

# Fall-Seeding Alfalfa Can Be Risky Business

**A**s many southeastern and south-central growers have come to know, establishing a fall stand of alfalfa can be a major headache when the fungus *Sclerotinia trifoliorum* lurks in soils.

In the cooler, moist conditions that follow summer's heat, this fungus can devastate a new alfalfa stand by causing rots that kill seedlings before they mature.

A legume that fixes its own nitrogen, alfalfa is grown as a high-protein hay and forage crop for livestock. But in such south-central states as Kentucky and Missouri, the very threat of a *Sclerotinia* outbreak can discourage growers from even attempting a fall seeding.

"There are plenty of growers who've successfully done it," notes plant pathologist Paul Vincelli, of the University of Kentucky in Lexington. "But by the same token," he adds, "there are also a lot of growers who say they'll never try it again."

Currently, no commercial alfalfa cultivars possess resistance adequate to withstand a full-blown *Sclerotinia* assault, Vincelli says. But he and other researchers who study the disease are keeping close tabs on new alfalfa germplasm called Mississippi *Sclerotinia*-Resistant, or MSR.

The first of its kind, this resistant germplasm could supply valuable "genetic ammo" for breeding new commercial cultivars.

"MSR has a higher level of resistance than any of the 26 commercial cultivars we've compared it with so far," says ARS plant patholo-

gist Robert Pratt in discussing lab and field studies made since 1991. "My hope is that the germplasm will serve as a resistant standard, or benchmark."

Pratt, along with plant breeder Dennis Rowe and lab technician Mark Stokes of ARS' Forage Research Unit at Mississippi State, Mississippi, produced the MSR germplasm. Earlier efforts to devise screening techniques for identifying *Sclerotinia* resistance in alfalfa and other legumes led to the team's development of MSR, says Pratt.

After searching among nearly 2,000 individual plants of the commercial cultivar Delta, the researchers propagated the most promising

collected from diseased plants in Wisconsin, Ohio, Pennsylvania, Louisiana, and Georgia. However, Pratt cautions, a truer measure of its fungal resistance will come with field tests in those states.

One researcher interested in the ARS germplasm is extension plant pathologist Erik Stromberg, who is at the Virginia Polytechnic Institute in Blacksburg. He hopes to test MSR against *Sclerotinia* in Virginia's western and Piedmont regions.

About 100,000 acres of alfalfa are grown there—much of it in old fescue pasture that can harbor the fungus. Combined with other preventive tactics, says Stromberg, planting resistant cultivars "would take much of the risk out of getting the alfalfa established."

Ohio State University plant pathologist Landon Rhodes also points out potential benefits to growers in northeastern and southern Ohio—areas where hilly terrain characterizes much of the alfalfa acreage. In such regions, farmers practice no-till to protect soils from eroding.

However, says Rhodes, leaving the soil unturned can promote fungal infection of alfalfa stands—especially in the fall.—By **Jan Suszkiw**, ARS.

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Biological technician Mark Stokes and Mississippi State University student Rhonda Hill count alfalfa plants that have survived inoculation with *Sclerotinia trifoliorum*. Newly developed MSR alfalfa germplasm resists this fungus.

candidates. They then crossed and screened the plants several times over, using new techniques, to strengthen the resistance trait in the MSR progeny.

MSR has so far withstood lab inoculations of *Sclerotinia* strains