United States Department of Agriculture

Pale Cyst Nematode (PCN) Eradication Program - Idaho Falls, Idaho
2016 4th Quarter Report (October 1 - December 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 December 21, the PCN program determined that soil samples from a 150-acre Bingham County field were positive for PCN. The field, which has been regulated since February 2015 due to its association with another infested field, was detected through a routine delimitation survey. This detection increases the number of PCN-infested fields to 27 (3,047 acres, total), and expands the area in which all infested fields are located from a 7.5-mile radius to an 8.5-mile radius that spans portions of southern Bonneville and northern Bingham Counties. Trace-work is underway to identify other fields that may have been exposed to PCN-infested soil from this field.

- On December 20, the PCN program announced a field, declared PCN-infested in 2006, successfully returned to potato production after a series of PCN eradication treatments between 2007 and 2012. The field became eligible to return to potato production in 2014, after testing showed no viable cysts present after greenhouse bioassays. Potatoes were grown over the entire field area between crop years 2015 and 2016, and no viable nematodes were detected in post-potato harvest soil surveys. The field remains regulated until additional testing following each of the next two host (potato) crops are negative for PCN.

- On December 12, the PCN Program announced the release of 313 acres of farmland from the PCN regulated area; these areas were regulated due to their association with an infested field(s) in the past 10 years. A total of 304 acres in Bonneville County were deregulated after completing a release protocol comprised of a sequence of surveys with negative laboratory results for PCN, and 9 acres in Bingham County were released as a result of corrections made to the mapped boundary of one field.

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 controlling 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.
- In September, 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 will be tested to determine the fumigant's efficacy against PCN. Results are expected by February 2017.

REGULATORY DATA

Regulatory Treatments

Treatment type	Regulatory Treatments (# of pieces of equipment)		
	4th Quarter of 2016	2016 Year to date	Since program inception
Pressure Washed	470	2,435	22,830
Steam Sanitized	71	231	2,924
Total	***541***	***2,666***	***25,754***

Self-Certification Program

Treatment type	Regulatory Treatments (# of pieces of equipment treated by stakeholders participating in the self-certification program)		
	3rd Quarter of 2016*	2016 Year to date*	Since program inception*
Pressure Washed	118	138	4,061

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

REGULATORY DATA, *continued*

Regulatory Documentation

Documentation type	Regulatory Documentation		
	4th Quarter of 2016	2016 Year to date	Since program inception
Certificate (PPQ 540)	184	843	10,665
Limited Permit (PPQ 530)	35	234	3,068
New compliance agreements	0	0	184

SURVEY DATA

- To date, the PCN Program has collected and screened 496,000 soil samples in Idaho outside of the 27 known infested fields for proactive monitoring.

Type of survey	Idaho soil samples collected		
	4th Quarter of 2016	2016 Year to date	Since program inception
Detection	724	3,928	233,703
Delimiting	4,342	4,644	262,390
Eradication	1,080	3,051	149,382
Total	***6,146***	***11,623***	***645,475***

LABORATORY DATA

- Since 2009, the PCN Program has assisted with collecting and screening approximately 87,000 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 63,000 samples collected in other potato-producing states. There have been no PCN detections in the U.S. outside of Idaho.

LABORATORY DATA, *continued*

Identification and Diagnostics

Type of survey	Samples processed by the Idaho PCN Laboratory		
	4th Quarter of 2016	2016 Year to date	Since program inception
Detection	174	8,604	243,764
Delimiting	4,342	4,644	253,908
Eradication	1,622	3,051	148,172
Total	***6,138***	***16,300***	***645,844***

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 879 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.

ERADICATION MONITORING AND PROGRESS, *continued*

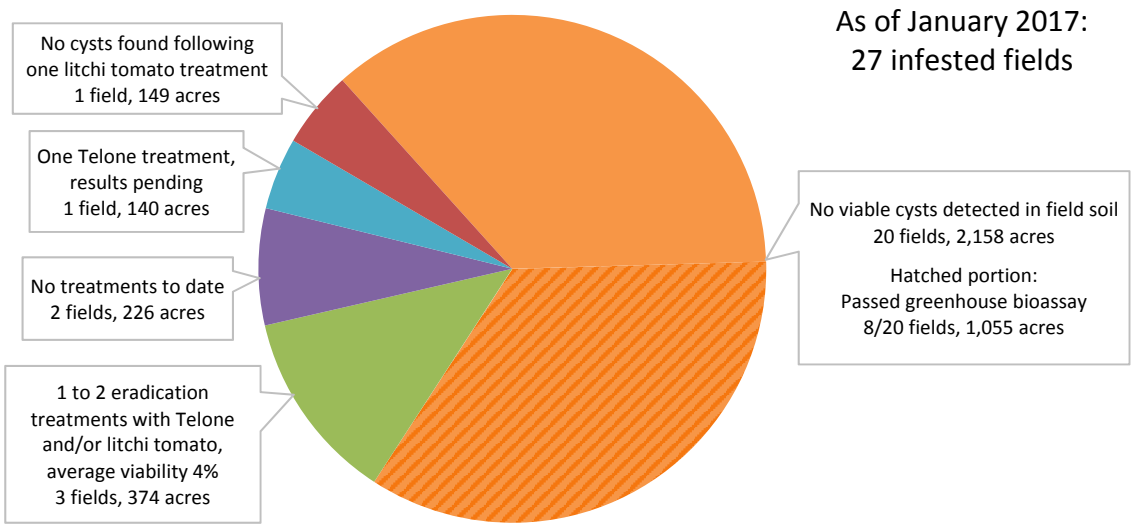
- The PCN program continues to monitor fields after successful completion of the greenhouse bioassay test, but with reduced sanitation requirements. Fields that have passed the greenhouse bioassay test are also eligible to return to potato production at the landowners' discretion.

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. The return to potato production was a success; no viable PCN were detected in post-harvest soil 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

- No outreach activities to report for this period.

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 MST, excluding federal holidays.