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Saude Do Camarao Marinho – Avancos na Pesquisa de Vacinas para a Prevencao do IMNV

Marine Shrimp Health – Advances in Vaccine Research for the prevention of IMNV

Aquaculture Contribution

$400 billion

Doenças virais na aquicultura de camarão
Viral diseases in shrimp aquaculture

IMNV

- Muscle necrosis
- Daily increasing mortality in the pond
- More prevalent in hot weather

WSSV

- White spots
- Sudden mass mortality within a few days
- More prevalent in cold weather

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Estado da gestão de doenças na aquicultura de camarão
State of disease management in shrimp aquaculture

01

Diagnóstico de doenças

Disease Diagnostics

03

Colheita precoce

Early harvest

02

Produtos químicos, suplementos imunológicos e medidas de biossegurança.

Chemicals, Immune supplements and Biosecurity Measures

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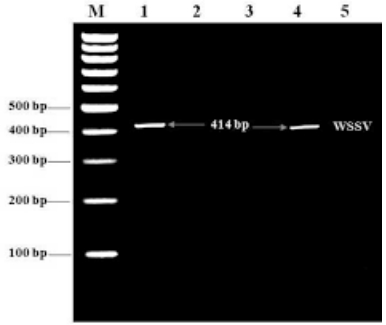
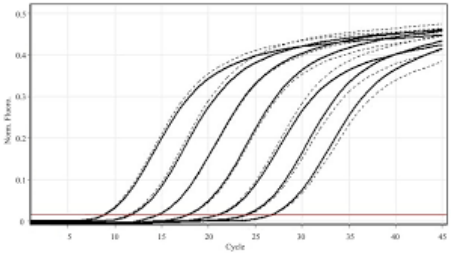
Limitações da abordagem atual
Constraints of Current Approach

Reactive Late Diagnostics

Kits are Low cost, Not quantitative
Kits - baixo custo, mas não quantitativos



PCR - Moderately Costly, Accurate Diagnostics, No Quantification
Custo moderado, diagnósticos precisos, não quantitativos



RTPCR –
Costly, Accurate, Proper Quantification
Preciso, quantitativo, caro

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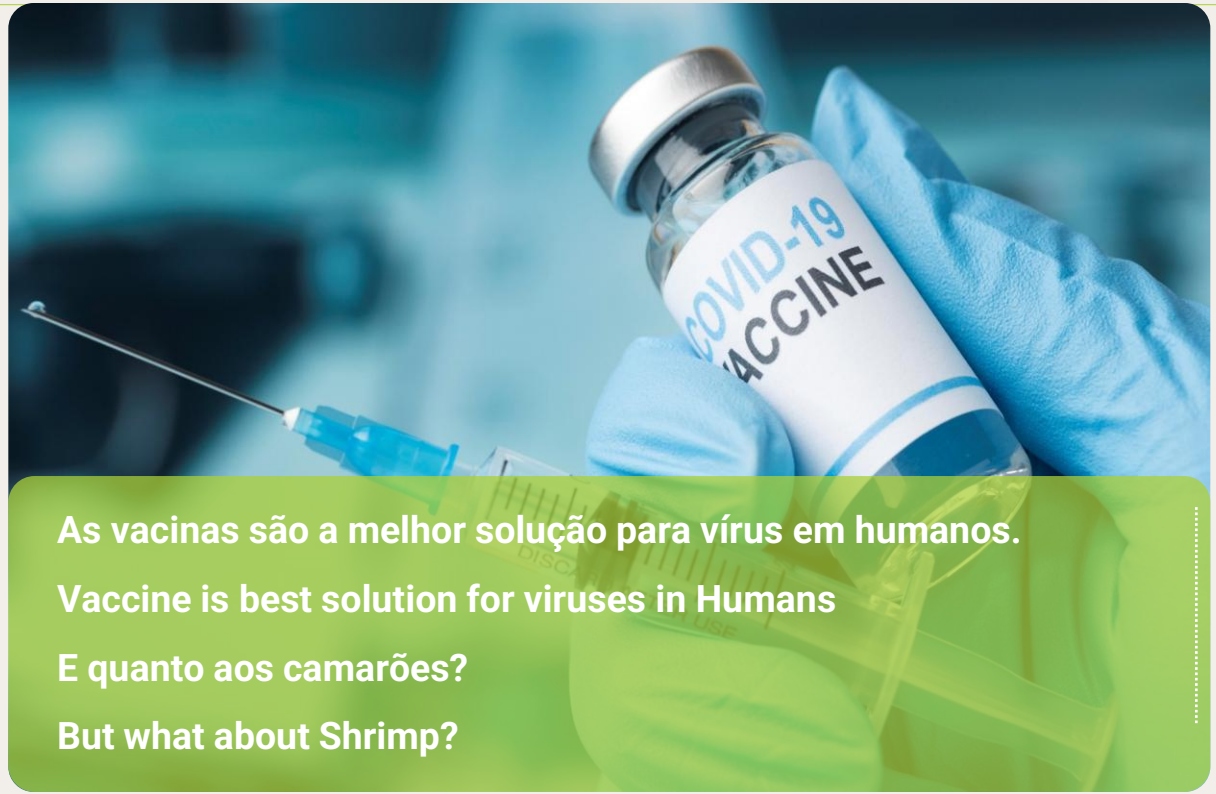
Aquaculture is Fragile, lets fix it

Human Pharma Learning for Viral Disease



As vacinas são a melhor solução para vírus em humanos.

