PHILIPPINE NATIONAL STANDARD

PNS/BAFS 194:2017

General Standard for Contaminants and Toxins in Food and Feed

BUREAU OF AGRICULTURE AND FISHERIES STANDARDS
BPI Compound Visayas Avenue, Diliman, Quezon City 1101 Philippines
Trunkline: **(632) 928-8741 to 64 loc. 3301-3319**
E-mail: **info.dabafs@gmail.com**
Website: **www.bafs.da.gov.ph**

Contents

Tables

Foreword

The Philippine National Standard (PNS) General Standard for Contaminants and Toxins in Food and Feed (GSCTFF) is a modified adoption of the CODEX STAN 193-1995 (amended 2016) General Standard for Contaminants and Toxins in Food and Feed. With the initiative of the Bureau of Agriculture and Fisheries Standards (BAFS), a Technical Working Group (TWG) was created and authorized under Special Order No. 316 Series of 2016. It was composed of the following regulatory agencies: Bureau of Animal Industry (BAI), Bureau of Fisheries and Aquatic Resources (BFAR), Bureau of Plant Industry (BPI), Fertilizer and Pesticide Authority (FPA), National Food Authority – Food Development Center (NFA-FDC), Philippine Coconut Authority (PCA), and Sugar Regulatory Administration (SRA). This Standard intends to provide guidance on the maximum levels of contaminants and natural toxicants in food and feed applicable in trade. It includes sections on the maximum and guideline levels for contaminants and toxins per commodity and the methods of analysis and sampling.

This Standard has been adopted with modifications in order to provide a structure consistent with that of other PNS. Certain modifications have also been made due to national legal requirements and the particular needs of the Philippine industry. For commodities not included in CODEX STAN 193-1995, the guidelines were adopted from the levels regulated by the competent authority. This Standard only applies to primary and postharvest products, and not to processed products.

This document was drafted in accordance with the editorial rules of the BPS Directives, Part 3.

1 Scope

This Standard contains the main principles in dealing with the contaminants and toxins in food and feed and the lists of maximum levels which are recommended by the Codex Alimentarius and adopted by the Philippines to be applied in all primary and postharvest agriculture and fishery commodities applicable in trade.

This Standard includes only maximum levels of contaminants and natural toxins in feed in cases where the contaminant in feed can be transferred to food of animal origin and can be relevant for public health.

2 Normative references

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

CODEX STAN 193-1995 (amended 2016), *General Standard for Contaminants and Toxins in Food and Feed*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1
acute reference dose
ARfD
estimate of the amount of a substance in food and/or drinking-water, normally expressed on a body-weight basis, which can be ingested in a period of 24 hours or less without appreciable health risk to the consumer on the basis of all known facts at the time of the evaluation

3.2
benchmark dose
dose of a substance associated with a specified low incidence of risk, generally in the range of 1-10%, of a health effect; the dose associated with a specified measure or change of a biological effect

3.3
benchmark dose lower confidence limit
BMDL
lower boundary of the confidence interval on the benchmark dose. The BDML accounts for the uncertainty in the estimate of the dose-response that is due to characteristics of the experimental design, such as sample size. The BMDL can be used as the point of departure for derivation of a health-based guidance value or a margin of exposure

3.4
contaminant
Any substance not intentionally added to food, which is present in such food as a result of the production (including operations carried out in crop husbandry, animal husbandry and veterinary medicine), manufacture, processing, preparation, treatment, packing, packaging, transport or holding of such food or as a result of environmental contamination. The term does not include insect fragments, rodent hairs and other extraneous matter

NOTE 1 The definition of a contaminant implicitly includes naturally occurring toxicants including toxic metabolites of certain microfungi that are not intentionally added to food and feed (mycotoxins).

NOTE 2 Toxins that are produced by algae and that may be accumulated in edible aquatic organisms such as shellfish (phycotoxins) are included in this Standard.

NOTE 3 Endogenous natural toxicants (e.g. solanine in potatoes) that are implicit constituents of food and feed resulting from a genus, species or strain ordinarily producing hazardous levels of a toxic metabolite(s), i.e. phytotoxins, are not generally considered within the scope of the Standard.

