Collaborative Soy Initiative

LAND USE CHANGE AND SOY

Welcome!

Title: Webinar Land use change and soy

Organisation: the Collaborative Soy Initiative (CSI)

Speakers:

- Emese Brosz, Managing Director, ProTerra, SC CSI, Chair WG Make It Practical
- Alma Acosta, Program Manager, Solidaridad
- Anton van den Brink, Senior Policy & Communication Manager FEFAC
- Delanie Kellon, Scientist natural resource management & sustainable agriculture
- Michele Zollinger, Lead on land use change carbon emissions, Quantis
- Jasper Scholten, Manager LCA, Blonk Consultants

House Rules

- You are automatically put on ‘mute’
- Meeting is recorded. Presentations and recording will be shared at the new CSI website: https://thecollaborativesoyinitiative.info/
- Questions by Q&A chat box
  - please indicate speaker you are addressing
  - 15 minutes Q&A at the end

Agenda

2 PM	**INTRODUCTION** **The Collaborative Soy Initiative and the Working Group 'Make it practical'** *Emese Brosz, Managing Director ProTerra, Chair WG Make It Practical*
2.15 PM	**What is a product Life Cycle Assessment? How is it connected to the Carbon Footprint of soy?** *Alma Acosta, Program Manager, Solidaridad*
2.30 PM	**Legal frameworks and guidelines:** **PEFCR Feed & GFLI Database – The Feed Industry Tools for Measuring Environmental Footprints** *Anton van den Brink, Senior Policy & Communication Manager, FEFAC* *Delanie Kellon, scientist for natural resource management and sustainable agriculture*
2.45 PM	**Methodology:** **Guidelines for Land use change and limitation factors** *Michele Zollinger, Lead on land use change carbon emissions, Quantis*
3.00 PM	**How to integrate and calculate Life Cycle Assessment emissions based on available data?** *Jasper Scholten, Manager LCA, Blonk Consultants*
3.15 PM	**QUESTIONS AND ANSWERS**
3.30 PM	**CLOSING**

The collaborative Soy Initiative (CSI)

Emese Brosz
Managing Director ProTerra
CSI Steering Commitee
Chair WG Make It Practical

Background

- Certification is not growing as we hoped, stepping up together and joining forces required
- Tools and frameworks are available, supporting the focus on the how
- Multiple approaches: standard schemes (such as ProTerra, Donau Soja, RTRS…), landscape approach, land scale initiative, verified sourcing areas…
- **How can they strengthen each other, where is there role in the system?**

KEY QUESTION

How do we scale up and collaborate better to achieve land conversion and deforestation free, responsible soy?

The collaborative Soy Initiative, vision and mission

- Set up in June 2019 as a collaborative framework
- Vision: 100% deforestation, conversion free sustainable soy, on a global scale
- Mission:
  1. Inform about the actions that are on-going
  2. facilitate the synergies between stakeholder initiatives and actions
  3. Come-up with new actions that are not yet done, but needed and when relevant to (1) and (2)

Organize webinars on relevant topics. Webinar Land use change and soy of 7 Sept

Because it matters …

Priority action list created by the Collaborative Soy Initiative to increase the uptake and impact of deforestation and conversion free soy.

Why?

- Legal compliance
- Land conflicts
- Illegal use of pesticide
- Illegal and legal deforestation,
- Trust is nice, control is better: whatever the origin
- Nobody controls, why should I care: standards are rule keepers and beyond...
- Any many more….

Together we are much stronger

- What about competition? Market decision, independent reporting helps to give company's guidance and make well-informed choices.
- Standards have a responsibility to develop and address the issues companies face.
- Standards like ProTerra, RTRS, Donau Soja offer good solutions, focus on different areas, combination always possible.

None of the initiatives can save the world on its own!

The collaborative Soy Initiative

Steering Committee:

Chair: Lieven Callewaert
Project Coördinator: Ariane Louwaege

Website: https://thecollaborativesoyinitiative.info/

What is a product Life Cycle Assessment? And how is it connected to the Carbon Footprint of soy?

Alma Acosta, Program Manager, Solidaridad

Solidaridad

Life cycle assessment of soy production

Alma Acosta

Programme Manager

Solidaridad Network

What is a product Life Cycle Assessment?

- Every activity taking place in an environment (including agricultural activities) has either inputs from the environment or outputs into the environment.

- Production, formulation, storage, distribution of inputs and utilization with engine based equipment result in combustion of fossil fuels, and also emissions of GHGs like CO2, N2O and CH4 into the atmosphere. These emissions are responsible for global warming (Lal, 2004).

What is a product Life Cycle Assessment?

- Life Cycle Assessment (LCA) is an ISO-standardized methodology and is also a tool that can be used to evaluate the environmental load of a product, process, or activity throughout its life cycle, which is known as a ‘from cradle to grave’ analysis.
- With a LCA the total GHG emissions are determined by aggregating the effects of the different emissions taken place in all phases of the production chain.

How is LCA connected to the Carbon Footprint of soy?

- LCA can be used as a tool to benchmark the potential reductions in the use of soy inputs, while calculating the environmental gains linked to these reduction targets, in order to prove the efficiency of a farm management.

- It can also be used to estimate the carbon footprint of soy exports. This allows quantifying the environmental footprint of a product, from its production until it is delivered to the importer.

How is LCA connected to the Carbon Footprint of soy?

- The Data Envelopment Analysis (DEA) can be used to add precision to the LCA Analysis. The DEA is a non-parametric data analytic technique that allows to calculate indirect and direct emissions from inputs production, such as: CO2, N2O, CH4,

CHANGE
THAT MATTERS

Thank you!

Alma Acosta

solidaridadnetwork.org

/solidaridadnetwork

@solidaridadnetw

/company/solidaridad

PEFCR Feed & GFLI Database – The Feed Industry Tools for Measuring Environmental Footprints

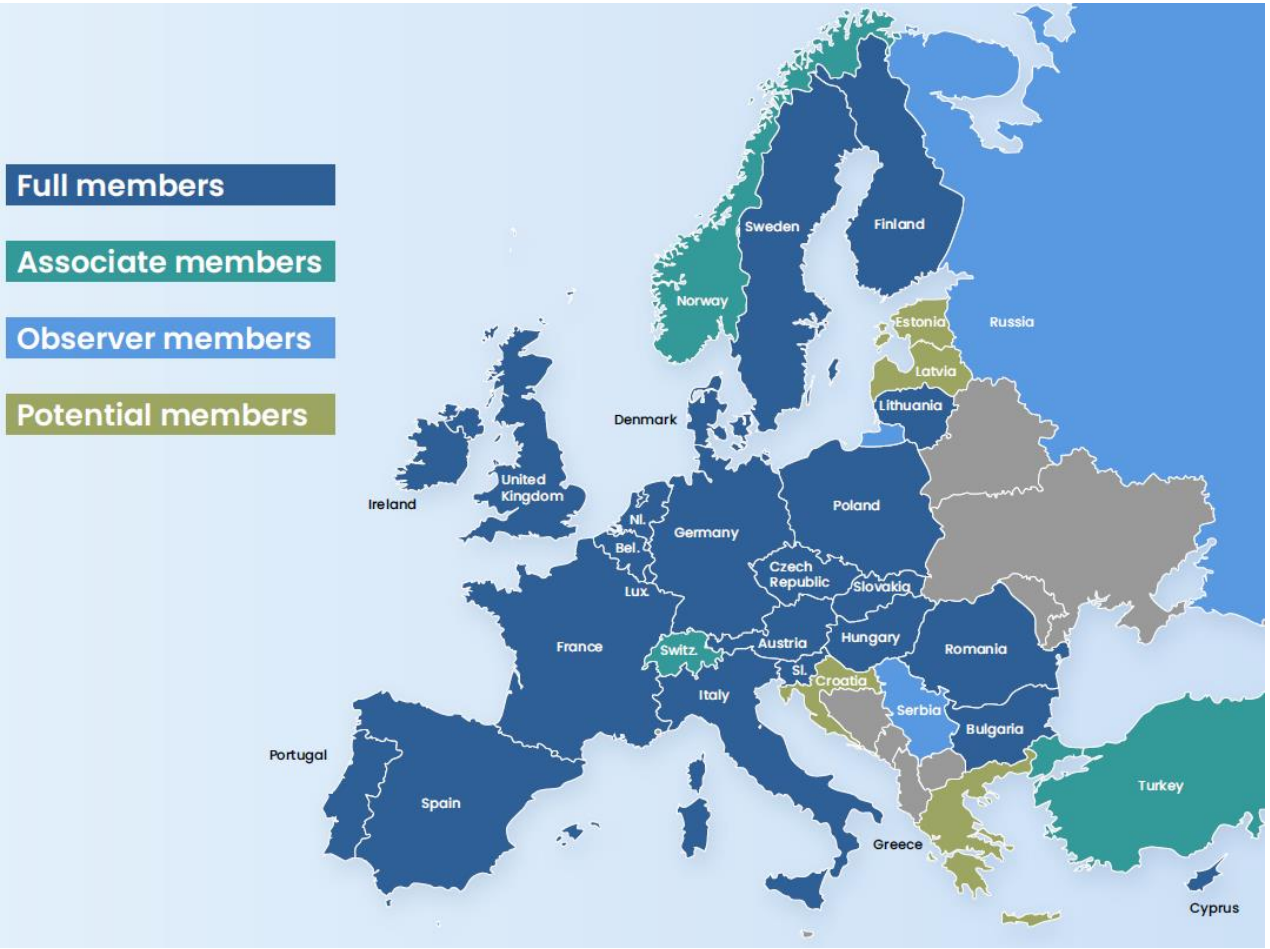
Anton van den Brink, Senior Policy & Communication Manager, FEFAC
Delanie Kellon, scientist for natural resource management and sustainable agriculture

FEFAC
Experts in Animal Nutrition

Anton van den Brink
FEFAC Senior Policy & Communication Manager

PEFCR Feed & GFLI Database – The Feed Industry Tools for Measuring Environmental Footprints

FEFAC in a nutshell



- Created in 1959
- Represents industrial compound feed and premixtures manufacturers
- 32 Members:
  - 23 Member Associations
  - 2 Observer Members (Serbia, Russia)
  - 6 Associate Members (Turkey, Switzerland, Norway (2), EMFEMA, EFFPA)
- 164 mio. t of industrial compound feed in EU-28 in 2019
- 7 Technical Committees to assist the FEFAC Council
  - Animal Nutrition
  - Industrial Compound Feed Production
  - Premix & Mineral Feed
  - Feed Safety Management
  - Fish Feed
  - Milk Replacers
  - Sustainability

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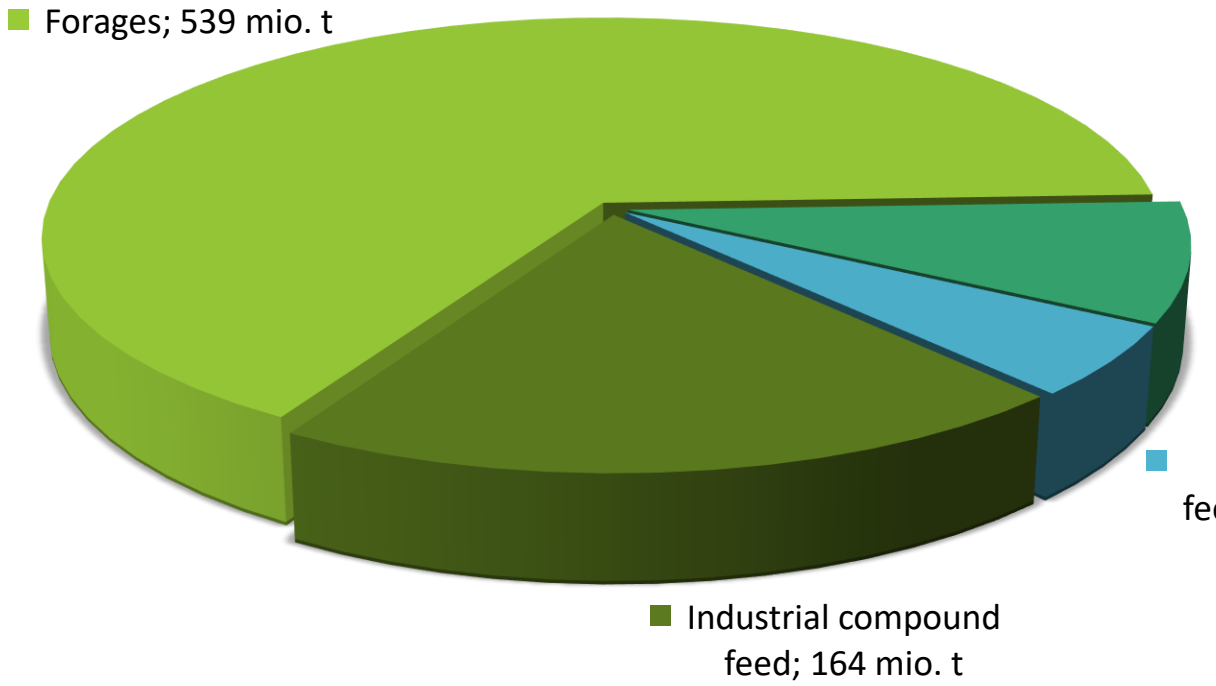
Livestock sourcing in feed in the EU-28 (816 mio. t in 2019)



Source: FEFAC - DG AGRI

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Green Deal Elements relevant to environmental footprinting of compound feed (1/2)

- European Climate Law (March 2020)
- New Circular Economy Action Plan (March 2020)
  - Sustainable products framework initiative (2021) – prevent environmentally harmful products from being placed on the EU market
  - Legislative proposal requiring companies to substantiate their claims using the PEF (2020)
  - Development of an Integrated Nutrient Management to ensure the sustainability in the application of nutrients to agricultural soils
- Farm to Fork Strategy (March 2020)
  - Explore ways to give consumers better information (…) on environmental footprint
  - *Revision of feed labelling legislation to integrate "green claims"*

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Green Deal Elements relevant to environmental footprinting of compound feed (2/2)

- Minimising of deforestation risk / promotion of deforestation-free supply chains
  - European Commission to assess the suitability of using PEF
- Biodiversity Strategy (March 2020)
  - Sustainable products initiative envisions to better integrate biodiversity impacts into the PEF
- Revision Non-Financial Reporting Directive (Q4 2020)
  - Increasing disclosure obligations of environmental/climate information for financial investors (mostly for listed companies)
- Sustainable Finance (ESG): Estalishment of EU Taxonomy of Sustainable Economic Activities

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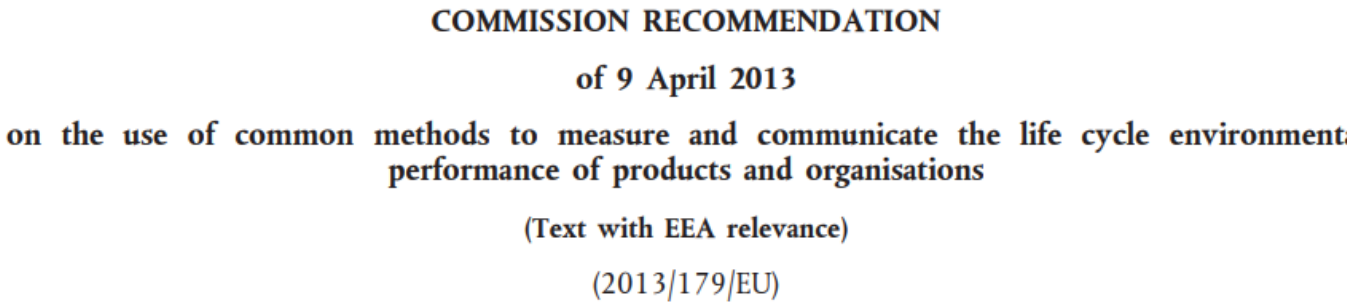
PEF – Product Environmental Footprint

COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT AND THE COUNCIL

Building the Single Market for Green Products

Facilitating better information on the environmental performance of products and organisations



COMMISSION RECOMMENDATION

of 9 April 2013

on the use of common methods to measure and communicate the life cycle environmental performance of products and organisations

(Text with EEA relevance)

(2013/179/EU)

- Start of PEF is the result of the political ambition to address environmental impacts throughout the life cycle of products in the Integrated Product Policy Communication (2003)
- PEF = Harmonised communication on the measurement of environmental performance within a product-range (common methodology = no competition on measurement rules)
- 2014: Start voluntary pilot phase to develop Category Rules

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PEF – Current state of play

- Environmental performance of products & businesses – substantiating claims
  - Inception Impact Assessment / Roadmap: 20 July – 31 August
  - Public Consultation: 27 August – 3 December 2020
- FEFAC calls for an EU legal framework requiring companies making claims related to the impacts covered by the Environmental Footprint methods to substantiate them via the Environmental Footprint methods. Green claims in feed should be substantiated with the PEFCR Feed
- EU Commission legislative proposal expected Q2 2021

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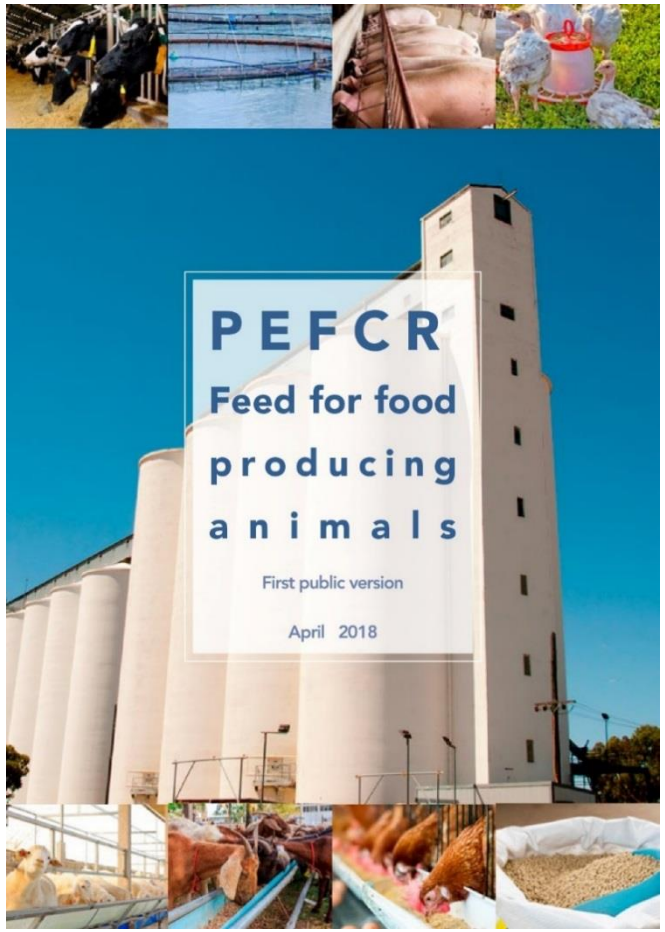
Methodology for measuring environmental performance of feed production



- Published/Approved by the EU Commission in April 2018 (an official reference document)
- Harmonised **RULES** for what to measure, how to ensure the quality & how to model data measurement into a score on the different "impact categories" for the "product category" animal feed
- Was subject to Member State, stakeholder and NGO evaluation
- Global alignment through FAO-LEAP
- Including rules for data input
- Scope: Production of feed ingredients up to farm delivery (cradle to gate)

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PEFCR Feed Technical Secretariat
(Chaired by FEFAC)

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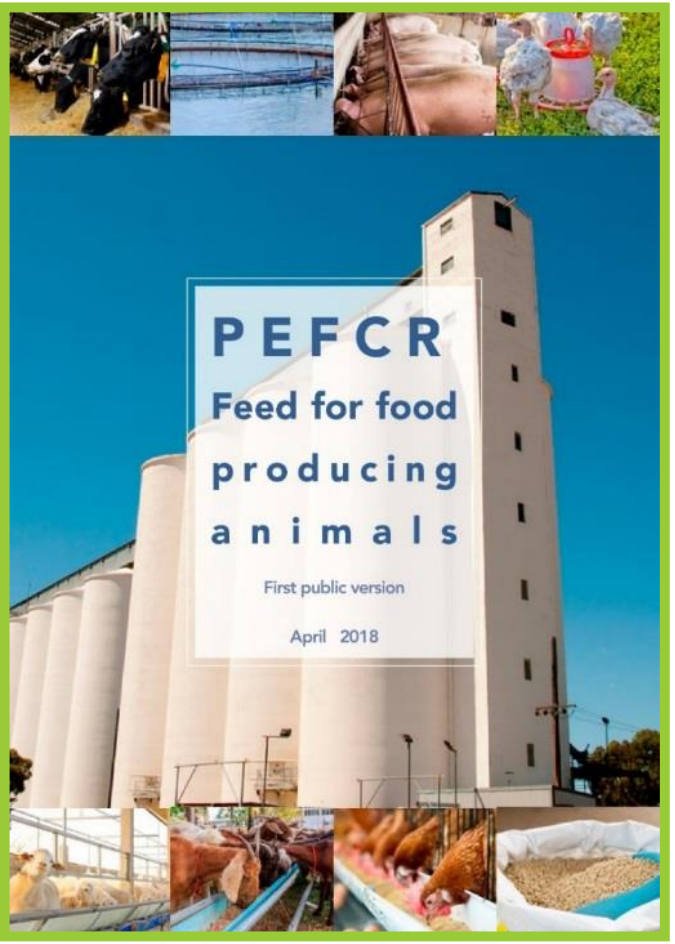
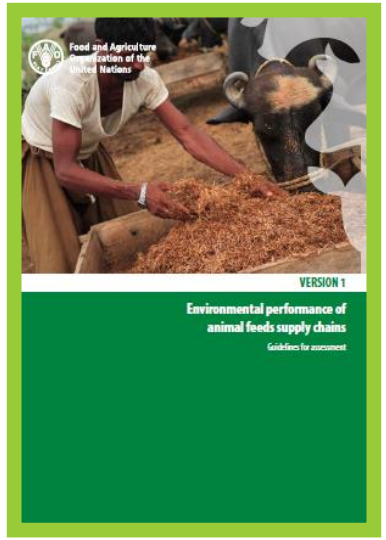
PEFCR Feed only part of the puzzle

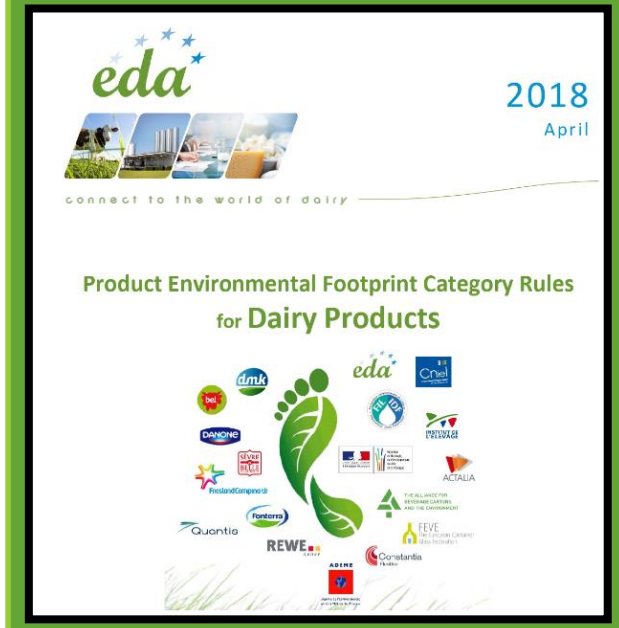




Product Environmental Footprint Category Rules Guidance

Version 6.3 – May 2018

PEF TAB Agricultural Modelling Working Group: Emissions related to feed digestion at farm level



Marine Fish PEFCR Project launched October 2019

Red Meat PEFCR?

Poultry Meat PEFCR?

Egg PEFCR?

The 16 PEF impact categories

Climate Change (kg CO^2 eq) ➢ Sub-Category 1: Climate change – fossil (GHG) ➢ Sub-Category 2: Climate change – biogenic ➢ Sub-Category 3: Climate change – land use and land transformation	**Eutrophication (terrestrial)**
Ozone depletion	**Eutrophication (freshwater)**
Human toxicity (cancer)	**Eutrophication (marine)**
Human toxicity (non-cancer)	**Ecotoxicity (freshwater)**
Particulate matter	**Land use**
Ionising radiation, human health	**Water use**
Photochemical ozone formation, human health	**Resource use, minerals and metals**
Acidification	**Resource use, fossils**

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The 16 PEF impact categories – Most relevant as identified in PEFCR Feed

Climate Change (kg CO^2 eq) ➢ Sub-Category 1: Climate change – fossil (GHG) ➢ Sub-Category 2: Climate change – biogenic ➢ Sub-Category 3: Climate change – land use and land transformation	**Eutrophication (terrestrial)**
Particulate matter	**Land use**
	Water use
Acidification	

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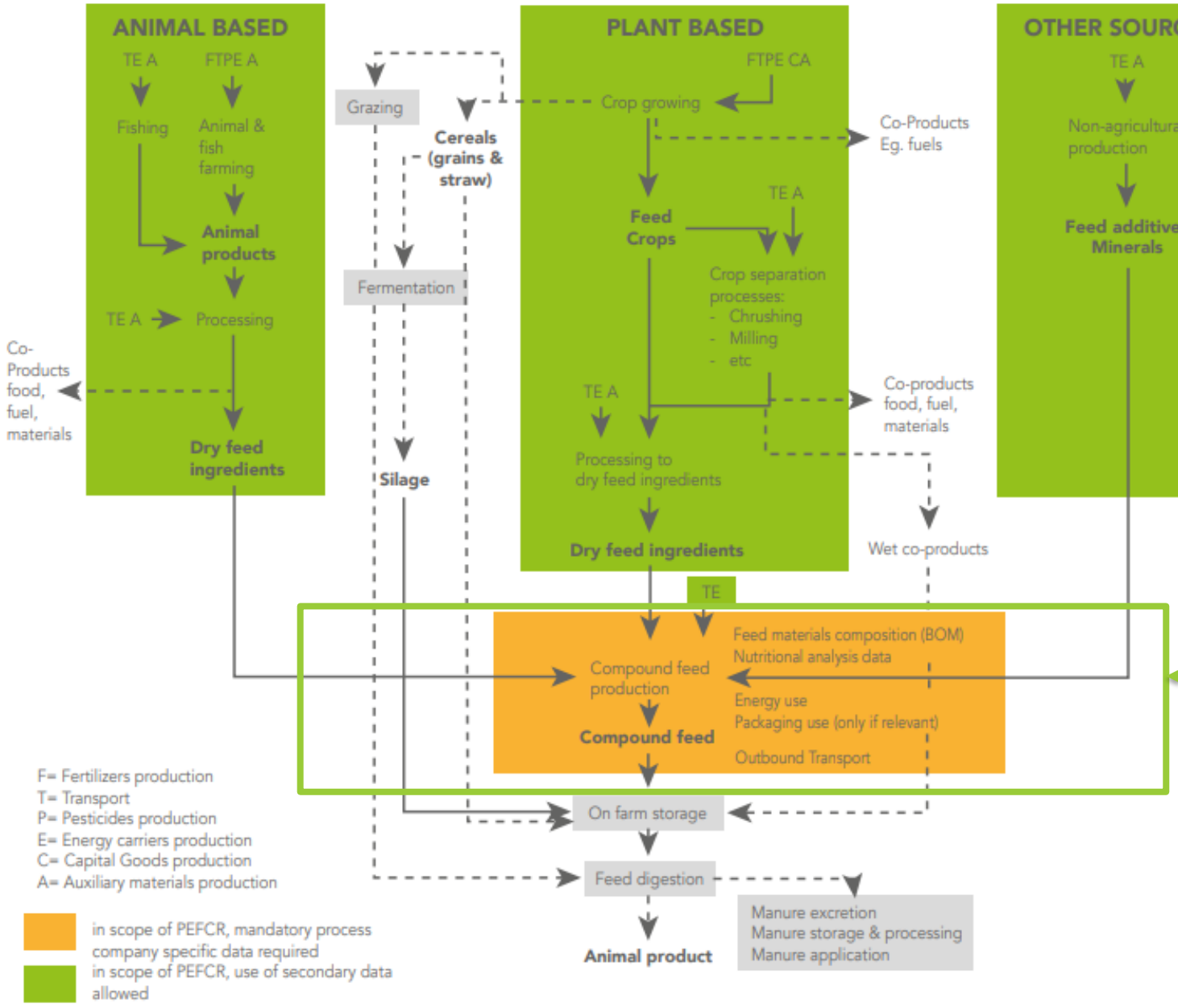
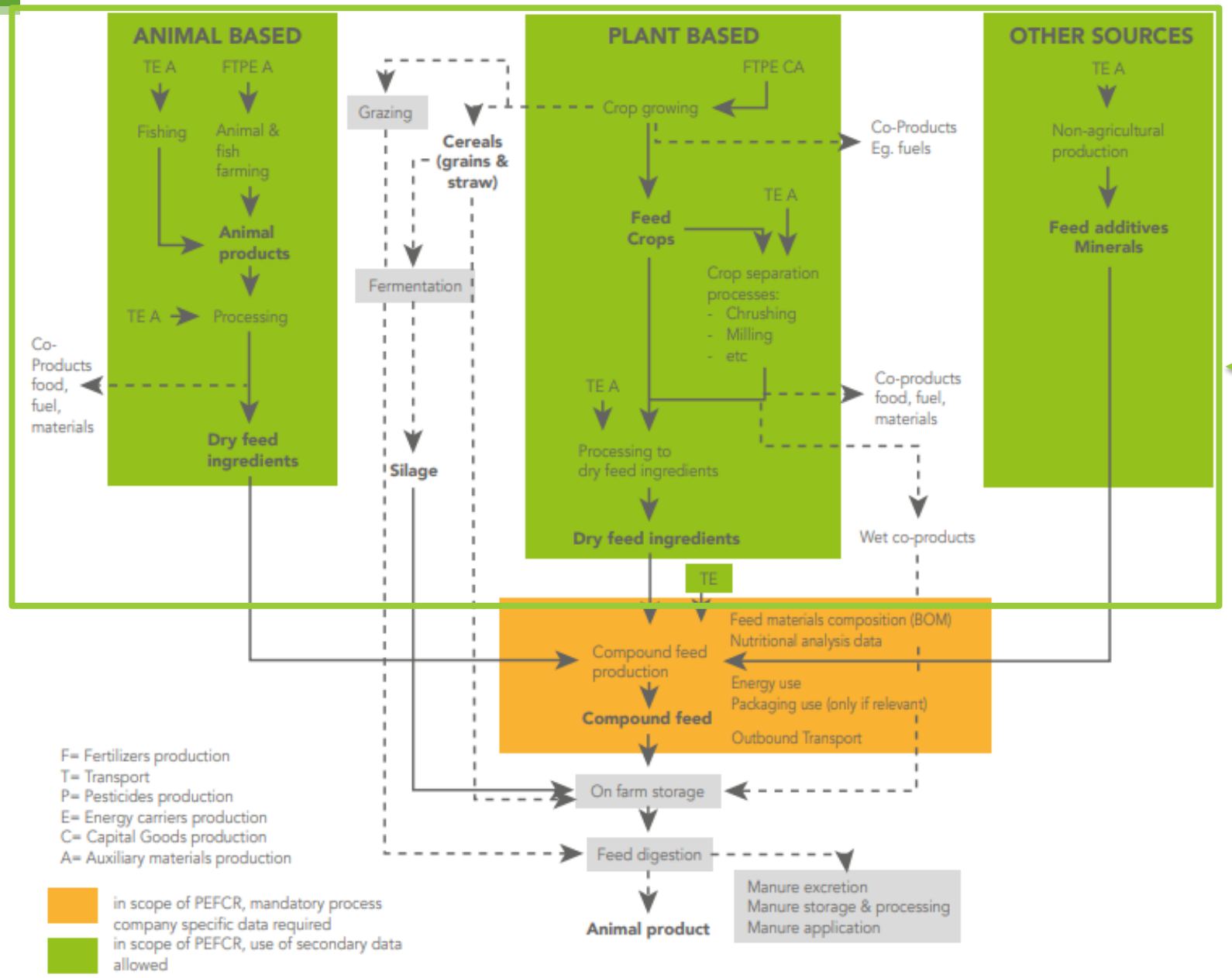


Within compound feed manufacturer direct control. Data collection on these items possibly already (being) done!

