Ruth Garcia Gomez
Business Development Manager
Aquaculture Farm Care & Health ISC/APAC
Adisseo
Spain
Email: ruth.garcia@adisseo.com

What are the Cost Implications of Using Functional Additives for Farmers and What will the Incentives be for Feedmillers to Change?

Abstract

The aquaculture sector has had a continuous growth of around 8% globally in the last decades. Despite the great geographical differences with this growth, today, it is still the animal production sector with the highest and steady annual growth, and this trend continues over the years. Considering that FAO estimates that in 2030, the global population will need an additional 30% increase in fish production. The aquaculture sector is presented by many experts as the only sustainable alternative when it comes to meeting this nutritional demand. But this growth has also had its drawbacks: the intensification, transformation, and extension of aquaculture farming at a global level has led to a marked increase in the prevalence and incidence of infectious diseases in fish farming worldwide.

Survival rates continue to be challenged by diseases. New research on active components is providing options for the industry to mitigate disease but what are the cost implications for the farmer and what will the incentives be for feed millers to change?

Experts warn that emerging infectious diseases in aquaculture are and will be one of the main bottlenecks for the technical, economic, and environmentally sustainable development of the aquaculture sector. We must invest heavily in innovation, research, and development to overcome this gap, which is mainly related to the lack of appropriate tools and scientific knowledge. As the proverb says, “If you know the enemy and know yourself, you need not fear the result of a hundred battles”. Through different actions, Adisseo has applied this motto for decades: 1) scientific understanding of pathogen-host interactions and abiotic factors affecting health status, 2) development and optimization of functional feed additives to reinforce disease preventive strategies during critical periods of the production cycle, and 3) highly specialized aquaculture health technical services to respond to the most pressing needs of the aquaculture sector.

This presentation will provide an overview of Adisseo’s research on active components devoted to mitigating disease burden in aquaculture and assess economic considerations for feed millers and producers.

The cost of preventive additive strategies must be evaluated in a close collaboration between additive producer, feed miller and farmer. Compared to preventive approaches, there is fully substantiated evidence of the greater economic, social, and environmental negative impact of any corrective action once the disease has been established. This fact is well accepted and known by the industry, but there must be adequate mechanisms at all levels of the productive system, which promote and facilitate prevention rather than cure.

TARS 2022
(in-person event)
October 6-7, 2022 • Ho Chi Minh City • Vietnam
www.tarsaquaculture.com

ADISSEO
A Bluestar Company

What are the cost implications of using functional additives for farmers and what will the incentives be for feed millers to change?

TARS 2022

Aquafeeds a new equilibrium

Dr. Ruth Garcia Gomez

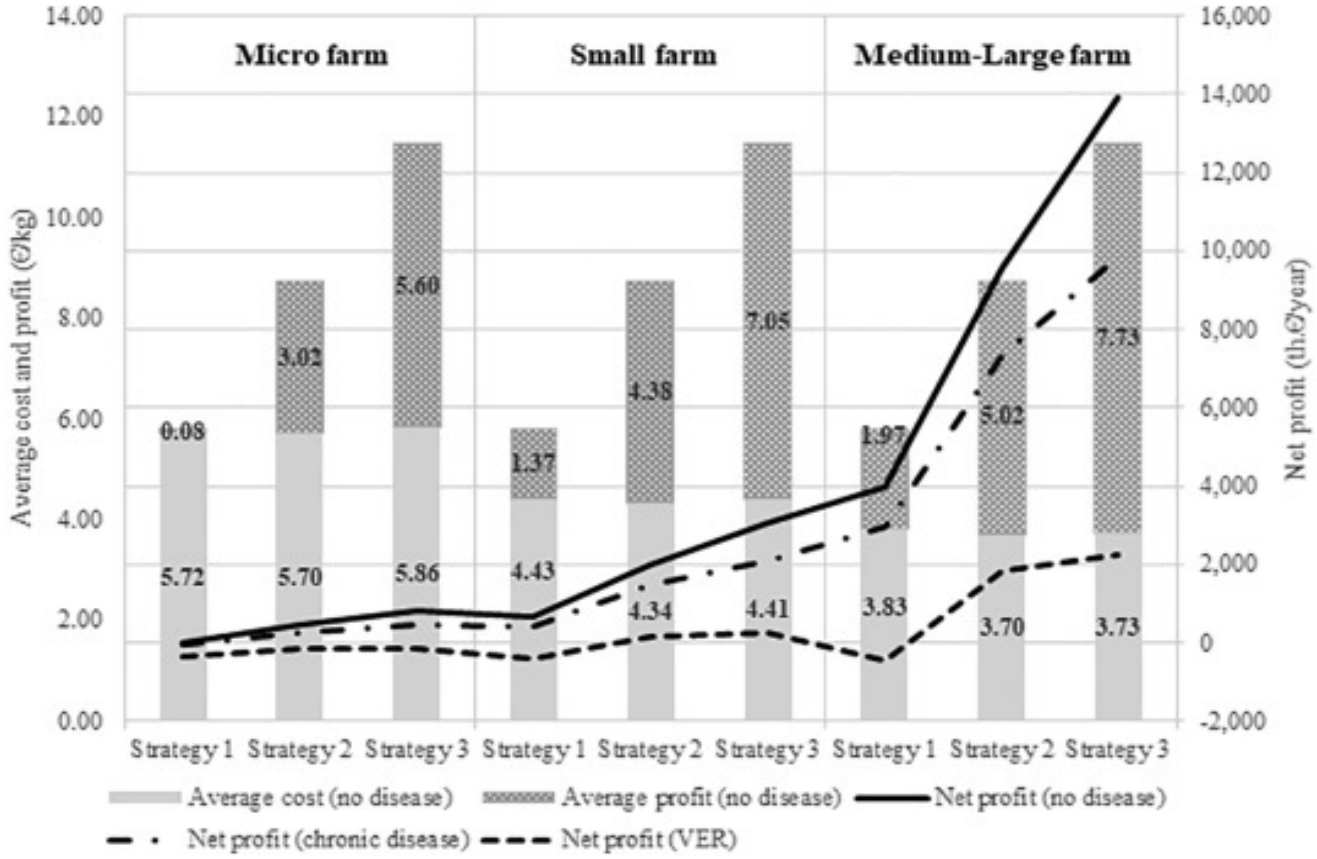
BDM aquatic health and farm care products

