United States Department of Agriculture

Pale Cyst Nematode (PCN) Eradication Program - Idaho Falls, Idaho
2017 1st Quarter Report (January 1 – March 31)

PROGRAM UPDATES AND NEW INFORMATION

- On January 12, the PCN program announced significant progress in the fight against PCN. Three fields declared infested between 2006 and 2013 have reached a point that viable nematodes are no longer detected in cyst samples collected from field soil. This increases the total number of PCN-infested fields to reach this important milestone from 17 to 20, out of 27 total known infested fields, since the program began. All 20 fields were treated with methyl bromide one or more times between 2007 and 2014; some were also treated with the PCN trap crop litchi tomato and/or the nematicide Telone II. These 20 fields represent more than 71% of the total PCN-infested acreage detected in southeast Idaho since 2006. Eight of the 20 fields have also passed a subsequent greenhouse bioassay test; the remaining 12 fields have bioassays in progress, with final results due in 2017 and 2018. The greenhouse bioassay tests nematodes' ability to hatch and reproduce when challenged by an actively growing host (potato) plant under simulated field conditions. Bioassays are performed in a containment facility at the University of Idaho in Moscow, Idaho. Completing the greenhouse bioassay allows reduced regulatory and sanitation requirements and enables a field to return to host crop production.
- On March 21, 2017, the USDA Animal and Plant Health Inspection Service (APHIS) made available to the public a supplemental environmental assessment (SEA) for the PCN program in Bingham and Bonneville Counties, Idaho. A draft SEA was made available for review and comment on April 28, 2016. The supplemental SEA includes revisions as a result of comments received in 2016 and additional information regarding the program. Anyone wishing to obtain a copy of the document should contact Brian Marschman by mail at USDA APHIS PPQ, 9134 W. Blackeagle Dr., Boise, ID 83709; or by email at: Brian.L.Marschman@aphis.usda.gov. The document can also be viewed at: http://www.aphis.usda.gov/planthealth/pcn. Any additional comments on this document should be sent to the contact listed above by April 19, 2017 and will be considered, potentially resulting in changes to the PCN program.
- On April 4, 2017, Plant Protection and Quarantine (PPQ) announced the release of one 187-acre Bingham County field from the Pale Cyst Nematode (PCN) regulated area. The field was regulated as an associated field in 2015 due to its adjacency to an infested field. In addition to meeting the testing requirements for deregulating an associated field, the field owner created an uncropped buffer zone of at least 15 yards between his field and the neighboring infested field. The buffer zone contains a barbed-wire fence, a trench, and a soil berm as physical barriers to prevent inadvertent equipment and soil movement between fields. This change brings the current regulated area to 9,333 acres, of which 3,047 acres are infested fields.
- Pale Cyst Nematode program information is now available via the USDA APHIS Stakeholder Registry. The Registry allows anyone to subscribe and receive alerts by email or by text message when new information about PCN or other topics of interest are announced. Subscribing is simple and you can unsubscribe or change your selections at any time. For PCN program announcements, select Plant Health in the U.S. (Domestic), then Pest Management, and finally Potato Pests and Diseases. To sign up, visit https://public.govdelivery.com/accounts/USDAAPHIS/subscriber/new

ERADICATION ACTIVITIES

- The University of Idaho and infested field operators planted the PCN trap crop litchi tomato on 50 acres in 2016. Since litchi tomato is non-native to Idaho, the Idaho State Department of Agriculture (ISDA) established a rigorous permitting process to define clear parameters for planting, monitoring and preventing escape of the plant. The researchers and field operators also planted litchi tomato on three fields (132 acres) in 2015. Testing at the end of the 2015 growing season did not detect any viable PCN cysts in two of the three treated fields, and no PCN cysts were found on the third field following testing in 2016. Another 36-acre litchi tomato treatment is planned for 2017.
- In September 2016, the PCN program conducted eradication treatments on eight infested fields (880 acres) with the nematicide Telone II (1,3-dichloropropene). Soil samples were collected following treatments and tested to determine the fumigant's efficacy against PCN. PCN egg viability declined by an average of 60% on fields with no prior PCN program-sponsored eradication treatments.

REGULATORY DATA

Regulatory Treatments

Treatment type	Regulatory Treatments (# of pieces of equipment)		
	1st Quarter of 2017	2017 Year to date	Since program inception
Pressure Washed	180	180	22,423
Steam Sanitized	42	42	3,100
Total	***222***	***222***	***25,523***

Self-Certification Program

Treatment type	Regulatory Treatments (# of pieces of equipment treated by stakeholders participating in the self-certification program)		
	4th Quarter of 2016*	2016 Year to date*	Since program inception*
Pressure Washed	34	183	4,106

*Self-certification data lags one quarter behind all other program data in order to provide a stakeholder reporting period.

