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Stakeholder Consultation on Progressive Management Pathway (PMP)
to
Improve Aquaculture Biosecurity

World Bank Headquarters, Washington, D.C. 10-12 April 2018

Marine Shrimp Farming

World Reality and the Challenges Confronted by that Sector in Brazil

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ABCC
ASSOCIAÇÃO BRASILEIRA DE CRIADORES DE CAMARÃO

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BRAZILIAN SHRIMP FARMING: QUALITY MANAGEMENT PROGRAM

- The cultured shrimp consolidation and the exports expansion from Brazil will depend on the precautions with the product quality and the acceptance of the strict control in production process entailing all the chain.

- **Quality management and traceability guide on a farm.**
  - **Complete**
  - **Small farmer**
- **Biossecurity guide**
- **Best management practice booklet, prevention and diseases control**

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BRAZIL:
Farmed Shrimp Quality Program Aiming a Diferenciation on Shrimp Production

CODE OF CONDUCT

CODE OF CONDUCT

ABCC
BRAZILIAN SHRIMP FARMERS ASSOCIATION

Brazil

SHRIMP QUALITY GUARANTEE

CODE OF CONDUCT

CODE OF CONDUCT

COMPROMISES:

- INNOCUOUSNESS
- QUALITY
- TRACABILITY
- SOCIAL AND ENVIRONMENTAL RESPONSABILITY

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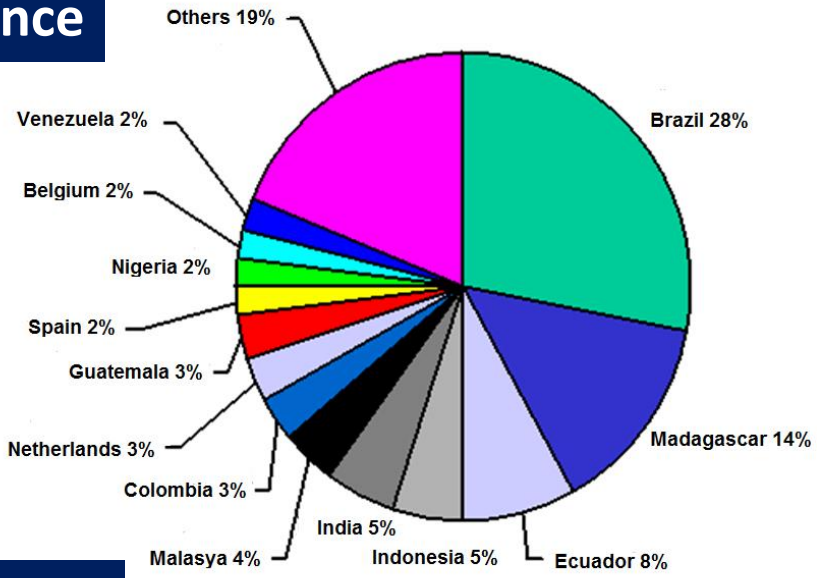
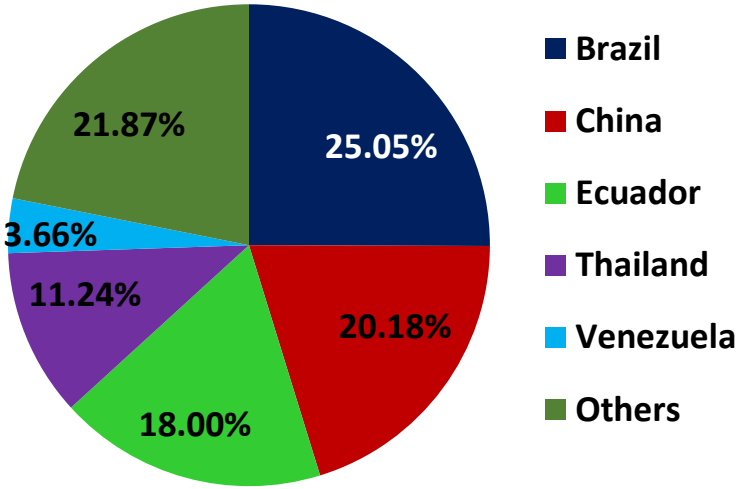
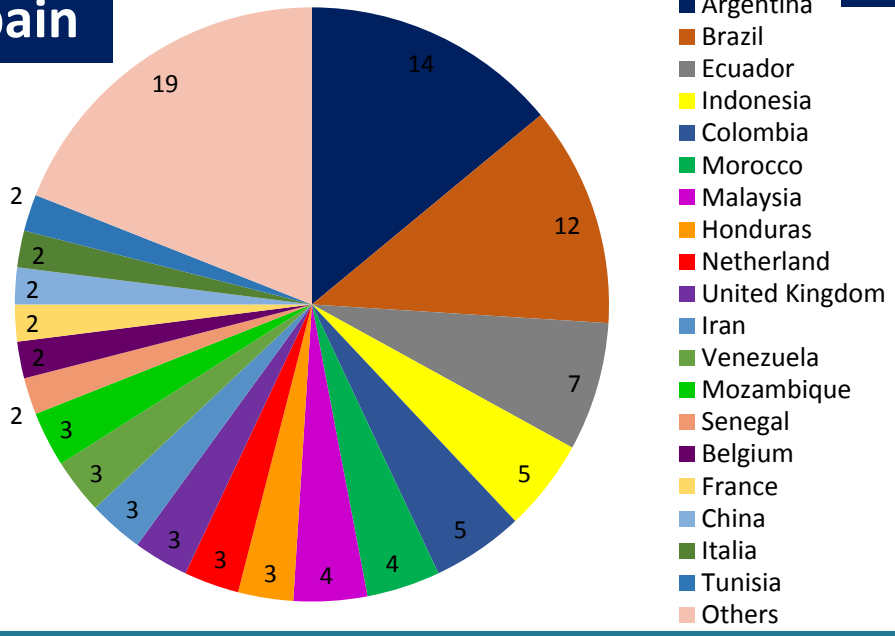
France



