

INTISARI

Pengaruh Cuaca dan Lengan Tanah pada Dinamika Transpirasi

Progeni-Progeni Kelapa Sawit (*Elaeis guineensis* Jacq.)

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Kebutuhan air setiap tanaman berbeda, pada kelapa sawit setiap progeni memiliki karakteristik vegetatif dan generatif yang berbeda serta kombinasi dari faktor lingkungan. Penelitian ini bertujuan untuk mengetahui kebutuhan air dan dinamika transpirasi harian antar progeni serta mengetahui variabel lingkungan yang menjadi pengendali utama laju transpirasi masing-masing progeni. Penelitian dilakukan di *Demonstrasi Plot* (Demplot) Progeni Kebun Benih Adolina, Kabupaten Serdang Bedagai, Sumatera Utara. Penelitian menggunakan beberapa indikator pengamatan dalam menentukan dinamika transpirasi yaitu: *Sap Flow* meter, *soil moisture* meter, *AWS*, *microclimate* dan sifat fisik tanah. Data dikumpulkan secara kolektif kemudian dianalisis menggunakan anova untuk melihat dinamika transpirasi antar progeni, regresi linier berganda untuk melihat kontribusi pengaruh lingkungan terhadap fluktuasi nilai SF, dan analisis jalur untuk melihat pengaruh langsung maupun tidak langsung dari anasir iklim terhadap dinamika laju aliran SF. Pada anova, rerata transpirasi harian secara keseluruhan dari total ketiga pengamatan pada Langkat sebesar 0.42 mm/hari dan 24/90 L/hari/tanaman, Dumpy sebesar 0.53 mm/hari dan 26.60 L/hari/tanaman. Sementara itu, PPKS 540 sebesar 0.43 mm/hari dan 24.98 L/hari/tanaman. Variabel lingkungan yang memengaruhi dinamika laju transpirasi secara langsung yaitu VPD mikro pada radius 20 cm, 450 cm dan 600 cm dari permukaan tanah. kontribusi pengaruh lingkungan yaitu Langkat 78,5%, Dumpy 65,5% dan PPKS540 57,6%. Pengaruh lingkungan pada nilai *Sap Flow* (transpirasi) yang terkuat yaitu progeni Langkat.

Kata Kunci: Air, Transpirasi, Progeni, Iklim.

ABSTRACT

Effect of Weather and Soil Moisture on Transpiration Dynamics of Oil Palm Progenies (*Elaeis guineensis* Jacq.)

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The water requirements of each plant are different, in oil palm each progeny has different vegetative and generative characteristics as well as a combination of environmental factors. This research aims to determine water needs and daily transpiration dynamics between progeny as well as determine the environmental variables that are the main controllers of the transpiration rate of each progeny. The research was conducted at the Demonstration Plot (Demplot) of the Adolina Seed Garden Progeny, Serdang Bedagai Regency, North Sumatra. The research uses several observation indicators to determine transpiration dynamics, namely: Sapflow meter, soil moisture meter, AWS, microclimate and soil physical properties. Data was collected collectively and then analyzed using anova to see the dynamics of transpiration between progeny, multiple linear regression to see the contribution of environmental influences to fluctuations in SF values, and path analysis to see the direct and indirect influence of climate factors on the dynamics of SF flow rates. In anova, the overall average daily transpiration from the total of three observations in Langkat was 0.42 mm/day and 24/90 L/day/plant, Dumpy was 0.53 mm/day and 26.60 L/day/plant. Meanwhile, PPKS 540 was 0.43 mm/day and 24.98 L/day/plant. Environmental variables that directly influence the dynamics of transpiration rates are micro VPD at a radius of 20 cm, 450 cm and 600 cm from the ground surface. contribution to environmental influence, namely Langkat 78.5%, Dumpy 65.5% and PPKS540 57.6%. The strongest environmental influence on sap flow (transpiration) values is Langkat progeny.

Keywords: Water, Transpiration, Progeny, Climate.