

## Air Curtains Can Keep Pests Out

High-velocity air curtains may one day provide a nonchemical barrier to prevent disease-carrying or crop-infesting insects from boarding airplanes and spreading to new habitats. A pilot study sponsored by the U.S. Department of Transportation and carried out by the U.S. Department of Agriculture has shown that two vertically mounted fans located on either side of the passenger walkway exclude 99 percent of flies and mosquitoes from an aircraft's door. Flying insects cannot penetrate the barrier created by air that's moving at least 1 meter per second.

Similar air-curtain systems are already being manufactured for other purposes, such as keeping hot air from entering buildings or rooms. Next will be tests needed for approval to use air curtains to prevent unwanted spread of problem insects during interstate and international travel. *Robert K. Vander Meer, USDA-ARS Mosquito and Fly Research Unit, Gainesville, Florida; phone (352) 374-5918, e-mail bvandermeer@gainesville.usda.ufl.gov.*

## Fiber From Feathers—for Industry!

Turning chicken feathers into industrial fiber seems a little like the fabled spinning of straw into gold—but it's hardly as far-fetched. In fact, at the annual Federal Laboratory Consortium conference in Arlington, Texas, a process for turning feathers into fiber with many useful applications was voted one of the three top "World's Best Technologies 2004." Fiber filters made from chicken fibers have a very fine mesh that makes them suitable for use in small-pored air filters that can catch airborne dust particles as small as 5  $\mu\text{m}$  across. In comparison, filters made from wood pulp have mesh that captures particles that are 10 to 20  $\mu\text{m}$ .

The patented, licensed feather-fiber technology can also be used to make lightweight, sound-deadening composite

materials for use in office cubicles, cars, and sleeping compartments of tractor trailers. A large-scale production facility is being planned that will produce about 5 tons of feather fiber per hour—50 times the amount made during pilot plant production tests. *Walter F. Schmidt and Justin Barone, USDA-ARS Environmental Quality Laboratory, Beltsville, Maryland; phone (301) 504-5030, e-mail schmidtw@ba.ars.usda.gov, baronej@ba.ars.usda.gov.*

## Battering Up With Rice Flour

An ongoing search for new, rice-based products has led to flours to use in coatings for deep-fried foods. This is very good news for consumers because rice-based batters have been found to absorb about 55 percent less fat than wheat-based batters during frying and to contain 60 percent less acrylamide. A chemical found in many cooked foods, acrylamide forms in the presence of high temperatures and specific interactions between protein components and carbohydrates. Some research has shown that excessive levels of the chemical may be of some concern, but there are as yet no guidelines on safe levels.

The new, 100-percent rice batter is also gluten-free, making it especially appealing to people with celiac disease, which is characterized by sensitivity to gluten. *Frederick F. Shih, USDA-ARS Food Processing and Sensory Quality Research Unit, New Orleans, Louisiana; phone (504) 286-4354, e-mail fshih@srcc.ars.usda.gov.*

## Just What We Needed . . . a New Kind of Bacteria

While cataloging microbial species that inhabit swine manure and produce its offending odor, a team of scientists discovered a whole new genus of bacteria. They named it *Hespellia*, after Robert B. Hespell, who did pioneering

studies on the scientific description of anaerobic bacteria—those that can live without oxygen. He was interested in improving digestive processes within the rumen, the first of the four stomachs of ruminant animals, where cellulose is broken down by bacteria.

The new bacteria were found growing in a pit of pig manure. Genetic analysis showed them to be Gram-positive, rod-shaped bacteria that were named *H. stercorisuis* and *H. porcinia*. Though the two are 97 percent identical, they are different enough from other anaerobes to warrant classification as members of a new genus. *Terence R. Whitehead, USDA-ARS Fermentation Biotechnology Research Unit, Peoria, Illinois; phone (309) 681-6272, e-mail whitehtr@ncaur.usda.gov.*

## Fast-Food Fanciers Consume More Calories

A survey of more than 9,000 consumers nationwide has shown that the about 25 percent of us who eat fast foods and drink sugary, carbonated soft drinks generally consume more calories, fats, carbohydrates, added sugars, and proteins than those who don't. For the study, foods obtained from pizza and fast food places were collectively defined as "fast food."

Respondents were queried on two non-consecutive days. Those who consumed fast food on either or both days showed higher mean body mass indexes and had higher odds of being overweight than those who didn't. Longer work weeks and a doubling of the number of U.S. fast food restaurants were two reasons suggested for why more people are preparing less food at home. Researchers concluded that planning grocery shopping and weekly meals would help adults resist the fast-food decisions that appear to contribute to weight gain. *Shanthy A. Bowman, USDA-ARS Community Nutrition Research Group, Beltsville, Maryland; phone (301) 504-0619, e-mail bowmans@ba.ars.usda.gov.*