75	10.55	8.88	9.68
2008/09	7.95	5.45	5.25	5.25	5.25	4.50	4.00	4.00	4.25	4.50	4.60	5.70	5.06
2009/10	4.60	4.46	4.98	6.10	6.44	6.07	6.13	6.17	6.23	5.90	5.65	5.37	5.68
2010/11	5.97	6.87	8.00	8.32	9.31	10.75	11.19	10.25	10.56	11.50	11.50	11.69	9.66
2011/12	11.88	10.81	11.06	11.65	11.69	11.50	11.50	11.63	12.91	14.78	18.09	21.20	13.22
5 year Average	7.63	7.23	7.61	8.06	8.38	8.58	8.74	8.61	8.94	9.49	10.08	10.57	8.66
σ	2.74	2.53	2.54	2.53	2.55	3.10	3.45	3.34	3.57	4.22	5.39	6.48	3.34
Monthly price index for proso millet, Western Nebraska, 2007-2012													
5 year Average	0.94	0.86	0.90	0.96	0.99	1.00	1.00	0.99	1.02	1.07	1.11	1.16	
σ	0.37	0.14	0.08	0.10	0.10	0.11	0.16	0.15	0.12	0.11	0.18	0.28	

Table 4: Average monthly Nebraska sorghum cash prices and monthly price index. ($/cwt.)

YEAR	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	Annual Average
Average monthly cash price of sorghum, Nebraska, 1992-2012.													
1992/93	3.41	3.06	3.15	3.24	3.24	3.25	3.36	3.38	3.30	3.30	3.52	3.51	3.31
1993/94	3.47	3.65	4.11	4.36	4.45	4.44	4.39	4.07	4.15	4.05	3.64	3.40	4.02
1994/95	3.24	3.24	3.17	3.39	3.49	3.61	3.67	3.74	3.93	4.08	4.30	4.39	3.69
1995/96	4.76	4.90	5.02	5.36	5.54	6.06	6.30	7.21	7.44	7.47	7.49	7.19	6.23
1996/97	6.53	4.76	4.27	4.06	4.15	4.31	4.13	4.12	4.06	4.07	4.01	4.03	4.38
1997/98	3.82	4.02	4.00	3.88	3.95	4.08	3.95	3.73	3.62	3.65	3.44	2.97	3.76
1998/99	2.77	2.97	2.99	2.96	3.04	3.05	3.15	3.19	3.06	3.07	2.67	2.88	2.98
1999/00	2.77	2.52	2.50	2.61	2.82	3.10	3.23	3.33	3.25	3.27	2.68	2.50	2.88
2000/01	2.60	3.01	3.23	3.40	3.43	3.42	3.35	3.35	3.27	3.22	3.43	3.47	3.27
2001/02	3.29	3.09	3.15	3.16	3.27	3.27	3.22	3.16	3.21	3.26	3.65	4.31	3.34
2002/03	4.45	4.39	4.43	4.34	4.26	4.35	4.03	4.03	4.02	3.79	3.42	3.52	4.09
2003/04	3.73	3.88	4.04	4.14	4.33	4.53	4.82	5.08	4.71	4.64	3.84	3.58	4.28
2004/05	3.31	3.28	3.04	2.87	2.90	2.87	3.03	2.99	3.14	3.26	3.60	3.17	3.12
2005/06	2.85	2.76	2.68	2.86	2.97	3.20	3.29	3.59	3.84	3.74	3.95	3.75	3.29
2006/07	3.94	4.91	5.62	5.86	5.98	6.53	6.40	5.98	6.06	6.37	5.84	5.58	5.76
2007/08	5.78	5.94	6.29	6.81	7.22	8.30	8.53	9.20	9.23	10.40	9.86	8.70	8.02
2008/09	7.97	7.43	6.24	5.05	6.20	4.93	5.37	5.62	5.98	6.18	4.95	5.04	5.91
2009/10	4.86	5.53	5.72	5.68	5.74	5.55	5.66	5.36	5.38	5.38	5.35	5.96	5.51
2010/11	6.59	7.77	8.21	8.86	8.99	10.60	10.30	11.60	11.10	12.30	12.40	11.70	10.04
2011/12	11.50	10.70	10.40	9.74	10.20	10.60	10.90	10.90	10.90	10.40	12.50	13.00	10.98
5-Year Average	7.34	7.47	7.37	7.23	7.67	8.00	8.15	8.54	8.52	8.13	7.68	7.40	8.09
σ	2.59	2.04	1.94	2.02	1.89	2.69	2.56	2.92	2.70	2.99	3.68	3.47	2.42
Monthly price index for sorghum, Nebraska, 2007-2012													
5 year Average	0.93	0.95	0.93	0.90	0.96	0.98	1.00	1.04	1.05	1.10	1.08	1.07	
σ	0.28	0.21	0.12	0.07	0.08	0.09	0.06	0.10	0.08	0.16	0.17	0.13	

Table 5: Average monthly Nebraska alfalfa cash prices and seasonal index. ($/ton)

