The infective ability of twelve strains of soybean, nine of cowpea, and two of lupine Rhizobia for eleven plant species was investigated.

All strains of the soybean root-nodule organism proved infective for Vigna sinensis; the strains of the cowpea Rhizobia, however, varied greatly in their ability to induce nodule formation on Glycine max. Two of the strains of cowpea Rhizobia were highly infective for Glycine Max, four were moderately infective, and three were unable to induce nodule formation on this host. The variation in the infective ability of the strains employed was great. This variation was apparent in tests upon the heterologous plant, and though more pronounced under conditions unfavorable for infection, was also observed under conditions ideal for the formation of root nodules.

The investigation showed that separation of these strains into groups depended entirely upon the host plant employed in the separation. The evidence would indicate that the root-nodule organisms responsible for the infection of plants of the so-called soybean, cowpea, and lupine cross-inoculation groups are physiological adaptations within a single species, and not three separate species as has been previously suggested.

Although it seems desirable to place in one species all of the Rhizobia previously listed in these three groups, it is apparent that satisfactory results from the inoculation of any plant will be secured only by the use of a strain of Rhizobia peculiarly adapted to the particular host.

PEA RHIZOBI A AND RED COPPER OXIDE

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Commercial red copper oxide for fungicidal purposes is toxic to pea nodule organisms. Laboratory and greenhouse experiments indicate that this toxicity may be modified by the materials used in the application of cultures of legume bacteria.