



Module 6

Aquaculture Production Standard

Incorporates:

- Aquatic Plants
 - Fish
 - Shellfish and Crustacea
-

This document replaces the BIO-GRO New Zealand Organic Standards, 30 April 2001: Module 4.7

The reasons for change are:

- regular review required under IFOAM accreditation;
- incorporation of notified changes since the 30 April 2001 Standards were published;
- incorporation of other changes required for ongoing compliance with the IFOAM Basic Standards, the NZFSA OOAP, and overseas market regulations;
- organic production systems are continuously evolving.

This document may be altered at any time. It was current at the date in the header of each page of the document. It is recommended that anyone intending to use this document contact BioGro or check the BioGro website www.biogro.co.nz to confirm that this is the current version.

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1 Scope and purpose

This BioGro Standard contains the production requirements and audit criteria for the certification of and licensing by BioGro of aquaculturists to use the BioGro trademarks and logos.

This module is followed by all:

- producers of organic aquaculture products certified by BioGro; and
- producers of organic aquaculture products licensed by BioGro to use the BioGro trademarks and logos.

All aquaculture products bearing the BioGro trademark are produced in accordance with this standard.

Information on BioGro and the use of the BioGro trademarks/logos can be obtained from *Module 1 Introduction* and *Module 3 Certification System*. Information on the BioGro requirements for processing can be obtained from *Module 13 Processing Standard* and information on the BioGro requirements for distribution can be obtained from *Module 14 Distribution Standard*.

The audit checklists (available on request from BioGro) may be used for self-audits in preparation for audits by BioGro.

2 References

All relevant regulations and industry requirements must be complied with.

3 Definitions

The BioGro definitions of terms can be found in the BioGro Standards *Module 2 Glossary of Terms*.

4 Aquaculture

4.1 Introduction

Aquaculture includes many forms of production in fresh, brackish and salt water. This module covers aquatic plants and fish grown in any form of enclosures such as ponds, tanks and cages, or in open sea or fresh water aquaculture farms using ropes, frames, and other defined areas.

Wild, sedentary organisms in open collecting areas may be able to be certified as organic, refer to *Module 8 Standard for Wild and Natural Products, and Traditional Agriculture*.

This module does not cover organisms which are moving freely in open waters, and/or which are unable to be inspected according to general procedures for organic production.

4.2 Basic conditions

- a. Organic aquaculture must have:
 - i. high quality water entering the system;
 - ii. sound management practices;
 - iii. appropriate stocking rates;
 - iv. consideration of fish welfare; and
 - v. only inputs which are approved by BioGro.
- b. Water leaving the organic aquaculture system, or farm structures, must not adversely affect:
 - i. the environment;
 - ii. the natural ecology; or
 - iii. biological diversity.
- c. Use of GMOs: (Refer Module 3 Section 7.11) Use of Genetically Modified Organisms and their derivatives, and use of Genetic Engineering is explicitly prohibited. This prohibition includes aquaculture stock, farm structures, feeds, treatments, and any other inputs to the organic aquaculture system. Contamination of products by GMOs will remove certification of those products.
- d. All synthetic fertilisers and pesticides are prohibited unless otherwise allowed in the BioGro Standards, refer *Appendix B Permitted and Restricted Materials*.
- e. Production and harvesting of aquatic plants (eg seaweed) must comply with the requirements of *Module 8 Section 4 Wild and Natural Products*. Harvesting of aquatic plants must not disrupt the ecosystem or degrade the collection area of the surrounding aquatic and terrestrial environment.
- f. Manufactured Feeds:

Ingredients of agricultural origin must ideally be certified organic. If such certified organic feed is not available in satisfactory quantity or quality then up to 15% of those ingredients may be non-organic subject to BioGro's annual written approval, for a limited period of time.

