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# **Suckling of dairy calves by their dams: consequences on animal performances, behaviour and welfare**

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# 1. INTRODUCTION

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## Rearing dairy calves: current practices and societal implications



Early separation:  
within few hours  
after birth

### PROS

- Easy control of calves' colostrum and milk intake
- Lower risk of diseases transmission from cow to calf
- No loss of marketable milk

### CONS

- Deprivation of cow-calf bond
- Inability to express natural behavior
- Criticisms from the society

## 2. AIM

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To study the impact of suckling of dairy calves by their dams on milk yield, milk composition, growth of calves and animal behaviour and welfare.



### 3. MATERIALS AND METHODS

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#### 3.1 Experimental design

- The project was carried out between February and July 2018 in the INRA experimental farm (Herbipole)
- The experiment involved **28 cows** (14 Montbéliarde e 14 Holstein) with their calves that were monitored for 13 weeks after calving.
- Parturitions took place between the end of February and the end of April.
- 2 study groups: '**Control**' and '**Mother**'
- Groups were equivalent in terms of breed, lactation stage, date of calving and sex ratio of calves.



### 3. MATERIALS AND METHODS

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#### 3.1 Experimental design

##### Group '**Control**':

Classic rearing system.

Calves were separated from their mothers within few hours after birth and were housed in individual pens for 7 days. Successively they were placed in a collective park for 10 weeks until weaning.

##### Group '**Mother**':

Suckling rearing system.

Calves spent 5 days after parturition in an individual calving pen in order to allow mother-calf attachment.

Successively both cow and calf were moved to a collective park for 10 weeks until weaning.

All cows were milked twice a day.

Cow-calf contact was allowed during the day.

Weaning was made after 10 weeks when calves' weight was about 100 kg.

### 3. MATERIALS AND METHODS

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Calves 'Control' collective park



### 3. MATERIALS AND METHODS

Calves 'Mother' collective park  
next to the stabling of mothers





### 3. MATERIALS AND METHODS

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#### 3.2 Measurements and data collection

##### COWS performances

- *Individual milk production*
- *Milk composition (milk fat and protein content, milk somatic cells count)*
- *Body weight (BW) and BCS*
- *Health events*

##### CALVES performances

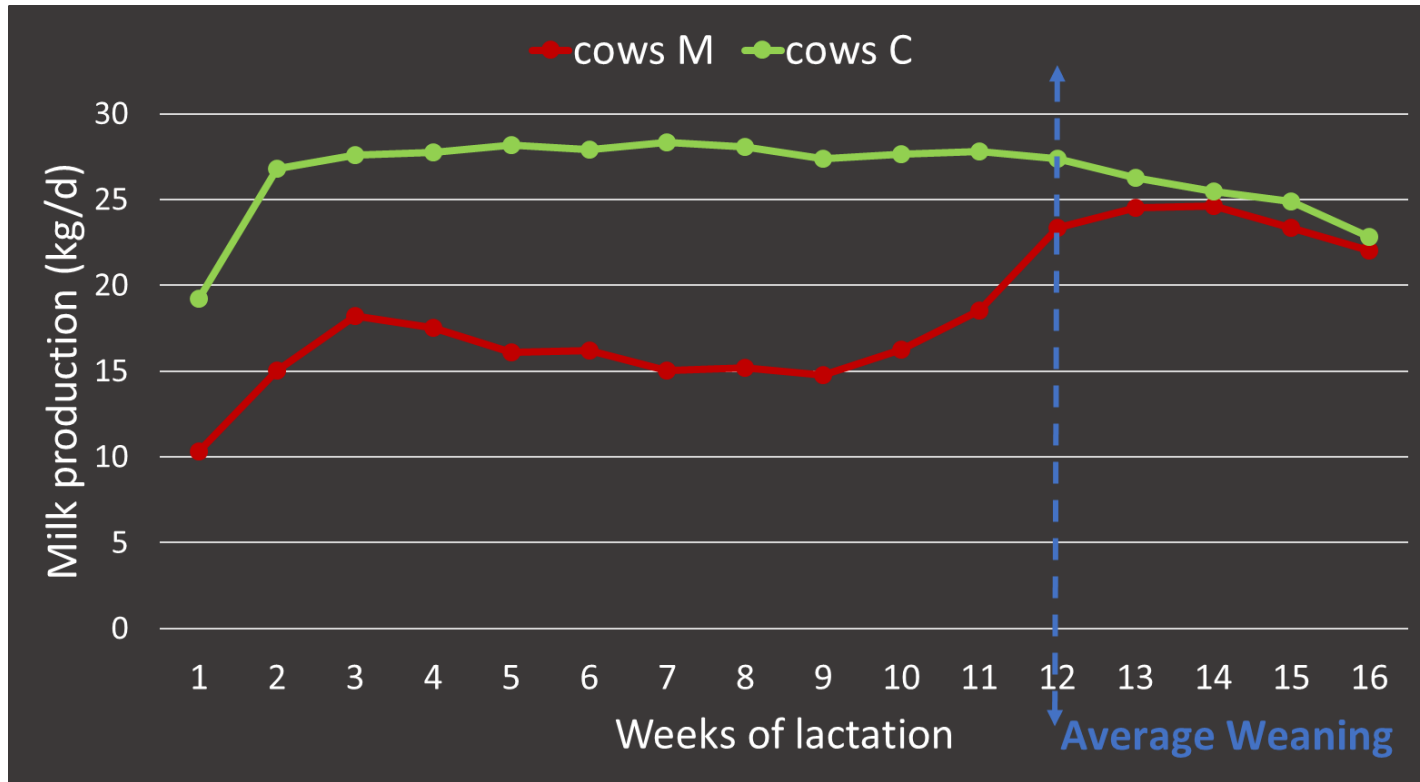
- *Body weight (BW)*
- *Individual milk and concentrate intake*
- *Health events*

