

# PERFORMANCE OF CALVES FED EITHER PELLETED CONCENTRATE AND TMR OR ONLY TMR FROM 10 TO 18 WEEKS OF AGE



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# INTRODUCTION

- Optimising the growth of rosé veal calves after weaning is important in terms of calf health, wellbeing, and economics.
- Rosé veal farmers using TMR in the fattening period want to feed high-energy TMR already from weaning, either alone or in combination with a pelleted concentrate.
- A recent study showed that weaned calves will not be able to eat enough of a TMR to get sufficient energy for maximal ADG (Overvest et al. 2016).

# OBJECTIVES

- **1:** evaluate the performance, in terms of feed intake, growth, and feed efficiency, of weaned Holstein bull calves, from 10 to 18 weeks of age, fed either:
  - 1) pelleted concentrate and total mixed ration (TMR) or,**
  - 2) only TMR**
- **2:** evaluate the long-term effects of the applied feeding strategies on performance of calves until slaughter at 10 mo of age
- **Which feedings can be applied in the weeks post-weaning without hammering long-term growth and development ?**

# HYPOTHESES

- 1) A combination of pelleted concentrate and TMR will improve calf growth in the post-weaning period, compared to solely TMR
- 2) Calves consuming solely TMR will have reduced post-weaning growth rates if compromised by disease, compared to calves with free access to both a TMR and a pelleted concentrate
- 3) Long term effects of early post-weaning feeding strategy will not significantly affect performance and carcass characteristics of calves slaughtered at 10 months of age

# METHODS – CALVES AND HOUSING

- Total of 32 Holstein bull calves
  - › Purchased at 2 wk of age
  - › Part of a pre-weaning exp from 2 to 10 wk of age
- 2 blocks, 16 calves per block.
  - › each block split into 2 pens, balanced for LW and herd of origin
- Calves assigned to treatment according to pre-weaning treatments
- Uninsulated stable, straw bedding, fresh additions daily.

# COMPOSITION OF FEEDS

The pelleted concentrate and the TMR had (kg DM basis) similar:

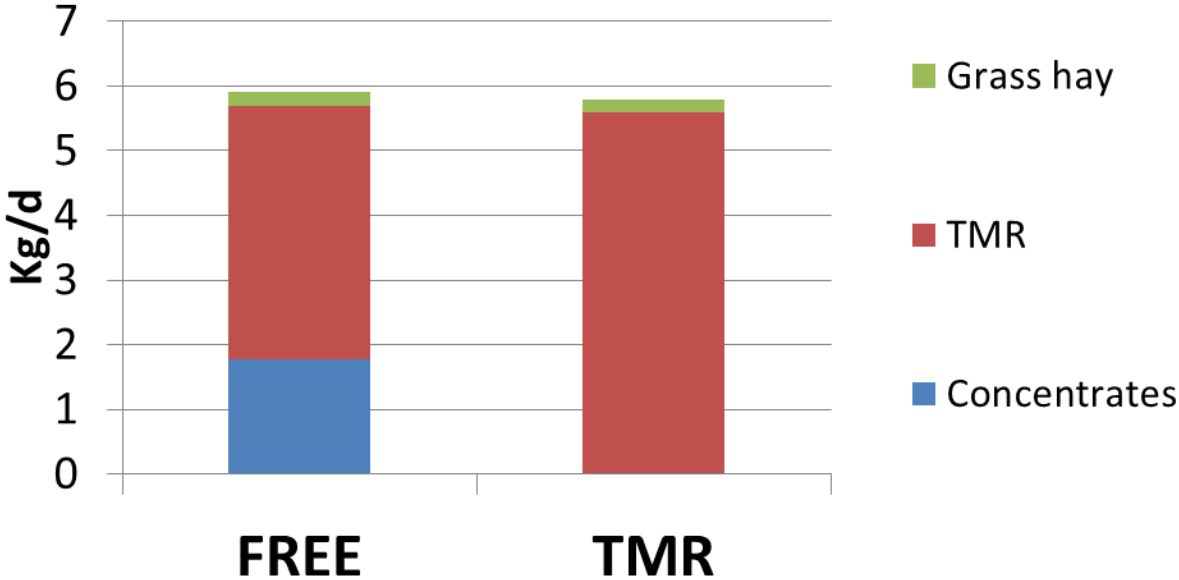
- NE (8.8 MJ)
- CP (213 g)
- NDF (195 g), and
- starch contents (328 g),

but varied in:

