

# European Conference: Biodiversity in Food Supply Chains

## Assessing biodiversity impacts on product level

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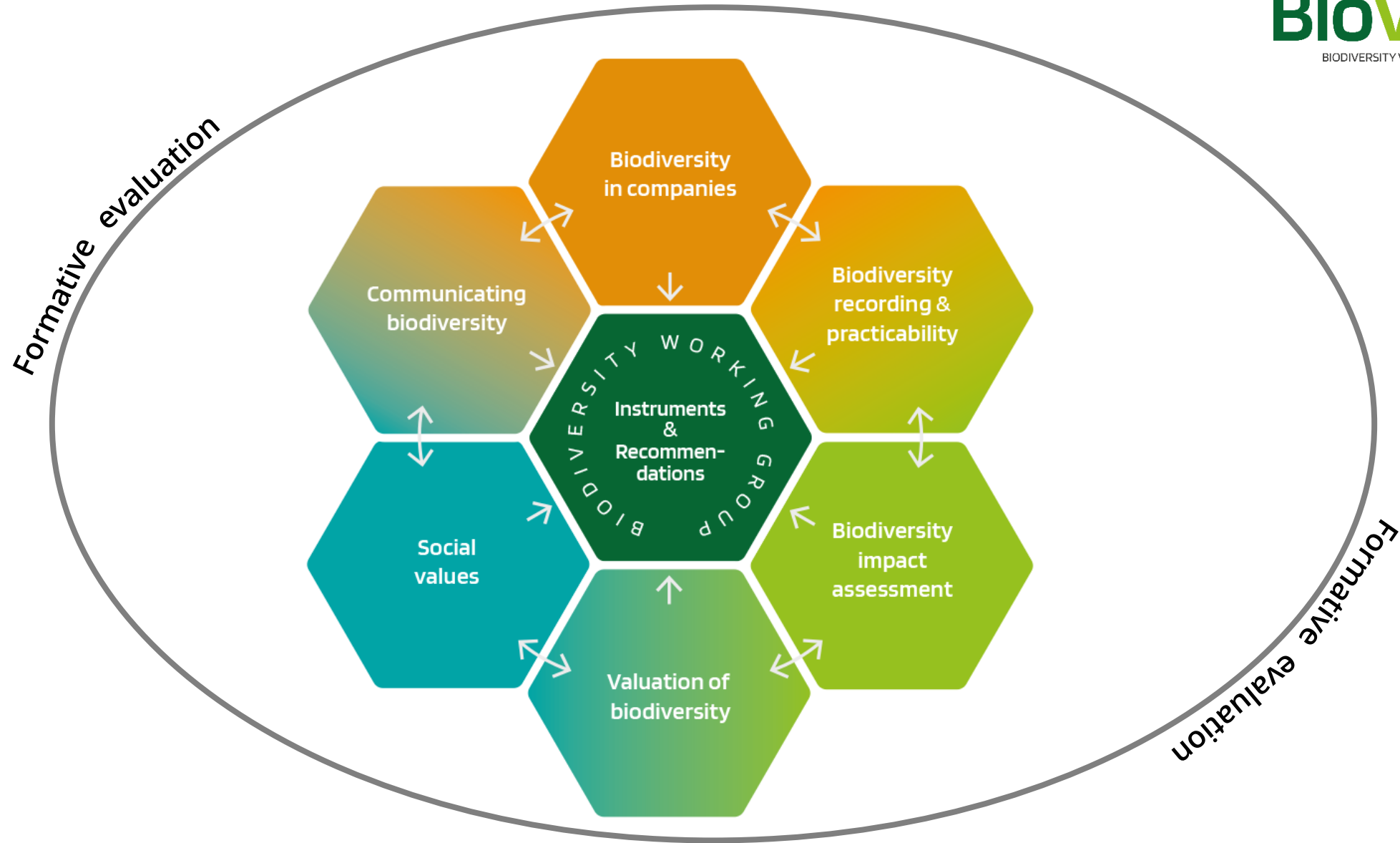
based on a decision of  
the German Bundestag

