



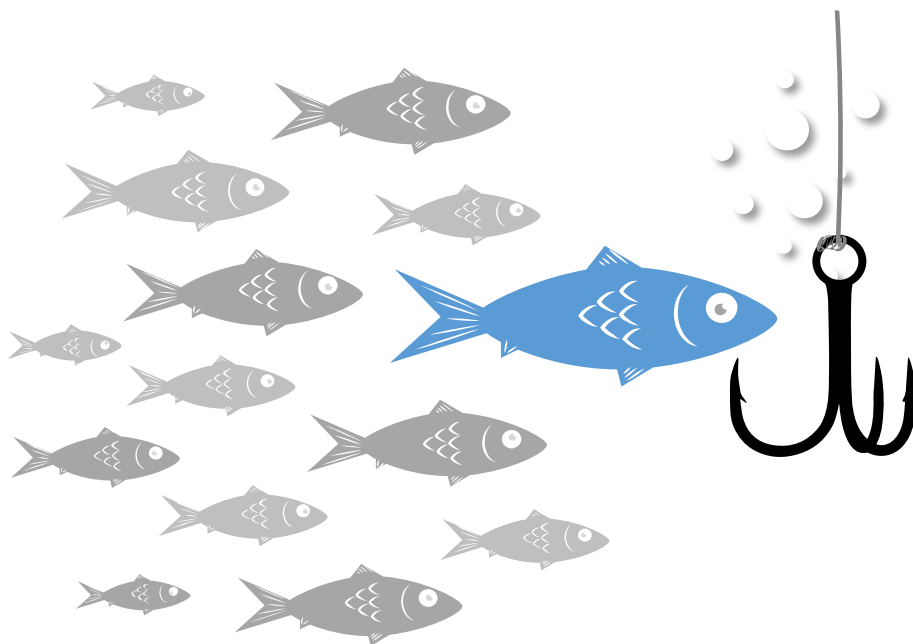
## **Metal-amino acid complexes as a cost-effective strategy to help reduce fish meal in European seabass diets**

**Innovation Forum “INNOVATIONS IN NUTRITION AND FEEDING”**

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# KNOWLEDGE NEED

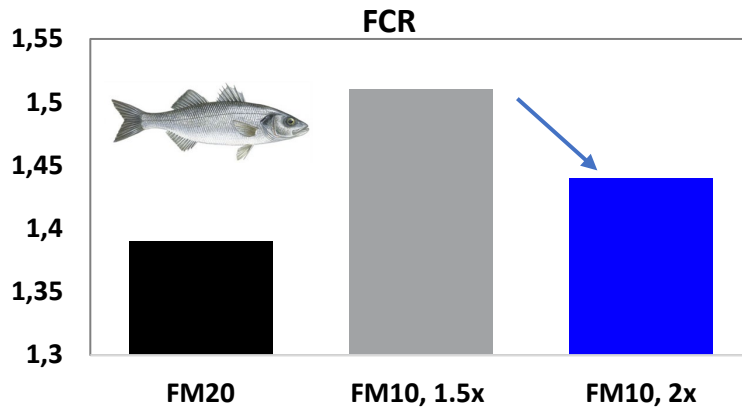
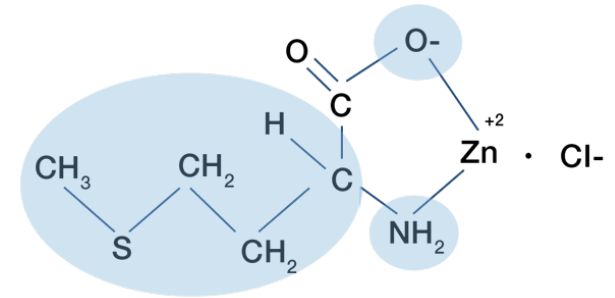


- **Cost-effective Strategies to Reduce Fish Meal:**  
Reduced FM availability/ High Price
- **Meet Animal's Requirements:**  
Balancing for Trace Mineral  
Limitations in diets low in FM (e.g. Zn, Se, Fe)
- **Respect European Legislation:**  
For Maximum Allowed Trace Minerals in Fish diets While Meeting Animal's TM Requirements

# SOLUTION (RESULT)



Replacement of Inorganics with a More Bioavailable Trace Mineral Source Proved a Cost-Effective Strategy to Reduce FM while Respecting EU Legislation



	FM20	FM10, 1.5x	FM10, 2x
Euros /MT	1008.83	921.85	923.84
Savings Euros/MT		86.98	84.99

**8,5 % Savings**

Dietary TM Content, ppm	FM20*	FM10, 1.5x **	FM10, 2x**	EU Upper TM Limits
Zn	95.2	111	144	150
Cu	8.28	10.6	12.7	25
Mn	35.0	42.3	47.4	100
Fe	391	418	483	750
Se	0.860	0.755	0.876	0.5

\*Control diet with 20% FM supplemented with 50 ppm Zn, 40 ppm Fe, 12 ppm Mn, 3 ppm Cu and 0.12 ppm Se (Zinpro Performance Minerals, Availa®Mins line).

