

SUMMARY

PUTRIE RAHAYU. 0810483073. The Effect of Packaging and Storage Periods of G2 Seedling of Sugarcane (*Saccharum officinarum* L.) on Vegetative Growth, Potencial Seed Production and Productivity of Sugarcane. Di bawah bimbingan Prof. Dr. Ir. Bambang Guritno as supervised one, Dr. Ir. Nurul Aini, MS. as supervised two and Dr. Ir. Sri Winarsih, MS. as supervised three.

Sugarcane (*S. officinarum* L.) is the high economic value commodity as the main raw material of sugar industries. To achieve self sufficiency Indonesian program is one of the efforts that followed the expansion of sugarcane to supply large quantities of seed. Rapid provision of seeds can be reached through tissue culture. Seeds produced from tissue culture process called G0 (Generation 0) which is quite a lot. G0 can be improved seed number to increase it by G1 (Generation 1) and G2 (Generation 2). Advantages of cane G2 seed compared to conventional seeds, among others high level multiplication enough, packaging easier and cheaper shipping costs. Aspects to be considered in the delivery of seeds is appropriate packaging methods and storage time optimal seed before being sent to the field. Research ways of packaging and storage time G2 seed in the simulation has been done already begun delivery of packaging and storage of seeds, seed nursery in polybags G2 and transplanting seedlings into the soil to a 4 month old sugarcane. From these studies have obtained data G2 seed germination and vegetative growth until the age of 4 months. To determine plant development, seed yield potential and production of sugarcane needs to be done until the age of seed (8 months) and harvest sugar cane milled (12 months). The purpose of this study was to examine the growth of sugarcane G2 seeds that had been treated with the method of packaging and storage in a simulated delivery of the G2 seed vegetative growth and determine the method of packaging and shipping the right time to acquire seed production and the best sugar cane production. Hypotheses were following after 1) the packaging method and storage time can influence the G2 sugarcane acceleration of vegetative growth and also the sugarcane production potential, 2) the packaging using the spesial package with a certain storage time that give the effects to the vegetative growth of sugarcane G2 and potential sugarcane production.

The research will be conducted from January until July 2012 at Indonesian Sugar Research Institute Experimental (P3GI) station in Pasuruan, East Java. The tools used in this research is to hoe, drill, ruler, calipers, baskets, rope, hand counter, hand refractometer, brix weager, pushers and polarimeter tube. The material used is seed varieties G2 PS 862, paper straw, lead solution (lood) and distilled water. The research was conducted using Randomized Block Design. The treatment used is 10 treatments of previous studies totaling 18 treatments. While other treatments 8 dead so not used in further research. Each treatment was

repeated 3 times. Treatment is M1L0 (vacuumed plastic+unstorage), M1L1 (vacuumed plastic+storage method with 2 days), M2L0 (unvacuum plastic+unstorage), M2L1 (unvacuum plastic+storage method with 2 days), M2L2 (unvacuum plastic+storage method with 4 days), M3L0 (waring+unstorage), M3L1 (waring+storage method with 2 days), M3L2 (waring+storage method with 4 days), M3L3 (waring+storage method with 6 days), M3L5 (waring+storage method with 10 days). Non-destructive observations include the age of the vegetative plant growth 18, 20, 22, 24, 26, 28, 30 and 32 wap (weeks after planting). Observations vegetative growth include plant height, diameter plant, the number of tillers, the number of plant per furrow, the number of segment and the length of the segment. Potential seed production observed in plants age 32 wap. The parameter is the number of eye observations seedlings per hectare. The potential productivity of sugarcane crop was observed at the age of 12 months. Parameters include brix observations, yield, productivity of sugarcane and productivity crystal. Data were analyzed by using a variety of analysis (F test) at the level of 5%. To find the difference of treatment carried out testing with the LSD at the level of 5%.

The results showed that the way of packaging used waring gives better results than the plastic vacuum or unvacuum on the vegetative growth phase and the production potential of sugarcane milled. Treatment M3L0 (waring+unstorage) had the best growth in the number of tillers and number of seeds per hectare. The yield of sugarcane produced in each treatment varies. Produced the highest yield of packaging treatment M3L1 (waring+storage method with 2 days) is 11.41%. The potential productivity of sugarcane highest shown by treatment M3L5 (waring+storage method with 10 days) is 152 ton ha⁻¹, while the productivity crystal highest potential shown by treatment M2L2 (unvacuum+storage method with 4 days) is 14.95 ton ha⁻¹.