# A Very Detailed Paper on the Soybean Complex

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## Introduction

The soybean complex consists of soybeans, soybean meal, and soybean oil. The relationships between these three price series are interesting to study because they are bound by a production relationship.

## Literature Review

Both (Johnson, Robinson, and Comstock 1955) and (Simon 1999) studied soybeans, but they found different things.

## Methods

We will test all three prices for stationarity and then we will fit a Vector Autoregression or a Vector Error Correction Model based on our findings.

$$Y = mX + b$$

## Results

We find that all the series are non-stationary. See table 1 for results of Augmented Dickey-Fuller tests for each series. Table 2 shows how the VAR model results came out. We find that the lagged coeficient for Meal in the Bean equation is 0.15.

## Conclusions

This concludes our paper. Future research should do much more. The end.

# Tables and Figures

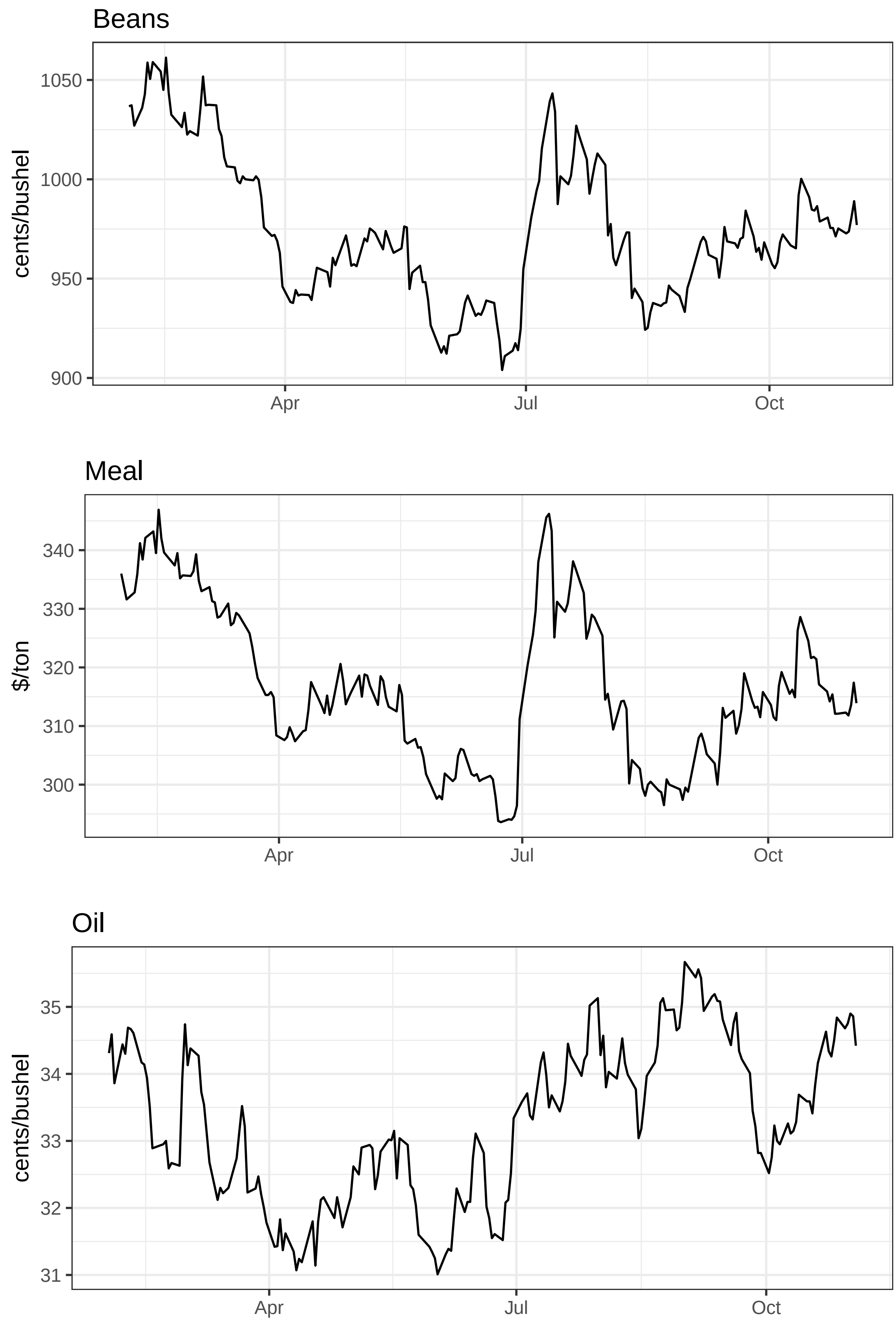
**Table 1: Augmented Dickey-Fuller Tests for each series**

| | statistic | p.value |
|---|---|---|
| Beans | -2.79 | 0.25 |
| Meal | -2.85 | 0.22 |
| Oil | -3.16 | 0.10 |

**Table 2: Vector Autogressive Model Results**

| Equation | Variable | Estimate | Std. Error | t-value | Pr(>\|t\|) |
|---|---|---|---|---|---|
| Beans | Beans.l1 | 0.89 | 0.13 | 6.78 | 0.00 |
| | Meal.l1 | 0.15 | 0.34 | 0.46 | 0.65 |
| | Oil.l1 | 0.38 | 1.11 | 0.34 | 0.73 |
| | const | 41.66 | 25.39 | 1.64 | 0.10 |
| Meal | Beans.l1 | 0.02 | 0.05 | 0.48 | 0.63 |
| | Meal.l1 | 0.89 | 0.13 | 7.08 | 0.00 |
| | Oil.l1 | -0.15 | 0.41 | -0.37 | 0.71 |
| | const | 15.75 | 9.49 | 1.66 | 0.10 |
| Oil | Beans.l1 | -0.01 | 0.00 | -2.11 | 0.04 |
| | Meal.l1 | 0.02 | 0.01 | 2.00 | 0.05 |
| | Oil.l1 | 1.02 | 0.04 | 25.81 | 0.00 |
| | const | 1.32 | 0.91 | 1.45 | 0.15 |

**Figure 1: Prices**



# References

Johnson, Herbert W, HF Robinson, and RE Comstock. 1955. "Estimates of Genetic and Environmental Variability in Soybeans." *Agronomy Journal* 47 (7). American Society of Agronomy: 314–18.

Simon, David P. 1999. "The Soybean Crush Spread: Empirical Evidence and Trading Strategies." *Journal of Futures Markets* 19 (3). Wiley Online Library: 271–89.