RINGKASAN

Padi merupakan komoditas tanaman paling penting di Indonesia dan ketersediaannya mempengaruhi ketahanan pangan bangsa. Upaya untuk meningkatkan produksi padi saat ini menghadapi tantangan yang semakin berat. Pemakaian pupuk kimia yang terus menerus menyebabkan kerusakan ekosistem pertanian. Salah satu solusi dari pengurangan pupuk kimia adalah melakukan pembudidayaan tanaman dengan sistem pertanian semi organik dan penggunaan *compost tea*. Penelitian ini bertujuan untuk (1) mengetahui pertumbuhan dan hasil tanaman padi dengan pemberian berbagai *compost tea*, (2) mengetahui pengaruh perlakuan berbagai *compost tea* yang diperkaya dengan agensia hayati terhadap pertumbuhan dan hasil tanaman padi.

Penelitian dilaksanakan di Experimental Farm Fakultas Pertanian, Universitas Jenderal Soedirman Purwokerto, pada bulan Mei sampai dengan September 2017. Rancangan yang digunakan adalah rancangan acak kelompok lengkap (RAKL) dengan 10 perlakuan dan diulang 3x. Variabel pengamatan yang diukur meliputi: tinggi tanaman, jumlah anakan total, luas daun, *leaf area index*, bobot brangkasan, rasio tajuk akar, kehijauan daun, lebar bukaan stomata, kerapatan stomata, jumlah anakan produktif, panjang malai, jumlah gabah per malai, persentase gabah hampa, bobot gabah per rumpun, bobot gabah per petak efektif, bobot 1000 butir, dan hasil gabah kering per hektar. Analisis data yang digunakan adalah uji F dan apabila hasilnya beda nyata dilanjutkan dengan uji Duncan's Multiple Range Test (DMRT) dan dilanjutkan dengan uji kontras orthogonal.

Hasil penelitian menujukkan bahwa perlakuan *compost tea* memberikan pengaruh yang terbaik pada luas daun, *leaf area index* dan kerapatan stomata. Perlakuan *compost tea* limbah baglog jamur yang diperkaya *Pseudomonas fluorescens* menunjukkan pengaruh terbaik terhadap luas daun dengan nilai rata-rata 1452.04 cm^2 dan *leaf area index* dengan nilai rata-rata 2.27. Perlakuan *compost tea* ayam yang diperkaya *Trichoderma harzianum* menunjukkan kerapatan stomata tertinggi dengan nilai rata-rata 96.33 stomata/mm^2. Perlakuan *compost tea* sapi dan *compost tea* limbah baglog jamur yang diperkaya *Trichoderma harzianum* menghasilkan gabah kering per hektar yang paling tinggi sebesar 3.06 ton/ha.

SUMMARY

Rice is the most important crops commodity in Indonesia and its availability affects the nation's food security. Rice intensification production with a high input of chemical fertilizer is a problem in the cultivation of rice crops. The continuous use of chemical fertilizers caused the damage of agricultural ecosystems. The solution of the agriculture ecosystems problem is practice of semi-organic rice cultivation by using compost tea. The aims of the research were (1) knowing the growth and yield of rice crops under the application of various compost tea, (2) to study the effect of various compost tea which enriched with biological agents on growth and yield of rice crop.

The research was conducted in Experimental Farm of Agriculture Faculty, Universitas Jenderal Soedirman Purwokerto, from May to September 2017. The randomized complete block design (RCBD) was used with 10 treatments and 3 replications. Observed variables were plant height, total tillers, leaf area, leaf area index, weight of dried plant, shoot root ration, stomata open width, stomatal density, number of productive tillers, panicles length, number of grains per panicle, percentage empty grain, grain weight per clump, grain weight, 1000 grains weight, and yield per ha. The data was analyzed by F test and continued with Duncan's Multiple Range Test (DMRT) and orthogonal contrast when proven as significantly different.

The results has shown that the compost tea treatment affected leaf area, leaf area index and stomatal density. The treatment of waste baglog mushrooms compost tea which enriched Pseudomonas fluorescens has shown the best effect on leaf area with average value 1452.04 cm^2 and leaf area index with average value 2.27. The treatment of chicken manure compost tea enriched Trichoderma harzianum showed the highest stomatal density rate with average value 96.33 stomata/mm^2. The treatment of cow manure compost tea and waste baglog mushrooms compost tea enriched with Trichoderma harizanum gave the highest yield of rice reached to 3.06 ton/ha.