# INTISARI

Penelitian ini bertujuan untuk mengkaji pengaruh berbagai metode aplikasi dan bentuk inokulum pada pertumbuhan dan hasil tanaman kedelai yang diinokulasi *Rhizobacteri indigenous* Merapi pada kondisi cekaman kekeringan, menentukan metode aplikasi dan bentuk inokulum *Rhizobacteri indigenous* Merapi yang terbaik pada pertumbuhan dan hasil tanaman kedelai dalam kondisi cekaman kekeringan. Penelitian ini telah dilaksanakan di Laboratorium Agrobioteknologi dan Green House Fakultas Pertanian Universitas Muhammadiyah Yogyakarta pada Bulan Desember 2017 sampai Juni 2018.

Penelitian disusun dalam rancangan acak lengkap faktorial dengan faktor pertama adalah metode aplikasi inokulum yang terdiri dari 3 aras yaitu tanpa inokulum; aplikasi inokulum *Rhizobacteri indigenous* Merapi MB+MD dalam media padat lembab pada benih; dan aplikasi inokulum *Rhizobacteri indigenous* Merapi media cair rendam benih. Faktor kedua adalah kadar lengas yang terdiri dari 3 aras yaitu kadar lengas 40%; kadar lengas 60%; dan kadar lengas 80%. Pengamatan dilakukan terhadap dinamika populasi *Rhizobacteri indigenous* Merapi, nodulasi, pertumbuhan perakaran kedelai, pertumbuhan tanaman kedelai dan komponen hasil

Hasil penelitian ini menunjukkan bahwa ada saling pengaruh antara aplikasi inokulum *Rhizobacteri indigenous* Merapi pada benih dengan kadar lengas tanah pada parameter panjang akar dan bobot kering tajuk kedelai Detam-1 pada minggu ke-6. Aplikasi inokulum *Rhizobacteri indigenous* Merapi pada benih tidak memberi pengaruh secara nyata terhadap pertumbuhan dan hasil kedelai Detam-1, kecuali parameter bobot kering akar pada aplikasi inokulum dalam bentuk cair dan padat memberi hasil lebih tinggi dibandingkan tanpa aplikasi inokulum. Media tanam dengan kadar lengas 80% memberikan pertumbuhan dan hasil tanaman kedelai Detam-1 lebih tinggi dibandingkan kadar lengas 60% dan 40%. Kadar lengas 80% memberikan hasil kedelai Detam-1 sebesar 1,03 ton/ha.

Kata kunci: kedelai Detam-1, kadar lengas, media padat lembab pada benih, media cair rendam benih

## *ABSTRACT*

*A research aims to examine the effect of various application methods and inoculum forms on growth and yield of soybean plants which are inoculated by the Rhizobacteri indigenous* Merapi *under drought stress conditions and to determine which application methods and Rhizobacteri indigenous* Merapi *inoculum forms were best on growth and yield of soybean plants in drought stress conditions. This research was conducted at Agrobiotechnology Laboratory and Green House Faculty of Agriculture University of Muhammadiyah Yogyakarta in December 2017 until June 2018. The research was conducted by using experiment method arranged in a factorial design (3x3) and a completely randomized design. The first factor was inoculum application method consists of three levels: without inoculum; application of Rhizobacteri indigenous* Merapi *MB+MD on seed in moist solid medium; and application of liquid medium indigenous Rhizobacteri* Merapi *on seeds. The second factor was the soil moisture content consisting of 3 levels: the soil moisture contents of 40%, 60%; and 80%. Observations were done on population dynamics of Rhizobacteri indigenous* Merapi*, nodulation, soybean roots growth, soybean plant growth and the yield components. The results of this research showed that there was a mutual influence between the application of Rhizobacteri indigenous Merapi inoculum on seeds with soil moisture content on root length and dry weight of Detam-1 soybean shoot at 6 weeks. The application of Rhizobacteri indigenous Merapi inoculum on the seed did not give a significant effect on the growth and yield of Detam-1 soybean, except the root dry weight in the application of inoculum in liquid and moist solid medium gave higher result than without inoculum application. Planting media with 80% moisture content gave the growth and yield of Detam-1 soybean plants higher than 60% and 40% moisture content. Soil moisture content of 80% gave Detam-1 soybean yield of 1.03 tons / ha.*



*Key word: Detam-1 soybean, the soil moisture content, the moist solid medium inoculum on seed and the liquid medium inoculum on seed.*