##### Behavioural observations

- *Mother-young bond*
- *Behaviour of calves during the day*
- *Weaning distress*

## 4. RESULTS

### 4.1 Cows performances



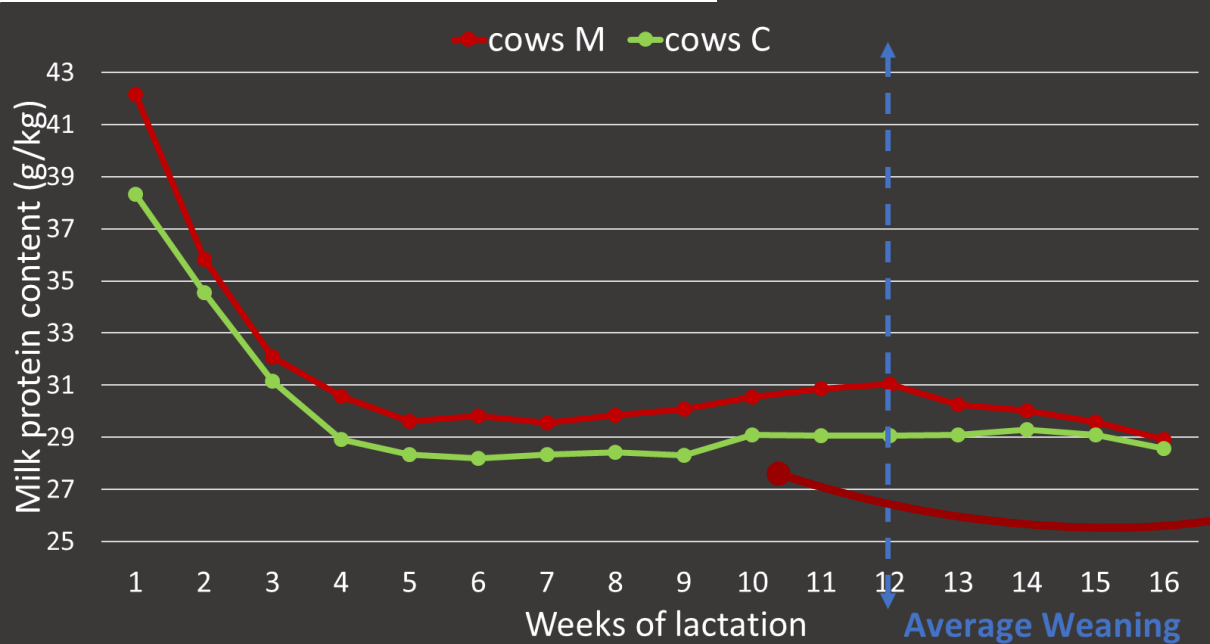
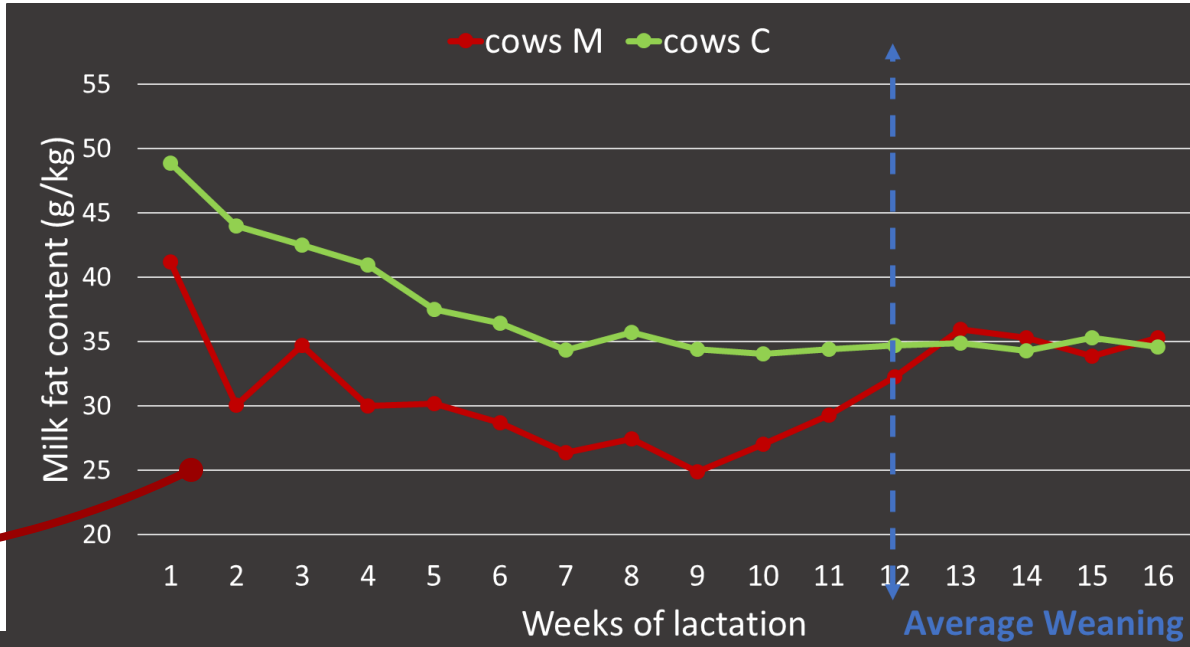
Milk  
production  
(kg/d)

