

Wheat Basis

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Risk & Profit
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Kansas – the Wheat State



Kansas has been the leading producer of Hard Red Winter Wheat in the United States for decades, with records of wheat production pre-dating statehood. There are indications that wheat was produced in the area as early as 1839. Hard Red Wheat production took off when the Mennonites brought over Turkey Red.



Volatile and unpredictable conditions farmers face each year, which can affect basis

Futures price
Transportation
• Ocean freight
• Diesel
• Rail rates



Basis definition

- Basis is defined as the amount in cents per bushel a specified local cash price is above or below a futures price for a specified delivery month.
- A futures price is a quote for a purchase contract – the agreed-upon cost of the commodity by the two parties, the buyer and the seller. The futures price locks in the cost of the commodity that will be delivered at some point other than the present.
- Why are these important to understand?
 - Individuals who observe basis carefully are likely to make more profitable decisions. With knowledge of basis, individuals may more easily decide whether to accept a given price, whether to store a crop, and whether, when, and what delivery month to hedge.

What we'll be looking at

Understanding the factors that affect wheat basis for local farmers, specifically looking at transportation including diesel, rail and ocean freight.

Nine years of historical prices and data to determine the factors causing basis changes, including years between 2015 - 2023.

The nine years of data contains enough years to study the volatile basis that occurred from 2015 and 2016, when basis plummeted. Nine years of data helps to determine how volatility in transportation has directly affected prices by seeing the fluctuation over those years.

Providing you with a better understanding on how basis is directly affected, and what causes the basis to move.

Data

District one included Herndon (Rawlins County), Goodland (Sherman County) and Colby (Thomas County).

District two included Ness City (Ness County), Oakley (Logan County) and Grainfield (Gove County).

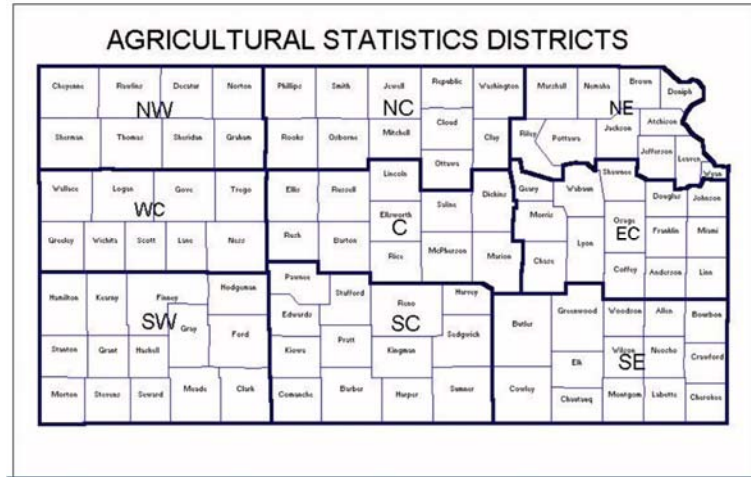
District three included Garden Plain (Finney County), Bucklin (Ford County) and Meade (Meade County).

District four included Morganville (Clay County), Minneapolis (Ottawa County) and Gorham (Russell County).

District five included Hays (Ellis County), Salina (Saline County) and Gorham (Russell County).

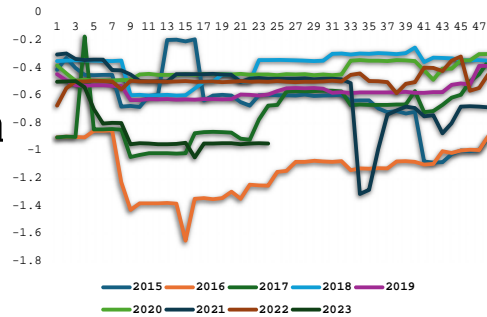
District six included Viola (Sedgwick County), Milton (Sumner County) and Isabel (Barber County).

District seven included Whitewater (Butler County), Junction City (Geary County) and Columbus (Cherokee County).

