United States Department of Agriculture

Pale Cyst Nematode (PCN) Eradication Program - Idaho Falls, Idaho
2023 3rd Quarter Report (July 1st – September 30th)

PROGRAM UPDATES AND NEW INFORMATION:

- The current Pale Cyst Nematode (PCN) regulated area, which spans portions of northern Bingham and southern Bonneville Counties, is 6,535 acres (3,542 acres of infested fields and 2,993 acres of associated fields). The PCN infestation is limited to an area with an 8.5-mile radius and represents less than 1% of Idaho's total potato production areas.

ERADICATION ACTIVITIES

- The PCN program contracted with a licensed chemical applicator to fumigate seven PCN-infested fields (approximately 754 acres) with the nematicide Telone II® (1,3-dichloropropene). Fumigation was completed on the seven fields in October 2023.

REGULATORY DATA

Table 1. Number of Pieces of Equipment Treated by PCN Program by Treatment Type

Treatment type	3rd Quarter of 2023	2023 Year to Date	Since Program Inception (2006)
Pressure washed	643	1,073	34,733
Steam Sanitized	104	178	5,657
Total	***747***	***1,251***	***40,390***

Table 2. Number of Pieces of Equipment Treated by Stakeholders Participating in the Self-Certification Program

Treatment type	2nd Quarter of 2023*	2023 Year to Date*	Since Program Inception (2006)
Pressure washed	13	13	4,955

*Self-certification data lags all other program data as stakeholders have three months after the end of each quarter to self-certify.

Table 3. Regulatory Documentation Issued by PCN Program

Documentation type	3rd Quarter of 2023	2023 Year to Date	Since Program Inception (2006)	Active
Certificates (PPQ* 540)	243	443	15,568	**
Limited Permits (PPQ 530)	65	109	4,484	**
Compliance Agreements (PPQ 519)	2	15	**	29

*Plant Protection and Quarantine (PPQ); **Not applicable

SURVEY DATA

- To date, the PCN program has collected 543,795 soil samples in Idaho outside of the 32 known infested fields.

Table 4. Soil Samples Collected in Idaho

Type of Survey	3rd Quarter of 2023	2023 Year to Date	Since Program Inception (2006)
Detection	8	246	246,494
Delimiting	136	637	297,301
Eradication	634	830	200,557
Total	***778***	***1,713***	***744,352***

LABORATORY DATA

- Since 2009, the PCN program has collected and screened 89,379 soil samples in support of the Idaho State Department of Agriculture's (ISDA) post-regulation monitoring survey of fields deregulated by the Animal and Plant Health Inspection Service (APHIS). Note: this data stays static, because the ISDA no longer conducts post-regulation monitoring surveys.
- Since program inception, the PCN laboratory has screened 107,496 soil samples collected in other potato-producing states. There have been no PCN detections in the United States outside of Idaho.

Table 5. Samples Processed by the PPQ Idaho Falls PCN Laboratory

Type of Survey	3rd Quarter of 2023	2023 Year to Date	Since Program Inception (2006)
Detection	292	7,189	296,326
Delimiting	501	501	288,551
Eradication	12	684	199,346
Total	***805***	***8,374***	***784,223***

Table 6. Historic Info: Samples Processed at Other Idaho Laboratories

Type of Survey	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 in 2006, the PCN program has used a staining technique to analyze the viability of nematode eggs in 1,059 cyst samples. The cyst samples are composited from subsamples of cysts collected from infested field-monitoring grids before and after fumigation treatments. Viable nematode eggs have not been detected in 24 of the 32 infested fields, which advances those 24 fields to the next phase of evaluating eradication progress, the greenhouse bioassay.

Table 7. Viability Cyst Stain Results Summary as of September 30, 2023

Location	Total number of infested fields	Total number of infested fields with no viable PCN detected by stain
Idaho Falls PCN Laboratory	32	24*

*One Infested Field in Bingham County has proceeded to Infield Greenhouse-Bioassay since no cysts have been collected in following surveys.

- Greenhouse bioassay is a test of the nematode's ability to hatch, feed, and reproduce when cysts are placed in proximity to a growing host plant. Currently 22 of the 24 fields have successfully completed the greenhouse bioassay test. Of the two remaining fields currently in greenhouse bioassay testing, results are expected in spring 2024.

- 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.

Table 8. Greenhouse Bioassay Results Summary as of September 30, 2023

Greenhouse bioassay location	Fields that advanced to greenhouse bioassay testing	Fields that passed greenhouse bioassay testing
University of Idaho, Moscow	23	22
Bingham County	1	0
Total	***24***	***22***

- 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.
- Between 2015 and 2022, potatoes were planted on eleven eligible fields, which were the first potato crops grown since PCN was first found on those fields.
- Viable nematodes were found in soil samples collected from five of these fields following potato harvest. As a result of finding viable nematodes on these five fields, the program reinstated prohibitions on growing potatoes, and full sanitation treatments for equipment and vehicles leaving the fields (pressure washing and steam treatment).
- No viable nematodes were found in soil samples from the other six fields, making them eligible to grow another potato crop, which is at the landowners' discretion. Of these six fields, five have successfully completed one round of in-field bioassay, and one field has successfully completed two rounds of in-field bioassay.

Table 9. In-field Bioassay Results Summary as of September 30, 2022

Fields that have passed **one** round of in-field bioassay (viable nematode eggs **not detected** following harvest)	Fields that have passed **two** rounds of in-field bioassay (viable nematode eggs **not detected** following harvest)	Fields that did not pass in-field bioassay (viable nematode eggs **were detected** following harvest)
5	1	6*

*Viable nematodes detected after one crop on four fields, and after two crops on two field.

Table 10: Eradication Progress Summary as of September 30, 2023

Field Status	Number of Fields	Acres
Passed Greenhouse Bioassay Test: Eligible to Return to Potatoes and start the In-Field Bioassay Test (See Table 9 for in-field bioassay results summary)	22	2,485.8
Passed Viability Test: Greenhouse Bioassay Test in Progress	2*	225.9
Viable PCN: One or more Telone treatments	7	754.4
Viable PCN: No Treatment to Date	1	76.8
Total	**32**	**3542.9**

*No cysts have been detected since 2015 in a Bingham County field (149.6 ac) following the litchi tomato trap crop. In the spring of CY2023 potatoes were planted only in the monitoring grids for the first round GH bioassay test. The rest of the field was planted to wheat.

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 United States. The Mexico and Canada export markets have both been re-opened except for potatoes from PCN-regulated areas. Both require PCN soil surveys from origin fields. The Korea market was reopened in June 2010 except for potatoes originating from Bingham and Bonneville Counties, Idaho. Japan reopened the market for all except Idaho potatoes in February 2007 and to Idaho potatoes in September 2017. This action 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 trading partners is that potatoes produced outside regulated areas do not pose a risk for spread of PCN.

PUBLIC OUTREACH

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

More PCN program information can be found at:
https://www.aphis.usda.gov/aphis/ourfocus/planthealth/plant-pest-and-disease-programs/pests-and-diseases/nematode/pcn

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