# RINGKASAN

**MOHAMMAD ARIES MOCTAVA. 0810480057. Respons Tiga Varietas Sawi (*Brassica rapa* L.) Terhadap Cekaman Air. Di bawah Bimbingan Ir. Koesriharti, MS., Selaku Pembimbing Utama dan Dr.Ir. Moch. Dawam Maghfoer, MS. Selaku Pembimbing Pendamping.**

Menurut Badan Pusat Satistik Indonesia (2010), Pulau Jawa merupakan wilayah yang paling banyak memberikan kontribusi dalam memproduksi sawi di Indonesia dibandingkan dengan kepulauan lainnya. Hal ini berkaitan dengan luasnya lahan kritis yang terdapat di luar Pulau Jawa sehingga usaha budidaya khususnya tanaman sayur terutama sawi masih sangat sulit dilakukan dikarenakan ketersediaan air yang terbatas. Kebutuhan air tanaman berbeda-beda tergantung pada jenis tanamannya. Apabila jumlah air yang tersedia di tanah tidak mencukupi kebutuhan tanaman, maka tanaman akan mengalami gangguan morfologi dan fisiologis sehingga pertumbuhan dan produktifitasnya akan terhambat(Taiz dan Zeiger, 2002).Tujuan dari penelitian ini yaitu mendapatkan varietas sawi (*Brassica rapa* L.) yang tahan terhadap cekaman air. Hipotesis pertama yaitu tigavarietas sawi memiliki respons yang berbeda terhadap tingkat cekaman air. Hipotesis kedua varietas tanaman sawi yang berbeda akan menunjukkan pertumbuhan dan hasil tanaman sawi yang berbeda. Hipotesis ketiga perlakuan cekaman air pada 30% kapasitas lapang dapat menurunkan pertumbuhan dan hasil tanaman sawi

Penelitian dilaksanakan pada bulan Oktober sampai dengan Desember 2012. Tempat penelitian di Rumah Plastik Kebun Percobaan Fakultas Pertanian Brawijaya, Desa Jatikerto, Kecamatan Kromengan, Kabupaten Malang. Penelitian menggunakan Rancangan Petak Terbagi (RPT) dengan dua faktor yaitu Faktor I varietas sebagai petak utama :V1 = Pak choy white, V2 = Pak Choy Green, V3 = Choi Sim dan Faktor II tingkat cekaman air sebagai anak petak : Tingkat cekaman air (C) yang terdiri dari 4 taraf kapasitas lapang (KL), yaitu C1 = 100% KL, C2 = 70% KL, C3 = 50% KL, C4 = 30% KL. Total kombinasi 12 perlakuan yaitu V1C1, V2C1,V3C1, V1C2, V2C2, V3C2, V1C3, V2C3, V3C3, V1C4, V2C4, V3C4 dengan 5 (lima) sampel tanaman tiap ulangan dan 3 (tiga) kali ulangan tiap perlakuan. Peubah pengamatan meliputi: tinggi tanaman (cm), jumlah daun, bobot segar total tanaman (g), bobot segar konsumsi (g), luas daun ($cm^2$), panjang akar (cm), diameter bonggol (cm), bobot kering total tanaman (g), bobot kering konsumsi (g) dan bobot kering akar (g). Data yang diperoleh dianalisis dengan uji F pada taraf 5%, jika terdapat pengaruh nyata maka dilanjutkan dengan uji Beda Nyata Terkecil (BNT).

