添付資料7.7

Philippine National Standard (Fresh Fruit)

BPS

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PHILIPPINE NATIONAL STANDARD

PNS/BAFPS 08:2004
ICS 65.020.20

Fresh Fruit - 'Saba' and 'Cardaba' Bananas

BUREAU OF AGRICULTURE AND FISHERIES PRODUCT STANDARDS
BPI Compound, Visayas Avenue, Diliman, Quezon City 1101 Philippines
Phone: (632) 920-6131; (632) 455-2856; (632) 467-9039; Telefax: (632) 455-2858
E-mail: bafps@yahoo.com

Foreword

This Philippine National Standard for Fresh Fruit -'Saba' and 'Cardaba' bananas, PNS/BAFPS 08:2004 was formulated in view of the increasing importance of the commodity in the local economy and potential in international trade. These type of bananas are classified as cooking bananas and should have a separate and more elaborate standard than that of PNS 81:1987, which are for table banana varieties. It is imperative that further elaboration based on the physical characteristics, classification, tolerances, sampling, marking and labeling, and safety requirements of 'Saba' and 'Cardaba' bananas be reflected in a separate standard.

The formulation of this standard was initially undertaken in June 2001 under the Bureau of Agriculture and Fisheries Product Standards (BAFPS)' Technical Assistance on Safety and Quality Standards Covering Products of High Value Commercial Crops. In 2003, BAFPS conducted a series of technical reviews and public consultations in the major 'Saba' and 'Cardaba' producing regions of the country to generate inputs and comments on the texts of the standard prior to its approval.

1 Scope

This standard establishes a system of grading and classifying 'Saba' and 'Cardaba' type bananas grown from *Musa balbisiana* of the Musaceae family produced in the Philippines.

2 References

The titles of the standard publications and other references of this standard are listed on the inside back cover.

3 Definitions

For the purpose of this standard the following definitions shall apply:

3.1 General Definitions

3.1.1
banana
edible fruit of tropical plant belonging to the genus Musa of the family Musaceae. 'Saba' and 'Cardaba' bananas are cooking type of bananas widely grown in the Philippines

3.1.2
bunch
the group of hands arranged alternately around a common fruit stalk

3.1.3
clean
the fruit is generally free from dirt, latex stains and other foreign materials

3.1.4
clean, reasonably
fruit exhibits unavoidable dirt, latex stains and other foreign materials incidental to proper harvesting

3.1.5
cluster
a separate section of a hand consisting of two or more fingers

3.1.6
crown
the crescentric cushion where several finger stalks meet to form a hand

3.1.7
diameter
the dimension measured from side to side at the center of the middle finger of the second basal hand of the stem or bunch

3.1.8
finger
the individual banana fruit

3.1.9
hand
a complete group of fingers attached to the crown

3.1.10
length
the dimension of the fruit measured at its dorsal side from the base of the fruit pulp to its tip (middle finger in the hand)

3.1.11
mature
a stage of development that will ensure acceptance of the quality of the hand upon ripening. Mature 'Saba' and 'Cardaba' exhibit slight yellowing on the middle portion of the flesh

3.1.12
ripe
the stage of development when the banana fruit is in its most desirable condition for eating

3.1.13
well-formed
regular, fairly compact and reasonably uniform size of the fingers of the hand of the banana

3.1.14
well-formed, fairly
less regular, less compact and less reasonably uniform size of the fingers of the hand of the banana

3.1.15
well-trimmed
enough amount of the crown with smooth cut surface is retained to keep fingers intact; flower remnants are removed

3.2 Defects

3.2.1 Pre-harvest

3.2.1.1
false finger
undeveloped fruit

3.2.1.2
premature ripening
fruits which have been harvested mature, ripen rapidly during transportation or distribution

3.2.1.3
wind scar
abrasion on the peel caused by strong wind at any stage of development

3.2.2 Pest and Diseases

3.2.2.1
bird damage
injury on the peel caused by birds

3.2.2.2
corky peel
is caused by Thrips florum Schmutz, appear as black specks, the peel becomes rough and which at times crack resulting into blemishes called corky scab

3.2.2.3
freckle
is a disease caused by a fungus, *Phyllostictina musarum* (Cooke) Petr. It is called black spot because of the numerous black spots formed by the pycnidia of the fungus

3.2.2.4
mealy bugs
is caused by *Dysmicoccus neobrevipes* Beardleys, have soft body with white powdery wax and the young nymphs are pinkish in color

3.2.2.5
rust
is caused by an obligate fungus, *Uromyces musae*, which has reddish brown discoloration and the severely damaged fruits split open

3.2.2.6
scab
materially detracts from the shape or texture, forming a circle more than 16 mm in diameter

3.2.2.7
scale insect
the injury is more than a few adjacent to the "button" at the stem end, or more than 6 mm scattered on the other portions of the fruit. The damage is forming a circle more than 16 mm in diameter

3.2.2.8
sooty mold
that colonizes the honeydew secreted by the mealy bugs that cause damage to the fruit

3.2.2.9
"bugtok" or "tibagnol"
is caused by bacterium *Pseudomonas solonacearum*. The infected fruits are discolored and hard even when ripe

3.2.3 Handling

3.2.3.1
transport damage (compression, impact, abrasion)

3.2.3.2
latex stain

3.2.3.3
cuts

3.2.3.4
punctures

3.2.4 General Defects

3.2.4.1
blemish
any defect on the peel other than mechanical injury

3.2.4.2
bruises
any mechanical injury on the peel of the fruit that makes it unsightly

3.2.4.3
decay
any disorder characterized by biological decomposition

3.2.4.4
latex burn
latex stains characterized by brownish black streaks on the peel which may be sunken

3.2.4.5
broken neck
fingers not firmly attached to the crown

3.2.4.6
overripe
the stage when the fruit is excessively soft, discolored and has passed its maximum eating desirability

4 Types

4.1 'Saba'/Dippig (Ilocano) - It is a cooking banana with medium to large fruits. The fingers are short, stout and angular in cross section with thick skin that turns yellow when ripe. The pulp is creamy white, fine textured with a well-developed core. Although the flesh becomes sweet upon ripening, the fruits are always cooked before consumption. The fingers are about 12-13.5 cm long but the large bunch weighs 26 -28 kg with 10 - 12 hands.

4.2 'Cardaba'/Cadisnon - More popular than 'Saba' in the Visayas and Mindanao region. It is very similar to 'Saba' but more vigorous and with larger fruits. Generally, the fingers are longer than the 'Saba'. The bunch weighs 30-40 kg with 15-18 hands.

5 Minimum requirements

In all classes subject to the special provisions for each class and the tolerances allowed, the fruits must meet the following requirements:

5.1 The fruit must be reasonably clean, free from diseases, insects, molds and other contaminants.

5.2 The use of chemical process for ripening is allowed provided it conforms with PNS/SAO 74.

5.3 Pesticide residues shall meet the requirements of the Codex Alimentarius Commission Vol. 2.

6 Size Classification

Size is determined according to the diameter and length of the fruit. 'Saba' banana is classified according to the following size groups as shown in Table 1.

Table 1. Size of bananas.

Size	Length (cm)	Diameter (cm)
Extra Large	>14	> 4.5
Large	12.1 -14	4.5
Medium	10 - 12	4.0
Small	Not < 8	3.5

7 Classification

Each size shall be classified according to its general appearance, quality and conditions as follows:

7.1 Extra Class – Bananas in this class must be of superior quality. Hands of one variety are mature, clean, well-formed, well-trimmed and free from decay, split fingers, loose fingers, bruises, blemishes and discoloration caused by diseases, insects, latex burn, mechanical or other means.

7.2 Class I – Bananas in this class must be of good quality. Hands of one variety are mature, clean, well-formed, well-trimmed and free from decay, split fingers, bruises, blemishes and discoloration caused by diseases, insects, latex burn, mechanical or other means.

7.3 Class II – Bananas in this class which do not qualify for inclusion in the higher classes but satisfy the minimum requirements specified in Section 5. Hands of one variety are mature, reasonably clean, fairly well-formed, well-trimmed and relatively free from decay, split fingers, loose fingers, bruises, blemishes and discoloration caused by scars, diseases, insects and mechanical or other means.

8 Tolerances

8.1 Extra Class - Not more than 5% by number or weight for off-size and no more than 5% by number or weight for other defects are allowed in any lot, including not more than 1% by number or weight for hands affected by decay, provided they conform with the requirements of the next lower class.

8.2 Class I - Not more than 10% by number or weight for off-size and not more than 10% by number or weight for other defects are allowed in any lot, including not more than 1% by number or weight for hands affected by decay, provided they conform with the requirements of the next lower grade.

8.3 Class II - Not more than 20% by number or weight for off-size, not more than 15% by number or weight for other defects are allowed in any lot, including not more than 2% by number or weight for hands affected by decay.

9 Packaging

Bananas shall be packed in cartons or similar protective containers to ensure protection from hazards of transportation and handling.

10 Marking and Labeling

Each container shall be properly labeled in big letters with the following information:

10.1 Name of the produce and variety

10.2 Class and size

10.3 Net weight (kg)

10.4 Name of exporter and/or packer

10.5 Region of production (optional)

10.6 Official inspection mark (optional)

10.7 Product of the Philippines

10.8 Handling and storage requirement (optional)

11 Sampling

Bananas shall be sampled in accordance with PNS/ISO 874.

12 Contaminants

12.1 Heavy Metals

Bananas shall comply with the maximum residue levels for heavy metals established by the Codex Alimentarius Commission for this commodity.

12.2 Pesticide Residues

Bananas shall comply with the maximum residue levels established by the Codex Alimentarius Commission for this commodity.

