



Black fungal bodies (sclerotia) on infected peanut stems under field conditions.

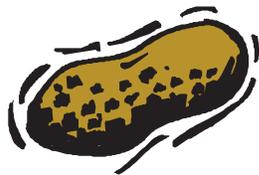
Working for (Better) Peanuts

New Cultivars Resist Disease and Spoilage

For a quarter century, scientists at ARS' Wheat, Peanut, and Other Field Crops Research Unit in Stillwater, Oklahoma, have worked to improve disease resistance and oil quality in peanuts.

The researchers, working in cooperation with Oklahoma State and Texas A&M universities, used traditional breeding technology to develop and release three peanut cultivars that resist *Sclerotinia* blight, a disease that causes stem and peg rot.

Recently, two more peanut cultivars have been developed that have caused a stir at the Oklahoma unit, which is part of the ARS Plant Science and Water Conservation Research Laboratory. That's because they're the first to possess both resistance to *Sclerotinia* blight and a better-quality oil with high oleic acid content.



Studies have shown that yield losses due to *Sclerotinia* blight range from 7 to 80 percent.

Plant pathologist Hassan Melouk, who leads peanut research at Stillwater, says the two new cultivars are Olin, a Spanish variety, and Tamrun OL 01, a runner type. He says the new varieties will have the greatest benefit in states such as Oklahoma and Texas, where most of the peanuts grown are runner and Spanish types.

"These new cultivars will increase the cash flow to peanut producers in those states by lowering production costs and reducing reliance on fungicide use," says Melouk.

"Peanut cultivars with high oleic acid ratios will have a long shelf life, as well as health benefits for consumers," he says. "These lines are estimated to potentially enhance the income of peanut growers in the Southwest by at least \$10 million annually."

Oleic acid is a monounsaturated fatty acid credited

with benefiting the cardiovascular system. It also helps retard oil spoilage and reduce off-flavor in stored peanut products.

Sclerotinia blight, which is caused by the *S. minor* fungus, was first found on U.S. peanuts in 1971, in Virginia. It has since been found in North Carolina, Oklahoma, and Texas. It has thrived in Oklahoma and Texas because of increased planting of runner cultivars that are susceptible to it.

The fungus forms seedlike structures and attacks plants near the soil line, spreading rapidly across the peanut canopy. It survives winter in the soil and attacks again, even if other crops are rotated between peanut plantings.

Studies at Oklahoma State University have shown that yield losses due to *Sclerotinia* blight range from 7 to 80 percent. Before the release of the new cultivars, the only way of fighting the blight was to use chemical-based fungicides such as Rovral and fluazinam, which Melouk says are expensive and increase production costs.

"Farmers could save \$125 to \$135 an acre from not having to apply chemicals," says Melouk. "In Texas and Oklahoma alone, that's a potential savings of almost \$10 million."

The two new peanut cultivars will be jointly released soon, and seed should be available to farmers from seed dealers this year.

Meanwhile, research continues. Melouk says he and a colleague, biologist Kelly Chenault, will explore creating still more new peanut varieties through various means.—By **Luis Pons**, ARS.

This research is part of Plant Diseases, an ARS National Program (#303) described on the World Wide Web at www.nps.ars.usda.gov.

Hassan A. Melouk is in the USDA-ARS Wheat, Peanut, and Other Field Crops Research Unit, 1301 North Western Rd., Stillwater, OK 74075-2714; phone (405) 744-9957, fax (405) 744-7373, e-mail hassan@okstate.edu. ★