

India's National Surveillance Programme for Aquatic Animal Diseases

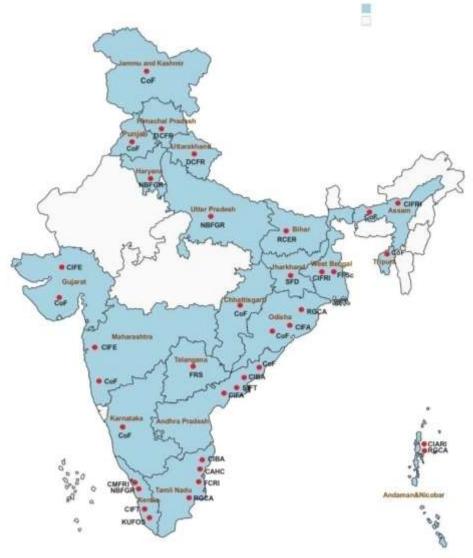
P.K. Pradhan and Neeraj Sood ICAR-National Bureau of Fish Genetic Resources, Lucknow



Objectives

- To detect new and exotic infectious diseases
- To collect information on the distribution and occurrence of diseases
- To improve reporting obligations of the country to OIE and NACA.

A strong network of Aquatic Animal Health Laboratories

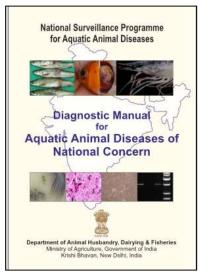


20 states and 2 Union Territories

Collaborating centres: 31

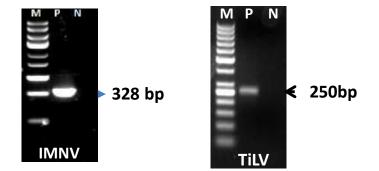
Manual with Standard Diagnostic Procedures

• Diagnostic protocols for important diseases



Diagnostic capability for OIE-listed and emerging pathogens

 Positive controls of fish diseases from OIE referral laboratories



Strengthening passive disease surveillance: Awareness



















Strengthening passive disease surveillance: Awareness Literature



APR : BRANK + REDAKE

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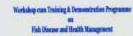
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Training the Officers of State Fisheries Departments











(Progenition f by RAR-Control Indent Phileries Research Institute Under NRFAAD project in collaboration with RFC Table, Robert, Pept. of Taberto, Loct. of West Berge











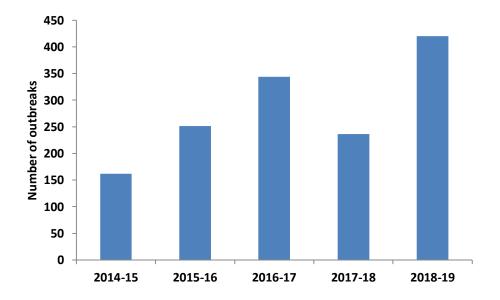


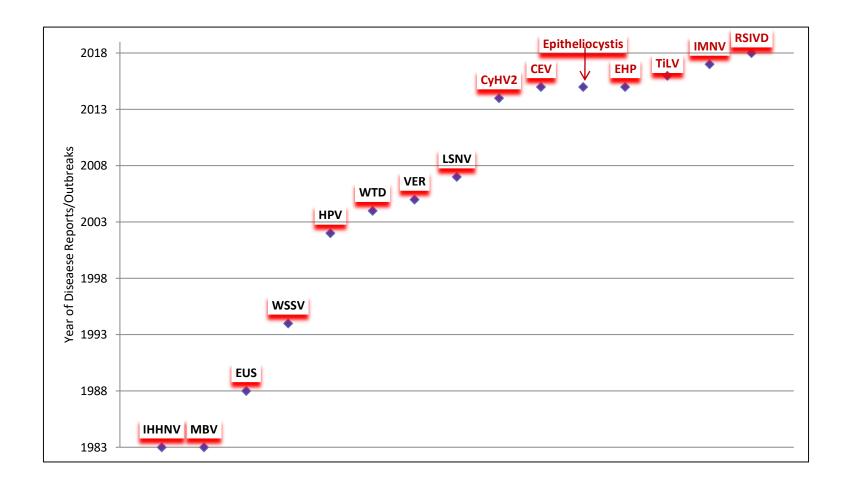




Passive Surveillance

- Awareness programmes: 521 (23354 farmers)
- Training Programmes: 56 (1413 fisheries officers/Research scholars)
- Disease outbreaks investigated: 1413





