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HYDROPONIC GRASS FOR DAIRY CATTLE [1/]

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Recent sales activity in various sections of the country has re-stimulated interest in the use of sprouted-cereal grains for feeding dairy cattle, swine and poultry. Sprouting cereal grains for feeding livestock is not a recent development. It was used in both the United States and Europe as long as 35 years ago.

Earliest interest in feeding sprouted grains centered mainly around improved fertility. At least nine different research projects have been reported. Most of them, including studies in Hawaii, New Jersey and Nebraska, failed to show any marked effect upon reproductive functions of either heifers or bulls. Where beneficial results were reported, the absence of "controls" makes one question the significance of the results.

Later, there were claims made that feeding "sprouted cereal grains" resulted in improved production or improved the "content" of milk. An extensive study was conducted in England where sprouted corn was compared with kale, artificially dried grass and mangels. Feeding sprouted corn failed to produce a favorable effect on yield, fat, solids-not-fat, vitamin A, vitamin-B complex, or growth promoting properties of milk. This particular project did demonstrate that vitamin C concentration was highest in milk produced by cows receiving the sprouted corn supplement. Most of the vitamin C in milk, however, is destroyed in pasteurization; thus, it has little practical value.

Loss of Dry Matter

A number of reports show that during the sprouting process 15 to 25 percent of the dry matter of a cereal grain is lost. The increase in weight during sprouting is largely added water.

If one considers the cost of equipment for sprouting, the extra labor needed and the consistent lack of important benefits, it seems clear that sprouting gtains, for dairy cattle at least, is not an economically sound practice. A cost estimate made by University of California Agricultural Extension Service personnel in the fall of 1960 supports this contention. The "estimate" was made on a "hydroponic" unit operating on a San Joaquin Valley dairy farm. This particular unit is no longer in use.

Comparative Costs

According to the California study, hydroponic grass may be 3.8 times more costly than rolled barley and 3.5 times more costly than average quality alfalfa hay. It is more than 4 times as expensive as silage produced by some dairymen in the area.

The California unit studied had a rated capacity of 1,000 pounds of grass daily. The maximum production obtained during the course of study was only 760 pounds. It cost the farm operator $7.12 each day to obtain this 760 pounds of "hydroponic" grass. These costs were derived as outlined in Table 1.

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Table 1. Daily Costs to Produce "Hydroponic" Grass

Item	Estimated Daily Cost
Barley (100 lbs.)	$ 2.30
Labor (1 hour)	1.00
Power (est. 72¢/day)	.72
Nutrient Powder and Paper Mats	.50
Shredder (est.) $100 (5 yr. life) depreciation	.05
Interest @ 6-1/2%	.01
Depreciation $7,000 10 yr. life of unit	1.92
Interest on Investment @ 6-1/2%	.62
Total	$ 7.12

No additional costs for repair and maintenance have been listed. The 10-year depreciation rate on the entire investment should partially offset this. The building--concrete slab and pipe framework--will last longer than 10 years, but the pans, refrigeration units and possibly other parts will need replacing prior to the 10-year period and the refrigeration units will need servicing, etc. The cost figures in Table 1 would prevail whether this unit produces at its rated capacity of 1,000 pounds of green feed daily or only a portion of that figure.

Let's assume there are eight therms of energy per 100 pound of the grass. Actual costs, based on real performance, is 11.7¢ per therm (Table 2). Under ideal conditions, where 1,000 pounds of grass was obtained daily, real costs would be reduced to 8.9¢ per therm. This figure is still considerably higher than the 3.12¢ per therm cost for rolled barley or 3.33¢ per therm cost for alfalfa hay.

Table 2. Comparative "Real" Costs of "Hydroponic" Grass to Other Common Foodstuffs

Feedstuff	Price/Ton	N.E./100 lb. Therms	Cost/Therm
Hydroponic grass (760 lb. daily)	21.34	8.0	11.70¢
Hydroponic grass (1,000 lb. daily)	14.24	8.0	8.90¢
Rolled barley	50.00	80.0	3.12¢
Rolled oats	80.00	72.1	5.53¢
Alfalfa hay (15% feed loss)	23.00	40.6 (6.1 loss)	3.33¢
Corn Silage (20% loss)	6.60	15.2 (3.0 loss)	2.71¢

(MDM)