1 Scope

This Good Aquaculture Practices (GAqP) for milkfish and tilapia covers practices that aim to prevent or minimize the risks associated with aquaculture production in fresh, brackish, and marine waters. This code covers the following aspects of production namely a) food safety (e.g., traceability), b) animal health and welfare (e.g., biosecurity), c) environmental integrity, and d) socio-economic.

This standard applies to aquaculture farms and/or production areas intended for milkfish and tilapia farming and consists of compliance with technical and legal requirements.

2 Normative References

The following documents are referred to in the text in such a way that some or all their contents constitute the requirements of this document. The latest edition of the referenced documents (including any amendments) applies.

Bureau of Agriculture and Fisheries Standards (BAFS)-Department of Agriculture (DA). (2022). Veterinary Drug Residues in Food — Maximum Residue Limits (PNS/BAFS 48:2022). http://spsissuances.da.gov.ph/index.php/da-philippine-national-standards/1132-pns-bafs-47-distilled-fermented-coconut-sap-coconut-lambanog-2

Department of Environment and Natural Resources. (2019). *DENR Administrative Order No. 2019-09: Updated national list of threatened Philippine fauna and their categories.* https://bmb.gov.ph/downloads/WRD/WC/WC2020/stat_and_lists_of_wildlife/fauna/dao-2019-09.pdf

3 Terms and Definitions

For the purpose of this standard, the following terms and definitions apply:

3.1
aquaculture facilities
include permanent or semi-permanent systems or structures for breeding, treatment, and raising of organisms. Aquaculture facilities may exist both in marine waters, inland water environments, and as terrestrial production systems (Food and Agriculture Organization of the United Nations, n.d.)

3.2
biosecurity

set of management and physical measures designed to reduce the risk of introduction, establishment, and spread of animal diseases, infections or infestations to, from, and within an animal population (World Organization for Animal Health [WOAH], 2018). It is also defined as an overall program that uses a combination of physical barriers and directed actions in a specific way that should prevent the introduction of, or limit the spread of infectious disease (ASEAN Sectoral Working Group for Livestock)

3.3
competent authority
official government agency having jurisdiction (Codex Alimentarius Commission [CAC], 2006). Also refers to the bureau or agency mandated by law with responsibility and competence for ensuring and supervising the implementation of sanitary and phytosanitary (SPS) measures, regulations, or standards (DA-BAFS, 2023)

3.4
veterinary drugs
any substance applied or administered to any food-producing animal, such as meat or milk-producing animals, poultry, fish, or bees, whether used for therapeutic, prophylactic, or diagnostic purposes or for modification of physiological functions or behavior (CAC, 2017)

4 Use

This Standard adheres to the principles outlined in PNS/BAFS 135:20xx (Good Aquaculture Practices — Code of Practice). It specifically establishes requirements for milkfish and tilapia farming. This document shall be used independently and serves as the basis for inspecting milkfish and tilapia farms for GAqP certification under Fisheries Administrative Order No. _____.

Other farmed species shall be assessed against existing species-specific GAqP standards. In the absence of such standards, the general provisions of PNS/BAFS 135:20xx shall apply.

5 Site Selection

5.1 Location

5.1.1 Aquaculture facilities should be located in environmentally suitable and sustainable areas where the risk of contamination is minimized or where sources of pollution can be controlled or mitigated according to national law and regulations.

5.1.2 Proof of compliance with existing environmental regulations by the competent authority shall be available.

5.1.3 Proof of legal rights, privileges or ownership of the farm area (license to operate or business permit from the local government unit) and its location map shall be available.

5.1.4 Aquaculture facilities should have access to farm supplies/inputs (i.e. fingerlings, fuel, fish nets, rope, floats, food supplies, etc.), and trading centers where the farm produce can be profitably sold.

5.1.5 Aquaculture facilities should be relatively safe from flooding, soil erosion, waves, and storms. The lay of the land should be such that water can easily flow in and out of the pond without the need for a water pump. If possible, the area should have a gentle slope to take advantage of the existing contours.

5.1.6 Aquaculture facilities should have an abundant supply of clean water (e.g., rivers, streams, irrigation canals, deep well, etc.)

5.1.7 For cages made with material that may not withstand harsh conditions (e.g. bamboo, G.I. Pipes), aquaculture facilities should be located in coves and inlets to protect from strong winds and waves.