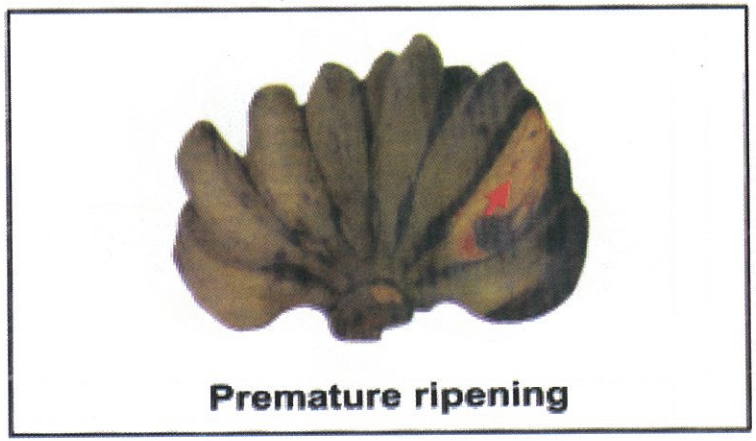
13 Hygiene

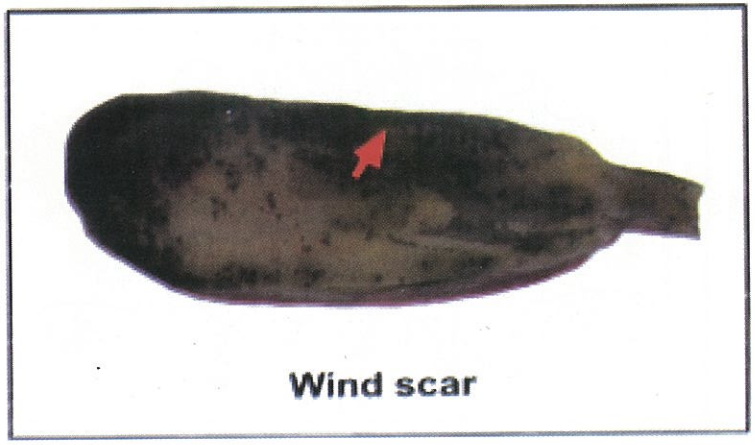
13.1 It is recommended that the produce covered by the provisions of this standard be prepared and handled in accordance with appropriate sections of the Recommended International Code of Practice – General Principles of Food Hygiene (CAC/RCP 1-1969, Rev. 2 –1985), and other relevant Codex texts such as Code of Hygienic Practice and Code of Practice.

13.2 The produce shall comply with microbial criteria established in accordance with the Principles for the Establishment and Application of Microbiological Criteria for Foods (CAC/GL 21 – 1997).

14 Compliance with specification

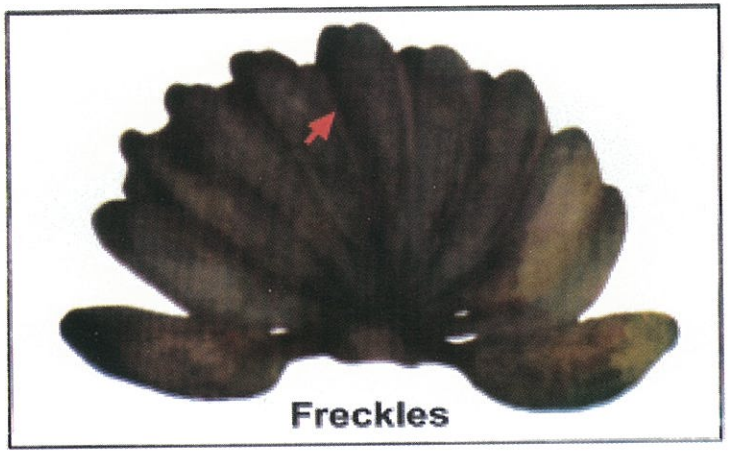
When found to comply with the requirements specified in this Philippine National Standard Specification, the lot, the batch, or the consignment from which the samples have been drawn, shall be deemed acceptable.



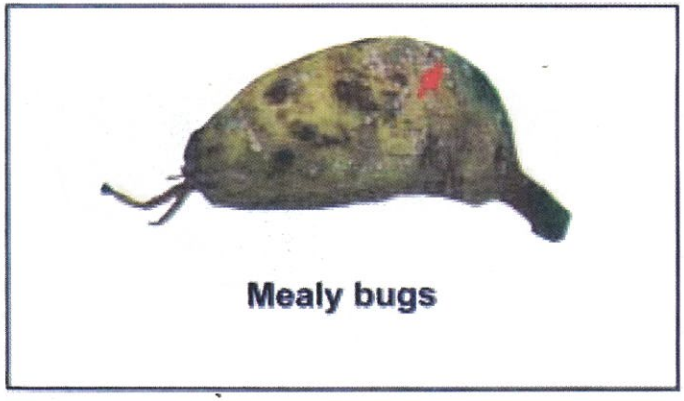


Bird damage

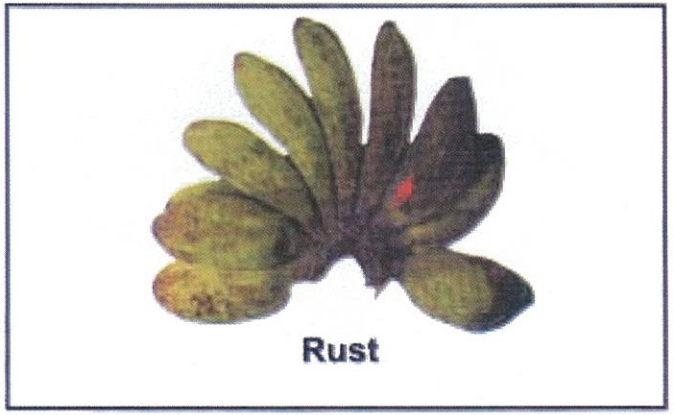
Corky peel



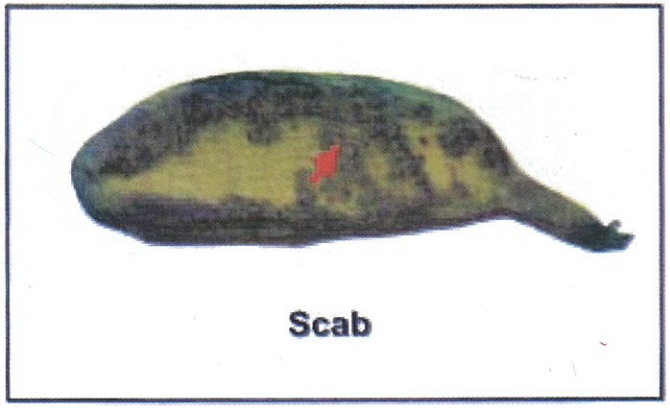
Freckles



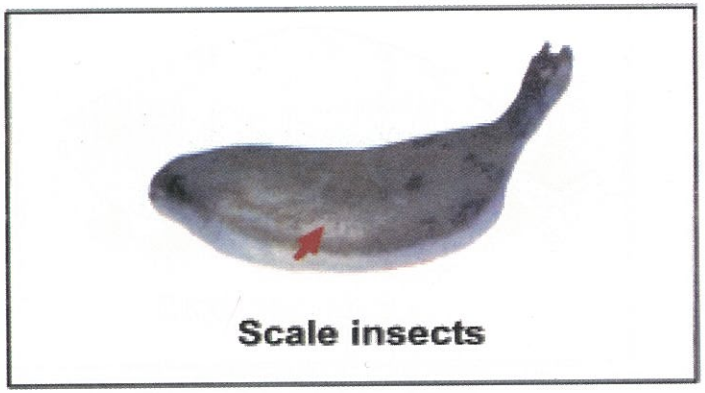
Mealy bugs



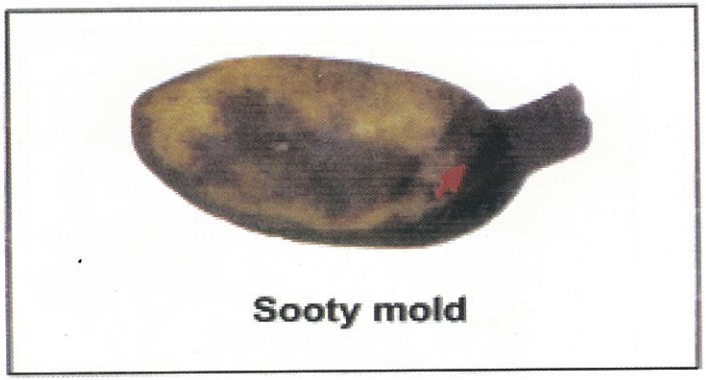
Rust



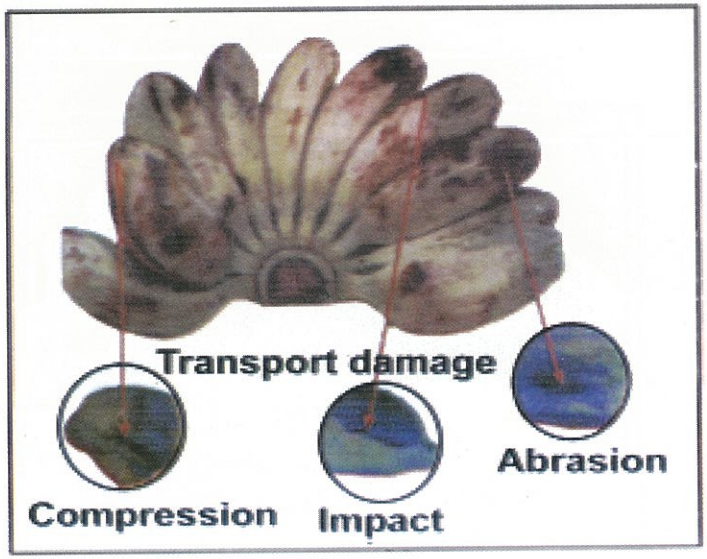
Scab

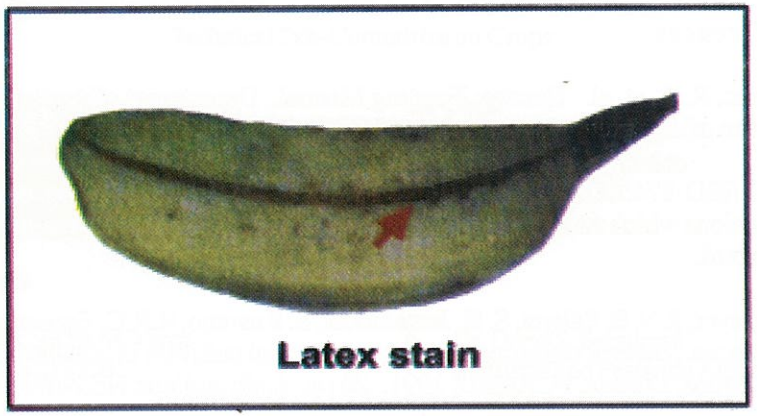


Scale insects

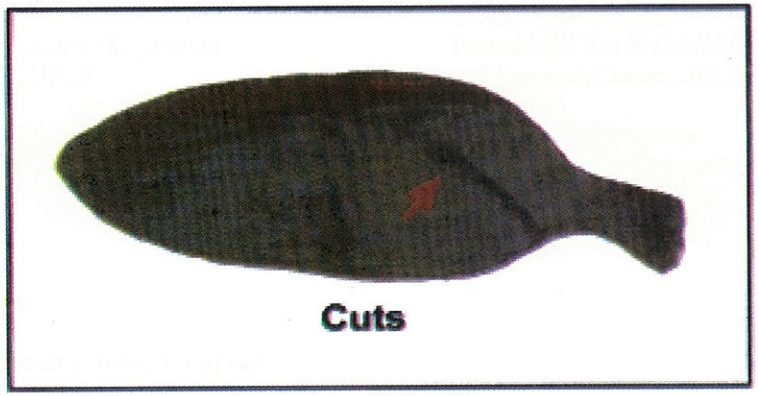


Sooty mold

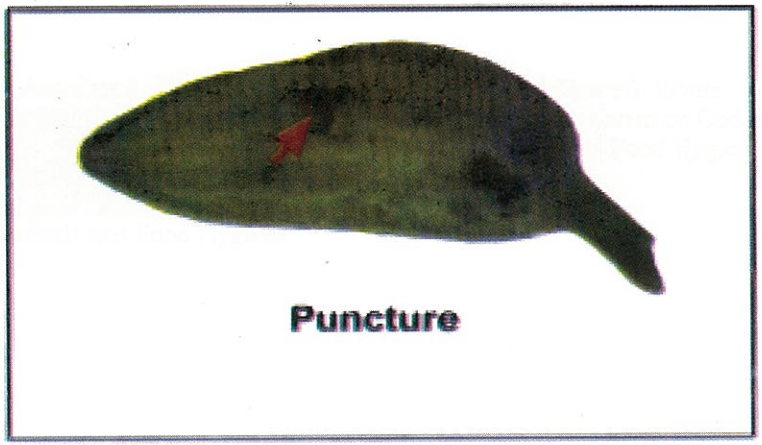




Latex stain



Cuts



Puncture

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添付資料7.8

Philippine National Standard (Corn)

