the production process by integrating the social, economic and environmental domains. The following contribution illustrates a relational model applied to evaluate the relative sustainability of buffalo farms in Campania Region (Italy). We applied the MuSIASEM approach (MultiScale Integrated Accounting of Societal and Ecosystem Metabolism), a relational multicriteria framework allowing the characterization and evaluation of different metabolic features of the system. The accounting method evaluate the metabolic performance, in an upward and downward causality, by means of viability (techno-economic constraints), feasibility (bio-physical constraints), desirability (societal norms) and externalization (system opening). All analyzed farms showed a high metabolism, in terms of use of resources and production of different forms of waste products. The dependence on external systems (externalization for the import of feed) appeared to be extremely evident, with repercussions on the effectiveness of the production systems in attracting the local workforce. Evident critical issues also emerged in farms with biodigesters.

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Validation of genomic breeding values for feed efficiency using field data: experience from UNIBO experimental herd

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A strategy to maximize genetic gain in dairy farming is to identify genetically elite females through genomic testing. Indeed, direct genomic values (DGV) are early accessible at a cost-effective also in young stock and are subsequently blended to estimated breeding values (GEBV) once prediction of genetic merit is undertaken when phenotypes are available. These criteria can be used by farmers to rank females and service the best ones with (sex-sorted) semen of elite bulls to achieve greater gain while simultaneously reducing the number of non-productive animals. Feed efficiency is nowadays the most popular issue for animal scientists working with ruminants. The purpose of the current research was to validate feed efficiency breeding values using real dry matter intake (DMI) data. For this purpose, we quantified the association between DGV/GEBV of predicted feed efficiency (PFE) and on-field feed intake data. Up to date, the total number of genotyped subjects at the UNIBO experimental herd is 279. Cows are routinely enrolled into experimental nutritional trials in which individual DMI (kg/d) information are collected on a daily basis. DGV/GEBV for PFE are calculated by ANAFIBJ within the national genetic and genomic evaluation; proofs are standardized to a mean of 100 and standard deviation of 5. Data were analysed with a linear mixed model, separately for primiparae and pluriparae, by adjusting the dependant variable DMI for the fixed effects of daily milk yield (linear covariate), PFE DGV/GEBV (two classes: <100 or ≥100), and days-post-calving (<120 or ≥120); random terms were cow nested within experimental trial and contemporary group (experimental trial-test date). Mean PFE was 99.50 (±1.48) while daily individual DMI averaged 23.48 (±3.44) and 26.91 (±3.14) kg/d for primiparae and pluriparae, respectively. The Pearson's correlation coefficient between PFE and feed intake was −0.14, suggesting that cows with higher genetic merit have lower DMI. Differences between least squares means of the two PFE levels were −0.23 (±1.10; $p > 0.05$) and −0.26 (±0.75; $p > 0.05$) kg DMI/d in first- and later-parity cows, respectively. Although not significantly different, estimates indicated that, irrespective of systematic effects, cows with higher genetic merit for PFE have a lower individual daily intake compared to those with a lower genetic merit. Future efforts should be pursued to augment the sample size in order to increase the robustness of these estimates.

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First evaluation of economic performances on farms adopting environmentally friendly practices. The case of PLANT-B protocol in Italy

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Adequate pollen nutrition is one of the necessary conditions for successful honeybee management. Therefore, it is key to provide adequate pollen and to enlarge the period during which the bees can find it by increasing the number of pollen sources. This analysis assesses the potential economic results of implementing a strategy to increase honeybee pollen availability by introducing aromatic plants in mixed beekeeping-citrus farming systems (PLANT-B protocol). This is crucial for ensuring the economic sustainability of the strategy and generating the related agronomic, cultural, and environmental benefits. The analysis is based on a sample of ten farms (five beekeepers and five farmers) implementing the approach. Data are gathered through a structured questionnaire designed to estimate economic and technical viability. Farms are subdivided into treated (that adopt PLANT-B