



# Biodiversity in agriculture and in coffee cultivation

Biodiversity in Standards and Labels for the Food Sector  
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# Biodiversity, agriculture and food sector



## Loss of biodiversity – one of the biggest challenges of our time!

We don't know how many organisms are living on our planet and how many we lose every year. Today only about 1,8 million plants and animals are described. But we know that species loss driven by human activities is occurring 1,000 times faster than it would under natural circumstances. The dramatic loss of biodiversity is not just happening in the so called hotspots of biodiversity, but all over the world.



Genetic diversity



Diversity of ecosystems



Diversity of species

...and interrelation between species = Biodiversity - basis for life!

© pictures: pixabay

# Biodiversity, agriculture and food sector



## Main drivers for loss of biodiversity



**Destruction of ecosystems**



**Contamination**



**Invasive species**



**Overexploitation of natural resources**



**Climate Change**

**Intensive agriculture is one of the main drivers of destruction of ecosystems, overexploitation of natural resources and contamination!**



## Good arguments for improving biodiversity performance



- Soil biodiversity = basis for successful agriculture
- Intact ecosystems and related species = providing ecosystem services, key element for resilience against impacts of climate change. Example: **provide protection from extreme climatic events, biological pest control, pollination, soil microorganisms and therefore soil quality.**
- Aquatic ecosystems = providing water and micro climate
- Genetic diversity = key element for resilience against impacts of climate change
- Traditional varieties and breeds (agro-biodiversity) = key to food sovereignty and local development

