

Ascochyta Disease Levels on Field Pea Seed and Beneficial Management Practices

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There have been a lot questions by growers about ascochyta disease levels on the seed of field pea. This article will address some of those concerns.

What is considered a normal or acceptable disease level percentage for ascochyta on field pea seed?

Alberta Agriculture and Forestry research has shown a 2-3% infection level is common, however, it is dependent on whether the host, environment and disease are present in that particular field and year. The range of percent infection in our field trials has been 0.1-18.5%. Obviously, the closer the infection level is to zero, the better.

At what level of disease should a grower look for a different seed source?

The literature suggests a 10% cut off, but it really depends on seed availability in that particular year. In years where seed availability with lower levels of ascochyta is limited, growers have used seed with slightly higher than 10% infection levels with good results, as long as they employ some beneficial management practices.

What are the beneficial management practices to deal with ascochyta on field pea seed?

Applying a seed treatment, as well as increasing seeding rate, will help reduce the effect of ascochyta. Ascochyta on seed reduces emergence (lowers plant stand) as well as results in poor seedling health and vigour. Field pea stands that have less than the 7-8 plants ft² are not able to compensate through tillers, stooling or increased branching like other crops and low plant stands seldom have high yields. An important point that some growers don't know, is ascochyta on the seed has no effect on the level of foliar (leaf) disease on the crop as this disease's method of spread (spores spread by air, wind and rain) cannot occur because the seed is buried in the ground. However, high levels of foliar ascochyta in field pea will result in a high level percentage on the seed.

Do seed treatments work?

Seed treatment products are highly effective and are registered for control of seed-borne disease. Research scientists have isolated the disease organism from growers' fields. They then place the organism in a peat medium and put it down the seed tube with the seed and based on how well the treatment works in relation to bare seed, the product either gets rejected or registered. As many growers are aware, disease organisms occur in patches and are not distributed uniformly across a field, therefore, assessing seed treatment products for registration in the manner that scientists use is really putting the seed treatment product to the test. Check Alberta Agriculture and Forestry's Blue Book ([http://www1.agric.gov.ab.ca/\\$Department/deptdocs.nsf/all/agdex32](http://www1.agric.gov.ab.ca/$Department/deptdocs.nsf/all/agdex32)) selector chart for a list of products controlling ascochyta on seed.

Why do some demonstration, field and farmer strip trials and show no difference between treated and non-treated seed?

All three components of the disease triangle - the host, the disease and environmental conditions - have to be present for symptoms of any disease to occur. Research on seed treatments is not easy, and a full understanding of how disease works is required. Demonstrations or field trials that are relying the natural presence of the disease in that particular part of the field where the trial is located are flawed because, as indicated earlier, disease does not occur uniformly across a field but in patches. In conducting disease research, scientist inoculate the seed to ensure the disease is present and even this methodology is not always successful in every instance. As well, if there is no history of the host crop in the field or if the environmental conditions (humid, wet and cool) do not present themselves then the disease will not occur.

Are all seed treatment product the same?

There isn't a lot of research on direct to direct seed treatment product comparisons in the research literature. Some of the earlier research suggest the introduction of the active ingredients metalaxyl and fludioxonil in seed treatments increased disease control and overall plant health considerably. Additionally, seed treatment products increase in price as additional active ingredients are added. Multiple active ingredients ensure control of disease organism as organisms may evolve and the chance of resistance to particular products is always of concern. In some instances an insecticide compound

(thiamethoxam) has been added to control pea leaf weevil and, therefore, there is added cost. The bottom line is that you get what you pay for.

Which growers are at higher risk for increased levels of Ascochyta on seed?

Those growers that have a long history of field pea on their farm as well as short crop rotations with field pea increase the inoculum load and are at higher risk for higher percent level of disease on the seed versus a first time field pea grower. As well, Alberta Agriculture and Forestry has research to indicate that percent level on infection on the seed is lower when a foliar ascochyta control product (pyraclostrobin) had been used on the crop from which the seed is derived.

