



AGRICULTURAL EXPERIMENT STATION of The Alabama Polytechnic Institute, Auburn, Ala.

E. V. SMITH, Director

Grinding and Molassifying Hay for Dairy Cows

L. A. Smith,¹ W. B. Kelley,² and George E. Hawkins³

Custom grinding and molassifying Johnsongrass hay and the purchase of ground and molassified peanut hay for dairy cattle are common practices in the Black Belt area of Alabama. Frequently questions are raised about the comparative value of ground and molassified peanut, and Johnsongrass hays, and long Johnsongrass hay.

A study was made of the amount of each hay that cows would eat, the amount of milk produced when the cows were fed each hay, and returns above feed cost.

EXPERIMENTAL PROCEDURE

The 18 cows used for the test produced an average of 22.9 pounds of milk (4 per cent fat corrected) daily during the 2 weeks before going on the 28-day test. Six cows were assigned to each of the following roughage rations: (a) ground Johnsongrass hay with 15 per cent molasses; (b) molassified ground peanut hay (purchased at feed mill, molasses content unknown but estimated at 20 per cent); and (c) long Johnsongrass hay. In addition to the hays, which were fed free choice, cows were fed 1 pound of a 16 per cent protein concentrate per 3.4 pounds of 4 per cent milk produced.

¹ Superintendent Black Belt Substation.

² Deceased, former Superintendent, Black Belt Substation.

³ Associate dairy husbandman.

RESULTS

Average amounts of hay eaten per 100 pounds of body weight and average daily production of 4 per cent milk are given in Table 1. Cows fed molassified peanut hay ate an average of 3.82 pounds of this forage and molasses mixture per 100 pounds of body weight. In comparison, cows fed molassified Johnsongrass hay ate 2.69 pounds and those fed long Johnsongrass hay ate 2.07 pounds per 100 pounds of body weight. Molassifying of Johnsongrass hay increased the amount of hay eaten per 100 pounds of body weight by 0.22 pounds. In addition, they ate 0.40 pounds of molasses per 100 pounds of body weight. Also, there was no measurable waste of the molassified Johnsongrass or peanut hay but the cows refused 29.1 per cent of the long Johnsongrass hay.

TABLE 1. AVERAGE DAILY ROUGHAGE INTAKE PER 100 POUNDS OF BODY WEIGHT AND AVERAGE DAILY MILK PRODUCTION PER COW

Roughage	Amount eaten <i>Lb.</i>	Milk production <i>Lb.</i>
Molassified peanut hay	3.82	22.1
Molassified Johnsongrass hay	2.69	21.3
Long Johnsongrass hay	2.07	21.2

Cows on molassified peanut hay produced an average of 22.1 pounds of 4 per cent milk daily and those on molassified Johnsongrass hay produced 21.3 pounds as compared to 21.2 pounds for those fed long Johnsongrass hay.

The average milk production level of cows used in this test was relatively low. Therefore, a comparison was made of the top 3 cows in each feed group which averaged 25.5 pounds of milk per cow daily. During the fourth week of the test, the average daily milk production of cows on molassified peanut hay and of those on molassified Johnsongrass hay was 97.1 and 96.5 per cent, respectively, of their production before the test. In comparison, cows fed long Johnsongrass hay produced only 87.2 per cent as much milk during the last week of the test as they produced before the test. Cows fed long Johnsongrass^{*} produced as much milk during the test as could be expected with their level of hay and concentrate intake. Those on ground and molassified Johnsongrass hay ate enough hay and concentrates to produce 25.6 pounds of milk daily and cows on molassified peanut hay ate enough feed to produce 28.0 pounds of milk.

The high level of feed intake of cows on molassified peanut and Johnsongrass hays added to

the cost of milk production, but did not increase milk production. Therefore, the returns above feed cost were less for the groups that received the molassified hays than for the group that was fed long Johnsongrass hay, Table 2. Thus, the cost of having Johnsongrass hay ground and molassified was greater than the cost of the refused long Johnsongrass hay. If the cows had used the extra nutrients for milk production, feeding of molassified Johnsongrass and peanut hays would have reduced the feed cost per 100 pounds of milk below that of the cows fed long Johnsongrass hay.

SUMMARY

With low producing cows such as those used in this study, it is not practical to grind and molassify Johnsongrass hay or to purchase molassified peanut hay when they cost as much as 28 per cent more than good quality long Johnsongrass hay. If the molassified hays are to be fed to low producing cows it would be more practical to limit the amount fed to about 2¼ pounds per 100 pounds of body weight of the cows than to feed all they would eat.

Milk production was similar for cows fed molassified peanut hay, molassified Johnsongrass hay and those fed long Johnsongrass hay.

TABLE 2. SUMMARY OF MILK, FEED COSTS, AND RETURNS ABOVE FEED COST PER COW FOR 28 DAYS¹

Roughage	Hay		Concentrate		Total			Return
	Consumed	Cost	Consumed	Cost	cost	Milk	Sales	per cow
	Lb.	Dol.	Lb.	Dol.	Dol.	Lb.	Dol.	Dol.
Molassified peanut hay	763.0	12.59	184.2	5.53	18.12	618.8	37.13	19.01
Molassified Johnsongrass hay	538.4	8.70	184.2	5.53	14.23	595.8	35.75	21.52
Long Johnsongrass hay	594.1 ²	7.43	184.2	5.53	12.96	594.4	35.66	22.70

¹Molassified peanut hay is actual market price; Johnsongrass hay was charged at prevailing market value and custom charge was added to obtain cost of ground and molassified Johnsongrass.

²Includes hay that was wasted.