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Seasonal Price Patterns

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The price patterns of most agricultural commodities tend to repeat themselves year after year. These repetitive price patterns are caused by supply and/or demand factors that recur at similar times each year. For example, grain and oilseed prices are usually depressed at harvest time due to increased supply pressures in the cash and/or futures market, and then supply pressures decrease following harvest. This recurring nature of price trends is referred to as the seasonal price pattern.

Effective marketing strategies can be developed around seasonal price patterns. While prices in any particular year may vary considerably from the "normal" seasonal pattern, knowing the historical seasonal pattern provides farmers with useful market information. Finding out the reason for deviations from normal seasonal patterns is also a useful marketing practice. All of this will provide a basis for evaluating future price trends.

The seasonal price indexes in this publication were developed using historical price data from the Minneapolis cash grain market as reported by the Grain Division of the USDA Agricultural Marketing Service for the period 1974-75 through 1984-85. These seasonal indexes are useful to North Dakota farmers because, with few exceptions, North Dakota's cash price patterns are closely related to Minneapolis cash price patterns.

The seasonal indexes present average monthly prices computed as a centered 12-month moving average. The average price for each month expressed as a percentage of the moving average for the same month provides the index. The moving average used to derive seasonal price indexes incorporates the effects of inflation, cyclical changes in production, changes in technology and other factors that gradually affect prices. It minimizes the impact of any short term price influences such as the 1986 Chernobyl nuclear plant accident in Russia.

The seasonal price analysis in this publication is presented in Table 1.

The seasonal index can be interpreted as follows: Assume the monthly index of a commodity for the month of July is 102 and the variability index is ± 3.0. We can say that, for the period covered by the data, the price in July has averaged 102 percent of the season average price and that the July price can be expected to fall between 99 percent (– 3) and 105 percent (+ 3) of the average annual price 95 percent of the time. The larger the variability index the less reliable the monthly price index.

The seasonal indexes shown in Table 1 can be summarized as follows:

14% Hard Red Spring Wheat: Prices tend to peak in October and June and bottom in the January-March period. The greatest price variability occurs in the June-August period. The least price variability occurs in January.

Hard Amber Durum: Prices tend to peak in October and bottom in January. The greatest price variability is in the August-October and April time periods. The least price variability occurs in February.

Malting Barley: Prices tend to peak in November and June and bottom out in August. The greatest price variability occurs in July and August and the least in November and January.

Feed Barley: Prices tend to peak in September and October and bottom in December. The greatest price variability occurs in the June-September period and the least in March.

Oats: Prices tend to peak in May and bottom out in August. The greatest price variability is in August. The least price variability occurs in December.

Corn: Prices tend to peak in the May-June period and bottom in December. Price variability is uniformly wide from April to October. The least price variability occurs in February.

Sunflowers: Prices tend to peak in April and bottom in December. Price variability is the greatest in May and June. The least price variability occurs in December.

Soybeans: Prices peak in May and bottom in November-February period. Price variability is the greatest in May and in the September-November period. The least price variability occurs in January.

Flax: Prices tend to peak in June and bottom in December. Price variability is the greatest from March through June and in September and the least in December.

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Table 1. Seasonality of Minneapolis Cash Price, 1974/75 - 1984/85.

	June	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May
Hard Red Spring Wheat, 14%												
Seasonal Price Index	102.1	101.6	99.1	100.2	100.9	100.2	98.8	97.9	98.0	98.1	99.6	100.6
Index of Variability	±4.4	±3.9	±3.6	±3.2	±2.7	±2.9	±2.8	±1.6	±2.6	±2.8	±3.5	±3.5
Hard Amber Durum												
Seasonal Price Index	101.8	100.2	100.5	101.8	102.8	101.8	96.1	95.0	97.0	96.7	100.8	100.2
Index of Variability	±3.9	±5.0	±5.9	±5.5	±5.0	±3.9	±3.5	±3.0	±2.6	±3.0	±6.5	±3.6
Malting Barley												
Seasonal Price Index	102.3	96.9	95.6	99.6	101.3	102.6	99.8	98.9	98.0	98.4	102.8	103.7
Index of Variability	±3.6	±5.7	±4.2	±4.4	±3.9	±2.9	±3.4	±2.9	±3.8	±4.2	±4.3	±3.9
Feed Barley												
Seasonal Price Index	97.3	97.2	99.8	102.6	103.0	100.4	96.9	99.3	99.6	98.8	102.0	100.5
Index of Variability	±7.9	±5.7	±6.7	±7.6	±5.7	±5.3	±4.6	±4.7	±4.8	±3.7	±5.0	±6.3
Oats												
Seasonal Price Index	101.7	97.0	92.5	96.4	97.5	102.8	101.1	101.1	101.0	99.1	102.5	104.7
Index of Variability	±4.2	±4.9	±5.2	±4.0	±3.6	±3.3	±2.0	±2.6	±3.9	±4.4	±4.8	±3.2

