

# Science for Environment Policy

## Analysis of farmers' social networks identifies important stakeholders for biodiversity conservation

### Stakeholder support is essential to the success of environmental policies.

A recent study has identified stakeholders that can promote biodiversity in European agricultural landscapes. The researchers found farmers were the most influential group of stakeholders, as they make the final decisions on land use. In turn, farmers are influenced in their decisions by a number of actors whose influence is perceived differently on a local and regional level.

**The environmental quality of agricultural landscapes can be improved by investing in [green infrastructure](#)<sup>1</sup>, which will, among other goals, improve biodiversity conservation.** However, to ensure these initiatives are successful, stakeholders must be engaged in their design and delivery. This study, partly funded by the EU<sup>2</sup>, therefore explored how key stakeholders could be selected, specifically to take part in developing land-use scenarios to support management of agricultural biodiversity in the EU.

The researchers used a qualitative and quantitative social network analysis tool called Net-Map to understand the relationships of different stakeholders at regional and local levels — and in different communication networks (information, regulation and social pressure). For example, at the regional level, links involving social pressure emerged between farmers' associations and farmers; between farmers and community; environmental NGOs and farmers' associations; environmental NGOs and the federal state ministry for agriculture and environment; the public and farmers; landowners and farmers; and environmental NGOs and farmers.

The researchers illustrated their approach with a case study set in the German federal state of Saxony-Anhalt. They conducted 11 interviews with representatives of groups at the regional level, including the federal state agency for agriculture and forests (FAAF), farmers' associations, the federal state department of environmental conservation, an advisory board for nature conservation, a scientific organisation and a technical journal; and eight interviews with actors at the local level, including farmers, a hunter, an agricultural consultant, a land management association representative and a mayor.

Based on analysis of these interviews and the resulting network data, the researchers identified the most commonly mentioned individuals or groups influencing biodiversity in the area. Combining the maps of the individual interviews, they then produced regional and local network maps to show how these groups and individuals were related to each other and their influence as perceived by the interview partners.

The network analysis identified 72 individuals or organisations that influenced biodiversity in the area, including landowners, environmental NGOs, consultants, landscape management associations, biogas producers, the general media and banks

At both regional and local levels, farmers were identified as having the most influence (as they ultimately make land-use decisions, including what voluntary and involuntary ecological measures to adopt), followed by the FAAF. At the local level, landowners, including private landowners, churches and the federal republic of Germany, were perceived to have the next greatest influence on agricultural biodiversity. At the regional level, however, landowners were perceived to have less influence and, in comparison, administrative institutions were perceived to more strongly influence agricultural biodiversity.

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1. The European Commission's Communication on "Green Infrastructure (GI) — Enhancing Europe's Natural Capital". <http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52013DC0249>

2. Biodiversa is a network of national and regional funding organisations promoting pan-European research on biodiversity and ecosystem services. Biodiversa is funded under the Horizon 2020 ERA-NET COFUND scheme. <http://www.biodiversa.org/>

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Farmers' associations were found to be influential bodies at the regional level because of their input to regional plans or the design of measures for implementing the [Common Agricultural Policy](#). At the local level, however, farmers' associations were not considered to be very influential, because some local farmers felt that they represented only large-scale farmers.

The researchers also analysed the networks connecting stakeholders. Most stakeholders were linked through exchanges of information; for example, obligatory exchanges between farmers and the FAAF, or discussions between farmers about their farming practices. At the local level, technical journals were an important source of information for farmers, advising them, for example, on the different [agri-environment schemes](#) that were available.

Within the networks, farmers were the most connected. For example, farmers and the FAAF were strongly connected because the FAAF is the farmers' point of contact relating to CAP payments and regulations and reimburses farmers for the agri-environment schemes they implement. Farmers who rent land may however be restricted by landowner requirements, and therefore may be unable to implement agri-environment schemes that enhance biodiversity. This is especially important for areas with a high proportion of leased land.

Social pressure also plays an important role in protecting agricultural biodiversity. Farmers obtained much of their information from talking to other farmers and observing how they manage their land; for example, some judgemental comments that someone's field looked 'untidy' would hinder the further implementation of environmental measures. On the other hand, environmental awareness, being born and raised in the area or the existence of an heir to pass on the farm to, were suggested as positive influences on the adoption of sustainable farming practices.

The researchers say that this research has identified the key stakeholders to support the implementation of policies to maintain and enhance biodiversity in agricultural landscapes, which could be useful information for environmental policymakers. Furthermore, the analysis itself helped the researchers to understand different stakeholders' views, which promoted better communication among all parties. It also revealed that certain stakeholder groups can be under- or overestimated depending on the area or the administrative level looked at. Landowners can have a large influence on land-use decisions in areas with high percentages of leased land. Ministries and departments perceived as influential on levels where their role is visible can be perceived to be less influential on the local level, where communication between land users and administrative bodies is primarily restricted to intermediary administrative organisations. Social relations play a significant role in how positive or negative certain environmental measures are perceived and, therefore, adopted.