Regulatory Documentation

Documentation type	Regulatory Documentation		
	1st Quarter of 2017	2017 Year to date	Since program inception
Certificate (PPQ 540)	88	88	10,967
Limited Permit (PPQ 530)	36	36	3,298
New compliance agreements	3	3	187

SURVEY DATA

- To date, the PCN program has collected and screened 497,000 soil samples in Idaho outside of the 27 known infested fields.

Type of survey	Idaho soil samples collected		
	1st Quarter of 2017	2017 Year to date	Since program inception
Detection	0	0	233,703
Delimiting	5,944	5,944	268,334
Eradication	288	288	149,670
Total	***6,232***	***6,232***	***651,707***

LABORATORY DATA

- Since 2009, the PCN program has assisted with collecting and screening approximately 87,500 soil samples in support of the ISDA's post-regulation monitoring survey of fields deregulated by the USDA.
- The PCN laboratory has screened more than 67,700 soil samples collected in other potato-producing states. There have been no PCN detections in the U.S. outside of Idaho.

Identification and Diagnostics

Type of survey	Samples processed by the Idaho PCN Laboratory		
	1st Quarter of 2017	2017 Year to date	Since program inception
Detection	4,671	4,671	248,435
Delimiting	0	0	253,908
Eradication	0	0	148,172
Total	***4,671***	***4,671***	***650,515***

Type of survey	Samples processed at other Idaho laboratories	
	Idaho Food Quality Assurance Laboratory (2006-2009, now closed)	Idaho State Parma Research and Extension Center (2006-2009)
Detection	52,670	69
Delimiting	10,227	896
Total	***62,897***	***965***

ERADICATION MONITORING AND PROGRESS

- Since its inception, the PCN program has used a staining technique to analyze the viability of nematode eggs in 886 cyst samples collected from infested fields before and after fumigation treatments. Viable nematode eggs are no longer detected in 20 of the infested fields, which advances those fields to the next phase of evaluating eradication progress, the greenhouse bioassay.

Method	Location	Results	
		Total number of infested fields	Fields with no viable PCN detected by stain
Cyst stain	Idaho Falls PCN Laboratory	27	20

- Greenhouse bioassay is a test of nematode eggs' ability to hatch, feed, and reproduce when placed in proximity to a growing host plant. Eight of the 20 fields at zero viability by the staining method have also successfully completed the greenhouse bioassay test. Final greenhouse bioassay results for the remaining 12 fields are expected in 2017 and 2018.

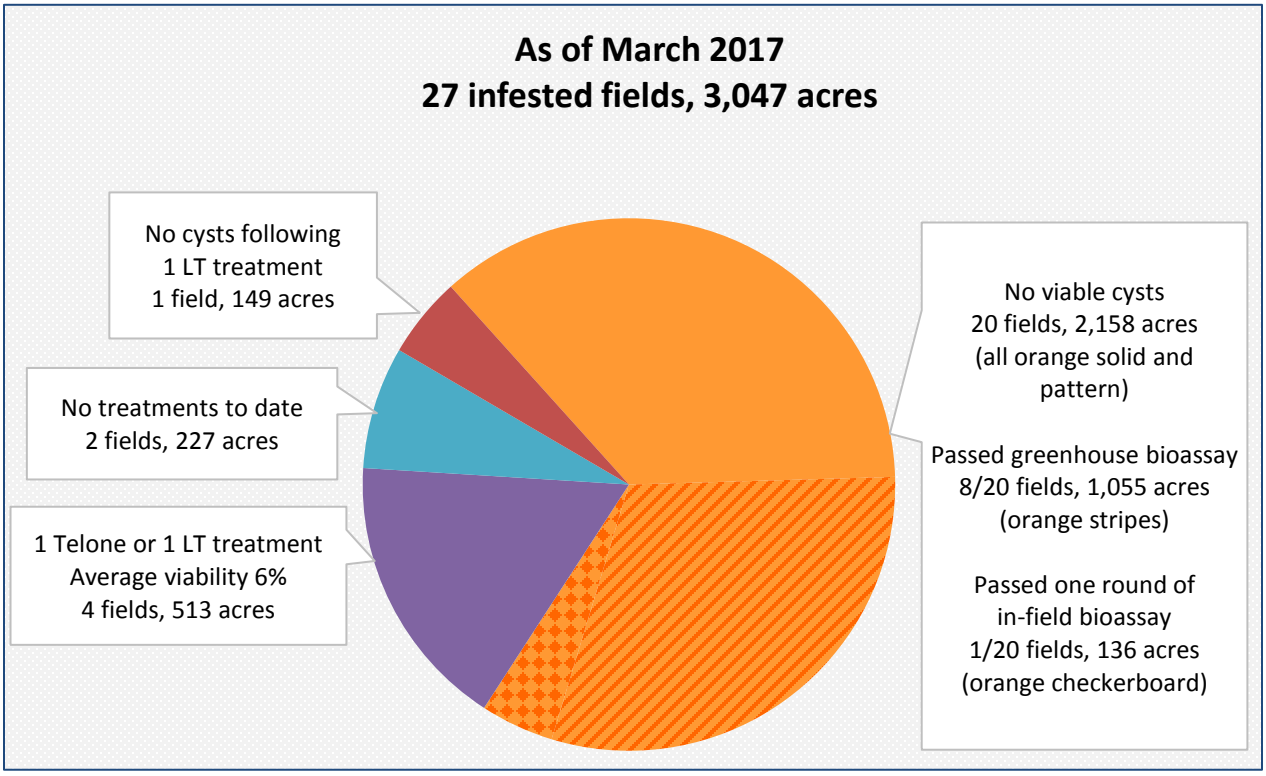
- The PCN program continues to monitor fields after successful completion of the greenhouse bioassay test, but with reduced sanitation requirements. Fields that have passed the greenhouse bioassay test are also eligible to return to potato production at the landowners' discretion.