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept
Corn												
Seasonal Price Index	96.3	95.1	93.5	94.2	97.2	100.4	104.6	105.7	106.0	104.7	101.4	97.2
Index of Variability	±5.7	±3.2	±2.7	±2.2	±2.1	±3.4	±4.0	±3.8	±3.7	±3.7	±5.5	±5.3

	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	Aug
Sunflowers, Oil Type												
Seasonal Price Index	96.8	94.2	95.0	93.5	96.7	98.8	102.3	107.5	103.5	101.4	100.7	98.8
Index of Variability	±8.2	±5.5	±3.5	±3.0	±3.3	±6.3	±7.3	±8.1	±9.3	±10.5	±7.7	+7.7
Soybeans												
Seasonal Price Index	99.6	96.7	95.1	96.3	95.5	95.9	99.0	103.6	105.4	102.8	102.6	101.9
Index of Variability	±7.7	±6.3	±7.3	±2.4	±1.9	±2.6	±5.1	±8.4	±8.6	±5.7	±3.5	±6.1
Flax												
Seasonal Price Index	100.8	98.4	97.8	96.6	98.9	101.1	99.2	100.8	101.8	102.8	100.2	100.4
Index of Variability	±5.9	±4.8	±3.6	±2.8	±3.3	±2.6	±6.6	±7.2	±5.7	±6.1	±4.6	±3.6

How Can This Information Be Used?

Assume a North Dakota farmer is trying to decide when to sell his durum wheat. Outlook information tells him to expect a season average price at Minneapolis of $3.00 per bushel. Looking at the seasonal index for durum in Table 1, we see that prices are seasonally strongest in October. The October index is 102.8 percent of the season average price. This means the Minneapolis price in October can be expected to be about $3.08 ($3.00 × 102.8 = $3.08) compared to the August harvest index of 100.5 percent or $3.01½.

Next we must measure the reliability of that forecast. The price in October is projected to be ±5 percent of the monthly index or the price is expected to fall in the range of 97.8 percent to 107.8 percent of the season average price of $3.00, which is $2.93 to $3.23. There is a 95 percent chance that the price will fall in the $2.93-$3.23 range assuming the season average price of $3.00 is correct. By comparing the cost of holding durum against the outlook and the possible range of prices in October, the farmer has a bit more information with which to make the decision of whether to sell at harvest or sell in October.

Seasonal indexes can also be used to calculate a simple price forecast. In addition to the indexes, the current monthly price is needed. The forecast price is the current monthly price times the ratio of the monthly index when the forecast is desired to the current monthly index. For example, assume durum prices in August were $3.50 and we want to forecast October prices. The equation is:

$$\text{This month's price} \times \frac{\text{Index in forecast month}}{\text{Current month's index}} = \text{Forecast price}$$

$$\$3.50 \times \frac{102.8}{101.5} = \$3.54$$

Thus, by using the current monthly price and the ratio of the index in the forecast month to the index of the current month we can develop a simple price forecast. This is a relatively simple forecasting model but it may give results as good as more sophisticated forecasting models. Like all forecasting tools, seasonal indexes are subject to variation and a certain amount of judgment must always be used. For example, rarely will prices in a particular year perform exactly as the seasonal indexes indicate. When using seasonal indexes it is important to consider the current supply and demand conditions that would make this year's price pattern different than the normal seasonal price pattern. For example, when supply conditions indicate a short crop, prices have a tendency to peak instead of bottoming out near harvest, which is contrary to the normal seasonal price pattern.

The important thing about seasonal price indexes is that they give an idea of what the "normal" price pattern is and they provide a good base or reference that will help identify abnormal price patterns. Seasonal price patterns are an important marketing tool that should be in every farmer's marketing tool kit.

Graphs of Seasonal Prices

Figures 1-9 graphically illustrate the information presented in Table 1. The seasonal price index in figures 1-9 appear as the solid line connecting the monthly indexes. Using a base of 100 points, a value above 100 indicates usual periods of seasonally strong prices while values below 100 indicates usual periods of seasonally weak prices. The band around the average monthly price index represents the variability of that particular index and indicates the range within which the price for that month could be expected to fall 95 percent of the time.

