

## SUMMARY

**Mardianti Utami. 105040200111054. Response of Cauliflower Plant (*Brassica oleracea* var. *botrytis* L.) Planted After Eggplant (*Solanum melongena* L.) Treated with Application Various Combination of N Sources and EM4. Supervised by Dr. Ir. Moch. Dawam Maghfoer, MS. as main supervisor and Ir. Moch. Nawawi, MS. as a second guidance.**

The productivity of agriculture commodities in Indonesia are decreases. As the level of soil fertility in Indonesia is declining. One of the effort to improve soil fertility is through reduction application of inorganic fertilizer and addition of organic fertilizer. Commonly, organic fertilizer is made from manure, which is physical, chemical and biological is able to increase of microorganism of the soil (Supramodho, 2008). Organic fertilizer is able to supply nutrient in long period of time for plants. It is can be caused by the process of nutrient's extrication of the fertilizer happens slowly that the organic material leave some residual material behind after utilized by the plants in the first season. The residue of the organic fertilizer influence the growth and increase of the plant production in the next planting season (Yulia, *et al.*, 2011). The application of EM4 which accompany the manure application can accelerate the process of decomposition and mineralization of the manure and decrease the level of plant disease. The effect of the residue will contribute different effect for the plants which are planted in the next season.

The research aim to study the effect of residue, ie : 1) the effect of residue various combination of N source and doses of EM4 on the the growth and yield of cauliflower, 2) the effect of residue various combination of N source on the growth and yield of cauliflower, 3) the effect of residue various doses of EM4 on the growth and yield of cauliflower. The hypothesis proposed, ie : 1) the residue various combination of N source and doses of EM4 can effect on the growth and yield of cauliflower, 2) the residue various combination of N source can effect on the growth and yield of cauliflower, 3) the residue various doses EM4 can effect on the growth and yield of cauliflower.

This research has been conducted on paddy fields in Wonomulyo Village of Poncokusumo District, Malang Regency, East Java from March until June 2014. The location placed on the altitude 600 m asl with the soil of Andisol. The tool is a tray for seeding, a water container for watering, analytical scale, ruler, digital camera, calipers, sickle and stationaries. The substances used are cauliflower seed with Forum variety, urea fertilizer, SP-36, KCl, and pesticide with active chemical streptomisin sulfat 20%, klorotalonil 75%, klorantraniliprol 50 g, metaldehyde 5%, karbofuran 3% and flusulfamid 0,3%. The research used a factorial randomized block design (RAK) with 2 factors and 3 replication that have been on the previous growing season. The first factor was the proportion residue of N anorganic-organic fertilizer by using dosage 138 kg N ha<sup>-1</sup> which consist 4 level ie : K0 = 100% urea, K1 = 75% urea + 25% goat manure, K2 = 50% urea + 50% goat manure, K3 = 25% urea + 75% goat manure, while the second factor was residue dosage EM4 that consists of 3 level, ie : E1= 10 liter EM4 ha<sup>-1</sup> (100 ml liquid EM4/plant), E2 = 20 liter EM4 ha<sup>-1</sup> (200 ml liquid EM4/plant), E3= 30 liter EM4<sup>-1</sup> (300 ml liquid EM4/plant). From both factors are obtained 12 combinations, ie : K0E1, K0E2, K0E3, K1E1, K1E2, K1E3, K2E1,

K2E2, K2E3, K3E1, K3E2, K3E3. Non-destructive observation is done once time for a week, starting in age 14 dap in 5 times with 5 plants sample involved plant height (cm), number of leaves (strands), and stem diameter (cm), and the harvest is done in age 70 dap with 20 plants sample involved, fresh flower weight per plant (g), fresh flower weight per plant (ton) and flower diameter (cm). The data obtained were analysed by using analysis of variance, followed by Least Significant Difference (LSD) test of 5%.

The result showed that the land application various combination of N sources and EM4 not significant on the growth and yield of cauliflower, but when seen from the result of land analysis with the low C/N, it is because the nutrition elements of soil from fertilizer that are given has already provided and the bacteria or the elements of soil die. While in the application land, the combination of N source gives significantly effect on the growth and yield, if it is compared with the control (only urea fertilizer) with the flower weight as much as follows 32,4; 29,6; and 27,27 ton ha<sup>-1</sup>. The land application various doses of EM4 are not significant on the growth and yield, because eggplant (plant season II) the content N total of soil is high caused by giving urea fertilizer that causes *azotobacter* sp. bacteria and fastening other N becomes not active because N in soil is enough available. The result of analysis count farming in each treatment, the overall treatment indicates that the treatment is feasible and can provide economic benefits especially in the treatment K3E3 (residue 25% urea + 75% goat and 30 liter ha<sup>-1</sup> EM4 ) with the highest R/C value ie 1,29.