APAC/ISC

KEY BOTTLENECKS IN AQUACULTURE: HEALTH MANAGEMENT

- Marked incidence of disease due to intensification
- ~40% losses by 2050

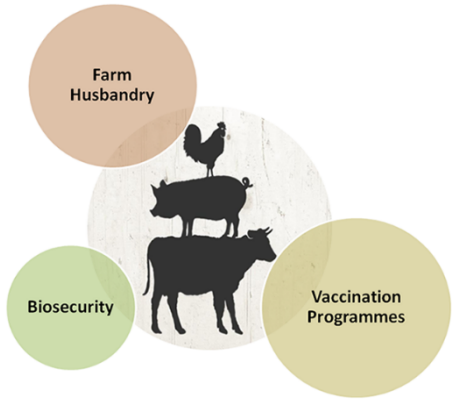
Economic baseline values (no disease) and economic impact of diseases (VNN) on the net operating profit under different production scenarios



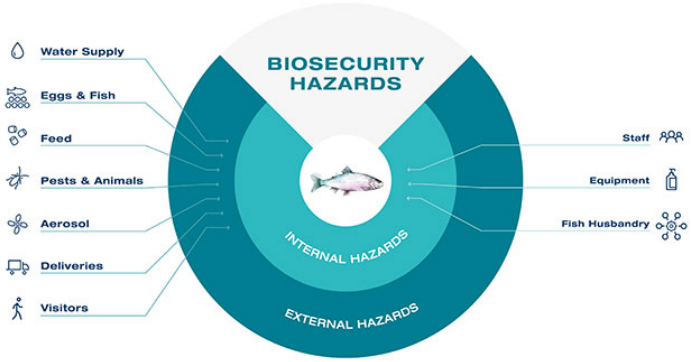
Source: Fernandez, 2011

PREVENTIVE MEDICINE IN AQUACULTURE

- **Terrestrial animals (pigs, poultry, cattle)**



- **Aquatic animals (fish, shrimp)**



Epidemiology and early diagnosis

