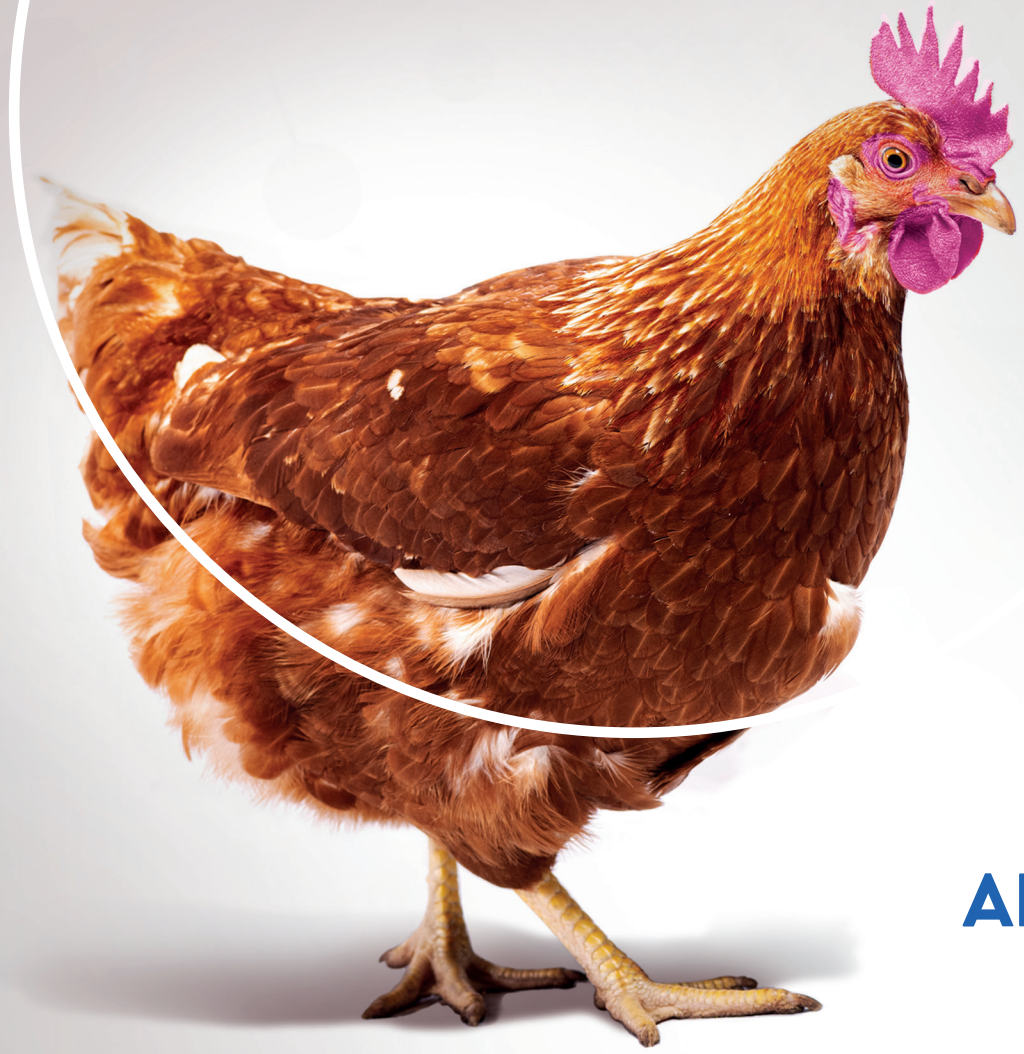
INNOVATIVE SOLUTIONS
FOR **ANIMALS**

VITAFYREN™

Biobased Acids



AFYREN

GLOBAL CHALLENGES

As pressure on resources continues to increase, our planet's biocapacity is gradually shrinking. Because of the ever increasing gap between demand and supply of natural resources, we would need the equivalent of 1.7 Earths to meet our current needs.

