

PENGARUH SUPLEMENTASI PELET *UNDEGRADED PROTEIN-ASAM*
LEMAK-SELENIUM TERHADAP KONSUMSI NUTRIEN, PRODUKSI
DAN KUALITAS SUSU SAPI PERAH LAKTASI TENGAH

INTISARI

Widi Putri Karisma
23/529447/PPT/01318

Penelitian ini bertujuan untuk mengetahui pengaruh suplementasi pelet yang mengandung *undegraded protein*, lemak *bypass* dan selenium terhadap konsumsi nutrien, produksi susu, kualitas susu, bobot badan dan *body condition score* pada sapi perah laktasi tengah. Penelitian dilaksanakan di Rembulan Merapi Farm Cangkringan, Sleman, Yogyakarta selama 60 hari. Materi penelitian yaitu 12 ekor sapi perah Peranakan *Friesian Holstein* laktasi tengah dengan kriteria betina dewasa, sehat, bulan laktasi 4-6, periode laktasi 2-4 dan umur 3-6 tahun. Suplementasi pelet yang digunakan adalah bungkil kedelai terproteksi sebanyak 85,4%, *Crude Palm Oil* terproteksi sebanyak 4% sebagai lemak *bypass* dan selenium yang digunakan sebanyak 0,1%. Penelitian terdiri dari dua perlakuan yaitu kelompok ternak yang diberi ransum basal (P0) dan kelompok ternak yang diberi ransum basal dengan suplementasi pelet *blended* protein-lemak terproteksi-selenium (PLS) sebanyak 60 g/L produksi susu/ekor/hari (P1). Ransum basal yang digunakan yaitu hijauan Gama Umami dan konsentrat dengan kandungan protein kasar 17,26% dan *total digestible nutrient* 61,74%. Rancangan penelitian menggunakan Rancangan Acak Kelompok dan data dianalisis dengan Uji *Independent Sample T-test* menggunakan *software* SAS studio. Hasil menunjukkan bahwa kelompok ternak yang diberi ransum basal dengan suplementasi pelet PLS (P1) menghasilkan konsumsi protein (2,77±0,31 vs 3,16±0,57 kg bahan kering (BK)/ekor/hari) dan *total digestible nutrient* (9,81±1,14 vs 10,96±1,79 kg BK/ekor/hari) yang lebih tinggi dibandingkan kelompok ternak yang diberi ransum basal (P0) ($p < 0,05$). Sementara itu, suplementasi pelet PLS tidak berpengaruh terhadap konsumsi bahan kering, bahan organik, lemak kasar dan serat kasar. Hasil menunjukkan bahwa kelompok ternak yang diberi ransum basal dengan suplementasi pelet PLS (P1) menghasilkan produksi susu (15,84±1,90 vs 20,38±3,87 L/ekor/hari), produksi 4% *fat corrected milk* (FCM) (15,52±1,59 vs 19,16±4,25 kg/ekor/hari), kadar protein susu (3,24±0,11 vs 3,53±0,20 %), produksi protein susu (0,46±0,09 vs 0,65±0,10 kg/ekor/hari), kadar laktosa susu (4,66±0,16 vs 4,98±0,40%), produksi laktosa susu (0,66±0,12 vs 0,94±0,15 kg/ekor/hari) serta kadar *solid non fat* (8,35±0,29 vs 8,92±0,71%) yang lebih tinggi dibandingkan kelompok ternak yang diberi ransum basal (P0) ($p < 0,05$). Sementara itu, suplementasi pelet PLS tidak berpengaruh terhadap kadar lemak dan produksi lemak susu serta *total solid*. Suplementasi pelet PLS tidak berpengaruh terhadap bobot badan dan *body condition score* sapi. Berdasarkan hasil penelitian disimpulkan bahwa suplementasi pelet PLS dapat meningkatkan konsumsi nutrien (protein kasar dan *total digestible nutrient*), produksi susu, produksi 4% FCM, kadar dan produksi protein susu, kadar dan produksi laktosa susu serta kadar *solid non fat* pada sapi perah laktasi tengah.

Kata kunci: Lemak *bypass*, Produksi dan kualitas susu, Sapi perah, Selenium, *Undegraded protein*.

THE EFFECT OF UNDEGRADED PROTEIN-FATTY ACID-SELENIUM PELLET
SUPPLEMENTATION ON NUTRIENT CONSUMPTION, PRODUCTION
AND MILK QUALITY IN MID LACTATION DAIRY COWS

ABSTRACT

Widi Putri Karisma
23/529447/PPT/01318

This study aims to determine the effect of pellet supplementation containing undegraded protein, bypass fat, and selenium on nutrient consumption, milk production, milk quality, body weight, and body condition score in mid lactation dairy cows. The study was conducted at Rembulan Merapi Farm Cangkringan, Sleman, Yogyakarta for 60 days. The research material consisted of 12 Peranakan Friesian Holstein dairy cows in mid lactation with the criteria of adult females, healthy, 4-6 months of lactation, 2-4 lactation periods, and 3-6 years of age. The pellet supplement used was 85.4% protected soybean meal, 4% protected crude palm oil as bypass fat, and 0.1% selenium. The study consisted of two treatments, namely a group of cattle fed a basal ration (P0) and a group of cattle fed a basal ration supplemented with 60 g of blended protein-fat protected-selenium (PLS) pellets/L milk production/cow/day (P1). The basal diet used consisted of Gama Umami forage and concentrate with a crude protein content of 17.26% and total digestible nutrients of 61.74%. The study design used a Randomized Block Design, and the data were analyzed using the Independent Sample T-test with SAS Studio software. The results showed that the group of cattle fed a basal diet supplemented with PLS pellets (P1) produced higher protein consumption (2.77 ± 0.31 vs. 3.16 ± 0.57 kg dry matter (DM)/head/day) and total digestible nutrients (9.81 ± 1.14 vs. 10.96 ± 1.79 kg DM/head/day) compared to the group of cattle fed a basal diet (P0) ($p < 0.05$). Meanwhile, PLS pellet supplementation had no effect on dry matter, organic matter, crude fat, and crude fiber intake. The results showed that the group of cattle fed a basal ration supplemented with PLS pellets (P1) produced milk (15.84 ± 1.90 vs. 20.38 ± 3.87 L/head/day), 4% fat corrected milk (FCM) production (15.52 ± 1.59 vs. 19.16 ± 4.25 kg/head/day), milk protein content (3.24 ± 0.11 vs. 3.53 ± 0.20 %), milk protein production (0.46 ± 0.09 vs. 0.65 ± 0.10 kg/head/day), milk lactose content (4.66 ± 0.16 vs. 4.98 ± 0.40 %), milk lactose production (0.66 ± 0.12 vs. 0.94 ± 0.15 kg/head/day) and non-fat solids content (8.35 ± 0.29 vs. 8.92 ± 0.71 %) were higher than in the group fed the basal diet (P0) ($p < 0.05$). Meanwhile, PLS pellet supplementation did not affect fat content and milk fat production as well as total solids. PLS pellet supplementation did not affect body weight and body condition score of cows. Based on the results of the study, it was concluded that PLS pellet supplementation can increase nutrient intake (crude protein and total digestible nutrients), milk production, 4% FCM production, milk protein content and production, milk lactose content and production, and non-fat solids content in mid-lactation dairy cows.

Keywords: Bypass fat, Milk production and quality, Dairy cows, Selenium, Undegraded protein.