

## **Pre-congress workshop: Multifunctionality of livestock grazing systems, a lever to envision its possible futures**

Title of the proposed contribution: Exploring relationships among different sustainability aspects in innovative livestock systems in Europe

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The European livestock sector encompasses a variety of innovative systems. This study, conducted within the Pathways project, aimed to provide sustainability assessments of such systems, exploring relationships among sustainability dimensions. Through the employment of a modified version of the Excel-based questionnaire Public Goods (PG) tool, data was retrieved from 106 farms differing per animal species (dairy cattle, beef cattle, pigs, and poultry) and management system, with operations ranging from extensive grazing ruminants to intensive monogastrics production. Each farm received scores for 12 sustainability indicators (spurs), used to classify farms into five clusters. Correlation analyses revealed contrasting results: across all farms, several environmental spurs correlated positively among each other, but negatively with profitability, underscoring the financial challenges of transitioning to sustainable practice. Cluster-wise analyses identified commonalities and discrepancies among farms with different production scales, specializations, and management approaches, as well as within units sharing similar traits. Extensive ruminant systems were split among three clusters, each with a unique correlations' set. Our results suggest that, rather than the type of breeding system or animal species, livestock's sustainability might rely more on farm management, size, and geographic location. PG tool's unique approach can contribute to developing tailored strategies among diverse systems and regions.

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