

Alfalfa Wafers for Dairy Cows

no significant differences detected between alfalfa wafers and alfalfa hay in feeding trials with lactating heifers

Don Addis

Two pens of 10 cows each—all between 60 and 150 days past calving—were used in a three-part feeding trial with lactating cows.

All animals, except one second-calf cow, were first-calf heifers and ranged from 2½ to four years of age with an average of three years.

Second Cutting Alfalfa Used

Prior to this trial, the animals were receiving alfalfa hay, green chopped alfalfa, ensilage and grain. The alfalfa used in the trial was from the second cutting of a two-year old stand. It was cut, conditioned, windrowed and baled at 17% moisture.

Every other windrow of bales was picked up in the field, brought to the barn, broken apart and hand fed through a plunger-type experimental wafer machine. The hay as fed into the machine was comparable to hay in the windrow. No moisture or other materials were added. Approximately 12 tons of 4" diameter wafers—1"-2" thick—were made in this manner. The alternate rows of hay were picked up, stacked and later trucked to the feeding pens. Bulk density of the baled hay, as hauled, was 13.75 pounds per cubic foot as compared to 17.4 pounds per cubic foot for wafers.

During the first period of the trial the animals in Pen 2 received alfalfa hay and grain. The cows in Pen 1 were fed

alfalfa wafers and grain. The grain was fed according to production and averaged 11-12 pounds per head per day throughout the trial.

The body weight of every cow in both pens was recorded at the beginning and at the conclusion of the three testing periods. The concluding weights were taken on the last day of the test period, following the afternoon milking. The weights were used to obtain the percent of hay or wafers consumed to average body weights. All cows on test had a tendency to increase their body weight.

Milk Production

Milk weights were taken weekly throughout the trial. DHIA—Dairy Herd Improvement Association—milk and butterfat records were taken once during each of the testing periods. Both lots of cows—Pen 1 and Pen 2—followed the expected production curve and were past their peak of production when selected for the trial.

During the second week of the first test period several animals in Pen 2—the hay-fed group—became temporarily sick, due to the hay going through a sweat. The sickness was reflected in a decline in the average milk production from 43.6 pounds to 32.8 pounds. One animal produced only 19.5 pounds during the second week's test, as compared to the previous week's test of 46.25 pounds. Another animal dropped from 27.75 pounds to 21.25 pounds. Rising milk production in Pen 2 during the next two weeks indicated that the decline was only a temporary situation and accounted for the lower average production figures obtained during the second week of Period 1. Milk production in Pen 1 and Pen 2 during the second test period was practically identical. Within the limits of production estimate used in the study, there did not appear to be any difference in milk production between the two types of hay.

The lower average production of the Pen 2 cows during the third test period, was due to differences in stage of lactation. By chance, four cows in Pen 2 were 75-90 days further into their lactation periods than their mates in Pen 1. During the first test period—May 6-19—the hay was fed at the rate of 29.45 pounds

per head per day and the wafers at the rate of 28.15 pounds per head per day. Those amounts were readily consumed by the cows but were increased in the second and third periods.

Feed Consumed

During the second test period, Pen 1 became the hay-fed group and consumed 2.89% of their body weight in hay. Pen 2 became the wafer-fed group and consumed 2.98% of their body weight in wafers.

During the third test, both pens of cows were switched back to their first test period rations. The hay-fed cows—Pen 1—consumed 3.05% of their body weight in hay daily and the wafer-fed group—Pen 2—consumed 2.94%. No difficulty was observed in the transition from hay to wafers. The animals ate the alfalfa wafers as readily as they ate the alfalfa hay.

Insofar as could be determined from this trial, no difference existed between the feeding of baled alfalfa hay or a 4" diameter alfalfa wafer to lactating dairy cows. The wafers were readily accepted by both pens of cows and were consumed in approximately the same amounts as was the baled hay. Cows on wafers produced at least as much milk as did the cows on hay. DHIA tests observed during the trial did not indicate any effect on butterfat test.

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Average Daily Milk Produced on Hay and Wafers by Pens 1 and 2

	Milk weights	
	Pen 1	Pen 2
Apr. 28 (before trial)	44.9#	44.9#
Period I	Wafers	Hay
1st week	44.7#	43.6#
DHIA*	3.6%**	3.5%**
2nd week	38.0#	32.8#
3rd week	36.3#	34.1#
Period II	Hay	Wafers
1st week	36.5#	36.6#
2nd week	34.2#	34.3#
3rd week	37.3#	36.8#
DHIA*	3.5%**	3.5%**
Period III	Wafers	Hay
1st week	35.3#	32.7#
2nd week	34.6#	31.6#
DHIA*	3.7%**	3.6%**
3rd week	35.1#	34.2#

* Dairy Herd Improvement Association.

** Butterfat.

Hay and Wafers Consumed During Periods I, II, and III

	May 6-19	May 27-June 9	June 17-26
	Pen 1	Pen 2	Pen 1
Hay Fed			
Fed	4,364#	4,740#	3,831#
Refused	241#	342#	282#
Consumed	4,123#	4,398#	3,549#
Head/day	29.45#	31.41#	35.49#
Av. body wt.	1,130#	1,085#	1,163#
Consumed, body wt.	2.60%	2.89%	3.05%
Grain/head/day	10.9#	11.2#	10.6#
Wafer Fed	Pen 2	Pen 1	Pen 2
Fed	4,389#	5,226#	4,020#
Refused	447#	398#	752#
Consumed	3,942#	4,828#	3,268#
Head/day	28.15#	34.48#	32.68#
Av. body wt.	1,083#	1,154#	1,110#
Consumed, body wt.	2.59%	2.98%	2.94%
Grain/head/day	11.9#	10.6#	11.2#