



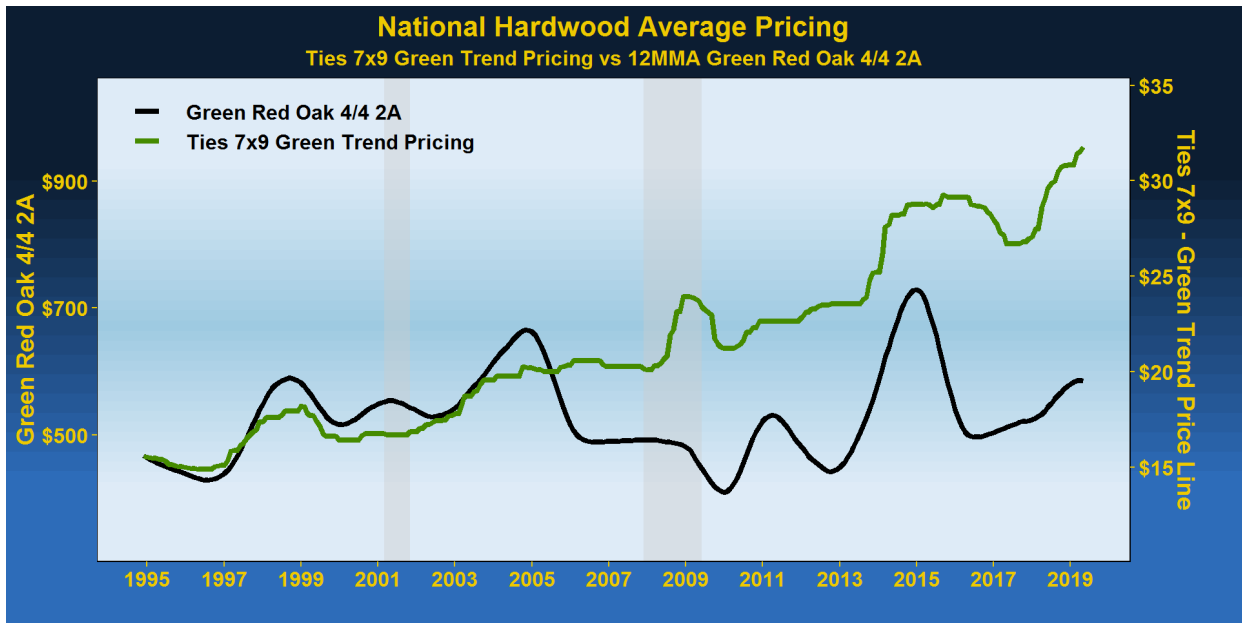
# Green Tie Pricing Report

May 2019

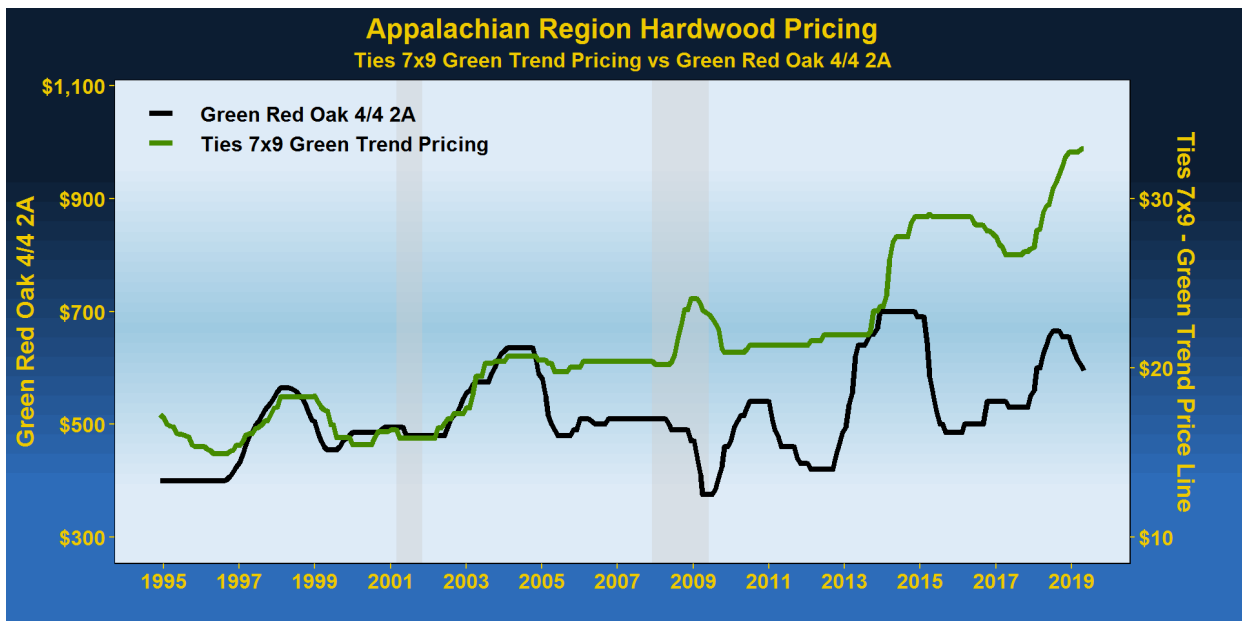
**Disclaimer:** The data and report presented herein are based on data provided by the Hardwood Market Report. The RTA economic team uses these data to extrapolate Green Tie 7x9 pricing. RTA appreciates the longstanding cooperation of the Hardwood Market Report personnel.