Year of first reporting of new diseases

New Pathogens Detected





Enterocytozoon hepatopenaei



sp. nov



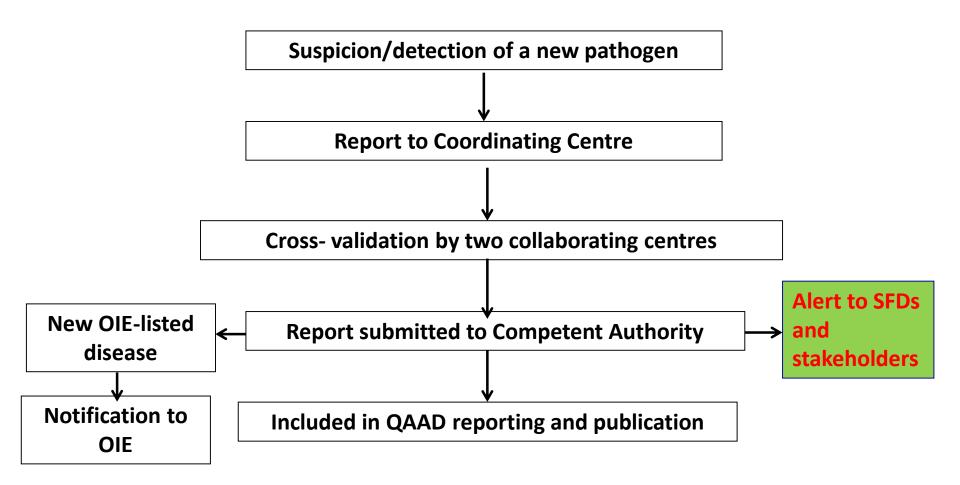
Infectious myonecrosis virus



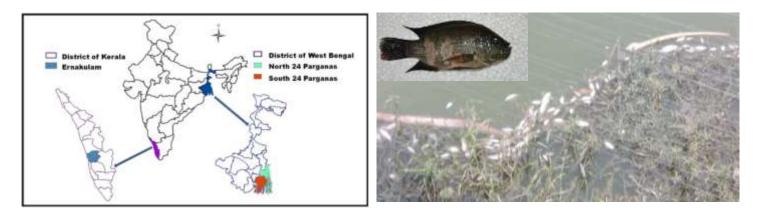
Red sea bream iridovirus

All the first reports have been published in peer reviewed international journals

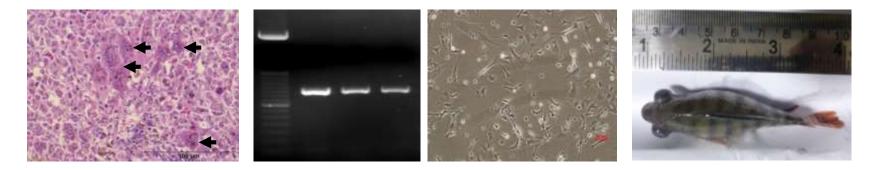
Reporting Mechanism for a new disease

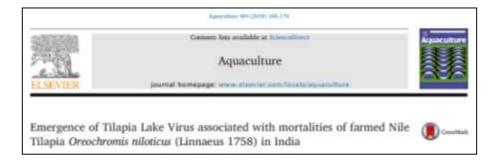


Infection with Tilapia lake virus (TiLV)

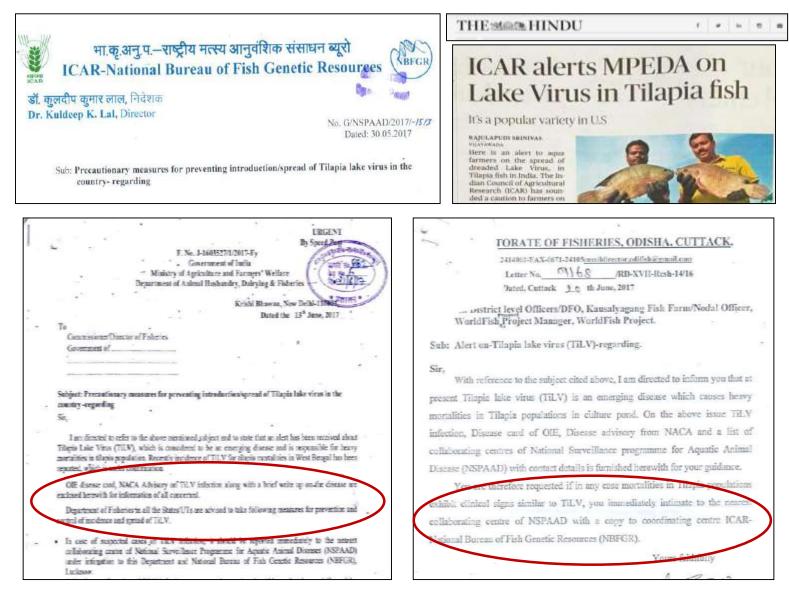


• Sent an alert to State Fisheries Departments along with action points





TiLV alert under NSPAAD and prompt action by Govt. of India



Scientific advice to farmers- a case study

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Records of farmer from Barabanki, Uttar Pradesh culturing Pangas

Active surveillance- a case study

CHECKLIST 1: Scenario setting

National status of the disease in question: White spot syndrome virus (WSSV)- present

WSSV surveillance: Yes

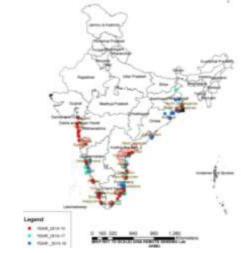
Do you know the status of WSSV in your trading partners or neighbouring

Countries: Yes

Do you share watershed with another country: Yes

Data sources: Existing surveillance/ Scientific Reports/QAAD reports

What is country scenario: Scenario 1: Infected status



But status of disease in this northern provinces is unknown

Distribution map of WSSV in India

CHECKLIST 2: Defining surveillance objective

Objective: To investigate the presence or absence of WSSV in farmed shrimp populations in inland saline waters of Haryana

- 400ha used for inland saline shrimp culture
- Culture of *Litopenaeus vannamei*
- Potential for high health status
- Isolated water source borewell
- Strict biosecurity feasible





CHECKLIST 3: Defining population

Populations of interest:

Targeted populations: Grow-out farms of Litopenaeus vannamei: 139

Studied populations: Sampled farms: 51

CHECKLIST 4: Clustering of disease!!



