Long-term effects of rapeseed or linseed in grass-fed dairy cows

Adding oilseeds to dairy cow diet can improve milk content in omega 3. Are these effects valid regardless of baseline diet?

Long-term oilseed supplementation had persistent effects between periods (winter and summer) and repeatable effects between the two outdoor periods. It did not improve dairy performances and sometimes decreased milk protein content, notably in winter. Milk content showed fewer saturated FA and higher linoleic acid ([cis]-9:18:1) and, for linseed, α-linolenic acid (18:3n-3), suggesting an improved nutritional quality of the milk. However, extruded linseed and cold-pressed fat-rich rapeseed meal increased trans-FA and often decreased rumenic acid ([cis]-9,trans-11 conjugated linoleic acid (CLA)) in milk produced at pasture, which is detrimental to nutritional quality. The distribution of cis and trans isomers of unsaturated FA depended on type of seed and level of starch in the diet, but not on form of rapeseed added. However, rapeseed form had an influence on the magnitude of the observed responses.

In other respects, the fin-grained analysis of milk FA have insights into the metabolism of CLA and conjugated linolenic acids (CLnA) (including α-eleostearic acid, reported here for the first time in milk), in connection with mammary lipogenesis. New hypotheses on ruminal or mammary origin of milk CLnA and on the key role of trans-9,cis-11 CLA in the regulation of milk fat content in 18:3n-3-rich diets were formulated and will be further tested.


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