Plum Pox in North America - A Tough Nut to Crack!

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Plum Pox History

Plum pox, also known as Shara, was first reported in 1915 in Bulgarian plums. From there, it was eventually detected throughout western and eastern Europe, with Spain being the most recent European country to find it in 1994. PPV was first detected in the United States in 1992.

Plum Pox in New York

- NY planned to process 10,000 survey samples for PPV in 2006.
- On 7/10/2006 the 1st find of PPV on two plum trees from Niagara County was confirmed by the U.S. Department of Agriculture's National Plant Germplasm and Biotechnology Laboratory in Beltsville, MD. An additional 20,000 survey samples were proposed.
- On 8/21/2006 a 2nd find of PPV on peach from another location in Niagara County was confirmed. Additional samples were proposed for 2006.

Plum Pox in Michigan

- 2,500 samples were collected under the CAPS program in 2006.
- On 8/11/2006 the USDA lab in Beltsville, MD confirmed the presence of PPV on a plum sample from the Southwest Michigan Research and Experiment Center (SMREC).
- After this positive finding, host trees within a 5 mile radius of the positive tree were surveyed including all 14,000 host trees at the SMREC.
- A total of 53,244 samples were processed in 2006. All but one of the one host sample have tested negative.

Plum Pox in Pennsylvania

- PPV was first confirmed in Pennsylvania in 1999. In 2000, a three-year national survey was initiated in 38 states within the US as part of the Cooperative Agricultural Pest Survey (CAPS) program.
- In 2002, PPV was not found in any state other than PA. In Canada, PPV was discovered on the Niagara Peninsula in Ontario and at one location in Nova Scotia.
- In PA, the PPV survey found the first PPV positive trees outside of the orchard setting in residential areas within the quarantine zone. All other states surveyed in the U.S. were negative for PPV.
- PPV positive trees were also found in Canada.

Plum Pox Surveys in North America

1999 – In October, PPV was confirmed to be present in PA. A survey of the surrounding area was quickly conducted to determine the extent of the disease.
- 2000 – 2002 - A three-year national survey was initiated in 38 states within the U.S. as part of the Cooperative Agricultural Pest Survey (CAPS) program. In 2000, PA also began a national survey.
- 2000 – PPV was not found in any state other than PA. In Canada, PPV was discovered on the Niagara Peninsula in Ontario and at one location in Nova Scotia.
- 2001 – In PA, the PPV survey found the first PPV positive trees outside of the orchard setting in residential areas within the quarantine zone. All other states surveyed in the U.S. were negative for PPV.
- PPV positive trees were also found in Canada.

2002 – In the third year of the national survey in the U.S. all states were negative for PPV except for PA, where the positives were still limited to a localized area in southeastern PA. Positive trees were also identified in Canada, but the numbers were less than those found in 2000 and 2001. It was decided to continue the national survey; however, after the negative results this year, the national survey in the U.S. was scaled back to concentrate on high-risk areas of the country (PA, NJ, NY, MD, MI, and SC).
- 2003 – This was a good year for detecting PPV due to sufficient rain and cooler temperatures. Again all states surveyed were negative except for PA where a slightly higher number of positive trees were found. In Canada PPV was also detected and the number of positive trees were slightly higher than in 2002 but the numbers were still less than in 2000 and 2001.
- 2004 – Six Prunus-producing states were surveyed in addition to PA. 82,132 leaf samples and 14,310 fruit samples were collected and tested statewide. All states had negative samples except for PA. In Canada, survey results revealed significantly lower levels of PPV.
- 2005 – Three Prunus-producing states were surveyed in addition to PA. All states were negative except for PA. Again in Canada there were lower numbers of PPV positive trees. It was determined that surveys in 2006 would not take place outside of PA and Canada.
- 2006 – It was decided to do one more year of surveys in states outside of PA. This was the first year that PPV was detected in the U.S. outside of PA, with positive finds in both New York and Michigan. Due to favorable weather for detecting PPV, slightly higher numbers of positive trees were found in Canada, but the number was still lower than any year before 2005.

PPV Surveys in North America

<table>
<thead>
<tr>
<th>Year</th>
<th>Orchard Samples</th>
<th>Homeowner Samples</th>
<th>Other Samples</th>
<th>Total Samples</th>
<th>Positive</th>
<th>% Positive</th>
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<tbody>
<tr>
<td>2000</td>
<td>51,429</td>
<td>947</td>
<td>586</td>
<td>52,562</td>
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<td>2001</td>
<td>80,012</td>
<td>5,556</td>
<td>1,326</td>
<td>86,894</td>
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<td>168,208</td>
<td>35,746</td>
<td>1,912</td>
<td>205,862</td>
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<td>2003</td>
<td>313,570</td>
<td>36,150</td>
<td>13,933</td>
<td>363,653</td>
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<td>2004</td>
<td>166,396</td>
<td>42,725</td>
<td>2,095</td>
<td>111,415</td>
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<td>2005</td>
<td>312,495</td>
<td>31,138</td>
<td>1,139</td>
<td>345,872</td>
<td>6</td>
<td>0.002</td>
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<tr>
<td>2006</td>
<td>184,532</td>
<td>2,763</td>
<td>4,418</td>
<td>211,713</td>
<td>6</td>
<td>0.003</td>
</tr>
</tbody>
</table>

PPV symptoms on European Plum

Image by R. Scorza, USDA, Appalachian Fruit Research Station, Kearneysville WV

Plum Pox finds in Europe

A grower in Adams County first recognized the unusual symptoms of PPV on Enoree peach. A representative from the Pennsylvania Department of Agriculture visited the site on September 23, 1999 and collected samples. Initial results indicated that PPV was the cause, so samples were sent to the U.S. Department of Agriculture (USDA). On October 12, 1999, the USDA identified PPV as the cause of the problem and it identified as strain D.

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2007 Plans

Pennsylvania - Survey will focus first on the four counties where some quarantine has been in place. Survey numbers should be similar to 2006 (262,086 samples). Quarantine and eradication guidelines will follow previous years.

Canada - 900,000 samples are planned and eradication of affected trees and exposed orchard blocks will continue.

New York - Planning to process 100,000 samples.

Michigan - Planning to sample the same 5 mile radius around the positive find and hope to also survey 25% of the susceptible Prunus statewide. Quarantines will soon be put into place by the Michigan Department of Agriculture.

These plans can only be effective with the availability of funding for surveys and compensation for eradication efforts.