

SUMMARY

Febriyanto Andika Kurniawan. 0910480065. The Effect of N, P, K Fertilizer and Cow Manure Level On Growth and Yield Sesame (*Sesamum indicum* L.). Supervisor Prof. Dr. Ir. Husni Thamrin Sebayang., MS and Medha Baskara., SP, MT as assistant supervisor.

Sesame is a plant protein source in dry areas (Weiss, 1971). Based on data from FAO (1990) sesame production in Indonesia since 1987 dropped dramatically, so that the position of Indonesia in 1988 changed from the exporting country into a net importer of sesame that number continues to increase every year. The main obstacle in the development of sesame is low productivity. As a result, the productivity of sesame farmers is still low at about 400 kg ha⁻¹, Whereas the results of research can reach above 1000 kg.ha⁻¹, so the opportunity to increase productivity still open (Soenardi, 1992). Godin and Spenley (1971) reported that the productivity of sesame in the United States reached 930 kg ha⁻¹ - 2240 kg ha⁻¹. In increasing productivity, one of which is the fulfillment of plant nutrition. Plant nutrition can be done by way of fertilizing. in general, sesame cultivation using inorganic fertilizers (N, P and K) in a single form such as Urea, SP-36, and KCl. To improve soil quality and yield of sesame one possibility is the application of a combination of organic and inorganic fertilizers (Sutanto, 2005).

The purpose of this research to determine the effect of fertilizer N, P, K and cow manure, and its interaction with sesame plant growth. The hypothesis of this research is the application of a combination of cow manure and fertilizer N, P and K resulted in differences in growth and yield of sesame (*Sesamum indicum* L.) and differences in the effect of fertilizer N, P, K and cow manure resulted in differences in growth and yield sesame (*Sesamum indicum* L.).

This research has been held from February to June 2013 at the Faculty of Agriculture Experimental Farm UB, Jatikerto village, Kromengan district, Malang Regency. This research is a factorial experiment consisting of two factors which is based on randomized block design consisting of three replications. The treatment is as follows: The first factor is the dosage of fertilizer N, P and K which consists of 3 level are: J1 = fertilization of 50 kg ha⁻¹ N + 25 kg ha⁻¹ P₂O₅ + 25 kg ha⁻¹ K₂O, fertilizer of J2 = 100 kg ha⁻¹ N + 50 kg ha⁻¹ P₂O₅ + 50 kg ha⁻¹ K₂O and J3 = fertilization of 150 kg ha⁻¹ N + 100 kg ha⁻¹ P₂O₅ + 100 kg ha⁻¹ K₂O. The second factor, manure dose consisting of 3 level are: K1 = fertilization cow manure 500 kg ha⁻¹, K2 = fertilization cow manure 1000 kg ha⁻¹ and K3 = fertilization cow manure 1500 kg ha⁻¹.

The observations made consist of observations of growth, harvest and support. Observations of growth performed non-destructive and destructive. Observations of non-destructive and destructive performed simultaneously from the age of 30, 45, 60, 75 and 90 days after planting (dap). Observations of non-destructive plant height, number of pods, the total number of branches, pod length. Observations of destructive consist of leaf area, leaf area index (LAI), total dry weight of plant and crop growth rate (CGR). Observations of harvest consist of weight of 1000 grain, seed weight of pod, the total number of seed and yield. While supporting parameters include the total dry weight of weeds and flower age. The data obtained were tested with F-test analysis of the level of 5% to determine the effect of each treatment. If there is a difference then followed by LSD 5% test using Microsoft Excel and SPSS software.

The results of research show that cow manure 1000 kg ha^{-1} and inorganic fertilizer 100 kg ha^{-1} urea + 50 kg ha^{-1} SP-36 + 50 kg ha^{-1} KCl (control) can increase crop yield, number of pod, number of seeds per pod and number of branches. Increasing the dose to the maximum dose (cow manure 1500 kg ha^{-1} and inorganic fertilizer 150 kg ha^{-1} urea + 100 kg ha^{-1} SP-36 + 100 kg ha^{-1} KCl) can improve the total plant dry weight, total weight of seeds per pod, the total dry weight of weeds. The decrease in dose to the minimum dose (cow manure 500 kg ha^{-1} and inorganic fertilizer 50 kg ha^{-1} Urea + 25 kg ha^{-1} SP-36 + 25 kg ha^{-1} KCl) can increase plant height. Cow manure 1000 kg ha^{-1} and inorganic fertilizers 100 kg ha^{-1} urea + 50 kg ha^{-1} SP-36 + 50 kg ha^{-1} KCl (control) in addition to improving growth and yield can also improve the efficiency and value economical.

