Development of a nature conservation standard for enhancing biodiversity and marketing in organic farming systems

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Abstract

Organic farms are proven to yield highly beneficial environmental services for nature. But consumer appreciation of these services is nearly non-existent. Furthermore, governments do not offer sufficient financial support in this field. As a result, many farms cannot tap their nature conservation potential due to economic constraints, even though the will to do so is very high. To bridge the gap between limited consumer interest and government financial support, a nature conservation standard connected with offering nature conservation advisory services and rewarding farmers for facilitating environmental services by marketing organic+biodiversity products has been developed. The goal of this conservation standard is to achieve a higher value-added component for organic farmers. Additionally, consumers will be exposed to more information about the positive effects on biodiversity by buying these products.

Introduction

Intensive agriculture is considered to be one of the most detrimental factors contributing to the loss of biodiversity throughout Europe's countryside (MA 2005). Nearly 50% of wild animal and plant species are dependent on this landscape. At present, biodiversity loss is even more arising due to increasing cultivation of subsidized energy crops on already extensively cultivated areas. Concurrently, agricultural land prices and rents are rapidly increasing. Such high economic pressure has even led some farmers to reconvert to conventional farming. This is an alarming development, as organic farming has proven to have very positive effects on biodiversity. An international meta-analysis (396 evaluations) showed that in 83% of evaluations, organic farms have higher biodiversity than conventional farms (Rahmann 2011). Conflicts that arise because of e.g. early and frequent mowing of leys can be met by integrating special nature conservation methods into day-to-day farming practices (Stein-Bachinger & Fuchs 2012). Many farmers are willing to do more for nature conservation even though most of these measures lead to more work and less yield, however they are often limited in their actions due to financial constraints. Against this backdrop, a cooperation has been started between WWF Germany, the organic association Biopark, the Ministry of Agriculture, Environment and Consumer Protection of Mecklenburg Western-Pomerania, and a retailer. Specific nature conservation measures have been formulated and a new standard for nature conservation has been defined ("organic plus biodiversity") for which a certification system is being developed. The standard shall support long-term biodiversity on farms and enable better marketing of organic products by documenting farmers' compliance with the new standard.

Material and methods

A pilot region has been chosen with approximately 280 Biopark farms and a total area of ca. 68,000 ha in Mecklenburg Western-Pomerania, in north-east Germany. In 2012, a cooperation was started with 12 Biopark farmers interested in working towards greater biodiversity, and a group of experts, consisting of advisors, farmers, scientists and representatives from associations, administrations and the state ministry. As a base for the certification system a comprehensive catalogue of nature conservation measures for grassland, arable land and landscape elements has been developed and recorded in a database. A point system evaluates the conservation value per measure for wild species as well as the occurrence of target species and the quality of different habitats for flora and fauna based on Biopark's organic farming standards. Those farmers that achieve the certificate will be able to sell their products at a premium price. Conservation advisory services, independent control structures, and monitoring for scientific evaluation of selected measures will be developed to support the farmers in reaching the nature conservation standard.

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Results and discussion

Until now, there are 50 farms participating in the project. Farm sizes vary between <10 ha and nearly 4,000 ha. The region is marked by low precipitation (<600mm) and low to medium soil quality. Most of the farms are dominated by grassland and keep suckler cows. According to the soil quality, the yield of grain crops averages 3 t/ha (Fig. 1) which offers good conditions for nature conservation.