Method	Location	Results	
		Fields that advanced to greenhouse bioassay testing	Fields that have passed greenhouse bioassay testing
Greenhouse bioassay	University of Idaho, Moscow	20	8

- The PCN program requires infested fields that return to potato production to undergo full-field surveys following each of three subsequent potato crops to check for viable PCN. Potatoes were planted on half of one eligible field in 2015, and on the other half in 2016. These were the first potato crops produced on the field since before PCN was detected in 2006. Potato production was a success; no viable PCN were detected in post-harvest surveys conducted both years.

Method	Results	
	Fields currently eligible	Fields that have passed one or more rounds
In-field bioassay	8	1

ERADICATION PROGRESS SUMMARY



IMPACTS ON COMMERCE

- In response to the initial PCN detection in 2006, Canada, Mexico and Korea shut off importation of potatoes from Idaho, while Japan cut off importation of potatoes from the entire U.S. The Mexico and Canada export markets have both been re-opened with the exception of potatoes from PCN-regulated areas. Both require PCN soil surveys from origin fields. The Korea market was reopened in June 2010 with the exception of potatoes originating from Bingham and Bonneville Counties, Idaho. The Japan market remains closed to Idaho potatoes but negotiations are actively underway to re-gain market access. Because of extensive field surveys conducted throughout production areas in Idaho, all of which have been negative beyond the twenty-seven infested fields, the general opinion by our trading partners is that potatoes produced outside regulated areas do not pose the biological risk for introduction of PCN.

PUBLIC OUTREACH

- January 20, 2017, PPQ hosted a public information session in Idaho Falls to provide the latest information in pale cyst nematode (PCN) eradication research. University of Idaho and Agricultural Research Service (ARS) researchers gave presentations on the development and efficacy of new, non-chemical strategies such as the litchi tomato trap crop, mustard meal biofumigant, and development of a russet potato variety with immunity to PCN. A renowned nematologist from the Scottish government (Science & Advice for Scottish Agriculture) also provided perspective on the PCN challenges faced in Europe and the benefits of pursuing eradication over trying to manage the pest.

PUBLIC OUTREACH, *continued*

- January 17, 2017 and March 6, 2017, PPQ along with cooperators from the Idaho State Department of Agriculture (ISDA) and the Idaho Potato Commission (IPC) met with infested field owners and operators to discuss PCN program updates and eradication treatment options for the upcoming crop year. The March meeting also included presentations on PCN eradication tools being developed by researchers at the University of Idaho and USDA ARS.
- March 7, 2017, PCN program staff provided information about PCN on to a group of 6 local high school Future Farmers of America members and their advisor. PCN program staff also shared their public speaking skills and experiences with the students to help them prepare for an upcoming public speaking event.

PCN program information can be found at: http://www.aphis.usda.gov/planthealth/pcn

If you have additional questions, please contact the PCN program office at (208) 522-2431, Monday through Friday, 8:00 AM to 4:30 PM (Mountain Time), excluding federal holidays.