

Swine, Avian Flu Genes in Same Virus

An unknown pathogen isolated from infected pigs at two midwestern swine production facilities in 2006 has proved to be a new strain of H2 influenza virus, similar to the one that caused the 1957 flu pandemic. First identified by a University of Minnesota veterinary diagnostician, this strain proved to have a startling new twist: It contained genes of both swine and avian influenza viruses.

Molecular studies indicate that the mystery pig pathogen is actually an H2N3 influenza virus closely related to an H2N3 strain found in mallard ducks—being seen for the first time in mammals. Both swine facilities used pond water frequented by migrating waterfowl. In the newly isolated swine H2N3, the avian H2 and N3 gene segments mixed with gene segments from common swine influenza viruses, giving it the ability to infect swine—as well as mice and ferrets. This suggests the need for continued monitoring of both swine and livestock workers for H2-subtype viruses and other influenza strains. *Juergen Richt, USDA-ARS Virus and Prion Diseases of Livestock Research Unit, Ames, Iowa; phone (515) 663-7366, e-mail juergen.richt@ars.usda.gov.*

A New Way To Name Potatoes

Not only can you not tell a book by its cover, you also can't discern a potato species solely from its outer appearance. That's the conclusion of researchers who examined DNA molecular markers from 742 cultivated potato varieties and 8 wild relatives in cooperation with the International Potato Center in Lima, Peru. They've since refined the species designations by checking each potato variety for the presence of one characteristic DNA mutation that distinguishes between potatoes from the Chilean lowlands and those from the high Andes.

This new species-classification system eliminates much of the guesswork inherent in the visually dependent potato classification system. Its use dropped the number of distinct species from seven to four. One of

the four, *Solanum tuberosum*, the type of cultivated potato eaten around the world, has two to four sets of chromosomes. The less-common species—*S. ajanhuiri*, *S. juzepczukii*, and *S. curtilobum*—have two, three, and five sets of chromosomes, respectively, and can often be identified by morphological data. Potato breeders benefit from having a classification system that groups related collections by commingling modern molecular methods with traditional morphological ones. *David M. Spooner, USDA-ARS Vegetable Crops Research Unit, Madison, Wisconsin; phone (608) 890-0309, e-mail david.spooner@ars.usda.gov.*

How To Boost Cover Crop Plantings

While sowing cover crops in between cash crops is known to protect farm fields and enrich soils, many growers don't use the technique. In a survey of 3,500 Corn Belt farmers in Iowa, Illinois, Indiana, and Minnesota, only 18 percent of respondents reported ever using cover crops, though most believed that doing so would increase soil organic matter and reduce erosion. But 80 percent reported that they're using some type of conservation practice—even if they're not participating in government conservation programs.

The reasons given for not using cover crops included the costs and time required to plant and manage them, so researchers are looking for ways to minimize those factors. They're also searching for ways to offset those investments, such as by planting cover crops that enhance soil productivity in current cropping systems or using cover crops that maintain soil productivity if the crop residue is harvested for biofuel production. *Jeremy W. Singer, USDA-ARS National Soil Tilth Laboratory, Ames, Iowa; phone (515) 294-5502, e-mail jeremy.singer@ars.usda.gov.*

Minimizing Dust During Nut Harvests

When mechanical shakers are used to harvest walnuts, almonds, or pecans, leaves and twigs also fall to the ground and are swept into windrows. Pickup machines

then scoop up the windrows, and air flowing through the harvesters separates the nuts from debris, which now includes soil particles. The dirt and debris blow through a side exhaust as the nuts are conveyed into a cart pulled behind the harvester.

Concerns about airborne particulate matter and stricter air-quality regulations spurred researchers to devise an add-on device to control dust emissions from nut harvesters. Modeled after large cyclone dust collectors on cotton gin exhausts, the prototype uses centrifugal force to trap soil particles and tree debris. More work is needed to adapt its size for use in orchards having low-lying leaf canopies. A cooperative research and development agreement has been signed with Flory Industries of Salida, California, to further refine the device. *Derek P. Whitelock and others, USDA-ARS Southwestern Cotton Ginning Research Laboratory, Mesilla Park, New Mexico; phone (575) 526-6381, e-mail dwhitelo@nmsu.edu.*

Reviewing Calcium Requirements

While it's important for us to consume sufficient calcium to build and maintain strong, healthy bones, it's not easy to know what's "plenty" for each individual. In fact, research has shown that the current recommended amount—the "adequate intake," or AI—for calcium may be higher than needed for American adults aged 19 or older. For them, today's AI is 1,000 milligrams (mg) per day, and it's 1,200 mg per day for individuals aged 51 and older.

Researchers worked from data collected from 155 male and female volunteers, aged 19 to 75, who participated in closely controlled metabolic feeding studies. Modeling of that data suggests that the average amount of dietary calcium needed to maintain a neutral calcium balance—that is, when the amount of calcium consumed equals the amount lost in elimination—is about 741 mg per day. *Curtiss D. Hunt, USDA-ARS Grand Forks Human Nutrition Research Center, Grand Forks, North Dakota; phone (701) 795-8423, e-mail curtiss.hunt@ars.usda.gov.*