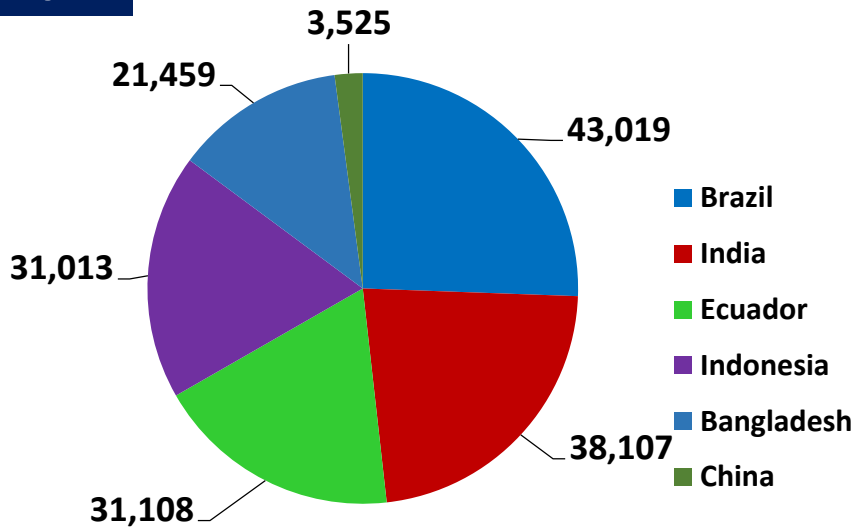
USA



Spain



Europe



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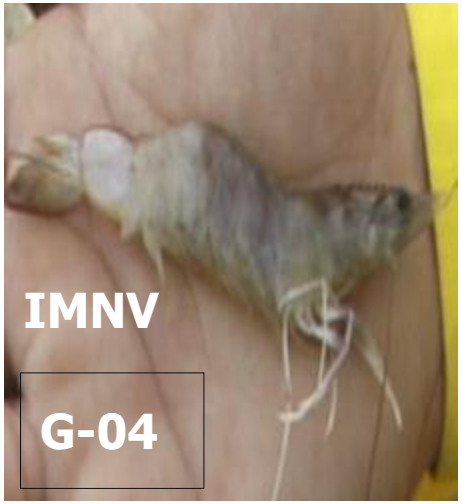
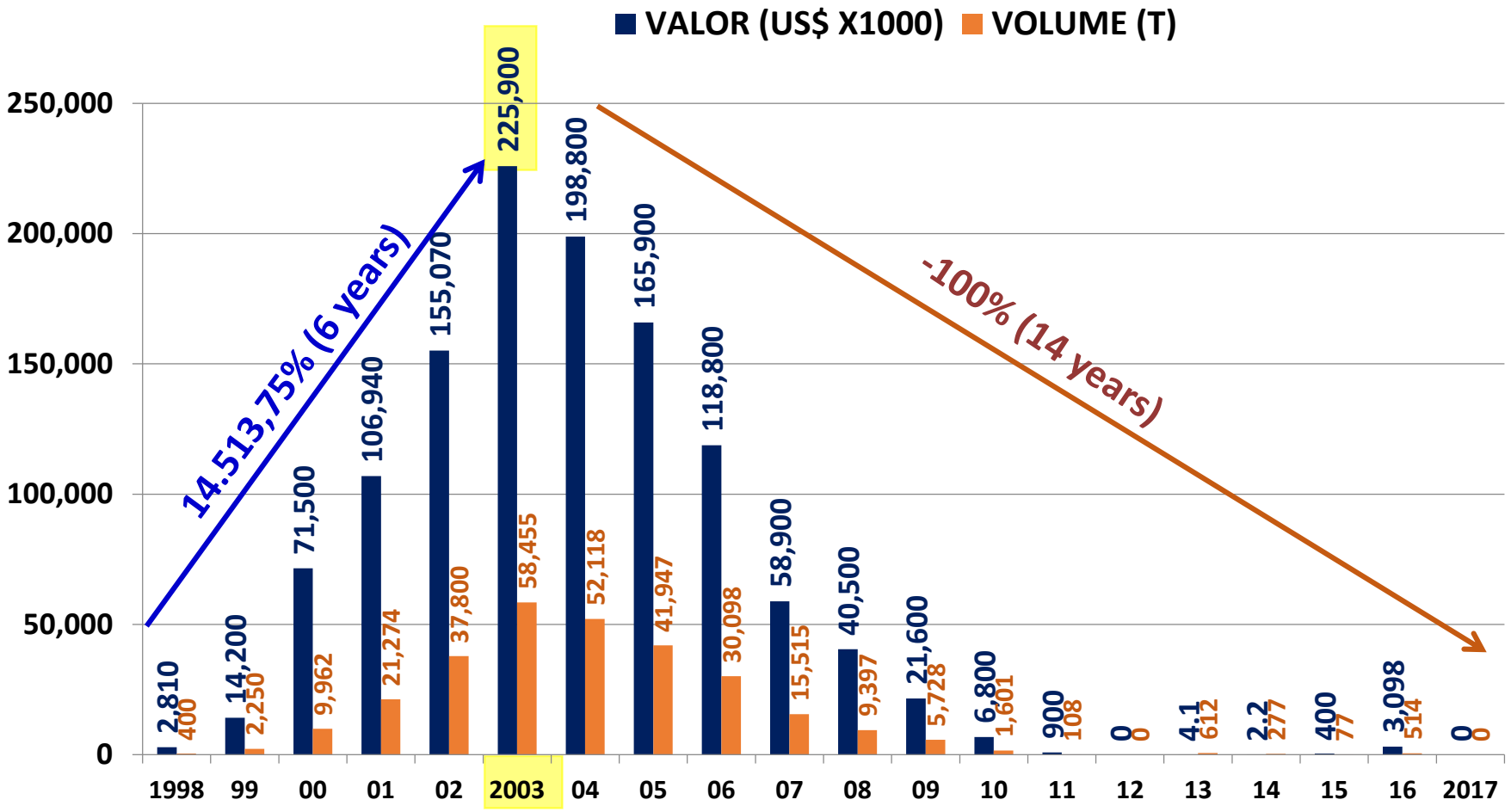
FRESH SHRIMP ANALYSIS
MONITORING SHRIMP HEALTH ON A FARM

Macroscopic diseases evaluation – General Observation .



Macroscopic diseases evaluation – WSSV.

Evolution (14.513,75%) and Fall (100%) of the Brazilian Farmed Shrimp Exportation (1998 to 2017)



Fonte: Aliceweb, Março 2018

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BRAZIL: GOOD MANAGEMENT PRACTICES

The sustainable development of the Brazilian shrimp farming industry has been supported by the following management practices at the pond level .

Soil treatment

Intensive Nursery

Feeding trays

Proper Harvesting

Parameters Control

Intermediate Raceways

Artificial Aeration

Modern Processing

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Biosecurity on Disease Prevention

The use of biosecurity methodologies to pathogens elimination on the production






Soil Treatment

- Preparing the soil:



Different ways to prepare the soil for organic matter .

