

Salmonella in Free-Range Chicken

There have been lingering questions about the effects of organic practices on the health of poultry and other livestock produced without conventional medications. So researchers decided to compare levels of *Salmonella* bacteria in organic free-range and conventionally produced birds. Organic producers often raise their chickens under free-range conditions—that is, allowed to roam outside cages or other confined areas. Free-range birds represent less than 1 percent of the billions of birds produced each year in the United States, but they generally command higher prices in the marketplace.

Salmonella contamination of food causes about 40,000 cases of foodborne illness each year, according to the Centers for Disease Control and Prevention. But since mild cases may not be diagnosed or reported, the actual number of infections may be up to 30 times greater. Of 110 processed free-range chickens from three organic producers that were tested, researchers found that about 25 percent tested positive for *Salmonella*, which is slightly higher than the rate typically found in commercial chickens. *J. Stan Bailey, USDA-ARS Richard B. Russell Research Center, Athens, Georgia; phone (706) 546-3356, e-mail jsbailey@saa.ars.usda.gov.*

Fermented Corn Stover Can Refurbish Soil

The stalks and leaves that remain after harvesting ears of corn make up what's called corn stover. It contains a material, called lignin, which is so tough it resists the action of fermentation microbes used to convert plant matter to ethanol. The undigested fibrous material remaining after fermenting alcohol from corn stover has a compostlike consistency and contains three times the nitrogen and lignin of the original cornstalks. So researchers



wondered if this residue might be safely applied to soil to increase its structural stability and organic matter content.

They applied the fermentation byproduct to two types of soil at three rates—up to the equivalent of 6 tons of stover per acre. Some test soil was high in organic matter, some was low and highly eroded, and both soil types also received chopped cornstalks for comparison. The fermentation byproduct increased the organic matter content and structural stability of the highly eroded soil. In a separate, preliminary study, results showed no harm to corn or soybeans grown in the presence of the stover fermentation byproduct. *Jane M.F. Johnson, USDA-ARS North Central Soil Conservation Research Laboratory, Morris, Minnesota; phone (320) 589-3411, e-mail jjohnson@morris.ars.usda.gov.*

Beneficial Bacteria Protect Potatoes

Spraying potatoes in commercial storage bins with harmless, beneficial bacteria that delay sprouting and suppress dry rot may also protect the tubers against late blight disease. Researchers had already patented methods for using 18 strains of *Pseudomonas* and *Enterobacter* bacteria to stymie the first two storage problems.

Now they've discovered that the spray-on bacteria also curb infection by *Phytophthora infestans*. This funguslike organism causes late blight, a worldwide threat that costs the U.S. potato industry about \$400 million annually. In warehouse-simulation studies at the University of Idaho-Kimberly, the bacteria curbed late blight by 35 to 91 percent. Next will be collaboration with a commercial firm interested in conducting further tests under a cooperative research and development agreement. *Patricia J. Watson Slininger and David A. Schisler, USDA-ARS National Center for Agricultural Utilization Research, Peoria, Illinois; [Slininger] phone (309) 681-6596, e-mail sliininpj@mail.ncaur.usda.gov; [Schisler] phone (309) 681-6284, e-mail schislda@ncaur.usda.gov.*

A Grazing Strategy for Dairy Cows

A cooperative research and demonstration program getting under way in Ohio should eventually help small dairy farmers everywhere. Researchers will test a management-intensive, or rotational, dairy grazing system. It relies on simple electric fences to create small paddocks for rotating cattle from one part of a pasture to another every day or two. By spreading out the grazing, the cattle will always be eating only the freshest growing tips of forage plants—the tastiest and most nutritious parts. This should reduce the need to feed animals in confinement and could possibly allow more cows per acre, lowering production costs.

Some scientists will check on how different forage grasses and plants hold up under intensive grazing, assess how the animals fare, and evaluate the quality of milk from grass-fed cows. Others will monitor surface runoff and groundwater quality. *Lloyd B. Owens, USDA-ARS North Appalachian Experimental Watershed, Coshocton, Ohio; phone (740) 545-6349, e-mail owens@coshocton.ars.usda.gov.*

Organic Hot Peppers for Florida Growers

Research has shown that hot peppers—an important specialty crop for many bell pepper growers—can be grown organically in north Florida. The study compared pepper yields produced with conventional fertilizer and with organic soil nutrients including poultry manure and mushroom compost. The same number of peppers was harvested from both systems, and there was no difference in insect pest numbers. It appears that hot peppers may be a good alternative crop for Florida's organic growers, because they seem to require little maintenance. *Jesusa C. Legaspi, USDA-ARS Center for Biological Control, Tallahassee, Florida; phone (850) 656-9870, e-mail jlegaspi@saa.ars.usda.gov.*