

P-14

The changing dynamics of plant-parasitic nematodes in the South and increased prevalence/importance of reniform (*Rotylenchulus reniformis*)

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There have been major changes in nematodes impacting soybean during the past 40 years in the South. Soybean cyst (*Heterodera glycines*) and southern root-knot (*Meloidogyne incognita*) were the dominant nematodes in 1976 causing losses of 8.5% to the soybean crop in the 16 southern states. In 2016, the loss from these two nematodes was estimated at only 2.2%. The adoption of crop rotation and use of resistant cultivars by our producers have contributed to these declining loss estimates. Soybean cyst nematode has also declined in the many southern states irrespective of any management strategy, likely by biological pathogens of the nematode. During this same 40 year period, the reniform nematode (*Rotylenchulus reniformis*) has begun to emerge as a serious pathogen in a number of states such as Louisiana, Mississippi, South Carolina, Alabama, and Georgia. The losses to soybean from the reniform nematode in these five states averaged approximately 1% or 3.4 million bushels in 2016. There are only a few cultivars with resistance to the reniform nematode which was derived from Peking or PI 90763 and primarily released for use against the resistance-breaking populations of soybean cyst nematode. Although most cultivars are good hosts for reniform nematode, studies have found that the reproduction by the nematode varies considerably ranging from 2-268 times the initial inoculum on cultivars rated as moderately resistant to very susceptible. Intraspecific variability in reproduction and pathogenicity in reniform nematode strongly suggests the potential for adaptation to these different sources of resistance comparable to what has occurred with soybean cyst nematode. Reniform nematode has the potential to continue spreading throughout the South, capitalizing on its survival strategies and fecundity to infest new areas. The inherent variability on soybean of unique geographic populations of this nematode will certainly complicate management strategies in the future.