Centre d'élevage de Poisy Lucien Biset

Université de Liège

# COMPARISON OF TWO TYPES OF SALT LICKS LOCATED NEAR OR FAR THE WATER : INGESTION AND COWS BEHAVIOUR

**E. Knapp[1], A. Cheradome[2], T. Hetreau[2], L. Istasse[1], JL. Hornick[1], I. Dufrasne[1]**

[1]University of Liege, Nutrition Unit, Liege, Belgium

[2]Centre d'Elevage , Poisy, France

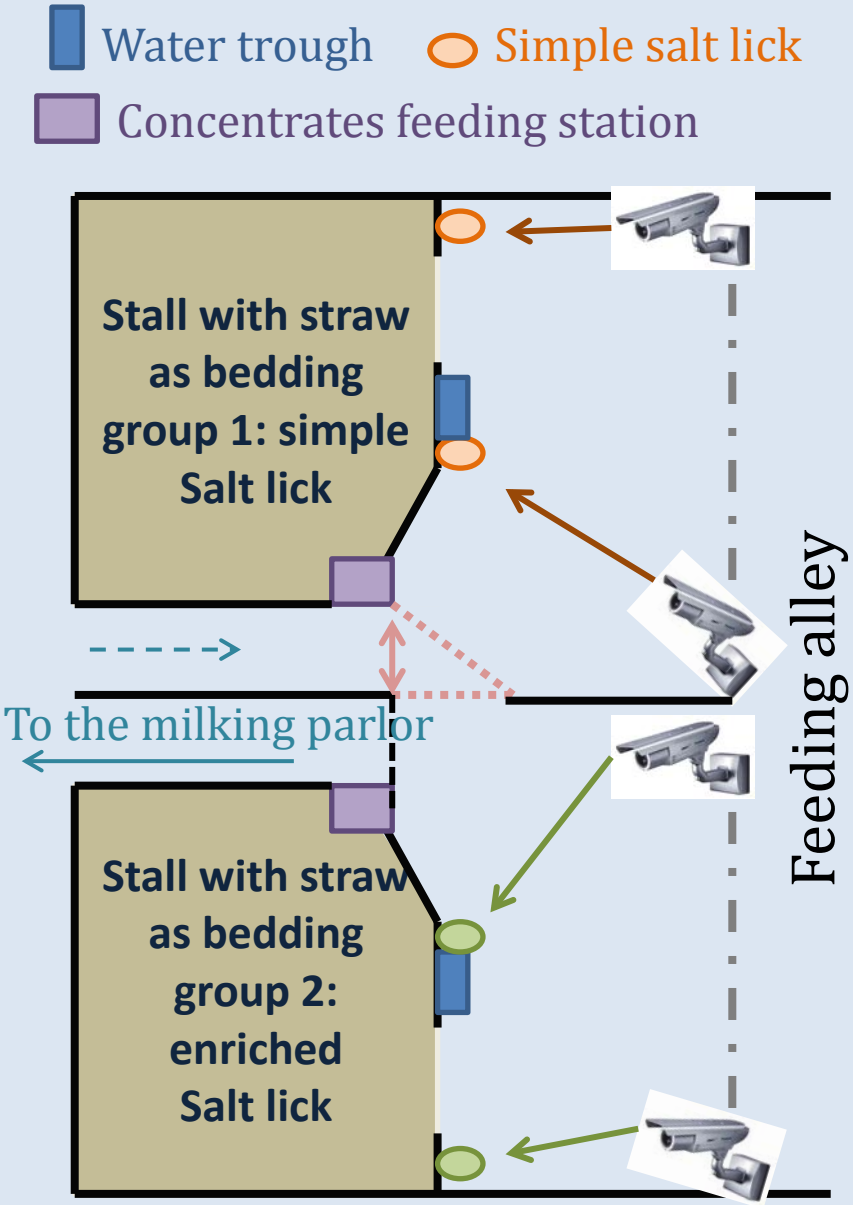
# Introduction

- **Sodium:**
  - Major mineral in the metabolic pathways: nervous cells function, sugars and amino-acids absorption, blood and rumen pH regulator …
  - Daily requirement for cattle : 1.5-2.5 g/kg DMI (Andrieu et al., 1986; Meshy, 2010)
  - Chronic deficiences can cause pica, polyuria, polydispsia, weight losses and milk production reductions
  - One of the most common deficiences in European farms (Meshy, 2010) while the treatment is simple and cheap
  - Self regulation ???
- **Aims : comparison of intake and behaviour of dairy cows offered two types of salt licks located in two different positions in the barn**

