

## **PENGARUH TINGKAT KEKERINGAN TANAH TERHADAP PRODUKSI DAN PERTUMBUHAN BEBERAPA VARIETAS SORGUM**

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### **INTISARI**

Penelitian ini dilakukan untuk mengetahui tingkat kekeringan tanah terhadap produksi dan pertumbuhan beberapa varietas sorgum menggunakan larutan PEG pada level konsentrasi berbeda. Penelitian ini dilaksanakan di Laboratorium Hijauan Makanan Ternak Fakultas Peternakan Universitas Gadjah Mada dan Rumah Kaca Pusat Inovasi Agro Teknologi (PIAT) UGM yang dilaksanakan selama 6 bulan. Percobaan ini menggunakan Rancangan Acak Lengkap (RAL) pola faktorial 4x6 dengan 3 ulangan. Faktor yang pertama adalah 6 varietas sorgum yaitu numbu, kawali, rumput sudan, merah, putih dan CTY-33. Faktor kedua adalah 4 level konsentrasi PEG, yaitu P1 = 0%, P2 = 2,5 %, P3= 5% dan P4= 7,5%. Biji sorgum yang telah digerminasikan kemudian ditanam dalam *polybag* yang telah diisi media tanam (tanah) dipelihara dalam rumah kaca. Variabel yang diamati antara lain pertumbuhan (tinggi tanaman, panjang daun, lebar daun, diameter batang) dan produksi (produksi bahan kering dan bahan organik). Data dianalisis variansi, hasil yang berbeda nyata dilanjutkan uji Duncan's Multiples Range Test. Hasil penelitian berdasarkan analisis variansi menunjukkan bahwa perbedaan varietas sorgum dan level konsentrasi PEG berpengaruh nyata ( $P < 0,05$ ) terhadap tinggi tanaman, diameter batang, produksi bahan kering dan bahan organik kemudian dilanjutkan uji Duncan's untuk mengetahui adanya perbedaan. Tanaman sorgum varietas numbu mempunyai tingkat pertumbuhan tinggi (61,46 cm), diameter batang (3,44 cm), panjang daun (47,46 cm) dan lebar daun (8,31 cm) yang lebih baik dibanding varietas lain, sedangkan produksi tanaman sorgum varietas numbu produksi segar (240,07 g/polybag), produksi BK (74,48 g/polybag), produksi BO (69,03 g/polybag) dan merah produksi segar (259,06 g/polybag), produksi BK (76,49 g/polybag), produksi BO (71,66 g/polybag) lebih baik dibanding varietas lainnya. Berdasarkan hasil pertumbuhan dan produksi beberapa varietas sorgum diperoleh batas tingkat sorgum toleran terhadap kekeringan adalah sekitar 2,5% PEG.

Kata kunci : Kekeringan tanah, Konsentrasi PEG, Pertumbuhan Tanaman, Produksi dan Varietas sorgum.

## THE EFFECT OF SOIL DRYNESS ON PRODUCTION AND GROWTH OF SORGHUM VARIETIES

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### ABSTRACT

This study was carried out to determine the level of soil dryness to production and growth of several varieties of sorghum using PEG solution at different concentration levels. This study was conducted at Forage and Pasture Science Laboratory of Faculty of Animal Science of Gadjah Mada University and Greenhouse of Agro Technology Innovation Center (PIAT) UGM which was held for 6 months. This study used a Completely Randomized Design (RAL) 4x6 factorial pattern with 3 replications. The first factor was 6 varieties of sorghum ie numbu, kawali, sudan grass, red, white and CTY-33. The second factor was 4 levels of PEG concentration, ie P1 = 0%, P2 = 2.5%, P3 = 5% and P4 = 7.5%. Germinated of sorghum seeds were grown in *polybags* that have been filled with planting media (soil) maintained in a greenhouse. Variables observed were plant growth (plant height, leaf length, leaf width, stem diameter) and production (dry matter and organic matter production). Data were analyzed using analyse of variance, and significant results were were tested by Duncan's Multiples Range Test. The results showed that sorghum varieties and PEG concentration level affected significantly ( $P < 0.05$ ) to plant height, stem diameter, dry matter production and organic matter. Viewed from its growth, sorghum varieties had the best dried tolerance was numbu which plant height (61,46 cm), stem diameter (3,44 cm), leaf length (47,46 cm) and leaf width (8,31 cm) has better than other varieties, while the best production was numbu which has fresh production (240,07 g/polybag), dry matter production (74,48 g/polybag), organic matter production (69,03 g/polybag) and red has fresh produce (259,06 g/polybag), dry matter production (76,49 g/polybag), organic matter production (71,66 g/polybag) which better than other varieties. Meanwhile viewed form its growth and production tolerance the drought tolerance limit of sorghum was about 2.5% PEG.

Keywords: PEG Concentration, Plant Growth, Production, Soil Drought dan Sorghum varieties.