## Starter Diets Hike Weanlings' Health

When piglets can no longer get their mothers' milk, most swine producers feed them an expensive protein that helps relieve their stress and prevent illness. Diets of most early weaned pigs now include this protein. Researchers hope that by learning how the plasma protein works, it will be possible to make improved feed additives that are even more effective and yet less expensive.

Scientists are studying the immune systems of pigs that have been fed spray-dried plasma. They want to find cost-effective ways for swine producers to raise healthier pigs that eat heartily and quickly produce plenty of pork from each pound of feed. They have already observed that immune-challenged pigs fed the spray-dried plasmas were better able to resist infections during the week after weaning. The work has been awarded the National Pork Producers 2000 Award for Innovative Basic Research. *Jeffrey A. Carroll, USDA-ARS Animal Physiology Research Unit, Columbia, Missouri; phone (573) 882-6261, e-mail carrollja @missouri.edu.*

## Teaming With Brazil To Quell Dengue Virus

Dengue, transmitted primarily by the yellow-fever mosquito, *Aedes aegypti,* causes a severe, flulike illness. It has re-emerged around the world in recent years, reaching epidemic proportions in Brazil and other parts of the world, according to the World Health Organization. WHO estimates that there may be 50 million cases of dengue worldwide each year. The *A. aegypti* mosquito has been largely eliminated from the United States and is now confined to the southernmost areas of Florida and Texas. But dengue is endemic in more than 100 other countries.

U.S. and Brazilian government officials have pledged to conduct a joint research project to develop means to control the *A. aegypti* mosquito. Under the agreement, scientists will use a biological control agent called *Edhazarda aedis,* a microsporidium. This single-celled parasitic microorganism attacks and kills only the mosquito. In the mid-1990s, small-scale U.S. field trials using *E. aedis* were successful. Now researchers are planning small-scale trials in three areas of Brazil later this year, followed by large-scale releases of the organism to control *A. aegypti. Donald Barnard, USDA-ARS Center for Medical, Agricultural, and Veterinary Entomology, Gainesville, Florida; phone (352) 374-5930, e-mail dbarnard@gainesville.usda.ufl.edu.*

## Shellac Shines on Citrus

The shine that helps fruits glisten on the local produce stand may soon be only the most visible manifestation of a more natural way to preserve fruit—some 34 million tons of it—while on its way to market. New fruit coatings are being made from reformulated shellac and sucrose ester, a compound derived from combining sugar with a fatty acid. These biocoatings help maintain quality by promoting the growth of beneficial bacterial and yeast populations naturally present on the fruit.

Chemicals commonly used to preserve harvested fruit are relatively costly and have been found to kill beneficial microorganisms. Tests with reformulated shellac and sucrose ester show that not only do these coatings support growth of some helpful bacteria and yeasts, they also appear to prevent development of off-flavors in fruit by allowing for a better gaseous exchange of oxygen and carbon dioxide than commercial chemicals permit. *Raymond G. McGuire, USDA-ARS Subtropical Horticulture Research Station, Miami, Florida; phone (305) 254-3641, e-mail miarm@ars-grin.gov.*

## Forensic Pathologists Probe the Past for Potato Blight

To learn more about the sources of *Phytophthora infestans*—the fungus that started late blight epidemics in potato crops in Ireland in 1845—scientists have studied genetic material from more than 60 herbarium samples. They are looking at samples from Europe and North America and from sources such as the National Fungus Collections in Beltsville, Maryland.

To see what fungi might be present, the researchers developed primers using polymerase chain reaction (PCR) technology to specifically amplify DNA from plant samples. PCR can reproduce millions of copies of the unique segments of fungal DNA that occur in a plant tissue sample. It lets researchers quickly distinguish among pathogens according to the specificity of the PCR amplification. No longer do they have to isolate fungi from diseased roots or leaves and spend days culturing them for identification. Rapid DNA identification of offending microbes would quickly tip growers off to the need for control measures before fungal diseases could seriously curtail yields.

So far, 20 specimens have tested positive for *P. infestans,* including one from Ireland collected in 1846 and others from Britain collected in 1845, 1846, and 1847. Molecular studies of herbarium specimens from the past could open a new window to understanding and preventing future epidemics. *Carol L. Groves, USDA-ARS New England Plant, Soil, and Water Laboratory, Orono, Maine; phone (207) 581-3267, e-mail cgroves@maine.edu.*