

Young Oat Forage

A HIGH QUALITY DAIRY FEED

GEORGE E. HAWKINS, *Associate Dairy Husbandman*

K. M. AUTREY, *Head, Dairy Husbandry Department*

COWS ON GREEN, tender pastures usually give more milk than those fed hay or hay and silage. Also, increases in milk flow have been observed when cows on barn feeding were grazed as little as 1 hour daily on lush young pasture.

These effects from young green pastures have been observed for many years. Yet, there has been no experimental evidence to explain why milk production increases.

The tests reported in this leaflet were made to determine the reasons for greater milk flow by cows on young oat forage as compared with milk yields from cows on hays.

TEST DESCRIPTION *and* RESULTS

Experiments 1 and 2. Three rations were tested in winter and spring: (A)

alfalfa hay and grain; (B) grain and alfalfa hay plus green oat forage to replace half of the alfalfa hay fed in ration A; and (C) grain and green oat forage. Green oat forage 6 to 12 inches high was cut and fed to the milking cows. The grain (concentrate) fed in Experiment 1 contained approximately 16 per cent crude protein and that in Experiment 2, 10 per cent.

Before each test, all cows were on a ration of alfalfa hay and grain (the same concentrates as those fed during the tests).

Experiment 1 was carried out during January and February. The oat forage was from growth made during the previous fall. Experiment 2 was conducted in March and April using forage grown in the spring, a season of rapid growth. There were 15 cows in Experiment 1 and 12 in Experiment 2.

The alfalfa hay fed was graded U.S. No. 1, but it was not highly acceptable

AGRICULTURAL EXPERIMENT STATION
of the ALABAMA POLYTECHNIC INSTITUTE

E. V. Smith, *Director*

Auburn, Alabama



This 6- to 12-inch high oat forage was fed to milking cows in Experiment 1.

to the cows. Digestion trials were run on the hay and the green oat forage. The nutrients in the hay were 52 per cent digestible, as compared with 77 per cent for the oats.¹ (A high quality grain mixture will have 70 to 80 per cent digestible nutrients.) The average digestible protein content of the green oats, 15 per cent, was higher than that in the alfalfa hay, 10 per cent.

The total crude protein content of the green oats dropped rapidly in the spring — from about 27 per cent on March 31 to 21 per cent by April 6 and to about 17 per cent by April 12. Also, changes were noted in the oat forage fed in January and February.

During both tests cows fed all or half of their forage in the form of green

oats produced more milk than cows fed alfalfa hay as the only forage. Production levels by feed groups are given in the table.

Cows eating oat forage continued to produce at the original level. On the other hand, there was some drop in milk yields from cows on alfalfa hay. The cows on ration A, no green oats, often refused part of the hay fed. On the contrary, cows on ration B and C rarely refused any of their feed.

Test Continued. After Experiment 2, 6 of the test cows were turned out to graze oat pasture and the other 6 were continued on the rations they received during Experiment 2. This was done to determine whether the oat forage contained the milk-producing qualities associated with young, high quality

¹ On the dry-matter basis.

AVERAGE DAILY MILK PRODUCTION OF COWS ON THREE RATIIONS

Season	Average daily milk production by feed groups		
	Alfalfa hay	Half alfalfa hay, half young oat forage	Young oat forage
	<i>Pounds</i>	<i>Pounds</i>	<i>Pounds</i>
Winter (Experiment 1)	20	22	23
Spring (Experiment 2)	17	19	18

pastures. Of the cows turned out to graze, 3 had been fed young oat forage as the only roughage, 2 had received young oat forage and alfalfa hay, and 1 had been fed alfalfa hay as the only roughage. Daily milk production of cows grazing increased nearly 12 per cent in 4 days. Those barn fed clipped oat forage dropped a little in milk flow. The changes in milk yields probably were the result of the cows eating more forage while grazing than when barn fed.

Experiment 3. The green oat forage fed in this test was similar to that fed in Experiments 1 and 2. During the 7 days before going on the experimental rations, all cows were fed a ration consisting of 85 per cent alfalfa hay and 15 per cent blackstrap molasses.

Test rations were: (A) alfalfa hay and blackstrap molasses; (B) alfalfa hay, oat forage, and blackstrap molasses; and (C) oat forage and blackstrap molasses. The amount of oat forage fed was varied during the 14-day test. Other parts of the rations were fed in the same amounts daily.

Cows fed alfalfa hay and blackstrap molasses dropped in milk yield at a normal rate. Milk production of those receiving rations B and C, which included oat forage, was in proportion to the amount of nutrients available for milk. When cows on ration C had 8.8 *pounds* of digestible nutrients available for milk they produced 22.9 *pounds* of milk. As the digestible nutrients available for milk was increased to 11.3 *pounds* per cow, milk production increased to 25.1 *pounds*. With a decrease to 8 *pounds* in the nutrients available for milk, production decreased to 22.6 *pounds* of milk per cow daily.

From these results it appears that the increase in milk flow associated with grazing lush oat pasture results from an increase in nutrient intake. In addition, it seems that there is some unknown factor in lush, young oat for-

age that helps the cow to convert nutrients into milk instead of using them to put on body fat.

DISCUSSION of RESULTS

Results of experiments described here show that young, green oat forage is a very high quality feed for milk cows. Cows eating this kind of forage can produce more milk than when alfalfa hay is the only forage fed.

Dairymen with limited acreage of oat pasture may get near peak milk production by grazing their cows for a short time each day and feeding them all of the high quality hay they will eat.

Results of these studies show that cows will eat more nutrients when their rations contain some green oat forage than when alfalfa hay is the only roughage. Probably this is due in part to the relatively large amount of bulk (mainly fiber) in the hay, and to the high digestibility of the young oats. Also, there appears to be something present in young oat forage that increases the ability of the cow to use more nutrients for milk than when hay is the source of roughage. Nevertheless, the amount of nutrients required to produce a pound of milk seems to be about the same from alfalfa hay as from immature oat forage.

SUMMARY

Young green oat forage is a highly palatable and digestible feed. Cows produced more milk when eating green oat forage alone or half oat forage and half alfalfa hay than they did when the roughage was all alfalfa hay.

Dairymen who do not have enough oat pasture to supply all forage needed for the milking herd probably will find it profitable to limit grazing and supplement the pasture with high grade hay.

