RINGKASAN

Upaya untuk meningkatkan produktivitas padi gogo masih dapat ditempuh melalui perbaikan kesuburan tanah, yaitu dengan memanfaatkan bahan organik dan *Plant Growth Promoting Rhizobacteria*. Bahan organik yang diberikan dapat berupa arang sekam yang memiliki kandungan Si sebesar 91,15% dan berfungsi untuk memperkuat jaringan tanaman padi. Pemanfaatan *Plant Growth Promoting Rhizobacteria* telah diketahui mempunyai kemampuan meningkatkan serapan hara, pertumbuhan dan produksi padi. Penelitian ini bertujuan untuk 1) mengetahui pengaruh pemberian silika organik dengan berbagai ukuran partikel terhadap pertumbuhan dan hasil tanaman padi gogo, 2) mengetahui pengaruh pemberian *P. fluorescens* terhadap pertumbuhan dan hasil tanaman padi gogo, 3) mengetahui interaksi antara silika organik dan *P. fluorescens* terhadap pertumbuhan dan hasil tanaman padi gogo.

Penelitian dilaksanakan pada bulan Juli 2018 sampai November 2018 di Desa Kalibagor, Kecamatan Kalibagor, Kabupaten Banyumas. Rancangan yang digunakan adalah rancangan acak kelompok dengan dua faktor perlakuan dan tiga kali ulangan. Faktor pertama adalah ukuran pupuk silika organik yang terdiri dari empat ukuran yaitu 2, 1,5, 1, 0,5 mm dan tanpa pemberian silika organik. Faktor kedua adalah *P. fluorescens* yang terdiri atas pemberian *P. fluorescens* dan tanpa pemberian *P. fluorescens*. Variabel yang diamati yaitu panjang akar total, tinggi tanaman, luas daun, kehijauan daun, jumlah anakan, bobot kering tanaman, jumlah anakan produktif, panjang malai, jumlah gabah isi per malai, jumlah gabah hampa per malai, jumlah gabah isi per rumpun, jumlah gabah hampa per rumpun, jumlah gabah per rumpun, presentase bobot gabah isi per rumpun, presentase bobot gabah hampa per rumpun, bobot 1000 biji, dan indeks panen.

Hasil penelitian menunjukkan bahwa pemberian *P.fluorescens* meningkatkan panjang malai, jumlah anakan produktif, jumlah gabah isi per rumpun. Pemberian silika organik dengan berbagai ukuran partikel belum mampu meningkatkan pertumbuhan dan hasil tanaman padi gogo. Tidak ada interaksi antara silika organik dan *P. fluorescens* dalam meningkatkan pertumbuhan dan hasil tanaman padi gogo.

SUMMARY

The effort to increase the productivity of upland rice can be reached by the improve soil fertility are by adding organic matter and Plant Growth Promoting Rhizobacteria. Organic material given can be in the form of rice husk charcoal has a Si content of 91.15% serves to strengthen of rice plants tissues. PGPR can increase nutrient absorption, growth and yield of upland rice. The aims of the research were 1) to study the effect of organic silica with various sizes on the growth and yield of upland rice, 2) to study the effect of P. fluorescens on the growth and yield of upland rice, 3) to study the interaction effect of organic silica and P. fluorescens on the growth and yield of upland rice.

The research was conducted from July until November 2018 at the Kalibagor Village, Kalibagor Subdistrict, Banyumas Regency. The research was arranged by randomized completely block design (RCBD) with two factors and repeated in three times. The first factor was the size of silica organik i.e. 2, 1.5, 1, 0.5 mm and control without organic silica application. The second factor was the P. fluorescens application and without P. fluorescens application. The observed variables were root length, plant growth rate, leaf area, leaves green, the number of tiller, dry biomass, the number of productive tiller, panicle length, the number of filled seed grains per clum , the number of filled seed grains per panicle, the number of unfilled seed grains per clum, the number of unfilled seed grains per panicle, the number of seed grains per clum, percentage filled seed grains weight per clump, percentage unfilled seed grains weight per clump, 1000 seed grains weight, harvest index.

The results showed that P. fluorencens increase the number of productive tiller, panicle length, the number of filled seed grains per clump. Application of the size of the organic silica does not affect to the on the growth and yield of upland rice. There was no interaction between organic silica and Pseudomonas fluorences in increase growth and yield of upland rice.