

# Healthy diets for all within planetary boundaries



## Sustainability at DSM: A brighter future for all

Sustainability is a common thread that runs through everything we do at DSM – and has done for years. The reason is simple. We don't want to be successful in a world where the ice caps melt; coral is decimated; millions are left homeless and destitute due to climate change; while hundreds of millions remain undernourished. It was humans that caused this situation. But we really do have the power to change it...

## Time for action

We now live in a world where 821 million people suffer from hunger, while more than 650 million people are obese. That's why, at DSM, we're fully behind healthier diets for all – within planetary boundaries. Everyone deserves the right to eat well and enjoy the benefits that good nutrition brings. Today, we're working with everyone – from scientists and business partners, to the World Food Programme and Africa Improved Foods – to make this happen and fulfil five of the UN's most important Sustainable Development Goals:



Sustainability is who we are and what we do at DSM. This is not some idealistic call to simply make the world a better place. At DSM, we see sustainability as the core driver of our business, and we believe that by creating solutions that address societal needs and offer our customers innovative, sustainable solutions, we will enjoy above-average growth, allowing us to deliver attractive returns to the shareholders who place their trust in our company.

## Raising the bar on Climate Action

To be a leader in climate action it's important to lead by example. That's why at DSM we closely manage our absolute Greenhouse Gas (GHG) emission reduction; GHG efficiency; and energy efficiency. In fact, in 2018 we again raised the bar by targeting a 30% absolute reduction of the company's direct GHG emissions (Scope 1) and emissions from our purchased energy (Scope 2), by 2030, and reduce indirect value chain emissions (Scope 3) by 28% per ton of product produced in the same period. These targets have been validated by the [Science Based Targets initiative](#) (SBTi) as being aligned with the Paris climate agreement. DSM has also set a long-term target to reach net-zero emissions before 2050.

As our suppliers play a key role in delivering our strategy and targets, we are working closely with them on emission reduction projects through a newly established CO2REDUCE program.

## Renewable energy

In line with Sustainable Development Goal 7 (affordable and clean energy for all) we are committed to responsible, efficient use of energy. At DSM we depend on the availability of renewable electricity via the grid or local electricity production. As local policies affect our ability to scale-up our procurement of renewable electricity, we work closely with authorities and other companies to scale-up supply of renewable electricity on the grid, including our own on-site solar fields at several sites.

## Healthy, diverse & sustainable proteins

Within the framework of our activities in Nutrition and Health, this means that we advocate healthy, balanced and affordable diets for all that will allow the world's growing population to be fed using the natural resources available while staying within the planetary boundaries. This involves, among other things, increasing the quality and nutritional content of food – and also of feed, which is where our Animal Nutrition and Health business comes in. DSM wants to support all forms of proteins produced with the highest sustainable standards. Based on expertise in human and animal nutrition, as well as environmental science, we enable and produce sustainable proteins: from plant-based proteins to meat, eggs and fish. For all forms, we are tirelessly working on combating the key challenges such as reducing the greenhouse gas emissions, limiting nitrogen and phosphorous emissions, while keeping the highest nutritious standards and ensuring good livelihoods.

We must offer nutritional solutions that allow us to produce more animal protein – significantly more animal protein – with greater efficiency, paying full regard to animal welfare, product quality and process safety, while reducing the impact of our operations on the environment. At the same time, we have to ensure that our innovative portfolio provides our customers with opportunities for competitive advantage and profitable growth.

DSM's Animal Nutrition and Health Business therefore focuses on sustainable animal production, helping decrease antimicrobial resistance; reducing our reliance on marine resources; dropping livestock emissions; making efficient use of natural resources; producing safe, quality nutrition with less food loss and waste; and improving animal performance over the lifetime.

At DSM, we address these different challenges with our products and innovations for human and animal nutrition. DSM offers breakthrough solutions in many areas – from eubiotics as effective alternatives to AGPs through algae-based omega-3 to reduce the aquaculture industry's reliance on finite marine resources to enzymes to improve the digestibility and utilization of multiple feed ingredients. More information can be found at the [DSM Feed Talks](#) hotsite.

**Reducing greenhouse gas emissions:** With livestock and fish production contributing to 14.5% of our world's Greenhouse Gas (GHG) emissions, it's essential that we take action now – especially when you consider that the world will demand an additional 40 million tons of meat and 25 million tons of fish each day by 2026. Reducing GHGs – and especially methane emissions – is an urgent priority for the world. At DSM, our bright science is helping to reduce methane emissions in cows by 30% or more with our new solution [Bovaer®](#).

**Protecting marine life and providing for omega-3s:** Salmon is an excellent source of protein, as well as omega-3 EPA and DHA that help keep the heart healthy. Currently, 76% of the world's fisheries are either depleted or exploited. DSM and Evonik produce algal omega-3 EPA and DHA oil with the natural marine algae [Veramaris](#). This reduces the dependency of finite wild catch resources and supports sustainable aquaculture.

