

## HUBUNGAN KONDISI LINGKUNGAN DENGAN *DRY MATTER INTAKE* SAPI *FRIESIAN HOLSTEIN* PRODUKSI TINGGI DI BBPTU-HPT BATURRADEN

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### Intisari

Penelitian ini bertujuan untuk mengetahui hubungan kondisi lingkungan dengan *dry matter intake* sapi *Friesian Holstein* yang berproduksi susu tinggi di Balai Besar Pembibitan Ternak Unggul dan Hijauan Pakan Ternak (BBPTU-HPT) Baturraden. Penelitian menggunakan 10 ekor sapi *Friesian Holstein* kering kandang (*dry period*) laktasi 1 – 3 dengan produksi susu antara 12 – 23 liter/hari. Kondisi lingkungan diidentifikasi dengan menghitung *Temperature Humidity Index* (THI) dengan menggunakan tabel THI dari temperatur lingkungan dan kelembaban udara yang ada dalam kandang. Data THI yang diperoleh digunakan untuk mengidentifikasi tingkat stres yang dialami sapi didukung dengan pengamatan fisiologisnya meliputi respirasi, frekuensi pulsus dan temperatur rektal. Pengamatan kondisi lingkungan dan kondisi fisiologis dilakukan 6 kali dalam 24 jam pengamatan yakni pukul 06.00, 09.00, 11.00, 13.00, 15.00 dan 18.00 WIB selama 14 hari. Data *dry matter intake* diperoleh dengan menghitung konsumsi pakan harian dalam bahan kering/ekor/hari selama 14 hari pengamatan. Data hasil pengamatan kondisi lingkungan dalam bentuk THI dan *dry matter intake* dianalisis dengan metode analisis korelasi Pearson dilanjutkan dengan analisis regresi sederhana sehingga diperoleh hubungan kondisi lingkungan dan *dry matter intake* sapi perah di BBPTU-HPT Baturraden. Hasilnya diketahui bahwa rata-rata suhu udara di BBPTU-HPT Baturraden adalah 25,08°C dengan rata-rata kelembaban udara 85,02%. *Temperature humidity index* dari hasil penelitian diperoleh nilai antara 67 – 84 dengan rata-rata 76,07 yang menunjukkan sapi perah yang dipelihara di daerah tersebut mengalami stres ringan. Indikasi stres ringan terlihat dari peningkatan frekuensi respirasi yang mencapai 33,87 kali/menit dengan frekuensi pulsus dan temperatur rektal yang normal yakni 60,48 kali/menit dan 37,98°C. Dinamika *Dry matter intake* sapi *Friesian Holstein* pada periode kering kandang menurun dengan rata-rata *dry matter intake* 12,02 kg/ekor/hari. Hasil analisis secara signifikan menunjukkan bahwa terdapat korelasi negatif antara kondisi lingkungan dengan *dry matter intake* sapi *Friesian Holstein* produksi tinggi yang memiliki pengaruh sebesar 42,7% dengan nilai korelasi 0,641 yang menunjukkan tingkat hubungan cukup kuat.

**Kata kunci:** *Friesian Holstein*, *Temperature humidity index*, Status fisiologis, *Dry matter intake*, Iklim tropis.

## CORRELATION BETWEEN ENVIRONMENTAL CONDITIONS AND DRY MATTER INTAKE OF HIGH PRODUCTION FRIESIAN HOLSTEIN COWS IN BBPTU-HPT BATURRADEN

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### Abstract

This study was conducted to determine the correlation of environmental conditions and dry matter intake of high production Friesian Holstein cows in Balai Besar Pembibitan Ternak Unggul dan Hijauan Pakan Ternak (BBPTU-HPT) Baturraden. Ten of 1<sup>st</sup> – 3<sup>rd</sup> lactation and 12 – 23 L/day milk production of Friesian Holstein cows were used in this study. Environmental conditions were identified by calculating the temperature humidity index by using the THI table from the ambient temperature and humidity in the stall. The THI data obtained were used to identify stress levels experienced by cows supported by physiological observations including respiration, pulsus frequency, and rectal temperature. Observation of environmental conditions and physiological conditions was carried out 6 times in 24 hours of observation at 06.00, 09.00, 11.00, 13.00, 15.00, and 18.00 WIB for 14 days. Data on dry matter intake was obtained by calculating daily feed consumption for 14 days during observation. Data on environmental conditions in the form of THI and dry matter intake were analyzed by Pearson correlation and Regression analysis method to determine relationship between environmental conditions and dry matter intake of dairy cows in Baturraden BBPTU-HPT. The results showed that the average air temperature in BBPTU-HPT Baturraden was 25.08°C with an average humidity of 85.02%. The THI during the study were obtained value between 67 to 84 (at average of 76.07), which means that the dairy cows raised in that area experienced mild stress. Mild stress were increased from the frequency of respiration which reached 33.87 times/minute with a normal pulsus frequency and rectal temperature of 60.48 times/minute and 37.98°C. The dynamics of dry matter intake of high production Friesian Holstein cows in the dry period decreased by an average of dry matter intake 12.02 kg/head/day. The Pearson correlation analysis and regression analysis showed that there was a negative correlation between environmental conditions with dry matter intake of high production Friesian Holstein cows which had 42,7% effect with a correlation value of 0.641, which a indicated quite strong correlation.

**Keyword:** Friesian Holstein cows, Temperature humidity index, Physiological status, Dry matter intake, Tropical climate.