Dairy Farm Management

production efficiency in California highest in nation but state is deficit in dairy products

A. Shultis and G. E. Gordon

Production efficiency for California dairies is the highest for any state in the union.

In January, 1949, California was the highest state in number and per cent of cows on test, with 18% being tested for production by dairy herd improvement associations, as compared to 4% for the country. Average production per cow for California cows on test was 395 pounds of milk fat, compared to 350 for all cows on test in the country in 1948.

California is a deficit area for dairy products—more are shipped in than are shipped out. While the state produces practically all of its market milk and cream, and more evaporated milk and dried milk than it consumes, it now ships in from other states most of its butter and cheese.

The state is deficit also in the production of cows to maintain its milking herds. Nearly 30,000 dairy cows were shipped in from other states in 1948, or 3.7% of the total.

About 26,000 farms—18% of the total number—in California have dairy products as the major source of income.

A minimum-sized, family dairy farm with 30 acres of land suited only to irrigated pasture could cost approximately as follows: land, $6,000 and up; irrigation well and pumping plant $2,000; 25-cow manufacturing dairy enterprise, $12,000; operator's dwelling, $5,000 up; and extras enough to bring the total to $26,500 or more. Such a farm would furnish pasture only, and all hay and concentrates would be purchased.

A dairy farm justifying the services of two men is more efficient and less confining. Production of hay and silage is possible without extra seasonal labor. Yet one man can do the milking and essential work thus permitting relief in illness and vacations.

Herd Management

Feed cost from both purchased and farm-grown feed is from 50% to 70% of the total expense per cow. A study and analysis of feeding practices and costs is the most important device in improving profit.

Each cow has a definite hereditary maximum production capacity—affected by the quantity and quality of the feed received. It is profitable to feed each cow so that this highest production can be reached.

The feed requirement of a cow giving 200 pounds of fat annually, is 13.2 pounds of TDN—total digestible nutrients—a day. One giving 400 pounds will require 17.6 pounds of TDN daily from all feeds—pasture, hay and concentrates. An excess of 13% over this standard is recommended to cover waste in figuring feed required.

It is necessary to know the TDN requirements of the animals for the most efficient growth and milk production. A maximum of low-cost nutrients from pasture or hay and a minimum of high-cost nutrients from concentrates should be fed to provide the TDN requirements. Concentrates should be used as needed to attain maximum production.

The breeding program and the culling program work together to produce a good herd. The removal of low-producing cows from a herd increases the average production for the remaining herd—culling for production.

The main object of the breeding program is to secure superior heifers to improve average herd production per cow. Another is to obtain regularity and proper length of lactation periods by getting the cow with calf at the proper time. Having each cow in production from 10 to 11 months of the year will result in the highest production per cow. An additional object of the breeding program is to have cows in milk at the right time of the year.

Labor and facilities can be adjusted to any size of herd without much cost handicap.

Recent dairy enterprise records show about 70 hours of labor per cow for the year in manufacturing milk dairies, and 85 hours in market-milk dairies. This includes the care of all the stock in the herd in addition to milking and handling the milk.

Some jobs around the dairy take about the same time regardless of the number of cows, so such labor per cow tends to decrease with increased size of herd. In larger dairies it is important to utilize fully the time of regular milkers. About 50 to 60 cows per milker is usual with good machine equipment.

Miscellaneous costs in the dairy business include taxes, repairs, insurance, dairy supplies, electric power, cow testing dues, automobile expense, veterinary service and fuel for sterilization. The higher costs in market-milk dairies come from better buildings, refrigeration for cooling milk, and maintenance of more sanitary facilities.

Overhead costs of depreciation and interest are not large items. They are book or noncash costs and seldom have much effect on total costs and financial security. It is an advantage to have good stock and adequate facilities, but a dairyman's financial strength can be endangered by going too far into debt for nonessential facilities.

Dairy enterprise records include a charge for interest on current investment. The dairyman out of debt has no interest to pay, so may consider this as the earning of his invested capital and a part of his net farm income.

