

## DATA ON MICROSOIL FORMULA USED IN ECUADOR, SOUTH AMERICA

The MicroSoil formula has been used by Ing. Errol Cartwright primarily on three crops:

1. Bananas at Provincia Del Oro
2. Rice at Provincia de Los Rios
3. Soya at Provincia de Los Rios

Total hectares using MicroSoil --1,000 (approximately)

Final yield results -- Bananas--Approximately 20% increase  
Rice-----Approximately 20% increase  
Soya----- Results not final

Please note: We recommend the use of Potassium as an amendment to MicroSoil. Errol Cartwright in Ecuador used approximately 400 to 600 grams per banana plant every four months as MicroSoil was applied. Lesser amounts of Potassium were added to rice crop based upon amounts of Potassium currently present in soil.

Additionally, we recommend on a long cycle crop such as bananas that MicroSoil be applied every four months.

### Report on the MicroSoil Formula

The purpose of this report is to outline the results obtained while testing the use of MicroSoil on the El Recuerdo plantation of which I am the owner.

The testing was initiated for a hectare (10,000 sq meters) of a cultivated banana field. The soil analysis was done prior to the MicroSoil application. The application doses was a litre of the product per hectare, every four and a half months. This application was done 15 days after the Nematicida application.

The results observed were as following:

From the third month it was noted a significant in the soils structure, going from compact (dense) to loose (free) grounds.

In a year we analyzed again and the soil showed a pH regulation (from 5.8 pH & 6.0 went up to 6.8 & 7.0) without any type of lime (white washing) and a notable reduction in the requirements of nitrogenous fertilizers.

Once these results were obtained and since no negative effects were found, the product was applied to the 170 hectares.

The attached table indicates the variations obtained since the date of the MicroSoil application in all the hectares until this report's date; the consumption of "insumo," in the soil characteristics and the fruit production. The analysis of such information leads us to the following conclusions.

It contributed to optimize the crop fertilization in the sense that the required fertilizer quantity was assimilated more efficiently by the plants due to the increased capacity of the kation interchange.

The nitrogen quantity available in the soil increased, and this made it possible in the reduction of the urea 50%.

The potassium application was increased (essential element for the development of the banana fruit) without representing a waste, but an increase in quantity & quality and fruit weight.

The soil structure was corrected in the lots that had compactation (density problems and the pH was neutralized in the grounds eliminating the need of lime corrections.

In the analysis of the live roots percentages there has been an increase which indicates that even though the product MicroSoil is not a "nematicide" it contributes to the biological control of the nematodes.

The plantation "El Recuerdo" (The Remembrance) is located in the Santa Rosa- Buenavista Road at one kilometer of the Y of the Enano La Victoria Parish, Santa Rosa State. The general characteristics of the plantation are:

171 are banana grown, the Gran cavendish variety since 27 years ago, next to the Buenavista River from which the water is obtained for the irrigation.

The obtained benefits come not only from the lots with a diversity of problems but from the lots with the best characteristics.

Cordially,

Engineer Errol Cartwright

CHART OF REGISTERED VARIATIONS AS A RESULT OF THE USE AND APPLICATION OF MICROSOIL		
	Before Application	After
Urea Sacks/Ha/Year	16-17	8-9
Muriato "	12	22-24
Lime "	15	0
Nematicida	No variation	No variation
pH (average)	6.1	7.1
Live Roots (average)	60%	75%
Production Bunch/Ha/Week	34.6	38
# Lands/Bunch (average stand)	8	9-10
Bunch Weight (average lbs)	75	82.6
Cutting (# of sweeping weeks)	14-15	13
Conversion	1.2	1.35
Population (average/Ha)	1550	1550
The plants overturn	5%	2%