# 4. RESULTS

## 4.1 Cows performances

Milk FAT content  
(g/kg)

**Significant**  
difference between  
week 1 and week 8  
( -9.30 g/kg)



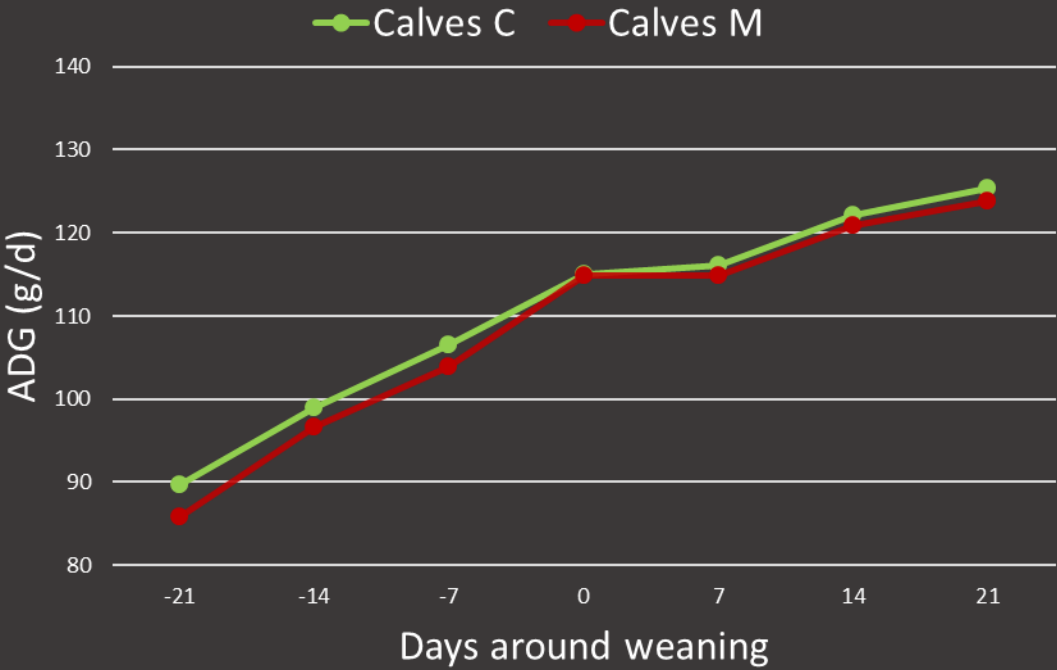
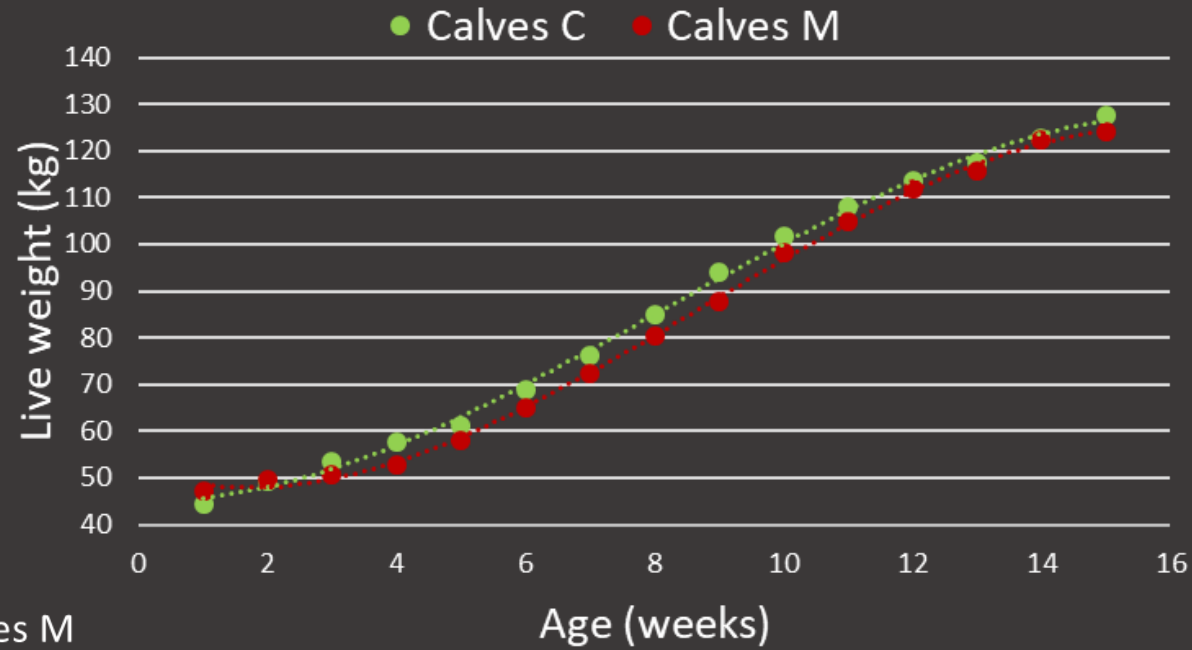
Milk PROTEIN  
content  
(g/kg)

**Significant**  
difference between  
week 1 and week 8  
( +0.90 g/kg)

# 4. RESULTS

## 4.2 Calves performances

Calves growth  
(kg)



