

SUMMARY

NURTIA NI'MATUR ROSYIDAH. 105040201111086. Selection of Tomato F3 Population (*Lycopersicon esculentum* Mill). Advisor I : Ir. Respatijarti, M.S. Advisor II : Dr. Ir. Damanhuri, M.S.

Due to economical value and its nutrition, tomato (*Lycopersicon esculentum* Mill.) is one of superior commodity in Indonesia. It is consumed either originally or highly processed. Day by day tomato demand enhancement as tomato consumption an inhabitant number increase. However, the enhancement of tomato demand is not similar to the tomato productivity which is decline progressively. The latest data from Badan Pusat Statistik showed that in 2011 tomato production attain 954,046 ton with the wide harvest 57,30 ha, while in 2012 tomato production in Indonesia attain 887,556 ton with the wide harvest 56,04 ha. From those data can be identified that tomato productivity is tend to decline from 16,65 ton ha⁻¹ to 15,84 ton ha⁻¹ (Anonymouse, 2013). Tomato breeding plant program need genetic variety population as the nature of plant selection. Genetic variety can be increase through crossing, either self pollination or cross pollination. Than, the result of crossing is selected to get pure line breeding which has superior characteristic combination from the head. Selection is completed to get better population of next generation. This research is aimed to get superior individual as the object of selection in the next generation. The hypothesis of this research is it expected that there is individual which has superior character for the selection in the next generation.

This research was carried out at Desa Torongrejo Kecamatan Junrejo Kota Batu at high place ± 750 mdpl, rain fall 1807 mm/tahun, daily average temperature 18 °C – 26 °C, humidity 78% and andisol soil type. This research was done on April to August 2014. The equipment used was hoe, weight, label, name place, gauge, ruler, marker/stake, written tools and digital camera. Where as the subject used contained 10 substance plant of tomato F3 population such as MA-8, ME-20, ME-3, MA-12, PE-29, MA-25, PE-26, KE-5, LE-5, LE-21 and F1 population as area variety counter. Then goat manure and liquid fertilizer from rabbit urine were used as a natural fertilizer.

This research was done using *single plant* method by observing each population individual. The observation contained of quantitative character observation. Quantitative observation consist of plant hight, age inflorescent, flower number, early harvest age, fruit number per-plant, fruit length, fruit diameter, fruit harvest number, fruit weight per-plant and per-fruit. Qualitative character observation included steam colour, leave type, growing type, fruit shape, fruit color and seed dissemination shape. Than, observation data analysis used variety analysis,

variety coefficient, heritability estimate value, and genetic advances expectation estimate value.

Based on the variety coefficient value, heritability, and the progression of genetic advances expectation, selection of F3 population was done to the fruit number character, good quality fruit number, fruit weight per-plant and per-fruit. It was selected 16 individual such as MA-12.2, MA-12.3, MA-12.38, MA-12.43, MA-25.22, MA-25.26, MA-25.44, MA-8.20, LE-21.33, LE-21.34, LE-5.32, KE-5.1, KE-5.36, PE-26.13, ME-3.6 and ME-3.9 with the fruit number value ranging 60 to 75, good quality number ranging from 52 to 69, fruit weight per-plant ranging from 2741,28 g to 4287,62 g and fruit weight per-fruit 35,76 g to 60,83 g.

