

PROBIOTICS IN SHRIMP FARMING



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BACK GROUND

- In India shrimp farming started before three decades, major focus was on black tiger, *Penaeus monodon*.
- The economical benefit led to high densities of shrimp production in culture ponds and supply of spurious seed were then conducted the industry to the spread of pathogens.
- The unregulated development and lack of proper scientific approach, the massive industry was beset by disease out breaks mostly due to bacteria and virus in mid nineties.
- The constant treat of diseases forced the shrimp farmers to use antibiotics and water sanitizers, which was routine in all parts of the country.
- The indiscriminate uses of antibiotics has created negative impact on environment and Food safety.



- The usage of high level antibiotics created a major problem as a trade barrier for our final products in international markets.
- Then, Government strictly implemented the Food safety protocols over all the shrimp farming areas to avoid usages of banned chemicals mostly antibiotics.
- Thus, the young agro-industry created the techniques like GMP, BMP, Organic Farming, Zero water exchange system, RAS etc.
- In all the above technology **Probiotics** claim to play the major role to make the industry more sustainable.



PROBIOTICS



WHAT ?

WHY ?

WHEN ?



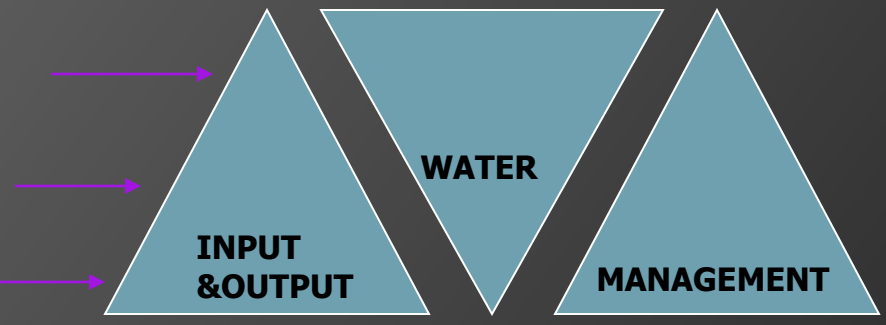
SCIENTIFIC CULTURE



Mod. extensive

Semi-intensive

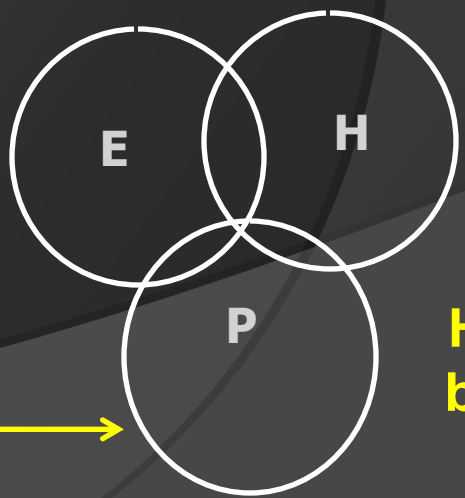
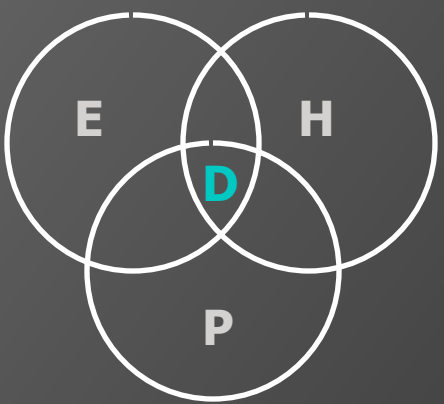
Intensive



Feed & feeding

Soil & water quality

Health



Healthy balance



Probiotics



PROBIOTICS

- A Farmer's view

Definition:

“The single or multi-brand microbial products when used mono or mixed should benefit shrimps and culture ponds”.



