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Status Nutrisi, Protein Susu dan Milk urea nitrogen Sapi Perah Tengah Laktasi Yang Disuplementasi Pelet Undegraded Protein Dengan Fortifikasi Selenium
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STATUS NUTRISI, PROTEIN SUSU DAN *MILK UREA NITROGEN* SAPI PERAH TENGAH LAKTASI YANG DISUPLEMENTASI PELET *UNDEGRADED PROTEIN* DENGAN FORTIFIKASI SELENIUM

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INTISARI

Penelitian ini bertujuan untuk mengevaluasi status nutrisi sapi perah tengah laktasi yang disuplementasi pelet *undegraded protein* (UDP) dengan penambahan selenium berdasarkan konsumsi nutrien, kadar protein susu, dan *milk urea nitrogen* (MUN). Pelet UDP disusun dari bungkil kedelai (85,4%) sebagai sumber protein yang diproteksi menggunakan *crude palm oil* (CPO) (4,0%) dan *formaldehyde* dengan dosis 0,8% per kg bahan kering (BK) bungkil kedelai*,* onggok (10,0%) dan *lignosulphonate feedbinder* (0,5%) sebagai bahan perekat pelet, serta difortifikasi selenium organik (0,1%). Penelitian dilaksanakan di Peternakan Rembulan Merapi Farm, Kecamatan Cangkringan, Kabupaten Sleman, pada Mei 2025 hingga Maret 2026, menggunakan 10 ekor sapi Peranakan Friesian Holstein (PFH), terdiri dari 5 ekor sapi primipara dan 5 ekor sapi multipara (laktasi ke-2 dan ke-3), masa laktasi bulan ke-4 hingga ke-6, dengan rata-rata produksi susu 16,01 ± 1,03 L/ekor/hari, bobot badan 588,4 ± 68,0 kg, dan BCS 2,50 hingga 3,50. Pakan yang diberikan terdiri atas rumput Gama Umami, konsentrat berupa konsentrat komersial dan ampas tahu, serta pelet UDP yang diberikan sebanyak 60 g BK pelet/L produksi susu/ekor/hari. Variabel yang diamati meliputi konsumsi bahan kering (BK), bahan organik (BO), protein kasar (PK), *total digestible nutrients* (TDN), produksi susu, produksi setara 4% *fat-corrected milk* (FCM), kadar protein susu, dan MUN. Data yang terkumpul dianalisis secara deskriptif, sedangkan hubungan antar variabel dianalisis menggunakan korelasi dan regresi sederhana. Hasil penelitian menunjukkan bahwa konsumsi BK berkorelasi positif dengan produksi susu, kemudian kadar protein susu berkorelasi positif dengan MUN. Kedua kombinasi tersebut dapat digunakan untuk mengevaluasi status nutrisi dan efisiensi pemanfaatan nitrogen pada sapi perah.

Kata kunci: *Milk urea nitrogen*, Protein susu, Sapi perah laktasi*,* Selenium, *Undegraded protein.*

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NUTRITIONAL STATUS, MILK PROTEIN, AND MILK UREA NITROGEN OF MID-LACTATION DAIRY COWS SUPPLEMENTED WITH SELENIUM-FORTIFIED UNDEGRADED PROTEIN PELLETS

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ABSTRACT

This study aimed to evaluate the nutritional status of mid-lactation dairy cows supplemented with selenium-fortified undegraded protein (UDP) pellets based on nutrient intake, milk protein content, and milk urea nitrogen (MUN). The UDP pellets were formulated from soybean meal (85.4%) as the protected protein source treated with crude palm oil (CPO) (4.0%) and formaldehyde at 0.8% per kg dry matter (DM) of soybean meal, cassava pulp (onggok) (10.0%) and lignosulphonate feedbinder (0.5%) as pelleting binders, and fortified with organic selenium (0.1%). The study was conducted at Rembulan Merapi Farm, Cangkringan District, Sleman Regency, from May 2025 to March 2026, using 10 Peranakan Friesian Holstein (PFH) dairy cows consisting of 5 primiparous and 5 multiparous cows (2nd and 3rd lactation) at the 4th to 6th month of lactation, with an average milk production of 16.01 ± 1.03 L/head/day, body weight of 588.4 ± 68.0 kg, and body condition score (BCS) of 2.50–3.50. The diet consisted of Gama Umami grass (Pennisetum purpureum cv. Gama Umami), concentrate comprising commercial concentrate and tofu by-product (ampas tahu), and UDP pellets offered at 60 g DM/L of milk production/head/day. Variables observed included DM, organic matter (OM), crude protein (CP), and total digestible nutrients (TDN) intake, milk production, 4% fat-corrected milk (FCM) production, milk protein content, and MUN. Data were analyzed descriptively, while relationships between variables were examined using simple correlation and regression analysis. The results showed that DM intake was positively correlated with milk production, and milk protein content was positively correlated with MUN. Both parameters can be used to evaluate nutritional status and nitrogen utilization efficiency in dairy cows.

Keywords : Dairy cow, Milk protein, Milk urea nitrogen, Nutritional status, Selenium, Undegraded protein.