List of 139 shrimp farmers of Haryana

SLNo	District	Name and address	Village pond
	Guragram	Sh. Rajesh Kumar Sh. Mangal Singh, Wazirahad Dian, Gunagram	Khatrika
	Guragram	Sh. Mukesh Kumar S/O Sh. Mangal Singh, Wanimbud Diatt, Gumaram	Khatrika
	Gurugram	Sb. VIJay Kamar S/O Sh Ramesh Chand, H. Ne, OI 103, Sushant Lok, Phase-II Sector-27 Gumman	Widhwaka
	Hisar	Sh. Hoshiyar Singh S/O Sh. Ramji Lul, Singhran Distt. Hisar	Singhran
	Hisat	Sb. Balwant S/O Sh. Rataji Lal, Singhran Disit, Hisar	Singhran
	Hisar	Sb. Sntyowart S/O Sh. Jogi Ram, Chandluriwan Dintt, Hinar	Chaudhriway
	Hisar	Sunil S/O Sh. Sathir, Saharwa Distt. Hisar	Saharwa
	Hister	Sh. Amit S/O Sh. Gurdayal, Mirkan Distt, Hisar	Mirkun
	Hisar	Sh. Sanjay S/O Sh. Kashuniri Lal, Mirkan Disti, Hisar	Mirkan
	H isar	Sh. Atma Rama S/O Sh. #m Prakash, Neoli K. hurd Distr. Hisar	Malampor
	filisar	Sh. Sanjay Kumur S/O Sh. Parmanand, Vill-Satrod Kan Distt, Hisar	Kharar Aligur
	Hisar	Sh. Suronder Kumar S/O Sh. Partap Singh, Balminend Diat, Hisar	Balasmand
	Histr	Sh. Balwan Singh S/O Sh. Harpool Singh, Balawas Distr. Hitar	Bafawas
	ftisar	Sh. Bhim Singh S/O Sh. Ishwar Singh, Saharwa Hitar	Saharwa
	Hisar	Sh. Joginder S/O Sh. Dhupender Singli, Badhya Dist. Hisar	Badhya Jattan
	Hisar	Sh. Joginder S/O Sh. A jii Singh, Bandhohedi Dist. Histr	Singhwakhas
	H isar	Sh. Ramkishan S/O Sh. Canu Ram, Mangali Akhan Distt. Hisar	Mangali Aklan
	Hisur	Sh. Rajnish S/O Sh. Kulwant, R/O H.NO. 1509, Sector 15A Hisar	Singfirati
	Hisar	Sh. Rajhir S/O Sh. Ramji Lal, Singharan Distr. Hisar	Singhran
	Hisar	Sh. Babal S/O Sh. Pardeep Kumar, Neoli khurd Diatt. Hisar	Neoli khurd
	Hiser	SS: Ajay Kumar Sio Sh. Ramehander, Bursk Digt. Higar	Balsamund
22	Hihiwani	Sh. Parveen S/O Sh. Jalpal, Jui Kalan Distt. Bhiwani	Jui Kalut
	Bb iwani	Sh. Bani Singh S/O Sh. Jailal Singh, Matani Dint, Bhiwani	Matani
	Bhiwani	Vijay Kumar S/O Sh. Prinap Singh, Jui Biefall Distr. Bhiwani	Jui Khurd
	Bhiwani	Sa. Janghir Singh S4O Shi Hawa Singh, Matani Distt. Bhiwani	Matani
	Ubiwani	Sh. Ramniwas S/O Sh. Bhaha Ram, Bohal Distt. Bhiwani	Bhariwas
	Bh iwani	Sh. Ashu Agarwal S/O SF. Ravish Chander, Jui Biehli Datt. Bhiwani	Jul Bich]i
	Bhiwani	Sh. Nihal Singh S/O Sh. Tulsi Ram, Kudal Bas Distr. Bhiwani	Kudal Bas
29	Bhiward	Smt. Sunita W/O Sh. Mohur Lal, Jui Kaian Distr. Bhiwani	Jui Kalan
	Hhiwani	Sh. Harikesh S/O Sh. Dherampal, Dhab Dhun Distt. Bhiwani	Dhab Dhani
	Bhiwani	Sh. Ram Avtar ShO Sh. Abhry Ram, Dagroli Distt. Bhiwani	Alampur
	Bhiwani	Sh. Sachin Shorma S/O Sh. Risi Ram, Koteshra Distr. Rohtak	Alampur
33	Bhiwani	Sh. Jai Singh S/O Sh. Gundayal, Kuda] Distt. Bhiwani	Kudal
	Bhiwani	Sh. Mahender Singh S/O 3h. Hardayal, Jui Kalan Distt. Bhiwani	hii Kalao
	Bhiwani	Sh. Sanjay Singh S/O Sh. Mahender Singh, Dhani Ramjas	Dhani Ramjas
	Bhiwani	Sh. Satyawan S/O Sh. Mehan Lai, Dhulkot Diatt, Bhiwani	Dhukot
17	Bh iwmi	Sh. Junghir S/O Sh. Huwit Singh, Matani Distt, Bhiwani	Matani

