The effects of supplementation with a blend of capsicum, cinnamaldehyde, and eugenol on milk production performance of dairy cows.
R. Blanck¹, Kobi Vecht¹, C. Oguey², E. H. Wall*²; Bar-Magen, Emek Hefer, Israel¹; Pancosma S.A., Geneva, Switzerland CH-1218²

Essential oils are naturally-occurring chemicals in plants, and many of these molecules have been reported to influence production efficiency of dairy and beef animals. Previously, it was reported that a blend of capsicum, cinnamaldehyde, and eugenol increases feed efficiency of beef steers. Our objective was to determine if that same additive (EO; XTRACT®-7065, Pancosma) would influence the milk production performance of lactating dairy cows during the summer months in Israel. In two consecutive field trials, Holstein dairy cows were assigned to no additive or supplementation with EO (1 g/d; n = 30 cows/treatment in trial one, 70 cows/treatment in trial two; n = 2 pens/treatment) for 4 mo. The EO was blended with ground corn meal and top-dressed; control cows received corn meal without EO. Dry matter intake (DMI) per pen was calculated daily and individual cow milk production, milk composition, and somatic cell count (SCC) were recorded monthly. Data were subjected to analysis of variance with repeated measures using pen as the experimental unit and trial as a random variable. Cow activity was monitored in the first trial using a pedometer (Afimilk, Israel), and rumination minutes per day were measured in the second trial (SCR, Israel). Those data were analyzed using analysis of variance with repeated measures and cow as the experimental unit. Milk production was increased in EO cows (39.4 vs. 42.0 kg/d; P < 0.01) with no effect of EO on DMI (22.6 vs. 22.5 kg/d; P > 0.70). Consequently, there was an improvement in feed efficiency of EO cows (milk/DMI = 1.74 vs. 1.89; P < 0.001). There was no effect of EO on milk composition (P > 0.50), but there was an increase in energy-corrected milk with EO (40.1 vs. 42.2 kg/d; P < 0.01). In addition, there was a decrease in SCC of EO cows (306.1 vs. 242.4 cells*1000/ml; P < 0.05). In trial one, there was a decrease in activity of EO cows (165 vs. 137 steps/d; P < 0.001); however, in trial two, there was no effect of treatment on rumination time (425 vs 436 min/d; P = 0.30).
We conclude that a blend of capsicum, cinnamaldehyde, and eugenol can increase milk production and feed efficiency of lactating dairy cows. Additional experiments are needed to confirm these observations and to understand the mechanism underlying the response of dairy cows to EO.

KEYWORDS
essential oil
phytonutrient