

ABSTRAK

FENOLOGI, PERTUMBUHAN, PRODUKSI, DAN *GROWING DEGREE DAYS* (GDD) TANAMAN SORGUM (*Sorghum bicolor* [L.] Moench) di DATARAN RENDAH: STUDI ADAPTASI TANAMAN TERHADAP PERUBAHAN IKLIM

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Perubahan iklim, khususnya kenaikan suhu udara, berpotensi mengubah fenologi yang dapat mempengaruhi pertumbuhan tanaman sorgum. Penelitian ini bertujuan untuk mengkaji fenologi, pertumbuhan, produksi, dan kebutuhan akumulasi energi panas (*Growing Degree Days*/GDD) pada tiga varietas sorgum yaitu Mandau, Super-2, dan Numbu yang dibudidayakan di dataran rendah serta mengetahui pengaruh penambahan bahan organik pada media tanam. Penelitian dilaksanakan di Rumah Kaca LTPD Universitas Lampung dari April hingga Agustus 2025 menggunakan rancangan strip-plot dengan dua faktor dan tiga ulangan. Hasil penelitian menunjukkan adanya perbedaan nyata antar varietas dalam kecepatan perkembangan fase tanaman, respons pertumbuhan, dan beberapa komponen produksi. Varietas Mandau mencapai fase generatif dan matang fisiologis paling cepat dengan total GDD yaitu 1680 DD, diikuti Numbu dengan nilai 1698 DD, sedangkan Super-2 membutuhkan akumulasi energi panas paling tinggi yaitu 1809 DD. Penambahan bahan organik mampu mempercepat pertumbuhan pada sebagian besar fase, meskipun pada fase matang fisiologis nilai GDD justru umur tanaman meningkat pada media tanpa bahan organik. Varietas Super-2 menunjukkan hasil produksi relatif tinggi pada bobot biji per malai dan bobot 1.000 butir, sedangkan varietas Mandau dan Numbu unggul pada bobot malai serta parameter akar tertentu. Hasil ini menunjukkan bahwa perbedaan genetik dan kondisi media tanam memengaruhi efisiensi pertumbuhan dan akumulasi panas, sehingga pemilihan varietas dan pengelolaan media menjadi faktor penting dalam adaptasi sorgum terhadap peningkatan suhu di dataran rendah.

Kata kunci: *sorgum, fenologi, GDD, pertumbuhan, produksi, bahan organik, dataran rendah*

ABSTRACT

PHENOLOGY, GROWTH, PRODUCTION, AND GROWING DEGREE DAYS (GDD) OF SORGHUM (*Sorghum bicolor* [L.] Moench) IN LOWLAND AREAS: A STUDY OF PLANT ADAPTATION TO CLIMATE CHANGE

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Climate change, particularly rising air temperatures, has the potential to alter phenology, which can affect sorghum growth. This study aims to examine the phenology, growth, production, and heat accumulation requirements (Growing Degree Days/GDD) of three sorghum varieties, namely Mandau, Super-2, and Numbu, cultivated in lowlands, as well as to determine the effect of adding organic matter to the planting medium. The study was conducted at the LTPD Greenhouse of the University of Lampung from April to August 2025 using a strip-plot design with two factors and three replicates. The results showed significant differences between varieties in the speed of plant phase development, growth response, and several production components. The Mandau variety reached the generative and physiological maturity phases the fastest with a total GDD of 1680 DD, followed by Numbu with a value of 1698 DD, while Super-2 required the highest heat energy accumulation of 1809 DD. The addition of organic matter was able to accelerate growth in most phases, although in the physiological maturity phase, the GDD value actually increased the age of the plant in media without organic matter. The Super-2 variety showed relatively high production yields in terms of seed weight per panicle and 1.000-grain weight, while the Mandau and Numbu varieties excelled in panicle weight and certain root parameters. These results indicate that genetic differences and growing medium conditions affect growth efficiency and heat accumulation, making variety selection and medium management important factors in sorghum adaptation to rising temperatures in lowland areas.

Keywords: sorghum, phenology, GDD, growth, production, organic matter, lowlands