

**NATIONAL RESIDUE CONTROL PLAN OF INDIA FOR
AQUACULTURE PRODUCTS – 2011**

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NATIONAL RESIDUE CONTROL PLAN, (NRCP) OF INDIA **FOR AQUACULTURE PRODUCTS – 2011**

1. Introduction

The major concern all over the world for food and feed products of animal origin including aquaculture products is the presence of residues of veterinary medicinal products, feed additives and environmental contaminants. Specifications of a residue control programme are determined by the importance of the various health risks that could be incurred by consumers of products derived from animal food products. Govt. of India is committed to ensure safe seafood for domestic and overseas market. Keeping the above in view, the National Residue Monitoring Plan(NRCP) for monitoring the presence of residues of Veterinary Medicinal Products(VMPs) including Antibacterial substances, substances like Dyes, Aflatoxin and environmental contaminants like Pesticides, PCBs, Heavy Metals, etc has been formulated. This will ensure an overall monitoring of the Aquaculture Products at different stages of production to guarantee safe products from farm to table.

2. Objectives of NRCP

- To establish a system for monitoring residues of Aquaculture drugs/VMPs and Environmental contaminants etc. in shrimp, scampi, fresh water fish, hatchery seed and feed samples drawn from aquaculture farms, feed mills, hatcheries and processing establishments.
- To establish a system of corrective action in the event of detection of residues/contaminants higher than the prescribed limits.
- To ensure that the aquaculture products exported from India meet the prescribed regulatory requirements of the importing countries/EU.

3. Scope of NRCP

All aquaculture farms, hatcheries, feed-mills, and processing establishments linked to and/or intended for export oriented production of aquaculture products and the testing and certifying laboratories are covered under the NRCP.

4. Implementation of NRCP

Ministry of Commerce and Industry(Govt. of India) vide notification No S.O. 1034(E) dated 9th September 2003, designated the Marine Products Export Development Authority(MPEDA) to carry out the residue monitoring on behalf of Export Inspection Council of India, the Competent authority.

5. Aquaculture in India

India ranks 17th position in world seafood exports. Marine products contribute 1.30% of India's total exports. India is the 8th largest shrimp producer and ranks 2nd largest in aquaculture production in global scenario.

The pollution free waters along the 8129 km long Indian coastline, 1.2 million hectors of brackish water area and 5.4 million hectares of fresh water area.

India's growing environmental consciousness has been an increased awareness in practice of aquaculture. In India aquaculture constitute freshwater and brackish water aquaculture. Aquaculture is practiced in 9 maritime states of India. Species-wise aquaculture production through inland (FAO - 2008) and brackish water (MPEDA Statistics 2009 - 10) aquaculture is given below.

P.monodon, *P.indicus* and *L. vannamei* are the two species cultured in brackish water. This forms the bulk of export to EU and other countries.

It may be seen from the data that Indian major carps namely catla, rohu, and mrigal are the main species which contribute major share of aquaculture production in the country, and the main crustacean species cultured in freshwater is *Macrobrachium rosenbergii* (fresh water prawn).

5.1 Freshwater aquaculture.(FAO Statistics 2008)

<i>Item / species</i>	<i>Production (M/T)</i>
<i>Fishes</i>	
Catla catla	2086692
Labeo rohita	511628
Cirrhinus mrigala	307488
Other fishes	436231
Total	3342039
<i>Crustaceans</i>	
<i>Macrobrachium rosenbergii</i>	6325

5.2 Brackish water Shrimp culture(MPEDA, 2009-10)

<i>Name of species</i>	<i>Production (M/T)</i>
<i>Penaeus monodon</i>	118087
<i>Penaeus indicus</i>	1100
<i>Litopenaeus vannamei</i>	17341
Total	136528

5.3 Details of State-wise production of brackish water shrimp & freshwater prawn (Scampi) during 2009-10

Among the maritime states, most of the aquaculture activities are concentrated in Andhra Pradesh. The other leading states in aquaculture production are West Bengal, Kerala, Orissa and Gujarat.

State	Production (M/T)				Total (M/T)
	<i>P. monodon</i>	<i>P. indicus</i>	<i>L. vannamei</i>	Scampi *	
Andhra Pradesh	51067	0	15888	516	67471
West Bengal	40740	0	0	4115	44855
Kerala	6720	1100	0	459	8279
Tamil Nadu	2396	0	213	127	2736
Orissa	6426	0	0	851	7277
Gujarat	6942	0	789	0	7731
Karnataka	1515	0	0	0	1515
Maharashtra	2065	0	451	257	2773
Goa	216	0	0	0	216
Total	118087	1100	17341	6325	142853

(* Scampi: FAO 2008)

6. Export of fish and fishery products to EU

India's export to EU during 2009-10 is mainly consisted of crustaceans, cephalopods and marine fin-fishes. The share of EU in Indian export is 25.74% by volume and 33.29% in terms of value in US Dollar.

During the year (2009-10), export to EU countries showed an increase of 6.21% in quantity compared to 2008-09.

6.1 Item-wise export of marine products to EU during 2009-10:

Item wise export of Marine Products to EU during 2009-10		
Item Name	Qty (M/T)	US \$ (Mln)
Frozen Shrimp	58601	342.18
Frozen Fish	10794	31.35
Fr Cuttle Fish	40323	139.42
Fr Squid	35932	77.86
Dried Item	290	1.84
Live Items	4	0.19
Chilled Items	1147	7.34
Others	17708	37.22
Total	164800	637.40

6.2 Export of aquaculture products to European Union

Our export of cultured shrimp, *Penaeus monodon*, *P. indicus*, *L. vannamei* etc to EU in 2009-10 was to the tune of 20543 M/T valued at US \$ 146.24

Million. There was an increase of 47% by quantity and 54% in terms of value compared to year 2008 - 09.

The quantity of Scampi (*Macrobrachium rosenbergii*) exported to EU was only 2076 MT during the year 2009-10.

However, out of the total production of 2.93 million tones of fresh water fin fishes, the export to European Union was only a negligible quantity of 495 tons.

6.3 Export of aquaculture products to European Union (2009- 10)

Species	Quantity (M/T)	Value (US \$ million)
Cultured Shrimp (which includes P.monodon, P.indicus & L. vannamei)	20543	146.24
Scampi (Fresh water Prawn) M. rosenbergii	2076	22.78
Freshwater fishes	495	1.53
Total	23115	170.55

7. Residue monitoring in India.

There are 415 land based seafood-processing establishments in India. Of which, 236 establishments have been approved for processing of fish and fishery products to EU. In addition 31 independent cold storages are also approved for storage of fish and fishery products for export to EU.

Implementation of the Hazard Analysis and Critical Control Point (HACCP) system has been made mandatory for all seafood processing units in India. The HACCP implementation is being audited by Inter Departmental Panel (IDP) consisting of officials from MPEDA, Export Inspection Agency (EIA) and Central Institute of Fisheries Technology (CIFT).

The residue control plan for aqua cultured animal is implemented since 1998 in India so as to comply with EU Directive 96/23/EC to ensure the safety of the fishery products exported to member states of European Union.

As of now substances like Chloramphenicol, Nitrofurans, Tetracyclines, Sulphadiazine, Stilbenes, Steroids, Anthelmintics, Mycotoxins, Organo-chlorine Pesticides, PCBs, Heavy Metals and Dyes are tested under the NRCP.

Since implementation of the NRCP, three FVO missions visited India for assessment of the residue control measures.

- ◆ FVO mission 14-22nd Oct.2003: in order to evaluate the control of residues in live animals and animal products..
- ◆ FVO mission 13rd - 22nd Sept 2006, covering the evaluation of the control of residues and contaminants in live animals and animal products, including controls on Veterinary medicinal products.
- ◆ FVO mission 16th to 24th September 2009 in order to evaluate the control of residues and contaminants in live animals and animal products, including controls on veterinary medicinal products.

Follow up actions have been taken on various recommendations made by the FVO mission that visited India during 2009 as follows :

- ♦ All the relevant substance groups listed in annex II to council Directive 96/23/EC which are applicable to aquaculture products (crustaceans and fresh water fishes) were analyzed under 2010.
- ♦ The sampling strategy for aquacultured crustaceans and fin-fishes to be analyzed during 2010 were prepared on the basis of production/number of registered farms/total through put in export approved establishments, as applicable.
- ♦ The Department of Animal Husbandry and Fisheries and Ministry of Agriculture have been requested by the CA for incorporating the requirements on sampling necessitated by the FVO Mission observations.
- ♦ The sampling and testing procedures for pre harvest testing have been streamlined.
- ♦ The validation/re-validation of test methods as per commission decision 2002/657/EC were done.

8. Organizations associated with the implementation of NRCP:

8.1 The Export Inspection Council of India (EIC), the Central Competent Authority (CCA) for export of fish and fishery products, set up under section 3 of the Export (Quality Control and Inspection) Act 1963, in order to ensure development of export trade of India through Quality Control and Inspection and for matters concerned.

8.2 Registration of Farms

As per the provision made in S.O. 497 (E) dated 10th March 2011, CA shall authorize / designate / recognize any authority to undertake the registration of farms

8.3 Marine Products Export Development Authority (MPEDA)

A statutory body under the Ministry of Commerce & Industry constituted to promote production and export of marine products. The functions are:

- ♦ Registration of exporters / processing plants / storage premises / fishing vessels.
- ♦ Promotion of export of Indian marine products to international markets
- ♦ Implementation of development schemes for infrastructure facilities, quality upgradation and modernization of seafood industry.
- ♦ Implementation of NRCP as per EU Directive 96/23/EC.
- ♦ Registration/approval of farms/hatcheries/feed-mills intended for export linked production in order to ensure the code of practices for production of quality shrimp/seeds/feed.
- ♦ Promotes and advises farmers to adopt good management practices and sustainable Aquaculture.
- ♦ Fixation of standards for aquaculture inputs.

8.3.1 MPEDA LABORATORIES

The MPEDA has 4(four) Quality Control Laboratories (Kochi, Bhimavaram, Nellore & Bhubaneswar. Three of them (Kochi, Bhimavaram & Nellore) are involved in monitoring of residues in aquaculture products as per EU Directive 96/23/EC.