Vaccine is best solution for viruses in Humans

E quanto aos camarões?

But what about Shrimp?

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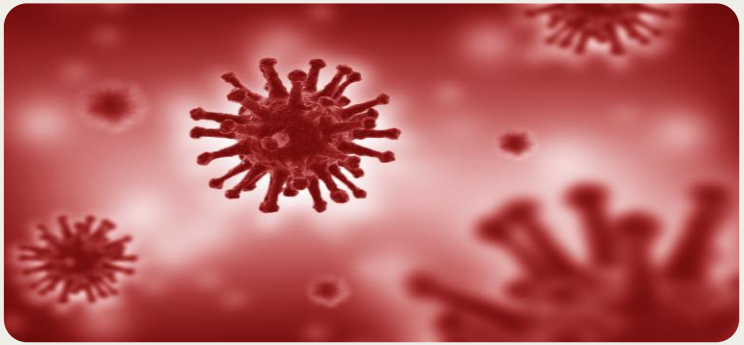
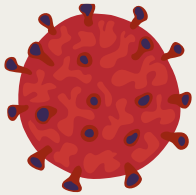
What are these Current Vaccines?

Camarões - Preparação imunológica transgeracional

Shrimps - Transgenerational immune priming

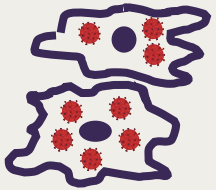




Sistema imunológico do camarão
Shrimp immune system

A imunidade é transmitida dos reprodutores para os pós-partos.

Immunity transmistted from Brood stock to PLs



Proteção sustentada
Sustained protection

Imunidade reforçada com o uso de soluções orais.

Immunity boosted using oral solutions

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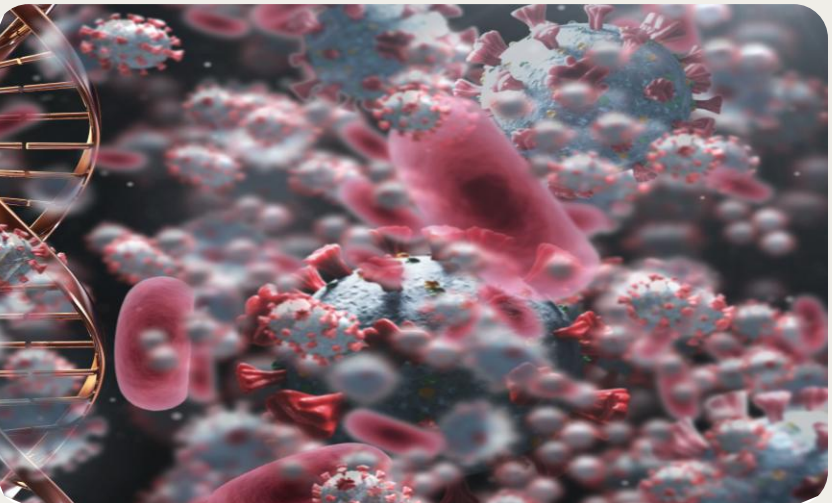
Soluções baseadas em biotecnologia

Biotechnology based solutions.



GUARD SERIES

Para reprodutores, engorda
For Broodstock, grow out

TRIDENT SERIES

Para doenças específicas
For disease specific treatment

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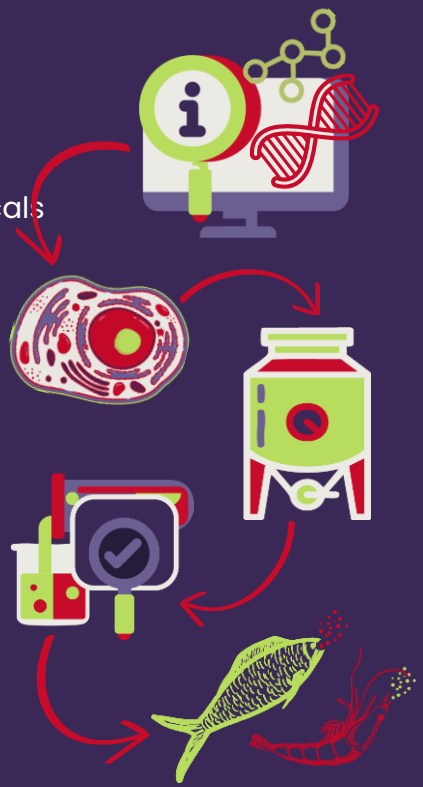
Our Innovation

Safe, scalable solutions from human pharmaceuticals

Soluções seguras e escaláveis da Human Pharmaceuticals

Tecnologia de Vanguarda : SOLAQ
Technological Edge: The SOLAQ Platform



Motor de Bioinformática
BIOINFORMATICS ENGINE

Peptídeos seguros baseados em subunidades, RNA, projetados usando tecnologias premiadas com o Nobel.