3.5
guideline level
GL
maximum level of a substance in a food or feed commodity which is recommended by the Codex Alimentarius Commission to be acceptable for commodities moving in international trade. When the GL is exceeded, the government should decide whether and under what circumstances the food should be distributed within their territory or jurisdiction

3.6
maximum level
ML
maximum concentration of that substance recommended by the Codex Alimentarius Commission to be legally permitted in that commodity

3.7
Provisional Maximum Tolerable Daily Intake
PMTDI
endpoint used for contaminants with no cumulative properties. Its value represents permissible human exposure as a result of the natural occurrence of the substance in food and in drinking-water. In the case of trace elements that are both essential nutrients and unavoidable constituents of food, a range is expressed, the lower value representing the level of essentiality and the upper value the PMTDI

3.8
Provisional Tolerable Weekly Intake
PTWI
endpoint used for food contaminants such as heavy metals with cumulative properties. Its value represents permissible human weekly exposure to those contaminants unavoidably associated with the consumption of otherwise wholesome and nutritious foods

3.9
Provisional Tolerable Monthly Intake
PTMI
endpoint used for a food contaminant with cumulative properties that has a very long half-life in the human body. Its value represents permissible human monthly exposure to a contaminant unavoidably associated with otherwise wholesome and nutritious foods

3.10
ready to eat
not intended to undergo an additional processing/treatment that has proven to reduce levels of aflatoxins before being used as ingredient in foodstuffs, otherwise processed or offered for human consumption

4 Maximum and guideline levels for contaminants and toxins in food and feed

4.1 Contaminants and toxins in food and feed

Table 1 – Index of contaminants and toxins in food and feed

Contaminants	Toxicological guidance value	Contaminant definition	Synonyms
Aflatoxin, Total	Carcinogenic potency estimates for aflatoxins B, G, M (1997, Intake should be reduced to levels as low as reasonably possible)	Aflatoxins total (B1 + B2 + G1 + G2)	Abbreviations, AFB, AFG, with numbers, to designate specific compounds
Aflatoxin M_1	Cancer potency estimates at specified residue levels (2001, Using worst-case assumptions, the additional risks for liver cancer predicted with use of proposed maximum levels of aflatoxin M_1 of 0.05 and 0.5 µg/kg are very small. The potency of aflatoxin M_1 appears to be so low in HBsAg-individuals that a	Aflatoxin M_1	AFM_1

Table 1 *(continued)*

Contaminants	Toxicological guidance value	Contaminant definition	Synonyms
	carcinogenic effect of M_1 intake in those who consume large quantities of milk and milk products in comparison with non-consumers of these products would be impossible to demonstrate. Hepatitis B virus carriers might benefit from a reduction in the aflatoxin concentration in their diet, and the reduction might also offer some protection in hepatitis C virus carriers).		
Deoxynivalenol (DON)	Group PMTDI 0.001 mg/kg bw (2010, for DON and its acetylated derivates) Group ARfD 0.008 mg/kg bw (2010, for DON and its acetylated derivates)	Deoxynivalenol	Vomitoxin; Abbreviation, DON
Fumonisins (B_1+ B_2)	PMTDI 0.002 mg/kg bw (2001, 2011)	Fumonisins (B_1+ B_2)	Several related compounds have been described, notably fumonisin B_1, B_2 and B_3 (abbreviation: FB_1 etc.)
Ochratoxin A	PTWI 0.0001 mg/kg bw (2001)	Ochratoxin A	(The term "ochratoxins" includes a number of related mycotoxins (A, B, C and their esters and metabolites), the most important one being ochratoxin A)
Arsenic	At the 72nd meeting of Joint FAO/WHO Expert Committee on Food Additives (JECFA) (2010), the inorganic arsenic	Arsenic: total (As-tot) when not otherwise mentioned; inorganic arsenic	As

Table 1 *(continued)*

Contaminants	Toxicological guidance value	Contaminant definition	Synonyms
	lower limit on the benchmark dose for a 0.5% increased incidence of lung cancer (BMDL 0.5) was determined from epidemiological studies to be 3.0 µg/kg bw/day (2–7 µg/kg bw/day based on the range of estimated total dietary exposure) using a range of assumptions to estimate total dietary exposure to inorganic arsenic from drinking-water and food. The JECFA noted that the provisional tolerable weekly intake (PTWI) of 15 µg/kg bw (equivalent to 2.1 µg/kg bw/day) is in the region of the BMDL 0.5 and therefore was no longer appropriate. The JECFA withdrew the previous PTWI.	(As-in); or other specification	
Cadmium	In view of the long half-life of cadmium, daily ingestion in food has a small or even a negligible effect on overall exposure. In order to assess long- or short-term risks to health due to cadmium exposure, dietary intake should be assessed over months, and tolerable intake should be assessed over a period of at least 1 month. To encourage this view, at the 73rd meeting (2010) the JECFA decided to express the tolerable intake as a monthly value in the form of a provisional tolerable monthly intake (PTMI) and	Cadmium, total	Cd

