



Submission Form

Information Materials for Commodity Standards

(Agreed by the Standards Committee in May 2022)

Name of Country/RPPO: Pacific Plant Protection Organisation (PPPO)

[Click here](#) to find the IPPC Procedure Manual for Standard Setting on the IPP (www.ippc.int), where you can download this form.

Submission number (Secretariat Use Only):

Complete the following form, preferably in electronic format, and submit by e-mail to the IPPC Secretariat (ippc@fao.org).

Please use one form per commodity. An electronic version of this form is available on the International Phytosanitary Portal (IPP) at <https://www.ippc.int/en/core-activities/standards-and-implementation/call-for-topics-standards-and-implementation/> and <https://www.ippc.int/en/core-activities/standards-setting/member-consultation-draft-ispms/>. Incomplete submissions will be returned. Please save the completed submission form with the following file name: COUNTRY or RPPO NAME –Title of commodity.doc, prior to submitting to the IPPC Secretariat via e-mail.

(Text in brackets given for explanatory purposes)

Name and description of Commodity	Fresh taro (<i>Colocasia esculenta</i>) corm for human consumption
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<u>Submitted by:</u> Pacific Plant Protection Organisation (PPPO)
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List of regulated pests associated with the commodity for trade

(Only include pests that are regulated by your national and are associated with the plant or plant part traded (e.g. if only fruit is traded then do not include pests that are only associated with leaves)). Also consider including pests regulated by other countries, especially for those instances in which your NPPO export the commodity.)

Pest type	Family	Species (include authority)	Link to pest risk assessment (if available)
Planthopper (Hemiptera)	Delphacidae	Taro planthopper (<i>Tarophagus proserpina</i>)	Review of Import Conditions for Fresh Taro Corms clean.pdf (agriculture.gov.au)
Weevil	Curculionidae	Fiji ginger weevil (<i>Elytroteinus subtruncatus</i>)	Review of Import Conditions for Fresh Taro Corms clean.pdf (agriculture.gov.au)
Scale (Hemiptera)	Diaspididae	Yam scale (<i>Aspidiella hartii</i>)	Review of Import Conditions for Fresh Taro Corms clean.pdf (agriculture.gov.au)
Aphid (Hemiptera)	Pemphigidae	Taro root aphid (<i>Patchiella reaumuri</i>)	Review of Import Conditions for Fresh Taro Corms clean.pdf (agriculture.gov.au)
Mealybugs (Hemiptera)	Pseudococcidae	Mealybugs (<i>Paraputo leverii</i> , <i>Paraputo aracearum</i>)	Review of Import Conditions for Fresh Taro Corms clean.pdf (agriculture.gov.au)
Nematode	Hoplolaimidae	Spiral nematode (<i>Helicotylenchus microcephalus</i> , <i>Helicotylenchus mucronatus</i>)	Review of Import Conditions for Fresh Taro Corms clean.pdf (agriculture.gov.au)
Nematode	Pratylenchidae	Taro root nematode (<i>Hirschmanniella miticausa</i>)	Review of Import Conditions for Fresh Taro Corms clean.pdf (agriculture.gov.au)
Nematode	Longidoridae	Needle nematode (<i>Longidorus sylphus</i>)	Review of Import Conditions for Fresh Taro Corms clean.pdf (agriculture.gov.au)
Bacteria	Xanthomonadaceae	Bacterial blight of taro (<i>Xanthomonas axonopodis</i>)	Review of Import Conditions for Fresh Taro Corms clean.pdf (agriculture.gov.au)
Fungi	Nectriaceae	Corallomycetella root rot (<i>Corallomycetella repens</i>)	Review of Import Conditions for Fresh Taro Corms clean.pdf (agriculture.gov.au)
Fungi	Omphalotaceae	Corm rot (<i>Marasmiellus colocasiae</i>)	Review of Import Conditions for Fresh Taro Corms clean.pdf (agriculture.gov.au)
Fungi	Xylariaceae	Black root rot (<i>Rosellinia pepo</i>)	Review of Import Conditions for Fresh Taro Corms clean.pdf (agriculture.gov.au)
Beetle (Coleoptera)	Scarabaeidae	Taro beetles (<i>Papuana uninodis</i> , <i>Papuana woodlarkiana</i> , <i>Papuana huebneri</i> , <i>Papuana trinodosa</i> , <i>Papuana biroi</i> , <i>Eucopidocaulus tridentipes</i> , <i>Papuana szentivanyi</i> , <i>Papuana cheesmanae</i> , <i>Papuana inermis</i> , <i>Papuana japonensis</i> , <i>Papuana laevipennis</i> , <i>Papuana semistriata</i>)	Review of Import Conditions for Fresh Taro Corms clean.pdf (agriculture.gov.au)
Straminopila	Peronosporaceae	Taro pocket rot (<i>Phytophthora</i> sp.)	Review of Import Conditions for Fresh Taro Corms clean.pdf (agriculture.gov.au)

