

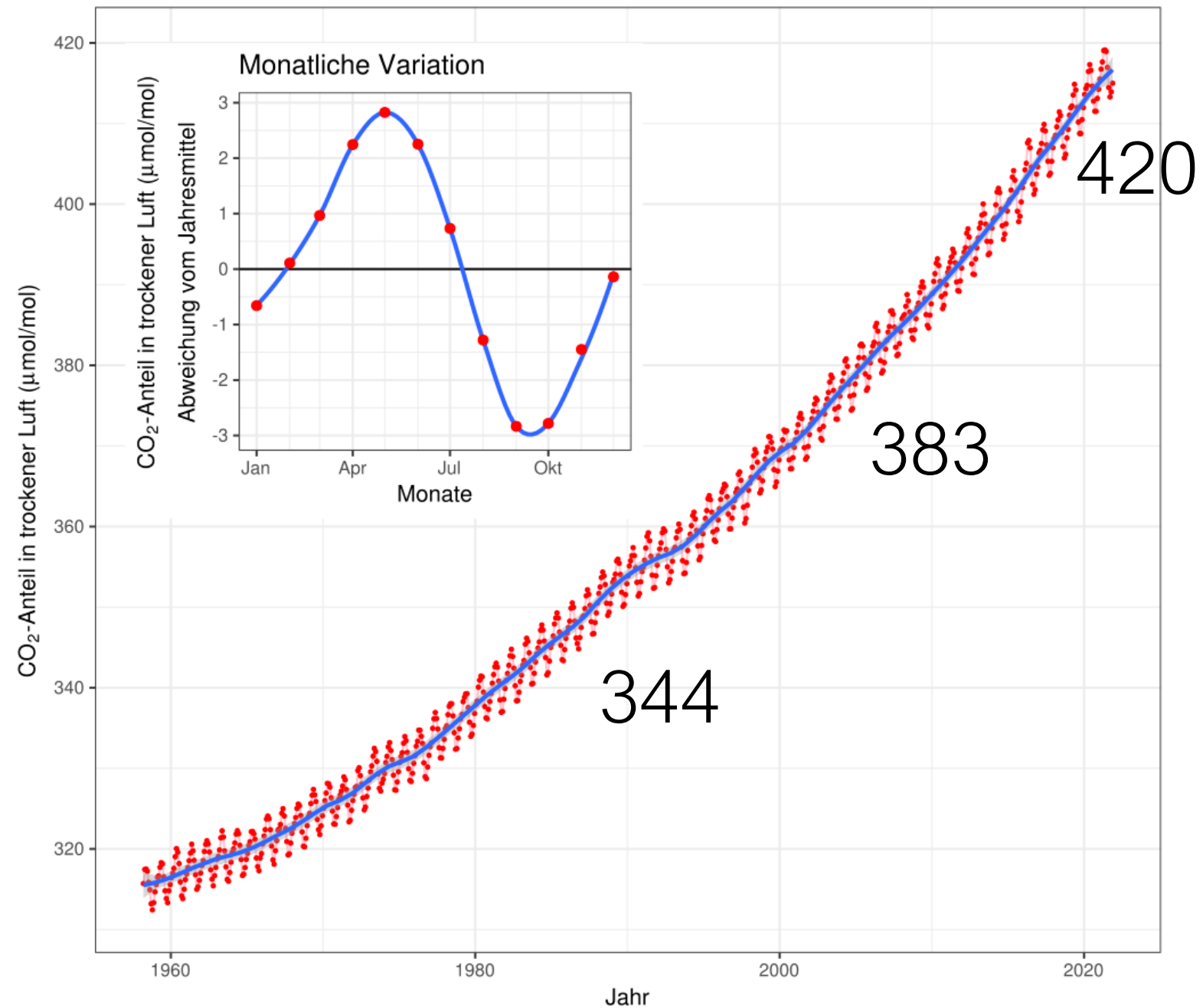
Mag.Jochen Buchmaier



How humus certificates can
boost a regenerative agriculture

Monatliche durchschnittliche CO₂-Konzentration

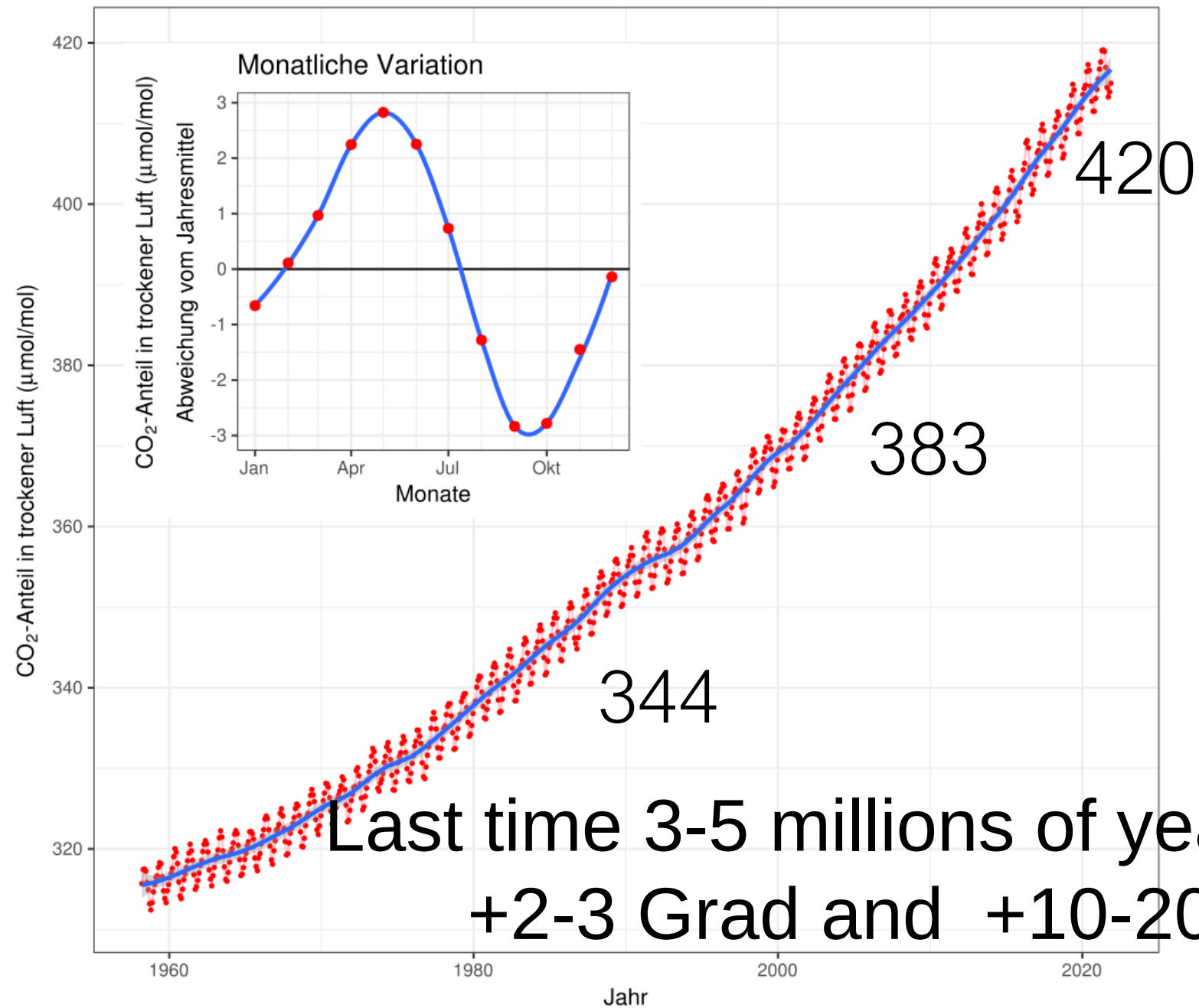
Mauna Loa 1958 - 2021



315

