

Distribution, Levels, and HG Types of SCN Populations in Missouri

2018

Background

- Soybean cyst nematode (SCN) continues to spread throughout soybean-producing regions of the United States.
- Heavy reliance on soybean varieties with SCN resistance from the plant introduction (PI) 88788 is driving changes in the approach to SCN management in Missouri.
- Further exacerbating this problem is the increasing prevalence of virulent SCN populations that are able to reproduce on soybean varieties with PI 88788 resistance, thereby reducing its effectiveness.

Objectives

- A survey was conducted of grower-submitted soil samples from across Missouri to evaluate the distribution, levels, and HG types of SCN.
- Objectives of this study were to:
 - Increase awareness among farmers of the presence and level of SCN within their fields.
 - Confirm the existence of virulent SCN populations in grower fields and the need for alternative SCN management strategies.

Study Description

- Soil samples were solicited from Missouri growers.
- 293 soil samples were received from different Missouri fields in 2016.
- Cysts were extracted from each sample and a SCN egg count was determined for each sample.
- HG type tests were conducted for 28 SCN populations representing different regions of Missouri.

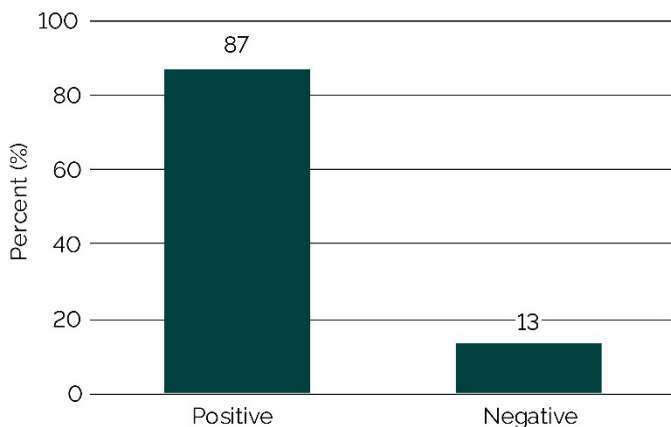


Figure 1. Percentage of soil samples that tested positive for SCN.

Results

- This study determined that 87% of soil samples tested were positive for SCN (Figure 1).
- Samples from 293 fields evaluated showed that 74% of samples had egg counts > 500 eggs/250cc (Figure 2).
- All of the SCN populations evaluated for HG type showed reproduction on PI 88788 (HG type 2). Some populations (43%) showed reproduction on both Peking and PI 88788 (HG type 1.2) (Figure 3).
- 68% of SCN populations had a female index (FI) > 50% on PI 88788 (Table 1).

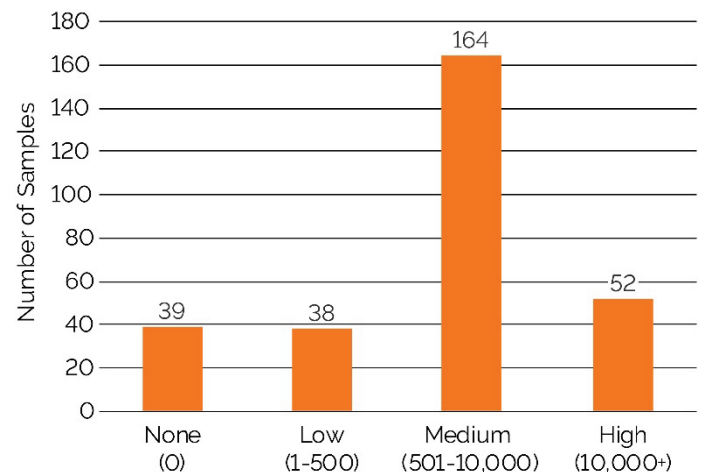


Figure 2. Number of soil samples at the various SCN egg count threshold values (250cc).

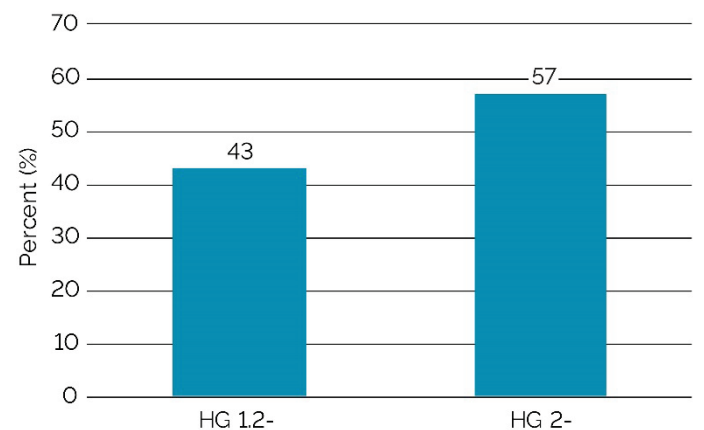


Figure 3. HG types of SCN populations (n=28).

Results (Continued)

Table 1. HG type test results of SCN populations.

Region	County	Egg Count (250 cc)	Avg # Cysts Lee74	Female Index (%)					HG Type	Race
				(1) PI 548402	(2) PI 88788	(3) PI 90763	(4) PI 437654	Pickett		
C	Boone	4,500	280	0	39	0	0	0	2-	1
C	Calloway	750	140	1	49	0	0	1	2-	1
C	Howard	11,625	136	13	80	0	0	46	1.2-	2
C	Pettis	750	184	21	52	1	0	67	1.2-	2
EC	Franklin	7,125	154	9	93	0	0	21	2-	5
EC	Lincoln	25,500	192	28	69	0	0	59	1.2-	2
EC	Montgomery	938	62	2	36	0	0	4	2-	1
EC	St. Charles	17,625	243	1	59	0	0	5	2-	1
NC	Chariton	750	178	14	87	0	0	30	1.2-	2
NC	Livingston	2,250	207	1	55	0	0	6	2-	1
NC	Macon	8,250	166	5	64	0	0	13	2-	5
NC	Randolph	938	123	0	49	0	0	2	2-	1
NE	Audrain	61,500	213	20	45	1	0	83	1.2-	2
NE	Audrain	60,375	193	21	68	0	0	54	1.2-	2
NE	Audrain	23,250	115	0	27	1	0	2	2-	1
NE	Knox	36,750	183	18	36	1	0	35	1.2-	2
NE	Knox	34,875	237	37	58	4	0	80	1.2-	2
NE	Shelby	29,250	200	33	61	2	0	86	1.2-	2
NE	Shelby	12,375	213	8	63	0	0	74	2-	5
NW	Andrew	938	165	17	69	0	0	46	1.2-	2
NW	Buchanan	24,000	146	41	90	0	0	72	1.2-	2
NW	Gentry	48,000	242	1	37	0	0	5	2-	1
NW	Nodaway	375	52	1	61	0	0	6	2-	1
NW	Ray	15,750	210	1	52	0	0	1	2-	1
WC	Bates	6,000	88	66	61	3	0	71	1.2-	2
WC	Jackson	4,125	359	0	66	0	0	3	2-	1
WC	Lafayette	4,500	226	0	40	0	0	0	2-	1
WC	Lafayette	1,125	158	3	74	0	0	8	2-	1

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