Earnings are shown in the dairy enterprise in two different ways. Management income is the amount by which total income exceeds total costs of production, including as costs the value of the operator's labor and interest on the capital invested. Farm income is the amount the operator makes from his enterprise from his management, labor, and invested capital.

In 1948 management income in dairies covered by management studies were $76 a cow in market milk herds and $46 a cow in manufacturing milk herds in the San Joaquin Valley. Farm incomes were $127 and $147 respectively.

Price Return

The dairyman can exert a little influence on price through the type of milk he produces, its quality, the seasonal production of milk through the year, and through his selection of a marketing agency.

Market milk usually brings enough more than manufacturing milk to cover the additional costs of production and some increased profit. For every region and type of product there is some seasonal production pattern that will best fit local feed and marketing conditions and result in greatest profit. The market producer needs to have even production through the year.

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GENETICS

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pullets in the laying house—is somewhat greater than the heritability of the production index for the full year.

It is, however, the full production index that is of commercial importance, so use of the part-index may result in slightly lower gains per generation. On the other hand, the time per generation can be cut from two years to one year if the part-index is used in selecting parents. Greater gain per year is thus achieved by the use of the part-index. However, maximum gains are obtained by the proper combination of part-index and full-index selections.

Although proper understanding and use of heritabilities can lead to increased rates of genetic gain, much remains to be learned of a fundamental nature with regard to breeding theory. Thus heritability has two components, a useful component—additive heritability—and a component relatively useless for many breeding programs—nonadditive heritability.

The amount and nature of the nonadditive heritability is a problem of current investigation. Its utilization may require special breeding methods. The success to be expected from the production of hybrids from inbred lines of animals depends to a considerable extent on the special characteristics and magnitude of this component.

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Manufacturing milk prices, determined more by national than by local supply and demand, are usually higher in the fall and winter than in the spring.

Most dairy enterprises include the raising and sale of some dairy stock. The consideration of how many and what kinds of animals should make up the herd, which animals should be raised for use in the herd, which calves should be sold or destroyed at birth, and which should be raised before selling—all constitute a major part of dairy farm management.

Net stock income is the value of stock produced over the cost of stock bought and the death losses and decline in value of stock in the herd.

Net stock income is not a profit from raising of dairy stock since costs of its production are not considered and would be difficult to segregate from the milk production costs.

Net stock income averaged $50 a cow in San Joaquin Valley dairies in 1947 and 1948.

A dairy farm is an intensive enterprise in California, existing on high-priced land. As in all intensive farming, the capital investment is big, and the operating cost can become very high unless good management practices are applied consistently.

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POULTRY

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0.02 units of inhibitor and produced weight gains of 125 grams in the first test and 148 grams in the second test, was selected as a meal giving good results. It was light yellow in color.

The meal selected for further study as the meal giving poorer results was a fairly dark expeller processed meal. This meal contained 0.05 units of inhibitor and in the first test produced an average of 120 grams of weight on the chicks and in the second test, 132 grams.

If the dark meal had been scorched in the processing, its lysine—an amino acid—should be reduced in availability.

In this confirming test two groups of 15 chicks each were used. The chicks were fed a stock mash for seven days and the experimental diets for 14 days.

The expeller meal was fed for seven days and an average weight gain for the seven chicks of 33 grams was recorded. Seven days later—after 14 days on the diet—the average weight gain was 70 grams. Then 0.2% lysine was added to the meal and the tests repeated. After the first seven days the average weight increase was 32 grams and after 14 days the weight gain was 66 grams.

After the first seven days on the solvent processed meal the chicks showed an average gain of 31 grams. At the end of the second week—14 days on the diet—the average gain was 67 grams. Then, as with the expeller meal, 0.2% lysine was added. After the first week the average gain in weight was 33 grams and at the end of the 14 days, the gain was 68 grams.

No essential difference was observed between the two soybean meals. Supplementing with lysine did not improve the nutritional value of the meals, indicating their lysine content was not extensively damaged during processing.

These studies indicate little or no differences among the eight meals and that all were high quality products.

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