



NOVEMBER
2020

AGRONOMY UPDATE

ASSESSING ROOT ROT RISK IN PEAS



Aphanomyces in Peas - Photo by Mike Harding

Unlike Clubroot, we have no genetic solutions to this problem at present.

Over the past several years a new root disease in peas and lentils called *Aphanomyces* has become prevalent across western Canada and is impacting producers' ability to maintain peas as a regular part of their rotation. *Aphanomyces* presents management issues that will sound very familiar to anyone who is used to dealing with clubroot in canola. It stays in the soil in a dormant form called an oospore that has a half-life of about 1 year, although that seems to be quite variable depending on soil texture and moisture conditions. Once levels of the disease build up in the soil to the point where they cause significant yield loss in peas, it can take up to 8 years to bring the levels down to the point where peas can be grown in that field again. Unlike clubroot though, we have no genetic solutions to this problem at present, so once a field is infected the only option is to stop planting peas until the soil levels of *Aphanomyces* drops to an acceptable level. Equipment sanitization is also an important practice to slow the spread of the disease between fields.

When the oospores are presented with a host plant (peas or lentils) and saturated soil conditions, they are triggered out of dormancy and produce zoospores - the reproductive phase of the disease. The zoospores swim through the soil water to the pea roots, where they attach and start to feed on the outer layer of the root, causing the roots to decompose. When the food source is exhausted, oospores are produced once more, completing the cycle.



Aphanomyces Damage to Pea Roots – Photo by Mike Harding

When assessing the risk associated with Aphanomyces, Dr. Syama Chatterton of Agriculture & Agri-Foods Canada recommends knowing the cropping rotation history and rainfall patterns on the field that you are planning to put into peas. Knowing if the field had small yellowed patches or unusual low yielding areas the last time it was in peas, and how often peas have been grown here in the last 20 years are critical pieces of information to have in assessing risk. She also suggests taking soil samples from low lying areas or parts of the field that water flows through when there is excess moisture and either sending the samples away for testing or doing a home test by planting some peas in the soil collected. The home test simply involves taking a minimum of 500 grams of soil and planting it in 2" pots. Treated peas can then be planted in the pots and after 3 to 4 weeks they can be pulled and the roots examined for disease. It's important to use treated seed to avoid having the results contaminated with other soil borne root diseases. While the home test takes time, it is the simplest way of determining if you have Aphanomyces and is generally as reliable as a lab test.

For more complete information on the disease and what to watch for, I have included a link to an excellent fact sheet put out by the Saskatchewan Pulse Growers Association that is based largely on work being done by Dr. Chatterton. This includes a handy checklist called "Reducing Root Rot Risk for 2021" that can be very useful in helping to identify risk factors in fields that are slated for pea crops in the coming year.



https://saskpulse.com/files/technical_documents/201019_Root_Rot_Risk_Fact_Sheet.pdf

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