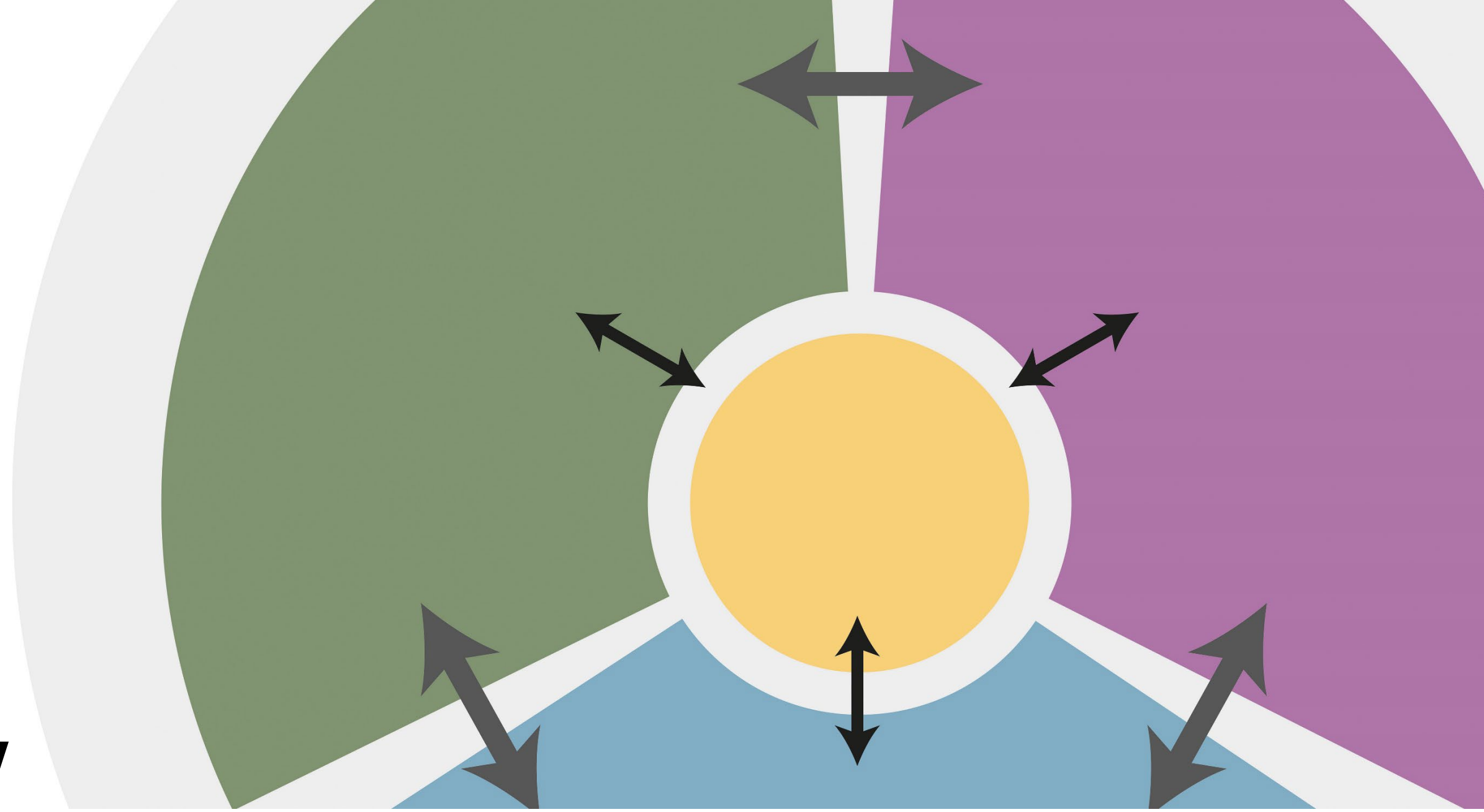


Multi-method modeling of farmers adopting agricultural practices: How do policy instruments tip collective action?



