

poor germination (73 p. 100) as compared to 98 p. 100 in liquid inoculated seeds, and 93 p. 100 in control plots. However, when adequate water was available germination was not affected by granular inoculum. Peat or Lignite granules, as used by commercial companies in the USA, may be better carriers than sand. Direct seed inoculation was also found to decrease seed germination during the 1980 rainy season (*unpublished observations*).

Effect of mixing inoculant strains.

Commercial inoculants sometimes contain two or more strains of *Rhizobium* in order to safeguard against the failure of a single strain. However, during the 1980 we found that inoculation with a single strain of NC 92 was superior to a mixture of the strains NC 92, 5a/70, and IC 6006. In Alabama, USA, commercial *Rhizobium* mixture produced fewer nodules on groundnut and a lower plant weight than a single strain [A. E. Hiltbold, *personal communication*]. There are several dangers in using mixed strains in an inoculum e.g., (i) control of production

quality is more difficult to ensure, as each strain must be grown in a broth separately, then added to the carrier, (ii) differential multiplication rates of the strains may result in large differences in the final prepared inoculant, and (iii) competition between the strains in forming nodules may result in the least effective combination dominating others following inoculation [Date & Brockwell, 1976].

CONCLUSION

Our results indicate that substantial increases in groundnut yield can be obtained by using a combination of the cultivar Robut 33-1 and *Rhizobium* inoculant using the strain NC 92. The responses were obtained in fields where groundnuts had been grown earlier and the uninoculated plants were well nodulated by the native *Rhizobium* population. To our knowledge, this is the first report of a strong host-cultivar *Rhizobium* compatibility in a field grown groundnut crop resulting in increased pod yield, observed over several seasons.

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