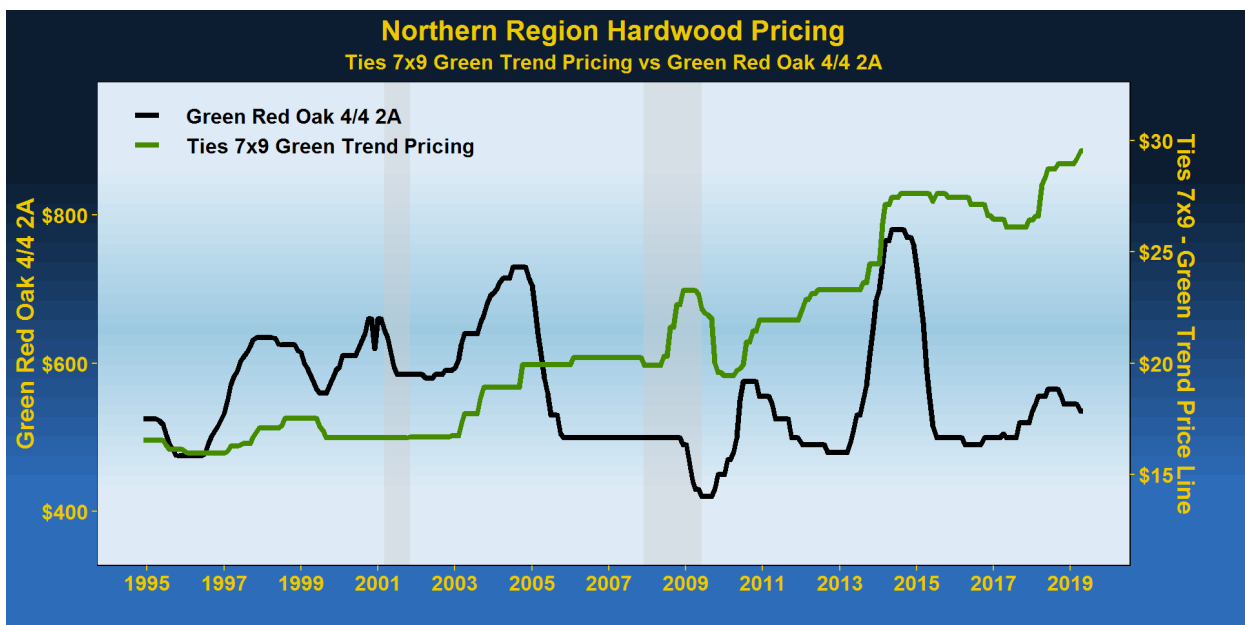
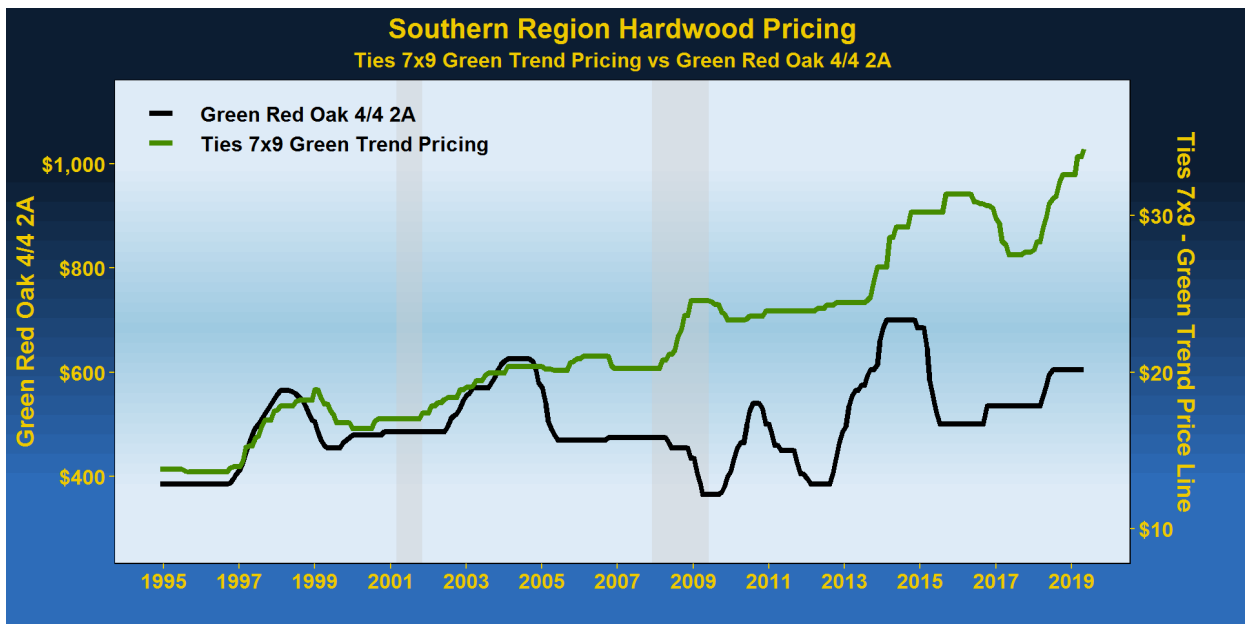
Highlighted areas in the graphs represent time of recessions.

In the National Hardwood Average Pricing graph, the Green Red Oak 4/4 2A price is calculated as 12 months moving average of weighted average regional prices; the Green Tie price is calculated as a weighted average of regional prices.