Table 1 *(continued)*

Contaminants	Toxicological guidance value	Contaminant definition	Synonyms
	established a PTMI of 25 µg/kg bw.		
Lead	Based on the dose–response analyses, at the 73rd meeting (2010), JECFA estimated that the previously established PTWI of 25 µg/kg bw is associated with a decrease of at least 3 intelligence quotient (IQ) points in children and an increase in systolic blood pressure of approximately 3 mmHg (0.4 kPa) in adults. While such effects may be insignificant at the individual level, these changes are important when viewed as a shift in the distribution of IQ or blood pressure within a population. The JECFA therefore concluded that the PTWI could no longer be considered health protective and withdrew it.	Lead, total	Pb
Methylmercury	PTWI 0.0016 mg/kg bw (2003, confirmed in 2006)	Methylmercury	
Hydrocyanic Acid	ARfD 0.09 mg/kg bw as cyanide (2011, this cyanide-equivalent ARfD applies only to foods containing cyanogenic glycosides as the main source of cyanide) PMTDI 0.02 mg/kg bw as cyanide (2011)		HCN

4.2 Maximum level (ML) of contaminants and toxins per commodity

Table 2 – Maximum level (ML) of aflatoxin per commodity

Commodity/ Product Name	Maximum Level (ML) µg/kg	Portion of the Commodity/ Product to which the ML applies	Notes/Remarks	Reference
Almonds	10	Whole commodity after removal of shell.	The ML applies to almonds "ready-to-eat".	Codex Stan 193-1995
Almonds	15	Whole commodity after removal of shell.	The ML applies to almonds intended for further processing.	Codex Stan 193-1995
Brazil nuts	10	Whole commodity	The ML applies to shelled Brazil nuts "ready-to-eat".	Codex Stan 193-1995
Brazil nuts	15	Whole commodity	The ML applies to shelled Brazil nuts intended for further processing.	Codex Stan 193-1995
Hazelnuts	10	Whole commodity after removal of shell.	The ML applies to hazelnuts, also known as filberts, "ready-to-eat".	Codex Stan 193-1995
Hazelnuts	15	Whole commodity after removal of shell.	The ML applies to hazelnuts, also known as filberts, intended for further processing.	Codex Stan 193-1995
Peanuts	15	Unless specified, seed or kernels, after removal of shell or husk.	The ML applies for peanuts, also known as groundnuts, intended for further processing.	Codex Stan 193-1995
Pistachios	10	Whole commodity after removal of shell.	The ML applies to pistachios "ready-to-eat".	Codex Stan 193-1995
Pistachios	15	Whole	The ML applies to	Codex Stan 193-

Table 2 *(continued)*

Commodity/ Product Name	Maximum Level (ML) µg/kg	Portion of the Commodity/ Product to which the ML applies	Notes/Remarks	Reference
		commodity after removal of shell.	pistachios intended for further processing.	1995
Dried figs	10	Whole commodity	The ML applies to dried figs "ready-to-eat".	Codex Stan 193-1995
Coconut meal	20	Whole commodity after removal of shell and paring.	The ML applies to dried coconut meal.	EU Directive 2002/32/EC
Dried coconut meat (copra)	20	Whole commodity	The ML applies to dried coconut meat, for further processing to coconut oil.	PNS/BAFPS 43:2009; PCA AO No. 02 Series of 2003
Corn	50	Whole commodity	The ML applies to corn used as feed ingredient.	PHILSAN Feed Reference Standards (2010)
Banana meal, peeled	50	Whole commodity	The ML applies to peeled banana meal used as feed ingredient.	PHILSAN Feed Reference Standards (2010)
Banana meal, unpeeled	50	Whole commodity	The ML applies to unpeeled banana meal used as feed ingredient.	PHILSAN Feed Reference Standards (2010)
Barley, hulled	50	Whole commodity	The ML applies to hulled banana meal used as feed ingredient.	PHILSAN Feed Reference Standards (2010)
Cassava meal, peeled	50	Whole commodity	The ML applies to peeled cassava meal used as feed ingredient.	PHILSAN Feed Reference Standards (2010)
Cassava meal, unpeeled	50	Whole commodity	The ML applies to unpeeled cassava meal used as feed ingredient.	PHILSAN Feed Reference Standards (2010)