## *The research project BioVal*

- Aim: Promoting biodiversity along the food value chain
- Project partners:



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# The BioVal Team

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## Modul 2



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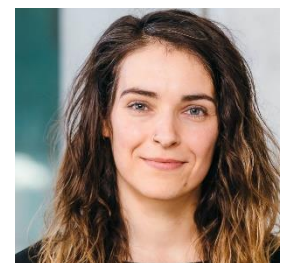


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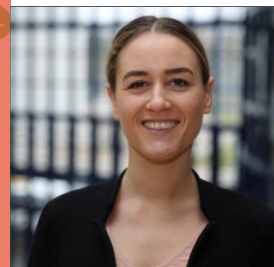
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## formative Evaluation



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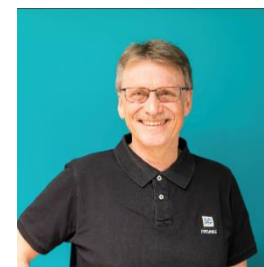
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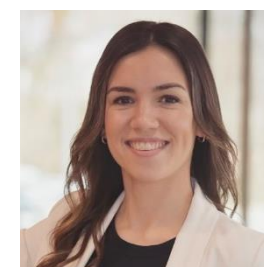
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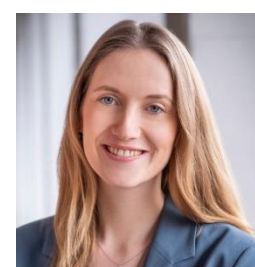
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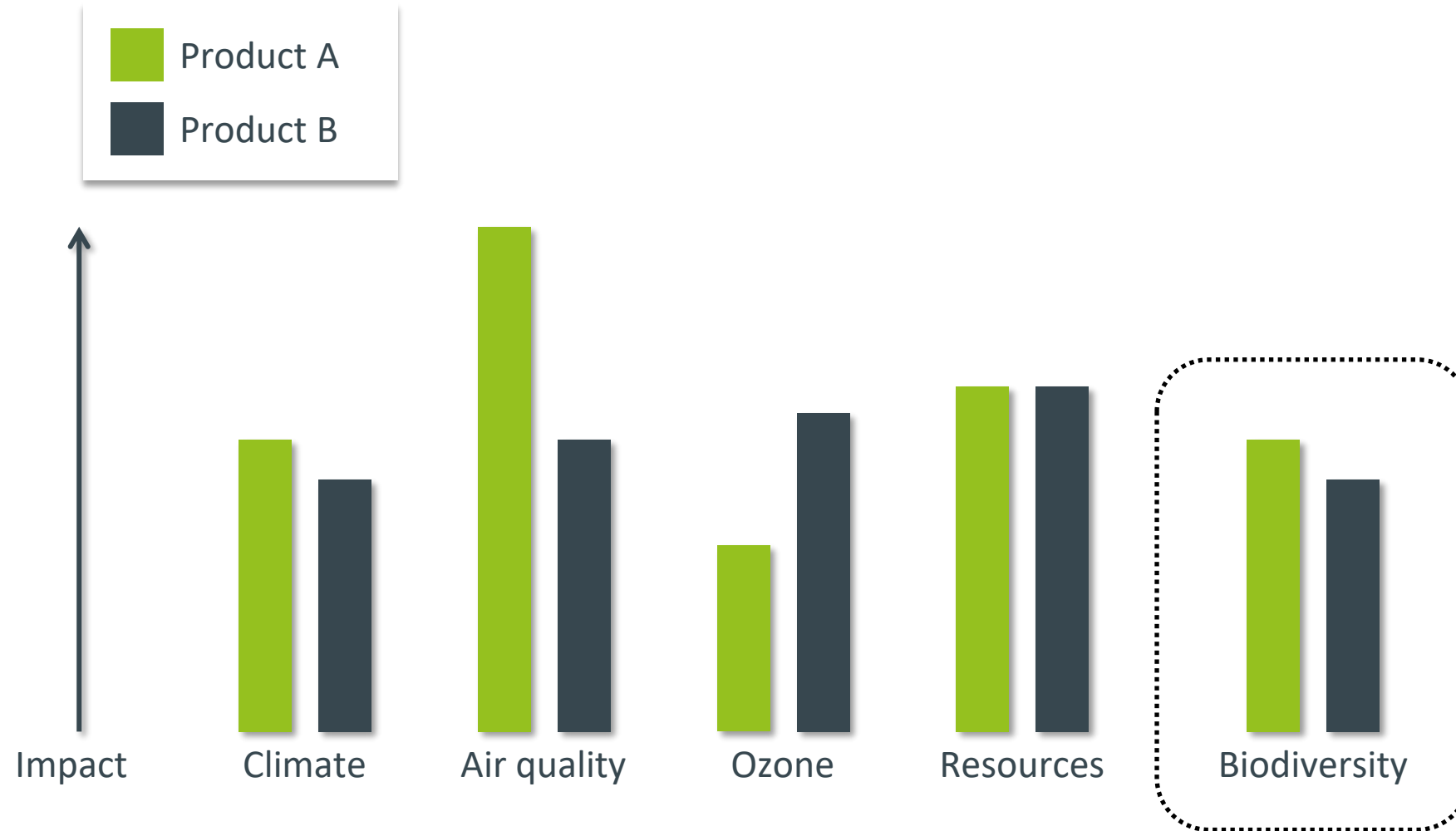