Water supply and filtration

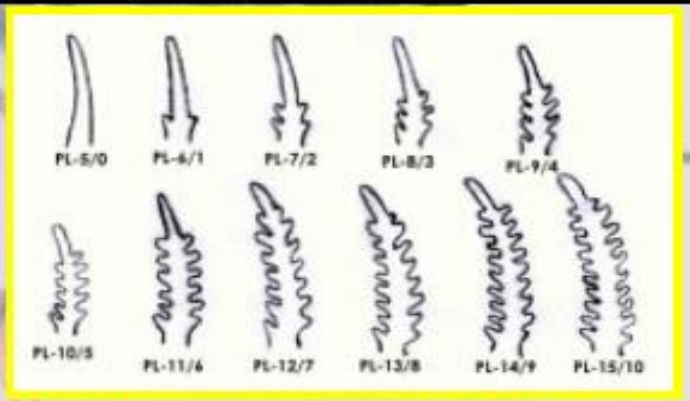


Primary filtration – Water supply channel on a shrimp farm .

GMP: WET MOUNT PREVENTIVE ANALYSIS
Post-larvae Quality

PL Age	5	6	7	8	9	10	11	12	13	14	15
N° of lobules	0	1	2	3	4	5	6	7	8	9	10

Branchial Arch with 3 lobules



Lobules formation by PL age

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GMP: WATER PARAMETHERS CONTROL

THE MONITORING OF THE MAIN PHYSICAL AND CHEMICAL WATER PARAMETERS IS ESSENTIL FOR THE MAINTENANCE OF GOOD WATER QUALITY IN THE SHRIMP PONDS

D.OXYGEN / TEMP.

ALkAL. / TRANSP.

pH

SALINITY

NITRITE / AMONIA

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CRABS CONTROL
(PATHOGENIC VECTORS)

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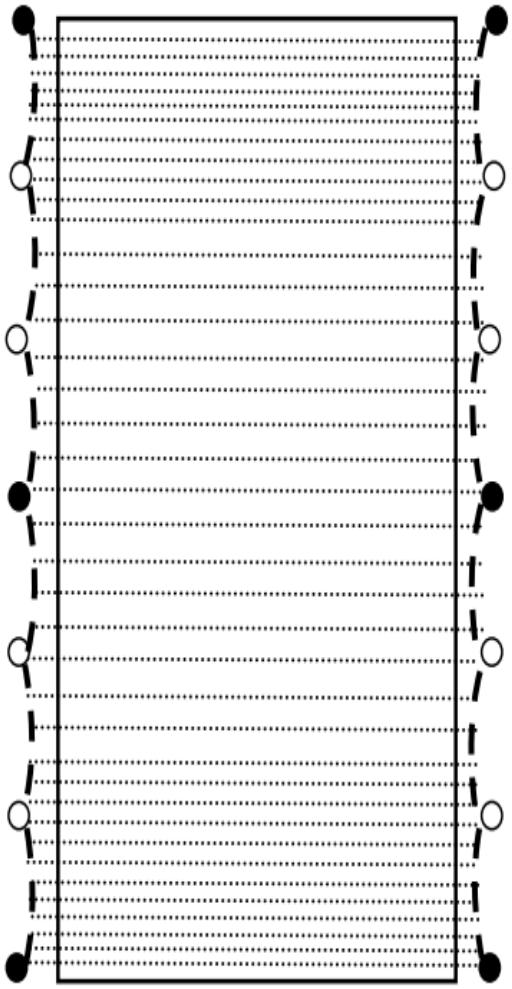
BIRD PROTECTION NET



- **Mourão**: tensiona e sustenta a corda da bainha lateral, espaçamento 40m mourão-mourão.
- **Estaca intermediária**: sustenta a corda da bainha lateral, espaçamento 13,3m.
- **Bainha lateral**: corda de "nylon de seda" (fibra 100% poliéster ou PET reciclado) Ø 8mm, sustenta os fios transversais,
- **Fio transversal**: nylon de pesca Ø 0,70mm (monofilamento 100% poliamida), conhecido por "nylon 70", forma a malha de fios paralelos. Partindo das cabeceiras, espaçamentos de 1,0m nos 10 primeiros vãos, 1,5m nos 10 vãos subsequentes e 3,0m em todo restante do viveiro.

