

Pelleted Alfalfa Hay

baled and pelleted alfalfa hay in comparative trial with beef steers

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Pelleting alfalfa hay for livestock reduces the bulk and transforms the hay into a free flowing form like grain and cuts labor requirements for handling.

The chief disadvantages of pelleting are the high costs of grinding and pelleting. However, some pelleted hays are being used by cattle feeders as a range supplement, and by some sheep feeders in lamb fattening.

A preliminary study on the feeding of pelleted hay to steers was made at the Imperial Valley Field Station during the winter of 1956-1957. The test compared baled alfalfa hay to the same hay fed as pellets. Alfalfa taken from the same field was ground through a $\frac{3}{64}$ " screen and then pressured into pellets $\frac{13}{64}$ " in diameter. Chemical analyses of the hay and the pellets showed that they were essentially the same in composition. Pelleted alfalfa hay contained 21.0% protein and 7.7% lignin while the baled alfalfa contained 20.7% protein and 8.0% lignin. The estimated TDN—total digestible nutrient—value of the two forms of the hay, as made from the lignin analysis, was 60% for the pellets and 59% for the long alfalfa hay.

Two lots of three steers each were fed—free choice—both forms of alfalfa hay.

	Alfalfa hay	Alfalfa pellets
Av. initial weight	636	640
Av. final weight	935	1,002
Av. daily gain	1.80	2.17
Av. daily feed		
Barley	1.81	1.81
Alfalfa hay	14.02	...
Alfalfa pellets	...	17.08
Oat hay	1.76	1.59
Total	17.59	20.48
Feed/100 lbs. gain		
Barley	101	84
Alfalfa hay	781	...
Alfalfa pellets	...	788
Oat hay	98	73
Total	980	945
Dressing percent	58.7	59.8
% Carcass fat	26.4	25.7
Grade	5 Choice 1 Good	6 Choice

* All feed is on a dry basis.

In addition, each steer received two pounds of barley and two pounds of long oat hay daily. The experiment was conducted for a period of 167 days. The animals were weighed every month after an overnight stand without feed or water.

Differences were noted in the response of the animals to the two types of rations.

The steers fed the alfalfa pellets gained 0.37 of a pound more per head per day than did the steers fed the alfalfa hay. This difference was statistically significant. Apparently, the main reason for the increased daily gain was the increased consumption of alfalfa fed as a pellet. Here the steers consumed approximately three pounds more hay per head per day. However, only small differences can be noted in the efficiency of feed utilization.

Carcass data indicate very little difference between lots of steers. Dressing per cent, carcass fat—calculated from the fat content of the 9th, 10th, and 11th rib—and carcass grade did show that all animals were in excellent slaughter condition.

Aside from the main purpose of the experiment, an example is also given that animals fed high quality roughages can be fattened with a minimum quantity of grain. However, emphasis must be given to the high quality of the alfalfa used.

This experiment and others show that cattle and sheep make greater gains if fed a pelleted high roughage ration. Apparently in this experiment, the increase in gain was due to the increased food consumption. This does not mean that all rations in the pellet form when fed to cattle would increase gains. Higher levels of concentrate feeding have not been tested.

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APPLES

Continued from preceding page

changed to leaving two—where possible—on the spray thinned trees if over hand thinning is to be avoided.

Time records of hand thinning labor kept by a number of growers showed that in 1956 hand thinning costs were reduced 35%-50% in the 40 ppm and 50 ppm sprayed plots.

Several tons of fruit from each plot were run over a commercial apple grader to obtain distribution of sizes.

Spray thinning definitely shifted the distribution toward larger sizes. Spray thinning reduced the percentage of ciders— $2\frac{1}{4}$ " and less—and increased the percentage of fruits larger than $2\frac{5}{8}$ ".

Spray thinning evaluations should be made over a two-year period, at least. If any decrease in tonnage occurs the first year, it may be more than offset by the increased return bloom and sub-

sequent better tonnage the second year. Return bloom counts in these tests showed that the bloom in 1957 on the check trees was lighter than in 1956. On the other hand, the sprayed trees came back with a good bloom in 1957 and had about 30% more flowers than the check trees.

Trials thus far indicate—in a heavy blooming mature orchard in the Watson-

Treatment	Per cent of total weight			
	$2\frac{1}{4}$ " and less	$2\frac{1}{4}$ " to $2\frac{5}{8}$ "	$2\frac{5}{8}$ " to 3"	over 3"
60 ppm. No hand thinning ...	8	48	40	4
40 ppm. No hand thinning ...	12	53	33	2
Check.				
Hand thinned ...	19	56	24	1
40 ppm plus hand thinning ...	8	47	40	5

ville area—that naphthylacetamide at 40 ppm or 50 ppm applied at 70% petal fall can satisfactorily thin Newtown apples. On young trees and trees of low vigor a lesser concentration is advisable.

Spray thinning—when correctly applied and followed by a judicious hand thinning—has resulted in appreciably larger fruit sizes, approximately equal total yields, and greater monetary returns.

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