YEAR	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	Annual Average
Average monthly cash price of alfalfa, Nebraska, 1992-2012.													
1992/93	44	46	45	46	46	46	46	49	50	52	51	51	47.67
1993/94	50	47	49	50	51	54	55	55	54	53	48	51	51.42
1994/95	53	52	53	52	55	52	57	60	59	62	57	59	55.92
1995/96	62	60	59	61	61	62	60	62	63	62	62	63	61.42
1996/97	63	67	68	67	64	66	69	71	73	75	74	74	69.25
1997/98	78	78	79	79	81	82	83	81	80	77	74	68	78.33
1998/99	64	57	53	50	49	50	48	47	47	43	41	42	49.25
1999/00	40	39	38	35	36	39	39	38	40	41	44	45	39.50
2000/01	52	57	61	64	66	74	77	81	84	88	87	82	72.75
2001/02	77	71	72	73	75	75	75	73	67	62	61	62	70.25
2002/03	65	82	90	92	91	89	89	86	84	82	80	77	83.92
2003/04	69	62	56	56	57	56	54	53	53	51	49	48	55.33
2004/05	49	52	51	52	51	51	51	51	51	50	48	48	50.42
2005/06	47	46	47	48	47	47	49	50	52	53	58	60	50.33
2006/07	68	81	85	88	88	91	93	93	96	99	99	99	90.00
2007/08	96	96	93	91	91	91	89	90	90	90	90	92	91.58
2008/09	93	94	94	97	93	91	93	93	91	89	85	83	91.33
2009/10	82	81	76	75	75	75	78	82	84	83	81	78	79.17
2010/11	77	78	79	77	77	78	77	79	80	80	80	85	78.92
2011/12	89	99	112	122	126	135	131	137	139	140	139	134	125.25
5-Year Average	85.25	89.6	90.8	92.4	92.4	94	93.6	96.2	96.8	96.4	95	94.4	93.25
σ	7.83	9.45	14.34	18.97	20.44	24.06	22.02	23.51	24.01	24.72	24.91	22.70	18.94
Monthly price index for alfalfa, Nebraska, 2007-2012													
5 year Average	0.96	0.98	0.98	0.99	0.99	1.00	1.00	1.03	1.03	1.03	1.01	1.01	
σ	0.14	0.11	0.05	0.04	0.03	0.05	0.03	0.04	0.05	0.06	0.07	0.07	

Table 6: Average monthly Western Nebraska pinto bean cash prices and seasonal index. ($/cwt.)

YEAR	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	Annual Average
Average monthly cash price of pinto beans, Western Nebraska, 1992-2012.													
1992/93	18.40	19.00	20.00	20.00	20.00	19.88	18.60	17.75	17.00	17.00	17.00	19.40	18.67
1993/94	22.75	29.00	29.50	29.00	29.63	30.00	28.40	28.00	28.13	28.00	22.83	21.20	27.20
1994/95	16.38	17.00	17.00	16.00	15.10	15.00	15.75	16.00	16.60	17.00	16.75	15.90	16.21
1995/96	16.25	16.60	15.00	15.00	15.20	16.50	18.00	21.80	26.75	27.00	25.80	24.75	19.89
1996/97	25.00	22.25	22.00	20.31	19.84	19.80	18.75	18.00	18.40	19.34	18.25	17.32	19.94
1997/98	15.25	15.20	17.50	19.25	21.40	22.00	21.75	20.25	20.00	21.00	20.40	19.00	19.42
1998/99	16.25	16.00	16.00	15.95	14.82	13.93	13.48	13.09	12.75	12.95	13.68	13.30	14.35
1999/00	16.04	15.40	15.15	13.94	13.15	13.15	13.15	13.30	13.15	13.15	13.00	14.48	13.92
2000/01	15.60	15.00	15.00	15.00	14.50	14.17	14.67	14.64	14.96	15.23	15.50	17.20	15.12
2001/02	19.63	19.05	19.00	19.40	23.13	25.00	27.08	28.00	28.00	28.00	26.69	23.75	23.89
2002/03	20.20	16.45	14.80	14.88	15.00	15.00	14.00	14.00	15.60	16.00	16.00	16.10	15.67
2003/04	15.60	14.69	14.36	14.51	15.00	15.00	16.20	17.00	17.00	17.00	17.00	17.00	15.86
2004/05	24.10	26.25	27.90	28.00	28.00	28.00	28.00	27.42	26.50	26.50	26.50	26.00	26.93
2005/06	17.46	15.50	15.50	15.50	15.43	15.40	15.50	15.50	15.50	15.50	16.38	17.50	15.89
2006/07	18.96	20.00	20.00	20.00	21.75	23.50	24.95	25.00	25.00	25.40	27.00	27.00	23.21
2007/08	27.60	28.00	27.00	26.00	26.00	29.50	31.60	31.05	32.00	32.00	34.94	36.50	30.18
2008/09	38.55	34.50	34.00	34.00	29.60	29.20	27.72	27.00	27.50	30.00	31.00	32.00	31.26
2009/10	29.56	26.50	30.00	30.00	30.00	30.00	30.00	28.03	27.80	27.48	26.63	25.50	28.46
2010/11	19.40	20.00	20.00	20.00	21.63	27.13	28.00	29.40	30.00	30.00	35.80	40.00	26.78
2011/12	41.80	45.00	45.00	45.00	45.95	49.90	50.00	50.00	50.00	50.00	50.00	42.40	47.09
5 year Average	31.38	30.80	31.20	31.00	30.64	33.15	33.46	33.10	33.46	33.90	35.67	35.28	32.75
σ	8.96	9.46	9.26	9.38	9.20	9.43	9.38	9.57	9.42	9.14	8.80	6.72	8.19
Monthly Index for pinto beans, Western Nebraska, 2007-2012													
5 year Average	0.96	0.93	0.95	0.94	0.93	1.01	1.02	1.01	1.02	1.03	1.10	1.10	
σ	0.19	0.13	0.14	0.14	0.10	0.05	0.07	0.09	0.09	0.07	0.16	0.25	

