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Perspectives of Farmers and Experts Regarding Future Agricultural Development: Results from a Future Structured Mental Model Approach

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Abstract

To secure agricultural food production, pesticide application is increasing and, despite extensive educational programs, farmers continue to take high health and environmental risk when applying pesticides. We assume that the success of educational interventions depends on three major points: **(a)** the capability to incorporate local knowledge and local development plans into regional and national agendas; **(b)** the ability to define sustainable agricultural development and to communicate this definition effectively; and **(c)** the coordination of governmental and nongovernmental interventions. In order to test our hypothesis our research goals are: **(a)** to analyse local knowledge by using the mental model approach and therefore to understand better farmers' perception of current and estimated risks' in a desired future; **(b)** to find a common definition of sustainability by comparing experts' future perspectives and their appraisal of farmers development potentials and **(c)** to coordinate different interventions by detecting crucial elements for the improvement of farmers livelihood.

For achieving these goals we interviewed ten farmers concerning their future expectations and development plans. Subsequently ten experts were interviewed about the feasibility and the consequences of farmers' future perspectives. The interviews were posed open ended and structured in three parts: **(i)** future perspectives and ranking of future development options with respect to their importance for farmers' livelihood; **(ii)** analysis of the dynamic consequences of future developments within the system; **(iii)** importance and roles of agents in farmers' agent network for achieving the desired future. Following this structure, the interviews were analysed qualitatively and statistically for each part separately.

Our analyses show that the future perspectives and consequences expected by farmers differed from the expectations experts have. Furthermore, while farmers' future perspectives coincided widely among them, experts' opinions' deviated significantly within the experts group. Applying the structural mental model approach (SMMA) for the assessment of future perspectives, we were able to identify measures for improving the interventions for sustainable agriculture. One measure is the reduction of deviations in thinking between farmers and experts, which hinders the implementation of policies. Another measure is the coordination of existing interventions and capacity building of farmers with respect to a common goal.

Keywords: Sustainable agriculture, future agricultural development, communication

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