Non-organic aquatic animal protein and oil (e.g. fish meals and fish oils) may be used provided they:

 - i. are harvested from independently verified sustainable sources; and
 - ii. are verified to have heavy metal levels within the levels allowed in the BioGro Standards for food (refer *Appendix A Residue Levels in Certified Products, Water, Soil and Composts*); and
 - iii. do not constitute 100% of the diet.

At least 20% of the diet must be certified organic. By 2012 at least 50% of the diet must be certified organic.

- g. Prophylactic use of veterinary drugs is prohibited. Chemical allopathic veterinary drugs and antibiotics are prohibited for invertebrates.
- h. Live stock must be provided with conditions during transportation and slaughter that meet their specific needs and minimize the adverse effects of:
 - i. diminishing water quality; and
 - ii. time spent in transport; and
 - iii. stocking density; and
 - iv. toxic substances; and
 - v. escape.

Aquatic vertebrates must be stunned before killing. Equipment used to stun stock must function to remove sensate ability and/or kill the organism, and must be adequately monitored and maintained.

- i. Aquaculture production must be managed in accordance with the relevant requirements in Modules 3, 4, 5, 13, and 14 of these standards.
- j. Operators must take adequate measures to prevent escapes of introduced or cultivated species and document any escapes that are known to occur.
- k. The operator must handle live organisms in ways that are compatible with their physiological requirements.
- l. Animals must be handled, transported and slaughtered in a way that minimizes stress and suffering, and respects species-specific needs.

4.3

Applications

Applications for BioGro certification must:

- a. provide documentation that the operation meets all regulatory and industry requirements;
- b. supply copies of all current resource consents;
- c. provide recent results from environmental monitoring;
- d. describe all known point sources of pollution upstream, and from surrounding land; and
- e. include an organic management plan.

In addition applications for organic marine production units must include a chart indicating tidal flows and possible point sources of contaminants or pollutants.

BioGro may require residue screen and specific testing for pesticides and/or heavy metals and/or other materials prohibited under the BioGro Standards.

4.4

Conversion

- a. The conversion period allows time for the production system to flush out non-certified materials, and implementation of the organic management plan supplied with the BioGro application.
- b. The 12-month conversion period can commence once the conditions of organic production are being met and normally only after an audit has taken place.
- c. Part of the aquaculture unit may be converted and certified, as long as organically managed stock can be clearly defined and a designated area is set aside for organic production only. Partial certification is only permitted as a means of facilitating the conversion of the entire operation to BioGro production, refer to *Module 3 Certification System Section 4.7*.

4.5 Location of production units

- a. Construction and operation of the production unit must not have a significant adverse effect on the surrounding aquatic or terrestrial ecosystems, the environment or local communities in accordance with regulatory and industry requirements.
- b. Organic aquaculture units located downstream of any conventional aquaculture units must be at an appropriate distance (as a guideline at least 5 km) to ensure there is no contamination of the certified farm and products from the conventional units .

4.6 Construction materials

Construction materials and production equipment must not contain compounds that could detrimentally affect the environment or contaminate the certified product, e.g. paints, materials impregnated with synthetic/ chemical agents etc.

4.7 Breeds and breeding

Ideally foundation and replacement stock should be raised organically. If organic stock are not available then wild harvested stock may be brought in subject to BioGro's written approval.

If organic and wild harvested stock are not available then conventional stock may be brought in subject to BioGro's written approval, and must be in the organic system for at least two thirds of their life span.

- a. Breeds that are adapted to the local conditions must be chosen.
- b. Breeding goals must aim at obtaining good product quality, good growth and feed conversion.
- c. Natural breeding behaviour, settlement and hatching is preferred. However, production systems such as fish hatcheries are allowed.
- d. Wild stock collection must comply with the Fisheries Acts and Regulations.
- e. Polyploid and genetically engineered breeds are not allowed.

5 Fish farming

5.1 Water

Continuous addition of ample unpolluted water is essential in preventing stress and sickness in farmed fish and is a cornerstone of organic aquaculture.

- a. Environmental parameters such as temperature, dissolved oxygen, salinity and suspended solids must not fluctuate drastically within the system.

