



**BUREAU
VERITAS**



tripleA

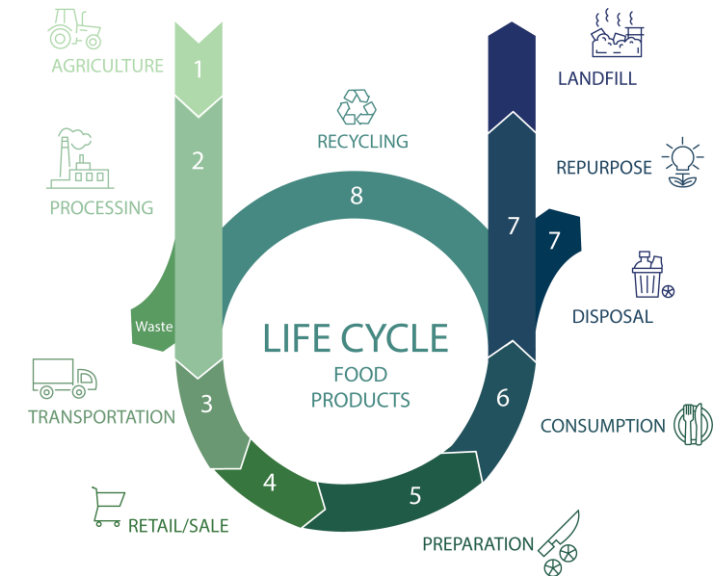
BEYOND FEED PEFCR

THE CASE OF PEF-BASED ENVIRONMENTAL FOOTPRINT OF SOY PROTEIN INGREDIENTS

**PIG RESEARCH SUMMIT
21 NOVEMBER 2024**

THE LANDSCAPE – WHY LCA

- Feed is a major contributor to the environmental impacts of meat, eggs, fish and dairy products
- Choices are made based on environmental footprints
- The closer to the shopping basket the higher the demand for reliable and comparable information
- Green claims in the market must build on recognized frameworks
- Full LCA with more types of environmental impacts than CO2
 - The producer is interested in being able to show and get credit for improvements



CHALLENGES

- LCA is difficult to understand
- Many methods and frameworks – what is the right choice
- Time consuming
- Require a lot of data and modelling
- Model, data and assumptions must be verifiable
- You can't produce a lifecycle assessment yourself
- Feed must be nutrition balanced why formulation, and raw materials may change over time

PROJECT SCOPE

TripleA produces AX3 Digest, a soy protein concentrate for feed

- Customers requested environmental impact results
- Soy is the 'black sheep' in feed carbon footprint wise
- TripleA production is energy consuming

TripleA needed:

- Baseline for production improvements
- Impacts coming from each stage
- Verified carbon footprint for AX3 Digest