Pest type	Family	Species (include authority)	Link to pest risk assessment (if available)
Straminopila	Pythiaceae	Pythium corm rot (<i>Pythium carolinianum</i>)	Review of Import Conditions for Fresh Taro Corms clean.pdf (agriculture.gov.au)
Straminopila	Peronosporaceae	Taro leaf blight (<i>Phytophthora colocasiae</i>)	Review of Import Conditions for Fresh Taro Corms clean.pdf (agriculture.gov.au)
Virus	Rhabdoviridae	Colocasia bobone disease virus (CBDV)	Review of Import Conditions for Fresh Taro Corms clean.pdf (agriculture.gov.au)
Virus	Potyviridae	Dasheen mosaic virus (DsMV) (French Polynesian strain)	Review of Import Conditions for Fresh Taro Corms clean.pdf (agriculture.gov.au)
Virus	Rhabdoviridae	Taro vein chlorosis virus (TaVCV)	Review of Import Conditions for Fresh Taro Corms clean.pdf (agriculture.gov.au)
Virus	Bunyaviridae	Tomato zonate spot virus (TZSV)	final-report-thrips-orthospoviruses.pdf (agriculture.gov.au) Review of Import Conditions for Fresh Taro Corms clean.pdf (agriculture.gov.au)

Name and Description of Measure	
Name of Measure	Inspection of taro corms on arrival to ensure that quarantine pests and/or debris or other regulated articles are absent.
Measure Type	Physical
Active Ingredient	n/a
Schedule	<p>The NPPO of the exporting country must:</p> <p>a) sample each homogeneous grower lot of fresh taro. The minimum sample size for inspection must be based on a 95% confidence level that not more than 0.5% of the units in the lot are infested as set out in ISPM 31. Methodologies for sampling of consignments Appendix 2;</p> <p>b) visually inspect each sample unit according to official phytosanitary procedures in accordance with ISPM 23. Guidelines for inspection and ISPM 31.</p> <p>c) reconcile that the number of packages presented for inspection is consistent with documentation;</p> <p>d) verify that traceability labelling is complete; and</p> <p>e) verify that phytosanitary security is maintained for the consignment.</p>
Target Pest	Variety of invertebrate and disease pests including; Fiji ginger weevil (<i>Elytroteinus subtruncatus</i>), Yam scale (<i>Aspidiella hartii</i>), Taro beetles (<i>Papuana spp.</i>), Taro pocket rot (<i>Phytophthora sp.</i>), Black root rot (<i>Rosellinia pepo</i>), Corallomycetella root rot (<i>Corallomycetella repens</i>) etc.
Other information (Please complete as many fields as possible)	
Is there quantitative or qualitative evidence to indicate the measure is effective?	
No known outbreaks of exotic taro pests in Australia where these measures are in place.	
Has the measure been successfully used to manage non-compliant consignments?	
Yes – inspection of fresh taro imports is critical component of a robust phytosanitary system, minimising the likelihood that shipments are contaminated with the above regulated pests. Contaminated shipments detected on arrival are destroyed or re-exported to country of export.	
Has the measure been successfully used to effectively manage pest risk domestically?	
<p>Measure used to prevent new pest introduction via imports.</p> <p>Many of these regulated pests e.g. rots and taro beetle etc make the taro tubers unfit for human consumption. Therefore, farmers inspect tubers prior to transport to local markets.</p>	
Has the measure been used successfully by the private sector or authorized entities?	
Yes – exports of taro from Fiji, Tonga and a variety of other countries where authorised farms/exporters successfully take responsibility for visual inspection of fresh taro exports to ensure they are free of any visual pest, disease or contamination issues.	
Has the measure has been identified as an effective pest risk management option based on a PRA or comparable technical evaluation?	