PHILIPPINE NATIONAL STANDARD

PNS/BAFPS 27:2007
ICS 65.020.20

Code of practice for the prevention and reduction of aflatoxin contamination in corn

DEPARTMENT OF AGRICULTURE PHILIPPINES

BUREAU OF AGRICULTURE AND FISHERIES PRODUCT STANDARDS
BPI Compound Visayas Avenue, Diliman, Quezon City 1101 Philippines
Phone (632) 920-6131; (632) 455-2856; (632) 467-9039; Telefax (632) 455-2858
E-mail: bafps@yahoo.com
Website: www.bafps.da.gov.ph

Foreword

This Code of Practice for the Prevention and Reduction of Aflatoxin Contamination in Corn will provide uniform guidance for all corn stakeholders as well as to serve as common reference and basis for compliance to Good Agricultural Practices (GAP) for corn. This will provide adequate measures to manage aflatoxin contamination in the supply chain following the framework of farm to table approach to food safety. It also provide guidance to all persons involved in producing and handling corn for entry into local and international trade intended for human and animal consumption. This code constitutes from on-farm production to on-farm/off-farm storage and recommends measures that should be implemented by all persons that have the responsibility of assuring that food and feed are safe from aflatoxin.

The PNS Code of Practice for the Prevention and Reduction of Aflatoxin Contamination in Corn was prepared by the Technical Working Group on Corn Quality Management (TWG-CQM) chaired by the Bureau of Agriculture and Fisheries Product Standards (BAFPS) created per Special Order No. 111 dated 30 January 2007. In close coordination with the TWG-CQM members, series of technical reviews and public consultations were conducted to gather inputs from different corn stakeholders on the draft standard for the Code.

Code of practice for the prevention and reduction of aflatoxin contamination in corn

1 Scope

This document is intended to provide guidance to all persons involved in producing and handling corn for entry into local and international trade intended for human and animal consumption. This code constitutes from on-farm production to on-farm/off-farm storage. This code of practice recommends measures that should be implemented by all persons that have the responsibility of assuring that food and feed are safe from aflatoxin.

2 References

The titles of the standards publications referred to in this standard are listed on the inside back cover.

3 Definitions

For the purpose of this standard the following definitions shall apply:

3.1
aflatoxin
a group of toxic compounds which are carcinogenic (cancer causing), produced by strains of the fungi, *Aspergillus flavus* and *Aspergillus parasiticus* on suitable hosts/substrates such as corn, peanut, copra, cassava and other oilseeds.

3.2
corn stakeholders
includes corn farmers, traders and users.

3.3
corn
corn on cob and shelled corn of *Zea mays* L.

3.4
moisture content (MC)
the amount of moisture in the corn on cob or shelled corn expressed in per cent (%).

3.5
physiological maturity
the required number of days of the corn to mature (days to maturity) usually characterized by the presence of the black layer at the base of the corn kernel. The black layer indicates that the corn is already mature. This is also evidence that there is no more food movement from the mother plant to the kernel, and therefore, there is no increase in weight of the kernel.

4 Recommended practices based on good agricultural practices for corn (GAP Corn)

4.1 Farm production practices

4.1.1 Observe proper land preparation for healthy and uniform growth of the corn plant.

4.1.2 Production areas must be kept clean and tidy at all times. Field sanitation practices must always be maintained. Farm debris and/or weeds should be plowed-under to bring back fertility of the soil. If possible, one to two months fallow period will be observed before planting.

4.1.3 Use varieties or hybrids that are adaptable to the locality and approved by National Seed Industry Council (NSIC) as seed material.

4.1.4 Maintain the recommended row and plant spacing to avoid overcrowding. Overcrowding of plants may lead to humid and warm conditions in the canopy which favors insect, microorganism and disease development. It can also result in reduced yield due to competition for soil nutrients and sunlight.

4.1.5 Observe the appropriate method and time in applying the recommended combination and amount of fertilizers based on the result of soil analysis. Nutrient deficiencies or over fertilization particularly nitrogen (N) may lead to greater susceptibility to insect pests and diseases.

4.1.6 Seed inoculant may be used to supplement part of the corn plant nutrient requirement.

4.1.7 Apply Integrated Pest Management (IPM) using biological control agents and natural enemies of pests and disease causing organisms and the proper use of pesticide only when necessary.

4.1.8 Practice appropriate weed control measures such as proper land preparation, off-barring at 12 to 15 days after planting (DAP) and/or hilling-up at 25 to 30 DAP to minimize weed population. Care should be taken during cultivation to avoid damage to the plant.

4.1.9 Maintain the water requirement to avoid moisture stress particularly during flowering up to the maturation stage. At these stages, the crop is more susceptible to aflatoxin contamination.

4.1.10 If detopping of corn plants is to be practiced, this should be done after physiological maturity has been attained. Early detopping could lead to shriveled and inferior corn grains.

4.1.11 Practice crop rotation to minimize build-up of aflatoxin producing fungi inherent in the soil.

4.2 Practices during harvest

4.2.1 Farm workers involved in harvesting and succeeding operations should wear appropriate clothing and protective gadgets such as long sleeves and dust mask.

4.2.2 Harvest corn at physiological maturity as recommended (approximately 100 to 120 DAP for yellow corn and 90 to 100 DAP for white corn). Harvesting should be completed in the shortest time possible especially during rainy season. Care must be exerted to prevent damage and contamination of corn ears with soil. Use clean mats, screens and/or other suitable underlays to prevent corn ears from soil or foreign matter contamination.

4.2.3 As much as possible, harvesting should be done on sunny days.

4.2.4 Dehusking is discouraged during rainy season. Air-dry immediately the unhusked ears in a well ventilated area to minimize fungal contamination.

4.2.5 Use clean bags or other suitable containers for the newly harvested corn ears.

4.2.6 Before using machines for harvesting and other post harvest operations, ensure that all the equipment to be used are functional, clean and well-maintained to minimize undue damage to the grain.

4.2.7 Sort-out and discard corn ears that show visible signs and symptoms of insect or microbial damage.

4.2.8 Discarded corn ears should be disposed in a compost pit away from the production area.

4.3 Practices after harvest

4.3.1 Hauling

4.3.2 Haul newly harvested corn ears immediately after harvest. Hauling or transport facilities (e.g. wagons, trucks) to be used for collecting and transporting the harvested corn from the farm to drying facilities or to storage area should be clean, dry, and free from insects and visible microbial growth.

4.3.3 Shelling

4.3.3.1 Use clean, dry and properly calibrated mechanical sheller to minimize mechanical damage to the kernels and further avoid aflatoxin contamination.

4.3.3.2 Before shelling, dry the corn ears to at least 21 % MC to minimize grain damage. At this MC, the seed coat is tougher and can overcome mechanical damage brought about by the shelling machine.

4.3.3.3 Use clean and dry containers of the shelled corn.

4.3.4 Drying

4.3.4.1 In case of solar drying, the shelled corn should be protected from direct contact with the soil. Avoid mixing of dry grain with wet grain or any foreign matter.

4.3.4.2 If immediate drying is not feasible, temporary store the corn ears in cribs or other well-ventilated structures to prevent heat build-up and microbial growth.

4.3.4.3 Within 48 hours after shelling, dry the corn grains to 13 to 14 % MC. When using a mechanical dryer, the air-drying temperature should be within 43 to 50°C. Do not expose corn grains to higher temperature to avoid stress cracks.

4.3.4.4 Ensure that corn has been dried uniformly to 13 to 14 % MC. This can be determined with the use of a calibrated moisture tester. The measurement of the moisture content of the corn should be determined from a representative sample randomly taken from the whole batch.

4.3.4.5 Use clean suitable containers for the dried corn grains.

4.3.5 Transport

4.3.5.1 The corn should be moved to a suitable storage or processing area as soon as possible after drying.

4.3.5.2 Avoid grain moisture accumulation during transport by using an appropriate covering for the container. Corn grains to be transported should be properly stacked inside the transport vehicle and covered with tarpaulin sheets.

4.3.6 Storage

4.3.6.1 The storage structure should be made of durable materials and should be able to withstand strong winds, rain and earthquakes. It should be situated in areas where there is no flooding. The design of the warehouse should be able to meet the following minimum requirements namely:

4.3.6.1.1 prevent re-wetting of dry corn grains;

4.3.6.1.2 prevent entry of insects, birds and rodents; and

4.3.6.1.3 provide good ventilation to the stored corn.

4.3.6.2 During storage, follow the first-in first-out (FIFO) principle.

4.3.6.3 The MC of corn should be maintained at 13 to 14% at all times in storage to prevent the growth of *A. flavus* and/or *A. parasiticus*.

4.3.6.4 Observe uniform piling of bagged corn grains inside the warehouse to allow good ventilation.

4.3.6.5 Maintain cleanliness at all times to prevent insect infestation and disease infection.

4.3.6.6 Periodically measure the temperature of the stored corn during storage. A temperature rise may indicate microbial growth and/or insect infestation. Visually check corn for evidence of mould growth and separate the infested / infected portion. Subject infested/infected samples for aflatoxin analysis if possible.

4.3.6.7 If the corn stocks will be stored for more than a month, it should be treated with the recommended pesticide to be applied by a trained pesticide applicator following the dosage as stated in the label.

