Science Update

A Detailed Database on Legumes

Worldwide, legumes are a multi-billion-dollar industry comprising food, forage, and even industrial uses. Known for their nitrogen-fixing ability, leguminous crops include beans, peas, and other edible seeds that grow enclosed in pods and yield edible oils, protein, essential amino acids, and other derivative products. The nutritional significance of legumes to humans and livestock makes them especially important, scientifically, so a comprehensive website devoted to information on legumes is under development.

The Legume Information System (LIS) is a potentially long-term project funded through the Model Plant Initiative, established by the U.S. Congress. Its purpose is to translate information and discoveries from well-studied plant species to economically critical legumes. It's a collaborative effort with the National Center for Genome Resources, an independent, nonprofit research institution based in Santa Fe, New Mexico, that develops and uses data for biological discovery. LIS will concentrate on integrating, compiling, and delivering to researchers data collected on the genetics, physiology, and biochemistry of these important plants. *Randy C. Shoemaker, USDA-ARS Corn Insects and Crop Genetics Research Laboratory, Ames, Iowa; phone (515) 294-6233, e-mail rcsshoe@iastate.edu.*

More Forage Might Be Worth Less

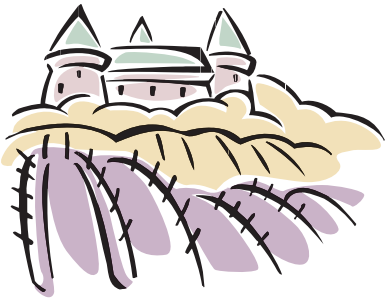
The Intergovernmental Panel on Climate Change has estimated that airborne carbon dioxide (CO_2) concentrations will double from today's levels by the end of this century. Such anticipated levels of atmospheric CO_2 are leading to much speculation about their effect on growing plants. In a 5-year study, researchers placed six open-top chambers over native semiarid grassland in northern Colorado. Half the chambers were infused with air containing the current level of about 360 parts per million (ppm) of CO_2, while the others received twice as much, or 720 ppm.

Forage quality declined in the three dominant grasses grown under elevated CO_2, largely owing to lower tissue nitrogen content. And the least desirable of these three dominant grasses, needle-and-thread grass, *Stipa comata,* significantly increased under elevated CO_2, while production of the two higher quality grasses remained unchanged. *Jack A. Morgan, USDA-ARS Rangeland Resources Research Unit, Fort Collins, Colorado; phone (970) 492-7121, e-mail jack.morgan@ars.usda.gov.*

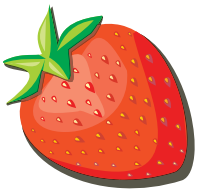
Film Traps Fumigant in the Soil

One approach to coping with loss of methyl bromide as a soil fumigant in commercial strawberry and vegetable fields is to use a special plastic covering called a "virtually impermeable film," or VIF. This material contains a central, gas-impermeable layer designed to prevent fumigants from escaping into the atmosphere. Trapped in the soil instead, they more effectively control subsurface pests and microorganisms.

Researchers have looked at VIF to see whether it could allow growers to use lower levels of fumigants that are more environmentally friendly than methyl bromide. In field trials on sandy soils with raised beds, they found that VIF can retain alternative soil fumigants at higher concentrations, and for longer periods, than the standard, high-density polyethylene film now used. Further development of the VIF film-making technology is needed to improve speed and reliability of its application onto raised beds. *Leon H. Allen, Jr., USDA-ARS Crop Genetics and Environmental Research Unit, Gainesville, Florida; phone (352) 392-8194, e-mail lhajr@mail.ifas.ufl.edu.*



New Virus in the Strawberry Patch



A virus known in Europe for more than 40 years, strawberry latent ringspot virus (SLRSV), has now been discovered in North America. Testing in 2003 showed it to be present in 17 percent of California strawberry samples and 4 percent of British Columbia strawberry samples—though in just one sample in 2004. Since the virus was also found in a variegated mint that is widely sold here, SLRSV is likely to become widespread in North America. It can infect many broadleaf crops and dramatically decrease yields.

SLRSV is reported to be spread by the nematode *Xiphinema diversicaudatum,* so researchers were surprised to find it in strawberries, a crop that's usually planted in soils that have been fumigated to control nematodes. They think the virus may have another vector transmitting it and are investigating that possibility. They also think it may have been here for many years, undetected, on the ornamental mint, which is popular for its bright-yellow, vein-banding pattern. Since many of the chemicals traditionally used to control nematodes are being disallowed because of environmental concerns, work is under way to find alternatives to curb the spread of SLRSV and other nematode-transmitted viruses. *Robert R. Martin, USDA-ARS Horticultural Crops Research Unit, Corvallis, Oregon; phone (541) 738-4041, e-mail martinrr@science.oregonstate.edu.*