CLASSIFICATION

I. Feed Probiotics

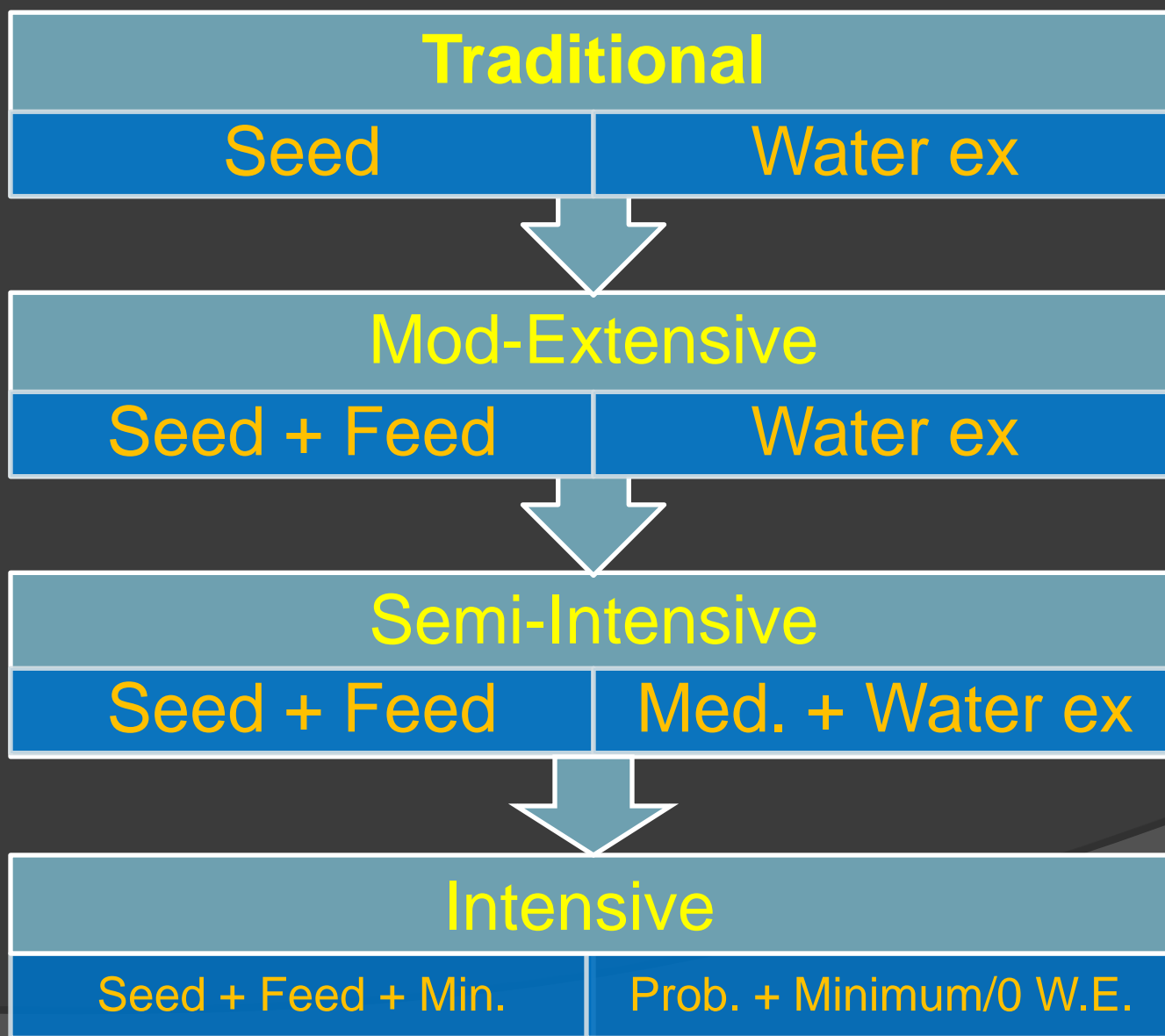
II. Pond Probiotics (water & soil)



Probiotics- Why?



EVOLUTION- CULTURE PRACTICES



PROBIOTICS-FINAL GOAL

- ◎ SAFE SEED
- ◎ SAFE FEED AND ADDITIVE
- ◎ SAFE CULTURE PRACTICES
- ◎ SAFE FOOD TO CONSUMER



FARMERS NOTION

- Most of the shrimp farmers often think **Probiotics** as miracle products.
- They expect quick and magical results after application of **Probiotics**.
- They often get discouraged by slow and undesired results of **Probiotics**.
- They use **Probiotics** as curative tool rather than prophylactic.
- They treat **Probiotics** products to be a add on products or burden on their budget. Still not accepted or adopted in to their primary culture protocols.



