In the News

USDA to Study "Good Side" of Higher CO_2

Amid forecasts that increased levels of carbon dioxide (CO_2) in the air will heat up the climate and raise ocean levels, USDA scientists will examine future yield increases for crops. USDA plant and soil scientists will undertake the study as part of an experiment by the Department of Energy. It will be the largest study made of how 21st-century carbon dioxide levels could affect crops, according to W. Doral Kemper of USDA's Agricultural Research Service (ARS).

Agency studies to date, said Kemper, indicate that crop yields could increase approximately 50 percent if atmospheric CO_2 doubles in the next 100 years or sooner. The burning of fossil fuels has been primarily responsible for pushing CO_2 levels from 280 parts per million (ppm) in the mid-18th century to today's 345 ppm.

Carbon dioxide is essential in photosynthesis, and higher levels enhance this process of converting sunlight into energy in plants. All plants and crops may benefit from the extra CO_2, including wheat, rice, and corn—the three major foods for the Earth's population—according to Bruce A. Kimball, a soil scientist at the agency's U.S. Water Conservation Laboratory in Phoenix.

For more details on the study, contact Bruce Kimball, ARS, (602) 261-4356.

Biotechnology Center Dedicated

Albany, California, is the site of a new center for research on biotechnology for agriculture. The new Plant Gene Expression Center is expected to become a major source of research that plant breeders, geneticists, and other scientists can use to develop superior crops, according to the Center's director, Dr. Gerald Still of ARS. The Center is a joint venture of ARS, the University of California at Berkeley, and the California Agricultural Experiment Station.

In citing examples of what could come from the research, Still stated consumers could get consistently high-quality foods, farmers could grow disease-resistant crops, and industry could use crop materials to develop new or improved products such as lubricants, films, or coatings.

For more information, contact Marcia Wood, ARS, (415) 559-6070.

Committee on Microbiological Criteria for Food Established

In cooperation with the Department of Health and Human Services (HHS), USDA has established a National Advisory Committee on Microbiological Criteria for Foods. The committee will consist of experts in food science, microbiology, and other relevant disciplines. The members, appointed for 2 years, are from academia, industry, and various levels of government.

The committee's first task will be to develop a priority list of those foods and ingredients for which microbiological criteria would serve a useful purpose and which could be incorporated into food-safety programs on the national, state, and local levels, said Deputy Secretary of Agriculture Peter C. Myers. HHS Secretary Otis R. Bowen added the new committee "will be an excellent forum for Federal and State agencies involved in food safety to discuss problems of regulating the food supply with industry and academic representatives." Food and Drug Administration staff will also work closely with the committee.

USDA is responsible for the wholesomeness and safety of meat, poultry, and egg products intended for human consumption, while HHS is responsible for the safety and wholesomeness of all other human foods and animal feeds.

For more information, contact Catherine M. DeRoever, USDA, Food Safety and Inspection Service, (202) 447-9150.

Guayule Rubber Facility Opened

A prototype facility for producing natural rubber from guayule opened early this year on the Gila River Indian Community Reservation near Phoenix, Arizona. The facility is the result of a cooperative project between USDA and the Department of Defense to establish a domestic guayule natural rubber industry.

The United States is completely dependent on imported natural rubber. A domestic supply of guayule rubber could reduce our dependence on foreign sources of natural rubber and provide a new industry for the southwestern United States, according to Orville G. Bentley, USDA Assistant Secretary for Science and Education. Natural rubber is essential in applications that require elasticity, resilience, tackiness, and low heat buildup, such as the manufacture of automobile, bus, truck, and airplane tires.

For additional information, contact Dr. Richard Wheaton, USDA, Office of Critical Materials, (202) 535-0962.

"Autumn Gold" Iceberg Lettuce Introduced

A new iceberg lettuce, developed by a USDA scientist, may be on the market within a year. "Autumn Gold" lettuce is resistant to a virus that causes small distorted heads and unhealthy looking leaves with a mosaic pattern of dark and light green. Besides the virus resistance, Autumn Gold can also withstand heat that can cause most iceberg varieties to form seed stalks, a process called bolting.