5 Record keeping and documentation

5.1 Document all activities in the production, harvesting and post harvest operations including the environmental conditions during each activity. Keep records on the data monitoring of temperature, moisture and humidity and any deviation or changes from traditional practices if measuring instruments are available. In its absence, record observations that deviate or substantially affect the normal growth of the crop such as drought, typhoon and excessive rainfall. These information may be very useful in explaining the causes of fungal growth and aflatoxin formation during a particular crop year.

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Appendix 1

Department of Agriculture
Bureau of Agriculture and Fisheries Product Standards
Technical Working Group

Chairperson:

Gilberto F. Layese
Director IV
Bureau of Agriculture and Fisheries Product Standards (BAFPS)

Co-Chairperson:

Edralina P. Serrano, Ph.D.
Professor
University of the Philippines, Los Baños, Laguna

Adviser:

Dennis B. Araullo, CESO II
Assistant Secretary, Field Operations and
Coordinator, GMA-Corn Program

Members:

Rosario H. Arim, Ph.D. (†)
Senior Science Research Specialist
Food and Nutrition Research Institute (FNRI)

Pura R. Buenaflor
Chief, Quality Assurance Division
National Food Authority (NFA)

Miriam A. Acda
Acting Director II
Bureau of Post Harvest Research and Extension (BPRE)

Edna T. Begino
Senior Agriculturist and
Chief, Aflatoxin Laboratory
Bureau of Animal Industry (BAI)

Thelma R. Perez
Food and Drug Regulation Officer III
Bureau of Food and Drugs (BFAD)

Milo D. de los Reyes
Senior Agriculturist
GMA-Corn Program

Secretariat:

Clarence F. Agustin
Senior Science Research Specialist
Bureau of Agriculture and Fisheries Product Standards (BAFPS)

添付資料7.9

Philippine National Standard
(GAP-FV farming)

PHILIPPINE NATIONAL STANDARD

PNS/BAFPS 49:2007
ICS 65.020.20

Code of good agricultural practices for fruits and vegetable (GAP-FV) farming

DEPARTMENT OF AGRICULTURE
PHILIPPINES

BUREAU OF AGRICULTURE AND FISHERIES PRODUCT STANDARDS
BPI Compound Visayas Avenue, Diliman, Quezon City 1101 Philippines
Phone (632) 920-6131; (632) 455-2856; (632) 467-9039; Telefax (632) 455-2858
E-mail: bafps@yahoo.com
Website: www.bafps.da.gov.ph

Foreword

The Good Agricultural Practice for Fruits and Vegetable (GAP-FV) Farming is a set of consolidated safety and quality standards formulated by the Department of Agriculture (DA) for on-farm fruit and vegetable production. These code of practices are based on concept of Hazard Analysis and Critical Control Points (HACCP) and quality management principles with emphasis in the following six key areas:

- Farm location;
- Farm structure;
- Farm environment (soil/nutrients);
- Farm maintenance (hygiene and cleanliness);
- Farming practices/methods/techniques (pesticide and fertilizer application, pest and disease management, postharvest handling); and
- Farm management (farm records, traceability, staff training).

The basis of the Good Agricultural Practices (GAP) Program is to provide safe food product for the consumers. The focus is to reduce risk of microbial and pesticide contamination. Additional benefits of the program are worker safety and protection of the environment. It is a known fact that current technologies cannot absolutely eliminate food safety hazards associated with fresh produce that will be eaten raw.

Republic of the Philippines
Department of Agriculture
OFFICE OF THE SECRETARY
Elliptical Road, Diliman, Quezon City 1101 Philippines

August 2005
No. 25
Series of 2005

SUBJECT: GUIDELINES ON THE CERTIFICATION OF GOOD AGRICULTURAL PRACTICES (GAP) FOR FRUITS AND VEGETABLE (FV) FARMING

The Bureau of Agriculture and Fisheries Product Standards (BAFPS) created pursuant to Republic Act 8435 or the Agriculture and Fisheries Modernization Act of 1997 (AFMA) is mandated to formulate and enforce standards of quality in processing, preservation, packaging, labeling, importation, exportation, distribution and advertising of agriculture and fisheries products.

Recognizing liberalization of fruit and vegetable trade and the incessant need to compete in the international market, it is important that safety and quality of fruits and vegetables, which are consumed fresh, are ensured. The best approach to maintain the wholesomeness nature and safe consumption of edible horticultural produce is to systematically identify and establish management practices that minimizes chances of external and internal contamination from the farm-to-fork chain. Consequently, the government has to develop and enforce the Code of Good Agricultural Practices (GAP) throughout the country in close collaboration with stakeholders. To assure that agricultural farms are adhering to GAP, there is an imperative need to provide specific guidelines in GAP Certification.

1. Objectives of Certification. The certification of agricultural farms is aimed to attain the following:

   1.1. To increase the market access of horticultural products both in the local and foreign markets
   1.2. To empower farmers to respond to the demands of consumers that specific criteria to achieve food safety and quality be met
   1.3. To facilitate farmer adoption of sustainable agricultural practices
   1.4. To uplift GAP-FV farmers profile as member of the nationally recognized list of vegetable farmers who are setting the benchmark for the production of safe and quality fruits and vegetables
   1.5. To enable consumers exercise the option of buying quality fruits and vegetable from traceable and certified sources

2. Scope of Guidelines. This establishes the rules applied by the Department of Agriculture (DA) for granting, maintaining and withdrawing Good Agricultural Practices (GAP) Certificate to individual growers or farms in the fresh fruit and vegetable sector or to their Produce Marketing Organizations (PMOs) that market and or trade the produce.

3. Administrator.

3.1. Composition. The Good Agricultural Practices (GAP) Certification Committee shall be composed of the Directors of attached agencies of the Department of Agriculture (DA), representatives from the private sector, non-government organization, and academe.

Chairperson:	Bureau of Agriculture and Fisheries Product Standards (BAFPS)
Co-chairperson:	Bureau of Plant Industry
Members:	Fertilizer and Pesticide Authority (FPA)
	Bureau of Animal Industry (BAI)
	Bureau of Soil and Water Management (BSWM)
	GMA-High Value Commercial Crops (HVCC) Program
	Representative, Private sector
	Representative, NGO/PO
	Representative, Academe

3.2. Tasks. The Committee shall be tasked to:
- 3.2.1. Review and approve applications
- 3.2.2. Endorse to the Secretary a list of applicants to be issued a Good Agricultural Practices (GAP) Certificate
- 3.2.3. Review and approve any changes in standards and fees
- 3.2.4. Hear appeals
- 3.2.5. Annually review investigations of complaints about abuses in the production and sale of products that do not adhere to GAP
- 3.2.6. Determine penalties for abuse of standards or mark
- 3.2.7. Negotiate satisfactory settlement of complaint and reimbursement for the investigation cost
- 3.2.8. Designate qualified National and Regional Inspectors

3.3. Secretariat. The Bureau of Agriculture and Fisheries Product Standards (BAFPS) shall act as secretariat of the GAP Certification Committee.

3.4. Inspectors. The National Inspectors based in the Central Offices shall be composed of identified technical personnel duly designated by the Directors of the Bureau of Plant Industry (BPI), Fertilizer and Pesticide Authority (FPA), Bureau of Animal Industry (BAI) and Bureau of Soils and Water Management (BSWM) and the Bureau of Agriculture and Fisheries Product Standards (BAFPS). Regional Inspectors replicating the composition of the National Inspectors duly recommended by their respective Regional Heads, if any, shall be constituted as the need arises

4. Application.

4.1. Nature of applicants. The Department of Agriculture (DA) Certification Scheme shall be based on three (3) options, depending on the type of organization that is requesting certification.
- 4.1.1. Individual grower
- 4.1.2. Produce Marketing Organization (PMO)
- 4.1.3. A company/corporation that applies a national or company scheme

4.2. The applicant shall submit the completed application form to the Secretary of the Department of Agriculture (DA) through the Good Agricultural Practices (GAP) Certification Committee.

4.3. Supporting Documents. Accompanying the accomplished form are:
- 4.3.1. Farm/Organization profile
- 4.3.2. Company/corporation Certificate of registration
- 4.3.3. Track record of the farm or company/corporation
- 4.3.4. For Produce Marketing Organizations (PMOs). The PMOs must illustrate that it has 100% control of the registered growers of the group requesting for certification, all individual growers operate under the same management systems and adhere to the Department of Agriculture (DA) Code of Good Agricultural Practices (GAP).

4.4. Fees.
- 4.4.1. The Certification Committee shall establish the guidelines to fix reasonable fees and charges to cover the administrative expenses to be incurred during the evaluation, inspection and audit.
- 4.4.2. The charge for the first certification will cover administrative expenses incurred by the Committee during evaluation and audit expenses of inspectors.
- 4.4.3. Re-certification requires the re-audit of farm on the GAP-FV guidelines and will be conducted one (1) month prior to the expiry of the existing certification.

5. Certification.

5.1. Audit/Inspection

5.1.1. After the Certification Committee has evaluated the application, the Committee will notify the farm within thirty (30) days on the farm audit date prior to the certification or the renewal of the application

5.1.2. The inspector may take samples of water, soil, plant tissue, plants etc. for testing. A receipt will be given to the producer; the producer will not charge the GAP Program for the sample taken. The applicant will pay the cost of testing, and the applicant will receive a copy of the analysis.

5.1.3. Inspectors shall conduct an "exit" interview with the applicant or authorized representative upon completion of the inspection process. The inspector shall cover all potential problem areas noted on the inspection form.

5.2. Issuance of GAP Certificate.

5.2.1. The awarding of GAP-FV Certification is based upon compliance set in the Code of Good Agricultural Practice (GAP) pertaining to farm structure, environment and maintenance, farming practices and farm management during farm checks and the diligent observation of the regulations of GAP-FV certification. The compliance criteria include:

5.2.1.1. Compliance to the Code of Practice of Good Agricultural Practice (GAP)

5.2.1.2. Implementation of a transparent and traceable system to keep track of safe and quality vegetable production from sowing to harvest/packaging.

5.2.1.3. Documentation of farm management to help trace the history of farm produce. The farm must also identify a coordinator to represent the farm in the certification matters. The farm records must be kept for two (2) years. New farm applying for certification must have three (3) months of farm records.

5.2.2. Upon the review of the inspection report, the GAP Certification Committee shall approve, deny or place an application in pending. If placed in pending or denied, the Chairperson will have fifteen (15) days to notify the applicant.

5.2.3. Upon approval of application, the report of the GAP Certification Committee together with the recommendation to issue GAP Certificate to the applicant shall be endorsed to the Office of the Secretary of the Department of Agriculture for approval.

5.2.4. After the Secretary of the Department of Agriculture has conceded, the GAP Program Certification Committee shall assign an unequivocal permanent registration number and issues a GAP Certificate.