Probiotics- When?

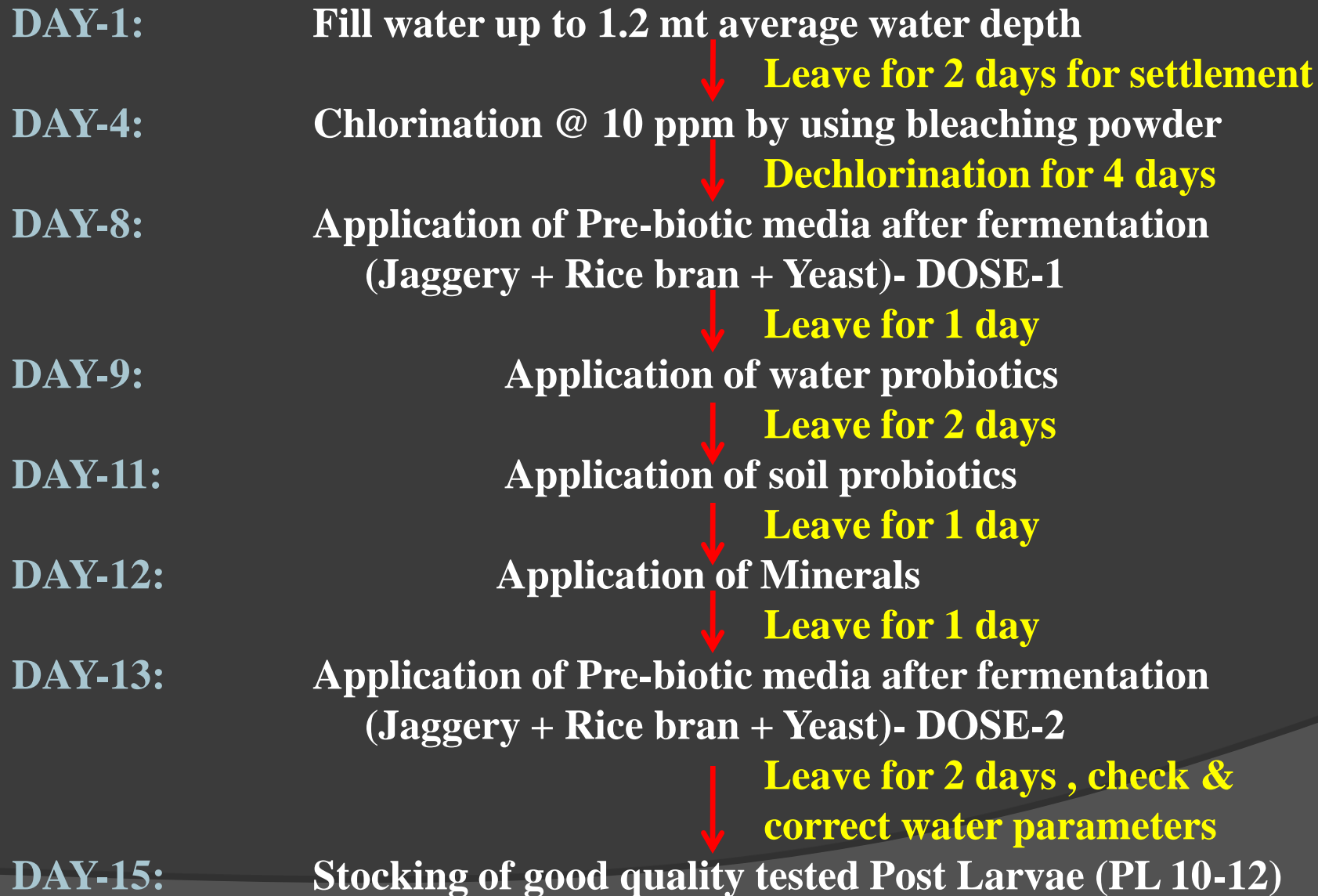


APPLICATION OF PROBIOTICS IN SHRIMP PONDS

- PRE-CULTURE APPLICATION
- IN-CULTURE APPLICATION
- POST-CULTURE APPLICATION



POND WATER PREPARATION



PREBIOTIC PREPARATION



Pond prior to apply of Pre & Probiotic





Well prepared ponds ready to stock

IMPACT OF PROBIOTIC APPLICATION IN SHRIMP CULTURE POND



One month after application



Two months after application



Three months after application



Pre-harvest pond water colour

OPTIMUM WATER QUALITY PARAMETERS

General parameters:

