ORGANIC CROP PRODUCTION, POSTHARVEST, AND PROCESSING- CODE OF PRACTICE

PNS/BAFS 337:2022

EXPLANATORY MANUAL

DEPARTMENT OF AGRICULTURE (DA)
BUREAU OF AGRICULTURE AND FISHERIES STANDARDS (BAFS)

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Explanatory Manual

Organic Crop Production, Postharvest, and Processing- Code of Practice (PNS/BAFS 337:2022)

Department of Agriculture (DA)
Bureau of Agriculture and Fisheries Standards (BAFS)
BPI Compound, Visayas Avenue, Diliman, Quezon City, 2024

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Introductory Note

This Explanatory Manual (EM) complements the Philippine National Standard (PNS) Organic Crop Production, Postharvest, and Processing - Code of Practice(PNS/BAFS 337:2022). The PNS defines the seed and crop production (including mushrooms), wild harvest (excluding honey), post-harvest, processing, handling, storage, and transport of organic produce and processed products to ensure their organic integrity.

The Technical Working Group (TWG) that developed this EM is composed of representatives from the DA - BAFS Organic Agriculture Division (OAD), DA - National Organic Agriculture Program (NOAP), DA - Regional Field Office II (DA-RFO II), University of the Philippines Los Banos, and the private sector from the Organic Certification Center of the Philippines (OCCP), DMDC Farm, and Sorosoro Ibaba Development Cooperative (SIDC). The creation of this TWG was formalized through DA Special Order (SO) No. 272, series of 2023, outlining the formation of Technical Working Groups (TWG) for the Development of Knowledge Products of Philippine National Standards (PNS).

This EM is designed to help readers further understand the provisions regardless of whether they are regulatory personnel, extension workers, industry professionals, or individuals interested in organic farming. Furthermore, it aims to provide further clarity, insights, and inspiration for the target industry to adopt and implement the PNS requirements.
During the creation of the EM, appreciation is extended for the permission provided by private farms, BAFS-OAD, and the DA RFO II for their contributions to the needed photographs of their facilities, practices, and products. The explanatory notes primarily source information from publications of reputable organizations and anecdotal experiences, enhancing the comprehensibility of the content.

Director's Message

I am pleased to present the Explanatory Manual for the Philippine National Standard (PNS) Organic Crop Production, Postharvest, and Processing - Code of Practice (PNS/BAFS 337:2022). In line with our commitment to becoming more customer-oriented, this Explanatory Manual is designed to help you better understand the PNS and implement its provisions more clearly.

Following the Focus Group Discussions (FGD) with regulatory agencies, we recognized the need to enhance and ensure a consistent understanding of the PNS. Technical terms, which can be challenging to interpret, and variations in understanding the minimum requirements for organic farming among readers have made uniform implementation challenging. Therefore, we have created this Explanatory Manual to simplify the use and enhance understanding of the PNS.

The Technical Working Group (TWG) has consistently provided support and collaboration, offering significant recommendations that have led to the development of this Explanatory Manual. We aim to make it practical and meaningful, serving as a helpful resource for all regulatory personnel and extension workers in their activities. Our ultimate goal is to transform the PNS document into an empowering tool for all relevant stakeholders. By addressing challenges in implementing our PNS, we hope to create an environment where the PNS is understood, embraced, and effectively adopted.

I extend my sincere gratitude to the Technical Working Group (TWG) for their invaluable contributions to the development of this Explanatory Manual. Together, we strive for a future where the PNS is uniformly adopted and effectively implemented.

KAREN KRISTINE A. ROSCOM, PFT, PhD
Director IV

List of Acronyms

ASEAN	Association of Southeast Asian Nations
ASOA	ASEAN Standard for Organic Agriculture
ATI	Agricultural Training Institute
BAFS	Bureau of Agriculture and Fisheries Standards
BPI	Bureau of Plant Industry
CVRC	Cagayan Valley Research Center
DA	Department of Agriculture
DAERA	Department of Agriculture, Environment and Rural Affairs
DOH	Department of Health
DOST	Department of Science and Technology
DENR	Department of Environment and Natural Resources
DTI	Department of Trade and Industry
DNA	Deoxyribonucleic Acid
FAA	Fish Amino Acid
FAO	Food and Agriculture Organization
FDA	Food and Drug Administration
FFJ	Fermented Fruit Juice
FPA	Fertilizer and Pesticide Authority
FPJ	Fermented Plant Juice
GAP	Good Agricultural Practice
GM/GMO	Genetically Modified / Genetically Modified Organism
GMP	Good Manufacturing Practices
GPS	Global Positioning System
IFOAM	International Federation of Organic Agriculture Movements

List of Acronyms

ISAAA	International Service for the Acquisition of Agri-biotech Applications
MSDS	Material Safety Data Sheet
NOAP	National Organic Agriculture Program
OAD	Organic Agriculture Division
OBCA	Organic Bio-control Agents
OCB	Organic Certifying Body
OSAPS	Organic Soil Amendments and Plant Supplements
PAB	Philippine Accreditation Bureau
PCA	Philippine Coconut Authority
PCAARRD	Philippine Council for Agriculture, Aquatic and Natural Resources Research and Development
PCO	Pollution Control Officer
PCR	Polymerase Chain Reaction
PNS	Philippine National Standard
TWG	Technical Working Group
USDA	United States Department of Agriculture

List of related Laws and Regulations

Republic Act No. 10068 also known as the “Organic Agriculture Act of 2010”

Republic Act 9003 or also known as The Solid Waste Management Act of 2001

Republic Act 8749 or also known as Philippine Clean Air Act of 1999

Republic Act 8976 or also known as The Philippine Food Fortification Program and for other Purposes

Republic Act 8172 or the Act promoting Salt Iodization Nationwide and for related purposes (ASIN)

Republic act no. 11511 or the Act amending the Republic Act No. 10068 or the Organic Agriculture Act of 2010

Department Circular 9. series of 2020 also known as “National list of Permitted Substances for Organic Agriculture

Food and Drug Administration Circular No. 2013-007 or “Amendment of Bureau Circular - No. 2007-009 on the standard iodine level of salts for strict compliance of iodized salt manufacturers or processors

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Foreword

The DA-BAFS Technical Services Division (TSD) generated a Priority List for PNS Promotion for 2023 based on established prioritization criteria, which included the Philippine National Standard (PNS) Organic Crop Production, Postharvest, and Processing - Code of Practice(PNS/BAFS 337:2022). This Standard defines the seed and crop production (including mushrooms), wild harvest (excluding honey), post-harvest, processing, handling, storage, and transport of organic produce and processed products to ensure their organic integrity.

To provide supplementary material to the standard and assist regulatory officers of the DA-BAFS, the DA Regional Field Offices, and the DA-NOAP, an EM was developed. The EM clarifies the text of the standard and provides more specific details on the minimum requirements in organic crop production, post-harvest, and processing. The TWG, created specifically for the purpose, assisted in completing the EM in 2023, given the expressed urgency for this supplementary material to facilitate trade.

To create this EM, a series of meetings and writeshop were conducted. The photographs and other relevant information gathered were incorporated into the supplementary material. The TWG discussed and finalized the draft for 7 months (May to November 2023).

Section 1

Scope

1 Scope

This Standard defines the seed and crop production (including mushrooms), wild harvest (excluding honey), post-harvest, processing, handling, storage, and transport of organic produce and processed products to ensure their organic integrity.

Section 2

Normative References

2 Normative References

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

An Act for Salt Iodization Nationwide (ASIN), Republic Act No. 8172. (1995). https://www.officialgazette.gov.ph/1995/12/20/republic-act%02no-8172/

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Department of Health (DOH). (2017). Philippine National Standards (PNS) for drinking water of 2017 (DOH-Administrative Order [AO] 2017-0010).https://www.fda.gov.ph/wp content/uploads/2021/08/Administrative-Order-No.-2017-0010.pdf

Ecological Solid Waste Management Act of 2000, Republic Act 9003. (2001) (https://www.lawphil.net/statutes/repacts/ra2001/ra_9003_2001.html

Food and Drug Administration (FDA)-DOH. (2004). Current Good Manufacturing Practices (GMP) in manufacturing, repacking, or holding food (FDA AO No. 153, s.2004). https://www.fda.gov.ph/wp-content/uploads/2020/03/General Standard-for-Food-Hygiene-Repealing-Administrative-Order-No.-153-s.-2004.pdf

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Wildlife Resources Conservation and Protection Act, Republic Act 9147. (2001). https://lawphil.net/statutes/repacts/ra2001/ra_9147_2001.htm

Section 3

Terms and Definitions

Explanatory Notes on the provisions of the standards are found inside the yellow boxes. Additional information are presented as notes and/or images. Section numbers of the manual mirrors the content of the PNS.

3.1
annual crop
crop produced by a plant whose entire life cycle is completed within a single growing season (BAFS-DA, 2016)

3.2
biodegradable inputs
inputs composed of natural materials that can be decomposed by bacteria or other biological means and includes compost, green manure, and plant and animal wastes (ASOA, 2014, modified)

3.3
biodiversity
variety of life forms and ecosystem types on earth. It includes genetic diversity (i.e., diversity within species), species diversity (i.e., the number and variety of species), and ecosystem diversity (total number of ecosystem types) (ASOA, 2014, modified)

3.4
breeding
selection of plants (including hybridization) to produce and/or to further develop desired varieties/strains/breeds (ASOA, 2014, modified)

3.5
buffer zone
clearly defined and identifiable boundary area bordering an organic production site that is established to prevent the introduction of, or contact with, prohibited substances from an adjacent area (ASOA, 2014, *modified*)

3.6
certification
the procedure by which a competent authority agency or an OCB provides written or equivalent assurance that farms, or production and processing systems, conform to organic standards as mandated by the amended Organic Agriculture Act of 2010 (Republic Act 11511, 2020)

3.7
commingling
intentional or unintentional mixing together or the physical contact between organic and non-organic products which are unpackaged or permeably packaged, which leads to a loss of integrity of the organic product during production, processing, transportation, storage, or handling (BAFS-DA, 2016, modified)

3.8
contamination
contact of organic crops, land, or products with substance that would compromise organic integrity (ASOA, 2014, modified)

3.9
conventional
any material, production, or processing practice that is not certified organic (ASOA, 2014, modified)

3.10
conversion period
time between the start of organic management and certification of the crop production system or site as organic (ASOA, 2014, modified); also known as transition period

3.11
crop rotation
practice of alternating the species or families of annual and/or biennial crops grown on a specific field in a planned pattern or sequence to break weed, pest, and disease cycles and to maintain or improve soil fertility and organic matter content (ASOA, 2014, modified)

3.12
desertification
process of land degradation in arid, semi-arid and dry humid areas resulting from various factors, including climatic variations (e.g., drought) and human activities (e.g., over exploitation of drylands) (United Nations [UN], 1997)

3.13
disinfecting
to reduce, by physical or chemical means, the number of potentially harmful microorganisms in the environment to a level that does not compromise food safety or suitability (ASOA, 2014).

3.14
farm unit
total area of land under the control of one farmer or collective of farmers, including all the farming activities or enterprises (ASOA, 2014, modified)

3.15
food additive
any substance not normally consumed as a food by itself and not normally used as typical ingredient for the food, whether or not it has nutritive value, the intentional addition of which to food or a technological (including organoleptic) purpose in the manufacture, processing, preparation, treatment, packaging, transport, or holding of such food results, or may reasonably be expected to result, (directly or indirectly) in it or its by-products becoming a component of or otherwise affecting the characteristics of such foods. The term does not include contaminants or substances added to food for maintaining or improving nutritional qualities (ASOA, 2014, modified)

3.16
Genetically Modified Organisms (GMOs)
organisms made with techniques that alter the molecular or cell biology of an organism by means that are not possible under natural conditions or processes. Genetic engineering includes recombinant DNA, cell fusion, micro-, and macro- encapsulation, gene deletion and doubling, introducing a foreign gene, and changing the positions of genes. It shall not include breeding, conjugation, fermentation, hybridization, in-vitro fertilization, and tissue culture (BAFS-DA, 2016)

3.17
green manure
crop that is grown and then incorporated into the soil for the purpose of soil improvement, prevention of erosion, prevention of nutrient loss, mobilization and accumulation of plant nutrients, and balancing soil organic matter. Green manure may include spontaneous crops, plants, or weeds (ASOA, 2014)

3.18
habitat
area over which a plant species naturally exists. It is also used to indicate types of habitat (e.g., ocean, seashore, riverbank, woodland, and grassland) (ASOA, 2014, modified)

3.19
herb
plant that is not woody and with no persistent parts above ground level (BAFS-DA, 2016)

3.20
high conservation value areas
areas that have been identified as having outstanding and critical importance due to their environmental, cultural, socioeconomic, biodiversity, or landscape values (ASOA, 2014)

3.21
ingredient
any substance, including an additive, used in the manufacture or preparation of food and present in the final product although possibly in a modified form (ASOA, 2014, modified)

3.22
inspection
the examination of farms, food and non-food products, food control systems, raw materials, materials, processing, distribution and retailing, including in-process and finished product testing, in orders to verify that they conform to the requirements for being organic. Inspection includes the examination of the reproduction and processing systems (RA 11511, 2020)

3.23
irradiation
technology using high-energy emissions from radio-nucleotides, such as gamma rays, x-rays, or accelerated electrons, capable of altering a product's molecular structure for the purpose of controlling microbial contaminants, pathogens, parasites, and pests in products (generally food), preserving products, or inhibiting physiological processes such as sprouting or ripening. Irradiation does not include low-level radiation sources such as the use of X-rays for foreign body detection (ASOA, 2014, modified)

3.24
isolated nutrients
individual and separate forms of nutrients (ASOA, 2014)

3.25
labeling
any written, printed, or graphic representation that is present on the label of a product, accompanies the product, or is displayed near the product at the point of sale, for the purpose of promoting its sale or disposal (ASOA, 2014, modified).

3.26
organic agriculture
holistic production management system which promotes and enhances agroecosystem health, including biodiversity, biological cycles, and soil biological activity; emphasizes the use of management practices over the use of off-farm inputs; and utilizes cultural, biological, and mechanical methods as opposed to synthetic materials. Organic agriculture combines tradition, innovation, and science to benefit the shared environment and promote fair relationships and a good quality of life for all involved (CAC, 1999).

3.27
organic integrity
adherence to the principles, objectives, and standards for organic production (ASOA, 2014).

3.28
organic produce
any agricultural produce from organic management systems or gathered from nature, and/or handled with post-harvest management (ASOA,
2014).

3.29
organic product
product from organic management systems that have been processed for the use as food or feed (ASOA, 2014, modified)

3.30
organic soil conditioner
any product n solid or liquid form, derived from plants or animals that have undergone substantial decomposition that can supply available nutrients to plants with a total Nitrogen (N) - Phosphorus (P2O5) -Potassium (K2O) content of 5% to 10% (BAFS-DA, 2020).

3.31
parallel production
situation where the same operation is producing visually indistinguishable products in both organic and non-organic systems. A situation with "organic" and "in conversion" production of the same product may also be parallel production. Parallel production is a special instance of split production (ASOA, 2014, modified)

3.32
perennial crop
any crop, other than a biennial crop, that can be harvested from the same planting for more than one crop year, or that requires at least one year after planting before harvest (BAFS-DA, 2016).

3.33
processing aid
any substance or material, not including apparatus or utensils, and not consumed as a food ingredient by itself, intentionally used in the processing of raw materials, foods, or its ingredients, to fulfill a certain technical purpose during treatment or processing and which may result in the non-intentional, but unavoidable presence of residues or derivatives in the final product (ASOA, 2014).

3.34
sanitizing
any treatment that is effective in destroying or substantially reducing the number of vegetative cells of microorganisms of public health concern and other undesirable microorganisms (ASOA, 2014, modified).

3.35
salinization
increase in salt concentration in an environmental medium, notably soil (UN, 1997).

3.36
seed
plant material used for the production of food, forage, fibers, industrial crops, oil, flowers, grasses, herbs, and aquatic plants, including but not limited to meristem, and clonal propagules such as tubers, corms, and micro-propagated plantlets (Seed Industry Development Act of 1992,1992).

3.37
split production
situation where only part of the farm or processing unit is certified as organic. The remainder of the property can be non-organic or in conversion. It is a special case of parallel production (ASOA, 2014, modified)

3.38
synthetic
substance that is formulated or manufactured by a chemical process or by a process that chemically changes a substance extracted from naturally occurring plant, animal, or mineral sources. Substances created by naturally occurring biological processes are not considered synthetic (ASOA, 2014, modified)

3.40
wild harvest
plants or portions of plants and mushrooms that are collected or harvested from defined sites which are maintained in a natural state and are not cultivated or otherwise managed (ASOA, 2014, modified).

Section 4

Crop Production Management

Explanatory Notes on the provisions of the standards are found inside the yellow boxes. Additional information are presented as notes and/or images. Section numbers of the manual mirrors the content of the PNS.

4.1 Conversion to organic crop production

4.1.1 The operator shall follow and meet the minimum requirements of this Standard from the beginning of the conversion period onwards. The start of the conversion period shall be calculated from the date of the documented start of organic management and the filing of the application for certification to the competent authority agency or an organic certification body (OCB).

Explanatory Note:

The start of the conversion period is determined by the documented or recorded production cycle of organic management, which is supported by:

- Farm diary which reflects/shows the last use of prohibited substances (if used), and
- Attestation from the competent authority agency (national or local) or research institution that reflects the following:
  - record of the last use of prohibited substances;
  - start of non application of prohibited inputs (i.e. The farm is not applied with prohibited inputs from 20XX to 20XX); and
  - farmer is practicing organic farming.

The conversion period is mandatory for all types of land except for virgin lands. *Virgin land* is defined as land that is in its natural state and has not been used or changed by people.

4.1.2 An exemption to this requirement, which is the reduction of the conversion period, may be approved by the competent authority agency or an OCB, when there is verifiable evidence of no use of non-permitted inputs or implementation of activities or practices allowed in organic agriculture.

4.2 Length of crop conversion period

4.2.1 There shall be a period of at least 12 months before the start of the production cycle of organic management for annuals and 18 months before the first harvest for perennials that meet all the requirements of this Standard before the resulting product can be considered organic.

Explanatory Note:

As defined in Section 3 - Terms and Definition,

Annual crop It is produced by a plant whose entire life cycle is completed **within one year**.

Examples: *Rice, Corn, Soybeans, and vegetables*

Perennial crop It is any crop, other than a biennial crop, that can be harvested from the same planting for **more than one crop year**, or that requires at least one year after planting before harvest.

Examples: *Mango, Banana, Pineapple, Papaya and Coconut.*

To further illustrate how the length of the conversion period is computed, the tables below provide a sample illustration for annual and perennial crops.

Table 1. **Sample length of conversion period for annual crops**

Crop	Start of Production Cycle	Start of Conversion Period	End of Conversion Period
Vegetable: Lettuce	May 2023	May 2023	May 2024
Cereals: Rice	May to June 2023	May to June 2023	May to June 2024

Table 2. **Sample length of conversion period for perennial crops**

Crop	Start of First Harvest	Start of Conversion Period	End of Conversion Period
Mature coconut (45 days cycle)	February 16, 2023	February 16, 2023	August 16, 2024
Rambutan, Lanzones, Avocado	July to August 2023	July to August 2023	February 2025
Mango*	April to June 2023	April to June 2023	December 2024

*The length of the conversion period for mango may increase if the mango is heavily treated.

For perennial crops, the month of harvest is also considered when computing the length of the conversion period. This aims to ensure that the entire production cycle, from planting to harvest, aligns with organic principles.

The examples shown in Tables 1 and 2 are **meant to guide and do not cover every possible situation.** It is also important to note that the conversion period can be extended based on the identification and evaluation of the competent authority agency or an OCB on the relevant issues and risks.

4.2.2 The conversion period can be extended based on the identification and evaluation of the competent authority agency or an OCB on the relevant issues and risks such as, but not limited to, pesticides, heavy metals, and nitrate accumulation.

Explanatory Note:

The **length of the conversion period can vary based on the findings of the risk assessment** conducted during the inspection, laboratory analyses, and verifiable evidence. Risks can be identified during the evaluation of the farm's history and production system.

Depending on the level of risk identified during the farm history and production system evaluation, testing for pesticide residue, heavy metals, soil, or water quality, may be requested. The following government laboratories have the capability to conduct various analyses.

1. **Department of Science and Technology - Industrial Technology Development Institute (DOST-ITDI)**

   Address:
   DOST Compound Saliksik St. General Santos Ave. Taguig, 1630 Metro Manila
   Contact No:
   (632) 86837750 local 2182, (632) 88372071 local 2182
   Website:
   https://www.itdi.dost.gov.ph

2. **DA - Fertilizer and Pesticide Authority (FPA)**

   Address:
   FPA Building, Bureau of Animal Industry Compound, Visayas Avenue, Diliman Quezon City
   Contact No:
   (02) 8426-1572/ (02) 8371-5388
   Website:
   https://fpa.da.gov.ph

3. **DA - Bureau of Soils and Water Management (BSWM)**

   Address:
   SRDC Bldg. Elliptical Road corner Visayas Avenue, Diliman Quezon City
   Contact No:
   +63(2) 273-2474 loc. 3200 / (8)529-7640 local 201
   Website:
   https://www.bswm.da.gov.ph

These government institutions have regional offices that extend laboratory services to various regions/provinces throughout the Philippines. For private testing laboratories, the website of the Department of Trade Industry (DTI)-Philippine Accreditation Bureau (PAB) provides the list of accredited testing laboratories: https://pabaccreditation.dti.gov.ph/

4.2.3 Any of the following written evidence is required to be submitted to grant reduction of the prescribed conversion period:

a) Official attestation from the competent authority agency (national or local) or research institution on non-application of prohibited inputs for the past two years; and

Explanatory Note:

A proforma of an attestation is shown below. The attestation document may also include the mechanism (e.g., regular monitoring, visits) upon which the attestation is based.

[LETTERHEAD]

(DATE)

OFFICIAL ATTESTATION OF NON APPLICATION OF PROHIBITED INPUTS

This is to attest that the **(NAME OF FARM)**, owned by **(NAME OF FARMER)**, located at **(COMPLETE ADDRESS)** with a total land area of **(SIZE OF THE FARM)**, has not been exposed to prohibited inputs from **(MONTH AND YEAR STARTED)** to the present. This is also to attest that the farm was cultivated under practices allowed for organic agriculture.

This attestation is issued upon the request of **(NAME OF FARMER)** for whatever legal purposes it may serve.

