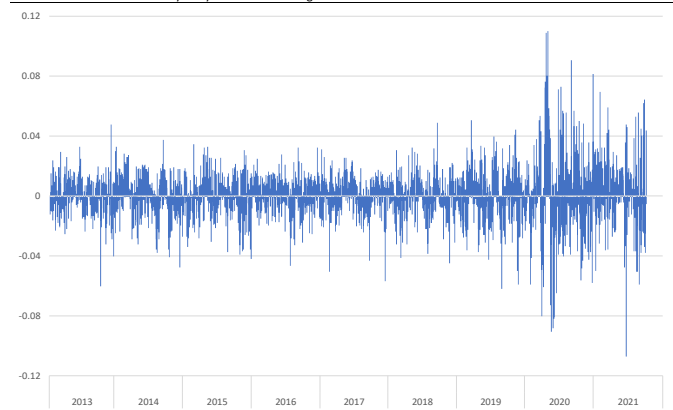


Before the Mandatory Price Reporting system went into effect, USDA reporters would issue daily and weekly updates based on their canvassing of the market. The prices quoted would reflect the market as the USDA reporter saw it and the reporter would drop quotes that were too high or too low. Market participants recognized that once Mandatory Price Reporting went into effect, the increased transparency would more than make up for the increase in day to day volatility. However, **since the start of the pandemic, wholesale pork market (as measured by the cutout) has become much more volatile.** Between 2013 and February 2020, more than half of the daily cutout calculations were about +/- 1% of the previous day. Only 4% of the daily calculations were 3% higher or lower than the previous day, and the daily change did not exceed 6.2%. Since March of 2020, the range of daily changes has increased to as much as 11.7%. During this period, only 32% of the cutout value calculations were within +/- 1% of the previous day.

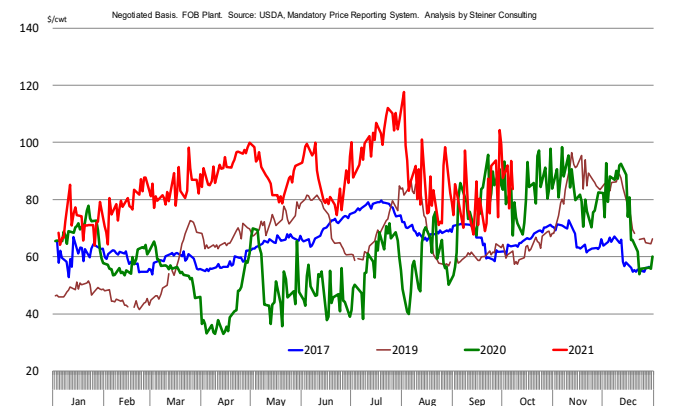
While one can point to a number of factors driving this day to day volatility, **we think a major issue has been the widening spread between bone-in and boneless items.** The wide spread reflects the impact that limited labor has had on the ability of packers to run boning and trimming lines, be this for hams, loins or other products. Visually it is easy to see the increase in the day to day volatility both in the first chart showing the cutout, or the second chart showing the ham primal. We will focus on the ham primal because it is a bit easier to follow. In any given day, the packer will process a certain number of hogs and then split the carcass into the component primals. The packer will harvest a ham primal, which is a skin one, bone-in ham. The packer then has the option to either sell it as such or further process it by separating the individual muscles and generating credit items such as trim, bone, skin and fat. To do this the packer needs workers to staff a ham boning line and they will do this if they can get a big enough premium to justify doing so. Domestic and export demand used to be key in this calculation. We calculated the spread between a bone-in ham price vs. the calculated value of the ham primal using the value of individual muscles and trim (chart 3). The value of the implied ham primal was adjusted for the labor needed to run the line. In the past, the spread was about 10-20 cents. Only in 2016, when packers ran into capacity issues, did we see the spread rise above 30 cents. Everything changed in the spring of 2020. At that time we saw the spread get as high as 80 cents and it is currently double the 2016 high. Why does this drive the volatility? Each day USDA will take the price of the bone-in ham and use that as a primal value because that's what it is. USDA then will also take the price of the boneless muscles traded and compute the implied value of the primal from those. These two values will then be weighted by the volume traded. If one day there are too many bone-in hams traded (currently around 65 cents) and too few boneless hams traded, then the final calculation of the ham primal will skew lower. The reverse is true when suddenly we see a lot of boneless hams traded. **As long as boneless/trimmed products command far higher premiums than in the past, we will likely continue to see this volatility persist, a function of how much of each product is traded in the spot market.**

Day to Day Percentage Change in the Value of the Pork Cutout

Data source: USDA-MPR. Analysis by Steiner Consulting

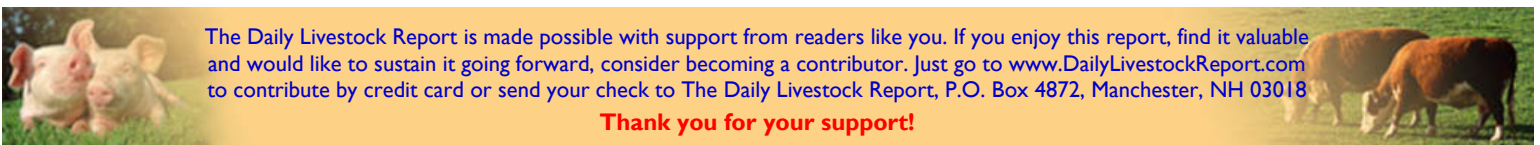
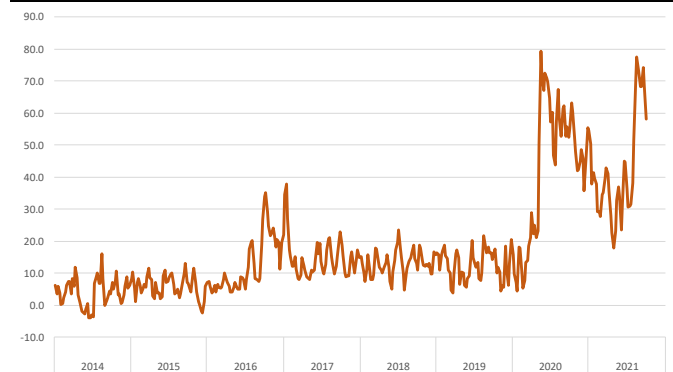


DAILY HAM PORK PRIMAL VALUE



Implied Primal Value from Boneless Hams and Trim Minus Value of #23-27 Hams

Data source: USDA-AMS. Analysis by Steiner Consulting Group



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