5.2 Natural behaviour

- a. There must be adequate room in cages or ponds for the fish to exhibit natural behaviour, such as forming shoals.
- b. The size of the enclosure will vary according to the species and fish size. As a guide, salmon must not exceed a stocking density of 10 kg of fish per cubic metre measured to a depth of 2m, and the smallest sea cage allowed is 100 m² with a minimum depth of 9 m.
- c. Adequate measures must be taken to prevent escapes of cultivated fish and to prevent infiltration of predators that may kill or damage them. The poisoning of predators is not permitted.
- d. Feed must be offered to fish in a way that allows natural feeding behaviour, with minimum loss to the environment.

5.3 Feed

- a. Diets must be balanced according to the nutritional needs of the fish.
- b. Manufactured feed must contain a minimum of 95 percent wild fish and/or certified organic ingredients.
- c. At least 50 percent of the protein originating from marine wild fish must come from cut-off waste.
- d. Meal made from whole fish must come from sustainably managed fisheries.
- e. Waste from the species being fed must not be used in the feed for that species.
- f. The feed manufacturing process must comply with the BioGro Standards.
- g. Documentation must be provided that fishmeal does not contain unacceptable levels of heavy metals, pesticide residues or other materials prohibited under the BioGro Standards.
- h. Minerals, trace elements and vitamins from natural origin may be used as feed supplements provided they are applied in their natural composition.
- i. Fodder preservatives originating from bacteria, fungi and plant-based products, such as enzymes, may be approved by BioGro for use.
- j. Synthetic growth-regulating agents, antibiotics, synthetic antioxidants, synthetic appetite stimulants, pure amino acids, and synthetic colouring agents must not be added to the feed. The use of carophyl pink or carophyl red is not permitted.
- k. Allowable additives for colouring effects include yeast and algal-based products that have BioGro-approval.
- l. All types of excrement including droppings, dung or other manure must not be used as feed.
- m. Feed must not be subjected to extraction by prohibited solvents (e.g. hexane) or the addition of prohibited chemical agents.
- n. Preservatives must not be added to feed except when used as a processing aid, and must be approved by BioGro.
- o. Urea and other synthetic nitrogen compounds must not be used as feed.

5.4 Disease and veterinary drugs

Organic management practices promote and maintain the health and well-being of animals through balanced organic nutrition, stress-free living conditions and breed selection for resistance to diseases, parasites and infections.

- a. Dead fish must be removed every day.
- b. If the behaviour of the fish becomes irregular, or if mortality rates exceed 0.5 percent per week, diagnostic tests must be made, water quality checked and the results recorded.
- c. Licensees must not allow diseased or severely infected fish to go untreated in order to maintain organic certification.
- d. BioGro must be notified prior to any veterinary treatment of certified fish.
- e. If veterinary drugs are used, treated fish must be quarantined and must not be sold as BioGro certified.
- f. Records of the name, quantity and date of treatment must be kept in the logbook for each production unit.
- g. The distance from the quarantine unit to the nearest unit containing organically approved fish must be a minimum of 75 m, or there must be a physical barrier between the units which hinders the flow of water between them.
- h. The use of malachite green or formalin is not permitted as fungal treatment of eggs.
- i. Iodine treatment of salmon eggs: Where this is a statutory requirement prior to shipment from another site this is a restricted practice until such time as an alternative can be found. Prior written approval must be obtained from BioGro for the iodine treatment of eggs.
- j. Vaccinations are allowed with the following limitations:
 - i. when an endemic disease is known or expected to be a problem in the region of the farm and where this disease cannot be controlled by other management techniques, or
 - ii. when a vaccination is legally required, and
 - iii. the vaccine is not genetically engineered or a derivative of genetic engineering.

5.5 Handling

Capture and handling stresses fish and can damage them.

- a. Fish must be handled as little as practical and in a way that minimises stress.
- b. The fish must be out of the water for no more than 30 seconds during handling.
- c. The use of chemical tranquilisers or high concentrations of CO₂ is not permitted.
- d. Any sorting or moving must be recorded in the logbook.