Attested by:

(NAME AND SIGNATURE OF AUTHORIZED OFFICIAL)

Note that in the attestation **the farm is being attested** and not the farmer. The attestion includes the minimum required details such as the:

1. Name of farm;
2. Name of farmer;
3. Size of the farm;
4. Month and year started not using prohibited inputs and practices organic management system; and
5. Name and signature of authorized official that issues the attestation.

Image 1. **Proforma of an attestation signifying the non application of prohibited inputs**

b) Notarized affidavit from two neighbors as proof that the land was cultivated under practices allowed for organic agriculture for the past two years.

4.3 Maintenance of Organic Management

Converted areas and production areas should not be switched back and forth from organic and non-organic management. Exceptions to this may only be made in cases where compelling reasons to cease organic management on the certified organic land are present. In these cases, conversion requirements shall apply.

Explanatory Note:

Switching between organic and non-organic management methods can be a challenging and resource-intensive process. It requires a significant amount of time and effort, and may even compromise the organic integrity of the produce. In some cases, a pest infestation may prompt the competent authority to issue an announcement or advisory, leading to the need to revert to non-organic management to protect the viability of the farm. Under such circumstances, conversion requirements may apply.

The cited example, involving a temporary shift to non-organic practices due to a pest infestation, is an example of an acceptable scenario. The decision to switch back and forth between organic and non-organic management needs careful consideration of short-term and long-term implications.

4.4 Split production and parallel production

If there is a presence of parallel/split production in the unit, the operator shall ensure that:

a) proper demarcation and identification of organically managed production areas are in place. Organically managed production areas shall be inspected for compliance with organic certification;

Explanatory Note:

For proper demarcation and identification, the areas used for organic production are clearly identified and marked.

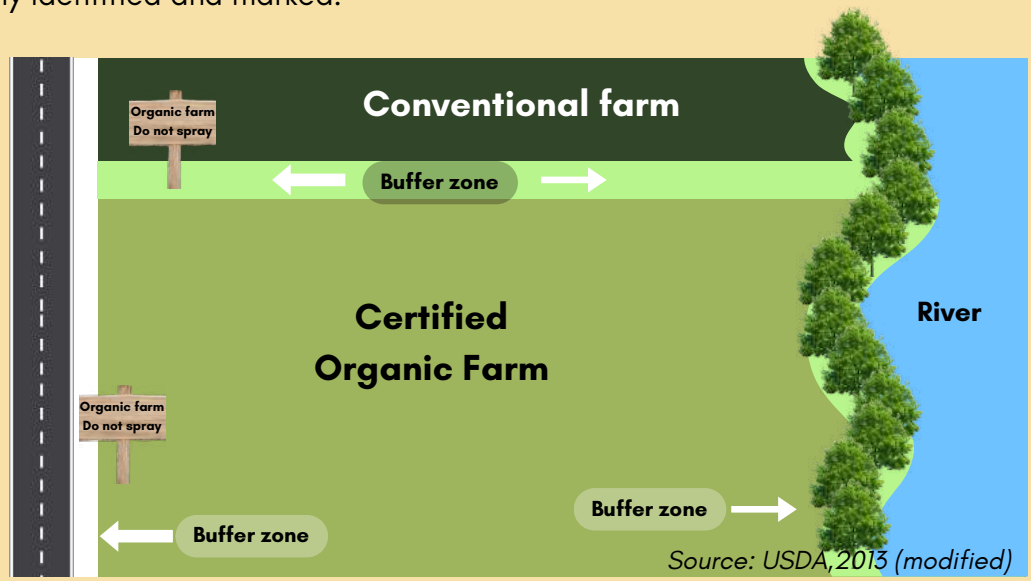


Image 2a. **Illustration of split production with proper identification**

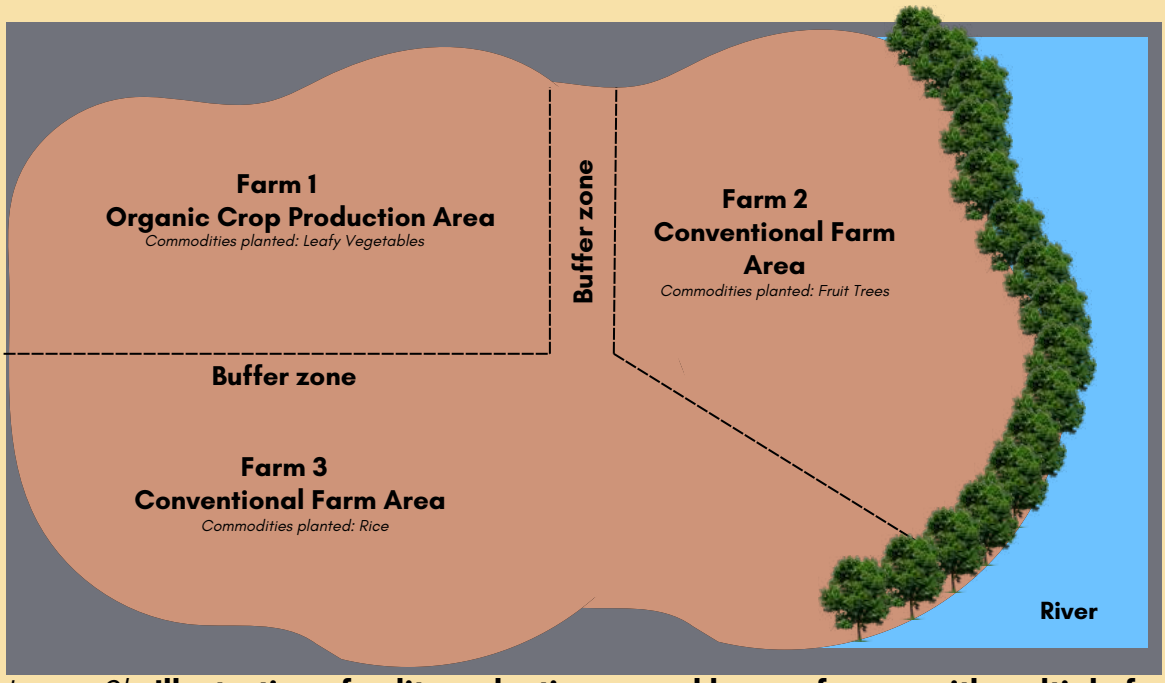


Image 2b. **Illustration of split production owned by one farmer with multiple farms**

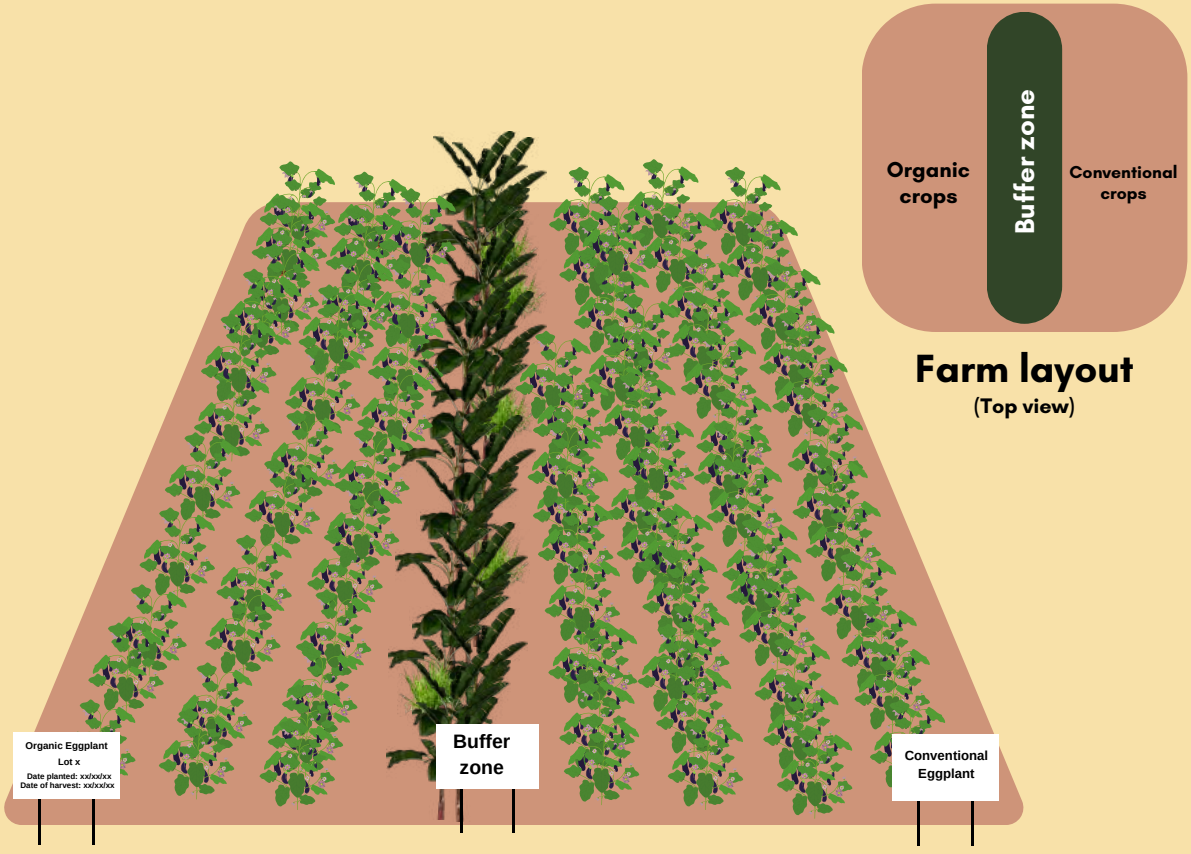


Image 2c. **Illustration of parallel production with proper identification**

It is necessary to have a clear distinction between organic and non-organic crops. Crops that are not organically grown should not be sold or labeled as organic. Moreover, crops used as buffer zones shall not be sold or labeled as organic.

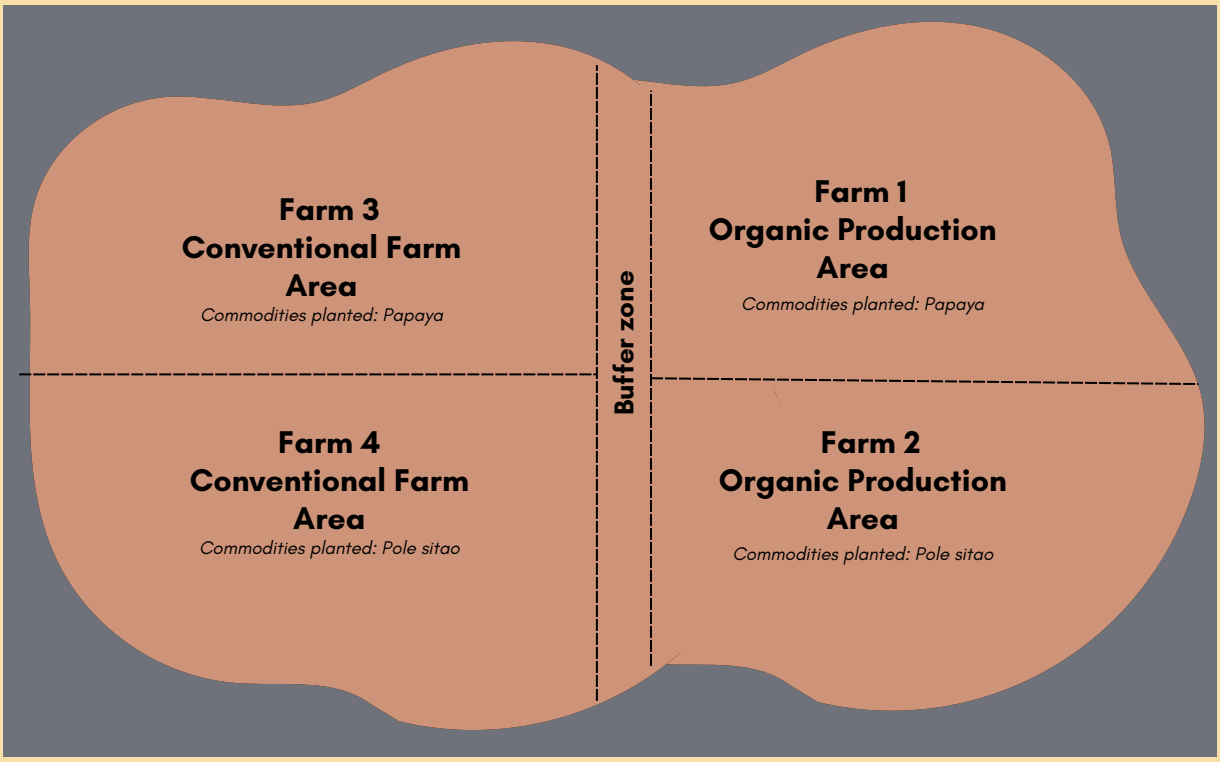


Image 2d. **Illustration of parallel production owned by one farmer with multiple farms**

b) there is a clear boundary between organic and non-organic units including for similar and indistinguishable varieties;

Explanatory Note:

In parallel or split production, crops used as boundaries to separate organic and conventional crops are also managed organically for compliance with organic practices (USDA, n.d).

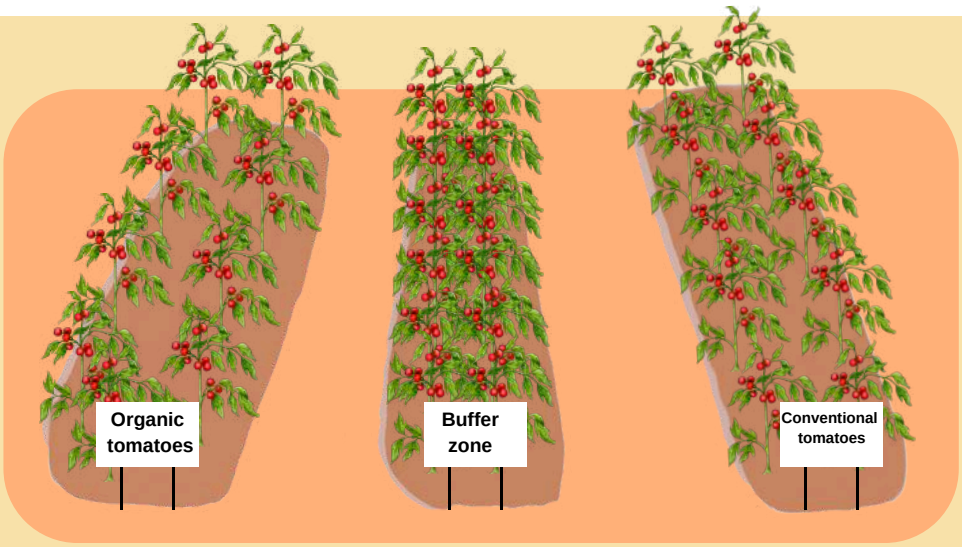


Image 3. **Illustration of farm area using same crops as buffer zone between organic and non-organic crops**

It is crucial to recognize that there is **no universal rule for the size and distance** of buffer zones. The appropriate size and distance of buffer zones are determined through a thorough evaluation, taking into account factors such as the extent of spray drift, fertilizer run-off, cross-pollination, and other relevant considerations.

c) organically managed production areas are identifiable and should be inspected for certification; and

d) all farm records and accounting are identifiable for both farming systems

4.5 Contamination management

4.5.1 Buffer zones shall be established to prevent contamination from non organic farms. These shall be sufficient in size or other features (e.g., windbreaks or a diversion ditch) to prevent contact by prohibited substances applied to adjacent land areas. These may include but are not limited to, multi-purpose tree species of sufficient density and height, runoff diversions, water filtration ponds and/or diversion systems, and open space.

Explanatory Note:

Buffer zones are crucial in preventing air- and waterborne contaminants from entering organic production sites. The main purpose of a buffer zone is to avoid the introduction or contact of organic produce with prohibited substances that may arise from non-organic sources of contamination or any other potential risk. It is, therefore, crucial to consider the potential sources of contamination and take them into account when determining the buffer zone's height and density.

Contamination can come from spray drift, airborne contamination from neighboring non-organic farms, and the farm's drainage patterns (USDA, n.d.).

The following steps are recommended when establishing buffer zones:

1. Assessment of risk from spray drift
    - Know the crop/s or type of crop that will be planted on the farm. This will be the basis for determining the need for a buffer zone, and the height and density of the buffer crops in the area. Generally, buffer crop/s are higher than the main crop/s.
    - Based on the assessed risk, determine the required density or foliage of the crops or distance of the buffer crop/s to the main crop/s
    - Know the frequency and method of spraying of the conventional farm nearby to determine if there will be risk of spray drift
2. Assessment of risk on possible contamination of water
    - Determine how irrigation water goes inside the farm
    - Determine the type of irrigation system to assess contamination due to seepage
    - Determine if there is a need to establish a settling pond or filtration pond

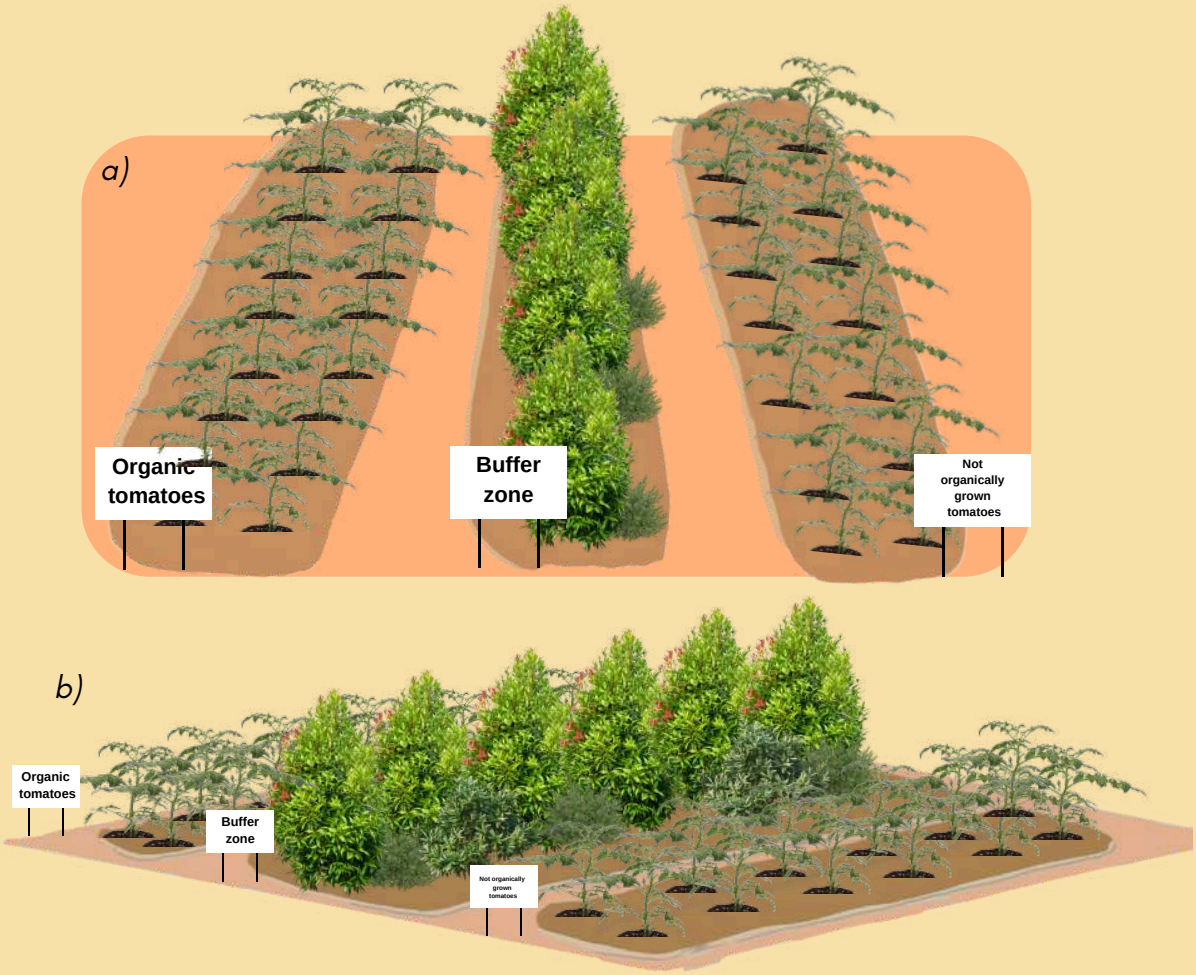


Image 4. **Illustration of farm area using higher plant as buffer zone between organic and non-organic crops a) top view b) side view**

4.5.2 Products from buffer zones shall not be sold as organic.

Explanatory Note:

A clear written procedure, description, crops planted in the buffer zone, and records of harvest from the main organic production area and buffer zone help evaluate and ensure that the products from buffer zones are not sold as organic.

4.5.3 In cases of reasonable suspicion of contamination to production areas, crop or produce, soil and/or water analysis of the soil, crop, and/or water shall be done.

Explanatory Note:

Reasonable suspicion may arise from factors such as spray drift, inadequate buffer, inconsistencies between farmer narratives and farm diary or records. In instances where contamination is suspected, the following routine tests of soil, water and crops can be conducted:

- Soil sample - pesticide residue analysis
- Water Sample - microbial analysis, water portability test, pesticide residue analysis, heavy metal analysis
- Crop and mushroom product - pesticide residue analysis, plant tissue analysis and microbial analysis

Pesticide residue should not be detected in the samples while the limits for other tests may align with the applicable issuances of competent authorities or the Codex limits.