5.2.5. The GAP Certification award entitles the applicant to use an official mark "Good Agricultural Practice for Fruits and Vegetable Farming" in accordance with the provision set out herein.

6. Renewal of Good Agricultural Practices (GAP) Certificate.

6.1. Good Agricultural Practices (GAP) Program participants shall renew GAP Certificate by submitting a new application three (3) years after it has been issued. Application for renewal shall be done one (1) month prior to the anniversary date of the certificate.

6.2. Upon receipt of the renewal request, a new certificate shall be issued and an inspection shall be performed within the following thirty (30) days, preferably during the growing or packing season.

7. Advertisement.

7.1. The "Good Agricultural Practice for Fruits and Vegetable Farming" Mark is an official Mark to be put on fruits and vegetables produced by certified farms. It is an offense for any farm or company to use the Mark to advertise the farm fruits and vegetables not produced by the farm or when farm is not certified.

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

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

7.4. All materials containing the Mark shall be submitted to GAP Certification Committee for approval in their use and release to the public.

8. Revocation of GAP Certificate. Certified farms must observe and comply wit the GAP Certification Guidelines. Farms must comply with all major criteria as specified in the Code of Good Agricultural Practice. Non-compliance with the Code of GAP shall result in the loss of approval. Failure to comply with any part of the guidelines may involve fines, suspension or withdrawal of award, which will be publicly announced.

9. Confidentiality. All employees, contractors, and committee members must adhere to the principles of confidentiality. Information submitted by applicants for approval will not be released to the public, including production practices, ingredients, customer list, complaint log, etc. without written permission of the applicant. However, the following information may be released.

9.1. the name, address and telephone number of the applicant

9.2. to confirm whether or not the applicants operation was approved on a specific date

9.3. any information to comply with a court order

9.4. any information to comply with a request from the GAP Certification Committee investigating an alleged complaint

10. Conflict of Interest. Conflict of interest is defined as having an economic interest with a producer or packer under review for approval one year prior to, during or one year after work or employment was concluded. Staff, contractors and committee members with a conflict of interest must make the conflict known and not participate in discussion or decisions regarding the producer or packer under review.

11. Additional Regulations. Other regulations may be introduced and notified when they become necessary to ensure production of safe and quality vegetables in certified farms.

12. Effectivity. This Order shall take effect fifteen (15) days after its filing with the UP Law Center.

APPROVED:

(Signed)
DOMINGO F. PANGANIBAN
Secretary

1. Scope

The GAP program covers the production, harvesting and post harvest handling of fresh fruits and vegetables on farm and post harvest handling in locations where produce is packed for sale. Products that present a high risk to food safety, such as sprouts and fresh cut products are not covered in the scope.

This Code may be used for all types of production systems but it is not a standard for certification of organic products or GMO free products.

2. References

The titles of the standards publications referred to in this standard are listed on the inside back cover.

3. Farm location

3.1 The land must be evaluated to be suitable for agricultural land use.

3.2 Obtaining a history of the prior use of land is important because it helps in identifying potential hazards.

3.3 An environment impact assessment conducted and preventive or improvement measures introduced by farmers or technical expert will be useful.

4. Farm Structure

4.1 Cultivation, storage and packing areas must be kept clean and tidy. Litter, waste and weeds must be removed from immediate vicinity of crop production area. Effective measures must be taken to dispose of rubbish heaps on the farm.

4.2 Irrigation system should be maintained to provide effective delivery, prevent blockage and back siphonage.

4.3 All equipment associated with cultivation, harvesting and storage of vegetables should be well maintained in optimal operating conditions.

4.4 Vegetable growing plots must be clearly demarcated and labeled.

5. Farm Environment

5.1 Soil

5.1.1 The soil must not be contaminated with heavy metals. The heavy metals must be analyzed every 3 years and the contents must not exceed the safety limits.

5.1.2 Upon renewal of soil for cultivation, soil samples must be re-analyzed for heavy metal contamination.

5.1.3 Records of heavy metals testing from accredited laboratory must be kept and produced during audit.

5.1.4 The agricultural land must not have been used for activities other than agriculture since it can be contaminated with pathogenic organisms or toxic chemical substances.

5.2 Water

5.2.1 Primary and secondary sources of water must be identified.

5.2.2 If capable, the topography of the landscape must be identified and its effect on water flow and rainfall pattern must be studied.

5.2.3 Pond water used for agricultural purposes (i.e. irrigation of plants or used in pesticide applications) must be of good quality following the guidelines below.

5.2.3.1 Pond must not contain litter or weeds,

5.2.3.2 Animals, except fish, must be kept away from the pond, and

5.2.3.3 Direct runoff from cultivation areas and sewage water should not get into the pond.

6. Farm maintenance

6.1 Animals should not be allowed into or kept in all cultivated areas, growing houses, storage rooms and packaging rooms. Animal proof and adequate pest control measures should also be implemented.

6.2 Packaging area/shed must be cleaned with appropriate cleaning schedules and procedures.

6.3 Toilets must be provided for the farm workers and must be properly maintained. These should not be close to water sources or in places where rain can wash out contaminants or cause spills. Maintenance and servicing of toilers and disposal of hand washing rinse should be performed away from the field in case leaks or spills occur.

7. Farming practices

7.1 Use of planting material

7.1.1 Planting materials used should be free of disease.

7.1.2 It is also a good practice that sources of planting materials are properly recorded.

7.2 Use of pesticides

Pesticide usage during vegetable production must comply with the regulations set by the Fertilizer and Pesticide Authority.

7.2.1 Only certified pesticide operators are allowed to carry out and supervise pesticide operation in the farm.

7.2.2 Only registered pesticides are to be used.

7.2.3 Dosage of pesticides, time and frequency of pesticide application must follow according to the recommendations on the manufacturers label or as directed according to a plant health specialist.

7.2.4 Pesticide operators must be familiar with all aspects on the safe use and application of pesticides.

7.2.5 Pesticide must always be clearly labeled and stored in original container and under lock and key. Warning sign must be displayed at the storage area. Storage area must be isolated from packing areas to prevent contamination from leaching, runoff or wind drift. Good pesticide storage practice should be adhered to, including ensuring that the store has facilities to clean up spills and putting out flames.

7.2.6 Disposal of pesticides and pesticides containers and residues must be done according to instructions included on the manufacturers label or in accordance to Fertilizer and Pesticide Authority (FPA) regulation. No recycling of empty pesticide container for other usage.

7.2.7 Records of purchase, application and disposal (log records, procedures, or instruction manual) of the pesticides must be kept and produced during farm audit.

7.2.8 Spraying equipment must be well maintained to ensure that the equipment operates at the optimum condition so that right application rates are delivered and unnecessary leakage avoided.

7.2.9 Re-entry interval after pesticides are sprayed should be observed.

7.2.10 Operators must be trained on proper pesticide usage. They should be continually trained to operate and maintain equipment for effective spraying.

7.2.11 Pesticides should not be stored for more than a year before using.

7.2.12 Good quality water should be used for mixing and applying pesticides to minimize the risk of microbial contamination of produce.

7.2.13 Withholding periods or pre-harvest intervals must be strictly observed.

7.2.14 Cocktails of pesticides must be avoided unless advised by manufacturers' recommendation or are inherent in a formulation.

7.3 Use of fertilizers

7.3.1 Raw manure or human waste must not be used for vegetable cultivation.

7.3.2 Manure should be confined for treatment and equipment that comes in contact with untreated manure should be cleaned with high-pressure water or vapor before it is allowed in the production areas.

7.3.3 Natural fertilizers such as poultry manure or other organic materials must be fully composted at a stable temperature with no foul smell. Heavy metal analyses should be conducted.

7.3.4 Direct contact between natural fertilizers and vegetables must be minimized, especially during the last 2 weeks of the crop cycles i.e. about 14 days before harvesting.

7.3.5 A complete set of records of fertilizer preparation must be kept. Information includes source of materials, details of the composting procedures, results of microbial tests on the composted material, and dates, amounts and methods of applying the fertilizer as well as the person responsible for the application.

7.3.6 Fertilizers must be stored separately from pesticides in a clean and dry area (preferably slightly elevated above ground on pallets).

7.3.7 Storage area must be isolated from packing areas to prevent contamination from leaching, runoff or wind drift.

7.3.8 For hydroponic system, nutrient stock from new purchase/supplier must be of Laboratory grade and must not be contaminated with heavy metals as tested.

7.3.9 Laboratory analysis records must be filed for farm audit, if any.

7.4 Use of other agrochemicals

7.4.1 Agrochemicals such as detergents/disinfectants, sanitizers, plant growth regulators, adjuvants and other additives must be carefully applied as recommended on the manufacturers' label.

7.4.2 These agrochemicals must be kept in their original packing/bottles or clearly labeled and locked separately from fertilizers and pesticides.

7.5 Pesticide and disease management

7.5.1 A pest and disease management programme must be put in place taking into account historical data, trends and current conditions.

7.5.2 The pest and disease monitoring system should be able to anticipate pest problems so that preventive measures can be taken. Any disease or pest detected should be closely monitored for progress. Control measures or IPM strategy should be implemented once the threshold for the specific problem is breached.

7.6 Harvesting

7.6.1 Harvesting must be rapid and must minimize damage and contamination of vegetables with soil, compost, microbial pathogens, fertilizers or pesticides.

7.6.2 Harvested vegetables should be pre-cooled quickly (immediately within the shortest time brought to the shade out of direct sunlight).

7.6.3 Vegetables such as lettuces, which are commonly eaten raw, should undergo a washing process to thoroughly remove any surface contaminants.

7.6.4 Washing facilities must be self-contained and under shelter from the weather elements.

7.6.5 Water used for washing of vegetables prior to packing must be free from pathogenic microbial contamination following the recommended measures.

7.6.5.1 Use only potable water for washing the vegetables.

7.6.5.2 Frequent changed of washing water and/or

7.6.5.3 Disinfectants used, if needed, is based on the recommended dosage according the manufacturers label.

7.6.6 If chlorine is used to sanitize processing water, it is important to maintain the free (unreacted) chlorine concentration at all times during use. Samples should be taken at least on an hourly basis to monitor chlorine concentration. All re-circulated water should be hanged on a daily basis, or more frequently if the water becomes extremely dirty to build up of organic matter, which can reduce the effectiveness of the chlorine treatment.

7.6.7 Vegetables surfaces should be dry before packing.

7.7 Packaging

7.7.1 Packers must wash their hands with detergents before and after handling vegetables.

7.7.2 Packers must not smoke, drink or eat when packing the vegetables as they may introduce microbes from their mouths. They should wear rubber gloves and apron during packing operation.

