United States Department of Agriculture

Pale Cyst Nematode (PCN) Eradication Program - Idaho Falls, Idaho
2023 1st Quarter Report (January 1 – March 31)

PROGRAM UPDATES AND NEW INFORMATION:

- The current Pale Cyst Nematode (PCN) regulated area, which spans portions of northern Bingham and southern Bonneville Counties, is 6,568 acres (3,542 acres of infested fields and 3,026 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 five PCN-infested fields (approximately 454 acres) with the nematicide Telone II® (1,3-dichloropropene) in August and September 2022. Soil samples were collected from the fields following fumigation and will be analyzed in the laboratory to determine fumigation effectiveness against encysted nematode eggs. The results of one field are expected by June 2023.

REGULATORY DATA

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

Treatment type	1st Quarter of 2023	2023 Year to Date	Since Program Inception (2006)
Pressure washed	3	3	33,662
Steam Sanitized	0	0	5,479
Total	***3***	***3***	***39,141***

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

Treatment type	4th Quarter of 2022*	2022 Year to Date*	Since Program Inception (2006)
Pressure washed	12	114	4,942

*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	1st Quarter of 2023	2023 Year to Date	Since Program Inception (2006)	Active
Certificates (PPQ* 540)	3	3	15,127	**
Limited Permits (PPQ 530)	1	1	4,376	**
Compliance Agreements (PPQ 519)	0	0	**	34

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

SURVEY DATA

- To date, the PCN program has collected 542,912 soil samples in Idaho outside of the 32 known infested fields.

Table 4. Soil Samples Collected in Idaho

Type of Survey	1st Quarter of 2023	2023 Year to Date	Since Program Inception (2006)
Detection	0	0	246,248
Delimiting	0	0	296,664
Eradication	0	0	199,727
Total	***0***	***0***	***742,639***

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 106,187 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	1st Quarter of 2022	2023 Year to Date	Since Program Inception (2006)
Detection	6,037	6,037	295,174
Delimiting	0	0	288,050
Eradication	476	476	199,138
Total	***6,513***	***6,513***	***782,362***

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 1,055 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 22 of the 32 infested fields, which advances those 22 fields to the next phase of evaluating eradication progress, the greenhouse bioassay.

Table 7. Viability Cyst Stain Results Summary as of March 31, 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

- 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. Twenty-two 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 late 2023.
- 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 March 31, 2023

Location	Fields that advanced to greenhouse bioassay testing	Fields that passed greenhouse bioassay testing
University of Idaho, Moscow	24	21

- 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 2023, 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 three 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.
- Potatoes were planted on three eligible fields in 2022. This is the first round of in-field bioassay for two of the fields and the second round of in-field bioassay for the third field. Soil samples were collected from the fields following potato harvest and viable nematodes were found on all three fields. As a result of finding viable nematodes on these three fields, the program reinstated prohibitions on growing potatoes, and full sanitation treatments for equipment and vehicles leaving the fields (i.e., pressure washing and steam treatment).

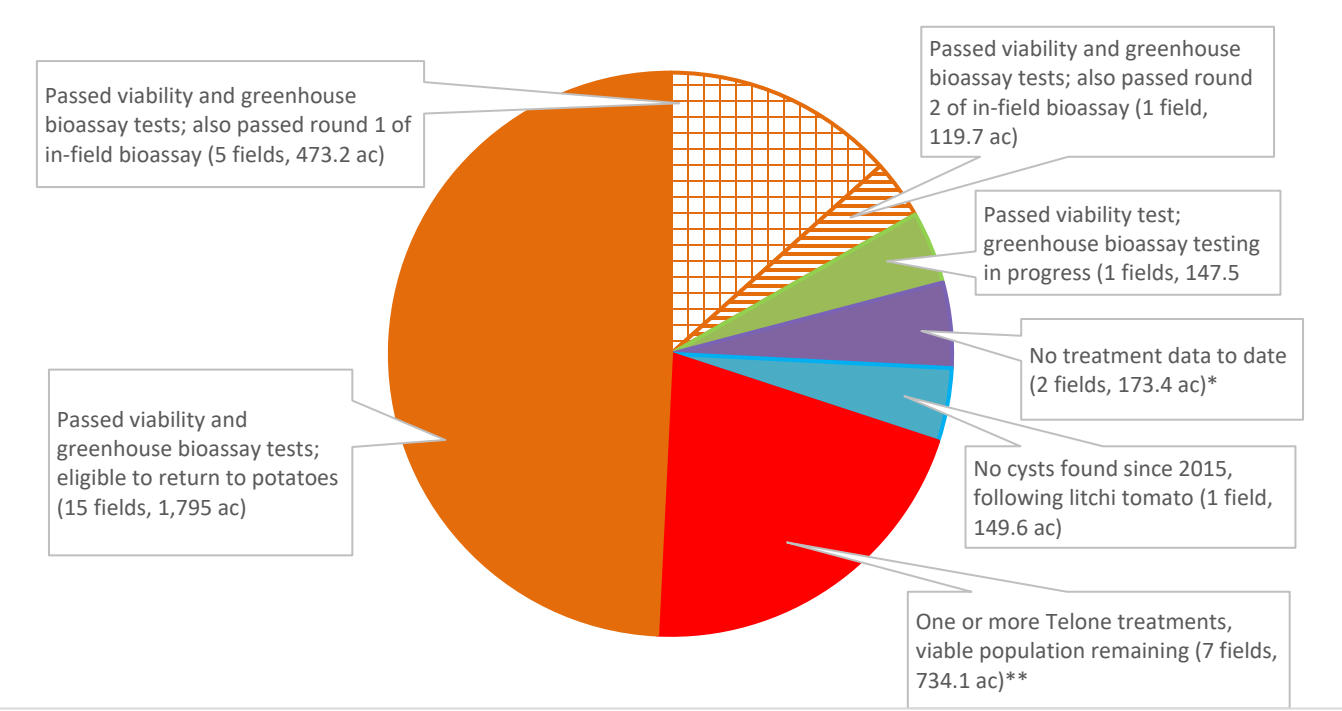
Table 9. In-field Greenhouse Bioassay Results Summary as of December 31, 2022

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)
4	1	6*

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

ERADICATION PROGRESS SUMMARY AS OF MARCH 31, 2023

This pie chart summarizes eradication progress for the 32 infested fields (3,542 acres) detected in Idaho since program inception in 2006.



* One field planted with a multi-year alfalfa crop in 2020, and one field detected in November 2021 that received its first treatment in September 2022 (results not available until June 2023).

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 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.