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Oklahoma Cooperative Extension Service • Division of Agricultural Sciences and Natural Resources

Let's Learn About Milk

Few people are actually aware of the amount of high quality nutrients produced by a dairy cow.

In a period of one year a good dairy cow will produce about one ton of edible dry food in the form of highly digestible nutrients. This is an average of about six pounds of edible nutrients per day.

This amount of food produced by the cow in a year contains 496 pounds of protein, 800 pounds lactose (milk sugar), 500 pounds butterfat, and 112 pounds of minerals, including calcium and phosphorus.

This amount of protein is enough to supply the needs of an adult man for 9 1/2 years, enough calcium for 30 years, enough phosphorus for 25 years, enough B vitamins for 18 years, and enough energy for 5 years.

The dairy cows produce this food from feeds, many of which are not suitable for any other use.

The dairy cow is an efficient farm animal for converting feed into a nutritious edible food for human consumption.

Milk is Vital for All Ages

Milk contributes a greater number of the essential nutrients for human nutrition than any other single food, some in relatively large amounts. It is an outstanding source of calcium, which is needed all through life for healthy bones and teeth. One cup of milk provides 1/3 the recommended daily allowance of calcium and phosphorus. It also supplies riboflavin and, when fortified, vitamin D which helps structural and tissue development. The protein in milk is one of the best quality proteins that any food offers.

Milk is also a bargain. Based on 1975 figures, it is one of the least expensive sources of protein. Only eggs, peanut butter, dried beans, and hamburger are cheaper sources of protein.

And milk is not only a beverage. It can be used in or on cooked food such as gravies, puddings and cereals. It can be consumed in the form of cheese, ice cream or milk drinks, during meals or snacks.

Terminology of Milk

There is a wide variety of milk for every occasion. Reading the labels on the containers to recognize the differences is well worthwhile. Here are some terms commonly used in describing the processing of milk.

Grade A, pasteurized, and homogenized usually go together on milk labels. In stores almost everywhere in the United States, you will find fresh fluid milk labeled to show that it is Grade A, pasteurized, and homogenized.

To earn the **Grade A** rating, milk must be produced, stored, handled, processed, and transported in a manner conforming to strictly enforced Grade A milk law standards for quality and sanitation.

Pasteurization destroys harmful bacteria that might be present in milk. It is not a substitute for sanitary dairy operations but an additional safeguard for you. Milk is pasteurized in modern milk plants by heating to approximately 161 degrees Fahrenheit and holding at this temperature for 15 seconds.

Homogenized on a milk label means that the fat globules of pasteurized whole milk have been broken up so that they will not rise to the top as cream. The milk fat remains equally distributed throughout the milk.

Skim Milk is milk from which a sufficient part of the milk fat has been removed to reduce the milk fat content to a maximum of one-half to one percent.

High-Protein Skim Milk usually contains two percent fat and has extra protein solids added.

Low-Fat Milk contains less milk fat than whole milk and more total solids than skim milk. This increases the already important protein content of milk.

Fortified on the label usually means that vitamins and minerals have been added to the milk.

Chocolate Milk is whole milk to which sugar and chocolate have been added.

Chocolate Drink is made from skim milk or milk containing less milk fat than the legal minimum for whole milk, using the same flavoring ingredients as chocolate milk.

Adding special bacteria cultures to milk makes **Cultured Products**. The cultures are allowed to develop in the milk to the desired taste and consistency. Yogurt, buttermilk, and sour cream are examples.

Learning Important Facts

In this nation, the dairy industry has made steady progress since the first 100 cows arrived at Jamestown Colony in 1611. However, many city people know very little about the dairy cow, how milk is made, and milk products. Listed are some important questions and answers about the dairy industry.

When does history record the first cows being milked?

Records exist of cows being milked as early as 9000 B.C.

How many major breeds of dairy cows do we have today and name them?

There are five major breeds of dairy cows in the western hemisphere. They are Ayrshire, Brown Swiss, Guernsey, Holstein, and Jersey.

Which breed is the oldest?

Brown Swiss is the oldest breed.

Which is the largest and smallest of the breeds?

The Holstein is the largest and the Jersey is the smallest.

Which of the breeds produce milk that is very yellow in color?

The Guernsey

Do cows produce the same amount of milk from all four quarters?

No, most cows produce 60 percent of their milk from the hindquarters and 40 percent from the front quarters.

What do we mean when we say a cow is a ruminant?

This means the animal has four stomachs and is a cud-chewing animal. They chew again, the coarse feeds, such as forages, that have been swallowed.

How much milk should a good dairy cow produce?

A good cow should produce 10 times her body weight in 305 days. A 1,000-pound cow should produce 10,000 pounds of milk.

How much does a quart of milk weigh?

One quart of milk weighs 2.15 pounds.

How many quarts are in 100 pounds of milk?

There are 46 quarts in 100 pounds.

How many people will an average cow provide milk for?

One cow will meet the needs of about 14 people.

What is the composition of milk?

| | |
|----------|---------------|
| Water | 86.75 percent |
| Sugar | 5.00 percent |
| Protein | 3.50 percent |
| Fat | 4.00 percent |
| Minerals | 0.75 percent |

How many pounds of milk are required to produce each pound of special dairy products?

| To make one pound of: | Requires approximately: |
|-----------------------|-------------------------|
| Butter | 21.1 lbs. of whole milk |
| Cheese | 10.0 lbs. of whole milk |
| Powdered Milk | 7.6 lbs. of whole milk |
| Ice Cream | 2.8 lbs. of whole milk |
| Condensed Milk | 2.3 lbs. of whole milk |
| Evaporated Milk | 2.1 lbs. of whole milk |

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