

# NUCLEO 20

## *Growth and health of shrimp and fish*



### PROPERTIES

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- NUCLEO 20 is a combination of purified nucleotides formulated for aquaculture applications
- NUCLEO 20 helps to improve the diseases resistance , growth and the vaccination effectiveness of aquaculture species
- NUCLEO 20 helps to reduce the negative effects of stress

#### NUCLEOTIDES

Provide the natural building blocks for cellular multiplication, and for the biosynthesis of proteins and enzymes.

Nucleotides

- Nucleotides are essential factors in many key body functions (**Immunity** through the multiplication of the cells of the immune system, hepatic functioning, Digestion and growth trough a better intestinal absorption)
- Diets are deficient especially during periods of peak demand.
- Many of the requirements cannot be supplied fully from internal sources through the normal digestion of food.
- De novo synthesis is highly energy consuming

### COMPOSITION

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20% Min

+

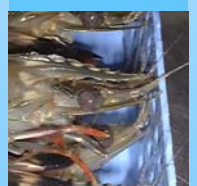
Nucleotides (purified natural RNA source)  
Precursors of nucleotides

### USE AND PRESENTATION

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Recommended inclusion levels :	Shrimps	Fishes
Starter phase:	2kg / ton	2kg / ton
Grow out:	2kg / ton	1kg / ton

- NUCLEO 20 is presented in powder form
- NUCLEO 20 has been formulated to insure optimal flow within the industrial process and a homogeneous incorporation into premixes.
- NUCLEO 20 is stable in all types of animal feed: flour, pellets or liquids and has been formulated to be stable through extruders at high pelletization temperature (<140°C)
- NUCLEO 20 is compatible with all feed ingredients and feed additives usually used in the manufacture of feed
- NUCLEO 20 is a totally non toxic feed ingredient. It leaves no residues. There is no required withdrawal period when using the product.
- NUCLEO 20 can be stored 18 months after the manufacturing date in a cool, dry place.