- Dissolved Oxygen > 5 ppm
- pH 7.5-8.5
- Transparency 35-45 cm.
- Alkalinity >100 ppm
- Salinity 15-30 ‰
- Temperature 28-31 °C
- Water depth Avg. 1.8 mt.

Mineral profile:

- Ca : Mg ratio 1:3
- Cl : Na : Mg ratio 16:9:1
- Mg : Ca : K ratio 3:1:1
- Na : K ratio 40:1
- Chloride > 500 ppm

Vibrio count:

- Yellow colony < 300 cfu/ml
- Green colony < 30 cfu/ml

PROBIOTICS – IN POST CULTURE



To remove excess organic load.

- Flush pond bottom.
- Apply lime.
- Fill water (20-30 cm).
- Apply probiotics.

CATALYSTIC FACTORS FOR PROBIOTICS MANAGEMENT

- **Better pond & water preparation.**
- **Better feed management.**
- **Better aeration**
- **Biosecurity**



• Proper drying of culture ponds



- Pond- well leveled and compacted



FEEDING MANAGEMENT - KEY FACTOR TO SUCCESS

Example: Feeding for 100 000 PL

Initial stocking	: 100 000 PL
Survival	: 80% during end of culture
No of shrimps	: 80 000
Total feed during peak	: 35 Kg (ABW: 15-20 gms).
Max. nos of feed pellet consumed by single shrimp	: 3-4
Total pellets required per feed	: 320 000
Pellet per Kg of feed (grower/finisher)	: 50 000 (@ 50 pellets/gm)
Feed per meal	: Max. 6-7 Kg
Feeding frequency per day	: should be 6 nos.





The future is auto feeder.

- Give sufficient required aeration in each culture pond
 - @ 1 H.P./ 400-500 Kg of Biomass



- Proper aeration pattern – Operate aerators according to biomass.



