

## ABSTRACT

### **GROWTH AND PRODUCTION OF UPLAND RICE INPAGO 12 AGRITAN VARIETY (*Oryza Sativa* L.) BY REGULATING WATER CONTENT USING ARDUINO MICROCONTROLLER**

By

**LARASATI KHOSYATILLAH**

*Rice production in Indonesia has decreased by 0.23 million tons of milled dry grain in the 2020-2021 period. The reduction in rice production is partly caused by conversion of rice fields. One way to offset land conversion is to utilize dry land. Cultivating upland rice can be a solution for staple food that has limited water. Cultivating upland rice cannot be separated from fulfilling the conditions for growing upland rice in order to obtain high and quality harvests. One of them is adequate water availability and the use of superior varieties. Therefore, water content was regulated in cultivating upland rice of the Inpago 12 Agritan variety using the Arduino UNO microcontroller. This research aims to determine the optimal water content that produces the highest growth and production. This research was conducted in a greenhouse, Integrated Field Laboratory, Faculty of Agriculture, University of Lampung. The research was arranged in a non-factorial Completely Randomized Design with four replications, namely water content of 20-40% (P1), 40-60% (P2), 60-80% (P3), and 80-100% (P4). The research data was processed based on Standard Error values to see the average effect of treatment. The results showed that water content had a different effect on the number of panicles, dry straw weight, dry root weight, dry grain weight, filled grain weight, and 100 grains weight. The best growth and production of upland rice Inpago 12 Agritan variety was produced in treatment 3 (P3). Based on the Indonesian Seasonal Zone Update book by BMKG, there are 6 out of 12 regions in Lampung Province with recommended planting times throughout the year, while the other 6 regions vary between 10-11 months.*

*Keywords: Arduino UNO, growth and production, planting date, upland rice, and water content.*

## ABSTRAK

### **PERTUMBUHAN DAN PRODUKSI PADI GOGO VARIETAS INPAGO 12 AGRITAN (*Oryza sativa* L.) DENGAN PENGATURAN KADAR AIR MENGUNAKAN MIKROKONTROLER ARDUINO**

Oleh

**LARASATI KHOSYATILLAH**

Produksi padi di Indonesia mengalami penurunan sebesar 0,23 juta ton GKG pada periode 2020-2021. Penurunan produksi padi salah satunya disebabkan oleh konversi lahan persawahan. Salah satu cara untuk mengimbangi konversi lahan adalah dengan memanfaatkan lahan kering. Budidaya padi gogo dapat menjadi solusi bagi pangan pokok yang memiliki keterbatasan air. Dalam budidaya padi gogo tidak terlepas dari terpenuhinya syarat tumbuh padi gogo agar didapatkan hasil panen yang tinggi dan berkualitas. Salah satunya adalah tercukupinya ketersediaan air dan penggunaan varietas unggul. Oleh karena itu, dilakukan pengaturan kadar air pada budidaya padi gogo varietas Inpago 12 Agritan menggunakan mikrokontroler Arduino UNO. Penelitian ini bertujuan untuk mengetahui kadar air optimal yang menghasilkan pertumbuhan dan produksi tertinggi. Penelitian ini dilaksanakan di rumah kaca, Lab. Lapang Terpadu, Fakultas Pertanian, Universitas Lampung. Penelitian disusun dalam Rancangan Acak Lengkap (RAL) non faktorial dengan empat kali ulangan yaitu kadar air 20-40% (P1), 40-60% (P2), 60-80% (P3), dan 80-100% (P4). Data hasil penelitian diolah berdasarkan nilai *Standard Error* untuk melihat pengaruh rata-rata perlakuan. Hasil penelitian menunjukkan bahwa kadar air menghasilkan pengaruh berbeda pada jumlah malai, bobot brangkasan kering, bobot akar kering, bobot gabah kering panen, bobot gabah isi, dan bobot 100 butir gabah. Pertumbuhan dan produksi padi gogo varietas Inpago 12 Agritan terbaik dihasilkan pada perlakuan 3 (P3). Berdasarkan buku Pematang Zonal Musim Indonesia oleh BMKG, terdapat 6 dari 12 wilayah di Provinsi Lampung dengan rekomendasi waktu tanam sepanjang tahun, sementara 6 wilayah lainnya bervariasi antara 10-11 bulan.

Kata kunci: Arduino UNO, kadar air, padi gogo, pertumbuhan dan produksi, dan waktu tanam.