

SUMMARY

Farisa Magdalena (0810483033). Use of Green Manure and Fertilizer *Crotalaria juncea* L. To Reduce The Use of Fertilizer Plant Anorganik Maize (*Zea mays* L.). Di bawah bimbingan Prof. Dr. Ir. Sudiarmo, MS. Dan Dr. Ir. Titin Sumarni, MS.

Maize (*Zea mays* L.) is one of the important food crop production in Indonesia, the demand continues to increase in line with the development of the food industry. The main production is the seed corn farming. Seed corn is a potential source of carbohydrates for food and non-food. As a food crop, maize ranks second only to rice crops. In 2011, the national maize productivity recorded a 4.452 ton ha⁻¹ (BPS, 2011). This result was less than the productivity of maize hybrids that can reach \pm 8-9 tons ha⁻¹ (Rosinta Galib and Sumanto, 2009). Low productivity because many farmers are still using free pollinated maize varieties that only reach its production potential \pm 4-5 tons ha⁻¹ as well as excessive use of inorganic fertilizers to the soil. Given excessive inorganic fertilizer can reduce soil fertility including soil organic matter. Low organic matter content led to reduced soil fertility. Efforts to improve productivity done by adding organic matter to the soil.

The purpose of this study was the implementation To determine the level of efficiency of the use of inorganic fertilizer N, P and K through manure and green manure *C. juncea* L. on corn. The research was conducted in March 2012 until June 2012 in the gardens of UB experiments, Jatikerto village, district Kromengan, Malang. The tools used in this research is an analytic scales, rulers, calipers, oven, hoes, leaf area meter (LAM). The material used is a pioneer seed corn varieties 21, seed *C. juncea* L., cow manure, inorganic fertilizer N, P and K. This study used a factorial designed experiment using a randomized block design (RBD), includes two factors were repeated 3 times. Factor 1 is the dose of inorganic fertilizer with 3 levels, namely: 1. Dosis dosing recommendations (P1); 2. Dosis 75% NPK fertilizer dosage recommendations (P2); 3. Dosis 50% NPK fertilizer dosage recommendations (P3), while factor 2 was administered dose of organic fertilizer with 3 levels, namely: 1. Dengan manure 20 tonnes ha⁻¹ (C1); 2. Dengan green manure *C. juncea* L. 20 tons ha⁻¹ (C2); 3. Dengan manure 10 tonnes ha⁻¹ and green manure *C. juncea* L. 10 tons ha⁻¹ (C3). Observation of the growth of the corn crop is done non-destructive and destructive. Observations were carried out 15 days at regular intervals until the corn is harvested. Observations were made on the plant life of 15, 30, 45, 60, 75, and finally at harvest. Plant growth observations made by observing two examples of plant samples for each treatment. The observed variables include components of growth, yield and growth analysis. Components of growth include: the length of the plant. Component outcomes include: Diameter without klobot cob, cob length without klobot, without klobot dry weight, dry weight of seeds per plant, weight of 100 seeds, weight and grain yield. Observational data were analyzed using analysis of variance (F-test) at the level of 5% to determine the effect of treatment.

If there is any interaction or real effect of the treatment, then continued with the comparison test between treatments using LSD test at the 5% level. The results showed that the interaction between inorganic fertilizer with organic fertilizer on growth parameters indicated in the variable plant dry weight. While the results show the interaction of components in the parameter results tonnes. Separately treatment of inorganic and organic fertilizers significant effect on growth and yield components in maize. The results showed that 1) Treatment of 75% inorganic fertilizer with cow manure 20 tonnes ha⁻¹ and treatment of 75% inorganic fertilizer with green manure *C. juncea* L. 20 tonnes ha⁻¹ were not significantly different from treatment 100% inorganic fertilizer with cow manure 10 tonnes ha⁻¹ and green manure 10 tonnes ha⁻¹ and fertilizer 75% inorganic with cow manure 20 tonnes ha⁻¹ or green manure *C. juncea* L. 20 tonnes ha⁻¹ can reduce the adding for inorganic fertilizers. 2) Treatment of 100% inorganic fertilizer with cow manure 20 tonnes ha⁻¹ and treatment of 100% inorganic fertilizer with green manure *C. juncea* L. 20 tonnes ha⁻¹ giving a yield more than a treatment 100% inorganic fertilizer with cow manure 10 tonnes ha⁻¹ and green manure *C. juncea* L. 10 tonnes ha⁻¹.