Genetic selection towards pathogen resistance

Vaccination programs

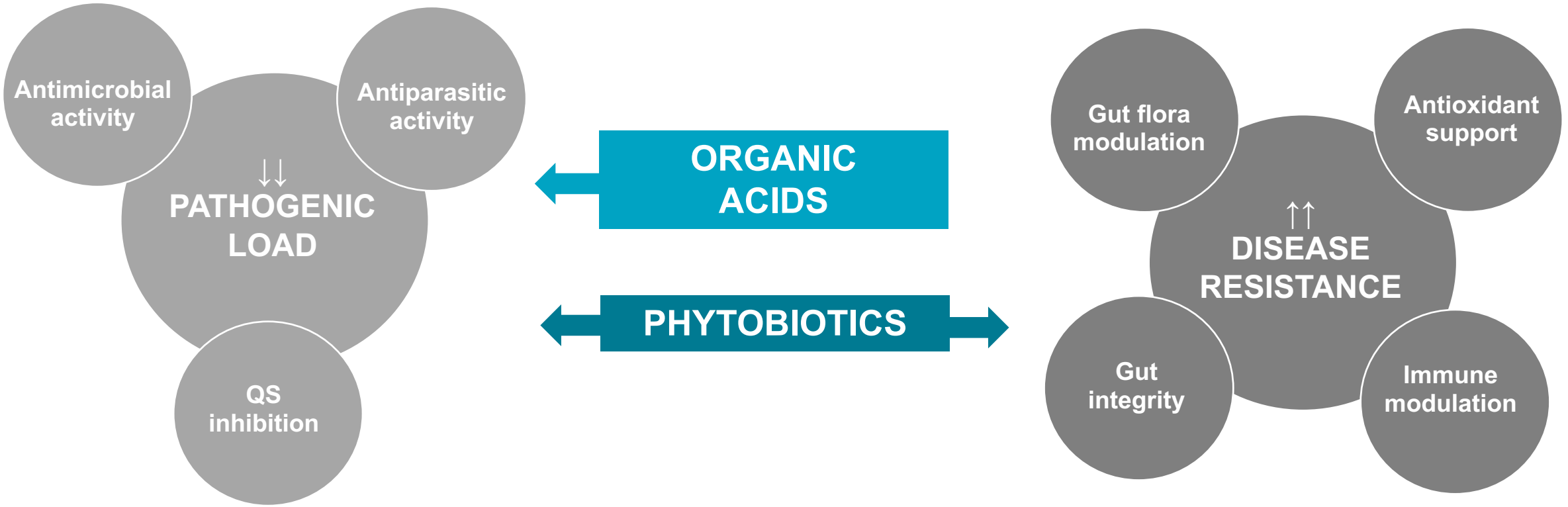
On-farm biosecurity/farm husbandry

Functional additives

IS THE AQUACULTURE SECTOR INVESTING SUFFICIENTLY IN PREVENTION?

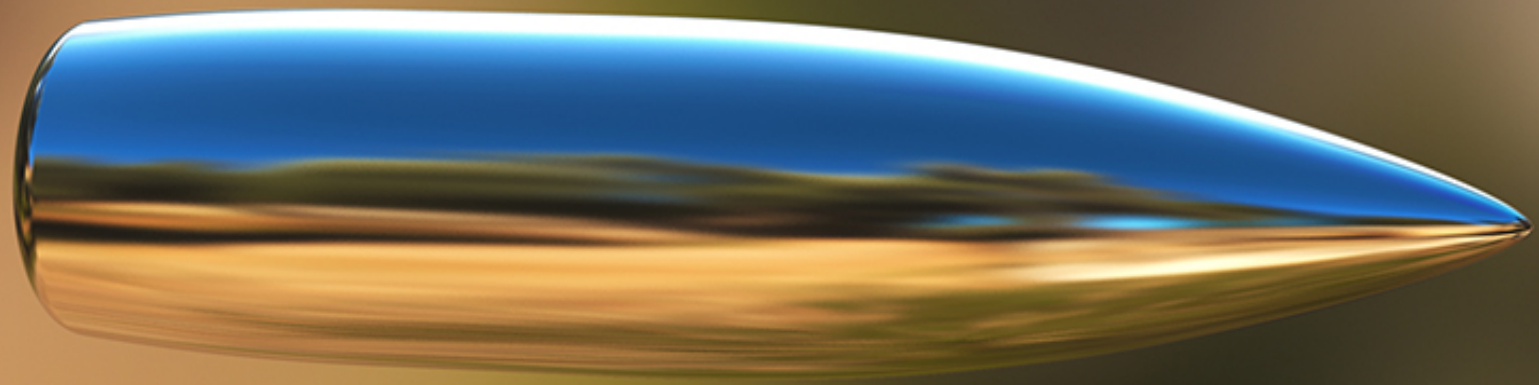
ADISSEO
A Bluestar Company

BROAD SPECTRUM HEALTH ADDITIVES



ADISSEO
A Bluestar Company

Will a single bullet work against infectious diseases?

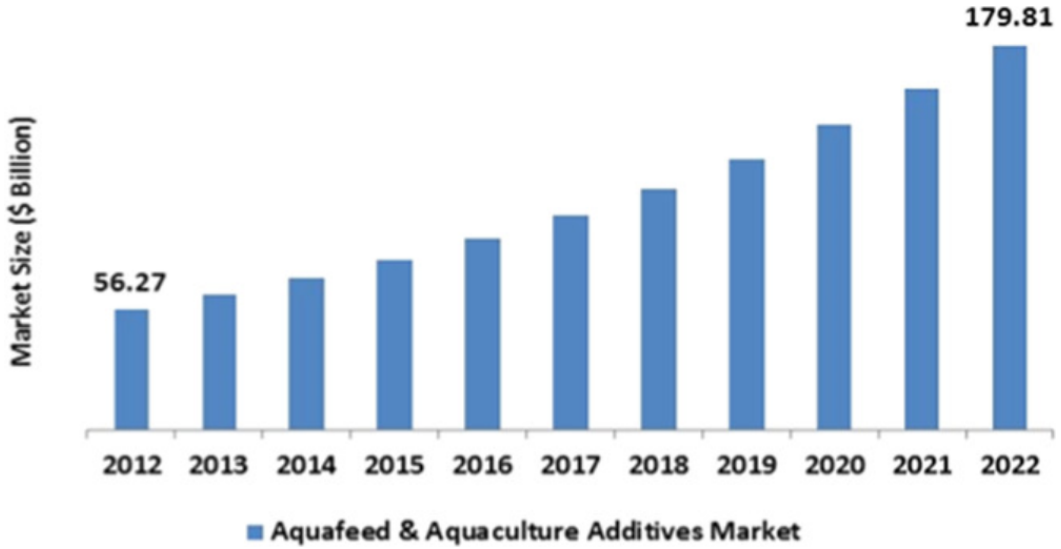


COST-EFFECTIVE ADDITIVES – change of mindset

WHAT THE SECTOR NEEDS TO CHANGE ITS MINDSET TOWARDS ADDITIVES?

