

Fuel Price Seasonality

Introduction

The last half of 2018 saw gasoline prices decline significantly while diesel prices held fairly steady. As discussed in AgManager publication GI-2019.1, gasoline prices are probably below where they would typically be with the current price of oil. Current diesel prices are not that far off from what the price of oil would predict. Part of the reason that gasoline prices are lower than predicted is due to the seasonality of fuel prices. Both gas and diesel fuel exhibit some seasonality. This paper shows the fuel price seasonality for the last five years and discusses when might be a good opportunity for farmers to purchase fuel

Seasonality

Seasonality is the monthly variation of prices compared to the yearly average price. Historically, gasoline prices are very seasonal. Prices for gasoline tend to be lower in the winter and higher from Memorial Day through Labor Day. The reason for the seasonality in gasoline prices is because more driving takes place during the summer. Families tend to take vacations and other trips during the summer thus increasing the demand for gasoline which in turn results in higher prices. During the winter, less driving occurs so prices are lower.

Diesel fuel also exhibits some seasonality but the effect is smaller. At one time, diesel prices were correlated to the heating oil market which meant higher diesel prices in the winter. This is no longer the case as large equipment and truck use dominate the diesel market. Prices in the winter for diesel fuel are usually a little lower than other times during the year. While the diesel fuel price exhibits less seasonality than gasoline, there is still some effect and there are times during the year when farmers should consider buying diesel fuel.

Figures 1 and 2 show the monthly seasonality based on the last 5 years of monthly price data from the Energy Information Administration. To calculate seasonality, the average price for each year is calculated. For a specific month in a year, the difference between that month's price and the yearly average price is calculated. This difference is plotted

as a purple dot in each graph. The black bar then represents the average of the 5 years of seasonality for that particular month. The variation of the purple dots gives some idea of how much variation there is in the monthly seasonality. As shown in Figure 1, August has a very little variation. In fact, the August diesel price is a pretty good indicator of what the yearly average price is going to be.

As unfortunate situation for farmers about diesel fuel prices is that the highest prices for diesel fuel typically occurs during the spring planting season and the fall harvest season. As shown in Figure 1, diesel prices are about \$0.08 higher than average during May and June. During October and November, diesel prices are also higher than average.

However, there are also some periods where diesel prices are below average. During February, prices tend to be about \$0.03 lower than average. August is also below average, with December having the lowest average at nearly \$0.20 below the yearly average. While December has the lowest average price it also has the largest monthly variation. During the last 5 years, December diesel prices have been \$0.40 below average to \$0.25 above average.

With gasoline prices, the seasonality is clear. The prime driving season from May through September has prices well above average. June has the highest price above the yearly average with a premium of \$0.20. December has the lowest average price at nearly \$0.30 below the yearly average. Like with diesel, the gasoline price in December has considerable variability. Notice that in January and February the price in each of the last 5 years has always been at or below the yearly average

Recommendations for Farmers

February has historically been one of the lowest cost months to purchase fuel. This is especially true for gasoline. However, most farmers should give serious consideration to purchasing their spring fuel in February. Also, farmers should look at purchasing their harvest fuel in August. By purchasing several months ahead for diesel, farmers can hit the historically lower priced months of February and August and avoid the higher priced months of May and October. The seasonality strategy for purchasing fuel is certainly not foolproof as any given year can run counter to what the average shows. However, over a long enough time frame the strategy can work and save farmers some money.

