



# AGRONOMY REPORT



## SCOUTING FOR APHANOMYCES IN PEAS

### The Clubroot of peas

- what is aphanomyces
- when to check for it
- you found it, now what?

*Aphanomyces* has been called “the clubroot of peas” because, like clubroot it is a soil borne disease that shows the ability to survive for extended periods in a field. *Aphanomyces* is a water mould that is classified as an oomycete. Infection can happen at any time, but usually occurs during seedling emergence and is favoured by water-saturated soils. In springs with wet soils, infections happen very quickly and symptoms can appear within 10 days, making the impact of the disease on peas much greater in wet years than in dry ones.

**Right:** Honey-brown discolouration of pea roots, characteristic of *Aphanomyces euteiches*. Other symptoms include yellowing and wilting of lower leaves, discolouration of roots - watery and honey-brown/caramel coloured, poor lateral root growth with minimal root hairs, and pinching of epicotyl stops at soil surface.

**Source:** Syama Chatterton,  
Agriculture and Agri-Food Canada



Above is a pea root infected only with *Aphanomyces* and the second photo is what is typically seen later in the spring when fusarium and other members of the root rot complex join in the attack on the roots. Only the lateral roots still show the typical symptoms of *Aphanomyces* and it would be easy to mistake this for the usual root disease complex that can be managed using seed treatment.



Blackening of tap root caused by Fusarium, lateral root browning caused by *Aphanomyces*.

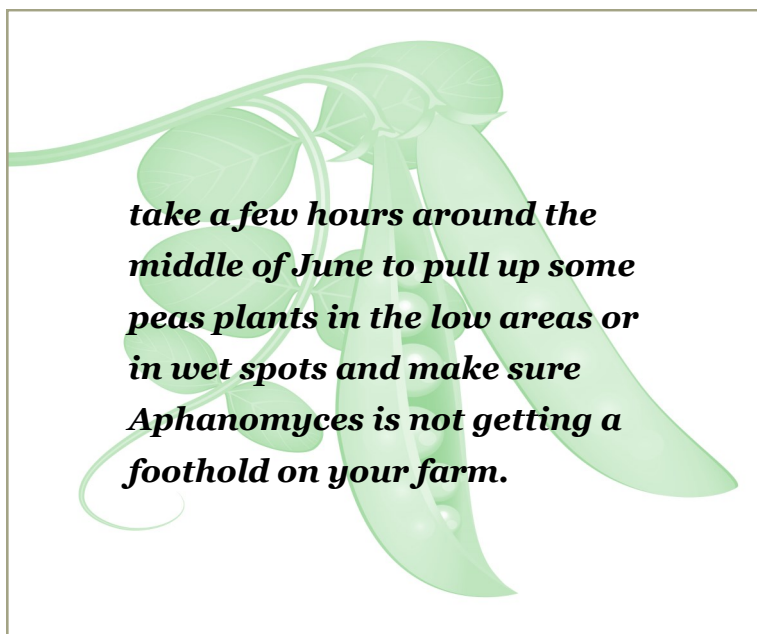
## **Right now, there is no proven management practice...**

other than extended rotations that involve staying away from peas or lentils for up to 8 years if a field is infected. There is a seed treatment called Intego that is registered for suppression of *Aphanomyces*, but it is limited in its effectiveness and does nothing to protect the plants from later season infections. One of the issues with *Aphanomyces* is that it appears to have been around for many years, but because there is a whole complex of root diseases that come along with pulse production, the overlapping symptoms can make it hard to tell exactly what you do have. In the vast majority of cases, *Aphanomyces* is accompanied by *Fusarium* and/or *Pythium* root rots that can make it hard to differentiate it from these fungal based root diseases.



Because of the serious economic impact *Aphanomyces* can have on a pea crop, it pays to be vigilant in looking for it before it causes serious yield losses. The best time to scout for the disease is about 6 weeks after seeding, which should be around mid-June in most cases. At that point you can often see the symptoms without the impact of other diseases clouding the picture. If you suspect you have the disease, get it tested! Live root testing is by far the most accurate method. Soil testing is available, but due to the thick walled structure of the dormant oospores, the number of false negative results is really unacceptable – it can be as high as 50% in dry soils. If you do want to try the soil test, the best time to sample is post-harvest – remove the stubble and sample the top 15 cm of the soil. It might also be worth your while to retain some of the soil and plant peas into it for a “home test” over the winter to see if the pea roots become infected.

Right now, if you do have the problem, the only reliable solution is to extend out your rotation. Long term work in the Red Deer area seems to indicate that anything less than 7 years out of peas is insufficient for the disease to drop below economically damaging levels. Researchers are presently studying potential remedies, including brassica cover crops that “bio-fumigate” the soil, soil amendments such as calcium, a variety of seed treatments, and legumes in the rotation. But nothing so far has looked like it will offer an easy solution to Aphanomyces. So for now, if your field is infected and you still want a pulse crop in your rotation every 4<sup>th</sup> year, the options are soybeans, faba beans or chickpeas. But step #1 is to be aware of the problem before it hits you hard in the wallet, so remember to take a few hours around the middle of June to pull up some peas plants in the low areas or in wet spots and make sure Aphanomyces is not getting a foothold on your farm.



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