

Molasses-Vitamin A Dairy Ration Is Tested in Station Trials

By J. B. Williams¹

This study was started in the winter feeding season of 1952-53 to determine the effects of feeding a high molasses Vitamin A supplement to dairy cows. At that time the Purdue workers were advocating a similar supplement as a feed for beef cows and especially for the fattening of slaughter cattle. The recommended feeding rate for such a ration was three and one-half pounds per head per day.

PART I

The first group of eight pairs of cows was started on a 90 day double reversal feeding trial in February, 1953. The experimental group was fed three and one-half pounds of the modified Purdue Supplement A per head per day and the control group received three and one-half pounds of a standard 32 per cent supplement as found in Table I. All cows were fed all the alfalfa hay they would eat, with refusals weighed back and the net consumption for the day recorded. Milk production was converted to four per cent fat corrected milk according to the formula of Gaines.

TABLE I.—Concentrate Mixtures.

Ration Group:	A	B
Soybean Oil Meal, 44%.....	643.0 lbs.	450.0 lbs.
Molasses feed.....	285.0 lbs.	
Steamed bone meal.....	50.0 lbs.	
Trace mineral salt.....	17.0 lbs.	25.0 lbs.
Vitamin A concentrate.....	2.5 lbs.	
Wheat bran.....		200.0 lbs.
Corn, No. 2 dent, medium ground.....		200.0 lbs.
Dicalcium phosphate.....		25.0 lbs.
Blood meal.....		100.0 lbs.
Cost/cwt.....	\$4.25	\$4.14

Milk production dropped rapidly in both groups of cows and the experiment was stopped. The grain feeding level was entirely too low to support adequate milk production. Both supplements were equal in palatability.

PART II

The second group of eight pairs of cows was started on the second phase of the experiment in the fall of 1953. The cows were fed grain according to milk production, with the Holsteins getting one pound of the appropriate grain mix, Table II, for each four pounds of milk and the Guernseys one pound of grain for each three pounds of milk produced. This trial was proceeding satisfactorily until several cases of actinomycosis in both experimental groups halted the experiment.

¹Assistant Dairy Husbandman

PART III

The third experiment was started in the fall of 1954 using seven pairs of cows. Alfalfa hay was fed free choice throughout the double reversal 90 day trial with hay refusals weighed back and the net consumption for the day recorded.

Grain, Table II, was fed according to milk production with the feeding rate adjusted each 10 days. Guernseys received one pound of grain for each five pounds of milk and Holsteins were fed one pound of grain for each seven pounds of milk. Butterfat samples were taken at the beginning of each 30 day period and the production computed to four per cent fat corrected milk according to Gaines' formula. The average grain consumption for each group and each period is given in Table III.

TABLE II.—Grain Mixtures.

Ration Group	A	B
Corn, No. 2 dent, medium ground.....	400 lbs.	400 lbs.
Oats, medium ground.....	400 lbs.	400 lbs.
Purdue supplement A.....	200 lbs.	
Standard 32% supplement.....		200 lbs.
Cost/cwt.....	\$2.98	\$2.96

TABLE III.—Average Daily Hay and Grain Consumption and Grain-Hay Ratio.

Group	First 30 Days			Second 30 Days			Third 30 Days		
	Grain lbs.	Hay lbs.	Grain to Hay Ratio	Grain lbs.	Hay lbs.	Grain to Hay Ratio	Grain lbs.	Hay lbs.	Grain to Hay Ratio
Ration A Ave. per cow....	5.61	37.5	6.68	5.04	39.5	7.83	4.52	36.2	8.00
Ration B Ave. per cow....	5.61	38.5	6.86	4.71	38.1	8.08	4.42	37.8	8.55

The average hay consumption for each group and each period is reported in Table III. This table also reports the grain to hay ratio for the trial.

All of the feed supplies were purchased on the open market so that cost figures were maintained. Grain Ration A cost \$2.98 per hundredweight and Ration B cost \$2.96 per hundredweight. The hay used was purchased for \$12 per ton, with the hay cost for Ration A group being \$141.97 and the hay cost for Ration B group \$144.30. Therefore, total feed costs for the Ration A group for the 90 day trial was \$237.09 and total feed costs for the Ration B group was \$236.06. The A group produced 17,544 pounds of milk worth \$701.76 with an income above feed costs of \$464.67. The B group produced 17,456 pounds of milk worth \$698.24 with an income above feed costs of \$462.18.

Statistical analysis of the data did not reveal any significant differences in milk production or grain consumption. Under the conditions of this experiment the addition of a molasses feed and a Vitamin A concentrate did not enhance nor hinder the milk production performance of dairy cows.