Predisposing factors:

- Cost-effective additives backed by validated scientific data
- Policy and regulatory decisions
- Commitment from key stakeholders
- Public perception

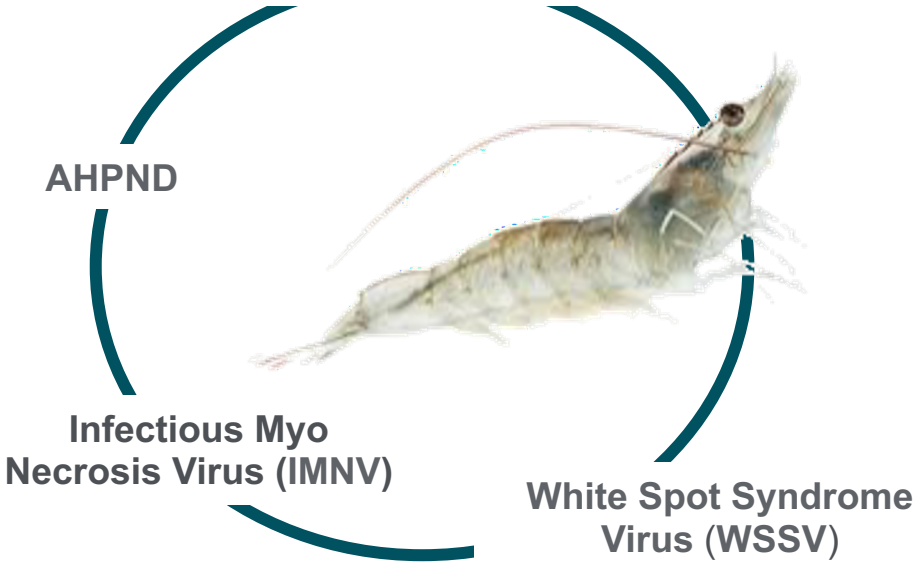


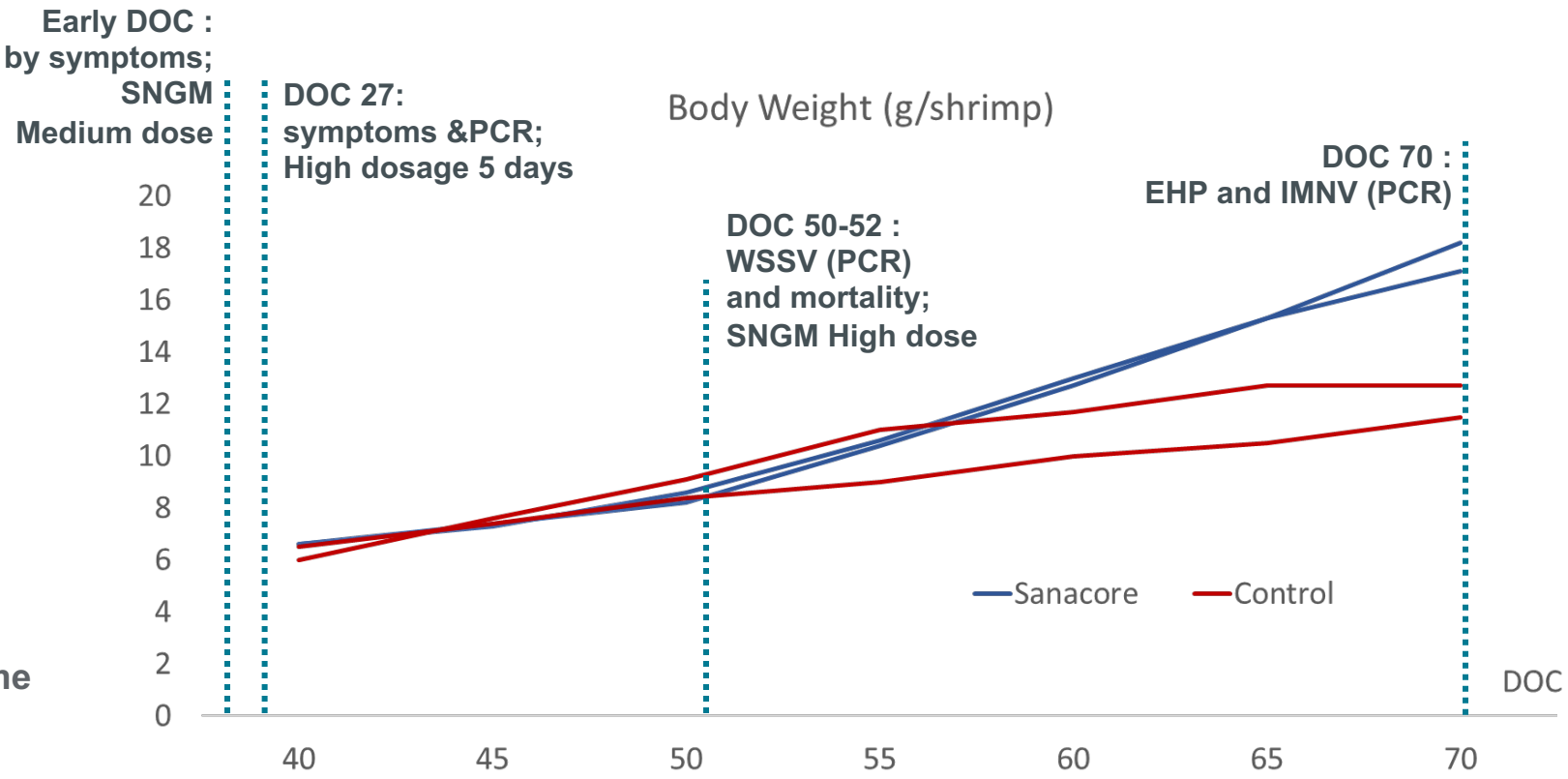
Source: https://www.crystalmarketresearch.com/media/backend/userfiles/aquafeed-aquaculture-additives-market.jpg