8.3.2 MPEDA Quality Control Laboratory, Kochi(Cochin)

The Marine Products Export Development Authority (MPEDA), Ministry of Commerce and Industry, Government of India, MPEDA House, Panampilly Avenue, Cochin – 682 036, Karalla, India. (Tel.91-484-2311979, 2311803, 2311854 Fax.91-484-2313361, E-mail: mpeda@mpeda.nic.in; web-site: <http://www.mpeda.com>

8.3.3 MPEDA Quality Control Laboratory, Bhimavaram

The Marine Products Export Development Authority, Pattabhi Plaza, 2nd floor, 27/1/6, Juvalpuram Road, Bhimavaram-534 202, West Godavari Dist. Andhra Pradesh, Tel: 91-08816-226410 E-mail: mpedalab@dataone.in

8.3.4 MPEDA Quality Control Laboratory, Nellore

The Marine Products Export Development Authority, D.No.26-1766/A-1, Srinagar colony, Mini Bypass Road, Nellore- 524 003, Andhra Pradesh. Tel: 91-08612319144, 2319344 E-mail: gclab_nlr@dataone.in

8.3.5 MPEDA Quality Control Laboratory, Bhubaneswar

The MPEDA Quality Control Laboratory(4th one) at Bhubaneswar, operated on management contract basis by an NABL accredited and EIC approved private laboratory. The Laboratory is engaged in the analysis of samples from aqua farms and seafood processing establishments for banned substances like Nitrofurans and Chloramphenicol.

8.3.6 MPEDA ELISA Screening Laboratories.

16 ELISA Screening Laboratories have been set up in the maritime states of India for screening of aquaculture produce for banned antibiotics residues under the Pre harvest testing programme. Under this all aquaculture produce are tested prior to harvest. Exporters /processors have to purchase only pre harvest tested and certified material for export processing.

Locations of the ELISA Screening Laboratories:

State	No.of Labs	Locations
Kerala	1	Payannur
Karnataka	1	Kumta

Tamil Nadu	1	Nagapattinam
Andhra Pradesh	6	Nellore, Ongole, Bapatla, Bhimavaram, Amalapuram, Kakinada
West Bengal	3	Contai, Haroa, Kharibari
Orissa	2	Paradeep, Balasore
Maharashtra	1	Palghar
Gujarat	1	Valsad

8.3.7 Level of competence of the laboratories involved in residue monitoring.

The MPEDA, Quality Control Laboratory at Kochi (established in 1976) to ensure that the products exported from India meet the international standards. At its inception, apart from testing for microbiological parameters such as TPC, Coliform, Staphylococcus aureus, Salmonella, Vibrio cholerae in seafoods, the laboratory was monitoring heavy metals like mercury, cadmium and pesticide residues in shrimp, water, etc.

The MPEDA QC Laboratories at Kochi, Bhimavaram and Nellore are accredited under ISO 17025: 2005 for testing of chemical residues by the National Accreditation Board for Testing and Calibration Laboratories (NABL), a member of the International Laboratory Accreditation Co-operation (ILAC). The MPEDA laboratory at Bhimavaram is approved by the EIC for testing of fish and fishery products (commercial samples). All the three Laboratories are ISO 9001:2008 certified also.

The laboratories are equipped with sophisticated equipments like Ultra Performance Liquid Chromatography Tandem Mass Spectrometer (UPLC MS MS), High performance Liquid Chromatography Tandem Mass Spectrometer (LC MS MS), Inductively Coupled Plasma – Optical Emission Spectroscopy (ICP-OES), High Performance Liquid Chromatograph (HPLC), Gas Chromatograph (GC), Gas Chromatograph-Mass Spectrometer (GC-MS), Atomic Absorption Spectrophotometer (AAS), Microwave Digestor and ELISA Reader.

At present all the laboratories carry out analysis for: (1) Anti microbial/bacterial substances like Tetracycline/Oxy-tetracycline, Sulphadiazine, & Oxolinic acid. (2) Organo-chlorine pesticides such as BHCs (α , β & γ), Aldrin, DDTs, Dieldrin, Endrin, Heptachlor, Chlordane, HCB, etc and (3) Heavy metals such as Mercury, Cadmium, Arsenic, Copper, Lead, Nickel, Zinc, Chromium and (4) Steroids (Progesterone, Oestradiol, (5) Stilbenes (Diethyl Stilbestrol), (6) Anthelmintics (Ivermectin) and (7) Dyes (Malachite Green & Leuco Malachite Green) and banned antibiotics like Nitrofurans and Chloramphenicol. Testing of samples for residues of Nitroimidazoles (A6) and PCBs (B3a) are done in other EIC approved laboratories.

8.3.8 Participation in PT programmes:

All the laboratories (Kochi, Nellore & Bhimavaram) participate regularly in Proficiency Testing programmes conducted by international PT providers to prove the competency in testing of various parameters under the scope of accreditation. During the year 2009 and 2010, the laboratories have participated in Proficiency Testing Programme in Organochlorine pesticides (OCP), Quinolones (Oxolinic Acid/Nalidixic Acid) and Nitrofurans metabolites (organized by FAPAS Central Science Laboratory, UK, with satisfactory 'z' scores. organized by Food Analysis Performance Assessment Scheme (FAPAS).

8.3.9 Monitoring of Pesticide Residues at National level (MPRNL):

The Lab at Cochin is a participating laboratory in the Central Sector Scheme "Monitoring of Pesticides Residues at National level(MPRNL) sponsored by the Department of Agriculture and Co-operation (DAC), Ministry of Agriculture, Government of India.

9. Group of residues covered under NRCP 2011:

The National Residue Control Plan - 2011 will cover the following:
(ref: Annexure I and II of Council Directive 96/23/EC).

Group A – Substances having anabolic effect and unauthorized substances.

- Stilbenes, Stilbene derivatives and their salts and esters – Diethyl stilbesterol
- Steroids – Estradiol
- Compounds included in Annex IV to Council Regulation (EEC) No.2377/90 - Chloramphenicol, Nitrofurans and Nitroimidazoles.

Group B - Veterinary drugs and Environmental contaminants.

- Antibacterial substances, including sulphonamides, Quinolones – Tetracycline / Oxytetracycline, Sulphadiazine, Oxolinic acid, Nalidixic acid
- Other Veterinary drugs: Anthelmintics (Ivermectin/Emamectin)
- Environmental contaminants:
 - Organo-chlorine compounds including DDT, BHC Isomers, Aldrin, Dieldrin, Heptachlor, Chlordane, Endrine, HCB and PCBs.
 - Chemical Elements –Hg, Cd, As, Pb
- Mycotoxin – Aflatoxin B1 & B2
- Dyes –Malachite green & Leuco-malachite green

10. Sampling

10.1 Sampling procedure

Samples are taken in accordance with chapter 3 (1) of annexure IV to Council Directive 96/23/EC. Accordingly Shrimp samples are collected by the designated Residue Monitoring Officers of MPEDA from the farms registered and approved by the designated authority.

Sampling at farm level are in such a way that at least 10% of registered sites of production is covered in the yearly plan. There shall not be excess drawing of

samples from one unit or farm in order to ensure that maximum number of farms are covered.

Samples are collected at variable intervals spread over the whole year depending on the culture period / harvest season / availability from farms, fish processing plants and hatcheries, which varies from region to region in India.

The NRCP has been made on-line. Definite sampling strategy, target/schedule and no. of samples under different substance groups have been assigned to all the regional centers/offices of MPEDA.

The collection of sample are unforeseen, unexpected and effected at no fixed time and on no particular day of the week and the sample collection is done as per the guidelines on sample acceptance criteria.

The number of samples to be collected from the processing plants is based on the production capacity and/or actual production. Multiple samples are collected from plants on the same day, provided the farms from where the processing plant has purchased the raw material are different, not exceeding two in a day.

The farms reported with residue positive cases and processing plants reported with rejections are subjected to frequent sampling for a period of at least one year.

In the case of farm samples, the farmer or his representative sign the original sampling report which is kept in the field offices to guarantee that unauthorized persons cannot access the original report.

10.2 Personnel responsible for collection of samples

MPEDA has two or more field offices (Regional/Sub-regional Offices/Centres) in each maritime state of India where aquaculture is carried out. The Residue Monitoring Officers of MPEDA field offices (who are designated for sample collection and other field/follow up activities related to NRCP) at different regions visit the farms, hatcheries and feed mixing plants and collect the targeted samples as per the pre-planned schedule from one or more sites and forward the same to the laboratories of MPEDA at Cochin, Nellore and Bhimavaram.

Similarly, they visit the processing plants without prior intimation and draw samples. The sampling official records the nature, source, the date and place of sampling and other relevant information. A signed copy of the sample format accompanies each sample to the designated laboratory.

10.3 No. of samples for NRCP 2011

1. Shrimps (*Penaeus monodon*, *Penaeus indicus*, *Litopenaeus vannamei*, etc)

The annual production of the Shrimp during the previous year was 136523 M/T. As per the sampling ratio of 1:100, the total number of the samples to be analyzed works out to only 1365. Based on the number of farms registered with CAA as 20771 (as on Nov 2010), the number of samples to be drawn and analysed works out to 2077 (ie; 10% of registered sites of production). However, the number of samples to be drawn and analysed under NRCP is decided as **2285**.

2. Scampi (*M. rosenbergii*)

The scampi samples to be taken based on the production figure of 6325 MT works out to only 64 (1:100). However, to analyse the samples from different regions for all relevant substances/parameters, the number of Scampi samples for NRCP 2011 is fixed as 73.

3. Fresh water Fishes

Based on the total throughput in the export approved establishments, the number of samples has been fixed as at least one sample per every 20 M/T of the throughput. Accordingly 51 fish samples (for 950 MT) will be analyzed for different parameters. The total production of fresh water fishes during the year 2008 was 3.34 million tones.

4. Feed:

In India there are 27 registered feed mills. It is proposed to monitor all of the registered feed-mills and the number of samples to be analysed has been decided as 27.

