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Comparative Growth Rates of Different Strains of Rhizobium meliloti

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EXPERIMENTS WITH DRY DUST CULTURES FOR THE INOCULATION OF LEGUME SEEDS

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Within the past few years a number of commercial concerns have produced a dry dust type of culture for the inoculation of legume seeds. Field experiments have been conducted to test the value of these cultures for the inoculation of soybeans. The results showed that the dry dust cultures did not give satisfactory inoculation.

Greenhouse experiments have also shown that the inoculation of legume seeds sometime in advance of the planting date, as is recommended by the producers of the dry dust manufacturers, is undesirable.

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COMPARATIVE GROWTH RATES OF DIFFERENT STRAINS OF *RHIZOBIUM MELILOTI*

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The growth rates of two strains of *Rhizobium meliloti* were measured when the organisms were grown in a nitrogen-free medium and in a medium containing nitrate nitrogen. The strains used differed widely in their ability to aid the host plant in symbiotic nitrogen fixation. They also differed somewhat in cultural characteristics.

The strain which was more efficient in nitrogen fixation in symbiosis with the host plant grew faster in the medium without nitrogen, than it did in the medium containing nitrate nitrogen. On the other hand, the strain of less efficient organisms grew faster in the medium containing nitrate nitrogen than in the nitrogen-free medium.

The results seem to indicate that the organisms which are less efficient in fixing nitrogen grow faster in the presence of com-

bined nitrogen or may require it for their growth; and that the more efficient organisms grow faster in the absence of combined nitrogen and may even be inhibited by its presence.

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