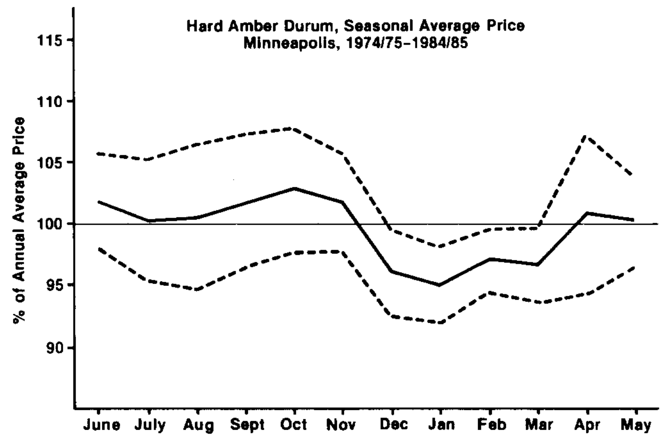
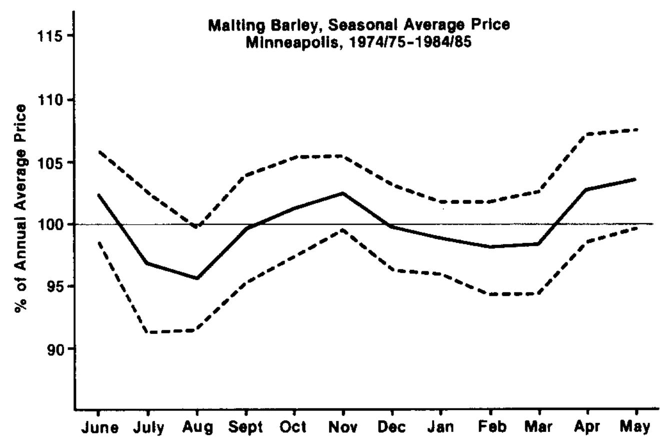


Figure 2



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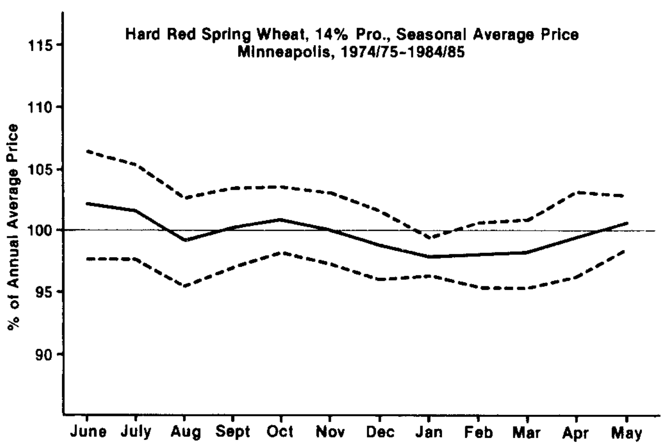
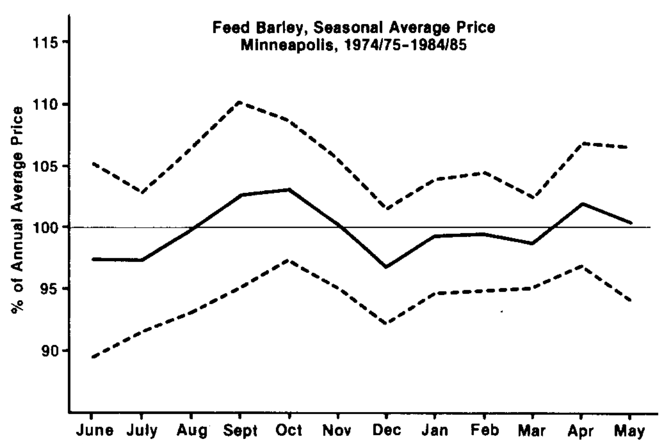


Figure 1



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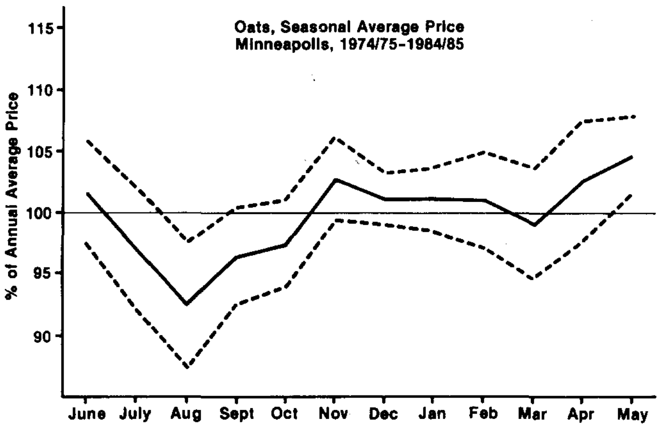

