It is Important to Identify Nematode Species as well as to Determine Their Number
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- There are two important species of cereal cyst nematodes (CCN) in the PNW; *Heterodera avenae* and *Heterodera filipjevi*.
- There are also two important species of root-lesion nematodes (RLN) that affect field crops in the PNW; *Pratylenchus neglectus* and *Pratylenchus thornei*.
- Both species of RLN have wide host ranges among field crops commonly produced in the PNW, and both species of CCN attack only small grains.
- We have demonstrated that the two species within each nematode group (CCN & RLN) have different abilities to attack different crops and varieties.
- It is critical for you to determine which species is present before you can accurately use the information we have developed for genetic resistance and tolerance.
- In the past, it was very difficult to distinguish the species within each nematode group, and most commercial laboratories did not offer identification services.
- We therefore developed several molecular (DNA-based) testing methods to quickly and accurately distinguish these nematodes.
- These tests were offered freely to public- and private-sector laboratories that expressed a desire to incorporate this modern technology into their program.
- Our DNA-based tests are now available as a commercial service at Western Laboratories in Parma, ID.
  http://www.westernlaboratories.com;  telephone: 1-800-658-3858
- Two examples of differing responses to different CCN and RLN species are shown to illustrate the need to identify species as well as to determine their number.

**Relative resistances of different crops and varieties to the root-lesion nematodes *P. neglectus* & *P. thornei***

![Graph showing resistance of different crops to *P. neglectus* and *P. thornei*]

<table>
<thead>
<tr>
<th>Wheat variety</th>
<th><em>H. avenae</em> cysts/plant</th>
<th>Resistance rating</th>
<th><em>H. filipjevi</em> cysts/plant</th>
<th>Resistance rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Louise</td>
<td>34</td>
<td>S</td>
<td>61</td>
<td>S</td>
</tr>
<tr>
<td>WB 936</td>
<td>22</td>
<td>S</td>
<td>47</td>
<td>S</td>
</tr>
<tr>
<td>Ouyen</td>
<td>1</td>
<td>R</td>
<td>19</td>
<td>S</td>
</tr>
<tr>
<td>WB Rockland</td>
<td>2</td>
<td>R</td>
<td>30</td>
<td>S</td>
</tr>
<tr>
<td>Sönmez</td>
<td>24</td>
<td>S</td>
<td>3</td>
<td>R</td>
</tr>
<tr>
<td>SY Steelhead</td>
<td>26</td>
<td>S</td>
<td>5</td>
<td>MR</td>
</tr>
</tbody>
</table>

R = resistant, MR = moderately resistant, S = susceptible

**Resistances of six spring wheat varieties to the cereal cyst nematodes *H. avenae* & *H. filipjevi***

**PCR assays to distinguish the CCN species *H. filipjevi* & *H. avenae***

![Image showing PCR results for *P. neglectus* and *P. thornei*]

**Publications:**

**Funding:**