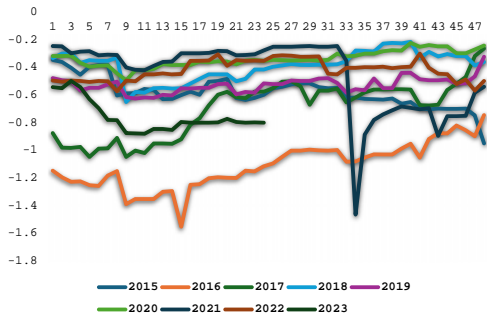


Wheat Basis by Year
District One - North
Average = $-\$0.63$

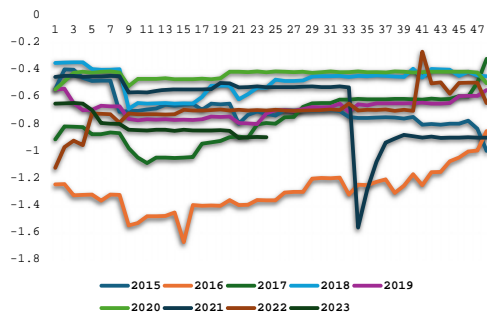
Goodland



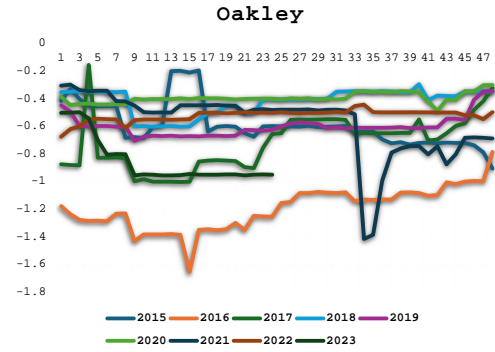
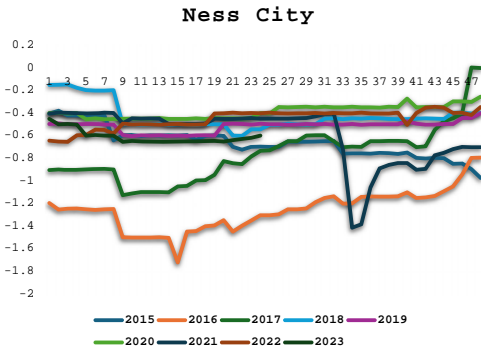
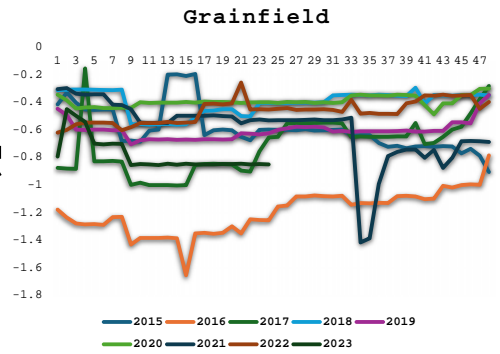
Colby



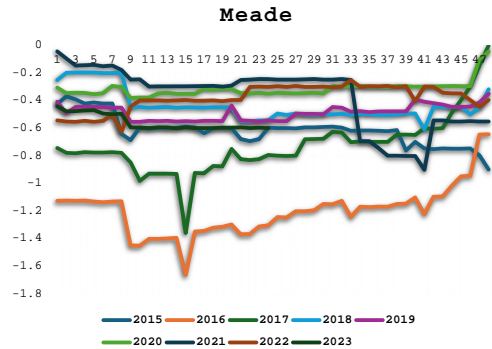
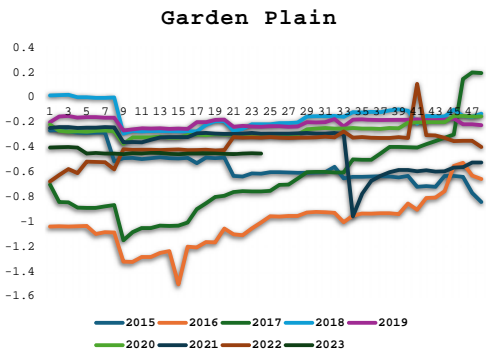
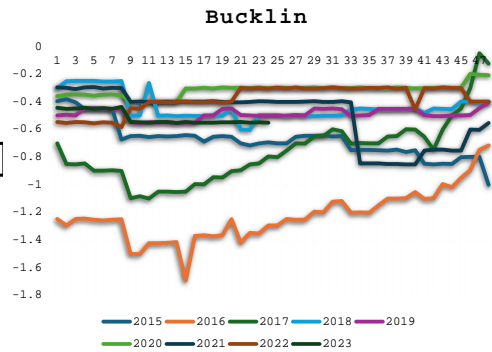
Herndon



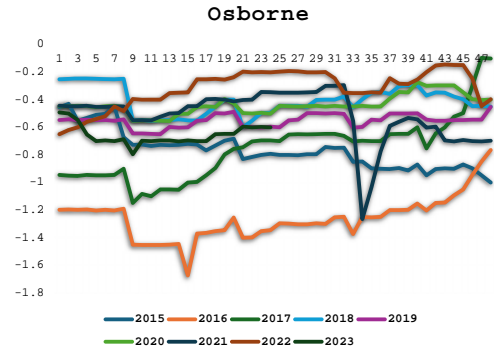
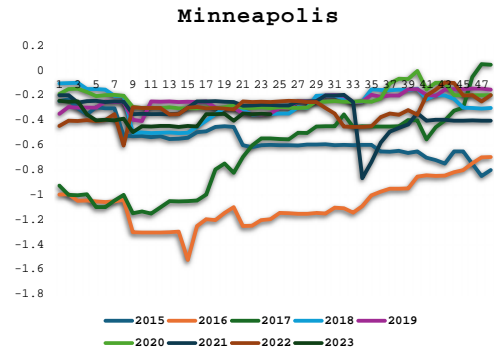
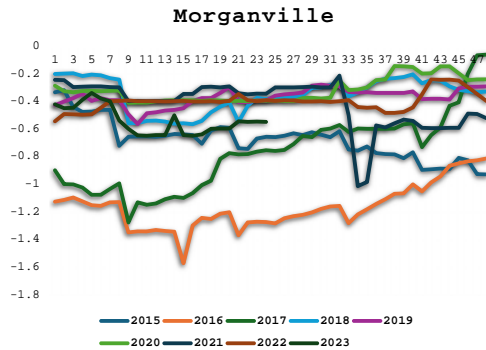
Wheat Basis by Year
 District Two - West C
 Average = $-\$0.62$



