

RESPONSE OF SOYBEAN TO NPK FERTILIZATION
AND TILLAGE LEVEL

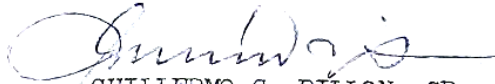
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This thesis entitled, RESPONSE OF SOYBEAN TO NPK FERTILIZATION AND TILLAGE LEVEL, prepared and submitted by VIRGILIO C. CABESO, in partial fulfillment of the requirements for the degree of MASTER OF SCIENCE (Crop Science - Agronomy) is hereby accepted.


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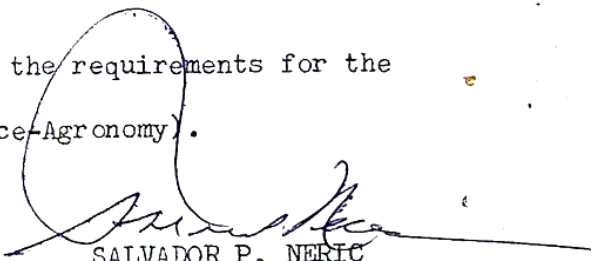

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ABSTRACT

CABESO, VIRGILIO C., Institute of Graduate Studies, Central Luzon State University, Muñoz, Nueva Ecija, Philippines, October 1987. RESPONSE OF SOYBEAN TO NPK FERTILIZATION AND TILLAGE LEVEL.

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The study was conducted to determine: a) the agronomic performance of soybean as affected by different rates of NPK fertilization, b) the best tillage level for soybeans grown after rice, c) the yield of soybeans as affected by the interaction of NPK fertilization and tillage level, and d) the cost and returns of soybean production under different rates of NPK fertilization and tillage level.

The tillage treatments considered were: 1) zero tillage four (4) days before harvesting (4 DBH) rice, 2) zero tillage one day after harvesting rice (1 DAH), and 3) conventional tillage (2 plowing and 2 harrowing operations). Likewise, six fertilizer treatments comprised the study; 0-0-0, 30-30-30, 30-0-0, 0-30-30, 30-30-0 and 0-30-0 kg NPK/ha respectively.

The highest yield (1.36 t), highest weight of 1000 seeds (129.22 g), greatest number of filled pods (21) per plant, greatest number of nodules per plant (11) and the tallest plants (47.28 cm)

were produced by the application of 30-30-30 kg NPK/ha. The rest of the fertilized treatments have significantly lower performance than 30-30-30 kg NPK/ha while the unfertilized plants consistently showed the lowest performance.

Exclusion of N, K, PK and NK have reduced the yield by 13, 8, 21 and 20 percent respectively while exclusion of NPK have reduced the yield by 26 percent, indicating that the order of limitation in terms of yield is P N K.

However, the highest gross income, highest net income, and highest returns on investment (ROI) were obtained in all zero tilled plots (4 DBH and 1 DAH rice).

Weed weight was heavier in all fertilized treatments in both zero tilled plots than in conventionally tilled plots.

Plants applied with fertilizer grown in zero tilled plots, 1 DAH rice and those in conventionally tilled plots produced flowers and pods and matured earlier than plants grown in zero tilled plots 4 DBH rice.

Percentage emergence was not affected by tillage level, NPK fertilization and their interaction.

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