- Feed materials composition
- Nutritional analysis data (i.a. nitrogen, phosphorous, copper, zinc)
- Energy use
- Packaging use
- Outbound transport



Outside of compound feed manufacturer direct control (usually no primary data available).

However the most relevant life cycle stage for the PEFCR Feed

Need for **databases of all feed ingredients**!

9.3.2.1 *Secondary data for the production of feed ingredients*

- The list of feed ingredients purchased by the European Commission to support the implementation of this PEFCR is available in the accompanying excel file. This source of data is always the preferred option recommended in this PEFCR but may not contain all necessary datasets.
- The Global Feed LCA Institute[25] (GFLI) is the other source of datasets recommended in this PEFCR. The GFLI datasets follow the modelling rules described in this PEFCR and are compliant with the ILCD entry level requirements.

- GFLI Database: https://tools.blonkconsultants.nl/tools/
- EC database: https://lcdn.blonkconsultants.nl/Node/

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Thank you for your attention

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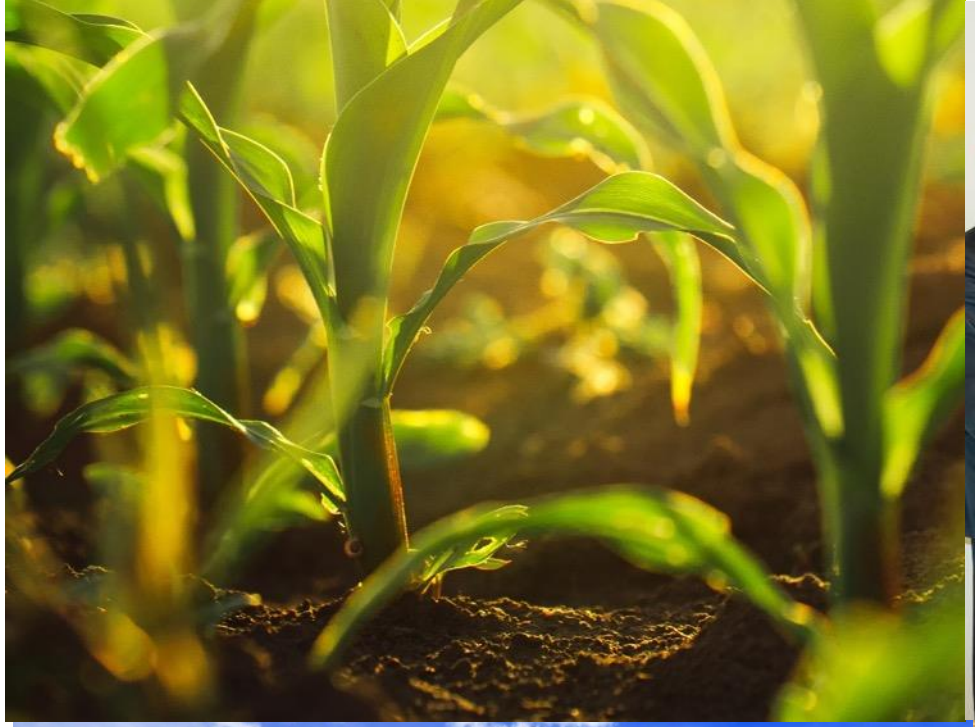

gfli

Global Metrics for Sustainable Feed

Mission

GFLI database to be embraced as the global reference for Feed LCA data by the public and private sectors, LCA researchers, industry, and governmental bodies.

When there is a benchmark for the current environmental footprint, future reductions can be made visible.

Key Attributes

- Feed-specific database based on a harmonized methodology
- Secondary datasets provided by regional and sectoral projects
- Environmental impact information of main feed ingredients: approximately 1,500 datasets
- Facilitates uniform calculation of 16 impact categories:
  - e.g. greenhouse gas emissions at cultivation, transport and processing; water use; water quality; land use change
- Soon to be software neutral to facilitate uptake of data by LCA practitioners
- Data quality and integrity assured by external review

Expanding the GFLI Methodology

- Updated version of GFLI Methodology to include guidance for Branded Data Projects, for example:
  - Certified crops (e.g. responsible soy)
  - Company-specific products (e.g. feed additives)
- Significant interest by potential data providers
- Emphasis on ensuring high data quality and comparability

Responsible Soy Datasets

- FEFAC Responsible Soy – LCA Convergence Project: Linking Responsible Soy Certification with Environmental Performance Data
  - Explore the use of the GFLI Database as the vehicle that can make it possible to calculate lower LCA impact when sourcing responsible soy
  - FEFAC invited the responsible soy schemes benchmarked against the FEFAC Soy Sourcing Guidelines to participate in a scoping study
  - Feedback from nine schemes and four LCA experts has provided valuable feedback for GFLI to consider

Responsible Soy Datasets

- Key considerations for GFLI:
  - Interest:
    - 6 out of 9 schemes consulted are open to exploring the possibility of contributing datasets to the GFLI database (two others might be interested in the future).
  - Data availability:
    - These 6 schemes are currently developing LCA data collection projects and/or tools.
  - Confidentiality:
    - All schemes emphasize the importance of how confidentiality is handled by the GFLI methodology.

Responsible Soy Datasets

- Key considerations for GFLI:
  - Data Compatibility (with GFLI database/methodology):
    - Schemes already collecting quantitative data are well-positioned to be able to provide LCA datasets
    - Schemes collecting qualitative data will face significant barriers
  - Data Comparability (among datasets)
    - Need to ensure that the datasets from different schemes are truly comparable
    - Experts warn of the need to provide a "baseline of acceptable data" to ensure the acceptance of only the highest quality data -->detect and reject cherry-picked data (esp. re: LUC data)
      - Detailed guidance for data collection needed
      - Independent review is essential

Responsible Soy Datasets

- Key considerations for GFLI:
  - Accurate Reflection of Environmental Performance
    - Concerns expressed re: the limitations of LCA re: capturing the positive impacts of sustainable agriculture and natural resource management practices
      - soil quality management; nutrient recycling; biodiversity protection and enhancement
    - How to avoid crediting a less sustainable scheme (in terms of overall production practices) due to focusing on one heavily weighted criterion (e.g. LUC)?
      - clear guidance on the requirements and best practices for data collection and independent review
      - guidance to help database users carefully identify the scope of the analysis they are conducting, recognize limitations in available data, and take into account the impact of the assessment decisions they make
      - recognize the limitations of PAS2050 and help lower barriers for projects that can provide the highest quality LUC data

Responsible Soy Datasets

- Next steps for GFLI:
  - GFLI's IT and Database Manager + Technical Management Committee working to finalize guidance for branded data projects
    - Likely to be a test phase to road test the guidance
      - Potential opportunity for interested responsible soy schemes
  - GFLI currently considering how best to facilitate database expansion with high quality data from all types of data generation projects: regional, sectoral, branded
      - GFLI would welcome the opportunity to share the outcome of these discussions with the Collaborative Soy Initiative

Any questions?

Ask Delanie Kellon
or Arjen Voortman

AGRIBUSINESS SERVICE

globalfeedlca.org

info@agribusiness-service.nl

The GFLI Database is always a work in progress; we welcome your feedback and questions!

Global Metrics for Sustainable Feed

Methodology: Guidelines for Land use change and limitation factors

Michele Zollinger, Lead on land use change carbon emissions, Quantis

Proterra Webinar

Methodology: Guidelines for Land use change and limitation factors

Michele Zollinger, Senior Sustainability Consultant,
Global NCS Lead

September 2020

Quantis

We guide top organizations to define, shape and implement intelligent environmental sustainability solutions.

We deliver resilient strategies, robust metrics, useful tools, and credible communications.

METRICS TOOLS STRATEGY COMMS

A global team

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We work with major global players

L'ORÉAL SANOFI

DANONE KERING

Nestlé natura

IKEA MICHELIN

Mondelēz International ACCOR HOTELS

AGENDA

01 WHY DOES LAND-USE CHANGE ACCOUNTING MATTER?

02 DEFINITIONS & ACCOUNTING RULES

03 APPLYING ACCOUNTING TO CERTIFICATION

04 WHAT COMES NEXT?

REPORTING GAP WHEN IT COMES TO LUC

24% of global GHG emissions come from agriculture, forestry and other land-use activities - second only to the energy sector and half of which is estimated to come from land use change & deforestation (IPCC).

However, **70%** of the 1,500 companies asked to disclose on four forest-risk commodities (timber, palm oil, cattle and soy) in 2018, failed to do so (CDP, 2019).

This lack of accountability could be attributed to 2 factors:

1

Lack of a clear methodology and data on how to account for and measure greenhouse gas emissions from land use and land use change

2

Lack of initiative and leadership in the area of land use and land use change

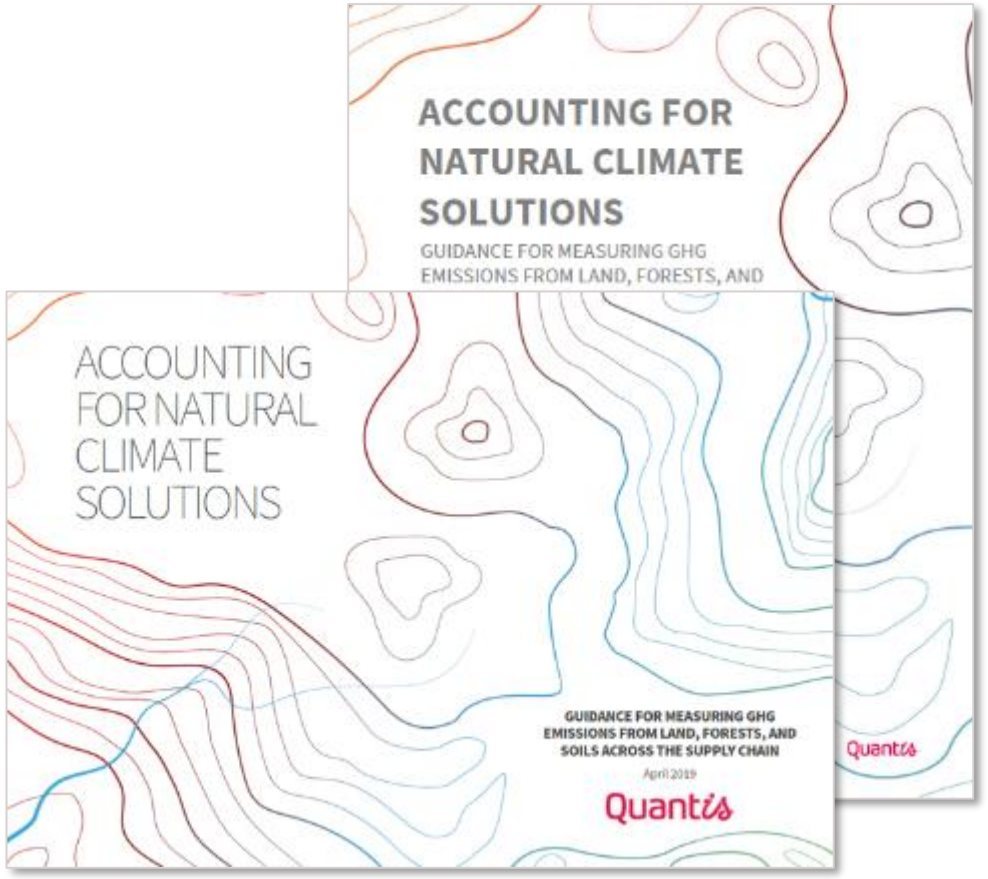
2. INTRODUCTION TO THE NCS GUIDANCE + DEFINITIONS

Land-use Change

A change from one land use category to another as **a result of human activity.** (NCS Guidanc, 2019)

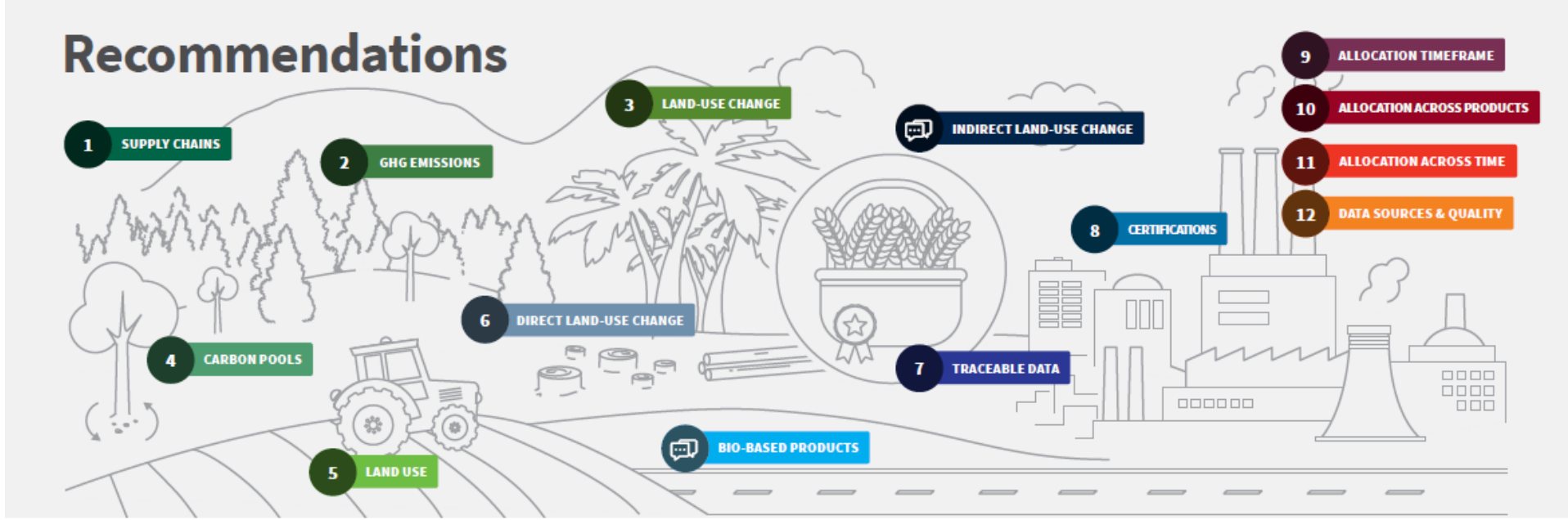
Land Use

The total of **arrangements, activities and inputs that people undertake** in a certain land cover type. (IPCC, 2006)



Access documents here on Drive:
https://drive.google.com/drive/folders/1OKUHijtDF9wTw6vL87rRgqTp9EKbCUfj

Recommendations



Navigation tip: click on each recommendation to view that section. Click on Recs to return to this page.