C5. Governance

Motivation & Innovation

- Policy instruments (e.g., agri-environmental schemes or regulation) are intended to influence agricultural practices
- How do policy instruments transpire **from individual farmers to the collective level**, and **how effective** are they?
- **Modeling** is a powerful tool to analyze the effectiveness and investigate scenarios

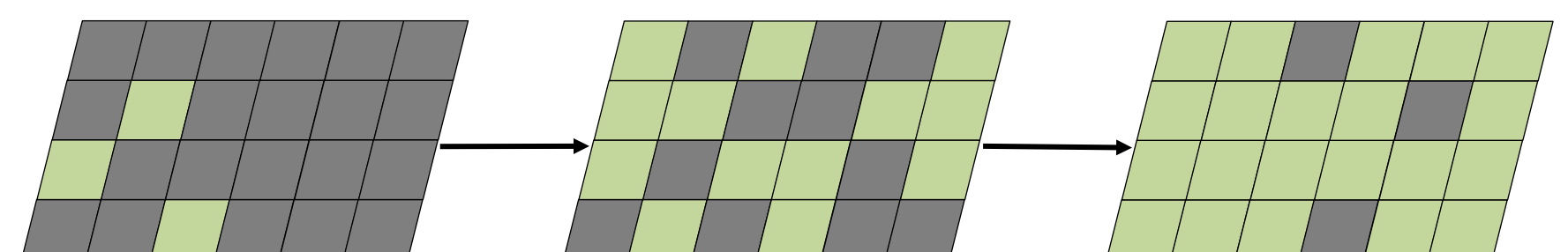


Figure 1. Spatially heterogeneous land use by different farmers in the Osnabrück region

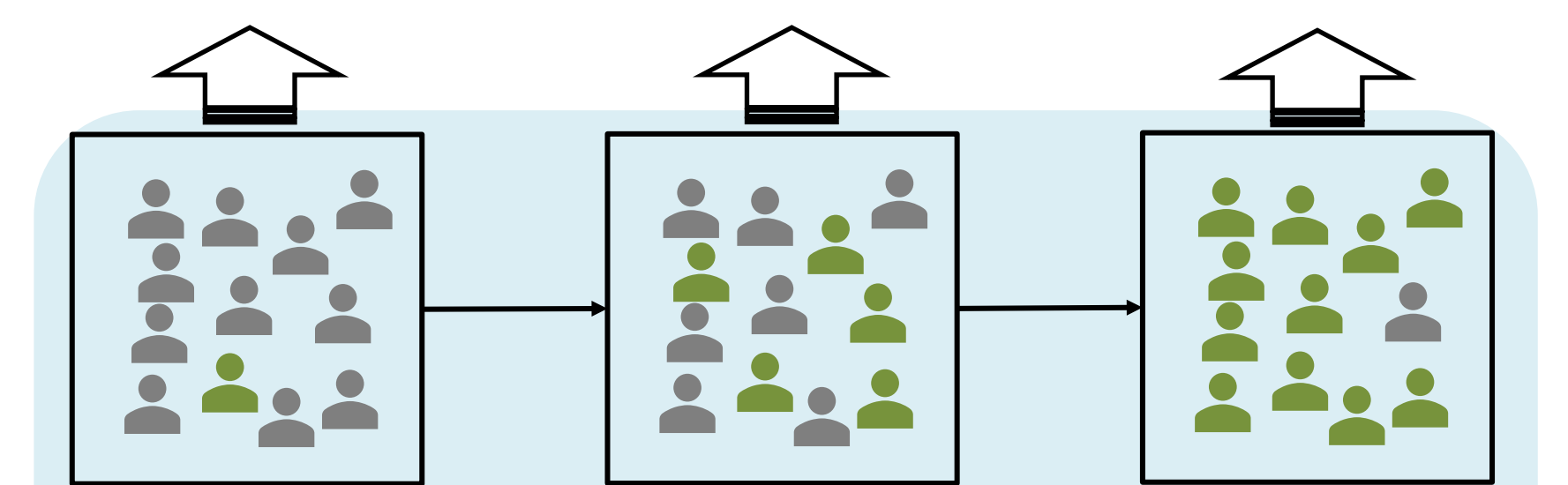
Objectives

- To better understand **key factors for and potential barriers** of the adoption of certain policy instruments by farmers
- To identify spatio-temporal patterns of **behavioral, socio-economic, and bio-physical conditions** under which policy instruments will be efficient^{4,7} or show undesired side effects⁵
- To **compare complementary modeling approaches with different levels of complexity** that allow upscaling from the individual decision-making of farmers to the collective level^{3,8} and to identify necessary degrees of detail