5.1.8 For extensive and semi-intensive aquaculture facilities where frequent algal blooms are reported should be avoided as the rearing water in these areas can become oxygen-depleted, and cause fish kills.

5.1.9 Aquaculture facilities should be located in a secured area to avoid poaching.

5.2 Layout and design

5.2.1 Aquaculture facilities should be used primarily for aquaculture purposes only. Livestock and poultry production should be done in distinct areas within the farm where risks of contamination are minimized.

5.2.2 Wild and domesticated animals should not be allowed in the production area or its vicinity to prevent fecal and other hazardous contamination. However, they may be permitted under strict conditions, provided that measures are in place to prevent contamination.

5.2.3 Farm design and layout should prevent cross-contamination and damage to existing aquatic habitats.

5.2.4 Drainage system of septic tanks and toilet facilities should be well installed and constructed to prevent contamination of farm facilities. For cages, portalets should be provided.

5.2.5 Equipment, such as cages and nets, should be designed and constructed to ensure minimal physical damage to fish during growing and harvesting and to allow for adequate cleaning and disinfection.

5.2.6 Materials and equipment to be used should be durable enough to withstand harsh conditions.

5.2.7 Equipment, such as containers and vehicles for feed, seed, and harvested fish, should be designed and constructed to allow for adequate cleaning and disinfection.

5.2.8 Aquaculture facilities should integrate biosecurity measures to prevent cross-contamination and disease outbreak.

5.2.9 For land-based facilities, reservoir pond for incoming water and settling pond for effluents should be available. However, a reservoir pond may not be necessary if the farm has adequate measures in place to ensure sufficient water supply and proper water management.

5.2.10 For land-based facilities, buffer zone should be observed in accordance with existing regulation. For sea-based facilities, buffer distance between cages should be observed.

5.2.11 Aquaculture facilities should be designed, operated and maintained in ways that prevent contamination from workers, sewage/toilets, domestic animals, machinery oil/fuel, and other possible sources in order to maintain hygienic conditions

5.2.12 Aquaculture facilities should have a structure that allows water flow

5.2.13 Aquaculture facilities should have measures in place (e.g., installation of net shading, where applicable) to counter extreme temperatures that would adversely affect fish survival in ponds.

5.2.14 The pond layout or design should be in line with the desired type of operations and the nature of the site (size, shape, shore development, etc.).

5.2.15 Farms should consider installing wave breakers to withstand high-level of water

6 Facilities, Sanitation, and Waste Management

6.1 Facilities

6.1.1 Disposal facilities for solid and liquid wastes should be in suitable and confined areas, and waste disposal shall be in compliance with existing regulations.

6.1.2 Fuel and chemical substances (sanitizer, fertilizer, and reagents) should be stored in a land-based storage facility and separated according to manufacturer's instructions and as specified on the label.

6.1.3 Regular repair and maintenance should be undertaken to preserve the good physical condition of the facility.

6.1.4 Infected or dead milkfish and tilapia should be collected immediately and disposed of properly through the establishment of a mortality pit and fish cemetery, among others. Temporary containers for dead fish prior to disposal should be provided in cage operations.

6.2 Sanitation

6.2.1 Aquaculture facilities and their surroundings should be maintained in a clean and hygienic condition.

6.2.2 Containers, equipment, and farm facilities should be maintained in good condition to avoid contamination.

6.2.3 Adequate procedures for cleaning and disinfection of containers, equipment, and farm facilities should be in place and implemented.

6.2.4 Cleaning materials and disinfectants should be properly handled to prevent contamination or pose no environmental hazards.

6.3 Waste management

6.3.1 Aquaculture facilities construction and waste disposal should be conducted daily and responsibly in accordance with applicable sanitation regulations. The farm should take appropriate measures to: a) dispose of solid wastes and garbage in an environmentally sound way; and b) dispose of dead milkfish and tilapia in a hygienic manner especially after disease outbreak.

7 Personnel Health and Hygiene

7.1 Workers should be trained on farm level hygienic practices to ensure awareness of their roles and responsibilities for protecting aquaculture products from contamination and deterioration throughout the production cycle. This includes the following protocol:

7.1.1 Workers shall undergo an annual medical examination to ensure they are fit to work.

7.1.2 Workers who have shown signs of medical problems or conditions that may pose health risks shall be excluded from handling fishery products until deemed certified fit to resume work.

