SUMMARY

Indanus Faried Nugroho. 0910483016. The Influence of Nutgrass (*Cyperus Rotundus* L.) Density to Green Bean (*Phaseolus vulgaris* L.) supervised by Prof. Dr. Ir. Yogi Sugito and Prof. Dr. Ir. Eko Widaryanto, SU.

Green beans (*Phaseolus vulgaris* L.) is cultivated plants that can grow good if planted in the height of 500-600 meters dpl (Setiawan, 1994). Nutritional content of 100 g 35 kcal consisting of beans, 2,4 gram of protein, 0,2 grams of fat, 7,7 grams of carbohydrates, 65 grams of calcium, 44 mg of phosphorus, 1.1 mg iron, 630 mg of vitamin a, 0,08 mg of vitamin B1, 19 mg of vitamin C, and 88,9 gram of water. The production of green beans in Indonesia has increased. Green beans production in 2012 is increase in 2013, there are 322.145 tons increased to 327.378 tons. Erect the green beans treatment plant to be done to improve and maintain the results of intensive production plants. Efforts by one of them is through weed control. The presence of a weed cyperus among the green beans can cause competition for organic element in, water, light, the space grow and CO_2. The aim of this research is to know what the competition between weeds with the green beans through various level of density weeds of growth and results of green beans plant, and to know the best density level of nutgrass per polibag. A hypothesis was proposed by the high grass growing populations will impede growth and the results of the green beans. The best weeds density is 4 nutgrass polybag^{-1}.

The study at Kendalsari Regency - Lowokwaru sub-district, the unfortunate situated at an altitude of 850 sea level (dpl) and precipitation have 850 - 100 mm year^{-1}. This experiment begins on March until May 2015. A device on a hoe, used in research paper label, raffia, ruler, analytical scales, sprayer, stationery, camera, sack, LAM (Leaf Area Meter) and polibag with a diameter of 30 cm. Materials used is the seed of green beans, gypsi varieties. A fertilizer that is used is urea 72 kg ha^{-1}, SP-36 135 pounds ha^{-1}, KCl 104 kg ha^{-1} and fertilizer cage for hens. This study using random design group. The factor is a density weeds (P) which consisted of six:

P_0 = weed population 0 weed m^{-2} (0 weed polibag^{-1})
P_1 = weeds population 30 weeds m^{-2} (2 weeds polibag^{-1})
P_2 = weeds population 60 weeds m^{-2} (4 weeds polibag^{-1})
P_3 = weeds population 90 weeds m^{-2} (6 weeds polibag^{-1})
P_4 = weeds population 120 weeds m^{-2} (8 weeds polibag^{-1})
P_5 = weeds population 150 weeds m^{-2} (10 weeds polibag^{-1}).

The results showed:

- There was a significant effect of the treatment weed density on the plant height at the age of 43 days after planting - 53 days after planting, and the treatment 10 weeds per polybag weeds can inhibit the growth of bean plants height respectively 18,73% and 618% if compared with treatment 0 weed per polybag at the age 43 days after planting - 53 days after planting. Every increase in the density of 1 weed, the plant height decreased by 0,3947 cm. Effect of weed density on plant height of 19,14% while the rest can be influenced by other factors.

- There was a significant effect of the treatment weed densities on the number of branches produced at the age of 13 and 43 days after planting. At the age of 13 days after planting treatment between 2 and 10 weeds per polybag, between 4 and 8 per polybag weeds , and between 4 and 10 weeds per polybag showed a significant difference and decrease the number of branches are respectively 13.06 %, 10.53% and 17.54%. Every increase in the density of 1 weed , the number of branches decreased 0,419 branch. The effect of weed density on the number of branches is 0,36% while the rest can be influenced by other factors.
- At the age of 43 days after planting and 53 days after planting significant effect of treatment weed density on the number of leaves. At the age of 53 days after planting growth in the number of leaves have the same pattern of results by the age of 43 days after planting, weed treatment 10 weeds per polybag can inhibit the growth of the number of leaves of green bean plants is 2,59% if compared to 0 weeds per polybag. Every increase in the density of 1 weeds per polybag, the number of leaves decreased 0,0789 leaves. Effect of weed density on the number of leaves at 9,1% while the rest can be influenced by other factors.
- There was a significant effect of treatment on the density of leaf area of weeds at age 53 days after planting. Treatment 8 and 10 weeds per polybag can inhibit the growth of broad leaves of bean plants is respectively 64,79% and 45,29% if compared to the treatment of 0 weeds per polybag. Every increase in the density of 1 weed , the number of leaves decreased by 7,0471 leaf area. Weeds against broad leaf density of 75,46%, which means the density of weeds affect the entire leaf area growth.
- There was a significant effect of the treatment weed densities against the amount of interest and the number of pods. Treatment of 10 weeds per polybag can reduce the amount of interest and the number of pods green bean plants are respectively 9.04% and 13.13% if compared to the treatment of weeds 0 per polybag. Every increase in the density of 1 weed then the amount of interest decreased by 0,074 flowers. Effect of weed densities to total interest rate of 21,24%, which means the density of weeds affect the whole formation of the amount of interest. Every increase in the density of 1 weed , the number of pods has decreased by 0,069 flower. Effect of weed density on the number of pods of 26,82%, which means the density of weeds affect the whole formation of the number of pods.
- There was a significant effect of the treatment weed density to weight pods. Treatment 8 and 10 weeds per polybag can lose pod bean plants upright respectively 38.54% and 48.86% compared with 0 weed per polybag. Every increase in the density of 1 weed pods then the weight decreased by 0,6541 gram. Effect of weed density on pod weight of 59,16%, which means the density of weeds affect the entire weight of the pods.
- There was a significant effect of the treatment weed densities against the wet weight of bean plants. Treatment of 10 weeds per polybag can reduce the weight of wet bean plants upright in the amount of 81.59% if compared to the treatment of 4 per weeds polybag. Every increase in the density of 1 weed the plant fresh

weight decreased by 0,5291. Effect of weed density on plant fresh weight of 7,65%, while the rest can be influenced by other factors.

- There was a significant effect of treatment on the long weed densities of weeds produced at the age of 13 days after planting and 23 days after planting. Every increase in the density of 1 weed so long of weeds was decreased 0,4947. There is a significant effect of the treatment weeds densities on the number of weeds seedlings produced at the age of 13 days after planting - 43 days after planting. Every increase in the density of 1 weed then number of seeds increased by 0,2751. There is a significant effect of the treatment weed densities against the fresh weight of weeds produced at the age of 13 days after planting observations - 53 days after planting. Every increase in the density of 1 weed then weed fresh weight increased by 0,2402 grams. There is a significant effect of the treatment weed density levels to dry weight of weeds produced at the age of 13 days after planting - 53 days after planting. Every increase in the density of 1 weed then the weeds dry weight increased by 0,1451 gram.

The density of weeds most suitable for the growth and yield of bean plants upright is 4 weed polibag^{-1}, indicated by the number of pods and weight of pods highest among density of 0-10 polibag^{-1} is at 4 weeds polibag^{-1} is the number of pods of 6.05 pods plant^{-1} and with a weight of 14,23 grams of pods plant^{-1}. This is because the density of 2-4 weeds polibag^{-1} can stimulate the growth of bean plants upright, while the density of 6-10 weed polibag^{-1} can inhibit my growth and yield of beans upright because of competition between weeds with bean plants already unbalanced.