3. How does SCN affect soybean?

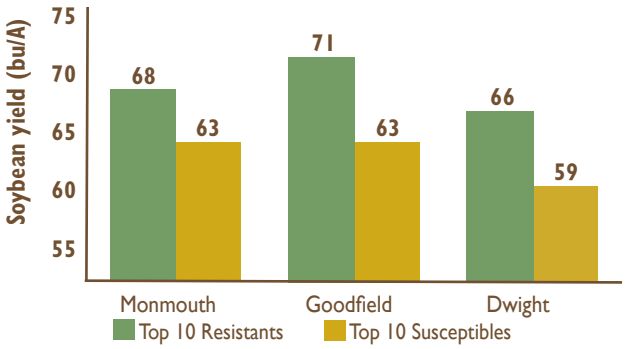
SCN cannot reproduce without a host plant. Conditions that favor soybean plant growth are favorable for SCN development.

The effect of SCN on soybean growth and yield involves several mechanisms, all of which are directly related to the numbers of nematodes feeding on the root system: plant nutrients are removed, nutrient and water uptake in the roots are disrupted, and root growth is retarded. SCN infection may also reduce the number of nodules formed by the beneficial nitrogen-fixing bacteria that are necessary for optimum soybean growth [below].

Plants infected with high numbers of SCN have poorly developed root systems that cannot utilize nutrients and water efficiently. The result may be stunted plants with chlorotic (yellow) foliage. More frequently, however, no obvious symptoms are produced. This is especially true for production fields from Kentucky northwards. In fact, scientists throughout this region have observed many research trials in which resistant and susceptible soybean varieties show no consistent differences in plant growth; in other words, they could not be distinguished visually [center right]. On the other hand, the yields of resistant varieties were consistently higher than those of the susceptible varieties, as in the example [lower left]. With or without visible symptoms, seed yields are low because fewer pods develop on infected plants. SCN infections by themselves do not reduce seed size, number of seed per pod or seed quality.

SCN-infected roots on right are stunted, discolored, and have fewer nitrogen-fixing nodules than noninfected roots on left.

Variety Trial
A soybean variety trial planted with SCN-resistant and susceptible varieties, in a field infested with 10,000 SCN eggs/100 cc soil, high enough to reduce yields by 50 percent or more. There is no visual evidence of the stunning yield loss suffered by the susceptible varieties. *(T. Jackson, University of Nebraska)*



Yield Trial Results
The bars in this graph show "Top 10" comparisons: yields of the 10 highest-yielding SCN-resistant varieties compared with the 10 highest-yielding susceptible varieties in three central Illinois locations in 2006 variety trials. All three locations were infested with moderate SCN population levels.