Shrimp Production Strategy to have a Resistant Juveline

Tank capacity - 80 m³
Temperature control : 31-32°C
Survival : 78,24%
Salinity : 1,32 ppt
Days of culture: 16

Storage Density : 7,5 Pls/L PL Average weight during storage: 28 Pls/g (0,03 g) Stored Biomass: 21,42 kg de Pls (0,27 kg/m³)	Harvest Density : 5,9 Pls/L PL Average Weight for harvest: 7 Pls/g (0,14 g) Biomass for Harvest: 65,72 kg de Pls (0,82 kg/m³)

Source: Parceria MCR/RR Agropecuária
São Miguel de Taipu/ PB

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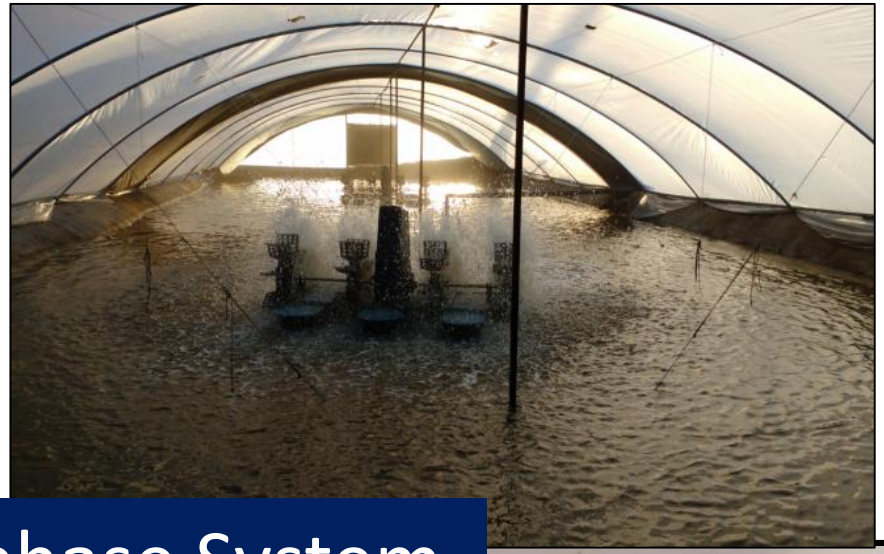

Three-phase System

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USING PROBIOTICS IN BRAZILIAN SHRIMP FARMING

Probiotics usage for bioremediation of raceways habe been revolutionizing the shrimp culture in the world .

PROBIOTICS

Growth

PLs with filamentous bacteria

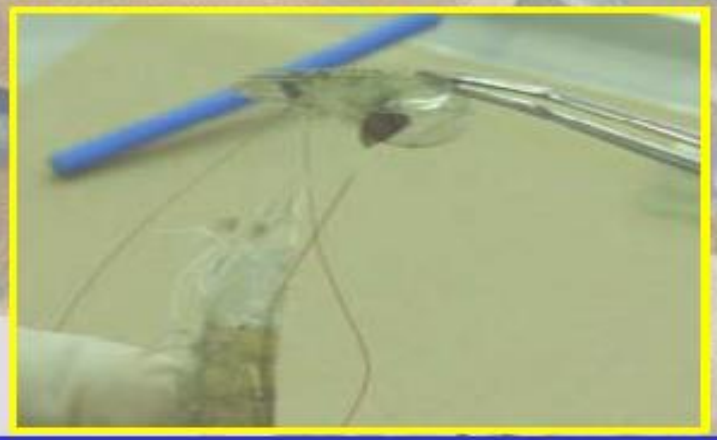
PLs with filamentous gills .

PL with thoraxic appendices necrosis.

Feeding

Feeding the shrimp using a proper tray

GMP: WET MOUNT PREVENTIVE ANALYSIS



Avaliation of intestinal content
And
Lipids grade of hepatopancreas

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GMP: HARVESTING PROCESS

Proper handling procedures assures the quality of farmed shrimp harvested and delivered to the processing plants

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BPM Qualification Program Biosecurity Norms for Marginal, Small, Medium and Large Shrimp Farmers (2016 – 2017)

Brazilian Shrimp Farmer Profile (Classified by the área /Quantity of farmers):

- Marginal– Area 0,1- 3,0 hectares - 1800;
- Small – Area 3,1- 10,0 hectares- 450;
- Medium – Area 10,1 - 50,0 hectares - 600;
- Large – Area above 50,0 hectares - 150.
- Total – 3.000 farmers

Temas dos Cursos realizados:

- BPM on Grow-out farm I ;
- BPM on Grow-out farm II;
- BPM in the Maturation , Breeding and Shrimp Larviculture ;
- BPM Feed Factory.
- BPM - Benefitial Project ;

Total : Accomplished Qualification Course : 66

Qualified Farmers : 2.150

Brazilian States : Ceará, Rio Grande do Norte, Paraíba, Pernambuco, Alagoas, Sergipe, Piauí, Maranhão, Bahia.