**Nadine Kellner**  
Seeberger GmbH



**Isabell Schäfer**  
Seeberger GmbH

# *Yes, it is possible - was the premise of BioVal*



## *Methodological context*

- Impact = Inventory flow × characterizing factor

\_\_\_ kg CO<sub>2</sub>                      Factor 1

\_\_\_ kg CH<sub>4</sub>                      Factor 28

\_\_\_ kg N<sub>2</sub>O                      Factor 265

## *Methodological context*

- Impact = Inventory flow × characterizing factor

\_\_\_ m<sup>2</sup>a arable land  
Germany

Factor \_\_\_

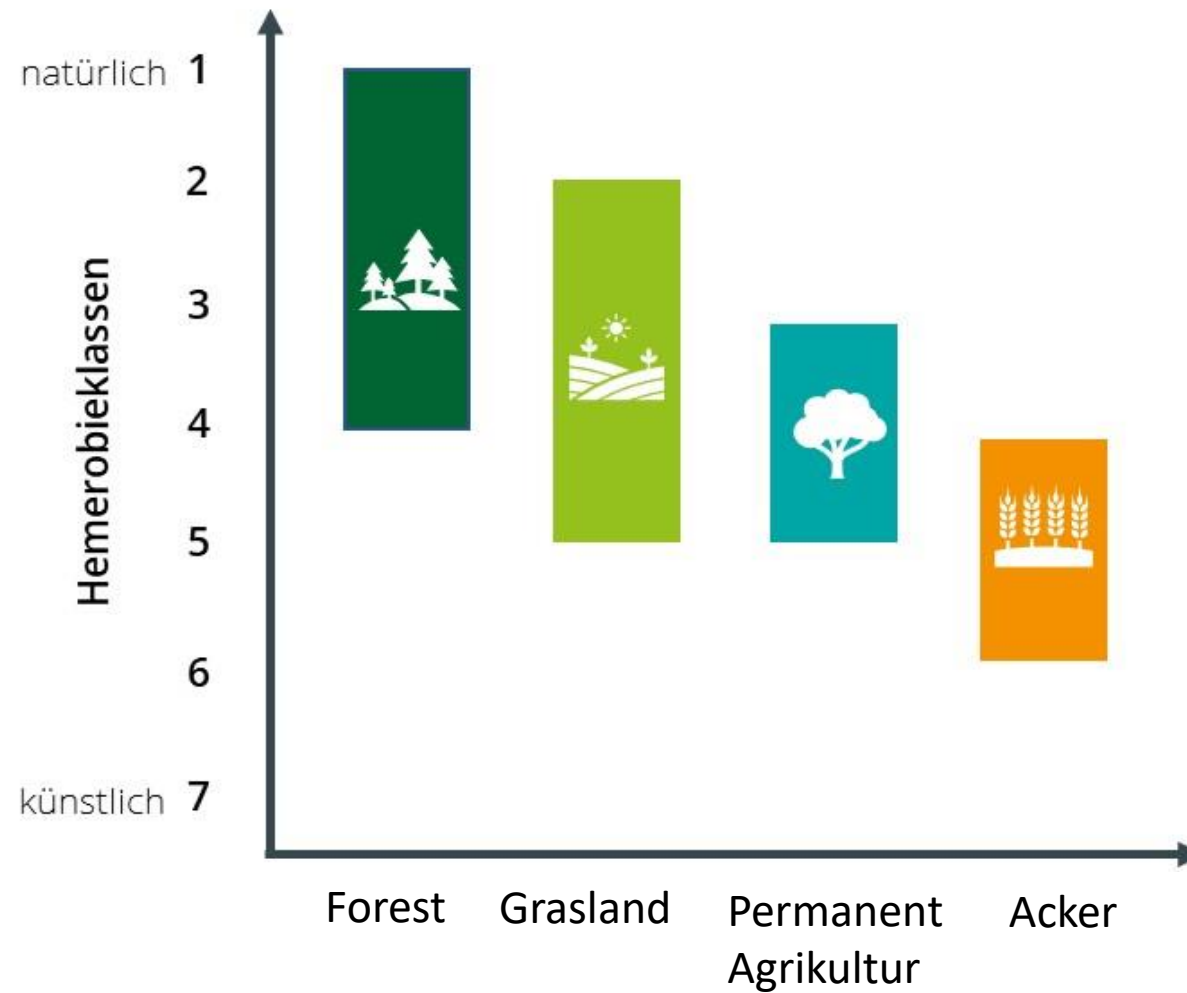
\_\_\_ m<sup>2</sup>a Plantation  
Nicaragua

