SCSB Final Report

General Information

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Organization: Clemson University
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Quarter: Final

Proposal Information

Title: Evaluating and Improving Feed Value of SC Soybean
Amount Expended to Date: 100% of the budget has been spent as of 12/31/18

Progress Summary

There were two main objectives of this study. The first objective was to help quantify the protein concentration difference between soybean produced in SC compared to soybeans produced in other regions of the US. Based on the results from this study and previous studies soybeans produced in the US north-central region can be 1-2% lower in protein content than soybeans produced in the Southeastern US. The second objective was to increase two unique soybean lines. These two soybean lines are unique because the two lines are very similar in almost every aspect, including yield, physical appearance, etc., but they differ in protein content. One line has a protein content of 38.7% (based on a 13% moisture basis) and a total % meal protein content of 49.5%, whereas the other line has a protein content of 35.5% (based on a 13% moisture basis) and a total % meal protein content of 46%. The latter line contains a similar protein content to traditional soybean varieties. Although, the weather did not want to cooperate this year, we did successfully increase enough seed of the two lines to be used in a processing study in 2019.

Key Performance Indicators

I think one of the key performance indicators for this trial was to provide the necessary components to conduct a feeding trial that will help demonstrate the added value of SC grown soybeans. I think we were able to do just that this year. We were able to identify and successfully harvest enough good quality seed of two lines needed for the study. And while it is generally accepted that soybeans produced in the Southeast contain a higher protein content than those produced in the Midwest, there is some evidence that suggests otherwise. So, by compiling data from two of the highest soybean producing counties in IL and SC, we were able to conclude there can be as much as a 2% increase in protein content in SC compared to one of the top producing soybean states. Proving SC soybeans do have a higher protein content. The next step is to determine the value of this higher protein content.

Next Steps

Dr. Richard Clough at Texas A&M, head of the Process Engineering Research and Development Center will extract the meal from the two lines mentioned above and one additional line to be used a standard check. One additional sample from a local processing facility will also be used as a standard check. Then Dr. Chad Paulk at Kansas State University will conduct the feeding trial, using all four samples. The feeding trial will be conducted over 16 days, using approximately 240 broilers, in a total of 40 pens. Ileal samples will be collected and pooled per cage for analysis of crude protein and AA, to determine digestibility. From this economic value

will be determined by formulating diets based on each of the four samples and their digestible amino acids.