7.1.3 Workers should wear suitable and appropriate working clothes and protective gear. In areas and conditions where risk is high, protective gear shall be used.

7.1.4 Workers shall wash their hands each time before commencing work.

7.1.5 Wounds should be covered with waterproof bandages and clean, waterproof gloves or boots.

7.1.6 Smoking, spitting, or drinking alcoholic beverages in the working and storage premises shall not be allowed.

8 Farm Management

8.1 Farm preparation

8.1.1 Aquaculture facilities preparation practices should minimize risks for cross-contamination.

8.1.2 Prohibited chemicals or biological substances listed in Annex A shall not be used in aquaculture farm preparation.

8.1.3 Fertilizers, prebiotics, and probiotics should be used in accordance with the manufacturer's instruction and/or recommendation of the competent authority.

8.1.4 Stocking density should be optimum to milkfish and tilapia and to the culture system involved as specified in Annex A (Recommended stocking density for milkfish and tilapia).

8.1.5 For land-based operations, farmers should regularly monitor soil quality parameters to ensure that it is within optimal range.

8.2 Water management

8.2.1 Water used for land-based aquaculture should be properly filtered, settled, aerated, and maintained as suitable for the production of aquaculture species which is safe for human consumption.

8.2.2 Basic water quality parameters should conform with the existing standards set by the competent authority and be monitored regularly to ensure suitability and safety. The optimum water quality parameters/requirements for milkfish and tilapia are presented in Annex B (Optimum water quality parameters for milkfish and tilapia).

8.3 Feeds and feeding

8.3.1 Where commercial feed is used, aquaculture operations should include procedures for avoiding feed contamination.

8.3.2 Commercial feeds shall be obtained from a company registered and monitored by the competent authorities.

8.3.3 Samples of commercial feeds should be inspected, monitored, and tested for aflatoxin and chloramphenicol by the competent authority.

8.3.4 Feed ingredients, additives, premixes, and compound feeding stuff should be obtained from a company registered and monitored by the competent authorities.

8.3.5 Imported formulated feeds shall be obtained from a company registered by the competent authority in compliance with existing regulations and in conformity with existing standards.

8.3.6 Feeds should be stored properly in a cool, dry place to prevent spoilage, mold growth, and contamination. It should be organized to facilitate a first-in, first-out (FIFO) release and use.

8.3.7 Medicated and non-medicated feeds should be stored separately to minimize the risk of feeding to non-target animals.

8.3.8 The content of additives and veterinary drugs should comply with the existing regulations and conform with the existing standards.

8.3.9 Packages should be properly labeled with the description of composition, storage conditions, manufacturing date, expiry date, feeding rate, and other necessary guidance in adequate language.

8.3.10 Feeding practices should minimize the risk for biological, chemical, and physical contamination of feeds and animals.

8.3.11 Feeding practices should prioritize the maintenance of water and sediment quality to prevent nutrient overloading and minimize waste. Sea-based facilities shall implement feeding strategies that prevent overfeeding and minimize pollution.

8.3.12 Non-commercial feeds such as but not limited to live feeds, farm-formulated feeds, and natural food should be of good quality and suitable for the species.

8.3.13 If non-pelleted feeds, or non-conventional feeds (i.e., bread) are used in the farm as fish feed, the protocol on the preparation and administration of such shall be provided.

8.3.14 Probiotics and other biological inputs shall be registered with, and approved by the relevant competent authorities.

8.3.15 Feed prepared on the farm should meet the nutrient requirements of milkfish and tilapia as presented in Annex C (Nutrient requirements for milkfish and tilapia).

for consultation: check if farm-made feeds are required to be analyzed

8.3.16 Farmers should administer the appropriate type of feed according to the culture system used and conduct periodic sampling of the stocks for proper feed management.

8.4 Harvesting, postharvesting, and transport

8.4.1 Harvesting and postharvesting

8.4.1.1 Harvesting and postharvesting equipment and paraphernalia should be cleaned and sanitized. Such equipment should be stored properly.

8.4.1.2 Harvesting should be planned in advance and timed to prevent fishery products from being exposed to unduly high temperatures. Harvesting (total or selective) should be done early in the morning to avoid stress and mortality of the cultured animal.