Yes – Australia - Review of Import Conditions for Fresh Taro Corms clean.pdf (agriculture.gov.au)
New Zealand (draft) Fresh Taro (Colocasia esculenta) for Human Consumption (mpi.govt.nz)
Is the measure, relevant to the pest, adopted in an ISPM or regional standard?
<i>ISPM 46 – Commodity-specific standards for phytosanitary measures</i>
<i>ISPM 23 – Guidelines for inspection</i>
<i>ISPM 31 – Methodologies for sampling of consignments</i>

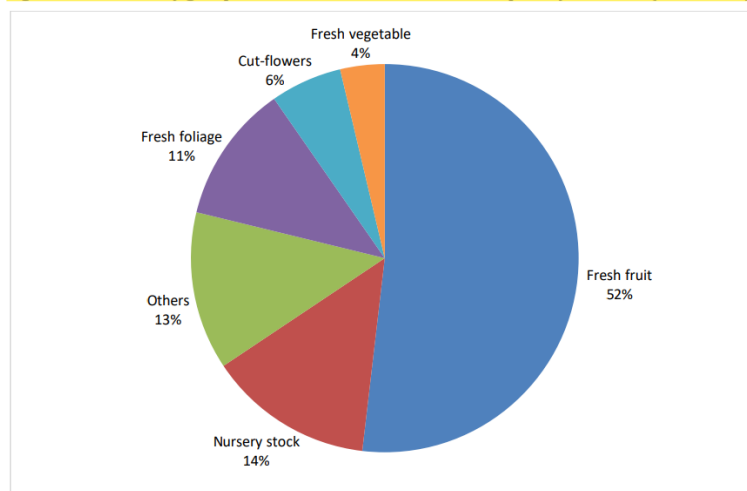
Name and Description of Measure	
Name of Measure	The taro must have been sourced from a country free from taro leaf blight (<i>Phytophthora colocasiae</i>). <u>Note:</u> This measure is only relevant for importing countries currently free of taro leaf blight.
Measure Type	Physical (pest status)
Active Ingredient	n/a
Schedule	Robust surveillance system authorised through the exporting country's NPPO to accurately determine the pest status of taro leaf blight in the country. Importing NPPO may request evidence of pest freedom for verification of the pest status in line with ISPM 6.
Target Pest	Taro leaf blight (<i>Phytophthora colocasiae</i>)

Other information (<i>Please complete as many fields as possible</i>)
Is there quantitative or qualitative evidence to indicate the measure is effective?
Taro leaf blight has not spread further where this measure is effectively implemented.
Does experience from use in international trade indicate that the measure is effective?
As above.
Has the measure been successfully used to manage non-compliant consignments?
Where consignments are detected at the border from countries where taro leaf blight is present, consignments are destroyed or re-exported to protect the plant health status of importing country.
Has the measure been successfully used to effectively manage pest risk domestically?
Farmers where taro leaf blight is present avoid planting infected material where known/possible to prevent further spread. Resistant varieties are being developed/introduced and have had some success in lessening disease burden.
Has the measure been used successfully by the private sector or authorized entities?
This measure gives clear guidance to the private sector and authorised entities regarding which markets are open to them and therefore worth investing in. Clear guidance such as this is crucial to successful implementation by industry.
Has the measure has been identified as an effective pest risk management option based on a PRA or comparable technical evaluation?
Yes – Review of Import Conditions for Fresh Taro Corms clean.pdf (agriculture.gov.au)
Is the measure, relevant to the pest, adopted in an ISPM or regional standard?
<i>ISPM 46 – Commodity-specific standards for phytosanitary measures</i> <i>ISPM 6 – Surveillance</i> <i>ISPM 8 – Determination of pest status in an area</i>

