

Pale Cyst Nematode (PCN) Stakeholder Update  
5/23/11

UPDATES AND RELATED INFORMATION:

- A 10<sup>th</sup> PCN-infested field was confirmed on March 18, 2011. The 164-acre field is located in Bonneville County, ID, about 1.5 miles from the nearest infested field. This detection brings the total infested area to 1,264 acres. The detection was made in samples collected in 2010 as part of ongoing cooperative monitoring efforts by APHIS and the Idaho State Department of Agriculture (ISDA).
- In response to the 10<sup>th</sup> field detection, 6,544 acres became regulated on May 9<sup>th</sup> due to their primary association with the infested field. Survey of these fields is currently underway. Approximately 2,100 acres were previously regulated due to a past association with another PCN-infested field. The current regulated area (infested and associated fields) is 7,808 acres.
- In 2010, three of the infested fields that have undergone eradication treatments were found to have no viable nematodes according to a non-vital staining analysis conducted at the PCN laboratory in Idaho Falls. Cysts collected from these fields advanced to bioassay, which is the next step toward determining eradication success. Bioassay assesses cysts' ability to hatch, infect a host plant, and reproduce. Bioassays are currently underway at the University of Idaho in Moscow, Idaho. Results are expected in November.
- Six of the ten known infested fields were treated with methyl bromide in May 2011. Tricon 80/20 (80% methyl bromide/20% chloropicrin) was used this year due to new EPA restrictions that prohibited use of the 98/2 product (98% methyl bromide/2% chloropicrin) that was used previously. To increase fumigant soil retention and overall fumigant efficacy, a different tarp material (totally impermeable film) was also used.
- Following methyl bromide fumigation, a grain biosecurity cover will be planted in each of the treated fields.
- Due to budgetary constraints, the three fields that triggered bioassay in 2010 and the 10<sup>th</sup> infested field detected in March, 2011 were not treated with methyl bromide this spring. Grain for harvest was planted in each of these fields.

SAMPLING INFORMATION:

- To date, more than 247,000 soil samples have been collected in Idaho to ensure Idaho's freedom from PCN outside of the 10 known infested fields.
- More than 55,000 samples have been collected from the eradication fields in order to monitor eradication progress and to provide cysts to several institutions for PCN research.
- To date, the PCN laboratory in Idaho Falls has screened more than 247,000 soil samples collected in Idaho and approximately 35,000 samples from other potato-producing states. There have been no PCN detections outside of Idaho.
- Since program inception, the viability of nearly 600 cyst samples collected from infested fields have been analyzed before and after fumigation treatments. The average viability of PCN in the treated fields has declined by more than 99% since eradication treatments began.
- Since 2009, approximately 19,100 soil samples were collected in support of the ISDA's follow-up survey of fields deregulated by the USDA.

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5/23/11

PROGRAM CHRONOLOGY

On April 19, 2006, officials of USDA's Animal and Plant Health Inspection Service (APHIS) and the Idaho State Department of Agriculture (ISDA) announced the detection of pale cyst nematode (PCN), *Globodera pallida*, a major pest of potato crops. This was the first detection of the pest in the United States. The nematode cysts were detected during a routine survey of tare soil at an ISDA grader facility in eastern Idaho. Subsequent 2006 surveying to determine the possible origin and distribution of the pest in Idaho confirmed seven PCN positive fields, all located in close proximity, within Bingham and Bonneville Counties, Idaho. In response to the detection, Canada, Mexico and Korea shut off importation of potatoes from Idaho, while Japan cut off importation of potatoes from the entire U.S. The positive fields and an area surrounding the fields were placed under a Federal Domestic Quarantine Order and parallel State Rule establishing restrictions on planting and movement of certain regulated articles from Idaho in order to prevent the spread of PCN.

A trace of seed sources for the positive fields did not yield any evidence that seed was the source of infestation. Over 90% of the 2006 Idaho certified seed potato crop was surveyed and found negative for PCN. Other sources of introduction such as imported farm equipment, nursery stock, foreign flower bulbs, and other soil bearing items were investigated without providing any leads as to the origin of the infestation. As a result of the extensive surveying, negative test results and the regulatory actions of USDA and ISDA, Canada, Mexico, and Korea reopened their markets to Idaho potatoes with some restrictions. Japan allows potatoes from the U.S. except for Idaho provided the product is not from Idaho seed.

