

DEVELOPMENT OF DAIRY PRODUCTS ENRICHED WITH OMEGA-3s

Ω3

The health benefits associated with Omega-3 polyunsaturated fatty acids have been well documented. However, increasing the availability of these nutrients in dairy products for human consumption without affecting taste remains a challenge. Finding a mechanism for improving the fatty acid profile of dairy products without compromising sensory attributes would prove beneficial to consumers.

A study conducted at the University of Saskatchewan and Saskatchewan Food Industry Development Centre investigated the effects of feeding a land-based, co-extruded flaxseed product to dairy cattle on the fatty acid profile and sensory attributes of milk and Havarti cheese.

HYPOTHESIS

FEEDING A NEWLY DEVELOPED CO-EXTRUDED FLAXSEED PRODUCT TO DAIRY CATTLE WILL IMPROVE THE FATTY ACID PROFILE OF MILK AND HAVARTI CHEESE WITHOUT COMPROMISING SENSORY ATTRIBUTES.

OBJECTIVES

1
PRODUCE MILK WITH ELEVATED LEVELS OF OMEGA-3 through dietary means

2
PRODUCE HAVARTI CHEESE from control and Omega-3 milk

3
EVALUATE fatty acid profiles and sensory attributes of the milk and cheese

METHODOLOGY

As part of a larger trial conducted in 2012-2013, six Holstein cows from the University of Saskatchewan Greenbrae herd were offered a control diet followed by a treatment diet supplemented with a co-extruded flaxseed product (LinPRO™-R70, O&T Farms Ltd., Regina, SK) at 9% of the total mixed ration on a dry matter basis for 28 days.



FED SIX HOLSTEIN COWS A CONTROL DIET FOLLOWED BY A DIET WITH A CO-EXTRUDED FLAXSEED PRODUCT FOR 28 DAYS



MILK SAMPLES COLLECTED AND ANALYZED



BULK MILK SAMPLES COLLECTED

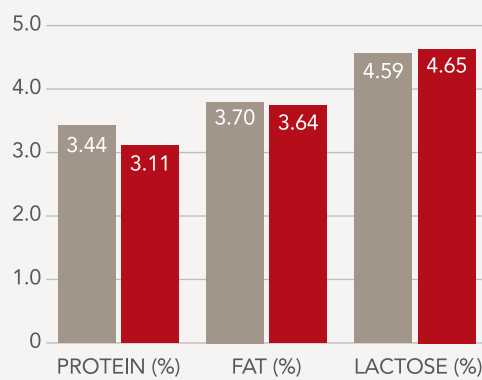


HAVARTI CHEESE PRODUCED AND ANALYZED

MILK RESULTS

COMPOSITION

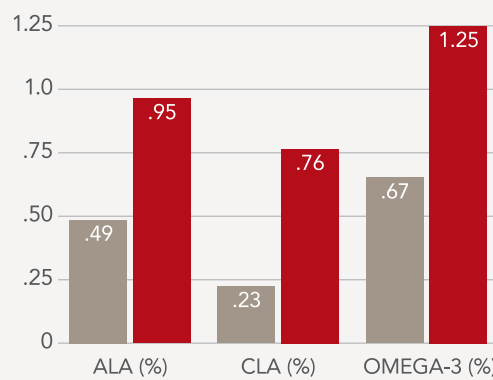
average composition of milk



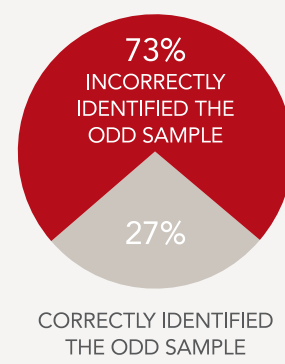
Control LinPRO™-R70

FATTY ACIDS

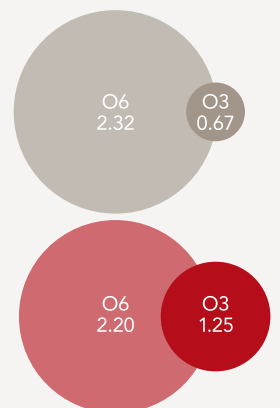
average % of fatty acids in milk



SENSORY



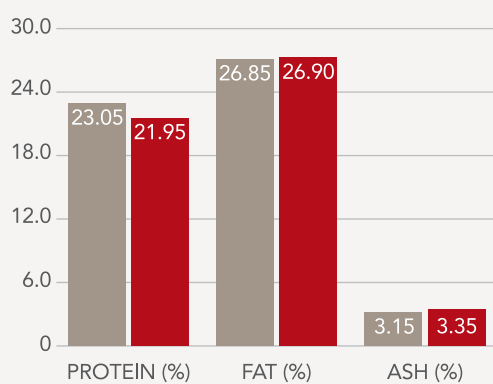
O6:O3 RATIO



CHEESE RESULTS

COMPOSITION

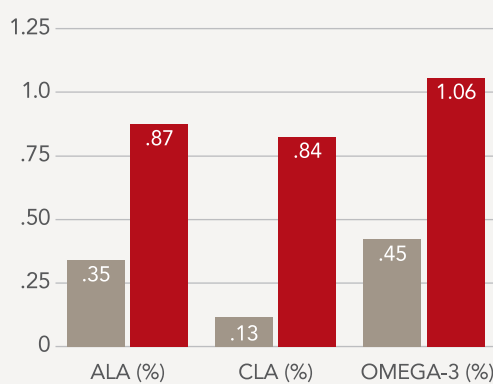
average composition of cheese



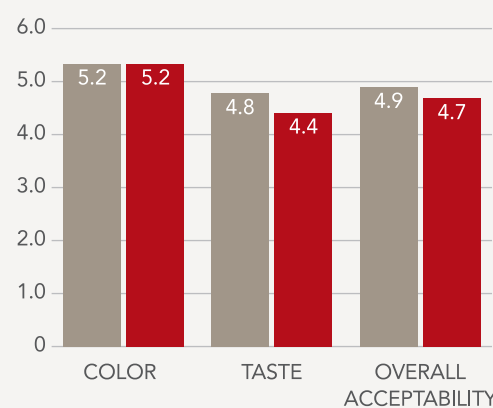
Control LinPRO™-R70

FATTY ACIDS

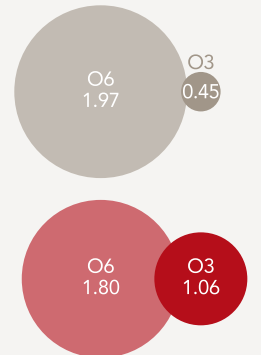
average % of fatty acids in cheese



SENSORY



O6:O3 RATIO



RESULTS SUMMARY

Results suggest that including a co-extruded flaxseed product in the ration of dairy cattle may improve the fatty acid profile of milk without negatively impacting milk composition. The fatty acid profile of cheese was also improved with minimal losses of Omega-3 fatty acids during the cheese manufacturing process.

Similar sensory attributes were observed between the control and the Omega-3 dairy products suggesting no negative effect on consumer acceptance of the Omega-3 enriched products.

IMPLICATIONS

USING CO-EXTRUDED FLAXSEED PRODUCTS CAN PROVIDE AN OPPORTUNITY FOR DEVELOPMENT AND MARKETING OF OMEGA-3 ENRICHED DAIRY PRODUCTS FOR HUMAN CONSUMPTION.



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