PARTNERSHIP FOR BIODIVERSITY
GERMANY • PORTUGAL • SPAIN • TURKEY

Biodiversity Check – Individual Training Concepts for vine grower

Introduction, guidance and explanation

Ecosystems nourish humankind with many natural resources and services, but in Europe and elsewhere, two thirds of all ecosystems are endangered due to overexploitation. Experts estimate that species loss nowadays occurs at a rate 1,000 times greater than the natural extinction rate. Enterprises and farmers rely on ecosystem services and natural resources and thus depend on biodiversity.

In viticulture high levels of biodiversity in the soil and between the rows are essential for healthy vines and good, tasty wine. However, this culture is also intensively cultivated – with plant protection treatments up to 20 times, non-covered soils exposed to erosion, high doses of nutrients and a lack of any green elements like trees, hedgerows or flowering areas within the vineyard. There are many opportunities to support biodiversity in the vineyards, in the cellar, in distribution and in marketing to minimise and mitigate the negative effects of human activities.

What is a Biodiversity Check?

The Biodiversity Check offers a first individual overview of the issue of biodiversity and thus provides the basis for integrating biodiversity in the management and undertaking actions for the sustainable use of resources and the protection of nature. The check is used to examine the different areas of the farm, such as management, vineyard, purchasing, sales etc. with regard to the effects on biodiversity. New is the fact that not only the direct impacts of the vinery/farm are considered, but also indirect effects that could arise along the supply chain, e.g. sustainability of materials used, marketing, sales etc. The check identifies the contact points between the farm and biodiversity and provides suggestions for objectives and measures to reduce risks and negative impacts. It is an internal instrument and does not constitute a certification. However, farmers can communicate that they have participated in the check, but the communication of activities and projects that have been performed to support biodiversity should be a priority.

Who is addressed?

Who should be checked? The check provides vine-growing farmers the opportunity to receive an individual biodiversity training concept that shows the farms' strengths and weakness, setting goals and measures to enhance its biodiversity performance. Additionally, vine growers also receive training in the application of their individual concept.

Who is going to check? The check was elaborated within the project *"Partnership for Biodiversity Protection in Viticulture in Europe"* supported by the Erasmus+ programme of the European Union. Within the project the partners have been trained in the procedure of the check and are good contacts. However, the check is designed in a way that other nature protection organisations, technical staff from winegrowers/agricultural associations and companies, teachers at agricultural schools, farm advisors or others not participating in the project can also do the check.

Guidance on how to do the check

Elements of the Biodiversity Check for vine growers

- Interview guide which serves as the basis for a structured conversation on the inventory of the farm.
- (Confidential) individual biodiversity training concept to show the farms' strengths and weaknesses, setting goals and measures to enhance biodiversity performance.
- Training of the vine growers in the application of their individual concept.

What is investigated?

1. Management
2. Cultivation and production in the vineyard
3. Ecological structures in the vineyard, ecological focus areas
4. Harvest, cellar and vinification
5. Bottling/packaging
6. Sales/logistics
7. Energy/water/wastewater/waste
8. Surrounding of winery/company premises
9. Marketing/communication

Procedure

1. Sending the interview guide in advance so farmers have a first impression of what kind of questions will be asked and collect data and figures if needed.
2. Meeting with the farmer: the interview guide serves as the basis for a structured conversation on the inventory of the farm. In addition visits of the fields, ecological focus areas, cellar etc. should be done.
3. The first draft of the individual concept will be developed.
4. Second meeting with the farmer where the individual concept, the first results and options will be discussed.
5. Finalising of the individual training concept.
6. Training the farmers in the application of their individual concept.

The check is available in different languages

- English: a general approach, to be used in countries where the check has not been adapted so far.
- German, Spanish, Portuguese and Turkish: the check has been adjusted to the corresponding conditions of the country. Please note: the Biodiversity Check for Turkey has the focus on producing sultanas, which is why several parts of the wine-producing chapter like the cellar are not considered.