Factor \_\_\_

\_\_\_ m<sup>2</sup>a Forest  
Finland

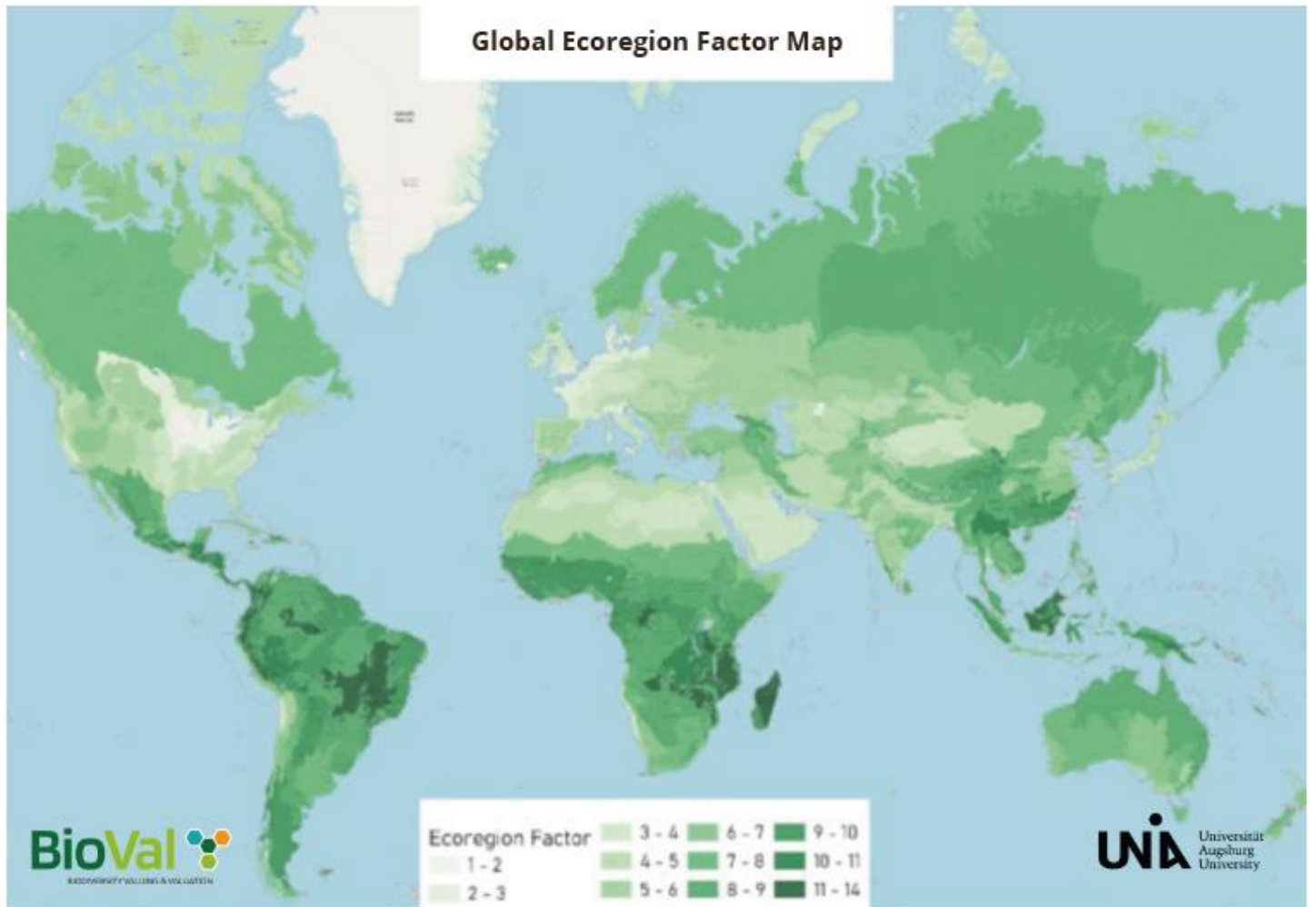
Factor \_\_\_

# Comparison of land use forms





# Ecoregion Map



# Input data

## generic

What?

↳ Biodiversity value increment [BVI]

Yield?

↳ Area time [m<sup>2</sup>a]

Default-assumptions  
+ data bases

Intermediate and  
mixed forms are no  
problem

## specific

Structural elements  
Soil cover  
Crop rotation

Accompanying flora  
