



Research Demonstrates Color of DDGS Does Not Relate to Amino Acid Digestibility

RESEARCH SUMMARY

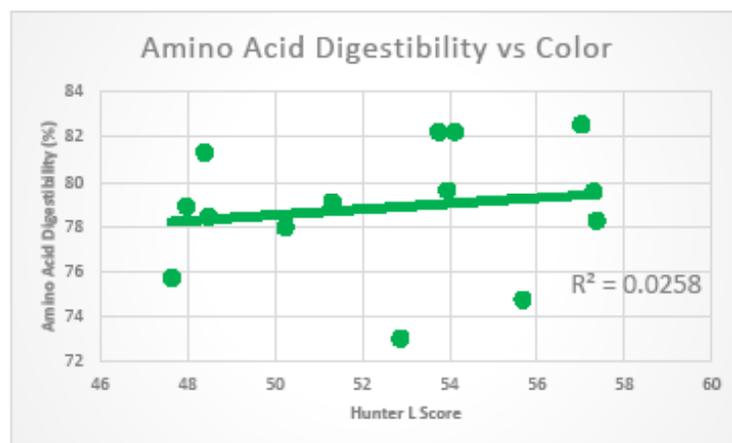
The color of DDGS does not relate to amino acid digestibility, as shown in research done by Dr. Carl Parsons and sponsored by POET. Although convenient to evaluate DDGS quality based on color, nutritionists and producers need to recognize the limitations of this measure and identify other variables which may better represent amino acid digestibility and value of DDGS.

BACKGROUND

The perception that the color of DDGS is related to quality originated when the biofuels industry first started to expand. At that time, ethanol producers focused on ethanol production with less emphasis on co-product production or quality. As a result, poor practices during drying of DDGS occasionally burned the product, reducing digestibility. Improved technologies and a renewed focus on quality has since eliminated these concerns; however, some producers and nutritionists still view darker DDGS as of poorer quality.

POET recently evaluated several sources of DDGS for amino acid digestibility using the cecectomized rooster as a model. In order to better characterize the DDGS, a 3rd party laboratory analyzed the samples for proximate nutrients. A POET technician then evaluated all samples for color. Hunter L scores ranged from 47.64 to 57.36 and amino acid digestibility ranged from 73.04 to 82.55% across 14 DDGS samples. Plotting amino acid digestibility against color shows a very poor r-squared value of only 0.0258 (Figure 1). Expressed differently, color only explains 2.58% of the variability we observed in amino acid digestibility.

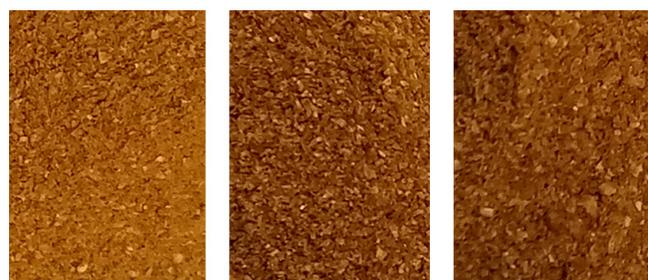
(Figure 1)



RESULTS

(Figure 2)

- Color only explains 2.58% of the variability we observed in amino acid digestibility.
- Routine laboratory measures such as pepsin digestibility and ADICP related better to amino acid digestibility than color
- Factors better correlated to amino acid digestibility include pepsin digestibility and to a lesser degree, ADICP (acid detergent insoluble crude protein).



Color 52.07
Digestibility 73.04

Color 47.64
Digestibility 75.72

Color 47.97
Digestibility 78.90

*These results are not a guarantee of nutritional value, as laboratory results are influenced by factors beyond the control of POET Nutrition.



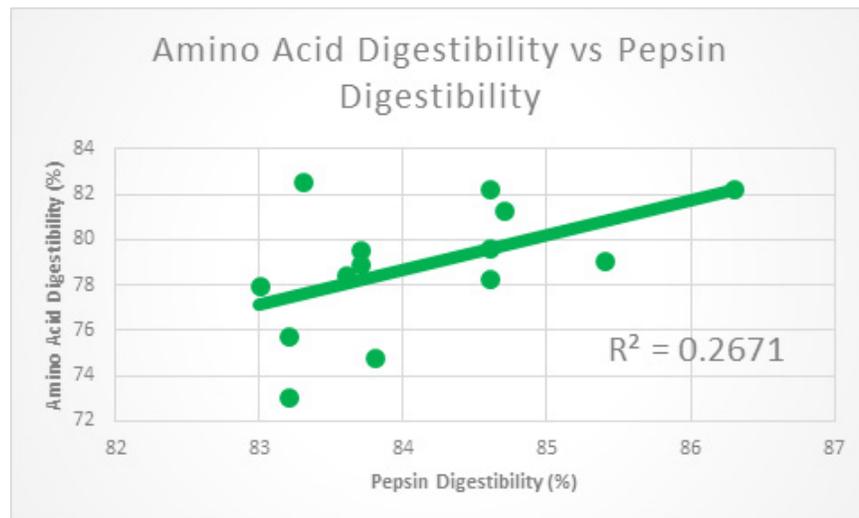
Determining amino acid digestibility using a live animal involves considerable time and money. The industry would benefit from identifying other factors that may act as an indicator of amino acid digestibility. As a result, we evaluated results from several other routine nutrient measurements to determine correlations. Cells highlighted in red indicate poor correlations, those in yellow denote mild correlations, and those in green represent better correlations.

(Figure 3)

	Amino Acid Digestibility	Crude Protein	ADICP	NDICP	Pepsin Digestibility	Color
Amino Acid Digestibility	1					
Crude Protein	-0.1246	1				
ADICP	0.2948	0.3220	1			
NDICP	0.0352	-0.4999	-0.0545	1		
Pepsin Digestibility	0.5168	0.0636	0.1793	0.1580	1	
Color	0.1606	-0.6546	-0.1907	0.6149	0.1477	1

Factors better correlated to amino acid digestibility include pepsin digestibility and to a lesser degree, ADICP (acid detergent insoluble crude protein). However, measures such as crude protein, NDICP (neutral detergent insoluble crude protein), and color have the poorest correlations. As shown in the above table, no factor highly correlates with amino acid digestibility.

(Figure 4)



Plotting amino acid digestibility against pepsin digestibility demonstrates the relationship between these two variables.

*These results are not a guarantee of nutritional value, as laboratory results are influenced by factors beyond the control of POET Nutrition.