



*Better lives through livestock*

# Restoring or reinventing the virtuous cycle of crop-livestock integration?

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*Global Agenda for Sustainable Livestock*

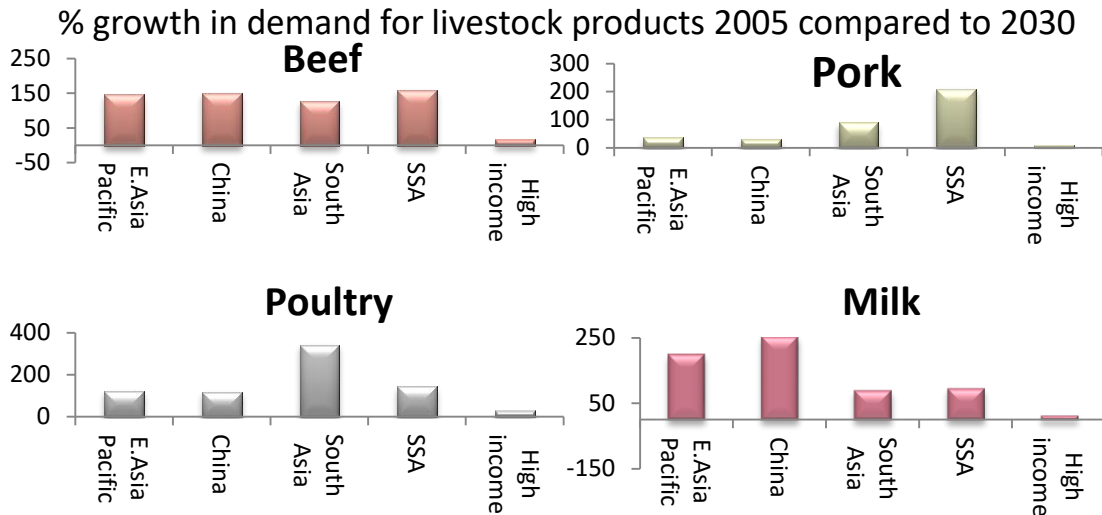
*International Livestock Research Institute*

9<sup>th</sup> EAAP-ATF Special Session & Livestock Farming systems (LFS) study commission