Red List species  
Field size  
Tillage  
Fertilisation  
Pesticides

Planting density  
Crop residues  
Rotation cycle  
Age distribution  
Maintenance measures

Arable land

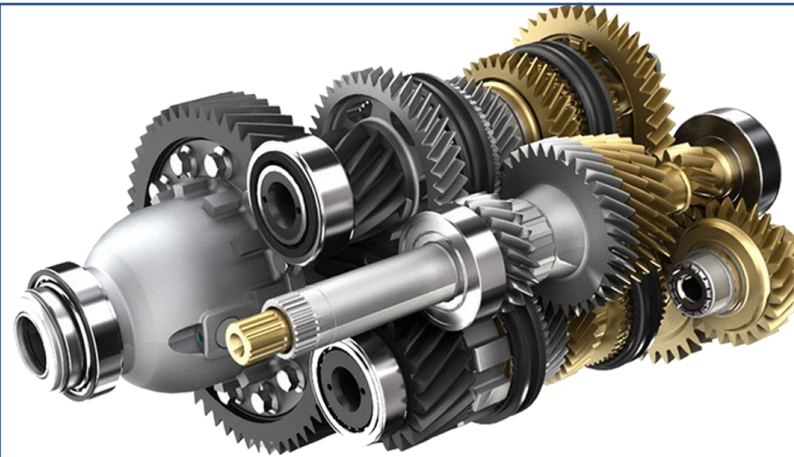
Plantation

# Calculation of biodiversity value

## Data from suppliers

Strukturelemente →  
Bodenbedeckung →  
Fruchtfolge →  
Begleitflora →  
Rote-Liste-Arten →  
Feldgröße →  
Bodenbearbeitung →  
Düngung →  
Pestizide →  
  
