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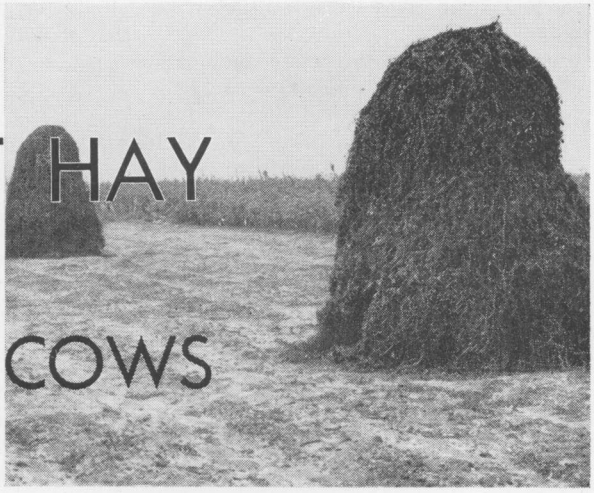
PEANUT HAY *for* MILKING COWS



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To adequately feed their cows, Alabama dairymen must supply hay or silage during 4 to 6 months of the year. This stored forage is necessary during periods of adverse weather when pastures are not productive.

Peanut hay usually is available in southern and central Alabama at about half the cost of good alfalfa hay. Thus, farmers must decide whether to use peanut hay from nearby sources or to buy other, more expensive hay. Peanut hay is available on many farms and will be used regardless of cost of other hay.

Usually, peanut hay is chopped or ground and molasses is added before it is fed. This increases the cost, and research results have shown that grinding often lowers the value of hay for milk production.

The test reported in this leaflet was made to (1) determine the value of peanut hay for milk production, and (2) learn the effects of grinding and molassifying peanut hay on amount of hay wasted and on milk production.

EXPERIMENTAL PROCEDURE

The experiment involved a digestion trial with steers and a feeding trial with milking cows. Rations studied with cows were: (1) coarsely ground U.S. No. 1 alfalfa hay plus concentrate, (2) long peanut hay plus concentrate, (3) long peanut hay plus 12½ per cent molasses plus concentrate, (4) ground peanut hay plus concentrate, and (5) ground peanut hay plus 12½ per cent molasses plus concentrate. Before the

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test began, all cows were fed the same ration.

The concentrate mixture included two parts ground shelled corn, two parts citrus pulp and one part cottonseed meal (41 per cent protein grade), plus 1 per cent salt. The cows were fed about 1 pound of concentrate for each 3 pounds of milk produced.

RESULTS *and* DISCUSSION

Results of the digestion trials and chemical analyses are given in Table 1. Ground peanut hay was about equal to alfalfa hay on the basis of total digestible nutrients (TDN). The TDN value for peanut hay with molasses added was 51 per cent, slightly less than the values for alfalfa hay or plain peanut hay. Alfalfa hay fed in this study had about 10 per cent digestible protein as compared with 6 to 7 per cent in the peanut hay. Crude fiber content of the alfalfa hay was relatively high showing that it was more mature than desired.

Cows on some rations were producing at higher levels at the beginning of the test than cows on other rations, Table 2. The important thing to note is the rate of change in milk flow during the experimental period. There were no significant differences between the rations on the basis of change in milk production during the 5-week test, Table 2.

A study of the feed intake on the different rations showed that the TDN was used more efficiently in long peanut hay than when the peanut hay was ground or when molasses was added. This is in line with other research work showing that grinding hay, as well as adding molasses, may reduce the digestibility of certain nutrients in hay. However, some of this difference in efficiency may have resulted from selec-

TABLE 1. CHEMICAL ANALYSES AND DIGESTIBILITY OF FEEDS USED IN EXPERIMENT

Feed	Dry matter[1]	Total digestible nutrients (TDN)[2]	Digestible protein	Crude protein[3]
	Per cent	*Per cent*	*Per cent*	*Per cent*
Concentrate	91	74	11	16
Alfalfa hay[4]	90	53	10	14
Peanut hay[4]	91	54	7	11
Peanut hay[4] with molasses[5]	89	51	6	9

[1] Usually barn dry hay or grain has about 88 to 90 per cent dry matter.
[2] Per cent TDN means that percentage of feed that a cow can use for growth, body maintenance, or milk production.
[3] Crude protein is the total amount of protein equivalent, such as is shown on a commercial feed tag.
[4] Ground to pass ¾-inch mesh screen.
[5] 12.5 per cent molasses.