Table 2 *(continued)*

Commodity/ Product Name	Maximum Level (ML) µg/kg	Portion of the Commodity/ Product to which the ML applies	Notes/Remarks	Reference
Oats	50	Whole commodity	The ML applies to oats used as feed ingredient.	PHILSAN Feed Reference Standards (2010)
Rice, milled	50	Whole commodity	The ML applies to milled rice used as feed ingredient.	PHILSAN Feed Reference Standards (2010)
Rice, paddy or palay	50	Whole commodity	The ML applies to rice used as feed ingredient.	PHILSAN Feed Reference Standards (2010)
Sorghum	50	Whole commodity	The ML applies to sorghum used as feed ingredient.	PHILSAN Feed Reference Standards (2010)

Table 3 – Maximum level (ML) of aflatoxin M_1 per commodity

Commodity/ Product Name	Maximum Level (ML) µg/kg	Portion of the Commodity/Product to which the ML applies	Notes/Remarks
Milk	0.5	Whole commodity	Milk is the normal mammary secretion of milking animals obtained from one or more milkings without either addition to it or extraction from it, intended for consumption as liquid milk or for further processing. A concentration factor applies to partially or wholly dehydrated milks.

Table 4 – Maximum level (ML) of deoxynivalenol (DON) per commodity

Commodity/ Product Name	Maximum Level (ML) µg/kg	Portion of the Commodity/ Product to which the ML applies	Notes/Remarks
Meal derived from wheat or maize	1,000		
Cereal grains (wheat, maize and barley) destined for further processing	2,000	"Destined for further processing" means intended to undergo an additional processing/treatment that has proven to reduce levels of DON before being used as an ingredient in foodstuffs, otherwise processed or offered for human consumption.	Cereal grains (wheat, maize and barley) destined for further processing

Table 5 – Maximum level (ML) of fumonisin (B_1 + B_2) per commodity

Commodity/ Product Name	Maximum Level (ML) µg/kg	Portion of the Commodity/ Product to which the ML applies	Notes/Remarks
Raw maize grain	4,000	Whole commodity	
Maize meal	2,000	Whole commodity	

Table 6 – Maximum level (ML) of ochratoxin A per commodity

Commodity/ Product Name	Maximum Level (ML) µg/kg	Portion of the Commodity/ Product to which the ML applies	Notes/Remarks
Wheat	5	Whole commodity	The ML applies to raw common wheat, raw durum wheat, raw spelt and raw emmer.
Barley	5	Whole commodity	The ML applies to raw barley.
Rye	5	Whole commodity	The ML applies to raw rye.

Table 7– Maximum level (ML) of arsenic per commodity

Commodity/ Product Name	Maximum Level (ML) mg/kg	Portion of the Commodity/ Product to which the ML applies	Notes/Remarks
Rice, husked	0.35	Whole commodity	The ML is for inorganic arsenic (As-in). Application of the ML for As-in can be done by analyzing total arsenic (As-tot) in rice. If the As-tot concentration is below the ML for As-in, no further testing is required and the sample is determined to be compliant with the ML. If the As-tot concentration is above the ML for As-in, follow-up testing shall be conducted to determine if the As-in concentration is above the ML.
Rice, polished	0.2	Whole commodity	The ML is for inorganic arsenic (As-in). Application of the ML for As-in can be done by analyzing total arsenic (As-tot) in rice. If the As-tot concentration is below the ML for As-in, no further testing is required and the sample is determined to be compliant with the ML. If the As-tot concentration is above the ML for As-in, follow-up testing shall be conducted to determine if the As-in concentration is above the ML.

Table 8 – Maximum level (ML) of cadmium per commodity

Commodity/ Product Name	Maximum Level (ML) mg/kg	Portion of the Commodity/ Product to which the ML applies	Notes/Remarks
Brassica vegetables	0.05	Head cabbages and kohlrabi: whole commodity as marketed, after removal of obviously decomposed or withered leaves.	The ML does not apply to Brassica leafy vegetables.