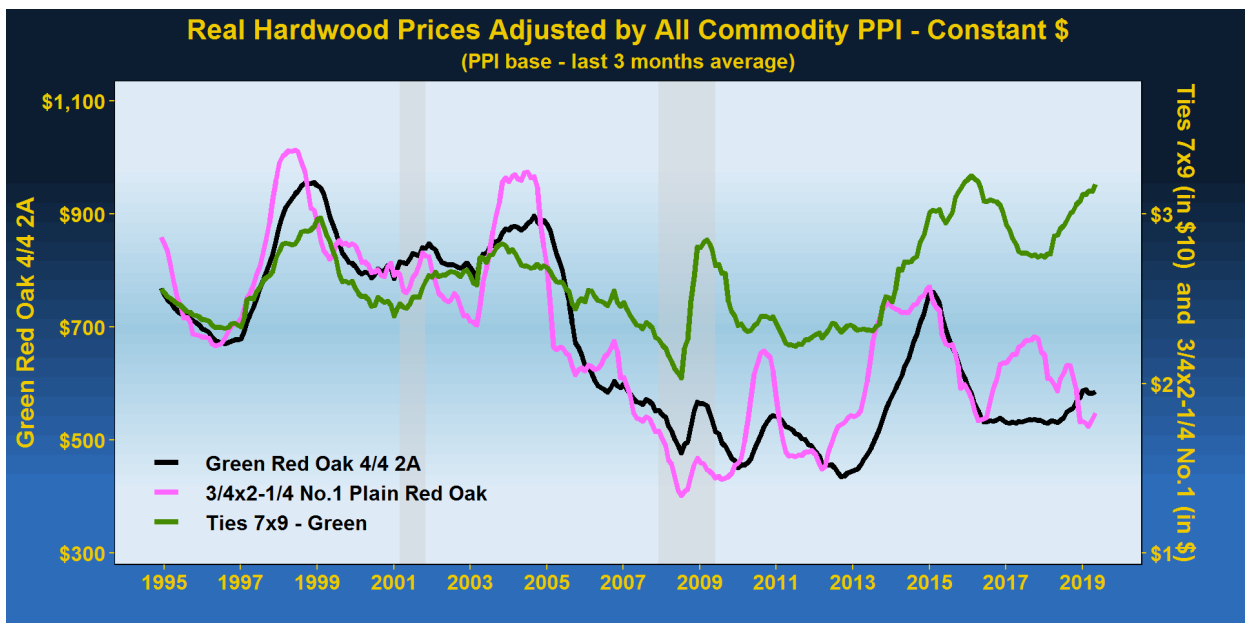


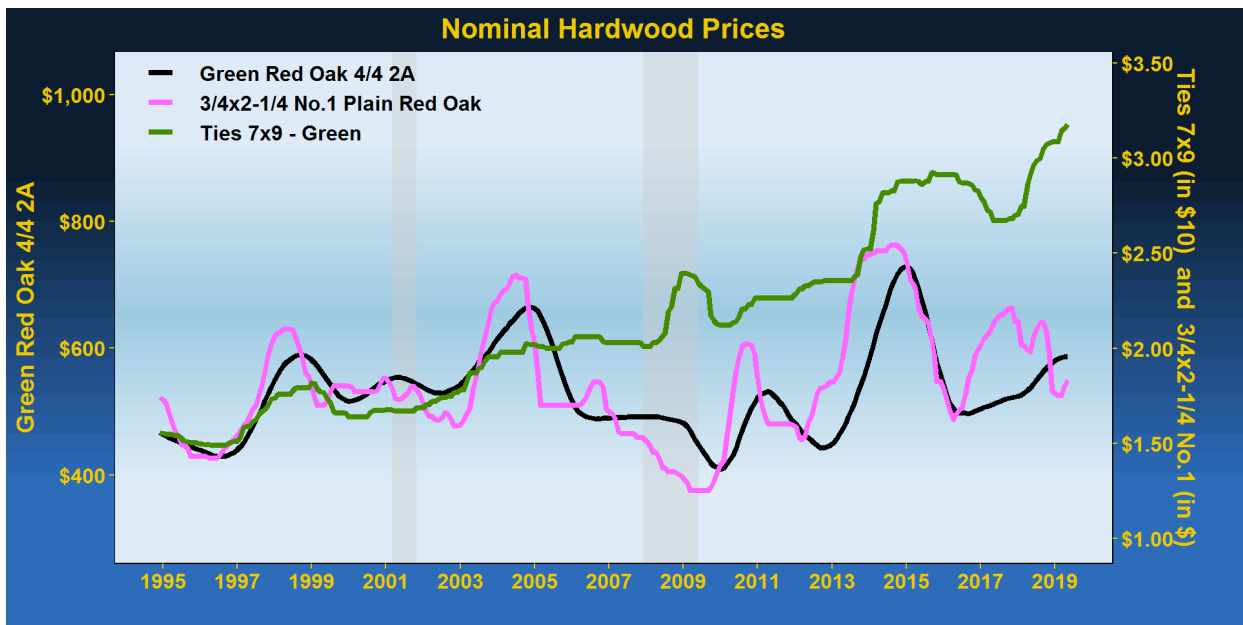
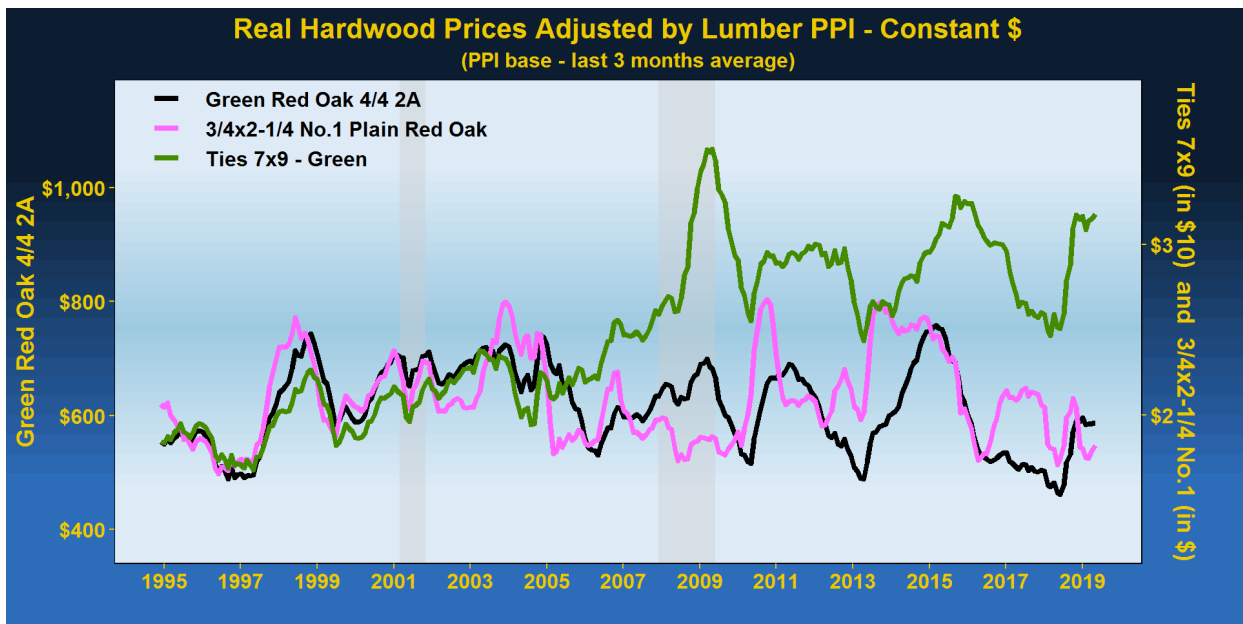
Green Tie prices for Appalachian region are calculated as weighted average of Southern and Northern subregion, and for Southern region as a weighted average of Eastern and Western subregion. Prices of Green Red Oak are unadjusted.





In the following section, the graphs display prices adjusted by two Producer Price Indexes.