BIOSECURITY - BIRD NETTING





CRAB AND DOG FENCING





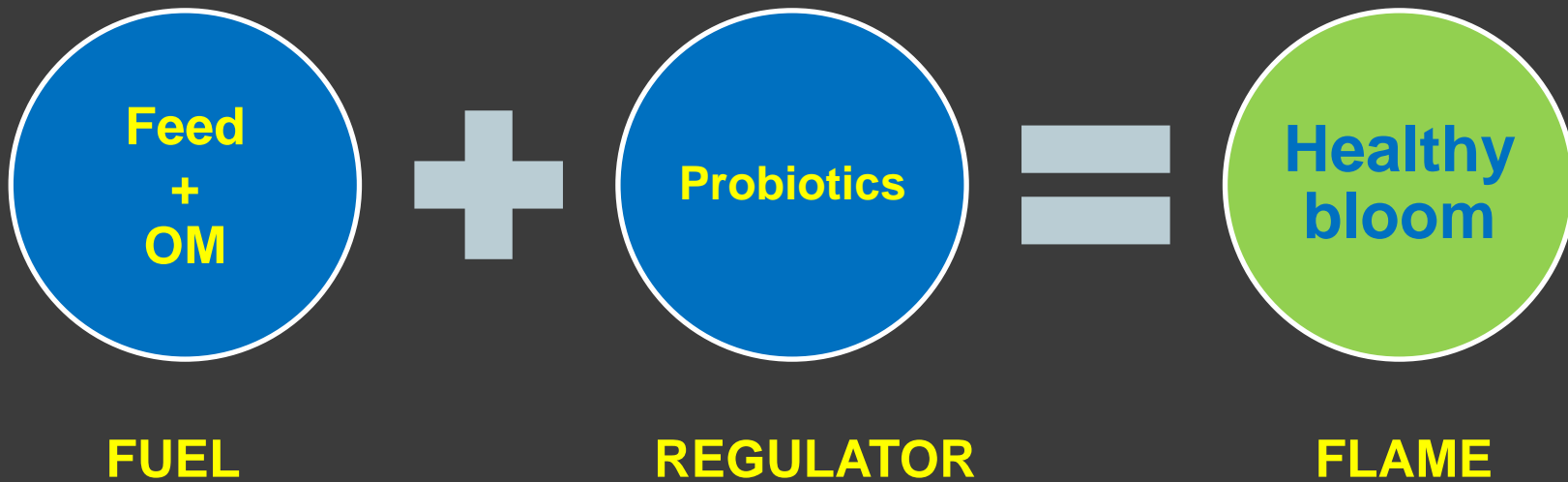
FOOT DIP AND HAND WASH



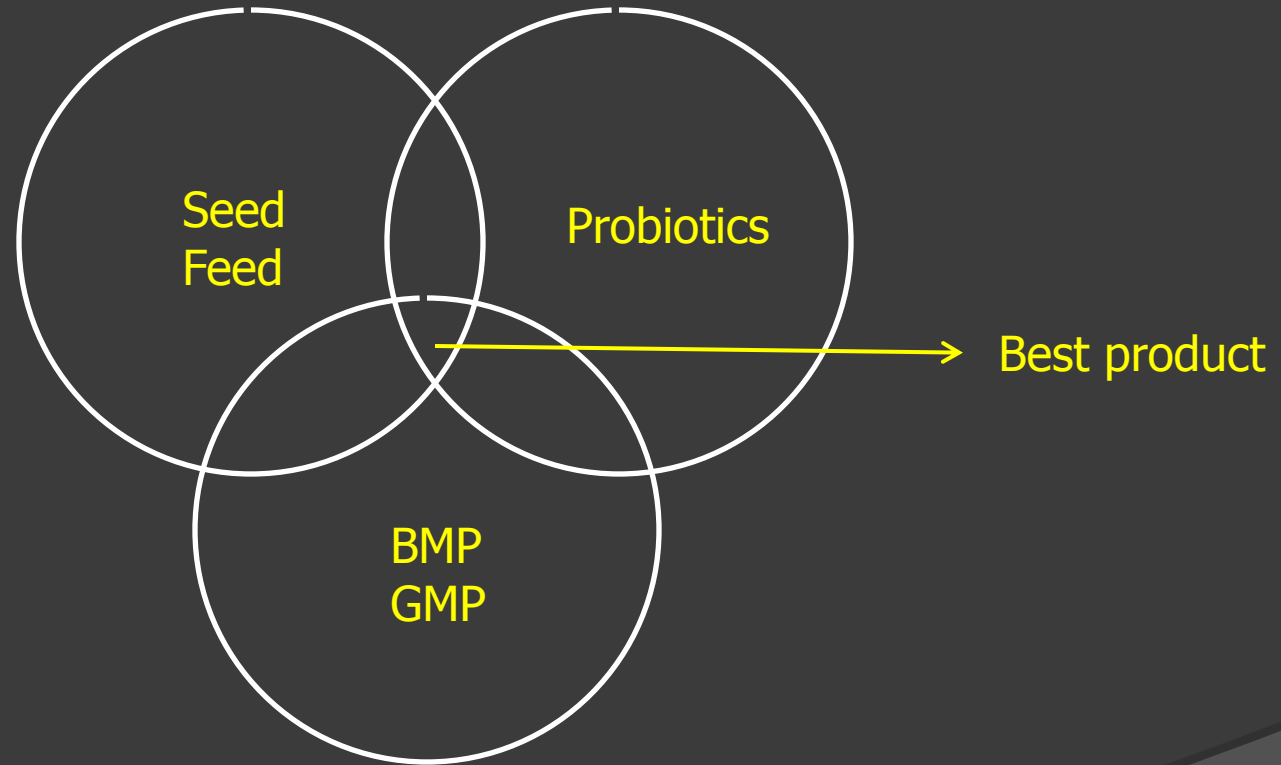
PROBIOTIC DYNAMICS IN SHRIMP POND



Probiotics as a regulator



SYMBIOSIS



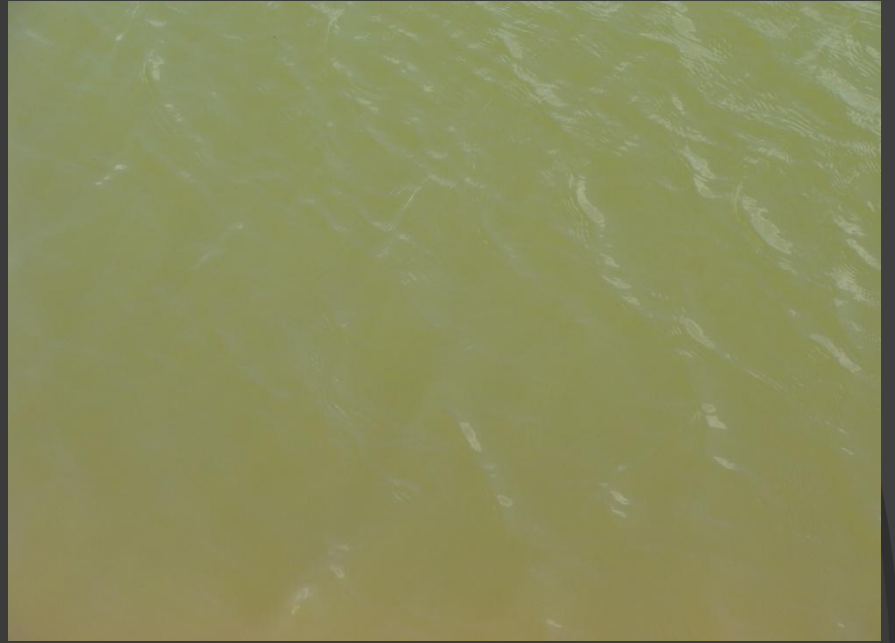
PROBIOTICS-BASIC CONCEPT