7.7.3 Packing line and machines must be washed and disinfected regularly before and after packing according to instruction manual/procedures.

7.7.4 Packing containers/crates containing harvested vegetable must be raised on pallet to avoid contamination and kept in separate area away from contaminating agents such as pesticides or fertilizers.

7.7.5 Packing room must be separated from toilet facilities and must be kept clean, tidy well ventilated and free of foul smells at all times.

7.7.6 Packed vegetables should be free from soil, trimmed to ensure that only clean vegetables are packed and dispatched.

7.7.7 All vegetables if retail packed must be packed in clean, new single-use plastic bags. Packing materials such as plastic bag must be kept away from rodents, birds, farm animals and physical and chemical hazards.

7.7.8 Vegetables should be retail-packed (or bulk packed) and sealed on the farm. Each pack must be clearly labeled with the farms name according to the labeling regulation and the certification Mark. Farm can pack vegetables produced from GAP-FV certified farms only but must have proper documentation to ensure traceability.

7.8 Cold Storage

7.8.1 Storage facility must be sanitized and free from decaying plant waste and foul smell.

7.8.2 Vegetables should be stored in the cold room immediately after packing. Refrigeration equipment should be in good working condition with regular temperature check and records. Storage in cool room is recommended at the temperature of 5-10°C with 95-99% relative humidity.

7.8.3 When using an air-based cooling system, the air system must be properly maintained so that the air is clean and free of pathogens.

7.8.4 Water used for cooling system and to make cooling ice must be free of pathogenic contamination. Use of chlorinated water is recommended and samples should be taken at least on an hourly basis to monitor chlorine contamination.

7.8.5 Cooling equipment must be cleaned and inspected frequently. Maintenance of equipment and use of appropriate sanitary procedures is critical to assuring the safety of the produce.

8. Farm management

8.1 Farm records

8.1.1 The farm must identify a coordinator to deal with matters associated with GAP-FV certification.

8.1.2 All farm records required under the GAP-FV certification must be updated.

8.1.3 Updated records must be kept for up to two years. New farm applying for certification must have 3 months of farm records.

8.1.4 Copies of laboratory analysis and certificates that verify compliance with Department of Agriculture regulations must be filed.

8.2 Traceability

8.2.1 Each package/bulk packed produce leaving the farm must be traceable (i.e tag with GAP-FV Certification Number or farms name, date of harvest) to farm/sources.

8.2.2 Records of a lot number must be maintained for all produce leaving the farm.

8.3 Staff training

8.3.1 Staff training records must be maintained.

References

The following referenced documents are indispensable for the application of this document. For dated references, only the editions cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

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Department of Agriculture
Bureau of Agriculture and Fisheries Product Standards

Technical Sub-Committee on Crops

Chair

1. Dr. Elda B. Esguerra
   Postharvest Horticulture Training
   and Research Center, UP Los Baños

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   FST, UPLB

6. Dr. Dario S. Sabularse
   Fertilizer and Pesticides Authority

Experts Involved:

7. Dr. Edralina P. Serrano
   Postharvest Horticulture
   Training and Research Center, UPLB

8. Dr. Pablito Pamplona
   Mindanao State University

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   Bureau of Agriculture and Fisheries Product Standards

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   Technical Assistance on Codex Standards and Food Hygiene

4. Ms. Mary Grace S. Rivere
   Technical Assistance on Codex
   Standards and Food Hygiene

添付資料7.10

Philippine National Standard
(Cacao or Cocoa beans)

PHILIPPINE NATIONAL STANDARD

PNS/BAFPS 58:2008

Cacao or Cocoa beans

DEPARTMENT OF AGRICULTURE PHILIPPINES

BUREAU OF AGRICULTURE AND FISHERIES PRODUCT STANDARDS
BPI Compound Visayas Avenue, Diliman, Quezon City 1101 Philippines
Phone (632) 920-6131; (632) 455-2856; (632) 467-9039; Telefax (632) 455-2858
E-mail: bafps@yahoo.com
Website: www.bafps.da.gov.ph

Foreword

The Philippine National Standard (PNS) for Cacao or Cocoa beans was approved in 2007. Prior to its adoption, there are comments received from the stakeholders and WTO, thus, there is a move for its immediate revision was carried out.

PNS/BAFPS No. 58:2007 mainly on Sections 3, 4, 12 and Annex A are hereby revised in order to reflect the stakeholders and WTO comments, as follows:

On Section 3 Definition of terms - The difference lies on the average size of a bean. Broken bean is a piece greater than half a bean whereas, fragment is a piece less than half a bean based on the average size of the bean in the sample. For other terms such as : Mouldy bean defined as mould present on the internal parts of the cacao bean which is visible to the naked eye as shown by cut test. Foreign matter means any substance other than cacao beans, broken beans, fragments, pieces of shell, dried placenta and dried pulp. Slaty means a cacao bean which shows a gray or purple colour and poorly formed cotyledon on half or more of the surface exposed by the cut test and lastly, waste shall mean flat bean, fragments and pieces of shell.

On Section 4 Quality requirements - Prior to revision, it was stated that cacao beans must be free from smoky smell and other objectionable odor. Since the meaning of the statement is the same as commented by US, in the revised PNS, it states that cacao beans shall be free from odors that are not characteristics of dried cocoa beans such as smoke. And, the consignment of bean shall contain not more than 2.5% waste is changed to not more than 1.5% waste by weight.

On Section 12 Contaminants - The heavy metals stated in the Philippine National Standard are based on Codex Stan 141-1983. The comments received from WTO, Codex Stan 141-1983, Rev. – 1 - 2001 heavy metals are delisted thus in the revised PNS heavy metals were likewise deleted. Additional lists of Pesticide residues are included in the standard for cacao beans.

On Annex A – The stakeholders suggested that the paragraph on fermentation was cancelled due to the existence of different varieties of cacao. Drying procedure was also deleted in the revised PNS.

The revised standard provides a common understanding among the stakeholders on the definition of terms, preparation of cacao beans, quality requirements, and the subjects discussed in Annex A.

1 Scope

This national standard sets a system of grading or classifying the cacao or cocoa beans derived from the harvested pods of cacao trees, *Theobroma cacao L.* Generally, cacao beans must be fermented and dried properly before marketing for various commercial uses and processing for various products.

2 References

The titles of the standards publications and other references of this standard are listed on the inside back cover.

3 Definitions

For the purpose of this standard, the following definitions shall apply:

3.1
adulteration
covers alteration of the composition of graded cacao by any means so that the resulting mixture or combination is either not of the grade prescribed, or its quality or flavour is injuriously affected or its bulk or mass is altered

3.2
bean count
total number of cacao beans (excluding flat and broken beans) required to make a weight of 100 grams

3.3
cacao or cocoa beans
refer to the whole seed which has been fermented and dried

3.4
dry cacao
a commercial term designating cacao beans which have been evenly dried throughout and which the moisture content shall not exceed 7.5%

3.5
defective beans
cacao beans which are internally mouldy, slaty, insect-damaged, or insect-infested, or germinated

3.5.1
bean cluster
a bean clump which consists of three or more beans fused together

3.5.2
broken bean
a piece greater than half a bean based on the average size of the bean in the sample

3.5.3
contaminated bean
cacao bean which is contaminated by odours or flavours, or by dust from other products such as other foods, or by products such as oil, cement and tar

3.5.4
double bean
two beans fused together which can be separated by hand

3.5.5
fermented bean
cacao bean of which the color of the cotyledons should range from partly purple and partly brown to a fully brown color as shown by the cut test

3.5.6
flat bean
cacao or cocoa bean of which the cotyledons are too thin to be cut to give a full length of the cotyledon surface

3.5.7
foreign matter
means any substance other than cacao beans, broken beans, fragments, pieces of shell, dried placenta and dried pulp

3.5.8
fragment
a piece less than half a bean based on the average size of the bean

3.5.9
germinated bean
the shell of the cacao bean which have been pierced, slit or broken by the growth of the seed germ

3.5.10
insect-damaged/infested bean
cacao bean of which the internal parts are found to contain at any stage of development, or have been attacked by insects which have inflicted damage visible to the naked eye as shown by cut test

3.5.11
mouldy bean
mould present on the internal to the cotyledon of the cacao bean which is visible to the naked eye as shown by cut test

3.5.12
piece of shell
part of the shell without adhering kernel or part of the kernel

3.5.13
slaty bean
cacao bean which shows a gray or purple colour and poorly formed cotyledon on half or more of the surface exposed by cut test

3.5.14
smoky bean
cacao bean which has a smoky smell or taste or shows signs of smoke contamination

3.5.15
waste
shall mean flat bean, fragments and pieces of shell

4 Quality Requirements

4.1 Cacao beans shall be taken from ripe pods, adequately fermented and dried, and must be free from odors that are not characteristics of dried cocoa beans such as smoke.

4.2 Cacao beans shall be reasonably uniform

4.3 Cacao beans shall be free from any evidence of adulteration.

4.4 Cacao beans shall be reasonably free from broken beans, fragments and pieces of shell.

4.5 Cacao beans shall be virtually free from foreign matter.

4.6 Cacao beans shall be reasonably free from insect pests.

4.7 The moisture content of cacao beans in trade outside the producing country as determined at the first port of destination or subsequent points of delivery shall not exceed 7.5 %.

4.8 The consignment of bean shall contain not more than 1.5% waste by weight.

5 Grading

5.1 Cacao beans are graded, according to the proportion of defective beans determined bythe method of test specified in ISO/R1114:

Percentage of beans				
Grade	**Bean Count (per 100 g)**	**Mouldy**	**Slaty**	**Defects such as insect damaged, infested beans, and germinated beans**
1A	<=100	3	3	2.5
1B	101 - 120	3	3	2.5
2A	<=100	4	8	5.0
2B	101 - 120	4	8	5.0
Sub-Standard	> 120	> 4	> 8	> 5.0

Note: The percentages are maximum; the percentages given in the last column apply to all the defects mentioned therein, taken together. Code 1 – 2 denotes grade based on defective characteristics. Code A and B stands for bean counts.

5.2 Sub-Standard cacao

Cacao beans which exceed one of the limits accepted for Grade 2 shall be regarded as Sub-Standard and marked 'SS'. Sub-Standard cacao shall only be marketed under special contract.

6 Sampling

Sampling shall be carried out in accordance with the requirement of ISO 2292 (Annex A).

7 Methods of Test

Testing shall be carried out in accordance with the requirement of ISO/R1114 and ISO 2291 (Annexes A – E).

8 Packaging

Cacao beans shall be packed in jute sacks which are clean, sound, sufficiently strong and properly sewn. The jute sacks shall be made of non-toxic materials. Other forms of packaging may be used as mutually agreed upon between participating parties.

