# Evaluating Seed Treatments Options in a Dry Spring - FAQs

## Is a seed treatment necessary; and what is it protecting against?

Many seed treatments are additional options on seed purchased. Seed treatments for cereals, flax, peas, and soybeans are optional, or chosen at pickup. Corn, canola, and sunflowers are commonly pre-treated, or a seed treatment must be selected and ordered ahead of time.

If you are using farm-saved seed that had prior infection, or may be several years old, seed treatments are helpful in reducing seed-borne disease (smuts, bunts, alternaria) transfer to the next crop. If using certified seed, seed borne disease risk is lower, but certified seed may have other benefits.

Seed treatments protect against soil borne diseases as well, and depending on environmental and soil conditions, different diseases are more dominant (Table 1). Tight crop rotations increase the likelihood of seeding infection.

Table 1. Crop seedling diseases favoured by soil and environment conditions

| | Dry | Wet |
|---|---|---|
| Cool | *Rhizoctonia solani* | *Rhizoctonia solani*<br>*Pythium spp* |
| Warm | *Fusarium spp*<br>*Cochliobolus sativus*<br>(common root rot) | *Aphanomyces euteiches*<br>*Fusarium spp.*<br>*Phytophthora sojae* |

Seed treatments generally consist of a fungicide base, and/or insecticide top-up. Common fungicide seed treatments often include metalaxyl (Group 4) plus one or more other fungicides, often a mix of Group 3, 7, and 11 products. Reference the Guide to Crop Protection to learn about modes of action, and target diseases controlled.

The pathogen most likely to take hold in a drier emergence situation is *Rhizoctonia*. If seeds are already in the ground and it became wet (and stayed cool) it is "water-moulds", particularly *Pythium* that may attack the primary roots. Seed treatments that contain the active ingredient metalaxyl are the most effective against *Pythium*. Un-treated seeds might succumb to pre-emergence damping-off. *Fusarium* fungi are a potential threat in any moisture situation, dry or wet.

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## Will I get my return on investment (ROI) with a seed treatment?

Seed treatments are most likely to be beneficial under short rotation cycles and when environmental conditions are favourable for development of disease. For example, a short pea crop rotation leads to an increased risk for aphanomyces infection. Aphanomyces is most yield-damaging when wet and waterlogged soils occur 4 to 6 weeks after seeding, followed by drier conditions.

Manitoba Pulse & Soybean Growers on-farm research at over 36 sites showed that soybean seed treatments prevented yield loss 22% of the time, while 75% of the time trials were unresponsive over a wide variety of locations and field conditions.

(https://www.manitobapulse.ca/2019/03/soybean-seed-treatments-assessing-your-risk/).

In canola, enhanced seed treatments over the base in-the-bag package cost extra, typically $5-$9/acre more – but those treatments may save a foliar spray down the road, particularly if flea beetle or cutworm levels are high and widespread. Research at Agriculture and Agri-Food Canada in Saskatoon found that neonicotinoid seed treatments were more effective against flea beetles in dry soils than in wet soils, and more effective at 20-30°C than at 10°C.

In cold soils, emerging seedlings can become stressed easily, and 'stall' during the germination and emergence stages. This could mean a higher chance for seedling disease to take hold since the plant is not actively outgrowing the invading infection.

In studies done in North Dakota from 2003-2017, over a number of different trials and treatments in wheat, a seed treatment showed a 7.2% stand increase over an untreated check, 73% of the time.

(https://www.ag.ndsu.edu/cpr/plant-pathology/wheat-fungicide-seed-treatment-field-and-greenhouse-research-update-05-10-18)

## How long will a seed treatment last?

Typically two to three weeks post-seeding date. Practically, the useful life depends on the length of time the seed takes to germinate and emerge. Warm weather with adequate moisture speeds up germination and emergence, and the plant can get off to a better start while the seed treatment is still active.