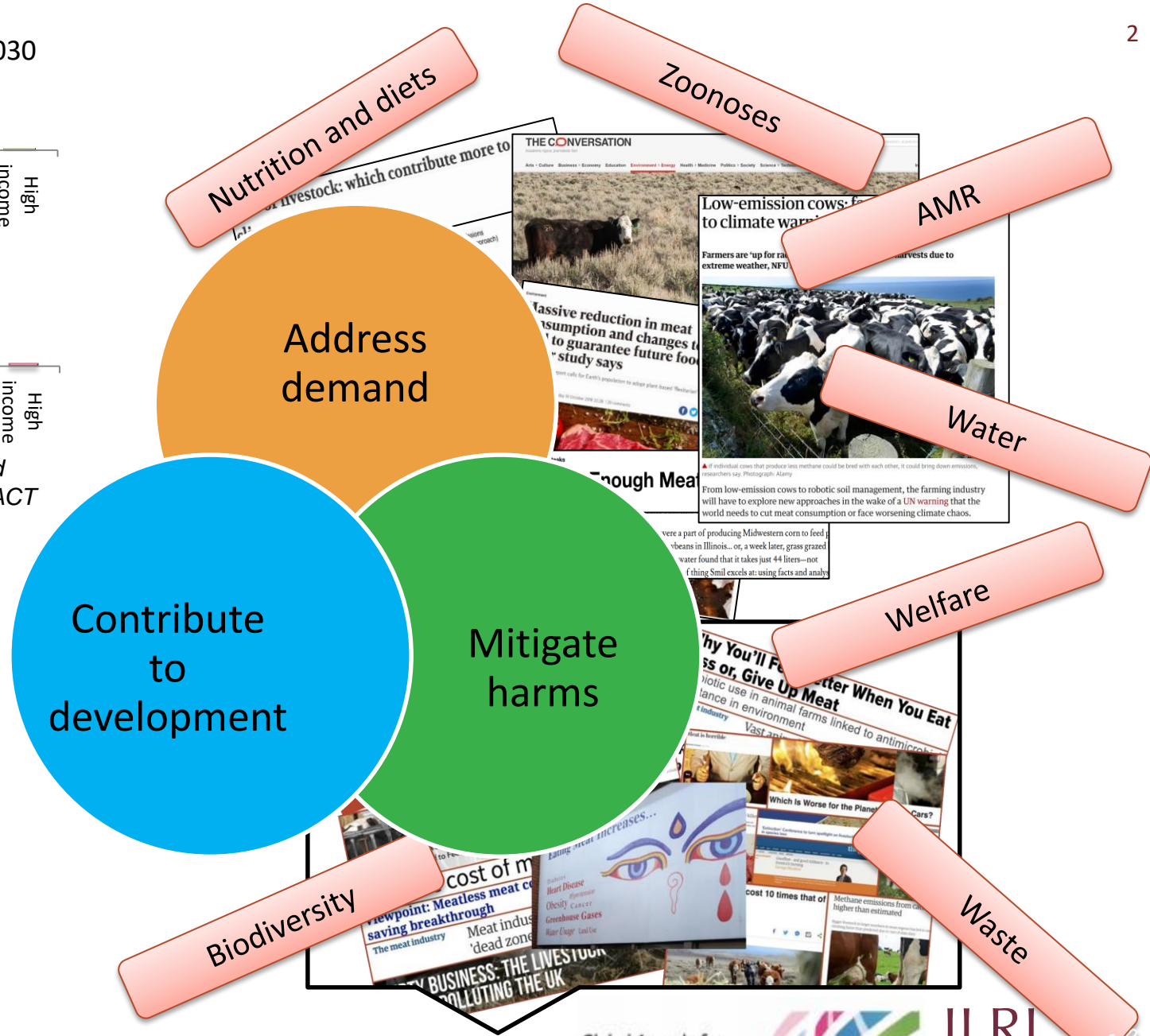
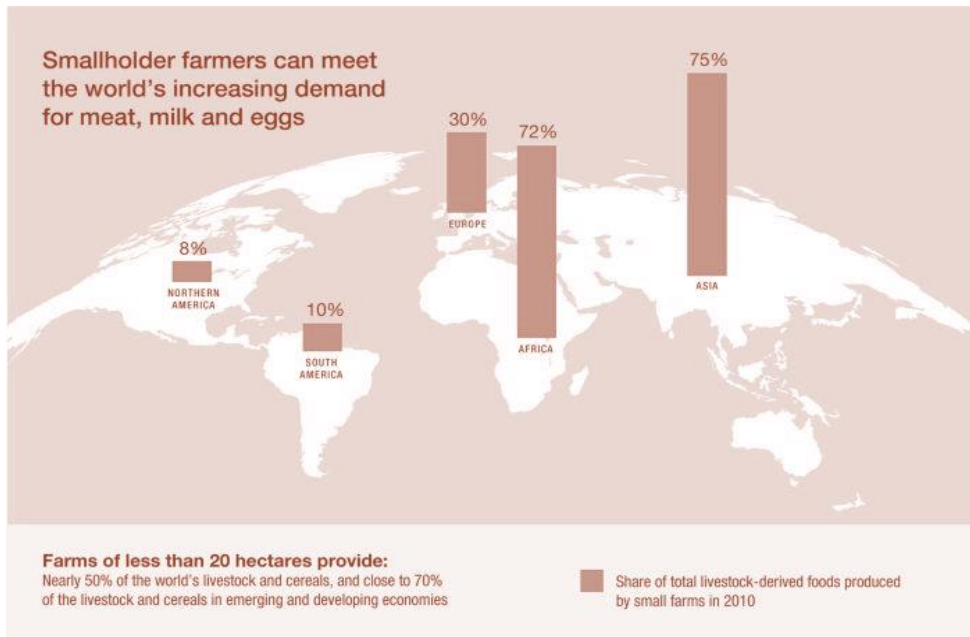
EAAP Annual Meeting | Davos, Switzerland