Safe Subunit Based Peptide, RNA, Nobel prize winning technologies of ‘24

Fermentação de precisão
PRECISION FERMENTATION

Aumento de escala e produção de baixo custo

Inexpensive Scaleup & Production

Entrega eficaz
EFFECTIVE DELIVERY

Administração oral por meio de deslizamento na alimentação

ral Delivery via **Coating** **on** **Food**

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Our Innovation

Soluções seguras e escaláveis da Human Pharmaceuticals

Tecnologia com patente pendente

Patent pending technology, 3 provisional patents, every product is patentable

Advantages of SOLAQ

1. Elimina a necessidade de soluções injetáveis
   Eliminates the need for injection-based vaccines
2. Escalável para agricultores de pequena e grande escalaScalable for small and large-scale farmers.
3. Custo-benefício
   Cost-effective.

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FIT FOR EVERY CLIMATE

Sistema de entrega escalável exclusive
UNIQUE, SCALABLE DELIVERY SYSTEM

APPLICAPLE TO
All animals

Guard Series
Shrimp & Fish

Trident Series
Shrimp & Fish

Transporte sem cadeia de frio
No cold chain transport

Fácil de aplicar
Easy to Apply

protegido na água e no estômago do animal
Protects in water & Stomach

Entregue diretamente ao sistema imunológicoDelivered to immune system Directly

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PRODUCT PIPELINE

Preventive solutions- vaccine like

Disease Management

Guard Series

R&D	Lab Trials	Field Trials	Commercialisation
ShrimpGuard™ WSSV, broad spectrum			
ShrimpTrident™ IMNV			
StrepGuard - S. Iniae			
SDDGuard - SDDV			
Vibrio			
S. agalactiae			
NNV			
SRS			

ShrimpGuard™ Key Features

10+ Testado exaustivamente
Thoroughly tested

IN

05 países
Countries
(Indonesia, Vietnam, Thailand Singapore, India)

Nova tecnologia para gestão de doenças
Novel Technology for Disease Management

ShrimpGuard utilização de nanopeptídeos permite o controle de doenças.

Harnessing Nano Peptides, ShrimpGuard™ manages disease

Administração oral e facilidade de aplicação
Oral Delivery & Ease of Application

Fórmula de fácil utilização pelo agricultor para integração perfeita nas práticas existentes.

Farmer friendly formulation for seamless integration into existing practices

Solução sustentável
Sustainable Solution

Alternativas ecológicas para minimizar o uso de produtos químicos nocivos.

Eco-friendly alternative to minimizing use and harmful chemicals

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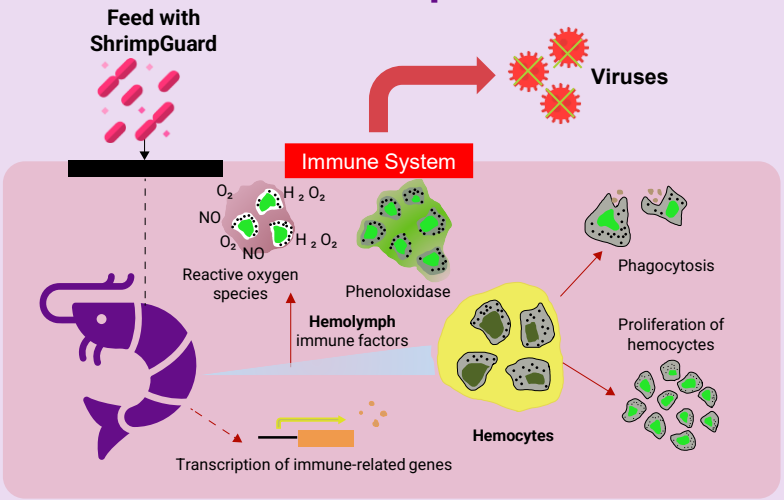
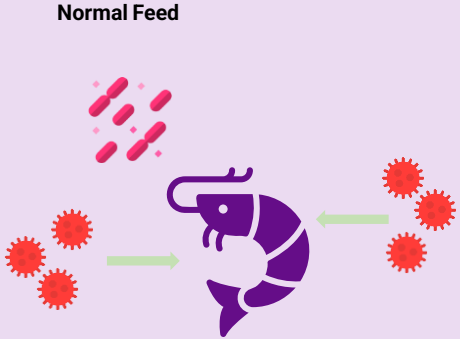
How ShrimpGuard™ Works

With ShrimpGuard



- Aumentar a resposta immune
  Immune response increases
- Preparação imunológica transgeracional através da proteína vitelogenante no ovo, que transmite proteção às células progenitoras.Transgenerational immune

Without ShrimpGuard



- Propenso a ataques de vírus e mortalidade
  Prone to virus attacks and mortality
- Aumento exponencial da carga viral
  Exponential increase of viral load

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VALIDATION

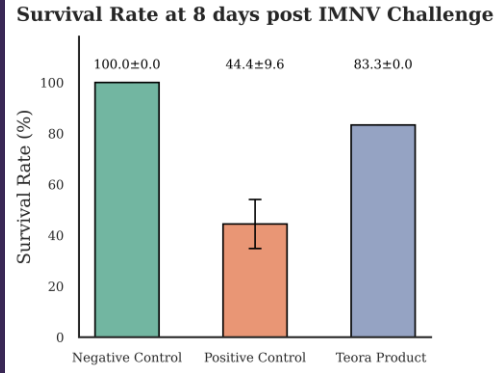
ShrimpGuard™ helps reduce IMNV mortality