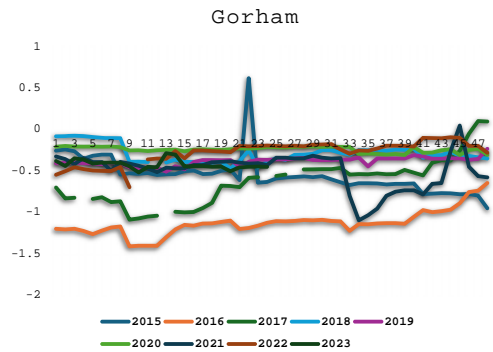
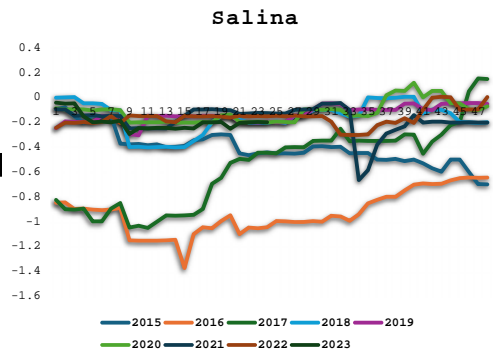
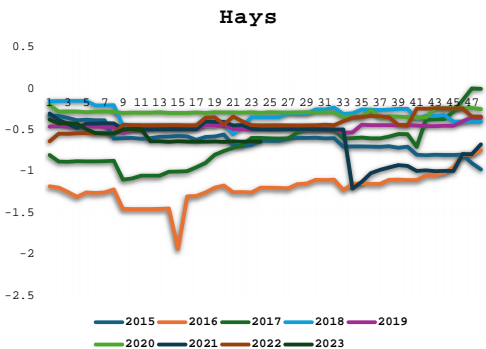
Wheat Basis by Year
 District Three - South
 Average = $-\$0.53$



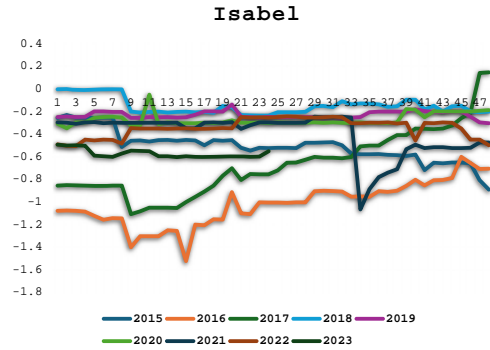
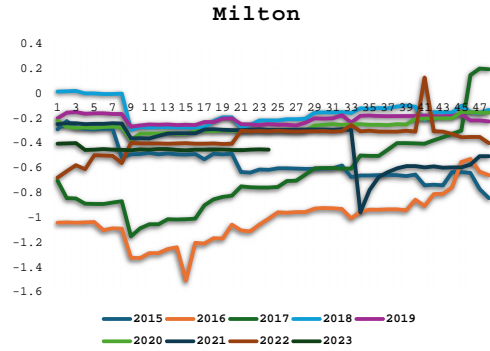
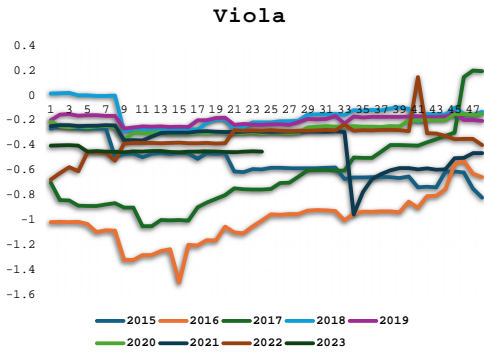
Wheat Basis by Year District Four - North Average = $-\$0.54$



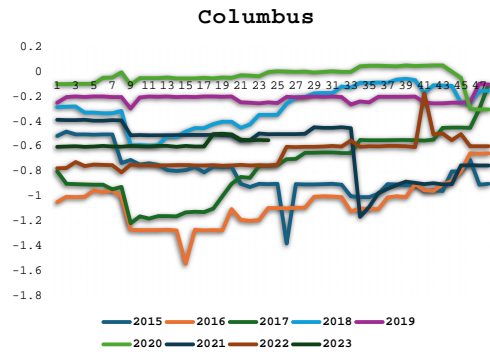
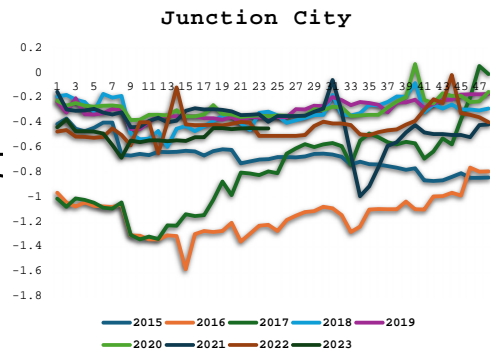
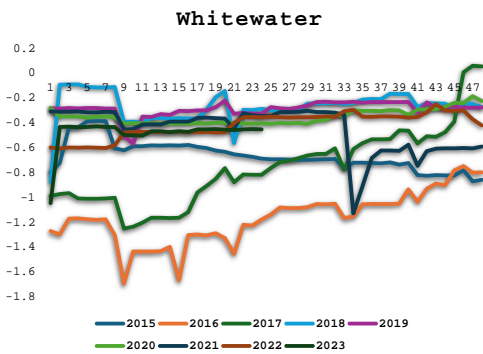
Wheat Basis by Year District Five - Cent Average = $-\$0.45$