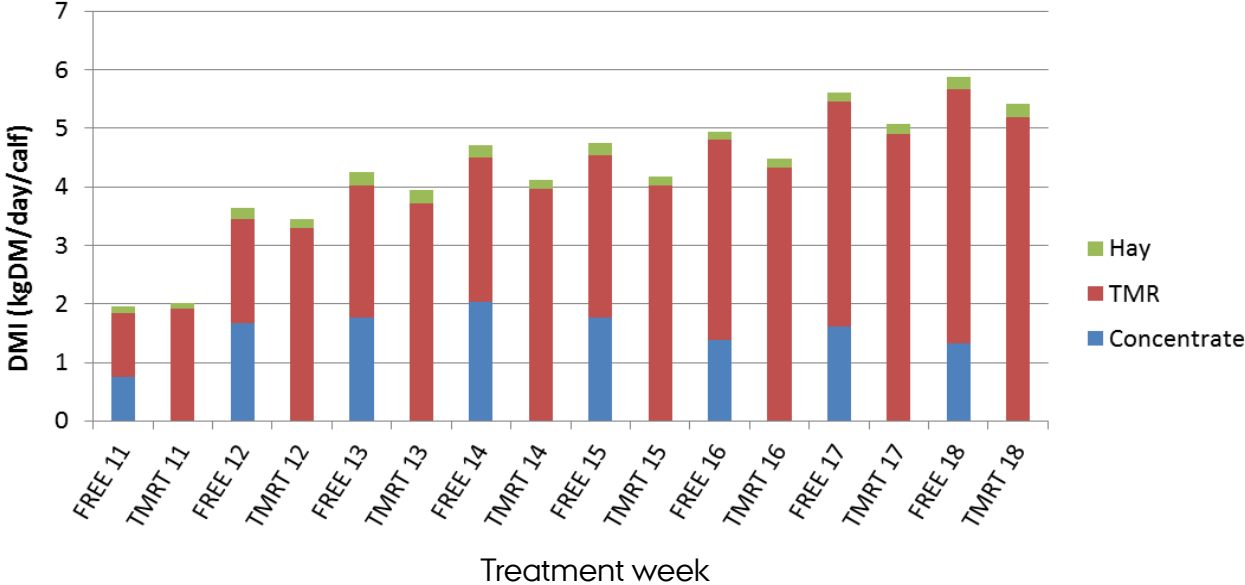
- DM (88 vs. 70%)
- feed composition, and
- physical form.

	Concentrate Pellets	TMR
Barley, %	30 (grounded)	21 (rolled)
Wheat, %	15 (grounded)	19 (rolled)
Soy bean meal, %	26	15
Canolla meal, %		8
Sugar beet pellets, %	9	
Grass silage, 1st cut, %		31
Dried grass pellets, %	8	
Corn, %	5 (grounded)	
Sugar beet molasses, %	2	1,5
PFAD fat, %	1,6	
Mineral and vitamins, %	3	3