Table 7: Average monthly Western Nebraska great northern bean cash prices and seasonal index. ($/cwt.)

YEAR	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	Annual Average
Average monthly cash price of great northern beans, Western Nebraska, 1992-2012.													
1992/93	15.75	18.00	18.00	18.00	17.50	15.75	13.70	13.50	13.50	13.65	14.44	15.80	15.63
1993/94	18.50	20.50	22.00	22.00	22.63	23.00	23.00	23.00	23.00	23.00	23.25	22.60	22.21
1994/95	20.88	23.00	25.80	26.83	27.00	27.00	27.25	30.00	30.00	30.00	30.00	30.00	27.31
1995/96	27.75	30.00	29.00	29.00	29.00	29.00	26.00	25.70	26.00	26.00	24.80	24.40	27.22
1996/97	22.83	19.40	19.00	18.05	17.24	17.20	18.00	18.00	18.00	18.75	18.25	17.40	18.51
1997/98	17.00	17.00	17.00	17.00	18.04	19.60	20.00	20.00	20.00	20.00	20.00	20.00	18.80
1998/99	17.75	18.00	18.00	18.00	17.50	16.75	16.00	16.00	16.50	17.00	17.00	18.00	17.21
1999/00	17.80	16.84	16.61	15.81	15.15	15.15	15.12	15.15	15.80	16.07	16.00	16.59	16.01
2000/01	16.60	16.00	15.75	15.00	14.38	14.00	14.40	15.00	15.00	15.00	15.00	16.00	15.18
2001/02	17.00	16.00	16.00	16.00	16.00	16.00	16.00	16.00	16.00	16.00	17.38	19.00	16.45
2002/03	20.00	18.50	18.00	18.00	18.00	18.00	18.00	18.40	19.50	20.30	22.00	20.40	19.09
2003/04	17.40	16.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.28
2004/05	15.72	17.50	17.50	17.50	17.50	17.50	17.40	16.50	16.50	16.50	16.50	16.50	16.93
2005/06	16.40	15.75	15.75	16.00	16.00	16.00	16.25	17.25	17.94	18.00	18.00	18.00	16.78
2006/07	18.00	19.00	20.00	20.00	21.50	22.50	24.60	26.00	26.00	26.40	28.00	28.00	23.33
2007/08	31.30	32.00	32.00	32.00	32.00	32.50	36.60	38.00	40.00	40.00	40.00	41.50	35.66
2008/09	40.90	37.00	36.00	36.00	36.00	36.00	36.00	36.00	31.00	26.80	31.00	32.00	34.56
2009/10	31.60	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	29.60	28.00	28.00	29.77
2010/11	25.60	25.00	25.00	25.00	25.88	30.00	34.40	35.00	35.00	35.00	37.00	40.00	31.07
2011/12	41.20	42.00	42.00	42.00	42.00	42.00	42.00	42.00	42.00	42.00	42.00	37.25	41.54
5 year Average	34.12	33.20	33.00	33.00	33.18	34.10	35.80	36.20	35.60	34.68	35.60	35.75	34.52
σ	6.76	6.53	6.40	6.40	6.13	5.05	4.32	4.38	5.32	6.52	5.94	5.65	4.61
Seasonal price index for great northern beans, Western Nebraska, 2007-2012													
2007/08	0.88	0.90	0.90	0.90	0.90	0.91	1.03	1.07	1.12	1.12	1.12	1.16	
2008/09	1.18	1.07	1.04	1.04	1.04	1.04	1.04	1.04	0.90	0.78	0.90	0.93	
2009/10	1.06	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	0.99	0.94	0.94	
2010/11	0.82	0.80	0.80	0.80	0.83	0.97	1.11	1.13	1.13	1.13	1.19	1.29	
2011/12	0.99	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	0.90	
5 year Average	0.99	0.96	0.95	0.95	0.96	0.99	1.04	1.05	1.03	1.01	1.03	1.04	
σ	0.14	0.11	0.10	0.10	0.09	0.05	0.04	0.05	0.10	0.14	0.12	0.17	