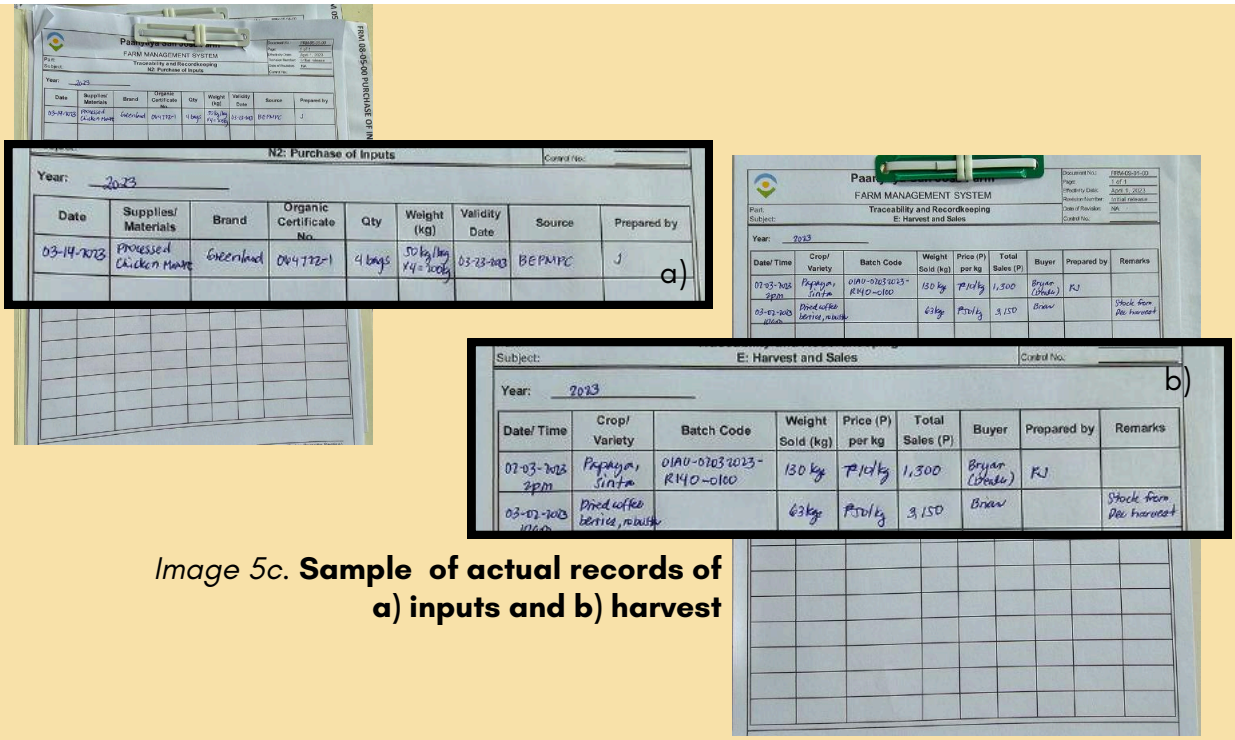
4.5.4 All organic produce shall be adequately identifiable throughout the whole process until final labeling.

Explanatory Note:

Adequately labeled organic produce and proper record-keeping minimize the risk of accidental mixing or commingling with non-organic produce. Section 11 *Traceability and Recordkeeping* further elaborates on these requirements, aiming to prevent contamination and ensure the organic integrity of the produce. Images below provide sample identification of the farm lots, products, and records for traceability purposes.

Image 5a. **Production area identifiable through lot codes for traceability**

Image 5b. **Labeled organic seeds with date of harvest**



N2: Purchase of Inputs

Year: 2023

Date	Supplies/ Materials	Brand	Organic Certificate No.	Qty	Weight (kg)	Validity Date	Source	Prepared by
03-14-2023	Processed Chicken Manure	Greenland	0447721	4 bags	50 kg/bag x4 = 200kg	03-23-2023	BEPMPC	J

a)

FARM MANAGEMENT SYSTEM

Traceability and Recordkeeping

E: Harvest and Sales

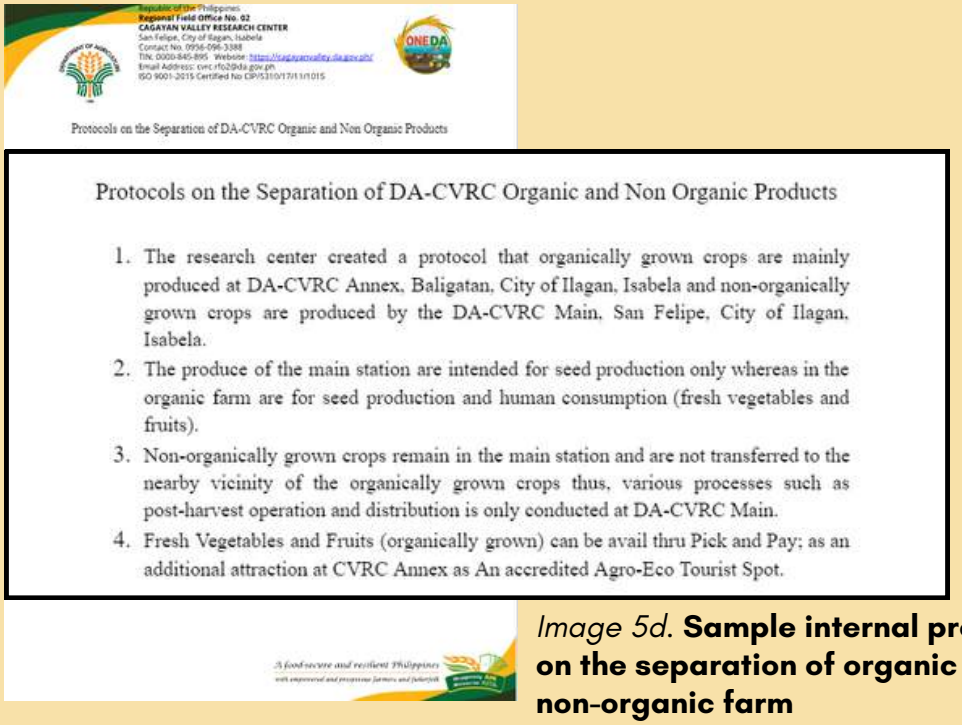
Year: 2023

Date/ Time	Crop/ Variety	Batch Code	Weight Sold (kg)	Price (P) per kg	Total Sales (P)	Buyer	Prepared by	Remarks
07-03-2023 2pm	Papaya, Sinta	01A0-07032023-RM0-0100	130 kg	P1/kg	1,300	Bryan (Ubale)	RJ	
03-07-2023 10am	Dried coffee berries, robusta		63kg	P50/kg	3,150	Bryan		Stock from Dec harvest

b)

Image 5c. **Sample of actual records of a) inputs and b) harvest**

Implementing a written protocol can also help manage and prevent contamination and commingling of organic and non-organic produce.



Republic of the Philippines
Regional Field Office No. 02
CAGAYAN VALLEY RESEARCH CENTER
San Felipe, City of Ilagan, Isabela

Protocols on the Separation of DA-CVRC Organic and Non Organic Products

Protocols on the Separation of DA-CVRC Organic and Non Organic Products

1. The research center created a protocol that organically grown crops are mainly produced at DA-CVRC Annex, Baligatan, City of Ilagan, Isabela and non-organically grown crops are produced by the DA-CVRC Main, San Felipe, City of Ilagan, Isabela.
2. The produce of the main station are intended for seed production only whereas in the organic farm are for seed production and human consumption (fresh vegetables and fruits).
3. Non-organically grown crops remain in the main station and are not transferred to the nearby vicinity of the organically grown crops thus, various processes such as post-harvest operation and distribution is only conducted at DA-CVRC Main.
4. Fresh Vegetables and Fruits (organically grown) can be avail thru Pick and Pay; as an additional attraction at CVRC Annex as An accredited Agro-Eco Tourist Spot.

Image 5d. **Sample internal protocol on the separation of organic and non-organic farm**

Establishing an internal protocol for managing organic and non-organic farms and products guides all workers and helps them adhere to the set standard to prevent commingling and contamination.

4.5.5 Farm tools and equipment should be used exclusively in organic farms. If not possible, measures shall be taken to prevent contamination from the use of equipment, including cleaning and keeping and maintaining cleaning records. Cleaning records shall be kept and maintained.

Explanatory Note:

To ensure the integrity of organic produce, it is best to use farm tools and equipment (e.g sprayers) exclusively for organic production. However, this may not always be practical. In such cases, it is crucial to follow cleaning and sanitizing procedures using approved cleansers and disinfectants to prevent contamination. These procedures may require **thorough cleaning of equipment after each use and the maintenance of records** indicating when cleaning occurred. Following these measures helps maintain the credibility of organic farmers as producers of pure and uncontaminated produce.

The **National List of Permitted Substances for Organic Agriculture (*DC No. 09, series of 2020 [or its latest version]*)** lists the approved cleansers and disinfectants that can be used for equipment, including any amendments that may apply.

4.5.6 Methods for pollution control and contamination management shall comply with Chapter 3, Articles 1 to 6 of Republic Act (RA) 9003 (The Solid Waste Management Act of 2001).

Explanatory Note:

Additional information regarding Chapter 3, Articles 1 to 6 of Republic Act (RA) 9003 (The Solid Waste Management Act of 2001) is accessible through the Official Gazette website at:

https://www.officialgazette.gov.ph/2001/01/26/republic-act-no-9003-s-2001/

4.5.7 If wastes and pollutants have been identified, a plan shall be developed and implemented to avoid or reduce wastage and pollution by recycling wastes. Non-recyclable wastes such as batteries, foils, plastics, and others shall be properly disposed to avoid contaminating the organic farm.

Explanatory Note:

To maintain environmental sustainability and adhere to legal regulations, it is important to establish a waste management plan for organic production areas. Various possible sources of contamination require addressing, and a comprehensive waste management plan can help mitigate these risks. The following are the sample components of a waste management planm:

- waste collection;
- waste reduction, segregation, recycling and composting;
- composting of biodegradable waste;
- waste disposal; and
- training or dissemination of the plan (National Waste Management Commission, 2010).

4.5.8 Organic management systems shall not use any material and/or products produced from GMO in all stages of organic production and processing.

Explanatory Note:

Genetically modified organisms (GMOs) are strictly prohibited in all aspects of organic production, including planting materials, mulch, and the manufacturing of organic fertilizers. **This prohibition extends** to processing, which includes the utilization of microbes for pest control and the following enumeration:

- use of GM sources as raw material for organic fertilizer;
- use of GM microorganisms for composting; and
- use of GM microorganisms for pest control.

Image 6 illustrates **how contamination may be prevented on the farm.** The organic farmer has arranged various buffer zones to safeguard the organic crop integrity from GMOs. Adjacent to the conventional farm, an area is designated for organic cultivation, adhering to organic practices such as refraining from prohibited pesticide use. However, crops from this land are not marketed as organic (USDA, n.d.).

Along the property borders, signs indicating "no spray" is put up. On the left side, an additional buffer zone shields the farm from potential contaminants from the nearby road. On the right side, a final buffer zone is established, featuring a line of trees aimed at mitigating erosion and preventing runoff into the adjacent river (USDA, 2013).

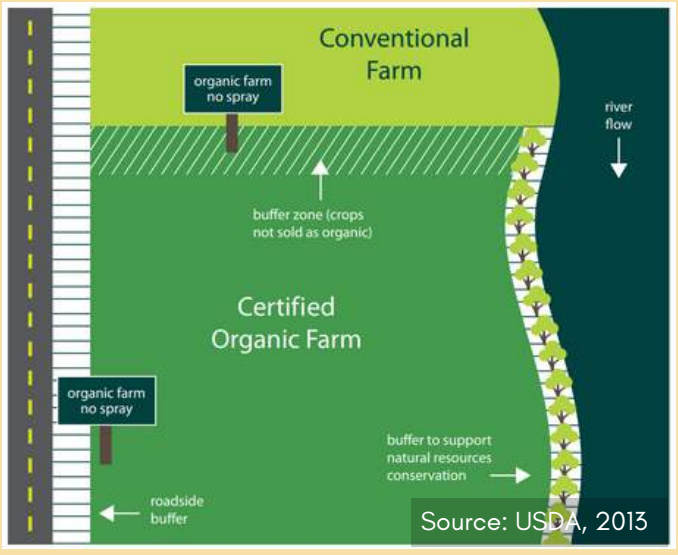


Image 6. **Sample illustration of a strategy in preventing contamination of an organic farm**

Isolation distance can be reduced by using barriers/buffers taller than the crop. Currently, the threat of GMO contamination is mainly from GM Corn. Contamination happens during the occurrence of pollen and silking stage, as such, isolation would require a distance of around 300m. For Bt Eggplant, if it is being commercialized, an isolation of about 200m is suggested to prevent pollen contamination (USDA, n.d.).

In preventing contamination of **organic fertilizers**, the considerations are from GMO risk which may come from the use of GM crops or plant material, or from grains or undigested GM fibers in the case of manure/slurries (IFOAM, 2018).

4.6 Land, soil fertility, and water management

4.6.1 Organic production systems, being soil-based, shall take care of the soil and surrounding ecosystems, in support of increased diversity of species while encouraging nutrient cycling and mitigating soil and nutrient losses.

Explanatory Note:

Organic agriculture is founded on soil-based practices that encourage the growth of a diverse, healthy soil ecosystem. Such practices contribute to the preservation of biodiversity and the stability of ecosystems. The ecological processes that organic farming fosters promote soil and ecosystem vitality, and soil health plays a pivotal role in sustainable agriculture. A healthy soil environment, with diverse organisms, ensures that nutrients are efficiently recycled, reducing nutrient losses. This, in turn, leads to healthier soil and mitigates nutrient depletion (FAO, n.d.).

Studies have demonstrated that organic farming practices increase soil health through the promotion of microorganisms' abundance, diversity, and activity. These practices include reduced tillage, cover cropping, and diverse crop rotations, which encourage soil formation and structure (Tahat et. al., 2020).

4.6.2 Tillage and cultivation implements shall be selected and used in a manner that maintain or improve the physical and biological qualities of the soil and minimize erosion.

Explanatory Note:

Tillage is a practice of preparing soil for crop cultivation that involves the mechanical alteration of soil properties to create an optimal environment for crop growth (DA-PhilMech, 2020). Tillage can help in various aspects such as:

Soil preparation
Tillage aims to loosen and aerate the top layer of soil and provide an ideal medium for planting crops.

Nutrient distribution
Tillage facilitates the incorporation of harvest residue, organic matter, and nutrients through the soil, promoting uniformity in nutrient availability.

Weed management
Tillage serves as a mechanical weed control method, disrupting weed growth and reducing competition with crops.

Water regulation
Tillage can help manage soil water, ensuring proper drainage and moisture retention for optimal growth.

Pest Control
In pest management, tillage can help destroy insects through the disruption of their breeding habitats (DA-PhilMech, 2020).

Below are the types of tillage and their usage.

A. Primary Tillage
This is the first tillage activity after the last harvest, which is normally the most aggressive tillage operation.

This is usually done using primary tillage implements such as disc plow and moldboard plow (DA-PhilMech, 2020).

B. Secondary Tillage
This is done after the primary tillage with implements such as disc harrow, rotavator or peg tooth type harrow.

This controls weeds, puddles the soil, incorporates fertilizers and levels the soil surface (DA-PhilMech, 2020).

Selection and proper matching of tillage equipment
The selection and proper matching of tillage equipment are important in land preparation. Its compatibility is essential to achieve efficient and effective tillage operations. Proper selection of equipment can:

- enhance field efficiency and ensure optimal performance during tillage operations;
- minimize the time required to complete land preparation tasks, improve overall operational efficiency; and
- lower maintenance costs and prolong equipment lifespan (DA-PhilMech, 2020).

Tables 3 (primary tillage) and 4 (secondary tillage) list down tillage implements and their functions.

The implements enumerated in Tables 3 and 4 are not comprehensive and may be updated from time to time to incorporate technological advancements.

Table 3. **Primary tillage implements and their description**

Tillage Implements	Description
Moldboard Plow	• Use for total inversion of the soil sod, relies on the digging point for penetration • Works well in very hard soil conditions but does not have built-in stump or obstacle protection mechanism • Kills weeds through inversion and pulverization of the soil sod • Causes the least damage to soil structure
One way Disc	• Use for total inversion of the soil sod, relies on the plow's built-in weight for penetration • Works well in hard soil and heavy trash conditions and can ride over stumps or obstacle in the soil • If soil conditions are very hard, this will ride out of the ground
Offset Disc	This gives good weed control and cuts and bruises crop residues with its very aggressive action.
Rotavator	• Use for primary tillage in cases when moisture of soil is favorable • Commonly used for secondary tillage

Souce: DA-PhilMech, 2020 (modified)

Table 4. **Secondary tillage implements and their descriptions**

Tillage Implements	Description
Peg Tooth	The degree of aggression is determined by the angle of operation. The more upright the harrow, the more aggressive is the action.
Disc Cultivator	• The degree of aggression is determined by the gang angle relative to the forward travel. • Very aggressive action of the plow gives good weed control and cuts and buries crop residues. • Normally used in dry fields and also widely used in upland areas.
Tined Cultivator	• Very versatile implements as they can be used for secondary tillage and modified to be used as a seed drill. • Use only in dry working situations as they cut the soil rather than invert the soil and kill weeds by cutting and lifting the weeds to the surface (Sweeps range from 50mm to 200mm in width).
Rotavator	Have a very aggressive action, which pulverizes the soil and buries weeds and crop residues

Souce: DA-PhilMech, 2020 (modified)

As mentioned, the use of equipment in tilling the soil provides advantages for the farmers. However, the use of heavy equipment such as big tractors, bulldozers, and backhoes can have adverse effects on the soil's physical and biological qualities. The main example is soil compaction. Compaction causes various negative effects. Compaction causes soil particles to become denser (reduces pore spaces). As a result, the water and air cannot infiltrate downward which causes erosion (Magdoff and Es, 2021), which can lead to soil degradation. **Thus, it is advisable to use heavy equipment only as necessary and with caution.**

The "downward spiral of soil degradation" illustrates that tilling the soil, subsequent water runoff, and erosion affect the level of soil organic matter. When soil is disturbed and aggregates are broken down, more soil organic matter is lost which makes it more susceptible to erosion, leading to lower crop yields (Magdoff and Es, 2021).

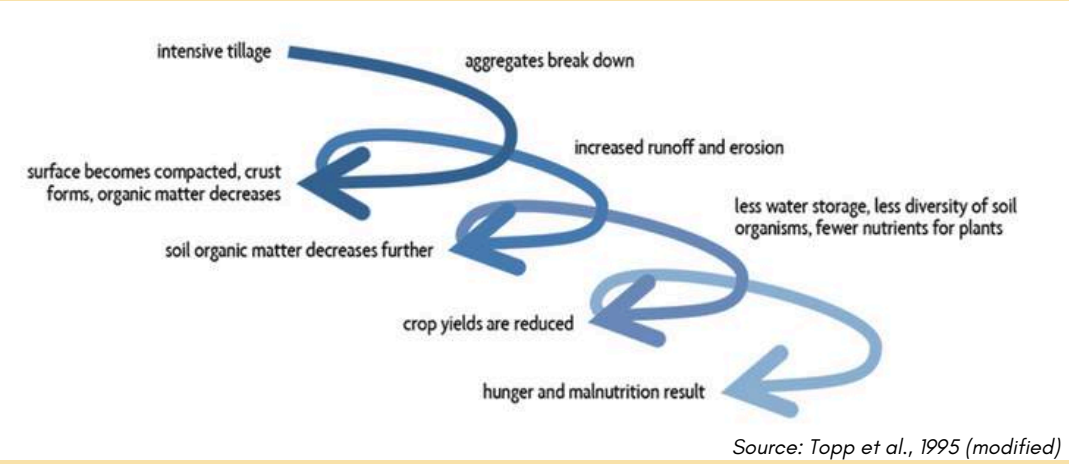


Image 7. **The downward spiral or chain reaction of soil degradation**

Soil compaction creates various effect of the soil (e.g, soil erosion, inappropriate absorption of nutrients, etc.). As such it is necessary to be guided by the following to avoid and/or control soil compaction:

- choose the right equipment;
- reduce axle load;
- ensure proper inflation and size of tires; and
- use only the field until it is fit to work (University of Minnesota Extension, 2018).

4.6.3 The fertility and biological activities of the soil shall be maintained, enhanced, or increased, where appropriate, through:

a) cultural management practices such as incorporating manure and other biodegradable inputs, and/ or by nitrogen fixation from plants;

Explanatory Note:

Understanding soil fertility management techniques and procedures is essential to ensure plants receive optimal nutrition, leading to improved yields, cost-effectiveness, and ecological balance (DOST-PCAARRD, 2012).

Below are examples of cultural management practices:

1. **Incorporation of manure into the soil**

The application of manure helps improve soil fertility by slowing down the soil acidity due to the presence of potassium, sodium, magnesium and calcium, thus promoting sustainable crop growth. In contrast, animal manure that is not composted properly can contain high levels of pathogenic microorganisms. These microorganisms are harmful and can contaminate the crop either directly through soil or foliar application or indirectly through soil or water contamination (Bolwanhn S., 2014). Moreover, crops that are grown at or near ground level are more susceptible to contamination compared to those grown above ground level (Australian Government, 2006).

As such, it is crucial to follow the right decomposition process to ensure that the manure is fully decomposed before it is applied to the soil to avoid any negative effects on the soil and ensure that the crops receive the necessary nutrients once in the applied into the soil.

2. Application of organic soil amendments

Materials and substances, as listed in Section A.2 of the DC No. 09, series of 2020 (National list of permitted substances for organic agriculture), shall be the basis of the fertilization program, provided that these follow proper composting methods (if applicable). Moreover, when the supplementary application of organic fertilizer is needed, the materials shall be certified as organic in conformance with the requirements of the PNS/BAFS 183:2020 (Organic soil amendments for its latest version.

3. Application of nitrogen fixating plants (i.e leguminous plants)

Nitrogen fixation using leguminous plants recovers the losses of nitrogen from the soil. Hence the soil becomes more productive and fertile (Bano and Iqbal, 2016).

4. Crop rotation

One potential solution for pest control is to substitute the vulnerable crop with a less susceptible alternative. Another approach is to plant unrelated or diverse families of crops, such as solanaceous plants followed by leguminous plants.

5. Irrigation practices

Application of adequate amount of water reduces root disease and weeds.

b) soil fertility management through recycling of organic materials within the production system where possible (e.g., green manuring and composting); and

Explanatory Note:

Practices conducive to soil fertility management and increasing organic matter include green manuring and composting, among other techniques. Composting, in particular, complements specific crop rotations and agroforestry systems. The successful execution of composting relies on factors such as the sufficient availability of organic materials, water, manure, and labor. Compost helps sustain and enhance soil fertility while also aiding in regenerating degraded soil (FAO, 2005).

Image 8a. **Decomposting of organic materials**

Green manuring

Green manures, cultivated to accumulate nutrients for the main crop, are typically cut before flowering, with the plant material incorporated into the soil (FAO, 2015). These crops are strategically grown in rotations to improve soil quality by supplying organic matter, nitrogen, and nutrients for subsequent crops. By preventing nutrient leaching, safeguarding soil structure, and inhibiting weed growth, green manures play a vital role in fostering a sustainable and balanced agricultural ecosystem (DAERA, n.d.).

