G×E in organic and conventional production systems in Austrian Fleckvieh cattle

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Improvement of breeding and management resulted in a considerable increase of production traits in Austrian dairy cattle. Apart from production systems with a high intensity farm management, sustainable and organic dairy production systems are an integral part in Austria. Possible G×E depending on the method of production and intensity of farm management might exist and lead to a re-ranking of animals. Thus, an adaptation of the breeding programs would be required. Therefore, G×E were estimated between milk yield, persistency, functional longevity, somatic cell score, clinical mastitis, early fertility disorders, cystic ovaries, milk fever, non-return rate at 56 days of cows and interval from first to last insemination in Austrian Fleckvieh cows milked in three different production systems (organic, conventional low and high level of farm intensity). Genetic correlations (ra) between production systems were estimated using an approximate multivariate two-step approach applied to yield deviations and de-regressed estimated breeding values. In general, no severe G×E were found. Genetic correlations between the production systems organic and conventional low level of farm intensity, organic and conventional high level of farm intensity, conventional low level of farm intensity and conventional high level of farm intensity ranged from 0.952 to unity, 0.890 to unity and 0.886 to unity, respectively. The lowest ra were observed for non-return rate at 56 days of cows (0.890) between organic farms and farms with high intensity management and for functional longevity (0.886) between farms with low and high intensity management. For all other traits, ra were close to unity. From the breeding perspective, autonomous breeding programs for different production systems within Austria are currently not needed.

Defining consensus desired gains for a Kenyan Holstein-Friesian breeding goal

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The Kenyan dairy cattle industry contributes to food and nutrition security and is a source of income for numerous households. Selective breeding can enhance efficiency in this industry. The current approach that rely on semen importation is sub-optimal and a local breeding program is needed. The Kenyan industry is characterized by diverse production and marketing systems. Desired genetic gains approach can be used to define consensus breeding goal to optimize production in all systems. We used Analytic Hierarchy Process to determine individual preference values for milk yield (MY), calving interval (CI), production life time (PLT), mature body weight (MBW), and fat yield (FY). Results show that classical classification of production systems into largescale and smallholder systems failed to capture differences in trait preferences. These differences became apparent when classification was based on productivity at the individual animal level, with high intensity (HIP), low intensity (LIP) producers and processors (Pr) as the main important groups. Highest preferences were PLT and MY for HIP, CI and PLT for LIP, and MY and FY for Pr. Highest disagreements between the groups were observed for FY, PLT, and MY. Individual and group preferences were aggregated into consensus preferences using Weighted Goal Programming. Desired gains were obtained as product of consensus preferences and percentage genetic gains (G%). These were 2.42, 0.22, 2.51, 0.15 and 0.87% foMY, CI, PLT, MBW and FY, respectively. Consensus breeding goal can play a major role in the establishmet and acceptalityof a local breeding schemefor the highly diverse production and marketingcircumstancesin Kenya.