ADISSEO
A Bluestar Company

SHRIMP FIELD TRIALS

Muncar, Banyuwangi (Indonesia)





Bigger size at harvest and higher shrimp price
ROI = 1:8.01

ADISSEO
A Bluestar Company

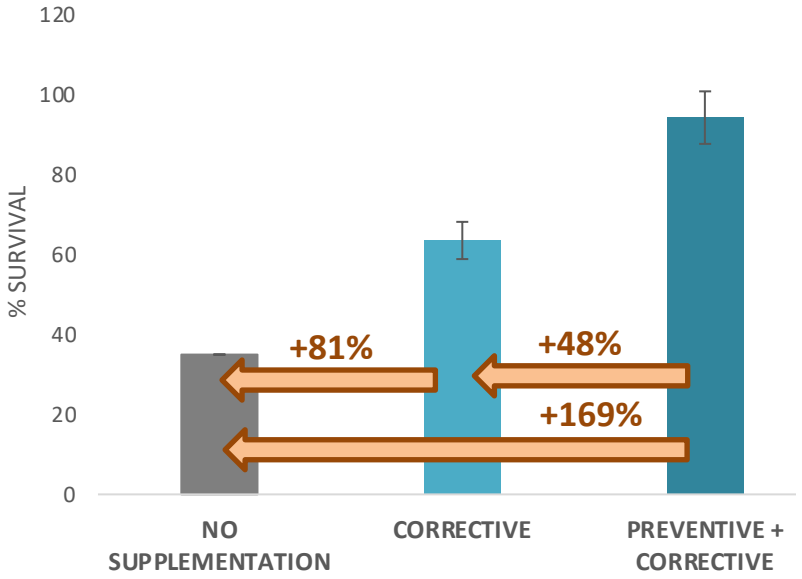
SHRIMP FIELD TRIALS

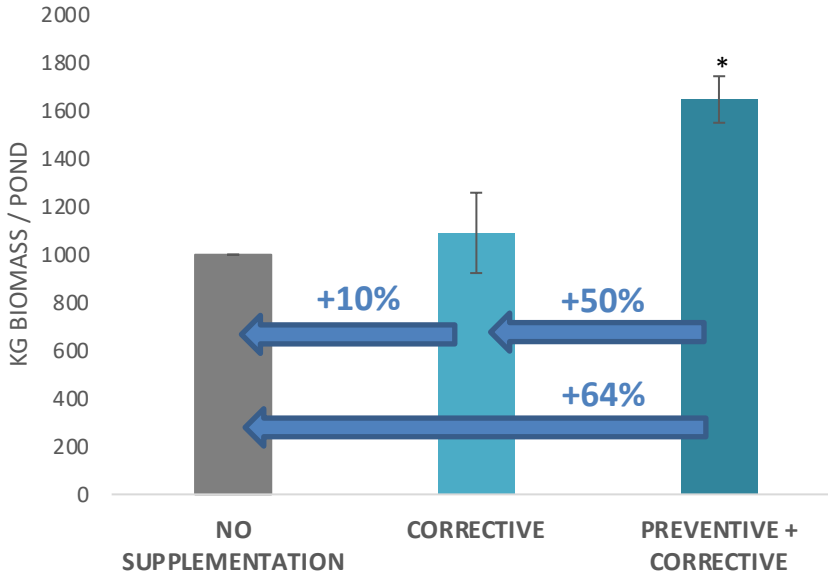
Health program to reduce the impact of WFS (Indonesia)

