INVENTORY MAPPING AND VALUE CHAIN ANALYSIS OF AQUACULTURE PHPs IN WEST BENGAL, INDIA

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Introduction

* Survey conducted during October-December 2017.
* Aquaculture prophylactic health products (PHPs) on sale in West Bengal, India mapped.
* Information on product characteristics were collected.
* A preliminary value chain analysis was also done.
* Attempts were also made to identify spam and re-packaged products.
* Three categories of interviewees were selected during the present survey – (a) wholesaler-cum-retailer, (b) marketing executives and, (c) progressive farmer.

Strategy of the survey

* Information on PHPs was gathered by obtaining detailed product photographs.
* Information unclear or absent on the packaging were collected through face to face interactions and telephonic conversations.
* Products which were being purposively veiled during the survey successfully extracted through back-channels.
* Information regarding sale, pricing, profit and value chain of PHPs were obtained through touch-up and telephonic conversations – anonymous.

Sense of Aquafarmers and Aquapreneurs in West Bengal regarding PHPs

- Disease problem most prevalent during Autumn-Winter (September-January) – *window for PHP use!*
- Water quality problem most common during Spring-Summer (February-May) – *window for PHP use!*
- Broad spectrum disinfectants (water sanitizers) more effective than soil/water probiotics.
- Zeolite, Oxygen precursors more popular than Bioremediators that absorb toxic gases (*e.g. Yucca extract, Organic acids, Enzymes, Selective Bacterial strains*).
- Comprehensive feed supplements assure better biosecurity than feed probiotics.
- Parasiticides, Antibiotics - *first choices in disease*!
- Prebiotics, Immunostimulants are '*luxury options*(!)'.
- Antibiotics not used in shrimps. Feed probiotics preferred.

PHPs Mapped

* A total of 75 products from 41 companies/proprietors were mapped.
* Majority (68%) products non-certified.
* Certified PHPs are more expensive and have higher profit margins – *preferred 'less' by majority farmers.*
* Only 8 products were found to be common with Andhra Pradesh PHP inventory while 89% of the products mapped were unique.
* Packaging almost compulsorily contain graphics/text of 'fish' and 'shrimp' together to lure in wider customer base – marketing gimmick (?).

PHPs Mapped


SANITIR MA
SANITIZER
FOR
AQUACULTURE
IMMUNE PLUS
New
Hepano Mix
300 g Net
PRO - STOP
VALUEMIN-G
Performance Enhancer
& Immunity Booster
Zydus AH
Eco Marine
Bio Marine
INTERFOX-ST 50
San LIV CURE
A Perfect Tonic For Total Liver Cure
AMMO - KILL
Ammonia Reducer
500
Gms
DISAN
Yea-Sacc
Alltech
GEOSOL
PRO - STOP
PRO BASE

Product Origins

* About 89.33% (nos. 67) of PHPs were of Indian origin. Rest from France > China > Japan > Singapore > Thailand.
* Out of the 41 companies encountered, 63% preferred to manufacture and/or distribute on their own.
* Few companies (3 nos.) found to be engaged in 'packaging/re-packaging and marketing' - high probability of breeding spam products into the market (*Anon. source*).
* Only 9 companies had certification. ISO 9001:2008 certification was most popular.
* 75% of the companies mapped were unique and not recorded previously from Andhra Pradesh survey.

Product Classes

* 60% of the PHPs mapped were solid. No gel product encountered unlike in Andhra Pradesh.
* Solid PHPs have a slight edge over liquid PHPs due to higher ease in storage and handling.
* Products identified could be broadly categorized into 12 broad categories.

Probiotic	**Prebiotic**	**Bioremediator**
Water sanitizer/ Broad spectrum disinfectant	**Chemical detoxifiers** *(Zeolite, Oxygen pre-cursors)*	**Immunostimulants**
Immunomodulators	**Ectoparasiticide**	**Endoparasiticide**
Broad spectrum therapeutants	**Antibiotic**	**Combination products among these**

Green= Most popular, *Grey = Medium popular*, ***Red = Least popular, Blue = SOS Choice***

Product Classes (Contd.)

* Most popular combination products - ‘comprehensive feed supplements’ (*combination of feed probiotic, pre-biotic, immunomodulants and immunostimulants together*) followed by ‘probiotic-bioremediator’ combinations (*water/soil application*).

* Among the mono-class products – broad spectrum disinfectants (*water sanitizers*) most prevalent followed by immunomodulants (*vitamin-minerals-amino acid combos*).

Product Classes (Contd.)

* All the aforementioned combination or mono-class products had diverse product range too - *farmers have ample choices within a wide product range to pick from.*

* The range of available products within antibiotics, endo-parasiticide, broad spectrum therapeutants and chemical detoxifiers were narrowest – *farmers have lesser choices to pick from.*

Product Domains and Applications

* Majority (79%) of PHPs were meant exclusively for aquaculture domain.
* Some (9) were multi-domain (agri-livestock-aqua) products.
* Few products (7) were not at all meant for aquaculture domain – *contains some 'red flagged' products as well*!
* Abundance: Water and/or Soil applied PHPs (51%) > feed applied PHPs (35%) > multi-application (*water, feed & soil*) PHPs (14%).