Wheat Basis by Year
 District Six - South
 Average = -\$0.44



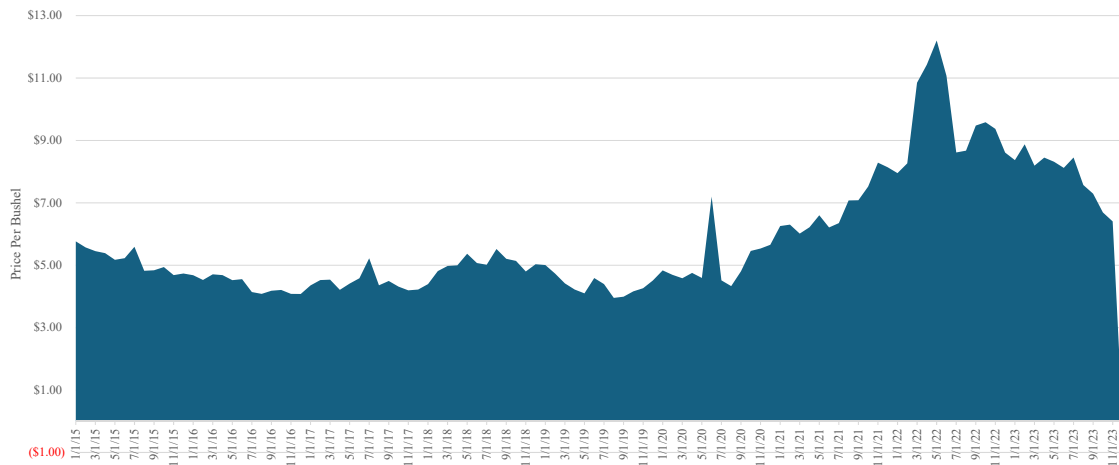
Wheat Basis by Year
 District Seven - East
 Average = -\$0.54



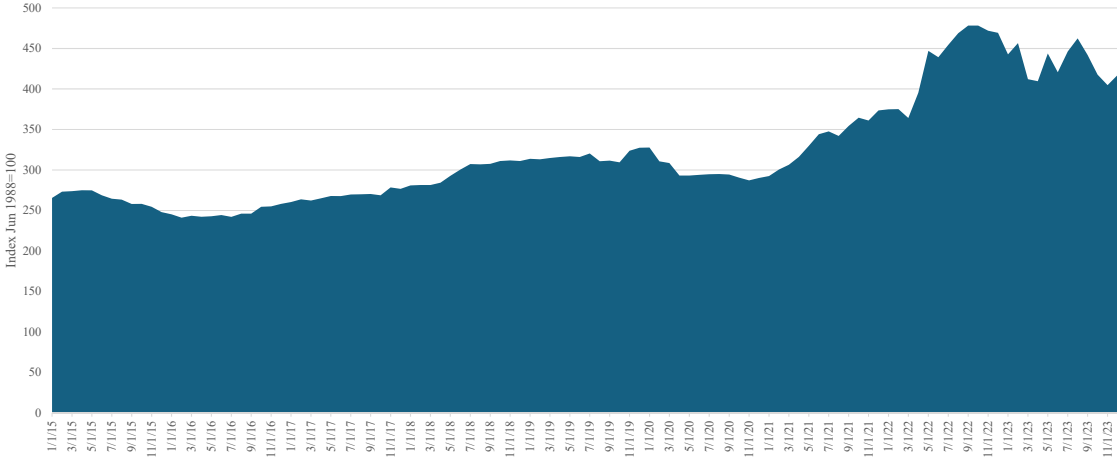
- Estimate basis as a function of wheat futures price, ocean freight rates, rail tariff rates, and diesel price.
- Fairly high correlation between ocean freight and futures price, diesel fuel price and futures price, and ocean freight and diesel price.