10+ Trials in L.vannamei

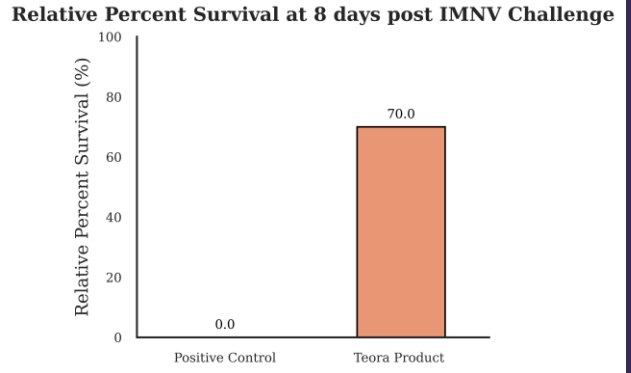
02 Countries (Indonesia, Vietnam)

Delineamento experimental Experimental design –
Aclimatar os animais Acclimatize the animals,
Alimente com ShrimpTrident por 5 dias
Feed with ShrimpTrident for 5 days
Desafio com IMNV Observe a mortalidade por 8 dias
Challenge with **IMNV** and observe mortality for 8 days

Taxa de sobrevivência 8 dias após o desafio com IMNV



Percentagem relativa de sobrevivência 8 dias após o desafio com IMNV



Demonstração agrícola Farm demonstration

- pH
- Temperature
- Alkalinity
- DO
- NH_4^+/NH_3
- NO_2^-
- Hardness

Every 7 days

Water Quality Checked

Water Quality Checked

Water Quality Checked

FCR | SR | Mortality | Analysis | Total Biomass | ADG | ABW

Day 0

Preventive Sample

Negative Control

Curative Sample

qPCR IMNV and AHPND Tested at

Harvest

- Tonnage (kg)
- Shrimp Quantification (tails)
- Mortality (kg)

Pond	DoC (Day)
B3	11
B4	10
B5	16
B7	20
B8	21
B9	35
A5	34

Preventive
Negative
Curative

D+1 Feed Additive Treatment

D+11 Treatment Stopped

Applied every day

D+15 qPCR IMNV and AHPND

D+30 qPCR IMNV and AHPND

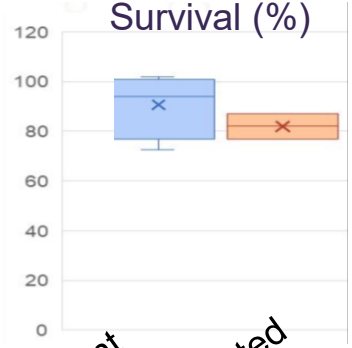
Dosage used
Preventive : 1%
Curative : 1%

Pond	DoC (Day)
B3	108
B4	74
B5	96
B7	92
B8	115
B9	63
A5	114

Preventive
Negative
Curative

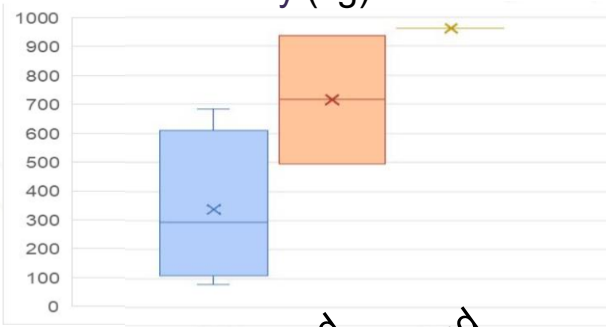
Nas fazendas, a infecção por IMNV foi controlada pelo SHRIMPTrident
At farms, IMNV infection was managed by ShrimpTrident

Sobrevivência (%)
Survival (%)



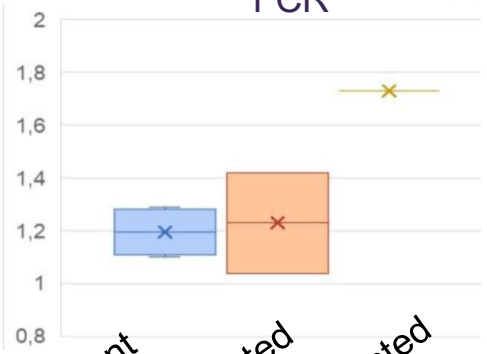
With ShrimpTrident
Pond not infected

Mortalidade (kg)
Mortality (kg)