9 Marking and Labeling

Each bag of cacao beans shall be securely sealed, marked clearly and indelibly with the following information:

9.1 Name of product, variety or commercial type

9.2 Grade

9.3 Net weight (kg)

9.4 Name and address of producer, trader or exporter and relevant license number

9.5 Location/place produced (town and province)

9.6 Consignment or lot or contract number as applicable

9.7 Year of harvest

9.8 Product of the Philippines

10 Storage

a. Consignments of cacao beans shall be placed in a well constructed warehouse to keep their moisture content sufficiently low and consistent with local conditions.

b. The cacao beans may be stored for 6 – 7 months elevated on pallates with a clear space above ground of at least 7 cm for air circulation.

c. Measures shall be taken to prevent infestation by insects, rodents and other animal pests.

d. The bags of cacao beans shall be stacked in such a way that:

1. Individual grades and lots shall be separated by a passage at least 60 cm wide, similar to that which shall be left between the bags and the walls of the warehouse.
2. Disinfestation by approved fumigant may be carried out.
3. Contamination by odours or flavours, or by dust from other products such as other foods, or by products such as oil, cement and tar shall be prevented.

e. During storage and immediately before shipment, the moisture content of each lot shall be periodically checked.

11 Fumigation

Fumigants (ethylene dibromide, methyl bromide, gastoxin (phosphine), propylene oxide, carbon oxide, and phostoxin (aluminum/magnesium phosphide) are used to control insects, rodents and other animal pests inside the warehouse. Care must be exercised in the choice, number of applications of fumigant permitted and in the technique of their application to avoid incurring any risk of tainting or addition of toxic residues to the cacao. Any such residues should not exceed the tolerances prescribed by the FAO/WHO Codex Committee on Pesticide Residues, the FAO/WHO Expert Committee on Pesticide Residues and by the Government of the importing country.

12 Contaminants

12.1 Pesticide residues

Cacao beans shall comply with those maximum residue limits established by the Codex Alimentarius Commission and/or authority for this commodity. These pesticides are:

	Maximum Residue Limits (mg/kg)
Fenitrothion	0.10
Hydrogen phosphide	0.01
Lindane	1.00
Delthamethrin	0.05
Metalaxyl	0.20
Carbendazim	0.10
Disulfoton	0.20
Fenamiphos	0.10
Carbofuran	1.00
Aldicarb	0.10
Cypermethrin	0.05 (*)
Permethrin	0.05 (*)
Omamyl	0.10
Triadimefon	0.05 (*)
Deltamethrin	2.00 P_0
Prochloraz	0.20
Triazophos	0.05 (*)
Flucythrinate	0.05 (*)
Propiconazole	0.10
Terbufos	0.05 (*)
Triadimenol	0.10 (*)
Hexaconazol	0.05 (*)

Where:

P_0 The MRL accommodates post-harvest treatment of the commodity
(*) At or about the limit of determination

13 Hygiene

13.1 It is recommended that the produce covered by the provisions of this standard be prepared and handled in accordance with appropriate sections of the Recommended

International Code of Practice – General Principles of Food Hygiene (CAC/RCP 1 – 1969, Rev. 4 – 2003), and other relevant Codex texts such as Codes of Hygienic Practice and Codes of Practice.

13.2 The produce should comply with any microbiological criteria established in accordance with the Principles for the Establishment and Application of Microbiological Criteria for Foods (CAC/GL 21-1997).

14 Legal requirement

The cacao bean shall in all respect, comply with the current legislations enforced in the country of import and export.

15 Compliance with specification

When found to conform to the Basic Requirement of Philippine National Standards for Cacao Beans, the lot, batch or consignment from which the samples have been drawn, shall be deemed acceptable.

References

Cocoa Association of Asia Quality Standard Specifications for Cocoa beans. 2003.

Cocoa Act of Papua New Guinea. 1982.

Codex Alimentarius Commission/ RCP 1 – 1969, Rev. 4 – 2003.

Codex Alimentarius Commission/GL 21-1997.

ISO/R 1114 Cocoa beans – Cut test.

ISO 2291 Cocoa beans – Determination of moisture content (routine method).

ISO 2291 Cocoa beans – Sampling.

Pesticide residues in food – Maximum residue limits. Codex Alimentarius Commission. vol. 2B. 2000. p. 438 – 439.

Preparing Cacao for the Market. Cocoa Philippine Publication. 1999.

Standard Specification for Malaysian Cocoa. 1995.

Annex A

Sampling

The sample shall be collected at random from minimum of 30% of the total quantity of bags in a lot or per B/L, using a sampling prop/spear. From each bag, a sample shall be taken from the top, the center and the bottom part of the bag. These samples shall be mixed thoroughly several times until a final sample of about 1,500 grams are obtained. The samples are then sealed and labeled in the area where the samples have been taken. After the samples have been taken out, the bags shall be sealed. The sampling official shall be a person with experience or training and employed by a legal body.

PNS/BAFPS 58:2008

Annex B

A. Procedures for Determining the Bean Count

Bean count is carried out by the determination of the number of cacao beans to make a weight of 100 g.

1. Preparation of the sample

   The sample is obtained by the method described in ISO/R 1114 (Cut tests) and shall be thoroughly mixed.

2. Preparation of the test portion

   The mixed samples shall be reduced by quartering or by means of a suitable dividing apparatus, to just over 300 beans per quarter. Then count the actual number of whole beans, after the removal of flat beans.

3. Determination

   The whole beans shall then be weighed to the nearest 0.05 g.

4. Expression of Result

   The bean count shall be expressed as the number of beans per 100 g.

   Thus:

$$\text{Bean count} = \frac{\text{Number of whole beans x } 100}{\text{Weight of whole beans (g)}}$$

Annex C

B. Procedures in Determining Defects through the Cut Test

The cut test is carried out primarily to determine the incidence of mouldy beans, slaty beans, insect damaged/infested beans and germinated beans.

1. Preparation of the sample

The sample of whole beans used for the bean count shall be used for the entire cut test.

2. Preparation of the test portion

The sample of the cacao beans shall be thoroughly mixed, and then quartered, or divided into four (4) heaps, until reaching a heap of slightly more than 300 beans. The first 300 beans shall be counted off, irrespective of size, shape and condition.

3. Determination

a. All the beans shall be cut lengthwise through the middle, so as to expose the maximum cut surface of the cotyledons.
b. Both halves of each bean shall be examined visually in full daylight or equivalent artificial light.
c. Separate counts shall be made on the number of beans which are defective in that they are internally mouldy, slaty, insect-damaged/infested and germinated.

Where a batch of beans is defective in more than one respect, only defect shall be counted, and the defect to be counted shall be the defect which occurs first in the following list of defects presented in a decreasing order or gravity:

(a) mouldy beans;
(b) germinated beans;
(c) slaty beans; and
(d) insect damaged/infested beans.

4. Expression of result

The results for each kind of defect shall be expressed as a percentage of the number of beans examined.

Annex D

C. Procedures in Determining the Moisture Content

1. Principle

The determination of moisture content is carried out by the oven method. However, for quick certification purposes, the moisture content may be determined by the infra-red moisture meter or its equivalent.

2 Apparatus

Usual laboratory equipment not otherwise specified, and the following items:

i. Grinder, which permit the beans to be ground without heating.

ii. Ventilated oven, preferably fitted with a fan, capable of being maintained at $103 \pm 2\ ^0$.C.

iii. Dishes with lids, of corrosion-resistant metal or glass, with at least 35 cm^2 effective surface (for examples minimum diameter 70 mm) and 20 mm to 25 mm deep.

iv. Dessicator, containing an effective dessicant.

v. Analytical balance, capable of weighing to 1 mg.

3. Procedures

3.1 Preparation of sample

a. Take one of the sample quarters obtained by the method described in sub-section 4.2.2.

b. By successive reductions of the one quarter draw approximately 50 g of beans.

c. Grind the beans roughly so that the greatest dimension of the particles does not exceed 5 mm, while avoiding the formation of a paste

3.2 Test portion

a. Weigh the empty dish and its lid when dry, place in it quickly about 10 grams of ground beans prepared as described in No.1

b. Cover the dish with its lid and weigh to the nearest 1 mg.

c. Determination

Place the dish containing the test portion in the oven at 103 ± 2℃, *on its lid.* Keep it there for 16 ± 1 hour, taking care not to open the oven.

At the end of this period, remove the dish, cover it immediately with its lid and place it in the dessicator. After cooling to ambient temperature (30 min to 40 min approximately after placing in the dessicator), weigh it, still covered, to within 5 mg.

Note on procedure

The grinding and weighing operations for each determination should be carried out as rapidly as possible, and in any event within 5 min.

d. Calculation of results

The moisture content of the sample, expressed as percentage by mass, is equal to

$$(m1 - m2) \times \frac{100}{m1 - m0}$$

where,

$m0$ is the mass, in grammes, of the empty dish and its lid;
$m1$ is the mass, in grammes, of the dish and its lid and the test portion before oven drying;
$m2$ is the mass, in grammes, of the dish and its lid and the test portion after oven drying.

Annex E

D. Procedures in Determining Waste

1. Preparation of the sample

The sample obtained by the method described in sub-section **4.2.2.** shall be thoroughly mixed.

2. Preparation of the test portion

The thoroughly mixed sample shall be reduced by quartering or by means of a suitable dividing apparatus to about 1500 g per quarter.

3. Determing the waste

a. Weigh the quartered sample.

b. Separate the waste and weigh it.

4. Expression of result

$$\text{Waste (\%)} = \frac{\text{Weight of the waste X 100}}{\text{Total weight of sample}}$$

Department of Agriculture
Bureau of Agriculture and Fisheries Product Standards
Technical Sub-Committee on Crops and
Cacao Industry Development Sub-Committee
of National Agriculture and Fishery Council

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1 **Dr. Elda B. Esguerra**
Postharvest Horticulture Training and Research Center, UP Los Baños

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Department of Agriculture

5 **Ms. Tonette DB. Manlapaz**
National Agricultue and Fishery Council
Department of Agriculture

6 **Mr. Joel Lumagbas**
NESTLE, Inc.

7 **Director Clarito Barron**
Bureau of Plant and Industry
San Andres, Malate, Manila

8 **Mr. Edward David**
Philfoodex/CocoaPhil.

9 **Ms. Josephine Ramos**
CocoaPhil.

