PHILIPPINE NATIONAL STANDARD

PNS/BAFS 159:2021
ICS 65.100.01

Pineapple – Product Standard – Maximum Residue Limits (MRLs) of Pesticides

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Foreword

In 2013, the Philippine Council for Agriculture and Fisheries - Committee on Fruits and Vegetables (PCAF- CFA) requested the establishment of a national standard on pesticide residues in banana, mango, and pineapple among other commodities. In 2015, Philippine National Standards (PNS) on the Maximum Residue Limits (MRLs) of Pesticides in Banana (PNS/BAFPS 161:2015), Mango (PNS/BAFPS 160:2015), and Pineapple (PNS/BAFPS 159:2015) were established.

In 2021, the PNS on MRLs in pineapple was reviewed and updated following the recent developments in the MRLs set by the Codex Alimentarius Commission, ASEAN, and other trading partner countries. A Technical Working Group (TWG) was created through Special Order No. 81, series of 2021, (Creation of Technical Working Groups TWG for the Development of PNS for Agriculture and Fishery Products, Machinery, and Equipment), which is composed of representatives from relevant government agencies, academe, and private sector. The draft standard was discussed in a series of TWG meetings and a stakeholder consultation (held September 30, 2021) conducted via online platforms. The TWG finalized the draft PNS before its endorsement to the DA Secretary for approval.

This PNS/BAFS edition includes the following significant changes compared to the previous PNS/BAFPS 159:2021:

1. Inclusion of the terms and definitions;
2. Amendment of the established MRLs for mango; and
3. Inclusion of the references for the sampling and analysis.

This Standard cancel and replaces PNS/BAFPS 159:2015 which has been technically amended. This document was drafted in accordance with the editorial rules of the BPS Directives Part 2.

Table of Contents

1 Scope

This standard covers the maximum residue limits established for pineapple *(Ananas comosus* Merr.*)*.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their contents constitute the requirements 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 Alimentarius Commission (CAC). (2018). Codex Alimentarius pesticide database. http://www.fao.org/fao-who-codexalimentarius/codex-texts/dbs/pestres/en/

European Commission (EC). (2021). EU pesticides database (v2.1). https://ec.europa.eu/food/plant/pesticides/eu-pesticides-database/mrls/?event=search.pr

Fertilizer and Pesticide Authority (FPA) – Department of Agriculture (DA). (2021). FPA registered MRLs for pineapple. Unpublished raw data.

The Japan Food Chemical Research Foundation. (2021). Maximum Residue Limits (MRLs) list of agricultural chemicals in foods. http://db.ffcr.or.jp/front/

3 Terms and definitions

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

3.1
active ingredient
part of the product that provides the pesticidal action

3.2
pineapple
edible fruit of tropical plant belonging to the genus *Ananas comosus* (L.) Merr., of the *Bromeliaceae* family. It is an herbaceous plant with long, narrow, stiff leaves usually armed with sharp spines along each margin except in a few varieties.

3.3
maximum residue limit (MRL)
maximum concentration of a pesticide residue (expressed as mg/kg) to be legally permitted in or on food commodities and animal feeds

3.4
pesticide
any substance or product, or mixture thereof, including active ingredients, adjuvants and pesticide formulations, intended to control, prevent, destroy, repel or mitigate directly or indirectly, any pest. The term shall be understood to include insecticide, fungicide, bactericide, nematicide, herbicide, molluscicide, avicide, rodenticide, plant regulator, defoliant, desiccant, and the like.

3.5
pesticide residue
any specified substance in food, agricultural commodities, or animal feed resulting from the use of a pesticide. The term includes any derivatives of a pesticide, such as conversion products, metabolites, reaction products, and impurities considered to be of toxicological significance.

4 Maximum Residue Limits (MRLs)

Table 1. MRL per active ingredient in pineapple

Active ingredient	MRL (mg/kg)
abamectin[2]	0.01
ametryn[3]	0.05
azoxystrobin[2]	0.40
bromacil[3]	0.10
buprofezin[2]	0.50
cadusafos[2]	0.05
captan[3]	0.70
chlorpyrifos[2]	0.40
chlothianidin[1]	0.01
diazinon[1]	0.80
dimethoate[2]	0.01
dimethomorph[2]	0.01
disulfoton[1]	0.10

Footnote:

1. Codex Alimentarius Commission (CAC). (2018). Codex Alimentarius pesticide database. http://www.fao.org/fao-who-codexalimentarius/codex-texts/dbs/pestres/en/

2. Fertilizer and Pesticide Authority (FPA) – Department of Agriculture (DA). (2021). FPA registered Maximum Residue Limits (MRLs) for pineapple. Unpublished raw data.