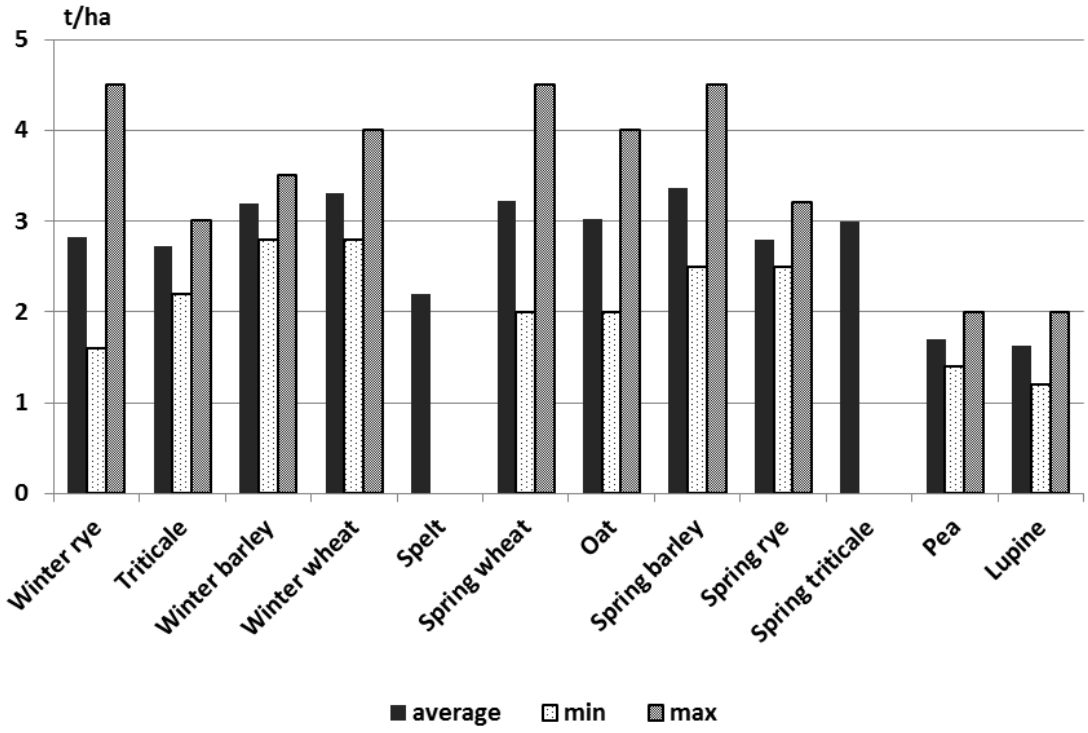

Figure 1. Yields of grain crops of pilot farms (n = 20, 2012)

Farmers can choose from a list of 75 nature conservation measures (Table 1). They are given advice as to which measures are most suitable to implement and informed about which achievements they have already completed through common agricultural practices. The most positive nature conservation impact can be found where wild animal and plant species, which are to be supported, have access to good general living conditions. Therefore, the integration of special nature conservation measures should be applied only to those areas which are well-suited for dedicated species conservation, e.g. fields with low to medium soil quality without surrounding forest for skylarks (Fuchs & Stein-Bachinger 2010). From an acceptance point of view, low productive areas are generally the most favourable ones for nature conservation measures.

Table 1: Database of nature conservation measures and conservation performance (extract) AL=arable land, GL=grassland, LE=landscape elements, E=success oriented evaluation for the occurrence of target species and habitats

AL	A1-A5	Grain crops	Harrowing, stubble breaking, sowing density etc.	⇨
	A6-A10	Legume-grass	Basic cultivation, cutting height, unmown strips etc.	⇨
	A11-A14	All crops	Blossom strips, set aside, old varieties etc.	⇨
	A15-A16	Crop rotation	Diversity of crop rotations, share of maize, field size	⇨
GL	G1-G2	Basis	Extensive grassland management – baseline options	⇨
	G3-G4	Maintenance	Rolling, leveling, fertilizing, etc.	⇨
	G5-G11	Use	Times, close season, higher cut, unmown strips, etc.	⇨
	G12	Others	Converting arable land to grassland	⇨
LE	L1-L3	Groves	Hedges, orchards, bushes, old and dead trees etc.	⇨
	L4-L7	Water bodies and wetlands	Kettle holes, lakes, buffer strips, wet-spots in fields	⇨
	L8-L10	Field margins, special locations	Small margins, protection strips, stone walls etc.	⇨
	L11-L12	Buildings	Nesting boxes, access to stables and barns etc.	⇨
E	E1	FFH, Red Listed animals	Endangered and valuable animal species	⇨
	E2	Endangered segetal flora	Valuable segetal species	⇨
	E3	Valuable grassland habitats	Valuable plant species and biotopes	⇨
	E4	Special conservation measures	Nest protection for ground breeding birds etc.	⇨
Free conservation performance				⇨

Each farm must achieve a minimum number of points composed of existing measures of nature conservation and additional measures. With that database especially designed for this project (Table 1), farmers can calculate the number of points they have based on their nature conservation performance. If the necessary point sum cannot be reached, the farmer, together with a nature conservation advisor, can consider which measures are suitable for the farm in order to achieve desired targets in the future. Many farms achieve the largest part of their necessary points through extensive farming practices (e.g. limited to no fertilisation of grassland, partial grassland maintenance, reduced mechanical weed control in cereals, diverse crop rotation, already existing hedges or ponds). After a nature conservation advisor surveys a farmer's fields, additional measures are suggested. Often suggestions pertain to preservation or creation of small area structures like unmown strips at the edges of trenches and blossom strips. For farmland birds, a focus is placed in specified areas on creating sufficiently long periods without use during breeding time (8 weeks). This is necessary even in extensive pasture farming for sufficient breeding success. Success orientated evaluation is not yet completed in the system of points, but will be continued in the future. Challenges have arisen due to the fact that there are varying levels of knowledge regarding species on farms, and compiling species lists requires relatively high levels of input.

Conclusion and future challenges

Compliance control according to the newly formed nature conservation standard is necessary as a base for farm certification and subsequent marketing of products under an "organic+biodiversity logo". In the beginning, the focus will be on meat products from ruminants, cereals and potatoes. Concerning additional

future challenges of organic animal husbandry, the project concept can support extensive grassland grazing with ruminants, e.g. suckler cows as they highly contribute to nature conservation issues on grassland while meeting consumer and tourists' wishes to see cattle grazing in the countryside.

For the success of this project it is important that the feasibility of nature conservation measures is convincing and transparent for the public. The new conservation standard shall be a model for the organic agriculture movement and shall be applied in other regions. It shows that existing organic farms are viable and can motivate conventional farms to convert to organic farming. The rating system will be adapted and refined by the experience with further farmers which will participate in the project. It is important that the rating system is suitable for different farming types and geographical circumstances. Further measures can be added in the course of enhancing the project and introducing it in other regions.

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