

# EXCELLENCE IN YEAST – EXCELLENT FOR FISH



Animal Health



**Leiber**  
Excellence in Yeast



# Effect of Leiber® Beta-S Plus on shrimp (*Litopenaeus vannamei*) growth performance and resistance to a WSSV infection

2016

# Material and Methods



## Objectives

- Evaluating and comparing the effects of Leiber® Beta-S Plus on
  - growth performance and feed conversion
  - in whiteleg shrimp (*Litopenaeus vannamei*)
- after an 8-week feeding trial
- ... followed by a challenge with the white spot syndrome virus!

# Material and Methods – Feeding trial



## Experimental design

- 3 weeks acclimatization of shrimp larvae, initial feeding with artemia nauplii, then switched to control diet
- 140 shrimp (*Litopenaeus vannamei*) per tank stocked in sixteen 500 L tanks
- Artificial sea water (20 g salt/l; 29° C; oxygen > 5 mg/l)
- 2 replicate tanks per treatment
- Feeding 6 times daily for 8 weeks (3 x per day by hand, 3 x over night by a feeding tray)
- Treatments (supplementation level of BSP = Beta-S Plus to the basal diet):

CO	BSP 0.5	BSP 1.0
Control (no $\beta$ -glucan)	0.5 kg/to feed Leiber® Beta-S Plus	1.0 kg/to feed Leiber® Beta-S Plus

# Material and Methods – Feeding trial



## Diet composition

Table 1: Formulation (g per 1000 g feed) of the basal diet

Ingredients	
Wheat flour S68	319.0
Soyflour Milpro	292.0
Herring meal 82	150.0
Poultry byproduct meal 65 CP	75.0
Tuna oil	42.0
Gelatine	30.0
Monocalcium phosphate	23.0
Fish oil	20.0
Vitamin and mineral premix	20.0
Sepiolite	16.0
Limestone	14.0
Salt	10.0
Lecithine powder CF95	9.0

Table 2: Chemical composition of the basal diet (in %)

Nutrients	
Moisture	8.5
Crude protein	38.0
Crude fat	8.1
Crude ash	10.0
Calcium	1.25
Phosphorus	1.01
Lysine	2.20
Met + Cys	1.29

# Material and Methods – Feeding trial



## Diet composition - Premix

Table 3: Formulation of the premix (inclusion levels in diet)

<b>Vitamins</b>	
Vitamin A	12,000 IU/kg
Vitamin D3	4,000 IU/kg
Vitamin E	200 mg/kg
Vitamin K	32 mg/kg
Vitamin B1	61 mg/kg
Vitamin B2	50 mg/kg
Vitamin B3	94 mg/kg
Vitamin B6	59 mg/kg
Vitamin B12	0.2 mg/kg
Niacin	200 mg/kg
Vitamin C	204 mg/kg
Folic acid	8 mg/kg
Biotin	1 mg/kg
Choline chloride	528 mg/kg
Inositol	125 mg/kg

<b>Trace elements</b>	
Ferrous sulphate, monohydrate	18 mg/kg
Copper (II) sulphate, pentahydrate	66 mg/kg
Zincsulphate, monohydrate	117 mg/kg
Manganese(II)oxide	30 mg/kg
Sodiumselenite	0.3 mg/kg
Calcium Iodate, anhydrate	1.12 mg/kg

<b>Amino acids</b>	
Methionine	0.0776 %

<b>Technological additives</b>	
Propylgallate	18 mg/kg

# Results – Feeding trial

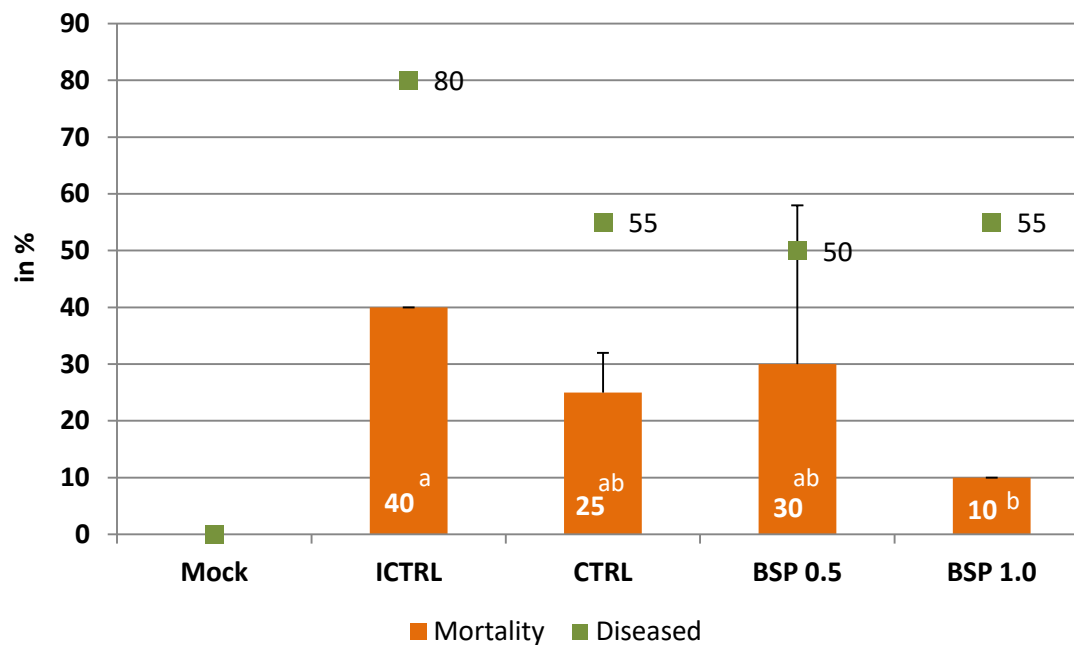


## Results performance and survival

Table 4: Growth performance, feed conversion and survival after 8 weeks of feeding

	CTRL	BSP 0.5	BSP 1.0
IBW (g)	0.9	0.9	0.9
FBW (g)	10.65±0.56	10.54±0.48	<b>11.27±0.15</b>
Δ (in %)	100	99.0	<b>105.8</b>
FCR	1.76±0.06	1.88±0.11	<b>1.73±0.02</b>
Δ (in %)	100	106.8	<b>98.3</b>
Survival (%)	93.9 ± 1.52	92.1 ± 2.02	92.5 ± 2.53

# Results – WSSV challenge



	Mock	ICTRL	CTRL	BSP 0.5	BSP 1.0
Onset of mortality (h)	0	60	54	54	60
Cessation of mortality (h)	0	90	90	84	60