38 BB/wan		
39 Bhiwan	Sh. Avan S/O Sh. Jagdish, Jui Bichali Dist. Bhiwani	Metirana
40 Bhiwan	Sh. Sathir S/O Sh. Sheokaran, Phogat Dian. Ch. Didri	Jui Bichali
41 Bhiwani	Sh. Sharad Cheudhary SVO Sh. Jagiit Singh. Ward no. 1 Diatr. Charlchi Dudri Sh. Mahan La 6 27 55	Phogar
42 Bhiwani	Sh. Mohan Lal S/O Sh. Ramavatar, Jui Kalan Distt. Bhiwani	Asawari
43 Bhiwani	Sh. Sunil S/O Sh. Mir Singh, Jui Kalan Distt. Bhiwani	Jui Kalan
44 Bhiwani	Sh. Dharmender 5/O Sh. Sher Singh, Sarai Distr. Bhiwani	Jui Kalan
45 Bhiwam	Sh. Sandeep S/O Sh. Daya Nand, Khuwa Distt, Bhiwani	Alakipura
46 Bhbani	[Sh. Dalbir S/O Sh. Hanzy Sinoh: Alamania Di an Dirite di	Rhawn
47 Bhuwani	Sh. Deupak S/O Sh. Sathir Singh, Nandha Distr. Bhiwani	Atampur
48 Bhiwani	Sh. Jitender S/O Sh. Jahoar Singh, Alampur Dist. Blawani	Mankawas Rasiwa
49 Bhiwani	Smt, Krishana W/O Sh. Parmanand, Jai Kahn Dirtt, Bhiwani	Alampur
50 Bhiwani	Sh. Kamlesh Kamar S/O Sh. Parmanand, Jai Kalan Dist. Bhiwani	Jui Kahm
51 Bhiwani	Sh. Sunil S/O Sh. Om Prakash, Dohki Dist. Ch. Dadri	Jui Kalan
52 Bhiwani	Sh. Jai Prakash S/O Sh. Fartap Singh, Rawaldhi Distr. Ch. Dadri	Rasiwas/Mankawa
53 Bhiwani	Sh. Surender S/O Sh. Dalip Singh, Rawaldhi Distr, Ch. Dadri	Rawaldhi
54 Bhiwani	Smt. Dimple W/O Sh. Kamlesh, Jui Kalan Distt. Bhiwani	Sandun
55 Sonipat	Sh. Vikaot SO Sh. Kalinesh, Jit Kalan Dutt, Hhmani	Jui Kalim
56 Jind	Sh. Vikart S/O Sh. Krishan Kumar, Garpur Khalsa Distt. Kamal Sh. Smiay S/O Sh. R.A.L. Co.	Kharkboda
57 Jind	Sh. Sanjay StO Sh. Sulekh Charaf , Vill- Dharodi Distr. Jind Sh. Bahvinder Singh StO Sh. Prithvi Singh, Dharodi Distr. Jind	Dharodi
58 Jind	Sh. Mardia Singh SiO Sh. Printet Singh, Dharedi Diati, Jind	Dharodi
59 Jind	Sh. Mandig Singh S/O Sh. Sewa Singh, FartAWill Kalan Diat. Jind Sh. Sarender S/O Solekli Thand, Dharodi Diat, Jind	Farain Kolan
60 Sirsa	Oshrad Could and Solicki Linand, Diam Jind	Dhuredi
61 Sirsa	Ralitash S/O Sh. Banwari LaJ, Gudia Khera Diatt. Sirsa	Gudin K hera
62 Sirsa	Sh. Rakesh Kamar S/O Sh. On Parkash, Kherekan Dist, Sirsa	Kherekan
63 Sirua	Sh. Atms Ram S/O Sh. Batwari Lal, Gudia Khera Diat. Sirsa	Gudis Khera
64 Sica	Sh. Sheokaran S() Sh. Ranjeet Seigh. Gudin Khera Disit. Sirsa	Gudia Khera
65 Rohtak	Sh. Jashir Singh S/O Sh. Jar-nail Singh, Kalaewali Dist. Sinar	Kalanwali
66 Rehnk	Sh. Jagesh S-O Raghunath, Anwal Diatt. Rohtak	Anwal
67 Rolitak	Sh. Sutpal S/O Sh. Fateh Singh, Lahli Distt. Rohak	Kalenar
68 Rohnak	Sh. Vikus S/O Sh. Partap Singh, Mahra Disit, Rohtak	Bohar
69 Rohrak	Sh. Anil Kumar S/O Sh. Rattar Singh, H.NO. 2725/31 Shiv Nagar Robtak	Ameil
70 Rohtak	Sh. Sandrep S/O Sh. Ramphal, Kathuwas Distt. Rewari	* Kheradi
71 Rohtak	Sh. Balwan S/O Sh. Parmenand, Lahri Distt. Rohtak	Baniyuni
72 Rohtak	Sh. Satpal S() Sh. Ramphal, Singlipura Distr. Robtak	Khirafi
73 Rohak	Sh. Satya Dev S/() Sh. Heeramal, Bhaini Chasderpal Distt. Robtak	Bhaini Chanderpal
74 Robtak	150. Sachul SiO Sh. Partap Singh, Mahra Distr Koninat	Bohar
	Sh. Raj Singh S-O Sh. Raghumith, Amerai Disti, Robiak	
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75 Rohtnik	Sh. Raj Singh S-O Sh. Raghumth, Anwai Dist. Rohtak Sh. Devender Singh S-O S-i, Surender, Rankoli Dist. Bhiwani	Anwal Kheradi