According to Edward J. Ryder of ARS, the new lettuce should appeal to

This report was compiled by Kathryn Lipton, an agricultural economist with the U.S. Agricultural Policy Branch, Agriculture and Trade Analysis Division.

consumers. "It has nicely formed, well-rounded heads that make it better looking than many iceberg varieties grown in the West for late fall or early winter harvest," he said. Growers will find the variety ideal for November and December harvest in the San Joaquin, Palo Verde, and Imperial Valleys of California and the desert farmlands of Arizona, Ryder said, adding that the variety also might be suited for planting in New Mexico and Colorado, States that are the fourth and sixth largest producers of lettuce.

For more information, contact Edward J. Ryder, ARS, (408) 755-2860.

Transportation Handbook Available

USDA has published a handbook of recommendations to maintain the quality of fruits and vegetables, live plants, and cut flowers from tropical and subtropical climates during transportation. The Tropical Products Transport Handbook also outlines USDA requirements for importing pest-free foreign fruits, vegetables, and plants.

The areas that produce most of the perishable products, such as California, Florida, Texas, Hawaii, Puerto Rico, Mexico, and other countries in the Caribbean, face marketing challenges because of their distance from major U.S. markets in the eastern and central parts of the country. The USDA handbook should help growers, shippers, carriers, and receivers reduce post harvest losses and expand the markets for highly perishable, high-value products, said Martin F. Fitzpatrick, Jr., administrator of USDA's Office of Transportation.

Free copies are available through the Export Services Branch, USDA, Office of Transportation, (202) 653-6317.

Glucose Sweetens Calcium Absorption

Ten grams of glucose sugar—about a teaspoonful—taken with calcium can increase the body's absorption of the mineral by nearly 25 percent, according to Richard J. Wood and Irwin H. Rosenberg of USDA's Human Nutrition Research Center on Aging. "Many women don't get enough calcium in their diets," Wood said. "Our findings indicate that glucose could be an effective way of enhancing intestinal absorption for this group."

In four human studies, Wood said, calcium absorption improved in men and women in their twenties through their fifties, including patients with gastrointestinal disease. Preliminary findings by Wood and Rosenberg, as well as other scientists, indicate that glucose alone, or in polymers—which are sold in drug stores under several brand names as calorie supplements, may also enhance absorption of zinc and magnesium. But more research is needed to confirm the results.

Wood indicated that more studies are needed for other sugars, including sucrose (table sugar), but he is more interested in the possibilities of complex starches because they are digested and absorbed more slowly.

The researchers are continuing to conduct studies in this area.

For more information, contact Richard J. Wood, Human Nutrition Research Center on Aging at Tufts, ARS, Boston, Massachusetts, (617) 556-3192.

Fat in Retail Beef Declines

Closer trimming of retail cuts has resulted in a 27-percent decline in fat content in beef bought by consumers in the past decade, according to a recent USDA market basket study.

The study, in conjunction with research at Texas A&M University, also showed that there was 10 percent less fat in ground beef. The data come from surveys conducted in late 1987 and early 1988 in stores in Atlanta, Chicago, Dallas, Denver, Detroit, Houston, Los Angeles, New York, Philadelphia, Seattle, Tampa, and Washington, DC.

The study, funded by ARS, the Cattlemen's Beef Promotion and Research Board, and the Beef Industry Council, found that randomly selected retail cuts contained an average of 78.9 percent separable lean, 11.7 percent separable fat, and 9.4 percent separable bone and connective tissue. In 1985, USDA and the beef industry sponsored the National Consumer Retail Beef Study which indicated consumers found beef more desirable when fat was trimmed to one-fourth of an inch or less. As a result, retailers changed the fat trim on beef from the previous standard of one-half inch to no more than one-fourth inch. The recent market basket study indicates that the amount of external fat on all retail cuts now averages less than one-eighth of an inch.

From a nutritional point of view, this means that beef, rich in protein, iron, and zinc, is a nutritious food that contains less fat than many consumers may realize. According to USDA, the average price of USDA Choice beef in the first 2 months of 1988 was only 5 percent above the same period in 1985. And while recent smaller supplies of beef may mean higher prices in coming months, the 27-percent drop in separable fat in retail cuts indicates that consumers will still get more lean meat and less fat

for their dollars than they did in recent years.

