Guidelines for culture of *Litopenaeus vannamei* in fresh water/ inland farms.

I. Guidelines for according approval for culture of SPF *Litopenaeus vannamei* in fresh water/ inland farms.

A) Registration

- Farmers who desire to culture *Litopenaeus vannamei* in fresh water / inland farms located outside the jurisdiction of Coastal Aquaculture Authority (CAA), having a water salinity of above 0.5 PPT, shall be required to register their farms with the State Fisheries Department. However, the farms located within the jurisdiction of the CAA shall register with CAA only.

- The registration should indicate the extent of land, water spread area being utilized, source of water and ownership details.

- For the purpose of registration, the State Governments/ U.T Administration shall constitute District Level Committees (DLCs).

- The State Governments/U.T Administration may fix a reasonable time not exceeding 60 days within which the applications should be disposed.

B) Inspection of farms

Inspection team authorized by the DLC shall inspect the farms and the applications shall be considered based on its recommendation regarding the suitability of the facility for farming of *L. vannamei.*

C) Stocking density and record keeping

- Stocking densities should not exceed 60no./m^2
- Farmers should maintain a detailed record of the name and address of the hatchery from where the seed is procured, quantity of seed procured, water quality parameters and daily feeding data during the culture period in the prescribed format.

- Farmers should record the quantity of shrimp produced, sold and this should be reported to the State Fisheries Department in the prescribed proforma.

- Banned drugs and antibiotics should not be used (List appended)

D) Biosecurity

- All farms must establish adequate bio-security measures including crab fencing, bird-scare, separate implements for each of the ponds. If the farm is not connected to the outside water sources (rivers, canals, lakes etc.) the reservoirs need not be insisted for disinfection.

- Farms with connections to open freshwater sources like rivers or canals or lakes etc, which are geographically adjoining to brackishwater areas, irrespective of their size should have an Effluent Treatment System (ETS). The quality of treated water should conform to the standards prescribed by respective State Pollution Control Boards/ Committee.

- In case of any outbreak of disease, the farmer shall report immediately to District Fishery Officer. Distress harvesting is permitted through netting only and the discharge water should be chlorinated and dechlorinated before release into drainage systems.

- Farms approved for *L. vannamei* culture shall not be permitted for farming of any other crustacean species simultaneously.

- Tested and certified seed should be procured only from the hatcheries approved by CAA for L. *vannamei* seed production.

- For ponds not connected with open water sources, the accumulated organic wastes should be removed and disposed safely.

E) Legal and environmental Issues

The State Governments/ U.T. Administration shall ensure compliance of the State / U.T/National laws relating to the following aspects:

- Conversion of agricultural lands
- Conversion of wet lands
- Use of ground water
- Land leasing policy
- Environmental regulations
- Food safety
- Biodiversity

Advisories for sustainable culture of SPF *L. vannamei* in freshwater/ inland farms

- It is advisable not to culture in fresh water with 0 ppt salinity since it could lead to poor growth, poor survival and poor quality (muddy mould smell etc.).

- Lower stocking rate is advised to reduce the operational cost and to improve sustainability

- Gradual acclimatization of the post larvae to the existing salinity conditions is very important for ensuring good survival.

- Younger stages of larvae below 15 days age old will not be able to tolerate lower salinities, hence PL15 and above should only be used.

- In case of inland saline water culture, the ionic composition of pond water should be assessed continuously with respect to Potassium, Magnesium and Calcium for making necessary amendments.

- Feed with proper fortification of minerals as required should be followed for ensuring better survival rate and growth.

- Only probiotics suitable to the culture environment should be used.

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Annexure

List of the Antibiotics and other pharmacologically active substances banned for using in shrimp aquaculture

Sl. No.	Antibiotics and other Pharmacologically Active Substances
1	Chloramphenicol
2	Nitrofurans including: Furaltadone, Furazolidone, Furylfuramide, Nifuratel, Nifuroxime, Nifurprazine, Nitrofurantoin, Nitrofurazone
3	Neomycin
4	Nalidixic acid
5	Sulphamethoxazole
6	Aristolochia spp and preparations thereof
7	Chloroform
8	Chlorpromazine
9	Colchicine
10	Dapsone
11	Dimetridazole
12	Metronidazole
13	Ronidazole
14	Ipronidazole
15	Other nitroimidazoles
16	Clenbuterol
17	Diethylstilbestrol (DES)
18	Sulfonamide drugs (except approved Sulfadimethoxine, Sulfabromomethazine and Sulfaethoxypyridazine)
19	Fluroquinolones
20	Glycopeptides

* The Maximum Permissible Residual levels for various antibiotics and other pharmacologically active substances stipulated by the Government for fish and fishery products is as per appendix attached to these guidelines. Shrimp farmers and input providers should strictly follow these stipulations, which may be revised by the Government from time to time.

Appendix

Maximum Permissible Residual Levels for Fish and Fishery Products

	Substance	Maximum Permissible Residual Levels (in ppm)
A	**Antibiotics and other Pharmacologically Active Substances**	
	1. Chloramphenicol	Nil
	2. Nitrofurans including: Furaltadone, Furazolidone, Furylfuramide, Nifuratel, Nifuroxime, Nifurprazine, Nitrofurantoin, Nitrofurazone	Nil
	3. Neomycin	Nil
	4. Nalidixic acid	Nil
	5. Sulphamethoxazole	Nil
	6. Aristolochia spp. and preparations thereof	Nil
	7. Chloroform	Nil
	8. Chlorpromazine	Nil
	9. Colchicine	Nil
	10. Dapsone	Nil
	11. Dimetridazole	Nil
	12. Metronidazole	Nil
	13. Ronidazole	Nil
	14. Ipronidazole	Nil
	15. Other nitroimidazoles	Nil
	16. Clenbuterol	Nil
	17. Diethylstilbestrol (DES)	Nil
	18. Sulfonamide drugs (except approved Sulfadimethoxine, Sulfabromomethazine and Sulfaethoxypyridazine)	Nil
	19. Fluroquinolones	Nil
	20. Glycopeptides	Nil
	21. Tetracycline	0.1
	22. Oxytetracycline	0.1
	23. Trimethoprim	0.05
	24. Oxolinic acid	0.3