PLANT DISEASE MANAGEMENT IN SOUTH DAKOTA

Soybean Cyst Nematode

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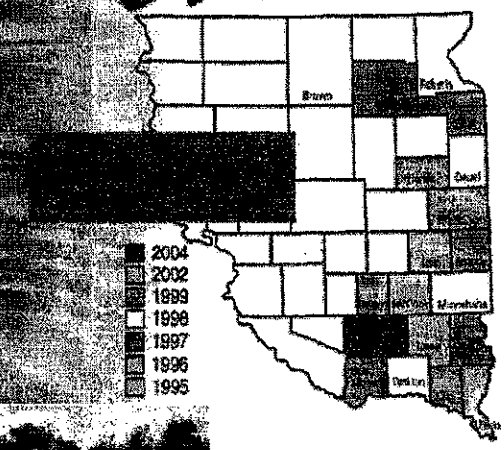

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History and Importance of SCN

The soybean cyst nematode (SCN), *Heterodera glycines*, is a serious threat to South Dakota soybean production. It was reported from Japan more than 75 years ago and was first found in the United States in North Carolina in 1954. Currently in North America, SCN occurs in 28 states and one Canadian province. **SCN is the most damaging pest of soybeans in the U.S. Losses from SCN in the U.S. have been estimated at $1 billion annually.** In South Dakota, SCN was first detected in Union County in 1995 and is currently found in 19 counties (Fig 1). While it has not yet been found in all soybean-producing counties, soybean cyst nematodes are hardy and are likely to survive anywhere soybeans are produced in South Dakota.

Injury Symptoms

Very low populations of this nematode do not cause obvious symptoms. In a corn-soybean rotation, it may take 8-12 years for SCN population densities to increase to damaging levels. Continuous cropping of soybeans or rotating soybeans with another susceptible crop such as dry beans will dramatically shorten this time interval. Detection of SCN may be difficult because it can reduce yields by as much as 30% with no obvious symptoms. One indication that SCN may be present is declining soybean yields in portions or all of a field. Symptoms of SCN often include stunting (Fig 2, 3 and 4). The stunting may be fairly general across the field, but it is more often expressed as a roller-coaster effect (Fig 4). Additionally, fields infested with SCN often have areas where the plants are slow to close the rows. Infected plants may become yellow in July or August, and they may have reduced vigor or mature earlier than those in surrounding areas of the field.

Biology of SCN

Nematodes are unsegmented roundworms. Most plant parasitic types are very small and feed on or in roots by means of a stylet (Fig 6 inset), a hollow, needle-like structure used to pierce plant cells and withdraw nutrients. The adult females of SCN are about 1/32 of an inch long and are visible to the unaided eye (Fig 11). Various stages in the life cycle of SCN are shown in Figures 6-10. Under favorable conditions, the life cycle can be completed in 4-5 weeks.