**Reducing nitrogen emissions:** Another focus for sustainability standards in animal proteins is reducing the nitrogen emissions. [The RONOZYME® ProAct feed ingredient](#) does exactly that, whilst improving feed efficiency in poultry.

**Fighting anti-microbial resistance:** Anti-microbial resistance (AMR) poses a major health threat. Livestock is one of the contributors due to misuse and overuse of antibiotics in animal feed. [DSM's eubiotics](#) support a healthy animal and can help to minimize the sub-therapeutic use of antibiotics for growth promotion, thereby reducing the spread of AMR. The result: better animal welfare, and higher food security at more affordable prices for all.

**Helping farmers:** We support farmers every day with insights and advice on animal health, food safety and environmental management. For example, the DSM 'business-to-farm' project in China helps small-scale farmers with training and general support, thus enabling them to increase the safety and quality of the food they produce, while reducing its environmental impact and supporting farmer livelihoods.

## Five DSM innovations in animal nutrition & health for a sustainable world

At DSM, we address these different challenges with our products and innovations for animal nutrition:

### Balancius™



- Together DSM and Novozymes have created Balancius™, the first and only broiler and turkey feed ingredient designed to unlock the hidden potential in gastrointestinal functionality.
- Through its unique mode of action, this patented technology helps optimize nutritional absorption and digestibility, so broilers and turkeys get more from their feed. Trials show that adding Balancius™ of a broiler flock of 1 million birds saves 12 500 kg of feed.
- Balancius™ has also been shown to improve performance and animal welfare by improving feed conversion ratios, weight gain, breast meat yields and footpad scores, and helping to reduce the environmental footprint of the poultry industry.
- Using Balancius™ in all broiler diets across the world saves an estimated 9 Mio tonnes of greenhouse gas emissions corresponding to 3.7 Mio. cars taken off the road.

Growing  
healthy  
chicken

Resource efficiency

Reduced  
carbon  
footprint

For more information, please visit [dsm.com/balancius](https://dsm.com/balancius)

## Bovaer®



- A large proportion of livestock emissions comes from enteric (burped) methane, as a result of the natural digestive processes of cows and other ruminants.
- Bovaer® is a feed additive that reduces enteric methane by approximately 30% in dairy and beef cattle, and sheep.
- Feeding Bovaer® to 1 cow saves the equivalent of 127.000 smartphone charges



**Production of  
animal protein with a  
minimum of harmful  
emissions**

**Reducing methane  
emission by  
~30%**

**Supporting  
sustainable animal  
farming**

For more information, please visit [dsm.com/bovaer](https://dsm.com/bovaer)

## Hy-D®



- Active form of vitamin D<sub>3</sub> specifically developed to improve skeletal health and development
- Supports the health and welfare of the animal resulting in improved productivity and lifetime performance
  - In layers, it improves eggshell strength resulting in significant reduction in egg breakage
  - In broilers, it improves skeletal health and muscle mass, resulting in greater meat yields
  - In swine, it improves bone mineralization and bone strength, gilt-sow selection rates, piglet vitality and litter weaning weight.

**Reducing food  
loss and waste**

**Optimizing  
health of  
poultry and  
swine**

**Increasing meat  
and egg  
quality**

For more information, please visit [dsm.com/HyD](https://dsm.com/HyD)

## Veramaris®



- New algae-based technology producing omega-3 unsaturated fatty acids EPA (Eicosapentaenoic acid) and DHA (Docosahexaenoic acid) that are both critical for aquaculture feed
- Reducing the need for omega-3 EPA and DHA derived from wild-caught fish, a finite resource
- Reducing pressure on overfishing
- Enabling the aquaculture industry to grow sustainably and become a net fish producer
- Addressing the decline in omega-3 levels in salmon
- Veramaris® is a joint venture between DSM and Evonik

**Essential for health:  
Fatty Omega-3 acids**

**Contributing  
to preservation of  
marine biodiversity**

**1 kg Green Ocean  
oil is equivalent to  
60 kg wild  
catch**

For more information, please visit [www.veramaris.com/](http://www.veramaris.com/)

## VevoVitall®



- Acidifiers such as VevoVitall® and other 'eubiotics' have proven antimicrobial properties and optimize gastrointestinal functionality and health of livestock animals.
- VevoVitall® is an efficient solution to promote sustainable pig production. Besides boosting animal productivity and securing gut functionality, this DSM eubiotic strongly contributes to the reductions of ammonia emission by decreasing urinary pH.

**Optimizeing  
gastrointestinal  
functionality**

**Healthier  
and stronger animals**

**Helping  
tackling the issue of  
antimicrobial  
resistance**

For more information, please visit [dsm.com/Vevovitall](http://dsm.com/Vevovitall)

## More information:

[www.dsm.com/corporate/sustainability](http://www.dsm.com/corporate/sustainability)

**MSCI**

MSCI has upgraded DSM from an AA position to AAA (2019)



For the 3th year DSM is on Fortune Magazine's Change the world list (2018)



A-rating for Climate change and B- rating for water security (2018)



Chemical Industry leader in Sustainalytics ESG ranking (2019)