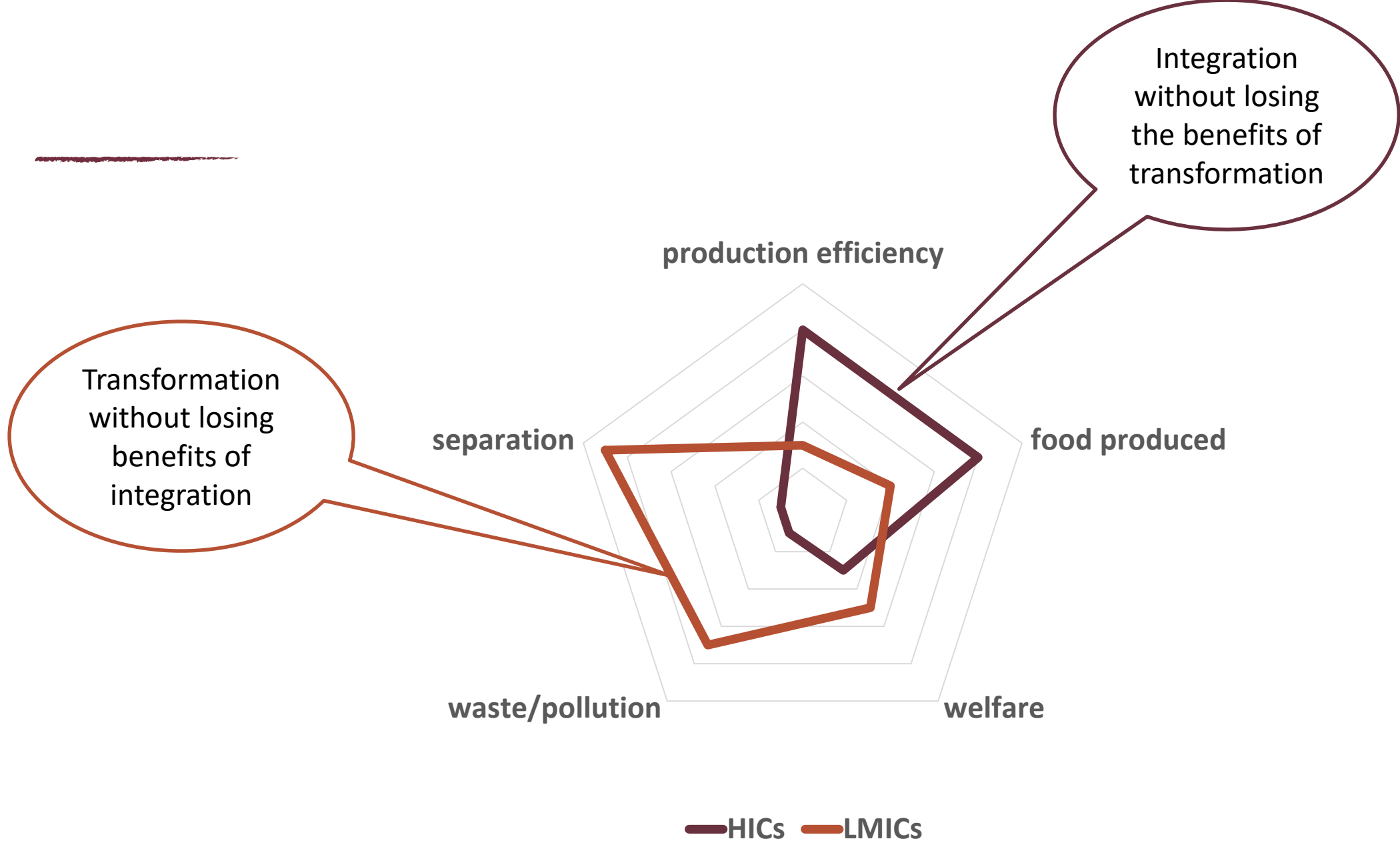
Monday 30 August 2021





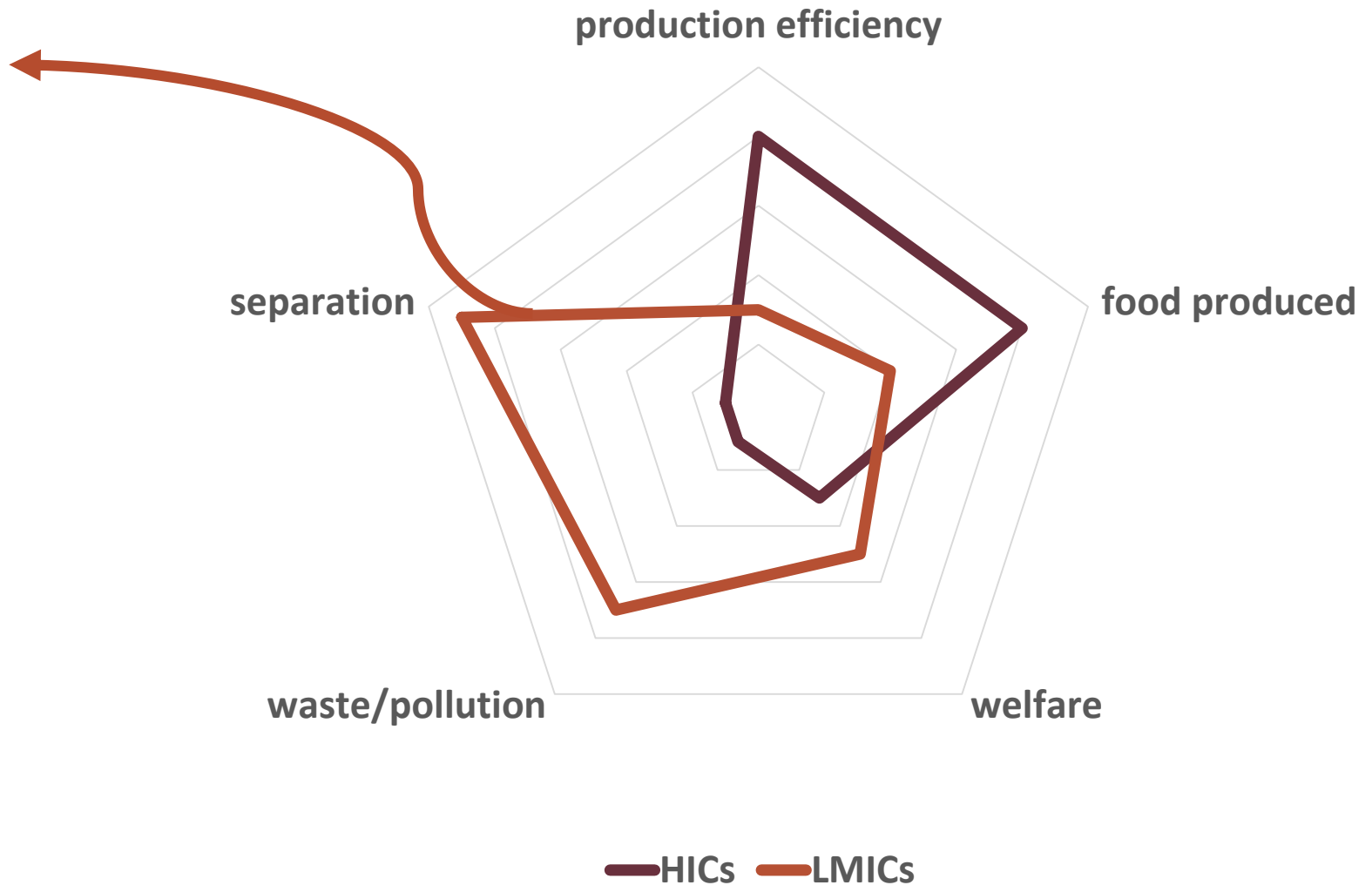
Estimates of the % growth in demand for animal source foods in different World regions, comparing 2005 and 2030. Estimates were developed using the IMPACT model, courtesy Dolapo Enahoro, ILRI.





### Examples

- India: addressing the feed challenge, production efficiency.....
- GASL: Closing the Efficiency Gap; Silvopastoral Systems
- Africa RISING:



# Challenges



Meet increasing future demand for dairy: produce more

Without increasing emissions/environmental impacts

Coping with climate change and climate variability

Starting from today's situation:

