Muhammad Tsabit Hikmatiyar. (200311100076). Respon Pertumbuhan dan Hasil Tanaman Tomat (*Lycopersicum esculentum* Mill.) Terhadap Perlakuan Pupuk Kandang Kambing dan Pupuk NPK. Dibimbing Oleh: Dr. Catur Wasonowati, S.P., M.Si dan Ir. Achmad Djunaedy, M.P

ABSTRAK

Tanaman Tomat (*Lycopersicon esculentum* L.) merupakan salah satu tanaman hortikultura yang strategis, karena memiliki nilai ekonomi yang tinggi. Produksi tomat mengalami peningkatan dari tahun 2021 (1,11 juta ton) sampai tahun 2022 (1,12 juta ton), seiring dengan permintaan pasar dan konsumsi masyarakat terhadap buah tomat semakin meningkat dari tahun 2020 (634,01 ribu ton) sampai 2021 (677,97 ribu ton), untuk memenuhi permintaan pasar dan konsumsi masyarakat yang meningkat setiap tahunnya setiap perlu dilakukan perbaikan teknik budidaya salah satunya mengelola ketersediaan hara di dalam tanah yang dibutuhkan oleh tanaman. Tujuan penelitian untuk mengetahui pengaruh pemberian pupuk kandang kambing dan pupuk NPK terhadap pertumbuhan dan hasil tanaman tomat. Penelitian dilaksanakan di *Greenhouse* Program Studi Agroekoteknologi, Universitas Trunojoyo Madura. Penelitian dilaksanakan mulai Desember 2023 sampai dengan April 2024. Rancangan penelitian menggunakan Rancangan Acak Lengkap (RAL) faktorial dengan 2 faktor. Faktor pertama yaitu dosis pupuk kandang kambing dengan dosis K1 (0 g/polybag), K2 40 ton/ha (502,4 g/polybag), dan K3 50 ton/ha (628 g/polybag). Faktor kedua yaitu dosis pupuk NPK dengan dosis P1 (0g/polybag), P2 660 kg/ha (8,2 g/polybag), dan P3 760 kg/ha (9,5 g/polybag). Data dianalisis menggunakan *Analysis of Variance* (ANOVA) taraf 5%; jika terdapat pengaruh nyata, dilanjutkan Uji *Duncan's Multiple Range* (DMRT) taraf 5%. Hasil penelitian menunjukan bahwa perlakuan pupuk kandang kambing berpengaruh nyata pada tinggi tanaman, jumlah daun, diameter batang, umur berbunga, volume akar, jumlah buah, diameter buah, bobot buah, bobot basah tanaman dan bobot kering tanaman, dengan rata-rata tertinggi terdapat pada K3. Pada perlakuan pupuk NPK berpengaruh nyata pada tinggi tanaman, jumlah daun, diameter batang, umur berbunga, volume akar, jumlah buah, diameter buah, bobot buah, bobot basah tanaman dan bobot kering tanaman, dengan rata-rata tertinggi terdapat pada P3. Interaksi pupuk kandang kambing dan pupuk NPK berpengaruh nyata pada tinggi tanaman (144,98 cm), jumlah daun (251,77 helai), diameter batang (1,07 cm), volume akar (31,92 mL), bobot basah tanaman (265,01 g) dan bobot kering tanaman (66,27 g), dengan rata-rata tertinggi terdapat pada K3P3. Total potensi produki 6,8 ton/ha.

Kata kunci : pupuk kandang kambing, pupuk NPK, dosis pupuk

Muhammad Thabit Hikmatiyar. (200311100076). Response of Growth and Yield of Tomato Plants (*Lycopersicum esculentum* Mill.) to Goat Manure and NPK Fertilizer Treatment. Supervised by: Dr. Catur Wasonowati, S.P., M.Si and Ir. Achmad Djunaedy, M.P

ABSTRACT

Tomato plants (*Lycopersicon esculentum* L.) are one of the strategic horticultural crops, because they have high economic value. Tomato production has increased from 2021 (1.11 million tonnes) to 2022 (1.12 million tonnes), in line with market demand and public consumption of tomatoes increasing from 2020 (634.01 thousand tonnes) to 2021 (677.97 thousand tons), to meet market demand and public consumption which increases every year, it is necessary to improve cultivation techniques, one of which is managing the availability of nutrients in the soil needed by plants. The aim of the research was to determine the effect of providing goat manure and NPK fertilizer on the growth and yield of tomato plants. The research was carried out at the Greenhouse of the Agroecotechnology Study Program, Trunojoyo University, Madura. The research was carried out from December 2023 to April 2024. The research design used a factorial Completely Randomized Design (CRD) with 2 factors. The first factor is the dose of goat manure with a dose of K1 (0 g/polybag), K2 40 tons/ha (502.4 g/polybag), and K3 50 tons/ha (628 g/polybag). The second factor is the dose of NPK fertilizer with a dose of P1 (0g/polybag), P2 660 kg/ha (8.2 g/polybag), and P3 760 kg/ha (9.5 g/polybag). Data were analyzed using Analysis of Variance (ANOVA) at 5% level; If there is a real effect, continue with the Duncan's Multiple Range Test (DMRT) at 5% level. The results showed that goat manure treatment had a significant effect on plant height, number of leaves, stem diameter, flowering age, root volume, number of fruit, fruit diameter, fruit weight, plant wet weight and plant dry weight, with the highest average found in K3. The NPK fertilizer treatment had a significant effect on plant height, number of leaves, stem diameter, flowering age, root volume, number of fruit, fruit diameter, fruit weight, plant wet weight and plant dry weight, with the highest average found in P3. The interaction of goat manure and NPK fertilizer had a significant effect on plant height (144.98 cm), number of leaves (251.77), stem diameter (1.07 cm), root volume (31.92 mL), plant wet weight (265.01 g) and plant dry weight (66.27 g), with the highest average found in K3P3. Total production potential is 6.8 tons/ha.

Key words: goat manure, NPK fertilizer, fertilizer dosage