APPLICABILITY, SCOPE AND PRINCIPLES

1 SUPPLY CHAINS
Companies with agricultural, forestry or other land use-related activities in their supply chains should systematically include the land use and land use change (LULUC)-related emissions in the accounting of their carbon footprints.

2 GHG EMISSIONS
GHG emissions should be allocated to all agricultural and forestry products or land-related activities directly, or indirectly, linked to changes in carbon stocks occurring either as a result of preparing the land for cultivation or for accessing, growing, harvesting, or other land-related uses.

3 LAND-USE CHANGE
Companies should track net GHG flows caused by direct land-use changes (dLUC) as well as indirect land-use changes (iLUC) in relation to their supply chain. These direct and indirect impacts should be identified, measured and reported as separate components in order to identify effective strategies to address these two distinct causal routes of land-use change.

4 CARBON POOLS
Companies should account for all four types of carbon pools (aboveground biomass, belowground biomass, soil organic carbon and dead organic matter) when calculating GHG emissions from land-use change. Emissions from drained peatland and the burning of vegetation, whenever these occur as a result of human activity, should be included.

5 LAND USE
Companies should track GHG flows related to increases or decreases in carbon stocks linked to land management practices or other conditions of land use.

CASE STUDY 1

ALLOCATING & CALCULATING IMPACTS

6 DIRECT LAND-USE CHANGE
Companies should determine direct land-use change based on the history of the specific area where agriculture, forestry, and other land-related activities have occurred. When the location is unknown or the land use history is unclear, direct land-use change should be assigned based on a probability of land-use changes, according to the country, commodity or activity in question.

7 TRACEABLE DATA
Companies should measure GHG emissions caused by direct land-use changes based on traceable information on land use conditions within their supply chains, while recognizing data may not always be available.

CASE STUDY 2

8 CERTIFICATIONS
Certifications can be a useful resource in understanding past land use and land-use changes related to a commodity's production; they can therefore be helpful in refining estimates of GHG emissions associated with LULUC. When using certifications, companies should evaluate the objective, scope, and timeframe of the certification program. Companies can also apply a residual fraction to non-certified products for markets in which verified certifications that address LULUC are available.

CASE STUDY 3

TOPICS UNDER DISCUSSION

INDIRECT LAND-USE CHANGE
Companies should determine indirect land-use changes based on the influence of market demand leading to land-use changes beyond a given product's point of origin. Scale of market effect, land demand responsibility, and all land use categories should be taken into account.

BIO-BASED PRODUCTS
When products or commodities are composed of forest-derived biomass, consideration should be given to climate impacts caused by differences in the timing of carbon emissions and sequestration from forest regrowth.

CASE STUDY 4

DISTRIBUTING IMPACTS

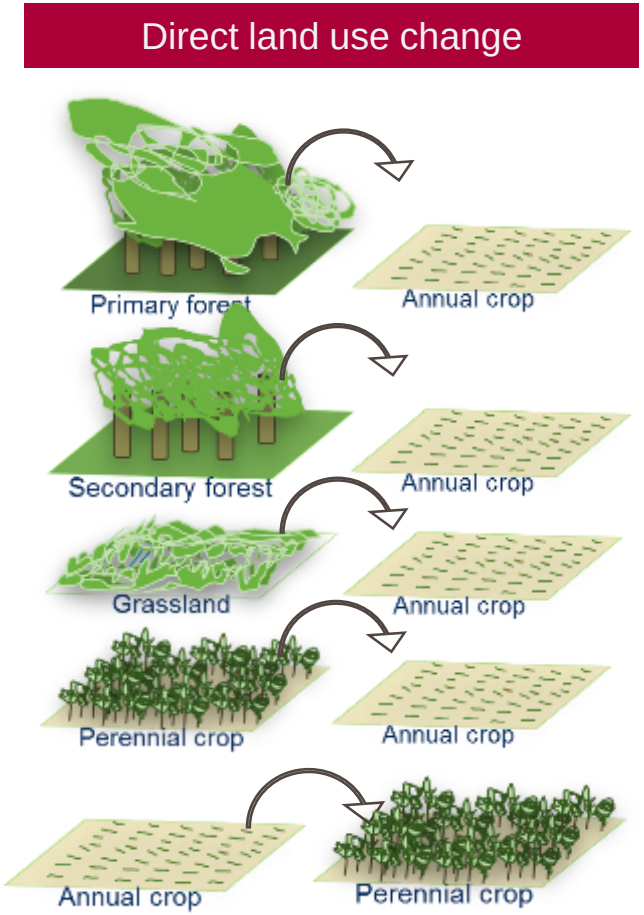
9 ALLOCATION TIMEFRAME
Companies should use a 20-year timeframe when identifying past land-use changes and allocating the associated GHG emissions.

10 ALLOCATION ACROSS PRODUCTS
Companies should use an economic approach to allocate land-related GHG emissions to all land-derived products. When justified, emissions may also be allocated by mass or land area.

11 ALLOCATION ACROSS TIME
A linear discounting method can be applied when allocating impacts across time. While linear discounting is recommended, companies can also apply equal allocation when relevant.

12 DATA SOURCES & QUALITY
Companies documenting and reporting on GHG emissions linked to land use and land-use changes should disclose data sources and communicate on data quality.

DEFINITION OF DIRECT LAND-USE CHANGE



Direct land-use change (dLUC)

- A change from one land use category to another as a result of human activity.
- Not only deforestation but any type of land use conversion/transformation e.g. land degradation.

TWO STEP APPROACH TO CALCULATING THE GREENHOUSE GAS FOOTPRINT FROM LUC

1 Understand the total GHG emissions occurred from land

Type of data used
- IPCC carbon data
- FAO agricultural data for assessing changes in land categories

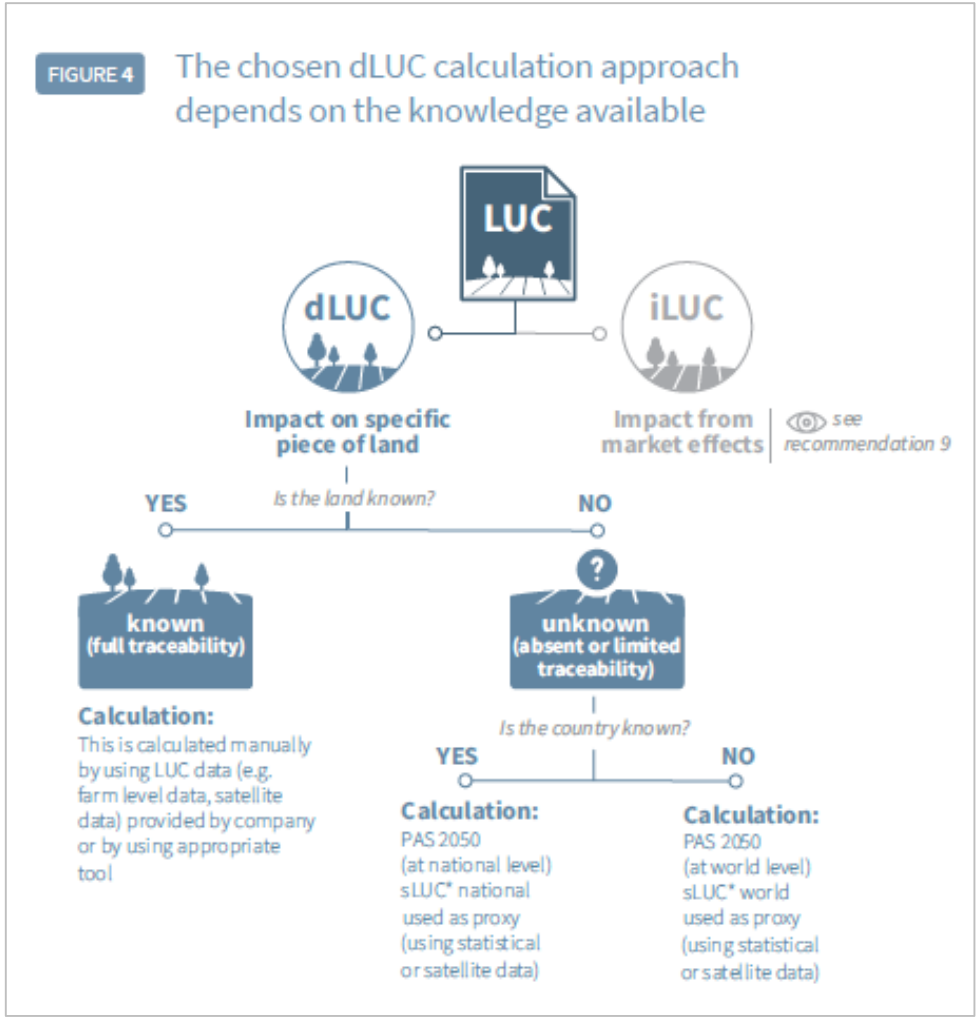
Calculation methodology
- Based on IPCC methodology

2 Allocate emissions to responsible crop

Type of data used
- FAO agriculture data

Calculation methodology
- Allocation timeframe
- Allocation across time
- Allocation across products (multiple crops per piece of land – relevant for farm level)

DIFFERENT LEVELS OF KNOWLEDGE EXIST INFLUENCING THE LUC CALCULATION APPROACH



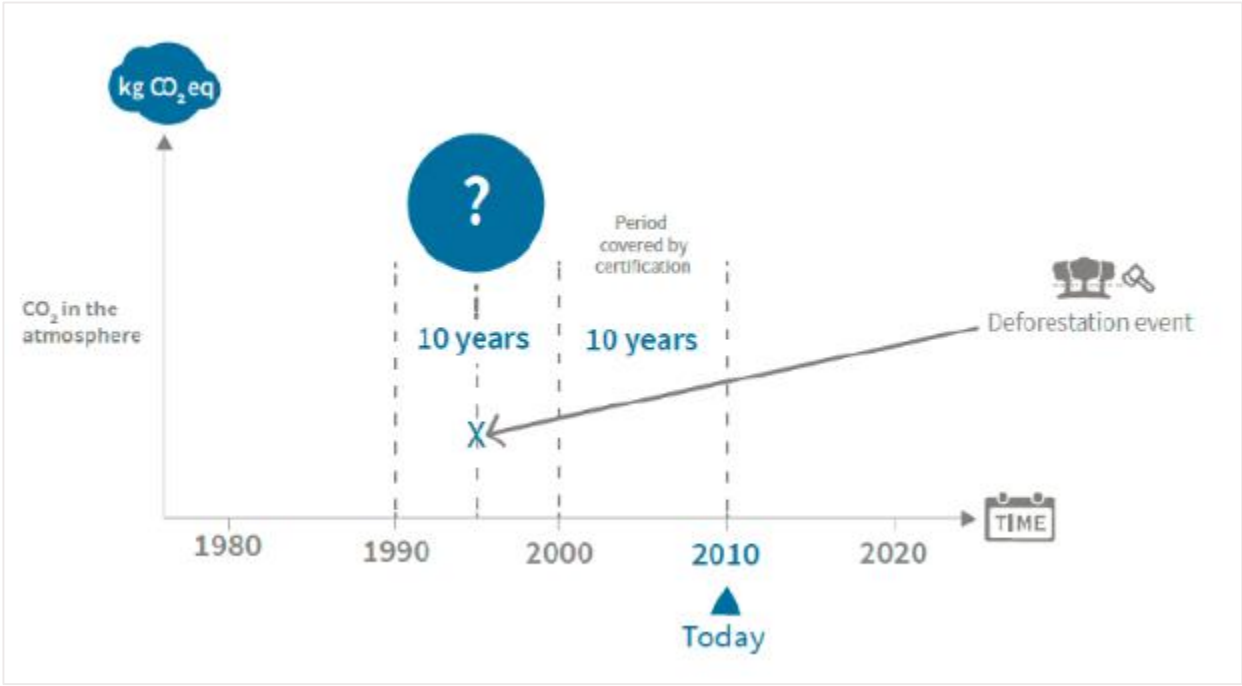
Source: NCS Guidance, Quantis, 2019. Page 20

- **Different levels of knowledge** exist about the land depending on the product and supply chain.
- **Known** = location, condition, and history are traced
- **Unknown** = location, condition, and history are not traced.
- Calculation can happen at **country level, regionalized level, farm level** creating different values. With more refined modeling certainty of value of direct land use change is higher.

3. ACCOUNTING FOR CERTIFICATIONS

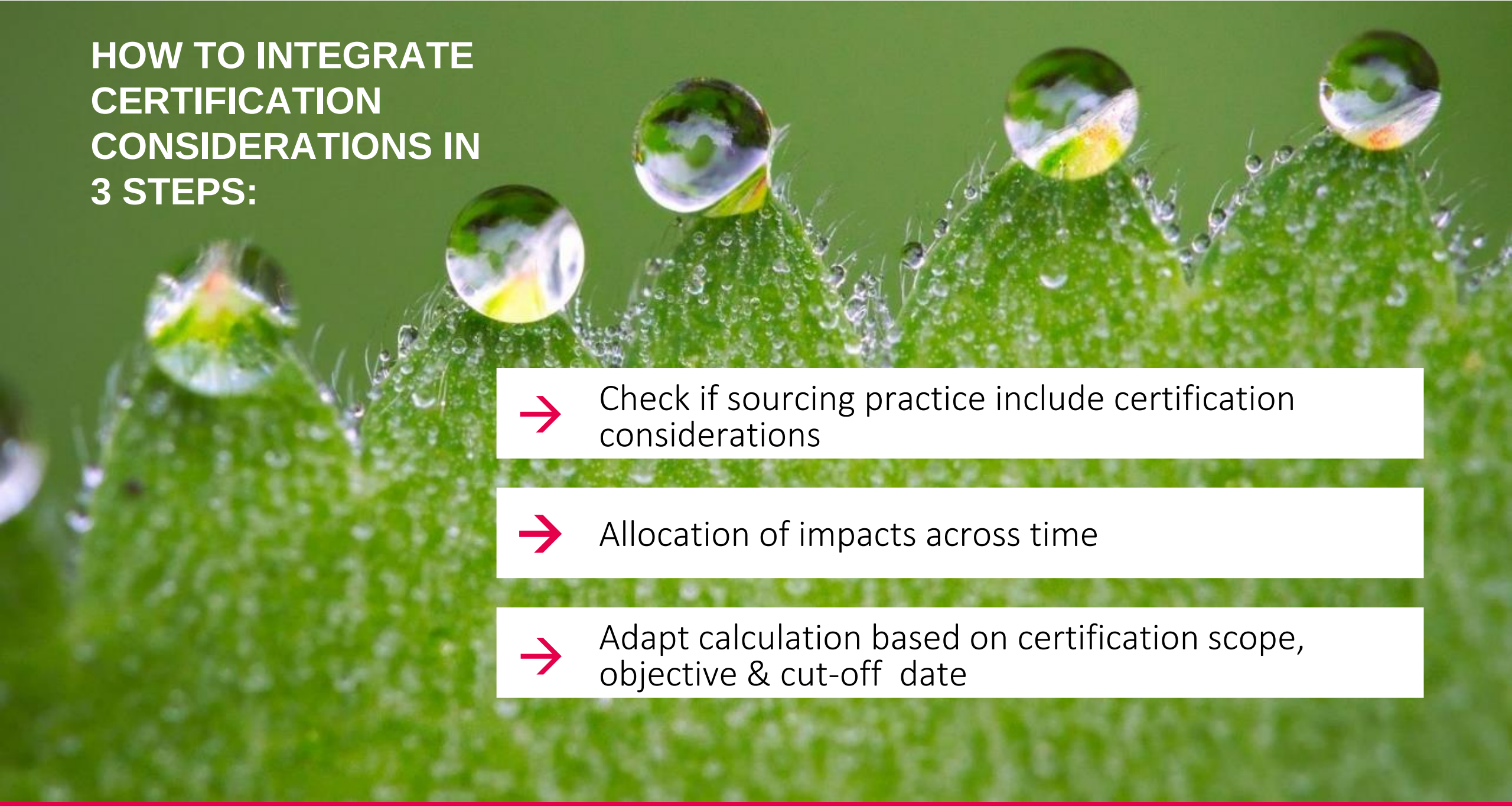
Certifications can have different **objectives, scope**, and **timeframe**