Image 8b. **Sample illustration of green manuring**

The optimal legumes for enhancing soil fertility include field beans, with mungbean being the most prevalent among them (DOST-PCAARRD, 2012).

c) organic soil fertility management through the use of naturally occurring mineral fertilizers, which should only be a supplement to biologically based fertility methods such as green manures and compost

Explanatory Note:

A holistic approach that combines mineral and biologically based methods ensures sustainable soil fertility management. Examples of naturally occurring mineral fertilizers include rock phosphate, sulfate of potash, and lime. It should be noted that the mineral contents and trace elements, when used, are within the set limits indicated in the *National List of Permitted Substances for Organic Agriculture (DC No. 09, series of 2020)*.

The National List of Permitted Substances for Organic Agriculture (DC No. 9, s. 2020, specifies the substances permitted for organic agriculture. This implies that only those included in the list are allowed for use. The list undergoes periodic updates, so it is advisable to visit the DA-BAFS website regularly to access the most recent version.

4.6.4 Organic soil amendments (OSA), as listed in Section A.2 of the DC No. 09, series of 2020 (National list of permitted substances for organic agriculture), shall be the basis of the fertilization program, provided that these follow proper composting methods (if applicable). Any revision/amendment of the list from the competent authority shall be adopted in accordance with the criteria established in DC No. 7, series of 2020 (Guidelines for the establishment, maintenance, and amendment of the national list of the permitted substances for organic agriculture).

4.6.5 When the supplementary application of organic fertilizer is needed, the materials shall be certified as organic in conformance with the requirements of the PNS/BAFS 183:2020 (Organic soil amendments).

Explanatory Note:

Organic fertilizers can be either supplementary or self-produced. For this purpose, supplementary organic fertilizers are obtained from sources outside the farm and certified, while self-produced organic fertilizers should comply with the guidelines stated in Section 4.6.4 and the latest version of the PNS/BAFS 183:2023 Organic Soil Amendments and Plant Supplements (OSAPS) — Product Standard — Specifications. In the case of the use of a supplementary fertilizer, supporting documents are kept to verify standard compliance.

To ensure the authenticity of certified organic fertilizers supporting documents are kept as proof of purchase. You can check the list issued by the DA - Bureau of Agriculture and Fisheries Standards (BAFS).

4.6.6 Application of raw or undecomposed manure shall not be allowed. Manure should undergo proper decomposition methods following PNS/BAFS 291:2019 (Code of practice of the production organic soil amendment).

Explanatory Note:

Application of manure to the soil has shown significant results in improving soil and its properties (e.g. structure, adsorption, etc.). However, some adverse effects might show if the manure has been applied improperly.

Direct usage of undecomposed manure in the soil at high application rates creates problems. Large amounts of manure can cause water pollution and eutrophication by leaching and/or nitrate/phosphate leakage and air pollution by greenhouse gas emissions and ammonia. Excessive application of manure possibly decreases the yield and has a negative impact on the environment (Goldan et al., 2023).

Key provisions from the PNS Code of Practice for the Production Organic Soil Amendment (PNS/BAFS 291:2019) are the following:

5.2.1 Solid organic fertilizer and compost/soil conditioner

Single or a combination of raw materials should undergo proper decomposition process to reach a minimum of 60°C to destroy pathogenic microorganisms.

5.2.2 Liquid organic fertilizer and organic plant supplement

Heavy metal contaminated raw materials should be avoided in the production of liquid organic fertilizer and organic plant supplement. Liquid organic fertilizer and organic plant supplement should undergo complete fermentation process followed by proper handling and aeration.

4.6.7 Organic crop production systems shall enhance soil primarily by employing cultural management practices, incorporating properly decomposed manure and other biodegradable inputs, and/ or by nitrogen fixation from plants.

Explanatory Note:

Image 9a. **Example of composting area**

Image 9b. **Own-produced organic soil amendments (Bokashi formed into balls for ease of application)**

Image 9c. **Own-produced organic soil amendments - Fermented Fruit Juice (FFJ), Fish Amino Acid (FAA) and Fermented Plant Juice (FPJ) with dates of formulation (DOF) and date of harvest (DOH)**

4.6.8 Organic and mineral (naturally mined) soil amendments, particularly those with high risk for contamination, shall be applied in such a way that it will have minimum adverse effects on the environment (e.g., on ground and surface waters). Mineral fertilizers shall be applied in their original form and shall not be rendered more soluble by a chemical treatment.

Explanatory Note:

National List of Permitted Substances for Organic Agriculture (DC No. 09, series of 2020) or its latest version provides the conditions for the use of organic and mineral soil amendment, as presented below. These shall be complied with if the operator intends to use such OSA.

4.6.9 Storage places of manure and compost sites shall be covered or sheltered to prevent the leaching of nutrients and pollution of water.

Explanatory Note:

Appropriate manure storage practices preserve valuable nutrients and safeguard surface and groundwater. Mismanagement of storage areas and compost sites can contribute to the contamination of groundwater, air (i.e. dust and odor), and water supplies (i.e. pathogens) (eOrganic, n.d., Bollwahn, 2014).

As such, manure should be properly stored. Storing of manure can be by housing it indoors or by any simple approach such as covering the pile with a tarp. The key is ensuring that the manure is kept covered and positioned away from drainage areas and standing water. Moreover, the storage location should be easily accessible to the crop production area (eOrganic, n.d.).

4.6.10 Organic soil amendment ingredients, which may have a considerable content of heavy metals and/or other toxic subtances, shall not be used.

Explanatory Note:

It is advisable to avoid using materials or crops that may contain heavy metals and toxic substances as organic soil amendments. In certain cases, crops may accumulate heavy metals such as Arsenic (As), Cadmium (Cd), Chromium (Cr), Mercury (Hg), and Lead (Pb), or contribute to the presence of these metals in manure.

To provide an example, OSA ingredients that may have considerable content of heavy metals and/or toxic substances are crops that are heavily sprayed with chemical fertilizer or pesticide and heavy feeders (e.g. aquatic plants, crops from mine tailings, crops that are heavily sprayed). Vegetables, particularly leafy vegetables, accumulate high proportion of heavy metals if grown in contaminated water (Khaliq *et al.*, 2022).

4.6.11 The dyes and growth regulators used shall be prepared from plants, animals, and microorganisms listed in section A.4 of the DC No. 09 series of 2020 (National list of permitted substances for organic agriculture). These shall only be used for the growth, quality, and development of crops.

Explanatory Note:

Dyes and growth regulators listed in section A.4 of the DC No. 09 series of 2020 or its latest version states the conditions for use, it shall be complied with if the operator intends to use such OSA.

4.6.12 Relevant measures shall be taken to prevent soil erosion and ensure water conservation. Appropriate conservation measures, including management practices such as grass, waterways, contour strips, diversion canals, catch/ filtration ponds, buffers, windbreaks, mulch and cover crops to prevent wind and water erosion, shall be established.

Explanatory Note:

Image 10a. **Contour farming to prevent soil erosion**

Contour farming is a practice of tilling the sloped land along the lines of consistent elevation to minimize and/or prevent soil erosion. Moreover, it stores rainwater through its ridges thus it conserves water (Britannica, n.d and Gilley J., 2005)

Image 10b. **Diversion canal constructed in a farm**

Diversion canals is a temporary ridge or excavated channel (or a combination of both) to reduce volume or the potential erosion by diverting the water around or from an area (Michigan University, n.d).

Image 10c. **Filtration pond as a natural filtration system**

Filtration pond/ Filter area is a vegetated and shallow slope area that infiltrates microbes and runoff materials (Bellows, 2002)

Buffers/ Buffer zone is a clearly defined and identifiable boundary between organic and non-organic area. Buffer zone prevents the introduction of, or contact with, prohibited substances from an adjacent area (ASOA, 2014, modified) (PNS/BAFS 337:2022)

Image 10d. **Buffer zone strategically located in organic production area**

Windbreaks are usually established by planting single, double or triple rows of trees to reduce the wind speed, crop transpiration and unnecessary loss of soil water. Usually, Sugarcane or tall grass species are being used (Shaxson F. and Barber R., 2003)

Image 10e. **Windbreaks strategically placed to reduce the impact of wind on crops**

Mulch covers the surface soil with plant materials such as leaves, grass, twigs, crops residues, and straw, or plastic films. Use of mulch enhances the activity of the soil by protecting the porosity of the soil surface by disrupting the action of raindrops (Shaxson F. and Barber R., 2003)

Image 10f. **Some types of mulching materials - plastic (left) and rice straw (right)**

4.6.13 Reasonable water conservation measures shall be taken to avoid excessive exploitation and depletion of water resources.

Explanatory Note:

Water conservation in agriculture is vital for the preservation of limited water resources, mitigation of water scarcity, and ensuring sustainable food production.

Adopting efficient irrigation methods and water-saving techniques can help farmers optimize water usage, reduce environmental impact, and maintain the long-term viability of agricultural systems.

Below are examples of water conservation measures that can be implemented to optimize water usage:

Drip irrigation delivers water directly to plant roots, optimizing moisture levels for enhanced productivity. This method prevents disease, reduces weed growth, and proves cost-effective by saving time, money, and water. Additionally, it decreases labor, works effectively on uneven terrain, and minimizes leaching of water and nutrients, contributing to sustainable and water-efficient agricultural practices (University of Rhode Island, n.d.).

Image 11a. **Use of drip irrigation in the production area**

Irrigation schedule determines the optimal timing and frequency of irrigation to meet crop water requirements while minimizing water wastage.

Irrigation scheduling ensures crops receive adequate water without overwatering, leading to improved water-use efficiency and optimized yields.

Source: Mohammed et.al, 2023

Image 11b. **Application of irrigation schedule**

Capturing and storing water is a crucial strategy for sustainable water use in agriculture especially during drought or dry season. This technique involves collecting and storing rainwater; and surface runoff using constructed ponds, reservoirs, or tanks. The stored water sources can provide plants with moisture when needed.

Implementing such systems conserves water and provides farmers with a reliable water supply, reducing their dependence on scarce freshwater resources (Kamakar, 2018)

Image 11c. **Example of rainwater harvesting pond**

On-farm reservoir

On-farm reservoir is used to harvest surplus rainfall (runoff) produced in the catchment area and in-situ rainfall, and store the water for subsequent use (International Rice Research Institute, 1994)

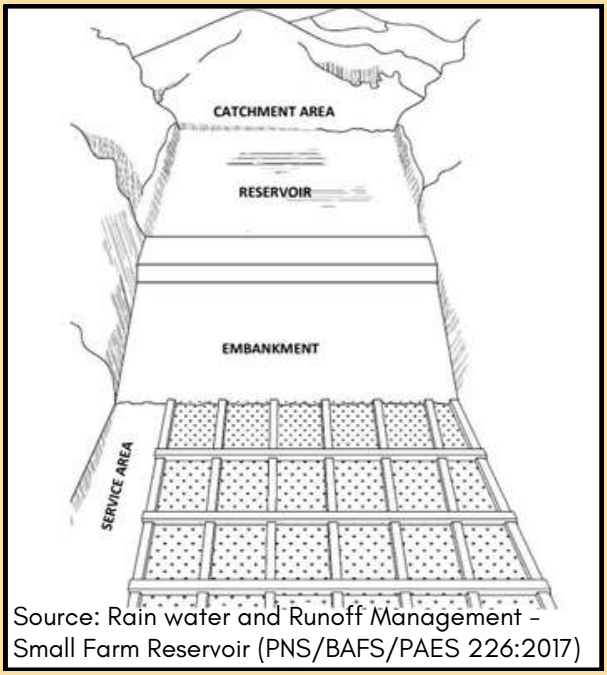


Image 11d. **Components of a small farm reservoir**

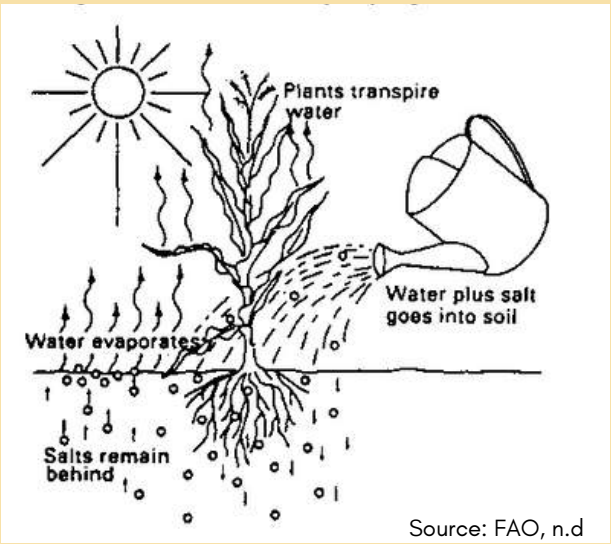
4.6.14 Appropriate measures shall be taken to prevent salinization and desertification.

Explanatory Note:

Salinization occurs in soil that is rich in salt. In low-lying areas, the source of salts is seawater. Salts can also come from irrigation, where the water added to the soil is used by the crop, and the salt is left behind. As a result, the left-over salt accumulates and causes salinization (FAO, n.d).

Below are the preventive measures for soil salinization that may be implemented (FAO, 2021):

1. irrigate with adequate quality;
2. water and/or use proper irrigation method;
3. improve drainage;
4. permanent green cover;
5. control pumping and monitor the salinity of soil and ground water;
6. apply and use proper amount of fertilizers; and reforestation (government or community effort).



Source: FAO, n.d

Image 12. **Illustration showing salinization caused by salty irrigation water**

Desertification is the process of land degradation that occurs in arid regions, leading to a reduction or loss of biological productivity, ecological integrity, and value to humans (Rossi R., 2020).

4.6.15 Operators shall not practice land clearing through burning, in compliance with RA 8749 (Philippine Clean Air Act of 1999).

Explanatory Note:

According to Republic Act (RA) No. 8749, also known as the Philippine Clean Air Act, organic agriculture operators are not allowed to clear land by burning. This is an important measure to promote sustainable farming and reduce air pollution caused by open burning. By preventing land clearing through burning, organic agriculture operators help maintain clean air and minimize harmful emissions.

4.7 Choice of crops and varieties

4.7.1 Operators should preserve the genetic integrity of varieties and traditional ecotypes. Use of locally sourced or native varieties should be encouraged. Use of GMO varieties shall be prohibited.

Explanatory Note:

The use of GMO varieties is prohibited because the organic management system aims to preserve the genetic integrity of living organisms. This commitment guarantees the availability of resources that are both GMO-free and compatible with organic principles (Organics Europe, n.d.).

Additionally, concerns have been raised regarding potential adverse effects on the agricultural ecosystem resulting from the use of GM crops. It is noteworthy that conflicting findings from various research studies complicate the interpretation of results, adding complexity to our understanding of these potential negative impacts (Chamberlin M., n.d.).

According to the International Service for the Acquisition of Agri-biotech Applications (ISAAA), the Philippines stands among the nations that have approved Genetically Modified (GM) crops. Below are the crops with GM counterparts:

1. Alfalfa - *Medicago sativa*
2. Argentine Canola - *Brassica napus*
3. Cotton - *Gossypium hirsutum L.*
4. Eggplant - *Solanum melongena*
5. Maize - *Zea mays L.*
6. Potato - *Solanum tuberosum L*
7. Rice - *Oryza sativa L.*
8. Soybean - *Glycine max L.*
9. Sugar Beet - *Beta vulgaris*

Details on the list of crops with their GM counterparts is accessible through this link:

www.isaaa.org/gmapprovaldatabase/approvedeventsin/default.aspCountryID=PH&Country=Philippines]

4.7.2 Organic crop production shall use seeds that come from organic agriculture systems when available. The operator shall establish appropriate actions to obtain untreated and organic planting materials through documentation.

Explanatory Note:

Establishing an inventory of seeds and planting materials indicating their sources can be done by the farmer/operator. Efforts of the actions taken to obtain untreated and organic seeds can be documented through communication channels, or purchase receipts that should be properly recorded through a compilation or logbook.

4.7.3 Materials allowed for the treatment of seeds include the substances listed in Section A.1 of DC No. 09, series of 2020 (National List of Permitted Substances for Organic Agriculture).

Explanatory Note:

Substances and materials permitted to be used for the treatment of seeds are as follows:

1. bacterial preparations;
2. carbon dioxide;
3. nitrogen gas;
4. clay;
5. ethyl alcohol;
6. silicates; and
7. wood ash.

As previously highlighted in several sections of this Manual, a copy of the Department Circular No. 9 Series of 2020 is accessible on the DA-BAFS website at www.bafs.da.gov.ph. As this Circular undergoes periodic updates, it is recommended to revisit the DA-BAFS website regularly for the latest information.

4.7.4 Treated seeds shall only be used when required by competent authority authorities as part of phytosanitary regulations necessary to prevent the spread of seed-borne diseases or when natural disasters like floods, drought, earthquakes, pest outbreaks, or other unanticipated circumstances have occurred that may cause the destruction of organic seed supply.

Explanatory Note:

Treated seeds are those that have been treated with fungicides, insecticides, or a combination of both to disinfect them from seed-borne or soil-borne pathogenic organisms and storage insects (Tamil Nadu Agricultural University, n.d).

Treatments, as referred to in 4.7.4 may require the use of materials that are not listed in DC No. 9 series 2020. In such cases, documentation is important to show proof that treatment is carried out due to phytosanitary requirements.

During natural disasters such as floods, droughts, earthquakes, pest outbreaks, or unforeseen circumstances that threaten organic seed supplies, using treated seeds is justified. This is essential to prevent the destruction of the organic seed supply due to exigencies like floods and droughts.

4.7.5 If untreated seeds are not available, only then shall the use of treated seeds be allowed. Prohibited treatments shall be removed from seeds and planting materials before use. Exemptions shall have time limitations and subject to review.

Explanatory Note:

Procedures outlined in the Organic Management Plan are implemented to remove prohibited treatment substances, such as using water to clean the seeds, in a manner that ensures proper disposal and prevents contamination of the production area and the environment. These procedures must be written as in the Organic Management Plan and are properly implemented.

Acceptable situations where organic or untreated seeds and planting materials are unavailable may include, but are not limited to: unavailability in the local market, unavailability during the required period, or unavailability of the required quantity.

It is important to note that **commercially available seeds are usually treated seeds.**

Image 13a. **Untreated seeds of Pole sitao**

Image 13b. **Treated seeds of Pole sitao**

Image 13c. **Untreated seeds of Cowpea**

Image 13d. **Treated seeds of Cowpea**

Not all treated seeds have colored coating, some have white coat. Color may also vary depending on the chemical/s used to treat the seed.

4.7.6 Seeds derived from tissue culture may be used for the production of organic and disease-free planting materials.

4.7.7 Organic seeds sourced from other countries shall comply with statutory requirements set by the competent authority agency.

Explanatory Note:

Organic seeds sourced from other countries must adhere to the statutory requirements outlined in the Organic Agriculture Act of 2010 (Republic Act No. 10068) as amended by Republic Act No. 11511 and the specific requirements enumerated in the relevant regulations issued by the DA-BAFS and DA-BPI. When sourcing organic seeds from other countries, it is essential to comply with these regulations to ensure the quality and authenticity of the organic produce following Philippine law.

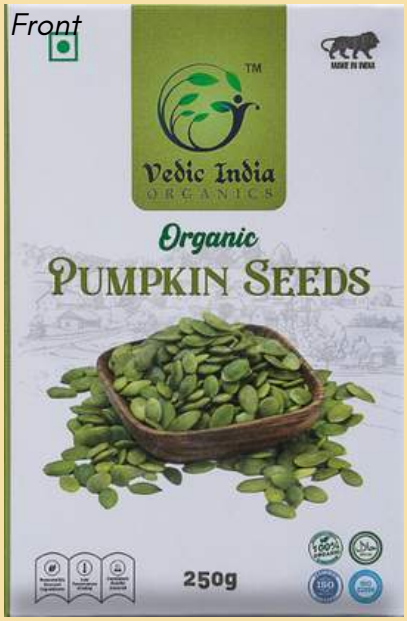
The BPI - National Plant Quarantine Services Division requires that any person/company intending to import plants/plant products shall file an application for Plant Quarantine Clearance (PQC) (BPI Q Form No. 1) (personal purposes) Sanitary and Phytosanitary Import Clearance (SPSIC) (commercial purposes) with the NPQSD before importation.

To know more about the requirements for importing seeds, you may check the official website of DA-BPI National Plant Quarantine Services Division at the https://npqsd.bpi-npqsd.com.ph/import/

Image 14a. **Certified organic seeds produced by BPI with proper labels**

Below is a sample of a packaging material of imported seed.

Front



Back

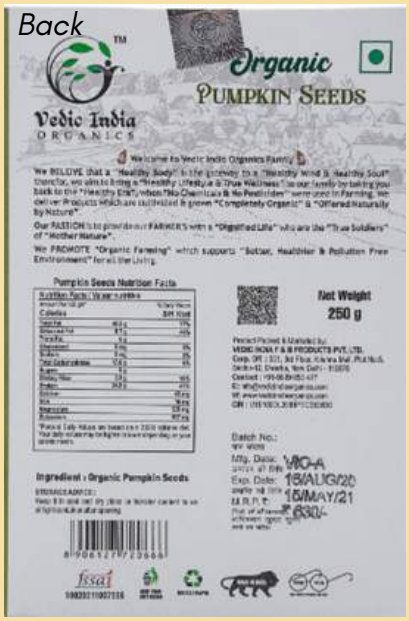


Image 14b. **Sample packaging of an imported organic seed with label**

4.8 Diversity in crop production

4.8.1 The diversity of crops and cropping systems on organic farms should sustain and promote diversity suited to the local agro-ecosystem. Crop diversification systems should be used such as crop rotation, intercropping, alley cropping, relay cropping, and multi-story cropping.

Explanatory Note:

Crop diversification is defined as the addition of new crops or cropping systems to an existing farmland. It can also be referred to as the changing of cropping patterns or the expansion of other non-farming activities (e.g., poultry farming, animal husbandry, etc) (Agrotex global, n.d). Below are the examples of crop diversification system:

Crop rotation is the practice of alternating the species or families of annual and/or biennial crops grown on a specific field in a planned pattern or sequence to break weed, pest, and disease cycles and to maintain or improve soil fertility and organic matter content (ASOA, 2014, modified). Moreover, crop rotation helps to mitigate pest establishments and at the same time adds nitrogen to the land with the help of leguminous plants or also known as nitrogen-fixing plants (ATI, 2023).

