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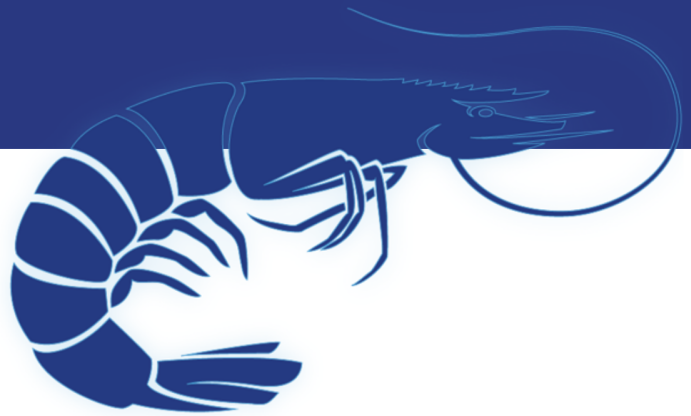
SPF

ADG (AVERAGE DAILY GROWTH)

PRODUCTIVITY

BLUE GENETICS TEXAS LINE



FAST AND CONSISTENT GROWTH WITH OUR NEWEST GENERATION

TECHNICAL RECOMENDATIONS TO ACHIEVE THE BEST PERFORMANCE OF THE BLUE GENETICS TEXAS LINE (GROWTH LINE) in HATCHERIES

The Blue Genetics Growth Line, called the Texas Line, is a very fast growth line with high rates of copulation and spawning of nauplii for the production of Post Larvae in hatcheries. Once reaching 1 gram of weight in farming, the shrimp could grow between 3 to 4 grams weekly average, with peaks growth up to 5 or 6 grams in some weeks.

It is a line designed to be stocked in high or low density ponds in a wide range of salinities, under bio-secure conditions and free of pathogens, that will obtain its maximum genetic potential and feed conversion efficiency with good management practices as well as with a consistent feeding throughout the farming period.

As this is a unique growth line we want to provide our clients with the following recommendations, which together with their hatchery experience and technical skills, will help to achieve the best results in terms of growth, survival and Food Conversion Ratio.

It is important to mention that these protocols and feeding tables are based on facilities with high biosecurity standards. **These recommendations should only be used as a reference.** For the most part good results will depend on the technical and observation experience of the staff and the characteristics of the facilities.

1. BROODSTOCK RECEPTION AND ACCLIMATION:

a. Shipping Water Parameters:

- Water volume per bag: 12 liters of water
- Temperature: 16-19 ^{0}C
- Salinity: 28-35 ppt
- pH: 8.0-8.3

b. Acclimation:

Table 1. Recommended min. and max. ranges for acclimation at destination.					
Salinity Range at arrival	Acclimation time	Temperature Range at arrival	Acclimation time	pH Range at arrival	Acclimation time
From 28- 35 ppt	20 Minutes per 1 ppt	16 to 23 °C	20 Minutes per 1 °C	7.6 to 8.0 pH	20 Minutes per 0.1 pH

c. Recommended Treatments after Acclimation.

After the broodstock has been acclimated for 24 hours or more, and before transferring them to the production tanks, the use of one of these treatments is recommended in order to remove any possible fouling organisms:

- Iodine (PVP) 50 ppm for 1 minute
- Formalin 250 ppm for 1 minute
- Chloramin T 50 ppm for 1 minute

2. BROODSTOCK FEEDING IN MATURATION AREA:

Broodstock should be fed about 28 % of their biomass per day on a wet weight basis in the following proportions:

Squid: 6 %, Mussels 6%, Artemia Biomass: 6 %, Polychaetes: 8 % and Dry Diet: 2 % of their biomass.
Maturation tanks are fed 6 times per day utilizing 5 diets, as per the following table:

Table 2. Natural Photoperiod		Inversed Photoperiod	
03:00	Dry diet	03:00	Dry diet
04:00	Squid	04:00	Squid
08:00	Dry Diet	08:00	Artemia Biomass
11:00	Polychaetes	12:00	Squid
14:00	Dry diet	14:00	Polychaetes
18:00	Mussels	18:00	Mussels
20:00.	Dry diet	20:00.	Dry diet
24:00	Artemia Biomass	24:00	Squid