5. Hatchery Samples:

Since there are 161 nos of Hatcheries registered with MPEDA. It is proposed to all the registered hatcheries and the number of samples to be analysed under NRCP 2011 has been fixed as 162

10.4 Number of Samples to be analysed under NRCP 2011 :

Type of sample	No. of farms registered	Aqua-culture Production (M/T)	Total throughput of EU approved processing plants	No. of regd. hatcheries & feed mills	No. of samples to be analysed	Criteria for sampling/sample no.
<i>P. monodon</i> , <i>P. indicus</i> & <i>L. vannamei</i>	20,771	--	-	-	2285	Covering atleast 11% of the regd. sites of production
<i>M. rosenbergi</i>	-	6,568	-	-	73	1 sample per every 90 tonnes of production (1:90)
Freshwater fishes	-	-	950	-	51	based on the total throughput in the export approved establishments
TOTAL					2409	
Hatchery & Feed Samples						
Hatchery Seed	-	-	-	161	162	At least 1 sample from each registered hatchery.
Feed from feed-mills	-	-	-	27	27	1 sample from each registered feed-mill.
TOTAL					2598	

Altogether 2598 samples covering shrimp, scampi, freshwater fish, feed and hatchery are proposed to be collected and analyzed during the NRCP 2011.

10.5.1 Sampling Strategy:

- (i) for Shrimps (*P.monodon*, *P. indicus*, *L.vannamei*, etc) : based on the quantity of production in registered farms and samples from/covering at least 11% of the registered sites of production and
- (i) for Scampi (*M. rosenbergi*) - At least one sample per every 100 M/T of production.
- (ii) for fin-fishes : based on throughput in the approved export establishments (approved for export to EU) - at least one sample per every 20 M/T of production.
- (iii) In case of feed and hatchery samples : sample is collected on the basis of at least one sample from all the registered hatcheries & feed-mills.
- (iv) 5% of the samples under NRCP 2011 for aquaculture products shall be drawn jointly by the CA and MPEDA as per the guarantee given by CA to the EC. These samples shall be tested in the EIA Labs.

10.5.2 The objective of this monitoring is to:

1. Detect all illegal treatment (reference Directive 96/23/EC) of Veterinary drugs fixed in Annex I and III of Council Regulation and maximum levels of pesticides in Annex II of Council Directive 86/363/EEC or National regulations on environmental contaminants.
2. Ensure compliance with the MRL for residues (Council Regulation 2377/90/EC).
3. Surveying and tracing out the reasons for residues in animal food.
4. To achieve these objectives, sampling will be carried out randomly spread over the whole year from hatcheries, aquaculture farms and processing plants.

10.6 Type of samples to be collected and break up of samples for Group A & B Substances

Type of Sample	Number of samples to be tested	Break up of samples proposed to be tested				
		Group A substances			Group B substances	
		Farms	Hatchery	Factories/ Feed mills	Farms	Factories
Shrimp	2285	767		-	768	750
Scampi	73	25	-	-	25	23
Fish	51	17	-	-	16	18
TOTAL	2409	809	--	--	809	791
Feed	27	-	-	27	-	-
Samples from Hatchery		-	162	-	-	-
GRAND TOTAL	2598	809	162	27	809	791

10.7 Break up of samples for analysis of Group A substances

The samples are collected from the hatcheries, farms and feed mills. From hatcheries it is proposed to collect juveniles up to PL 20 (post larva 20 days

growth) from rearing tanks and brood stock tanks. The number of samples at different levels will be as follows:

Species	No. of samples proposed	Stilbenes	Steroids	*NF & CAP
Cultured shrimp	767	-	-	767
Scampi	25	-	-	25
Fish	17	5	5	7
	809	5	5	799
Hatchery sample	162	-	-	162
Feed	27	-	-	27
Grand Total	998	5	5	988

10.8 Break up of samples for Analysis of Group B substances.

Species	No. of samples	No. of samples						
		Samples taken from	Anthelmintics	Antibiotics	Pesticides	Chemical elements	Mycotoxin	Dyes
Cultured shrimp	1518	From farms	154	394	68	76	24	54
		From Proc. plants	158	366	80	74	26	44
Cultured fresh water prawn (scampi)	48	From farms	4	14	3	3	1	2
		From Proc. plants	5	10	2	2	1	1
Cultured fresh water fish	34	From farms	6	15	2	2	2	2
		From Proc. plants	1	2	1	0	0	1
Total	1600	--	328	801	156	157	54	104

10.9 e-NRCP

The NRCP has been made on-line from August 2008 onwards. The data related to collection and forwarding of samples by field offices, issue of job orders to the analysts, dispatch of test reports etc are done electronically.

All test reports/results are generated on-line (automatic transmission) on entering of the analytical results by each MPEDA Lab. Separate alert notice/information on non-compliant samples/results are also generated on-line and received by the concerned field centers/offices immediately on posting of the test results.

10.10 Collection and transportation of samples

Approximately 500gms of samples (whole prawns / fish) are taken from aquaculture farms and processing plants so as to get 250 gms of meat for analysis in duplicate. Samples from hatchery, 20 to 30 gms of juveniles (excluding water) are collected from the larval and post-larval rearing tanks in polythene bags, sealed and transported in thermocole box packed with dried/ wet ice. In case of feed, 500 gms of feed samples are taken from farms and feed mills.

Shrimp / fish samples collected in polythene bags and covered in aluminum foil, affixed with code numbers, to maintain sample integrity and traceability. The container / packing must be officially sealed and packed in thermocole boxes are dispatched along with the sampling report, with sufficient dry ice in the case of long duration transport and with wet ice in the case of short distance transport.

Feed samples are taken in polythene bags. The samples are forwarded to the concerned laboratories within 3 days of its collection so as to reach MPEDA Laboratories within 30 hours (transit time) of its dispatch.

Instructions issued to the field offices of MPEDA on sample collection, packing & transportation and follow-up action to be taken on residue positive samples. (*Annexure-V*)

10.11 Handling of sample in the Laboratory

Immediately on receipt, the sample is decoded and divided into two equal portions and stored in deep freezer. One portion is used for the analysis, while the remaining portion is retained in the deep freezer.

The samples are analyzed by the respective laboratories at the earliest not more than 20 days from the receipt of the samples. If the initial test shows positive, the remaining sample will be used for confirmatory tests. The samples are disposed only on completion of 60 days after analysis. The test reports are sent to the Field Offices electronically.

11.1 Alert information & communication of results

- (i) In the case of positive test results alert information is sent to the field offices electronically by the laboratories of MPEDA with a copy to CA. The field offices communicate the results to the concerned farmer and conduct an immediate inspection of the farm / hatchery / processing plant to trace the origin/source of contamination. The results are also communicated to the field officers of the EIA of concerned region. The field offices during inspection collect follow up samples from the same premises for the further analysis. If the is found positive on repeated analysis the defaulting unit will be issued show cause notice.

- (ii) The results of non-compliant samples are sent on-line to the competent authority also for follow up actions.
- (ii) In the case of residue violations, the competent authority takes action as deemed fit.
- (iii) A monthly summary of the samples drawn, tested and results (including positive and negative) are communicated to the Competent Authority every month.

11.2 Spot checks for unauthorized substances

MPEDA collect samples from hatcheries, shrimp/scampi/fish farms, processing plants and feed mills for testing of residues.

11.3. Measures taken in the event of infringement:

Actions/follow-up actions taken by MPEDA on non-compliant test results under NRCP:

- (i) Separate alert notice/information on non-compliant samples/results are also generated on-line and received by the concerned field centers/offices immediately on posting of the test results.
- (ii) The alert notice/information on non-compliant samples/results shall be transmitted on-line to the EIAs and EIC also.
- (iii) Repeat samples are also drawn from farms/hatcheries and other establishments from where residue violations are reported. As per standing instructions, MPEDA field offices investigate/enquire about the cause/source of contamination and draw follow-up samples (where available) for further analysis.
- (iv) The farms reported with non-compliant results are subjected to more stringent checks for a period of at least twelve months.
- (v) The results of the non-compliant samples are informed to the regional office of export inspection agency(EIA), EIC(Competent Authority).

12. MRLs for Group A and Group B substances covering veterinary drugs and contaminants.

Group of substances	Substance group	Actual substance	MRL
Group A (1)	Stilbenes and its derivatives	Diethyl Stilbestrol	Nil
A (3)	Steroids	Progesteron / Estradiol	Nil
A (6)	Compounds included in Council Regulation No.37/2010.	Chloramphenicol	Nil (MRPL-0.3ppb)
		Nitrofurantol Metabolites	Nil (MRPL-1.0ppb)
		Nitroimidazoles	Nil (MRPL-1.0ppb)
Group: B (1)	Veterinary drugs and contaminants <u>Antibacterial substances</u> Quinolones	Oxolinic acid	100 ppb
	Tetracyclines	Tetracycline Oxytetracycline Chlortetracycline	100 ppb
	Sulfonamides	Sulfadiazine	100 ppb
Group B-2(a)	Anthelmintics	Ivermectin	Nil
Group B-3(a)	Other substances & environmental contaminants (i) Organochlorine compounds	α BHC	0.20 ppm
		β BHC	0.10 ppm
		γ BHC	0.02 ppm
		Aldrin	0.20 ppm
		DDT	1.00 ppm
		Dieldrin	0.20 ppm
		Endrin	0.05 ppm
		Heptachlor	0.20 ppm
		HCB	0.20 ppm
		Chlordane	0.05 ppm
	(ii)PCBs & DL PCBs	PCBs: 8 compounds and DL PCBs: 12 compounds.	0.008 ppb
Group B-3(c)	Chemical Elements	Mercury	0.50 ppm
		Cadmium	0.50 ppm
		Arsenic	1.0 ppm
		Lead	0.50 ppm
Group B-3(d)	Mycotoxins *	Aflatoxin B1& B2	Nil *
Group B-3(e)	Dyes	Malachite green Leuco-malachite green	Nil (MRPL 2.0 ppb)

* Since there is no EU MRL fixed for Mycotoxin in aquaculture products, the MRL of 15 ppb applicable in case of nuts and cereals is considered as the MRL for analyzing the aquaculture samples.

13. Details of Analytical methods

Unless otherwise mentioned elsewhere the methods described in the Manual/Journal of Association of Official Analytical Chemists and methodology followed in the EU community Referral Lab (CRLS) are followed using the equipments mentioned against the substances as given below.

