



Probing the grounds: Developing a payment-by-results agri-environment scheme in Finland



Traci Birge^{a,*}, Marjaana Toivonen^a, Minna Kaljonen^b, Irina Herzon^a

^a Department of Agricultural Sciences, P.O. Box 27, FI-00014, University of Helsinki, Finland

^b Finnish Environment Institute, P.O. Box 140, 00251 Helsinki, Finland

ARTICLE INFO

Article history:

Received 1 April 2016

Received in revised form 9 November 2016

Accepted 14 November 2016

Available online 1 December 2016

Keywords:

Biodiversity

Farmer interviews

Indicators

Outcome-based instruments

Public payments

Results-based schemes

ABSTRACT

Results-oriented approaches are widely regarded as an effective means to improving cost-effectiveness of agri-climate-environment schemes. We designed a hypothetical payment-by-results scheme for biodiversity conservation on environmental grasslands in Finland. The scheme would pay farmers a premium if the site contains a set number of indicator species, which were selected based on vascular plant surveys of the target habitat type. We presented the hypothetical scheme to 20 farmers and six experts (researchers, officials and advisors) in agricultural policy for their opinions on the payment-by-result approach generally and the hypothetical scheme specifically. The indicator species list proved suitable for identifying sites with high total species richness of vascular plants and also appeared feasible in the eyes of the farmers. Farmers were mostly positive about the approach and, mainly, thought their peers and society at large would receive it positively. The main concerns were about implementation, especially verifying the biodiversity results. People working for the national control body were the most critical and could not see how the hypothetical scheme could fit into the current institutionalised programme. Experience in other countries may provide solutions for overcoming such obstacles. The results are highly relevant for a discourse on social experimentation and cost-efficient delivery of public goods for public money.

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1. Introduction

The agri-climate-environment schemes (AES) are the single most important tool for securing and improving the environmental and ecological state of the agricultural environments across the EU (EEA, 2004; Batáry et al., 2015), including in Finland (Kaljonen, 2011). As with any multi-objective policy tool, AES require constant development to remedy shortcomings. Among the most critical problem areas are the lack of incentives for achieving actual results, insufficient targeting, and difficulty in tailoring activities to diverse farm circumstances (e.g. Marggraf, 2003; Whittingham, 2007; Kleijn et al., 2011; Arponen et al., 2013; McKenzie et al., 2013). The European Court of Auditors (2011) found that objectives of many AES were not specific enough for assessing whether or not they had been achieved. Furthermore, by paying participants a flat-rate remuneration for pre-specified management (“action” or “management” oriented approach), the current scheme design discourages participants from striving for innovative and site-specific

approaches (Kaljonen, 2006, 2008; Burton and Schwartz, 2013). The approach not only dis-incentivises farmers (Kaljonen, 2006; Keenleyside et al., 2011), but makes their behaviour dependent on monetary stimuli at the expense of appreciation of results of their work (Herzon and Mikk, 2008). Verification is entirely in the hands of officials, who are often perceived as a threat (Wilson and Hart, 2001; Helenius and Seppänen, 2004; Birge and Herzon, 2014).

It is a widely held expert view that AES need to become more results-oriented (European Network for Rural Development and EC, 2010). The European Court of Auditors (2011) recommendations to the European Commission for improving efficiency of AES include more precise targeting of measures and clearer objectives; tailoring more demanding measures to local circumstances; and creating clear indicators for measuring success. The report specifically recommends examining the usefulness of outcome-based, or payment-by-results (PBR), measures (European Court of Auditors, 2011 pp. 49). Such results-based agri-environment payments are already in use in several member states, including Germany, France and The Netherlands (comprehensive list in Allen et al., 2014). These include paying landowners or other managing bodies for defined biodiversity or ecosystem results, either exclusively or as a bonus on top of a payment for management actions. The payment

* Corresponding author.

E-mail address: traci.birge@helsinki.fi (T. Birge).

may be based, for example, on occurrence of a number of indicator species. The commonest approach is of a so-called ‘hybrid’ type (Allen et al., 2014), where active management by farmers and/or a list of prohibited actions are part of the scheme requirements, but the payment rate is dependent on the ecological results. Among the perceived benefits of the approach, results-based remuneration is said to i) increase farmer intrinsic interest in achieving environmental objectives, ii) provide greater opportunity for innovation and site-specific solutions, iii) increase cost-effectiveness both in AES payment and in land-use practices for environmental results and, iv) build “social capital” (Klimek et al., 2008; Matzdorf et al., 2008; Swagemakers et al., 2009; Matzdorf and Lorenz, 2010; Burton and Paragahawewa, 2011; de Snoo et al., 2012; Schroeder et al., 2013). The latter refers to appreciation of farmer know-how in environmental management within the farming community and results in long-term change in farmers’ behaviour toward nature conservation.

