

Intisari

Permintaan cabai rawit akan meningkat seiring pertumbuhan penduduk, namun produktivitasnya masih tergolong rendah. Produktivitas dapat ditingkatkan dengan menerapkan pola tanam tumpang gilir cabai rawit dengan jagung dan aplikasi agens hayati. Penelitian ini bertujuan untuk memperoleh model tanam yang tepat pada tumpang gilir cabai rawit – jagung, mengetahui pertumbuhan dan hasil cabai rawit pada pola tumpang gilir dengan jagung dan mengetahui pengaruh interaksi tumpang gilir dan aplikasi agens hayati terhadap pertumbuhan dan hasil cabai rawit. Penelitian ini dilaksanakan di Ketunggeng, Kabupaten Magelang, Jawa Tengah. Bahan yang digunakan yaitu cabai rawit Tiyung dan penelitian disusun dalam rancangan RAKL Faktorial (2 faktor + 1 kontrol). Faktor pertama yaitu pola tumpang gilir cabai rawit (model 2 dan 3 baris) dan faktor kedua yaitu aplikasi agens hayati (dengan dan tanpa agens hayati). Kontrol berupa monokultur cabai rawit tanpa aplikasi agens hayati. Hasil penelitian menunjukkan bahwa model tanam 2 baris dan 3 baris cabai rawit yang diuji sama baiknya untuk diterapkan pada pola tumpang gilir dengan jagung, karena cocok dan layak untuk diusahakan berdasarkan hasil nisbah kesetaraan lahan dan nisbah kesetaraan lahan berdasarkan waktu. Tumpang gilir 2 baris cabai rawit meningkatkan tingkat kehijauan daun, kandungan klorofil b dan klorofil total, sedangkan tumpang gilir 3 baris cabai rawit meningkatkan lebar bukaan stomata daun permukaan bawah, kerapatan stomata daun permukaan atas tanaman cabai rawit. Pola tanam monokultur cabai rawit meningkatkan jumlah cabang, jumlah daun, luas permukaan daun, indeks luas daun, laju pertumbuhan tanaman, bobot segar dan bobot kering tanaman. Tumpang gilir model tanam 3 baris memiliki jumlah populasi tanaman yang lebih banyak daripada model 2 baris dan monokultur cabai rawit, namun pertumbuhan tanaman yang dihasilkan lebih rendah dibandingkan monokultur cabai rawit dan sama dengan tumpang gilir model 3 baris, sehingga peningkatan produktivitas menjadi tidak signifikan berbeda nyata dengan tumpang gilir model 2 baris. Tumpang gilir 3 baris cabai rawit – jagung dengan aplikasi agens hayati signifikan meningkatkan panjang bukaan dan lebar bukaan stomata daun permukaan bawah. Aplikasi agens hayati signifikan meningkatkan kerapatan stomata daun permukaan atas, kehijauan daun, tinggi tanaman, jumlah daun, panjang akar, luas permukaan akar, umur panen pertama dan akhir, bobot buah cabai rawit per tanaman, produktivitas cabai rawit dan menurunkan presentase kejadian penyakit antraknosa.

Kata kunci: *Capsicum frutescens* L., agens hayati, model tanam, tumpang gilir

Abstract

The demand for hot pepper will increase as the population growth, but the productivity is still low. The productivity could be improved through the application of the relay intercropping pattern of hot pepper and corn and the application of beneficial microorganisms. This research aimed to identify the correct model for relay intercropping pattern of hot pepper and corn, determine the growth and yield of hot pepper in relay intercropping pattern with corn and determine the interaction effect of relay intercropping and the application of biological agentson growth and yield of hot pepper. This research was conducted in Ketunggeng, Magelang District, Central Java. The material used was Tiyung hot pepper and the research was arranged in a Factorial RCBD design (2 factors + 1 control). The first factor was the relay intercropping pattern of hot pepper (2 and 3 rows model) and the second factor was the application of biological agents(with and without beneficial microorganisms). The control was the monoculture of hot pepper without the application of beneficial microorganisms. The results showed that 2 and 3 rows model of hot pepper were equally good for relay intercropping with corn, because they were suitable and feasible to be applied based on land equivalent ratio and area time equivalent ratio. Relay intercropping of 2 rows model increased the green level of the leaves, chlorophyll b and total chlorophyll of hot pepper, while relay intercropping of 3 rows model increased the width of stomatal opening of abaxial leaf surface, stomatal density of adaxial leaf surface of hot pepper. Monoculture of hot pepper increased the branch number, leaves number, leaf surface area, leaf area index, crop growth rate, fresh weight and dry weight of hot pepper. Relay intercropping of 3 rows model had more plant populations than the 2 rows model and monoculture of hot pepper. However, the plant growth was lower than monoculture and relay intercropping of 2 rows model, so the increased in productivity of hot pepper was not significantly different from the relay intercropping of 2 rows model. Relay intercropping of 3 rows model with aplication of biological agentssignificantly increased the width and length of stomatal opening of abaxial leaf surface. The aplication of biological agentssignificantly increased the stomatal density of adaxial leaf surface, green level of the leaves, plant height, number of leaves, root length, root surface area, first and last harverst, weight of fruit/plant, productivity of hot pepper and decreased the anthracnose incidence.

Keywords: beneficial microorganisms, Capsicum frutescens L., cropping model, relay intercropping