76 Rohta		Ghrunhi
77 Rohta	h Sh. Sumit S/O Sh. Jagdidi, Palahma Diat. Robtak	Ghrauthi
78 Rohta	k Sh. BalwanS(!) Sh. Raghbir Singh, Chandi Diatt, Rolmak	Chandi
79 Rolna	k Sh. Dinesh Singh S/() Sh. Ramjeet, Bond Khurd Diatt. Dadri	Kherari
80 Rohta	k Sh. Amarjeet 5() Sh. And Singh, Sector-2	Bohar
\$1 Rotra	k Sh. Manjeet S/O Sh. Ramohnj, Chiri Dian, Rohtak	Chiri
82 Rohta	k Sh. Varun Arora S/O Sh. Rajender Arora. R/0 799/23 DLF Colony, Robtak	Churdi
83 Rohta	k Sh. Ashish S/O Sh. Anil Kumur, R/O Hamanian Gate, Robrak	Kheniri
84 Rohta	K Sh. Rojesh S&C) Sh. Krishan, Bahu Akburpur Diatz. Rohtak	Khenari
85 Rohta	sh. Joginder S/O Sh. Karam Singh, Alewa Distt. Jind	Khraiuti
86 Rohta	k Sint, Soman Devi W/O Sh. Jashir Singh, Khrainti Distt, Rohtak	Khrainti
87 Rohta	Sh. Ram Kishan S/O Sh. Eisal Singh, Anwal Distt. Rohtsk	
88 Roltta	s Sent, Jagwarri W/O Sh. Chanderbhan, Bhaini Chanderped Distt. Rohtak	Anwal
89 Rohtal	s Sh. Baljeet S/O Sh. Subha Chand, VPO Chiri Rohtak	Bhaini Chanderpe
90 Rohia	s Sh. Ajay Deshwal S/O Sh. Ranhir Singh, Bhaiyapur adoth DiSet	Ghrauthi
91 Rohta	Sh. Naresh S/O Sh. Prabha Ram, Chiri Rohnak	Bhaiyapur Ldoth
92 Rohtal	Sh. Amap S/O Sh. Jagat Singh, Chiri Ram Robtak	Ghrauthi
95 Rohtal	Sh. Chuid Singh S/O Sh. Bhawar Ji, Ghrauthi Rohtak	Chiri
94 Rohtal	Sh. Ramesh S/O Sh. Parmanand, Labii Distt. Rohtak	Ghrauthi
95 Rohmi	Sh. Krishanlal S/O Sh. Tarachand, Samargopalpur Dint, Robuk	Kahnaur
96 Rohtal	Sh. Guluhan S/O Sh. Rajender Kumar, Kalanaur, Distt. Rolmak	Khuradi
97 Rohtal	Sh. Raj Kumar S/O Sh. Ram Mehar, Chiri Diati, Robtak	Kheradi
98 Jhaijar		Chiri
99 Jhaijar		Lad rawan
100 Jhrijar		Ladrawan
101 Jhuijar	Snit, Vinita W/O Sh, Bohi, Ladrawan Dist, Jhajjar	Subana
102 Juniar	Sh. Bajpal S/O.Sh. Amar Singh, Birhore Distr. Jhajjar	Listrawan
103 Phaiim	Sh. Sanjay S/O Sh. Ajit Singh, Dawla Distt, Jhajjar	Birture
104 Jhaiim	Sh. Askit S/O Sh. Ramniwas, Sasroli Dist. Jhajjar	Dewla
185 Jhuijar	Sh. Kuldeep S/O Sh. Raghabir Singh, Kheri Jan Distr. Jinjjar	Sasroli
106 Jhaijar	Sh Rakesh S/O Sh. Dharmender, Legarpur Distr. Jhajjar	Jahangirpor
107 Juniar	Sh. Sombir S/O Sh. Raj Slagh, Dawla Disti, Jhajjar	. Lagarpa
108 Jhaijar	Smt. Inderproet Kaur W/O/Sh. Gurment Singh, Sector-51 Gurugram	Dawla
109 Fatebal	and Sh. Raj Kumur S/O Sh. Raidu Ram, Dehman Distt, Fatehabad	Ladrawan
110 Futchal		Dehman
111 Fatehal		Thuain
112 Fatchal		Bangaon
113[Fatcha]		Thuain
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114 Fatehabod	Sh. Anil Kumua S/O Sh. Bhir Singh, Nehla Distt. Fatehabad	Nebla
115 Fateliahad	Sh. Bhim Singh S/O Sh. Udvir Singh, Kemri Road, Hisar	Thuain
16 Fatehobad	Sh. Omprakash S/O Sh. Sher Singh, Thuain Fatehabad	Thuain
17 Fatebabad	Sh. Jitonder S/O Sh. Shishpal, Melnavala Distt. Fatchabad	Thuniz
18 Fatchabad	Sh. Smjit Lamba S/O Sh. Sathir Singh, Daulutpur Hissar	Thusis
19 Fatebabad	Sh. Dipan Bhutani 5/O Sh. Anand Prakash, Lajpat Nagar Distt. Fatehabad	Kukrameali
20 Fatebabad	Sh. Dalhir StO 5h. Sultan Singh, Thuain Distt. Fatehabed	Thunks
121 Fetchobad	Sh. Jitender S/O Sh. Shishpal, Mehrwala Diyit, Fatchabad	Thangin
22 Fatehobad	Sh: Sanjit Lamba S/O Sh. Satbir Singh, Daulatpur Hissar	Thunin
23 Fatehabad	Sh, Dipan Bhutani S/O Sh. Anand Prakash, Lajpat Nagar Distt , Fatehabad	Kukranwali
24 Fatebabad	Sh. Dalhir S/O Sh. Sultan Singh, Thuain Distt. Fatebahad	Thunin
125 Fetchobad	Sh. Dinesh Jatana SIO Sh. Sahib Jatana, M.C. Colony, Distr. Fatehabad	Kukranwali
26 Fatehabad	Sh: Rajbir S/O Sh. Sultan Singh, Thuain Distt. Fatebabad	Thuain
27 Fatehabad	Sh. Satish Kumar S/D Sh. Kasi Ram, Dhabi Kalan Distt. Fatehahad	Thunin
28 Fatehabad	SBs Sothir S/() Sh. Rajender Presad, Bangnon Distt. Fatehabad	Bangaon
29 Fatehabad	Sh. Sathir S/O 5h. Gopi Ram, Vill- Ban Mandori Distt. Fanehabad	Ban Mandori
30 Fatebobad	Sh. Krishan S/O Sh. Sher Singh, Thuain Distt, Fatehabad	Thunin
31 Fatebabad	Sh. Sandeep Lambha S/O Sh. Sathir Singh, Daulatpur, Hisar	Ubaain.
32 Fatehabad	SS. Karan Singh S/O Sh. Surja Ram, Ban Mandori Fatehabad	Ban Maestori
133 Sirsa	Sh. Atma Ram 5() Sh. Bunwari Lal, Gudia Khera Diatt. Sirsa	Gudia Khera
134 Sirsa	Sh. Doulat Ran: S/O Sh. Shri Ram, Gudia Khera Distt. Sirua	Gudia Khera
135 Sina	Sh. Jashir Singh S/O Sh. Jamail Singh, Kalanwali Distt. Sirsa	Kalapwali
176 Sinta	Sb. Rakesh Kumar S/O Sh. 0m Parkash, Kherekan Disit, Sirsa	Kherekan
137 Sina	Sh. Sheokanan 5/O Sh. Raujed Singh, Gudia Khera Dist. Sirsa	Gadia Khern
138 Sina	Rohtash SAD SP. Banwari Laj, Gudia Khem Distt. Sirsa	Godia K here
139 Nuh	Sh. Ombir 5/O 5h. Mahabir Singh, VPO- Sangel, Nuh	Sangel
	ing the Prevalence rate as 5%;Chaster-level design prevalence as 20%; 90% sensitivity/sp i confidence interval, the total sample size required for the surveillance of disease was e	