Name and Description of Measure	
Name of Measure	The taro must be inspected, topped and free from all foliage including flowers, petiole bases, and free from sprouting suckers and attached daughter corms.
Measure Type	Physical
Active Ingredient	n/a
Schedule	Exported corms must have all foliage, flowers, petiole bases, sprouting suckers and attached daughter corms removed.
Target Pest	<p>Topping and removal of foliage eliminates the risk of foliage-associated pests e.g. <i>Unaspis yanonensis</i>, <i>Aspidiotus nerii</i>, <i>Hippotion celerio</i> etc. Only regulated pests associated with the corm have been listed above.</p> <p>Removal of petiole bases, sprouting suckers and daughter corms reduces the ability for taro to be successfully replanted in the importing country. This measure targets viruses, mealybugs and other diseases which may escape into the environment or crop through planting e.g. DsMV, TZSV, TaVCV etc.</p>
Reference	<p>DAFF Pest Risk Analysis (2019) Final group pest risk analysis for mealybugs and the viruses they transmit on fresh fruit, vegetable, cut-flower and foliage imports final-report-mealybugs-and-viruses.pdf (agriculture.gov.au)</p> <p>DAFF Pest Risk Analysis (2021) Final group pest risk analysis for soft and hard scale insects on fresh fruit, vegetable, cut-flower and foliage imports- *Final group pest risk analysis for soft and hard scale insects on fresh fruit, vegetable, cut-flower and foliage imports (agriculture.gov.au)</p>
Other information (<i>Please complete as many fields as possible</i>)	
Is there quantitative or qualitative evidence to indicate the measure is effective?	
Yes, see figure below from DAFF PRA.	
Does experience from use in international trade indicate that the measure is effective?	

The main commodities on which scale insects were intercepted by Australia in the last 18 years (2000-2018) are presented in Figure 3.1 for soft scales and in Figure 3.2 for hard scales. For soft scales, 52% were intercepted on various forms of fresh fruit, including kiwifruit, longan, lychee, mango, mangosteen, orange, persimmon and pomegranate; 4% on fresh vegetable, mainly taro leaves; 6% on cut-flowers, including orchids and roses and 11% on foliage, including khat and bele leaves; 14% on a variety of nursery stock, including *Dracaena* spp., bromeliads and citrus; and the remaining 13% on a number of other plant products such as herbs.

Figure 3.1 Commodity groups on which soft scales were intercepted by Australia (2000-2018)



[*Final group pest risk analysis for soft and hard scale insects on fresh fruit, vegetable, cut-flower and foliage imports \(agriculture.gov.au\)](#)

Has the measure been successfully used to manage non-compliant consignments?

Where non-compliant consignments are detected at the border consignments are destroyed or re-exported to protect the plant health status of importing country.

Has the measure been successfully used to effectively manage pest risk domestically?

n/a – measure used for export.

Has the measure been used successfully by the private sector or authorized entities?

This measure gives clear guidance to the private sector and authorised entities regarding what is required for exports of taro to certain countries. Clear guidance such as this is crucial to successful implementation by industry to keep export markets open.

Has the measure has been identified as an effective pest risk management option based on a PRA or comparable technical evaluation?

DAFF – Review of import conditions of fresh taro corms -

[Review of Import Conditions for Fresh Taro Corms clean.pdf \(agriculture.gov.au\)](#)

DAFF Pest Risk Analysis (2019) Final group pest risk analysis for mealybugs and the viruses they transmit on fresh fruit, vegetable, cut-flower and foliage imports [final-report-mealybugs-and-viruses.pdf \(agriculture.gov.au\)](#)

DAFF Pest Risk Analysis (2021) Final group pest risk analysis for soft and hard scale insects on fresh fruit, vegetable, cut-flower and foliage imports- [*Final group pest risk analysis for soft and hard scale insects on fresh fruit, vegetable, cut-flower and foliage imports \(agriculture.gov.au\)](#)

Is the measure, relevant to the pest, adopted in an ISPM or regional standard?

