



Animal and Plant Health Inspection Service
U.S. DEPARTMENT OF AGRICULTURE

**Importation of *Chrysanthemum* (= *Dendranthema*)
spp., *Leucanthemella serotina*, and
Nipponanthemum nipponicum propagative
material from Belgium, Bolivia, Brazil, Canada,
Colombia, Costa Rica, El Salvador, Ethiopia,
Germany, Guatemala, Kenya, Mexico, the
Netherlands, Nicaragua, Panama, Spain,
Tanzania, Tunisia, Uganda, the United Kingdom,
and Vietnam into the continental United States**

A Qualitative, Pathway Initiated Pest List

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Plant Pest Risk Analysis

Science and Technology

Plant Protection and Quarantine (PPQ)

Animal and Plant Health Inspection Service (APHIS)

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Executive Summary

The purpose of this report is to assess the pest risks associated with importing commercially produced cuttings (stems, leaves) and *in vitro* plantlets of *Chrysanthemum* (= *Dendranthema*) spp., *Leucanthemella serotina*, and *Nipponanthemum nipponicum* and synonymous taxa for propagation from twenty countries (Belgium [BE], Bolivia [BO], Brazil [BR], Colombia [CO], Costa Rica [CR], El Salvador [SV], Ethiopia [ET], Germany [DE], Guatemala [GT], Kenya [KE], Mexico [MX], Nicaragua [NI], the Netherlands [NL], Panama [PA], Spain [ES], Tanzania [TZ], Tunisia [TN], Uganda [UG], the United Kingdom [GB], and Vietnam [VT]) and cuttings, *in vitro* tissue culture plantlets, *in vitro* tissue culture plants with roots, and bare-root plants of the same taxa from Canada (CA) into the continental United States (including Alaska) for planting.

Based on the internal request submitted by Plant Protection and Quarantine (PPQ), we considered the pathway to include the following processes and conditions: no soil, seed, or flowers will be present, and *in vitro* plantlets will have been produced in aseptic conditions with minimal monitoring for pathogens. The pest risk ratings depend on the application of all conditions of the pathway as described in this document; cuttings, *in vitro* tissue culture plantlets, *in vitro* tissue culture plants with roots, and bare-root plants produced under different conditions were not evaluated and may pose a different pest risk.

We used scientific literature and port-of-entry pest interception data to develop a list of pests with quarantine significance for the continental United States. These are pests that occur in the exporting countries on any host and are associated with the commodity plant species anywhere in the world. Of these, we found 35 organisms that have a reasonable likelihood of being associated with *Chrysanthemum* cuttings composed of stems with leaves, or with *in vitro* *Chrysanthemum* plantlets for propagation, or with rooted plants from Canada presuming no production practices at the point of origin. This information is summarized in the table below and is presented in detail with sources of evidence in the remainder of the document.

Pest type	Taxonomy	Scientific name	Country(ies) in which pest has been reported
Arthropod	Acari: Eriophyidae	<i>Epitrimerus alinae</i> Liro	GB
Arthropod	Coleoptera: Elateridae	<i>Athous haemorrhoidalis</i> (Fabricius)	CA
Arthropod	Diptera: Agromyzidae	<i>Chromatomyia horticola</i> Goureau; syn. <i>Phytomyza horticola</i> (Goureau)	ET, KE, UG, BE, DE, NL, GB, VN
Arthropod	Diptera: Agromyzidae	<i>Liriomyza huidobrensis</i> (Blanchard)	KE, BE, DE, NL, ES, SV, GT, NI, PA, BR, CO, VT, CA
Arthropod	Diptera: Psilidae	<i>Chamaepsila nigricornis</i> (Meigen); syn. <i>Psila nigricornis</i> Meigen	GB
Arthropod	Diptera: Tephritidae	<i>Trypeta zoe</i> Meigen	BE, NL, GB
Arthropod	Hemiptera: Aphididae	<i>Macrosiphoniella oblonga</i> (Mordvilko)	DE, GB, VT
Arthropod	Hemiptera: Aphididae	<i>Macrosiphoniella yomogifoliae</i> (Shinji)	VT

