Agri-Biodiversity Conservation Policy

Subjects: Others

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Agri-biodiversity conservation policy is the set of principles and legislative measures and recommendations, at the national, subnational or international level, that seek to preserve and enhance the conservation status of farmland biodiversity.

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1. Introduction

Agri-biodiversity conservation policy is the set of principles, legislative measures and recommendations that define how a governance body intends to achieve a satisfactory status of conservation of farmland biodiversity.

As from the second half of the 20th century a number of studies highlighted the link between the intensification of agriculture and the decline of biodiversity in farmed areas – i.e. the diversity within species, between species and of ecosystems. Agrochemical use, crop diversity and management of non-crop habitats and landscape elements are some examples of factors whose ecological impact has been investigated.[1][2] For instance, the process of field enlargement for higher farming efficiency and easier use of machines is ensured via the removal of hedges, field boundaries and buffer zones along creeks which used to provide nesting and foraging areas to a number of farmland species and contribute to the overall landscape heterogeneity. The resulting homogeneity of the agricultural landscape and the fragmentation of the remaining natural and semi-natural areas, in particular when coupled with low crop diversity, have been shown to have both direct and indirect negative effects on biodiversity. On one hand, they entail a direct decrease in species' richness and abundance due to habitat loss. On the other hand, they reduce the potential exchanges between crop and non-crop areas, thus hampering important population dynamics, such as immigration after local extinction, which further puts at risk populations' persistence.[3]

2. Solutions

In order to face these issues, many countries and international organisations developed and adopted specific public policies aimed at farmland biodiversity conservation, in its two components of planned and associated farmland biodiversity.[4][5]

The planned component includes the so-called productive biota, i.e. the crops, trees and domesticated animals chosen by the farmer for the production of food and fibres. Policies targeting such aspect of biodiversity mostly focus on the species' genetic diversity which is thought to be crucial for the resilience of the farming and food system. Under the European Union Rural Development Policy, for instance, farmers using endangered crop and livestock species can access specific payments. [6][7]

Associated farmland biodiversity refers instead to species that live in the agro-ecosystem, interact with its key functions, structure and processes but are not involved as products in the agricultural production process. Many of those species, however, indirectly contribute to the agricultural production by delivering important ecosystem services such as pollination, pest regulation, maintenance of the hydrological cycle and nutrient cycle regulation. These are also referred to as functional agri-biodiversity or FAB.[8][9] In the last decades, the relationship between biological diversity and the functionality of agricultural systems has generated considerable interest and many studies pointed out how proper conservation can lead to agro-ecosystems capable of sponsoring their own soil fertility, crop protection and yield productivity while reducing the impact of invasive species [10].

Conservation measures targeting associated farmland biodiversity and the relevant habitat types are now integrated in many countries' agri-environmental policy, usually in the form of payments for ecosystem services (PES). Farmers who commit to adopting biodiversity-friendly farming practices and implementing specific conservation activities allow and

facilitate the natural provision of useful ecosystem services and are thus rewarded or compensated through incentive schemes and payments. Examples of such commitments are the maintenance of landscape elements, the preservation of natural and semi-natural patches, the ban of certain prejudicial farming practices or the creation of set-aside areas.

These commitments are often combined in a policy setting which includes both basic mandatory standards and more challenging voluntary engagements. For instance, the Common Agricultural Policy (CAP) of the European Union, since the early 90s, provides specific measures aimed at maintaining the countryside landscape and support low-impact production methods for the benefit of farmland biodiversity. The current CAP setting imposes basic environmental standards and restrictions to all farmers that receive economic support (cross-compliance mechanism) and provides a diverse set of voluntary schemes (most notably, the newly introduced eco-schemes and the agri-environmental climate measures) which reward both short and long term commitments going beyond the cross-compliance obligations. Farmers whose farm holding is included within a protected site under the Natura 2000 legislation are subject to stricter management requirements and are thus entitled to a specific CAP compensation measure.[11]

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