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Effect of energy supplementation on grass intake, performances and parasitism in lactating maresC. Collas^{1,2}, G. Fleurance^{1,2}, W. Martin-Rosset², J. Cabaret³, L. Wimmel¹ and B. Dumont²¹IFCE, Direction des Connaissances et de l'Innovation, 49411 Saumur, France, ²INRA, UMR1213 Herbivores, 63122 Saint-Genès-Champagnelle, France, ³INRA and Université François Rabelais Tours, UMR1282 IASP, 37380 Nouzilly, France; claire.collas@clermont.inra.fr

Horse farming systems have to cope with high feeding costs, so that a major challenge is reducing the inputs required for production, e.g. by feeding horses on grasslands. Few studies have so far recorded daily intake of lactating saddle mares at pasture, and assessed the need to providing them supplements. Sixteen lactating saddle mares, eight receiving a daily barley supplement (60% of energy requirements for lactation) and the remaining eight animals being non-supplemented, were rotationally-grazed on permanent pastures from June to September 2012. Each mare was experimentally infested with 5,000 nematode larvae (cyathostomes) at the start of the experiment. Stocking rate was 3.1 LU/ha during the first cycle characterized by active grass growth and 1.5 LU/ha in the second and third cycles. Sward nutritive value remained relatively stable around 11.1%MAT and 44.7%NDF. Data were analyzed using the Mixed Procedure of SAS for repeated measurements and initial conditions were considered as covariates. There was no effect of energy supplementation on the evolution of mare liveweight (on average 597.4±3.4 kg), body condition (3.5±0.1), and foal growth (1st cycle: 1,175±45 g/d, 2nd cycle: 1,020±10 g/d, 3rd cycle: 520±30 g/d). The level of parasitic excretion after mares had been infested with nematode larvae was also similar, which suggest that barley supplementation did not increase mare resistance. Grass daily intake of supplemented and non-supplemented mares did not significantly differ during the first and second cycles. In the third cycle, grass intake of non-supplemented mares was higher (15.7±0.5 vs. 12.2±0.4 g DDM/kgLW/d; P<0.001). This behavioural flexibility allowed them ensuring a good foal growth under our grazing conditions.

Haematology and plasma metabolites in horses fed linseed oil over a 4 months period

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Sport horses are offered diets high in concentrate during the training and racing seasons. Fat has been suggested as an alternative compound to cereals to provide energy and to decrease the level of starch and associated disturbances. Oils increase the energy but also the essential fatty acids supplies. In this study, eight exercised adult horses were used during four months. The diet was made of 50% grass hay and 50% compound feedstuff. The control concentrate was composed of 48% of whole spelt, 48% of rolled barley, 3% of molasses and 1% of a mineral mixture. In the treated group with oil, 8% of barley was substituted by 8% of first pressure linseed oil. The horses remained healthy over the four months of the experiment. The hay and the compound feedstuffs were completely eaten within one hour after being offered. The inclusion of linseed oil did not affect the plasma concentrations of glucose and of insulin. By contrast, there were reductions in plasma concentrations of urea (4.68 vs. 5.54 mmol/l, P<0.001) and triacylglycerol (0.20 vs. 0.26 mmol/l, P<0.001). An increase in total cholesterol concentration (2.69 vs. 2.41 mmol/l, P<0.01) was also observed. There were period effects on concentrations of plasma glucose (P<0.001), total cholesterol (P<0.01) and insulin (P<0.01) with a large increase in plasma insulin when month 4 was compared with month 1 (39.7 vs. 65.6 UI/ml). In terms of haematology, the linseed oil inclusion significantly (P<0.05) reduced the erythrocyte counts (6.8 vs. 7.6×10¹² cells/l), the haemoglobin content (11.6 vs. 13.0 g/dl) and the haematocrit (0.32 vs. 0.36 l/l) but there were no period effects on haematology. Since linseed oil supplementation did not affect intakes but improved metabolic pathways, linseed oil supplementation could be of interest for racing horses.