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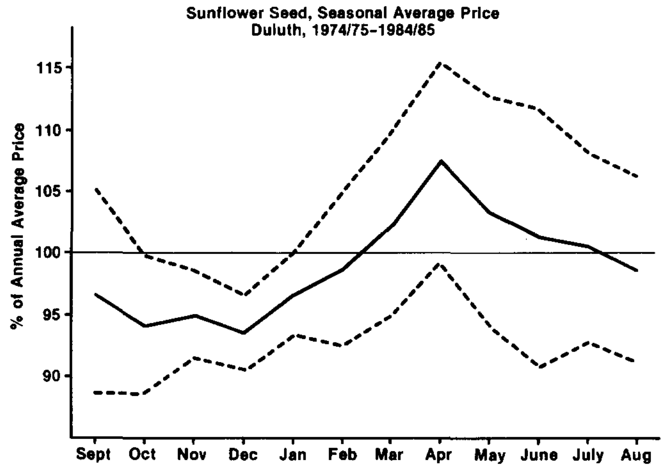

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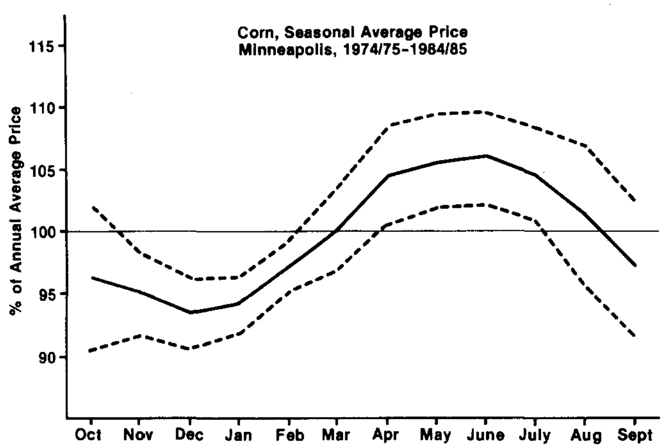

Figure 6

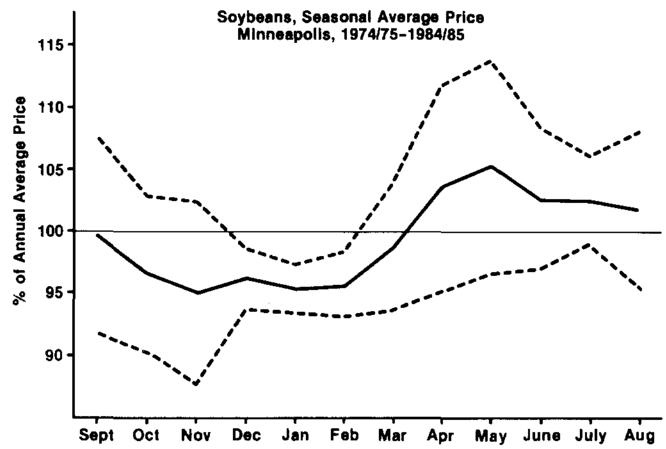

Figure 8

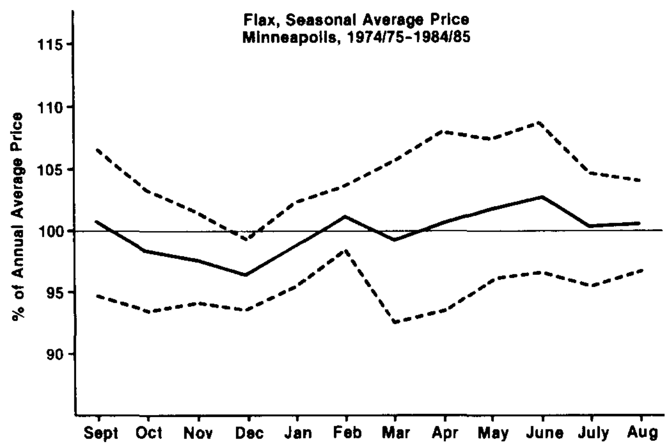

Figure 9

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