Scientific Design



Land-use distribution

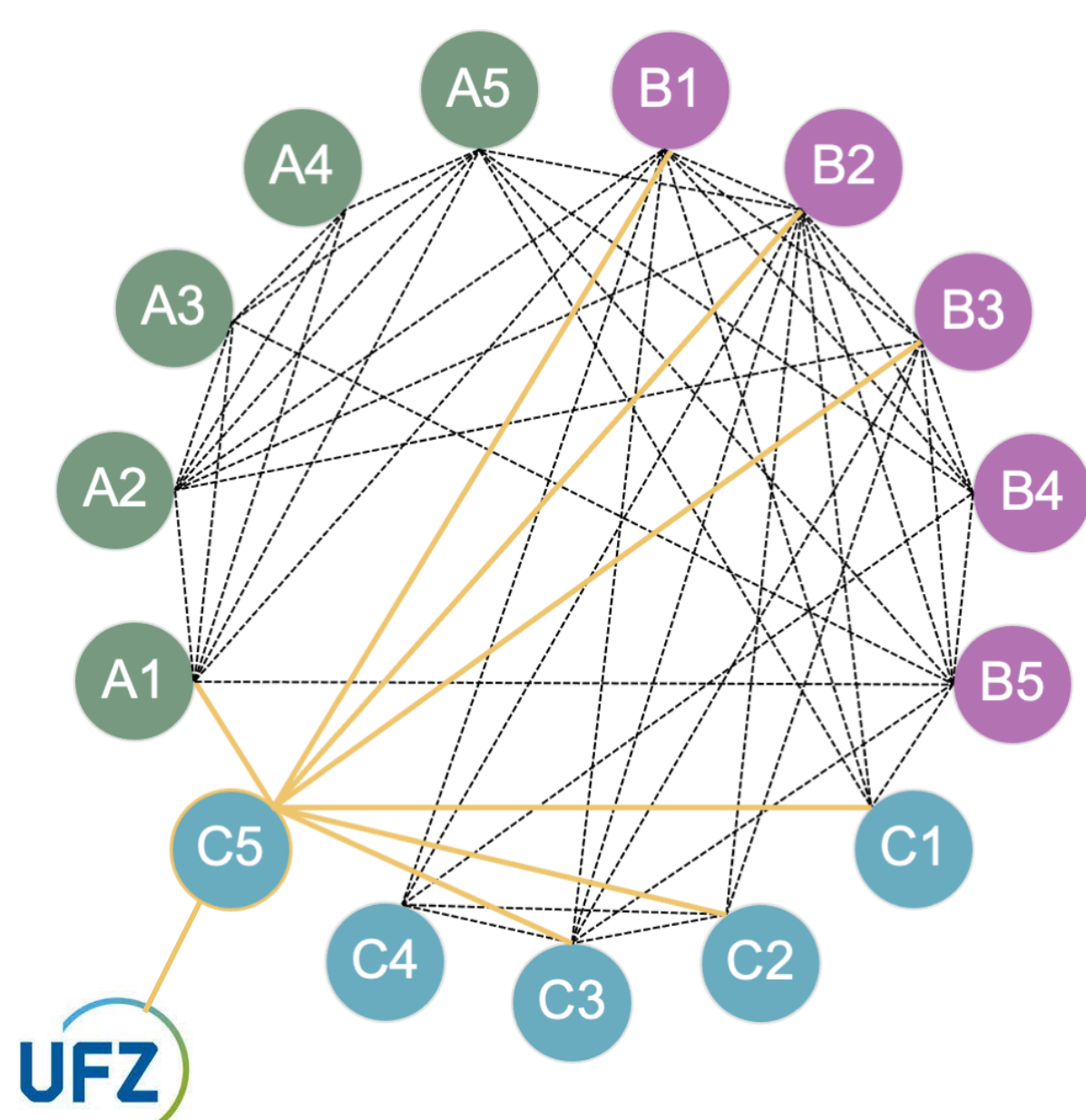


Project C5a: Evolutionary game theory^{1,2}
Project C5b: Agent-based simulations^{6,9}

Policy instruments

(agri-environ. schemes, subsidies, taxes, regulation)

Linkages



- Links to spatio-temporal patterns (A1-A3)
- Emergence of land use (B1-B3)
- Integrates in-sights from responses to warning (C1), narratives (C2), and long-distance effects (C3)
- Uses expertise from UFZ (social-ecological modeling)

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Principal Investigators

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- Social-ecological modelling
- Evolutionary game theory



Prof. Dr. Karin Frank

- Social-ecological modelling
- Agent-based simulations