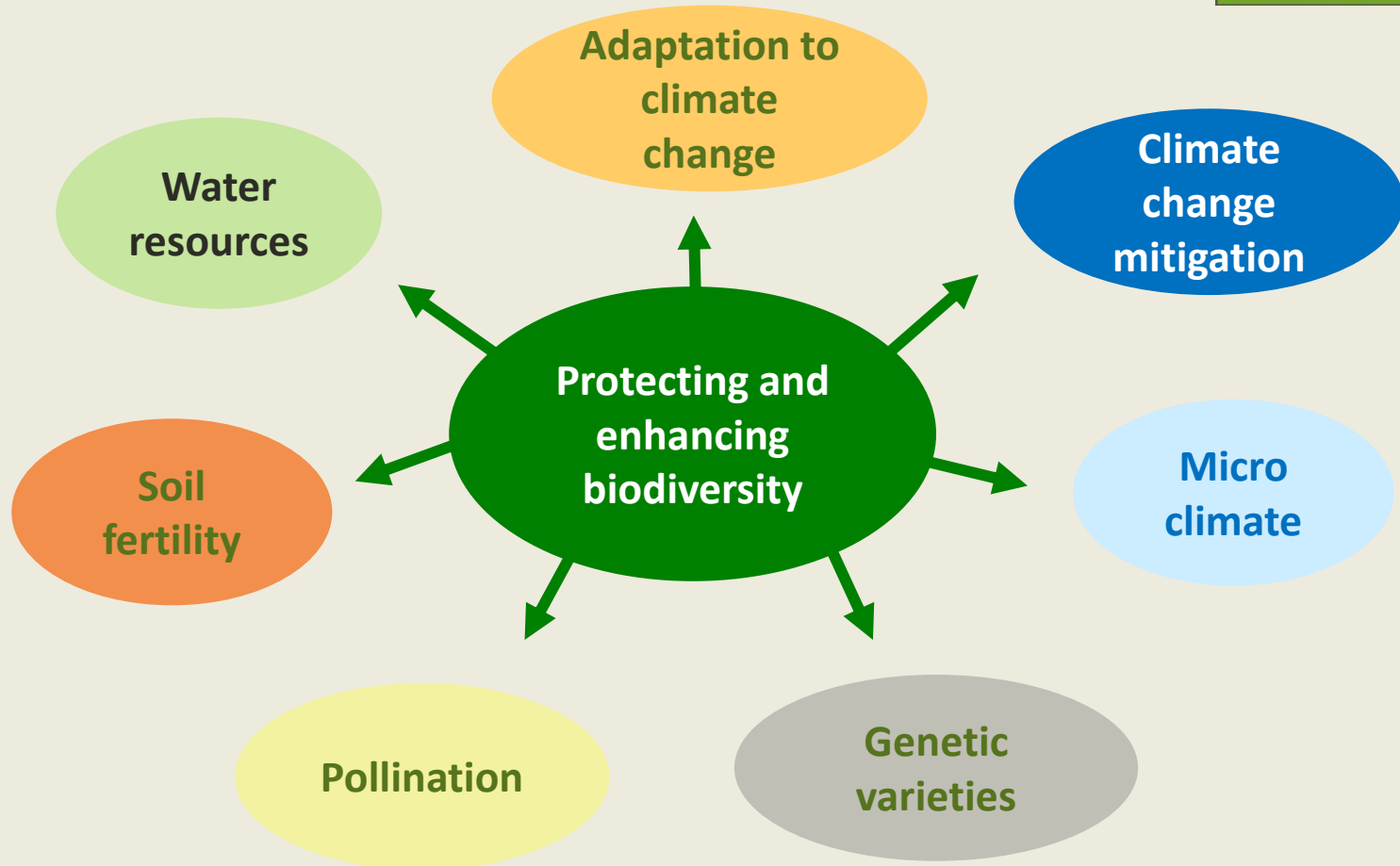


## Good arguments for improving biodiversity performance



- Increased sensitivity of consumers
- Change of consumer behaviour
- Increased risk to be involved in scandals related to biodiversity destruction
- Increasing requirements from food companies and retailers
- More strict legislation and regulations (e.g. EU Pesticides Directive, EU Nitrates Directive, EU Pollinators Initiative ...)

# Biodiversity = cross cutting issue!



# Biodiversity protection requires two lines of action



## Biodiversity responsible agriculture

### Management of biodiversity:

Protection, restoration,  
creation of natural and semi-  
natural habitats  
Maintenance of habitats  
Biotope corridors  
Protection of species ...

### VERY good agricultural practises:

To avoid or reduce negative  
impacts on biodiversity:  
reduced use of pesticides,  
sound fertilizer management,  
soil protection, sustainable  
use of water ...

# 4C Code of Conduct – relevant criteria, e.g.



## Criteria: 3.1.2

**High biodiversity areas, natural vegetation, fauna, soil and water sources and sensitive areas are conserved and/or restored**

### Relevant for ME:

The ME is in dialogue with other stakeholders to coordinate conservation efforts of high biodiversity areas, natural vegetation, fauna, soil and water sources and sensitive areas on a landscape approach which are known or considered to be in critical stage within the 4C Unit.

### Relevant for BP Producers:

- No hunting or trapping of protected species takes place
- An action plan to protect and restore high biodiversity areas, natural vegetation, fauna, soil and water sources, and sensitive areas exists
- Actions from the action plan on protection and restoration of natural vegetation, fauna, soil and water sources and sensitive areas are implemented



# 4C Code of Conduct – relevant criteria, e.g.



## Criteria: 3.2.2 The use of pesticides is diminished

- Pesticide application (type, quantity, field/plot) is documented
- Integrated pest management (IPM) is implemented, minimizing the application of pesticides in general

## Criteria: 3.4.1 Water sources are conserved

BP Producers /BP providers:

- A water conservation plan is set up to protect water sources through e.g. prevention of run-off of chemicals, mineral and organic substances and untreated water and the set-up of bufferzones
- The water conservation plan is implemented
- Storage and washing areas for fertilizers, pesticides, batteries, diesel, other fuel or oil tanks or any waste that could contaminate water source are safely constructed, environmentally safe and kept according to local law.

