

Researchers target aphanomyces

By Barb Glen Lethbridge Bureau

MEDICINE HAT — Root diseases that are fairly widespread in Alberta in pea and lentil crops are the focus of extensive research at Agriculture Canada. Aphanomyces, first confirmed in Saskatchewan in 2012 and Alberta in 2013, is a mould that damages plant roots and stunts or kills the host plants. Syama Chatterton, a research scientist with Agriculture Canada who has been investigating aphanomyces for several years, gave an update Dec. 6 at the Farming Smarter conference. Chatterton said the disease can be found “pretty much anywhere peas are grown,” and is often part of a complex that involves a type of fusarium, *F. avenaceum*. Aphanomyces was fairly prevalent this year, particularly in central Alberta pea crops, she said. Pea plants infected with aphanomyces develop characteristic caramel-coloured roots with accompanying yellowing and wilting of the shoots. Those with fusarium develop a thick, black taproot that might show red if cut open. Plants are most susceptible to fusarium infection at the seedling stage, but aphanomyces can attack at any time in the growing season. There is no effective treatment, and the one chemical available is registered only for suppression and not for peas, Chatterton said.

Risk factors for root rot include:

- crop history and susceptible host crops
- wet soil conditions
- soil compaction
- acidic soil
- warm soil temperatures
- presence of other soil-borne pathogens

Chatterton now has data from 2014-16, broken down by soil zones. She said aphanomyces infection was worse in dark brown soil in 2014, but in 2015, which was a drier year, the disease was more prominent in the brown zone. In 2016, it was once again highest in the brown soil zone. Peas and lentils are equally susceptible, said Chatterton, and cicer milkvetch is also a host. Susceptibility of dry beans and alfalfa depends on the cultivar. Chickpeas, fababeans, soybeans, sainfoin and fenugreek do not host aphanomyces. The first step in control of the disease is soil testing to determine presence. Most seed labs can run the tests but can only confirm presence or absence rather than the prevalence or severity. If aphanomyces is present, Chatterton recommended that producers avoid planting peas or any susceptible crop on that land for six to eight years. Producers might also consider using a seed treatment that targets root rot complex, although that is most effective against fusarium and may not provide full season control. Research is now focusing on how many oospores per gram of soil are enough to cause aphanomyces in the crop. That information may help predict risk.

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