+ ShrimpTrident
Pond not infected
Infected, Untreated

Taxa de conversão alimentar
FCR



With ShrimpTrident
Pond not infected
Infected, Untreated

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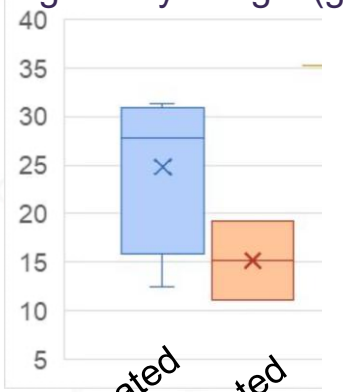
- A aplicação preventiva em lagoas de alto risco reduziu a mortalidade em 52%. Preventive application in high risk ponds decreases mortality by 52.7%
- Redução de IMNV observada em 15 dias Reduction in IMNV observed in 15 days
- Taxa de conversão alimentar reduzida. FCR reduced

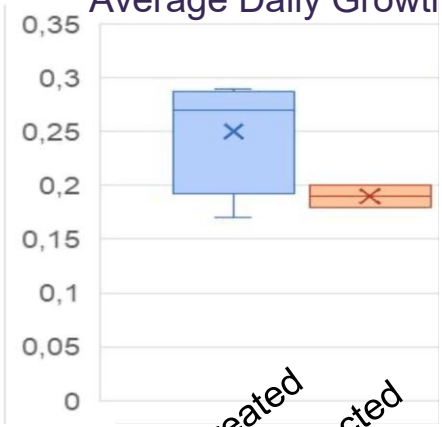
Nas fazendas, a infecção por IMNV foi controlada pelo SHRIMPTrident

At farms, IMNV infection was managed by ShrimpTrident

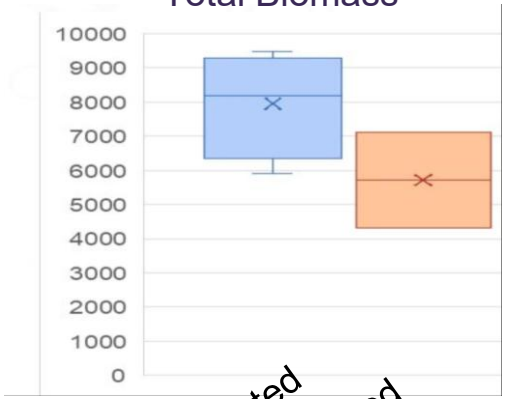
Peso corporal médio (gm)
Average Body Weight (gm)



Crescimento médio diário
Average Daily Growth (gm/day)



Biomassa total
Total Biomass



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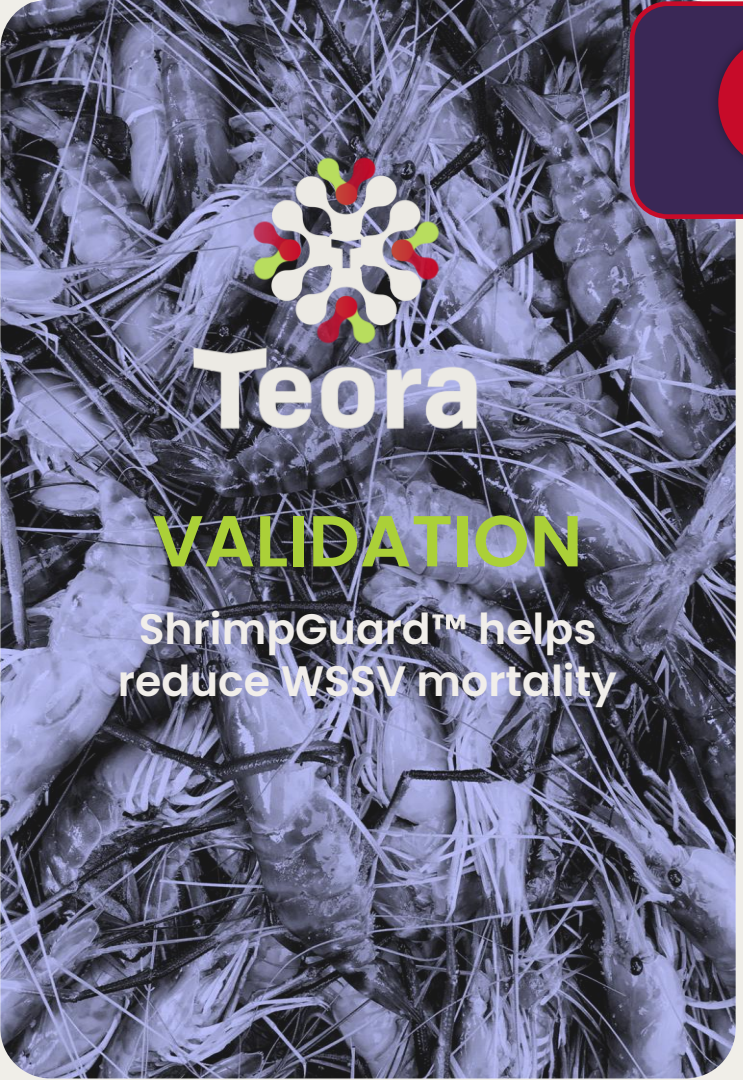
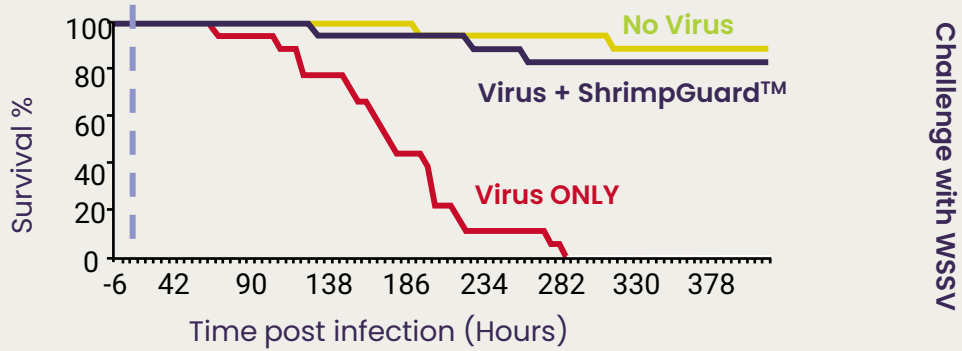
- A biomassa aumentou em 43%. Biomass increased by 43.8%
- O peso corporal médio melhorou em 55%. ADG and Average body weight improved by 55%



