



## **Pale Cyst Nematode (PCN) Eradication Program - Idaho Falls, Idaho 2018 4<sup>th</sup> Quarter Report (October 1– December 31)**

### **PROGRAM UPDATES AND NEW INFORMATION**

- Six PCN-infested fields (three in December 2018 and three in February 2019) have successfully completed the greenhouse bioassay test, bringing the number of fields to reach this milestone to 18. The greenhouse bioassay tests nematodes' ability to hatch and reproduce when challenged by an actively growing host plant (potato) 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 February 15, 2019, one PCN-infested field declared in 2013 has reached the point where viable nematodes are no longer detected in cyst samples collected from field soil. To date, 22 infested fields have reached this important milestone, representing 73% of all infested acres detected since the program began in 2006.
- On November 5, 2018, the PCN program announced the detection of one new PCN-infested field located in Bingham County, which was confirmed by molecular analysis on November 2, 2018. The 147-acre field, regulated since 2015 due to its association with another PCN-infested field, was detected by a routine delimiting survey. This detection brings the total number of infested fields to 29. An investigation is ongoing to determine if any fields associated with the infested field are at risk for PCN infestation and should be added to the regulated area.
- The PCN program announced the deregulation of associated fields on November 5, 2018 (744 acres) and November 20, 2018 (13 acres). The fields, located in Bingham and Bonneville Counties, were deregulated after completing a series of soil surveys with no PCN detections. The current regulated area is 7,554 acres, of which 3,277 acres are associated fields.
- In October 2018, in-field bioassay samples collected from a 136-acre Bingham County field revealed viable PCN eggs (*Globodera pallida*). APHIS confirmed the detection by DNA on February 13, 2019. The field was first declared infested with PCN in 2006. Following a series of soil fumigation treatments between 2007 and 2012, and successful completion of lab and greenhouse bioassay tests in 2013 and 2014, the grower resumed potato production in 2015. This was the final step in the field deregulation protocol. APHIS does not believe this detection is the result of a new introduction. Most likely, soil fumigation treatments from 2007-2012 reduced the viable cyst population below the detection threshold of the program's sampling and testing protocols, and the return to potato production increased a small viable population to a detectable level. This detection demonstrates the program's sampling and testing protocols are effective and perform as intended to detect the presence of an incipient population prior to fully deregulating a field. Because the field has been regulated since 2006, this detection will not result in the regulation of any new fields.
- Pale Cyst Nematode program information is 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**

- University of Idaho researchers and infested field operators planted the trap crop litchi tomato on a 71-acre portion of a PCN-infested field in 2018. Since litchi tomato is non-native to Idaho, the crop was managed under an invasive species permit issued by the Idaho State Department of Agriculture (ISDA) which defines parameters for planting, monitoring and controlling escape of the plant. The PCN program collected soil samples following the treatment in fall 2018 to determine the effectiveness of litchi tomato as a trap crop. No viable PCN were detected.

**REGULATORY DATA**

**Regulatory Treatments**

Treatment type	Regulatory Treatments (# of pieces of equipment)		
	4 <sup>th</sup> Quarter of 2018	2018 Year to date	Since program inception
Pressure Washed	407	2,098	26,581
Steam Sanitized	33	875	4,215
<b>Total</b>	<b>440</b>	<b>2,973</b>	<b>30,796</b>

**Self-Certification Program**

Treatment type	Regulatory Treatments (# of pieces of equipment treated by stakeholders participating in the self-certification program)		
	3 <sup>rd</sup> Quarter of 2018*	2018 Year to date*	Since program inception*
Pressure Washed	100	126	4,389

\*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			
	4 <sup>th</sup> Quarter of 2018	2018 Year to date	Since program inception	Active
Certificate (PPQ 540)	140	786	12,564	*
Limited Permit (PPQ 530)	26	231	3,779	*
Compliance agreements	0	0	*	45



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\*Not applicable



**SURVEY DATA**

- To date, the PCN program has collected and screened 527,140 soil samples in Idaho outside of the 29 known infested fields.

Type of survey	Idaho soil samples collected		
	4 <sup>th</sup> Quarter of 2018	2018 Year to date	Since program inception
Detection	1,881	2,330	241,817
Delimiting	509	8,347	284,977
Eradication	0	2,512	160,312
<b>Total</b>	<b>2,390</b>	<b>13,189</b>	<b>687,106</b>

**LABORATORY DATA**

- Since 2009, the PCN program has assisted with collecting and screening 89,379 soil samples in support of the ISDA’s post-regulation monitoring survey of fields deregulated by the USDA.
- The PCN laboratory has screened 79,062 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		
	4 <sup>th</sup> Quarter of 2018	2018 Year to date	Since program inception
Detection	6,724	13,359	267,964
Delimiting	4,129	8,348	276,739
Eradication	1,070	10,072	159,104
<b>Total</b>	<b>11,923</b>	<b>31,779</b>	<b>703,807</b>

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
<b>Total</b>	<b>62,897</b>	<b>965</b>



### ERADICATION MONITORING AND PROGRESS

- Since its inception, the PCN program has used a staining technique to analyze the viability of nematode eggs in 932 cyst samples collected from infested fields before and after fumigation treatments. Viable nematode eggs are no longer detected in 22 of the infested fields, which advances those fields to the next phase of evaluating eradication progress, the greenhouse bioassay. The infested fields confirmed in October and November 2018 have not yet begun the testing process.