- Objective: Type of certification (e.g. aims to eliminate deforestation and also increase biodiversity)
- Timeframe: Cutoff date e.g. 2020 legacy not always considered
- Scope: Boundary of the certification (e.g. only convert primary or also secondary forest)



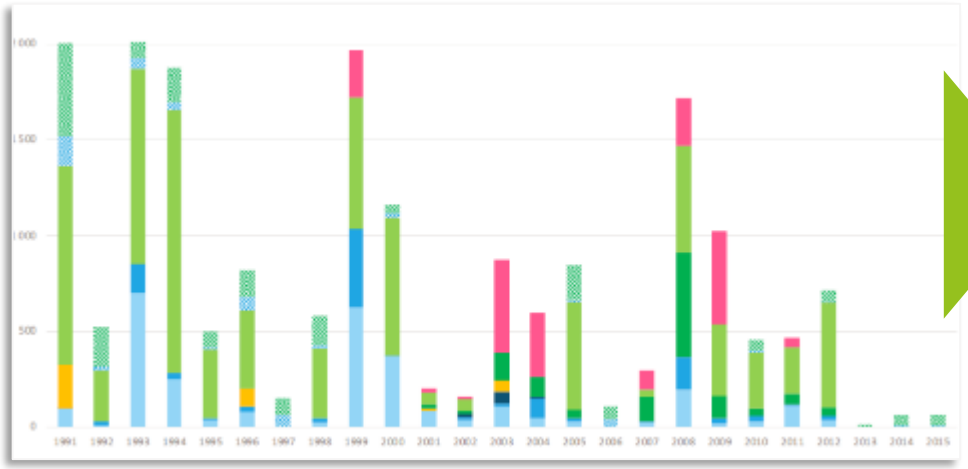
Source: NCS Guidance, Quantis, 2019. Page 94 Annex

HOW TO INTEGRATE CERTIFICATION CONSIDERATIONS IN 3 STEPS:

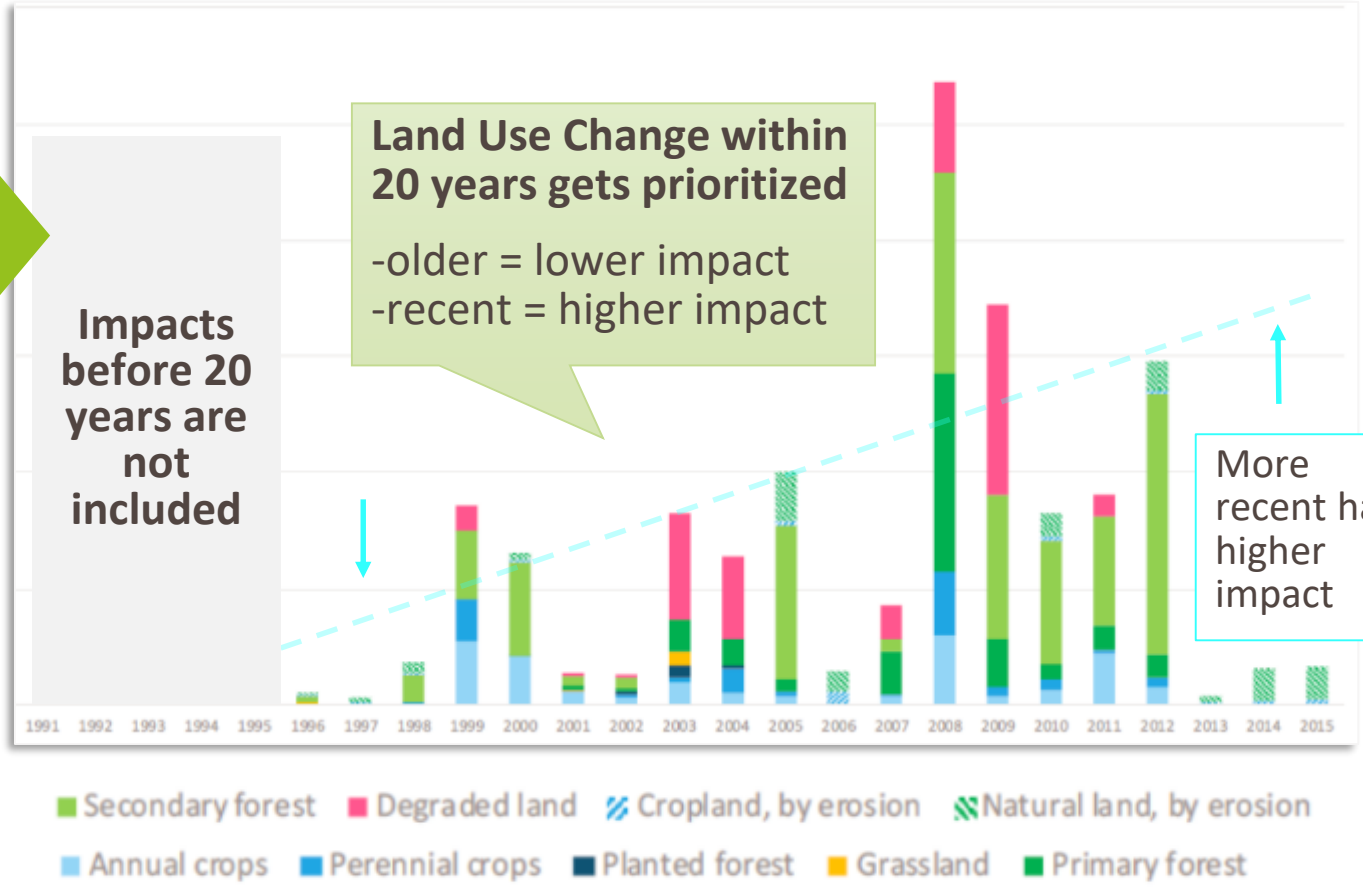


- → Check if sourcing practice include certification considerations
- → Allocation of impacts across time
- → Adapt calculation based on certification scope, objective & cut-off date

LINEAR ALLOCATION OF IMPACTS ACROSS TIME

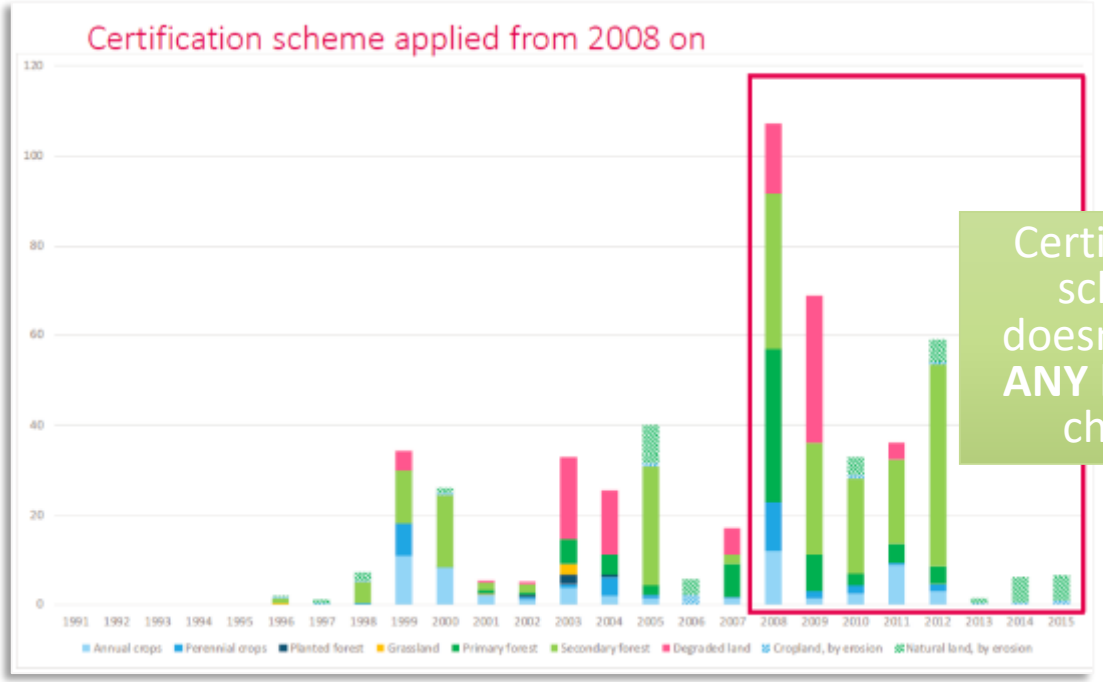


Lots of different land use change happens in every year, and comes with a carbon impact

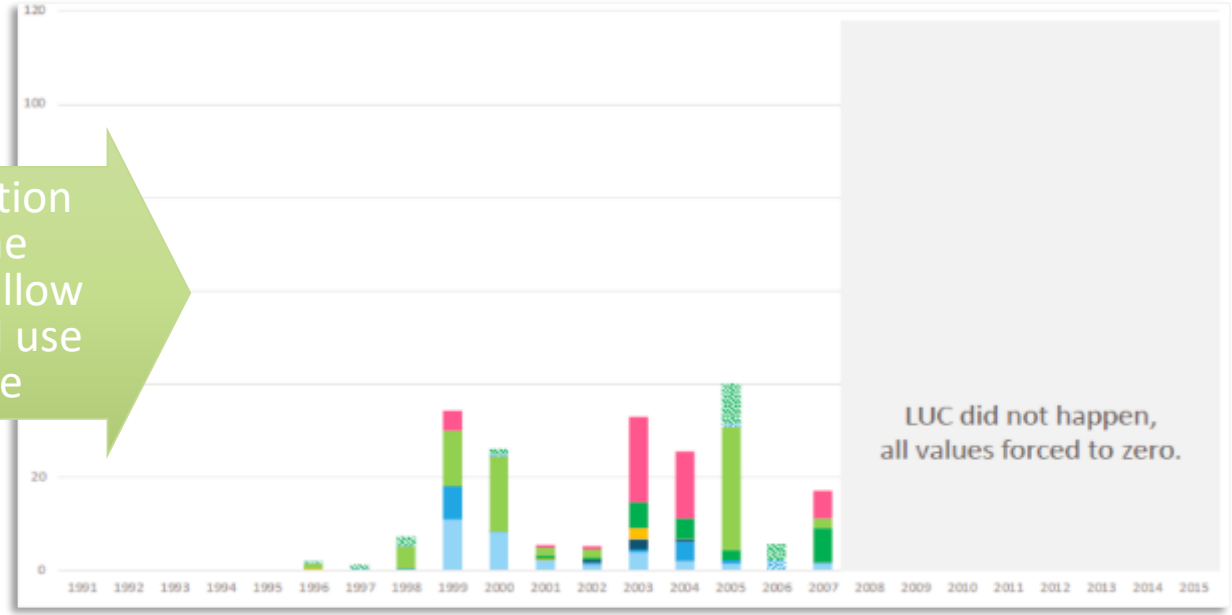


GHG ACCOUNTING FOR CERTIFICATION

Cut-off date: 2008
Objective: halt any land conversion
Scope: includes also soil health & peat considerations

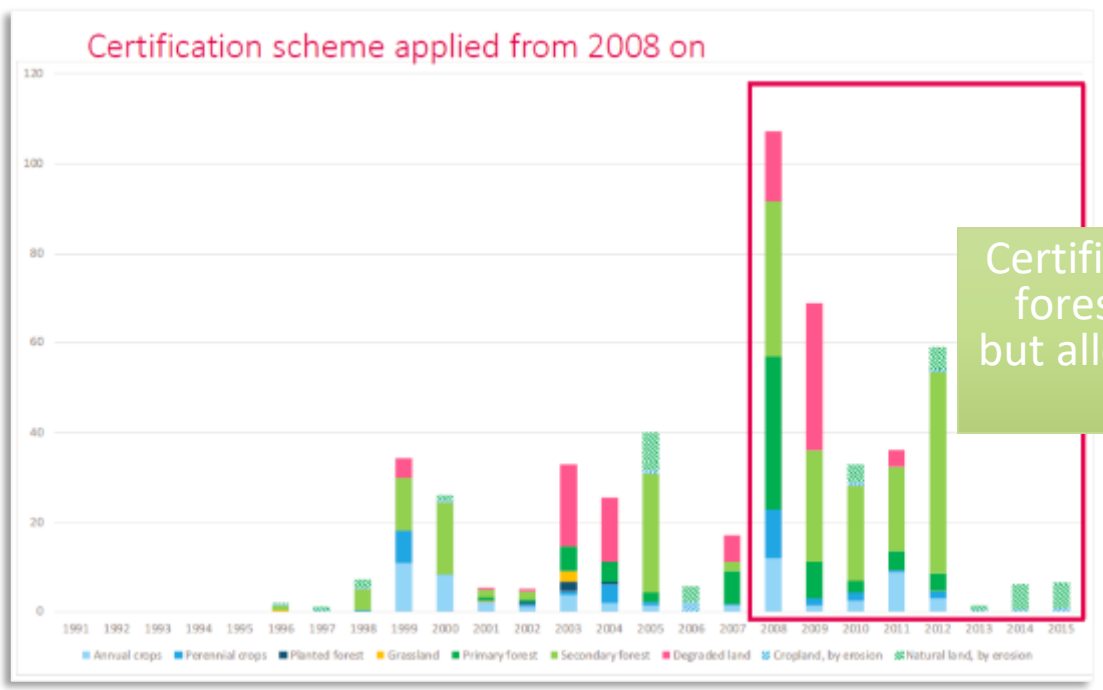


Certification scheme doesn't allow **ANY** land use change

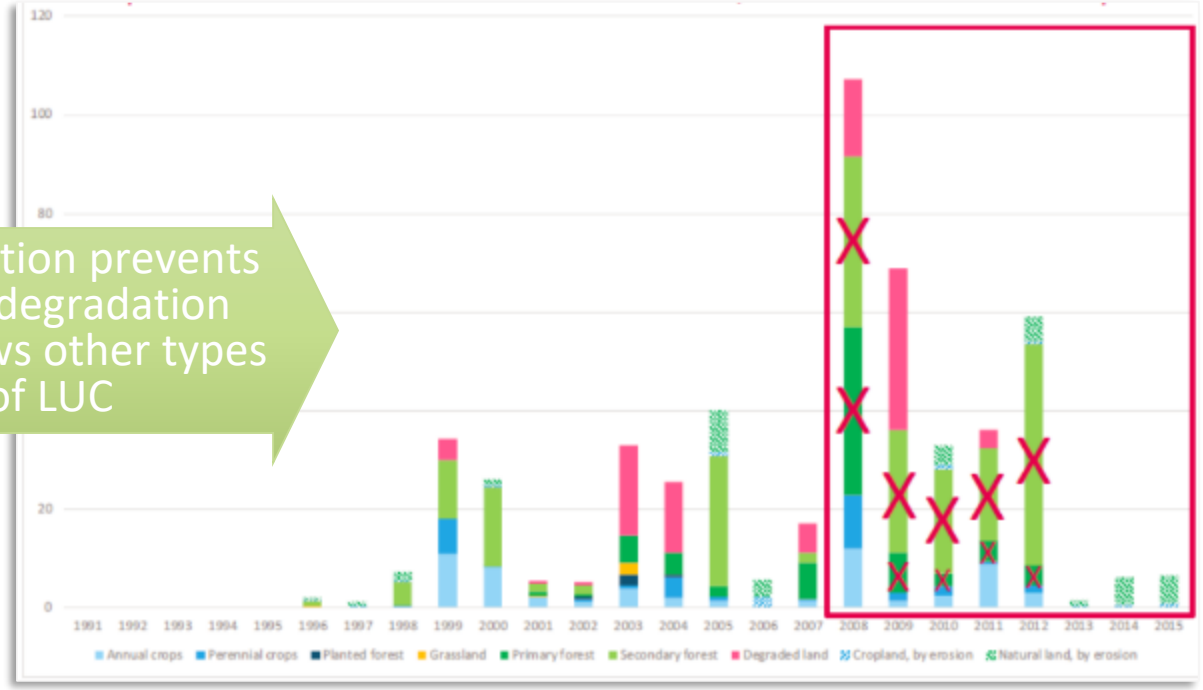


GHG ACCOUNTING FOR CERTIFICATION (CONTINUED)

Cut-off date: 2008
Objective: halt deforestation of primary and secondary forest
Scope: peat and soil impacts not included



Certification prevents forest degradation but allows other types of LUC



4. WHAT COMES NEXT?

GREENHOUSE GAS PROTOCOL

SCIENCE BASED TARGETS

DRIVING AMBITIOUS CORPORATE CLIMATE ACTION

Update on Greenhouse Gas Protocol Carbon Removals and Land Sector Initiative

In January, WRI and WBCSD launched the GHG Protocol Carbon Removals and Land Sector Initiative. We have convened an Advisory Committee and three Technical Working Groups to develop three new GHG Protocol standards and guidance: Carbon Removals Standard, Land Sector Guidance, and Bioenergy Guidance.

