

RINGKASAN

Intensifikasi pertanian dilakukan dengan penerapan budidaya minapadi yang mampu menciptakan simbiosis mutualisme. Kesehatan tanaman dan ikan pada budidaya minapadi dapat terdukung oleh penggunaan insektisida nabati yang ramah lingkungan. Inovasi insektisida nabati berbahan aktif ekstrak minyak cengkeh dan minyak serai wangi hasil riset salah satu peneliti BRIN diaplikasikan pada paket teknologi budidaya minapadi. Penelitian dilakukan untuk mengetahui tanggap morfologis, fisiologis, dan daya hasil varietas padi IR64 terhadap empat paket teknologi budidaya, serta mengetahui paket teknologi budidaya yang terbaik berdasarkan karakter morfologis dan fisiologis tanaman.

Penelitian dilaksanakan berdasarkan Rancangan Acak Kelompok (RAK) dengan 4 perlakuan dan 8 ulangan. Penelitian dilakukan di Desa Bentarsari, Kecamatan Salem, Brebes. Faktor yang dicoba yaitu empat paket budidaya yaitu, budidaya padi sawah non-minapadi, budidaya minapadi tanpa insektisida, budidaya minapadi aplikasi insektisida sintetis, dan budidaya minapadi aplikasi insektisida nabati. Pengamatan dilakukan terhadap karakter morfologis (tinggi tanaman, jumlah anakan, tingkat kehijauan warna daun, jumlah anakan produktif, umur berbunga dan panen, panjang malai, jumlah gabah per malai, gabah isi per malai, bobot 1000 biji, bobot gabah per rumpun, bobot gabah per petak) dan karakter fisiologis (laju tinggi tanaman, nilai dan kandungan klorofil daun). Data dianalisis menggunakan uji F pada taraf 5% dan jika berbeda nyata dilakukan uji lanjut *Duncan's Multiple Range Test* (DMRT).

Tanggap morfologis padi IR64 terhadap empat paket budidaya dapat diamati melalui komponen, seperti tinggi tanaman, jumlah anakan produktif, bobot gabah per rumpun, serta bobot gabah per petak. Sedangkan tanggap fisiologis padi IR64 terhadap paket budidaya terlihat dari kandungan klorofil daun. Paket budidaya minapadi yang menggunakan insektisida nabati menunjukkan efek yang setara pada komponen hasil jika dibandingkan dengan penggunaan insektisida sintetis. Selain itu, penggunaan insektisida nabati lebih ramah lingkungan dan berpotensi mendukung peningkatan produksi pertanian terintegrasi yang lebih berkelanjutan.

SUMMARY

Agricultural intensification is carried out by implementing minapadi cultivation which is able to create mutualistic symbiosis. Health plants and fish in minapadi cultivation can be supported by the use of environmentally friendly botanical insecticide. Innovation of botanical insecticides with active ingredients of clove extract and citronella oils from one of BRIN's researcher has been applied to the minapadi cultivation technology package. The research was conducted to determine the morphological, physiological, and yield responses of the IR64 rice variety to four cultivation technology packages, as well as to determine the best cultivation technology package based on the morphological and physiological characteristics of the plant.

The research was conducted based on a Randomized Block Design (RAK) with 4 treatments and 8 replications. The research was conducted in Bentarsari Village, Salem District, Brebes. The factors tested were four cultivation packages are of non-minapadi rice cultivation, minapadi cultivation without insecticides, minapadi cultivation with synthetic insecticide application, and minapadi cultivation with botanical insecticide application. Observations were made on morphological characters (plant height, number of tillers, greenness level of leaf color, number of productive tillers, flowering and harvest age, panicle length, number of grains per panicle, filled grains per panicle, weight of 1000 seeds, weight of grains per clump, weight of grains per plot) and physiological characters (plant height rate, value and content of leaf chlorophyll). Data were analyzed using the F test at the 5% level and if significantly different, further Duncan's Multiple Range Test (DMRT) test was carried out.

The morphological response of IR64 rice to four cultivation packages can be observed through components such as plant height, number of productive tillers, grain weight per hill, and grain weight per plot. Meanwhile, the physiological response of IR64 rice to the cultivation packages is seen from the leaf chlorophyll content. Minapadi cultivation packages using botanical insecticides showed equivalent effects on yield components when compared to the use of synthetic insecticides. Furthermore, the use of botanical insecticides is more environmentally friendly and has the potential to support increased, more sustainable, integrated agricultural production.