## Criteria: 3.1.4

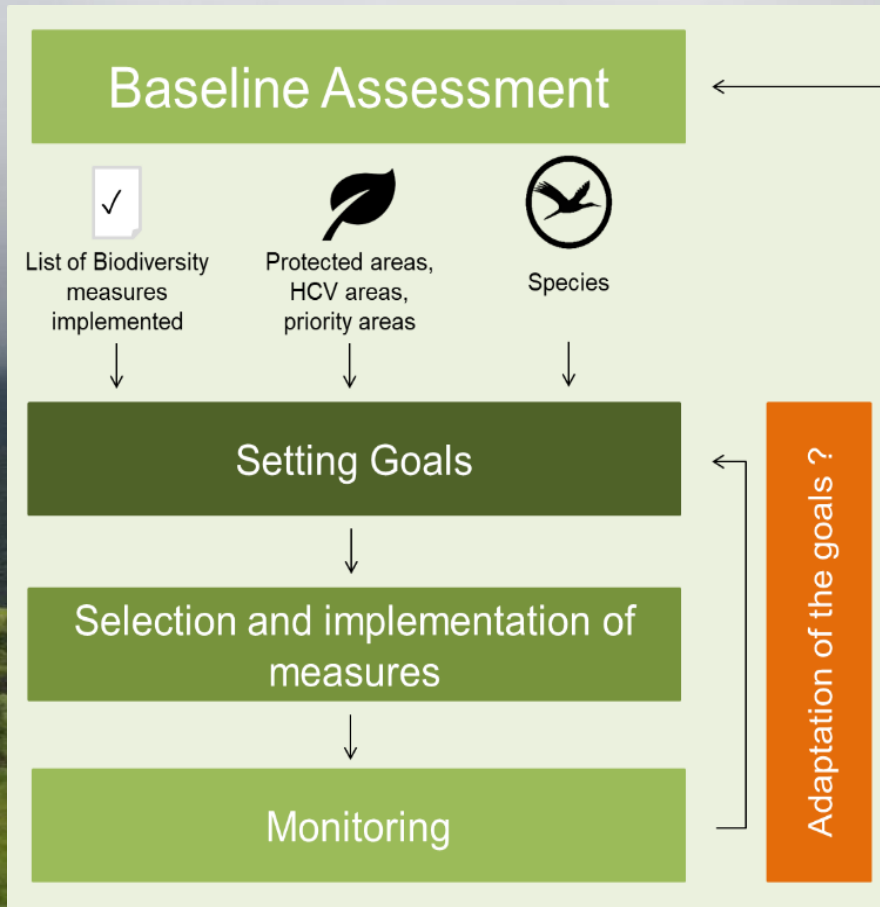
### Climate change mitigation and adaptation measures are identified and implemented

Risks of climate change on coffee production have been identified and measures to adopt to and mitigate such risks are implemented.

# Biodiversity protection requires management: Biodiversity Action Plan

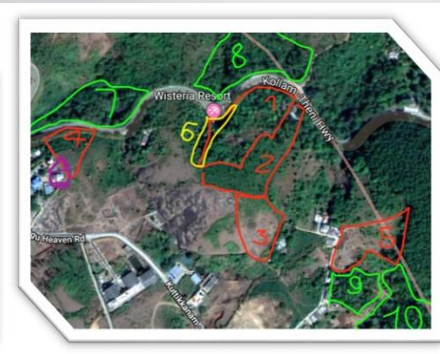


## Training Module 1: Protection and reinforcement of biodiversity

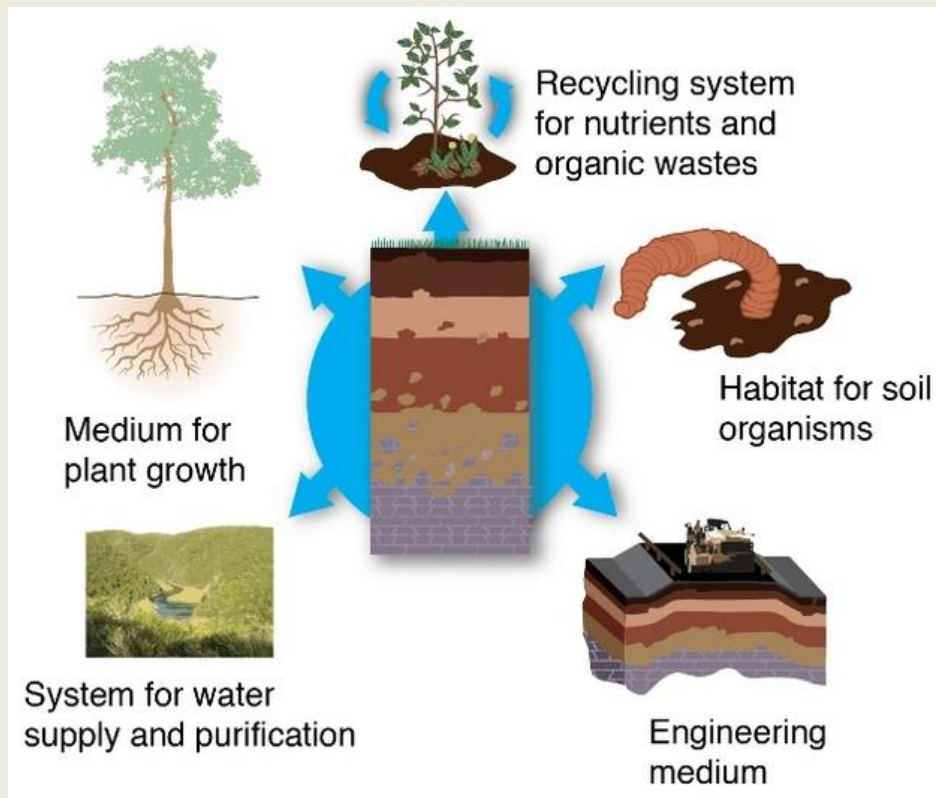


Existing habitats, fallow land, aquatic ecosystems potential corridors, protected species, measures already implemented, agricultural practises with impact on biodiversity .....