The new publications will explain how companies should account for and report carbon removals and storage in greenhouse gas inventories, including emissions and removals from land use, land use change, bioenergy, and related activities, building on the Corporate Standard and Scope 3 Standard.

THANK YOU

LET'S TALK!

MICHELE ZOLLINGER

SENIOR CONSULTANT & GLOBAL NCS LEAD

Michele.Zollinger @quantis-intl.com

www.quantis-intl.com

Quantis

How to integrate and calculate Life Cycle Assessment emissions based on available data?

Jasper Scholten, Manager LCA, Blonk Consultants


blonk consultants
Giving shape to sustainability

How to integrate and calculate Life Cycle Assessment emissions based on available data?

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August 2020

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giving shape to sustainability

Content

- About Blonk Consultants
- Carbon footprint and Land Use Change (LUC) emissions
- The methodological basis
- The LUC tool
- LUC implemented in studies
- Contribution of LUC in carbon footprints of products
- Some take-away messages

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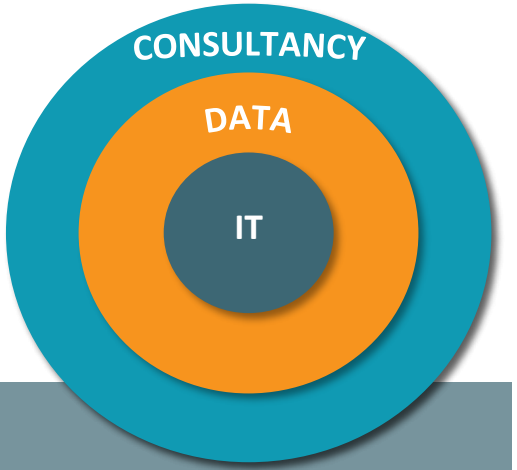
About Blonk Consultants

Giving shape to sustainability



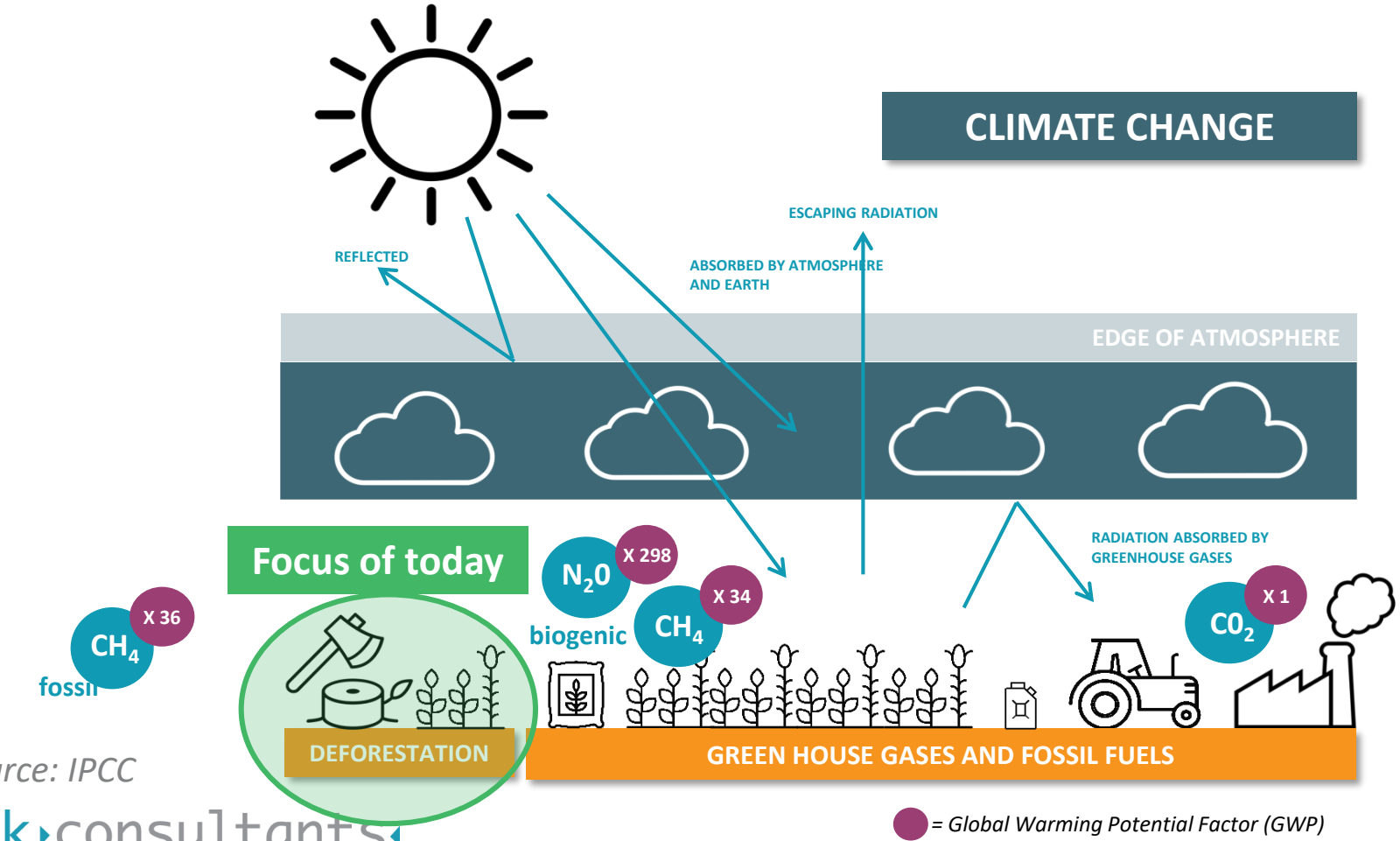
Blonk Consultants

- *Founded in 1999 by Hans Blonk*
- *Expertise: agri-food Life Cycle Assessments, Sustainable products & supply chains, sustainable diets*
- *Setting the standard*
- *Developer of smart sustainability software & environmental databases*
- *Team of 20 dedicated agri-food sustainability experts*
- *Based in Gouda, the Netherlands*

Our client base

Carbon footprint and Land Use Change (LUC) emissions

Emission of greenhouse gases that contribute to global warming



Source: IPCC

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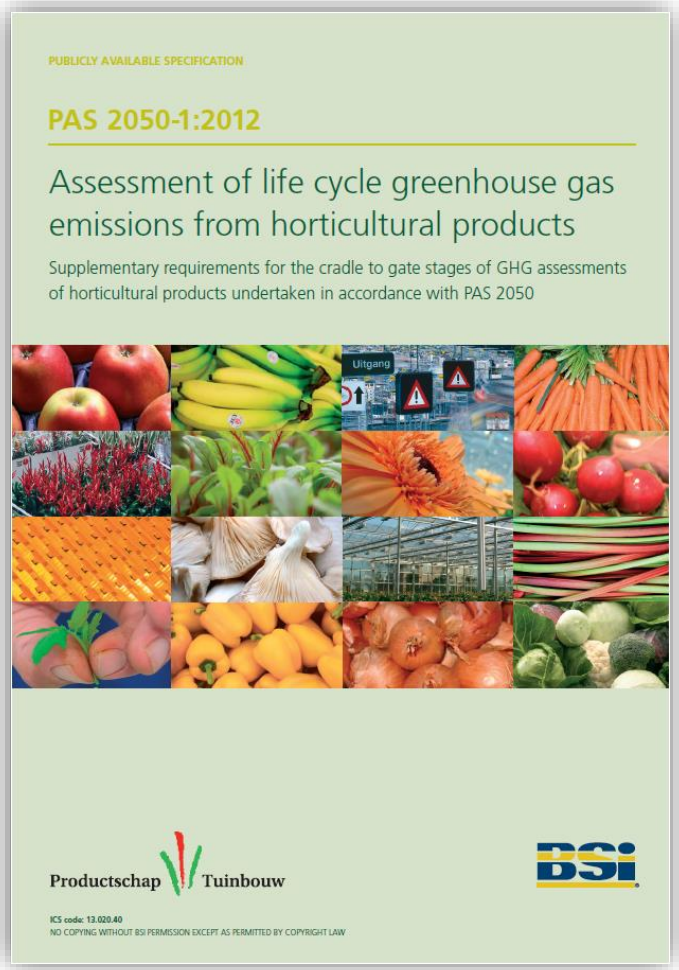
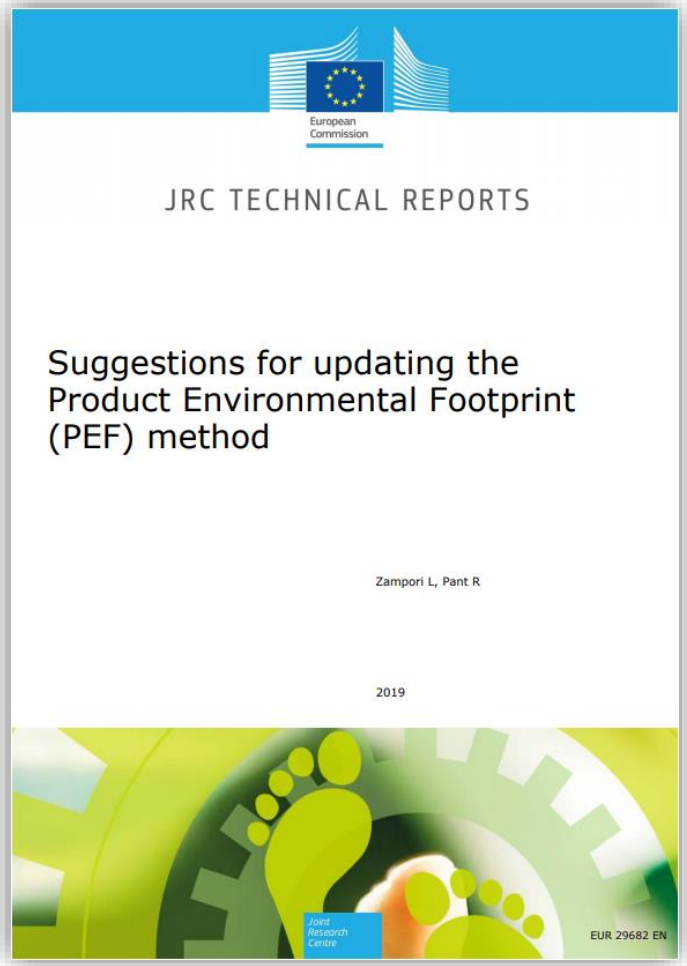
LUC methodology in the standards:



PAS 2050-1:2012



Product Environmental Footprint (PEF)

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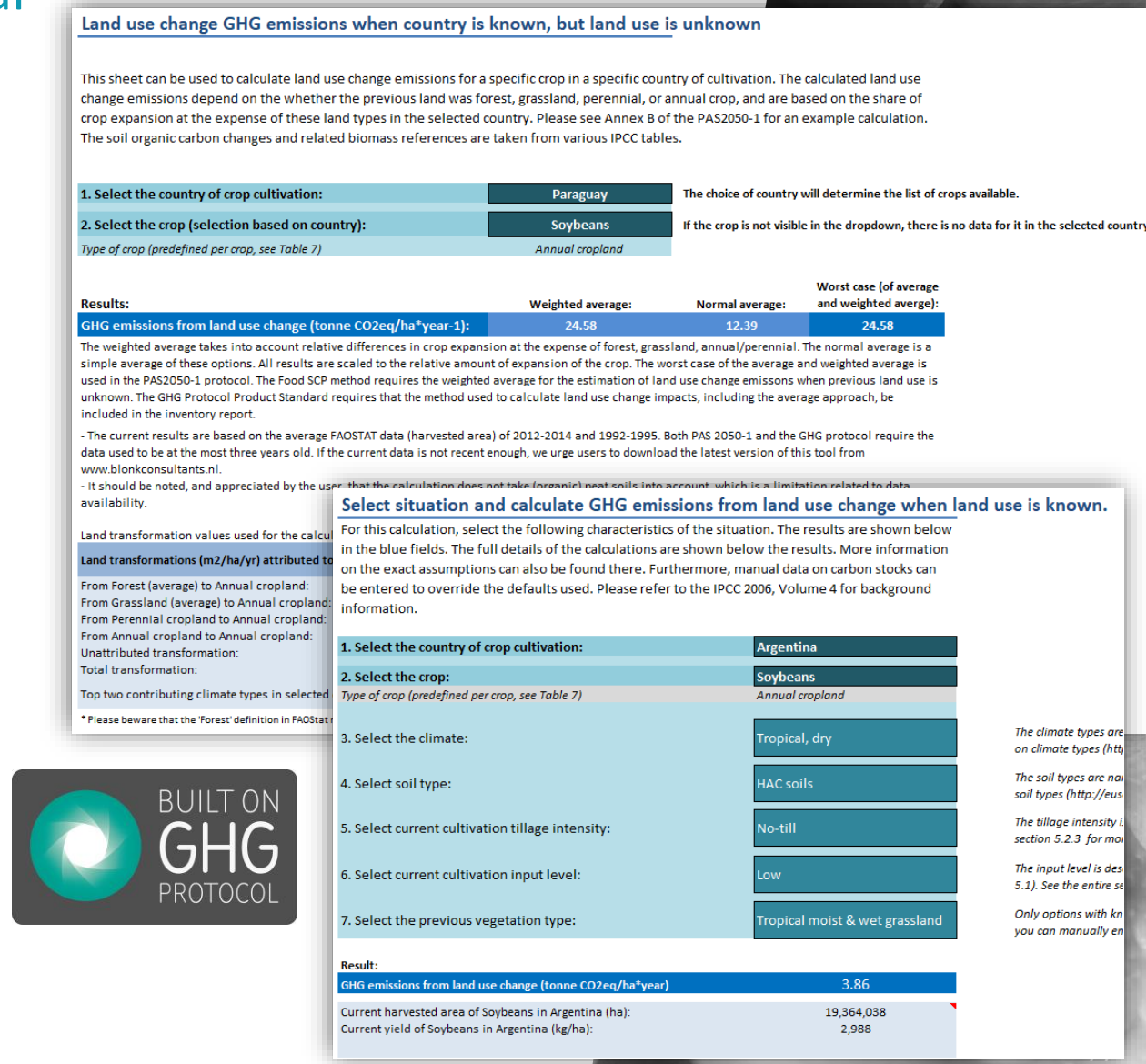
The LUC tool

Making it practical

- **Compliant to PAS2050 and PEF**
- **3 options to calculate LUC emissions**
  - **Country & land use unknown**
    - LUC emissions based on a global weighted average
  - **Country known & land use unknown**
    - LUC emissions based on a country specific data
    - LUC emissions applied in LCA databases and when no primary data is available for
  - **Country & land use known**
    - LUC emissions based on primary data



Land use change GHG emissions when country is known, but land use is unknown

This sheet can be used to calculate land use change emissions for a specific crop in a specific country of cultivation. The calculated land use change emissions depend on the whether the previous land was forest, grassland, perennial, or annual crop, and are based on the share of crop expansion at the expense of these land types in the selected country. Please see Annex B of the PAS2050-1 for an example calculation. The soil organic carbon changes and related biomass references are taken from various IPCC tables.