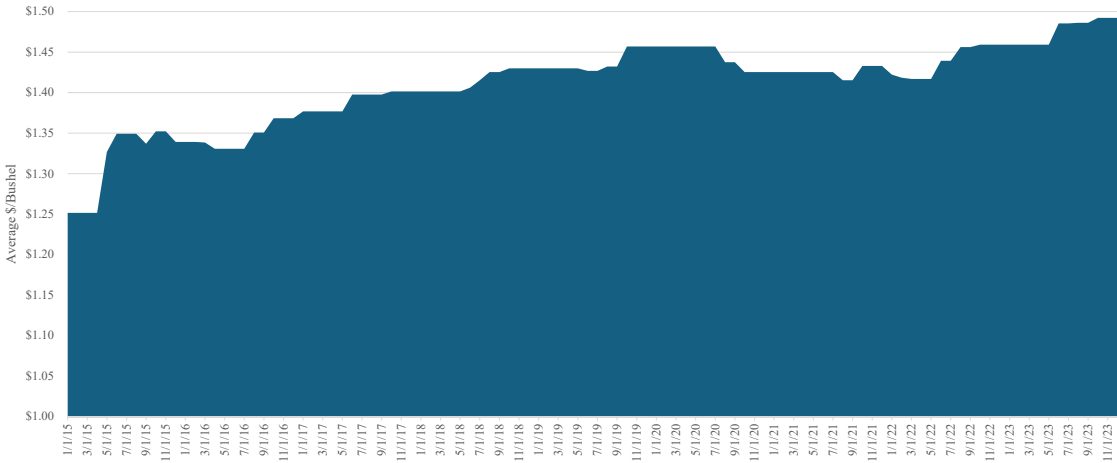
Wheat Futures - Nearby



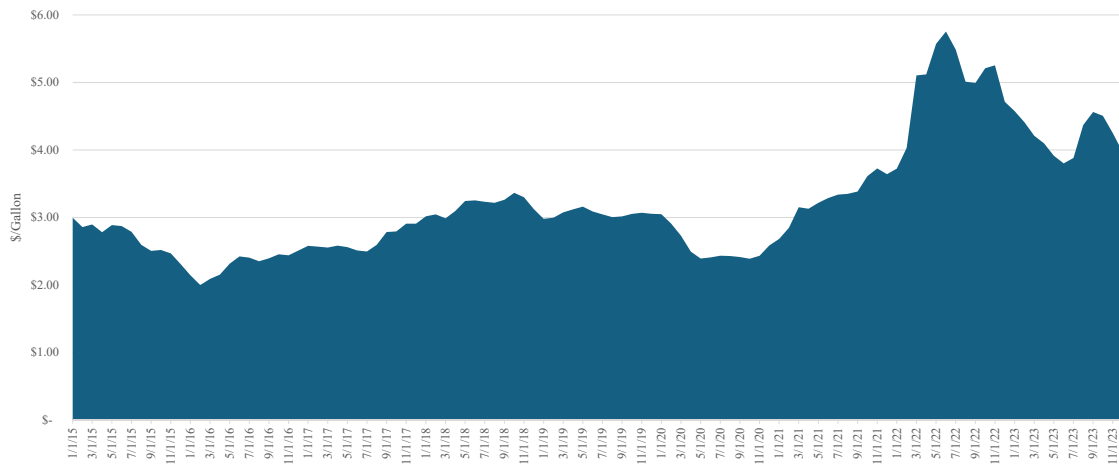
Ocean Freight Rate - Index



Rail Tariff Rate



Diesel Price - \$ per Gallon



District One - NW



District One - NW

futures will change basis by $-\$0.05$, a 1.00 change in ocean freight index would result in $\$0.004$ increase in basis, a $\$1.00$ change in diesel per gallon would result in a $-\$0.17$ change in basis and a $\$1.00$ change in rail tariff rate would result in a $-\$0.96$ change in basis.

The results indicated a $\$1.00$ change in futures will change basis by $-\$0.05$, a 1.00 change in index in ocean freight would result in $\$0.004$ affect in basis, a $\$1.00$ change in diesel per gallon would result in a $-\$0.14$ change in basis and a $\$1.00$ change in rail tariff rate would result in a $-\$1.12$ change in

Colby results indicated a $\$1.00$ change in futures will change basis by $-\$0.04$, a 1.00 change in index in ocean freight would result in $\$0.004$ increase in basis, a $\$1.00$ change in diesel would result in a $-\$0.14$ change in basis and a $\$1.00$ change in rail tariff rate would result in a $-\$0.72$ change in basis.

District Two - WC



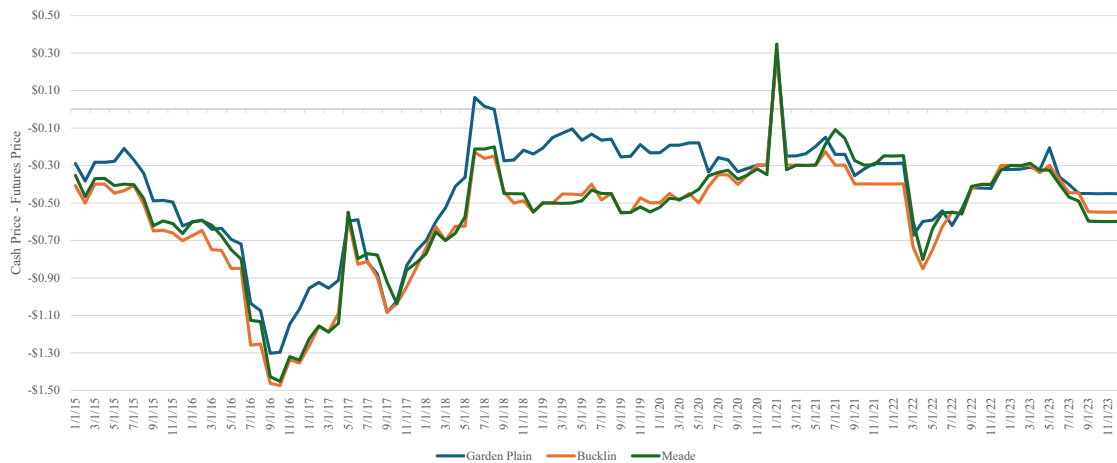
District Two - WC

Ness City results indicated a \$1.00 change in futures will change basis by $-\$0.05$, a 1.00 change in index in ocean freight would result in $\$0.005$ increase in basis, a \$1.00 change in diesel would result in a $-\$0.18$ change in basis and a \$1.00 change in rail tariff rate would result in a $-\$0.63$ change in basis.