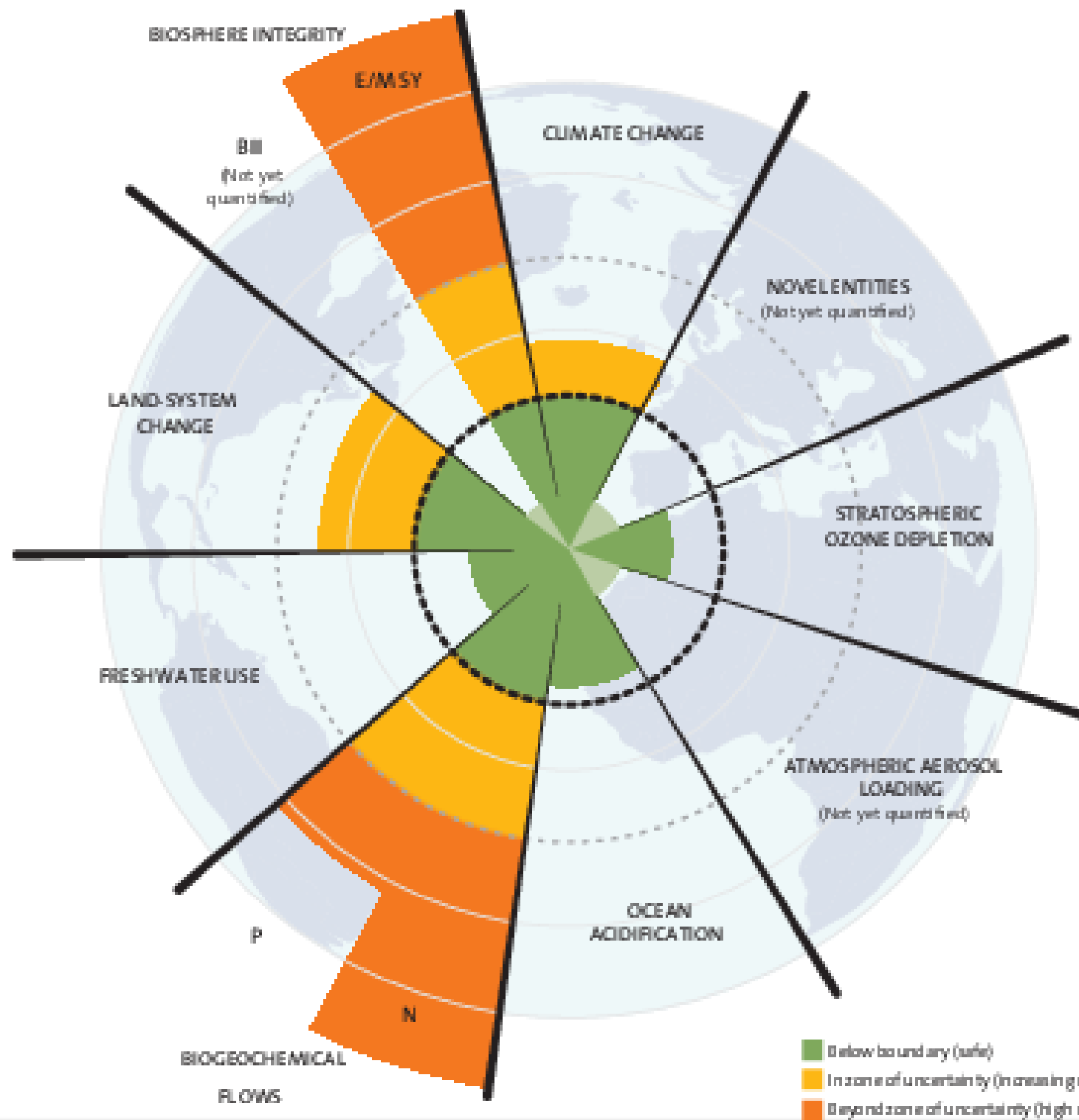
Datei : Dr. Pieter Tans, NOAA/ESRL (<https://gml.noaa.gov/ccgg/trends/>) und Dr. Ralph Keeling, Scripps Institution of Oceanography (<https://scrippsco2.ucsd.edu/>). Zugänglich am 2021-12-16 <https://w.wiki/4ZWn>

