

New Stars Add Color to Tradition

Tall stems of white, star-shaped, star-of-Bethlehem lilies grace many Christmas and Easter bouquets. But these flowers could soon have some colorful competition. Three new varieties of *Ornithogalum* put forth yellow, gold, and fiery orange blossoms. And the new short-stemmed Chesapeake Blaze, Sunburst, and Sunset may do better as houseplants than traditional star-of-Bethlehem. Many flower lovers know how to force bulbs to bloom indoors—out of season—by chilling them before planting. Bulbs of the new Chesapeake series don't need cold treatments. Under cool conditions, the plants flower throughout the year. The new varieties were developed by ARS and New World Plants in Escondido, California. Bay City Flower Company in Half Moon Bay, California, is the distributor. *Robert J. Griesbach, USDA-ARS*

ROBERT GRIESBACH



Chesapeake Sunset *Ornithogalum* was developed by ARS and New World Plants, a private company.

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Bacterial Recruits Might Clean Polluted Soil on Army Bases

A high-tech cousin of some natural bacteria could become a new tool for decontaminating toxic soils. In nature, *Rhizobium meliloti* bacteria live on roots, supplying nitrogen to legumes such as alfalfa. Scientists with ARS and Howard University in Washington, D.C., genetically altered the bacteria so they make enzymes that break down hydrocarbons. Hydrocarbons such as toluene in fuels, solvents, and other products, can become environmental contaminants. U.S. industries generate several hundred million tons of hazardous waste annually. But conventional soil clean-up techniques—excavating and chemically treating the soil—can be costly and impractical. Recruiting *Rhizobium* for the job is an approach called in situ, or onsite, bioremediation. In lab and greenhouse tests, a liquid solution of the genetically altered strain, *R. meliloti* RP4:TOL, secreted enzymes that degraded meta-toluate, a salt form of toluene, into benign carboxylic acids. Other institutional partners in the research include the National Institutes of Health and U.S. Army Corps of Engineers. The Corps is seeking economical, environmentally friendly ways to clean soils at military bases and other areas. *David Kuykendall, USDA-ARS Molecular Plant Pathology Laboratory, Beltsville, Maryland; phone (301) 504-5736, e-mail dkuykend@asrr.arsusda.gov.*

Dogs Play Host to Calf-Killing Parasite

Scientists have made another advance against *Neospora caninum*, a one-celled parasite that causes pregnant cows to abort. Now, a University of Wyoming-led team that included scientists at ARS and Virginia Tech has shown for the first time that dogs are a “definitive host”—meaning *Neospora* can complete its life cycle in the animals. The team drew this conclusion from experiments in which it recovered *Neospora* from lab mice inoculated with spore structures, or oocysts, from feces of 8-week old beagles. The dogs passed the oocysts after being fed tissues of a separate group of infected mice. The findings, say scientists, indicate farmers should try to keep pet dogs or strays from defecating in dairy feedlots or choice pasture. Fencing, for example, could help prevent a pregnant cow from ingesting feces-contaminated feed and transmitting the parasite to her fetus via the placenta. In California, *Neospora* is largely responsible for calf abortions costing the dairy industry \$35 million annually in losses. *Neospora* also inflicts heavy cattle losses in New Zealand, Australia, and The Netherlands. And it plagues other ruminants, such as goats, typically attacking the central nervous system. In young dogs, *Neospora* can cause death or paralysis. The recent study, funded with a grant from USDA’s National Research Initiative, was published this year in the *International Journal for Parasitology*. *N. caninum* was discovered and named in 1988 through studies led by ARS microbiologist *Jitendar P. Dubey, USDA-ARS Parasite Biology and Epidemiology Laboratory, Beltsville, Maryland; phone (301) 504-8300, e-mail jdubey@lpsi.barc.usda.gov.*