Ort/Region →  
  
Ertrag →

## Science



Excel sheet with predefined formulas

## Work values for Ritter

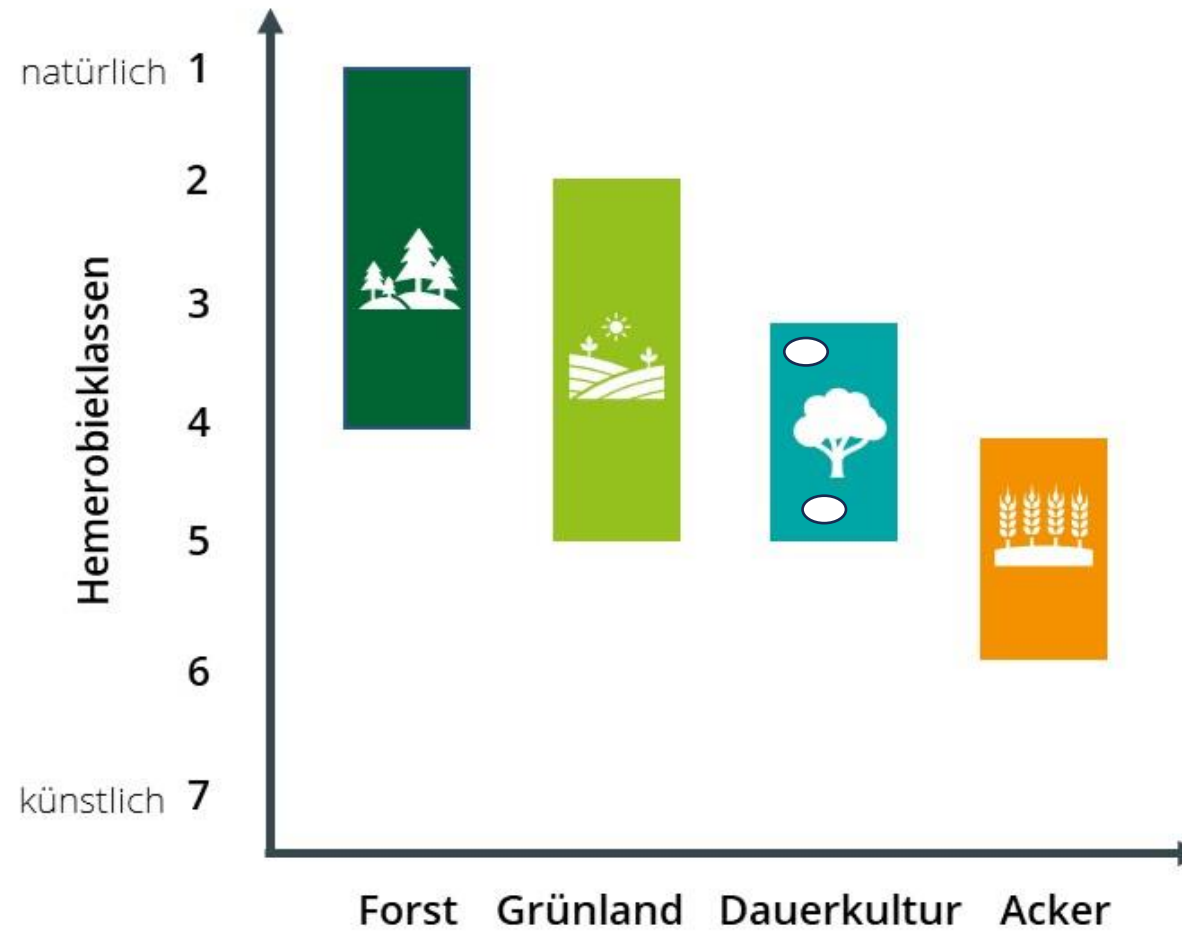
→ lokaler Wert pro m<sup>2</sup>  
→ globaler Wert pro m<sup>2</sup>  
→ Impact pro kg Produkt