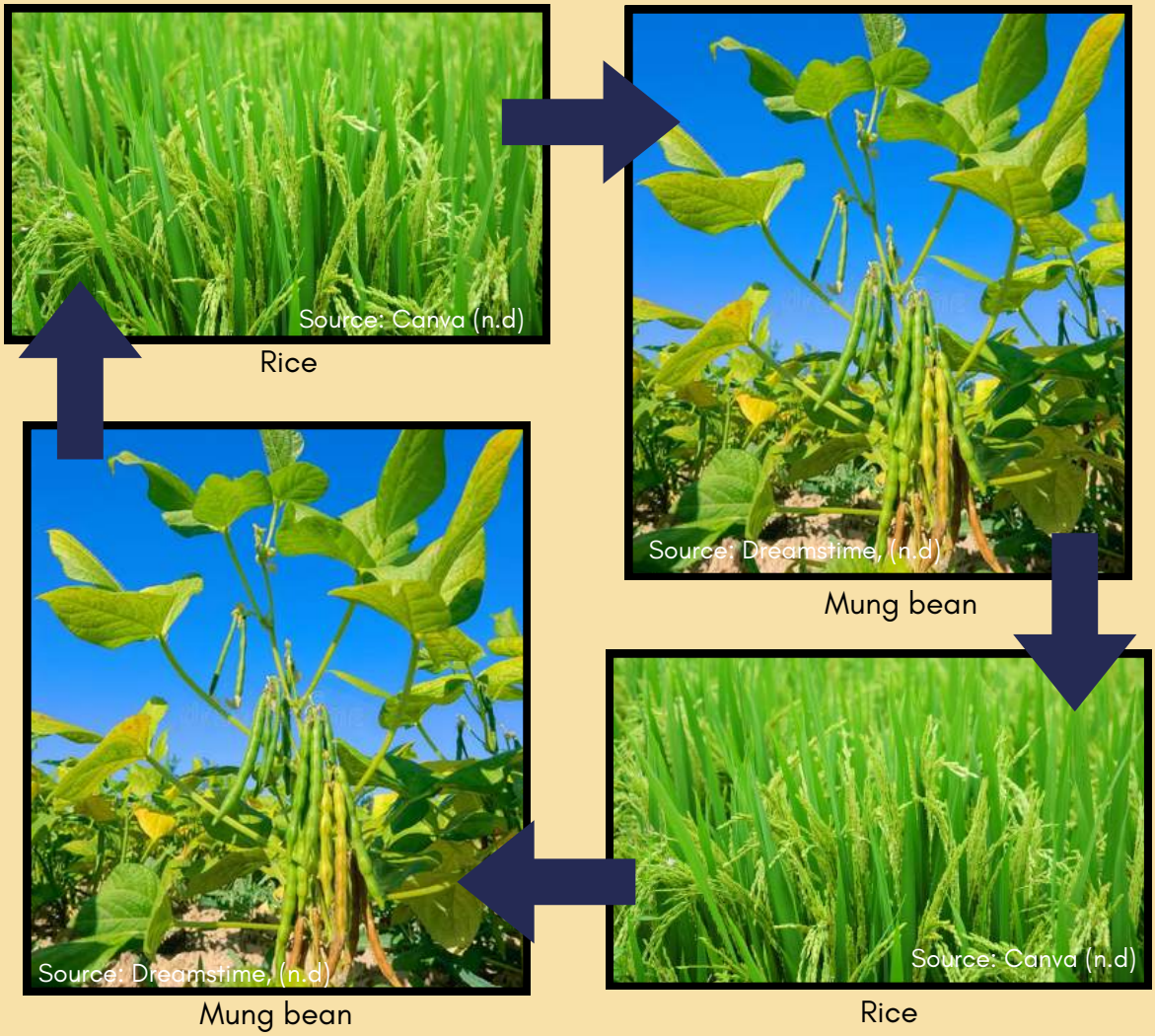


Image 15a. **Sample rotation of rice - mung bean - rice**

Intercropping is a practice of cultivating two or more crops in the same field in a systematic manner (DOST- PCAARRD, 2023)

Image 15b. **Intercropping in annual crops**

Image 15c. **Intercropping in perennial crops (coconut and cacao trees)**

Alley cropping is the planting of rows of trees and/or shrubs to create alleys within which agricultural or horticultural crops are produced (USDA, n.d).

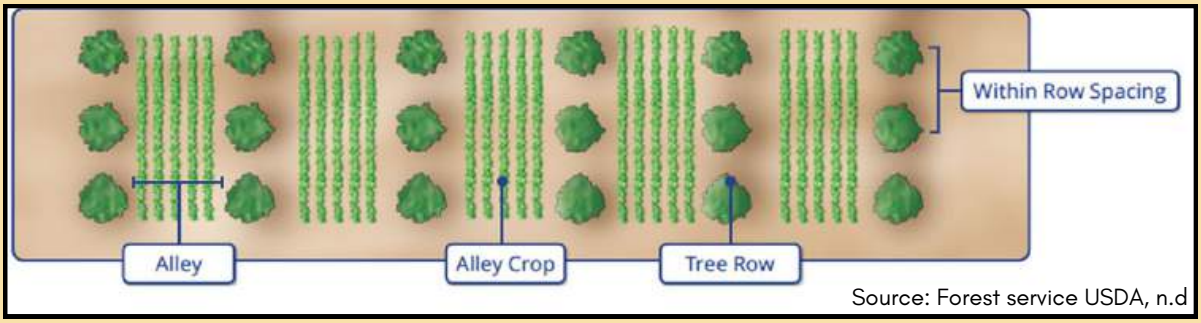


Image 15d. **Alley cropping**

Relay cropping is another type of multiple cropping system in which crops are planted on different dates and cultivated together for at least part of their life cycle (Meena R.S and Kumar S., 2022).

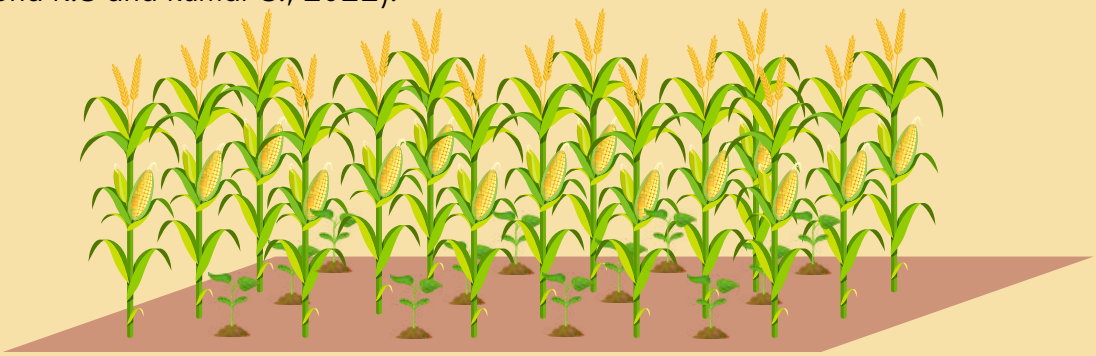


Image 15e. **Illustration of relay cropping of Corn and leguminous plant (e.g Munggo)**

Multi-storey cropping is growing plants with different heights in the same field at the same time utilizing varying heights, root depths, and crop canopy (Dutta S. and Gogoi P., 2020).

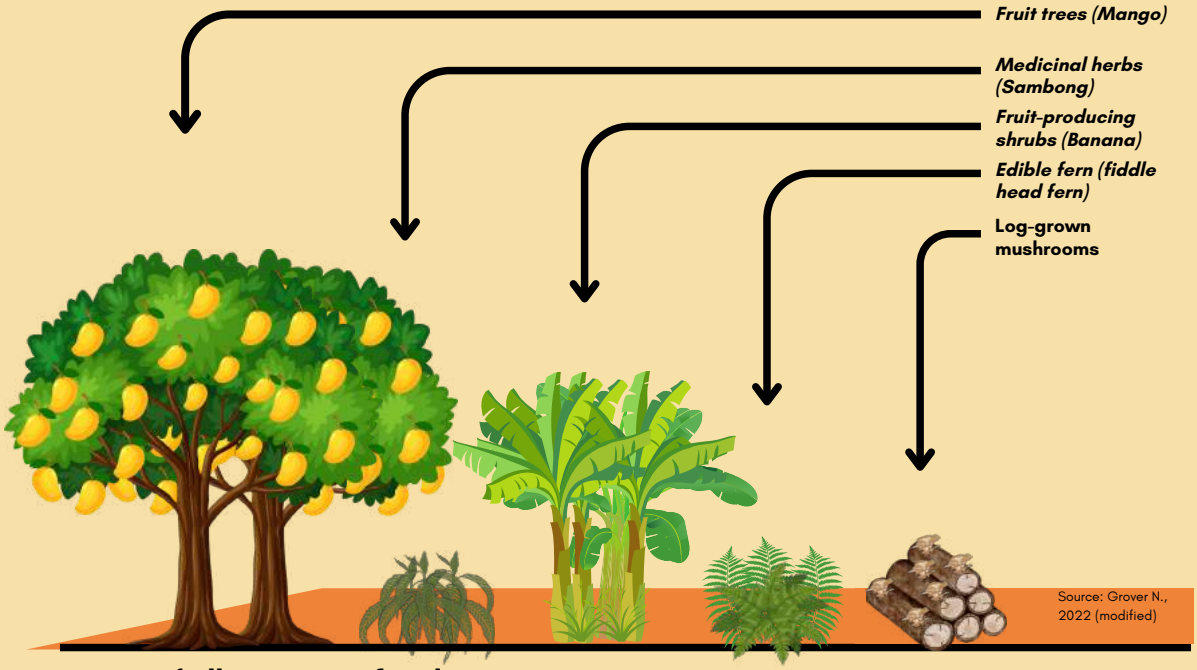


Image 15f. **Illustration of multi-storey cropping**

Image 15g. **Sample image of multi-storey cropping**

4.8.2 Organic management shall only engage in actions that do not create any negative impacts in officially recognized high conservation value and heritage areas such as forests wildlife protection areas and watershed areas.

4.8.3 Organic management should maintain and/or enhance biodiversity on the farm holding the crop and where applicable, in non-crop habitats.

4.8.4 Organic crop production should include diversification as an integral part of the farm management system. For perennial crops, this includes the use of plant-based ground cover. For annual crops, this includes the use of crop rotation practices, cover crops (green manures), integrated crop management, intercropping, or other diverse plant production with comparable achievements. Organic crop production systems should produce terrestrial crops in soil-based systems.

Explanatory Note:

Image 16. **Use of Mani-manian (Arachis pintoi) as plant based ground cover**

4.9 Pest, disease, and weed management

4.9.1 Organic crop production management shall employ interrelated positive processes and mechanisms for the management of pests, diseases, and weeds. These should include but are not limited to site and crop-adapted fertility management and soil tillage, crop cultural practices, choice of appropriate varieties, and enhancement of functional biodiversity (e.g., planting host plants for beneficial organisms, mulching to control weeds). In case additional measures are required, the operator shall employ thermal controls, use of certified organic crop protectants, and biological control agents and substances included in Section A.3 of the DC No. 09, series of 2021 (National list of permitted substances for organic agriculture).

Explanatory Note:

Image 17a. **Use of Marigold as pest repellent**

Marigold is known for its ability to produce compounds that are allelopathic to many species of plant-parasitic nematodes (Calumpang S.M and Ohsawa K., 2015)

Image 17b. **Rice straw (dayami) used as mulch**

Image 17c. **Plastic film used as mulch**

The list of certified organic crop protectants, biological control agents, and substances can be seen in the National list of permitted substances for organic agriculture (DC No. 09, series of 2020) or its latest version.

4.9.2 If preventive methods are inadequate, mechanical/physical, and biological methods should be preferred.

Explanatory Note:

Below are the sample of preventive methods that can be implemented.

Table 4. **List of preventive methods**

Preventive measures	Description	Control measures
Mechanical/Physical methods	This method directly remove or kills pests, or physically keep insect away from reaching their hosts by means of barrier or a trap.	• Habitat manipulation • Creating barriers or traps • Trapping pests • Hand removal • Mulching
Biological method	This method uses natural enemies to suppress pest outbreak. Insects, pathogens and weeds have predators that feed upon them, and/or diseases that makes them weak or die.	• Use of predators such as insect, birds, bats, reptiles and amphibians • Use of parasitoids or small insects that develop on or inside a host insect

Source: Oklahoma State University Extension, n.d

a)

F. PESTS, DISEASES AND WEEDS MANAGEMENT

F.1. Pest Management

Lot/Plot No.	*Pest (problem encountered)*	*Action (to be taken)*
Terrace 1 to Terrace 3	Insect pests	• Manual picking of insect/insect larvae is practiced • Planting of insect repellent plants and herbs is considered

F.2. Disease Management

Lot/Plot No.	*Disease(problem encountered)*	*Action (to be taken)*
Terrace 1 to terrace 3	Bacterial wilt, Blight, and other fungal/bacterial diseases.	• Fermented Banana Blossoms and IMO is being used/sprayed to the plants as disease control and treatment (400ml / 2 sardines can of FBB:1knapsack sprayer) • Maintaning cleanliness in farm is observed.

F.3. Weed/s Management

Terrace/Plot No.	*Weeds*	*Action (to be taken)*
Terrace 1 to Terrace 3	Grasses and Broadleaves	• Manual weeding of both types of weeds is practiced, by uprooting or scraping with the use of a hand trowel(hanggap) and a spade/grabhoe(gabyon)

Source: BAFS-OAD, n.d

A pest, disease, and weed management plan can guide farm workers in controlling and mitigating the impact of pests, diseases, and weeds on crops.

b)

Direction: Please provide all the information. Put 'not applicable or N/A' whenever necessary.

D Pest, disease, and weed management

(Briefly describe the practice(s) or inputs used to control common pest(s), disease(s) and weed(s) encountered in the farm)

Type of Pests/Diseases/Weeds	Means of control	Schedule of application or implementation of control	Method of application
WEEDS	Biological Control Mechnical Control	10 DAT 1ST Irrigation weekly interval Once a month	1. Magpasulod ug tubig napulo ka adlaw human ug tanum 2. Ipundo ang tubig sulod sa usa ka simana 3. pahubsan ug tubig sulod sa upat ka adlaw 4. balikon ang ika duha ug ika tulo nga processo 5. Pahubsan ang luna duha ka simana before mag harvest 6. Pagbas2 sa dike 7. Pag kamlot sa portion nga dunay sagbot
Bacterial Leaf Blight Rice Blast	Biological Control	15 DAT 1st Application weekly interval up top 2 weeks before harvest	Spray early in the moring and late in the afternoon mix with other concoction for prevention and control
Stem Borer	Biological Control	15 DAT 1st Application weekly interval up top 2 weeks before harvest	Spray early in the moring and late in the afternoon mix with other concoction for prevention and control
Leaf Folder	Biological Control	15 DAT 1st Application weekly interval up top 2 weeks before harvest	Leaf folder attack Water management and spraying with mixed plant extract(Madre kakaw, falcatta roots, tubli, panyawan, cetronella and oriental herbal nutrient.
Rice Bug	Biological control	During flowering period until milking stage	Hang golden apple snail during flowering period until milking stage Hang 50 sticks around the ricefield
Rat	Biological Control Mechanical Control	30 DAT 1st installation of bait twice a month	Maintain ang kalimpyo sa palibot Magbutang ug pagkaon sa palibot para dili mosulod ang dangan sa area

Image 18a. **Sample pest and disease management procedure**

Source: BAFS-OAD, n.d

Republic of the Philippines
Regional Field Office No. 02
CAGAYAN VALLEY RESEARCH CENTER
San Felipe, City of Ilagan, Isabela
Contact No. 0956-096-3388
TIN: 0000-845-895 Website: https://cagayanvalley.da.gov.ph/
Email Address: cvrc.rfo2@da.gov.ph
ISO 9001:2015 Certified No CIP/S310/17/11/1015

POLICY AND PROTOCOL ON PROPER CLEANING OF GARDEN TOOLS, EQUIPMENT AND STORAGE AREA/BODEGA IN THE FARM

1. Garden tools and facilities needed for operation must be cleaned and properly labelled inside the storage area or bodega.
2. All garden tools and facilities should be cleaned before and after each used. Rinse tools under clean running water and remove any remaining soil/dirt using dry clean cloth or brush. Let the tools dry and store in the designated area.
3. Only materials and tools needed in the farm during scheduled farm operation/activities of the day must be get or out in the storage area/bodega.
4. Any damaged tools and equipment's during farm operation must be repaired before storage.
5. Unused tools in the storage area/bodega should be cleaned monthly.
6. Cleaning of the bodega or storage area should be done every other day to ensure cleanliness and proper arrangement of tools inside the storage must be observed.

Cleaning procedure on organic products

a. Vegetable Seed
- Harvest seeds base on maturity indices
- Thresh the vegetable crops manually
- Seeds will be clean and sort
- Dry seeds base on the recommended moisture content
- Pack the seeds then store in the cold storage.

b. Fresh fruits and vegetable (pick and pay)
- Costumer/clients will harvest any kind of vegetable and fruits they want in the area then they will pay to the person in-charge.

Prepared by:

ELIZABETH ARCIAGA
Science Research Technician II/c

Approved by:

RICKSON T. BALDUGO
SRS II/ CVRC Annex in-charge

Image 18b. **Sample of written procedure on proper cleaning of garden tools, equipment and storage**

The use of synthetic pesticides (e.g., herbicides, fungicides, insecticides, mollusicides, nematicides, rodenticides, acaricides etc.) shall be prohibited.

4.9.4 Use of natural enemies and predators shall be subject to appropriate existing phytosanitary regulations and measures, as well as national registration requirements.

Explanatory Note:

It is advisable to reach out to the DA-BPI to obtain the most recent information on phytosanitary regulations, measures, and national registration requirements.

Meanwhile, below is an example of a commonly used parasitoid in controlling a pest named *Trichogramma evanescens* or Trichogramma, a parasitic wasp that attacks the eggs of lepidopterous (e.g. moths) insects. It is recognized as essential parasitoid natural enemies, Trichogramma wasps that contribute significantly to integrated pest management strategies (Elwakil, Doherty, & Dale, n.d.).

It is usually placed in cards and released in the field to control pests. The field releases 150 Tricho cards (300,000) parasites per hectare (3 releases) to reduce the infestation of Asian Corn Borer to corns (University of the Philippines Research Development Extension, n.d).

Image 19. **Use of Trichogramma to control pest in crops**

4.9.5 Physical methods for pest, disease, and weed management shall be allowed. Thermic sterilization of soils to combat pests, disease, and weeds should be restricted in circumstances where a proper rotation or renewal of soil cannot take place.

Section 5

Seed Production

The provisions of the standard are written in black font color. Additional information such as notes, images and anecdotal practices are provided as Explanatory Notes inside a yellow box in black font color.

5 Seed Production

5.1 The operators of organic seed production and nursery management shall comply with the applicable requirements of Clause 4 of this Standard.

5.2 The soil used for potted or container-grown seeds should be from a certified organic production farm. If not, the conversion period in 4.1 of this Standard applies.

5.3 All the organic soil amendments and other planting media used (e.g., carbonized rice hull, coco coir, peat, etc.), shall be in accordance with the PNS/BAFS 183:2020 (PNS on OSA) and Section A.2 of DC No. 09, series of 2020 (National list of permitted substances for organic agriculture).

Explanatory Note:

The specifications for solid and liquid organic fertilizer, organic soil conditioner, and organic plant supplement based on PNS/BAFS 183:2023 *Organic soil amendments and Plant Supplements – Product Standard – Specifications* are shown in Table 8.

Table 5. **Specifications for solid and liquid organic fertilizer, organic soil conditioner, and organic plant supplement**

Specifications	Organic fertilizer (solid)	Organic fertilizer (liquid)	Organic Soil Conditioner (solid and liquid)	Organic plant supplement (solid and liquid)
Total N-P_2O_5- K_2O, %	5 – 10%	5 – 10%	2.5 – <5%	0.5 – 10%
C:N ratio	≥ 1.5	≥ 1.5	1 – < 1.5	≥ 0.3
Organic Matter (OM), %	8:1 – 20:1	--	8:1 – 20:1	--
Actual Moisture Content (MC), %	≤ 35	--	Solid: ≤35 Liquid: none	--
Odor	No foul odor: (ammonia, rotting or fermentation)	--	No foul odor: (ammonia, rotting or fermentation)	--

5.4 Organic management systems shall not use any materials and/or products produced from GMO in all stages of organic seed production and processing.

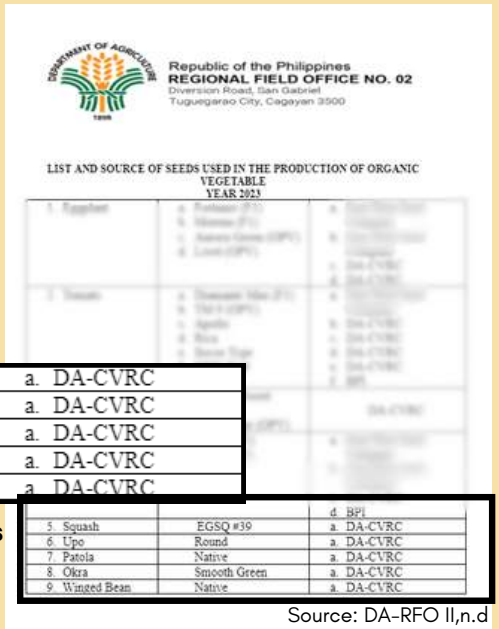
5.5 The operators of organic seed production should only use organic seeds of good quality.

Explanatory Note:

Quality considerations in seed selection include but are not limited to, the germination rate of the seed, the presence of weed seeds in the seed mix, the shelf life and stability of the seeds, and disease and pest resistance (USDA, n.d.).

Below are the examples of commercially available Open Pollinated Varieties (OPV) developed for organic condition by the UPLB-CAFS-Institute of Plant Breeding.