Seasonality of Diesel Prices

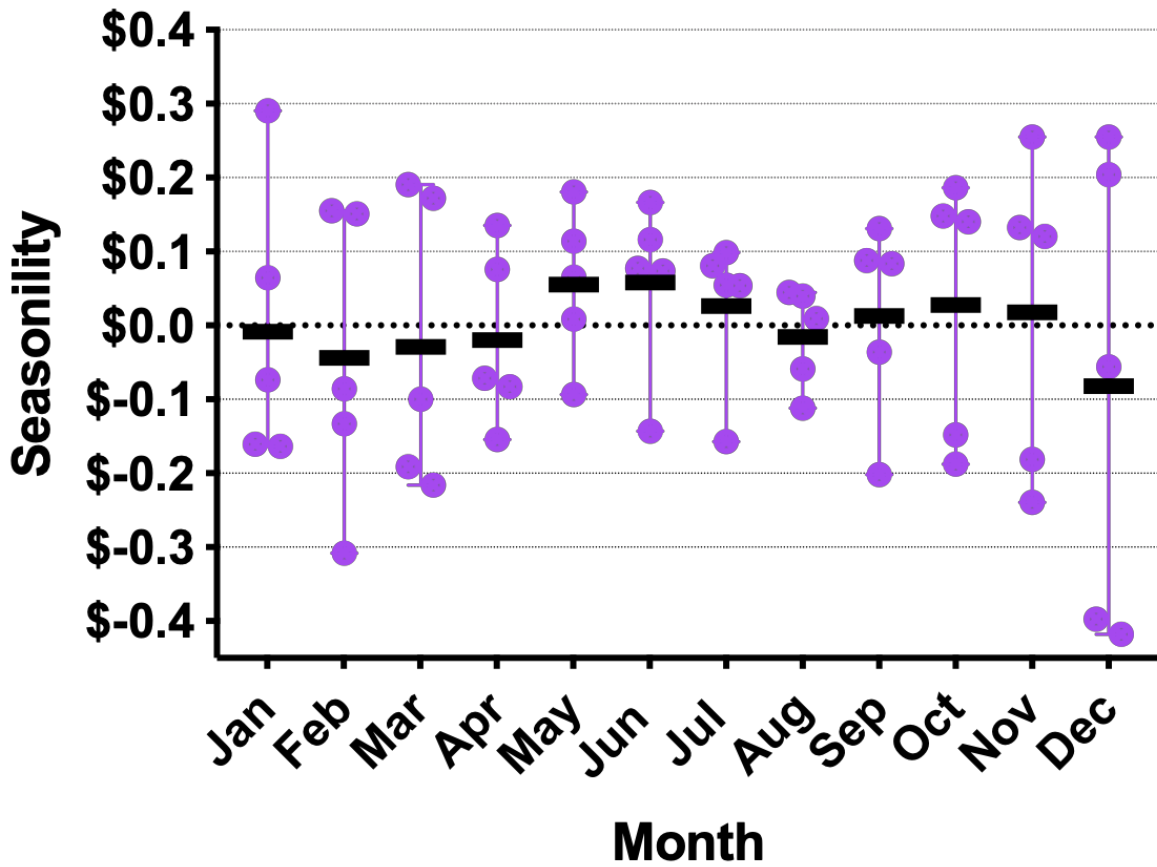


Figure 1. Monthly Seasonality of Highway Diesel Fuel Prices

Seasonality of Gasoline Prices

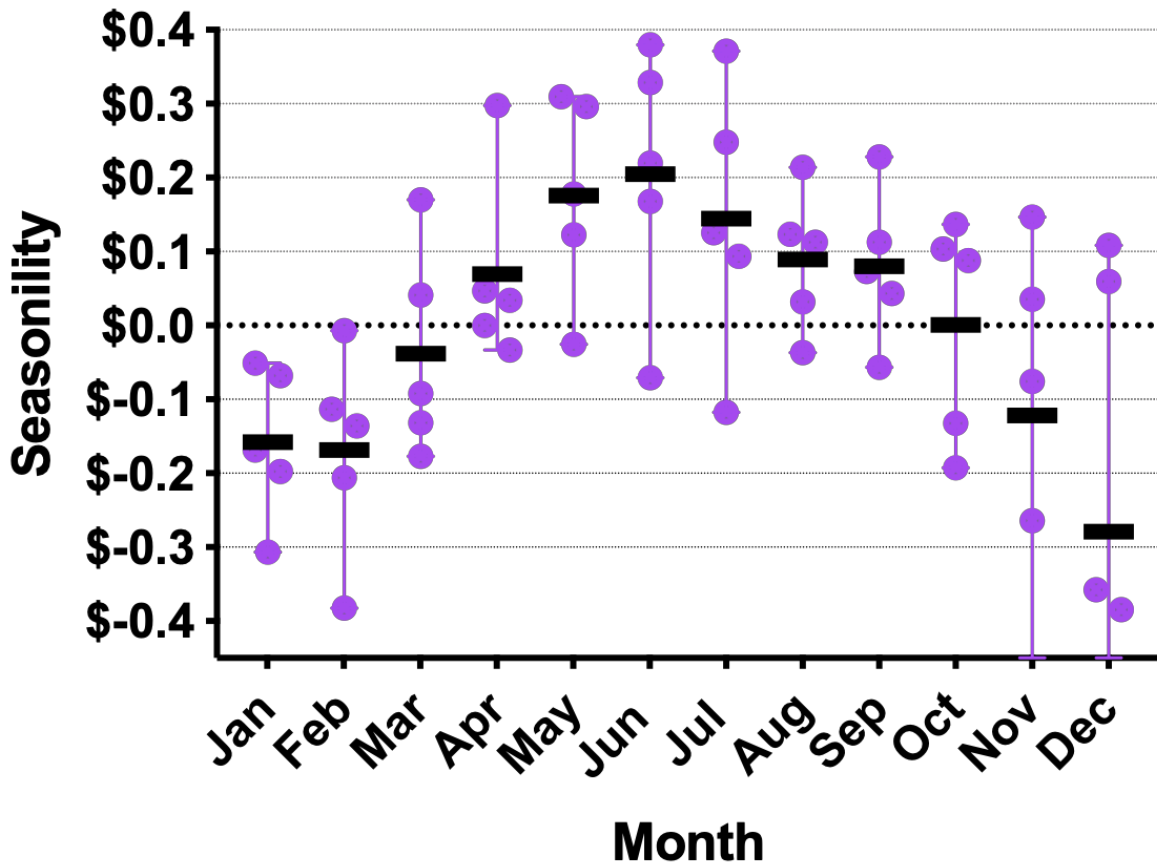


Figure 2. Monthly Seasonality of Gasoline Prices

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