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TECHNOLOGICAL QUALIFICATION PROGRAM FOR SHRIMP MANAGEMENT, HANDLING, AND BIOSECURITY FOR MARGINAL AND SMALL SHRIMP FARMERS IN BOTH STATES, RIO GRANDE DO NORTE AND CEARA , EMPHASIZING THE WHITE SPOT EXCLUSION.

Training # 1 –Jaguaruana/CE (April 25-26, 2017): "Intensive Nurseries ,Raceways e Compensatory Gowth" – 93 participants (students , technicians , shrimp farmers, teachers);

Training # 2 – Aracati/CE (June 21 -22 , 2017): " Management Techniques Técnicas de Manejo and the Quality of the water with its ionic balance " - 83 participants (students , technicians , shrimp farmers, teachers);

Training # 3 – Acaraú/CE (August 3-4 , 2017): "Probiotics: What are they? What are they for? When and how to use them ? What is its role in dynamic physico-chemical and microbiological cultured shrimp ponds " – 72 participants (students , technicians , shrimp farmers, teachers);

Training # 4 –Aracati/CE (September14 -15, 2017: " Cultured shrimp analysis : What are they ? Which methodology to follow and its importance for prevention and shrimp culture diseases control " – 87 participants (students , technicians , shrimp farmers, teachers)

- **Training # 1:** " Handling and managing intensive nurseries, raceways emphasizing the increase of the number of culturing cycles each year and disease control ."
- **120 participants: marginal and small farmers.**

  Location: Mossoró/RN – Date: March 21 - 22 , 2018
- **Training 2**: " Presumptive analysis and its importance to prevent and control marine shrimp culture diseases ."
- **110 participants: marginal and small farmers.**

  Location: Tibau do Sul/RN – Date: March 27 – 30, 2018.

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Intensive culture 1

Costa Dourada- Formoso River/PE

Culture information

Tanque size : 208 m²/332,8m³
Initial Density: 750 Pls/m² - 470 Pls/m³
Culture Duration: 60 days
Average Weight: 8,5 g
Survival : 70%
FCA: 1:1
Production: 928,20 kg/tank/cycle
Productivity: 2,79 kg/m³
Productivity: 44.625 kg/ha/cycle
Productivity: 223.125 kg/ha/year
Cycles/year: 5

Culture information

Tanque size : 204 m²/325,7m³
Initial Density : 698 Pls/m² - 437,2 Pls/m³
Culture Duration : 84 days
Average Weight : 8,54 g
Survival: 83,5 %
FCA: 1:49
Production: 1.015,4 kg/tank/cycle
Productivity: 3,12 kg/m³
Productivity: 49.774 kg/ha/cycle
Productivity: 199.096 kg/ha/year
Cycles/year: 4,0

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Farm with Seawater harvesting
Technical Information – Intensive Culture - RN

1st Cycle	
Area	4.000 m²
Density	165 Pls_{10} / m²
Survival	79,7%
Days of culture	76
Final average weight	18,0 g
Production	9.468 kg/0,4 há / ciclo
Production (cycle)	23.670kg/ha/ciclo
Productivity (year)	71.010 kg/ha/ano
FCR	1,55 / 1

13rd Cycle	
Area	4.000 m²
Density	186 Pls_{10} /m²
Survival	98%
Days of culture	90
Final average weight	19,00 g
Production	13.853 kg/0,4 ha/cycle
Production (cycle)	34.630 kg/ha/cycle
Productivity (year)	103.898 kg/ha/year
FCR	1,65 / 1

There are 12 ponds with 0,4 ha/Unit – The ground is settled with gravel , walls covered with linners and plastic – 88 hp / ha, with 03 aeration system (2,2 m water wall).

Thank you by the attention !!!

APRECIE SEM MODERAÇÃO!