1. **Pole sitao**
   - 'Maureen'
   - 'Generosa'
   - 'Illao'
2. **Mung bean**
   - 'Ilo-ilo Yellow'
3. **Black gram** *(Vigna mungo)*
   - 'Napigket'
4. **Cucumber**
   - 'Princesa'
   - 'Urduja'
   - 'Milagros'
5. **Squash**
   - 'Amour'
   - 'Sonrisa'
   - 'Luisa'
6. **Eggplant**
   - 'Minyang'
   - 'Dorikit'
7. **Cherry tomato**
   - 'Cherrys'
   - 'Betty'
   - 'Elmundo'
8. **Lagikway** *(Abelmochus manihot)*
   - 'Glan'
   - 'Sariaya'
9. **Roselle** *(Hibiscus sabdiraffa)*
   - 'Reina'
   - 'Pasuquin'
10. **Okra**
    - 'Dilag'
11. **Upo**
    - 'Leona'



Republic of the Philippines
REGIONAL FIELD OFFICE NO. 02
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LIST AND SOURCE OF SEEDS USED IN THE PRODUCTION OF ORGANIC VEGETABLE
YEAR 2023

5. Squash	EGSQ #39	a. DA-CVRC
6. Upo	Round	a. DA-CVRC
7. Patola	Native	a. DA-CVRC
8. Okra	Smooth Green	a. DA-CVRC
9. Winged Bean	Native	a. DA-CVRC

Source: DA-RFO II,n.d

Image 20**. List of sources of seeds**

5.6 In the case of asexual propagation, the source of planting materials used shall be from an organic origin. If there are no organic sources of planting materials available, such shall undergo conversion requirements under 4.1 of this Standard.

5.7 Pest, disease, and weed control for seed production shall comply with the requirements of 4.8 of this Standard. The organic seed production management systems should follow the hierarchy of practices based on this order:

a) preventive methods (e.g., using resistant crop varieties, cultural management, etc.);

b) if preventive methods are inadequate, the next choice for pest control should be mechanical/ physical and biological methods; and

c) if mechanical/physical and biological methods are inadequate for pest control, substances accepted for use in handling, storage, transportation, or processing facilities by the competent authority shall be used and shall not come in contact with the organic seed.

5.8 Appropriate measures shall be practiced to prevent the contamination of the seeds and soil.

Explanatory Note:

To maintain GMO-free organic agriculture production, it is essential to be vigilant in the initial stage of production. In general, the following are examples of preventive measures that can be followed to avoid contamination:

1. setting up of physical boundaries;
2. separation of receiving of organic seeds;
3. separation of manufacturing area for areas for organic produce/products;
4. separation of storage, packaging, and transportation systems;
5. establishment and application of clean-out procedure; and
6. training of organic and non-organic personnel . (USDA, n.d)

Other measures include:

1. time of planting;
2. isolation distance; and
3. physical covering.

It is necessary to use organic seeds that are guaranteed by the seed supplier. In case there is a high risk of GM contamination or suspicion after the conduct of risk assessment, a DNA-based Polymerase Chain Reaction (PCR) analysis and strip tests may be carried out (Roseboro, K. 2016).

In the Philippines, the crops with approved GM counterparts are alfalfa (*Medicago sativa*), Argentine canola (*Brassica napus*), cotton (*Gossypium hirsutum L.*), eggplant (*Solanum melongena*), maize (*Zea mays L.*), potato (*Solanum tuberosum L.*), rice (*Oryza sativa L.*), soybean (*Glycine max L.*), and sugar beet (*Beta vulgaris*).

More details are available in the International Service for the Acquisition of Agri-biotech Applications (ISAAA) website: https://www.isaaa.org/gmapprovaldatabase/approvedeventsin/default.asp?CountryID=PH

5.9 Seed should be harvested at the right maturity. Non-organic and non-distinguishable varieties shall be harvested , processed, and stored separately.

5.10 Only substances included in Section A.1. of DC No. 09, series of 2020 (National list of permitted substances for organic agriculture) shall be used as a seed treatment.

Explanatory Note:

Below are samples of the substances included in DC No. 09, series 2020.

Table 9. **List of substances for seed treatments**

Subtances	Examples
Bacterial preparations	*Bacillus thurgiensis, Bacillus subtilis*
Clay	Bentonite, Perlite, Vermiculite, Zeolite
Silicates	sodium silicates, quartz
Ethyl alcohol, Carbon dioxide and nitrogen gas, Wood ash	-

It is advisable to always check with the DA-BAFS Organic Agriculture Division for updates or the latest issuances on the National List of Permitted Substances.

5.11 Seed storage should have the appropriate environmental conditions (e.g. temperature, humidity, etc.) to maintain the quality of the seeds.

Explanatory Note:

Temperature

Temperature greatly affects the longevity of seeds. As the storage temperature decreases, the longevity of the seeds increases. This happens in the orthodox seeds. Orthodox seeds as defined by Berjak P. and Pammenter N.W., (n.d) acquire tolerance in desiccation during development and may be stored in the dry state for

predictable periods under defined conditions. Approximately five percent moisture content is the ideal way to store seed, especially small seed that does not require much freezer space, seeds with this moisture content may last up to twenty years (McCormac J., 2010).

Seed moisture and humidity

The rule of thumb on the relation of moisture with the longevity of seeds is that for each one percent increase in seed moisture, longevity decreases by half.

The optimum seed storage moisture content is at 5-13%. Above or below this, the longevity of the seeds may increase or decrease. At moisture content above 13%, the seed storage fungi increases the temperature inside the storage causing the longevity of the seeds to decline at a faster rate. At 18-20% moisture content, there is an increased respiration and the activity of the microorganisms causes rapid deterioration of the seed. Germination of non-dormant seeds happens at 30% moisture content.

Meanwhile, seeds stored at 4 to 5% moisture content are unaffected by seed storage fungi, but such seeds have a shorter longevity than seeds stored at a slightly higher moisture content (McCormac J., 2010).

Image 21**. Seed storage a) exterior b) interior**

5.12 The packaging, storage, and transportation containers shall not contaminate the organic seeds. For example, packaging materials or storage containers that contain a synthetic fungicide, preservative, or fumigant shall be prohibited as well as the use of reused bags or containers that have been in contact with any substance likely to compromise the organic integrity of the seeds.

5.13 Use of packaging materials from biodegradable, recycled, or recyclable sources should be encouraged.

5.14 The practices (e.g., cleaning of the storage facility, pest control in seed storage, etc.) and materials (e.g., organic soil amendments, cleaning agents, tools and equipment, etc.) used in seed production shall be properly documented through record

Section 6

Mushroom Production

The provisions of the standard are written in black font color. Additional information such as notes, images and anecdotal practices are provided as Explanatory Notes inside a yellow box in black font color.

6 Mushroom Production

6.1 The operator should use organically produced spawn. Otherwise, non-organically produced spawn may be used provided it has only been treated with substances in DC No. 09, series of 2020 (National list of permitted substances for organic agriculture) and its future amendments and has not been raised on a GMO substrate.

Explanatory Note:

Spawn is the propagation material used in mushroom production. It consists of substrate - material on which the spawn grown and provides the nutrient source for the spawn, depending on the variety- such as rice grains wood shavings, sawdust, and rice straw (Agribusiness how it works, 2014 and PCO, n.d)

Essentially, to produce an organic spawn, there should be one cycle of mushroom production following the organic management system.

Image 22**. Mushroom fruiting bag**

6.2 The operator shall not use chemically treated construction materials for new installations or replacement purposes in contact with the growth substrate.

Explanatory Note:

An attestation from the sawmill facility stating that the construction material to be used for mushroom production has not been chemically treated can be presented.

6.3 The operator shall maintain a production environment that prevents contact between organically produced mushrooms and prohibited substances throughout the entire growing cycle, harvesting and post-harvesting process.

Explanatory Note:

An organic management plan can help maintain a production environment that prevents contact between organically produced mushrooms and prohibited substances. The production and activities of the whole production cycle is also reflected in the records.

6.4 Substrates shall be composed of any of the following components:

a) products of agricultural origin from farms produced according to organic production methods. If not available, products should only be exposed to substances permitted in DC No. 9, series of 2020 (National list of permitted substances for organic agriculture) and its future amendments;

b) sawdust, logs, or other materials derived from wood used as a growth substrate which have not been treated with wood preservatives after tree harvest;

Explanatory Note:

Wood and wood shavings can be used as substrates for mushroom production. However, they should not be treated with wood preservatives not included in DC No. 9, s. 2020 (National List of Permitted Substances for Organic Agriculture).

Wood preservatives as defined by the Department of Science and Technology - Forest Products Research and Development Institute (DOST-FPRDI) are chemicals applied to wood and wood products as protection from damage by insects, fungi, and marine borers. These preservatives undergo microbiological, pathological, entomological, and clinical tests before they are recommended for commercial use. Their relative effectiveness against some fungi species (molds, stains, and decay) and insects (termites and powder-post beetles) is first tested in the laboratory.

c) mineral products allowed in DC No. 9, series of 2020 (National list of permitted substances for organic agriculture), water, and soil; and

d) Only sanitizers and disinfectants included in the DC No. 9, series of 2020 (National list of permitted substances for organic agriculture) and its future amendments shall be used for mushroom production.

6.5 In cases of pest infestation, chemical sanitizers and fumigants should be allowed in the farm is as long as it does not have contact with the substrate and the mushroom. The operators shall follow the label instructions on the withholding period and safety precautions.

Section 7

Wild Harvest

The provisions of the standard are written in black font color. Additional information such as notes, images and anecdotal practices are provided as Explanatory Notes inside a yellow box in black font color.

7 Wild Harvest

7.1 Organic wild harvest operators shall ensure that harvesting does not exceed the sustainable yield of the harvested species or threaten the local ecosystem

Explanatory Note:

According to the Department of Environment and Natural Resources (DENR), below photos are the commonly found in forests or grassland ecosystems. Wild harvests (timber and nontimber) are usually maintained in a natural state and are not cultivated or managed (Chamberlain J., et al., 2019)

Some wild harvest plays an essential part in the culture of indigenous people, usually, they are endemic in some parts of the country as they can be used as an alternative to agricultural crops by the indigenous people

As such, it is being protected to avoid their loss and vanish cultural identity (Chamberlain J., et al., 2019). You may access the list of wild harvests in the country using this link: https://erdb.denr.gov.ph/wp-content/uploads/2015/06/denr_v12.pdf

Below are the commonly known wild harvests.

Image 23a. **Banaba**

Image 23b. **Sambong**

Image 23c. **Tsaang Gubat**

Image 23d. **Soursop "Guyabano"**

Image 23e. **Flower of papaya (male)**

Image 23f. **Cinnamon tree "Kalingag"**

7.2 Organic operators shall harvest produce only from within the boundaries of the clearly defined wild harvest area. The wild harvest area should not have been used for agricultural purposes or have been applied with prohibited substances for at least 18 months.

Explanatory Note:

A map can serve as a reference to clearly define the wild harvest area, which is also a guide for visual inspection.

In general, prohibited substances are those that are synthetic unless specifically allowed. The allowed substances are those non-synthetic unless specifically prohibited (USDA, n.d.). For the list of permitted substances, it is advisable to always contact the DA-BAFS Organic Agriculture Division or visit the BAFS website at www.bafs.da.gov.ph.

7.3 Organic wild harvest operators shall exclude systems that are officially protected or endangered species or where the harvest is prohibited by law.

7.4 Wild harvest areas shall be at an appropriate distance from conventional farming, pollution, and other potential sources of contamination.

Section 8

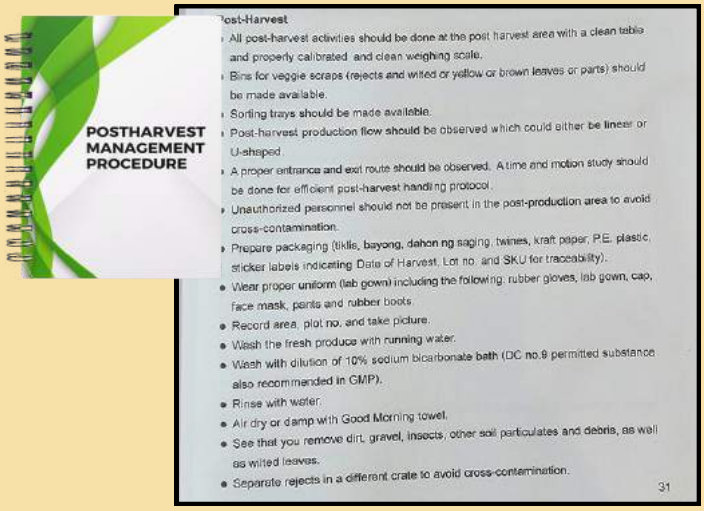
Post-harvest Management

The provisions of the standard are written in black font color. Additional information such as notes, images and anecdotal practices are provided as Explanatory Notes inside a yellow box in black font color.

8 Post-harvest Management

8.1 Post-harvest management shall take measures to prevent contamination and commingling of organic with non-organic produce, for example in the threshing, peeling, cleaning, cooling, cutting, drying, and on-farm packing.

Explanatory Note:



Measures to prevent contamination and commingling of organic with non-organic produce can be detailed in the internal procedures to ensure the organic integrity from the point of harvest to the point of sale.

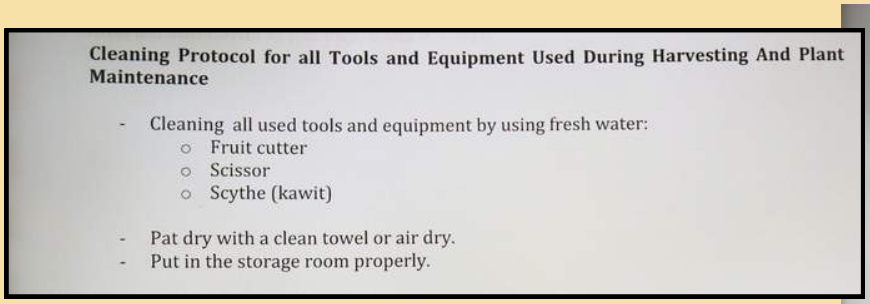
The internal procedures will guide all workers involved in the post-harvest handling of the produce.

Image 24. **Example of post-harvest procedures**

8.2 All organic produce shall be adequately identifiable throughout the whole process until final labeling

8.3 Post-harvest management, including the use of tools, equipment, and area, should be exclusive to organic produce. If not possible, tools, equipment, and area shall be cleaned to prevent contamination. Cleaning records shall be kept and maintained.

Explanatory Note:



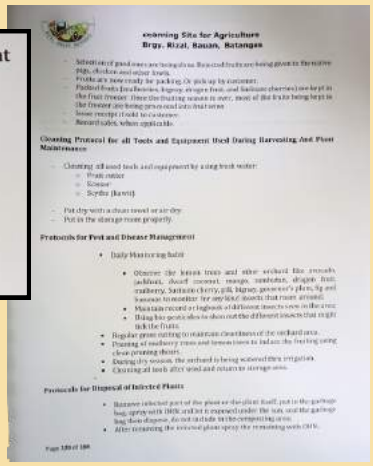


Image 25. **Sample cleaning protocol for tools and equipment**

8.4 Post-harvest management should follow the applicable Good Agricultural Practice (GAP) standards and the PNS/BAFS 233:2018 (Code of hygienic practice for fruits and vegetables).

Explanatory Note:

Below are the provisions of the *PNS Code of GAP Fruits and Vegetables (PNS/BAFS 49:2021)* applicable for the postharvest management of organic produce:

Postharvest washing

4.9.1 Whenever required, the produce should be treated with approved protocols to minimize disease development and loss of quality.

4.9.2 Water used for washing the produce should be analyzed at least annually. The levels of water quality parameters should be maintained within accepted WHO thresholds or are accepted as safe for the food industry by the competent authority.

4.9.3 The water to be used for final washing of the edible parts of produce should have quality equivalent to potable water standard, although clean water can be used for the initial washings.

4.9.4 Where appropriate, the temperature of the post-harvest water should be controlled and monitored. The temperature monitoring record is kept for traceability.

4.9.5 Ice to be used for cooling purposes should be made from potable water. The production, handling and storage of ice for postharvest purposes should follow appropriate safeguards to avoid contamination.

4.9.6 In the case that water is re-circulated or recycled for final washing of the produce, proper filtering and disinfection process should be done. The pH and microbial load should be routinely monitored. A routine cleaning schedule according to the usage should be maintained and documented.

4.9.7 Post-harvest systems that use water for washing the produce should be designed in a manner that minimizes product lodges and dirt build up.

Postharvest treatment

4.9.8 Anti-microbial agents should only be used when absolutely necessary to minimize cross-contamination during postharvest and when used for good hygienic practices. The level of anti-microbial agents should be monitored and controlled. Washing of fruits and vegetables should be done to ensure that chemical residues do not exceed levels as recommended by the Codex Alimentarius Commission.

4.9.9 The farm should only use materials for postharvest treatments such as waxes, pesticides to include fungicides, and other chemicals that are approved and registered by competent authority. Postharvest treatment materials should be carried out inaccordance with label instructions.

4.9.10 Sprayers for postharvest treatments should be calibrated regularly to control the accuracy of the application rate. After use, sprayers should be thoroughly washed in safe areas, particularly when different chemicals are used to avoid contamination of the produce

It is advisable to regularly check the DA-BAFS website for the latest version of the PNS Code of GAP Fruits and Vegetables (PNS/BAFS 49:2021).

8.5 Only natural ripening agents are allowed, for as long as their application will not deceive consumers of the nature, substance, and quality of the product. Substances listed in DC No. 9, series of 2020 (National list of permitted substances for organic agriculture), where use is explicitly stated as ripening agent, may be used.

Explanatory Note:

Per DC No. 9, s. 2020 (National List of Permitted Substances for Organic Agriculture), the allowed natural ripening agent is ethylene. Its conditions for use are as follows

- *For de-greening of citrus for fruit fly prevention and as a flowering agent for pineapples;*
- *As sprouting inhibitor for potatoes and onions; and*
- *Must be used in a manner that minimizes exposure to operators and workers for ripening of kiwifruit, bananas, and other tropical fruit*

Section 9

Processing and Handling of Organic Products

The provisions of the standard are written in black font color. Additional information such as notes, images and anecdotal practices are provided as Explanatory Notes inside a yellow box in black font color.

Source: Canva, n.d

9 Processing and Handling of Organic Products

9.1 The integrity of the organic product shall be maintained throughout the processing phase and shall be identifiable throughout the whole process until final labeling.

9.2 Only food additives listed under Section D of DC No. 09, series of 2020 (National list of permitted substances for organic agriculture) shall be used. The level of use shall comply with the latest edition of the CXS 192-1995 (General standard for food additives).

Explanatory Note:

A copy of the Department Circular No. 9 Series of 2020 is accessible on the DA-BAFS website at www.bafs.da.gov.ph. As this Circular undergoes periodic updates, it is recommended to visit the website regularly for the latest information.

The latest edition of the CXS 192-1995 (General standard for food additives) can be accessed through https://www.fao.org/fao-who-codexalimentarius/codex-texts/list-standards/en/.

9.3 Compliance with the current FDA AO No. 153 series of 2004 (Current GMP in manufacturing, packing, repacking, or holding food) and its future amendments shall be met in conjunction with the requirements of this Standard.

Explanatory Note:

Below are some of the relevant requirements stated in the General Standard for Food Hygiene repealing Administrative Order no. 153 s. 2004 "Revised Guidelines on Current Good Manufacturing, Packing, Repacking, or Holding Food"

Primary production

A system shall be in place to ensure that raw materials are free from contamination, and obtained from sources that will not contribute to contamination and deterioration of the raw material.

Compliance with this requirement shall be verified by ay effective means, including purchasing raw materials and other ingredients under a supplier's guarantee or certification.

1) ***Environmental hygiene***
   - *Primary food production shall not be done in area with potentially hazardous substance that could lead to food spoilage*
   - *All possible sources of contamination from the environment shall be identified, and a system for controlling such contamination shall be in place*

- *The processing area for food products shall be physically separated from the processing area for non-food products, in such a way that all forms of contamination are prevented*

2) Hygienic production of food sources

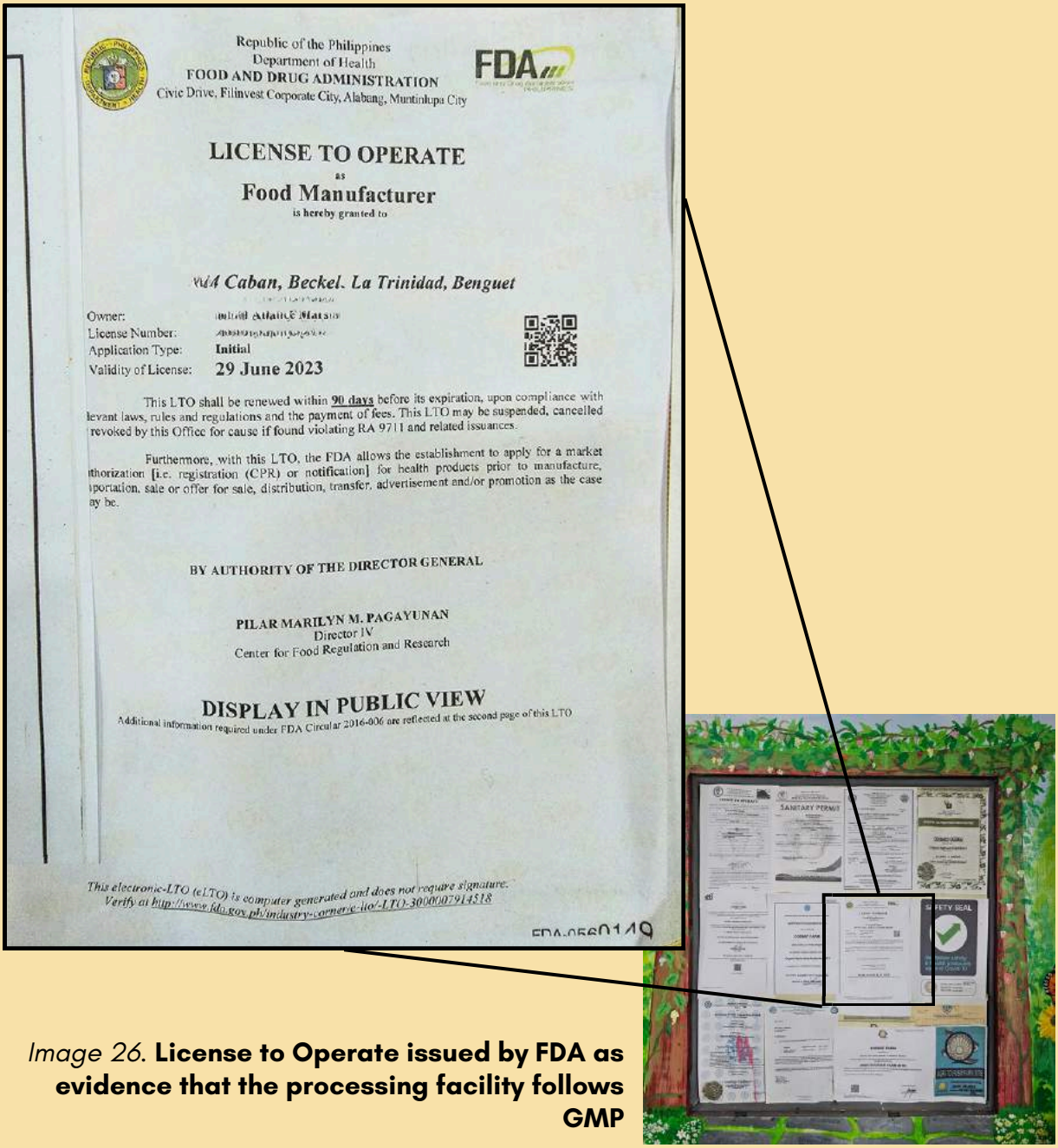
- *Wastes and harmful substances shall be managed in a manner that will not pose contamination to food and its sources*
- *There shall be measures in place for controlling health of plant and animal sources of raw materials so as not to cause threat to human health*

3) Handling, storage and transport

- *Raw materials and other ingredients shall be inspected, sorted out, segregated, and properly handled to ascertain that they are clean and suitable for processing in to food*
- *Postharvest handling or treatment, when necessary, shall ensure that the raw materials are safe for processing (i.e. not contain levels of microorganisms that may produce food poisoning or other disease in humans).*
- *Raw materials shall be stored and transported in containers or carriers, whichever is applicable, under conditions that will protect against contamination and minimize deterioration (i.e. protected from contamination by pests, chemicals, physical or microbiological contaminants, or other objectionable substances).*

4) Cleaning, maintenance and personnel hygiene at primary production

- *Procedures for cleaning and maintenance of primary production facilities and maintaining personnel hygiene shall be enforced, particularly during harvesting, packing, and post-harvest treatment of raw materials intended for processing.*
- *Where applicable, guideline on good personnel hygiene, as provided in the PNS/BAFS 49:2017 Code of Good Agricultural Practices (GAP) for Fruits and Vegetable Farming or PNS/ BAFPS 60:2008 , shall be applied.*



Republic of the Philippines
Department of Health
FOOD AND DRUG ADMINISTRATION
Civic Drive, Filinvest Corporate City, Alabang, Muntinlupa City

FDA

LICENSE TO OPERATE
as
Food Manufacturer
is hereby granted to

Caban, Beckel. La Trinidad, Benguet

Owner:
License Number:
Application Type: **Initial**
Validity of License: **29 June 2023**

This LTO shall be renewed within 90 days before its expiration, upon compliance with levant laws, rules and regulations and the payment of fees. This LTO may be suspended, cancelled revoked by this Office for cause if found violating RA 9711 and related issuances.