Changes in cattle production and beef packaging and processing have also helped in providing consumers with leaner meat. The total amount of fat in Choice beef carcasses is down 8 percent from more than a decade ago. Separable fat will likely drop further as improvements in breeding, production, and feeding programs continue.

For additional information, contact Gary Beecher, Research Leader, Nutrient Composition Laboratory, ARS, Beltsville, MD (301) 344-2356.

Cornbread for Sandwiches

Cornbread, usually a crumbly, rich bread that often accompanies southern-style meals, may be getting a new face. According to USDA food technologist Kathleen A. Warner, cornbread made with finely ground corn flour and wheat bread flour has a smooth, cake-like texture that is suitable for sandwiches.

"It really enhances the taste of a sandwich with turkey," says Warner.

Warner developed a recipe for bread that could be used by professional bakers. She says it is the gluten (wheat proteins) and yeast that make the new bread good for sandwiches. Traditional cornbread is usually low in gluten and contains no yeast.

Warner used bread flour made from hard red spring wheat, which contains high amounts of gluten, but any wheat bread flour can be substituted. All-purpose flour used by many home bakers is low in gluten and will not work.

The new bread was developed as a result of research conducted at the request of the American Corn Millers Federation (ACMF). Jack Swarthout, director of research for ACMF, says that the type of corn used to make beer and grits should not be used for cornbread because the bread won't have much flavor. A richer flavor comes from other types of corn, especially from the germ portion that has been finely ground.

For more information, contact Kathleen Warner at (309) 685-4011.

Carbonated Milk Is Not Junk Food

Milk. It has been bottled, pasteurized, homogenized, fortified, skimmed, powdered, flavored, and put into plastic containers. Now, in the interest of finding new ways to market surplus powdered milk, it has been carbonated.

Soda milk, developed by researchers at ARS's Southern Regional Research Center in New Orleans, is made by bubbling carbon dioxide through a mixture of water, powdered nonfat dry milk, and flavoring. The mixture is kept under pressure and bottled immediately so it remains carbonated.

"It is only a crude laboratory mixture, but it tastes great. You get that tingling, refreshing sensation of carbonation that you get in soft drinks, and you also get calcium, protein, vitamin C," says USDA food technologist Ranjit Kadan. So far, soda milk has been made in 2 flavors—strawberry, which remains fresh up to 6 months, and apricot, which lasts 2 to 3 months.

The carbonated beverage may spur milk consumption, says Kadan, but commercial companies will have to refine the process and add other flavors before soda milk will appear in supermarkets. Per capita milk consumption in the United States dropped 12 percent between 1975 and 1985, while soft drink consumption rose 68 percent. Carbonated milk could be a nutritional boost for children because it would provide a good source of calcium and other nutrients.

Kadan has developed another milk-based product that is a custardlike dessert. It is made with nonfat dry milk, rice flour, sugar, gums, and vegetable oil. It has a consistency similar to rice pudding and the French dessert, flan, but it has no cholesterol. Kadan and ARS have patented the custard. If it is developed commercially, it could be sold as a powder, like instant oatmeal, or in containers, like yogurt.

For more information, contact Ranjit Kadan (504) 286-4332.

Oatmeal is Good For You

Oats are not just good for horses. Recent research by ARS indicates that adding oats to daily diets can lower cholesterol levels in humans and may lessen the effects of diabetes.

The studies, sponsored by the oat industry, show that people with high serum cholesterol can significantly lower blood cholesterol levels by eating two ounces of oats a day. The ingredient suspected of being the cholesterol-lowering agent is beta-glucan. ARS says that oat varieties with naturally high beta-glucan levels could be selected to create a specialty crop that could provide a pharmaceutical source of the substance. There are also indications that oat fiber may help control diabetes by reducing swings in blood sugar through the slowing of carbohydrate digestion.

"We've always known oats had good nutritional value, but all of the new information coming out indicates it is better than expected," says Charles F. Murphy, program leader for ARS grain research. Oats, one of the most nutritionally balanced cereal grains, contain an excellent balance of amino acids, a high level of protein, and polyunsaturated fats, Murphy says.

For more details, contact Charles F. Murphy, ARS, (301) 344-1560. ■