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HORTON PLAINS PEAT AS A CARRIER OF LEGUME INOCULUM

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Peat rich in organic matter has been used as a carrier of inoculum in Australia and U.S.A. Sterlization of the peat destroys all microorganisms and is essential for the slow growing Rhizobium japponicum group, the slower Rh. lupini group but not for the fast growing Rh. trifoli.

The number of rhizobia that has to be applied to the inoculated seed is the key to any standard. In sterile glasshouse work one rhizobium is sufficient for positive nodulation but under field conditions in an adverse environment with competition with other soil organisms 300 rhizobia/seed is the minium standard but under favourable conditions 200 / seed could give prompt nodulation.

Rhizobia were grown in an areated yeast extract sucrose medium to provide 500 x 10^3 viable rhizobia/ml. A viable plate count was done. 100ml of this broth was mixed with 200g of Horton Plains peat sterilized (<300 mesh) to give a water content of 40 – 45%. Counting methods were done by standard dilution procedures on the surface of a yeast extract–mannitol agar containing 1 in 40,000 of Congo Red. Plate dilution counts were made by inoculating duplicate seedlings. This permits a culture to be defined as below standard $<10 \times 10^6$ rhizobia/g; doubtful 10 to 100 x 10^6/g; satisfactory 100 to 1000 x 10^6/g. and very satisfactory 1000 x 10^6/g. The below standard and doubtful material is discarded. The very satisfactory is given an expiry period of 6 months and the satisfactory as in this case of Horton Plains peat 4 months if maintained at 2°C.