13.1 Group A – substances having anabolic effect and unauthorized substances

Group as per Directive	Residue	Method	Equipment
Group A.1	Stilbenes, Stilbene derivatives and their salts and esters	Immuno Assay	ELISA Reader with test kits
Group A.3	Steroids	Immuno Assay	ELISA reader with Test Kits
Group A.6	Chloramphenicol, Nitrofurans Metabolites and Nitroimidazoles	Liquid Chromatography Mass Spectrometry	LC MS MS / UPLC MS MS

13.2 Group B -Antibacterial substances, Pesticides and Chemical elements.

Group as per Directive	Residue	Method	Equipment
Group B.1	Tetracyclines, Quinolones and Sulphonamides	Premi Test/ Liquid Chromatography	High Performance Liquid Chromatograph with P DA /Fluorescence detector
Group B.2(a)	Anthelmintics-Ivermectin	Immuno Assay	ELISA reader with Test Kits
PGroup B.3(a)	Organochlorine compounds	Gas Chromatography	Gas Chromatograph with ECD
	PCBs & DL PCBs	Gas Chromatography/ Mass Spectrometry	GC-MSMS / GC-HRMS
Group B.3(c)	Chemical elements	Atomic Absorption/Emission Spectrophotometry	AAS/ ICP -OES
Group B.3(d)	Mycotoxin - Aflatoxin	Liquid Chromatography	High Performance Liquid Chromatograph with Fluorescence Detector.
Group B.3(e)	Dyes	Liquid Chromatography Mass Spectrometry	LC-MS MS

14. Information on Legislation

- (i) Vide Order No S. O.792(E) dtd.17/08/2001 and SO/722(E) dated 10/07/2002, the Ministry of Commerce and Industry (M o C & I), Govt. of India, has issued two notifications (1) Fixing residual limits of antibiotics, pesticides and heavy metals relating to fresh, frozen and processed fish and fishery products and (2) Prohibiting the use of antibiotic residues like nitrofurans, chloramphenicol, and pharmacologically active substances. The above two notifications specify the limit for various antibiotics, pesticides and heavy metal residues in seafood products.
- (ii) Further, vide order dated 23rd October 2003, MOCI issued a notification prohibiting the use of unauthorized substances in the culture of, or in any hatchery for producing the juveniles or larvae or nauplii or any unit of manufacturing feed or in any unit processing shrimp, scampi or any variety of fish. MoCI Notification dated 24.4.2003 regarding MRL for Dioxins in fish and fishery products.
- (iii) Min. of Health & Family Welfare (Dept. of Health) notification dt.29th September 2003 has amended the prevention of food adulteration rules (PFA Act.) and prohibited the use of the substances to ensure that the prohibited drugs are not sold by Drug Stores to manufacturers of aquaculture field or to seafood processing unit or to Aquaculture farmers or to shrimp hatchery owners.
- (iv) Vide circular No. F 15-33/2003 – DC dated. 13th Jan 04, the Drug controller of India has advised all the State Drug controllers to keep a strict check against the sale of antibiotics and pharmacologically active substances that are banned for use in seafood industry at hatchery, farm, processing plants, etc.
- (v) Govt of India - Ministry of Health and Family Welfare, vide notification no. GSR 911(E) dated 12.11.2010 has specified the withdrawal period for veterinary medicines in fish meat as 500 degree days.
- (vi) Government of India - Ministry of Commerce and Industry, notification no. SO 497(E) dated 10.3.2011 amending the principal notification no. SO 730(E) dated 21.8/1085 under section 17 of the export (Quality Control & Inspection Act 1963) stipulates the rules for registration/approval and functioning of the aquaculture farms, processing plants, hatcheries, feed mills etc intended for export linked productions.

15. Non-compliant Results (cases) of NRCP 2010:

15.1 Group Substances:

Under NRCP 2010, against the target/plan for 1981 samples, a total of 2017 samples were analyzed for different substances under group-A and group-B, The

total non-compliant cases were found as 75. However, the number of non-compliant cases in Shrimp/Scampi/Fish category was only 18 (1.21%) out of the 1482 (741 x 2) samples analyzed for NF and CAP.

The number of non-compliant cases in hatchery samples was 54 (51.92%) out of 104 samples analysed for NF & CAP. Few of the hatchery samples(repeat) were found positive in reanalysis also. Warning/show cause letters issued to the respective hatcheries.

Of the 55 Feed samples screened, 3 samples (5.55%) were found non-compliant for presence of CAP.

15.2 Group B Substances:

A total of 562 samples were analysed for Antibiotics/Antibacterial substances under Group-B and of these, 5 (0.89%) samples (4 Shrimps and 1 Fish) were detected as non-compliant due to presence of TC/OTC.

15.3. Steps taken by MPEDA to control residues in Aquaculture products :

- (i) All test reports/results are generated on-line (automatic transmission) on entering the analytical results by the concerned MPEDA Laboratory. Separate alert notice/ information on non-compliant samples/results are also generated on-line and received by the concerned field centers/offices immediately on posting of the test results. On receiving the alert information on non-compliant samples, the field offices conduct the investigation/inspection and also collect follow-up samples, where ever available.
- (ii) Apart from this, the monthly reports of NRCP-2010 are informed to Export Inspection Council of India. Monthly summary of all test results including non-compliant cases, are informed to the EIC(Competent Authority) and the Directorate General Health Service (MoH&FW, Govt. of India).
- (iii) The results of the non-compliant samples are informed to the regional offices of Export Inspection Agency(EIA) / EIC(Competent Authority).
- (iv) As was done in previous years, during the year 2010 also, the field centers of MPEDA conducted a series of awareness campaigns in the aqua farming areas of the maritime states of the country against the misuse/abuse of unauthorized drugs and chemicals. A committee constituted at Head Quarters reviewed the positive cases and follow up actions taken.

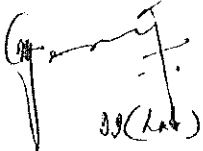
Details of antibiotic campaign / farmers meet / seminars conducted by Regional and sub-regional offices of MPEDA during 2010 by the field centers:


Centers and (Region/state)	Antibiotic awareness Campaigns (nos.)	No. of Farmers' meet
RC Valsad (Gujarat)	5	2
RC Panvel (Maharashtra)	5	1
RC Kochi (Kerala)	3	4
RC Thanjavur (Tamil Nadu)	11	1
RC Vijayawada & SRC Bhimavaram	236	2

RC Bhubaneswar (Orissa)	12	2
SRC Karwar (Karnataka)	7	1
SRC Kolkata (West Bengal)	15	1
TOTAL	294	14

Pamphlets (in vernacular languages) were distributed to the participants. Several meetings were held with hatchery operators also at different areas. A total of 294 awareness campaigns were conducted against the use of Antibiotics in Shrimp / Scampi farms which were attended by the aqua farmers in the coastal districts of maritime states.

The extension arms of MPEDA viz; NaCSA and NETFISH working at the level of primary producers like farmers / fishermen also carried out intensive programmes aiming at complete stoppage of use of antibiotics in respective areas.


V. I. George
Deputy Director (ad-)


J. PAMESH / J. PAMESH
Secretary
Marine Products Export Development Authority
Ministry of Commerce & Industry
Government of India
Panampilly Nagar / Panampilly Nagar
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Anexure I A

DATE	2011 March 11
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EU EXPORT DATA in TONNES (referring to the previous year)

Sampling levels and frequencies

[illegible]

	B2a ANTHELMINTICS	193	321	NUMBER OF SAMPLES		COMPOUND or MARKER RESIDUE	MATRIX ANALYSED	SCREENING METHOD	CONFIRMATORY METHOD	SCREENING METH. DETECTION LIMIT µg/kg	CONFIRM. METH. DETECTION LIMIT µg/kg	LEVEL OF ACTION (i.e. concentration above which a result is deemed non- compliant) µg/kg	LABORATORY
				MIN	PLAN								
B2f Other pharmacologically active subs													
GROUP OF SUBSTANCES TO BE MONITORED													
Sum of B3a + B3c + B3d + B3e		289	461										
B3a ORGANOCHLORINE COMPOUNDS INCLUDING PCBs			153										

Note	INSTRUCTIONS
1	The competent authority is requested to fill in each sheet (for the relevant commodity). Numerical data should only be included for those commodities currently being exported to the European Union (EU) or which the third country intends to export to the EU. Numerical data should be entered in those cells shaded light yellow thus: →
2	Basis of the calculation: The tables are set up to calculate the required sample numbers on the basis of Directive 96/23/EC and Commission Decision 97/747/EC. Data in cells shaded light blue are automatically calculated when the production data cell (Cell C8) is completed (see note 4 below). In the case of milk, eggs, farmed game and wild game , the minimum numbers of samples to be taken have already been entered in the blue cells and are independent of the production volumes.
3	In order to ensure that all samples are tested and to facilitate the allocation of the balance of samples between groups (as is required for several commodities), explanations are given at the foot of each individual Excel worksheet.
4	It is important that for those countries where animals and products from any farm are eligible to be exported to the EU, the proportion of animals sampled should be taken relative to the annual national production figures . [IN THIS CASE THE ANNUAL PRODUCTION DATA SHOULD BE ENTERED IN CELL C8]. For those countries where only a defined population of animals are eligible for export to the EU, and where there is a system in place guaranteeing that only those animals from those farms are eligible for export (i.e. a split system), it is permissible that the proportion of animals sampled is relative to that defined population. [IN THIS CASE THE EU EXPORT DATA ONLY SHOULD BE ENTERED IN CELL C8].
5	With regard to the selection of residues to be analysed , guidance is given on this web page and is summarised in Table 2 below. The European Community considers that certain substances are 'essential' for monitoring. These are indicated in the table as 'E' and must be monitored for . Other substances are designated as 'highly desirable – HD' and the Community expects that these substances will be included in all residue monitoring plans of third countries. However, deviations concerning HD substances may be acceptable. In this case arguments based on an analysis of the risk of residues remaining in food are to be submitted by the third country. These arguments should demonstrate that, for example, because of the production conditions in that third country it is not necessary to test for the substance. When selecting individual substances in the HD groups, third countries should consider what veterinary medicines or feed additives are authorised and used legally in the country in each of the production sectors and what contamination might occur e.g. via feed and water or directly through the environment. Consideration should also be given to the possibility of illegal or unauthorised use.
6	The reduced number of substances to be looked for in live equidae exported for direct slaughter to the EU presupposes that there is no slaughter of horses in that third country, hence the substances chosen may be looked for in body fluids (i.e. blood and urine) which can be sampled from live horses. It is stressed that if there is slaughter of horses in the third country and only live horses are exported for direct slaughter, <i>sampling should be based on the slaughtered animals</i> and take account of the wider range of substances that can be checked.

