Rovira & Associates
32 Forest Avenue
HAWTHORNDENE SA 5051

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Great Barrier Reef Study
Productivity Commission
Locked Bag 2 Collins Street East
MELBOURNE VIC 8003

Dear Sir/Madam

I hereby submit my submission to the Productivity Commission regarding your enquiry and examination into "Industries in the Great Barrier Reef Catchment and Measures to Address Declining Water Quality".

Yours sincerely

Dr Albert Rovira
AO, FTSE, PhD, DAgSc. Agricultural & Environmental Consultant

Submission to - The Great Barrier Reef Study Productivity Commission

By Dr Albert Rovira
AO, FTSE, PhD, DAgSc. Agricultural & Environmental Consultant

There is no doubt that the Great Barrier Reef is under threat of pollution in two forms.

Firstly, there is the soil arising from erosion following high rainfall events very common in the tropical zone of Queensland.

Secondly, there are the soluble nutrients leached from the soils used for sugar cane, pineapples, bananas, vegetables and other crops - the bulk of these nutrients arise from the freely soluble conventional chemical fertilizers applied at high levels.

The problem of soil erosion with its particulate pollution of the sea off North Queensland has been greatly reduced over the past 10 years following the widespread adoption by sugar cane growers of green stick harvesting and total residue retention on the surface.

The change from burning the cane before harvesting which left the soil bare and very prone to erosion shows that sugar cane farmers are conscious of the fragile nature of their soils and are prepared to make changes providing productivity is maintained.

The second problem of soluble nutrients such as phosphate and nitrate arises from the high rates of chemical fertilizers used by the growers of the crops listed above, not only sugar cane growers. High rates of fertilizers are used to maintain levels of production which will give economic returns to growers in very price competitive Australian and overseas markets so that any change from these soluble fertilizers must have either lower input costs and/or equal or higher yields for the same input costs.

There is a very urgent need in this region for a fertilizer which can provide enough available phosphorus and nitrogen to maintain high production levels and yet do not leach from the soil to pollute ground water, streams and neighboring seas. In my capacity as a soil scientist and soil microbiologist I have been asked to analyse results from many field trials in Australia and overseas with a fertilizer using specially selected yeasts in granules containing insoluble rock phosphate, starch and carrier material and sold under the name of NutriSmart. Put simply this fertilizer contains special yeasts which are activated once in the soil to perform three functions, viz:

1. Dissolve the rock phosphate into soluble phosphate at a rate which plants use as roots grow by the granules,

2. Convert nitrogen from the soil air into a form which plant roots can utilize (nitrogen fixation) and

3. Slowly release potassium from soil minerals in a form which plant roots can use.

Results from the trials that I have examined over a wide range of crops, climates and soils show that yields using NutriSmart are equal to or greater than those obtained with chemical fertilizers used as farmer best practice. But, more importantly leaching studies have shown that the levels of soluble nitrate and phosphate in water passed through soil containing NutriSmart are much lower than when soils contain conventional chemical fertilizer.

The conclusion from my studies is that NutriSmart offers a ecologically viable alternative to conventional fertilizers for all crops grown in North Queensland including sugar cane. There is

now a very urgent need for extensive field trials with NutriSmart for a wide range of crops which demand high nutrient inputs to compare its performance with conventional fertilizers both in terms of yields and also in terms of soluble nutrient levels in the soils during and after the crops have grown.