

# GOOD AQUACULTURE PRACTICE FOR FISH FARMING (GAP-FF)



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Agri-Food and Veterinary Authority of Singapore

This document explains the fish farm's compliance with the guidelines of the Good Aquaculture Practice for Fish Farming (GAP-FF) Certification Scheme.

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## **Rules governing the use of “Good Aquaculture Practice for Fish Farming” Mark**

The “Good Aquaculture Practice for Fish Farming” *Mark* is an official *Mark* to be put only on food fish produced by certified fish farms. It is an offence for any farm or company to use the *Mark* to advertise food fish not produced by the farm or when the farm is not certified (Legislated under the "Agri-Food and Veterinary Authority Act (Chapter 5) – Agri-Food and Veterinary Authority (Certification Mark) Notification 2014").

Certified farms are allowed to advertise with the *Mark*. This privilege will be withdrawn in the event of non-compliance with the regulations and guidelines.

The *Mark* may be used on letterheads of the company and in advertisement materials such as brochures and packaging bags for promotion of the farm and must adhere to the given specifications.

All materials containing the *Mark* shall be submitted to the GAP-FF Secretariat for approval in their use and release to the public.

## **Good Aquaculture Practice Guidelines for Safe and Quality Fish Farming**

The Good Aquaculture Practice for Fish Farming (GAP-FF) is a set of guidelines formulated by the Agri-Food & Veterinary Authority of Singapore (AVA) for safe and quality fish farming. These guidelines are based on the concept of Hazard Analysis of Critical Control Points (HACCP) and quality management principles with emphasis in the following key areas:

- Farm structure and maintenance
- Farm management
- Farming and packaging practices
- Fish health management
- Farm environment
- Human health and safety at work

In addition to the requirements spelt out in this document, fish farmers must specify the types of fish produced from their farms, identify the potential critical hazards and establish and monitor appropriate measures during all phases of farm production. Corrective actions must be established, implemented and documented at the time of hazard occurrence. Establishment of verification procedures and proper documentation (i.e. log records, standard operating procedures, instruction manual, etc) of such practices are required and be complemented with proper communication and training of staff in good farm practices and management.

<b>Good Aquaculture Practice for Fish Farming</b>
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**1. Farm Structure and Maintenance**

- 1.1 Farm and on-farm equipment and facilities must be well maintained, with proper equipment storage. Farm equipment, including diving equipment, should be disinfected if necessary.
- 1.2 Farm structures should be checked regularly for damage or signs of weakness/instability to minimise risk of escapes.
- 1.3 Farm should take appropriate measures to deter/prevent predator entry into fish culture areas.
- 1.4 Farm-use layout should be well planned, with minimal safety hazards. Farm/cage mooring plans to be made available during farm audit.
- 1.5 Farm, in particular, the packing area, must be cleaned regularly with planned cleaning schedules and procedures.
- 1.6 Farm must comply with AVA's Conditions of Issue of Fish Culture Farm Licence.

**2. Farm Management**

- 2.1 An on-farm Co-ordinator must be identified by the farm in dealing with matters associated with GAP.
- 2.2 All farm activities relating to culture, trading/transshipment such as fish species, culture/stocking period, stocking size and density, source of stock, feeding regime and seasonal stocking trends MUST be properly documented and traceable. It is good practice to document other farm related activities that have an impact on the quality of the aquaculture product.
- 2.3 The use of computer-assisted monitoring and record keeping is encouraged.
- 2.4 Farm Standard Operating Procedures (SOPs), instruction manuals, laboratory tests, log records and other information required under the GAP must be kept updated with any new developments.

- 2.5 Updated records must be kept for two years. New farms applying for certification must have at least 12 months of farm records.
- 2.6 All records pertaining to the fish stocks must be filed.
- 2.7 Each batch of food fish leaving the farm must be traceable with proper on-farm documentation.
- 2.8 Records of harvest and traceability (fish harvest date, traceability to cage number, etc) must be kept for at least two years.
- 2.9 Farm staff must be trained for the implementation of the code of the Good Aquaculture Practice where staff training records must be maintained.

### 3. Farming and Packaging Practices

#### Fish Stock Management

- 3.1 Incoming fish stocks must be of good health and known origin i.e. from hatchery source. Invoices of incoming fish stocks are to be kept for a period of two years.
- 3.2 New fish stocks should be quarantined and separated from the other fish stocks.
- 3.3 There must be proper documentation of fish stocks in the various netcages which must be labelled, and records MUST be kept of fish movement between netcages.

#### Feed Management

- 3.4 All fish should receive adequate quantities of feed that meets their nutritional requirements.
- 3.5 Fish must be fed in a manner that avoids over-feeding and minimises water pollution.
- 3.6 Feeding on dry, formulated pellet feeds is encouraged.
- 3.7 Farm feeding regimes must be documented.
- 3.8 Feeds must be properly stored to prevent spoilage/decomposition/contamination.

