

## Pengaruh Perbaikan Imbangan Protein dan Energi Ransum Terhadap *Milk Urea Nitrogen* dan Protein Susu pada Sapi Perah di Peternakan Rakyat Karangploso, Malang, Jawa Timur

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### INTISARI

Penelitian ini bertujuan untuk mengetahui pengaruh perbaikan imbangan protein dan energi ransum terhadap *milk urea nitrogen (MUN)* dan komposisi susu sapi perah peternakan rakyat di Karangploso, Malang Jawa Timur. Penelitian dilaksanakan pada bulan Maret sampai Juli 2017. Sapi perah Peranakan *Friesian Holstein* (PFH) periode laktasi dengan jumlah 8 ekor, dibagi menjadi 2 kelompok yaitu kontrol (P0) dan Perlakuan (P1). Sapi dalam kelompok P0 diberi tambahan konsentrat dengan kadar bahan kering (BK) 75,35%, bahan organik (BO) 95,60%, protein kasar (PK) 14,55%, serat kasar (SK) 14,19%, lemak kasar (LK) 7,68%, dan *total digestible nutrients* (TDN) 75,66%, kelompok P1 diberi tambahan konsentrat dengan kadar BK 70,70%, BO 94,18%, PK 16,11%, SK 16,52%, LK 9,24%, dan TDN 70,65%. Air minum diberikan secara *ad libitum*. Variabel yang diamati adalah kadar nutrisi pakan, konsumsi pakan, konsentrasi MUN dan kadar protein susu. Komposisi nutrisi pakan dianalisis menggunakan analisis proksimat. Pengambilan sampel susu dilakukan setiap satu minggu sekali selama penelitian. Konsentrasi MUN dari plasma susu diukur dengan menggunakan teknik enzimatis memakai reagen kit urea. Protein susu diuji dengan menggunakan alat *Lactoscan*. Data yang diperoleh dianalisis menggunakan analisis *independent T-test* untuk membandingkan rata-rata dari dua grup yang tidak berhubungan antara satu dengan yang lain. Hasil analisis statistik menunjukkan bahwa data konsumsi BK, BO, dan TDN tidak berbeda nyata, sedangkan level pemberian protein 16,11% dan energi 1,61 Mkal/kg meningkatkan konsumsi PK dan SK sebesar  $1,56 \pm 0,06$  dan  $3,53 \pm 0,06$  kg BK/ekor/hari. Pakan dengan kandungan protein 16,11% dan energi 1,61 Mkal/kg menunjukkan nilai kadar MUN lebih tinggi. Level pemberian protein 14,55% dengan energi 1,73 Mkal/kg meningkatkan nilai kadar protein susu 3,45%, tetapi tidak pada kadar MUN. Perbaikan ransum dengan meningkatkan kadar protein dan menurunkan nilai energi (protein 16,11% dan energi 1,61 Mkal/kg) meningkatkan kadar MUN tetapi tidak pada kadar protein susu.

Kata kunci: Komposisi susu, *Milk urea nitrogen*, Peternakan rakyat, Protein ransum, Protein susu, Sapi perah laktasi, ..

## The Effects of Improvement of Protein and Energy Balance in Ration on Milk Urea Nitrogen and Milk Protein of Lactating Dairy Cows of Farmers at Karangploso, Malang, Jawa Timur

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### ABSTRACT

This research's aims was to determine the effect of protein balance improvement and ration energy on milk urea nitrogen (**MUN**) and the composition of lactating dairy cows of farmers at Karangploso, Malang, East Java. The study was conducted from March to July 2017. Eight *Friesian Holstein* crossbreed (PFH) in lactation period were offered control ration (P0) and treatment ration (P1). Group P0 was offered additional concentrates with 75.35% dry matter (DM), 95.60% organic matter (OM), 14.55% crude protein (CP), 14.19% crude fiber (CF), 7.68% ether extract (EE), and 75.66% total digestible nutrients (TDN), group P1 was offered additional concentrates with 70.70% DM, 94.18% OM, 16.11% CP, 16.52% CF, 9.24% EE, and 70.65% TDN. Drinking water was offered *ad libitum*. The variables observed were feed nutrient contents, feed consumption, MUN concentration, and milk protein content. Feeds nutrient composition were analyzed using proximate analysis. Milk samples were taken once a week during the study. The MUN concentrations of milk plasma were measured using enzymatic techniques using urea reagent kits. Milk protein was tested using a Lactoscan device. The data obtained were analyzed using an independent T-test analysis to compare the averages of the two groups that were not related to each other. The results of statistical analysis showed that the data of consumption of DM, OM, and TDN were not different, while the ration with 16.11% CP and 1.61 Mcal/kg of energy increased the CP and CF consumptions by  $1.56 \pm 0.06$  and  $3.53 \pm 0.06$  kg DM/head/day. Ration with 16.11% CP and 1.61 Mcal/kg energy showed greater MUN level. Ration with 14.55% CP and 1.73 Mcal/kg energy increased the milk protein content by 3.45%, but not of the MUN. Improving ration by increasing protein content and decreasing energy value (16.11% protein and 1.61 Mcal/kg energy) increased the level of MUN, but not the milk protein concentration.

Keywords: Dairy farmers, Lactating dairy cows, Milk composition, Milk protein, Milk urea nitrogen, Protein in ration.