

PENGARUH TEPE KONSENTRAT TERHADAP EFISIENSI PENGGUNAAN NITROGEN PADA SAPI PERANAKAN FRIESIAN HOLSTEIN LAKTASI DENGAN RANSUM BASAL RUMPUT RAJA

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INTISARI

Penelitian ini bertujuan untuk mengetahui pengaruh perbedaan tipe konsentrat dalam ransum terhadap efisiensi penggunaan nitrogen pada sapi Peranakan Friesian Holstein (PFH) laktasi. Empat ekor sapi PFH laktasi diberi pakan erapat macam konsentrat dengan tipe dan kecepatan degradasi yang berbeda, yaitu konsentrat pati yang terdegradasi cepat (PC), konsentrat pati terdegradasi lambat (PL), konsentrat serat terdegradasi cepat (SC) dan konsentrat serat terdegradasi lambat (SL). Ransum basal yang digunakan adalah rumput Raja (*Pennisetum hybrid*). Ransum iso-nitrogenous dan iso-energi diberikan secara *ad libitum* dengan perbandingan hijauan : konsentrat = 60 : 40. Konsumsi rumput dan konsentrat serta sisa pakan dicatat setiap hari dan diambil sampelnya untuk analisis kandungan BK dan N. Setelah 15 hari masa adaptasi, sampel feses dan urine dikoleksi selama tujuh hari setiap periode untuk dianalisis kandungan N. Sampel susu diambil setiap awal dan akhir periode koleksi untuk dianalisis kandungan N. Data yang diperoleh dianalisis variansi dengan rancangan *Latin Square 4 x 4* dan apabila terdapat perbedaan dilanjutkan dengan *Duncan's New Multiple Range Test*. Hasil analisis statistik menunjukkan bahwa keempat perlakuan tersebut menunjukkan perbedaan pada konsumsi N, N urine ($P < 0,01$) dan N feses ($P < 0,05$). Pada sapi yang diberi konsentrat PC, PL, SC dan SL menunjukkan konsumsi N sebesar 254,0; 295,2; 343,6 dan 298,8 g/ekor/hari, N urine berturut-turut sebesar 89,5; 132,1; 148,3 dan 133,2 g/ekor/hari, serta N feses berturut-turut sebesar 61,9; 70,3; 76,5 dan 83,1 g/ekor/hari. Keempat perlakuan tersebut menunjukkan perbedaan yang tidak nyata terhadap N susu dan retensi N. Nitrogen susu pada sapi dengan konsentrat PC, PL, SC dan SL berturut-turut sebesar 27,8; 18,5; 22,1 dan 19,6 g/ekor/hari, serta retensi N sebesar 74,8; 74,3; 96,6 dan 62,9 g/ekor/hari. Pengaruh perlakuan terhadap efisiensi penggunaan N pada sapi dengan konsentrat PC, PL, SC dan SL menunjukkan perbedaan yang tidak nyata yaitu berturut-turut sebesar 40,3; 31,6; 34,6 dan 28,3%. Disimpulkan bahwa konsentrat PC cenderung paling efisien dalam penggunaan N pakan.

Kata kunci : Tipe konsentrat, Retensi nitrogen, Efisiensi penggunaan N, Sapi PFH, Rumput Raja.

INFLUENCE OF CONCENTRATE TYPES ON EFFICIENCY OF NITROGEN UTILIZATION IN LACTATING FRIESIAN HOLSTEIN CROSSBREED COWS GIVEN KING GRASS BASED DIET

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ABSTRACT

This research was conducted to determine the effect of the different concentrate types on efficiency of nitrogen utilization in lactating Friesian Holstein Crossbreed (FHC) cows. Four lactating FHC cows were fed four different concentrate types and degradation rates, i.e. : rapidly degraded starchy concentrate (PC), slowly degraded starchy concentrate (PL), rapidly degraded fibrous concentrate (SC) and slowly degraded fibrous concentrate (SL). As a basal diet, the King grass (*Pennisetum hybrid*) was used. Iso-nitrogenous and iso-energy diet was given *ad libitum* with forage : concentrate ratio of 60 : 40. Forage and concentrate intakes were recorded every day and they were sampled for DM and N analyses. After 15 days of adaptation periods, feces and urine were sampled for seven days each period for N analyses. Milk samples were taken at every early and at the end of period for N content analyses. All data collected were analyzed statistically using Latin Square 4 x 4 design, and then comparison between treatment means were evaluated using Duncan's New Multiple Range Test for the differences. The statistical analysis showed differences in N intake, urinary N ($P < .01$) and fecal N ($P < .05$) by those treatments. The values of N intake for cows fed PC, PL, SC and SL were 254.0; 295.2; 343.6 and 298.8 g/head/day, while the urinary N were 89.5; 132.1; 148.3 and 133.2 g/head/day, and the fecal N were 61.9; 70.3; 76.5 and 83.1 g/head/day respectively. On milk N and N retention, there were no significant differences between groups. The milk N of cows fed PC, PL, SC and SL concentrates were 27.8; 18.5; 22.1 and 19.6 g/head/day, and the N retention were 74.8; 74.3; 96.6 and 62.9 g/head/day respectively. The influence of treatment on N efficiency of cows fed PC, PL, SC and SL showed non-significant differences, there were 40.3; 31.6; 34.6 and 28.3% respectively. It was concluded that N utilization tended to be most efficient in PC concentrate.

Key words : Concentrate type, Nitrogen retention, N efficiency, FHC cows, King grass.