Exponential growth

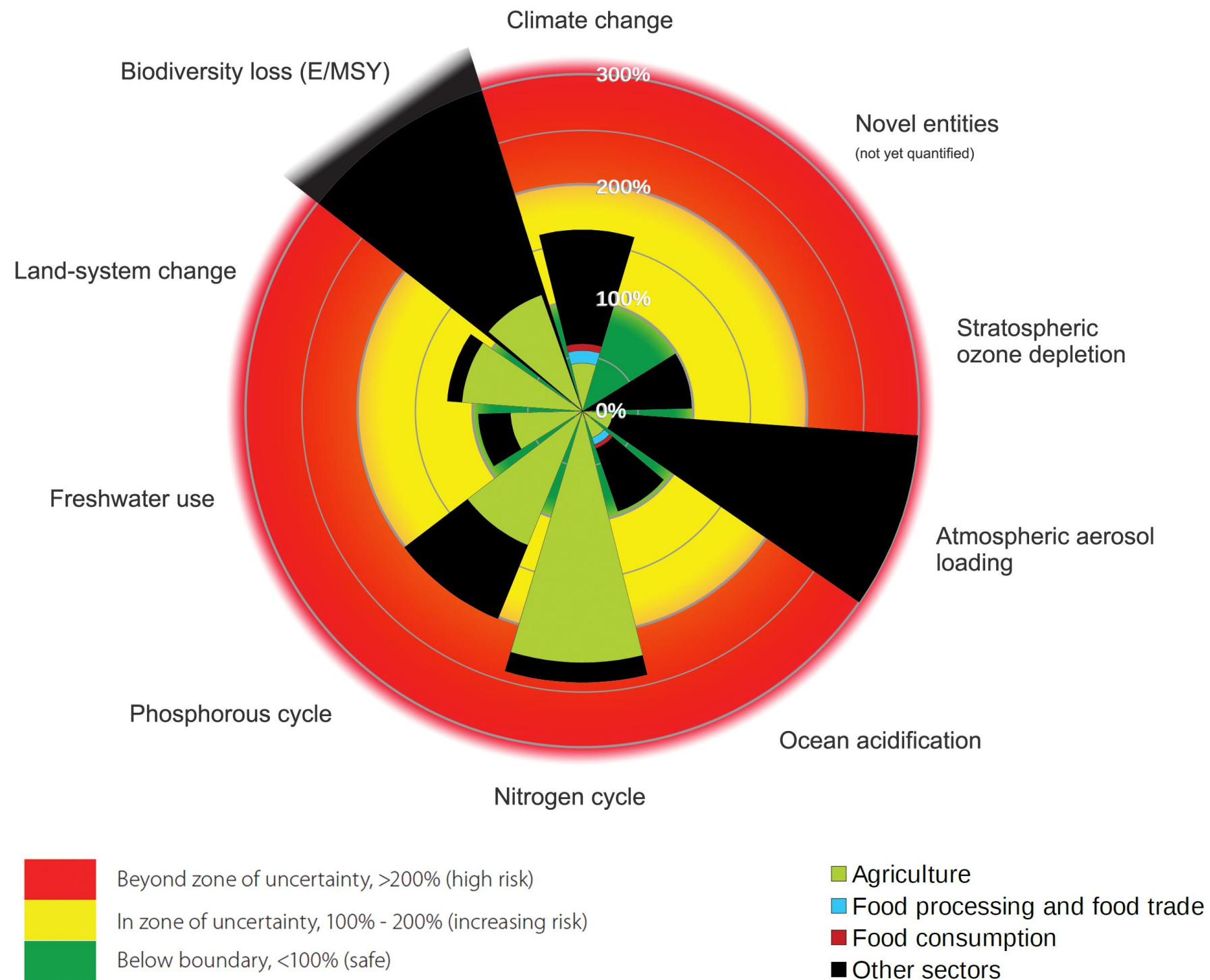


Datei : Dr. Pieter Tans, NOAA/ESRL (<https://gml.noaa.gov/ccgg/trends/>) und Dr. Ralph Keeling, Scripps Institution of Oceanography (<https://scrippsco2.ucsd.edu/>). Zugänglich am 2021-12-16 <https://w.wiki/4ZWn>

Exponential growth



Planetary boundaries



Planetary boundaries- Agriculture



https://ec.europa.eu/eurostat/statistics-explained/images/d/d6/Image1_Example_of_soil_water_erosion_on_arable_land.JPG

Why humus farming?





52 harvests left!!?

https://ec.europa.eu/eurostat/statistics-explained/images/d/d6/Image1_Example_of_soil_water_erosion_on_arable_land.JPG

UN-Studie (United Nations Food and Agriculture Organization – FAO)2014,

Why humus farming?





Up to 20t/ha/year soil loss

https://ec.europa.eu/eurostat/statistics-explained/images/d/d6/Image1_Example_of_soil_water_erosion_on_arable_land.JPG

Why humus farming?





Water erosion/flooding/soil loss

Why humus farming?



Foto: Rhein-Erft-Kreis, dpa

Why humus farming?





150-200mm rainfall in 2 days

Foto: Rhein-Erft-Kreis, dpa

Why humus farming?





drought damage and harvest loss

<https://www.topagrar.com/acker/news/schwarz-duerrehilfe-wird-zum-flop-11736486.html>

Why humus farming?





**Growing input on fertilisation
and crop protection**

Why humus farming?

$\frac{3}{4}$ of all insects have disappeared since 1990



Why humus farming?



Why humus farming?



Quelle: Ökoregion Kaindorf

How does humus farming work?