3. BROODSTOCK HANDLING FOR PRODUCTION:

a. **Ablation** can be done 10 days after acclimation. Doing it earlier will create unnecessary stress for the animals. Do not ablate soft animals.

b. **Water temperatures** are maintained at 28° C.

c. **Salinity** should be stable at 33 +/- 2 parts per thousand.

d. **Same temperature at spawning and Hatching tanks**: keep at 29□C at all times.

e. **Salinity in Spawning and Hatching tanks:** Reduce salinity by 2 ppt below the maturation tanks salinity to soften the eggs and help the animals to hatch better. Never reduce the salinity in spawning and hatching tanks lower than 28 ppt.

LARVAL PRODUCTION

(* Feedings are total per day, per million, per stage, divided by the number of recommended feedings per day)

Protocol for the production of postlarvae of the Texas Line															Nauplii/l Tank ton				100 10
Larval development				Water			Temp ºC	Treatments		Natural feed		Supplementary feeds			Probiotics (gr/tons)				
Days on Culture	Stadium	Survival	Total stocking X 1000	Tank level	Tank volumen	Water exchange		EDTA grams/ton	Treflan ml/ton	Algae cell/ml/1000	Artemia cysts Grams/mill pls/day	Feed grams/mill pls	Times a day	Feed size microns	1 or 2 time/day (depending if water is clean or dirty)				
															Probiotic 1 g.	Probiotic 2 g.	Probiotic 3 g.	Probiotic 4 g.	Probiotic 5 g.
1	N5	***100%***	1.000	85%	9		32	10	0.1	60					1	1	1	1	1
2	Z1	***97%***	0.970	85%	9		32		0.1	80		***10***	6	5-50	1	1	1	1	1
3	Z2	***95%***	0.950	85%	9		32		0.1	80		***14***	6	5-50	1	1	1	1	1
4	Z2/Z3	***93%***	0.930	85%	9		32		0.1	100		***18***	6	50-100	1	1	1	1	1
5	Z3	***90%***	0.900	100%	10		32	10	0.1	120	18	***22***	6	50-100	1	1	1	1	1
6	Z3/M1	***87%***	0.868	100%	10		32		0.1	120	29	***26***	6	50-100	1	1	1	1	2
7	M1	***83%***	0.826	100%	10		32			100	29	***32***	6	50-100	1	1	1	1	2
8	M2	***80%***	0.800	100%	10		32			80	40	***41***	6	100-200	2	1	2	2	2
9	M3	***78%***	0.780	100%	10		32			60	56	***54***	6	100-200	2	1	2	2	2
10	M3/PL1	***75%***	0.750	100%	10		32				80	***83***	6	100-200	2	1	2	2	3
11	PL1	***72%***	0.720	100%	10		32				154	***123***	6	100-200	2	1	2	2	3
12	PL2	***70%***	0.700	100%	10	10%	32	10			176	***144***	12	100-200	2	1	2	2	3
13	PL3	***69%***	0.690	100%	10	10%	32	10			176	***166***	12	100-200	2	1	2	2	3
14	PL4	***66%***	0.660	100%	10	10%	31-32	10			176	***194***	12	100-200	2	1	2	2	3
15	PL5	***64%***	0.640	100%	10	10%	31-32	10			176	***224***	12	100-200	2	1	2	2	4
16	PL6	***62%***	0.620	100%	10	10%	31-32	10			154	***254***	12	100-200	2	1	2	2	4
17	PL7	***61%***	0.610	100%	10	25%	31-32	10			96	***381***	12	100-200	2	1	2	2	4
18	PL8	***60%***	0.600	100%	10	25%	31-32	10				***424***	12	100-200	2	1	2	2	4
19	PL9	***58%***	0.580	100%	10	25%	31-32	10				***467***	12	200-300	2	1	2	2	4
20	PL10	***57%***	0.570	100%	10	25%	31-32	10				***512***	24	200-300	2	1	2	2	5
21	PL11	***56%***	0.560	100%	10	25%	29-30	10				***558***	24	200-300	2	1	2	2	5
22	PL12	***55%***	0.550	100%	10	25%	29-30	10				***616***	24	200-300	2	1	2	2	5