1. Select the country of crop cultivation:	Paraguay	The choice of country will determine the list of crops available.
2. Select the crop (selection based on country):	Soybeans	If the crop is not visible in the dropdown, there is no data for it in the selected country
Type of crop (predefined per crop, see Table 7)	*Annual cropland*	

Results:	Weighted average:	Normal average:	Worst case (of average and weighted averge):
GHG emissions from land use change (tonne CO2eq/ha*year-1):	24.58	12.39	24.58

The weighted average takes into account relative differences in crop expansion at the expense of forest, grassland, annual/perennial. The normal average is a simple average of these options. All results are scaled to the relative amount of expansion of the crop. The worst case of the average and weighted average is used in the PAS2050-1 protocol. The Food SCP method requires the weighted average for the estimation of land use change emissons when previous land use is unknown. The GHG Protocol Product Standard requires that the method used to calculate land use change impacts, including the average approach, be included in the inventory report.

- The current results are based on the average FAOSTAT data (harvested area) of 2012-2014 and 1992-1995. Both PAS 2050-1 and the GHG protocol require the data used to be at the most three years old. If the current data is not recent enough, we urge users to download the latest version of this tool from www.blonkconsultants.nl.
- It should be noted, and appreciated by the user, that the calculation does not take (organic) peat soils into account, which is a limitation related to data availability.

Land transformation values used for the calcul

Land transformations (m2/ha/yr) attributed to
From Forest (average) to Annual cropland:
From Grassland (average) to Annual cropland:
From Perennial cropland to Annual cropland:
From Annual cropland to Annual cropland:
Unattributed transformation:
Total transformation:
Top two contributing climate types in selected

* Please beware that the 'Forest' definition in FAOStat

Select situation and calculate GHG emissions from land use change when land use is known.

For this calculation, select the following characteristics of the situation. The results are shown below in the blue fields. The full details of the calculations are shown below the results. More information on the exact assumptions can also be found there. Furthermore, manual data on carbon stocks can be entered to override the defaults used. Please refer to the IPCC 2006, Volume 4 for background information.

1. Select the country of crop cultivation:	Argentina
2. Select the crop:	Soybeans
Type of crop (predefined per crop, see Table 7)	*Annual cropland*
3. Select the climate:	Tropical, dry
4. Select soil type:	HAC soils
5. Select current cultivation tillage intensity:	No-till
6. Select current cultivation input level:	Low
7. Select the previous vegetation type:	Tropical moist & wet grassland

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The tillage intensity i
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Result:	
GHG emissions from land use change (tonne CO2eq/ha*year)	3.86
Current harvested area of Soybeans in Argentina (ha):	19,364,038
Current yield of Soybeans in Argentina (kg/ha):	2,988

BUILT ON GHG PROTOCOL

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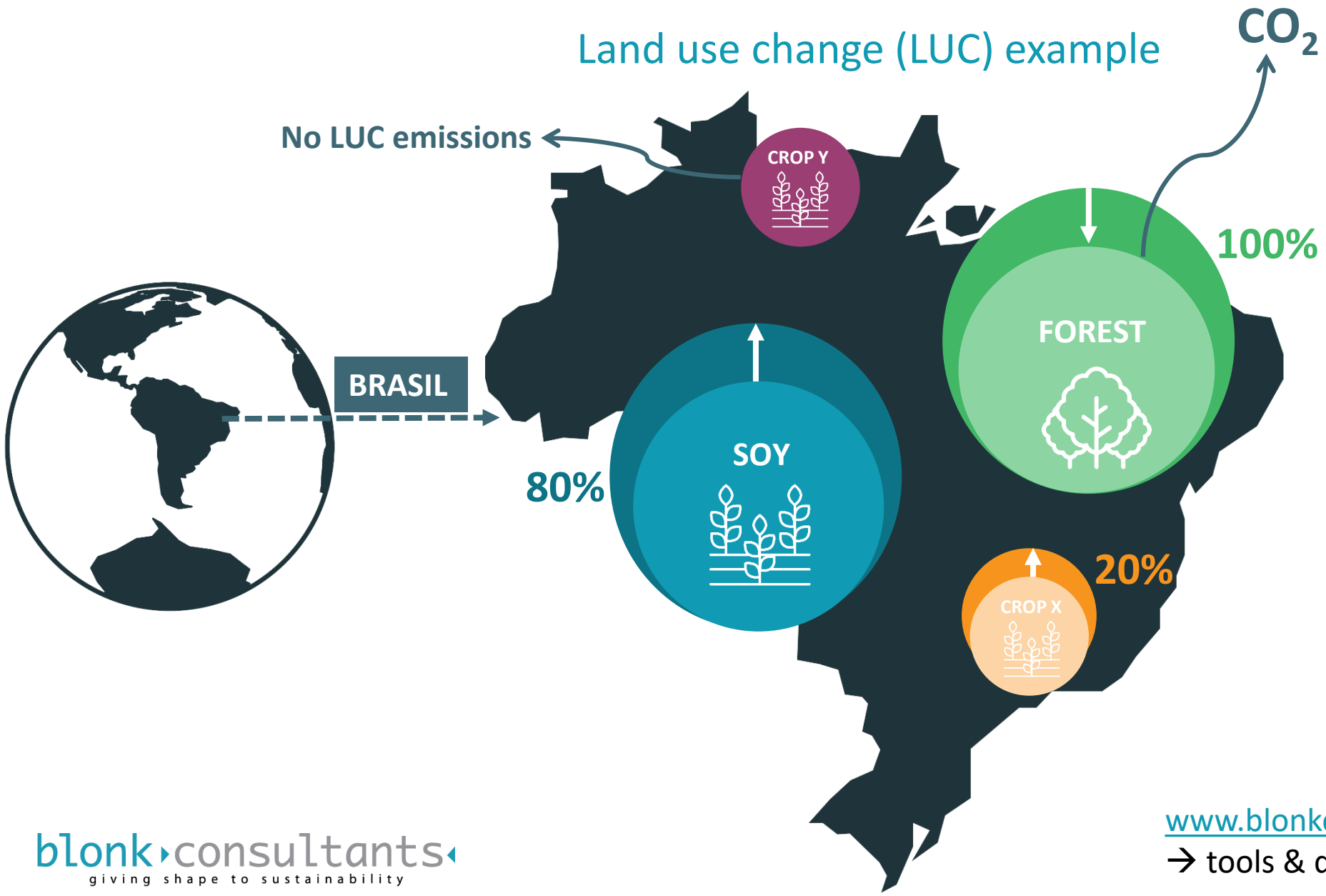
Country known & land use unknown



www.blonkconsultants.nl
→ tools & databases

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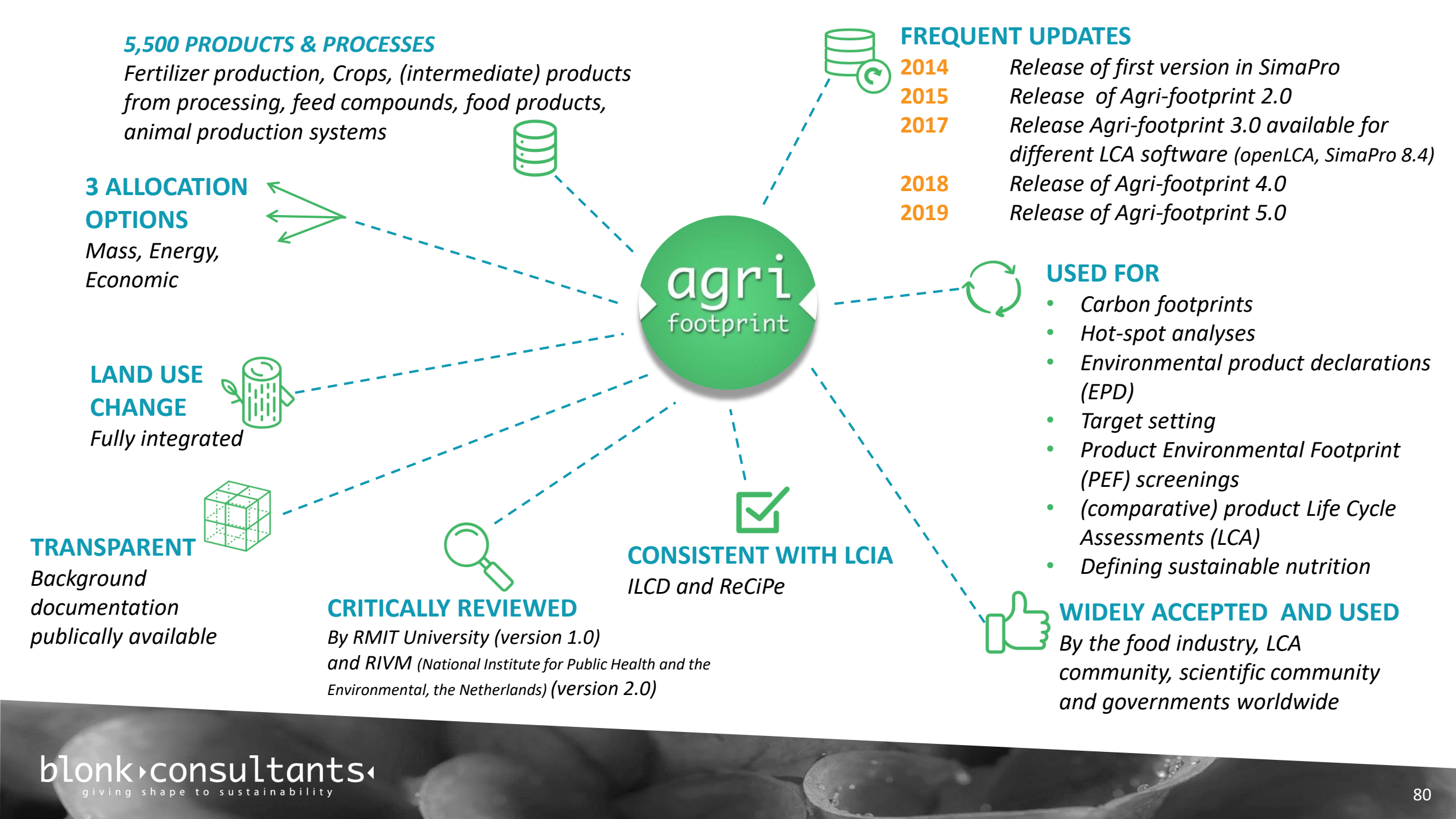
LUC integrated in databases

- Agri-footprint
- Feedprint
- EF2.0 and 3.0 database
- GFLI
- Farm-to-fork databases



5,500 PRODUCTS & PROCESSES

Fertilizer production, Crops, (intermediate) products from processing, feed compounds, food products, animal production systems

3 ALLOCATION OPTIONS

Mass, Energy, Economic

LAND USE CHANGE

Fully integrated

TRANSPARENT

Background documentation publically available

CRITICALLY REVIEWED

By RMIT University (version 1.0) and RIVM (National Institute for Public Health and the Environmental, the Netherlands) (version 2.0)

CONSISTENT WITH LCIA

ILCD and ReCiPe

FREQUENT UPDATES

2014	*Release of first version in SimaPro*
2015	*Release of Agri-footprint 2.0*
2017	*Release Agri-footprint 3.0 available for different LCA software (openLCA, SimaPro 8.4)*
2018	*Release of Agri-footprint 4.0*
2019	*Release of Agri-footprint 5.0*

USED FOR

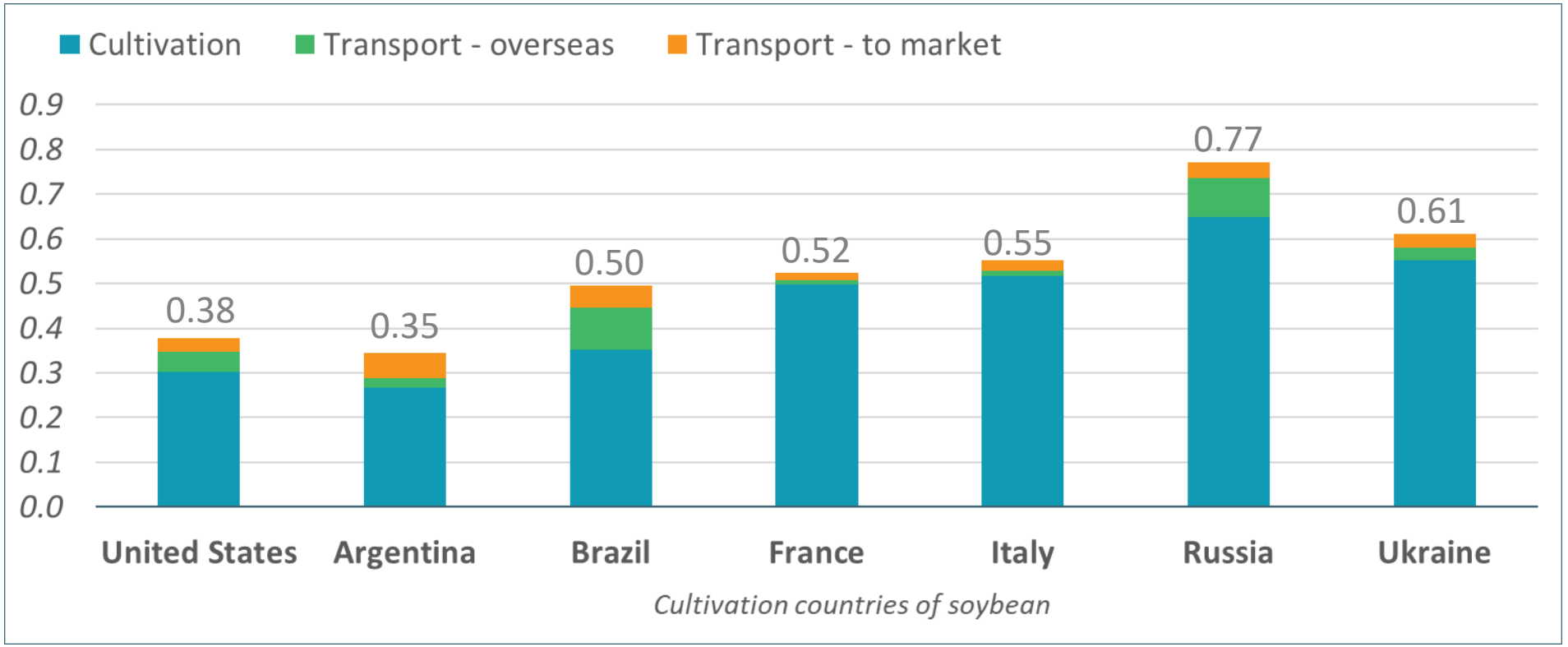
- *Carbon footprints*
- *Hot-spot analyses*
- *Environmental product declarations (EPD)*
- *Target setting*
- *Product Environmental Footprint (PEF) screenings*
- *(comparative) product Life Cycle Assessments (LCA)*
- *Defining sustainable nutrition*

