

Milk production and fatty acid profile after three weeks of diet supplementation with sunflower oil and marine algae in dairy ewes
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Feeding a source of long chain polyunsaturated fatty acids (PUFA), such as marine lipids, plus a linoleic-rich vegetable oil notably increases milk content of some potentially healthy fatty acids (FA), such as conjugated linoleic acid (CLA). In dairy cows, this nutritional strategy causes detrimental effects on animal performance, reducing milk fat content, but the situation in sheep might be substantially different, as this species seems to be less prone to milk fat depression than cows. This work was conducted to investigate the effect of supplementation with sunflower oil (SO) plus incremental levels of marine algae (MA) on dairy sheep performance and milk FA profile. Fifty Assaf ewes in mid-lactation, distributed in 10 lots of 5 animals each, were allocated to 5 treatments (feeding regimes; 2 lots/treatment). All animals received a total mixed ration (50:50 forage:concentrate ratio) without lipid supplementation (Control) or supplemented with 25 g SO/kg DM plus 0, 8, 16, or 24 g MA/kg (SO, SOMA₁, SOMA₂, and SOMA₃, respectively). Milk production and composition were recorded after 3 weeks on treatment. No significant differences in DM intake between treatments were observed during this three-week period (3.5 kg DM/animal and day). SO plus the highest level of algae supplement (SOMA₃) resulted in the highest *cis*-9 *trans*-11 CLA content in milk fat (3.89 vs. 1.58 and 0.48 % of total FA for SOMA₃, SO and Control diets, respectively), while the atherogenicity index decreased in all supplemented treatments compared to the Control (P<0.01) but without differences among them. On the other hand, although there were no significant differences in milk production between treatments, milk fat content decreased in all ewes fed marine algae (-21% on average; P<0.001). The joined action of some biohydrogenation intermediates and the important reduction in stearic acid (P<0.001) are discussed to explain these differences.

Key words: CLA, PUFA, milk fat depression, sheep

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