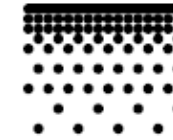
Verbesserte
Wasseraufnahme



Erosionsschutz



Höhere
Fruchtbarkeit



Stabile
Bodenstruktur



Gestärkte
Pflanzengesundheit



Leichtere Bearbeitbarkeit
des Bodens



Gestärkte
Bodengesundheit



Verbesserte
Filterfunktion

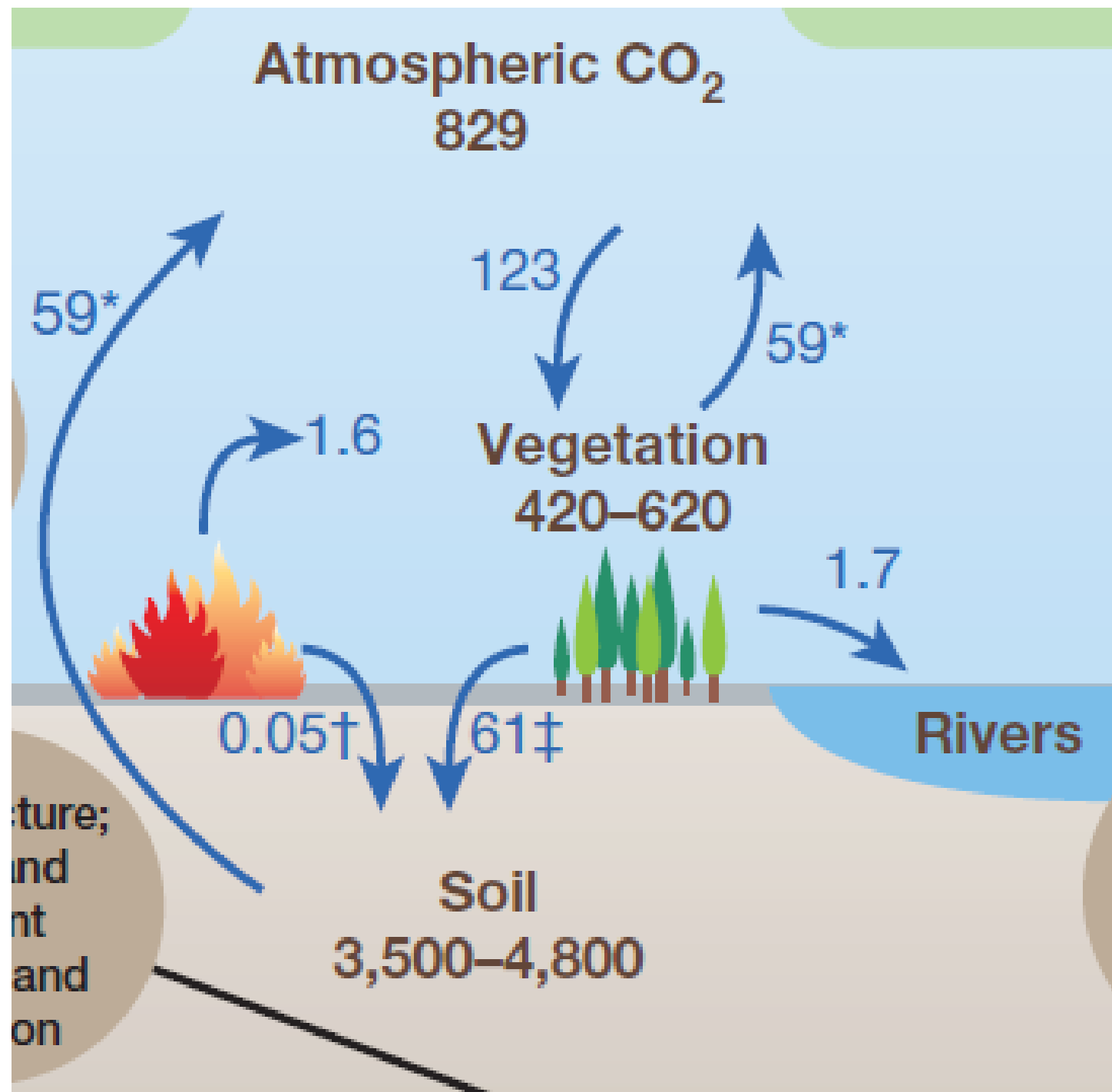


Beitrag zu Umwelt-
und Klimaschutz



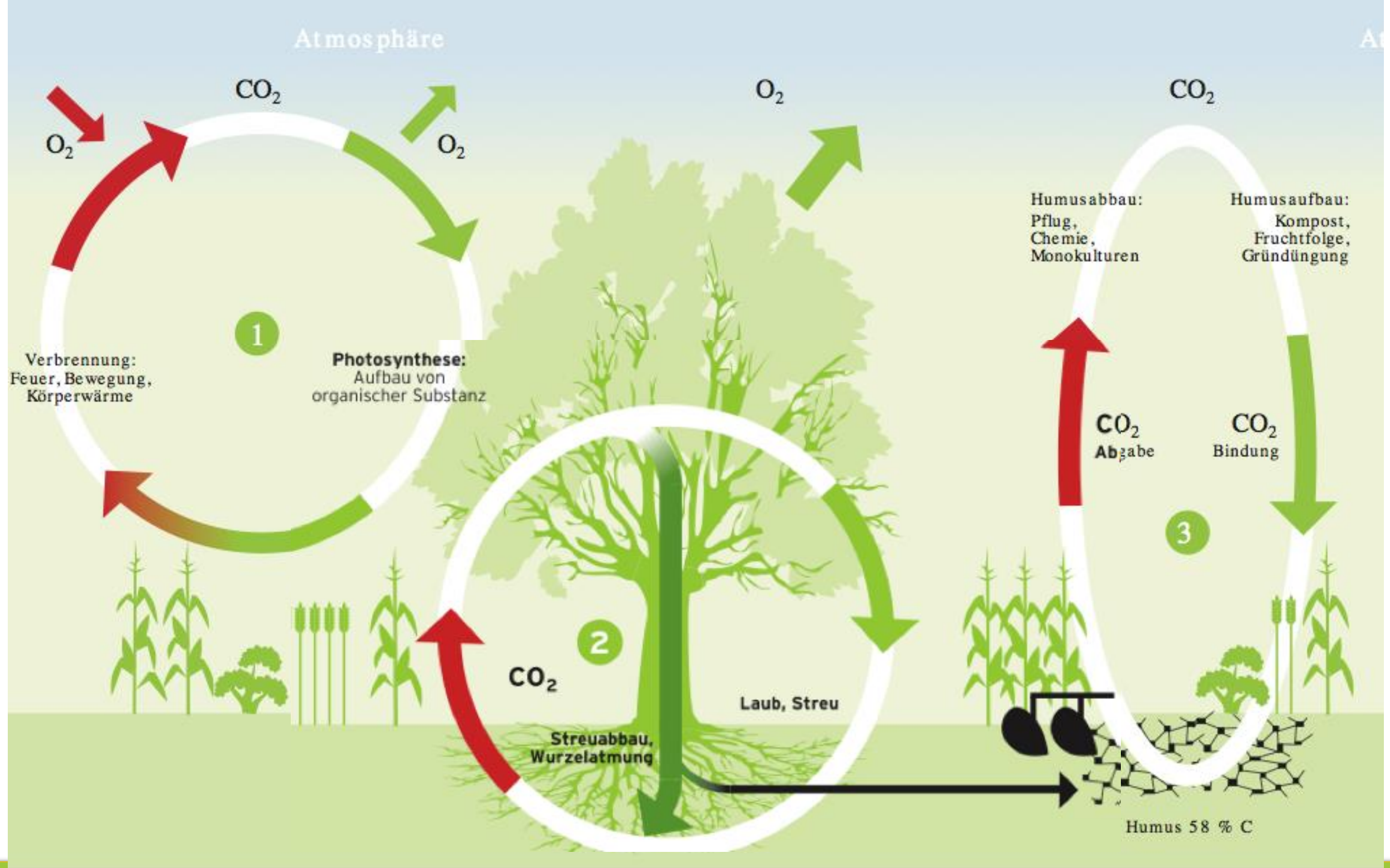
Aktive
CO₂ Speicherung

Advantages of humus farming



Lehmann und Kleber 2015

Where is Co2 stored?



Lehmann und Kleber 2015

How does humus build up?