10 **Mr. Dandy Calvez**
Trader's Trust

11 **Dr. Severino S. Magat**
Philippine Coconut Authority
Elliptical Road, Diliman,
Quezon City

Experts Involved:

12 **Dr. Rodel G. Maghirang**
Institute of Plant Breeding
UP at Los Baños

13 **Dr. Pablito P. Pamplona**
University of Southern
Mindanao
Kabacan, Cotabato City

Secretariat on Crops

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Bureau of Agriculture and Fisheries Product Standards

添付資料7.11

トレーディングセンターを軸にした
フィリピン青果物流通改善への試み

児玉広志著

論説

トレーディングセンターを軸にしたフィリピン青果物流通改善への試み

児玉広志

フィリピンの青果物流通における問題点

フィリピンの青果物は多くの人の手を通って生産者から消費者に届く。通常、まず庭先集荷業者が農家の庭先で生産物を買い取る。これらの業者は町の中心部で次の業者にそれらを引き渡す。その後も色々な業者の手を経た上で消費者に渡る。通常青果物は町の公設売り場で売られているが、生産者から消費者に青果物が渡るまでに6～8の業者が存在している。この間に生産物の価格はどんどん上昇する。近年フィリピンにも出現している大手スーパーも品揃えをパッカーと呼ばれる出入り業者に依存しており、パッカーも農家から直接青果物を買うことがほとんどないため、スーパーに並んでいる青果物も流通コストが削減されていないようだ。青果物の消費者への販売価格に占める農家の手取り額は16～22%しかない、という報告もある。[1]

また、庭先集荷業者は農家に対して強く、市場の価格も他の業者の提示価格も知らない農家は腐りやすい青果物を手元に置くリスクを避けるために業者の言い値で売ってしまうといわれている。また、業者が種、肥料、農薬等を農家にツケで販売していて、結果として農家はその業者に収穫物を売らなければならないことも多い。[2]

フィリピンの青果物流通は他の問題も抱えている。まず、多くの場合、コールドチェーンが確立しておらず、結果として多くの青果物が流通途上で廃棄されている。[3]さらに、公設市場で売られている青果物には商品情報が付加されていない。また、スーパーに青果物を納めるパッカーは集荷場で青果物をパックし直して売るが、この段階でパックにはパッカーのマークが張られ、何処で誰がどのような方法で栽培したか等の商品情報は消えてしまう。つまり、売り場の青果物には「顔」がない。

トレーディングセンターを軸にした解決策
―モデルセンターでの取組

農家に庭先集荷業者以外の売り先を与えるために、フィリピン農業省は農産物の産地にトレーディングセンターを建設している。従

KODAMA Hiroshi: Construction of Trading Centers in Production Areas in the Philippines for Improving Vegetable/Fruit Supply Chain

[1] バチャイの価格に関する報告。(UNDP Enhancing the capacity for the effective management of ODA, 2005)。なお、日本の青果物については、その小売価格に占める生産者受取価格の割合が44.7%であるという報告がある（農林水産省、平成21年度食品流通段階別価格形成調査「青果物経費調査」結果、2011）。

[2] トレーダーが農家に肥料等の必要な物資をすべて提供する代わりに農家が収穫物をそのトレーダーに出荷するシステム。トレーダーは販売価格から肥料代等の経費を差し引き、利益を農家と折半する（著者聞き取り）。

[3] 著者が2011年7月にベンゲット産のキャベツについて行った聞き取りでは、流通過程の皮むき等で少なくとも20%が廃棄されている。

写真１　サリアヤのバグサカンセンターの外観

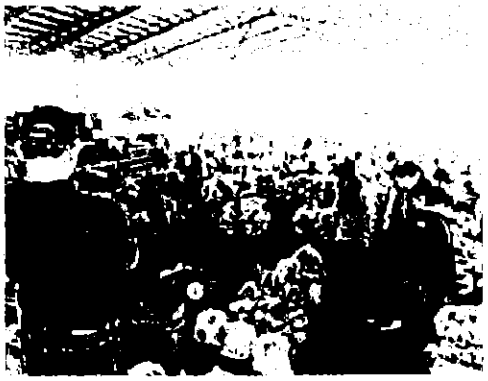

写真２　バグサカンセンターの内部

来のセンターは、通常地方自治体が管理していて、多くの仲買人を入場させ、彼らに商売を行わせるというスタイルで、農家が収穫物をセンターまで運べば複数の業者と商取引ができる。これらのセンターの中で今、ケソン州サリアヤ町にあるトレーディングセンターが注目されている。著者は2011年7月に当センターを訪問し、注目を集める理由を探ってきたので、本稿でその概要を紹介する。（写真１－３）

このセンターは2006年に建設され、2007年から会社形態の組織によって運営されている。このセンターはコンクリートの土間の上に屋根を載せた作りで、壁面はない。2500㎡ほどの建物の中には荷捌き所の他に運営会社のオフィス、種・肥料等を売る店、車の通路等がある。このセンターは年中無休で24時間営業しており、平均すると毎日70t程度の青果物（主に野菜）の取り扱いがある。

このセンターでは仲買人に商売を行わせるという従来の運営も行っているが、その他に250人程度の農家（約半数はサリアヤ町内、その他はケソン州内の他町に在住。）の青果物を次のように販売している。まず、農家が

写真３　農産物を運び出す仲買人。この写真にあるような小さな車で買い付けに来る仲買人も多い。

青果物を品目ごとに10kg単位にまとめた袋に入れてセンターに持ち込む。持ち込まれた農産物からは一律kgあたり15セント（日本円にして30銭程度）の手数料を取る。なお、ここでは持ち込まれた品物はグッド（優）、セミグッド（良）、リジェクト（直訳すると「却下されたもの」という意味だが、リジェクトとされた物でも安く売っているので、「可」または「その他」と訳した方が適当。）に分けられている。農家は検査員から受領証を貰った後に家に帰る。

このセンターの15セント/kgという手数料は、筆者が訪問した時は、kg当りの取引価格が最も高いピーマンで90ペソ、最も安いタロイモで8ペソだったので、売り上げのおよそ0.2～2%を占める。これは日本の卸売市場で野菜から一般的に徴収されている販売価格の8.5%[1](野菜)という手数料と比較すると非常に安い。また、フィリピンでは通常、仲買人は野菜1kgにつき1ペソの利益を得る[1]ので、このセンターを利用して農家が青果物を売ると、農家が市場にそれらを持ってきて仲買人に売る場合と比べると中間の流通コストが1kgあたり0.85ペソ、農家が産先集荷業者に青果物を売り、その業者が市場の仲買人を通じてそれらを売る場合と比べると1.85ペソ削減されることになる。

運営会社が受け取った青果物は業者に売られる。このセンターに登録しているバイヤーは200人程度であるが、その80%がサリアヤ近辺からで、大消費地のマニラ[2]から来ているバイヤーは20%程度である。ちなみに多くのバイヤーは乗用車や1～2t程度の貨物車で買い付けにくる。販売単価は運営会社がバイヤーの希望価格、マニラ等の市場の価格を参考に毎日、品目・規格ごとに決めている。センターが農家を代表してバイヤーと価格交渉をするため、農家は価格交渉に時間を取られる必要がない。さらに、農家が個々に交渉する場合と比べて高い価格で収穫物を売ることが出来ると考えられる。運営責任者は「我々の提示する価格は他のどの業者の提示する価格よりも高い」と自慢していた。野菜を購入したバイヤーは原則としてその場で運営会社に現金で代金を支払い、その金は翌日に農家に支払われる。

なお、フィリピンの低地は一年中暑い[2]が、このセンターの集荷トラックには冷蔵機能はない。センターにも冷蔵トラック以外に冷蔵施設がなく、バイヤーも常温トラックで購入した青果物を運ぶので、入荷した青果物を如何に早く売ってしまうかが一番の課題である。当日売れ残った農産物はセンターが保有する冷蔵トラックに入れたりして保存するとともに、劣化したものについては出荷農家の了承を得て値段を下げて売る。このようにして売れ残りを出さないようにし、結果的にほとんどの青果物を入荷したその日または翌日に売り切っている。

さらに、運営会社は近郊の農家へのサービスとして、毎日トラックを走らせて希望する農家を回り、青果物を集荷しており、輸送手段のない農家でもセンターに出荷できるようにしている。なお、このサービスに対する報酬は今のところ取っていない。

このセンターは周辺農家の野菜栽培への支援も行っている。まず種、肥料、農薬を無利子融資付で販売している。このため、農家が種等の購入をバイヤーに頼る必要もなくなり、そのバイヤーに収穫物を売らなければならないという状況から脱却できる。また、このセンターは農業普及員を1人雇っていて、営農指導を行っているが、この中には安定供給のための農家への野菜の植え付け時期の指導も含まれている。

このセンターによって得られると考えられる農家の利益をまとめると、①農家が特定のバイヤーに収穫物を売る必要がなくなる、②農家が価格交渉に時間を取られる必要がなく

[1] 著者聞き取り。
[2] フィリピンの首都マニラは最高気温の月平均が1年を通して30℃以上である(http://www.climatetemp.info/philippines/manila-luzon.html)。

なる、③生産地での流通コストの削減を通じて農家の収入が増える、④作付けの計画化によって価格の乱高下の幅が少なくなる、になる。さらに、このセンターは運営の経済的持続性に関する問題もクリアしているようだ。[6]

残された問題

このセンターは上手く稼働しているが、それが必ずしもトレーディングセンター導入事業の成功を意味するものではない。これまで多くのセンターが建設されたものの稼働していないセンターの話もいくつか聞いている。その原因としてセンターが最適地に建設されなかった、当初の運営主体が運営権を返上し、その後新しい運営主体が決まらない等があるとのこと。また、従来のセンターは多くの仲買人がそこを利用して商売を行うというスタイルなので、流通の簡素化への貢献は見られない。

フィリピン農業省はケソン州のセンターを1つのモデルとして、他の地域でもトレーディングセンターを軸として流通を簡素化しようとしている。しかしながら、ケソン州のセンターは産地での流通コストの削減には役立っているものの、センターから消費地までの間の流通コスト削減への貢献は見られない。この他にも、店頭に並んでいる青果物の産地情報がない等の問題が残っており、これらの問題は単にケソン州タイプのセンターを各地に建設するだけで解決するものではなく、別途手当てが必要である。著者もJICA専門家としてこれらの問題の解決に多少なりとも貢献していく所存である。

(JICA専門家／フィリピン農業省勤務)

[6]会計担当者からの情報に基づいた計算は次のようになる。今後も毎日平均70tの青果物が集まるとすると、手数料によって年間で380万ペソ（7万kg × 0.15ペソ/kg × 365日）程度の収入が得られる。センター運営のための通常経費は年間300万ペソ程度なので、将来の再建のために回せる分が年間80万ペソとなる。今同じ規模の建物を建設すると1200万ペソ程度かかるので、再建に必要な資金は15年で積み立てられることになる。20年で施設を建て替えると仮定すると、それまでに十分な資金が積み立てられることになる。なお、このセンターは最初の4年間は集荷量を増やすことを優先させたため、手数料は徴収していなかった。