ISPM 46 – Commodity-specific standards for phytosanitary measures

ISPM 6 – Surveillance

ISPM 23 - Guidelines for inspection

ISPM 31 - Methodologies for sampling of consignments

Name and Description of Measure	
Name of Measure	Prohibiting imports of small corm taro (<i>Colocasia esculenta</i> var. <i>antiquorum</i>) from countries where taro leaf blight, colocasia bobone disease virus, the French Polynesian strain of Dasheen mosaic virus, Taro vein chlorosis virus or tomato zonate spot virus are present.
Measure Type	Physical
Active Ingredient	n/a
Schedule	Prohibiting imports of small corm taro (<i>Colocasia esculenta</i> var. <i>antiquorum</i>) from countries where taro leaf blight, colocasia bobone disease virus, the French Polynesian strain of Dasheen mosaic virus, Taro vein chlorosis virus or tomato zonate spot virus are present. Robust surveillance data and other evidence must support claims of freedom from the above listed pests.
Target Pest	Small corm taro (<i>Colocasia esculenta</i> var. <i>antiquorum</i>) that propagate easily from multiple growing points, even after the removal of the apical growing point.
Reference	Review of Import Conditions for Fresh Taro Corms clean.pdf (agriculture.gov.au)
Other information (Please complete as many fields as possible)	
Is there quantitative or qualitative evidence to indicate the measure is effective?	
No data available.	
Does experience from use in international trade indicate that the measure is effective?	
Unknown	
Has the measure been successfully used to manage non-compliant consignments?	
Successfully used to limit the ability for imports of taro being redirected to planting. <i>Colocasia esculenta</i> var. <i>esculenta</i> is more difficult to propagate from topped tubers.	
Has the measure been successfully used to effectively manage pest risk domestically?	
n/a – used as a measure in export	
Has the measure been used successfully by the private sector or authorized entities?	
The private sector in Fiji, Tonga and other exporting countries have successfully implemented this measure to maintain access to export markets.	
Has the measure has been identified as an effective pest risk management option based on a PRA or comparable technical evaluation?	
Review of Import Conditions for Fresh Taro Corms clean.pdf (agriculture.gov.au)	
Is the measure, relevant to the pest, adopted in an ISPM or regional standard?	

ISPM 46 – Commodity-specific standards for phytosanitary measures

ISPM 6 – Surveillance

ISPM 8 – Determination of pest status of an area

ISPM 23 - Guidelines for inspection

ISPM 31 - Methodologies for sampling of consignments

Name and Description of Measure	
Name of Measure	<p>Permitted fresh large taro tubers must comply with the morphological criteria below.</p> <p>Specifically the taro must:</p> <ol style="list-style-type: none"> 1. be at least 15 cm long or be at least 7 cm in diameter at the widest point 2. be at least 300 g in weight 3. be free of lateral buds or shoots 4. lack shaggy hairs.
Measure Type	Physical
Active Ingredient	n/a
Schedule	<p>The taro must:</p> <ol style="list-style-type: none"> 1. be at least 15 cm long or be at least 7 cm in diameter at the widest point 2. be at least 300 g in weight 3. be free of lateral buds or shoot 4. lack shaggy hairs.
Target Pest	<p>This measure aims to reduce the ability for exported taro to be diverted from the intended use (human consumption) and instead used for planting. Planting of imported taro potentially exposes the crop and environment to a variety of diseases, viruses, and other pests like those outlined in the regulated pest list table.</p> <p>The requirement for taro to be at least 15 cm long or be at least 7 cm in diameter at the widest point and be at least 300 g in weight reduces the risk that the exported variety is <i>Colocasia esculenta</i> var. <i>antiquorum</i> variety. <i>Colocasia esculenta</i> var. <i>antiquorum</i> variety is not permitted under these measures as it is much easier to propagate from tuber and therefore the risk of re-planting is too high.</p>
Other information (Please complete as many fields as possible)	
Is there quantitative or qualitative evidence to indicate the measure is effective?	
Qualitative evidence suggests that this measure is successful as no taro disease/virus outbreaks have occurred where this measure is effectively implemented.	
Does experience from use in international trade indicate that the measure is effective?	
No known incursion/outbreak of serious taro pest/disease has occurred in new countries where this suite import conditions described are implemented.	
Has the measure been successfully used to manage non-compliant consignments?	
These measures were first introduced to prevent exports of prohibited <i>Colocasia esculenta</i> var. <i>antiquorum</i> variety being imported as <i>Colocasia esculenta</i> var. <i>esculenta</i> variety. Where non-compliant consignments are detected at the border consignments are destroyed or re-exported to protect the plant health status of importing country.	

