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WHY TREAT SEED AND SEED TREATING MATERIALS ?

T. C. Ryker 1/

The basic consideration in treating seed to control certain seed-borne organisms and to protect germinating seed from seed rot and seedling blights is generally understood by seedsmen. However, as the seed industry becomes more sophisticated, the emphasis changes from the general consideration of treating to the needs of specific crop seed, or even seed lots, and to the specific merchandising plans for the seed. The attempt here is merely to outline the aspects that seedsmen must consider.

Considerations in Treating Seed

1. Control of seed-borne diseases through disinfection. This includes the smuts, Helminthosporium blights, Scab, Anthracnose and certain bacterial blights. Chemical treatments do not control internal seed-borne, loose smuts, stalk smuts or bean blights. For these, hot water treatment, cold water soak or isolation of seed productions are needed.
2. Protection of the germinating seed and tender seedling from seed rot, pre-emergence damp-off, and post-emergence damp-off. The need relates to the seed, the environment, to mechanical injury and to seed quality. Some germinating seed even exude nutrients into the soil to attract fungi. The common soil fungi involved are principally Rhizoctonia, Pythium, Thelaviopsis, Fusarium and seed molds.
3. Protection of seed from storage insects.
4. Protection of germinating seed and seedlings from soil insects, such as the seed corn maggot, wireworm, thief ants and seed beetles.
5. Making the seed more manageable for planting, such as pelleting to permit precision planting.
6. Utilizing the seed as a vehicle for transporting chemicals to the soil for root uptake such as legume inoculants, plant growth regulants, minor elements (molybdenum), nematocides, and systemic plant insecticides.
7. Adding appropriate colorants for identification, FDA regulations, and separation of seed lines.

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Seed Treating Materials

The physical form may be as liquids, slurries or dusts and includes:

1. Organic Mercurials that give disinfection and protection. They give high efficiency at low cost and seed coat absorption. Volatile forms give redistribution of vapors to supplement initial coverage, which is essential for control of *Helminthosporium* of oats. They're used for the treatment of small grains, cotton, flax and safflower where seeds show tolerance to the mercurials.

2. HCB (Hexachlorobenzene and PCNB (Pentachloronitrobenzene) for bunt of wheat only. They are not effective on other smuts and they do not give seed protection.

3. Seed Protectant: "Dexon", Captan, Chloranil and thiram. They are highly safe to seeds, complete coverage is essential but give poor disinfection. They are used for treating of corn, sorghum, vegetables, and legumes.

4. Seed Protectant Supplements for control of post-emergence damp-off. New developments are coming up.

5. Combinations - mercurials and protectants - used for peanuts.

6. Insecticide for Storage Insects. These include DDT, Malathion, methoxychlor and pyrethins.

7. Soil Insecticides. These include dieldrin, aldrin, heptachlor and lindane. Use must be with fungicide protectant.

8. Crop Insecticides and Nematocides. These include the systemic.