3. The Japan Food Chemical Research Foundation. (2021). Maximum Residue Limits (MRLs) list of agricultural chemicals in foods. http://db.ffcr.or.jp/front/

Active ingredient	MRL (mg/kg)
dithiocarbamates[3] (maneb, mancozeb, propineb, thiram, ziram, and zineb)	1.00
diuron[3]	0.80
ethephon[3]	2.00
ethyl formate[3]	1.00
fenamiphos[3]	0.05
fenazaquin[3]	0.01
fenitrothion[3]	0.05
fenpyroximate[3]	1.00
fluazifop-p-butyl[3]	0.05
fludioxonil[1]	5.00
fosetyl-aluminum[3]	80.00
imidacloprid[3]	0.01
linuron[3]	0.20
malathion[4]	8.00
mandipropamid[3]	0.02
metalaxyl-m[3]	1.00
milbemectin[3]	0.02
pirimiphos methyl[4]	0.10
prochloraz[3]	2.00
propiconazole[1]	2.00
pyraclostrobin[1]	0.30
pyriproxyfen[3]	0.01
quizalofop-p-ethyl[3]	0.10
quizalofop-p-butyl[2]	0.01
spirotetramat[3]	0.03
sulfentrazone[3]	0.02

Footnote:

1. Codex Alimentarius Commission (CAC). (2018). Codex Alimentarius pesticide database. http://www.fao.org/fao-who-codexalimentarius/codex-texts/dbs/pestres/en/

2. European Commission (EC). (2021). EU pesticides database (v2.1). https://ec.europa.eu/food/plant/pesticides/eu-pesticides-database/mrls/?event=search.pr

3. Fertilizer and Pesticide Authority (FPA) – Department of Agriculture (DA). (2021). FPA registered Maximum Residue Limits (MRLs) for pineapple. Unpublished raw data.

4. The Japan Food Chemical Research Foundation. (2021). Maximum Residue Limits (MRLs) list of agricultural chemicals in foods. http://db.ffcr.or.jp/front/

Active ingredient	MRL (mg/kg)
thiamethoxam[2]	0.01
thiophanate methyl[2]	5.00
triadimefon[2]	2.00
triadimenol[1]	5.00
triflumizole[2]	2.00
triforine[2]	2.00

Footnote:

1. Codex Alimentarius Commission (CAC). (2018). Codex Alimentarius pesticide database. http://www.fao.org/fao-who-codexalimentarius/codex-texts/dbs/pestres/en/

2. Fertilizer and Pesticide Authority (FPA) – Department of Agriculture (DA). (2021). FPA registered Maximum Residue Limits (MRLs) for pineapple. Unpublished raw data.

5 Sampling and analysis

Analytical and sampling methods to be used for ascertaining conformance to the established limits should be in accordance with relevant text by the CAC and/or the competent authority for the commodity, which include but are not limited to the following:

a) CAC. (1993). Recommended methods of analysis of pesticide residues (CXS 229-1993). https://www.nutfruit.org/files/llei/47671.pdf

b) CAC. (1999). Recommended methods of sampling for the determination of pesticide residues for compliance with MRLs (CAC GL 33-1999). http://www.fao.org/input/download/standards/361/CXG_033e.pdf

c) CAC. (2005). Guidelines on the use of Mass Spectrometry (MS) for identification, confirmation and quantitative determination of residues (CAC GL 56-2005). http://www.fao.org/input/download/standards/10185/cxg_056f.pdf

d) CAC. (2010). Guidelines on good laboratory practice in pesticide residue analysis (CAC GL 40-1993). http://www.fao.org/input/download/standards/378/cxg_040e.pdf

e) CAC. (2010). Portion of commodities to which maximum residues limits apply and which is analyzed (CAC GL 41-1993). http://www.fao.org/input/download/standards/43/CXG_041e.pdf