In most cases, results-based agri-environment payments target botanically-rich grasslands (Allen et al., 2014). The results are easier to verify and monitor for biodiversity than for nutrient run-offs, for example (Berniger, 2012; Allen et al., 2014, Table 7). Examples of result-based payments enhancing biodiversity include MEKA Baden-Württemberg Grassland Scheme in Germany (Matzdorf et al., 2008; Matzdorf and Lorenz, 2010; EC, 2015a), *Prairies fleuries* programme in France (De Sainte Marie, 2014), Burren Life programme in Ireland (Burren Life, 2015), and *Öko-Qualitätsverordnung* in Switzerland (Riedel et al., 2012). A similar approach to the Baden-Württemberg Scheme in Germany is under consideration in the UK (Schroeder et al., 2013). The payment level is linked to the occurrence of a progressively higher number of vascular plant species indicating extensive management and diverse plant communities. So far, there is no adaptation case of the approach to the northern agricultural environments, even if the potential benefits are large: In Finland, for example, production grasslands older than 5-years are rare (1.2% of the utilized agricultural area, Natural Resources Institute Finland, 2015), and semi-natural biotopes are fragmented remnants (Kemppainen and Lehtomaa, 2009). However, uptake of AES is exceptionally high – 95% of agricultural land is under agri-environmental commitments (Niemi and Ahlstedt, 2014) (cf. 25% in the EU-27, EC, 2015b). Thus, AES have a potentially very large impact on the ecological state of the agricultural environment.

Experience in developing and evaluating the indicators, as well as attitudes and skills of participating parties, are among the most important factors to consider in determining the feasibility of the results-based approach (Allen et al., 2014). In determining indicator species, preparatory research is needed because any indicator species list must be suitable for the target habitat and relevant to specific bio-geographical regions, but also broad enough that it is inclusive of the whole area covered by the scheme (Allen et al., 2014).

The objective of this study is to develop and test two key issues in developing the results-based payment approach for biodiversity in Finland. We i) develop and assess the suitability of the biodiversity indicators, and ii) examine the range and commonality of opinions and perceptions of farmers, experts and policy officials in charge of the implementation of the agri-environmental schemes in Finland. We developed a prototype for a PBR element in an existing AES, Nature Management Grassland (NMG), based on experiences gained from other European regions with PBR measures for biodiversity conservation (e.g. Bertke et al., 2008; Groth, 2009; De Sainte Marie, 2014). We selected indicators based on data on vascular plants from two previous studies in NMG fields (Toivonen et al., 2013, 2015). We further evaluated suitability of the indicator list as, on the one hand, proxies for botanic diversity in NMG, and, on the other, as a tool for farmer participation in a potential PBR scheme.

Using the prototype as an example, we explored farmers’, experts’ and public officials’ opinions and perceptions about the proposed PBR measure. In our analysis we focus on the following questions:

- A How well does the set of indicator species perform as a biodiversity indicator and as a tool for communicating with farmers and facilitating self-guided assessment?
- B Is the idea of results-based payment for biodiversity conservation in NMG field accepted *in principle*?
- C What are the perceived advantages and disadvantages of the prototype scheme presented, as compared to the existing management-based scheme?
- D What type of capacity building is identified as necessary for the scheme?
- E What is the perceived impact of the proposed scheme on reputation and public perception?

2. Materials and methods

2.1. Developing the prototype

We built the prototype upon the existing NMG (or grassland type of Environmental Fallow as in Toivonen et al., 2013) under the Finnish agri-environmental schemes. NMG fields correspond to extensive grassland, for which results-based payments have been run in Germany (Matzdorf et al., 2008; Matzdorf and Lorenz, 2010), France (De Sainte Marie, 2014) and Switzerland (Riedel et al., 2012), and are under consideration in the UK (Schroeder et al., 2013). NMG fields in Finland are established with grassland seed mixtures and are kept in place for at least two years. Farmers can also enrol old grasslands as NMG without sowing. Management restrictions include prohibition of fertilisers and pesticides. Mowing is required every second year in all parcels. NMG fields can be used for production purposes, both as source of fodder and as pasture. However, NMG fields are frequently managed as arable fallows in which mown material may be left on site to decompose. Currently, the NMG scheme occupies 4% of the Finnish agricultural area and is present on 46% of Finnish farms (Natural Resources Institute Finland, pers. comm.). With permanent grass, the NMG scheme promotes both biodiversity and water protection. As a policy instrument, the NMG scheme is, however, considered one of the most important tools in enhancing common biodiversity in the agricultural areas (Herzon et al., 2012; Kuussaari et al., 2013).

Previous research demonstrated a considerable variation in plant species diversity among NMG fields (from 5 to over 50 species per field on a sample area: Toivonen et al., 2013). Many long-term NMG have highly naturalised vegetation (Herzon et al., 2012) and provide valuable habitats for butterflies, bumblebees and birds in the agricultural landscape (Toivonen et al., 2015, 2016). However, the current scheme does not distinguish between diverse old grasslands and rotational grasslands – from 2015 onwards, support is 100 €/ha to all parcels. Previously, inspectors considered natural vegetation as “weeds”, and payment could be withdrawn on this basis (Finnish Agency for Rural Affairs, pers. comm.). Presently, the programming document explicitly states that naturalised vegetation is allowed. However, a requirement of obligatory mowing in cases of weeds remains vague since it is not specified which species constitute “weeds”. Vague management guidelines such as these are one factor hindering the scheme from realising its considerable biodiversity potential. At its worst, excessive mowing at the peak of the breeding season may turn the grasslands into ecological traps (Battin, 2004). The prescription-based scheme also sends a contradictory message that farmers on the one hand should manage to support biodiversity and on the other simultaneously avoid open-to-interpretation weed infestation.

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