TABLE 2. AVERAGE DAILY MILK PRODUCTION DURING STANDARDIZATION AND TEST PERIODS

Ration	Average daily milk production per cow						
	Before experiment[1]	During experiment					
		1st week	2nd week	3rd week	4th week	5th week	Average
	Lb.	*Lb.*	*Lb.*	*Lb.*	*Lb.*	*Lb.*	*Lb.*
Alfalfa hay	31	30	31	30	28	28	29
Long peanut hay	29	28	29	28	27	26	28
Long peanut hay with molasses	24	23	23	23	23	21	23
Ground peanut hay	31	32	32	31	29	28	30
Ground peanut hay with molasses	23	23	23	22	20	21	22

[1] Before being placed on the test rations, all the cows were fed alfalfa hay free choice plus enough concentrate to supply the feed needed for milk production.

TABLE 3. PROPORTION OF HAY FED THAT WAS REFUSED BY COWS ON EACH RATION

Ration	Hay refused
	Per cent
Alfalfa hay	5
Long peanut hay	22
Long peanut hay with molasses	23
Ground peanut hay	21
Ground peanut hay with molasses	1

tive eating of leaves on the unground peanut hay.

There were no important changes in body weight on the different rations.

Perhaps the most important information gained from this study was on the amount of hay refused when fed in different forms. Cows fed alfalfa hay and those fed ground peanut hay with molasses added had the lowest rate of refusal, less than 5 per cent of the hay fed, Table 3. However, regardless of whether molasses was added, most of the refused long peanut hay was peanut vine stems, corn stalks, dirt, and other debris. Considering that 20 to 23 per cent of the long peanut hay was refused, nearly 1¼ tons of long peanut hay was needed to supply the same amount of nutrients as 1 ton of ground peanut hay or ground peanut hay with molasses added. This should be considered in deciding whether to grind hay and add molasses.

This experiment showed that peanut hay had less digestible protein than alfalfa hay. Therefore, in feeding peanut hay, dairymen usually will need to add cottonseed meal, or a similar protein supplement, so that the concentrate mixture will have about 16 per cent crude protein. The main advantage in feeding alfalfa hay lies in the fact that the concentrate ration can be made chiefly from farm grains with little or no protein supplement.

SUMMARY

The total digestible nutrient (TDN) content of peanut hay with and without molasses added was similar to that of alfalfa hay. Digestible protein content of peanut hay with and without molasses was 6 and 7 per cent, respectively, as compared with 10 per cent for alfalfa.

Levels of milk production were similar for cows fed peanut hay with these treatments: (1) long, (2) ground, (3) molasses added, and (4) ground and molasses added.

The percentage of alfalfa hay refused by the cows was less than for long peanut hay. Neither adding molasses nor grinding alone reduced the percentage refusal of the peanut hay fed. A combination of adding molasses and grinding peanut hay significantly reduced the refusal percentage. These results indicate that when long peanut hay costs $20 per ton, ground hay with molasses added is worth about $25 per ton.

Results of this study indicate that good peanut hay is equal to good alfalfa hay as a source of energy for milking cows. The quality of peanut hay is highly variable and usually it is lower in protein content than alfalfa. Therefore, most peanut hay should be fed with a concentrate mixture containing approximately 16 per cent crude protein. On the other hand, farm grains make a satisfactory concentrate supplement to alfalfa hay, except for high-producing cows.

There were no consistent advantages gained by grinding or adding molasses to peanut hay. Apparently, the total cost of consumed nutrients, including the extra protein needed to supplement peanut hay, should be the basis for deciding whether to feed peanut hay and whether to add molasses and/or grind the peanut hay.