Table 2 Substances or Group of substances ⁽¹⁾ to be monitored for in the relevant commodity. E = 'essential' HD = 'highly desirable'

Animal species or food covered by the plan	→	bovine	ovine/ caprine	swine	Equine ⁽⁷⁾		poultry	aquaculture		milk	eggs	rabbit	wild game	farmed game	honey
					slaughtered	live equivalent for direct slaughter			fish	crustaceans					
Substances / groups of substances to be monitored															
A1	Stilbenes (e.g. diethylstilbestrol, hexestrol, dienestrol)	E	E	E	E		E	E				E		E	
A2	Thyrostats (e.g. thiouracil, tapazole etc)	E	E	E	E										
A3	Steroids [androgens, estrogens and (pro)gestagens] ⁽²⁰⁾	E	E	E	E	E	E	E				E		E	
A4	Resorcylic acid lactones (e.g. zeranol)	E	E	E	E	E						E		E	
A5	Beta agonists (e.g. clenbuterol, racopamine, zilpaterol, mabuterol etc)	E	E	E	E	E	E	E				E		E	
A6	Compounds included in Annex IV to Council Regulation (EEC) No 2377/90		E	E	E	E	E	E	E	E	E	E		E	E
B1	Antibacterial substances ⁽⁶¹⁾	E	E	E	E	E	E	E	E	E	E	E		E	E ⁽⁶²⁾
B2a	Anthelmintics	HD	HD	HD	HD	HD	HD	HD	HD	HD		HD		HD	
B2b	Anticoccidials	HD	HD	HD	HD	HD					HD	E		HD	
B2c	Carbamates and pyrethroids	HD	HD	HD	HD	HD						HD		HD	HD
B2d	Sedatives	HD	HD	HD	HD	HD									
B2e	Non steroidal anti-inflammatory drugs (NSAIDs) (e.g. phenylbutazone)	HD	HD	HD	E	E				HD		HD		HD	
B2f	Other pharmacologically active substances			E ⁽⁶³⁾											
B3a	Organochlorine compounds including PCBs	HD	HD	HD	HD				HD	HD		HD		HD	HD
B3b	Organophosphorus compounds	HD	HD	HD	HD					HD					HD
B3c	Chemical elements	HD	HD	HD	HD				HD	HD		HD	E	HD	HD
B3d	Mycotoxins	HD	HD	HD	HD				HD	HD					
B3e	Dyes (in particular malachite green and its major metabolite leucomalachite green)								E	E					

(1) Groups defined in Annex I of Directive 96/63/EC. Monitoring of E (essential) substances or group of substances is mandatory. Monitoring of HD (highly desirable) groups is mandatory in the Member States. Ideally a third country should also monitor these groups, however, if they are not monitored, evidence must be provided justifying this decision. A full list of substances is included on the DG SANCO third country residues web page.

[illegible][illegible]

(3) The nitrogen atoms in polyene diamineazides, azidoazides, azidoazidoazides, and azidoazidoazidoazides are

(f) Antitracheal substances should be chosen on the basis of what is authorised and used in the relevant livestock production sector. Examples include beta-lactams, sulphamides, fluoroquinolones, tetracyclines, sulphonamides, nitroimidazoles, aminoglycosides, macrolides etc. etc.

(7) The required number of substances to be looked for in live equidae exported for direct slaughter to the EU presupposes that there is no slaughter of horses in that third country. Hence the substances chosen may be looked for in body fluids (i.e. blood and urine) which can be sampled from live horses. It is stressed that if there is slaughter of horses in the third country and only live horses are exported for direct slaughter, sampling should be based on the slaughtered animals and take account of the wider range of substances that can be checked.

(3) Honey should be tested for antibacterial substances including sulphenamides, tetracyclines, tylosin and streptomycin.

(16) If carcasses or organs are autopsied in vivo, production, residue testing of tissues and/or feedstuffs should be carried out.

Instructions for using the Residues Planning Template

B2c	Carbamates and pyrethroids	HD	HD	HD	HD	HD	HD	HD	HD	HD	HD	HD	HD	HD	HD	HD
B2d	Sedatives	HD	HD	HD	HD	HD	HD	HD	HD	HD	HD	HD	HD	HD	HD	HD
B2e	Non steroidal anti-inflammatory drugs (NSAIDs) (e.g. phenylbutazone)	HD	HD	HD	HD	HD	E	E	HD	HD	HD	HD	HD	HD	HD	HD
B2f	Other pharmacologically active substances															
B3a	Organochlorine compounds including PCBs	HD	HD	HD	HD	HD	HD	HD	HD	HD	HD	HD	HD	HD	HD	HD
B3b	Organophosphorus compounds	HD	HD	HD	HD	HD	HD	HD	HD	HD	HD	HD	HD	HD	HD	HD
B3c	Chemical elements	HD	HD	HD	HD	HD	HD	HD	HD	HD	HD	HD	HD	E	HD	HD
B3d	Mycotoxins	HD	HD	HD	HD	HD	HD	HD	HD	HD	HD	HD	HD	HD	HD	HD
B3e	Dyes (in particular malachite green and its major metabolite leucomalachite green)												E	E		

(1) Groups defined in Annex I of Directive 96/23/EC. Monitoring of E (essential) substances or group of substances is mandatory. Monitoring of HD (highly desirable) groups is mandatory in the Member States. Ideally a third country should also monitor these groups, however, if they are not monitored, evidence must be provided justifying this decision. A full list of substances is included on the DG SANCO third country residues web page.

(2) Typical steroids to be monitored for include testosterone, methyl testosterone, trenbolone, nortestosterone, boldenone, scanzabiol, estradiol, progestierone, medroxyprogesterone acetate, megestrol acetate, Sugesone etc

(4) The stable metabolites/markers of the four main nitrofurans drugs (furazolidone, furazolidone, nitrofurantoin and nitrofurantoin) should be analysed. The metabolites are: Furazolidone: 2-amino-5-morpholinomethyl-2-oxazolidinone (AMCZ); Nitrofurantoin: semicarbazide (SEM); and nitrofurantoin: aminonitrofurantoin (ANF).

(5) The nitroimidazoles include dimetridazole, ronidazole, metronidazole, ipronidazole etc

(6) Anticancer substances should be chosen on the basis of what is authorised and used in the relevant livestock production sector. Examples include beta-lactams, tetracyclines, sulphonamides, fluoroquinolones, aminoglycosides, macrolides etc.

(7) The required number of substances to be looked for in live equidae exported for direct slaughter to the EU presupposes that there is no slaughter of horses in that third country, hence the substances chosen may be looked for in body fluids (i.e. blood and urine) which can be sampled from live horses. It is stressed that if there is slaughter of horses in the third country and only live horses are exported for direct slaughter, sampling should be based on the slaughtered animals and take account of the wider range of substances that can be checked.

(8) Honey should be tested for antibacterial substances including sulphonamides, tetracyclines, tylosin and streptomycin.

(9) If carmadox or diaquinox are authorised in swine production, residue testing of tissues and/or feedstuffs should be carried out.

Annex 1 B

REGULATORY PROGRAMME FOR CONTROL OF RESIDUES IN FOOD

COUNTRY	India
YEAR OF PLAN IMPLEMENTATION	2011
ANIMAL SPECIES / PRODUCT	AQUACULTURE FIN FISH
National PRODUCTION DATA - in TONNES (referring to the previous year)	945
PRODUCTION DATA in TONNES for calculation of SAMPLE NUMBERS. (referring to previous year's production)	950
NUMBER OF SAMPLES †	ACCORDING TO EU REQUIREMENTS
MINIMUM #	10
PLAN	51

For official use
9.5

DATE	2011 March 11
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EU EXPORT DATA in TONNES (referring to the previous year)	
See instruction sheet, note 4. If a split system is in place for exports to the EU, actual export data may be entered in this cell. If there is no split system, and farmed FINFISH from ALL FARMS are eligible for export to the EU, national production data must be entered in this cell. For a more detailed description of the options see hyperlink p-37	

Sampling levels
and frequencies

GROUP OF SUBSTANCES TO BE MONITORED	NUMBER OF SAMPLES		COMPOUND or MARKER RESIDUE	MATRIX ANALYSED	SCREENING METHOD	CONFIRMATORY METHOD	SCREEN.METH. DETECTION LIMIT [µg/kg]	CONFIRM.METH. DETECTION LIMIT [µg/kg]	LEVEL OF ACTION (i.e. concentration above which a result is deemed non- compliant) [µg/kg]	LABORATORY
	MIN	PLAN								
A1 STILBENES	1	5								
A3 STEROIDS (WITH ANDROGENIC, ESTROGENIC OR PROGESTAGENIC ACTIVITY)	1	5								
A6 Chloramphenicol + Nitrofurans* Nitroimidazoles CHLORAMPHENICOL NITROFURANS Nitrofurantoin metabolite Furazolidone metabolite Nitrofurazone metabolite NITROIMIDAZOLES	1	7								

B2f	Other pharmacologically active subs
-----	-------------------------------------

[illegible]

† A sample is one or more fish. The minimum number of samples to be collected each year must be at least 1 per 100 tonnes of annual production.

The following breakdown must be respected: **Group A: one third of the total samples.**

All of these samples must be taken at farm level, on fish at all stages of farming, including fish which is ready to be placed on the market for consumption.

Group B: two thirds of the total samples.

This sampling should be carried out: (a) preferably at the farm, on fish ready to be placed on the market for consumption;

(b) either at the processing plant, or at wholesale level, on fresh fish, on condition that tracing-back to the farm of origin, in the event of positive results, can be done;

In order to facilitate this breakdown and ensure that the correct number of samples are tested, the spreadsheet has made the following calculations distributing samples between each of the (sub) groups in the following way:

- Of the samples to be tested for in Groups A1, A3 and A6, one third of the total Group A samples are allocated to each of the three subgroups.

- Of the samples to be tested for Group B, 50% of these have been allocated to Group B1, 20% to Group B2 and 30% to Group B3. It is essential that dyes are tested for.

For very small production volumes (e.g. < 500 tonnes) where the spreadsheet would calculate < 1 sample per substance group, a minimum of one sample per compound group has been assigned.

