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Lankan phosphate for local use

We are seeking a viable alternative to the processing of Lankan phosphate for local use. It will greatly benefit the country if its use for organic agriculture is reassured by all national minded scientists and organizations.

The following note will be a starting point. A response would be welcome.

Plants also take up phosphate by a process of mycorrhizal symbrosis, between roots and various species of fungi, in particular by Vasicular-arbuscular mycorrhizal fungi belonging to a single phycomycetous family Endogonaceae (Mastigomycotina) and some to the genus Endogone (Zygomycetes).

Field trials shown that in phosphate-deficient soils, mycorrhizal infection by these fungi icreases phosphate uptake by their host plants and so gives valuable increase in crop growth and yield. In many field trials on soils lacking both soluble phosphate and suitable mycorrhizal fungi, inoculation with such fungi has generally resulted in a significant and often very striking increase in rate of tree growth.

There is the additional possibility that, not only does the fungus take up and move phosphorus compounds to the host but it also in some way increases the ability of the roots themselves to do so. (It has been calculated that four hyphal connections per millimetre of root, with unbranched hyphate extending from these into the surrounding soil to a distance of 20 mm, would allow a 10 to 60-fold increase in phosphorus uptake by the roots.)

Vesicular-arbuscular mycorrhizas are not restricted to wild plants but are also characteristic of a wide range of crop species, including cereals and legumes. Clearly these symbioses must contribute to the well-being and high yields of many crops but to what extent has not been quantified. It is interesting to speculate that in the future varieties of crop plants may be developed with the ability to form endomycorrhizas to a degree where dependence on expensive mineral fertilizers for economic yields will be greatly reduced.

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