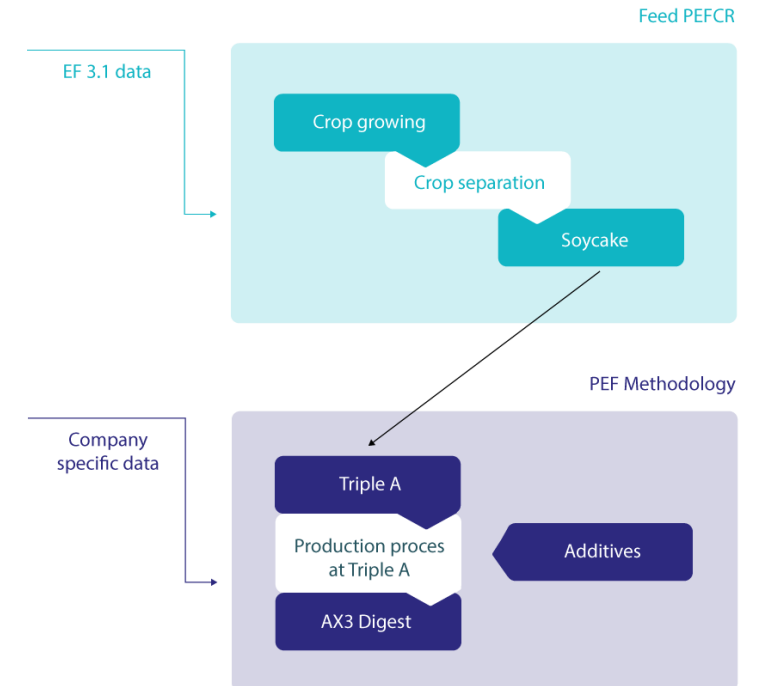
SOLUTIONS

The EU PEF (Product Environmental Footprint) method solve many of the challenges

- Recognized LCA method
- Kept updated
- Defined data quality requirements and databases
- Don't have to do full LCA for feed – it is recognized as an intermediate product

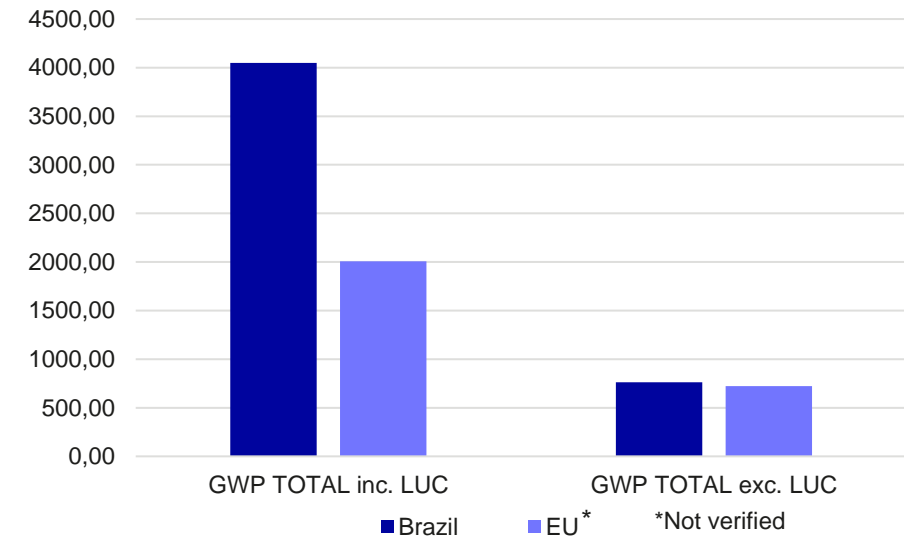
Requirements for [company specific data](#) and [green electricity modelling](#) enable farmers and feed producers to analyse and identify [improvements](#) of the environmental profile of the products

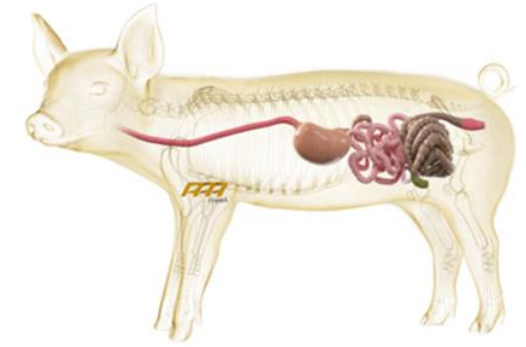
Products can be calculated with or without a category rule



RESULTS

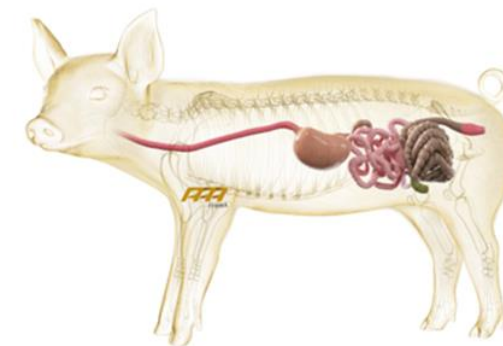
- › The bulk freight of Soybean Meal from Brazil to DK is by ship and has an impact of less than 1%
- › 95% of the impact of climate change was from the Raw material, and the remaining 5% comes from the stages Production, and End-of-Life treatment of packaging
- › From additional calculations it was found that Soybean Meal produced in EU has a 50% lower impact when looking at GWP incl. Land Use Change (LUC), but a very limited difference when looking at GWP excl. LUC.





