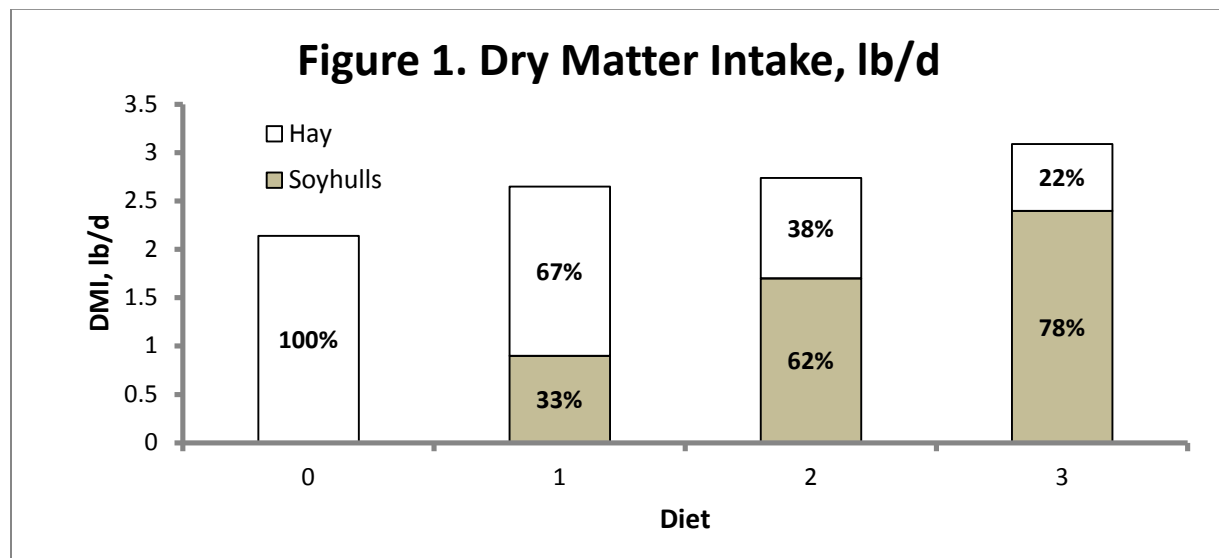


Associative effects of feeding varying levels of soyhulls to lambs consuming grass hay.

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Soyhulls are a popular supplement for sheep and cattle consuming a forage based diet. The low starch and high fiber content coupled with a price discount relative to corn, all contribute to its utility. Previous research has focused on low to moderate levels of supplementation produced gains similar to corn based rations. Additionally, soyhull supplementation has not resulted in the negative associative effects commonly reported with corn supplementation of forage rations. Recent high corn prices have increased pressure on livestock producers to potentially increase the level of soyhull supplementation to higher levels in an effort to support levels of performance while minimizing levels of corn.

The objective of this study was to compare the effect of varying levels of soyhull supplementation on the nutrient digestibility in lambs fed a basal diet of chopped grass hay. Eight St. Croix cross wether lambs (88 ± 8 lb) were housed individually, and randomly assigned to one of four dietary treatments. Lambs were fed a chopped grass hay free choice and supplemented at 0, 1, 2 or 3% (DM basis) of body weight in loose soyhulls. During each of the four periods, lambs were fed chopped hay twice daily and soyhull supplement once daily. Each period consisted of a 9-day adaptation followed by a 5-day collection. Each lamb was fitted with a total fecal collection bag during the adaptation period of each diet. Lambs were weighed prior to each adaptation period and the amount of soyhull supplementation adjusted for lamb weight and diet.



Daily DM intake increased as level of soyhull supplementation increased (Figure 1). This is an important result which indicates that soyhull supplementation did not have any negative effect on hay intake and adding the soyhulls increased DMI above the hay only treatment. Dry matter and nutrient digestibility results are presented in Table 1. Dry matter digestibility with increasing level of soyhull supplementation increased. The improvement in diet digestibility was most pronounced with the 1% treatment and the benefit in digestibility diminished at higher soyhull intake levels.

NDF and ADF digestibility exhibited a similar type of response to that of DM digestibility. However, contrary to DM digestibility, NDF and ADF displayed peak digestibility at the 2% supplementation level and a decline in digestibility at the 3% level. This would imply some loss in efficiency of digestion at the higher soyhull levels. Assuming hay DM digestibility of Diet 0, the estimation of soyhull DM digestibility was 76.0, 70.4 and 66.8 % for Diets 1, 2, 3 respectively.

In conclusion, supplementing grass hay with 1% of body weight in soyhulls resulted in the greatest improvement in both DMI and DM digestibility. Depression of NDF and ADF digestibility at the 3% supplementation level contributed to the small improvement in DM digestibility. Feeding levels of soyhulls greater than 2% of body weight would provide diminishing returns for the producer, as the digestibility of the feedstuffs is lower while DMI was higher.

Table 1. Diets Means of Nutrient Digestibility					
	Soyhull Diets				SE
	0	1	2	3	
DM Digestibility, %	56.6	62.97	65.4	66.4	1.0
ADF Digestibility, %	52.5	60.6	63.4	60.2	2.0
NDF Digestibility, %	59.1	63.5	65.5	63.6	1.6
CP Digestibility, %	65.7	65.5	64.1	62.3	0.9

An additional note of interest is that when corn gluten feed was similarly fed in a different experiment at a different time there was no decline in digestibility at the higher supplementation rate (Table 2).

Table 2. Diets Means of Nutrient Digestibility					
	Corn Gluten Feed Diets				SE
	0	1	2	3	
DM Digestibility, %	55.6	59.5	59.1	65.6	4.1
ADF Digestibility, %	50.3	48.2	50.0	50.6	7.1
NDF Digestibility, %	61.0	83.7	85.5	86.2	3.8
CP Digestibility, %	58.9	52.8	61.2	66.4	4.3