# Materials and methods

- **80 dairy cows :**
  - Two homogeneous groups according to breed (Mombeliarde, Abondance and Holstein), parity, days in milk, milk yield and quality.
  - Study from January to May
- **Two salt licks :**
  - with sodium chloride alone (39.3% Na)
  - with minerals and trace minerals (only 19.5% Na) and more brittle
- **Similar diet :**
  - Hay + ground corn cob silage + rapeseed meal + minerals (1.2-1.3 g Na/kg DM)
  - Concentrates in an automatic feeder according to milk yield.

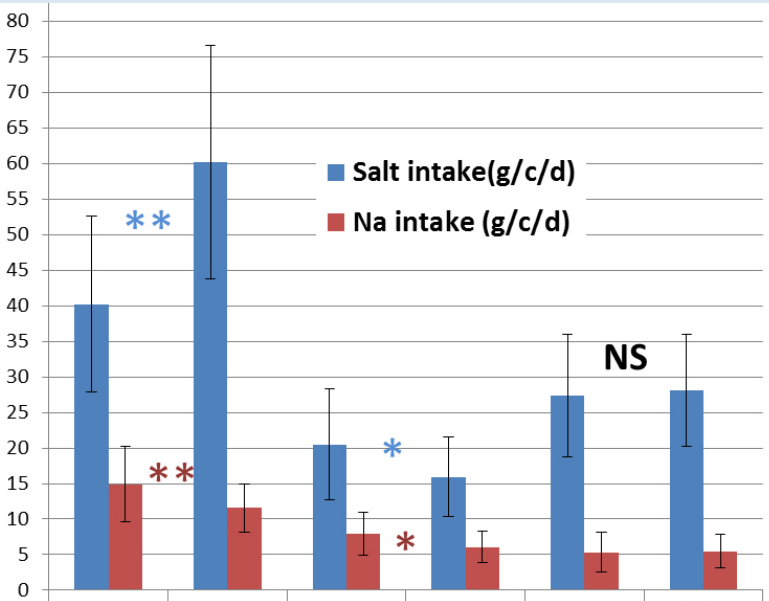
# Materials and methods




- Salt licks were changed and weighted 3 times per week
- 4 video recorders :
  - Images were analysed 2 consecutive days per week.
  - 36 Mombeliardes were chosen (easy to recognize)

# Results

- **Similar intakes of roughage and concentrates in the 2 groups (25.3 ±1.9 vs 26.0 ±2.4 kg DM, 15% refusal)**
- **Intakes and time spent to the salt licks**

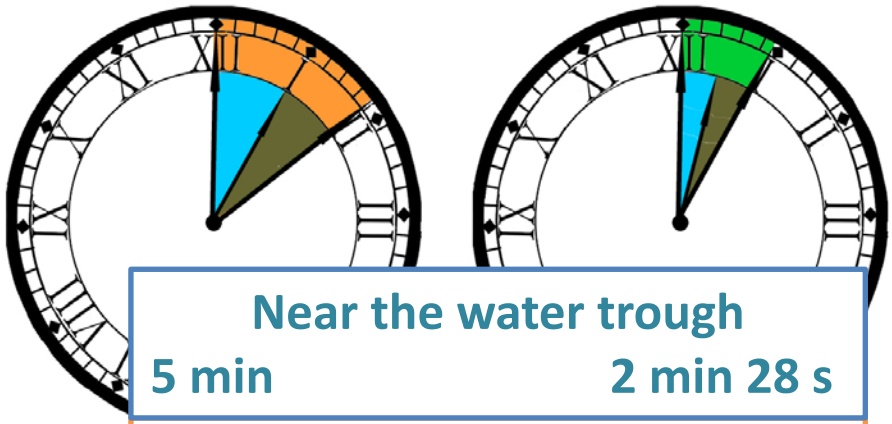



| | Simple | Enriched | Near WT Simple group | Far WT Simple group | Near WT Enriched group | Far WT Enriched group |
|---|---|---|---|---|---|---|
| Salt intake(g/c/d) | 40,2 | 60,1 | 20,5 | 15,9 | 27,3 | 28,1 |
| Na intake (g/c/d) | 14,9 | 11,6 | 7,9 | 6,1 | 5,3 | 5,5 |