10+ Trials in L.vannamei & P.monodon

04 Countries (Indonesia, Vietnam, India, Singapore)

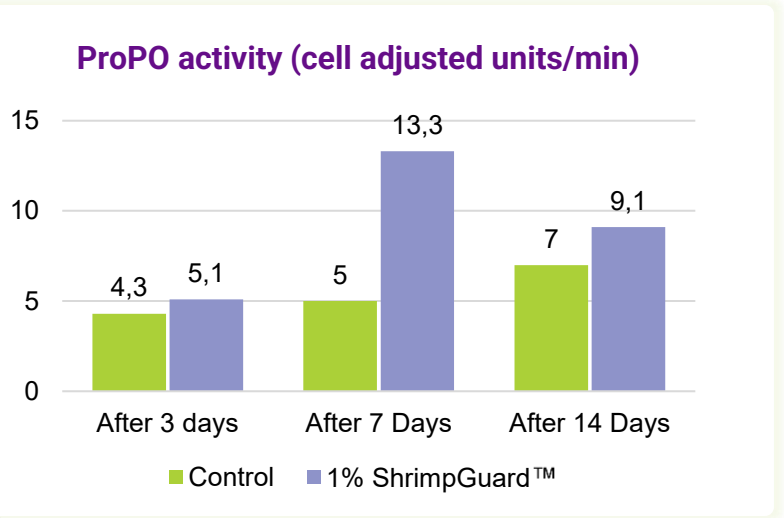
Start feeding with brooders, feed throughout grow out

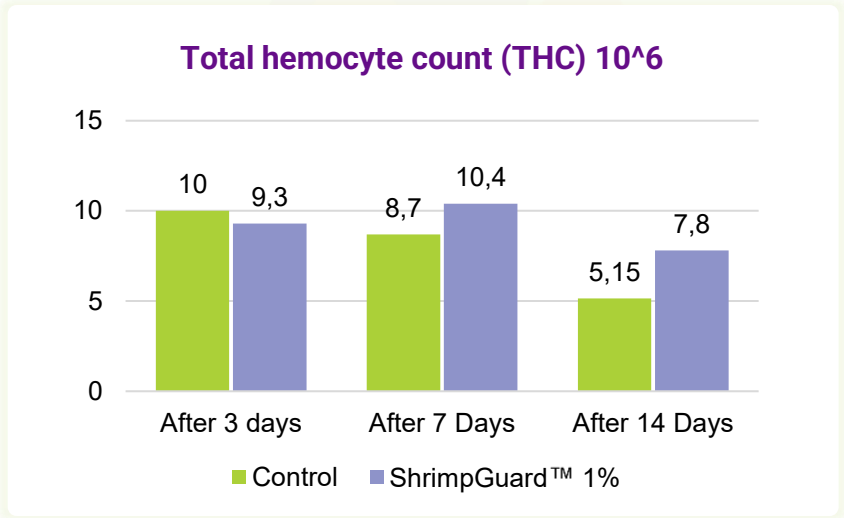


Boosting Immunity

proPO increases melanization and pathogen neutralization processes

Hemocytes are the primary immune cells in shrimp that release antimicrobial peptides and other substances that directly kill or inhibit the growth of pathogens