It is assumed that the population size is greater than 1000. Samples to be withdrawn from each village pond are 52.

CHECKLIST 5: Case Definition

Clinical: A disease of shrimps characterized by appearance of discrete white spots on exoskeleton and associated with high mortalities

Laboratorial: A shrimp which yields positive PCR result for WSSV and sequenced products showing homology with WSSV sequences .

Epidemiological: A pond where one or more shrimp have one or more visible, discrete white spots on the exoskeleton; pond subjected to emergency harvest because, in the opinion of the manager, there is a risk of mass mortality from white spot syndrome (FAO 2004).

CHECKLIST 6: Diagnostic testing Description of tests

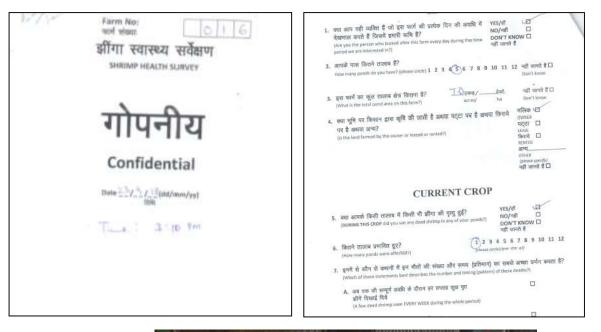
- Gross Observations (Level I)
- Histopathology (Level II)
- Nested PCR of Tissues (Level III)
- Sequencing of PCR products (Level III)

CHECKLIST 7: Study design and sampling

SHRIMP PREVALENCE %	FARM PREVALENCE %	NUMBER OF FARMS TO SAMPLE	NUMBER OF SHRIMP TO SAMPLE	HERD SENSITVITY (PROBABILITY OF DETECTION IF TRULY POSITIVE)
10	2	114	15	0.78
15	2	95	14	0.95
20	2	95	14	0.95
30	2	95	9	0.95
10	3	82	15	0.79
20	3	68	14	0.95
30	3	68	9	0.95
10	5	62	15	0.78
15	5	51	19	0.95
20	5	51	14	095
30	5	51	9	0.95

- Considering the resources available it is possible to sample a maximum of 50 farms and to collect 10-15 samples from each farm.
- Detecting infection in farms at a prevalence of less than 5% is not possible with the resources available.
- Taking 15 shrimp per pond is enough to detect disease in the pond with 95% probability, if the prevalence within the pond i.e. of infection in the shrimp, is more than 10% . <u>http://epitools.ausvet.com.au/content.php?page=2StageFreedomSS1</u>

