

Amare Hailelassie^{1,2}, Peter Craufurd¹, Michael Blümmel², Ramana Reddy²

¹ International Crop Research Institute for the Semi-Arid Tropics (ICRISAT), ² International Livestock Research Institute (ILRI)

Two Major Steps in Crop-Livestock System Research

- I. Understanding present performance and state of the system [Figure1 (green and blue colours)]
- II. Exploring future trajectories of the system [Figure1 (grey colour)]

Key Issues to Understand the Present Performances of Crop-Livestock systems

- I. Structural components of the system and their interactions (e.g. edaphic, biotic, abiotic) across scales and livelihood dimensions;
- II. Functional components of the system (e.g. input levels and types and output level achieved over time);
- III. State of the system (e.g. stability, risk and uncertainty factors).

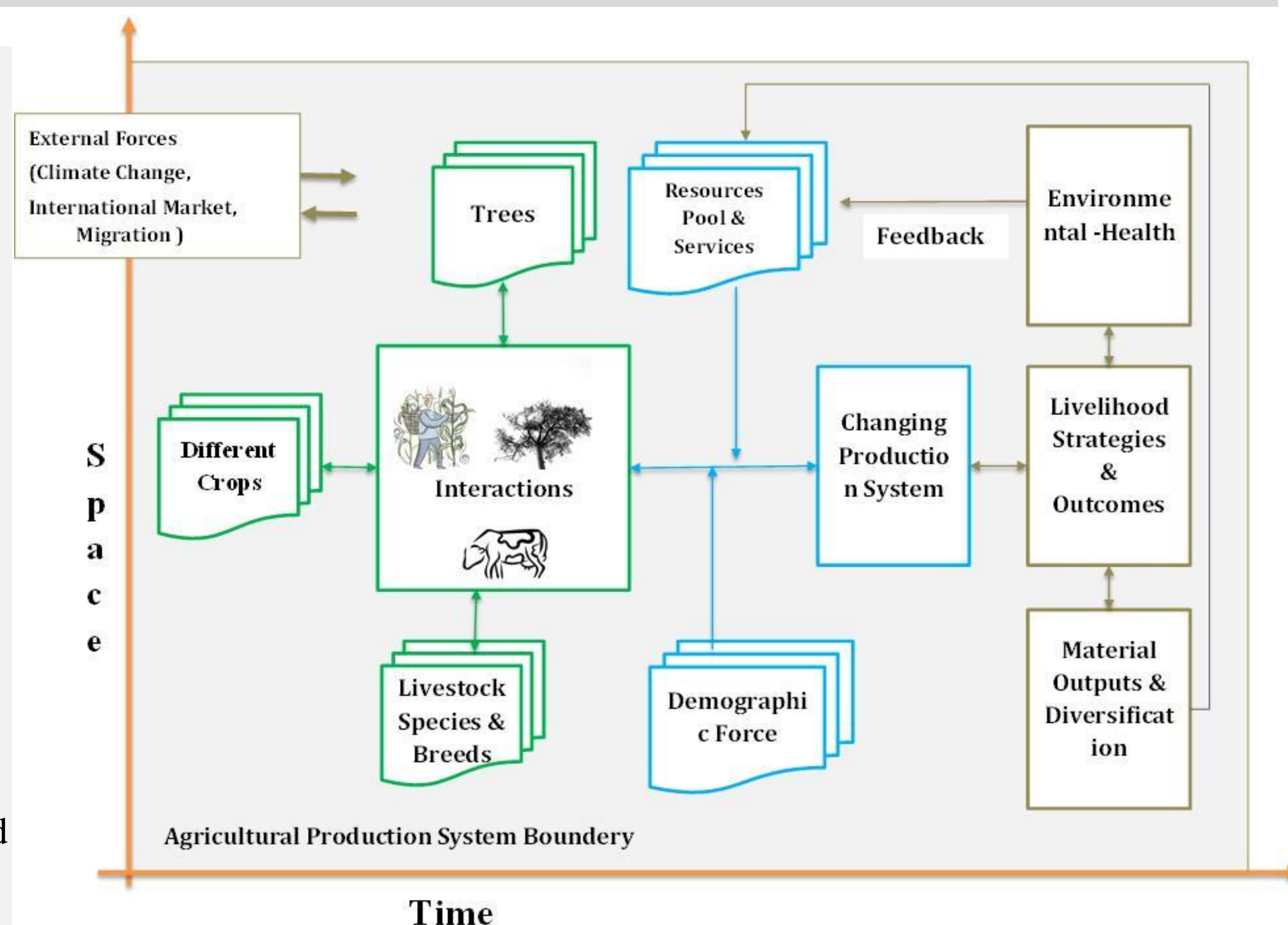


Figure 1: A simplified framework for agricultural production system research : illustrating agricultural system components, their interactions, driving factors, livelihood outcomes, strategies and feedbacks

Key Issues to Explore Trajectories of the Future Crop-Livestock Systems

- I. Understand the livelihood objectives of farmers and how this match with the present livelihood outcomes.
- II. Study positive or negative feedbacks of the present system-functions and trajectories to the major system drivers.
- III. Identify options/scenarios to modify or change the system to achieve higher level of performances.
- IV. Examine effects of external factors (e.g. climate change, migration, market) on system performances and options to move the system in the desired direction.
- V. Explore whether the proposed scenarios are technically, socially and economically feasible.