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The role of sustainable grassland management for food security and maintenance of natural resources.

2.5 billion hectares of the total agricultural land, which amounts to 4.8 billion hectares, is used for feeding livestock (ruminants and monogastrics). 1.26 billion hectares are permanent grassland that cannot be converted into arable land. 0.65 billion hectares are grassland grown in arable rotations and have a triple function: Fodder for ruminants, soil fertility improvement and nitrogen fixation.

Permanent grassland stores 63.5 Mt of CO₂, which is equivalent to 20% of the world's soil organic carbon. With sustainable management (reuse of manure, adapted livestock density, avoidance of overgrazing), the further carbon storage potential is estimated at 0.3 tonnes C/ha/year. Grassland is also a hotspot for below- and above-ground biodiversity. Its careful use by cattle is one of the most efficient measures for further enhancement.

In contrast, ruminants emit 2.8 Gt CO₂-eq. per year through enteric fermentation, accounting for 5% of total anthropogenic greenhouse gases (2019: 51.7 Gt CO₂-eq.). Plant-based proteins require only half as much land as milk and 20 times less land than meat. Total water consumption also favours plant-based proteins. Since ruminants are kept on rainfed grassland, only, the consumption of "blue water" (from irrigation) is important, and there, ruminants produce more efficiently than legumes.

It is estimated that 1 billion people live directly from livestock, many of them smallholders. Animal foods provide a significant proportion of the nutrients in the human diet, in high quality, density and bioavailability. Converting the vast areas of grassland into protein and energy available to humans contributes significantly to global food security. Therefore, ruminants are part of a sustainable food system, while the role of monogastric animals should be reduced mainly to the utilisation of food waste and agricultural by-products.

The three most important milestones in my scientific career:

1. 1990: Director of the Research Institute of Organic Agriculture (FiBL) for 30 years
2. 2009: Honorary Professor at Kassel University till today
3. 2020: Member of the Scientific Group of the UNFSS 2020.

I'm looking forward to the scientific conference on raw milk products because...

... these products belong to a healthy diet and the sustainable management of grassland contributes to global food security.