- 3.9 Expired or rancid fish feeds must not be used. Expiry dates of fish feed must be clearly stated on the storage containers/bags.
- 3.10 Records of fish feed purchases (suppliers, dates, etc) must be kept. Records should include source of feed and material constituents of the feed.

Use of Chemotherapeutants (e.g. Antibiotics, drugs and chemicals)

- 3.11 Antibiotics/drugs/chemicals must be purchased from licensed dealers only.
- 3.12 Application of antibiotics/drugs/chemicals must follow the recommendations as on the manufacturer's label or as directed according to a fish health specialist. Procedures and steps must be clearly documented.
- 3.13 Antibiotics, drugs and chemicals must always be clearly labelled and stored in their original containers, securely. They must be stored at the appropriate temperature. Storage area must be isolated from packing areas and fish feeds to prevent contamination. Good chemical storage practice should be adhered to, including ensuring that the store has facilities to clean up spills and put out flames.
- 3.14 All containers and unused portions of antibiotics, drugs and chemicals residues must be safely and properly disposed. Do not recycle empty containers for other uses.
- 3.15 Records of purchase, application and disposal (log records, procedures, or instruction manual) of the antibiotics, drugs and chemicals must be kept and produced during farm audit.
- 3.16 Withdrawal periods of the respective antibiotics, drugs and chemicals prior to harvest must be strictly observed and recorded.

### Harvesting and Packaging

- 3.17 Only healthy fish can be harvested for sale.
- 3.18 Fish should be fasted for the minimum period necessary to clear the gut.
- 3.19 Clean packing containers/boxes/ice must be used for the packing of fish.
- 3.20 Fish to be packed/transported chilled must be packed with sufficient ice till point of retail.

## **4. Fish Health Management**

- 4.1 Farm staff must be trained in the recognition of commonly encountered fish diseases. Daily observation of fish condition must be conducted and documented by farm staff. Farmers must notify AVA if they encounter abnormal mortality patterns.
- 4.2 Measures should be taken to minimise or avoid stress to the fish
- 4.3 Mortality records must be kept. All dead or dying fish must be removed from the netcages and disposed off in an appropriate manner, according to the farm's documented SOPs.
- 4.4 Prophylactic measures and disease treatment regimes must be documented as part of health management records. A list of common fish diseases encountered by the farm and mitigation measures must also be available on farm.
- 4.5 Farm SOPs must exist for management of disease outbreaks (including prevention of disease spread and measures undertaken) as well as disease reporting.
- 4.6 Equipment used in handling of dead/diseased fish must not be used for other purposes unless proper disinfection has been carried out.

## **5. Farm Environment**

- 5.1 Basic water quality monitoring must be conducted by farm staff on a regular basis, with proper documentation of the water quality parameters as well as the date and time of monitoring.

- 5.2 Dead fish and other farm-related waste must be disposed of in a proper manner (e.g ensiled or on land). These disposal methods must also be documented in the farm SOPs.
- 5.3 SOPs must exist for the mitigation of plankton blooms and other forms of environmental pollution.

## 6. **Human Health and Safety at Work**

- 6.1 On-farm risk analysis of work hazards must be carried out and the mitigating measures outlined in the farm SOP(s).
- 6.2 Farm staff must be briefed on these hazards.
- 6.3 Adequate and appropriate personal protection equipment must be provided to farm staff when dealing with chemicals and other identified hazards.



## LIST OF REQUIRED GAP-FF RECORDS

1. Farm maintenance schedule and procedures.
2. All fish culture related activities such as fish species, culture/stocking period, stocking size and density, source of stock, feeding regime, as well as seasonal stocking trends.
3. Information pertaining to fish stocks, such as movement between cages, harvest and transfer to other farms, etc must be tracked and properly documented.
4. Updated production / sales.
5. Fish feed purchases (suppliers, dates, expiry dates etc) must be kept.
6. Purchase, application and disposal (log records, procedures, or instruction manual) of the antibiotics/ drugs/chemicals.
7. Withdrawal periods of the respective antibiotics/ drugs/chemicals prior to harvest.
8. Prophylactic measures and disease treatment regimes must be documented as part of health management records. A list of common fish diseases encountered by the farm must also be available on farm.
9. Disease occurrence at the farm.
10. Farm SOPs for management of disease outbreaks (including prevention of disease spread and measures undertaken) as well as disease reporting.
11. Daily water quality monitoring with proper documentation of the water quality parameters, sampling time and tidal condition.
12. Proper, environmentally-friendly, disposal methods for dead fish and other farm-related wastes.
13. Farm SOPs for the mitigation of plankton blooms and other forms of environmental pollution.
14. Farm SOPs for farm safety and human health.
15. Staff training on the different farm management aspects, such as:
  - i. Implementation of GAP Guidelines
  - ii. Fish Health Management
16. Internal farm audit check (at least once a year checked against GAP-FF standard) and any corrective action(s) taken.