\*\* Formulated to reduce FM level in control diet by 50% (10% FM) and supplemented with same premix at 1.5 x (diet FM10, 1.5x) or 2x (diet FM10, 2x) that used in the control diet.



# TARGET MARKET



**Hatchery & Broodstock**



**Feed Millers & Premix**



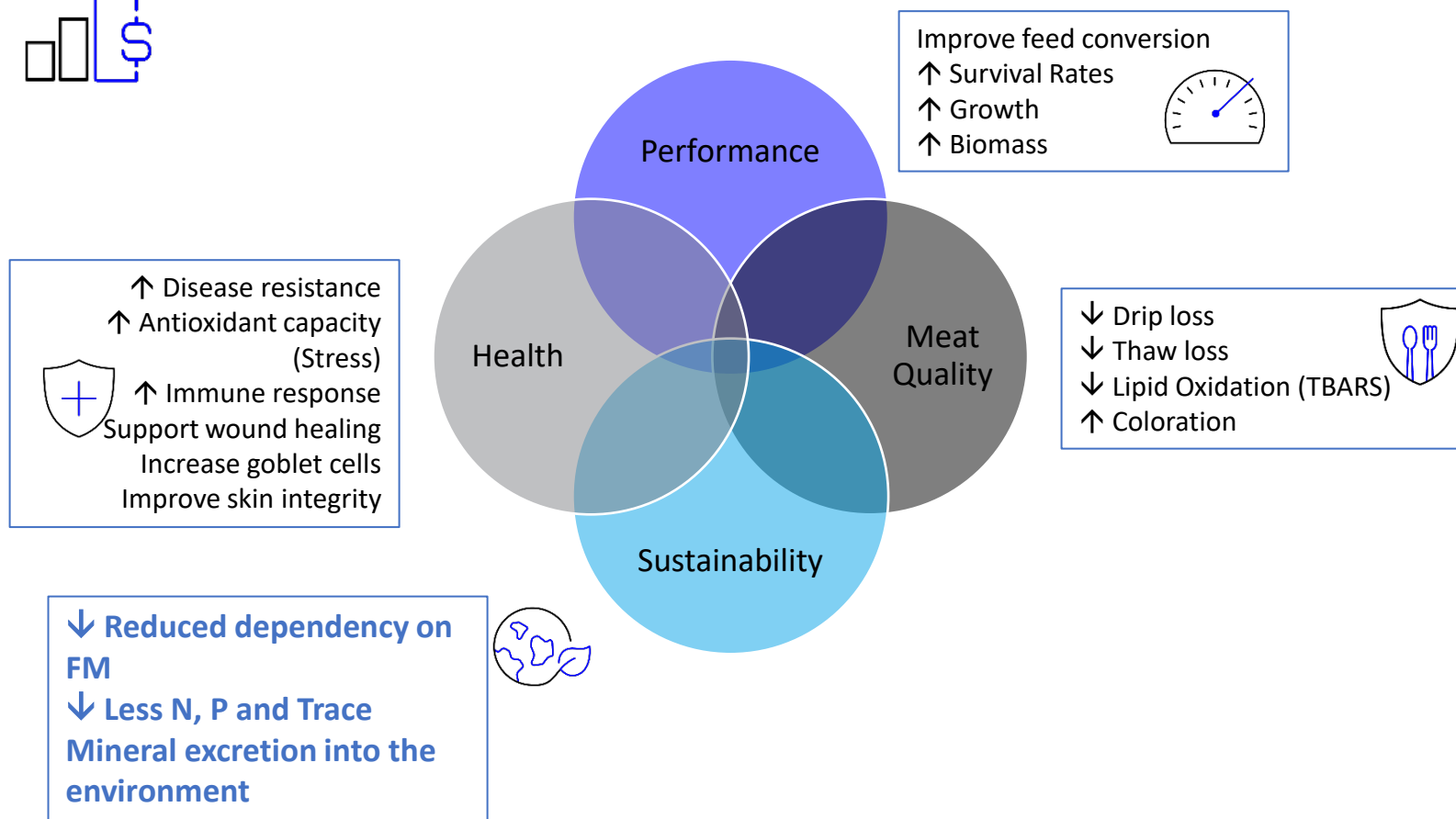
**Farmers**

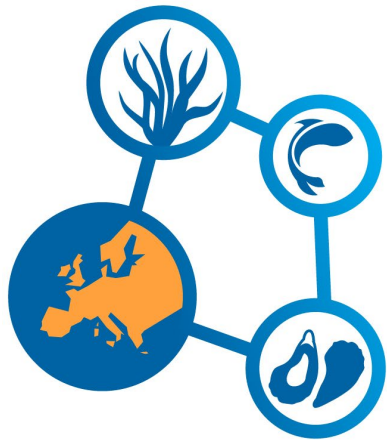


**Integrators**



# IMPACT





# AQUA EXCEL 3.0

AQUAculture infrastructures  
for EXCELlence in European  
fish research 3.0



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# Thank you!



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