

## RINGKASAN

Penelitian ini bertujuan untuk: 1) menentukan volume dan frekuensi penyiraman yang dapat meningkatkan pertumbuhan dan hasil bawang merah di lahan pasir pantai, 2) menentukan pengaruh pemberian pematah angin terhadap pertumbuhan dan hasil bawang merah di lahan pasir pantai, 3) menentukan interaksi volume dan frekuensi penyiraman dengan pematah angin yang berpengaruh optimum terhadap pertumbuhan dan hasil bawang merah di lahan pasir pantai.

Penelitian ini dilaksanakan pada September sampai November 2019 di lahan pasir Pantai Jetis, Desa Jetis, Kecamatan Nusawungu, Kabupaten Cilacap, Jawa Tengah. Rancangan percobaan yang digunakan yaitu Rancangan Acak Kelompok Lengkap (RAKL) dengan rancangan pola petak terbagi (*Split Plot Design*) 3 faktor. Faktor pertama yaitu pematah angin (K) yaitu,  $K_0$  = tanpa pematah angin dan  $K_1$  = tanaman jagung. Faktor kedua yaitu volume penyiraman (V) yaitu:  $V_1$  = 5 mm/siram,  $V_2$  = 10 mm/siram dan  $V_3$  = 15 mm/siram. Faktor ketiga yaitu frekuensi penyiraman (P) yaitu:  $P_1$  = 1 kali/hari,  $P_2$  = 2 kali/hari dan  $P_3$  = 3 kali/hari. Variabel yang diamati yaitu tinggi tanaman, jumlah daun, luas daun, panjang akar, jumlah akar, kehijauan daun, lebar bukaan stomata, kerapatan stomata, bobot umbi segar dan kering, bobot akar segar dan kering, bobot daun segar dan kering, jumlah umbi, diameter umbi, hasil umbi segar dan hasil umbi askip. Data yang diperoleh dianalisis menggunakan uji F, apabila terdapat keragaman dilanjutkan dengan uji *Duncan Multiple Range Test* (DMRT) taraf 5%.

Hasil penelitian menunjukkan bahwa: 1) volume penyiraman 15 mm/siram mampu meningkatkan bobot akar segar, bobot akar kering dan bobot daun kering. Frekuensi penyiraman 1 kali/hari mampu meningkatkan lebar bukaan stomata siang. Frekuensi penyiraman 3 kali/hari mampu meningkatkan lebar bukaan stomata pagi, jumlah umbi dan bobot umbi segar. 2) Penggunaan pematah angin tanaman jagung di lahan pasir pantai belum mampu meningkatkan pertumbuhan dan hasil bawang merah. Pengaruh pematah angin terhadap hasil umbi askip memberikan hasil 13,35 t/ha. 3) Interaksi volume penyiraman 10 mm/siram dengan frekuensi penyiraman 1 kali/hari tanpa pematah angin mampu meningkatkan kerapatan stomata sore. Interaksi volume penyiraman 15 mm/siram dengan frekuensi penyiraman 2 kali/hari tanpa pematah angin mampu meningkatkan hasil umbi askip sebesar 17,23 t/ha.

## SUMMARY

*The purpose of this research is to: 1) determine the volume and frequency of watering that can increase the growth and yield of shallots in coastal sandlands, 2) determine the effect of giving a windbreak to the growth and yield of shallots in coastal sandlands, 3) determine the interaction of volume and frequency watering with a windbreak that has an optimum effect on the growth and yield of shallots in coastal sandlands.*

*This research was conducted from September to November 2019 in the Jetis Beach sandy land, Jetis Village, Nusawungu District, Cilacap Regency, Central Java. The research design used a Randomized Complete Block Design (RCBD) with a three factor Split Plot Design. The first factor is the windbreak (K) that is, K0 = without a windbreak and K1 = corn plant. The second factor is the volume of watering (V), namely: V1 = 5 mm / flush, V2 = 10 mm / flush and V3 = 15 mm / flush. The third factor is the frequency of watering (P), namely: P1 = 1 time / day, P2 = 2 times / day and P3 = 3 times / day. The variables observed were plant height, number of leaves, leaf area, root length, number of roots, leaf greenness, stomata opening width, stomata density, fresh and dry tuber weight, fresh and dry root weight, fresh and dry leaf weight, number of tubers, tuber diameter, fresh tuber yields and askip tuber yields. The data obtained were analyzed using the F test, if there is diversity followed by the Duncan Multiple Range Test (DMRT) level of 5%.*

*The results showed that: 1) watering volume of 15 mm / flush can increase the weight of fresh roots, dry roots and dry leaves. Frequency of watering 1 time / day can increase the width of the stomata opening day. The frequency of watering 3 times / day can increase the width of the opening of the morning stomata, the number of tubers and the weight of fresh tubers. 2) The use of corn breakers in coastal sand fields has not been able to increase the growth and yield of shallots. The influence of windbreaks on askip tubers yields 13.35 t / ha. 3) The interaction of the watering volume of 10 mm / flush with the frequency of watering 1 time / day without a windbreak can increase the density of the afternoon stomata. The interaction of watering volume of 15 mm / flush with frequency of watering 2 times / day without wind breaker can increase the yield of askip tubers by 17.23 t / ha.*