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Elicitation of farmers' information sources and use in operational decision making

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Abstract: The current trend is towards increasing the amount of raw data regarding agricultural practices (e.g., through experimentation, availability of measurement devices, etc.). Consequently, the amount of information that farmers can use to make operational decisions is growing at an impressive rate. The issue of imbalance between the richness of available information and the ability of farmers to harness it in their decision-making process has received little attention so far. In this study, a descriptive approach based on interviews is adopted. It explores the origin (i.e., internal knowledge or external sources) and the nature of information used by farmers in their process of making operational decisions. The elicitation approach combines techniques from different disciplines. It involves a combination of experiments (e.g., role-playing games), calendar-based positioning of management operations and questionnaires. Our analysis focuses on decision-making regarding fungal disease control on soft wheat in a population of 32 farmers in southwest France. Initial results show the high heterogeneity of skills among farmers. The quantity and the nature of information used in the decision-making process also vary among farmers. In particular, very few of the farmers use classically mentioned factors in relation to integrated pest management when making operational decisions. We build typologies of farmers based on the characteristics of their decision-making process (eg. quantity of information used). The goal now is to explore the role of knowledge, of external information availability and of others parameters revealed in the survey (e.g., preferences) on these typologies and on farmers final choices of practices. This study is a first step toward the comprehension of farmers' appropriation and use of the increased amount of information in the agricultural sector. Conclusions to be drawn concern the development of different support strategies according to farmers' types revealed by the survey. Subsequent stages are designed to amplify our analysis by performing model-based exploration of farmers' decision-making processes.

Keywords: decision-making process; farm management; information; knowledge; elicitation techniques