## Time spent

**SIMPLE** **ENRICHED**

**8 min 57 s** ** **4 min 43 s**



**Near the water trough**

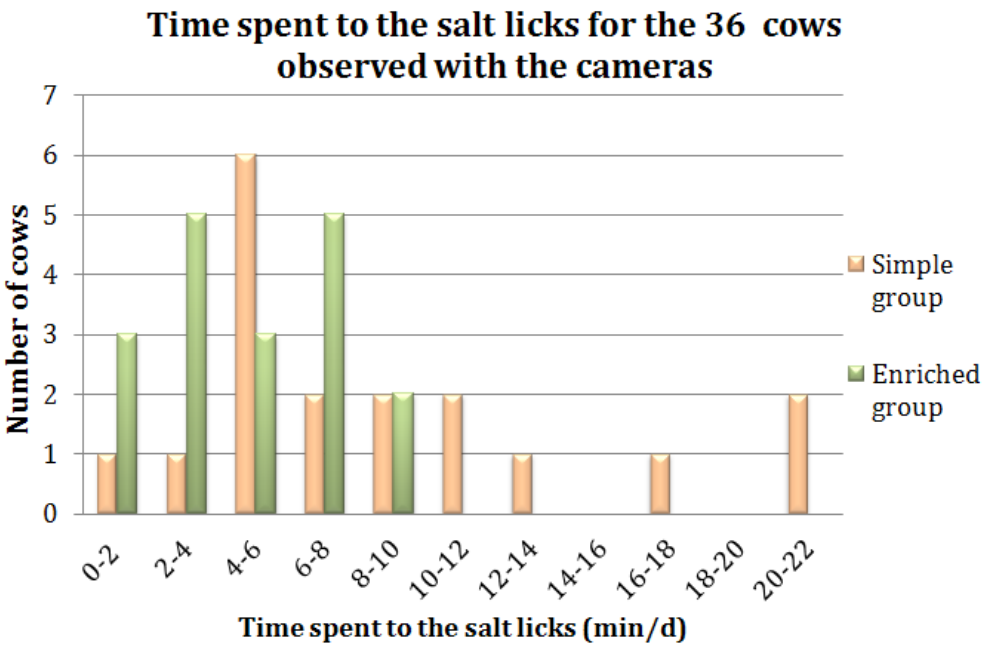
**5 min** **2 min 28 s**

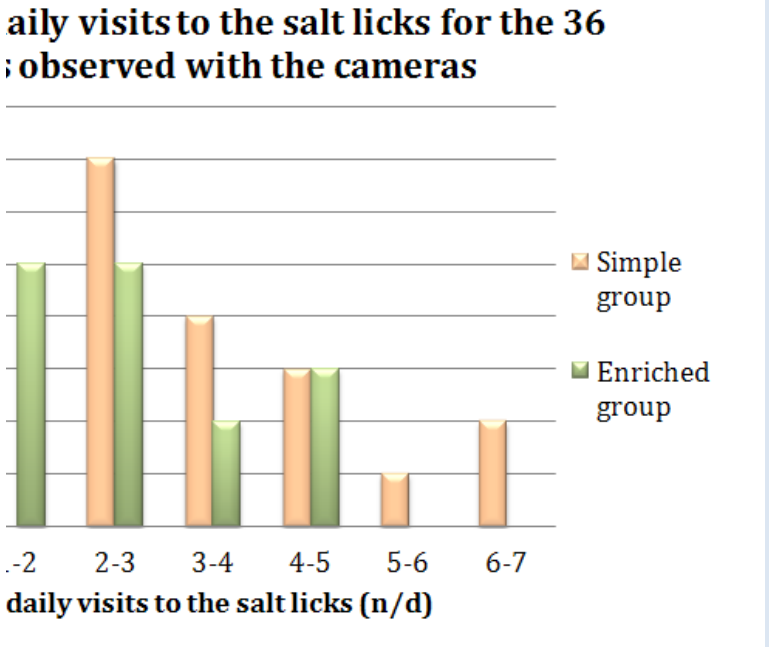
**Far from the water trough**

**3 min 57s** **2 min 15s**

# Results

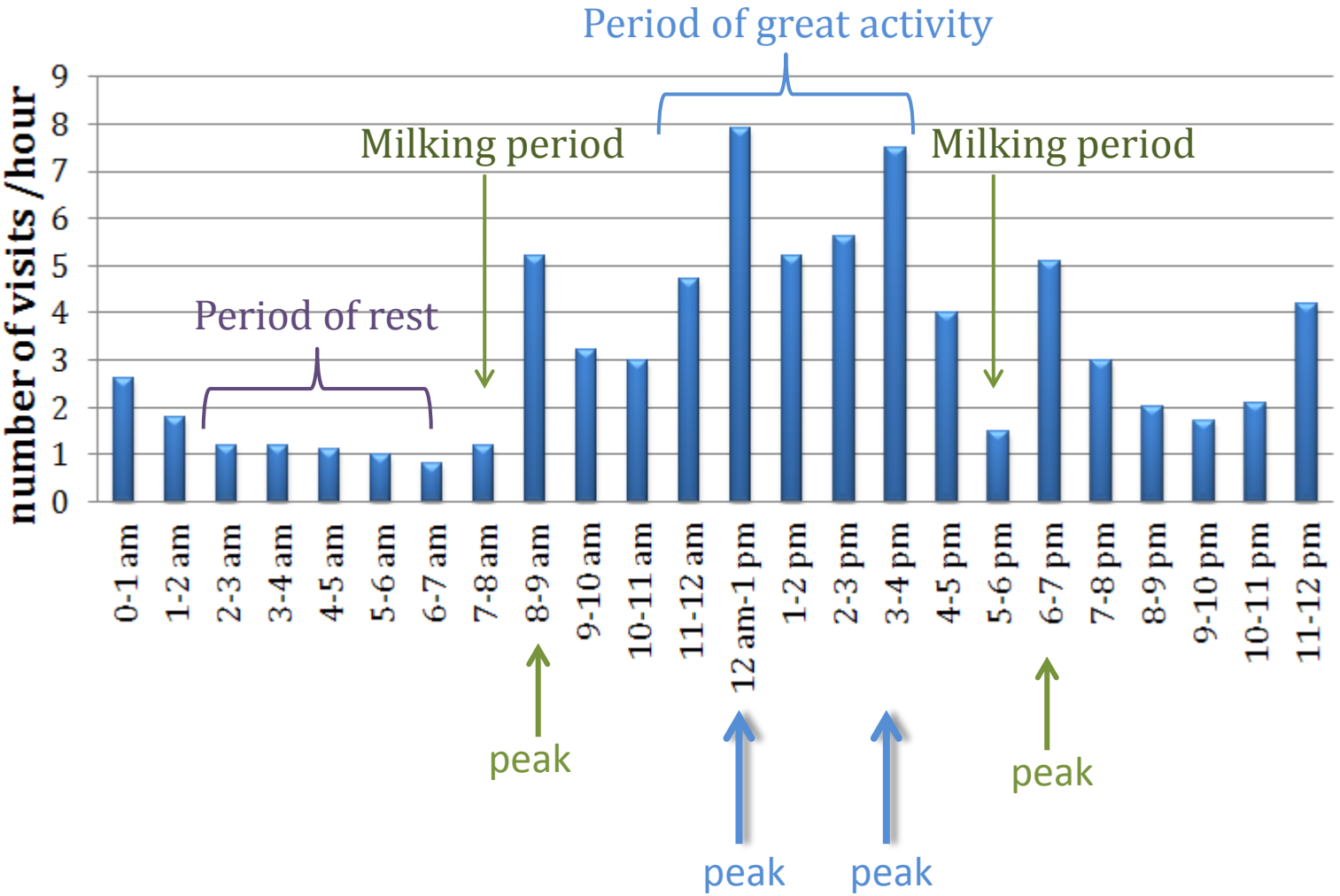
- **Number of visits :**
  - Higher daily visits in the simple group : 3,5 ±1,6 vs 2,1 ±1,1 (P<0,05)
  - In the simple group, higher daily visits to the lick near the WT : 2,1 ±1,2 vs 1,5 ±0,6
- **Individual variability in the time spent and visits to the salt licks**