In 2007, ISDA and USDA initiated a program to treat fields which have tested positive for PCN. The program includes pre-treatment sampling, fumigation, and post treatment sampling for up to two treatments per year. The ISDA contracts with land owners for activities related to eradication of PCN from infested fields including access, tilling, irrigation, and maintaining a bio-fumigant planting at a fixed cost per acre. The first fumigation process was completed in May 2007. A bio-fumigant oil radish planted on the fields added an additional measure of control and prevented soil erosion over the summer months. The oil radish plants were tilled into the fields to replenish organic matter and rejuvenate the soil and release a compound which is toxic to the nematodes. No crops were grown for harvest in the infested fields in 2007. The second fumigation treatment was completed in August 2007. Infested fields were also fumigated in 2008. Each year, the spring fumigant used was methyl bromide and the fall fumigant used was Telone II.

On November 1, 2007 a Federal Interim Rule and Idaho State Rule went into effect, providing the framework for continued protection of Idaho and U.S. potato interests. Successful survey, regulatory, and eradication activities since the initial detection in 2006 have facilitated some regulatory relief in Idaho while forwarding the program objectives of: preventing the spread of PCN, delimiting the current infestation of PCN, eradicating PCN, restoring lost potato markets, and maintaining existing potato markets.

Regulated articles require either a limited permit or a certificate to move from the regulated areas. Equipment moving from regulated areas may be required to be cleaned. Cleaning can be done by USDA or by private parties, but USDA or ISDA must certify the cleaning. Based on a sequence of surveys, areas can be released from regulation. For low risk fields, one single survey with negative results can qualify equipment to move from the surveyed field without cleaning. Complete deregulation of fields requires at least two negative surveys taken by USDA or ISDA with at least a ten month interval between surveys.

On November 28, 2007, APHIS confirmed PCN in an additional field in Bingham County, Idaho as a result of continued intensive sampling. This find represents the eighth field infested with PCN in the regulated area in Idaho. The field has been regulated since August 28, 2006 under the Federal Order,

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Interim Rule, and Idaho State Rules covering PCN in Idaho. The field is adjacent to two of the other infested fields.

In 2007, approximately 5,000 acres regulated by the Federal Order in August of 2006 were released from regulated status. Additionally, corn and small grain were removed from the list of regulated articles. Peas and beans were added to the list of regulated articles.

In an effort to provide the best protection possible to the potato production and marketing system, approximately 125 fields were added to the regulated area in parts of Bingham, Bonneville, and Jefferson Counties in response to the publication of the Interim Rule for PCN. These fields are known to have been farmed by an operator the same year as he farmed one of the infested fields during the past 10 years and had at least one crop of potatoes during the past ten years.

On December 11, 2008, APHIS confirmed PCN in another field located in Bingham County, Idaho as a result of continued intensive sampling. This find represents the 9th field infested with PCN in the regulated area in Idaho and is in close proximity to the other infested fields. The field has been regulated since August 28, 2006 under the Federal Order, Interim Rule, and Idaho State Rules covering PCN in Idaho. The field is located directly across a road from another PCN infested field, and was closely associated with two other infested fields over the past decade. In response to discovering the 9<sup>th</sup> infested field, approximately 4,800 acres of farmland in parts of Bingham and Bonneville Counties were added to the regulated area. These fields became regulated due to having been farmed by a common operator in the same year as the 9th infested field and because they had had at least one potato crop in the last ten years.

On April 29, 2009 APHIS published a Final Rule for PCN with three changes; 1) referring to the nematode of concern, *Globodera pallida*, by the common name “pale cyst nematode” rather than by the name “potato cyst nematode;” 2) allows the movement of *Phaseolus* species (beans) and *Pisum* species (peas) under the same conditions that apply to the movement of other crops to which soil is often attached; 3) requires that a protocol approved by the Administrator as sufficient to support removal of infested fields from quarantine, rather than a 3-year biosecurity protocol, be completed in order to remove an infested field from quarantine.

The change specifying a protocol approved by the Administrator provides an opportunity to amend the requirements for removal of infested fields from quarantine in a more streamlined manner. PCN officials do not anticipate this change will have any negative effect on the quarantine removal program.

Between November 2007 and November 2010, approximately 29,653 acres in Bingham and Bonneville County, Idaho were deregulated after successfully completing the Federal soil survey protocol. 2,171 of these acres had to be re-regulated due to post release exposures to the March 18, 2011 detected field. The remaining deregulated acres remain subjected to an additional ISDA survey after a susceptible host crop.