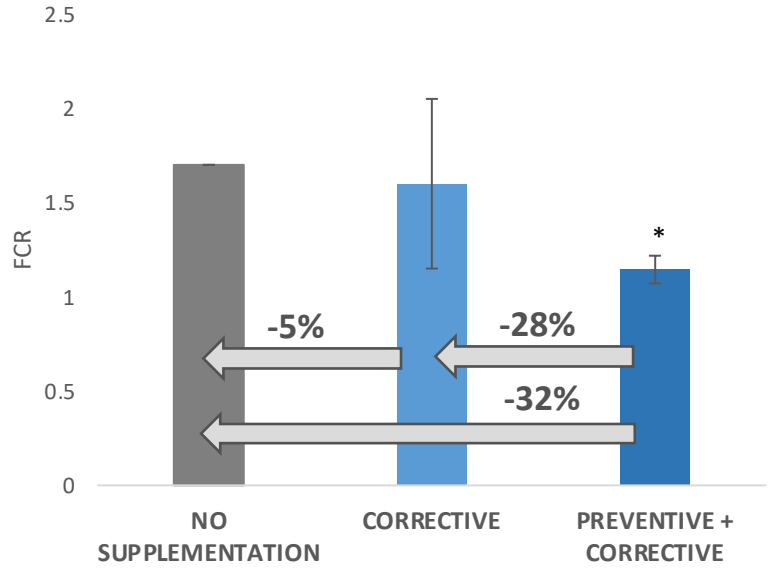
- **WFS detected at DOC 30-40 in last 4 crops (SR max 50% with FCR 1.7)**
- **Vibrio load in pond water >10^2**
- **EHP positive by PCR**
- **Phyto-biotic based additive: commercial trial**

Stocking information and application strategies of SANACORE®GM		
Stocking date	Jul 30th, 2020	July 3rd, 2020
Density (shrimp/m^2)	100	100
Pond replicates	10	10
Application strategy	**Corrective**	**Preventive + corrective**
Dosage	High	Low (preventive) + high (corrective)
Application period	10-14 days after DOC 30-40	Preventive: DOC 7-harvest Curative: 10-14 days after DOC 30-40

SHRIMP FIELD TRIALS

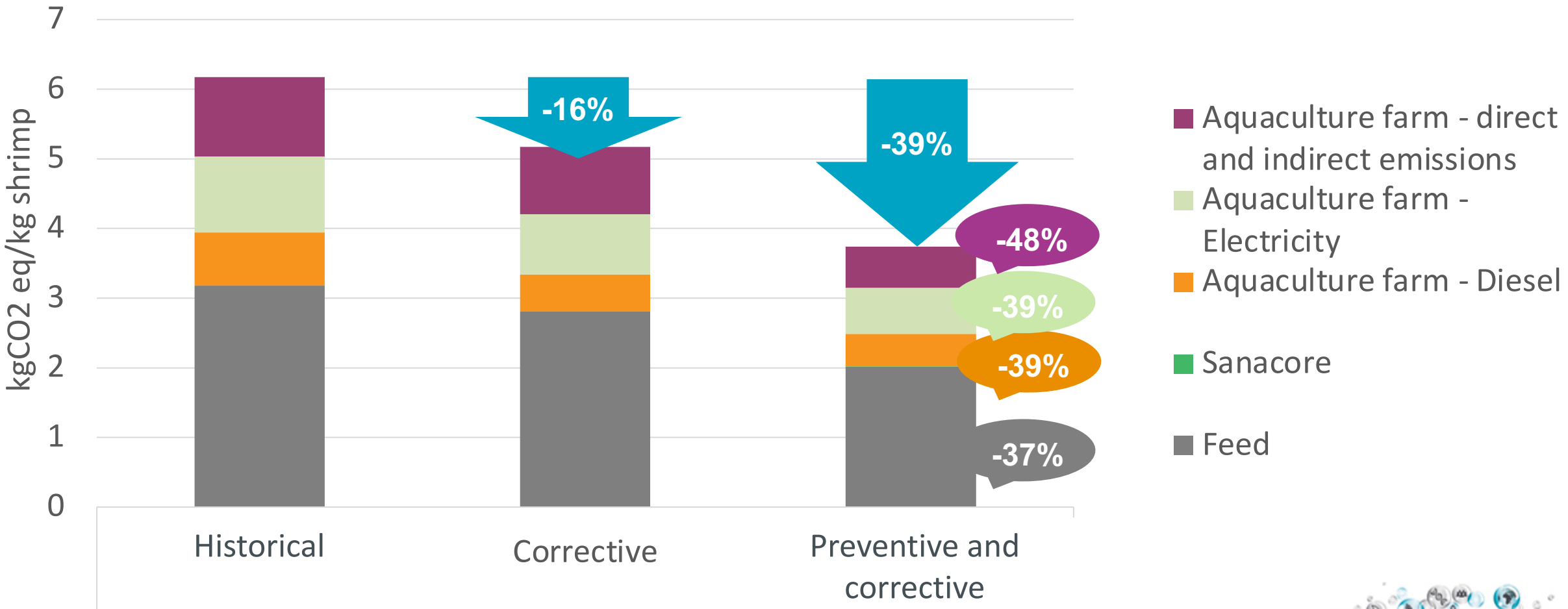






- CORRECTIVE to mitigate signs of infection (ROI 1:18)
- PREVENTIVE + CORRECTIVE to maintain growth rates and survival to pre-WFS levels (ROI 1:40)