CHECKLIST 8: Data collection and management





Sampling of shrimp farms in Haryana



CHECKLIST 9: Data analysis

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Fr	ont	G R	lich Text	Records		Sort & Fil	ter	Find			
RISK FACTOR FOR	MORTALITY										
FARM_NO +	NO_PDS +	DEAD_SHR -	PDS_AFF +	YOUR_OPI_(-	PD_DRAIN	PD_DRY -	DO_PD_BOT +	PD_BOT_TRI +	PD_FERT •	SEED_SPF_Y -	FD_COM_W
1	8	No	0		Yes	Yes		Yes		No	Avanti feed
2	8	No	0		Yes	Yes	Yes			Yes	Avanti feed
3	4	Yes	1	pH change	Yes	Yes	Yes	Yes	Yes	Yes	Cargill feed
4	12	Yes	1	Moulting prob	Yes	Yes	Yes	Yes	Yes	Yes	Growell, Ca
5	2	No	0		Yes	Yes	Yes	Yes	Yes	No	Cargill feed
6	2	No	0		Yes	Yes	Yes	Yes		No	Cargill feed
7	5	No	0		Yes	Yes	No	Yes		No	OM Parvan
8	5	Yes	2	Lack of oxygen	Yes	Yes	Yes	Yes	Yes	No	Growell fee
9	5	Yes, Continuol	4	Disease	Yes	Yes	Yes		Yes	No	Cargill feed
10	18	No	0		Yes	Yes	Yes			Yes	CP Aqua
11	8	Yes	2		Yes	Yes	Yes	Yes		Yes	Om Prawn
12	3	No, slow grow	0		Yes	Yes	Yes	Yes		Yes	Avanti in St
13	5	No, slow grow	2		Yes	Yes	Yes	Yes		999	Om Prawn
14	21	No	0		Yes	Yes	Yes	Yes		Don't know	Om Prawn
15	7	Yes	2	Ammonia	Yes	Yes		Yes		Yes	ABIS feeds
16	5	Yes	1	Loose shell syr	Yes	Yes	Yes	Yes		Yes	Om Prawn
17	9	Yes	4	Mineral deficie	Yes	Yes	Yes	Yes		Yes	Avanti feed
18	2	Yes (First crop)	1	Disease	Yes	Yes	Yes	Yes		No	Avanti feed
19	5	Yes	3	Moulting prob	Yes	Yes	Yes	Yes	Yes	Don't know	Avanti feed
20	3	No	0		Yes	Yes	Yes	Yes		Yes	Om Prawm
21	17	No	0		Yes	Yes	Yes	Yes		Yes	Cargill feed
22	6	Yes	3	White feces sy	Yes	Yes	Yes	Yes		No	Om prawn
23	23	No	0		Yes	Yes	Yes	Yes		Yes	Daksh, RNK
24	2	No	0		Yes	Yes	Yes	Yes	Yes	Yes	RNK, Andhr
25	3	No	0		NA	NA	NA		Yes	Yes	Avanti feed

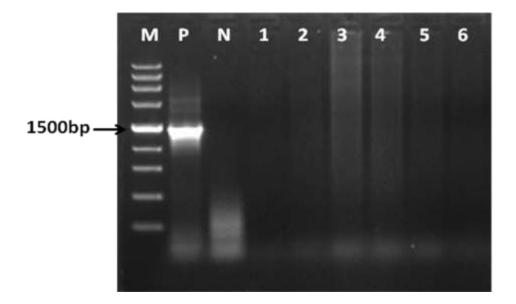
Pond preparation

- Draining and drying ALL
- Mechanical treatment of bottom
 - Earthen
 - Ploughing 86.7%
 - Silt removal 6.7%
 - Both 3.3%
 - Lined Mud pump, washed or cleaned with cloth
- Chemical treatment of bottom
 - Bleaching powder 78.6%
 - Lime 40.5%
 - Probiotics 60.0%

Stocking

- Stocking density(*estimated number/pond* area)
 - Median 150,000/acre
 - Range 100,000 400,000
- PL Size
 - Median 8Range 6.5-12
- Health status of seed
 - SPF 51.2%
 - Not SPF 20.9%
 - Unknown 27.9%
- Origin of seed 4 states
 - Andhra 85.7%
 - Pondicherry 9.5%
 - West Bengal & Odisha 2.4%

Screening for WSSV



All the shrimp samples were negative for WSSV in nested PCR



Inference: It could be inferred that WSSV infection was absent in shrimp farms in inland saline areas of Haryana, assuming farm prevalence of 5% and shrimp prevalence of 20% with confidence level of 95%.

Dispelling Rumours: Acute Hepatopancreatic Necrosis Disease

- Rumours about EMS in shrimp farms from India during 2013.
- Emergency response team constituted
- Sampling was undertaken in suspected areas- Andhra Pradesh, Tamil Nadu.
- None of the samples positive for AHPND.
- Subsequently, over last 4 years, more than 12000 shrimp samples screened

FAO 'Re-echo Seminar and Round-Table Discussion on AHPND National Action Planning' (Sept. 2015)

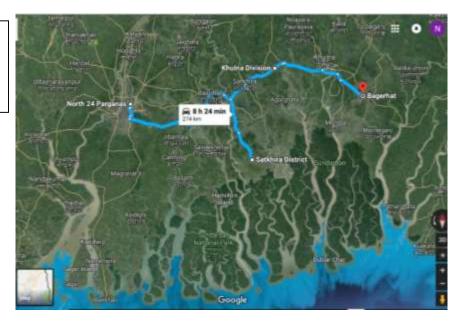


Threat of AHPND in 2017!

J. Bangladesh Acad. Sci., Vol. 41, No. 2, 127-135, 2017

MOLECULAR IDENTIFICATION OF AHPND POSITIVE VIBRIO PARAHAEMOLYTICUS CAUSING AN OUTBREAK IN SOUTH-WEST SHRIMP FARMING REGIONS OF BANGLADESH

• Intimation to Competent Authority, for issuing alerts





Mass awareness program in North 24 Parganas, West Bengal



National Database on Aquatic Animal Diseases



Home	Collaborating Centers	Research Group	States Covered	Gallery	Events	Download	Login	
Doumloo	4					BASE LINE	DATA OF TH	IE FARM
Downloa	a			Date : *			- Y	
				State : *			10	
SPAAD Ap	plication User Manual			District : *			5	
				Block : *			0	
ormat for Ba	aseline Information of the Farm			Village : *			×.	
ormat for Bi	ological Sample Collection- Fi	nfish	\rightarrow	Contact d	etails ·			
ormat for Bi	ological Sample Collection- Cr	rustaceans		Name of the f	2 2 3 4 C 1 C 2 C 2 C 2 C			
	0			100000000000000000000000000000000000000	50990030		2	
ormat for Bi	ological Sample Collection- Me	olluscs		The farm has l	been operation	nal since (year) :		
ormat for C	ollection of Information from Di	sease Outbreak- Finfish		Owner of the	farm :		0	
				Contact perso	n name : *		85 67	
ormat for Co	ollection of Information from Di	sease Outbreak- Crusta	ceans	Village :			0	
ormat for C	ollection of Information from Di	sease Outbreak- Mollus	cs	Block :				
				Pin code :				
				Phone No:			6	
				GPS Coor	dinates :		20	
				Latitude :				
				Longitude :			6	
				Details of	the farm			
NSI	PAAD LOGIN PAI	NEL		Ownership of	the farm :			ned Community te farm None
Malan	T. 107 04 1 01 01			If leased :			From:	To:
	ne To NSPAAD! Please enter your and to sign in ame	user name and		Type of farm	:*			ckishwater □ Cold wa riculture
41	nter Your Username/Ema	il Id						and 1

