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ASCOCHYTA BLIGHT OF PEAS

By W. P. CASS SMITH
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This disease of peas which is generally termed "black spot" or "stem rot" by growers is widespread in Western Australia. During the wet winter months the disease is often so severe that it is difficult to grow garden pea varieties satisfactorily; but in summer when hot, dry conditions usually prevail the disease is of little consequence.

Ascochyta blight may be caused by a complex of three different parasitic fungi namely Ascochyta pisi, A. pinodella and Mycosphaerella pinodes, but the last-named appears to be commonest here. Although each of the three fungi produce somewhat different symptoms their life-histories are so similar, that they are here treated as the cause of a single disease.

The main symptoms will be familiar to anyone who has tried to grow peas during winter; the disease becomes obvious by the occurrence of a conspicuous black or purplish streaking of the lower stem portions, together with a very obvious spotting of the leaves and pods. When the disease is severe the basal stem portions may be completely rotted, causing the death of all above ground parts. In this case the black or purplish discolouration completely encircles the stem, and the lesion may extend several inches above ground level. (Fig. 1.) On the leaves the spots may take the form of small brown or purplish irregular dots.
or they may be large, more or less circular, and concentrically ringed. Similar lesions may also develop on the pods. (Fig. 2.)

The disease is seed-borne, and its first appearance in a garden can usually be traced to the planting of infected seed. Most commercial samples contain a proportion of infected seeds, and these are often badly shrivelled and discoloured with black, brown or purplish blotches. Culling out discoloured and shrivelled seed from the sample will considerably reduce the disease, but as a few infected seeds may be symptomless the disease cannot be eliminated entirely by this means. (Fig. 3.)

However, growers can, if they wish, obtain clean seed by growing a special summer crop for seed purposes, as the disease is only serious in crops grown during the wet winter months. When saving seed, any pods showing discolouration should be avoided.

The sowing of infected seed gives rise to diseased plants, from which the disease may be transmitted to healthy plants adjacent by rain splashed spores. The disease can also arise from infected crop residues in the soil, or from wind blown spores from adjacent diseased crops.

CONTROL
(1) If practicable sow only disease-free seed harvested from a summer crop, or if this is unobtainable, carefully handpick
and discard all badly shrivelled, discoloured, or cracked seed.

(2) Dust the seed before planting with Tetroc (Spergon) or other suitable dusts at the rate recommended by the maker. Although seed treatment will not completely control the disease it often promotes a better emergence.

(3) Plant out on land which has not grown peas for two or three years, choosing a sunny, well drained, situation for winter crops.

(4) Support the crop well off the ground with stakes, strings, etc., so that it will dry more quickly after rain.

(5) Immediately the disease is noticed spray with a Thiram-containing fungicide at a dosage of 1½ lb. in 100 gallons (= 1oz. in 4 gallons) taking care to cover the stem bases thoroughly as well as the leaves. During weather favourable for the disease routine sprayings at approximately weekly intervals may be required to hold the disease in check. Thiram fungicides are sold commercially as "Thiofox," "Lantox," "Thiram 80," etc.

Fig. 3.—Good and inferior quality seed. Ascochyta blight is often introduced by infected or contaminated seed. Discoloured, cracked, spotted or shrivelled seed such as that shown at the right may carry the disease and should not be planted.

N.B. In a recent spray trial Thiram and Phygon were the only fungicides which proved superior to the standard copper oxychloride spray. Phygon however is not available locally. The following fungicides were inferior to the copper spray:—Ziram, Zineb, Captan, T.Z.U. 4311, and P.M.F. The P.M.F. spray was no better than the control and caused mottling of the foliage.

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