SHRIMP FIELD TRIALS

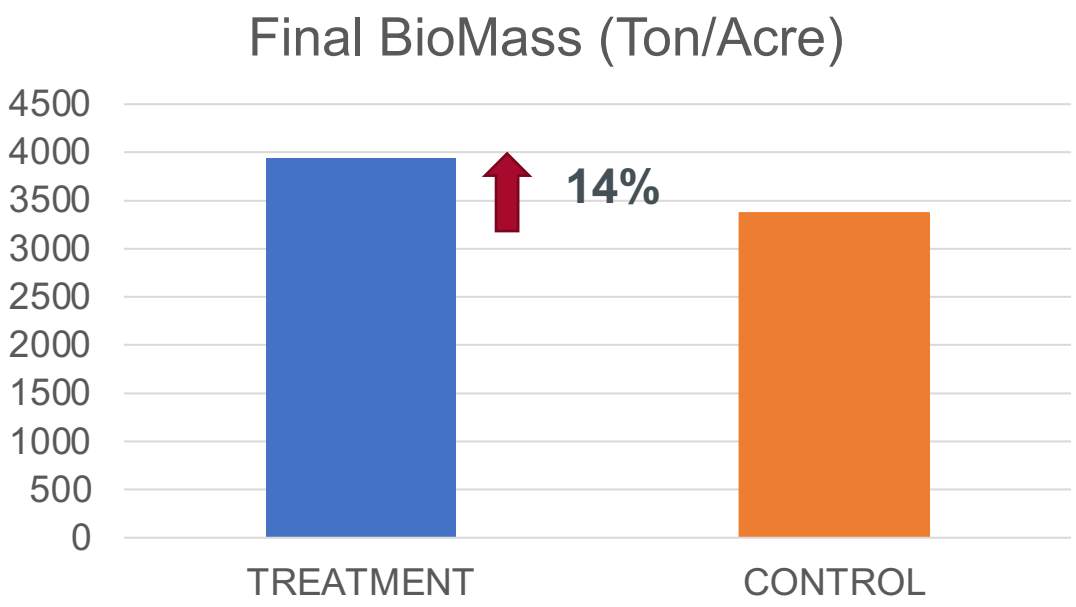


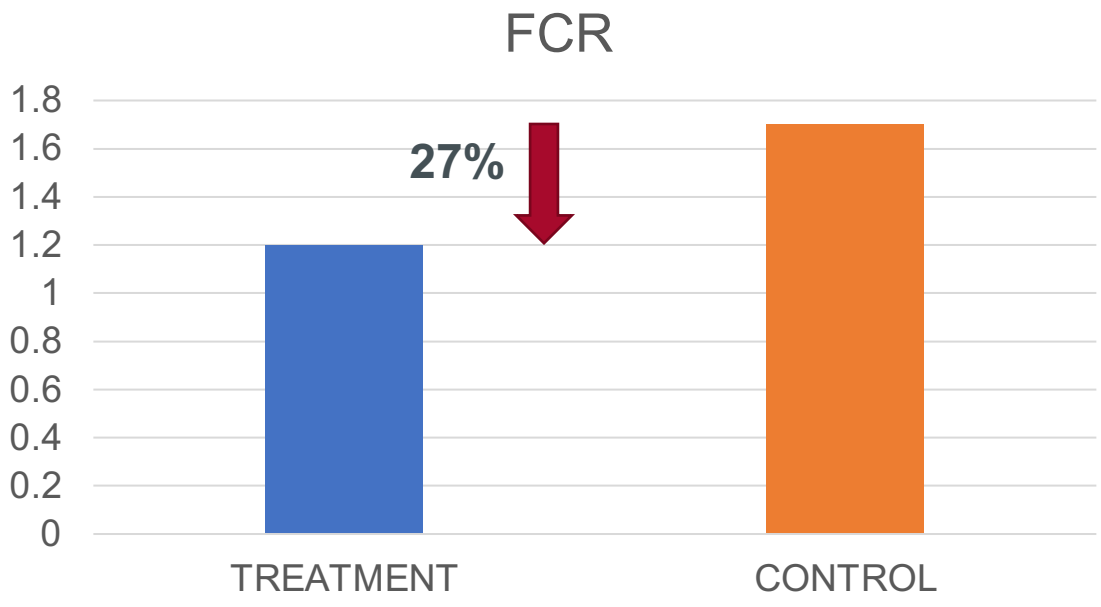
TILAPIA FIELD TRIALS

- 0.5-400g Nile tilapia
- Phytobiotic-based additive
- 2 meals/day
- April to November
  - Water quality and high temperature issues from July to mid September
  - *Aeromonas spp, Vibrio spp and Streptococcus spp* detected during hot season