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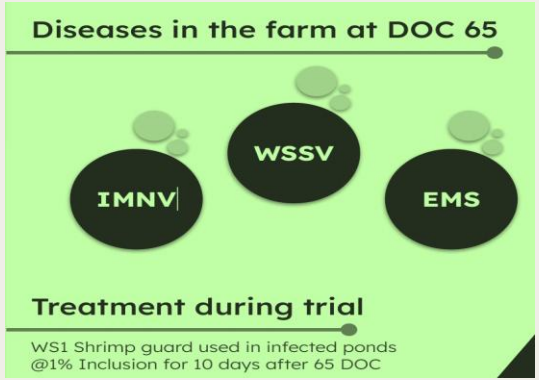
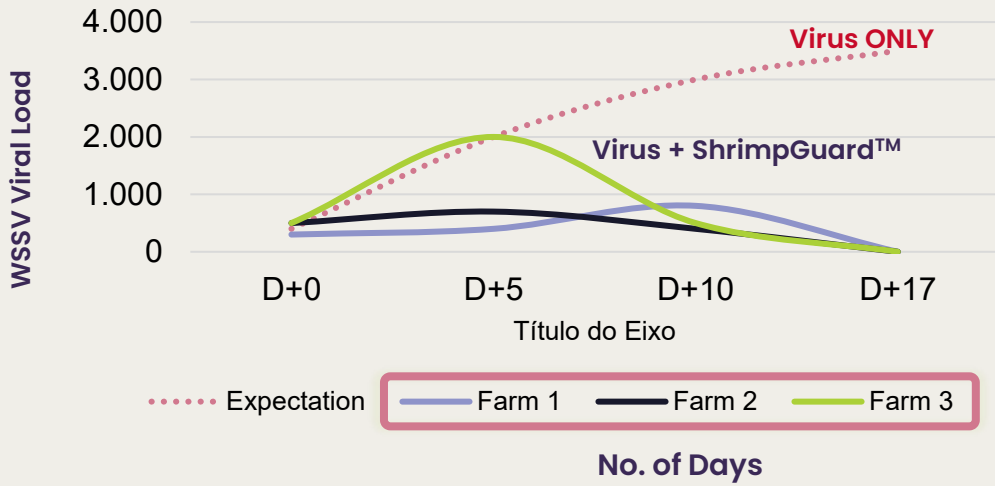
Farm demonstation ShrimpGuard™

ShrimpGuard™ can solve WSSV in farms



Proven for 2 major viruses – WSSV & IMNV, in the field



Vírus não detectável após tratamento com Shrimpguard
Virus NOT DETECTABLE after treatment with ShrimpGuard™

Farm Trials ShrimpGuard and ShrimpTrident

A detecção precoce é fundamental para o sucesso do ShrimpGuard e do Shrimp Trident.
Early Detection is key for success of ShrimpGuard and Shrimp Trident

IMNV **WSSV**

>85% Avg Survival

pó fino

Fine Powder

@1%
inclusão por 10 dias

Inclusion for 10 days

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Como aplicar? How to apply?

Application guidelines:

1. Misture 10 g de ShrimpGuard ou ShrimpTrident para 1 kg de ração para camarão.
   Mix 10 grams (gm) of ShrimpGuard™ or ShrimpTrident for every kilogram (Kg) shrimp feed
2. Misture o pó com água e qualquer aglutinante comercial de sua escolha.
   Mix the powder with water and any commercial binder of your choice
3. Pulverize a solução sobre a ração e misture bem.
   Spray the solution on the feed and mix the feed thoroughly
4. Deixe secar à sombra por 2 horas antes de alimentar os animais. Dry in shade for 2 hours before feeding

WSSV ShrimpGuard™

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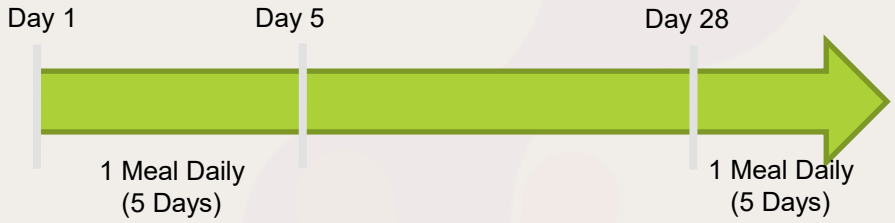
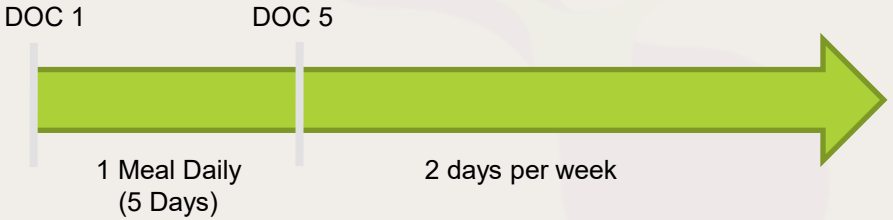
When to apply ShrimpGuard™?

O ShrimpGuard é idealmente administrado a reprodutores (machos e fêmeas) para fortalecer a proteção.
Alimente os filhotes por 5 dias com Shrimpguard.
Feed brooders for 5 days with Shrimpguard
Repeat once a month
Repita uma vez por mês.



Durante períodos de alto risco, utilize conforme orientação do especialista.
Give during growout for 2 days a weeks



Durante períodos de alto risco, utilize conforme orientação do especialista.
During high risk season use this product continuously one meal per day

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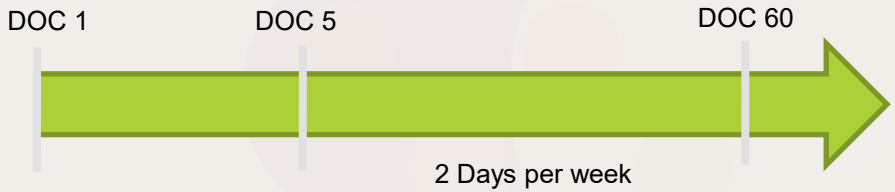
When to apply ShrimpTrident™?