Table 8 *(continued)*

Commodity/ Product Name	Maximum Level (ML) mg/kg	Portion of the Commodity/ Product to which the ML applies	Notes/Remarks
		Cauliflower and broccoli: flower heads (immature inflorescence only). Brussels sprouts: "buttons" only.	
Bulb vegetables	0.05	Bulb/dry onions and garlic: whole commodity after removal of roots and adhering soil and whatever parchment skin is easily detached.	
Fruiting vegetables	0.05	Whole commodity after removal of stems. Sweet corn and fresh corn: kernels plus cob without husk.	The ML does not apply to tomatoes and edible fungi.
Leafy vegetables	0.2	Whole commodity as usually marketed, after removal of obviously decomposed or withered leaves.	The ML also applies to Brassica leafy vegetables.
Legume vegetables	0.1	Whole commodity as consumed. The succulent forms may be consumed as whole pods or as the shelled product.	
Pulses	0.1	Whole commodity	The ML does not apply to soya bean (dry) .
Root and tuber vegetables	0.1	Whole commodity after removing tops. Remove adhering soil (e.g. by rinsing in running water or by gentle brushing of the dry commodity). Potato: peeled potato.	The ML does not apply to celeriac.
Stalk and stem	0.1	Whole commodity as	

Table 8 *(continued)*

Commodity/ Product Name	Maximum Level (ML) mg/kg	Portion of the Commodity/ Product to which the ML applies	Notes/Remarks
vegetables		marketed after removal of obviously decomposed or withered leaves. Rhubarb: leaf stems only. Globe artichoke: flower head only. Celery and asparagus: remove adhering soil	
Cereal grains	0.1	Whole commodity	The ML does not apply to buckwheat, cañihua, quinoa, wheat and rice.
Rice, polished	0.4	Whole commodity	
Wheat	0.2	Whole commodity	The ML applies to common wheat, durum wheat, spelt and emmer.
Marine bivalve molluscs	2	Whole commodity after removal of shell.	The ML applies to clams, cockles and mussels but not to oysters and scallops.
Cephalopods	2	Whole commodity after removal of shell.	The ML applies to cuttlefishes, octopuses and squids without viscera

Table 9 - Maximum level (ML) of lead per commodity

Commodity/ Product Name	Maximum Level (ML) mg/kg	Portion of the Commodity/ Product to which the ML applies	Notes/Remarks
Berries and other small fruits	0.1	Whole commodity after removal of caps and stems.	The ML does not apply to cranberry, currant and elderberry.
Cranberry	0.2	Whole commodity after removal of caps and stems.	
Currants	0.2	Fruit with stem.	
Elderberry	0.2	Whole commodity after removal of caps and stems.	
Fruits	0.1	Whole commodity. Berries and other small fruits: whole commodity after	The ML does not apply to cranberry, currant and elderberry.

Table 9 *(continued)*

Commodity/ Product Name	Maximum Level (ML) mg/kg	Portion of the Commodity/ Product to which the ML applies	Notes/Remarks
		removal of caps and stems. Pome fruits: whole commodity after removal of stems. Stone fruits, dates and olives: whole commodity after removal of stems and stones, but the level calculated and expressed on the whole commodity without stem. Pineapple: whole commodity after removal of crown. Avocado, mangos and similar fruit with hard seeds: whole commodity after removal of stone but calculated on whole fruit.	
Brassica vegetables	0.1	Head cabbages and kohlrabi: whole commodity as marketed, after removal of obviously decomposed or withered leaves. Cauliflower and broccoli: flower heads (immature inflorescence only). Brussels sprouts: "buttons" only.	The ML does not apply to kale and leafy Brassica vegetables.
Bulb vegetables	0.1	Bulb/dry onions and garlic: whole commodity after removal of roots and adhering soil and whatever parchment	

Table 9 *(continued)*

Commodity/ Product Name	Maximum Level (ML) mg/kg	Portion of the Commodity/ Product to which the ML applies	Notes/Remarks
		skin is easily detached.	
Fruiting vegetables	0.05	Whole commodity after removal of stems Sweet corn and fresh corn: kernels plus cob without husk.	The ML does not apply to fungi and mushrooms.
Leafy vegetables	0.3	Whole commodity as usually marketed, after removal of obviously decomposed or withered leaves.	The ML applies to leafy Brassica vegetables but does not apply to spinach.
Legume vegetables	0.1	Whole commodity as consumed. The succulent forms may be consumed as whole pods or as the shelled product.	
Pulses	0.2	Whole commodity	
Root and tuber vegetables	0.1	Whole commodity after removing tops. Remove adhering soil (e.g. by rinsing in running water or by gentle brushing of the dry commodity). Potato: peeled potato.	
Cereal grains	0.2	Whole commodity	The ML does not apply to buckwheat cañihua and quinoa.
Meat of cattle, pigs and sheep	0.1	Whole commodity (without bones)	The ML also applies to fat from the meat.
Meat and fat of poultry	0.1	Whole commodity (without bones)	
Cattle, edible offal of	0.5	Whole commodity	
Pig, edible offal of	0.5	Whole commodity	
Poultry, edible offal of	0.5	Whole commodity	
Milk	0.02	Whole commodity	Milk is the normal mammary secretion of milking animals obtained from one or more