- A. Water probiotics- Bioremediation
- B. Gut/Feed probiotics- Immunity and growth
- C. Soil probiotics-DMS
- D. Minerals- Water conditioner, health



WATER PROBIOTICS

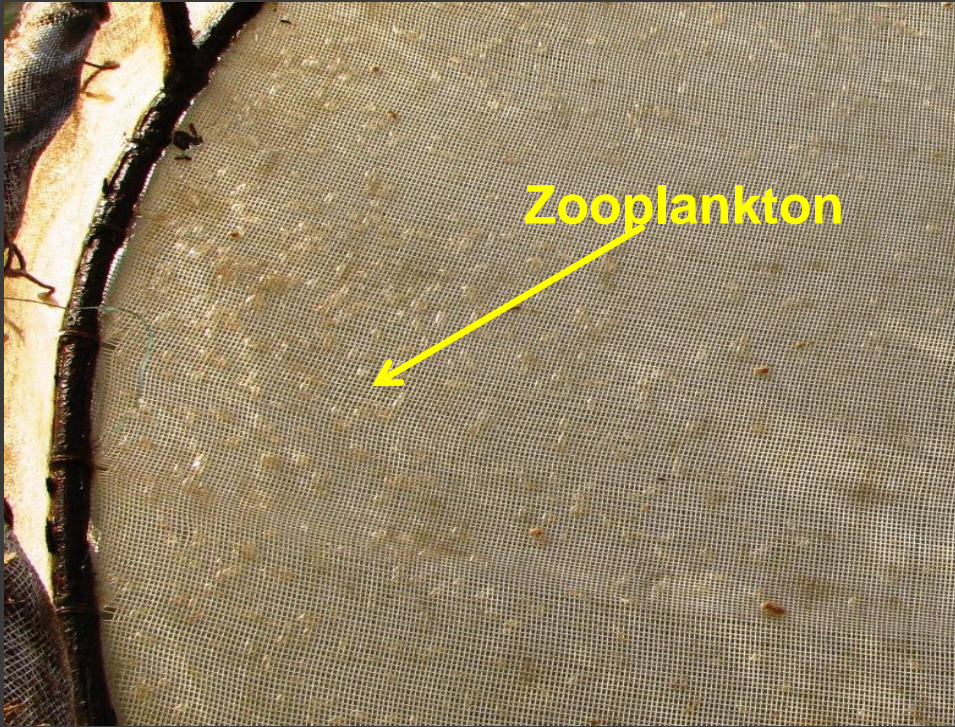




SOIL PROBIOTIC



Wonder product from Vivaline stable to take care of complete soil problems.
Dose: 1.2-1.5% of total feed in pond