f) CAC. (2017). Guidelines on performance criteria for methods of analysis for the determination of pesticide residues in food and feed (CXG 90-2017). http://www.fao.org/fao-who-codexalimentarius/sh-

proxy/en/?lnk=1&url=https%253A%252F%252Fworkspace.fao.org%252Fsites%252Fcodex%252FStandards%252FCXG%2B90-2017%252FCXG_090e.pdf

g) CAC. (2017). Principles and guidance on the selection of representative commodities for the extrapolation of maximum residue limits for pesticides to commodity groups (CXG 84-2012). http://www.fao.org/fao-who-codexalimentarius/sh-proxy/en/?lnk=1&url=https%253A%252F%252Fworkspace.fao.org%252Fsites%252Fcodex%252FStandards%252FCXG%2B84-2012%252FCXG_084e.pdf

h) International Atomic Energy Agency (IAEA). (2021). Food contaminant and residue information system pesticide residue methods. https://nucleus.iaea.org/sites/ fcris/Pages/Home.aspx

i) US Food and Drug Administration (FDA). (1999). Pesticide Analytical Manual (PAM) Volume I (3rd ed.). https://www.fda.gov/food/laboratory-methods-food/pesticide-analytical-manual-volume-i-pam-3rd-edition

j) US FDA. (2002.) PAM Volume II. https://www.fda.gov/food/laboratory-methods-food/pesticide-analytical-manual-volume-ii

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Association of Southeast Asian Nations (ASEAN). (2018). ASEAN Maximum Residue Limit (MRL) database. Unpublished raw data.

Australian Government Federal Register of Legislation. (2021). Agricultural and veterinary chemicals code (MRL standard) instrument 2019. https://www.legislation.gov.au/Details/F2018C00073

Bryant Christie Inc. (2021). US global MRL database. https://globalmrl.com/db#pesticides/query

Bureau of Agriculture and Fisheries Product Standards (BAFPS) – Department of Agriculture (DA). (2004). Fresh fruit – pineapple – specification (PNS/BAFPS 09:2004) http://bafs.da.gov.ph/bafs_admin/admin_page/pns_file/PNS-BAFPS%2009-2004%20Fresh%20Fruit%20%E2%80%93%20Pineapple%20%E2%80%93%20Specification.pdf

Bureau of Agriculture and Fisheries Standards (BAFS) – Department of Agriculture (DA). (2017). Code of Good Agricultural Practices (GAP) for fruits and vegetable farming (PNS/BAFS 49:2017). http://www.bafs.da.gov.ph/bafs_admin/admin_page/pns_file/PNS%20BAFS%2049-2017%20Code%20of%20GAP%20for%20Fruits%20and%20Vegetable%20Farming%20(1)%20(1).pdf

China's National Health Commission, Ministry of Agriculture and Rural Affairs, and the State Administration for Market Regulation. (2019). China report: National food safety standard Maximum Residue Limits (MRLs) for pesticides in foods (Report number CH2019-0170). United States Department of Agriculture Foreign Agricultural Service. https://apps.fas.usda.gov/newgainapi/api/Report/DownloadReportByFileName?fileName=National%20Food%20Safety%20Standard%20%20Maximum%20Residue%20Limits%20for%20Pesticides%20in%20Foods%20_Beijing_China%20-%20Peoples%20Republic%20of_11-18-2019

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European Commission (EC). (2021). EU pesticides database (v2.1). https://ec.europa.eu/food/plant/pesticides/eu-pesticides-database/mrls/?event=search.pr

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Food and Agriculture Organization of the United Nations (FAO), & World Health Organization (WHO). (2016). International code of conduct on pesticide management. Guidelines on highly hazardous pesticides. http://www.fao.org/publications/card/en/c/a5347a39-c961-41bf-86a4-975cdf2fd063/

Health Canada. (2012). Canada Maximum Residue Limits (MRLs) for pesticides. https://pr-rp.hc-sc.gc.ca/mrl-lrm/index-eng.php

The Japan Food Chemical Research Foundation. (2021). Maximum Residue Limits (MRLs) list of agricultural chemicals in foods. http://db.ffcr.or.jp/front/

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Bureau of Agriculture and Fisheries Standards (BAFS)

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