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# **WDS 2024**

## **ABSTRACT SUBMISSION**

**Type of Poster:** Research/ Scientific

**Category:** Safety Quality - Chemistry and Composition

### **COMPLEX B VITAMIN ENRICHMENT FROM MILK TO DAIRY PRODUCTS**

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## INTRODUCTION

Dairy products are considered good suppliers of B vitamins (B<sub>2</sub>, B<sub>5</sub>, B<sub>12</sub>) due to the concentrations found in these foods and to feeding habits (Vissers et al., 2011). The ration fed to dairy cows would influence the B vitamin content of milk (Graulet and Girard, 2017) but the consequences on dairy products content remain unexplored.

## OBJECTIVE

Aim was to explore if variations in raw milk B vitamin concentrations could impact B vitamin concentrations in the corresponding dairy products.

## MATERIALS AND METHODS

At the end of May, 20 cows were divided in 2 groups receiving a diet based either on pasture or corn silage for 4 months. Raw tank milks were collected 3 times for production of raw milk cheeses or yogurts, during the last week of the period. B vitamins (B<sub>1</sub>, B<sub>2</sub>, B<sub>5</sub>, B<sub>6</sub>) were analysed by UPLC-MS after deproteinization (Laverroux et al., 2021) and B<sub>9</sub> and B<sub>12</sub> by chimoluminescence using the ChLia folates-B<sub>12</sub> kit. Concentrations were related to dry matter to evaluate transfer from milk to cheese and yogurt.

## RESULTS AND DISCUSSION

Vitamin B<sub>2</sub> was the highest in raw milk of grazing cows (2.91 vs 2.60 mg/L, p<0.05). At the opposite, vitamin B<sub>5</sub> concentration was the highest when cows were fed corn silage (3.16 vs 3.08 mg/L, p<0.05). Related to dry matter, strong decreases in B<sub>1</sub> (-86%), B<sub>2</sub> (-63%), B<sub>5</sub> (-88%), B<sub>6</sub>-pyridoxal (-90%), folates (-78%), vitamin B<sub>12</sub> (-50%) and increases in B<sub>6</sub>-pyridoxamin (+60%) concentrations were observed between milk and cheese curd. Decreases were probably resulting of draining. Folates (+73%), B<sub>6</sub>-pyridoxamine (+40%), and B<sub>1</sub> (+13%) concentrations increased in yogurt while B<sub>5</sub> (-28%), B<sub>6</sub>-pyridoxal (-36%), and vitamin B<sub>12</sub> (-86%) decreased and B<sub>2</sub> remained unchanged. These changes probably resulted from milk heating during the process and synthesis by ferments.

## CONCLUSION/PERSPECTIVES

Due to technological processes, huge losses of B vitamins were observed in raw milk cheeses but they were more moderate in yogurts. For this reason, raw milk B vitamin enrichment through cow diet did not led to subsequent dairy products enrichment with theses compounds.