Oakley results indicated a \$1.00 change in futures will change basis by $-\$0.03$, a 1.00 change in index in ocean freight would result in $\$0.004$ affect in basis, a \$1.00 change in diesel would result in a $-\$0.23$ change in basis and a \$1.00 change in rail tariff rate would result in a $-\$0.86$ change in basis.

Grainfield results indicated a \$1.00 change in futures will change basis by $-\$0.05$, a 1.00 change in index in ocean freight would result in $\$0.004$ increase in basis, a \$1.00 change in diesel would result in a $-\$0.15$ change in basis and a \$1.00 change in rail tariff rate would result in a $-\$1.03$ change in basis.

District Three - SW



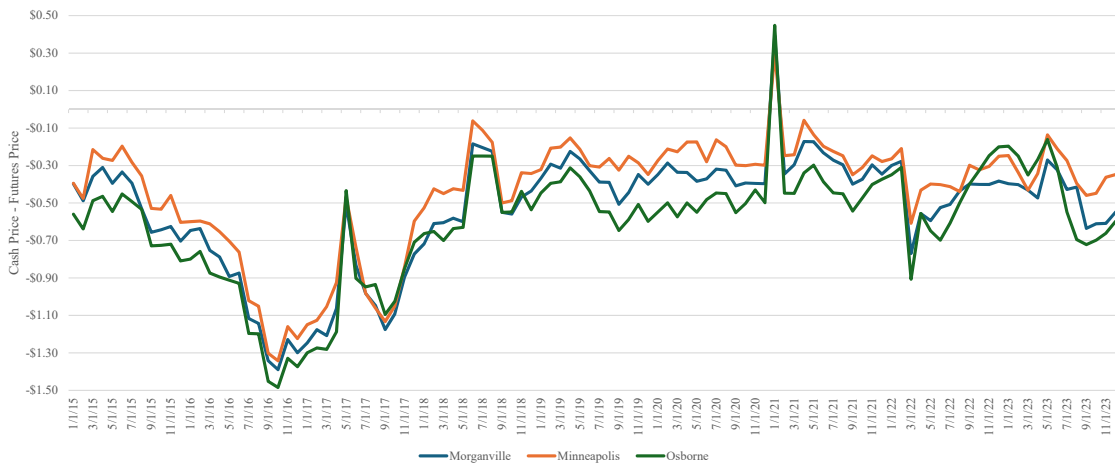
District Three - SW

Garden Plain results indicated a \$1.00 change in futures will change basis by $-\$0.04$, a 1.00 change in index in ocean freight would result in $\$0.003$ increase in basis, a \$1.00 change in diesel would result in a $-\$0.11$ change in basis and a \$1.00 change in rail tariff rate would result in a $\$0.66$ change in basis.

Bucklin results indicated a \$1.00 change in futures will change basis by $-\$0.04$, a 1.00 change in index in ocean freight would result in $\$0.005$ increase in basis, a \$1.00 change in diesel would result in a $-\$0.18$ change in basis and a \$1.00 change in rail tariff rate would result in a $-\$0.18$ change in basis.

Meade results indicated a \$1.00 change in futures will change basis by $-\$0.03$, a 1.00 change in index in ocean freight would result in $\$0.005$ increase in basis, a \$1.00 change in diesel would result in a $-\$0.17$ change in basis and a \$1.00 change in rail tariff rate would result in a $-\$0.44$ change in basis.

District Four - NC



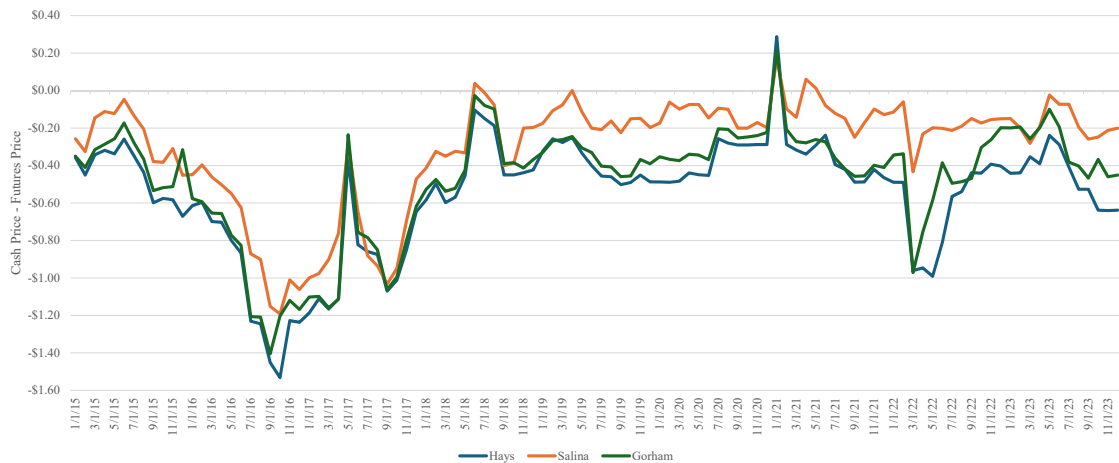
District Four - NC

Morganville results indicated a \$1.00 change in futures will change basis by $-\$0.04$, a 1.00 change in index in ocean freight would result in $\$0.004$ increase in basis, a \$1.00 change in diesel would result in a $-\$0.23$ change in basis and a \$1.00 change in rail tariff rate would result in a $\$0.01$ change in basis.