5.6 Slaughtering

- a. The slaughter technique must be approved by BioGro.
- b. Fish must not be slaughtered in the pond or cage containing live fish.
- c. The process must be managed so as to avoid stress to the fish prior to slaughter and to avoid suffering during slaughter.
- d. Animals must be slaughtered in a way that minimizes stress and suffering, and respects species-specific needs.

5.7 Logbook

The farm manager must keep an operations logbook as the record of inputs and outputs for each production unit. It must record:

- a. the number and source of fingerlings introduced to ponds/cages;
- b. the type, source (including batch number) and quantity of food used in each fish-raising unit;
- c. fish deaths and estimated mortality in each unit;
- d. the diagnosis for significant mortalities and any treatment administered;
- e. the numbers of fish transferred between units or harvested;
- f. the data obtained from environmental monitoring undertaken by the manager or industry or regulatory bodies, e.g. water temperature, oxygen content and pH.

6 Shellfish and crustacean farming

6.1 Introduction

- a. The general principles of organic fish farming apply to the farming of other species. These include:
 - i. ample clean water;
 - ii. adequate space;
 - iii. approved surrounding land uses;
 - iv. no prohibited medication or feed supplements; and
 - v. considerate handling.

6.2 Harvesting management

- a. Bio-toxins: Filter-feeding shellfish can concentrate pollutants, pathogens and algal toxins that may be present. Marine farms applying for certification must have a bio-toxin risk management plan approved by BioGro. This must detail:
 - i. previous toxic blooms detected in the area;
 - ii. proposed water and/or product testing;
 - iii. the level of toxin at which harvesting would cease; and
 - iv. product withholding periods that will protect the consumer.
- b. Rainfall: Harvesting may need to be restricted after heavy rainfall as under certain conditions shellfish can accumulate levels of contaminants that are potential risk to consumers. Current regulatory and industry requirements for this must be detailed in the application, along with a general description of land use in the surrounding catchment, and harvest management plan for approval by BioGro.

6.3 Feed

Oyster and mussel farms rely on the natural productivity of the site to supply food for the stock.

6.3.1 Feed gathering

- a. Feed gathering from the marine or estuarine environment must be sustainably managed and have regulatory approval.
- b. Collection areas must be designated in the BioGro application and may be subject to inspection.

6.3.2 Growing

Feed for paua, crayfish etc. may be grown with the assistance of BioGro-approved fertilisers and artificial lighting.

6.4 Residue testing

BioGro may require a residue screen and specific testing for pesticides and/or heavy metals and/or other materials prohibited under the BioGro Standards on ingredients of aquaculture feed and/or other inputs, and on products, prior to certification. Refer to BioGro Standards *Appendix A: Residue Levels in Certified Products, Water, Soil and Composts*.

7 Processing aquacultural products

7.1 Processing

- a. The quality of fish and shellfish must be maintained by chilling as soon as practical after harvest and the temperature monitored and recorded during transportation and storage.
- b. The premises and handling of the product must comply with regulatory requirements.
- c. Processing systems must ensure that certified products:
 - i. retain their identity;
 - ii. are clearly separated from uncertified products; and
 - iii. do not come into contact with prohibited materials.
- d. All contact surfaces must be washed down with potable water before processing commences.

7.2 Additives and processing aids

- a. Additives and processing aids must only be used to:
 - i. maintain product quality and keeping ability; or
 - ii. enhance composition, consistency and appearance.
- b. Unrefined sea salt with no additives, and rock salt are permitted.
- c. There must be no possibility of deception of the consumer concerning the nature and quality of the food.
- d. Refer to *Module 13 Processing Standard* for allowed additives, processing aids, and ingredients of non-agricultural origin.

7.3 Smoking

Preserving products by smoking may be permitted depending on the materials and process used. Prior written approval must be obtained from BioGro.



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