ABSTRACT

Twenty-nine Rhizobium japonicum strains, mostly imported from the United States of America, were screened for effectiveness on soyabean (Glycine max (L.) Merr.), var. Jupiter, in pure culture in Leonard jars. Strains showing greatest potential were tested in pots in 2 soil types, River Estate loam and Piarco fine sand. Effective N-fixing symbioses were established with an indication of a yield response in Piarco fine sand. In both soils, nodulation of uninoculated plants suggested the presence of an indigenous population of rhizobia able to nodulate soyabean.

Rhizobial strains isolated from nodules on uninoculated plants proved effective on soyabean in Leonard jars and also nodulated cowpea and pigeon pea, but not peanut.

Variations in effectiveness of rhizobial strains between soil types were found in pots. In field trials on Piarco fine sand, nodulation by indigenous rhizobia varied between different sites. Mineral N applied at flowering decreased nodulation and nitrogenase activity at early pod fill but gave an indication of increased final yield. A locally isolated strain appeared better adapted to local conditions than an imported strain. A response to inoculation was indicated but recovery of antibiotic resistant rhizobia from plants inoculated with an antibiotic resistant marker strain was low.