Management of Root-knot Nematode with novel chemistry

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1. Abstract

Management of cotton root-knot nematode (Meloidogyne incognita) is essential in those areas that produce cotton on sandy to sandy-loam soils. The primary management approach to root-knot nematode involves cultural approaches including crop rotation and use of a resistant variety in Acala production. Chemical approaches are limited but new products are becoming available. These products require evaluation under the controlled conditions that Shafter Research and Extension Center offers.

2. Justification and Problem Statement

Cotton root-knot nematode (Meloidogyne incognita) continues to be key soil pest on SJV cotton. Cotton is most susceptible during the early stages of development when the pest invades the developing root system causing a reduction in tap root and main lateral roots. This damaged root system compromises the plant's ability to take-up water and nutrients leading to reduced yield potential. In recent years, new pest control products have become available. This trial will evaluate novel chemistries or application methods for protecting seedling cotton against root-knot nematode invasion. SREC is an ideal location because of the presence of the pest, soil type, control of production and willingness to accept high levels of damage

3. Previous Work and Present Outlook

Management of cotton root-knot nematode (Meloidogyne incognita) is essential in those areas that produce cotton on sandy to sandy-loam soils. The primary management approach to root-knot nematode involves cultural approaches including crop rotation and use of a resistant variety in Acala production. Crop rotation is a proven approach but is not available to all growers. Some fields develop economically important root-knot populations within a year of returning to cotton. Some growers do not have the ability to rotate out of cotton or are not setup for alfalfa or dry bean production. Pima producers do not have access to resistant varieties and Acala growers are not eager to use a resistant variety that does not have the yield and quality attributes that the current market demands.

Currently registered nematicides include Temik© and Telone© Temik is used at-planting to protect the developing seedling root system. Yield results have been demonstrated under low to moderate populations. At higher populations, the protection is insufficient. Telone II is also registered and is very effective at reducing nematode populations. However, the cost is prohibitive and the allowable useage within a township limit its usefulness.

New products that could be cost effective are becoming available. In 2003, a new product from Syngenta was evaluated at SREC. Cal Agri products has a product that has been evaluated in Louisiana with promising results for nematode control. This trial will evaluate this product and contrast its efficacy against several standards.

4. Objectives:

Contrast alternative nematode control product, Cal Agri 50 , on yield, root damage, and final nematode population to Temik and untreated check.