



# LSAqua protein source for rainbow trout (*Oncorhynchus mykiss*) diets

**AQUAEXCEL<sup>2020</sup> Webinars 2020**

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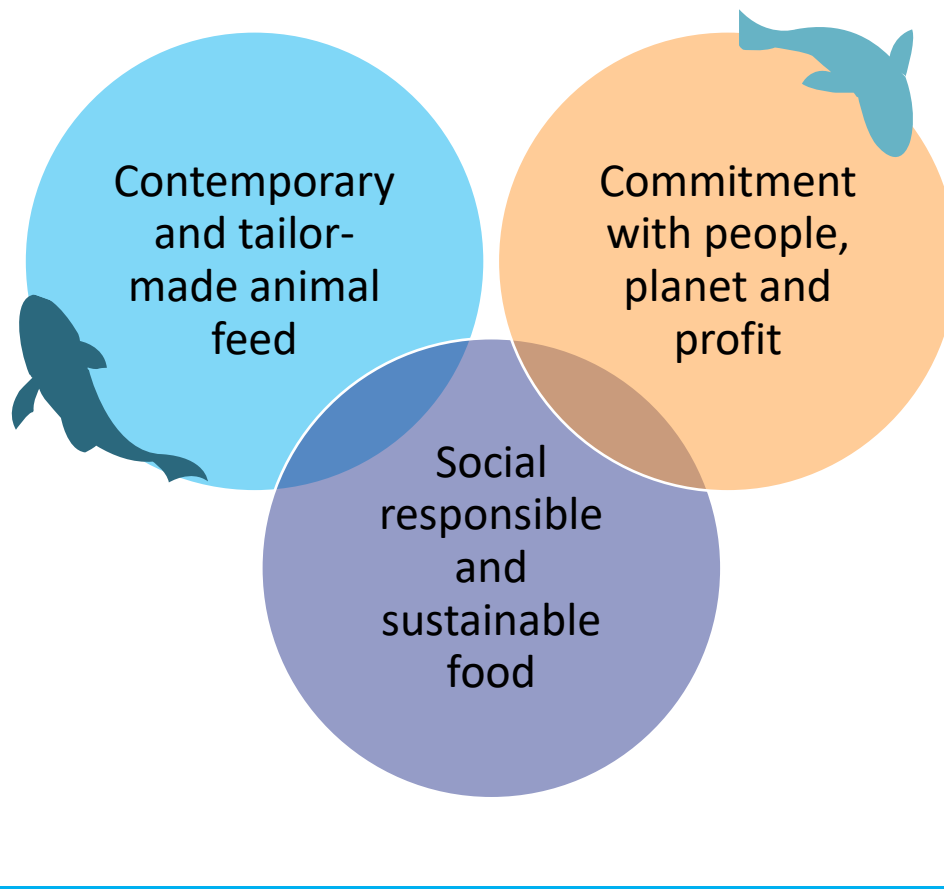
# ABOUT US



LSAqua is the section of Lambers-Seghers NV specialized in Aquaculture feeding products

## OUR SPECIALITY

- LSAqua Suspro
- Concentrates
- Tailor-made feed



# INDUSTRY NEED

Aquaculture; the fastest protein sector:

- ❖ Social, environmental and economical concerns

Pressure to marine stock= less sustainability

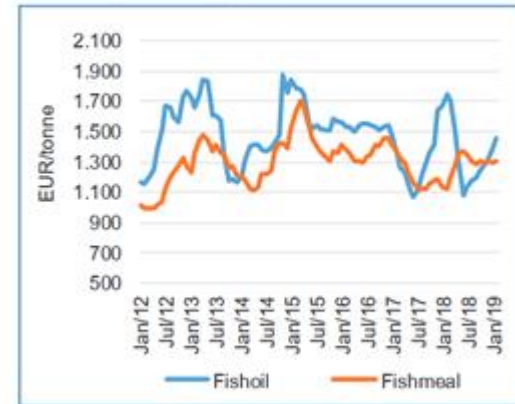
**Sustainability:** collect less than the growth yield, ensure future generations

Quality  
Stability

Price

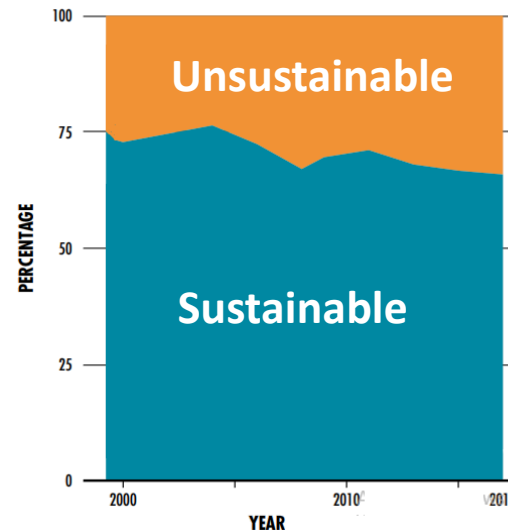


Figure 47. FISHMEAL AND FISH OIL PRICES IN THE EU (EUR/tonne)



