

Tool for environmental foot printing

Challenges

In all parts of the food chain businesses are becoming more aware of the environmental impact of their activities. Society and ngo's demand actions to mitigate global warming and to reduce detrimental effects on ecosystems worldwide. And in the same time consumers ask for organic milk, meat and eggs, poultry from slow growing broilers, pork from longtail pigs, non gmo feeds and an additional diverse range of other concerns to be addressed in the production of animal proteins.

In his book *The Future of Agriculture* (2022) Aidan Connolly is referring to the new segment of the 'prosumers': super-consumers who are concerned about the way food is being produced and their demands for transparency, ethical treatment of animals, sustainable farm practices, and food with 'values' rather than value foods.

Policy makers, the feed industry, slaughter houses, the food retail and catering services all set their own ambitious targets to lower their own impact on the environment, to meet requirements and address prosumers concerns.

"But we also see that the supply chain is struggling to find the tools to understand how ecological footprinting of animal protein products can be done in such a way that the outcome is validated and the impact values are relevant and comparable within the value chain", says Wim Beeks. "Society as a whole strives for a net zero carbon economy and this is quite an even bigger challenge knowing that we have to produce 70% more food to feed 10 billion people in 2050!"

"Therefore it is crucial that we, as animal feed sector, communicate with the clients of our clients", says Beeks: "Based on solid data and calculations, we can provide insight in consequences of their choices. For example: Banning soy from pig feed does not always lead to a lower carbon footprint of pork and slow growing broilers have an increased footprint compared to conventional fast growing broilers."

Uniformity and validation

"To improve a system, you need reliable data on the current status, a clear vision on the goals you want to reach, a validated database of impact factors and parameters, and a validated and uniform methodology to calculate the impact of available measures and compare different scenarios", Beeks explains. These requirements are fulfilled with Life Cycle Assessment, where the environmental impact of the life cycle of a certain product can be determined. Validated methods and databases for the feed industry are available from the FAO (Livestock Environmental Assessment Performance, LEAP), the European Union (Product Environmental Footprint Category Rules (PEFCR Feed), and the Global Feed Life Cycle Assessment Institute (GFLI).

"The ecological footprint of a product comprises many aspects, such as climate change, acidification, eutrophication, land use and land use change, water use, biodiversity issues, et cetera", Beeks emphasizes. The carbon footprint (CFP) is determined by the emission of greenhouse gases (CO₂, CH₄ and N₂O) and their respective global warming potential over the entire life cycle of a product.

Opteinics software

"BASF has used these available methods and data to develop a software tool, called Opteinics", Beeks says. The tool uses PEFCR validated methodology and GFLI validated data. Any stakeholder can buy a license to make use of the tool.

The Opteinics software enables the user to analyze data from the feed producer, the livestock farmer and the slaughter house. For each phase in the chain, and for the chain as a whole, the environmental impact is determined. The output of the tool pinpoints critical control points, provides insight in steps that require improvements, and enables calculating the effects of different scenarios. “For the nutritionist, Opteinics software enables predicting the influence of ingredient choices and changes in feed composition on the ecological impact of the final feed”, Beeks explains.

The Opteinics tool offers data that may be used to report sustainability progress, to develop products or services, and to strengthen brands.

Schothorst Feed Research uses the software to calculate the consequences of feed formulation strategies. “We can compare the effect of, e.g., country of origin of soybean meal, replacing soy with alternative protein sources, or improvement of animal performance or carcass yield.” These calculations reveal that the impact of feed composition is significantly larger than the impact of performance efficiency on the farm or in the slaughter house. The calculations show that replacing soybean meal with alternative protein sources does not always result in lower emissions: The alternative protein sources require more arable land, fossil fuels and usually have a lower protein digestibility. “Therefore, life cycle assessment tools will help food retailer and food services companies to better understand and explain the ecofootprint effects of the choices they make to meet consumers preferences”, Beeks concludes.

Commitment of Schothorst Feed Research

“We have been playing with the Opteinics software for a while now”, says Beeks. “This year, we are implementing the system within SFR. For our AFP customers, we offer ecological footprint calculation services. Our consultant team offers support in the use of the tool, interpretation of the output, and comparing different scenarios for reduced footprint.”

Coupling Opteinics to Least cost formulation software will potentially enable nutritionists to formulate feeds on least cost and least impact. “This offers the feed industry tools to meet economic and ecological needs of their clients. It also facilitates formulating feeds for specific markets - like organic livestock production systems -, or for initiatives, such as slow growing broilers, lower nitrogen emission or animal welfare demands.”

SFR wants to partner with food retail and services companies to understand their needs and work with the feed producers and integrators to define requirements in terms of ecological footprint values and offer support in developing strategies to improve the sustainability of their enterprises. “As a partner in the feed and food chain, we want to contribute our knowledge and expertise to develop and implement strategies to meet the requirements of all stakeholders”, Beeks concludes.

Niet voor publicatie

Noot voor de redactie

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