Taste and smell are the two characteristics by which the average housewife judges the milk that she purchases. If these are not pleasing, she changes the source of her supply, and her next move may be to change beverages, says J. Borden Ells, Extension Dairyman at the New Mexico Agricultural Extension Service.

The natural slightly sweet and pleasing flavor of milk results from a balance of the mineral salts and milk sugar. The butterfat adds richness and smoothness. According to the Extension Dairyman, “Anything that changes the amount or character of these ingredients affects the flavor, and processors know how soon the housewife complains when any change in milk occurs. One carton of off-flavored milk can do considerable damage to milk consumption.”

Dairymen should make regular taste tests of their milk. Early detection of an off-flavor and disagreeable odor and prompt efforts to remove the causes can prevent serious troubles, which are almost sure to follow if off-flavor milk is marketed.

Feed probably is the most common cause of off-flavor milk. This is a potential year-round offender, but off-flavors usually are most pronounced when there are abrupt changes in feeding practices. The principal times when feed may cause off-flavor in milk are in the spring when the cows are given new hay or turned onto a weedy pasture and in the fall when the animals are turned onto wheat or any other small-grain pasture.

Cows may produce very pronounced off-flavor milk when they are put on green-chopped feed or immature pasture and do not get sufficient total digestible nutrients to meet their body requirements. In such instances, cows will use stored nutrients to produce milk, resulting in a very severe metabolic reaction and sometimes a condition called ketosis.

Keeping the cows away from feed for at least 3 hours prior to milking usually will prevent off-flavor milk. Feed flavor can enter through either the digestive or the respiratory system of the cow.

Other off-flavors that discourage milk consumption include (1) the “cowy” flavor, (2) acid or sour taste, and (3) oxidized or rancid flavor. The cowy flavor may result from poorly cleaned or insufficiently ventilated barns or simply from a cow’s not feeling “up to par.” In addition, unclean milking habits often are responsible for this flavor.

Bacteria growth causes a slightly acid or sour taste in milk, which may exist long before the milk is classified as sour. Improper cooling or mixing warm and cold milk together often results in this off-flavor.

An oxidized taste is quite common in milk and is very objectionable to the consumer. Milk that comes in contact with bare copper or is exposed to direct sunlight for a short time may have this metallic or cardboard flavor sensation.

Rancid milk is caused from a breakdown of butterfat, which releases strong-flavored acids. Slow cooling and too much agitation of milk often are responsible for rancidity. In some cases, this unpleasant taste results from too
many risers in a pipeline setup. An air leak in a pipeline brings about a churning effect which may cause milk to become rancid. The increased use of pipeline milkers and bulk tanks has made more important than ever before the detection of off-flavor milk before it is delivered to the processing plant. Dairymen should check their milk daily for off-flavor and odor.

Many processing plants have recently installed vacuum chambers through which milk passes as it is being processed. This operation removes some of the off-flavor but has very little effect on some of the more objectionable tastes.

Mr. Ells says that “the entire dairy industry must wage a continuous battle to give the consumer a good-quality milk.”

MAKE DAIRYING PAY

Gila, a new safflower variety resistant to Phytophthora root rot, is adapted to irrigation and will make safflower production possible in many southwestern areas where new types of crops are needed. The variety has been released to seed growers jointly by the United States Department of Agriculture and the Arizona Agricultural Experiment Station. Safflower, a relatively new oilseed crop, is becoming increasingly important in the manufacture of white paint and varnish because of its nonyellowing characteristics.

Gila is equal or superior to variety N-10 (the principal safflower variety now grown as a dry-land crop in this country) in yield, oil percentage, and seed weight. Gila matures at about the same time as N-10, which is much earlier than any other safflower variety. N-10 is not recommended in Arizona and other irrigated areas of the Southwest as it is extremely susceptible to Phytophthora root rot.

Adequate supplies of registered Gila seed should be available for farm planting in 1959. Information on seed sources can be obtained from the Arizona Agricultural Experiment Station at Tucson. No seed of this variety will be distributed by the USDA.

Two billion lunches were served to about 12 million children under the National School Lunch Program in 1958, according to the Louisiana Agricultural Extension Service. Most of the food was bought from local producers and suppliers.

Summer and Fall Tomato for East Texas

The Hotset tomato variety was developed to provide fruit for an additional market season in east Texas from August to October, according to the Texas Agricultural Experiment Station.

Hotset is a prolific variety with smooth, red globe fruits averaging 3 to 8 ounces in weight. The interior usually is dark red, and the tomato has a delicious flavor. The flowers have a strong resistance to heat sterility, and the green fruits are resistant to sunburning, puffing, and cat-facing. Hotset received the highest rating for vitamin C content in the 1956 Southwestern Tomato Exchange Program.

Plants of the new variety set large crops of fruits at temperatures 5° to 8° too warm for the setting of fruit by Rutgers and Homestead...
plants. Yield tests and observations show that Hotset regularly produces higher yields than Rutgers, Homestead, and Stokesdale from August to October. Furthermore, the new variety produces ripe fruits at least 2 weeks sooner and matures more of its fruits before frost.

Limited quantities of Hotset seed should be available through retail seed stores in east Texas for spring planting in 1959.

**Control of Peach Twig Borer**

Applications of DDT or endrin to peach trees, beginning in the pink-bud stage, give the most effective control of the peach twig borer, according to D. R. King, Assistant Professor of Entomology at the Texas Agricultural Experiment Station, and Tom E. Denman, Associate Horticulturist at the Stephenville, Texas, Substation.

In order to prevent harmful insecticide residues on the fruit, DDT should not be applied within 30 days of harvest. Endrin has not been approved for use on peach trees by the Pure Food and Drug Administration.

