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# Are farmers interested in involving landscape complexity in their pest regulation strategies?

Nicolas Salliou<sup>\*1</sup>, Cécile Barnaud<sup>1</sup>, Claude Monteil<sup>2,3</sup>, Aude Vialatte<sup>2,3</sup>, and Jean-Philippe Choisis<sup>1</sup>

<sup>1</sup>Institut National de Recherche Agronomique - Centre de Toulouse (INRA TOULOUSE) – Institut national de la recherche agronomique (INRA) – Chemin de Borde Rouge BP52627 31326 Castanet Tolosan Cedex, France

<sup>2</sup>Institut National Polytechnique de Toulouse (INP) – Université Paul Sabatier (UPS) - Toulouse III – France

<sup>3</sup>Ecole Nationale Supérieure Agronomique de Toulouse (ENSAT) – Ministère de l’agriculture – Avenue de l’Agrobiopole, BP 107, Auzeville-Tolosane, F 31326 Castanet-Tolosan Cedex, France

## Abstract

Scientific findings in landscape ecology suggest that a patchy landscape with a high proportion of semi-natural elements favors insect pest biological control by conservation of natural enemies’ habitats. However, little is known about how farmers perceive landscape effect on natural enemies and pests and if they might be interested in integrating such pest control strategy in their practices. In order to better understand how farmers perceive such potential innovation, we initiated a research-action in south-West France in an area specialized in apple production. In a first step, through individual interviews with thirty farmers and other stakeholders involved in local agriculture, we analyzed how they perceived the landscape and natural enemies. In a second step, we engaged in a participatory modelling of their socio-ecological system about biological regulation in order to explore landscape management scenarios. Our results clearly indicate that even though natural enemies are regularly part of pest control strategies, all interviewed stakeholders do not perceive the landscape as providing any benefit from landscape influence on natural enemies. Our scenarios explorations with stakeholders suggest that, even though a complex landscape may significantly enhance functional biodiversity on farms, stakeholders do not relate it to significant benefits for farmers. Our results question the feasibility of a landscape management to enhance pest regulation. They show the relevance to include stakeholders’ perception before any innovation diffusion process.

**Keywords:** Perception, natural enemies, stakeholders, socio, ecological system, participatory modelling

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\*Speaker