Impact

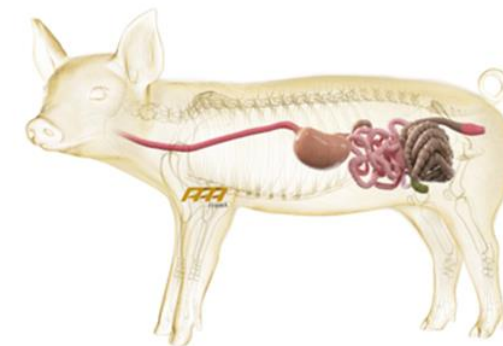
	Most important stages for each category. Only stages that contribute with more than 1% of the total			
Climate change	LCS 1 (90%) (raw material)	LSC 4 (5%) (energy)	LCS 3 (3%) (packaging)	LCS 2 (2%) (transport)



GWP global warming potential

Product	Country	GWP inc LUC (kg CO2 eq/ton)	GWP exc LUC (kg CO2 eq/ton)
AX3 Digest	DK	4,047	763
SPC	EU	5,290	1,380
Fish meal	DK	1,074	1,073
Plasma (SDAP)	N/A	3,891	3,623
Potato protein	DK	1,527	1,527
Whey protein	N/A	1,175	1,149

How to save CO₂ with AX₃ Digest



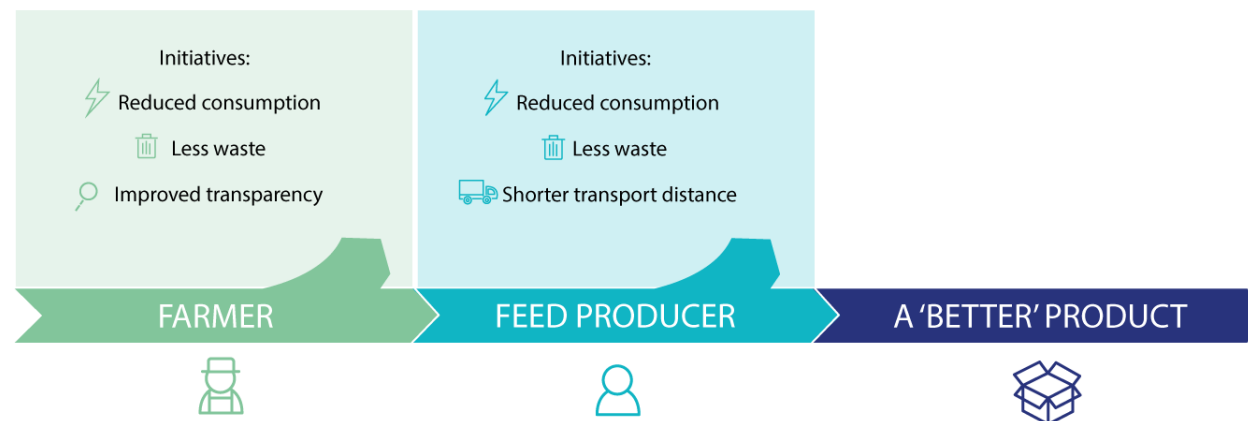
	CP	SID	CO ₂
SPC	56%	91.5 %	5,290/1,380
AX₃ Digest	68 %	96.9 %	4,047/763

If considering CP and SID 12 % SPC in the feed can be replaced by 9.3 % AX₃ Digest

	incl. LUC	exc. LUC
GWP from SPC kg CO ₂ eq/ ton feed	634	166
GWP from AX₃ kg CO ₂ eq/ ton feed	376	71
The GWP from soy protein concentrate is decreased by	41 %	57 %

CONCLUSIONS

- Build on Feed PEFCR
- Makes it possible to identify improvements
- Possible to differentiate in the market due to assessment based on actual production aspects
- Soy is not as bad as its reputation
- Carbon footprint is affected by protein content and digestibility
- Hard to find competing products with a lower footprint than AX3 Digest





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TRIPLE A