\* On the farm \* in the surroundings



# VERY good agricultural practises



Source: Nature.com, Soil as ecosystem providers;  
<https://www.nature.com/scitable/knowledge/library/what-are-soils-67647639>

## Training Module 2

- Fertilizer management
- Soil protection
- Integrated Pest Management – full implementation
- Efficient use of water
- Protection of water sources
- Agro-Biodiversity (traditional varieties)

## Training Module 3

- Biodiversity Performance Tool Café
- Monitoring

# Biodiversity Performance Tool Coffee to support farmers



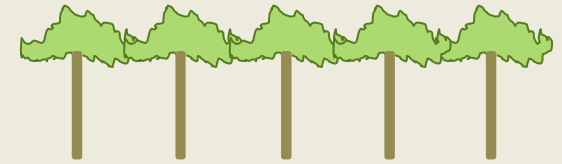
Practical instrument to realize a baseline evaluation of the situation of biodiversity on the farm = 45 questions

Making visible strengths and weaknesses using a classification system of thresholds.

The Biodiversity Action Plan (BAP): all analysed aspects and results based on thresholds.

Measures of the BAP for two lines of action: creation of potential for biodiversity and the reduction of negative impacts on biodiversity

According to the weaknesses farmers decide which measures they want to implement during the next 1 – 3 years.



Dosel continuo 100% de cobertura



Dosel discontinuo 80% de cobertura



Dosel muy discontinuo 60% de cobertura o menos

# BAP Coffee: Examples for measures



- Mapping of the farm with all components: coffee areas, plantain plots, forest, aquatic ecosystems, etc.
- Increasing natural and semi-natural habitats in the farm, e.g. small forests, ponds, hedges, flowering strips
- Creation of buffer zones along unprotected aquatic ecosystems and amplification of buffer zones where needed to achieve 12 to 20m wide (depending of the water bodies)
- Improve the connection between natural and semi-natural habitats by biological corridors
- Protect individuals of endangered trees
- Small ecological structures for species (e.g. nesting boxes, insect hotels, dry walls for reptiles, perches for birds of prey)
- Improve the windbreaker edges
- Increase treatment of waste water (housing and coffee beans washing) by the construction of Green Filters



Biodiversity  
Management

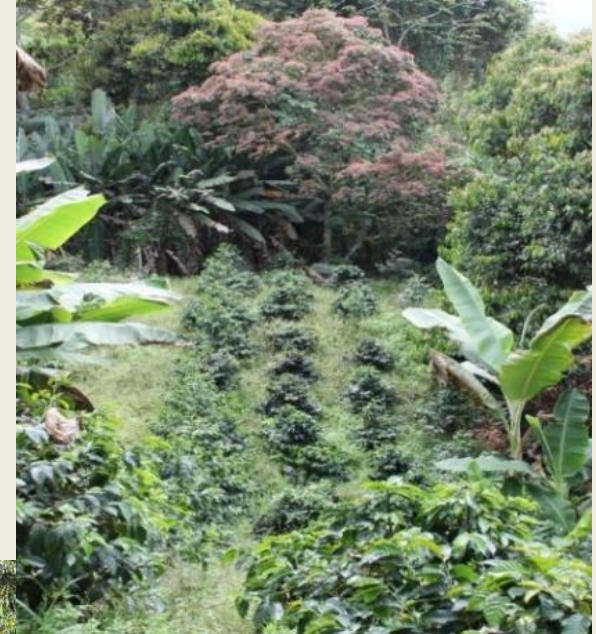
# BAP – Coffee: Examples for measures



## Improvement of agricultural practises

- Reduction of the amount of herbicides applied by ground cover plants, mulching, mechanical control
- Elaboration of a complete register of the amount of fertilizers applied
- Soil analysis with organic matter contents
- Analyse the nitrogen contend in the organic fertilizer applied
- Training on nutrition in coffee cultivation in order to achieve an annual net nutrient balance

VERY good agricultural practises



# Interested in the Webinar on Biodiversity?



Tree virtual modules a 1,5 – 2 hours each.

Facilitated by the Food & Biodiversity Initiative in collaboration with 4C Services GmbH

Please contact: Myriel Camp

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