# RINGKASAN

Cabai (*Capsicum annuum* L.) merupakan salah satu komoditas hortikultura yang memiliki nilai ekonomi penting di Indonesia. Buah cabai selain dijadikan sayuran atau bumbu masak dan sumber vitamin C juga mempunyai kapasitas meningkatkan pendapatan petani, sebagai bahan baku industri, memiliki peluang eksport, serta membuka kesempatan kerja. Salah satu tujuan pengembangan budidaya tanaman cabai adalah untuk meningkatkan produktivitas tanaman cabai. Tujuan dilaksanakannya penelitian ini antara lain (1) mengetahui pengaruh pemberian komposisi pupuk hayati mikoriza-*Trichoderma* terhadap pertumbuhan dan hasil tanaman cabai merah (2) mengetahui pengaruh pengurangan dosis pupuk buatan yang tepat terhadap pertumbuhan dan hasil tanaman cabai (3) mengetahui pengaruh kombinasi antara pupuk hayati mikoriza-*Trichoderma* dan dosis pupuk buatan terhadap pertumbuhan dan hasil tanaman cabai.

Penelitian berupa percobaan polybag yang dilaksanakan di Lahan Percobaan Fakultas Pertanian Purwokerto. Penelitian dilaksanakan selama 4 bulan, mulai bulan Maret 2017 sampai Juli 2017. Rancangan percobaan yang digunakan adalah rancangan acak kelompok lengkap (RAKL) faktorial yang terdiri 9 kombinasi perlakuan. Setiap perlakuan diulang sebanyak 3 kali sehingga diperoleh 27 unit percobaan. Setiap unit percobaan terdiri dari 3 tanaman, sehingga jumlah tanaman yang ditanam adalah 81 tanaman. Perlakuan yang diberikan terdiri atas dua faktor yaitu pemberian dosis pupuk hayati mikoriza-*Trichoderma* dan pengurangan dosis pupuk buatan. Pupuk hayati mikoriza-*Trichoderma* terdiri dari tiga taraf yaitu, 10 g (20 spora) mikoriza-0 g *Trichoderma* per tanaman, 20 g (40 spora) mikoriza-10 g *Trichoderma* per tanaman dan 30 g (60 spora) mikoriza-20 g *Trichoderma* per tanaman. Pengurangan dosis pupuk buatan memiliki tiga taraf yaitu 0 % ( tanpa pemberian dosis pupuk buatan), 50 % ( pemberian setengah dari dosis anjuran pupuk buatan) dan 100% (sesuai dosis anjuran pupuk buatan). Variabel pengamatan terdiri dari pertambahan tinggi tanaman (cm), jumlah daun (helai), jumlah ranting, bobot tanaman segar (g), bobot tanaman kering (g), bobot segar akar (g), bobot kering akar (g), volume akar ($mm^3$), luas daun ($cm^2$), jumlah bunga per tanaman, jumlah buah per tanaman, bobot buah per tanaman (g), bobot buah busuk per tanaman (g).

Hasil penelitian menunjukkan bahwa pemberian komposisi pupuk hayati 10 g (20 spora) mikoriza- 0 g *Trichoderma*, 20 g (40 spora) mikoriza-10 g *Trichoderma* dan 30 g (60 spora) mikoriza-20 g *Trichoderma* memberikan pertumbuhan dan hasil yang tidak berbeda pada tanaman cabai. Pemberian dosis pupuk buatan (urea, ZA, KCl, SP-36) sebanyak 0% dan 50% memberikan hasil yang tidak berbeda dengan pengurangan 100% terhadap variabel hasil, namun dapat menambah tinggi tanaman, jumlah daun, luas daun, jumlah cabang, bobot tanaman segar, bobot tanaman kering, bobot akar segar, bobot akar kering, volume akar. Tidak terdapat pengaruh interaksi antara dosis pupuk hayati mikoriza-*Trichoderma* dan pengurangan dosis pupuk buatan terhadap

pertumbuhan dan hasil tanaman cabai, sehingga belum diperoleh kombinasi yang tepat

# SUMMARY

*Red pepper (Capsicum annuum.* L*) is one of horticulture commodity which it has an important economic value in Indonesia. Red pepper in other of became vegetabels, food seasoning and as the sourch of vitamins C is also have a capacity to raise farmer's income, as a industrial ingredients, exporting commodity chance, and also as a job opportunity. The purpose of cultivation developing of red pepper plants is to increase the productivity of it. The increasing productivity of red pepper plants are committed to fullfied the customer's needs that are keep raising and for land usage efficiency. The aims of this research were 1) to know the response of giving the compotition of mycorrhiza-Trichoderma biofertilizer on the growth and yield of red pepper plant, 2) to know the response of syntetic fertilizer dose decrement to growth and yield of red pepper plant, 3) to know the best combine dose of mycorrhiza-Trichoderma biofertilizer and syntetic fertilizer to the red pepper plant's growth and yield.*

*The research was carried out in Agriculture Faculty Jenderal Soedirman University's research land at Purwokerto. The research was conducted over 4 months, from March until July 2017. The experiment used Randomized Completely Block Design (RCBD) consisting of nine treatment and three times. The tests treatments were two factors, the first factor is mycorrhiza-Trichoderma biofertilizer and the second factor is syntetic fertilizer dose decrement. Mycorrhiza-Trichoderma biofertilizer doses are consist of 10 g (20 spores) mycorrhiza-0 g Trichoderma, 20 g (40 spores) mycorrhiza-10 g Trichoderma and 30 g (60 spores) mycorrhiza-20 g Trichoderma. The syntetic fertilizer's dose are consist of 0 % (without syntetic fertilizer), 50% ( half of recommended dose), and 100% (suitabel recommended dose). Observed variabels were the increase of plant height (cm), number of leaves, number of branches, plant fresh weight (g), plant dry weight (g), root fresh weight (g), root dry weight (g), root volume ($mm^3$), leaf area ($cm^2$), number of flowers, number of fruits, fruits weights per plant, and rotten fruits weights per plant.*

*The results performed that the giving of mycorrhiza-Trichoderma biofertilizer with doses 10 g ( 20 spores) mycorrhiza-0 g Trichoderma, 20 g (40 spores) mycorrhiza-10 g Trichoderma and 30 g (60 spores) mycorrhiza-20 g Trichoderma was gave the same response in growth and yield variables. The syntetic fertilizer decrement gave the real response of variabel plant height (cm), number of leaves, number of branches, plant fresh weight (g), plant dry weight (g), root fresh weight (g), root dry weight (g), root volume ($ml^3$), leaf area ($cm^2$) but gave the same response in yield variables, and the interaction factors between biofertilizer mycorrhiza-Trichoderma and syntetic fertilizer decrement was giving the same response to red pepper's growth and yield variables.*