8.4.1.3 Harvested aquatic animals should be quickly and hygienically handled, using practices that do not cause contamination and physical damage to the product.

8.4.1.4 Practices should ensure that the viability of live aquatic animals is not unduly affected by extreme temperatures, physical damage or undue stress (if applicable).

8.4.1.5 For products intended to be sold chilled or frozen, practices should ensure rapid and humane slaughtering of harvested aquatic animals to minimize stress and preserve the quality of the product.

8.4.1.6 Water and ice used during harvesting should be of quality suitable for the production of food.

8.4.1.7 Postharvest operations should be carried out quickly, hygienically, and without damage to the product.

8.4.1.8 Food additives and chemicals, which are used in contact with products, shall be in compliance with prevailing legal requirements.

8.4.1.9 Postharvest wastes should be collected in designated areas and disposed of properly to minimize risks of cross-contamination.

8.4.1.10 For postharvest operations, clean and uncontaminated water should be available and used in sufficient amount for handling and cleaning operations.

8.4.1.11 For postharvest operations, ice shall be made from potable water and sourced from approved establishment by the competent authority.

8.4.1.12 For postharvest operations, ice should be received, handled, and stored under good sanitary conditions, which minimize risks of contamination.

8.4.1.13 Harvested aquatic animals should be properly chilled and maintained at a temperature range of 0°C to 4°C to preserve freshness, quality, and safety.

8.4.1.14 Fishery products placed on the market for further processing before human consumption should be pathogen-free.

for consultation: verify if the competent authority monitors pathogen-free aquatic products in the market

8.4.1.15 Farmers should follow recommended procedures for handling fresh milkfish and tilapia products like washing, sorting, counting, weighing, packing, and use of quality ice.

8.4.2 Transport

8.4.2.1 Fishery products should be transported in clean, sanitized, and well-maintained materials, with protocols to prevent contamination from environmental sources such as air, soil, water, oil, and chemicals.

8.4.2.2 Live aquatic animals should be transported under conditions that recognize their welfare and do not adversely affect their viability. For live tilapia, farmers should use aerated tanks during transport.

8.4.2.3 Aquatic animals intended to be sold chilled for human consumption shall be transported in containers designed to maintain a consistent temperature of 0°C to 4°C throughout the entire transport period.

8.4.2.4 Containers used for transporting fishery products with ice should be designed to allow melted water to drain away from the product, ensuring optimal quality and hygiene.

8.4.2.5 All prohibited additives and chemicals shall not be used in contact with fishery products (chilled or frozen)/live animals.

9 Animal Health and Welfare

9.1 Farm operators should formulate and implement an aquatic animal health plan, following the existing protocols of the competent authorities for the health and management of aquatic animals.

9.2 Slaughtering of aquaculture animals for disease control purposes should be authorized by the competent authority, and measures for the notification and control of diseases of aquatic animal origin should be effectively implemented.

9.3 Farm operators shall adhere to the risk-based animal health surveillance program, which includes both passive and active/targeted schemes conducted by the competent authority, to ensure effective monitoring and management of aquatic animal health.

9.4 Aquatic animals, wild-sourced or captive propagated by registered hatcheries, should be of good quality and clinically healthy, as confirmed through screening and testing by the competent authority and its recognized laboratories before stocking.

9.5 All veterinary drugs and chemicals for use in aquaculture shall comply with national regulations, as well as international guidelines, if applicable. If veterinary drugs and chemical treatment is necessary, farm operators shall follow the instructions on the manufacturer's label or as advised by the competent authority.

9.6 Substances requiring prescription shall only be used under supervision by a qualified expert. Non-prescription substances should be used according to manufacturer's instructions and as specified on the label.

9.7 Veterinary drugs, medicated feeds, chemicals, and biological substances should be properly stored according to instructions.

9.8 Veterinary medicines should be used in a responsible manner and in accordance with applicable national legislation or relevant international agreements/guidelines that ensure effectiveness for animal health with consideration of public safety and protection of the environment.

9.9 Treatment and control of diseases with authorized veterinary drugs should be carried out only on the basis of a proper diagnosis.

9.10 Observation of withdrawal periods and residues should be verified with available records and by adequate testing.

9.11 A quarantine protocol should be established and implemented for the treatment and containment of diseased aquatic animals.