TILAPIA FIELD TRIALS

PERFORMANCE EVALUATION





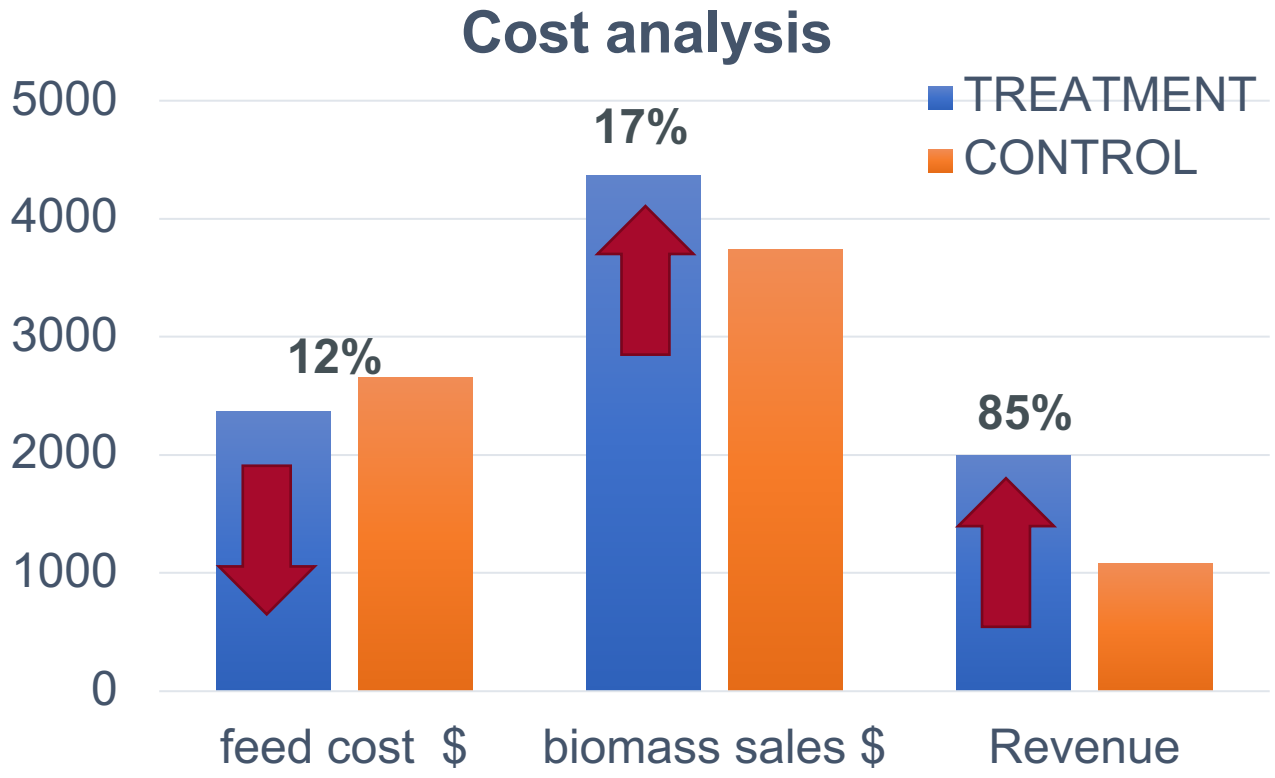
Pytobiotic-based additive improve final biomass and feed efficiency

ADISSEO
A Bluestar Company

TILAPIA FIELD TRIALS

FINANCIAL RESULTS AND ROI

- Total biomass **increased 17%**
- Final revenue **increased 85%**
- Treatment diet ROI is **1:5.5**



COST VS BENEFITS OF ADDITIVE USE FOR FARMERS

The use of additives has cost implications:

- Changes in feed formulation
- Specific application strategies
- Additive availability
- Improved husbandry and biosecurity → optimized results

And benefits:

- Improve performance
- Increase profitability (↑ ROI)
- Reduction of environmental impact
- Increase harvest quality and homogeneity of final product
- Access to new markets
- Improve public perception
- Facilitate certification process

ADISSEO
A Bluestar Company

COST VS BENEFITS OF ADDITIVE USE FOR FEEDMILLS

The use of additives has implications:

- Changes in feed formulation
- Availability of additives
- Farmers' acceptance and motivation
- Species-specific adaptations → customized products

And benefits:

- Improve profit margin
- Increase feed sales
- Market diversification
- Increase sustainability
- Facilitate certification processes

ARE FUNCTIONAL ADDITIVES WORTHY?

- Does the industry have sufficient evidence of the positive impact of functional additives?
- Does the industry need to change its mindset towards prevention?
- **Do we need to continue investing in research, development and innovation?**

MAIN FOCUS AREAS

1. **Research, development and Innovation**
2. **Improved scientific knowledge**
3. **Laboratory and field-validated scientific data**
4. **Species-specific solutions**