Business decision analysis principles in research for agricultural development

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Uncertainty in agricultural development

Agricultural systems in the tropics are complex, depending on many interrelated drivers that are often poorly understood and not well-described by data. Nevertheless, decision-makers need scientific support for decisions on such systems. Research approaches are needed that can deal with the complexity and imperfect information that is a reality in agricultural development. Decision analysis methods have promise for bridging this gap.

Decision analysis principles

- Work directly with decision-makers and stakeholders on pending decisions
- Consider both social and environmental factors, regardless of state of knowledge
- Model uncertainty and risk
- Make existing knowledge and expected causal relationships explicit in models
- Use all knowledge sources, incl. experts
- Use probabilistic methods, e.g. Monte Carlo simulation or Bayesian Networks

Conclusions

- Better guidance for decision-making is possible without expensive long-term data collection.
- Decision models allow probabilistic decision outcome forecasts, but this makes them hard to validate.
- The principles of business decision analysis offer one of the most promising approaches to meeting the challenges of system complexity and data scarcity that appear ubiquitous in agricultural development.