XVII. Congress of the European Society for Agronomy

August 29 – September 2, 2022
Potsdam, Germany

Diversification & Digitalisation
Trends that Shape Future Agriculture

BOOK OF ABSTRACTS

Book of abstracts: XVII. Congress of the European Society for Agronomy

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Layout concept:
Leibniz Centre for Agricultural Landscape Research (ZALF)

This book of abstracts will be published only electronically: www.esa-congress-potsdam2022.de

Leibniz Centre for Agricultural Landscape Research (ZALF)
Eberswalder Straße 84 | 15374 Müncheberg, Germany
T +49 (0)33432 | 82 200
E zalf@zalf.de
W www.leibniz-zalf.de

Trajectories of crop-livestock integration in the context of specialisation in Northwest Vietnam

Alice Le Trouher[1]; Huyen Le Thi Thanh[2]; Charles-Henri Moulin[3]; Mélanie Blanchard[4]

[1] CIRAD; [2] NIAS; [3] Institut Agro, CIRAD, INRAE, Université de Montpellier; [4] CIRAD, NIAS

By enhancing the exchange of materials and energy between livestock and crop systems within and between farms, crop-livestock integration contributes to improving productivity, increasing the value of plant resources, maintaining soil fertility, and improving the sustainability of agricultural systems and territories. The Vietnamese agricultural systems, driven by public policies and private sector investments, have evolved rapidly with a strong intensification of production systems (use of mineral fertilizers, improved seed and breed, industrial feed, biosecurity). The fast intensification is combined with a specialization of farms and territories, along with the appearance of large intensive farms (industrial farming). These recent changes therefore raise the question of the future of crop-livestock integration in the development of the Vietnamese agricultural sector. The loss of crop-livestock integration practices will impact the sustainability of agricultural systems and the territories. This study aims to understand the trajectories and the main change regarding crop-livestock integration practices at the farm and beyond the farm level to understand the potential future of the integrated crop-livestock systems in the territory. Điện Biên District (Province of Điện Biên) is located in North-West Vietnam and presents a diversity of farming systems with a wide rice valley surrounded by mountainous massifs. The importance of bovo-bubaline livestock for the local economy, the land resources, and the ongoing changes in agriculture raise interest in the development of agriculture, and livestock in particular. A typology focusing on the 3 dimensions of crop-livestock integration (feed, fertilization, animal labour) has been developed based on previous work classifying farms according to the degree of feed intensification and crop-livestock integration. It distinguishes six groups of farms according to the orientation of their production (animal, crop) and the degree of integration of both production systems. We studied the changes in farming systems over the last 20-30 years through individual open-ended interviews. For our sample, we selected 23 farmers, with the support of local agricultural development officers to be representative of the diversity of farms, in 5 communes of Điện Biên district. 3 to 4 interviews were conducted per farm type. The diversity of crop-livestock integration practices is the result of past and recent transformations, depending on the personal situation of the farmers (ethnic group, history, family...), the territorial context (topography, land resources), and the economic and political context (market instability, incentives). One of the trajectories observed shows that the lack of land resources in the rice valley motivated farmers with the investment capacity, to convert to animal fattening, with a high use of concentrates, especially for non-ruminant activities (pigs). This conversion is associated with a decrease in on-farm feed production. Although manure is often collected in these farming systems, it is not always used locally.
These recent farming systems show a low degree of crop-livestock integration and also challenge the organisation of crop-livestock integration at the territorial scale. This reconstruction of the past evolutions of the crop-livestock integration will be used to construct

scenarios for the evolution of crop-livestock integration practices on farms, but also at territory scales.