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FUNGICIDE SEED TREATMENTS

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Seed treatment, as defined by the Federal Seed Act, means "...seed given an application of a substance or subjected to a process designed to reduce or control, repel disease organisms, insects, or other pests which attack seeds or seedlings growing therefrom." A fungicide seed treatment is the application of a fungicide to the seed to protect it from rot or decay caused by disease-causing microorganisms in the soil, on the seed, or in the seed.

Reasons To Treat Seed With A Fungicide

Unpredictability of Weather After Planting

Soil conditions may become adverse for optimum seed germination and growth of the seedlings, i.e., "cool and wet" or just remain wet for various periods of time after seed has been sown. Under these conditions, seeds are slow to germinate and emerge, but soil microorganisms grow well and are more likely to infect seed than under warmer and drier soil conditions. A fungicide protects the seed from potential infecting soil microorganisms until soil conditions are favorable for rapid seed germination and growth. This is the most important reason for treating seed with a fungicide.

Diseased Seed

Seed may become infected by disease-causing microorganisms during the growing season in which it is being produced. This is most likely to occur during periods of excessive moisture prior to harvest. The consequence of infected seed is poor germination when planted the following crop season. A seed protectant fungicide is most effective if the disease-causing microorganism is on the outside of the seed. It is of little or no benefit when the microorganism is already established inside the seed. An exception to this is the use of systemic fungicides to control loose smut of small grains where the mycelium of the causal fungus is inside the seed.

Poor Quality Seed

Physical damage to seed, such as cracked or split seed coats, may occur due to extended alternating wet and dry weather at harvest time or improper adjustment of harvesting machinery. Soil microorganisms may grow into these cracks when the seed is sown without having to directly penetrate the seed coat itself. A fungicide will act as a protective covering over these cracks and splits.

Carryover Seed

Seed produced two or more years prior to planting may lack vigor and not germinate properly. Soybeans and corn in particular are affected. Such seed as it lies in the soil without germinating is subject to infection and eventual decay by soil microorganisms in contrast to healthy seed that is able to germinate rapidly. A fungicide seed treatment will prevent some of this decay resulting in a better stand than would be achieved otherwise.
Other Factors To Be Considered With Fungicide Seed Treatments

Persistence
Seed protectant fungicides do not persist indefinitely in soil, but depending upon soil moisture conditions and temperatures, will tend to lose their efficacy in 10 to 14 days. The more soil moisture present, the quicker the fungicide will break down. Seed may be pretreated several months prior to planting with little or no loss in fungicide efficacy providing the treated seed is dry and properly stored.

Effective as Seed Protectants Only:
Fungicide seed protectants do not control other plant diseases that may occur during the growing season. For example, the fungicide will protect only the seed and a limited portion of a newly germinated seedling, but will not prevent root rots or above ground plant diseases. Additionally, the germinated seedling may be subject to pre and postemergence damping-off if soil conditions remain favorable for infection by soil pathogens, i.e., wet and cool.

Compatibility with Inoculum
Fungicides may harm inoculum applied to seed. Inoculating seed with nitrogen-fixing bacteria should be done as close to planting time as possible with the fungicide applied to the seed anytime before the inoculum is.

Safety Rules

Treated Seed is for Sowing Only
Seed treated with a fungicide cannot be used for any purpose other than planting. Treated seed that has gotten into commercial food or feed channels may cause condemnation of the entire lot or shipment. Do not use seed for feed or food, even after it has been stored for months or years.

Treated seed should be stored in clearly marked containers. Thoroughly clean sacks or other containers used for storing treated seed before using for other purposes.

To avoid having treated cereal or soybean seed left over after sowing, farmers should consider buying or having treated a little less seed than will be needed for the acreage to be sown. Finish sowing with untreated seed. This will eliminate any problems with stored seed. Treated seed that is not sown must be destroyed.

Phytotoxicity
Most fungicides when over applied or otherwise misapplied will cause phytotoxicity. Be sure to read the instructions on the label carefully.

Irritation to Humans
Some fungicides may tend to be irritating to certain individuals handling them, particularly during a planter box treatment. Be careful, take precautions, use rubber gloves, a properly fitting mask to avoid fungicide dust inhalation and
clothes that cover the skin to avoid dust contact. Most important...READ THE LABEL.

**Seed Treatment Methods**

Fungicide seed treatments may be applied commercially as dust, spray or slurry; or they may be applied at the time of planting as a planter box treatment. All fungicides used for seed treatment contain a dye so that treated seed may be easily recognized.

**Slurry Application**
The fungicide dust is suspended in a small quantity of water. This is applied to the seed in a "slurry treater" which coats the seed with the fungicidal slurry. The water evaporates, leaving the seed coated with fungicide.

**Spray or Liquid treatments**
Spray or liquid treatments are applied in either mist type or ready mix treating machines. In the mist type, the liquid (either undiluted or mixed with a small amount of water) is applied to seed as a mist. In ready mix type, the liquid is applied directly to seed in the rotating mixer.

**Planter Box Treatment**
A measured amount of fungicide is mixed together with a pre-determined weight or volume of seed in the drill, planter box or in an outside container then placed into the planter. Planter box treatments do not always work well with air planters.