- Many small / medium farms

- Local feed resources

- Main feed: low quality crop residues



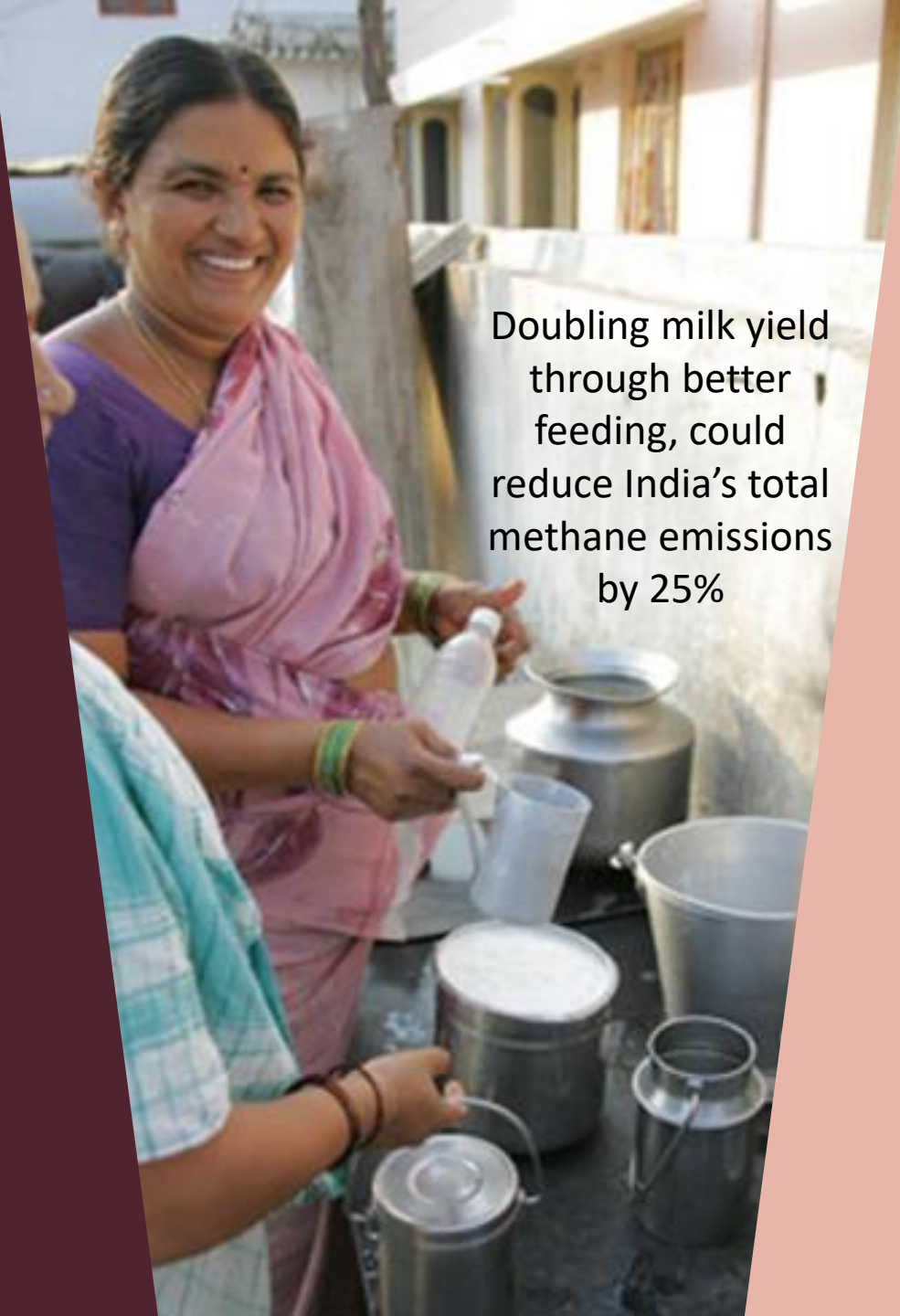
# Opportunities



## More and better feed solutions

- Feed quality
- Feed utilization: processing

Small changes in crop residue quality have a significant impact on milk production '*..a 1% increase in digestibility of sorghum stover fed to dairy cows leads to a 6-8 % increase in milk production...*'



Doubling milk yield through better feeding, could reduce India's total methane emissions by 25%

## Improve feed quality

Inclusion of feed quality parameters in crop breeding required:

- Demonstration that quality variations were present
- That these did not jeopardize grain yields
- Easy ways of assessment allow for inclusion in crop breeding and selection programs





## Closing the Efficiency Gap

The CEG action network facilitates knowledge exchange new and existing technologies and develops methodologies to close the efficiency gap by measuring resource use efficiency.

<http://www.livestockdialogue.org/action-networks/action-networks/closing-efficiency-gap/en/>



Silvopastoral system in Amazonia bioma  
(Babassu coconut - *Orbignya sp.* &  
livestock – Brazil)

Silvopastoral system in Cerrado bioma  
(Timber - *Zeyheria tuberculosa* & livestock –  
Brazil)



The GNSPS aims to strengthen and scale up SPS worldwide, through the generation, exchange and dissemination of knowledge, the documentation of public policies and the facilitation of dialogue to address the challenges associated with SDGs.