Durante períodos de alto risco, utilize conforme orientação do especialista.
Give during growout for 2 days a weeks

Durante períodos de alto risco, utilize conforme orientação do especialista.
During high risk season use this product continuously one meal per day



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Success of ShrimpGuard & ShrimpTrident requires

Boa biossegurança
Good

Boa gestão de lagoas
Good pond management

Monitoramento regular e diagnóstico precoce
Regular monitoring & Early Diagnostics

Reduzir o estresse ambiental e o estresse bacteriano
Reduce environmental & Bacterial stress

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Solução oral inédita,
semelhante a uma vacina.

First-of-its-kind oral
vaccine- like solution

SHRIMP GUARD™

SHRIMP TRIDENT

Impact

01 Aumentar a taxa de sobrevivência e prolongar o ciclo de crescimento.
Enhances survival rates & Extends growth cycles

02 Reduzir a dependência de produtos químicos e mitigar perdas catastróficas de colheitas.
Reduces reliance on chemicals and mitigates catastrophic crop losses

03 Resulta em maior rendimento e eficiência de produção.
Results in higher yield and production efficiency.

04 Escalável para fazendas de pequena e grande escala.
Scalable across small and large-scale farms

Work with us

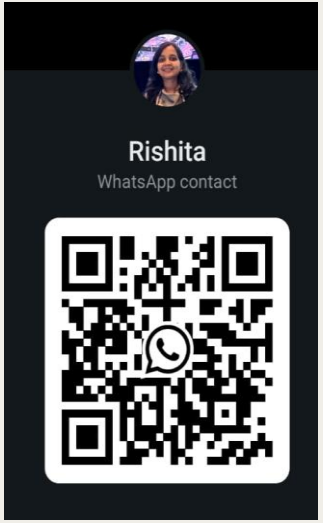
Teora

Distribuidores

Distributors

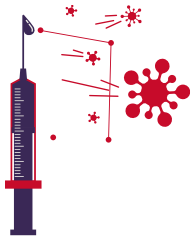
Grandes fazendas

Large Farmers



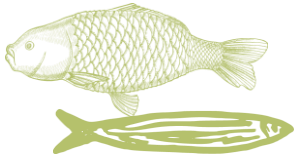
Para trabalhar conosco ou para obter mais informações, entre em contato conosco.
To work with us or for more information contact us
Rishita@teora.life, Dhaval.bamaniya@teora.life

O gol de Teora
Teora's Goal



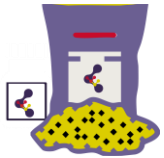
Proteção atual/Vacinação
Current Protection/ Vaccination

0%



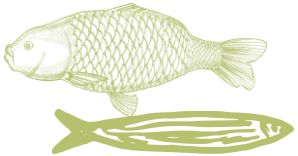
1%

New market potential



O gol de Teora
Teora's Goal

>80%



>80%

>80%

VACCINATION

POSSIBLE

Market potential of Teora in aquaculture: Disease Management

	Poultry Industry	Aquaculture industry
Market Size	300 Billion	300 Billion, growing at 5.2% CAGR
How old is the industry?	120 yrs - mature, consolidated	~20 years, set for renaissance
Mortality (caused by disease)	**1-5%**	**50-70% in tropical species aquaculture**
How to reduce mortality & bring it to levels similar to poultry? Prevention of disease by vaccination		
Vaccine market	3 Billion ARR	200 Million ARR, new in shrimp
Sustainability		Reduce antibiotics, reduce feed wastage, reduce losses

TOTAL MARKET POTENTIAL 3BILLION AR, DISEASE PREPAREDNESS FOR OTHERS ANIMALS USING THE SAME PLATFORM

Teora

Reconhecimento e impacto global

Global Recognition and Impact.

Shrimp Summit

Best Innovation award at the marquee industry event, organized by TCRS, i.e. Shrimp Summit

The Liveability Challenge

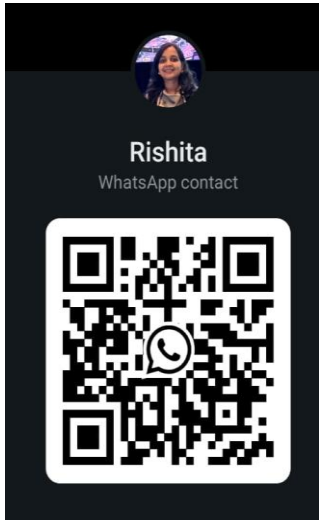
2023

Teora won S$1 million in funding for its sustainable aquaculture innovations. This prize recognised the company's potential to address food security and climate change issues globally

BIOKANSAS

ALBERTA INNOVATES

Equipe premiada que entrega excelência
Award winning Team delivering excellence



Rishita Changede
CEO

Columbia University, MBI, tifr, NUS

General PhD, MBA, Start-ups Human Pharmaceuticals

Harish Paruvada
General Manager

quantiphi

IIT, B2B sales, Human Pharmaceuticals

Indira Ghosh
Bioinformatics

IBM, AstraZeneca

Professor, Bioinformatics Pioneer in Industry & Academia

Dhaval Bamaniya
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To work with us or for more information contact us
Rishita@teora.life, Dhaval.bamaniya@teora.life

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