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Abstract
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Symptoms of SCN Damage Apparent Early, Yield Loss Likely Great in 2012

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As if the direct effects of Iowa’s hot, dry growing season on crops were not damaging enough, the soybean cyst nematode (SCN) probably will be more damaging this year than in the past two decades due to the lingering drought conditions.

Symptoms of damage appearing sooner in 2012

Damage from SCN does not always cause aboveground symptoms, especially in years with adequate to excess moisture. But when symptoms occur, they usually appear in mid to late July (see 2011 ICM News article here). This season, stunting and yellowing of soybean foliage caused by SCN feeding has been apparent throughout the state since late June, which is much earlier than usual.

Symptoms of SCN damage can be relatively mild when SCN population densities, or numbers, are low (Figure 1). But stunting and foliar yellowing can be severe in very dry soils and when SCN population densities are high (Figure 2). The earlier those symptoms appear in the growing season and the more severe they become, the greater the yield loss that occurs with SCN.

Figure 1. Mild yellowing and stunting of plants caused by SCN.
Yield loss with SCN-resistant soybean varieties in 2012

Soybean yield losses from SCN have been minimized over the past 20 years through use of resistant soybean varieties. Good SCN-resistant soybean varieties keep nematode reproduction in check and produce profitable yields in fields infested with the nematode, at least under most conditions.

Almost all SCN-resistant soybean varieties available for the Midwest have resistance genes from a breeding line called PI 88788. Because of repeated exposure to the same type of resistance, many of the SCN populations in Iowa fields have increased reproduction on varieties with PI 88788 SCN resistance genes.

SCN populations with elevated reproduction on PI 88788 resistance were first noticed in Iowa seven or eight years ago. But to date, the increased SCN reproduction has not severely reduced yields of resistant varieties or caused large increases in SCN population densities in Iowa.

Unfortunately, greater yield loss and larger increases in SCN population densities on SCN-resistant soybean varieties are possible for 2012 because root stunting from SCN feeding makes plants even more drought stressed and also, there seems to be greater reproduction of the nematode in dry soils (as discussed in an ICM News article earlier this year).

Management of SCN requires persistence

Successfully managing SCN is not an achievement to be accomplished in one growing season; it is a continual process. To ensure profitable soybean production in SCN-infested fields long-term, a sustained, integrated approach is necessary.

Every field in Iowa in which soybeans will be grown should be checked for SCN. This can be done by checking roots for SCN females (see ICM News article here) or by collecting soil samples to test for SCN (see ICM News article here).

Fields that are known to be infested with SCN and have had resistant soybean varieties grown should be sampled periodically to assess SCN population densities. Knowing if SCN population densities are decreasing, increasing or staying the same in a field over a period of six years or so will indicate how aggressive of an approach to management is needed to maintain profitable soybean production in the field in the future.
Growing nonhost corn in alternating years with SCN-resistant soybean varieties is key to keeping SCN numbers from increasing. Growing varieties with various sources of SCN resistance, if possible, reduces the selection of SCN populations with increased reproduction on the very common PI 88788 source of resistance. Finally, there are new nematode-protectant seed treatments that can be used in conjunction with SCN-resistant soybeans for added defense against the nematode.

More information about the biology and management of SCN can be found at www.soybean cyst.info and the Plant Health Initiative’s website.

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