# BVI dashboard

Criterion	Parameter code	Parameter name	Min value	Max value	Description	Input	Unit	Comments	Biodiversity contribution
<b>A1 Diversity of structures</b>									
A1.1	Average field size	0	10	The average field size is calculated using the size of all individual fields, divided by the total number of fields.	2.00	Hectare		0.40	
A1.2	Elements of structure	0%	100%	This parameter is assessed by calculating the share of the field area covered with structural elements, so it can not be used for crop cultivation, but still belongs to the field, including field margins (not more than a few meters).	10%	% area		0.06	
<b>A2 Soil conservation</b>									
A2.1	Intensity of soil movement	0	100	The parameter is assessed by summing up the yearly amount of fuel consumed for agricultural activities, which would disrupt the soil.	20.00	Liters per hectare and year		0.69	
A2.2	Ground uncovered	0%	100%	This parameter assesses the time per year the fields are uncovered. Fields are often uncovered after harvesting until the new crop is starting to show.	15%	% time		0.76	
A2.3	Crop rotation	0	19.5	To calculate the points given for a specific crop rotation, please use the information provided in the support PDF document.	10.00	points		0.77	
<b>A3 Material input</b>									
A3.1	Intensity of fertilizing	0	300	This parameter describes the average nitrogen input which is applied per year and hectare on the field. All sources of nitrogen input should be considered, including manure.	23.00	Kilogram N per hectare and year		0.57	
<b>A4 Plant protection</b>									
A4.1	Plant protection agents	0	6734	To calculate the CTUe values, please use the EcoTox calculation scheme.	379.08	CTUe per hectare and year		0.83	
<b>Ecoregion Factor</b>					Please specify the ecoregion factor for the ecoregion in which the main share of your fields are located. To identify the ecoregion and corresponding factor use this link or click on the hyperlink to the right: <a href="https://biodiversityvaluemap.mvr.uni-augsburg.de/">https://biodiversityvaluemap.mvr.uni-augsburg.de/</a>	3.38	-	<a href="#">Click here for Ecoregion factor map</a>	
<b>Yield</b>					Please specify the average yield of all fields the crop is cultivated on in the assessed time period.	3000.00	Kilogram per hectare and year		
<b>Results:</b>					Land-use specific Biodiversity value <b>BV<sub>LU</sub></b>	0.587			
					Local Biodiversity value <b>BV<sub>LS</sub></b>	0.7036663			
					Global Biodiversity value <b>BV<sub>GL</sub></b>	2.6472247			
					Impact on terrestrial Biodiversity	2.4359177 <b>BV<sub>m</sub> allg</b>			

<https://bvi-method.org/en/register-bvi-dashboard/>

# Comparison of land use forms



## *Direct and indirect impacts*

- Direct
  - Cause and effect in the same place, e.g. soil cultivation, building development
- Indirect
  - Impact radiates to region e.g. utilisation of freshwater, depletion of fish stocks
  - Effect globally distributed (not necessarily equally distributed) e.g. climate change



Background pollution:  
Influence on sensitivity, e.g.  
N deposition from the  
atmosphere or watercourses

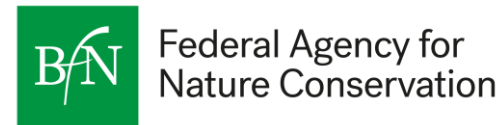
## *More information*

- Practical Handbook ‚Biodiversity management in the food industry‘ (available in English from mid of november 2024, in German already available)
  - Supplier questionnaires
  - Supplier assessment
  - Code of conduct for biodiversity text blocks
  - Dashboard
  - Ecoregion map
- 
- <https://bio-val.de/en/results/practice/>
  - <https://bvi-method.org/en/>

# European Conference: Biodiversity in Food Supply Chains

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Supported by:



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the German Bundestag

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