National Agricultural Library

Agriculture Is Fun

Technology Trivia II

Each year, dozens of improved products and new varieties of plants, nuts, and vegetables emerge from the laboratories of the Agricultural Research Service. Here are just a few examples illustrating that solving the mysteries behind Agriculture is Fun.

- ARS scientists developed lactose-free dairy products by altering a bacterium used to make cheese and yogurt.
- ARS scientists were first to combine nonfat dry milk with water, blend in cholesterol-free vegetable oil to produce frozen milk concentrate.
- ARS scientists discovered a new bacterium that gives San Francisco's sour dough bread its unique taste.
- ARS researchers discovered how to make the self-clinging bandages used during World War II.
- ARS scientists in Lincoln, Nebraska, are working on developing varieties of hard white wheat that are ideal for making oriental noodles.
- ARS scientists are studying why when you take a nice white flour and mix it in an alkaline environment, it turns yellow.
- They also want a white wheat that is low in amylose (a component of starch that effects the texture.) (ARS Wheat, Sorghum and Forage Unit, University of Nebraska - Lincoln).
- Split pea soups could be a deeper green or brighter yellow because of three varieties of dry peas developed by ARS researchers in cooperation with Washington State University and the University of Idaho. (ARS Grain Legume Genetics & Physiol. Res. Unit, Pullman, WA).
- To boost taste appeal, ARS scientists and a manufacturer of organic rice products are devising a process for evenly spreading the added flavors in rice cakes. (ARS Western Regional Research Center, Albany, CA).
- The ARS gene bank houses seeds of more than 2,000 varieties of lettuce.
- An ARS plant breeder came up with an iceberg lettuce that is small enough to make salad for just one person.
- ARS scientists have found that four species of fungi from the genus Pythium produce a compound, eicosapentaenoic acid (EPA). EPA could reduce the risk of heart disease and atherosclerosis. EPA is also found in fish oil, but the compound produced in fungi tastes better and costs less.
- ARS scientists are researching how the genomic similarity between corn and eastern gamagrass may provide opportunities to improve gamagrass grain for animal feed or to grind into flour bor baking. Gamagrass withstands soggy soils and is drought resistant. Perhaps some of these traits can be introduced into corn varieties.
- Almost immediately after picking, apples begin to lose their firmness, color and flavor. In the early 1950's controlled atmosphere (CA) storage that slows the apple's natural respiration rate has been used. ARS scientists have developed methods that reduce the time the fruit must be kept under CA storage and thus lower the storage costs.
- Tofu is actually a cheese analog made from soybeans. A tofu soybean is not the same as a soybean used in feeding livestock.
- Tofu soybeans of the USDA Natto variety called "Pearl" were bred by a geneticist at the ARS Soybean and Nitrogen Fixation Unit in Raleigh, North Carolina. (Natto refers to a fermented form of soybeans used in Asian foods that can be made from these soybeans.)
- All the tofu consumed in the U.S. comes from American-grown soybeans.
- There are about 100 U.S. tofu processors. This represents $130 - $150 million in retail value.

- ARS conducts the world's only pecan breeding program. One disease-resistant variety, Pawnee, was released in 1984.

- A variety of red raspberry released by ARS in 1943, Williamette, is still the most popular variety grown in the U.S. Pacific Northwest,

- The thornless blackberries bred by ARS plant breeders sparked a pick-your-own revolution in rural areas that grow blackberries.

- The freshly peeled carrots you see at the grocery stores retain their bright color because of a process developed by ARS scientists. Processors dip the peeled carrots in a heated bath of water and citric acid, a natural substance, then plunge them into cold water. This prevents unwanted enzymes from forming, and the carrots do not form a white film that dulls the color.

- Garlic plants that produce flowers are rare in most U.S. varieties. ARS scientists are able to stimulate true seed production in certain garlic strains. They want to combine genetic traits that will someday produce a sweeter, less pungent flavor of garlic. (ARS Vegetable crops Research Lab., University of Wisconsin - Madison.)

- With the help of precision laboratory instruments and the sensitive noses of volunteers, ARS chemists have pinpointed the chemicals that give peanuts their flavor. When peanuts lose flavor during processing, these flavor chemicals can be added back.

- ARS scientists have bred a new hot pepper that is 20 times hotter than the average cayenne pepper. The plant grows almost anywhere in the U.S.

- Forty per cent of the rice grown in the world is done under rainfed conditions. ARS scientists are trying to develop a drought tolerant rice variety that can be grown without flooding the field with water.

- ARS scientists developed processing methods used to correct a cloudy appearance caused by a nontoxic wax found in meadowfoam oil.

- Meadowfoam yields a biode-gradable oil that is used as an emollient to soften skin.

- A possible industrial use for Meadowfoam oil is as a biodegradable lubricant.

- ARS scientists are working on a process to show the conversion of starch to glucose. Modified rice starch can be used to reduce the incidence of nighttime hypoglycemia in diabetics, for fat-free, dairy-free yogurt, and as a food for marathon runners. (ARS Food and Feed Processing Unit, Southern Regional Research Center, New Orleans, Louisiana).

National Agricultural Library
10301 Baltimore Avenue
Beltsville, MD 20705
http://www.nal.usda.gov