Source: Eumofa 2019

Source: Oil world



Source: Adapted from FAO 2020

# SOLUTION

LSAqua has developed a **protein source** as an alternative to fishmeal and it is unique because it contains **Single Cell Protein (SCP)**

It is a balanced blend of high quality alternative proteins with health promoting effects

We formulated and tested our product for shrimp (*P. vannamei*) with successful results

Nutrition Values	
FISHMEAL REPLACER : SHRIMP™	
Crude Protein (min. %)	75.0
Crude Fat (min. %)	4.3
Crude fibre(%)	1.4
Ash (%)	7.1
Gross energy (KCal)	4538.7
Gross energy (MJ)	19.0



## FEATURES

- ✓ Stable throughout the year
- ✓ Natural protein source
- ✓ High quality

## BENEFITS

- ✓ Lower cost of production
- ✓ Safe
- ✓ Good yield
- ✓ Sustainable

# PROTEIN SOURCE

After the efficiency was proved in shrimp, we have tested in trout (*Onchorynchus mykiss*) in INRA St-Pee facilities thanks to AQUAEXCEL<sup>2020</sup> project

No palatability issues, or negative effects on growth

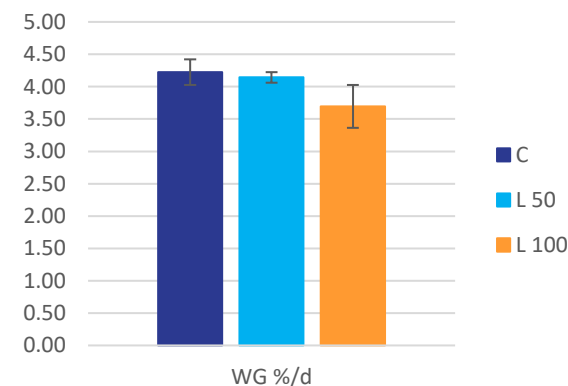
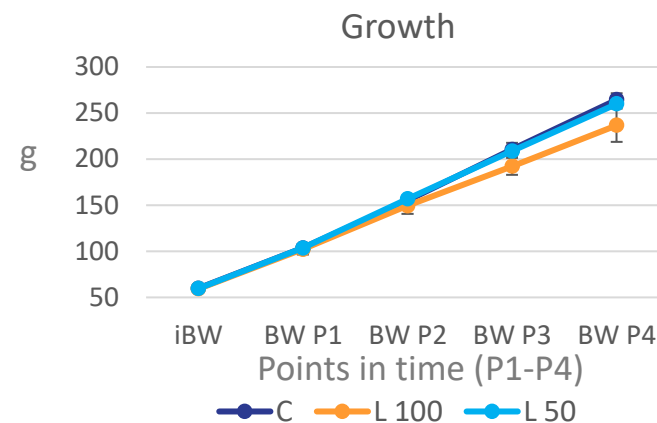
Partial replacement of fishmeal showed similar results to control in feed efficiency and growth parameters and can be deemed good, safe and sustainable

**Table 2.** Growth performance and protein retention of rainbow trout juveniles fed with 50 and 100% of fishmeal replacer

	Crtl	L50	L100
Daily weight gain (g/day)	2,53 ± 0,09a	2,47 ± 0,02a	2,19 ± 0,22b
SGR <sup>1</sup>	1,83 ± 0,04a	1,82 ± 0,02a	1,71 ± 0,08b
FCR <sup>2</sup>	1,08 ± 0,03a	1,15 ± 0,02ab	1,20 ± 0,06b
Feed Efficiency (FE)	0,92 ± 0,03a	0,87 ± 0,01ab	0,84 ± 0,04b
Index daily intake	3,10 ± 0,09a	3,05 ± 0,03ab	2,82 ± 0,18b
Protein retention (%)	42,51 ± 0,77	40,27 ± 0,57	38,99 ± 1,40.

Date are means ± sd. Different letters show statistically significance at P<0.05.

1 Specific growth rate (SGR):  $100 * (\ln \text{ final body weight} - \ln \text{ initial body weight}) / \text{days}$ . 2 Feed conversion ratio (FCR): feed intake/wet weight gain



# TARGET MARKET

- Rainbow trout feed producers
  - Feed mills
  - Integrated business
  - Farmers
- Distributors
- Aquaculture research community

