

Therapeutic Berries?

Just as dark-skinned bunch grapes contain significant quantities of resveratrol, so do some berries. Studies have shown that not only does this compound protect grapes from fungal diseases, it also reduces risk of cardiovascular disease and shows anticancer activity.

Researchers took samples of blueberries, cranberries, huckleberries, and related plants representing 5 families and 10 species of *Vaccinium* fruit—along with muscadine grapes—to assay for resveratrol. Several fruit samples contained varying amounts of the compound. Concentration in the grapes was higher in the skin and seeds than in the juice or pulp. The data will be helpful in increasing resveratrol in berry and grape crops. *Agnes Rimando, USDA-ARS Natural Products Utilization Research Unit, Oxford, Mississippi; phone (662) 915-1037, e-mail arimando@asrr.arsusda.gov.*

Chemoprotectant Broccoli in the Offing?

Broccoli florets and young seedlings are rich sources of glucoraphanin and its breakdown product sulforaphane, which helps protect mammals against cancer. Sulforaphane induces mammalian detoxification enzyme activity and inhibits early tumor growth in rodent models. Little is known about variations of these two compounds in broccoli varieties.

Now USDA scientists in cooperation with the Johns Hopkins University School of Medicine, Baltimore, Maryland, have screened 71 USDA broccoli varieties and 5 commercial hybrids for glucoraphanin and their potential to induce mammalian detoxification enzymes. Using information from this work, breeders may exploit genetic variation to produce new broccoli varieties with enhanced chemoprotective response against cancer. *Mark Farnham, USDA-ARS U.S. Vegetable Laboratory, Charleston, South Carolina; phone (843) 556-0840, e-mail mfarnham@awod.com.*

APHIS, BOB RICHARD (K8836-1)



A Chinese leaf beetle, *Diorhabda elongata*.

Beetles Sock It to Saltcedar

The first biological control agents to be set loose against invasive saltcedar, *Tamarix* spp., are Chinese leaf beetles, *Diorhabda elongata*. The 10- to 30-foot trees infest over a million acres along western waterways, displacing native plants and wildlife, increasing soil salinity, diverting natural streamflow, and increasing the frequency of wildfires.

Since July 1999, caged beetles have been carefully monitored at 10 locations in 6 western states. Now, their postrelease activity will be closely followed to ensure their establishment and evaluate their impact, population growth, and safety. The researchers want to protect native species in the release areas and to facilitate revegetation with native plants.

The project operates in conjunction with more than 30 federal, state, and local agencies; universities; and private organizations. A \$3 million grant in 2000 from USDA's Initiative for Future Agriculture and Food Systems supports work on a complex of invasive weeds, including saltcedar. *C. Jack DeLoach, USDA-ARS Grassland, Soil, and Water Research Laboratory, Temple, Texas; phone (254) 770-6531, e-mail deloach@brc.tamus.edu; Raymond I. Carruthers, USDA-ARS Exotic and Invasive Weeds Research Unit, Albany, California; phone (510) 559-6127, e-mail ric@pw.usda.gov.*

Helping Plants Tell When They're Thirsty

Small, pencil-sized thermometers mounted on posts in a field can signal plant thirst. They record the temperature

and length of time that nearby plants have been too hot. That information can be transmitted by cellular telephones to a web site for farmers, homeowners, turf operators, or orchardists to use in deciding when to water their plants or lawns. Or the devices can be put on "automatic" to trigger irrigations.

Refined over 13 years, the BIOTIC—Biologically Identified Optimal Temperature Interactive Console—system capitalizes on the finding that plants grow best only within a narrow temperature range that varies by species. Now being tested on a variety of crops in several states, BIOTIC is patented and available for commercial licensing. *James R. Mahan, USDA-ARS Plant Stress and Germplasm Development Research Unit, Lubbock, Texas; phone (806) 749-5560, e-mail jmahan@lbk.ars.usda.gov.*

Elders: Eat Protein for Strong Bones

Dietary protein may be as important as ample calcium and vitamin D in maintaining strong bones in the elderly. Research with 70- to 90-year-old men and women showed that those with the highest protein intakes lost less bone over a 4-year period than those consuming half as much or less. The study used data from 615 participants in the Framingham (Massachusetts) Osteoporosis Study to examine the relationship between subjects' protein intakes and changes in bone mineral density after 4 years. Researchers accounted for all factors known to increase bone-loss risk.

Volunteers with the lowest daily protein intakes lost significantly more bone than those with the highest intakes. Animal protein, as well as overall protein intake, was associated with preserving bone. The findings confirm several other large population studies. *Katherine L. Tucker, Jean Mayer USDA Human Nutrition Research Center on Aging, Boston, Massachusetts; phone (617) 556-3351, e-mail tucker@hnrc.tufts.edu.*