ABSTRACT

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

By

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Climate change is generally characterized by an increase in air temperature; therefore, studies on its impact on crops can begin by examining how rising temperatures affect plant growth and yield. This study aimed to investigate the phenology, growth rate, yield, and Growing Degree Days (GDD) of sorghum cultivated in highland areas, as well as to evaluate the effect of organic matter addition to the growing media. The research was conducted at the Seed Source Unit of the Horticultural Seed Center, Sekincau, West Lampung, from January to May 2025, using a randomized block design in a 2×3 strip-plot arrangement.

The treatments consisted of two types of growing media, namely NPK fertilizer (P) and NPK fertilizer combined with organic matter (P+BO), and three sorghum varieties. The results showed that highland climatic conditions, along with differences in growing media, influenced the rate of phenological phases and GDD values of the three sorghum varieties.

Keywords: climate change, sorghum, phenology, Growing Degree Days, highland, organic matter.

ABSTRAK

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

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Fenomena perubahan iklim umumnya ditandai dengan peningkatan suhu udara, sehingga kajian mengenai bagaimana dampaknya terhadap tanaman dapat diawali dengan meneliti pengaruh kenaikan suhu terhadap pertumbuhan dan hasil produksi tanaman. Penelitian ini bertujuan untuk mengetahui fenologi, laju pertumbuhan, hasil produksi, serta nilai *Growing Degree Days* (GDD) dari tanaman sorgum yang ditanam di dataran tinggi, serta mengevaluasi pengaruh penambahan bahan organik pada media tanam. Penelitian dilaksanakan di UPB Balai Benih Induk Tanaman Hortikultura Sekincau, Lampung Barat, pada Januari–Mei 2025 dengan menggunakan rancangan acak kelompok (RAK) dalam *Strip-plot Design* 2×3.

Penelitian ini terdiri dari faktor media tanam, yaitu pupuk NPK (P) dan pupuk NPK + bahan organik (P+BO) serta faktor varietas. Hasil penelitian menunjukkan bahwa kondisi iklim dataran tinggi dengan perbedaan media tanam dapat memengaruhi kecepatan fase fenologi dan nilai GDD pada ketiga varietas sorgum.

Kata kunci : Perubahan iklim, sorgum, fenologi, *Growing Degree Days*, dataran tinggi, bahan organik.