**Vielfalt
maximieren**



**Photosyntheseleistung
maximieren**



**Bodenstörungen
minimieren**

3 principles of humus farming

1. Maximise Diversity

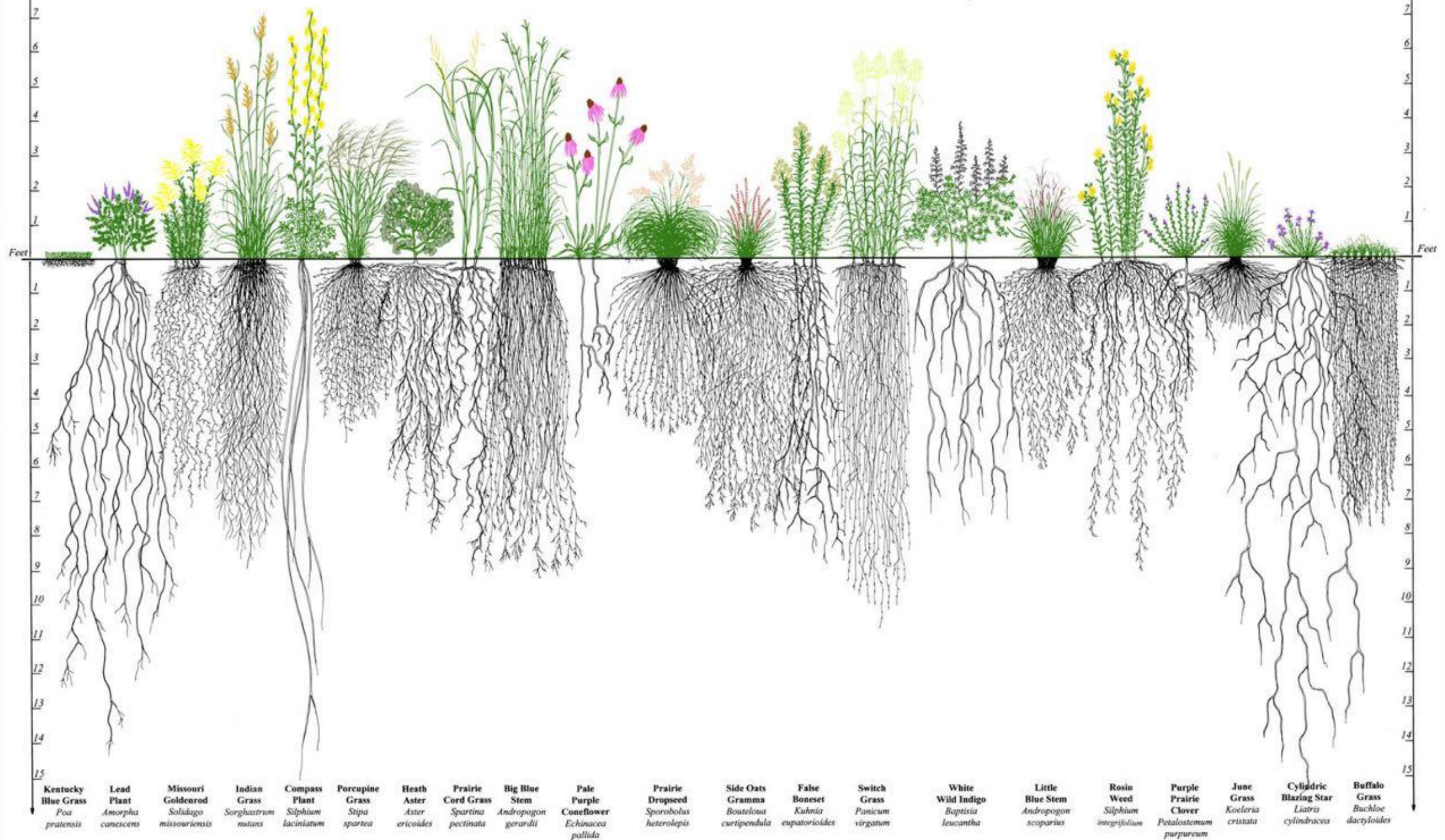
- Diverse crop rotation
- Mixed cropping
- Cover cropping
- Intermediate cropping

- Integrate trees, hedges, perennials



Quelle: Ökoregion Kaindorf

3 principles of humus farming



<http://www.humusrevolution.de/wurzelsysteme-in-der-wiese/>

Different root systems in a meadow



Quelle: Ökoregion Kaindorf

3 principles of humus farming

2. Maximise photosynthesis performance

- Different layers
- Permanent greening
- Undersown crops
- Cover crops
- Healthy plants
- Integrate trees, hedges, perennials



Quelle: Ökoregion Kaindorf

3 principles of humus farming



Quelle: Ökoregion Kaindorf

3 Prinzipien des Humusaufbaus

3. Minimize soil disturbance

- Reduced tillage
- No-Till
- Mulch sowing
- plowless
- Reduction of chemicals (mineral fertilizers, herbicides, fungicides, pesticides)