# Results

- **Frequentation behaviour**



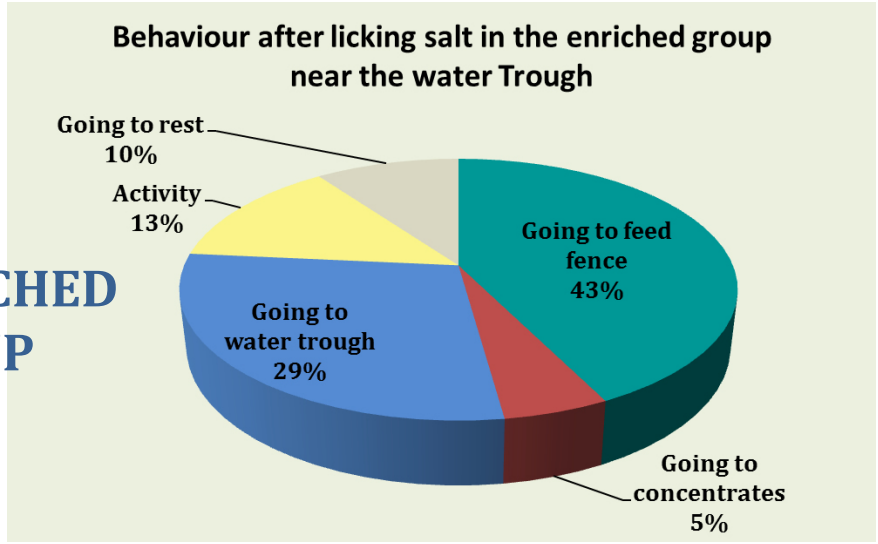
# Results

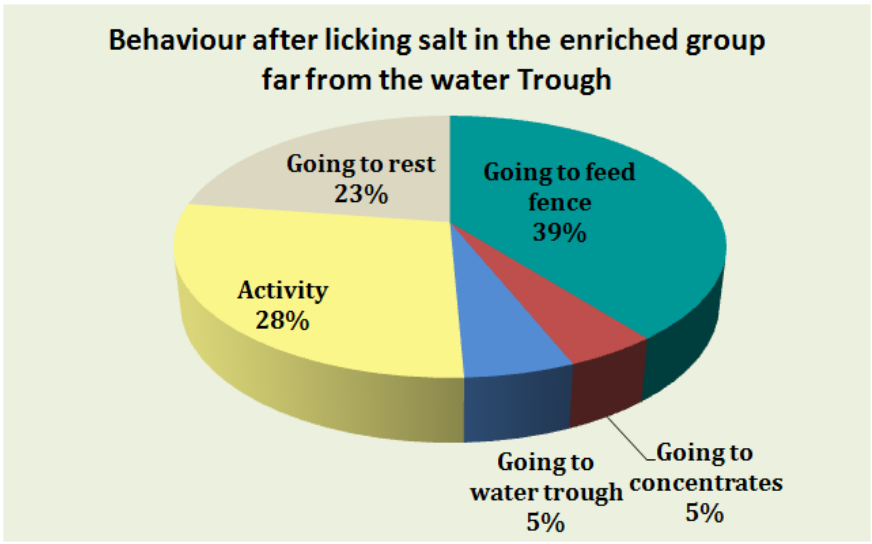
- **What cows do after licking salt ?**

## NEAR WATER

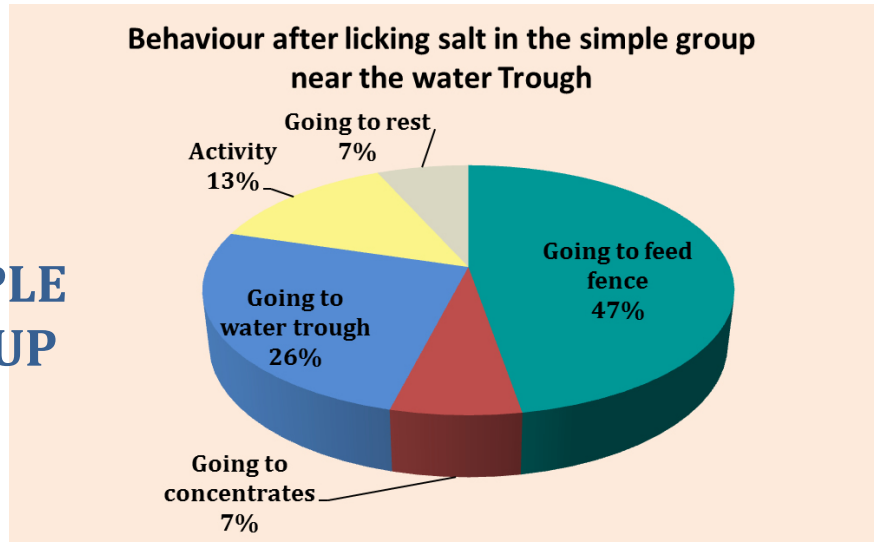
## FAR FROM WATER

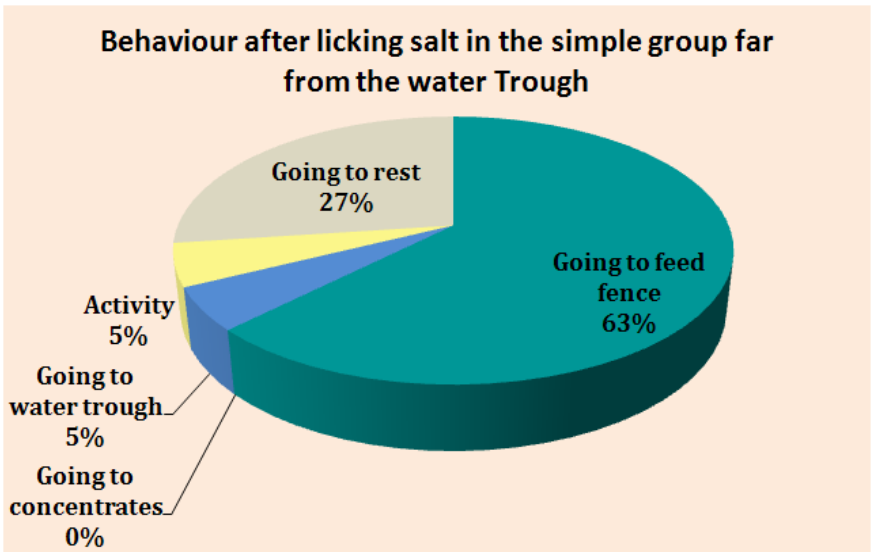
### ENRICHED GROUP




### SIMPLE GROUP



# Conclusions

- **Cows in the enriched group licked 20 g more from the salt licks than in the sodium chloride alone group**
  - More brittle
  - Less individual variations and no correlations with milk yield, parity or DIM
- **Cows in the enriched group :**
  - Ingested less Na (self regulation ?) with the same diet
  - Spent less time and visited to a lower extent the salt lick than in the simple salt lick group (irritation ?)
- **Ingestion of Na was on average 15g/d/c with the salt lick. The remaining nutrients have to be provided by feeds and minerals**

# Conclusions

- **Disposition of the salt lick was important :**
  - Peak of frequentation after milking
  - Salt ingestion stimulated the roughage intake
  - Salt ingestion stimulated water intake when placed near the water trough especially for simple more hard salt licks.
- **Recommandations for farmers :**
  - Use several simple salt licks located near water troughs, close to the milking parlor and feed fences to maximise ingestion of Na, water intake and diet(economic solution)
  - Na intake from salt licks was about 15 g/d/c and was highly variable from individuals


Thank you for your attention
Some questions ?