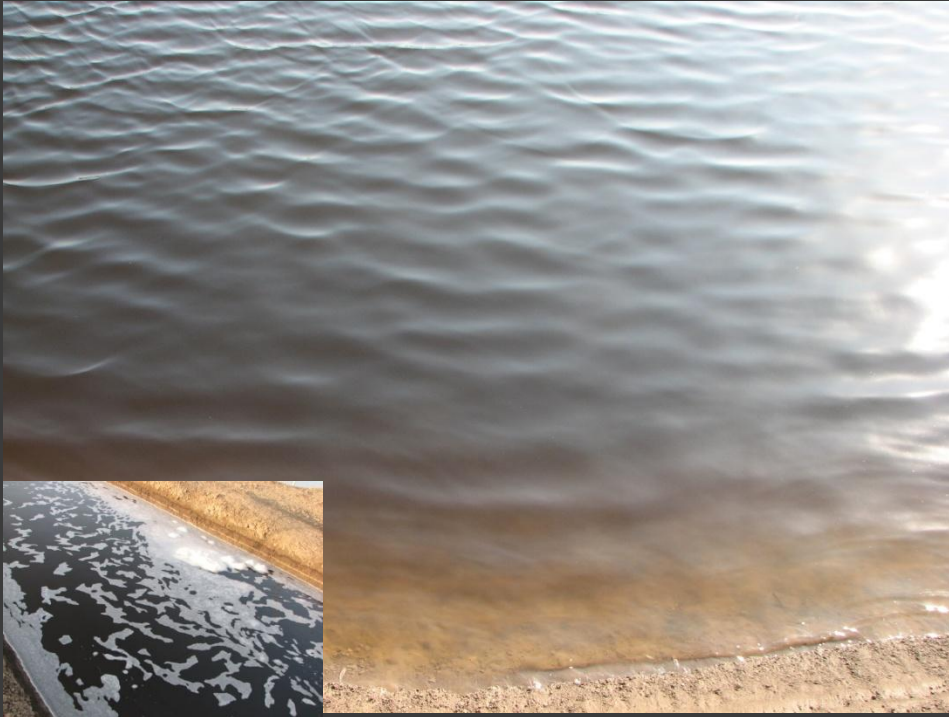
Natural pond productivity







VIVA SOIL AND VIVA POND



FEED PROBIOTICS









APPLICATION OF VIVASOIL IN SHRIMP PONDS

Period	Month of culture	Application of VivaPond (in Kg/week)		
		Up to 20pcs/m ²	>20-40 pcs/m ²	>40-60 pcs/m ²
Pre-culture	-	12.5	12.5	25.0
In-culture	First	3.0	4.0	5.0
	Second	3.0	4.0	5.0
	Third	4.0	5.0	6.0
	Fourth	4.0	6.0	7.0
	TOTAL (Kg)	75	100	125

APPLICATION OF VIVAPOND IN SHRIMP PONDS

Period	Month of culture	Application of VivaPond (in Kg/week)		
		Up to 20pcs/m ²	>20-40 pcs/m ²	>40-60 pcs/m ²
Pre-culture	-	0.500	0.500	1.0
	First	0.150	0.200	0.250
	Second	0.200	0.250	0.300
In-culture	Third	0.200	0.300	0.350
	Fourth	0.250	0.300	0.350
	TOTAL	4 Kg	5 Kg	6.5 Kg

APPLICATION OF VIVAGROWTH IN SHRIMP

Month of culture	Application of Viva growth(1 gm/Kg feed)		
	Up to 20pcs/m ²	>20-40 pcs/m ²	>40-60 pcs/m ²
First	All meals/day	All meals/day	All meals/day
Second	2 meals/day	2 meals/day	2 meals/day
Third	-	-	-
Fourth	-	-	-
TOTAL	Max. 1.5 Kg	2.5 Kg	4.0 Kg