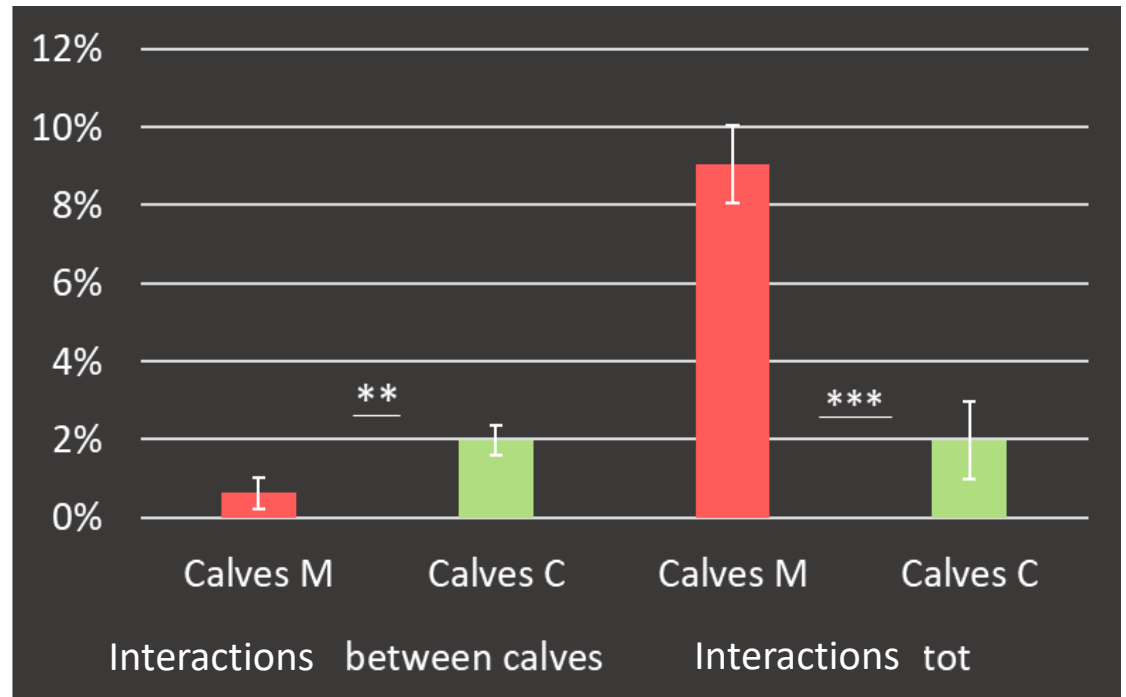
ADG  
(3 weeks before  
and 3 weeks after  
weaning)

## 4. RESULTS

### 4.3 Behavioral observations

#### ➤ *Behaviour of calves during the day*

Calves' social interactions (%)



