INTISARI

PERTUMBUHAN DAN PRODUKSI BIOMASSA TIGA KULTIVAR SORGUM (*Sorghum bicolor* L. Moench) PADA TIGA FASE AGROFORESTRI DI KABUPATEN GUNUNG KIDUL

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Penelitian ini bertujuan untuk mengkaji pertumbuhan, perkembangan dan kapasitas produksi biomassa tiga kultivar sorgum di bawah tegakan pohon dalam sistem agroforestri fase awal, pertengahan dan lanjut di zona Nglanggeran, Kecamatan Patuk, Kabupaten Gunung Kidul. Penelitian disusun dalam Rancangan Acak Kelompok Lengkap (RAKL) faktorial dua faktor dengan tiga blok sebagai ulangan. Faktor pertama adalah kultivar sorgum, sebanyak tiga kultivar yaitu Manis, CTY dan Numbu. Faktor kedua adalah fase perkembangan agroforestri yaitu awal dengan naungan 0 – 25%, pertengahan dengan naungan 25 – 50% dan lanjut dengan naungan lebih dari 50%. Variabel yang diamati meliputi karakter mikroklimat di lokasi penelitian, aktivitas fisiologis, analisis pertumbuhan dan produksi biomassa. Data yang diperoleh dianalisis varian (ANOVA) pada taraf kepercayaan 95%,dan dilanjutkan dengan *Duncan Multiple Range Test* (DMRT) apabila terdapat beda nyata antar perlakuan. Hasil penelitian memberikan informasi bahwa aktivitas pertumbuhan dan perkembangan serta kapasitas produksi biomassa sorgum manis setara dengan sorgum kultivar CTY dan Numbu. Tanaman sorgum direkomendasikan untuk diintroduksikan pada kawasan agroforestiy fase awal, namun tidak direkomendasikan untuk dibudidayakan di kawasan agroforestri fase pertengahan dan lanjut karena terjadinya penurunan aktivitas pertumbuhan dan perkembangan serta kapasitas produksi biomassa secara nyata akibat rendahnya intensitas radiasi matahari yang menjangkau permukaan lahan di kedua kawasan tersebut.

Kata kunci: pertumbuhan, perkembangan, biomassa, sorgum dan agroforestri

ABSTRACT

THE GROWTH AND BIOMAS PRODUCTION OF THREE SORGHUM CULTIVARS (Sorghum bicolor L. Moench) UNDER THREE STAGES OF AGROFORESTRY AT GUNUNG KIDUL REGENCY

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The objectives of study were to assess the growth and biomass production of three sorghum cultivars under three stages of agroforestry. The experiment was conducted at Nglanggeran Zone, Patuk District, Gunung Kidul Regency. The research was arranged in randomized complete block design (RAKL) factorial with three blocks as replication. The first factor was sorghum cultivars, namely Sweet, CTY and Numbu. The second factor was the development stages of agroforestry, namely early (0-25% shading), middle (25-50% shading) and advance (> 50% shading) stages. The observations were done on several variables of microclimates, physiological activities, growth analysis and biomass production. Data were analyzed with Analysis of Variance (ANOVA) at 5% levels, and continued with Duncan's Multiple Range Test (DMRT) if there were significant differences among treatments. The results showed that the growth activities and biomass production of sweet sorghum were similar to Numbu and CTY. All sorghum cultivars were recommended to introduced in the early stage of agroforestry area, but they were not recommended to be cultivated in the middle and advance stages of agroforestry due to the decline in growth activities and biomass production significantly. The low intensity of solar radiation that reaches the land surfaces of middle and advance stages of agroforestry areas were decline the growth and biomass production of all sorghum cultivars.

Key words: growth, biomass, sorghum and agroforestry