NRCP 2011 - Sample Allocations

NRCP 2011 - Sample Allocations

NRCP 2011 - Sample Allocations																								
	PARAMETER	SRC Bhinavaram to Bhinavaram	RO Vizag to Bhinavaram	RO Vizag to Nellore	RC Vijayawada to Nellore	RC Vasad	RO Veraval	RO Mumbai	SRC (Aqua) Karwar	RC (Aqua) Panvel	SRC Kochi	SRC Kannur	RO Kochi	RC (Aqua) Thanjavur	RO Chennai	SRO Tuticorin	RO Kolkata	SRO Mangalore	RC (Aqua) Bhubaneswar	SRO Bhubaneswar	SRC Kolkata	SRO Quilon	Total	
CULTURED SHRIMP	PEST	21	27	26	23	2	1	1	1	1	1	0	0	6	1	3	4	1	8	14	5	2	148	
	NF	245	0	0	245	21	0	0	10	12	8	3	0	55	0	0	0	0	124	0	44	0	767	
	CAP&Nitroi	49	68	32	50	6	6	2	3	2	1	1	1	11	2	9	9	1	23	27	8	1	312	
	ANTH	127	103	132	118	11	11	2	6	2	2	1	1	28	2	24	22	5	74	63	25	1	760	
	MYCO	6	8	8	8	2	0	1	0	1	1	0	0	2	1	2	2	1	2	2	2	1	50	
	CE	24	25	26	25	1	1	1	1	1	1	0	1	0	8	1	4	4	1	10	10	5	1	150
	DYES	18	15	12	22	1	1	1	1	1	1	0	1	2	1	3	2	1	5	6	3	1	98	
	PEST	2	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	5	
	NF, CAP & Nitroimida	7	0	0	5	1	0	0	0	1	1	0	0	1	0	0	0	0	2	0	7	0	25	
	ANTH	1	1	3	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	1	0	9
SCAMPI	ANTB	3	1	4	2	1	1	0	0	1	0	1	0	1	0	0	2	0	2	2	3	0	24	
	MYCO	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	
	CE	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	5	
	DYES	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	3	
	PEST	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	1	0	3	
	NF, CAP & Nitroimida	1	0	0	1	1	0	0	0	1	0	0	0	0	0	0	0	0	1	0	2	0	7	
	ANTH	1	0	0	1	0	0	1	0	1	0	0	0	0	0	0	0	0	1	0	2	0	7	
	ANTB	3	0	0	3	1	0	2	0	2	2	0	0	0	0	0	0	0	2	0	2	0	17	
	MYCO	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	2	
	CE	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	2	
FISH	STR	1	0	0	1	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	1	0	2	
	STL	1	0	0	1	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	1	0	5	
	DYES	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	1	0	5	
	NF & CAP	11	0	0	11	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	3	
	NF & CAP	47	0	0	47	0	0	0	6	0	14	0	0	40	0	0	0	0	8	0	0	0	162	
	GRAND TOTAL	570	252	243	568	48	21	13	28	34	30	8	3	159	8	45	48	10	263	124	116	7	2598	

STATE WISE DETAILS OF SAMPLES TO BE COLLECTED UNDER NRCP-2011 BY FIELD OFFICES FOR GROUP 'A' SUBSTANCES
AQUACULTURE CRUSTACEANS

Region	Shrimp	Scampi	Feed	Hatchery Sample	TOTAL
GUJARAT					
RC(Aq) Valsad	21	1	-	-	22
RO Veraval	-	-	-	-	-
MAHARASHTRA					
RC(Aq) Panvel	12	1	-	-	13
RO Mumbai	-	-	-	-	-
GOA					
KARNATAKA					
SRC(Aq) Karwar	10	-	-	6	16
SRO Mangalore	-	-	-	-	-
KERALA					
RC(Aq) Kochi	8	1	-	14	23
SRC(Aq) Kannur	3	-	-	-	3
RO Kochi	-	-	-	-	-
TAMIL NADU					
RC(Aq) Thanjavur	55	1	5	40	101
RO Chennai	-	-	-	-	-
SRO Tuticorin	-	-	-	-	-
ANDHRA PRADESH					
RC(Aq) Vijayawada	245	5	11	47	308
RO Vizag	-	-	-	-	-
SRC Bhimavaram	245	7	11	47	310
ORISSA					
RC(Aq) Bhubaneswar	124	2	-	8	134
SRO Bhubaneswar	-	-	-	-	-
WEST BENGAL					
SRC(Aq) Kolkata	44	7	-	-	51
RO Kolkata	-	-	-	-	-
TOTAL	767	25	27	162	981

STATE WISE DETAILS OF SAMPLES TO BE COLLECTED UNDER NRCP-2011 BY FIELD OFFICES FOR GROUP 'B' SUBSTANCES

AQUACULTURE CRUSTACEANS

Region	Antibiotics		Anthelmintics		Pesticides		Chemical Elements		Mycotoxins		Dyes		Total
	Shrimp	Scampi	Shrimp	Scampi	Shrimp	Scampi	Shrimp	Scampi	Shrimp	Scampi	Shrimp	Scampi	
GUJARAT													
RC(Aq) Valsad	11	1	6	-	2	-	1	-	2	-	1	-	24
RO Veraval	11	1	6	-	1	-	1	-	-	-	1	-	21
MAHARASHTRA													
RC(Aq) Panvel	2	1	2	-	1	-	1	-	1	-	1	-	9
RO Mumbai	2	-	2	-	1	-	1	-	1	-	1	-	8
GOA													
KARNATAKA													
SRC(Aq) Karwar	6	-	3	-	1	-	1	-	-	-	1	-	12
SRO Mangalore	5	-	1	-	1	-	1	-	1	-	1	-	10
KERALA													
RC(Aq) Kochi	2	-	1	-	1	-	-	-	1	-	-	-	5
SRC(Aq) Kannur	1	1	1	-	-	-	1	-	-	-	1	-	5
RO Kochi	1	-	1	-	-	-	-	-	-	-	1	-	3
SRO Quilon	1	-	1	-	2	-	1	-	1	-	1	-	7
TAMIL NADU													
RC(Aq)Thanjavur	28	1	11	-	6	-	8	-	2	-	2	-	58
RO Chennai	2	-	2	-	1	-	1	-	1	-	1	-	8
SRO Tuticorin	24	-	9	-	3	-	4	-	2	-	3	-	45
ANDHRA PRADESH													
RC(Aq) Vijayawada	118	2	50	1	23	1	25	-	8	1	22	1	252
RO Vizag	235	5	100	4	53	1	51	1	16	1	27	1	495
SRC Bhimavaram	127	3	49	1	21	2	24	1	6	-	18	1	253
ORISSA													
RC(Aq) Bhubaneswar	74	2	23	1	8	-	10	-	2	-	5	-	125
SRO Bhubaneswar	63	2	27	-	14	-	10	-	2	-	6	-	124
WEST BENGAL													
SRC(Aq) Kolkata	25	3	8	1	5	-	5	2	2	-	3	-	54
RO Kolkata	22	2	9	1	4	1	4	1	2	-	2	-	48
TOTAL	760	24	312	9	148	5	150	5	50	2	98	3	1566

STATE WISE DETAILS OF SAMPLES TO BE COLLECTED UNDER NRCP-2011 BY FIELD OFFICES FOR GROUP 'A' SUBSTANCES

FISH

REGION	STEROIDS	STILBENES	NITROFURANS, CHLORAMPHENICOL & NITROIMIDAZOLE	TOTAL
GUJARAT				
RC(Aq) Valsad	-	-	1	1
RO Veraval	-	-	-	0
MAHARASHTRA				
RC(Aq) Panvel	2	2	1	5
RO Mumbai	-	-	-	0
GOA				
KARNATAKA				
SRC(Aq) Karwar	-	-	-	0
SRO Mangalore	-	-	-	0
KERALA				
RC(Aq) Kochi	-	-	-	0
SRC(Aq) Kannur	-	-	-	0
RO Kochi	-	-	-	0
TAMIL NADU				
RC(Aq) Thanjavur	-	-	-	0
RO Chennai	-	-	-	0
SRO Tuticorin	-	-	-	0
ANDHRA PRADESH				
RC(Aq) Vijayawada	1	1	1	3
RO Vizag	-	-	-	0
SRC Bhimavaram	1	1	1	3
ORISSA				
RC(Aq) Bhubaneswar	-	-	1	1
SRO Bhubaneswar	-	-	-	0
WEST BENGAL				
SRC(Aq) Kolkata	1	1	2	4
RO Kolkata	-	-	-	0
TOTAL	5	5	7	17

STATE WISE DETAILS OF SAMPLES TO BE COLLECTED UNDER NRCP-2011 BY FIELD OFFICES FOR GROUP 'B' SUBSTANCES

FISH

REGION	Antibiotics	Anthelmintics	Pesticides	Chemical Elements	Mycotoxins	Dyes	Total
GUJARAT							
RC(Aq) Valsad	1	-	-	-	-	-	1
RO Veraval	-	-	-	-	-	-	0
MAHARASHTRA							
RC(Aq) Panvel	2	1	1	1	1	1	7
RO Mumbai	2	1	1	-	-	1	5
GOA							
KARNATAKA							
SRC(Aq) Karwar	-	-	-	-	-	-	0
SRO Mangalore	-	-	-	-	-	-	0
KERALA							
RC(Aq) Kochi	2	-	-	-	-	-	2
SRC(Aq) Kannur	-	-	-	-	-	-	0
RO Kochi	-	-	-	-	-	-	0
TAMIL NADU							
RC(Aq) Thanjavur	-	-	-	-	-	-	0
RO Chennai	-	-	-	-	-	-	0
SRO Tuticorin	-	-	-	-	-	-	0
ANDHRA PRADESH							
RC(Aq) Vijayawada	3	1	-	-	1	-	5
RO Vizag	-	-	-	-	-	-	0
SRC Bhimavaram	3	1	-	-	-	-	4
ORISSA							
RC(Aq) Bhubaneswar	2	1	-	-	-	-	3
SRO Bhubaneswar	-	-	-	-	-	-	0
WEST BENGAL							
SRC(Aq) Kolkata	2	2	1	1	-	1	7
RO Kolkata	-	-	-	-	-	-	0
TOTAL	17	7	3	2	2	3	34

ANNEXURE III (A)