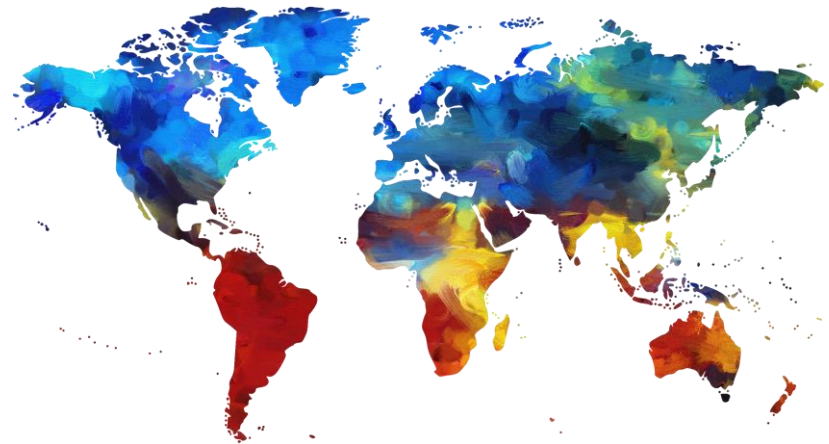


## Application of OUTPUT:

Novel feed formulation

Proof of the effectiveness and safety of the product

Knowledge of fishmeal substitution



# ECONOMIC IMPACT

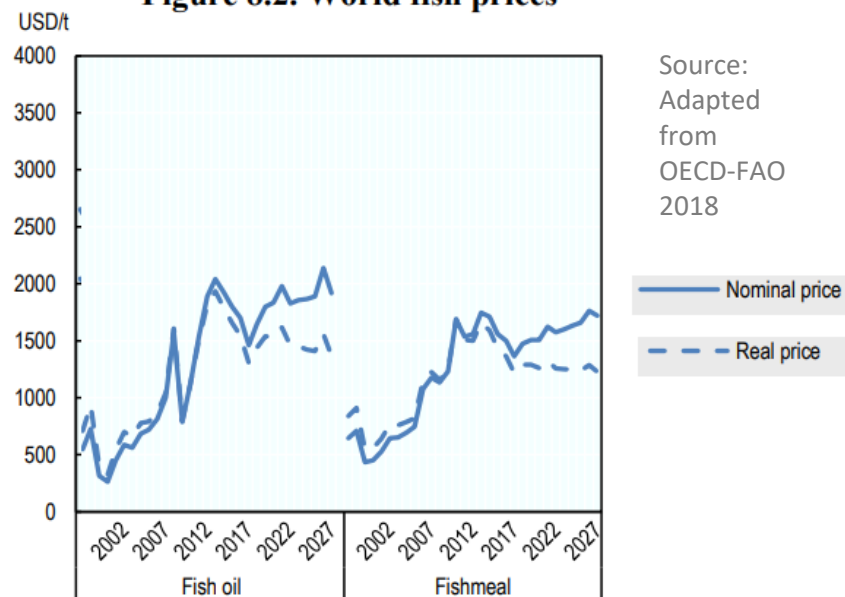
- ❑ **Stability in price:** avoiding fluctuation allows you to budget
- ❑ **Stability in quality:** providing safety and reliability with your clients



## Reduction of fishmeal

- ✓ Same growth
- ✓ Better price
- ✓ More profit
- ✓ More sustainability
- ✓ Less environmental impact

Figure 8.2. World fish prices





# CURRENT STATUS

## TRL 3 –Experimental proof of concept

Fatty acid analysis and whole-body composition → Being processed

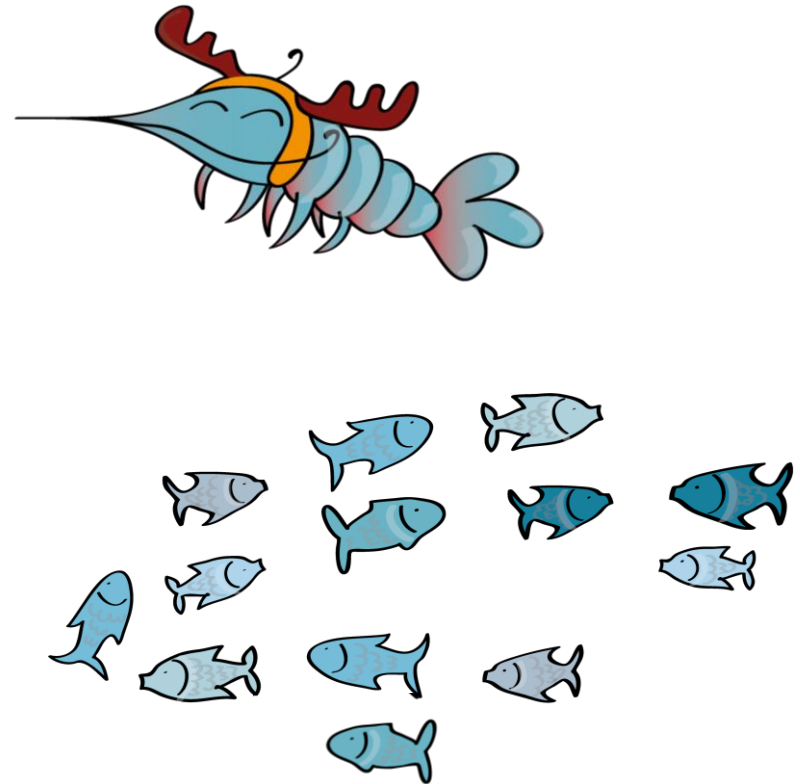
Microbiota or digestibility analysis will complement their use

Currently LSAqua protein source is being tested for sea bream

The product is on the market for shrimp

Up to 50% of replacement showed no negative effects in terms of palatability and growth

Keep testing to be in vanguard





# THANK YOU!

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