

8 Summary

Influence of higher energy and/or protein density in the close-up ration on milk yield, fertility, health and survival rate of primiparous cows during early lactation

The influence of a differentiated energy and protein supply in the last three weeks ante partum on the body condition development, milk production, fertility, health and colostrums quality was determined at 339 heifers of the Holstein Friesian race. 184 heifers got a standard TMR ration 14 days before expected date of parturition. 155 heifers got a standard TMR ration plus one out of eight ration additives 21 days before the expected date of parturition. These were (1.) 2 kg corn groats, (2.) 2 kg soybean groats, (3.) 100 g urea, (4.) 2 kg triticale groats, (5.) 1 kg triticale groats + 1 kg soybean groats, (6.) 1 kg corn groats + 1 kg soybean groats, (7.) 2 kg triticale groats + 100 g urea, (8.) 2 kg corn groats + 100 g urea. All heifers were fed the same diet after calving.

The research last from 42 days ante partum till 200 days post partum. At different points in time antepartum and postpartum the back fat thickness, the body weight and the withers height were measured.

Blood samples were collected directly after calving for determination of different clinical of chemical investigation sizes. The investigation covered the following parameters: calcium, phosphate, magnesium, aspartate- aminotransferase, glutamate- dehydrogenase, creatinkinase, β - hydroxybutyrate, bilirubin, urea and cholesterin.

Also directly after calving an evaluation of the colostrums quality and udder size was made. Further the milk yield, milk content and fertility parameters were entered. With a documentation of the heifers` diseases and exit causes the health of the heifers could be judged.

Retrospectively the heifers were put into different groups according to a different length of close-up-period to see the influence of the length of close-up-period.

With a different energy and protein feeding in the last three weeks before parturition and a different length of the close-up period there was no different development in body condition. All in all the heifers of the farm showed a good condition with a back fat thickness of 20mm. Heifers with the biggest back fat thickness at the time of parturition had the highest rate of lipolyse during the first 4 weeks of lactation.

There were no significant differences for milk production, fertility and metabolic health between heifers with or without an energy or protein feeding.

The blood parameters were greatly in the reference area.

Heifers with a close-up-period of more than 21 days reached a 100-days-milk production which was 206 kg higher than the one of heifers with a close-up-period less than 14 days, however, with less substances of content of the milk. There was no significant difference in fertility and metabolic health.

A better colostrum quality could be reached in the group fed with corn groats + soybean groats and corn groats + urea.

Higher body weight ante partum had more influence to milk yield than the back fat thickness.