Hasil penelitian menunjukkan perbedaan varietas sawi mempunyai respon pertumbuhan dan hasil yang berbeda terhadap perlakuan cekaman air yang terlihat pada tinggi tanaman, luas daun, bobot kering total tanaman dan bobot kering akar. Bagian tajuk tanaman meliputi tinggi tanaman dan luas daun dari ketiga varietas mengalami penurunan seiring dengan perlakuan tingkat cekaman air. Pada bagian akar tidak semua varietas memiliki respons yang sama. Perlakuan cekaman air pada varietas Pak Choy Green dan Choi Sim perlakuan cekaman air tidak mempengaruhi bobot kering akar.Masing-masing varietas mempunyai karakter pertumbuhan tinggi tanaman, bobot kering daun, bobot segar konsumsi dan bobot segar total tanaman yang berbeda. Bobot segar konsumsi pada varietas Pak Choy White (615,75 g) lebih baik dibandingkan

dengan varietas Choi Sim (299,33 g) dan varietas Pak Choy Green (236,33 g).Tinggi tanaman, jumlah daun, panjang akar, bobot kering daun, diameter bonggol, bobot segar konsumsi dan bobot segar total tanaman menurun seiring dengan penurunan kapasitas lapang

## SUMMARY

**MOHAMMAD ARIES MOCTAVA. 0810480057. Responses of Three Varieties of Mustard (*Brassica rapa* L.) Against Water Stress. Under guidance of Ir. Koesriharti, MS., as main advisor and Dr.Ir. Moch. Dawam Maghfoer, MS. as second advisor.**

Based on BPS Indonesia (2010), Java Island is the territory that gives the most contribution in mustard production in Indonesia compared to the other islands.This matter related with there were so many critical fields out of Java that cause difficulties for vegetables especially to mustard plant cultivation because of limited water availability. Crop water requirements vary depending on the type of plant. If the amount of water available in the soil does not meet the needs of the plant, then the plant will be impaired morphologically and physiologically to growth and productivity will be hampered (Taiz and Zeiger, 2002). Purpose of this study is to get varieties of mustard (Brassica few L.) tolerance against water stress. The first hypothesis that three varieties of mustard has a different response to the level of water stress. Second hypothesis different varieties of mustard plants will show different growth and yield of mustard plants. Third hypothesis the treatment of water stress on 30% field capacity can decrease the growth and result of mustard plant.

This research has been done during October until December 2012. Research place was at Plastic House Experiment Garden Agriculture Faculty Brawijaya, Jatikerto Village, Kromengan Subdistrict, Malang District. Experimental treatments were arranged as factorial in Split Plot Design (RPT) with 2 factor that were first factor varieties as the main plot : V1 = Pak choy white, V2 = Pak Choy Green, V3 = Choi Sim and second factor as subplot : The levels of water stress (C) that composed by 4 levels which are : C1 = 100% KL, C2 = 70% KL, C3 = 50% KL, C4 = 30% KL. Total of 12 treatment combinations that V1C1, V2C1, V3C1, V1C2, V2C2, V3C2, V1C3, V2C3, V3C3, V1C4, V2C4, V3C4 with 5 (five) replicates of each plant sample and 3 (three) replications per treatment. Observation variables include: plant height (cm), number of leaves, total fresh weight of plant (g), the consumption of fresh weight (g), leaf area (cm2), root length (cm), knob diameter (cm), total dry weight of plants (g), leaf dry weight (g) and root dry weight (g). Data were analyzed by F test at the 5% level, if there is a real effect then continued with Least Significant Difference test (LSD).

The results show the difference of varieties of mustard have different growth and yield responses against water stress treatment were seen in plant height, leaf area, total plant dry weight and root dry weight. Parts of the plant canopy cover plant height and leaf areaof three varieties decreased as the level of water stress treatment. At the root is not all varieties have the same response. Water stress treatments on varieties Pak Choy Green and Choi Sim water stress treatment did not affect root dry weight.Each variety have own characteristic show at plant height, leaves dry weight, consumption fresh weight and total fresh weight of plant differently. Consumption fresh weight on Pak Choy White variety (615,75 g) better than Choi Sim variety (299,33 g) and Pak Choy Green variety as 236,33 g. Plant height, number of leaves, root lenght, leaves dry weight,

knob diameter, consumption fresh weight and total fresh weight of plant decreases with decreasing fields capacity.