EFFECT OF MOWING COTTON STALKS AND PREVENTING PLANT RE-GROWTH ON POST-HARVEST REPRODUCTION OF *MELOIDOGYNE INCOGNITA*

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Abstract

The southern root-knot nematode (*Meloidogyne incognita*) is a major parasite of cotton in the US. The population of *Meloidogyne incognita* builds up very fast as long as the temperature is above 10 degrees centigrade, and there is a living host. After cotton is harvested, cotton stalks are usually not mowed until 6 to 8 weeks later, sometimes even months later. During this period of time, nematode population may continue to increase, which may potentially threaten next year's crop. Management tactics for this nematode attempt to minimize population levels. Three post-harvest practices were compared for their ability to reduce the post-harvest nematode reproduction in the field, which should reduce the initial nematode population for the next year's crop. The three practices tested were 1) chemical defoliation before harvest plus cutting cotton stalks one week later 2) chemical defoliation plus applying a systemic herbicide to kill plant prior to cutting the stalks, and 3) chemical defoliation but not cutting stalks. Tests were conducted in both the greenhouse and in the field. The greenhouse experiment showed that without cutting stalks or herbicide application after defoliation, root-knot nematode reproduction reflected as egg counts and gall rating index was significantly higher than the other treatments. Cutting stalks plus applying herbicide to kill cotton roots did not make a significant difference in nematode reproduction compared to cutting stalks with no herbicide application. In field trials, there were no detectable differences among treatments. However, a greenhouse bioassay which used soil from the field plots had similar result to the greenhouse tests. This may because for the field tests, root galling is accumulated through out the entire growing season, compare to which post-harvest is only a short time period. The pre-existing galling may have made it difficult to detect the difference among the post-harvest treatments. Therefore, cutting cotton stalks immediately after harvest is an effective practice to reduce *Meloidogyne incognita* reproduction post harvest. By implementing such practice, a reduced initial *M. incognita* population density in the following year can be expected.