



## Co-inquiry in agroecology research with farmers: transdisciplinary co-creation of contextualized and actionable knowledge

Markus Frank<sup>a,b</sup>, Mariano M. Amoroso<sup>c,d</sup>, Martina Propedo<sup>e</sup>, and Brigitte Kaufmann<sup>a,b</sup>

<sup>a</sup>German Institute for Tropical and Subtropical Agriculture (DITSL), Witzenhausen, Germany; <sup>b</sup>Social Ecology of Tropical and Subtropical Land-use Systems, Institute of Agricultural Sciences in the Tropics (Hans-Ruthenberg-Institute), University of Hohenheim, Stuttgart, Germany; <sup>c</sup>Universidad Nacional de Rio Negro, Instituto de Investigaciones en Recursos Naturales, Agroecología y Desarrollo Rural (IRNAD), Argentina; <sup>d</sup>Consejo Nacional de Investigaciones Científicas y Técnicas, Instituto de Investigaciones en Recursos Naturales, Agroecología y Desarrollo Rural (IRNAD), Argentina; <sup>e</sup>Chacra Rizoma, Argentina

### ABSTRACT

The transformative claim of agroecology research draws on transdisciplinarity and participatory action research to operationalize horizontal learning and experimentation for knowledge co-creation and change in action. Drawbacks to recent research strategies in this field are lack of action orientation, and limited roles and low level of control attributed to farmers, particularly in defining scope and methods for collaboration and joint experimentation. In response, in this article we conceptualize a co-inquiry approach for agroecology research adopted from participatory action research and explore its operationalization and outcomes with a group of organic horticultural farmers in Argentina. We assess how co-inquiry considers farmers' experience in the knowledge co-creation process to achieve contextualized research questions and actionable results, and reflect on potentials and constraints of extended roles attributed to farmers and their increased control over inquiry process and contents. We found that co-inquiry facilitates extended roles of farmers as co-researchers and thereby encourages horizontal learning based on systems thinking, through a joint explorative assessment of the systems operators' purposes, context, and experience, and through joint choice of methodology, experimentation and reflection.

### KEYWORDS

Co-operative inquiry; transdisciplinary research; participatory action research; transition; knowledge co-production; organic horticulture; Rio Negro Argentina