Table 9 *(continued)*

Commodity/ Product Name	Maximum Level (ML) mg/kg	Portion of the Commodity/ Product to which the ML applies	Notes/Remarks
			milkings without either addition to it or extraction from it, intended for consumption as liquid milk or for further processing. A concentration factor applies to partially or wholly dehydrated milks
Fish	0.3	Whole commodity (in general after removing the digestive tract)	

Table 10 – Maximum level (ML) of methylmercury per commodity

Commodity/ Product Name	Maximum Level (ML) mg/kg	Portion of the Commodity/ Product to which the ML applies	Notes/Remarks
Fish	0.5	Whole commodity (in general after removing the digestive tract)	The GL does not apply to predatory fish. The guideline levels are intended for methylmercury in fresh or processed fish and fish products.
Predatory fish	1	Whole commodity (in general after removing the digestive tract)	Predatory fish such as shark, swordfish, tuna, pike and others. The guideline levels are intended for methylmercury in fresh or processed fish and fish products.

Table 11 – Maximum level (ML) of hydrocyanic acid per commodity

Commodity/ Product Name	Maximum Level (ML) mg/kg	Portion of the Commodity/Product to which the ML applies	Notes/Remarks
Gari	2	Whole commodity	The ML is expressed as free hydrocyanic acid.

5 Methods of analysis and sampling

The methods of analysis and sampling of contaminants and toxins stated in this Standard per commodity should conform with the provisions recommended by the Codex Alimentarius Commission (CAC) as stated in CODEX STAN 193-1995: *Codex General Standard for Contaminants and Toxins in Food and Feed* or the procedures applicable to the competent authority.

Bibliography

European Union (EU). 2003. *Commission Directive 2003/100/EC of 31 October 2003 amending Annex I to Directive 2002/32/EC of the European Parliament and of the Council on undesirable substances in animal feed*. Official Journal of the European Union.

European Union (EU). 2002. *Directive 2002/32/EC of the European Parliament and of the Council of 7 May 2002 on undesirable substances in animal feed*. Official Journal of the European Communities.

Philippine Coconut Authority (PCA). Administrative Order No. 02 Series of 2003. *Implementing Rules and Regulations of the Revised Price Adjustment Scale for Moisture Content in Copra.*

Philippine Society of Animal Nutritionists (PHILSAN). 2010. *Feed Reference Standards, 4th Edition*. Laguna, Philippines: Society of Animal Nutritionists.

PNS/BAFPS 43:2009. Industrial crops – Coconut (copra).

Republic of the Philippines
Department of Agriculture
Bureau of Agriculture and Fisheries Standards

Technical Working Group for the Development of the Philippine National Standard (PNS) General Standard for Contaminants and Toxins in Food and Feed

Co-Chairperson:

Ms. Maria Theresa C. Corpuz
Bureau of Plant Industry

Ms. Marilou Esterlina D. Arifalo
Bureau of Animal Industry

Members:

Ms. Mercedita S. Urrutia
Bureau of Animal Industry

Mr. Darrell D.C. Benedicto
Bureau of Plant Industry

Ms. Simeona E. Regidor
Bureau of Fisheries and Aquatic Resources

Mr. Joshua S. Lomuntad
National Dairy Authority

Dr. Jocelyn M. Sales
National Food Authority – Food Development Center

Ms. Luz D. Padilla
National Food Authority – Food Development Center

Dr. January M. Nones
National Meat Inspection Service

Dr. Cheryl Rose B. Cayad-an
National Meat Inspection Service

Ms. Jean Nanette C. Sumagaysay
Sugar Regulatory Administration

Ms. Emelyn B. Manalo
Sugar Regulatory Administration

Ms. Celia M. Raquepo
Philippine Coconut Authority

Technical Secretariat:

Ms. Lara V. Navarro
Ms. Farlash D. Pancho
Ms. Francesca Louise P. Garcia
Bureau of Agriculture and Fisheries Standards