Product Active Ingredients

* A total of 282 product ingredients were listed from 75 PHPs.
* 88% of the ingredients listed were found to be common with the Andhra Pradesh PHP inventory.
* 33 ingredients were listed as unique from West Bengal.
* Product class wise most popular ingredients were -

Product classes	Popular Ingredients	Unique Ingredients
Probiotic	*Bacillus* spp., *Lactobacillus* sp., Yeast, Nitrogen cycling bacteria	*Pseudomonas* sp.
Prebiotic	Betaine, Oligosaccharides, Molasses	Alpha starch, Dextrose Monohydrate, Methyl donors, Tricholine Citrate

Product Active Ingredients (Contd.)

Product classes	Popular Ingredients	Unique Ingredients
Bioremediator	*Yucca plant extract, Organic acids (Humic acid mostly), Bacillus sp., Nitrogen cycling bacteria*	*Aloe vera, Molasses, Enzymes (digestive)*
Water sanitizer/ Broad spectrum disinfectant	Didecyldimethyl Ammonium Chloride, Benzalkonium Chloride, Allicin, Citric acid, Organic acids, Iodine, Neem Oil,	Polyhexamethylene biguanide hydrochloride, Pottasium Dimethyl Dithiol Carbamate, 3-Methyl, 4-Alkyl, two chain brominated halogen, Nonyl alkyl phenoxypoly ethylene oxide, Hydrogen peroxide
Broad spectrum therapeutant	3,6-Diamino-10-Methyleacridin-10-ium chloride	Sodium chlorite, Sodium Hydrogen Sulphate

Product Active Ingredients (Contd.)

Product classes	Popular Ingredients	Unique Ingredients
Chemical detoxifiers	*Hydrated sodium calcium aluminosilicate (Zeolite), High CEC Zeolite*	*Sodium percarbonate*
Immuno-stimulants	*Plant extracts (phytobiotics), beta-glucans, dried yeast extract*	*Carotenoids*
Immuno-modulators	*Vitamins, Minerals, Amino acids*	*Phospholipids, Enzymes, Liver stimulants (?)*
Endo-parasiticide	-	*Albendazole*
Ecto-parasiticide	*Ivermectin, Deltamethrin, Cypermethrin, Iodine, KMnO4*	*Phytobiotics, Fenitrothion*
Antibiotics	*Cephalexin, Tetracycline hydrochloride, Enrofloxacin*	*Oxytetracycline*

Storage and Handling advisories

* Only 57% of the PHPs mapped had some sort of market, storage and/or health advisories printed on package.
* The most common language on packaging was 'English' (62 out of 75 products).
* The expiry period ranged between 6-60 months from MFD – least for 'liquid' probiotics, bioremediators, water sanitizers and immunomodulators.
* Package size ranged between 20 gm (Antibiotics) to 80 kg (Minerals, Zeolite) for solid PHPs and 50 ml (Vitamins) to 20 L (Organic acids) for liquid PHPs.

Product claims

* A total of 25 product claims could be extracted from 75 PHPs.
* Most common being –

'Water probiotic, control pond bottom pollution, stabilize water quality' (10);

'Water sanitizer, cures microbial disease outbreak' (6); *'Antibiotics'* (6);

'Complete feed supplement with probiotics-enzymes' (5);

'Toxic gas absorber especially Ammonia' (5);

'Vitamin, Mineral and growth promoter supplement with immunomodulant properties' (5)

Peak season, Profit Margin and Sale Ranking

* Peak season for PHP sale: July to February
* Sale ranking highest for Broad spectrum disinfectants (Profit Margin 30%), Soil/water detoxifiers vis-à-vis ammonia absorbers (PM 20-30%), Immunostimulants-Immunomodulants (PM 50%), Comprehensive feed supplements (PM 40-50%).
* Sale ranking lowest for Oxygen precursors (PM 40%), Organic acids (PM 30%), Endo-parasiticide (PM 25%).

Red Flagged Products and Observations

* Highly toxic pesticides of agricultural domain used at chronic/low doses to treat parasitic diseases in fish.
* *Farmers reluctant to invest separately in fish ectoparasiticides since agricultural pesticides are readily available with them.*
* Cattle and poultry feed supplements used in fish. The recommended dosages for livestocks/poultry are superficially adjusted and given to fishes-prawns.
* Utility of some ingredients like high Calcium-Phosphorus, Bypass proteins, Bypass lipids questionable.

Red Flagged Products and Observations (Contd.)

* 100% plagiarized packaging information detected among some PHPs with differing brand and company names.
* Probable duplication of products under different brand names from a single company.
* Some PHPs although claim a number of guaranteed benefits but surprisingly lack manufacturer/ ingredient/ dosage/ expiry info.

Red Flagged Products and Observations (Contd.)

* Local companies probably copying dosage information of similar-ingredient products from reputed brands.
* Market intelligence inputs revealed large scale re-packaging and selling of ‘probiotic-bioremediator’ products from ‘Big International Brand(s)’ at excessively inflated prices.

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