First element of the check: Interview guide

Background information: Why these questions need to be asked

Business data, general features and other income

In this part contact data, information on the main business of the farm (e.g. wine or tourism), size of the farm and ownership, cultivation method (organic etc.), and obligations to standards or certifications with relation to sustainability, yearly yield and the amount of grapes supplied from other farms serve to understand the farm and the way of working. General features such as altitude, precipitation, steep slopes and types of soil give an overview of the farm surrounding.

To apply a tailor-made training concept some basic data are useful to understand the business concept of the farm or vinery. These data help to define the scope of the training, allow a first estimate for impacts on biodiversity and understand the potential for the implementation of measures. Some remarks:

- Standards, labels, certifications and purchase criteria of retailers guide the policy of a farm and might include biodiversity aspects.
- Small farms have in general less impact on biodiversity, and the training needs to be set accordingly.
- If land is not owned by the farm, the implementation of measures might be limited.
- The ratio between area cultivated and annual yield allows an estimation of the business concept of the farm between mass production of barrel wines and reduced yield and selected quality.
- If grapes are purchased from other producers, the impact of the farm reaches out to the farms of origin. This needs to be considered in the training concept.

Part 1: Biodiversity within the management

The overall goal of this training is to foster the integration of biodiversity in the farm management and long-term biodiversity management on the farm. The questions in this part target knowledge and management aspects already applied. Business cases are important for companies and support biodiversity management. We thus ask for risks and opportunities related to biodiversity. In larger farms, activities for

biodiversity will also facilitate the recertification of EMAS or ISO 14001, where this issue gets more attention. This also applies to suppliers of barrels, tanks, machinery, paper etc.

Reflecting on one's own work and activities is an important goal for a training tool, so an extensive discussion here is useful and appreciated.

Part 2: Cultivation and production process in the vineyard

Vineyard/cultivation/types of grapes

In this chapter the aspect of genetic biodiversity, i.e. agrobiodiversity, is covered. Traditionally, distinct varieties or mixtures of them have been characteristic in many regions and even define a brand's or a wine's source (Bordeaux, Rioja, Chianti, Mosel etc.). Today, with the globalisation of the wine market, this is more flexible. Traditional grapes are being replaced according to consumer demands and a loss of varieties is already apparent. The use and promotion of traditional varieties is therefore an important consideration. The landscape structure and embeddedness of the farm in the landscape is also considered here. Yield per hectare and the amount of wine produced allows the intensity of agricultural cultivation to be estimated. This part digs deep into the vineyards' marketing strategies. Whether a farm is dedicated to reduced yields and very high quality or to good quality for a price-conscious audience has consequences for biodiversity too. In this part, farmers will reflect on these consequences and the setup of biodiversity management.

Ground cover of vineyards

The most significant impact of a farm on biodiversity will be the farm area itself, and the size of a given farm is proportional to its biodiversity impact. Viticulture is a permanent culture and, in contrast to tillage crops, the culture here has a production time of 50 years or longer. Depending on geography, geology and other abiotic factors, an ideal vineyard would be a green, biodiverse long-term pasture with grapes produced on it with a very limited negative impact on biodiversity. The structure of the vineyard itself and additional habitat structures can even foster biodiversity. Traditionally, wine production was highly supportive of biodiversity and vineyards were amongst the most biodiverse man-made landscapes. The management of ground cover is thus one of the most important aspects in a training scheme for biodiversity. To what extent a farm can approach the ideal status presented above can be discussed extensively.

Ground cover management is complex, so here the appropriate method is to ask for an extensive description from the farmer or the person responsible for cultivation. Ground cover can be permanent or seasonal, spontaneous or artificially induced, total or partial to various extents, tilled or not touched at all. If seed mixtures are used, the origin is of interest. Management of soil and vegetation under the rows of vine plants and in the forelands is also a matter of discussion, as here spaces may remain after mowing or mulching. The timing of mowing can prevent direct impacts on arthropods. This part is very important for farmers to learn. Ground cover management is complex and differs according to climate and region. Farmers need information on the best practices, something that is covered in this part of the check.