Today,

1.7 Earths

to meet our resource needs

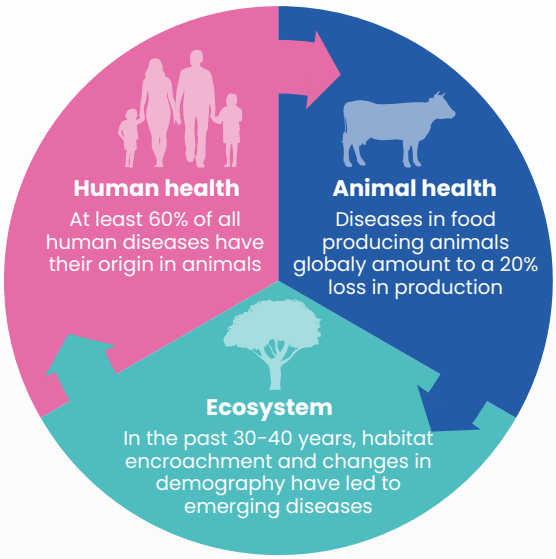
The global population keeps growing and should reach **11.2 billion people before the end of the century.**
One of the consequences will be an increase in demand for food and more specifically food of animal origin.

11,2 billion people before the **end of the century**

-37% drop in antibiotics use **over 5 years**, all species combined

HEALTH

Humans, animals and the health of our ecosystem are inevitably **linked**



Consumer habits are changing, and the desire for a healthy lifestyle - including organic and safe food - is becoming more and more of a priority.

This is driving the agricultural sector toward more sustainable operations. Meanwhile, governments are setting up regulatory frameworks that include restrictions on the use of antibiotics in animal feed.

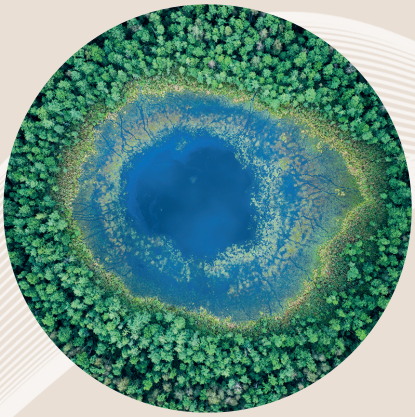
Demand for increased animal well-being and performance, together with rising demand for high quality food, will fuel the development of feed additives.

AFYREN'S COMMITMENTS

Afyren offers solutions that mitigate the impact of complex global problems and contribute to the development of a better balance between human needs and environmental resources.

Reduce waste and optimize circularity

Limit climate change



Preserve natural resources and biodiversity

DECARBONATION OF PRODUCTION AND CONSUMPTION

- GHG emissions reduction
- Replacement of fossil resources

NATURAL RESOURCE PRESERVATION

- No additional land use
- Highly renewable resources
- Natural fermentation process
- Low water consumption

