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Silent thief steals cotton patch profits

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LUBBOCK – Texas AgriLife Research cotton experts working in the “world’s biggest cotton patch” have a silent thief under surveillance who often makes off with a quarter of the southern High Plains cotton crop annually – and like any successful theft, its done without most of the victims even knowing it.

No, it’s not some widespread scam or even drought or hail. It’s the root-knot nematode, a tiny worm-like creature that causes plants to form large galls on their roots.

Dr. Terry Wheeler, AgriLife Research plant pathologist at Lubbock, said the galls are metabolic workhorses that channel the nutrients needed for cotton production from the plant to the nematodes.

“About 40 percent of our region’s irrigated acres, mainly in the sandier areas, are infested with root-knot nematode,” Wheeler said. “If nothing is done to control the pest, then on average 26 percent of the yield on these acres are lost.”

Wheeler said because growers often attribute a poor stand of cotton to dry weather or other environmental conditions, nothing is done simply because growers don’t know nematodes are the problem.

Dr. Jane Dever, AgriLife Research cotton breeder at Lubbock, said nematode-resistant cotton varieties that are traditionally available can mean fewer nematode numbers in the soil but often don’t yield more cotton.

But help is on the way.

Dever said AgriLife Research cotton breeding programs in Lubbock and College Station are working together to develop higher yielding cottons that are resistant to root-knot nematode.

“Here at Lubbock, we’ve been making crosses with more primitive root-knot nematode-resistant strains of cotton since 1995,” she said. “An excellent combination from these crosses that’s been tested in variety trials for several years has resulted in good nematode resistance and a higher yield, but unfortunately, the fiber quality has been poor. So now we’ve added fiber quality to the mix.

“Combining Dr. Wheeler’s nematode tough genetics with our pedigreed breeding program is helping us develop lines that can readily be used by commercial seed developers,” Dever said. “These should perform well not only under nematode pressure, but also across our whole growing region.”

Dever said the Lubbock research program works with cotton seed companies to assist them in developing nematode-resistant and tolerant varieties.

She said the College Station team includes Dr. Jim Starr, professor of plant pathology and microbiology, and Dr. Wayne Smith, cotton breeder with the department of soil and crop sciences. Their program concentrates on finding and developing new sources of nematode-resistant cotton strains found mainly in Mexico’s Yucatan region.

“Between the exciting work with new sources of nematode resistance coming out of College Station and our ability to test and select superior cotton strains here at Lubbock, southern High Plains cotton growers should soon be enjoying greatly improved cotton yields; free from an insidious pest that has robbed them of profits for years,” Wheeler said.