COP OF SHRIMP BY USING VIVA SERIES PRODUCTS

Cost analysis of Viva Series

Particulars	Cost analysis of Viva Series		
	Up to 20pcs/m ²	>20-40 pcs/m ²	>40-60 pcs/m ²
Avg. production (Kg/ha)	5 000	8 000	12 500
VIVASOIL (INR)	33 750	45 000	56 250
VIVAPOND (INR)	18 000	22 500	29 250
VIVAGROWTH (INR)	6 750	11 250	18 000
TOTAL (INR)	58 500	78 750	103 500
COP/Kg (INR)	11.70	9.85	8.30

APPLICATION OF VIVAGROWTH IN SHRIMP POND

- Apply 1-2 gm/Kg/all meals/day from day1 to till harvest

STRENGTH OF VIVA SERIES

- A. Solution for water quality and pond bottom management for entire culture period.
- B. Combination of probiotics and natural sea bed minerals.
- C. Better primary and secondary productivity.
- D. Better cost benefit ratio.



A group of five men are standing behind a large, shallow wooden tray filled with a massive quantity of fresh, light-colored shrimp. In the center of the tray, a smaller blue plastic tray holds a more organized portion of the shrimp. The men are dressed in casual attire, including a red polo shirt, a striped button-down shirt, a dark polo shirt, a dark jacket, and a light blue jacket. They are holding a white banner with blue text that reads "Mayank Aquaculture Pvt. Ltd." The background shows an outdoor setting with some greenery and a blue tarp in the distance.

Mayank Aquaculture Pvt. Ltd.







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MAPL

PLATE
Kgs
INDUSTRIES





MAPL





Purer water, better yield
The unique combination of specially selected micro-organisms enables VIVAPOND® to improve significantly the water quality of ponds.

VIVAPOND® inhibits pathogenic bacterial growth such as *Vibrio* spp.;

VIVAPOND® speeds up suspended organic matter breakdown, purifying the water;

VIVAPOND® promotes and stabilizes the growth of phytoplankton, essential to shrimp life cycle;

VIVAPOND® maintains water quality more optimal and stabilizes color.

With VIVAPOND®, improve your pond water quality and get bigger, better colored shrimp with a stronger shell.

In addition, use VIVASOIL®, biotreatment of pond bottom for aquaculture, to maximize results and yields.

Benefits of VIVAPOND®

- ✓ Prevention of diseases
- ✓ Enhanced yields
- ✓ Higher shrimp survival rate
- ✓ Better FCR
- ✓ Improved water quality

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HTS BIO
AQUACULTURE

VIVAPOND®
BIOTREATMENT OF
WATER FOR AQUACULTURE



shrimp
Purer water,
better yield













VIVASOIL
25Kg

VIVASOIL
25Kg

RECOMMENDATIONS

Water probiotics:

- As per our own pond trials and experiences we have found that water probiotics application gives excellent results if applied twice/thrice in a week instead of weekly or fortnightly doses.
- The quantities of WP should be directly proportional to feed input rather than stocking densities. This has given us sustained result than the conventional method.

Feed probiotics:

- Instead of one or two meals per day we strongly recommend to apply feed probiotics in all meals. We have found excellent results.

i.e. Instead of 5-7 gm/Kg/one meal, use 1-2 gm/Kg/all meals/day

CONCLUSION

- **Probiotic** is definitely giving significant results when use in shrimp farming. The efficacy of **probiotics** is much noticeable with pond specific protocol.
- **Probiotic** render excellent and desirable results under good farm management and has insignificant effect under improper farm management.
- **Probiotic** is not a miracle product and should not be treated as a curative or therapeutic use, rather it should be used as an insurance mode for long term sustainability and profitability of shrimp farming.
- **Probiotic** should be included in the primary culture protocol and should be main component of standard shrimp farming operation.
- With **VIVA series** products and application protocol we have found very cost effective and hassle free crop.
- **Probiotic** is a all natural effective biological tool for long term sustainability of shrimp farmers for “**Food and Profit**”

Thank U!!