9.12 Proper handling and disposal procedures for diseased aquatic animals shall be implemented to ensure effective disease control and prevent the spread of pathogens.

9.13 For farms administering chemicals, and withdrawal period shall be followed. Veterinary drug residues shall be within the limits set in the PNS/BAFS 48:2022 (Veterinary Drug Residues in Food — Maximum Residue Limits).

9.14 Movement of aquatic animals and aquatic animal products should take place in accordance with existing national regulations to prevent the entry or transfer of diseases and infectious agents pathogenic to aquatic animals while avoiding unwarranted sanitary measures.

9.15 Farm operators should formulate and implement biosecurity measures, in adherence to the recommended protocol of the competent authority, to prevent the entry of disease into the farm and/or control its spread within the farm.

9.16 Farm operators should maintain a suitable culture environment throughout the production cycle of the species being raised to promote aquatic animal welfare.

9.17 Farm operators should develop and implement handling protocols during sampling, harvesting, quarantine, and disease treatment to promote aquatic animal welfare.

9.18 Species to be used in polyculture or integrated multitrophic aquaculture should be carefully considered in order to reduce potential risks of disease transmission.

10 Environmental Integrity and Sustainability

10.1 Screens and barriers should be available to limit the incidence of escape to the natural environment of cultured species.

10.2 Trapping devices should be installed in areas where potential escapes could happen to reduce the risk of such an event.

10.3 Aquaculture activities shall be limited within the designated area for aquaculture use based on the approved zoning plan to ensure sustainable resource utilization and maintain the carrying capacity of the ecosystem.

10.4 The use of lethal methods to eradicate predators, particularly those classified as vulnerable, threatened, or endangered under DENR Administrative Order No. 2019-09 (Updated National List of Threatened Philippine Fauna and their Categories), and relevant international conventions, including the International Union for Conservation of Nature (IUCN) Red List, shall be prohibited.

10.5 Environmental Impact Assessments (EIA) should be conducted, as prescribed by the national and local regulations, prior to the approval of the establishment of aquaculture facilities.

for verification with DENR during SC:

10.6 Location of aquaculture farm should be in accordance with local and national plans and regulations on environmental protection.

10.7 The site of aquaculture facilities shall be evaluated and permitted based on its proximity to ecologically sensitive or protected areas such as mangrove forests, coral reefs, and other biodiversity hotspots. The farm shall also adhere to zoning laws set by local government units (LGUs).

10.8 Rehabilitation of damaged natural surroundings caused by aquaculture operations should be encouraged

10.9 Effective mitigation measures should be taken if the current practices are damaging habitat or environment.

10.10 Regular monitoring of farm environmental quality should be carried out.

for verification during SC: who will conduct the monitoring of farm environmental quality? BFAR, DENR, or farm operators?

10.11 Measures should be adopted to promote efficient water management and use, as well as proper management of effluents to reduce impacts on surrounding land, and water resources.

10.12 Where possible, good quality, hatchery-produced stocks should be used for culture. When wild-sourced stocks are used, they should be collected using responsible practices or in accordance with national laws and regulations where they exist.

10.13 Exotic species cultured in controlled conditions may only be used when the competent authority has conducted a risk assessment and determined that their introduction poses an acceptable level of risk to the natural environment, biodiversity, and ecosystem health. Additionally, any exotic species shall be disposed of in a manner that prevents their release into the natural environment.

10.14 Where genetic material of an aquatic organism has been altered in a way that does not occur naturally, science-based risk assessment should be used to address possible risks on a case-by-case basis.

10.15 Farm workers and managers should be trained in environmental management and mitigation of impact to ensure they are aware of their responsibilities in protecting the environment.

10.16 Aquaculture facilities should conduct regular monitoring of uneaten feed to prevent nutrient buildup and environmental degradation.

11 Socio-Economic Aspects

11.1 Workers should receive fair treatment, salaries, mandatory benefits, and incentives consistent with national rates and in accordance with existing laws, regulations, and any related agreements or arrangements between the employer and the workers.

11.2 Living quarters of stay-in labor should be safe, clean, good habitable condition, and convenient.

11.3 Potable water in adequate supply and appropriate suitable toilet facilities should be available and properly maintained.

11.4 Aquaculture facility operations should observe the rights of host local community minimizing potential adverse impacts on public land, infrastructures, fishing grounds, and water resources following existing laws and regulations.

