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DRY-PICKLING SEED WHEAT

By W. P. CASS SMITH, B.Sc. (Agric.), Government Plant Pathologist

In Western Australia, seed wheat has, for many years, been dusted before planting with copper carbonate or other fungicides—a treatment usually referred to locally as dry-pickling. This term was first coined when the dry dusting technique superseded the older method of wet-pickling the seed in bluestone or formalin solutions.

Besides being less cumbersome, the dry-pickling method has proved highly effective and bunt or stinking smut of wheat which was formerly so widespread and serious, is now very rare.

Despite this reduction in the amount of bunt, and contrary to the opinion held by some farmers, dry-pickling of seed wheat with an effective fungicide is still very necessary and important economically. Although bunt is quite rare nowadays, it has not been entirely eradicated and in the absence of any seed treatment this disease could soon multiply again and cause heavy losses.

Furthermore dry-pickling of seed wheat is carried out not only for the prevention of bunt but also to control other diseases carried on the seed, and in addition to give some protection from soil moulds which under certain conditions attack the germinating seeds or young seedlings.

This latter trouble, which is sometimes called damping-off may give rise to bare patches or sparse stands and, it is apparently becoming more prevalent under the more fertile soil conditions, brought about by ley farming.

Now, fungicidal dusts vary inherently in their capacity to meet these disease control requirements, and therefore, the selection of a suitable material is a matter of importance.

Hexachlorobenzene, a comparatively new fungicide, was developed specifically for the prevention of bunt or stinking smut of wheat; but while it is excellent for this purpose, it is relatively ineffective against seed-borne spores of flag smut and, it affords little if any protection against soil organisms causing damping-off. For these reasons dusts based on Hexachlorobenzene have not been recommended by the Department of Agriculture for dry-pickling seed wheat.

Fungicidal dusts containing compounds of copper or organic mercury have general purpose qualities and they are preferred to HCB for seed dressing purposes because of their wider range of effectiveness. Until recently, copper compounds such as copper carbonate, were more popular than the organic mercuries, largely because they were cheaper, but at ruling prices the reverse now applies.

There is also some evidence that organic mercury compounds are superior to copper fungicides for protecting the germinating seeds from attack with soil moulds. In an experiment conducted at the Avondale Research Station last season, better establishment of wheat seedlings on old clover ground was obtained from seed treated with an organic mercury dust than from seed treated with copper carbonate.

Organic mercury compounds also have a further advantage, they give excellent control of both the oat smuts and covered smut of barley, whereas the copper compounds are ineffective against these diseases, and may impair the germination of these two cereals.

For these reasons it is recommended that an organic mercury dust (such as Ceresan or Agrosan) should now be used as a standard seed dressing material for wheat, oats and barley, at a dosage of 1½ to 2 oz. per bushel.

To be effective the material must be thoroughly applied, so that the seeds are uniformly dusted and, where this work is carried out by contract, it should be supervised by the farmer to ensure that thorough coverage is obtained.
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