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TIMELY HINTS FOR FARMERS

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SUDAN GRASS HAY VERSUS ALFALFA HAY FOR DAIRY COWS

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Recently the Dairy Department of the University of Arizona College of Agriculture conducted a feeding experiment to determine the relative value of Sudan grass hay as compared with alfalfa hay in the ration for dairy cows. The use of Sudan grass as a hay crop is increasing in Arizona, and the hay is also being fed to a considerable extent as a roughage to dairy cows. This grass is drought resistant and with moderate irrigation makes very rapid growth during our hot summer weather.

RATIONS

The rations for this test were computed so that each cow would receive at least the minimum amount of digestible nutrients required by the Wolff-Lehmann Feeding Standard.

The daily rations were as follows:

RATION 1. Holstein cow—Corn silage 35 pounds,
Alfalfa hay 20 pounds,
One pound of a grain mixture for
every 4 pounds of milk produced.

Jersey cow—Corn silage 30 pounds,
Alfalfa hay 20 pounds,
One pound of a grain mixture for
every 3 pounds of milk produced.

- RATION 2. Holstein cow—Corn silage 35 pounds,
Sudan grass hay 20 pounds,
One pound of a grain mixture for
every 4 pounds of milk produced.
- Jersey cow—Corn silage 30 pounds,
Sudan grass hay 20 pounds,
One pound of a grain mixture for
every 3 pounds of milk produced.

The grain mixture used consisted of three parts of cotton-seed meal, two parts of hegari, and one part of mill-run bran. The same grain mixture was used in both rations.

PLAN OF TEST

The cows were divided into two lots, one of which received ration No. 1, while the other lot received ration No. 2. The rations were reversed each month for a period of four months so that each lot of cows received each ration for two months during the test. The lots were as well balanced as possible in regard to breeding, period of lactation, and quality of milk given. The cows were weighed on two consecutive days at the end of each period to determine whether the ration maintained body weight as well as milk production. The milk from each cow was weighed at each milking, and once each month a two-day composite sample of milk from each cow was tested to get an estimate of the butterfat yield.

TABLE NO. I

SUMMARY OF FEEDS USED AND MILK AND FAT PRODUCED

Rations	Total feed consumed in pounds	Total milk yield in pounds	Total fat yield in pounds	No. days in test
Ration No. 1				
Alfalfa hay, 20 pounds	4200.0			
Grain mixture	1483.0	5299.8	215.17	84
(Jersey, 1 lb. to 3 lbs. milk)				
(Holstein, 1 lb. to 4 lbs. milk)				
Silage	6390.0			
(Jersey, 30 pounds)				
(Holstein, 35 pounds)				
Ration No. 2				
Sudan grass hay, 20 pounds.....	4200.00			
Grain mixture	1334.1	4779.5	197.06	84
(Jersey, 1 lb. to 3 lbs. milk)				
(Holstein, 1 lb. to 4 lbs. milk)				
Silage	6390.0			
(Jersey, 30 pounds)				
(Holstein, 35 pounds)				

TABLE NO. II

COST OF PRODUCTION FOR FEED AND VALUE OF MILK OVER COST OF FEED

Rations	Cost of feed in dollars	Cost per gal. of milk in cents	Cost per lb. of fat in cents	Value of milk at \$0.40 per gal. in dollars	Value of milk over cost of feed in dollars
Ration No. 1 containing alfalfa hay, grain mixture and silage	90.83	14.7	42.2	246.50	155.67
Ration No. 2 containing Sudan grass hay, grain mixture and silage	87.85	15.8	44.6	222.30	134.45

COST OF FEEDS PER TON

Alfalfa hay	\$20.00
Sudan grass hay.....	20.00
Corn silage.....	6.00
Grain mixture.....	40.00

RESULTS OF TEST

Table No. I gives a summary of the feeds used and the milk and butterfat produced. It will be noted that the ration containing alfalfa hay produced 520.3 pounds or nearly 11 percent more milk and 28.1 pounds or more than 9 percent more fat than the ration containing Sudan grass hay. This greater production cannot be accounted for altogether by the deficiency of protein in Sudan grass hay, since sufficient cottonseed meal was fed to supply the necessary amount of protein. Since both rations contained the same protein-rich grain mixture, the one using alfalfa hay carried an excess of protein and this may have acted as a stimulus to greater milk secretion. The alfalfa hay was of better quality than the Sudan grass hay and this factor undoubtedly caused the alfalfa ration to yield a larger production.

Table No. II shows the cost of production for feed and value of milk over cost of feed. With Sudan grass hay and alfalfa hay given at the same price, the cost per gallon of milk and per pound of butterfat was slightly greater where Sudan grass hay was fed. At 40 cents per gallon, the value of milk produced by the ration containing alfalfa hay was \$24.18 in excess of that produced by the ration containing Sudan grass hay. After deducting the cost of the feed from the value of the milk, the net returns from the milk over cost of the feed were \$21.22, or nearly 16 percent greater where alfalfa hay was fed.

Inasmuch as it is necessary to supplement Sudan grass hay with

some protein-rich feed, which ordinarily is more expensive than home-grown carbonaceous feeds and, since alfalfa hay can be combined with corn silage or homegrown grain to make a satisfactory ration, it is estimated that Sudan grass hay is worth about three-fourths the price of alfalfa hay as a feed for dairy cows. Nevertheless, Sudan grass is a profitable crop where a drought-resistant, rapid-growing, and high-yielding summer hay crop is needed. While it is rather low in protein content, it compares favorably in this respect with timothy hay and should be fed along with alfalfa hay, cottonseed meal, or other protein feed.

The alfalfa hay used in the experiment was of good average quality and color and the cows relished it more and ate it up cleaner than they did the Sudan grass hay. The Sudan grass hay was rather coarse and "stemmy," and considerable waste resulted in feeding it, due to its being somewhat unpalatable. It is believed that Sudan grass hay of a finer grade would have given better results in this feeding test.

To make the best quality of hay, Sudan grass seed should be sown or drilled in at the rate of about twenty pounds per acre. When the seed is sown rather thickly, the stems do not become coarse and woody. Also the crop should be harvested when the plants begin to head out, since the plants contain a larger percentage of protein when cut in their early stages of blossoming than when cut later. It is necessary to cure Sudan grass hay in small cocks for several days before stacking, as the stems contain considerable moisture. This method of treatment prevents the hay from moulding in the stack. On an average, Sudan grass will yield as much feed per acre as alfalfa, and with limited irrigation it will outyield alfalfa. Sudan grass can be grown to advantage as a cover crop following small grains, and it requires less labor in handling than alfalfa because of a larger tonnage per cutting.

For further information concerning Sudan grass see Experiment Station Circular No. 35.