

Influence of quality and concentration of calf milk replacers on growth performance of feeder calves

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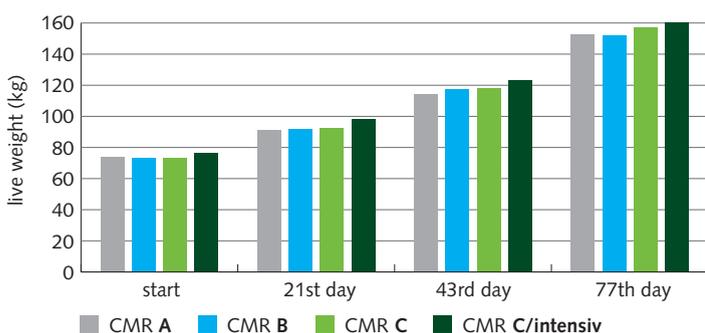
Introduction

The goal of successful feeder calf rearing is about early weaning and with that, the early development and shift from milk to a functional ruminant. One of the most important expense factors, amongst others, is the calf milk replacer (CMR). CMR prices are related to milk price and market situation, as well as to quality characteristics. The inclusion of skimmed milk powder is one of the main associating factors. At the same time, quality and concentration of the CMR are strongly correlated to development, growth performance and health of the calves and with

that, contribute to the economic result of feeder rearing as well as bull fattening in the later phase. The trial therefore has been conducted with three different types of CMR, characterized by different levels of skimmed milk powder concentration (20% / 30% / 50%) in the formula. The influence of quality, as well as concentration of the CMR dissolved in water, has then been documented with regards to growth performance.

Material and methods

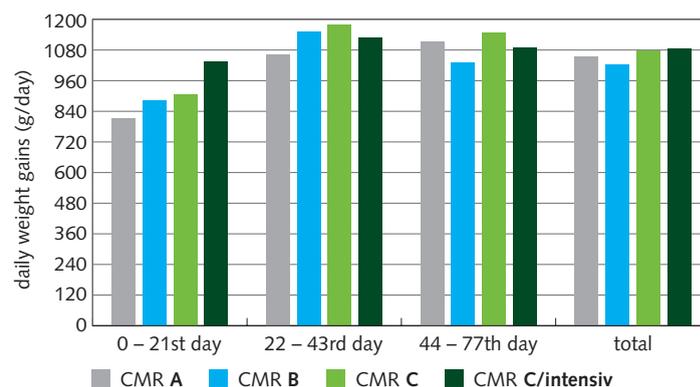
- 21 or 42 calves were assigned per trial (105 calves in total) and housed in groups (7 calves per group)
- Calf milk replacers differed in skimmed milk powder content (20% / 30% / 50%) as well as type of vegetable protein
- CMR concentrations dissolved in water were 125g / l water and CMR C, containing 50% skimmed milk powder, 150g / l water, respectively
- Targeted volumes were at 25kg CMR per calf receiving 125g / l water and 30kg CMR for calves receiving 150g / l water, respectively
- During milk phase, a dry-TMR based on compound feed (70%), chopped straw (22%), Lucerne hay (3%) and molasses (5%) was additionally provided and from the 4th trial week onwards, also mixed with corn silage
- Energy and nutrient supply were based on actual recommendations (Lfl, 2014)
- Individual life weight of the calves was measured on trial day 1, 21, 43 and 77 (arrival, middle of milk feeding period, weaning and re-housing)



Picture 1: Development of life weight of the feeder calves

Calf milk replacer (ingredients, in %)	Calf milk replacer A (20% SMP)	Calf milk replacer B (30% SMP)	Calf milk replacer C (50% SMP)
Skimmed milk powder (SMP)	20	30	50
Sweet whey powder	37,5	32	22,5
Whey powder, partly delactosed	9	7	5
Vegetable fat, refined (palm/coconut)	16,5	16,5	17,5
Wheat protein, hydrolysed	3,5	5,5	-
Soy protein concentrate	6	-	-
Wheat starch	3	4	-
Dextrose	2	2,5	2,5
Premix	2,5	2,5	2,5
Specification values, %			
Crude protein	21	21	22
Lysine	1,70	1,70	1,75
Crude fat	17	17	18
Crude ash	7,9	7,0	7,0

Table 1: Composition of the calf milk replacers



Picture 2: Daily weight gain development of the feeder calves

Conclusion

- With regards to skimmed milk powder content, the different qualities of calf milk replacer merely had an influence on growth performance.
- Highest daily weight gains were achieved with the calf milk replacer containing 50% of skimmed milk powder.
- Higher concentration of calf milk replacer dissolved in water, lead to increased daily weight gains during first half of milk phase. This was in line with the findings of Eittle (2016).
- For transferring the results into praxis, health status as well as disease pressure of the animals should also be taken into account.
- A higher supply of calf milk replacer, especially at an early stage, can have positive effects on both, growth performance and health.
- Additionally, economic considerations on farm level should be respected.

Literature:

Eittle, T., 2016: Vergleich Braunvieh/Fleckvieh Teil 1: Aufzucht von Fresserkälbern – Auch mit Braunvieh sind hohe Leistungen zu erreichen, <https://www.lfl.bayern.de/ite/rind/147835/index.php>.
Lfl, 2014. Gruber Tabellen zur Fütterung in der Rindermast. 19. Auflage, Bayerische Landesanstalt für Landwirtschaft (LfL) Freising-Weihenstephan

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