WASTE REDUCTION AND FOSTERING CIRCULARITY

- Zero industrial waste
- Use waste or by-products as raw materials

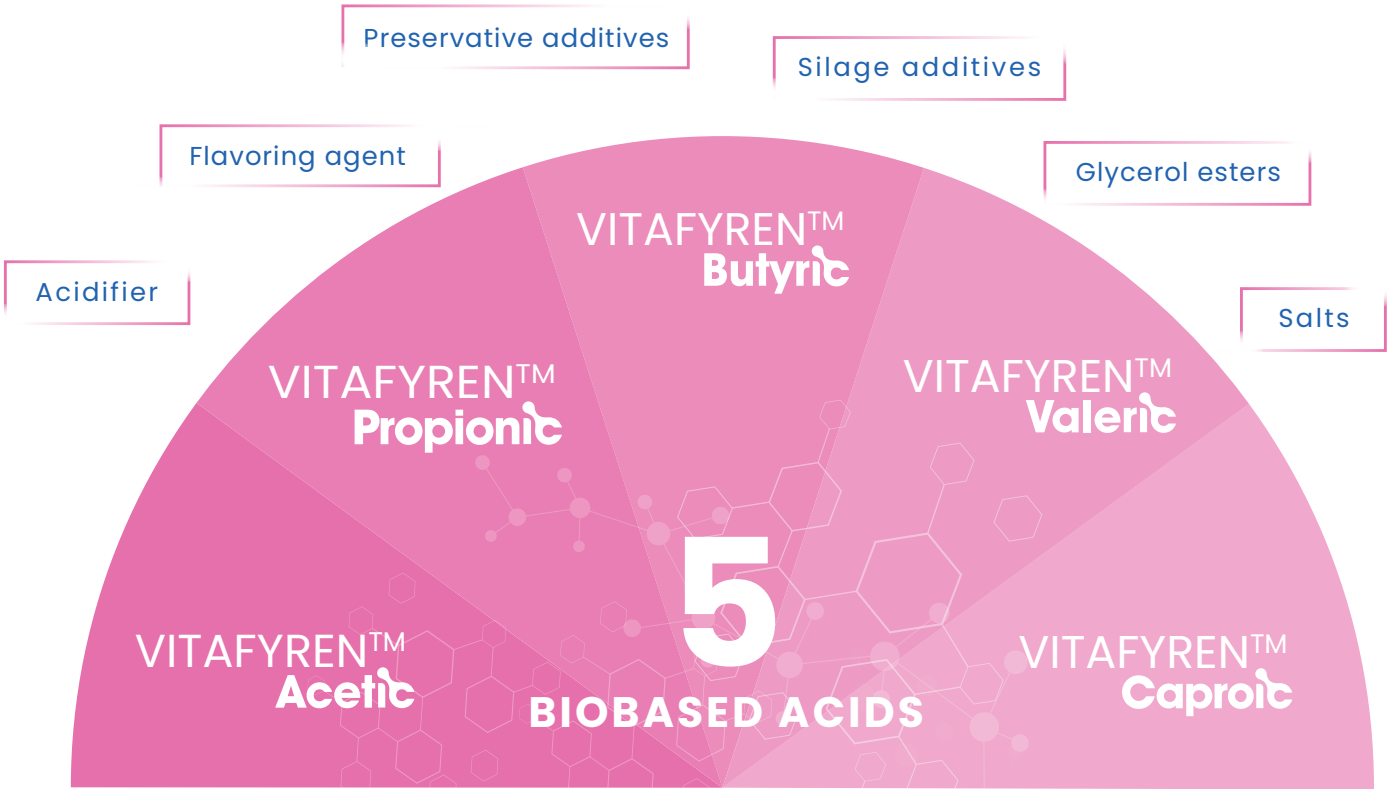
TERRITORIAL REVITALIZATION

- Conversion of existing industrial sites
- Local value chains
- Employment

VITAFYREN™'S 100% **BIOBASED**

AFYREN has developed **VITAFYREN™**, a complete range of biobased organic acids dedicated to animal feed ingredients and additives. Direct use of **VITAFYREN™** acid in feed and petfood industry contribute to the mitigation of the environmental impact of animal farming.

VITAFYREN™ acids are building blocks to produce derivatives for animal feed additives like salts, coated salts, and glycerol esters, which are powerful health and gut health promoters for all species.



Organic acids are frequently used by the animal feed industry as direct ingredients for their properties of feed acidifiers, flavoring agents, preservative additives and silage additives.

They are also building blocks to produce salts (ex: butyrate) and glycerol esters. Their functional properties play an important role in the gut balance of young animals and support the feed absorption. They help to improve the overall quality and safety of the animal feed products.

Short chain fatty acids, play a key role on gut microbiota modulation with, as a consequence, a positive impact on animal welfare. They can be part of alternative solutions to AMR and use of antibiotic in modern breeding.

VITAFYREN™ Butyric acid

VITAFYREN™ Butyric acid is beneficial for gut health and growth performance

The global market for butyrate salts and butyrines in animal feed has been growing in recent years, mainly as a probiotic, to support gut balance for monogastrics. Also, using derivatives of pure Butyric acid has benefits in terms of odor and corrosiveness.

In 2017 EMA and EFSA issued a Joint Scientific Opinion on measures to reduce the need to use antimicrobial agents in animal husbandry in the European Union, and the resulting impacts on food safety (RONAFA).

In this opinion the medium chain fatty acids, including **butyric acid** were explored as compounds with well known properties to reduce the presence of certain pathogenic bacteria through acidification of the gut in piglets and poultry, when included in the diet.

The opinion highlights studies lead on organic acides included in animal farm diet which show a positive impact on prevalence reduction of pathogens such as Salmonella spp, Campylobacter.

Nature is the future.

Now, more than ever it is time to move forward together towards a sustainable, competitive, innovative industry, combining ecology and economy.
With its biomimetic process and its of range of seven 100% biobased acids, AFYREN is revolutionizing the world of chemistry, opening up a range of possibilities for innovation, new products and carbon footprint reduction.

JOIN THE AFYREN INITIATIVE AND SEIZE NEW OPPORTUNITIES FOR COMPETITIVENESS.

AFYREN

AFYREN SA au capital de : 349.513,30€ I RCS Clermont-Ferrand 750 830 457
Siège social : 9-11 rue Gutenberg • 63100 Clermont-Ferrand - FRANCE • +33 (0)4 73 90 51 16
www.afyren.com