# FEED INTAKE (AS FED) OF CONCENTRATE, TMR AND HAY

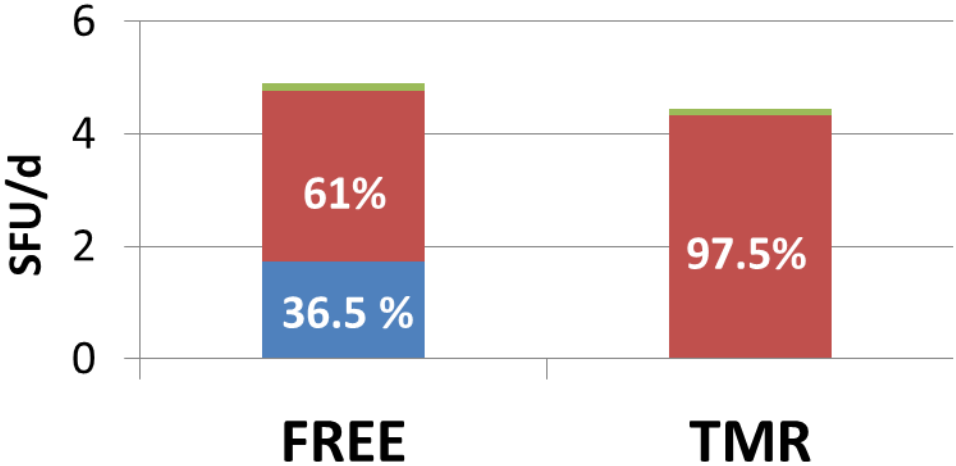


# DRY MATTER INTAKE OF CONCENTRATE, TMR AND HAY PER WEEK



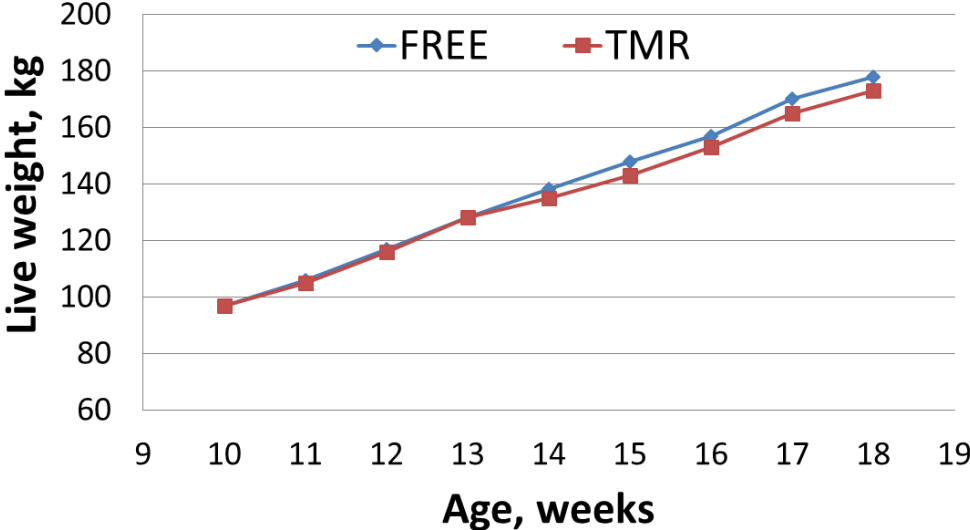


# NET ENERGI INTAKE (NEI) IN SFU/D

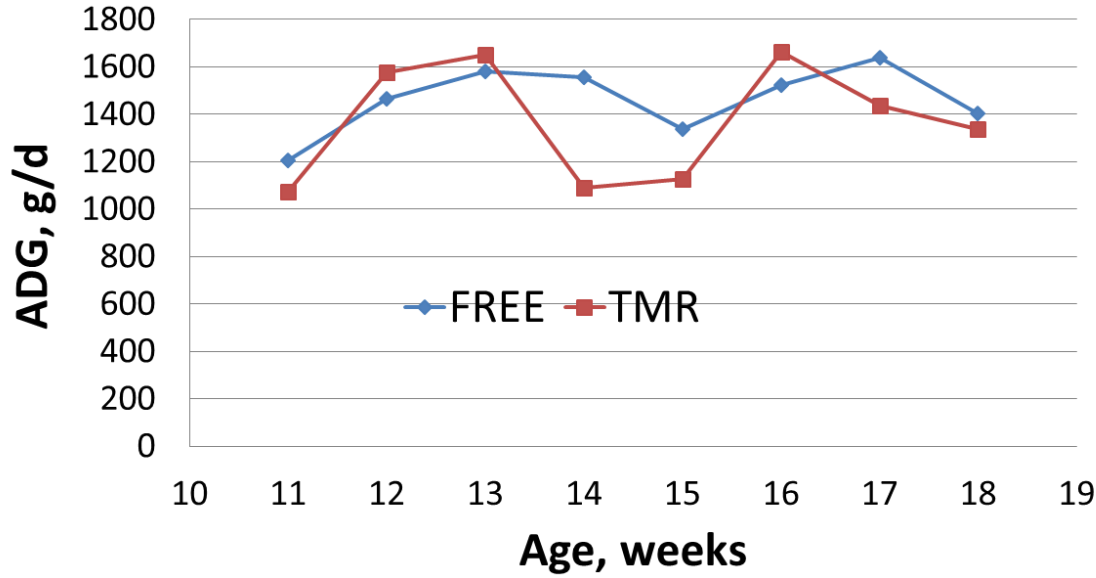


1 SFU=7.89 MJ of NE

# LIVE WEIGHT OF FREE AND TMR CALVES



# DAILY GAIN IN WEEKS 10 TO 18 OF FREE AND TMR CALVES



## FREE VS. TMR

	FREE	TMR
LW at 10 wk, kg	97	97
LW at 18 wk, kg	178	173
<b>ADG 10-18 wks, g/d</b>	<b>1461</b>	<b>1361*</b>
Feed intake, kg/d	5.88	5.79
<b>Net Energy Intake (NEI), SFU/d</b>	<b>4.5</b>	<b>4.1+</b>
FCE, SFU/kg gain	3.5	3.5

**9% lower NEI and 7% lower ADG with TMR compared with FREE**

# PERFORMANCE: 18 WK TO SLAUGHTER

TREAT, Conc. Pellets, %	ADG 18 wk- slaughter, g/d	ADG Birth- Slaughter, g/d	Age at slaughter , mo.	Carcass Weight, kg	Net gain, g/d	EUROP confor- mation
FREE, 36 %	1357	1245	9,4	201	622	3,5
TMR, 0 %	1435	1233	9,7	202	618	3,5

The overall growth rates achieved is slightly higher than the average growth rates seen in private rosé veal farms

# PERFORMANCE: 2 STUDIES, 4 TREATMENTS

## 18 WK TO SLAUGHTER

TREAT, Conc. Pellets, %	ADG 18 wk- slaughter, g/d	ADG Birth- Slaughter, g/d	Age at slaughter , mo.	Carcass Weight, kg	Net gain, g/d	EUROP confor- mation
PELL, 95 %	1430	1272	9,5	205	634	3,2
FREE, 55 %	1394	1260	9,5	202	627	3,1
FREE, 36 %	1357	1245	9,4	201	622	3,5
TMR, 0 %	1435	1233	9,7	202	618	3,5

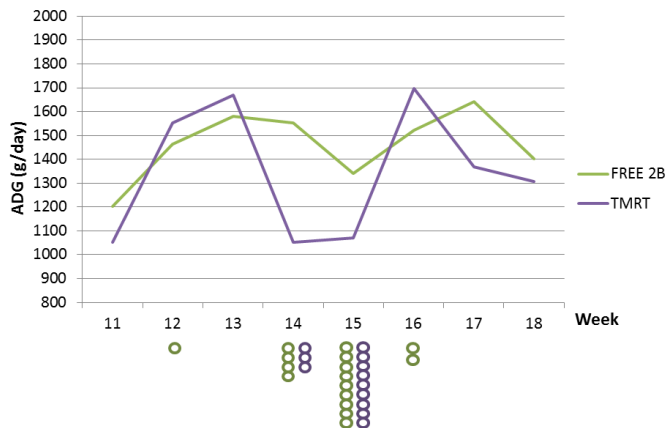