11.5 Workers should not be discriminated against on the basis of gender, race, religion, culture, age, etc.

11.6 Training on Occupational Health and Safety (OH&S) should be conducted for the workers to ensure safer farm work conditions.

11.7 An adequate quantity of first aid kits should be available and easily accessible at the production area, and laborers should be able to demonstrate awareness of and apply various first aid measures.

11.8 Harmonious, productive and mutually beneficial relationship with the local community should be maintained to foster responsible business social responsibility.

11.9 Proactive anti-child labor policy should exist in the farm and shall be compliant with the existing regulation and other applicable regulations.

12 Traceability and Record Keeping

11.1 The following records should be kept and maintained for at least 24 months for traceability purposes:

a) source of stocks

b) type, origin, and use of feeds and feed ingredients.
c) movement of animals
d) occurrences of diseases
e) harvesting
f) buyers of final products
g) farm management activities
h) water quality monitoring
i) use of inputs
j) management of effluents
k) habitat rehabilitation
l) environmental monitoring

Annex A
(Normative)

Recommended Stocking Density for Milkfish and Tilapia

Table a.1 Recommended stocking density for milkfish in relation to the type of cage (PCAARRD-DOST, 2016)

Type of Cage	Stocking density
Floating and stationary cages in shallow water	5-30 pcs/m^3
Floating cages in deep lakes and bays	30-40 pcs/m^3
Offshore cages	40-100 pcs/m^3

Table a.2 Recommended stocking density for tilapia in ponds based on the type of culture system (Eguia et al., 2020)

Culture system	Stocking density (fingerlings/$m^{3)}$
Extensive	1-2
Semi-intensive	3-4
Intensive	5-10

Annex B
(Normative)

Optimum Water Quality Parameters for Milkfish and Tilapia

Table b.1 Water quality requirements of milkfish (PCAARRD-DOST, 2016)

Parameters	Range
Dissolved oxygen	5 ppm
pH	-
Temperature	25℃-32℃ or 10℃ - 40℃
Salinity	0.5-40 ppt

Table b.2 Water quality requirements of tilapia (Eguia, et al., 2020)

Parameter	Range	Optimum for growth
Salinity (ppt)	0-36 ppt (depending on species)	Up to 19 ppt
Dissolved oxygen (mg/L)	Down to 0.1	>3
Temperature	8-42	22-29
pH	3.7-11	7-9
Ammonia (mg/L)	Up to 7.1	<0.05

Annex C
(Informative)

Nutrient Requirements for Milkfish and Tilapia

Table c.1 Amino acid requirements of milkfish, % of dietary protein (Vasava et al., 2018)

Amino acid	*O. niloticus*
Arginine	2.0
Histidine	4.0
Isoleucine	5.1
Leucine	4.0
Lysine	2.5
Methionine	4.2 or 2.8
Phenylalanine	4.5
Threonine	0.6
Tryptophan	3.6
Valine	5.2

Table c.2 Protein requirements (dry basis) of tilapia of various species and sizes (Mjoun et al., 2010)

Species	Size (g)	Requirement (% of diet)
Oreochromis niloticus	0.5-68.3	40
	45.0-76.3	40
	0.84-22.8	40

	40.4-108.0	30
O. niloticus x O. aureus	21.3-81.5	28
O. aureus	2.5-16.6	56
O. mossambicus	1.83-8.5	40

Table c.3 Amino acid requirements (dry basis) of tilapia, % of dietary protein (Mjoun et al, 2010)

Amino acid	*O. niloticus*	*O. mossambicus*
Arginine	4.20	2.82
Histidine	1.72	1.05
Isoleucine	3.11	2.01
Leucine	3.29	3.40
Lysine	5.12	3.78
Methionine	2.68	0.99
Phenylalanine	3.75	2.50
Threonine	3.75	2.93
Tryptophan	1.00	0.43
Valine	2.80	2.20

Note that the methionine requirement depends on dietary cystine concentration. If cystine is not included in the diet, part of methionine would be used to synthesize cystine and if cystine is supplied by the diet, the requirement of methionine is reduced. Likewise, tyrosine can be synthesized from phenylalanine and its supply by the diet would decrease the dietary requirement of phenylalanine for maximal growth.

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