<https://globalsilvopastoralnetwork.org/>



Silvopastoral system with *Leucaena leucocephala*. Queensland,  
Australia



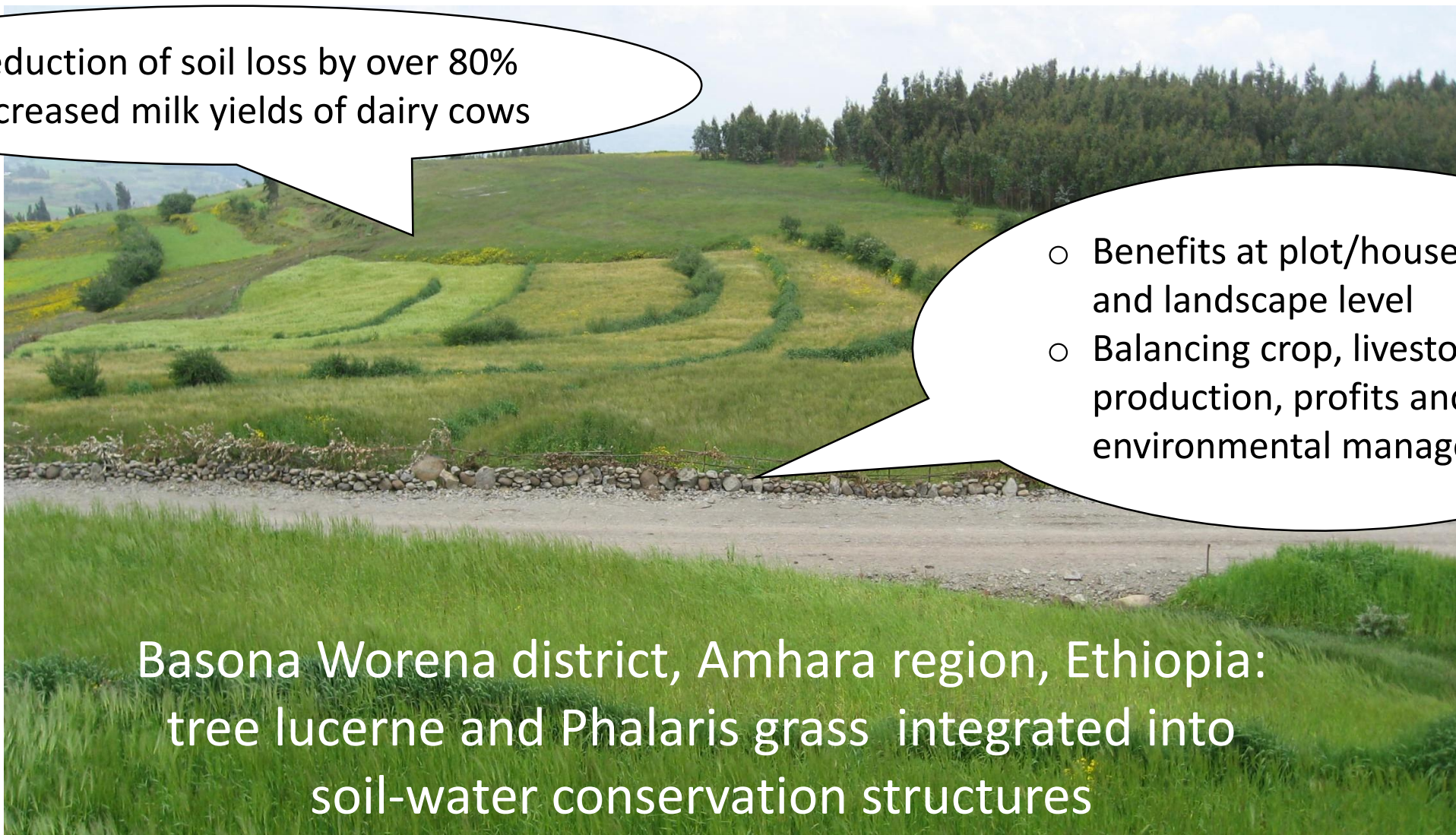
Silvopastoral system with high density of  
*Leucaena leucocephala*  
shrubs. Michoacán, Mexico





# Africa Research In Sustainable Intensification for Next Generation

- Reduction of soil loss by over 80%
- Increased milk yields of dairy cows



- Benefits at plot/household and landscape level
- Balancing crop, livestock production, profits and environmental management

Basona Worena district, Amhara region, Ethiopia:  
tree lucerne and Phalaris grass integrated into  
soil-water conservation structures



# The best of both worlds: integration and transformation

Change and action are mandatory

- address demand

- contribute to development

- mitigate harms

Feed is key:

- Improve feed quality

- make best use of what is available

Improve integrated nutrient cycling

Collaborate across multiple science disciplines (eg include crop breeders!)

Address context and enabling environment: market, policy, etc





## Essential crop-livestock systems

- Future, resilient food systems
- Nourishing every citizen

