

## DAIRY PRODUCTION

### **Pasteurization**

This process is named after a famous French scientist, Louis Pasteur, who discovered that heating milk quickly and then cooling it quickly kills harmful bacteria without changing the milk's nutrient value. Today, milk is pasteurized using HTST (High Temperature, Short Time) process, meaning the milk is heated to at least 72°C for 16 seconds and then cooled to 4. Most milk in our stores has gone through HTST pasteurization.

### **Homogenization**

Almost all milk is homogenized (ho-MOJ-en-ized) to keep the milk fat from separating and floating to the top. Milk fat is what makes milk creamy, rich and flavourful. A homogenizer is a machine which forces the milk at high pressure through tiny holes. This process breaks up the milk fat globules into particles one eighth their original size. Then the milk fat particles are that tiny, they stay evenly suspended.

### **Enrichment and Fortification**

A very special nutrient, vitamin D is added to milk because we need it along with calcium to grow strong healthy bones and teeth. When we add nutrients to food, we say that food has been enriched or fortified. Partly skimmed and skim milk are also fortified with vitamin A for good eyesight. Homogenized milk is not fortified with vitamin A because it contains enough naturally.

### **Packaging**

Machines in the dairy put the cold milk into cartons or plastic jugs. These containers of milk are taken by a refrigerated truck to your local grocery store where you can buy them. You will notice there is a Best Before date on the containers of milk. The store cannot sell the milk after this date.

### **Computerized Feeding**

During the last 100 years, scientists have helped dairy farmers improve the efficiency of their farms and increase the production of milk from their cows. With the use of computers, the farmer can feed each cow the exact amount she needs, match a bull and a cow to be perfect parents to a calf and record how well each cow is producing milk. We know that some people are able to eat more food in a day than other people. Well, some cows do the same! The farmer must be able to tell how much food each individual cow needs. This is easy on a small farm because the farmer knows each cow. But once the herd becomes larger, the farmer may need the help of a computer to keep track. In some herds, each cow wears a computer chip in her collar containing her identification.

As the cow enters the feeding stall during the day, the computer, built into the stall scans the chip and dispenses the proper amount and type of food for her.

### **Computer Dating?**

No, cows do not date, but farmers do try to match their cows with the right bulls to make good milk-producing calves. This is called selective breeding.

Computer matching is based on the fact that a high milk producing cow tends to have daughters who also produce above average amounts of milk. When this cow is paired with a bull whose daughters are known to be good milk producers, the result is usually a high milk producing daughter.

When farmers want to breed their cows, they begin by listing the traits they would like to improve in their herd such as good milk production. The traits of every cow are listed on a computer program. The bulls are listed according to their daughters' traits. Farmers can then search with the computer for the cow and bull which have the traits they want to breed in the offspring.

Because of selective breeding, a modern dairy cow now produces far more milk than is needed for feeding her calf. The average dairy cow today can produce about 2,526 kg more milk per year than the average dairy cow of 30 years ago.

### **Computer Records**

Well, cows may enjoy listening to music but this is a different type of record. Dairy Herd Improvement is a computerized record keeping system which helps the dairy farmers keep track of milk production. Each month, each cow's milk is weighted and a sample of it is sent to a lab for testing. At the lab, the milk is tested for fat and protein content and somatic cell count. The somatic cell count, which is a measure of white blood cells, helps to determine the cow's udder health.

Computer reports summarize each cow's milk production and evaluated it against a standard. Recommendations are made on how the farmer can improve the herd's milk production and health. By using the computerized services, a farmer is able to make good decisions about feeding and breeding cows.