Password

4 Enter Your Password

LOGIN 🛛 Remember me

Owned Community Leased
 State farm None
 From: To:
 Brackishwater Cold water Freshwater
 Mariculture

Pradeep Mandal farm, Balasore, Odisha

Quarterly Aquatic Animal Disease (QAAD) Reporting

- Significant improvement in QAAD reporting
- Reporting on basis of level III diagnosis
- NSPAAD highlighted internationally in QAAD report by OIE/NACA/FAO

(<u>1494556312_quarterly-aquatic-animal-disease-report-</u> october-december-2016.pdf)

Country: INDIA*	Period: January - March 2019					
hen	1	Dame new V		Industry		
DENKAMEN PREVALENT IN THE RELACING		Munde	Land of Augustin	al companies		
FENERAL DISLANCE	Amany February		March		sambers.	
CRE-Bated diseases		11.000				
1. Induction with optimistic feature-prints decriment within	9090	(89.81	1000			
2. Bellection with influenza harmatopolaria; nacrossis virus	0006	(8.68)	1006			
3 Industries with spring comma of carp circu	10000	083080	0000			
4. Medications with virol Neumannfangic apprimenting virus	44466	(99.80	10.04			
3. Bellicities with Aphanempton revailant (TX3)		-	-			
6. Bellacione with real ace became indevinue	(2018)	(2018)	(2018)			
7. Indications with loss foregrows inter-	0.000	1000	(818)			
Nue OIE-Interd diseases						
8. Grouper anderstal disease		(AAA)	0.00			
8. Youl morphologothy and retimpolity	4					
10. Entoric sugricuments of cattlah	000	0000	(818)			
11. Cap silow ross ilunan						
12 Tillapia Ialor vituai (Till.V)			. 9O	88	1	
MULLENC DESEARES						
OEE-Board allocation						
t. Inflation with Rosenty entropy	04830	1686	08480			
2 lokation with Perkinson offen	- 40	-43	101	8.30		
3. Jalkation with abaiena harpeninas	10000	10000	10101			
4. Inductions with Roscillation's californianis	0000	1000	00480			
5. Inflation with Reports correct	080	0000	(818)			
Non-OR-British diseases						
6. Infection with Mercellular chargements	1889	00981	0000			
7. Acata virid recensis (in teallings)	UREN!	(BAR)	18180			
CREWT &CEAN DISEASES		1.000				
Off-finited discusses						
1. Indiactions with Yanta conditioner values	0007	8005	00486			
2. Bollaction with white spot totaltonae caroo	100	211		88	. 3	
3. Induction with police head citize generates i	00840	(000	(848)			
4. Infection with influences hypodermal and hastanopoints	-	100			4	



tem		Disease status #	3	Level of	Epidemiological
DISEASES PREVALENT IN THE REGION	Month			diagnosis	comment numbers
FINFISH DISEASES	January	February	March	0.000	numbers
OIE-listed diseases	0000	0.650	manah		
1. Epizootic haematopoietic necrosis	0000	0000	0000	-	12
2. Infectious haematopoietic nectosis	0000	0000	0000		
3. Spring viraemia of carp	0000	0000	0000	V	38
 Viral hæmorrhagic septicaemia 	0000	0000	0000		
5. Epizootic ulcerative syndrome	S - 55	1 to 1	i i ti	24	2.5
6. Red seabream iridoviral disease	0000	0000	0000		12
7. Koi herpesvirus disease	0000	0000	0000		
MOLLUSC DISEASES					
OIE-listed diseases					
1. Infection with Bonamia exitiosa	0000	0000	0000		
2. Infection with Perkinsus olseni	-	-	-		
3. Infection with abalone herpes-like virus	0000	0000	0000		
4. Infection with Xenohalioris californiensis	0000	0000	0000		
Non OIE-listed diseases					
5. Infection with Marteilioides changmaensis	0000	0000	0000		
6. Acute viral necrosis (in scallops)	0000	0000	0000		
7. Akoya oyster disease	0000	0000	0000		
CRUSTA CEAN DISEASES					
OIE-listed diseases					
1. Taura syndrome	0000	0000	0000		
2. White spot disease	+()	+()	+()	I	1,2
3. Yellowhead disease	***	•••	***		
4. Infectious hypodermal and haematopoietic necrosis	•••	•••	•••		
5. Infectious myonecrosis	0000	0000	0000		
6.White tail disease (MrNV)	-	-	-		
7. Necrotising hepatopancreatitis	0000	0000	0000		

Impacts of National Surveillance Programme

- A strong network of Aquatic Animal Health Laboratories
- Strengthening of passive disease surveillance in the country
- Diagnostic capability for OIE/NACA listed/emerging diseases
- Detection of several new pathogens
- System for alerts and advisories to stakeholders
- Transparent disease reporting
- Publications in peer reviewed journals



Team NSPAAD

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