Tillage

Soil treatment is important to prevent erosion, to protect the soil and soil biodiversity. Soil treatment impacts the nutrient management and humus content in the soil. Today, tillage is not a standard method. Reduced treatment leads to reduces conversion of organic matter in the soil and allows to increase the percentage of humus. Farmers apply some treatment in spring to activate nitrogen in the organic matter of the soil. No treatment might not be beneficial for biodiversity neither, as this might lead to grass dominated ground covers poor in biodiversity. So, in this part farmers learn to reflect on agricultural practices and get hints for alterations.

Fertilisation management

Nutrient management has a significant impact on biodiversity in the soil and above it. Extensive use of artificial fertilisers harms soil biodiversity and inhibits natural processes in the soil. Nutrient management is regulated in Europe to prevent severe impacts on nature and the environment. Against the backdrop of these regulations, fertilisers are still applied to nourish the plants and to generate the highest yields possible. Too many nutrients favour plant communities which would not appear naturally. Here, the application of organic matter and wise green cover management support natural biological processes. High humus content is also beneficial and helps to reduce the need for artificial fertilisers. Organic vine growers, with the aim of reducing yields for better quality, can do without additional (organic) fertilisers in some conditions. This part therefore targets the nutrient management of the farm and the learning and rethinking of current practices.

Pest and disease management

The use of agrochemicals targets the elimination of biodiversity from the crop. Despite integrated pest management, species or genera-specific matters, and cautious and responsible application, active matters used in non-organic farming are poisonous for wild plants and animals and remove most of the biodiversity from the crops. It is thus crucial to apply alternative methods to minimise or prevent the use of agrochemicals. All techniques to reduce the impact of application should be considered, e.g. spraying when flying insects are not active, mechanical treatment of weeds etc. Neonicotinoids, glyphosate and other unproven substances should not be used. Any application beyond the crop is to be banned. Despite all the criticism of the use of copper in organic viticulture, there is no evidence of copper harming biodiversity. In this part, farmers are asked to reflect on their pest management and learn about alternatives which might be applicable in their environment too.

Part 3: Ecological infrastructures in the vineyard, ecological compensation areas

This chapter is about ecological infrastructure on the farm, biodiversity assessments, conservation activities and species protection measures applied. Knowing, respecting and preserving animal and plant species on the farm and in adjacent areas is a first aspect to include. The identification of such species and ideally monitoring, i.e. observing and counting year-to-year changes, is good for reflecting on the farm's activities. Knowing, respecting and conserving protected areas next to the farm is crucial to prevent further damage. The general aim is to allow as many ecological structures as possible in the vineyards. Aerial pictures can support the identification

of possible improvements. Set-aside land, extensively used areas or unused patches of land provide good opportunities for biodiversity too. The management of invasive species, one major threat to biodiversity worldwide, is also considered here. Farmers can learn about how to approach a certain portion of their land attributed for biodiversity along current EU regulations or beyond that (e.g. greening measures on arable land: 5%).

Part 4: Harvest, cellar and vinification and Part 5: Bottling/packaging

In vinification, a number of additives and matters are permitted. The list for organic vinification was checked for possible impacts on biodiversity. For conventional vine-growing, more additives are permitted. The aim here is to identify substances with a negative impact on biodiversity prior to or after its use in vinification and possibly to replace these by harmless matters. In general, vine-growers should try to purchase environmentally friendly products. Producers of tanks offer certifications and environmental management schemes (EMAS, ISO 14001); wooden barrels and paper used for packaging can originate from sustainably managed forests and be certified as well. Glass is produced from sand, so from natural habitats, and some sand qualities have already become scarce in Europe. Reducing the use of glass through lighter bottles and recycled glass will reduce the pressure here. So, vine-growers here learn about biodiversity impacts in the supply chain of a farm and how to manage this.