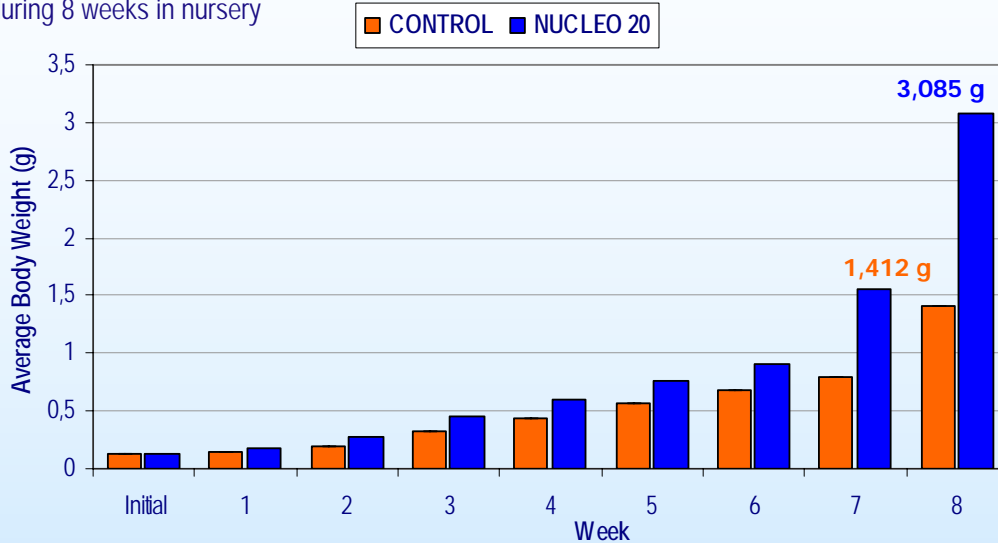


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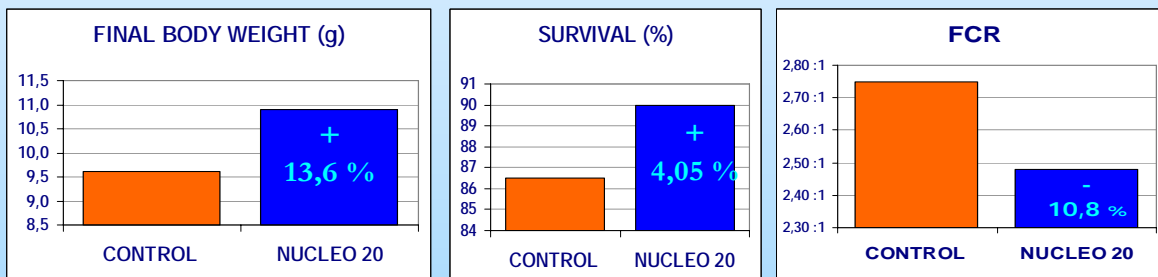
## Benefits for shrimp



- Shrimp trial (source Lallemand courtesy) :
- Effect of administration of NUCLEO 20 via formulated feed on juvenile shrimp *Penaeus vannamei* during 8 weeks in nursery



- NUCLEO 20 improves significantly the weekly average body weight, the final body weight, the survival and the FCR after 31 days of experiments with juveniles *Penaeus vannamei*.



- Effect of administration of NUCLEO 20 via formulated feed on shrimp, *Penaeus vannamei*, in grow out earth ponds :

PARAMETERS	UNIT	CONTROL	NUCLEO 20	CHANGE %
<b>TRIAL 1- Trial Period 110 Days</b>				
Final Weight	g	20	25	+25,0%
FCR	1:	1,65	1,2	-27,3%
Survival	%	70	80	+14,3%
<b>TRIAL2- Trial Period 87 days</b>				
Final Weight	G	12,5	15,4	+23,2%
Survival	%	65	90	+38,5%



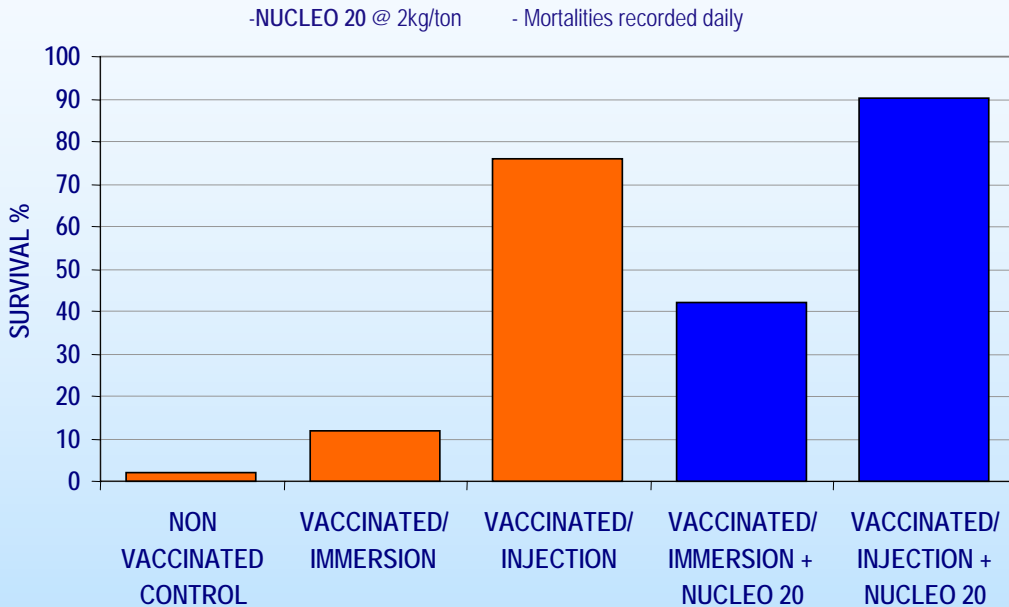
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## Benefits for shrimp and fish



- Fish trials (source Lallemand courtesy) :
- NUCLEO 20 improve the Immune Response of Tilapia after vaccination & reduce significantly the mortality to *Aeromonas hydrophila* challenge:

- Comparison of the survival of Control Group vs. NUCLEO 20 Group after 84 Days of Experiment:



- NUCLEO 20 improves in the Diet improve: the survival, the growth rate, & the FCR of Tilapia:.

