Supplementary Table 1. Ingredients and nutritional composition of diets provided in Experiments 1 and 2.

|  |  |  |
| --- | --- | --- |
|   | Hand-plucked forage | Treatmenta |
| Control | Low dose | High dose |
|   | CSSO | CSPO | CSSO | CSPO |
| Ingredients, % of dry matter |  |  |  |  |  |  |
|  Fine ground corn |  | 82.5 | 78.2 | 78.2 | 74.7 | 74.7 |
|  Soybean meal |  | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 |
|  Fat supplementb |  | 0.00 | 4.90 | 4.90 | 8.60 | 8.60 |
|  Urea |  | 0.10 | 0.30 | 0.30 | 0.40 | 0.40 |
|  Limestone |  | 1.40 | 0.60 | 0.60 | 0.30 | 0.30 |
|  Mineral and vitamin mixc |  | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| Nutrient composition, % of dry matter |  |  |  |  |  |
|  Dry matter | 19.8 | 88.8 | 89.4 | 89.3 | 89.8 | 89.8 |
|  Crude protein | 18.3 | 14.5 | 14.4 | 14.4 | 14.4 | 14.4 |
|  Neutral detergent fiber | 54.2 | 9.30 | 8.80 | 8.80 | 8.40 | 8.40 |
|  Lignin | 3.20 | 0.40 | 0.40 | 0.40 | 0.30 | 0.30 |
|  Total fat | 2.80 | 3.70 | 7.20 | 7.20 | 9.80 | 9.80 |
|  16:0 | 0.33 | 0.36 | 1.00 | 2.40 | 1.48 | 3.56 |
|  18:0 | 0.05 | 0.06 | 0.24 | 0.23 | 0.38 | 0.35 |
|  18:1 *cis-9* | 0.03 | 0.64 | 1.45 | 1.95 | 2.08 | 3.15 |
|  18:2 *cis-9 cis-12* | 0.26 | 1.24 | 3.07 | 1.34 | 4.76 | 1.59 |
|  18:3 cis-9 cis-12 *cis*-15 | 0.99 | 0.05 | 0.18 | 0.18 | 0.25 | 0.25 |
| Pasture scenariod |  |  |  |  |  |  |
|  HE ME, MJ/kg |  | 1.722 | 1.968 | 1.836 | - | - |
|  HE CP, g/kg |  | 0.018 | 0.018 | 0.017 | - | - |
| Land scenarioe |  |  |  |  |  |  |
|  HE ME, MJ/kg |  | 4.269 | 4.486 | 4.387 | - | - |
|  HE CP, g/kg |   | 0.046 | 0.046 | 0.045 | - | - |

a Cows grazed elephant grass and received treatments as a concentrate supplement. Treatments were a control diet (concentrate without supplemental fat); or diets supplemented with calcium salts of either soybean fatty acids (CSSO) or palm fatty acids (CSPO) fed at two levels of supplementation (low: 400 g/d; high: 700 g/d).

bFat supplements were 1) calcium salts of soybean fatty acids (CSSO; Megalac-E, Química Geral do Nordeste, Rio de Janeiro, Brazil) 85.0% FA (16.8% C16:0; 4.8% C18:0; 21.4% C18:1 cis-9; 52.4% C18:2 cis-9,cis-12; and <2% others), and 2) Ca salts of palm fatty acids (CSPO; Magnapac, Tectron Inc., Toledo, Parana, Brazil) 85.2% FA (47.8% C16:0; 4.4% C18:0; 37.3% C18:1 cis-9; 5.2% C18:2 cis-9,cis-12; and <2% others).

cProvided the following per kilogram of the product (dry matter basis): 250 g of Ca, 45 g of P, 65 g of Na, 10 g of Mg, 10 g of S, 2,375 mg of Mn, 2,375 mg of Zn, 562 mg of Cu, 12.5 mg of Co, 31 mg of I, 15.8 mg of Se, 200,000 IU of vitamin A, 50,000 IU of vitamin D3, 1,250 of vitamin E.

dCorn, soybean meal, and soybean and palm oil were considered as human-edible foods.

eLand used for pasture production was considered to grow corn and soybean for direct human consumption.