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BACTERIAL CULTURES
Department of Agriculture Service Discontinued
By W. P. CASS SMITH, Government Plant Pathologist

IT was announced recently by both press and radio that the Department of Agriculture, which for nearly 30 years, has been supplying farmers with bacterial cultures for leguminous seed inoculation, has discontinued this service. This decision was made because adequate supplies of commercial peat cultures are now available through ordinary commercial channels.

Although this talk is concerned mainly with commercial cultures and their use, a brief review of the Department’s activities in connection with leguminous seed inoculation may not be out of place, for this work was largely pioneered in Australia by agricultural scientists in this State.

In 1926 it was found the failure of many lucerne crops was caused by lack of the beneficial root-nodule-forming bacteria in the soil. To overcome this difficulty the bacteria were grown in culture bottles on an “agar” medium and issued to farmers, who mixed the contents with skim-milk and inoculated the lucerne seeds before planting.

The results were so satisfactorily that the demand for cultures soon increased and other bacterial strains for the inoculation of peas, clovers, lupins, barrel medic etc., etc., were obtained. Some new strains were isolated from plants grown locally—others were secured from abroad.

All told about 100,000 standard agar cultures have been prepared and distributed by the Department of Agriculture to farmers in Western Australia and this service has proved of inestimable value to the State for in many instances inoculation has meant the difference between success and failure in the establishment of important leguminous crops.

Leguminous seed inoculation is now so common that commercial firms have entered the field. Unlike the standard agar cultures, the commercial cultures are prepared in powder form and contain finely-ground peat as a carrier for the bacteria.

These peat cultures were tested last season by the Department of Agriculture and it was found that, provided they contain effective strains of bacteria, they are as satisfactory as standard agar cultures. For this reason arrangements have been made to include strains recommended by the Department of Agriculture in commercial cultures marketed in W.A.

Because the peat cultures are sold in powder form they are sometimes referred to as dry-cultures. However, this term is incorrect for the peat contains a standard amount of moisture which helps to keep the bacteria alive. The moisture is retained by packing the cultures in sealed plastic containers which should be stored in a cool place and not opened until the seed is inoculated. When using the peat cultures there are a few important points to be noted although in general the same precautions and sowing practices long recommended by the Department for successful inoculation with agar cultures—should be observed with commercial peat cultures. These precautions include:—thorough mixing of the culture with the seed, planting the inoculated seed as soon as possible in moist soil, and avoidance of contact with acid fertilisers such as superphosphate. If, as sometimes happens, mixing of inoculated seed and super cannot be avoided, the mixture should be sown within half an hour. Alternatively, basic superphosphate may be used.

It has been noticed, however, that some leaflets issued with commercial cultures recommend the use of 50-50 lime-super mixture. This recommendation should be treated with caution under W.A. condi-
tions, for in some cases 50-50 lime-super mixture has had a deleterious effect on growth. Lime should only be applied on the basis of local knowledge and as recommended by the local agricultural adviser.

Finally, a few words concerning the ordering of commercial cultures. Farmers should place their orders directly with the distributors rather than with this Department and state the type and quantity of seed to be inoculated. At the present time the distributors include most of the leading stock firms, seedsmen or agents.

(From a broadcast talk given over Station 6WF.)

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