RESULTS OF REGULATORY PROGRAMME FOR CONTROL OF RESIDUES IN FOOD

COUNTRY	INDIA
YEAR OF IMPLEMENTATION	2010
ANIMAL SPECIES/PRODUCT	AQUACULTURE - crustaceans

DATE	03-11-2011
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GROUP OF SUBSTANCES TO BE MONITORED	COMPOUND or MARKER RESIDUE	MATRIX ANALYSED	NUMBER OF SAMPLES		LEVEL OF ACTION (i.e. concentration above which a result is deemed non-compliant) [µg/Kg]	NUMBER OF NON COMPLIANT RESULTS (ABOVE LEVEL OF ACTION)
			PLANNED	TESTED		
A1. STILBENES						
A3. SYNTHETIC STEROIDS (WITH ANDROGENIC, GESTAGENIC OR ESTROGENIC ACTIVITY)						
A6. CHLORAMPHENICOL	Chloramphenicol	Shrimp/Scampi/Feed/Hatchery sample	730	741		26 Non Compliant
A6. NITROFURANS						
Nitrofurantoin metabolite	AHD	Shrimp/Scampi/Feed/Hatchery sample	730	741		4 Non Compliant
Furaltadone metabolite	AMOZ	Shrimp/Scampi/Feed/Hatchery sample	730	741		All Compliant
Furazolidone metabolite	AOZ	Shrimp/Scampi/Feed/Hatchery sample	730	741		48 Non Compliant
Nitrofurazone metabolite	SEM	Shrimp/Scampi/Feed/Hatchery sample	730	741		5 Non Compliant
A6. OTHERS						
NITROIMIDAZOLES	Ronidazole, Metronidazole, Dimetronidazole & Ipronidazole.	Shrimp & Scampi	454	454		All compliant
B1. ANTIBACTERIAL SUBSTANCES			555	562		
Screening test		shrimp/scampi		353		All Compliant
Confirmatory test	Tetracyclines	shrimp/scampi		562		1 Non Compliant
	Oxytetracyclines	shrimp/scampi		562		3 Non Compliant
	Sulphadiazine	shrimp/scampi		209		All Compliant
	Oxolinic Acid	shrimp/scampi	555	562		All Compliant
B2a. ANTHELMINTICS	Ivermectin	shrimp/scampi	220	221	100	All Compliant
B2f. OTHER						

RESULTS OF REGULATORY PROGRAMME FOR CONTROL OF RESIDUES IN FOOD

COUNTRY	INDIA
YEAR OF IMPLEMENTATION	2010
ANIMAL SPECIES/PRODUCT	AQUACULTURE - crustaceans

DATE	03-11-2011
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GROUP OF SUBSTANCES TO BE MONITORED	COMPOUND or MARKER RESIDUE	MATRIX ANALYSED	NUMBER OF SAMPLES		LEVEL OF ACTION (i.e. concentration above which a result is deemed non-compliant) [µg/Kg]	NUMBER OF NON COMPLIANT RESULTS (ABOVE LEVEL OF ACTION)
			PLANNED	TESTED		
PHARMACOLOGICALLY ACTIVE SUBSTANCES						
B3a. ORGANOCHLORINE COMPOUNDS INCLUDING PCBs	Aldrin	shrimp/scampi	103	106		All Compliant
	Dieldrin	shrimp/scampi	103	106		All Compliant
	Chlordane	shrimp/scampi	103	106		All Compliant
	DDT	shrimp/scampi	103	106		All Compliant
	Endrine	shrimp/scampi	103	106		All Compliant
	Heptachlor	shrimp/scampi	103	106		All Compliant
	Hexachlorobenzene	shrimp/scampi	103	106		All Compliant
	HCH	shrimp/scampi	103	106		All Compliant
	Alpha isomer	shrimp/scampi	103	106		All Compliant
	Beta isomer	shrimp/scampi	103	106		All Compliant
	Gamma isomer	shrimp/scampi	103	106		All Compliant
	PCBs	shrimp/scampi	103	103	0.008 ppb	All Compliant
B3c. CHEMICAL ELEMENTS	Dioxin like PCBs	shrimp/scampi	7	7	0.008 ppb	All Compliant
	Cadmium	shrimp/scampi	102	105	500	All Compliant
	Lead	shrimp/scampi	102	105	500	All Compliant
	Mercury	shrimp/scampi	102	105	500	All Compliant
	Arsenic	shrimp/scampi	102	105	1000	All Compliant
B3d. MYCOTOXINS						
	Aflatoxin B1	shrimp/scampi	36	36	15	All Compliant
	Aflatoxin B2	shrimp/scampi	36	36	15	All Compliant
B3e. DYES						
	Malachite green	shrimp/scampi	81	82	(2 MG + LMG)	All Compliant
	Leukomalachite green	shrimp/scampi	81	82		All Compliant

RESULTS OF REGULATORY PROGRAMME FOR CONTROL OF RESIDUES IN FOOD

COUNTRY	INDIA
YEAR OF IMPLEMENTATION OF THE RESIDUE PLAN	2010
ANIMAL SPECIES/PRODUCT	AQUACULTURE - FINFISH

DATE	03-11-2011
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GROUP OF SUBSTANCES TO BE MONITORED	COMPOUND or MARKER RESIDUE	MATRIX ANALYSED	NUMBER OF SAMPLES		LEVEL OF ACTION (i.e. concentration above which a result is deemed non-compliant) [µg/Kg]	NUMBER OF NON COMPLIANT RESULTS (ABOVE LEVEL OF ACTION)
			PLANNED	TESTED		
A1. STILBENES	Diethylstilbestrol	Fish meat	15	15		All Compliant
A3. SYNTHETIC STEROIDS (WITH ANDROGENIC, GESTAGENIC OR ESTROGENIC ACTIVITY)	Progesterone	Fish meat	15	15		All Compliant
	Oestradiol	Fish meat	15	15		All Compliant
A6. CHLORAMPHENICOL	Chloramphenicol	Fish meat	21	24		All Compliant
A6. NITROFURANS						
Nitrofurantoin metabolite	AHD	Fish meat	21	24		All Compliant
Furaltadone metabolite	AMAZ	Fish meat	21	24		All Compliant
Furazolidone metabolite	AOZ	Fish meat	21	24		All Compliant
Nitrofurazone metabolite	SEM	Fish meat	21	24		All Compliant
A6. OTHERS						
NITROIMIDAZOLES	Ronidazole, Metronidazole,	Fish meat	15	15		All Compliant
	Dimetronidazole & Ipronidazole					
B1. ANTIBACTERIAL SUBSTANCES		Fish meat	48	50		
Screening test	Tetracyclines	Fish meat				
	Oxytetracycline	Fish meat				
	Sulphadiazine	Fish meat		22		
	Oxolinic Acid	Fish meat				
Confirmatory test	Tetracyclines	Fish meat		50		1 Non Compliant
	Oxytetracycline	Fish meat		50		
	Sulphadiazine	Fish meat		38		
	Oxolinic Acid	Fish meat		50		

RESULTS OF REGULATORY PROGRAMME FOR CONTROL OF RESIDUES IN FOOD

COUNTRY	INDIA
YEAR OF IMPLEMENTATION OF THE RESIDUE PLAN	2010
ANIMAL SPECIES/PRODUCT	AQUACULTURE - FINFISH

DATE	03-11-2011
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GROUP OF SUBSTANCES TO BE MONITORED	COMPOUND or MARKER RESIDUE	MATRIX ANALYSED	NUMBER OF SAMPLES		LEVEL OF ACTION (i.e. concentration above which a result is deemed non-compliant) [$\mu\text{g/Kg}$]	NUMBER OF NON COMPLIANT RESULTS (ABOVE LEVEL OF ACTION)
			PLANNED	TESTED		
B2a. ANTHELMINTICS		Fish meat	17	17		All Compliant
B2f. OTHER PHARMACOLOGICALLY ACTIVE SUBSTANCES						All Compliant
B3a. ORGANOCHLORINE COMPOUNDS INCLUDING PCBS						
	Aldrin	Fish meat	12	12	200	All Compliant
	Dieldrin	Fish meat	12	12	200	All Compliant
	Chloradane	Fish meat	12	12	50	All Compliant
	DDT	Fish meat	12	12	1000	All Compliant
	Endrin	Fish meat	12	12	50	All Compliant
	Heptachlor	Fish meat	12	12	200	All Compliant
	Hexachloro Benzene	Fish meat	12	12	200	All Compliant
	HCH	Fish meat	12	12		All Compliant
	Alpha Isomer	Fish meat	12	12	200	All Compliant
	Beta Isomer	Fish meat	12	12	100	All Compliant
	Gamma Isomer	Fish meat	12	12	20	All Compliant
	PCBs	shrimp/scam	12	12	0.008 ppb	All Compliant
	Dioxin like PCBs	shrimp/scam	3	3	0.008 ppb	All Compliant
B3c. CHEMICAL ELEMENTS	Mercury	Fish meat	11	2	500	All Compliant
	Cadmium	Fish meat	11	2	500	All Compliant
	Arsenic	Fish meat	11	2	1000	All Compliant
	Lead	Fish meat	11	2	500	All Compliant
B3d. MYCOTOXINS	Aflatoxin B1	Fish meat	5	5	15	All Compliant
	Aflatoxin B2	Fish meat	5	5	15	All Compliant
B3e. DYES	Malachite green	Fish meat	10	13	2 (MG + LMG)	All Compliant
	Leukomalachite green	Fish meat	10	13		

DETAILS OF POSITIVE RESULTS OF NRCP 2010

Sl. No	Matrix tested	Parameter / s	Region	Test result (ppb)
Shrimp				
1	P.monodon	CAP	Gujarat	0.35
2	P.monodon	OTC	Andra Pradesh	104.61
3	P.monodon	OTC	Andra Pradesh	164.06
4	P.monodon	OTC	Andra Pradesh	104.09
5	P.monodon	TC	Andra Pradesh	110.69
6	P.monodon	CAP	Kerala	0.40
7	P.monodon	CAP	Orissa	0.64
8	P.monodon	NF - AOZ	Andra Pradesh	1.04
9	P.monodon	NF - AOZ	Andra Pradesh	5.80
10	P.monodon	NF - AOZ	Andra Pradesh	31.50
11	P.monodon	NF - AOZ	Andra Pradesh	7.01
12	P.monodon	NF - SEM	Andra Pradesh	39.52
13	P.monodon	NF - SEM	Andra Pradesh	14.47
14	P.monodon	NF - AOZ	Andra Pradesh	2.34
15	P.monodon	CAP	Andra Pradesh	2.16
16	P.monodon	NF - AOZ	Andra Pradesh	102.00
Scampi				
17	M.rosenbergii (Scampi)	CAP	Andra Pradesh	1.31
Fish				
18	Fish	TC	Andra Pradesh	236.62
Hatchery samples				
19	Hatchery Sample	CAP	Kerala	0.68
		NF - AOZ		211.45
20	Hatchery Sample	CAP	Kerala	5.32
		NF - AOZ		19.87
21	Hatchery Sample	NF - AOZ	Kerala	5.08
22	Hatchery Sample	NF - AOZ	Kerala	399.95
23	Hatchery Sample	NF - AOZ	Kerala	1.59
24	Hatchery Sample	NF - AOZ	Kerala	161.86
25	Hatchery Sample	NF - AOZ	Kerala	1.58