Has the measure been successfully used to effectively manage pest risk domestically?
n/a – measure applicable to managing exports.
Has the measure been used successfully by the private sector or authorized entities?
This measure gives clear guidance to the private sector and authorised entities regarding what is required for exports of taro to certain countries. Clear guidance such as this is crucial to successful implementation by industry to keep export markets open.
Has the measure has been identified as an effective pest risk management option based on a PRA or comparable technical evaluation?
DAFF (2017) Pest Risk Analysis - Final group pest risk analysis for thrips and orthospoviruses on fresh fruit, vegetable, cut-flower and foliage imports - final-report-thrips-orthospoviruses.pdf (agriculture.gov.au) DAFF – Review of import conditions of fresh taro corms - Review of Import Conditions for Fresh Taro Corms clean.pdf (agriculture.gov.au) New Zealand (draft) Fresh Taro (Colocasia esculenta) for Human Consumption (mpi.govt.nz)
Is the measure, relevant to the pest, adopted in an ISPM or regional standard?
<i>ISPM 46 – Commodity-specific standards for phytosanitary measures</i> <i>ISPM 6 – Surveillance</i> <i>ISPM 8 – Determination of pest status of an area</i> <i>ISPM 23 – Guidelines for inspection</i> <i>ISPM 31 – Methodologies for sampling of consignments</i>

Name and Description of Measure	
Name of Measure	The goods must be clean and free of biosecurity pests and disease, contaminant seed, soil, animal and plant debris and other biosecurity risk material.
Measure Type	Physical
Active Ingredient	n/a
Schedule	All actors along the supply chain must ensure that goods are stored, packaged and transported in such a way as to reduce the risk of contamination by biosecurity risk material. This includes, using clean, neatly swept packing houses, removal of affected corms or other leaf or plant material, use of new packaging, storage of consignment boxes off the ground preferably on a concrete pad, transport in clean, swept containers etc.
Target Pest	Mitigation from the risk of a variety of regulated pests including those listed in the table above as well as pests of other hosts which may hitchhike on the commodity or packaging e.g. khapra beetle, brown marmorated stinkbug etc.
Other information (<i>Please complete as many fields as possible</i>)	
Does experience from use in international trade indicate that the measure is effective?	
In addition to the pests of taro identified in this pest risk analysis, there are other organisms that may arrive with the corms. These organisms could include weed seeds, pests of other crops, or predators and parasitoids of other arthropods. These organisms may be contaminant pests that could pose sanitary and phytosanitary risks. These risks are addressed by existing border inspection standard operational procedures in most countries.	
Has the measure been successfully used to manage non-compliant consignments?	
Inspection of a representative amount of the shipment is effective at identifying non-complaint shipments. The higher the inspection rate, the more effective the detection. Additionally, importing countries may choose to implement a process whereby exporters who have previously sent non-compliant shipments are inspected at a higher rate and notified of issues until satisfactory compliance with this measure is reached. Non-compliant shipments may be treated at the importer/exporters expense, destroyed or re-exported to exporting country.	
Has the measure been successfully used to effectively manage pest risk domestically?	
This measure is a requirement in many countries to reduce the movement of biosecurity risk material domestically. Where this measure is effectively implemented it is effective.	
Has the measure been used successfully by the private sector or authorized entities?	
Yes, the private sector and authorised entities more successfully implement this measure when they receive timely feedback on their compliance and consequences for non-compliance. Where the importing NPPO works with the private sector and authorised entities compliance is generally able to be achieved.	
Has the measure has been identified as an effective pest risk management option based on a PRA or comparable technical evaluation?	

Australia - [Review of Import Conditions for Fresh Taro Corms clean.pdf \(agriculture.gov.au\)](#)

New Zealand (draft) [Fresh Taro \(*Colocasia esculenta*\) for Human Consumption \(mpi.govt.nz\)](#)

Is the measure, relevant to the pest, adopted in an ISPM or regional standard?

ISPM 46 – Commodity-specific standards for phytosanitary measures

ISPM 23 – Guidelines for inspection

ISPM 31 – Methodologies for sampling of consignments

CPM recommendation on contaminating pests

Send submissions to:

E-mail: ippc@fao.org
(preferred)

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