LABORATORY TESTS FOR DETERMINING DROUGHT RESISTANCE IN SOYBEAN (GLYCINE MAX (L) MERRILL)

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This thesis entitled "LABORATORY TESTS FOR DETERMINING DROUGHT RESISTANCE IN SOYBEAN (GLYCINE MAX (L) MERRILL)", prepared and submitted by JULITO B. ALETA in partial fulfillment of the requirements for the degree of Master of Science (Agronomy), is hereby accepted.

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BIOGRAPHICAL SKETCH

The author was born on May 21, 1940, the sixth child of Leopoldo Aleta and the late Gregoria Bucad, in Dipolog City (Zamboanga del Norte).

His elementary education was completed in Miputak Elementary School (1953), his high school in Andres Bonifacio College (1957); his B.S.E. (1965) and A.B (1968) in Andres Bonifacio College. He was a fourth year agriculture student, major in Agronomy, in UP Los Baños College of Agriculture when he dropped out of school in 1964.

His work experience includes 3 years of teaching in the Bureau of Public Schools and 4 years in Andres Bonifacio College and 1 1/2 years as graduate research assistant in the University of the Philippines at Los Baños.

He joined the teaching staff of the Department of Crop Science, College of Agriculture, Central Luzon State University in 1975. In 1976 he attended in Thailand a 3-month training program for leaders of farm practice program in Asian Colleges and Universi-

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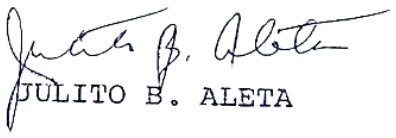
His stay in the University of the Philippines at Los Baños for a Master's degree was sponsored by the Educational Development Projects Implementing Task Force in cooperation with the Central Luzon State University.



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ABSTRACT

ALETA, JULITO BUCAD, University of the Philippines at Los Baños, June 1981. Laboratory Tests for Determining Drought Resistance in Soybean (Glycine max (L.) Merrill).

Major Professor: Dr. Noel G. Mamicpic

Three laboratory methods for determining drought resistance in crop plants were evaluated using three drought resistant and one drought susceptible field tested soybean lines.

The seed germination and seedling growth test showed that the four soybean lines had similar percentage germination when treated with polyethylene glycol-6000 solution up to -5 bars of osmotic pressure. However, highly significant differences among the lines were observed in seedling characters like percentage of dry matter and length of hypocotyl and radicle.

The chlorophyll stability index (CSI) test was not able to distinguish drought resistant from drought susceptible soybean lines.

Results of the proline test of stressed plants indicated highly significant genotypic differences among the lines.

Seedling growth under high osmotic pressure and proline accumulation in stressed leaves were good determinants in evaluating drought susceptible from drought resistant soybean lines.

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