THE CHANGING TEXAS DAIRY INDUSTRY

Less than one-half as much milk per capita is produced in Texas as in the United States, according to Randall Stelly and Kenneth McKinney of the Texas Agricultural Experiment Station. The State's production in 1957 failed to meet consumption, and the following amounts of various products were required from out-of-state sources: 158 million pounds of fresh whole milk, 70 million pounds of creamery butter, 42 million pounds of American cheese, 36 million pounds of cottage cheese, and 12 million gallons of ice cream.

The volume of milk and milk products brought into the State for use in manufacturing by Texas processing plants is relatively small. A large part of the manufactured dairy products consumed in Texas is imported from other states.

Combined milk and cream marketings by Texas farmers increased 49 percent from 1930 to 1957, but total milk production declined 17 percent and per capita disappearance of milk and cream decreased 47 percent.

These trends — some of which are divergent — are the result of several factors. The decline in farm population in the State has been an important reason for some of the changes. Farm people traditionally use more milk and cream than do urbanites. As farm families moved to cities, many decreased their per capita milk consumption.

Another factor has been the decline in feeding of milk to farm animals (other than calves). After removing the cream for farm butter, most of the skim milk was fed to animals, but the amount of butter churned on farms in 1957 was less than one-fifth the volume churned in 1930.

In addition, the total milk utilized per capita in the manufacture of dairy products decreased 50 percent from 1930 to 1957. Most of the decline is a result of a decrease in butter production, mainly because of competition from oleomargarine.

Other factors related to the divergent trends in milk and cream marketings and in the production and consumption of milk and dairy products are the changing sources of basic raw materials for dairy products or dairy product substitutes and changing eating habits. Although the commercial production of ice cream per capita more than doubled between 1930 and 1950, such output decreased 38 percent between 1950 and 1957. This reversal in trend is a result of the shift from the use of raw materials of dairy origin to those of vegetable origin. Production of mellorine has increased sharply; and every year since 1952, Texas has produced more than one-half the total output in the United States. In 1957, mellorine production in Texas was five times larger than that of any other state.

Although both total disappearance and per capita disappearance of milk and milk fat have decreased since 1930, the volume of skim milk equivalent utilized in manufactured products in Texas has more than doubled. This rise in consumption of nonfat portions of milk partially explains the decrease in whole milk disappearance.

Messrs. Stelly and McKinney outline prospective trends in the dairy industry and make several predictions as to the industry's position in the year 1968. The civilian population in Texas is expected to reach 11.3 million by that year, or 21 percent greater than the 1958 total. Assuming no increase in per capita consumption, the State would need 3.7 billion pounds of...
milk annually, which is 656 million pounds more than in 1957.

If milk production per cow advances at the same rate through 1968 as it has in the recent past and if herd numbers are not increased, Texas dairymen may be producing 4.2 billion pounds of milk by that year. The number of Texas dairy farmers selling whole milk probably will have declined further by 1968, and those remaining in the business will have increased the size of their herds and will be selling more milk. This development likely will be encouraged by the demands of milk handlers that farmers install bulk milk-handling equipment. Farmers will need to increase the size of their milking herds in order to reduce the overhead cost of this equipment.

The number of dairymen selling milk other than Grade A declined two-thirds between 1949 and 1957. It seems probable that there will be only Grade A dairy farmers operating in Texas by 1968, since the market for ungraded milk and cream continues to decline and may not be in existence in the next few years.

Except for cottage cheese plants, the number of processing plants operating in Texas has decreased during recent years. At present, a large proportion of the fluid milk handlers is engaged only in milk bottling and distribution. In several of the major Texas milk-producing areas, producers' associations are obtaining manufacturing facilities for utilizing surplus milk. This trend is expected to continue; and by 1968, more manufacturing facilities are expected to be owned by producers' cooperatives.

Improvement in highway networks and increased ownership of bulk milk-handling equipment are expected to encourage the movement of milk to market from more distant areas. Marketing under Federal orders will increase in importance; by 1968, more than 90 percent of all milk marketed by Texas farmers may be covered by Federal milk-marketing orders.

Since dairy producers' associations may control most dairy products manufacturing facilities, these plants are likely to utilize most of the seasonal surplus milk. Thus, producers' prices in the various parts of Texas will be more nearly uniform and will vary only by the cost of moving the milk from surplus to deficit markets. The average milk handler probably will increase the volume of milk distributed, expand his sales area, and retail more milk. The number of milk distributors is expected to decline, as the smaller operators are unable to compete with larger independent and chain milk handlers in expanded market areas or are unable to benefit from economies of scale.

As distribution areas expand further, per unit margins likely will be narrowed. These narrow margins, coupled with higher costs of new equipment, probably will force small handlers to merge with one another or to sell out to the larger operators.

**New Slide Rule Aids Farmers**

A slide rule showing the number and kinds of tillage operations that will leave sufficient amounts of grain stubble on the soil surface to control soil blowing has been developed by the Soil Conservation Service, according to the United States Department of Agriculture.

The new slide rule is an aid to stubble mulching (a conservation practice designed to keep protective amounts of vegetative material on the surface of the soil from harvesttime until seeding of the next crop). Stubble mulching helps to protect the soil from wind and water erosion, to prevent soil compaction and crusting of the soil surface, and to increase water intake and reduce runoff.

