



THE HG TYPE TEST

A greenhouse test, called the HG type test, can be conducted to determine how well an SCN population can reproduce on SCN resistance sources.

WHO NEEDS AN HG TYPE TEST?

The HG type test is a simplified replacement for the SCN race system. To determine the HG type of an SCN population, a greenhouse test must be performed on the nematode population from soil collected from an infested field.

Results of the HG type test indicate how well an SCN population can reproduce on the different sources of SCN resistance, such as PI 88788, used in soybean varieties.

Who needs an HG Type Test?

Soybean growers who have experienced sub-par yields from SCN-resistant soybean varieties in SCN-infested fields should consider having an HG type test performed. If numerous SCN females are observed on roots of resistant soybeans during the growing season, an HG type test might be warranted. It also might be worthwhile to conduct an HG type

An HG type test might be needed if performance of SCN-resistant varieties decreases noticeably.

test on SCN populations from SCN-infested fields in which resistant soybean varieties were grown numerous times in the past.

Collecting a sample for HG type testing

As a general rule, collect at least two gallons of soil from an SCN-infested field for an HG type test. The soil must be from all areas of the field in order for the test results to be meaningful. Soil should be collected to a depth of eight inches from 40 or more spots in a field.

Getting an HG type test performed

The Iowa State University Plant and Insect Diagnostic Clinic conducts HG type tests. Mail or deliver a two-gallon soil sample in a sealed plastic bag or bucket to:

Plant and Insect Diagnostic Clinic
327 Bessey Hall, Iowa State University
Ames, IA 50011

It will take at least six to eight weeks for results depending on time of the year in which the test was requested. Call the Iowa State University Plant and Insect Diagnostic Clinic at 515-294-0581 for current charges.

CONDUCTING THE HG TYPE TEST

It's not just about HG type

Results of HG type tests of SCN populations from throughout Iowa reveal that many populations can reproduce at levels greater than 10 percent on PI 88788, the source of resistance used in almost all commercial SCN-resistant varieties.

However, many SCN-resistant varieties with PI 88788 resistance can yield very well in fields infested with SCN populations that have greater than 10 percent reproduction on PI 88788.

Conducting the SCN HG type test

To determine the HG type of an SCN population, SCN eggs are extracted from a two-gallon soil sample collected from a field. The nematode population is then grown on soybean lines called HG type indicator lines under controlled greenhouse conditions. The HG type indicator lines are the soybean breeding lines that are the sources of SCN resistance in soybean varieties (Page 54).

After 30 days (enough time for SCN females to develop), the numbers of SCN females



Soybean seedlings of HG type indicator lines growing in a temperature-controlled water bath in the greenhouse.

on roots of several replicate plants of the various HG type indicator lines are counted, averaged, and then compared to the number of females that form on a standard susceptible soybean variety.



Adult SCN females recovered from roots in an HG type test.

The HG type indicator lines on which there was 10 percent or more of the number of females that developed on the susceptible variety are noted, and

the index numbers of the indicator lines with 10 percent or greater SCN reproduction comprise the HG type designation.

HG type index number	HG type indicator line
1	PI 548402 (Peking)
2	PI 88788
3	PI 90763
4	PI 437654
5	PI 209332
6	PI 89772
7	PI 548316 (Cloud)

An SCN population of HG type 1.3 indicates that the nematode population had 10 percent or more reproduction on Peking (indicator line #1) and PI 90763 (indicator line #3). So, if possible, SCN-resistant soybean varieties with resistance from Peking or PI 90763 should not be grown in a field infested with an HG type 1.3 SCN population.

The HG type is 0 if there is not 10 percent or more SCN reproduction on roots of any of the HG type indicator lines.