The peach twig borer is a pest of peaches in the Hill Country and the West Cross Timbers sections of Texas. The larvae burrow in the twigs early in the season, but later generations attack the fruit of varieties which ripen after Burbank July Elberta.

**Instant Rice**

Consumer response to instant rice was varied when the item was market-tested recently in Fresno, California, according to the United States Department of Agriculture. However, both housewives and store managers expressed sufficient interest to warrant further research on the new product.

About 8,000 cans of the easy-to-prepare, precooked canned rice were sold during the 19-week test. Sales per store averaged about the same as for most established products. The instant rice was most popular in stores serving customers in the medium-income bracket.

Most of the homemakers who tried the new product liked its taste and thought it cooked equally as well as other rices. About one in four thought that the cooking instructions should be changed, and some reported that they had trouble getting the rice out of the can.

With a few product improvements, marketing research specialists with the USDA foresee commercial possibilities for instant rice, especially as an additional item for established canners.

**Buy Fertilizer by Grade**

The real cost of any fertilizer is measured in terms of the per unit cost of plant nutrients applied to the soil. Therefore, Bill Bennett, Extension Soil Chemist with the Texas Agricultural Extension Service, advises farmers to look at the grade analysis of the fertilizer to see if the same quantity of plant nutrients can be obtained cheaper in a higher-analysis fertilizer.

The grade analysis tells how much nitrogen, phosphorus, and potassium each bag of mixed fertilizer contains. For example, a 100-pound bag of 5-10-5 contains 5 pounds of nitrogen, 10 pounds of phosphoric oxide, and 5 pounds of potash. A 100-pound bag of 10-20-10 contains 10 pounds of nitrogen, 20 pounds of phosphorus, and 10 pounds of potash.

Mr. Bennett points out that these two grades of fertilizer contain the same ratio of nutrients but the 10-20-10 fertilizer contains twice as much in each 100-pound sack. Thus, even though the 10-20-10 costs more per ton, it usually is cheaper in the long run because of the quantity of plant nutrients obtained.

The cost per unit of plant nutrients is not the only way in which high-analysis fertilizers are cheaper than low-analysis fertilizers, according to the soil scientist. Transportation costs are reduced when one sack of 10-20-10 can be substituted for two sacks of 5-10-5. In addition, application costs are less, since a smaller amount of fertilizer is needed to supply the same quantity of plant nutrients.

**Gulf Rye Grass**

Gulf, a new winter annual rye grass released jointly by the Texas Agricultural Experiment Station and the Agricultural Research Service, is superior to domestic varieties in resistance to leaf rust and is outstanding in the production
of forage and seed in southeast Texas. The new rye grass escapes severe infection through resistance and earliness, since it matures 2 weeks earlier than common types.

According to the Texas Agricultural Experiment Station, Gulf rye grass has consistently produced more forage in the winter and spring than have common varieties. One-half to 1 ton of air-dry forage per acre, with an analysis of more than 20 percent protein, frequently is obtained by February; and 2 to 3 tons usually are obtained by mid-May, with the protein content declining to 8 to 10 percent. The forage can be used for grazing, hay, or silage. Straw can be baled for winter feed after the seed crop is combined.

Seed of Gulf rye grass were produced at Beaumont, Texas, each spring of the past 6 years. Clean seed yields averaged 500 pounds per acre in both 1956 and 1957. Foundation seed may be obtained from the Rice-Pasture Experiment Station, Route 5, Box 366, Beaumont, Texas.

Calves Need Both Vitamin A and Phosphorus

Studies at the United States Range Livestock Experiment Station at Miles City, Montana, show that weaned calves on winter range gain most when fed a basic supplement fortified with vitamin A and phosphorus. In the 12-day trial, calves receiving both phosphorus and vitamin A in 20 percent protein pellets gained an average of 97 pounds, while those given the unfortified pellets gained 91 pounds. The group fed pellets fortified with vitamin A or phosphorus alone gained 87 pounds and 88 pounds per head, respectively. During the trial period, calves getting no supplement lost an average of 2 pounds a day.

The small-farm forest is important in the timber industry. The Forest Service of the United States Department of Agriculture reports that 86 percent of all private timber holdings are in plots with less than 100 acres. These small forests comprise about 121 million acres, representing one-fourth of all commercial forest lands.

Bloodspot Detector for Eggs

An electronic bloodspot detector can discover and reject eggs containing bloodspots twice as effectively as the human eye does, according to the United States Department of Agriculture.

Research was conducted at a commercial egg-grading plant in San Diego, California, mainly to determine whether the use of an electronic device to detect bloodspots could result in a savings in labor and equipment. The device was developed by scientists in the USDA's Agricultural Marketing Service after a study of marketing costs showed that grading and packing accounted for one-fourth to one-half of the cost of marketing eggs.

An analysis was made of an egg-grading and -packing operation in which eggs of two different levels of quality were handled without an electronic bloodspot detector. Then, a reproduction of the grading line was constructed; and a common egg-loading facility, a flash candling device, and an electronic bloodspot detector were added. Only large white eggs from big selected commercial flocks were tested.

Results of the tests indicate that, when 60 to 80 percent of the eggs are of A quality, the cost under the usual method is 57 cents per case for candling and removing eggs containing bloodspots; with electronic detection and mechanical removal plus candling, the cost is 62 cents per case. When the eggs are of higher quality (80 to 100 percent A quality), the figures are 46 cents and 59 cents per case, respectively. When eggs of the same quality are submitted to electronic detection and flash candling, the cost is reduced to 43 cents per case.

Details and illustrations of the research are contained in Marketing Research Report No. 239, entitled Electronic Bloodspot Detection in Commercial Egg Grading. Single copies of this report may be obtained, without charge, from the Office of Information, United States Department of Agriculture, Washington 25, D. C.