Quelle: Ökoregion Kaindorf

3 principles of humus farming



Quelle: Ökoregion Kaindorf

3 principles of humus farming



Quelle: Sonnenerde

composting



Quelle: Sonnenerde

charcoal



Quelle: Ökoregion Kaindorf

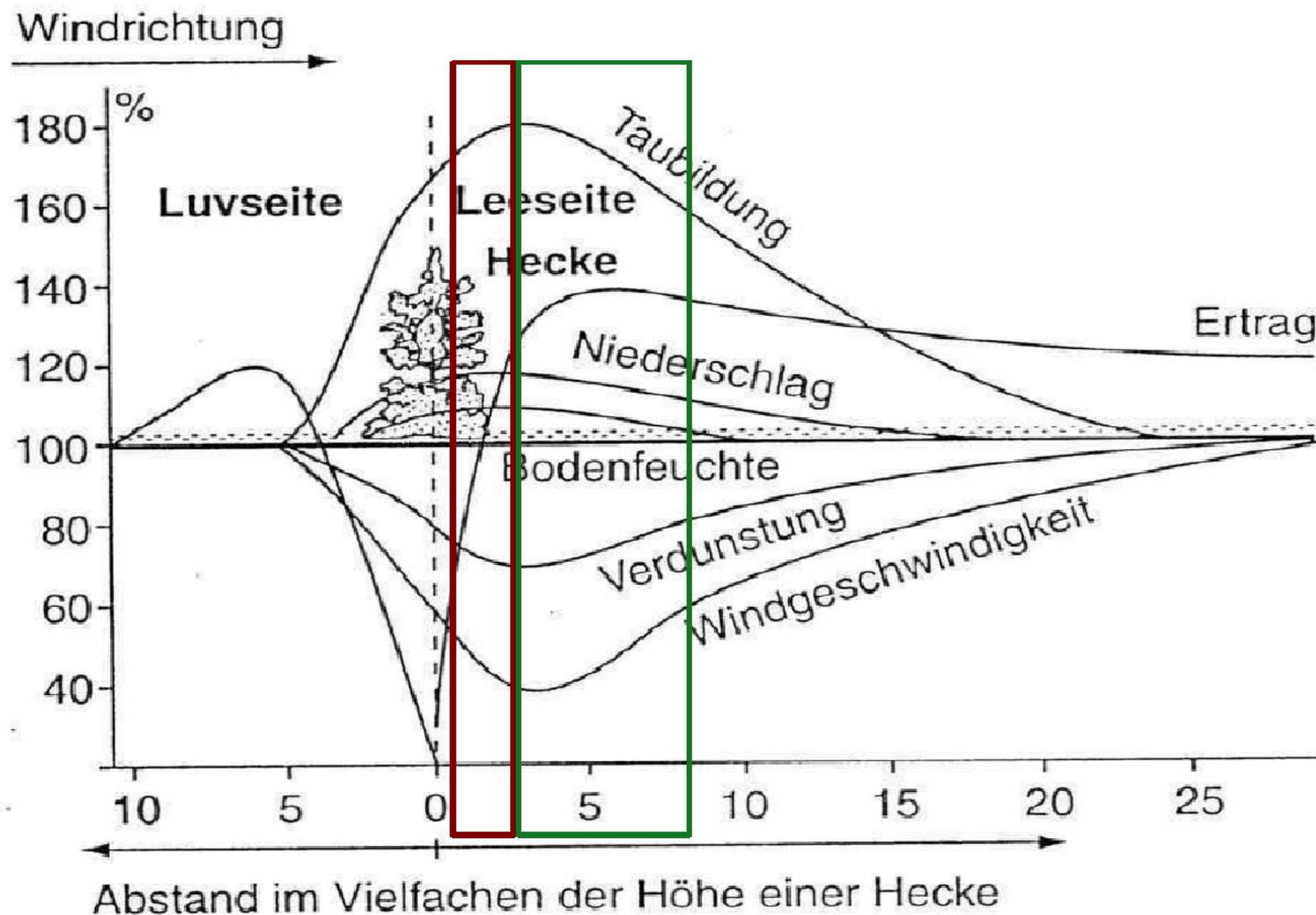
Agroforestry, hedges



Quelle: Ökoregion Kaindorf

Agroforestry, hedges

Verlust und Gewinn beim Getreideertrag durch den Einfluß von Hecken



Agroforestry, hedges

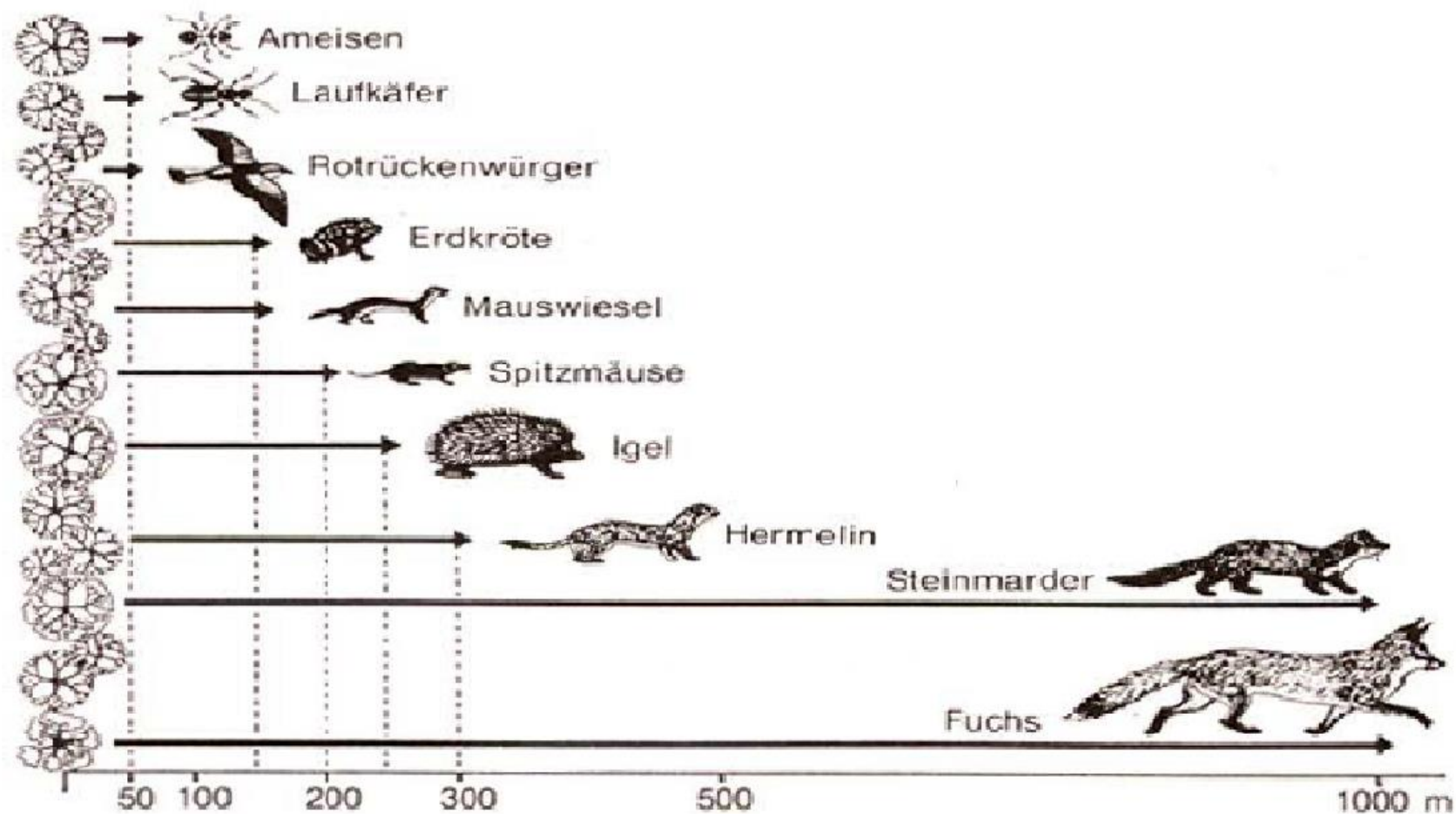


Abb. 98. Die Hecke als »Stützpunkt« für die Nahrungssuche fleischfressender Tiere in der freien Feldflur (DJV 1982).