Minneapolis results indicated a \$1.00 change in futures will change basis by $-\$0.03$, a 1.00 change in index in ocean freight would result in $\$0.004$ increase in basis, a \$1.00 change in diesel would result in a $-\$0.12$ change in basis and a \$1.00 change in rail tariff rate would result in a $\$0.41$ change in basis.

Osborne results indicated a \$1.00 change in futures will change basis by $-\$0.05$, a 1.00 change in index in ocean freight would result in $\$0.005$ increase in basis, a \$1.00 change in diesel would result in a $-\$0.09$ change in basis and a \$1.00 change in rail tariff rate would result in a $-\$0.17$ change in basis.

District Five - C



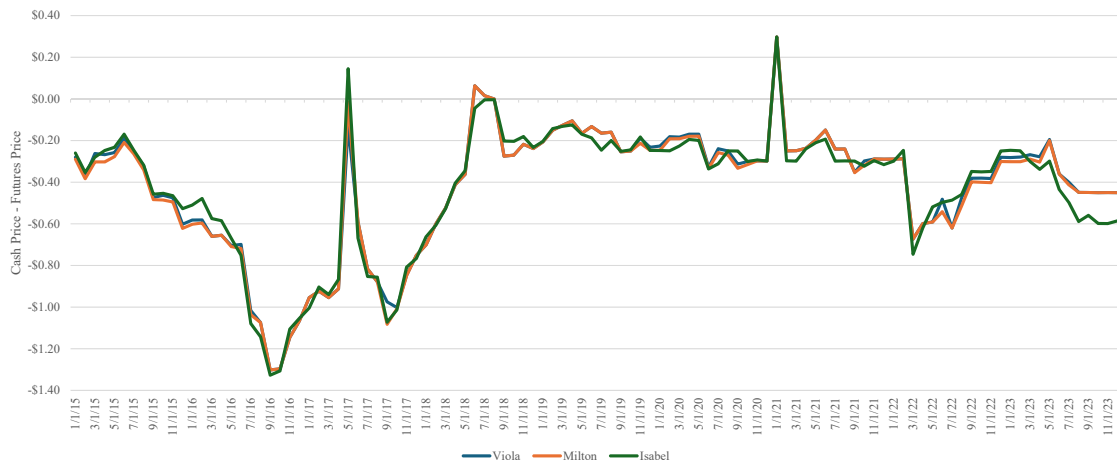
District Five - C

Hays results indicated a \$1.00 change in futures will change basis by $-\$0.05$, a 1.00 change in index in ocean freight would result in $\$0.005$ increase in basis, a \$1.00 change in diesel would result in a $-\$0.21$ change in basis and a \$1.00 change in rail tariff rate would result in a $-\$0.25$ change in basis.

Salina results indicated a \$1.00 change in futures will change basis by $-\$0.02$, a 1.00 change in index in ocean freight would result in $\$0.004$ increase in basis, a \$1.00 change in diesel would result in a $-\$0.11$ change in basis and a \$1.00 change in rail tariff rate would result in a $\$0.29$ change in basis.

Gorham results indicated a \$1.00 change in futures will change basis by $-\$0.04$, a 1.00 change in index in ocean freight would result in $\$0.005$ increase in basis, a \$1.00 change in diesel would result in a $-\$0.18$ change in basis and a \$1.00 change in rail tariff rate would result in a $-\$0.12$ change in basis.

