RINGKASAN

Padi di Indonesia menjadi komoditas utama dalam menyokong ketahanan pangan masyarakat. Upaya peningkatan produksi padi nasional dapat dilakukan dengan cara budidaya padi berdaya hasil tinggi dan berumur genjah. Interaksi antara varietas dan lingkungan sering digambarkan sebagai perbedaan yang tidak konsisten dari satu lingkungan ke lingkungan lainnya. Penelitian ini bertujuan untuk 1) mengetahui nilai parameter genetik, 2) mengkaji hubungan antara karakter agronomis terhadap hasil, 3) menganalisis pengaruh varietas dan lingkungan terhadap komponen hasil dan hasil, dan 4) menilai stabilitas dan adaptabilitas varietas padi.

Penelitian dilaksanakan di lahan sawah Desa Tanggeran, Kecamatan Sruweng, Kabupaten Kebumen dan lahan sawah Desa Kramatan, Kecamatan Wonosobo, Kabupaten Wonosobo. Penelitian dilaksanakan dari bulan Juni hingga Desember 2024. Penelitian ini merupakan percobaan faktorial dua faktor. Terdapat 2 faktor yang digunakan dalam penelitian ini, yaitu faktor lokasi (Wonosobo dan Kebumen) dan faktor varietas (Protani, P20Tangguh, Rojolele, Pandan Wangi, Inpari 32, M70D, Cakrabuana dan Ciherang). Rancangan lingkungan yang digunakan dalam penelitian ini adalah Rancangan Kelompok Faktorial 3 ulangan. Setiap lokasi terdapat 3 ulangan yang ditanam delapan varietas padi, sehingga petak unit percobaan berjumlah 24 unit/lokasi dengan total seluruhnya 48 unit. Data yang diperoleh dianalisis menggunakan uji ragam apabila berbeda nyata akan dilanjutkan uji DMRT taraf kesalahan 5%. Data ragam dilanjutkan untuk analisis parameter genetik, analisis korelasi, analisis jalur, dan analisis adaptasi metode Finlay-Wilkinson.

Hasil penelitian menunjukkan bahwa nilai koefisien keragaman fenotipik (KKF) lebih tinggi dibandingkan koefisien keragaman genotipik (KKG) ditunjukkan pada sebagian besar karakter pengamatan. Jumlah anakan total, jumlah anakan produktif, jumlah gabah total per malai, persentase gabah isi tetap potensial untuk dilakukan seleksi, meskipun pengaruh lingkungan masih perlu diperhatikan. Karakter-karakter dengan nilai heritabilitas, KKG, dan KGH yang tinggi, seperti jumlah anakan total, umur berbunga, dan umur panen dapat dijadikan kriteria utama dalam seleksi karena menunjukkan potensi pewarisan genetik yang baik serta keragaman genetik yang tinggi. Tinggi tanaman, umur berbunga, umur panen, persentase gabah isi, dan gabah kering panen berkorelasi nyata dan positif terhadap gabah kering giling. Hasil analisis jalur menunjukkan bahwa bobot gabah kering panen memberikan pengaruh langsung besar (0,968) terhadap gabah kering giling. Interaksi varietas dan lingkungan ditunjukkan oleh tinggi tanaman, jumlah anakan total, jumlah anakan produktif, umur berbunga, umur panen, persentase gabah isi, gabah kering panen, dan gabah kering giling. Hasil analisis adaptabilitas metode Wilkinson menunjukkan varietas Ciherang dengan nilai koefisien regresi mendekati 1 adalah varietas unggul yang adaptif dan stabil di dataran rendah dan menengah.

SUMMARY

Rice in Indonesia is a major commodity in supporting community food security. Efforts to increase national rice production can be done by cultivating high-yielding and early-maturing rice. The interaction between genotype and environment is often described as inconsistent differences from one environment to another. This study aims to 1) determine the value of genetic parameters, 2) examine the relationship between agronomic characters and yield, 3) analyze the effect of genotype and environment on yield and yield components, and 4) assess the stability and adaptability of rice genotypes.

The research was conducted in the rice fields of Tanggeran Village, Sruweng District, Kebumen Regency and the rice fields of Kramatan Village, Wonosobo District, Wonosobo Regency. The research was conducted from June to December 2024. This research is a two-factor factorial experiment. There are 2 factors used in this study, namely location factors (Wonosobo and Kebumen) and variety factors (Protani, P20Tangguh, Rojolele, Pandan Wangi, Inpari 32, M70D, Cakrabuana and Ciherang). The environmental design used in this study is a Factorial Group Design with 3 replications. Each location has 3 replications planted with 8 rice genotypes, so that the experimental unit plots amount to 24 units/location with a total of 48 units. The data obtained were analyzed using the ANOVA test if they were significantly different, they would be continued with the 5% DMRT test. ANOVA data was continued for genetic parameter analysis, correlation analysis, path analysis, and adaptation analysis of the Finlay-Wilkinson method.

The results of the study showed that the value of the phenotypic diversity coefficient (KKF) was higher than the genotypic diversity coefficient (KKG) shown in most of the observed characters. The total number of tillers, the number of productive tillers, the total number of grains per panicle, and the percentage of filled grains remain potential for selection, although environmental influences still need to be considered. Characters with high heritability, KKG, and KGH values, such as the total number of tillers, flowering age, and harvest age can be used as the main criteria in selection because they show good genetic inheritance potential and high genetic diversity. Plant height, flowering age, harvest age, percentage of filled grain, and harvested dry grain were significantly and positively correlated with milled dry grain. The results of path analysis showed that the weight of harvested dry grain had a large direct effect (0.968) on milled dry grain. The interaction between genotype and environment was indicated by plant height, total number of tillers, number of productive tillers, flowering age, harvest age, percentage of filled grain, harvested dry grain, and milled dry grain. The results of the Wilkinson method adaptability analysis showed that the Ciherang genotype with a regression coefficient value approaching 1 was a superior genotype that was adaptive and stable in the lowlands and middle plains.