

BIOSUPER—A BIOLOGICAL SUPERPHOSPHATE FROM EPPAWELA PHOSPHATE

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Natural deposits of rockphosphate vary in their hardness and availability of phosphorous to plants. The best being the soft north African deposits. Treatment of rock phosphate with conc. sulphuric acid results in a 20% ordinary superphosphate. This process needs expensive factories and capital.

Soils mixed with 1% sulphur and incubated at 28°C would indicate the presence of sulphur bacteria by the acidity formed. In biosuper 5 parts of rockphosphate is mixed with 1 part of sulphur powder and 1% soil inoculum having *Thiobacillus* with water to form a pellet. Within the TH. thiooxidans dissolves the rockphosphate at a pH round 3.5 by forming sulphuric acid.

Biosuper is cheap and could be made with a cement mixer. As the optimum temperature for the thiobacilli is 28°C its success is only in the tropical regions. It is a slow acting fertilizer and is suitable for only perennial crops. In pastures and sugar cane

biosuper has performed better than the superphosphate in the second and third years. The thiobacilli is an aerobe and does best in moist wet regions but not in water logged rice soils.

In a glasshouse replicated pot trial Siratro, *Phaseolous atropurpureus* a perennial subtropical pasture legume was grown in a highland phosphate deficient soil with zero phosphate, 2, 4 and 8 cwts. of raw Eppawela phosphate, biosuper and ordinary superphosphate. At the 4th harvest after 218 days the dry weight and P content of the ordinary superphosphate treatments was best, secondly the biosuper and lastly the Eppawela phosphate. At the 3rd and 4th harvest the Eppawela phosphate is showing promise as a slow acting fertilizer in aerobic conditions but it has shown no response in earlier rice trials (in flooded conditions).

Details of the 10 treatments at the harvest with the dry weight and phosphate uptake would be given.