

An attribute-based approach for analyzing probabilities and determinants of PhenoRob-type technology adoption

Language: English

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Background: There is a huge body of research on agricultural technology adoption and its influencing factors. Literature reviews have so far attempted to classify determinants of agricultural technology adoption in various ways. Empirical studies typically identify the determinants (farm and farmer characteristics, market conditions) and their importance for a certain type of technology. The question is if such empirical analyses can be used to predict relevant determinants and adoption probabilities for technologies that do not yet exist. Using published adoption studies of specific technologies, this research aims to develop a new approach based on the attributes of agricultural technology in order to link them to the relevance of determinants and the likelihood to adopt them. At the end, potentially observed systematic relationships between technology attributes and factors affecting their adoption may be used to assess what likely matters for the adoption of PhenoRob-type technologies to be developed in the future.

Objectives: Develop an approach for analyzing the relationship between technology attributes and probabilities as well as determinants of adoption.

Approach:

- Define attributes of agricultural technologies (e.g. in terms of its effects and requirements) that likely matter for PhenoRob type technologies
- Select empirical adoption studies from the literature that deal with technologies having one or more of these attributes (still open if also those should be included that do not have any of these attributes)
- Generate a database from these studies linking attributes to probabilities and determinants
- Discuss the implications for the adoption of PhenoRob-type technologies

References to start:

1. To get a general understanding about agricultural technology adoption, you can read:
 - Sunding, David; Zilberman, David (2001): The agricultural innovation process: Research and technology adoption in a changing agricultural sector. In Handbook of Agricultural Economics 1, pp. 207–261.
2. To have a look at how others have done literature reviews, you can read:
 - Knowler, Duncan; Bradshaw, Ben (2007): Farmers' adoption of conservation agriculture: A review and synthesis of recent research. In Food Policy 32 (1), pp. 25–48.

- François J Dessart, Jesús Barreiro-Hurlé, René van Bavel, Behavioural factors affecting the adoption of sustainable farming practices: a policy-oriented review. In European Review of Agricultural Economics 46 (3), pp. 417–471.
3. What is PhenoRob? Please refer to <http://www.phenorob.de/>