District Six - SC



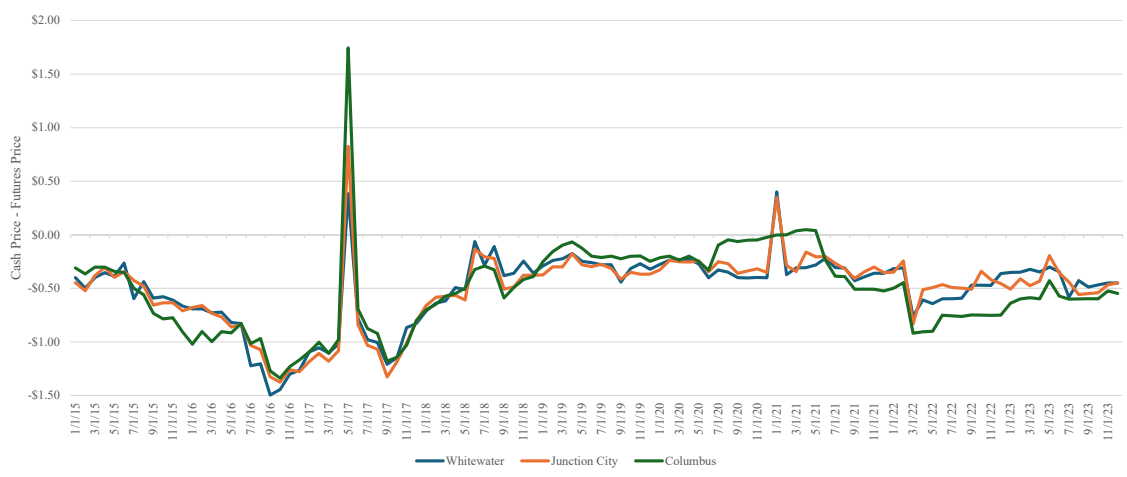
District Six - SC

futures will change basis by $-\$0.04$, a 1.00 change in index in ocean freight would result in $\$0.003$ increase in basis, a $\$1.00$ change in diesel would result in a $-\$0.11$ change in basis and a $\$1.00$ change in rail tariff rate would result in a $\$0.55$ change
 Wilton: results indicated a $\$1.00$ change in

futures will change basis by $-\$0.04$, a 1.00 change in index in ocean freight would result in $\$0.003$ increase in basis, a $\$1.00$ change in diesel would result in a $-\$0.12$ change in basis and a $\$1.00$ change in rail tariff rate would result in a $\$0.65$ change
 Isabel: results indicated a $\$1.00$ change in

futures will change basis by $-\$0.04$, a 1.00 change in index in ocean freight would result in $\$0.003$ affect in basis, a $\$1.00$ change in diesel would result in a $-\$0.09$ change in basis and a $\$1.00$ change in rail tariff rate would result in a $\$0.16$ change

District Seven - E



District Seven - E

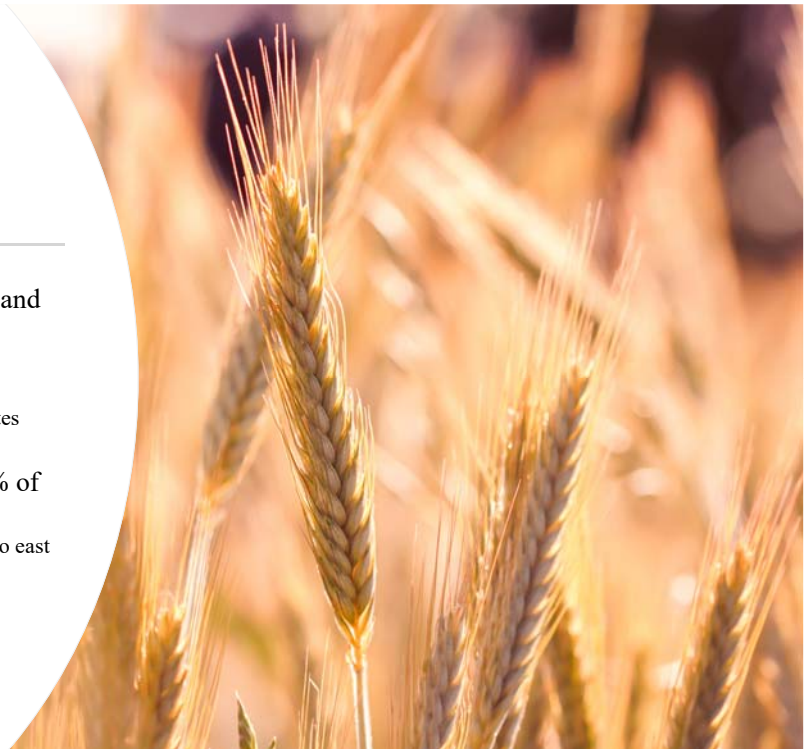
Whitewater results indicated a \$1.00 change in futures will change basis by $-\$0.05$, a 1.00 change in index in ocean freight would result in $\$0.004$ increase in basis, a \$1.00 change in diesel would result in a $-\$0.09$ change in basis and a \$1.00 change in rail tariff rate would result in a $\$0.67$ change in basis.

Junction City results indicated a \$1.00 change in futures will change basis by $-\$0.04$, a 1.00 change in index in ocean freight would result in $\$0.004$ increase in basis, a \$1.00 change in diesel would result in a $-\$0.13$ change in basis and a \$1.00 change in rail tariff rate would result in a $\$0.45$ change in basis.

Columbus results indicated a \$1.00 change in futures will change basis by $-\$0.03$, a 1.00 change in index in ocean freight would result in $\$0.002$ increase in basis, a \$1.00 change in diesel would result in a $-\$0.19$ change in basis and a \$1.00 change in rail tariff rate would result in a $\$1.86$ change in basis.

How can farmers use this?

- Futures price, ocean freight, diesel price and rail tariff rates affect wheat basis
 - An increase in futures price and diesel price decreases basis
 - An increase in ocean freight and rail tariff rates increases basis
- The models explain between 11% to 32% of the basis variation
 - More explanatory power moving from west to east
- The results are robust across Kansas.



The image features a decorative header with a blue-to-black gradient background. On the right side, there are 3D-rendered numbers and symbols, including '2020', '100%', and '100'. The word 'Questions?' is centered in a white, monospaced font on a solid black horizontal band.

Questions?