

A social practice theory approach to farmers' crop protection

Antonia Kaiser^{1,2} & Paul Burger¹

¹Sustainability Research Group, University of Basel, Petersgraben 52, CH-4051 Basel (antonia.kaiser@unibas.ch)

²Department of Socioeconomics, Federal Research Station Agroscope, Tänikon 1, CH-8356 Ettenhausen

Increasing societal pressure due to e.g. the ongoing biodiversity loss has led the European agricultural sector and policy to embark on a transition process towards low-pesticide agriculture (EC 2019; for Switzerland see e.g. Huber & Finger 2019). In Switzerland, public policy efforts to substantially reduce the use of chemical plant protection products are reflected in the number of agri-environmental schemes (AES) that address this issue (FOAG 2019; Mack et al. 2020). The AES promote, first, the further development of alternative crop protection methods and second, farmers' uptake of these using financial incentives. Studies on farmers' behaviour change in this respect usually focus on either individual or structural aspects and neglect the interplay of these.

In this paper, we conceptualise crop protection (CP), an important component of crop production, within a social practice theory (SPT) perspective. In applying SPT to farmers' CP, practices as routinized activities instead of actors become the principal units of analysis (Shove et al. 2012). The aim of the paper is then to identify the different (parallel used) variants of CP practices on Swiss farms and to analyse how their elements (meanings, competencies, materials) are connected. In line with Shove et al.'s (2012) SPT concept, *meanings* here refer to the ways in which a practice is understood and include norms, symbols and affections. A typical meaning related to CP is that of 'healthy plants'. *Materials* refer to all physical elements related to performing the practice; in the case of CP, these involve e.g. pesticides, machinery and fields. *Competencies* mean the skills and knowledge needed for performing the practice, such as knowing when and how to apply pesticides on particular crops. When performing the practice of CP, farmers thus connect their understanding of suitable CP to the properties of the field, the crops, the available products or techniques and to their skills and know-how.

Methodologically, the paper is based on a systematic literature review and on semi-structured interviews among 10 farmers and 5 agricultural experts, conducted between February and August 2020. This allows us to perform a microanalysis of farmers' individual practices. Our preliminary results suggest that five types of CP practices can be described along the three elements. These were named according to the main logic of each practice and include: 1) "Old school" – maximizing yields, clean fields, 2) Market-oriented, pragmatic CP, 3) Cost and workload minimizing CP, 4) Outsourcing CP to contractors, and 5) Agroecology, regenerative cultivation. The results inform a framework for further research and may be relevant for the advancement towards more effective Swiss agri-environmental policy.

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