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Abstract & Author Information

Predicted Feed Efficiency index applied to Italian Holstein Friesian cattle population

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Feed efficiency selection is important to improve the economic and environmental sustainability of the dairy cattle chain. Many countries and international research projects are working on the possibility to select animals that efficiently transform feed into milk products. Feed efficiency matters on farms because it has a major influence on farm profitability and environmental stewardship in the dairy industry. Aim of this study is to describe a new selection index adopted by ANAFIJ for improving feed efficiency using data recorded by the official recording system. Predicted dry matter intake (pDMI) was derived from milk yield, fat content, and cow estimated body weight. Energy milk content (FPCM) was derived from milk yield corrected for fat, protein and lactose content using the Sjaunja equation. Therefore, the predicted feed efficiency was estimated as ratio between FPCM and pDMI. Average predicted feed efficiency at cow population level, was equal to 1.26±0.18 with heritability equal to 0.32. Predicted Feed Efficiency index (pFE), traditional and genomic, has been implemented in the Italian Holstein Friesian evaluation system. Results, at population level, suggest that pFE may be a new "trait" object of selection for Italian Friesian. At this time the trait is derived by exploiting the national collection system, without any new additional trait. The official selection index (PFT) showed to have selected for more efficient animals. However, the introduction of a the pFE index, as a direct "tool" will improve the positive feed efficiency trend. This approach will permit the Holstein Friesian breeders in Italy to improve feed efficiency, without increasing costs of recording system. However, to avoid the risk to select animals with an excessive negative energy balance after calving, it should be

useful to include in the pFE a correction for BCS and fertility performances. In the meanwhile, the Italian system, to validate the predicted phenotype is creating a consistent phenotypic critical mass of individual data for DMI in cows, heifers and young bulls.

KEYWORDS
Feed Efficiency
Italian Holstein Friesian dairy cattle
Dry matter intake

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