


EFFECTS OF INOCULATION AND FERTILIZATION ON THE  
NODULATION AND YIELD OF SOYBEAN IN LOWLAND  
RICE-BASED CROPPING SYSTEM

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## BIOGRAPHICAL SKETCH

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He is married to the former Miss Mercedita P. Lacabra with whom he is blessed with a daughter, Kristina (Tin-tin).

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## ABSTRACT

AGUSTIN, MARIO B., Institute of Graduate Studies, Central Luzon State University, Muñoz, Nueva Ecija, October 1985.

Effects of Inoculation and Fertilization on the Nodulation and Yield of Soybean in Lowland Rice-Based Cropping System.

Major Advisers: Dr. Miguel L. Aragon and Dr. Ram K. Pandey

Studies were conducted to determine the effects of Rhizobial inoculation and fertilizer application (inorganic and organic) on the nodulation and yield of soybean in lowland rice in three soil types, namely: Quingua silt loam, Umingan silt loam, and Maligaya clay loam in Nueva Ecija.

In all soil types, inoculation significantly improved the nodulation, seed yield, and other agronomic characteristics of the crop from the control. Seed yield in all soil types was further improved with the application of inorganic fertilizer at the rate of 30-30-30 kg N,  $P_2O_5$  and  $K_2O$ /ha. Under Quingua silt loam, Umingan silt loam, and Maligaya clay loam, seed yield was higher with 1205, 1654, and 1390 kg/ha, respectively, than inoculated plants.

The application of 30 kg each of  $P_2O_5$  and  $K_2O$ /ha proved sufficient for soybean production in Quingua silt loam and Umingan silt loam. The increase in seed yield due to interaction of P and K was 397 kg/ha in Quingua silt loam and 57 kg/ha in Umingan silt loam. Generally, nodulation and seed yield were

higher in Umingan silt loam than in Quingua silt loam. This response was attributed to the higher fertility status and higher population of native Rhizobia in the soil.

Under Maligaya clay loam, planting distance of 50 x 5 cm was significantly better than planting distance of 25 x 5 cm. The highest seed yield of 3611 kg/ha was obtained from 50 x 5 cm and applied with 30-60-60 kg N,  $P_2O_5$  and  $K_2O$ /ha which were 2568 and 1958 kg/ha higher than the control and inoculated plants, respectively.

The application of 5 tons chicken manure/ha did not prove effective as substitute for the inorganic fertilizer applied at the rate of 30-30-30 kg N,  $P_2O_5$  and  $K_2O$ /ha.

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