Furthermore, with this LTO, the FDA allows the establishment to apply for a market thorization [i.e. registration (CPR) or notification] for health products prior to manufacture, portation, sale or offer for sale, distribution, transfer, advertisement and/or promotion as the case ay be.

BY AUTHORITY OF THE DIRECTOR GENERAL

PILAR MARILYN M. PAGAYUNAN
Director IV
Center for Food Regulation and Research

DISPLAY IN PUBLIC VIEW
Additional information required under FDA Circular 2016-006 are reflected at the second page of this LTO

This electronic-LTO (eLTO) is computer generated and does not require signature.
Verify at http://www.fda.gov.ph/industry-corner/e-lto/-LTO-3000007914518

Image 26. **License to Operate issued by FDA as evidence that the processing facility follows GMP**

9.4 The provisions for organic agriculture for processing shall meet the following:

9.4.1 Use of Ingredients

9.4.1.1 Organic processing should only use ingredients from organic agriculture production and postharvest except when they are not available and subject to the labeling requirements of RA 11511 (An act amending the Republic Act No. 10068 or the Organic Agriculture Act of 2010). The operator shall establish that appropriate actions were undertaken to obtain untreated and organic ingredients through documentation. The same ingredient in a product shall not be derived from both organic and non-organic sources. These ingredients shall not be genetically modified.

Explanatory Note:

In certain situations when organic ingredients are not available, efforts or actions taken to obtain untreated and organic ingredients can be documented through communication channels, purchase receipts, following the Material Safety Data Sheet (MSDS), and process flow.

In addition, it is important to know that analysis may be required for the validation of commonly available GM materials such as yeast and microbes .

9.4.1.2 Organic processing should only use minerals (including trace elements), vitamins, essential fatty acids, essential amino acids, and other isolated nutrients when their use is legally required or strongly recommended by the competent authority in the food products in which they are incorporated

9.4.1.3 If fortification is required, the use of vitamins and minerals shall be in accordance with RA 8976 (Philippine Food Fortification Act of 2000).

Explanatory Note:

Fortification, according to the Philippine Food Fortification Act of 2000, is the addition of nutrients to processed foods or food products at levels above the natural state. As an approach to control micronutrient deficiency, food fortification is the addition of a micronutrient, deficiency in the diet, to a food that is widely consumed by specific at-risk groups

Below are some relevant provisions under Section 6: Mandatory Food fortification.

a) *The fortification of staple foods based on standards set by the DOH through the BFAD is hereby made mandatory for the following:*

	Products	Required fortification
1	Rice	with iron

2	Wheat flour 0 with vitamins A and Iron	-
3	Refined sugar	with Vitamin A
4	Cooking oil	with Vitamin A
5	other staple foods with nutrients as may later required by the National Nutrition Council (NNC)	

The National Nutrition Council (NCC) shall require other processed foods or food products to be fortified based on the findings of nutrition surveys. Such requirement shall be promulgated through regulations to be issued by the Department of Health (DOH) through the Bureau of Food and Drugs (now FDA) and other concerned agencies.

b) The fortification of processed foods or food products under this Section shall be undertaken by the manufacturers: Provided, That in the case of imported processed foods or food products, the required fortification shall be done by the producers/manufacturers of such imported processed foods or food products. Otherwise, the importer shall have responsibility of fortifying the imported processed foods or food products before said products are allowed to be distributed or sold to the public: Provided, further, That the implementation of the mandatory fortification for wheat flour, refined sugar, cooking oil and rice, including those milled and/or distributed by the National Food Authority, shall commence after four (4) years from the effectivity of this Act.

c) The DOH guidelines on micronutrient fortification of processed food or food products included in Administrative Order No. 4-A series of 1995 and such other necessary guidelines that may be issued by the DOH, shall serve as a basis for the addition of micronutrient(s) to processed foods or food products to avoid over or under fortification that may create imbalance in the diet as well as avoid misleading label claims to gain competitive marketing advantage.

9.4.2 Use of Food Additives and Processing Aids

9.4.2.1 Substances used as processing aids are listed in the DC No. 09, series of 2020 (National list of permitted substances for organic agriculture) and shall be used in accordance with noted conditions. Any revision/amendment of the list from the standard-setting bodies shall be adopted in accordance with the criteria established in DC No. 7, series of 2020 (Guidelines for the establishment, maintenance, and amendment of the national list of the permitted substances for organic agriculture).

9.4.2.2 Only natural ripening agents are allowed as long as their application will not deceive consumers of the nature, substance, and quality of the product.

9.4.2.3 The salt and water to be used shall comply with RA 8172 (An act on promoting salt iodization nationwide) and for related purposes, DOH AO 2017-0010 (PNS for drinking water of 2017), and the FDA Circular 2013-007 (Updated standards for iodine level of salt).

Explanatory Note:

Republic Act of 8172 or The Act Promoting Salt Iodization Nationwide and For Related Purposes (ASIN)

This Law was promulgated to eliminate the micronutrient malnutrition in the country. It also requires all producers/manufacturers of food-grade salt to iodize the salt that they produce, manufacture, import, trade, or distribute. The Department of Health (DOH) through the Food and Drug Administration (FDA), will undertake, set and enforce standards for food-grade iodized salt and monitor compliance thereof by the food-grade salt manufacturers. More information is available at the https://www.officialgazette.gov.ph/1995/12/20/republic-act-no-8172/.

FDA Circular 2013-007 or the Amendment of Bureau Circular No. 2007-009 on the Standard Iodine Level of Salts for Strict Compliance of Iodized Salt Manufacturers or Processors

The amendment requires that all manufacturers or processors of food-grade iodized salt, whether bulk , imported or local, across the nationwide distribution channels, to implement and ensure salt iodine content of 30-70 ppm (mg/Kg). More information is available at https://www.fda.gov.ph.

DOH Administrative order No. 2017-0010 also known as Philippine National Standard for drinking water of 2017

The scope of the standard shall apply to all drinking-water service providers including government and private developers and operators, bulk water suppliers, water refilling station operators, and water vending machine operators; ice manufacturers; all food establishments, residential, commercial, industrial and institutional buildings that use/supply/serve drinking water; water testing laboratories; health and sanitation authoriies; the general public and all others whoa re involved in determining the safety of public's drinking-water. More information is available at https://www.fda.gov.ph.

9.4.2.4 The use of GMO and its by-products shall be prohibited.

9.4.3 Processing Methods

9.4.3.1 Methods that will be used to process organic products may be biological, physical, and/or mechanical in nature, as may be appropriate.

9.4.3.2 Filtration equipment shall not contain asbestos or utilize techniques or substances that may contaminate the product. Only filtration agents and adjuvants considered as processing aids listed in the DC No. 09, series of 2020 (National list of permitted substances for organic agriculture) shall be used.

Explanatory Note:

Filters and filtering aids are often used in organic processing and handling to remove impurities or unwanted solid particles in the process flow (Pennsylvania Certified Organic, n.d). In choosing filtration equipment, micron size, and material compatibility are some factors that need to be considered.

Below are some of the filtration methods and techniques that can be used:

- filter paper;
- gravity or simple filtration;
- hot filtration; and
- vacuum filtration.

The list of additives and processing aids (food grade) used only as filtering aids (lifted are listed in DC No.9, s. 2020 or the National List of Permitted Substances for Organic Agriculture or its latest version.

9.4.3.3 The use of irradiation shall not be allowed for any ingredient or the final product.

Explanatory Note:

Food irradiation is the processing of food products using ionizing radiation (gamma rays, X-rays, or accelerated electrons) to, among other things, control foodborne pathogens, reduce microbial load and insect infestation, inhibit the germination of root crops, and extend the shelf life of perishable foods (PNS/BAFS 151:2015).

9.4.3.4 Substances and methods should not be used to reconstitute properties lost by the processing and storage of organic products.

Explanatory Note:

Organic products are expected to retain their natural properties, qualities, and characteristics during processing and storage.

9.4.4 Packaging

9.4.4.1 The packaging, storage, and transportation containers used for organic products shall not contaminate the organic product. For example, packaging materials or storage containers that contain a synthetic fungicide, preservative, or fumigant shall be prohibited as well as the use of reused bags or containers that have been in contact with any substance likely to compromise the organic integrity of a product or ingredient placed in those containers.

9.4.4.2 Use of packaging materials from biodegradable, recycled, or recyclable sources should be encouraged.

9.4.5 Pest control

Pest control for organic processing management systems shall follow the hierarchy of practices based on this order:

a) preventive methods;

b) if preventative methods are inadequate, the next choice for pest control should be mechanical/physical and biological methods; and

c) If mechanical/physical and biological methods are inadequate for pest control, substances accepted for use in handling, storage, transportation, or processing facilities by the competent authority agencies shall be used and shall not come in contact with the organic product.

Explanatory Note:

The Food and Drug Administration (FDA) Circular No. 2022-010 or the Implementing Guidelines of Department of Health (DOH) Administration Order (AO) No. 2019-0010 on the Issuance of License to Operate as Household/Urban Pest Control Operators, and for other Purposes, states that the Circular shall apply to all government and private establishments engaged in the business, service, or commercial application of household/urban pesticide products for purposes of non-agricultural pest control, and for other related purposes.

9.4.6 Cleaning, disinfecting, and sanitizing of food processing tools, equipment, and processing facilities

9.4.6.1 Organic management should employ systems for cleaning and disinfecting surfaces, machinery, tools, equipment, and processing facilities that prevent contamination of the organic product.

Explanatory Note:

Considering the withholding period of cleaning substances, i.e. time of application and time of start of processing, the withholding period for pest control agents is crucial for worker safety and effective pest management. Observing the proper withholding period ensures that workers do not re-enter treated areas or handle equipment prematurely, preventing pesticide exposure, residue transfer, and contamination. Complying with specified withholding periods is essential for responsible pest control.

9.4.6.2 Disinfecting and sanitizing substances that may come into contact with organic products shall be composed of water and substances that are listed in the DC No. 09, series of 2020 (National list of permitted substances for organic agriculture). In cases where these substances are ineffective and other substances are used, these should not come in contact with any organic products.

9.4.6.3 Operations that use cleaners, sanitizers, and disinfectants on food contact surfaces shall use them in a way that maintains the organic integrity of the food. Unless otherwise indicated in the DC No. 09, series of 2020 (National list of permitted substances for organic agriculture), the operator is required to perform an intervening event between the use of any cleaners, sanitizers, or disinfectant and the contact of the organic food on that surface. Acceptable intervening events include a hot-water rinse, a sufficient flush of organic product that is not sold as an organic product, or adequate time for the substances to volatilize.

Explanatory Note:

The list of equipment cleansers and disinfectants that may come into direct contact with food for the production of organic food are listed under Section D2 under Organic Food Production of DC No. 09, s. 2020 (National List of Permitted Substances for Organic Agriculture) is in Annex B.

9.4.6.4 Operators shall prevent the residues of boiler water additives from direct contact with organic food by using entrained water, filters, traps, or other means that prevent steam in contact with organic foods from carrying such compounds.

9.4.6.5 Operators shall plan and maintain a record of cleaners, cleansers, disinfectants, and sanitizers used in the organic processing management.

Explanatory Note:

Planning may include activities such as identifying and researching cleaning and sanitation products that are allowed in the organic management system and where to obtain them. This may also include establishing procedures for the proper use of cleaning and sanitation products so that they are consistently used to maintain their effectiveness.

A record may include the specific cleaners, disinfectants, and sanitizers that are being used, including their types, quantities, and usage dates. Operators may also include important information, such as the Material Safety Data Sheet (MSDS) for each product, which provides crucial details about the safety and properties of the substances.

Additionally, purchase receipts can be retained as part of the documentation process, and as evidence of the acquisition and use of specific cleaning and sanitation products.

Section 10

Storage and Transport

Explanatory Notes on the provisions of the standards are found inside the yellow boxes. Additional information are presented as notes and/or images. Section numbers of the manual mirrors the content of the PNS.

10 Storage and Transport

10.1 Measures to prevent contamination with prohibited substances or comingling with non-organic produce/product shall be taken during storage and transport, including clear identification and physical separation.

Explanatory Note:

Effective management of organic produce/products involves the integration of preventive measures in both storage and transport. When engaging third-party services, contracts include protocols guaranteeing organic integrity, contamination prevention, and traceability.

To ensure the separation and integrity of organic produce/products, **physical barriers, spacing, and dedicated storage areas with clear labels** are employed. Separate containers, usually in the form of crates, are utilized for storage to uphold distinctiveness.

A key element in preventing commingling is maintaining appropriate spacing. Furthermore, measures against contamination involve thorough cleaning of storage facilities. Similar precautions can be implemented during transport, emphasizing the necessity of clear labeling and the prevention of cross-contamination.

Moreover, it is crucial to recognize that pallets and transport vehicles present potential sources of contamination, stemming from previous chemical and fertilizer spills, pest infestation, and the accumulation of dirt and foreign debris.

Inspections of pallets and transport vehicles encompass a thorough check for cleanliness, the presence of chemical residues, foreign objects, and signs of pest infestation. In instances where contamination risks are identified, immediate and appropriate actions, such as cleaning, applying protective coverings, or rejecting the items, are undertaken (ASEAN, 2006).

10.2 Pest control for storage shall comply with the requirements of 4.9 of this Standard. The organic produce/product should follow the hierarchy of practices based on the following order of preference:

a) preventive methods;

b) if preventative methods are inadequate, the next choice for pest control should be mechanical/physical and biological methods; and

c) if mechanical/physical and biological methods are inadequate for pest control, substances accepted for use in handling, storage, transportation, or processing facilities by the competent authority shall be used and shall not come in contact with the organic produce/product.

Section 11

Traceability and Recordkeeping

Explanatory Notes on the provisions of the standards are found inside the yellow boxes. Additional information are presented as notes and/or images. Section numbers of the manual mirrors the content of the PNS.

11 Traceability and Recordkeeping

11.1 Each separate production site shall be identified by a name or code. The name or code is placed on the site and recorded on a property map. The site name or code is recorded on all documents and records that refer to the site.

Explanatory Note:

The name or code serves as a convenient means of identifying organic produce originating from a specific location within the property. To facilitate this identification process, it is recommended to implement a labeling system on-site. The labeling may include information such as a unique code, crop type, and planting date.

Additionally, maintaining an up-to-date planting map with corresponding codes and details, along with proper backup documentation, enhances the accuracy and efficiency of tracking produce from its source within the property.

Image 27a. **Properly labelled plots of radish (Lot 1B), eggplant (Lot 4), and pepper (Lot 2A)**

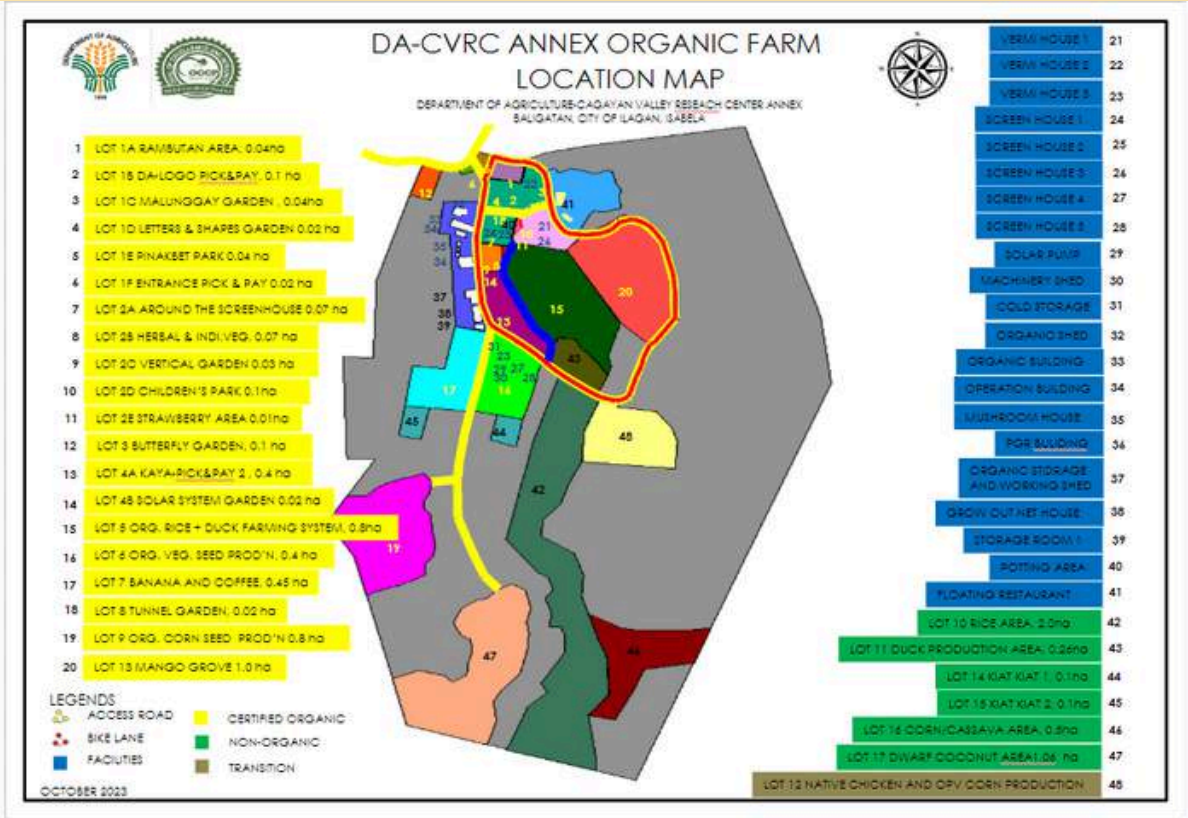
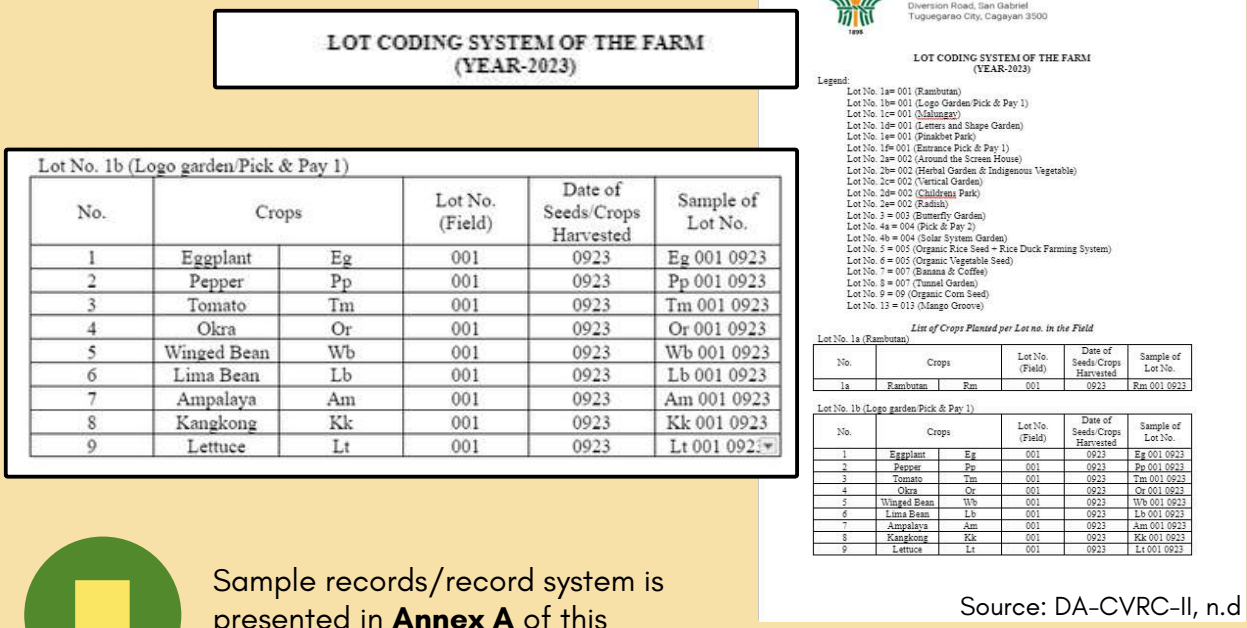


Image 27a. **Properly labelled plots of radish (Lot 1B), eggplant (Lot 4), and pepper (Lot 2A)**

Image 27b. **Global Positioning System (GPS) coordinates of the farm**

While GPS coordinates are helpful for accuracy, they are optional. The requirement is a detailed farm or property map indicating the production site with lot codes.