Agroforestry, hedges



<http://crkeyline.ca/what-is-keyline-design/>

Watermanagement/ Keyline Design



<https://greatestfarms.com/swales-a-permaculture-practice-the-down-and-dirty/>

Watermanagement/ Keyline Design



<http://crkeyline.ca/what-is-keyline-design/>

Watermanagement/ Keyline Design



<https://www.permaculturenews.org/2015/07/24/how-to-build-a-swale-on-contour-successfully/>

Watermanagement/ Keyline Design



Quelle: Unsplash

(Re-)integration of animals



Quelle: Jochen Buchmaier

Holistic Management, Mobgrazing



Quelle: http://sunnybrae-acres.com/?page_id=14

Holistic Management, Mobgrazing



https://commons.wikimedia.org/wiki/File:Agroforestry_contour_planting.jpg

Holistic Management, Mobgrazing



Closed circles!!

Vereinbarung und
Bodenuntersuchung




5 – 7 Jahre
Humusaufbau

Bodenuntersuchung



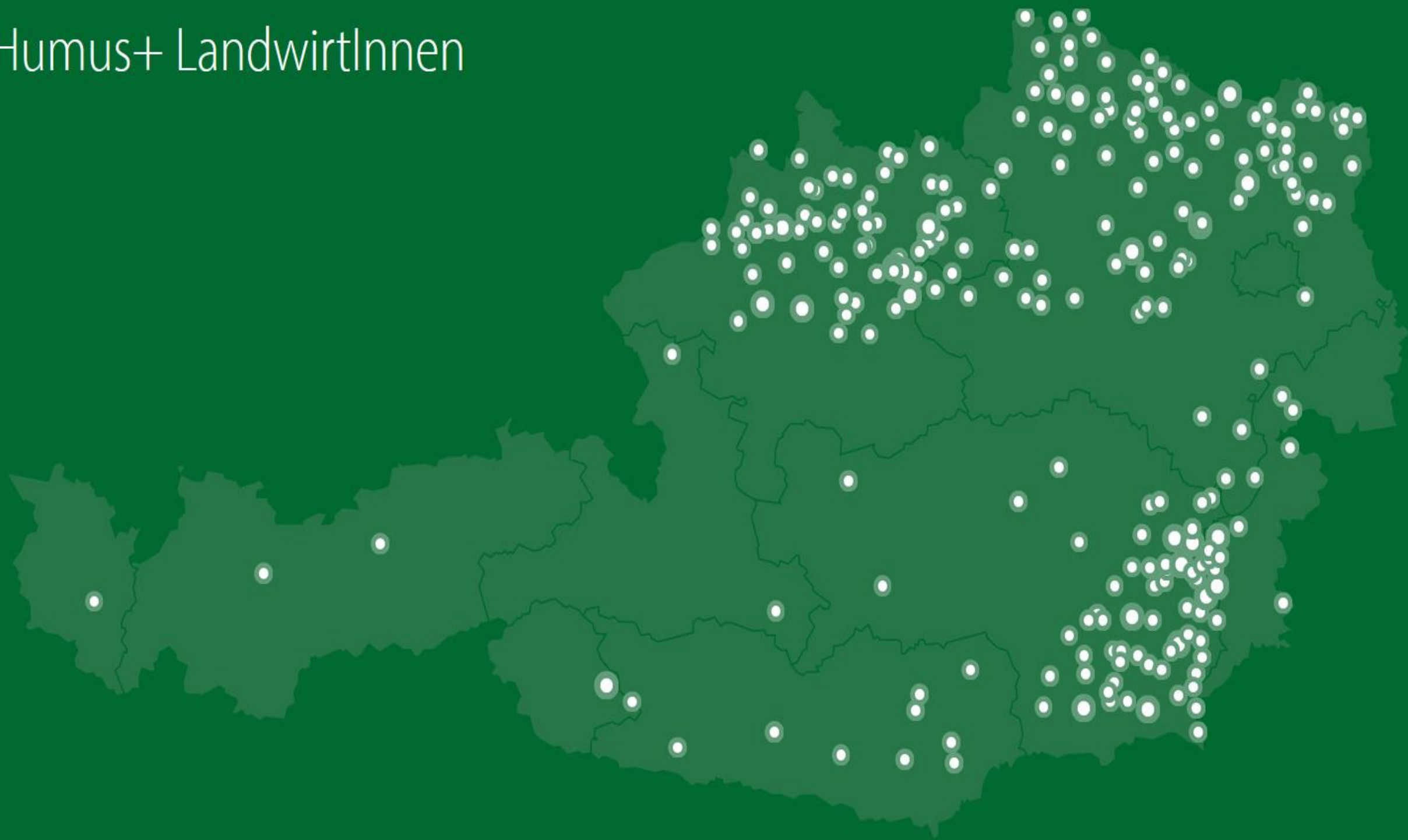

5 Jahre Haltefrist
+ weiterer Humusaufbau

Bodenuntersuchung



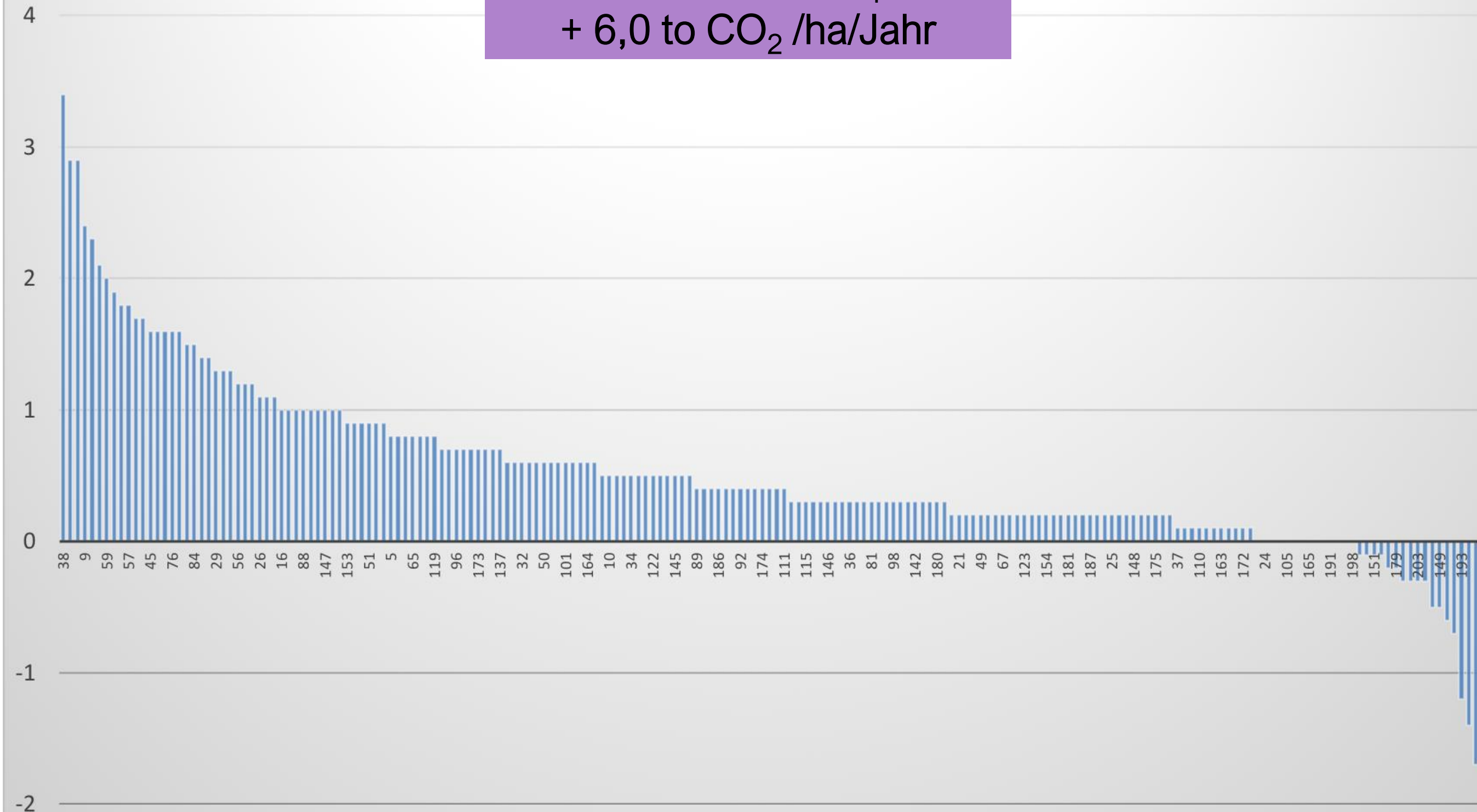
HUMUS+ farming program

Unsere Humus+ LandwirtInnen



HUMUS+farming

Durchschnitt: +0,14% pro Jahr
+ 6,0 to CO₂ /ha/Jahr





Quelle: Ökoregion Kaindorf

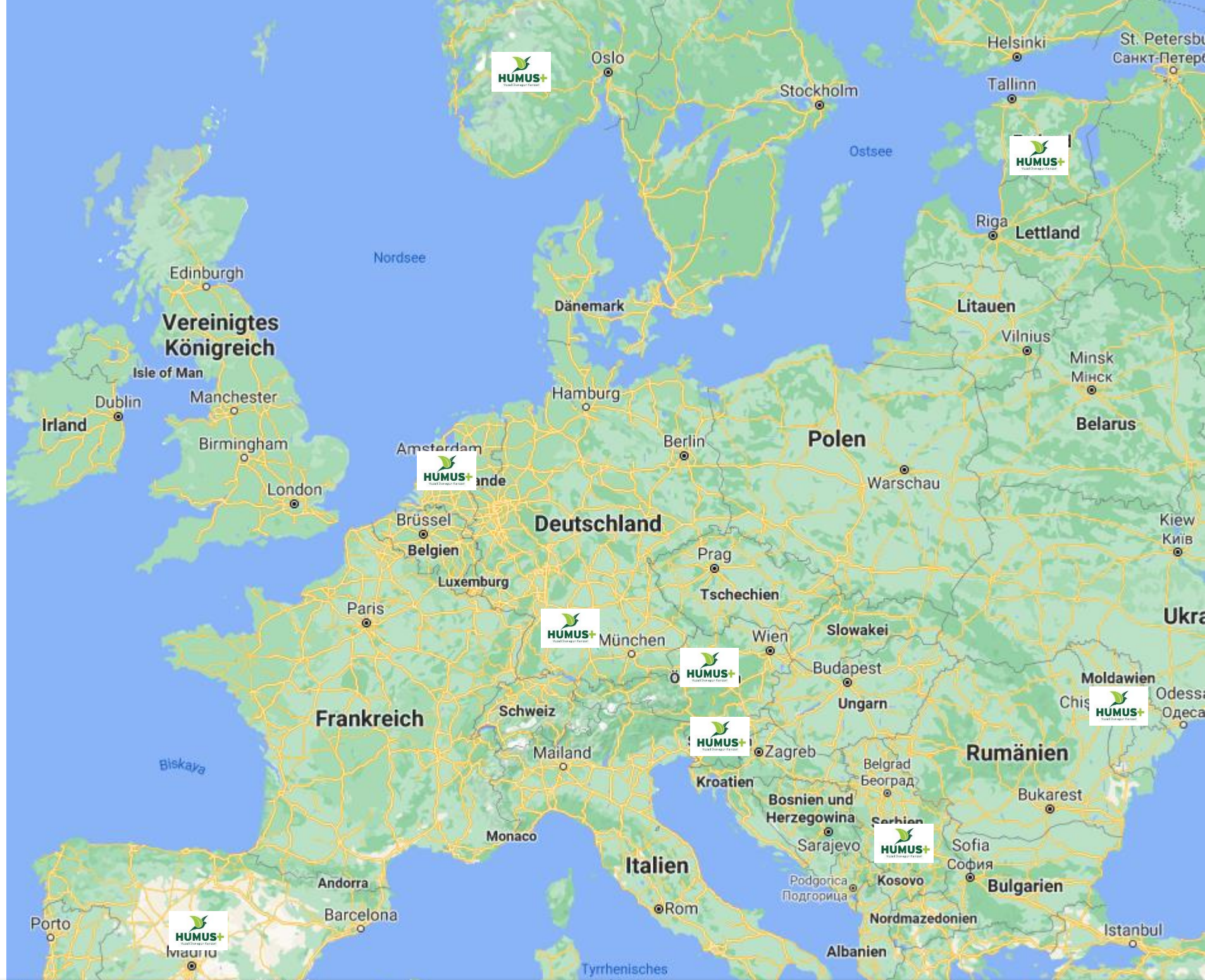
Remuneration for their ecosystemic service!



- Humus+Get together
- Humus+Academy
 - Humus+Days
- Humus+Consulting

Quelle: Ökoregion Kaindorf

HUMUS+Education



Partnership in Slovenia, interest in
Moldova, Estonia, Norway, Germany,
Netherlands, Spain, Serbia till Nigeria



Quelle: Ökoregion Kaindorf

Thanks for your interest!



Now we can exchange and discuss!