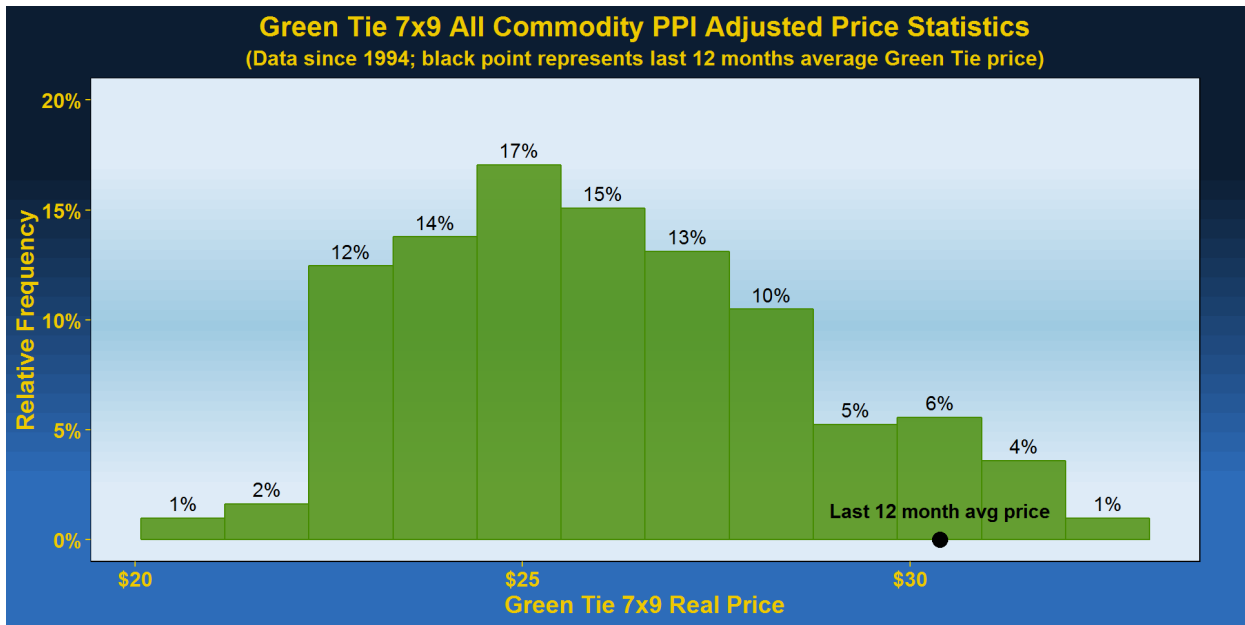


Note about the right side Y-axes: The "Ties 7x9 - Green" and 3/4x2-1/4 No.1 Plain Red Oak are on the same axis. In order to show the relationship of the various wood product prices, the price of the "Ties 7x9 - Green" is scaled down by 10. Thus, the right Y-axes for the Ties should be read as 10 multiple.

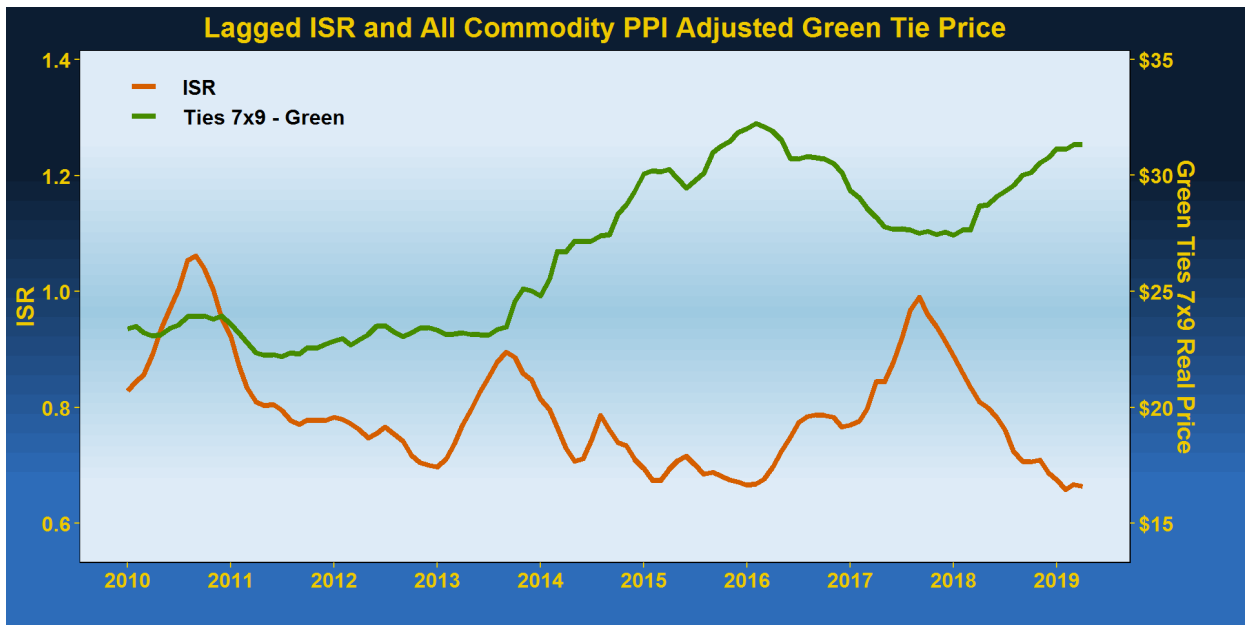
The following table shows correlations of Green Tie with Green Red Oak 4/4 2A and Strip Flooring 3/4x2-1/4 No.1 Plain Red Oak. The correlations are based on nominal prices, prices adjusted for All Commodities PPI, and Lumber PPI (both PPI are averages of last three months PPI). Each price adjustment is applied to all three wood products. All correlations are calculated for various time frames.

