Livestock in the circular bio-economy

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The Global Agenda, the way we work

- Global Food Security and Health
- Equity and Growth
- Resources and Climate

Focus on continuous improvement
Knowledge based
Integrated and comprehensive sector approach
Inclusive & consensual
Circular versus linear economy

- **Linear economy**: uses external high value inputs, produces outputs and waste

- **Circular economy**: minimizes the leaks of energy and materials from the system by re-circulating them

- **Sustainable meat production**: generally implies increased circularity: reduced use of valuable resources, reduced production of waste including GHG emissions
- **Farm level**: mixed crop livestock systems
- **Region/landscape**: specialized crop and livestock farms linked via manure banks
- **Value chain**: piggeries using whey from cheese factories
- **International**: Beef exports versus soybean exports from LAC to Europe
How are GHG emissions reduced by increased circularity:

- Reduce land use change by using non-human edible by-products
- Reduce fossil energy use for input production (e.g. N fertilizer synthesis)
- Produce renewable energy from waste (e.g. biogas)
How are GHG emissions reduced by increased circularity: (cont’d)

- Reduce emissions from transport (local integration processes, e.g. Ethanol plants and dairy farms)
- Reduce emission intensity by improved management (e.g. precision animal feeding)
- Increase CO2 capture in soils (e.g. ley farming systems, better managed rangelands)
What is limiting scaling-up of more circular livestock systems?

• mispriced externalities (no carbon tax)
• wrong policies, perverse incentives (subsidy for fossil energy or fertilizers)
• technical efficiency and location-specificity of many solutions (CO2 sink under different land uses)
• information and knowledge-intensiveness of solutions
• public health issues (BSE, zoonoses)