**Selective Breeding for Production of Meat-Type Hogs**

Extensive research has been done recently on selective breeding to produce a strong line of meat-type hogs, reports the Louisiana Agricultural Extension Service. Scientists with the United States Department of Agriculture have answered, at least partially, the question of how fast meat-type hogs can be developed by selection within a breed.

In a group of low-fat Duroc hogs selected for interbreeding, their third-generation offspring averaged 11 percent less back-fat thickness than the original group. Hogs of the same breed selected for high fat produced animals with a back-fat increase of 14 percent in the third generation.

Another test made on animals with significantly less back fat than the herd average shows that about 41 percent transmitted this advantage to their offspring. On the other hand, about
57 percent of those with more than average back fat transmitted this characteristic to their progeny. Specialists with the Louisiana Agricultural Extension Service point out that the apparently higher heritability of fatness as compared with leanness emphasizes the importance of careful selection of breeding stock.

The third-generation Duroc hogs bred for leanness produced 3 percent more trimmed hams, loins, and shoulder butts than third-generation hogs bred for fatness. The average 200-pound lean-line Duroc of the third generation gave 6.2 pounds more lean cuts and 10 pounds less fat cuts than the fat-line animals. The fat line yielded 1.2 pounds more bacon per pig.

### Perennial Range Grasses

A number of different native and introduced perennial range grasses have been utilized successfully for tame or cultivated pasture in the Coastal Bend area of Texas. The Texas Research Foundation, at Renner, says that productivity of the grasses has varied considerably according to soil type, fertility, and moisture availability. Yields have fluctuated greatly with the immediate rainfall.

During 1957 and 1958, studies were made of perennial range grasses grown on Victoria clay, under moderate fertilization, in row nursery plots at Taft, Texas. The highest forage yields were obtained from blue buffel grass, weeping love grass, common buffel grass, and Rhodes grass. Under stress of summer drought, varieties of switch grass and blue panic grass showed signs of physiologic injury, probably as a result of the alkaline conditions of the soil.

Chemical analyses of the forage did not show marked differences related to variety for either the July or the December cuttings.

### Exception to Law of Heredity!

A United States Department of Agriculture scientist recently found that one of the established laws of heredity which has been accepted for almost 100 years does not always apply to corn. The scientist found that a certain gene (the unit which controls heredity) is modified in its action by another gene. This phenomenon differs with the well-known Mendelian law, which states that a gene never loses its identity even though the characteristic it determines may be masked by a dominant partner gene.

Further tests are under way to increase man's knowledge of the action of genes on hereditary characteristics. The application of such information will assist plant breeders in their work.

### Acreage Cut Required to Remove Price Support Loan Limitation

The United States Department of Agriculture recently announced that any producer of 1960-crop wheat, grain sorghums, or barley desiring nonrecourse price support in excess of $50,000 must reduce his total acreage of each of these crops by 20 percent below his 1959 acreage and must otherwise be in compliance with price support regulations. The limitation applies to individual persons, not to individual farming units.

A similar reduction may be required of large producers of other crops in probable surplus supply, if the growers wish to avoid the price support limitation. Crops which might be affected are oats, rye, and flaxseed. The determination of surplus supply with respect to these crops will be made at the time the price support levels are announced.

### Storing Cotton Planting Seed

Preservation of quality is a major problem facing organizations that produce and store cottonseed for planting purposes. In order to help solve this problem, the Texas Agricultural Experiment Station conducted studies to determine the effectiveness of aeration in maintaining viability and in preventing an increase in free fatty acid content of cottonseed stored in large quantities.

With permanently installed fans, an air flow rate as low as 5.4 cubic feet per minute (cfm) per ton of cottonseed was effective in preventing a loss in germination and an increase in free
fatty acid content of cottonseed with a maximum moisture content of 12 percent. The time required for a cooling zone to move through an entire depth of seed ranged from 110 to 120 hours of fan operation with an air flow rate of 5.4 cfm per ton, compared with 50 to 55 hours with an air flow rate of 12.5 cfm per ton.

The 160-ton capacity bins were equipped with air distribution systems for aerating the stored seed. Under weather conditions encountered in the Texas A. & M. tests, an average of 50 days was required to reduce seed temperatures from 95° to 65° Fahrenheit with permanently installed fans supplying air at a rate of 5.4 cfm per ton, compared with 60 days with a portable fan supplying air at a rate of 12.5 cfm per ton.

**Rust-Resistant Rye Grass**

Crown rust of annual rye grass soon may be brought under control as a result of plant breeding work by scientists of the United States Department of Agriculture in cooperation with the Mississippi Agricultural Experiment Station.

Crown rust is a serious problem in areas of the South where rye grass is grown as a seed crop. The disease prevents seed set; and where rye grass is used as a turf grass, the disease causes an objectionable yellowing.

By breeding new rye grass strains and then exposing them to crown rust, the scientists have selected strains which are 91 to 99 percent rust-resistant. Some of these strains are now being tested for adaptation throughout the southern states.

**Rats!**

One pair of rats could have 1,500 descendants in a single year if they all lived, according to Harold Gunderson, Extension Entomologist at Iowa State College. In 3 years, that one pair could have a total of 350 million descendants. Although the average rat lives only about 18 months, the original pair conceivably could still be living at the end of 3 years.

No estimates have been made of the world's rat population, but Mr. Gunderson says there is reason to believe that the rat population now exceeds the estimated 2.7 billion human population of the world.