Part 6: Sales/logistics

What are the environmental issues resulting from the transportation of the products? Is there any management or concern about that? Shipping heavy bottles over many miles by truck? Selling wine in tanks for export and bottling there (only makes sense of course if the bottles are produced in the destination country).

Part 7: Energy/water/waste management

Power consumption has a direct connection to global warming and thus to another major worldwide impact on biodiversity. Vine-growers here can contribute to mitigating climate change by reducing the use of fossil energy. Water scarcity and changes in the predictability of water availability is becoming more and more an issue in Mediterranean countries. Wise use of water and up-to-date irrigation techniques must thus be applied wherever possible. The management of wastewater and solid waste refers to these important issues. Farmers here learn to think about these issues and to reflect on the adaptation of current practices.

Part 8: Surroundings of winery/farm/company premises

Vineries often own huge areas of land. This can easily be used to showcase biodiversity measures in the vineyards and the biodiversity management of the farm. When construction development is foreseen, any attempt to reduce the impact on biodiversity should be considered in the planning phase. Biodiversity offsetting is a good method to mitigate severe impacts. In some European countries, this is regulated by law, while in others voluntary measures are recommended. Any

measures for more biodiversity are also useful on the company land, even if the majority is used for growing. Farmers here learn about the connections of their biodiversity management with communication.

Part 9: Marketing/communication

An introduction to the topic of biodiversity in marketing, as well as internal and external communication, will facilitate overall biodiversity management. Characteristic and/or threatened species can be used to focus the communication of biodiversity management. This underlines the credibility of the farm, providing it with a positive image. Much of this can be done in daily operation and does not need additional resources. Clients, suppliers and other stakeholders can be informed about new achievements. The informing of workers on the farm is crucial when introducing new practices which alter current workflows. Here, farmers learn to reflect on that and take into account learning issues related to their business.

Second element of the check:

“Individual Biodiversity Training Concept”

Background information: What to do with the information from the guide?

This document gives feedback to the farmer about his biodiversity performance. Every area investigated with the interview guide will be summarised and assessed, and recommendations will be given. Additionally, an individual Biodiversity Action Plan is elaborated. This is a list of measures resulting from the findings and provided with an implementation period and an explanation on the importance for biodiversity. According to this action plan and together with the “advisors”, the farmer gets a roadmap on how his farm’s biodiversity performance can be enhanced. The project team creates a template for the individual biodiversity training concepts. The “advisors” can use this template and insert the required information. Additional background information in the document that needs to be deleted or edited is indicated in green.

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Project partners

Germany

Lake Constance Foundation
Dr. Kerstin Fröhle
Kerstin.froehle@bodensee-stiftung.org

Global Nature Fund
Dr. Thomas Schaefer
schaefer@globalnature.org

Ecovin – Federal Association of Organic Viticulture
Ralph Dejas
r.dejas@ecovin.de

Spain

Fundación Global Nature
Ernesto Aguirre y Jordi Domingo
eaguirre@fundacionglobalnature.org
jdomingo@fundacionglobalnature.org

Spain

La Unió
José Castro León
jcastro@launio.org

Portugal

Quercus
Paula Lopes da Silva
paulasilva@quercus.pt

ADVID – Associação para o Desenvolvimento da Viticultura Duriense
Cristina Carlos
cristina.carlos@advid.pt

Turkey

Rapunzel Organik Tarim Urunleri
Sahin Ince & Emrah Dagdeviren
sahin.ince@rapunzel.com.tr
emrah.dagedeviren@rapunzel.tr

Funding:

Co-funded by the Erasmus+ Programme of the European Union

"The European Commission support for the production of this publication does not constitute an endorsement of the contents which reflects the views only of the authors, and the Commission cannot be held responsible for any use which may be made of the information contained therein."
Project-Nr.: 2015-1-DE02-KA202-002387