**Table of Green Tie 7x9 Correlations**

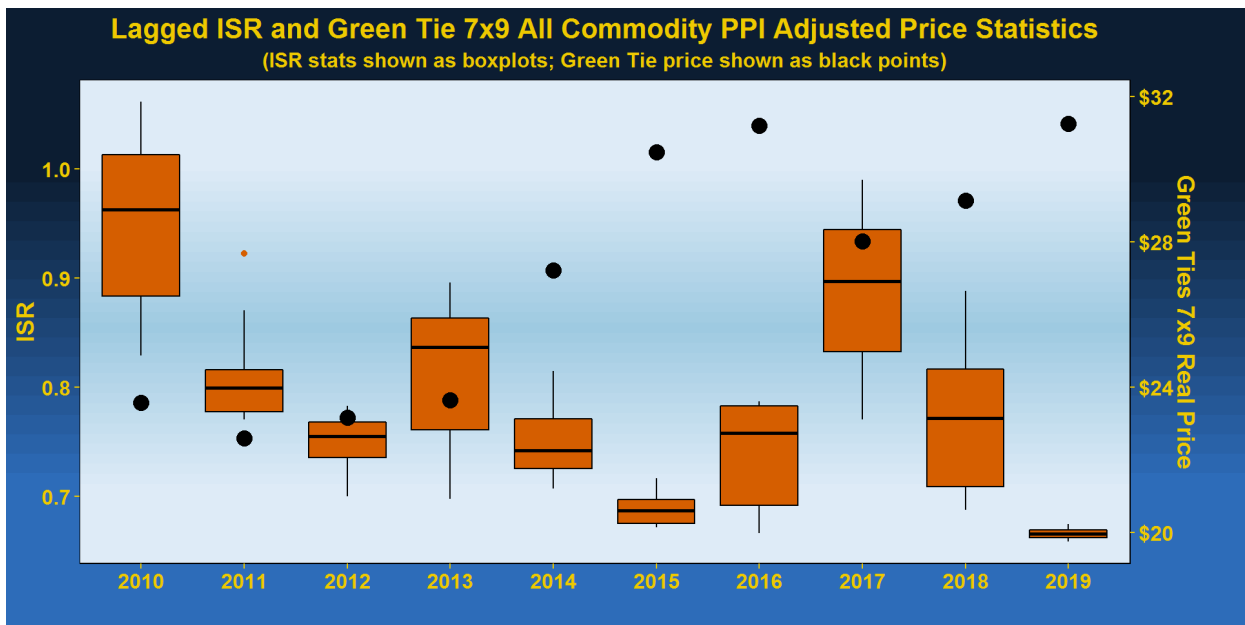
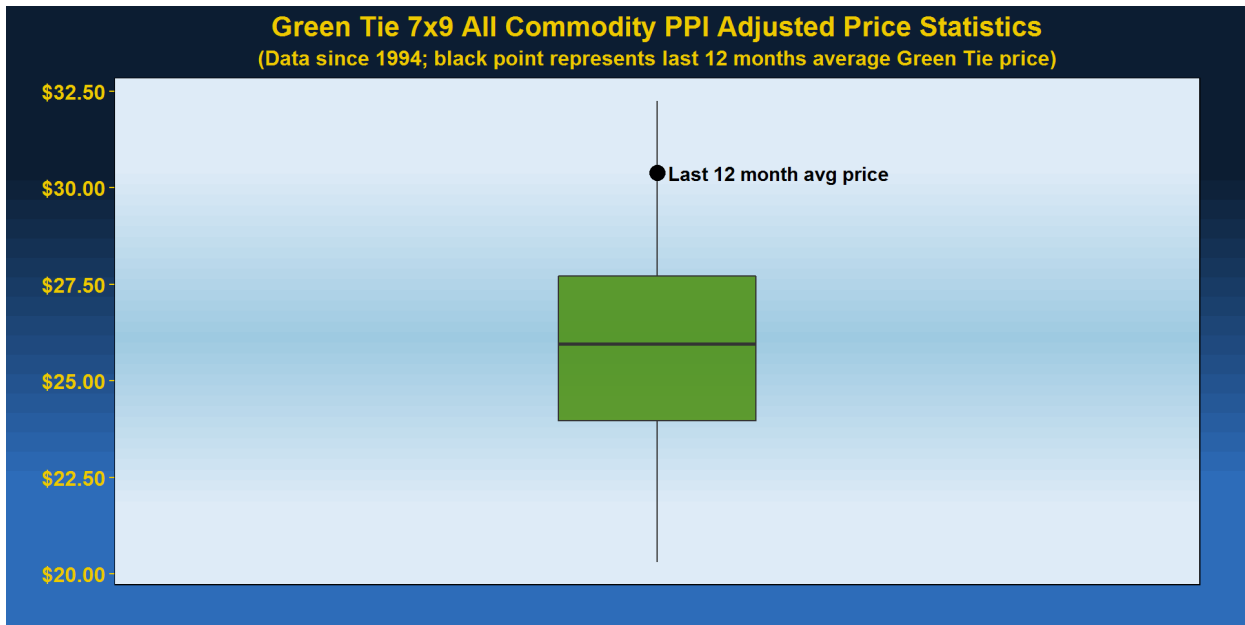
Price Adjustment	Correlation with	Jan 1994 to present	Jan 1994 to Dec 2007	Jan 2008 to Dec 2009	Jan 2010 to present	Last 12 months
Nominal Prices	3/4x2-1/4 No.1 Plain Red Oak	0.41	0.41	-0.82	0.37	-0.64
	Green Red Oak 4/4 2A	0.27	0.46	-0.60	0.43	-0.50
All Commodity PPI	3/4x2-1/4 No.1 Plain Red Oak	0.28	0.76	0.16	0.34	-0.78
	Green Red Oak 4/4 2A	0.22	0.77	-0.10	0.39	-0.06
Lumber PPI	3/4x2-1/4 No.1 Plain Red Oak	0.08	0.36	-0.03	-0.13	0.23
	Green Red Oak 4/4 2A	0.01	0.48	-0.33	0.03	0.95



Analysis of Inventory-to-Sales Ratio and Green Tie 7x9 real price reveal moderate correlation of -0.47 between ISR in the 6-Months preceding period and Green Tie prices. This suggests that in periods of low ISR environment, Green Tie real price tends to rise in following months.



When the ISR value decreases in the defined timeframe, the Tie price tends to increase in the same interval. The opposite can be observed as well. This is a sign of negative correlation because the values/lines move in opposite directions.



The Green Tie price is an average annual price for each year as shown on the x-axis. Each ISR boxplot is derived from 12 months of data (July through June). For example, the boxplot on the 2010 tick mark describes ISR data from July 2009 through June 2010 - six months lagged to Green Tie price.