

## INTISARI

**Mahmudi.** “Tanggap Karakter Morfofisiologi Tanaman Padi terhadap Pemberian Mikoriza dan Pengaturan Kadar Air Tanah pada Varietas yang Berbeda di Lahan Aluvial” Dosen Pembimbing Dr. Iwan Sasli, S.P, M.Si., dan Dr. Ir. Tris Haris Ramadhan, M.P.

Peningkatan produktivitas padi pada kondisi kadar air tanah yang terbatas dengan pemberian fungi mikoriza arbuskula dan penggunaan varietas yang adaptif dapat dicapai hasil yang optimal, karena kemampuan mikoriza dalam berasosiasi dengan akar tanaman, sehingga akar tanaman mampu melakukan penyerapan air hingga ke dalam partikel tanah. Tujuan penelitian yaitu untuk mengkaji peran mikoriza, pengaturan kadar air tanah, penggunaan varietas serta interaksi ketiga faktor dalam meningkatkan pertumbuhan dan hasil tanaman padi pada lahan aluvial.

Percobaan dilaksanakan di Desa Pasir, Kecamatan Mempawah Hilir, Kabupaten Mempawah pada bulan Februari sampai Juni 2022. Percobaan disusun menggunakan rancangan *split plot* dengan pola rancangan acak kelompok. Petak utama yaitu perlakuan mikoriza (tanpa mikoriza dan pemberian mikoriza), anak petak yaitu pengaturan kadar air tanah (100% tersedia, 80% tersedia, dan 60% tersedia). Anak-anak petak (varietas inpari 32 dan varietas inpari 42). Percobaan diulang sebanyak 3 kali dan terdiri atas 9 sampel tanaman amatan. Amatan penelitian terdiri dari tinggi tanaman, jumlah anakan maksimum, laju pertumbuhan relatif, laju asimilasi bersih, luas daun, nisbah pucuk akar, umur muncul malai, jumlah malai, panjang malai, jumlah gabah per malai, bobot gabah 1000 butir, bobot gabah per rumpun, uji infeksi akar akibat FMA, dan kadar hara fosfor.

Hasil penelitian diperoleh bahwa fungi mikoriza arbuskula yang diaplikasikan berperan dalam mempengaruhi tinggi tanaman, jumlah anakan maksimum, umur muncul malai, jumlah malai, panjang malai, jumlah gabah per malai, bobot gabah 1000 biji, bobot gabah per rumpun serta kemampuan infeksi akar oleh mikoriza menyebabkan peningkatan kadar unsur hara fosfor pada tanaman. Pengaturan kadar air tanah berperan dalam mempengaruhi tinggi tanaman, jumlah anakan maksimum, luas daun, umur muncul malai, jumlah malai, panjang malai, jumlah gabah per malai, bobot gabah 1000 biji, bobot gabah per rumpun serta semakin tinggi kadar air tanah tersedia menyebabkan kadar unsur hara fosfor pada tanaman meningkat. Varietas inpari 32 dan 42 yang digunakan tidak menunjukkan perbedaan secara signifikan dalam mempengaruhi pertumbuhan dan hasil tanaman. Selanjutnya interaksi dari fungi mikoriza, kadar air tanah dan varietas dalam meningkatkan pertumbuhan dan hasil padi diperoleh bahwa pada interaksi perlakuan dari mikoriza dan kadar air tanah berperan dalam mempengaruhi laju pertumbuhan relatif 6-8 MST, nisbah pucuk akar, bobot gabah 1000 biji, dan bobot gabah per rumpun, pada interaksi dari mikoriza dan penggunaan varietas berperan dalam mempengaruhi laju pertumbuhan relatif 6-8 MST, laju asimilasi bersih 6-8 MST, serta umur muncul malai, dan pada interaksi dari ketiga faktor mikoriza, kadar air dan varietas berperan dalam mempengaruhi jumlah anakan maksimum dan luas daun.

## ABSTRACT

**Mahmudi.** " Response of Morphophysiological Characters of Rice Plants to The Provision of Mycorrhizae and Regulation of Ground Water Level in Different Variety in Alluvial Land " Supervisor by Dr. Iwan Sasli, S.P, M.Sc., and Dr. Ir. Tris Haris Ramadhan, M.P.

*Increasing rice productivity in conditions of limited soil moisture content with the provision of arbuscular mycorrhizal fungi and the use of adaptive variety can achieve optimal results, because of the ability of mycorrhizae to associate with plant roots, so that plant roots are able to absorb water into soil particles. The purpose of the study was to examine the role of mycorrhizae, regulation of soil moisture content, use of variety and the interaction of the three factors in increasing growth and yield of rice plants on alluvial land.*

*The experiment was carried out in Pasir Village, Mempawah Hilir District, Mempawah Regency from February to June 2022. The experiment was arranged using a split plot design with a randomized block design pattern. The main plot was mycorrhizal treatment (without mycorrhizal and mycorrhizal administration), subplots were controlling soil moisture content (100% available, 80% available, and 60% available). Sub-plots (in pari 32 variety and in pari 42 variety). The experiment was repeated 3 times and consisted of 9 samples of observed plants. The research observations consisted of plant height, maximum number of tillers, relative growth rate, net assimilation rate, leaf area, ratio of shoots to roots, age of panicle emergence, number of panicles, panicle length, number of grain per panicle, weight of grain 1000 grains, weight of grain per clump, test for root infection due to AMF, and uptake of phosphorus nutrients.*

*The results of the study the arbuscular mycorrhizal fungi that were applied played a role in influencing plant height, maximum number of tillers, age of panicle emergence, number of panicles, panicle length, number of grain per panicle, grain weight of 1000 seeds, weight of grain per clump and the ability of root infection by mycorrhizae to cause increased levels of phosphorus nutrients in plants. The regulation of soil moisture content plays a role in influencing plant height, maximum number of tillers, leaf area, age of panicle emergence, number of panicles, panicle length, number of grain per panicle, grain weight of 1000 seeds, weight of grain per clump and the higher available soil water content causes levels of Phosphorus in plants increased. In pari 32 and 42 variety used did not show significant differences in influencing plant growth and yield. Furthermore, the interaction of mycorrhizal fungi, soil moisture content and variety in increasing the growth and yield of rice was found that the interaction of mycorrhizal treatment and soil water content played a role in influencing the relative growth rate of 6-8 WAP, root shoot ratio, grain weight of 1000 seeds, and weight of grain per clump, on the interaction of mycorrhizae and the use of variety played a role in influencing the relative growth rate of 6-8 WAP, the net assimilation rate of 6-8 WAP, and age of panicle emergence, and on the interaction of the three mycorrhizal factors, water content and variety played a role in influencing maximum number of tillers and leaf area.*