THE SAMUEL ROBERTS NOBLE FOUNDATION

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Cotton root rot inhibits alfalfa stand longevity

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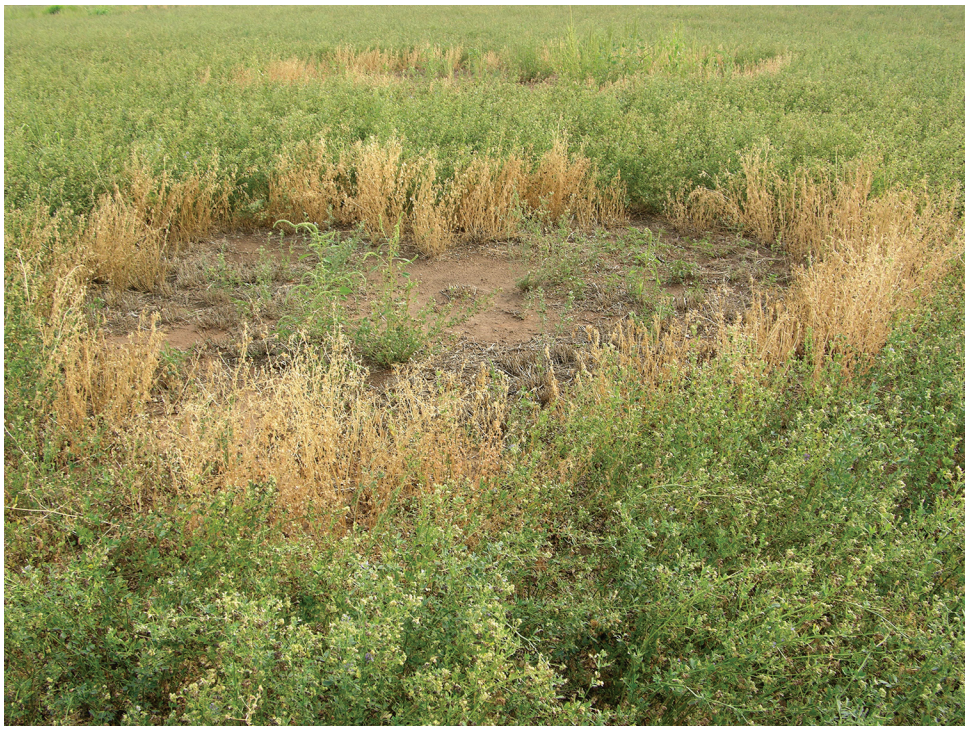
Alfalfa is considered one of the world's most important forage crops because of its high nutritive value and ease of incorporation into year-round grazing systems. Unfortunately, alfalfa stands within the Southern Great Plains are often infested with cotton root rot (CRR), causing heavily affected fields to be taken out of production within two to three years. This makes alfalfa production economically unfeasible in parts of southern Oklahoma and much of Texas.

In addition to alfalfa, CRR causes significant economic losses in numerous broadleaf crops, such as cotton, pecans, peanuts, fruit trees and vegetable crops grown in Oklahoma, Texas, New Mexico and Arizona. The causal agent of this devastating disease is a persistent soil-borne fungus known as *Phymatotrichopsis omnivora*. This pathogen was first documented in the late 1800s and still plagues production of these valuable crops.

Many alfalfa producers will be familiar with the telltale signs of CRR. During mid to late summer, affected plants will rapidly wilt, turn brown and die. These dead plants are easy to see at the leading edge of the disease foci or "fairy rings." Infected roots eventually collapse and rot just below the plant crown, and the plant is then lost from the stand. Sclerotia, the pathogen's resting bodies, can be long-lived (five to 10 years, or more) in the field and are considered the primary inoculum for disease, although mycelial cords can overwinter on roots of perennial hosts such as alfalfa. As the infection spreads, the fairy rings will expand and merge, killing much of the alfalfa stand.

Until recently, control measures have been ineffective or unavailable, and chemical fumigation methods are not cost-effective. Furthermore, no genetic resistance has been reported in any of the susceptible field crops. However, recently the Environmental Protection Agency (EPA) approved the use of the fungicide flutriafol, marketed by Cheminova, Inc., as TOPGUARD™, for emergency use on cotton to control CRR disease. Since cotton is an annual crop, flutriafol can be applied in the furrow during planting where it will persist in the soil and help protect the plant from the disease later in the growing



season. Unfortunately, use of flutriafol is unlikely to eradicate CRR as the fungus can persist deep in the soil as sclerotia. For once, however, success has been seen in controlling CRR disease.

Unfortunately, before this fungicide can be made available for alfalfa, we need to understand how to effectively use it for alfalfa. Dr. Todd Baughmann, Oklahoma State University, has established trials at the Noble Foundation Red River property in collaboration with researchers from The Samuel Roberts Noble Foundation to evaluate flutriafol for use on alfalfa. As a perennial crop, alfalfa stands should last up to five years, so we need to consider how and when to most effectively apply this fungicide, and the most economical and efficacious application rates. Over the next few years, we hope to establish a number of alfalfa flutriafol trials so we can determine the best methods for producers to combat CRR disease.

We are interested in hearing from producers who have experienced problems producing alfalfa due to cotton root rot, either currently or in the past. Please answer a few questions at the following link: http://bit.ly/cotton-root-rot ■