Method	Location	Results	
		Total number of infested fields	Fields with no viable PCN detected by stain
Cyst stain	Idaho Falls PCN Laboratory	29	22

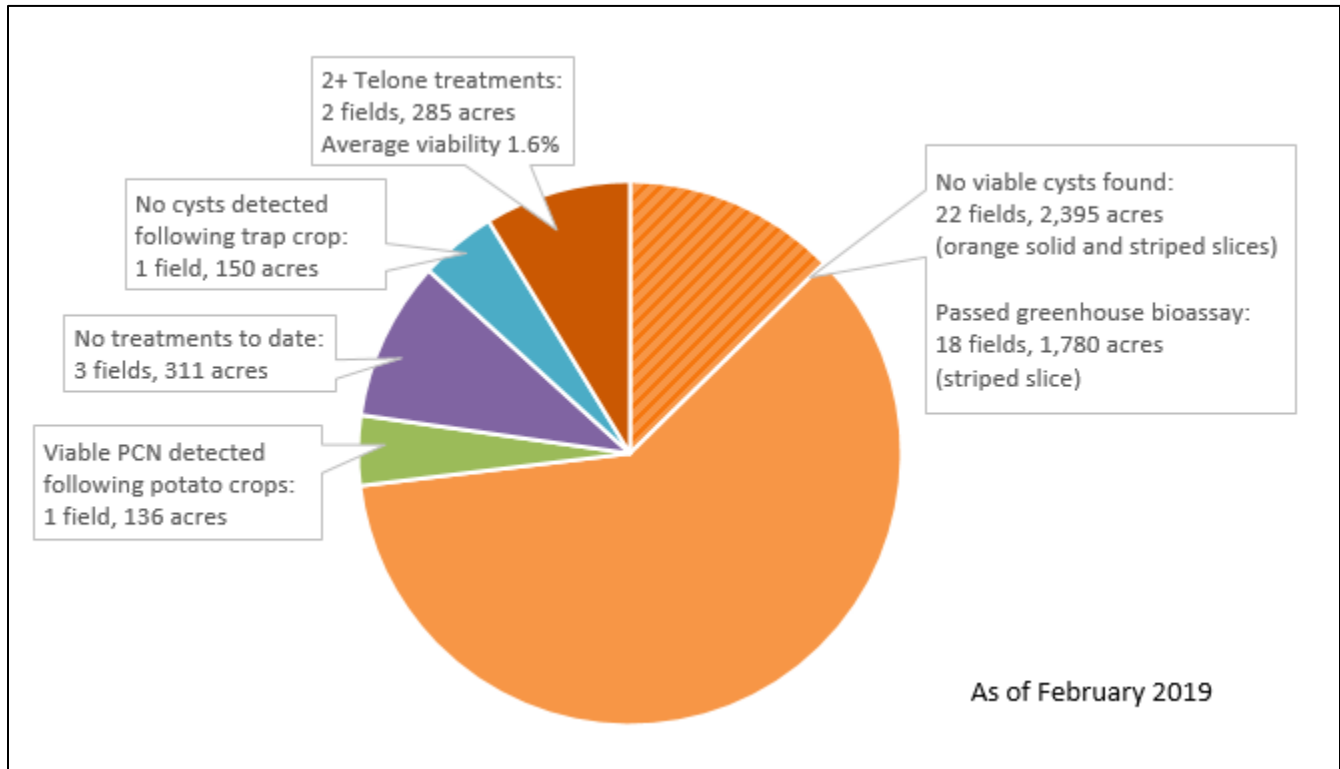
- Greenhouse bioassay is a test of the nematode ability to hatch, feed, and reproduce when placed in proximity to a growing host plant. Eighteen of the 22 fields at zero viability by the staining method have also successfully completed the greenhouse bioassay test. Final greenhouse bioassay results are expected in 2020 for the fields currently in the testing process.
- The PCN program continues to monitor and regulate fields after successful completion of greenhouse bioassay testing, 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	22	18

- 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 populations. Potatoes were planted on half of one eligible field in 2015, 2016, 2017, and 2018 (alternating sides of the field). These were the first potato crops produced on the field since before PCN was detected there in 2006. Viable PCN were detected in post-harvest surveys after the 2018 crop. The field will return to non-host crop production in 2019 and steam sanitation requirements reinstated until or unless the field can pass the cyst stain viability and greenhouse bioassay tests.



### 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. Japan reopened their market to Idaho potatoes in September 2017, which represented a major milestone for the Idaho potato industry and the PCN program, the full restoration of all markets lost due to the original 2006 PCN detection. Because of extensive field surveys conducted throughout production areas in Idaho, all of which have been negative beyond the twenty-nine infested fields, the general opinion by our trading partners is that potatoes produced outside regulated areas do not pose a risk for spread of PCN.

### PUBLIC OUTREACH

- November 14, 2018: PCN program staff presented a program update at the Idaho Potato Commission’s Big Idaho Potato Harvest Meeting in Fort Hall, ID.



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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.