WIDELY ACCEPTED AND USED

By the food industry, LCA community, scientific community and governments worldwide

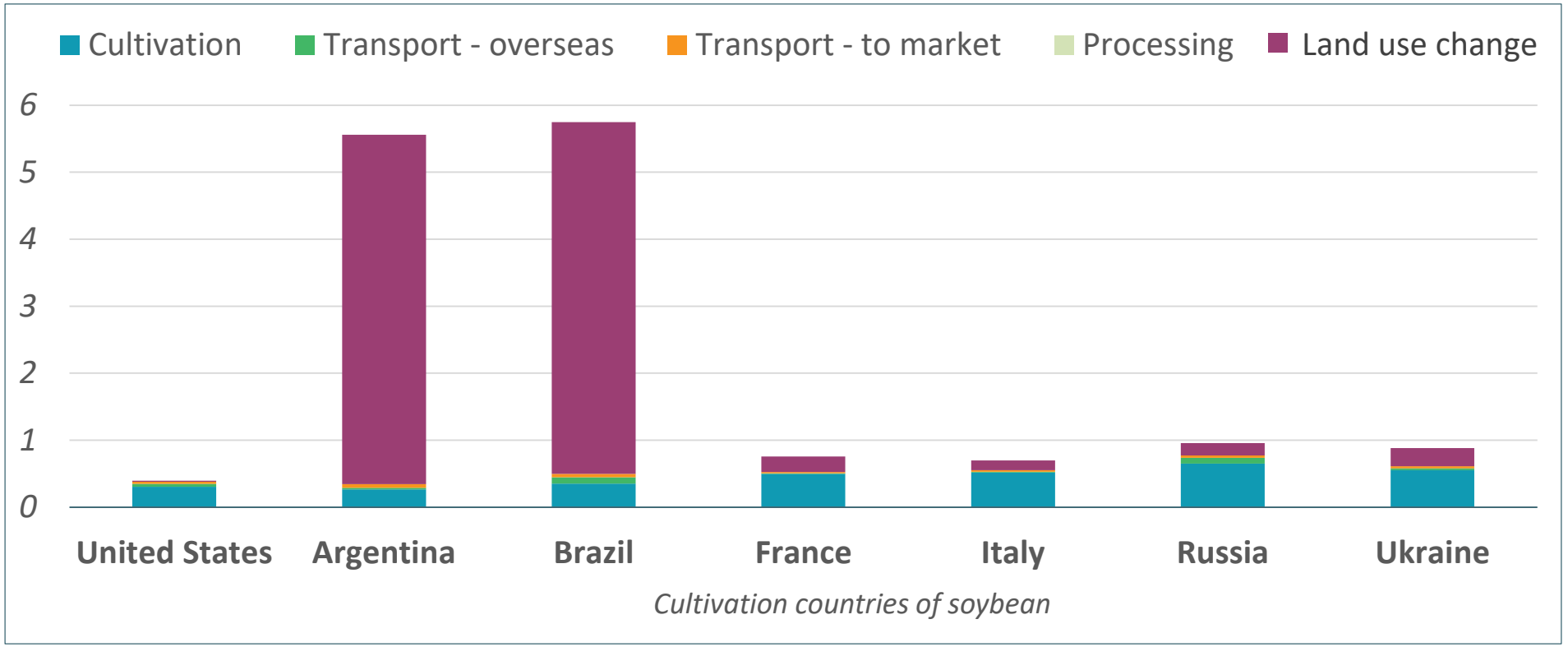
Carbon footprint of soy

Carbon footprint (excl. LUC) of soybean for European market (kg CO_2-eq/kg soybean)



Carbon footprint of soy

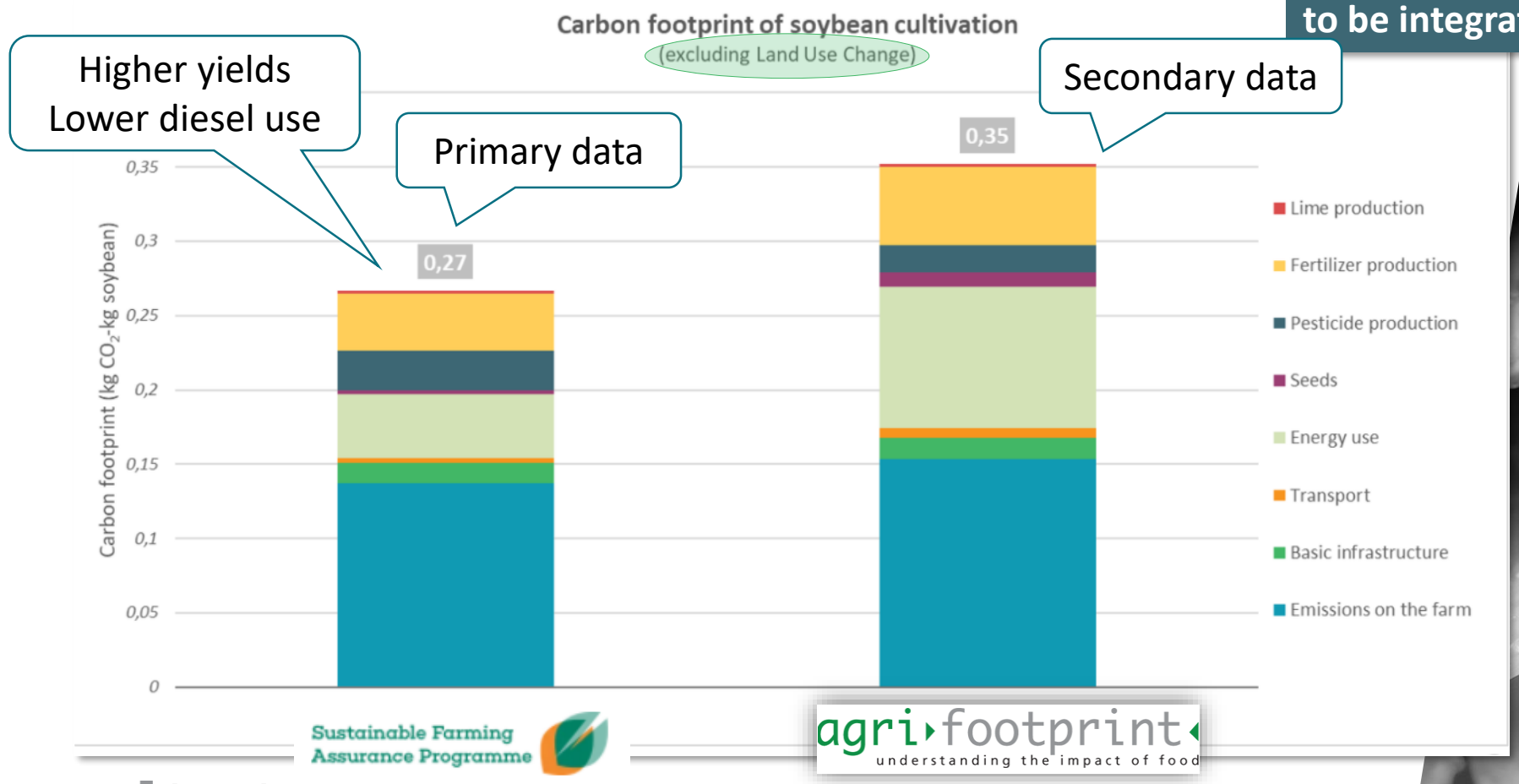
Carbon footprint (incl. LUC) of soybean for European market (kg CO_2-eq/kg soybean)



LUC implemented in studies

Example SFAP in Brazil

Dataset available as download to be integrated in LCA software



Sustainable Farming Assurance Programme

agri footprint
understanding the impact of food

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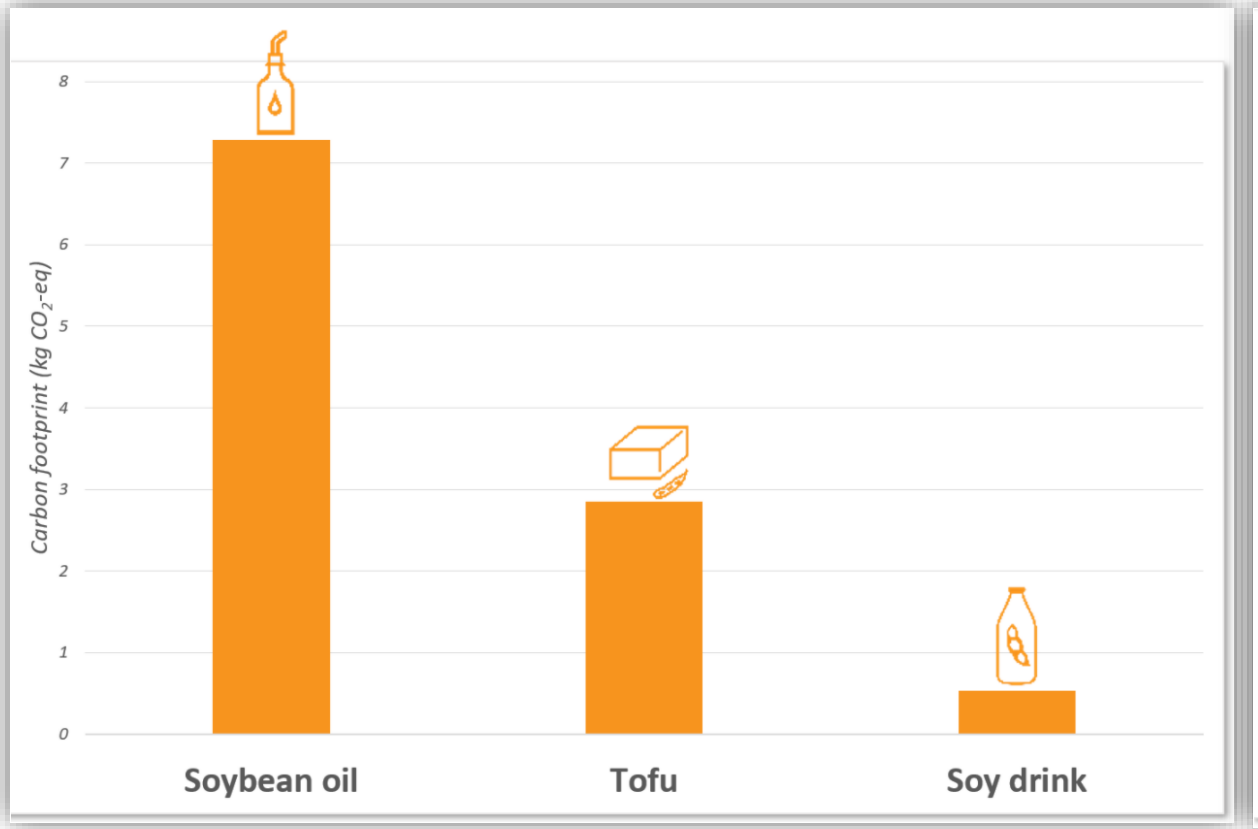
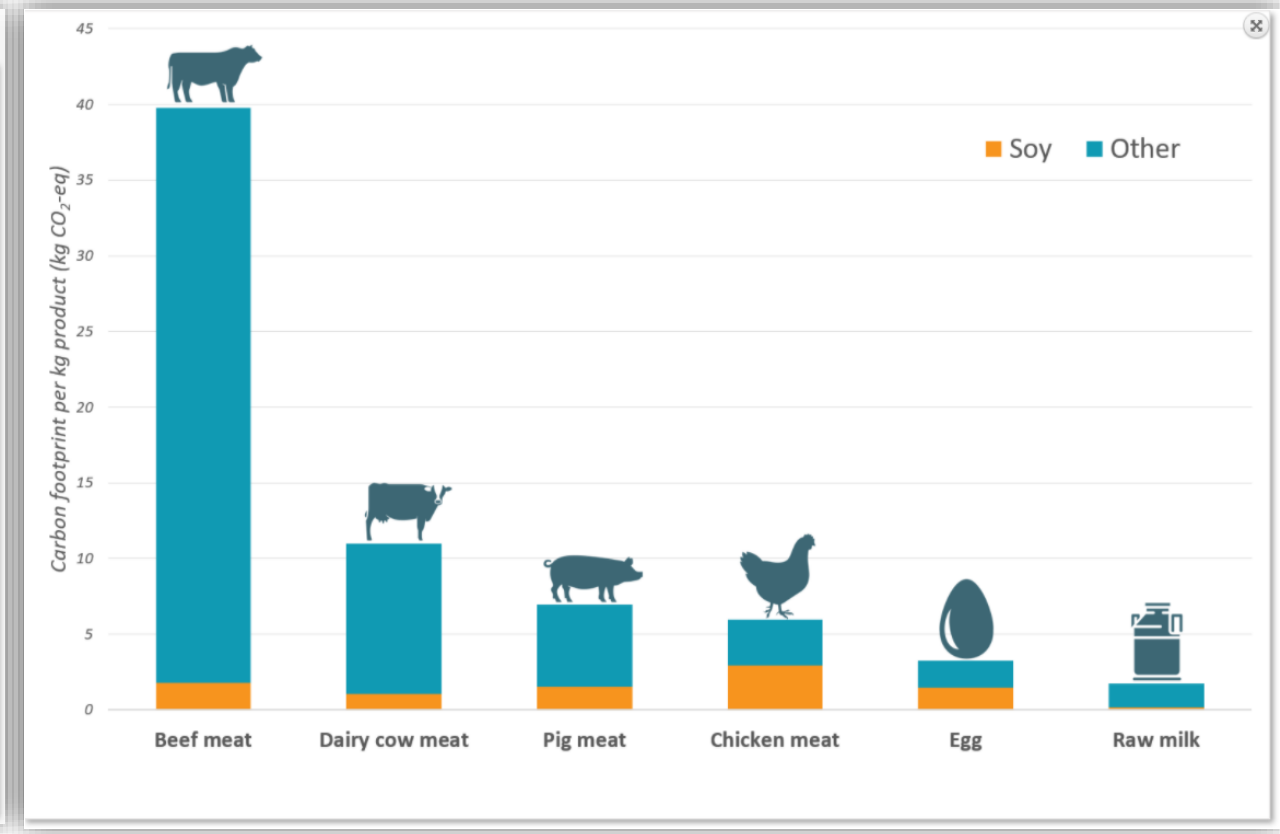
Carbon footprint examples

per kg product





Some take-away messages

- Show LUC emissions seperately in the carbon footprint.
- Use primary data for the cultivation phase.
- Watch out for burden shifting when searching for mitigation like;
  - Shifting to other crops
  - Shifting to soy from other regions.

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Check out our website
www.thecollaborativesoyinitiative.info

Thank you so much!
The Collaborative Soy Initiative