LOT CODING SYSTEM OF THE FARM
(YEAR-2023)

Lot No. 1b (Logo garden/Pick & Pay 1)

No.	Crops		Lot No. (Field)	Date of Seeds/Crops Harvested	Sample of Lot No.
1	Eggplant	Eg	001	0923	Eg 001 0923
2	Pepper	Pp	001	0923	Pp 001 0923
3	Tomato	Tm	001	0923	Tm 001 0923
4	Okra	Or	001	0923	Or 001 0923
5	Winged Bean	Wb	001	0923	Wb 001 0923
6	Lima Bean	Lb	001	0923	Lb 001 0923
7	Ampalaya	Am	001	0923	Am 001 0923
8	Kangkong	Kk	001	0923	Kk 001 0923
9	Lettuce	Lt	001	0923	Lt 001 0923

Republic of the Philippines
REGIONAL FIELD OFFICE NO. 02
Diversion Road, San Gabriel
Tuguegarao City, Cagayan 3500

LOT CODING SYSTEM OF THE FARM
(YEAR-2023)

Legend:
Lot No. 1a= 001 (Rambutan)
Lot No. 1b= 001 (Logo Garden/Pick & Pay 1)
Lot No. 1c= 001 (Malungay)
Lot No. 1d= 001 (Letters and Shape Garden)
Lot No. 1e= 001 (Pinakbet Park)
Lot No. 1f= 001 (Entrance Pick & Pay 1)
Lot No. 2a= 002 (Around the Screen House)
Lot No. 2b= 002 (Herbal Garden & Indigenous Vegetable)
Lot No. 2c= 002 (Vertical Garden)
Lot No. 2d= 002 (Childrens Park)
Lot No. 2e= 002 (Radish)
Lot No. 3 = 003 (Butterfly Garden)
Lot No. 4a = 004 (Pick & Pay 2)
Lot No. 4b = 004 (Solar System Garden)
Lot No. 5 = 005 (Organic Rice Seed + Rice Duck Farming System)
Lot No. 6 = 005 (Organic Vegetable Seed)
Lot No. 7 = 007 (Banana & Coffee)
Lot No. 8 = 007 (Tunnel Garden)
Lot No. 9 = 09 (Organic Corn Seed)
Lot No. 13 = 013 (Mango Groove)

List of Crops Planted per Lot no. in the Field

Lot No. 1a (Rambutan)

No.	Crops		Lot No. (Field)	Date of Seeds/Crops Harvested	Sample of Lot No.
1a	Rambutan	Rm	001	0923	Rm 001 0923

Lot No. 1b (Logo garden/Pick & Pay 1)

No.	Crops		Lot No. (Field)	Date of Seeds/Crops Harvested	Sample of Lot No.
1	Eggplant	Eg	001	0923	Eg 001 0923
2	Pepper	Pp	001	0923	Pp 001 0923
3	Tomato	Tm	001	0923	Tm 001 0923
4	Okra	Or	001	0923	Or 001 0923
5	Winged Bean	Wb	001	0923	Wb 001 0923
6	Lima Bean	Lb	001	0923	Lb 001 0923
7	Ampalaya	Am	001	0923	Am 001 0923
8	Kangkong	Kk	001	0923	Kk 001 0923
9	Lettuce	Lt	001	0923	Lt 001 0923

Source: DA-CVRC-II, n.d

Image 27c. **Sample lot coding system of the farm**

Sample records/record system is presented in **Annex A** of this Explanatory Manual.

11.2 Operators shall maintain purchase, handling, and processing records, and inventory of all materials used for organic production, processing, and handling as well as finished products.

Explanatory Note:

Purchase records, invoices, receipts, and a detailed logbook, provide information on material purchases, including quantity and source. Handling and processing practices involve documented procedures, storage conditions, and processing steps, as applicable. In addition, maintaining an updated inventory can cover raw materials and finished products in specified quantities. For records of finished products, this includes batch records and corresponding labels.

It is important to note that while these examples offer guidance, they do not constitute an exhaustive list of requirements.

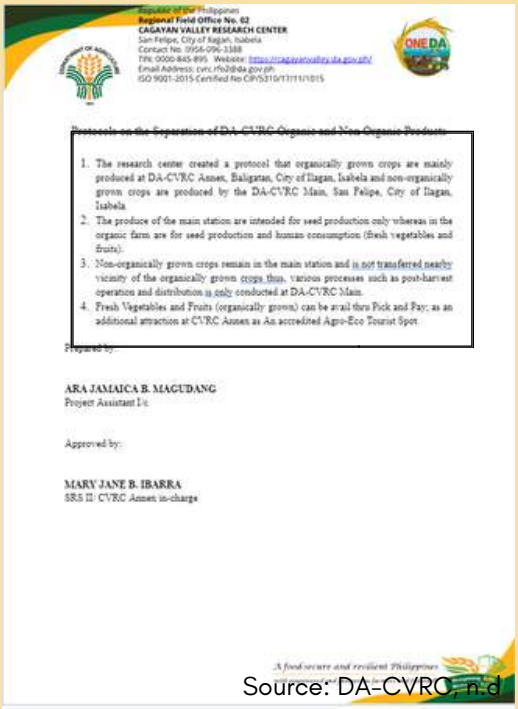
11.3 Documentation and records shall clearly identify the source, movement, use, and inventory of organic from non-organic materials at all stages of production and/or processing.

Explanatory Note:

Documentation and records, including the Organic Management Plan, records of production inputs, harvest, processing, handling, and purchase receipts, are crucial for preventing commingling and contamination of produce/product. Documentation and records provide traceability and enable tracking of source, movement, use, and inventory of organic and non-organic materials throughout the production and processing stages.

All records for organic and non-organic materials, from production to sales, must be maintained. These records are reviewed to ensure compliance with the organic management system.

A written protocol implemented on the farm can help workers in ensuring the effective separation of organic and non-organic produce/products. Proof of its implementation is reflected in the documentation and records.


Regional Field Office No. 02
CAGAYAN VALLEY RESEARCH CENTER

1. The research center created a protocol that organically grown crops are mainly produced at DA-CVRC Annex, Baligatan, City of Ilagan, Isabela and non-organically grown crops are produced by the DA-CVRC Main, San Felipe, City of Ilagan, Isabela.
2. The produce of the main station are intended for seed production only whereas in the organic farm are for seed production and human consumption (fresh vegetables and fruits).
3. Non-organically grown crops remain in the main station and is not transferred nearby vicinity of the organically grown crops thus, various processes such as post-harvest operation and distribution is only conducted at DA-CVRC Main.
4. Fresh Vegetables and Fruits (organically grown) can be avail thru Pick and Pay; as an additional attraction at CVRC Annex as An accredited Agro-Eco Tourist Spot.

ARA JAMAICA B. MAGUDANG
Project Assistant I-c

Approved by:

MARY JANE B. IBARRA
SRS II/ CVRC Annex in-charge

Source: DA-CVRC, n.d

Image 29. **Sample of a part of a written protocol to help ensure the separation of organic and non-organic produce/products**

11.4 Records, documentation, and accounts shall provide traceability and be made available to the competent authority and certifying bodies for audit trail and traceback verification at any time.

Explanatory Note:

It should be noted that the retention of records is **at least five years** starting from the date of organic certification

Image 30. **Some of the records maintained and made available during inspection**

11.5 Abovementioned records (including those related to the use of sub contractors) shall follow a retention period of at least five years.

Section 12

Labeling

Explanatory Notes on the provisions of the standards are found inside the yellow boxes. Additional information are presented as notes and/or images. Section numbers of the manual mirrors the content of the PNS.

12 Labeling

The labeling of organic crops should generally comply with the requirements of the Codex General Standard for the Labelling of Prepackaged Foods (CXS 1-1985, rev. 2018) and General Standard for the Labelling of Non-Retail Containers of Foods (CXS 346-2021). All organic food labeling shall meet additional requirements established by the competent authorities including the following and their future amendments:

a) Republic Act 10068 (Organic Agriculture Act of 2010);

b) Republic Act 11511 (An act amending the Republic Act 10068 or the Organic Agriculture Act of 2010);

c) DC No. 01, series of 2018 (Revised guidelines for the official accreditation of organic certifying bodies); and

d) DC No. 03, series of 2022 (Guidelines for the accreditation of the core PGS and its operation as OCB)

Explanatory Note:

It is advisable to consult the DA-BAFS Organic Agriculture Division for guidance on labeling requirements, including the latest guidelines or issuances, that consider the following:

Section 18 of the amended Organic Agriculture Law, which states that:

"The label of organic produce shall contain the name, logo or seal of the OCB and the accreditation number issued by the BAFS. The organic label/mark shall also include the trade name, as defined by pertinent domestic property rights laws, and the address of origin of the produce.

"Products that are certified and guaranteed by a third-party organic certification system and the PGS shall be allowed to be labeled and sold as organic."

Article XVI - Use of Organic Mark in DC 1, s. 2018 *must be followed, particularly, Section 2, which states that:*

"The 'Organic' mark shall be provided by the officially accredited OCB to its client with active certification. The mark shall always accompany the logo of the OCB and its official accreditation number and may appear only on organic certificate issuances, and on all certified products under its scope of certification."

Section 8 - Use of 'Philippine PGS Guaranteed Organic' Mark of DC 3, s. 2022, which states that:

"The 'Philippine PGS Guaranteed Organic' mark shall always accompany the PGS Group's logo and its accreditation number. It shall appear only on the Participatory Organic Certificate (POC) and on the label of all PGS-guaranteed produce and products."

Annex
Sample Record Keeping Templates

Sample template for production plan

This template shows years plan of the crops to be planted. This enables you to plan ahead and prepare for the activities for each crops. Guide in accomplishing this record template:	
Column 1 (Crops)	Fill in the crop and its variety
Column 2 (Year)	Fill in the year the crop is planned to be grown
Column 3 (Cropping season)	Indicate the number of times you want to grow the crops in a year
Column 4 to 15 (Months)	Share the particular months you plan to grow each crop

A.1 CROP AND SPECIAL PRODUCTS PRODUCTION PLAN

Crop	Year	Cropping Season	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Rice (Red)	2023	1	■	■	■	■	■							
Rice (White)	2023	1	■	■	■	■	■							
Rice (Black)	1	2							■	■	■	■	■	
Rice (Malagkit)	1	2							■	■	■	■	■	
Rice (Red)	2	1	■	■	■	■	■							
Rice (White)	2	1	■	■	■	■	■							
Rice (Black)	2	2							■	■	■	■	■	
Rice (Malagkit)	2	2							■	■	■	■	■	
Rice (Red)	3	1	■	■	■	■	■							
Rice (White)	3	1	■	■	■	■	■							
Rice (Black)	3	2							■	■	■	■	■	
Rice (Malagkit)	3	2							■	■	■	■	■	

Prepared by:

_____

Name of Farmer-member and Signature

Source: DA - BAFS Organic Agriculture Division

Sample outline of protocols and procedures

B. REQUIRED PROTOCOLS AND PROCEDURES

B.1 CROP PRODUCTION AND SPECIAL PRODUCTS

1. Seed Production Protocol
2. Vermicompost Production
3. Concoction Production
4. Cleaning Protocol (Seeds, Tools, Equipment, Sacks, Facilities, etc.)
5. Fertilization Management
6. Pest and Disease and Weed Management
7. Pollution Control and Contamination Management
8. Harvesting
9. Hauling
10. Drying (Rice)
11. Milling (Rice)
12. Storage

B.2 ANIMAL PRODUCTION

1. Animal Husbandry
2. Feeding
3. Breeding
4. Milking
5. Animal Health
6. Biosecurity
7. Manure Management

Source: DA - BAFS Organic Agriculture Division

Sample template for recording of seed inventories

This template allows you to monitor your stocks of fertilization inputs.	
Guide in accomplishing record template Table 1:	
1.	Each fertilization input shall have individual inventory
2.	In row 1,
	f. Column 1, indicate the date the fertilizer are produced or bought
	g. Column 2, indicate the manufacturer or source of the fertilizer
	h. Column 3 and 4, indicate the initial volume of the fertilizer
	i. Column 5, here you can write notes or reminders
3	In the succeeding rows,
	a. Column 1, write the date you added to or used the fertilizer stock
	b. Column 2, indicate the manufacturer or source of the fertilizer you added. Leave blank if you subtracted fertilizer from the stock
	c. column 3, indicate the volume of fertilizer added or subtracted
	d. column 4, indicate the new or remaining volume of fertilizer by adding or subtracting column 3 from column 4 of the previous row
	e. column 5, here you can write notes or reminders on who you give the fertilizer to or what cropping season the fertilizer was used

C. INVENTORIES

C.1 SEEDS

Commodity: _____ **Variety:** _____

Date	Source	+/-	Starting/Remaining Volume	Notes
22 July 2021	Own Farm	+ 15 kg	15 kg	
22 August 2022		- 5 kg	10 kg	Used for Cropping Season 2 of CY 2022 in Lot 1
23 August 2022		- 10 kg	0 kg	Given to Farmer-member 2 for seed production

Note: + means added volume, - means subtracted volume

Prepared by:

_____

Name of Farmer- member & Signature

Source: DA – BAFS Organic Agriculture Division

Sample template for recording of fertilization inputs

This template allows you to monitor your stocks of fertilization inputs.	
Guide in accomplishing record template Table 1:	
1.	Each fertilization input shall have individual inventory
2.	In row 1,
	f. Column 1, indicate the date the fertilizer are produced or bought
	g. Column 2, indicate the manufacturer or source of the fertilizer
	h. Column 3 and 4, indicate the initial volume of the fertilizer
	i. Column 5, here you can write notes or reminders
3	In the succeeding rows,
	a. Column 1, write the date you added to or used the fertilizer stock
	b. Column 2, indicate the manufacturer or source of the fertilizer you added. Leave blank if you subtracted fertilizer from the stock
	c. column 3, indicate the volume of fertilizer added or subtracted
	d. column 4, indicate the new or remaining volume of fertilizer by adding or subtracting column 3 from column 4 of the previous row
	e. column 5, here you can write notes or reminders on who you give the fertilizer to or what cropping season the fertilizer was used
Guide in accomplishing record template Table 2:	
Column 1 (Fertilization inputs)	Indicate the type of fertilizer input you have
Column 2 (Raw materials)	Indicate the raw materials used in making the fertilizer
Column 3 (Volume)	Indicate the volume of fertilizer
Column 4 (Source)	Indicate the manufacturer or where you get the fertilizer from
Column 5 (Date obtained)	Indicate the date when the fertilizer was obtained
Column 5 (Remarks)	Here you can write notes or reminders

C. INVENTORIES

C.2 FERTILIZATION INPUTS

Date	Source	+/-	Starting/Remaining Volume	Remarks
22 July 2021	Own Farm	+ 15 kg	15 kg	
22 August 2022		- 5 kg	10 kg	Used for Cropping Season 2 of CY 2022 in Lot 1
23 August 2022		- 10 kg	0 kg	Given to Farmer-member 2 for seed production

--and --

Fertilization Inputs (Vermicompost/ Concoctions)	Raw Materials	Volume (kg/l)	Source	Date Obtained	Remarks
FPJ	Banana stalk	5 kg	Own Farm	July 21, 2022	
	Madre de Agua	5 kg	Own Farm	July 21, 2022	
	Molasses	1 L	Outsourced – DA RFO IVA	June 20, 2022	See Acquisition Slip or Acknowledgment Receipt

Prepared by:

Name of Farmer- member & Signature

Source: DA – BAFS Organic Agriculture Division

Sample template for the inventory of biocontrol agents and pest, disease, and weed management soultions

This template allows you to monitor your stocks of biocontrol agents and pest, disease and weed management solutions.	
Guide in accomplishing record template Table 1:	
4.	Each agent/solution shall have individual inventory
5.	In row 1,
	i. Column 1, indicate the date the agents/solutions are produced or bought
	k. Column 2, indicate the manufacturer or source of the agents/solutions
	l. Column 3 and 4, indicate the initial volume of the agents/solutions
	m.Column 5, here you can write notes or reminders
6.	In the succeeding rows,
	a. Column 1, write the date you added to or used the agents/solutions
	b. Column 2, indicate the manufacturer or source of the agents/solutions you added. Leave blank if you subtracted agents/solutions from the stock
	c. column 3, indicate the volume of agents/solutions added or subtracted
	d. column 4, indicate the new or remaining volume of agents/solutions by adding or subtracting column 3 from column 4 of the previous row
	e. column 5, here you can write notes or reminders on who you give the agents/solutions to or what purpose do you used it for
Guide in accomplishing record template Table 2:	
Column 1 (Biocontrol Agents/Pest, Disease, and Weed Management Solutions):	Indicate the type of solutions you have
Column 2 (Raw materials)	Indicate the raw materials used in making the agents/solutions
Column 3 (Volume)	Indicate the volume of agents/solutions
Column 4 (Source)	Indicate the manufacturer or where you get the agents/solutions from
Column 5 (Date obtained)	Indicate the date when the agents/solutions was obtained
Column 5 (Remarks)	Here you can write notes or reminders

C. INVENTORIES

C.3 BIOCONTROL AGENTS AND PEST, DISEASE AND WEED MANAGEMENT SOLUTIONS

Date	Source	+/-	Starting/Remaining Volume	Remarks
22 July 2021	Own Farm	+ 15 kg	15 kg	
22 August 2022		- 5 kg	10 kg	Used for Cropping Season 2 of CY 2022 in Lot 1
23 August 2022		- 10 kg	0 kg	Given to Farmer-member 2 for seed production

Note: + means added volume, - means subtracted volume

-and-

Biocontrol Agents/Pest, Disease, and Weed Management Solutions	Raw Materials	Volume (kg/l)	Source	Date Obtained	Remarks
OHN	Garlic	5 kg	Outsourced – Public Market	July 21, 2022	
	Onion	5 kg	Outsourced – Public Market	July 21, 2022	

Prepared by:

_____

Name of Farmer- member & Signature

Source: DA – BAFS Organic Agriculture Division

Sample template of a production diary

PRODUCTION DIARY (NOTE: APPLICABLE FOR CROP AND ANIMAL PRODUCTION)

Code/Lot Area:	**Area 1, Plots 1-4 (@1000 sqm per plot)**	Total Area: **4,000 sqm**
Commodity:	**Lettuce (Romaine)**	Cropping cycle: **June - August**

Date	Activity	Remarks
05/30/2022	Seeds are soaked in water for 4 hours	Seeds used are bought from an agri-supply store. The contaminated water is disposed of appropriately based on the protocol. Person in charge is Mr. Jeswelhim Garamacrat.
05/30/2022	Sowing of 100g seeds in seedling tray in the nursery	Soil mixture of 2 parts garden soil, 2 parts compost and 1 part carbonized rice hull.
06/20/2022	Area 1, Plots 1-4 are prepared by incorporating 200kg of compost per plot.	The plots are prepared 3 days before transplanting. 800 kgs of compost consumed.
06/24/2022	Transplanting of lettuce to plots	
06/25/2022	The sprinkler is turned-on for 1 hour to irrigate the plots.	
07/01/2022	Sprayed vermi tea in the plots	1:1 mixture of vermi tea and water before spraying; 500 liters of the mixture per plot
07/04/2022	The sprinkler is turned-on for 1 hour to irrigate the plots.	
07/08/2022	Sprayed FPJ in the plots	1:1 mixture of FPJ and water before spraying; 500 liters of the mixture per plot
07/11/2022	The sprinkler is turned-on for 1 hour to irrigate the plots.	
07/15/2022	Sprayed FPJ in the plots	1:1 mixture of FPJ and water before spraying; 500 liters of the mixture per plot
07/19/2022	Manual hand weeding	Done by me and a hired labor
07/22/2022	Application of vermicompost as basal fertilizer side-dress	200kg of vermicompost per plot
07/23/2022	The sprinkler is turned-on for 1 hour to irrigate the plots.	
07/26/2022	Sprayed FPJ in the plots	1:1 mixture of FPJ and water before spraying; 500 liters of the mixture per plot
07/28/2022	The sprinkler is turned-on for 1 hour to irrigate the plots.	
08/02/2022	Sprayed FPJ in the plots	1:1 mixture of FPJ and water before spraying; 500 liters of the mixture per plot
08/04/2022	The sprinkler is turned-on for 1 hour to irrigate the plots.	
08/05/2022	Sprayed OHN in the plots	1:1 mixture of FPJ and water before spraying; 200 liters of the mixture per plot
08/07/2022	The sprinkler is turned-on for 1 hour to irrigate the plots.	
08/10/2022	The sprinkler is turned-on for 1 hour to irrigate the plots.	
08/13/2022	The sprinkler is turned-on for 1 hour to irrigate the plots.	
08/16/2022	Harvested Total volume of harvest (after washing): 8.157 kilos	Plot 1: 2.045 kilos Plot 2: 2.034 kilos Plot 3: 2.037 kilos Plot 4: 2.041 kilos
08/16/2022	Harvests are washed	Washed lettuce are placed in black plastic crates (21in x 15in x 12in crates).
08/17/2022	6.100 kilos of washed lettuce is picked-up by the buyer	
08/17/2022	2.000 kilos of washed lettuce is delivered to the OTP	
08/18/2022	53 kilos sold to walk-in buyers/consumers	The remaining 4 kilos were consumed in the farm.

Prepared by:

Name of Farmer-member and Signature

Source: DA - BAFS Organic Agriculture Division

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This Explanatory Manual (EM) serves as a supplementary learning material for the Philippine National Standard (PNS) Organic Crop Production, Post-harvest and Processing - Code of Practice (PNS/BAFS 337:2022). The EM aims to aid stakeholders by promoting uniform understanding and interpretation of the PNS to ensure efficient adoption and implementation of the Standard.

PNS/BAFS 337:2022 was developed to support Organic Filipino farmers and to promote sustainable farming.


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