Very small long-term effects of the four feedings during 10 and 18 weeks of age

# DISCUSSION – FEED RATION EFFECTS

- In a previous study, a lower ADG was seen in male Holstein calves fed silage-based TMR vs a mix of chopped hay and textured concentrate from 8 to 12 wks (Overvest et al., 2016). In that study, the TMR had a lower NE content than the concentrate pellets and the TMR a DM% of 52.
- In the present study, the NE content was similar between TMR and concentrate pellets and the TMR had a DM% of 70.
- Thus, a high energy concentration of the TMR seems necessary for obtaining high intakes and growth rates of weaned calves

# DISCUSSION – DISEASE/HEALTH STAGE

- Decrease in ADG of calves over week 13 to 15 corresponds to outbreak of respiratory disease.
  - › more severe for TMRT calves than FREE
  - › moisture content and time required to consume the feed might be important<sup>1</sup>



- <sup>1</sup>Overvest et al. (2016)



# CONCLUSIONS

- Feeding calves free choice between pelleted concentrate and TMR resulted in higher LW and ADG compared with TMR only
  - When compromised by disease, feeding calves only a TMR compared to free choice resulted in lower ADG
- No differences in slaughter performance at 10 month of age due to feeding treatments imposed at 10 to 18 weeks of age
- **All four post-weaning feeding strategies applied from 10 to 18 wk of age can be applied without long-term consequences for overall productivity in rosé veal calves**



Thank you for your attention!