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Evaluation of growth and reproduction performance of replacement dairy heifers

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The objective of the current study was to evaluate the current status of heifer rearing under typical Mediterranean conditions. Data were collected from 8 dairy farms in the region of Thessaly and Macedonia (Greece) during a 1-day visit. Records on reproduction performance for all cows and heifers present in the herd were obtained by the farmer and used to determine time of first service (T1stSer), services/heifer and time of first calving (T1stCal). Depending on heifer grouping of the farms, 15-20% of heifers in all age groups and older cows were taped measured to estimate body weight (BW). This allowed the determination of average daily gain (ADG) in different ages. Moreover, the mature BW of the cows in each herd was estimated and used to evaluate growth targets. Total mixed ration (TMR) offered to heifers was recorded and feed samples (TMR and ingredients) were collected and chemically analysed for nutrient composition. Based on cows mature BW, and 14 and 24 months for T1stSer and T1stCal, respectively, growth targets for heifers were estimated in each farm. The diets were evaluated with the Cornell Net Carbohydrate and Protein System (CNCPS 6.5). It was found that T1stSer and T1stCal was 15.83±1.96 and 25.83±2.53 months, respectively and pregnancy was achieved with 1.55±1.04 services/heifer. Heifer BW at T1stSer and T1stCal was 416 and 668 kg, respectively that was within the targets (404 and 625 for T1stSer and T1stCal, respectively) but achieved with a delay of 1.83 months. Our analysis suggested that T1stSer is the most critical point where heifers need to meet higher ADG. In all farms and heifer growth stages Metabolizable Energy (ME) was the first limiting factor and Metabolizable Protein (MP) was supplied in excess (up to 140% of requirements for older heifers). Overfeeding crude protein increased feeding cost from 116 to 236 €/heifer depending on protein source.

Impact of enhanced compared to restricted milk feeding on performance and welfare of rearing calves

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Within the Core Organic Cofund project ProYoungStock, an experimental multi-site study was performed to investigate the effects of an increased level of milk feeding (10-12 l/d, ≈ 14-16% milk per body weight, enhanced milk feeding, EMF) compared to common milk feeding (6-8 l/d, ≈ 10-12% milk per body weight, restricted milk feeding, RMF). Data from 10 organic dairy farms, originally applying RMF by bucket-feeding in Austria (dual-purpose breed Fleckvieh; 4 farms) or Germany (Holstein Friesian, partly crossed with other dairy breeds; 6 farms) were analysed concerning calf welfare including health. Per farm, 6-14 female rearing calves were randomly allocated to the two feeding treatments RMF and EMF, which were applied over the milk feeding period of 13 weeks. Assessments of welfare were carried out during the milk feeding period in weeks of life 3/4, 7/8, 11/12 (±2 days) as well as after weaning in about week 15/16. Farm visits took place from October 2018 to April 2020. Welfare measures related to behaviour, observed from video recordings (manipulating other calves, manipulating objects, vocalization, duration of feeding solid feed), to health (clinical scoring during farm visits), and to performance (weight gain). Preliminary results showed that EMF led to higher weights and daily weight gains in rearing calves, especially in Austrian Fleckvieh calves. Manipulating objects was not related to milk amounts but to the feeding duration of solid feed. Analyses are still in progress; final results will be presented at the congress.