Sl. No	Matrix tested	Parameter / s	Region	Test result (ppb)
26	Hatchery Sample	NF - AOZ	Kerala	8.27
27	P.monodon (Hatchery)	NF - AOZ	Andra Pradesh	10.37
28	P.monodon(Hatchery)	CAP	Andra Pradesh	102.73
29	P.monodon(Hatchery)	CAP	Andra Pradesh	40.20
30	P.monodon(Hatchery)	NF - AOZ	Andra Pradesh	695.82
31	P.monodon(Hatchery)	NF - AOZ	Andra Pradesh	819.86
32	P.monodon(Hatchery)	NF - AOZ	Andra Pradesh	173.01
33	Hatchery Sample	CAP	Andra Pradesh	1.08
34	Hatchery Sample	CAP	Andra Pradesh	224.93
35	M.rosenbergii(Hatchery)	NF - SEM	Maharastra	4.23
36	Hatchery Sample	NF - AOZ	Karnataka	28.36
37	Hatchery Sample	NF - AOZ	Karnataka	103.94
38	Hatchery Sample	NF - AOZ	Tamil Nadu	1.09
39	Hatchery Sample	NF - AOZ	Tamil Nadu	24.71
40	Hatchery Sample	CAP	Tamil Nadu	0.78
41	Hatchery Sample	CAP	Tamil Nadu	0.68
		NF - AOZ		1.24
42	Hatchery Sample	CAP	Tamil Nadu	0.48
		NF - AOZ		154.75
43	Hatchery Sample	CAP	Tamil Nadu	2.13
44	Hatchery Sample	NF - AOZ	Tamil Nadu	130.63
45	Hatchery Sample	NF - AOZ	Orissa	242.27
46	Hatchery Sample	CAP	Orissa	48.25
47	Hatchery Sample	CAP	Orissa	36.55
48	Hatchery Sample	CAP	Orissa	1.01
		NF - AOZ		80.95
49	Hatchery Sample	NF - AOZ	Andra Pradesh	38.10
50	Hatchery Sample	NF - AOZ	Andra Pradesh	4.15
51	Hatchery Sample	NF - AOZ	Andra Pradesh	3.38
52	Hatchery Sample	NF - AOZ	Andra Pradesh	455.13
53	Hatchery Sample	NF - AOZ	Andra Pradesh	654.94
54	Hatchery Sample	NF - AOZ	Andra Pradesh	9.84
55	Hatchery Sample	NF - AOZ	Andra Pradesh	281.55
56	Hatchery Sample	NF - AHD	Andra Pradesh	2.20
		NF - AOZ		221.50

Sl. No	Matrix tested	Parameter / s	Region	Test result (ppb)
57	Hatchery Sample	NF - AOZ	Andra Pradesh	6.50
58	Hatchery Sample	NF - AHD	Andra Pradesh	20.00
		NF - AOZ		466.80
59	Hatchery Sample	NF - AOZ	Andra Pradesh	90.40
		NF - SEM		2.20
60	Hatchery Sample	NF - AOZ	Andra Pradesh	45.60
61	Hatchery Sample	NF - AOZ	Andra Pradesh	10.10
62	Hatchery Sample	CAP	Andra Pradesh	44.20
		NF - AOZ		5.60
		NF - SEM		5.60
63	Hatchery Sample	NF - AOZ	Andra Pradesh	1924.60
64	Hatchery Sample	CAP	Andra Pradesh	1.68
65	Hatchery Sample	NF - AOZ	Andra Pradesh	277.10
66	Hatchery Sample	NF - AOZ	Andra Pradesh	19.00
67	Hatchery Sample	NF - AHD	Andra Pradesh	7.50
		NF - AOZ		325.10
68	Hatchery Sample	NF - AHD	Andra Pradesh	3.50
		NF - AOZ		62.00
69	Hatchery Sample	NF - AOZ	Andra Pradesh	12.24
70	Hatchery Sample	CAP	Andra Pradesh	5.02
		NF - AOZ		69.25
71	Hatchery Sample	CAP	Andra Pradesh	13.33
72	Hatchery Sample	CAP	Andra Pradesh	8.83
Feed				
73	Feed	CAP	Andra Pradesh	0.39
74	Feed	CAP	Andra Pradesh	0.36
75	Feed	CAP	Andra Pradesh	0.36

Table of positive cases of NRCP (Lab wise break up)

Laboratory	No. of samples
Kochi	25
Bhimavaram	33
Nellore	17
Total	75

The Marine products Export Development Authority
(Ministry of Commerce & Industry, Govt. Of India)
Kochi – 682 036

NRCP – Instructions to Field Offices:

In order to streamline the procedure for sample collection and residue monitoring under NRCP, the following instructions are issued in super session of earlier instructions in this regard.

1. The target given to each RC/SRC/RO/SRO is in consideration of registered site/export from their jurisdiction. The sample target for RC/SRC is fixed on the basis of district-wise registration of farms and according to the aquaculture production and the month-wise targets for the RCs/ SRCs are also based on the various stages of production. Similarly, the month-wise targets for sampling from processing plants will be in such a way that the total number of samples will tally with the target fixed for the RO/SRO.
2. The shrimp samples under NRCP should be collected by the designated residue monitoring officers(RMOs) of MPEDA only from farms registered with the designated authorities.
3. The collection of sample shall be unforeseen, unexpected and effected at no fixed time and on no particular day of the week and the sample collection must be done as per the guidelines on sample acceptance criteria.
4. The number of samples to be collected from the processing plants under the RO/SRO will be based on the production capacity and/or actual production of each processing plant.
5. The farms reported with residue positive(+ve) cases and processing plants reported with rejections/quality complaints have to be closely monitored and subjected to stringent and frequent sampling.
6. The sampling procedure/strategy shall be as per the instruction contained in Annex III to the EU Directive 96/23/EC. The sampling level for RO/SRO/RC/SRC is being communicated to you separately. However, if further clarity is required please see annex IV to the EU Directive 96/23/EC for the sampling level and frequency.
7. Sampling at farm level shall be in such a way that a minimum 10% of registered site of production is covered in the yearly Plan, as all the registered farms in a State need to be covered over a period of time. In other words, there shall not be excess drawal of samples from one unit or farm and similarly no unit or farm will be left uncovered.
8. In case of farms situated in areas reported/suspected with presence/use of unknown chemicals/substances or indications of fraudulent activities, disease out breaks etc, more samples may be drawn.
9. Sampling levels:
 - Shrimp(black tiger) farms: 60 - 90 days & 15 days prior to harvest.
 - Scampi farms : 60-90 days, 90-120 days & 15 days prior to harvest.

- Fish farms : at any stage of production & 15 days prior to harvest.
10. When collecting samples from the farm, the details of medication within the last 4 weeks before sampling should be collected and indicated in the register as well as the packing slip that will accompany each sample.
 11. In respect of processing plants, multiple samples can be collected on the same day provided the farms from which the Processing Plant has purchased the raw material are different. Nevertheless, the number of samples collected from a Processing Plant on any day shall not exceed two.
 12. Samples must be collected in Polythene bags and properly labeled to maintain the sample integrity and traceability. The container/packing must prevent the substitution, cross contamination and degradation of sample. The container/packing must be officially sealed. The designated officers for sample collection have to be provided with official seals by the concerned field offices.
 13. In the case of on farm sampling, the farmer or his representative has to sign the original sampling report. The original sampling report has to be kept with the field office to guarantee that unauthorized persons cannot access the original report.
 14. As already in practice, the RO/SRO and RC/SRC shall maintain a register of samples collected and dispatched to the respective Laboratory. Needless to mention, in respect of RC/SRC, the column relating to "Name of Processing Plant" will be left blank. RO/SRO will note the name of the farm in respect of each sample drawn from a processing plant. This should be collected from the records of the processing plant. The RO/SRO has also to note the name of the farm as well as the registration number obtained from the CAA or State Govt. Agency.
 15. The actual drawl of samples from the processing plant should be done by the residue monitoring officer of MPEDA himself. This task should not be entrusted to any personnel of the Processing Plant.
 16. In respect of farms, while the netting may be done by the employees of the farm, the supervision of the netting and actual selection of the samples shall be done by the MPEDA officer himself and not by the farm representative. When sample is drawn from the aquaculture farm, netting should be done at least in a minimum of 4 different locations in the pond.
 17. While collecting the hatchery samples (seed), a minimum of 20 - 25 gm (excluding water) should be drawn. The seed sample should be collected in polythene bags, sealed and transported in thermo-cole box packed with dry/wet ice.
 18. The samples shall be forwarded to the respective MPEDA Laboratory with in 3(three) days of its collection so as to reach the laboratory with in 30(thirty) hours of dispatch.
 19. The results of the tests communicated from the respective laboratory should be recorded in the specified columns in the register.
 20. Wherever positive results are reported, the RC/SRC/RO/SRO concerned has to:

- i. Conduct a complete enquiry to find out the cause/reason for presence of residues, source of contamination and report to the concerned laboratory with copies to Jt Director(QC) and Jt Director(Aqua) at HO.
 - ii. Collect follow-up sample(s) for analysis.
 - iii. Alert processors not to procure the raw material from the farm reported with non-compliant result.
21. Repeat samples are to be drawn from farms / processing plants from where residue violations are reported and such farms are to be subjected to more stringent checks at least for a period of twelve months.

(J Ramesh)
Secretary

Copy to:

1. Director, EIC, New Delhi.
2. All ROs and SROs of MPEDA – for information.
3. ALL RCs and SRCs of MPEDA– for information and to circulate to concerned Farmers' Associations in their region.
4. All MPEDA QC Laboratories.