

The pinewood nematode, *Bursaphelenchus xylophilus*, has been highly destructive in Japan during the past 30 years, causing wilt and death of native Japanese pines. The Japanese government recently allocated \$35 million to bring this nematode under control. The nematode was first reported in the United States in 1979 by V. H. Dropkin and A. S. Foudin, who found it in the wood of a dead Austrian pine in Columbia, MO. M. J. Wingfield and R. A. Blanchette of the University of Minnesota, T. H. Nicholls of the North Central Forest Experiment Station, and K. Robbins of the U.S. Forest Service, St. Paul, MN, support the theory that the nematode has been in the United States most of this century and may have been introduced from North America to Japan. They point out that the identical "timber nematode," *Aphelenchoides xylophilus*, was isolated in Louisiana in 1931. They submit, on the basis of a comparison of the situations in Japan and North America, that the nematode appears to present little threat to native coniferous forests of the United States and Canada but could become important with monoculture of susceptible conifers or with introduction of more effective vectors. (Can. J. For. Res. 12:71-75)

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A technique for rapid recovery of live spores of vesicular-arbuscular (VA) mycorrhizal fungi from large soil samples using inexpensive laboratory equipment is described by R. M. N. Kucey and R. G. L. McCreedy of Agriculture Canada, Lethbridge, Alberta. Soils from cultivated fields or natural grasslands were sieved (< 2 mm), mixed 1:1 (v/v) with sand, and distributed as 2.5-kg samples in pots, where the VA spores were propagated by growing spring wheat. Lima beans were grown in the same soils after harvest of the wheat for further propagation of the spores. The soils were then wet-sieved and decanted, and material passing through a 250- μ m sieve but retained on a 63- μ m sieve was floated on water to remove organic detritus. The remaining material was then floated on 50% glycerol, washed, and stored in Ringer's saline solution. This suspension containing the spores was layered over a two-layer discontinuous glycerol gradient (5 ml of 30% glycerol layered over 5 ml of 50% glycerol in a 50-ml centrifuge tube), then separated from other organic material by centrifugation (10 min at 75 \times g). The centrifugation step was repeated as necessary. The authors were able to process 180 kg of soil in 3.5 days and obtained more than 18,000 VA

spores. On the average, 84.4% of the spores were recovered. (Can. J. Microbiol. 28:363-365)

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Zoospores of *Phytophthora* spp. remain motile for much shorter times in a confined environment, such as a soil matrix, than in water in a dish because contact stimulus causes premature encystment. M. Benjamin and F. J. Newhook of the University of Auckland, New Zealand, compared periods of motility for zoospores of six *Phytophthora* spp. in water confined in an environment of glass microbeads 609-745 μ m in diameter with pore necks of 200-300 μ m. Zoospores of *P. cinnamomi* were least sensitive to collision with the beads, with 40% still motile after 4 hr, compared with 60% in water in a dish. *P. megasperma*, *P. megasperma* var. *sojae*, and *P. citricola* were most sensitive, encysting within about 30 min. Zoospores of *P. cactorum* and *P. palmivora* were moderately sensitive, encysting after about 2 and 1 hr, respectively. The authors suggest that an earlier report that zoospores of *P. megasperma* var. *sojae* encyst within 5 min because of contact stimulus does not always hold true. They conclude further that even the most sensitive species have the potential to remain active long enough in soil to be significant in dispersal in soil microenvironments. (Trans. Br. Mycol. Soc. 78:43-46)

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Should Taphrinales be classified as primitive Ascomycetes in the Endomycetes or, if related to the Sporobolomycetales, Exobasidiales, and Uredinales, in the Basidiomycetes? Transmission electron microscopic studies by J. A. von Arx of Centraalbureau voor Schimmelcultures, Baarn, Netherlands, and J. P. van der Walt and N. V. D. M. Liekenberg of the Council for Scientific and Industrial Research, Pretoria, South Africa, revealed that species of *Taphrina* and *Protomyces* have cell walls with a thick electron-transparent inner layer similar to that of *Saccharomyces* or *Hanseniaspora* and therefore are correctly classified in the Endomycetes of the Ascomycotina. Cell walls of *Microstroma* and *Exobasidium* are electron-opaque and often multilayered; members of this group show budding similar to the Sporobolomycetales and Ustilaginales and therefore are correctly classified in the Basidiomycotina. Members of *Kabatiella* and *Aureobasidium* have ascomycete-like cell walls. (Mycologia 74:285-296)

Shade tobacco is a specialty crop grown beneath a tent of loosely woven cloth that decreases sunlight and wind and increases relative humidity. In Connecticut, growers elevate the end walls above the soil surface or crop canopy to help dry the leaves and slow the spread of *Peronospora tabacina*, the cause of blue mold. D. E. Aylor and G. S. Taylor of the Connecticut Agricultural Experiment Station, New Haven, measured wind speed outside and at different distances into a 40 \times 50 m tent with and without the 40-m end walls raised. Wind speed inside the tent was greater with the walls up than down and, with the walls up, greater with no crop than with a crop 1 m tall. Calculations of spore transport indicated that with the walls up, spores would remain airborne farther into the tent because of the wind speed, would be deposited at greater distances into the tent from an inoculum source near the edge, and would have a greater tendency to escape through the top of the tent, depending on the height of the crop. Raising the walls did not appreciably increase drying or reduce spore germination. The authors conclude that raising the end walls may favor rather than limit a blue mold epidemic. (Proc. Nat. Acad. Sci. 79:697-700)

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Development of soybean cultivars with resistance to the soybean cyst nematode (SCN), *Heterodera glycines*, has been a difficult and ongoing task owing to the tendency of the resistant cultivars to select for pathogenic races of the pathogen. J. McCann, V. D. Luedders, and V. H. Dropkin of the University of Missouri, Columbia, compared the selection and reproduction of SCN on seven resistant lines (R-lines). Six of the R-lines were grown in naturally infested soil from a Missouri field, and the few cysts in the roots of each line were then maintained on that R-line for 2 yr in crocks of steamed soil. The seventh population was selected on the resistant Pickett and maintained on Pickett 71 by A. C. Triantaphyllou of North Carolina State University, Raleigh. Populations of SCN able to multiply on each of the six R-lines were selected from a single soil sample. Pickett 71 was fully susceptible to all six populations from the Missouri soil, and the Pickett 71 population did not multiply on the other six R-lines. The population selected by R-line PI 89772 multiplied on this R-line but not on the five other R-lines. The authors conclude that these five R-lines have some genes for resistance in common but differ from Pickett and PI 89772. (Crop Sci. 22:78-80)