

What to Do if You Suspect Root Rot in Your Fields

As preparations begin for spring seeding, there are some important considerations to keep in mind when dealing with or trying to avoid root rots in your field. Root rots show up when the environmental conditions are conducive to development. This includes high precipitation and high soil moisture content, especially in the spring.

To ensure that you are providing the best possible environment for your pulse crop to thrive, keep in mind:

1. **Prevent** high levels of root rots or reduce the risk of root rot issues in your fields through field choice, managing your soil, and optimizing rotations
2. **Minimize** yield loss/protect yields in higher risk fields or when root rots show up during the season through good pulse crop fertility and pest management
3. **Reduce** spore loads in fields with high levels of root rot infection through lengthening pea and lentil rotations to 6 -8 years

How you plan this planting season will go a long way to managing and even avoiding the risk of root rots developing in your field. The following steps can aid you with your planning process.

Field Choice

The most important thing to consider when planting your pulse crop is your field choice. Choose a field that has soil that is best suited to pea and lentil production.

- Choose lighter textured soils, that have good drainage, and ideally are not compacted
- Choose a field that when it last had peas or lentils grown on it, did not have signs of root rots
- Try to avoid fields where herbicide residues might be a problem as it can add stress to the plants, making it easy for root rots to develop
- Consider pH. Peas and lentils are sensitive to low pH soils and *Aphanomyces* prefers acidic soils.
 - Avoid fields that are highly acidic or consider management practices to adjust the pH prior to growing pulses
- Fields with high levels of residue infected with *Fusarium* head blight may create more risk of root rots developing.
 - There are *Fusarium* species (ex. *Fusarium avenaceum*) that can be part of *Fusarium* head blight and are highly virulent in causing root rots in peas and lentils
 - When *Aphanomyces* is combined with *Fusarium* the root rots are much worse
- Get your soil tested.
 - Soil tests are available to help determine whether *Aphanomyces* is present in the field and can be used to help determine the risk, however this should not be the sole determining factor

Crop Rotation

Proper field choice is the first step to ensure that you are minimizing the risk of root rots developing in your crop.

Crop rotation is another important consideration in the integrated disease management plan.

- Avoid shortened rotations and stick with 3-4 year rotations
- If *Aphanomyces* has been positively identified or was suspected the last time peas or lentils were grown there should be at least six and preferably eight years before going back to peas or lentils
- Consider environmental conditions the last time peas and/or lentils were grown.
 - If it was a wet year there is a higher risk of spore loads increasing during that year and it is best to extend the rotation

Keep Plants Healthy

Your field choice has been made and your rotation plan is ready, so the next step to ensure root rots stay managed is to ensure you can keep your plants healthy.

- Use good quality seed that is disease free and has good germination and vigour
- Use appropriate seed treatments (there are a lot of options for managing pathogens other than *Aphanomyces*)
- Seed into moisture but not too deep to reduce stress on the seedling
- Watch the amount of seed-placed fertilizer you use as that can add additional stress to the plant and reduce emergence
- Apply herbicides at the appropriate timing and when the crop is actively growing, to avoid stressing the plants

Keep Plants Healthy

Pulses do require nutrients to feed the crop. Under conditions where the crop is stressed, or the roots are compromised, having readily available nutrients could be even more important.

- Apply phosphorus, potassium, and sulfur according to soil test recommendations or at crop removal rates
- Watch how much fertilizer is placed with the seed as peas and lentils are more sensitive

Table 1. Nutrient Removal Rates (lb/bu)

Crop	Phosphorus	Potassium	Sulfur
Peas	0.7	0.7	0.1
Lentils	0.6	1.1	0.2
Canola	1.0	0.5	0.3
Wheat	0.6	0.4	0.1

Keep Plants Healthy

Although there is no resistance to *Aphanomyces* there are varieties that have more resistance to *F. Avenaceum*. Some pea classes have tannins in their seed coats (dun and maple peas) that can improve the tolerance to *Fusarium*.

It is all about planning ahead. Decisions made now in terms of field choice, rotation, seed quality, and fertility can pay dividends in terms of proactively managing root rots. There are no quick fixes once root rots show up so the best option is prevention.