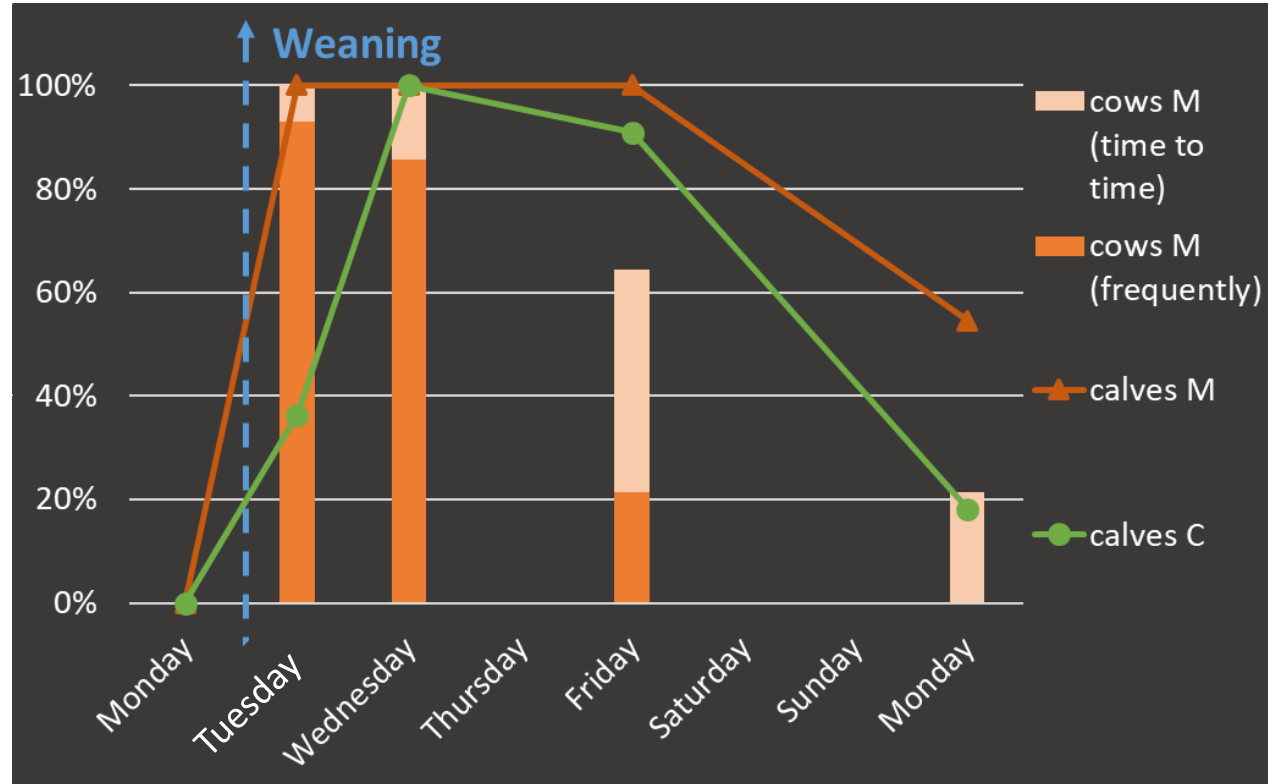
\*\*\*P<0.001; \*\* P<0.01

## 4. RESULTS

### 4.3 Behavioral observations

#### ➤ Weaning distress

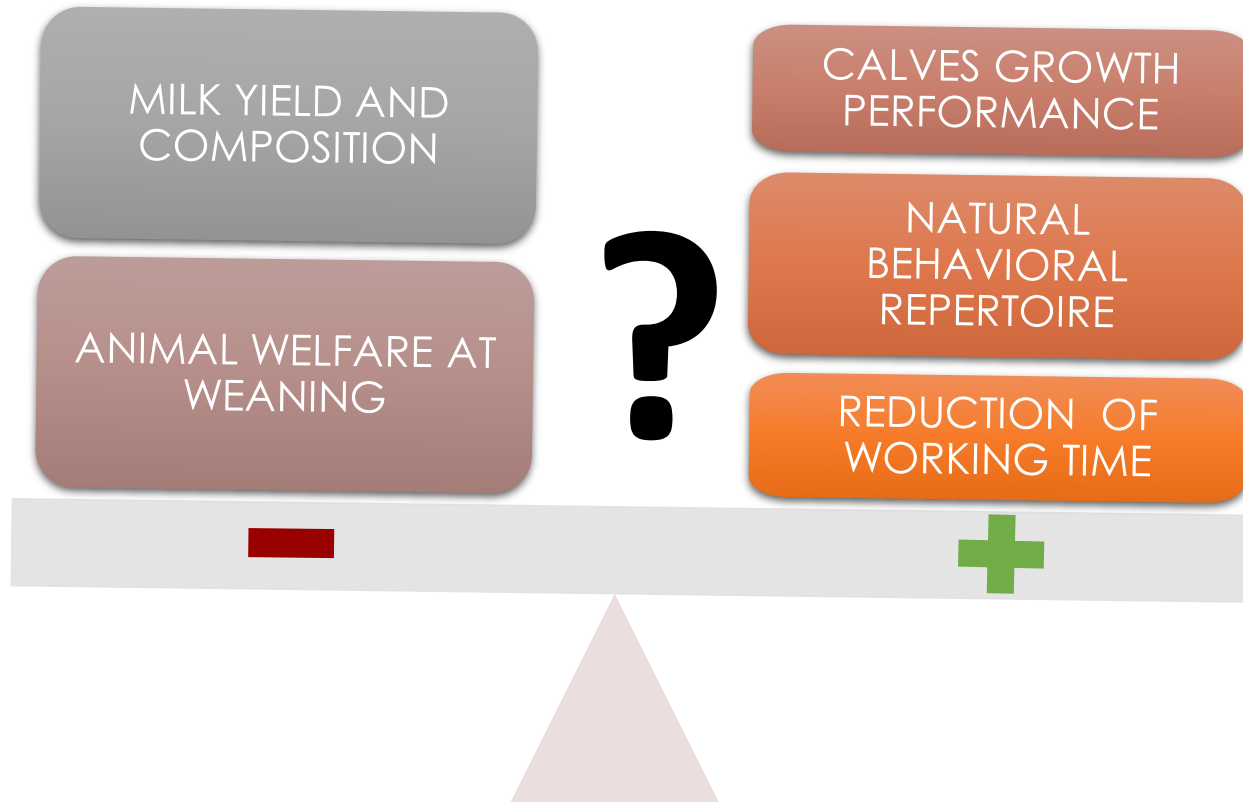
% Proportion of animals mooing during the week after weaning



## 5. CONCLUSIONS

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Positive effects of a natural suckling system are counterbalanced by high marketable milk losses and high stress of cows and calves at weaning



## 5. FUTURE PROSPECTS

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In 2019 the research group carried out a further study in order to try to reduce marketable milk loss

- **Mother Group**

Only female calves are kept with their dam until weaning. Males are sold after 4 weeks of sucking.

- **“Mixed” Group**

Calves are reared in a suckling system until 3 weeks of life and successively are converted into a classic rearing system (automatic milk dispenser) until weaning.

The project is under development.