Pest type	Taxonomy	Scientific name	Country(ies) in which pest has been reported
Arthropod	Hemiptera: Aphididae	<i>Uroleucon tanacetii</i> (L.)	DE, GB, VT
Arthropod	Hemiptera: Coccidae	<i>Ceroplastes rubens</i> Maskell	KE, TZ, DE, CO, VT
Arthropod	Hemiptera: Monophlebidae	<i>Gueriniella serratulae</i> (Fabricius)	ES
Arthropod	Hemiptera: Pseudococcidae	<i>Atrococcus cracens</i> Williams	GB, DE
Arthropod	Hemiptera: Pseudococcidae	<i>Maconellicoccus hirsutus</i> (Green)	KE, TZ, TN, MX, CR, GT, BR, CO, VT
Arthropod	Lepidoptera: Hepialidae	<i>Korscheltellus lupulina</i> (L.); syn. <i>Hepialus lupulinus</i> (L.)	GB, CA
Arthropod	Lepidoptera: Noctuidae	<i>Chrysodeixis chalcites</i> (Esper)	KE, TN, UG, BE, DE, NL, ES, GB, CA
Arthropod	Lepidoptera: Noctuidae	<i>Chrysodeixis eriosoma</i> Doubleday	VT
Arthropod	Lepidoptera: Noctuidae	<i>Gortyna flavago</i> (Denis & Schifferrmüller); syn. <i>G. ochracea</i> (Hübner)	GB
Arthropod	Lepidoptera: Noctuidae	<i>Lacanobia oleracea</i> (L.)	BE, GB
Arthropod	Lepidoptera: Noctuidae	<i>Mamestra brassicae</i> (L.)	BE, DE, NL, ES, GB
Arthropod	Lepidoptera: Noctuidae	<i>Naenia typica</i> (L.)	GB
Arthropod	Lepidoptera: Noctuidae	<i>Phlogophora meticulosa</i> (L.)	DE, BE, GB, ES, NL
Arthropod	Lepidoptera: Noctuidae	<i>Spodoptera littoralis</i> (Boisduval)	ET, KE, TZ, TN, UG, BE, ES
Arthropod	Lepidoptera: Noctuidae	<i>Spodoptera litura</i> (Fabricius)	GB, VT
Arthropod	Lepidoptera: Tortricidae	<i>Cnephasia asseclana</i> (Denis & Schifferrmüller); syn. <i>C.</i> <i>interjectana</i> (Haworth)	GB, CA
Arthropod	Lepidoptera: Tortricidae	<i>Cnephasia incertana</i> (Treitschke)	BE, GB
Arthropod	Lepidoptera: Tortricidae	<i>Epichoristodes acerbella</i> (Walker)	KE, ES
Arthropod	Lepidoptera: Tortricidae	<i>Homona coffearia</i> (Nietner)	VT
Arthropod	Thysanoptera: Thripidae	<i>Thrips angusticeps</i> Uzel	TN, BE, DE, ES, GB
Arthropod	Thysanoptera: Thripidae	<i>Thrips palmi</i> Karny	CR, BR, CO, VT
Chromistan	Peronosporales: Peronosporaceae	<i>Phytophthora chrysanthemi</i> Naher, Hi. Watan., Chikuo & Kageyama	DE
Fungus	Pucciniales: Pucciniaceae	<i>Puccinia horiana</i> Henn.*	TN, BE, NL, DE, UK, MX, NI, PA, GT, BR, CO
Fungus	Mycosphaerellales: Mycosphaerellaceae	<i>Sphaerulina socia</i> (Pass.) Quaedvlieg, Verkley & Crous	DE
Virus	Tolivirales: Tombusviridae	<i>Carnation Italian ringspot virus</i> (CIRV)	DE, NL
Virus	Bunyavirales: Tospoviridae	<i>Chrysanthemum stem necrosis</i> <i>virus</i> (CSNV)	BR
Virus	Geplafuvirales: Geminiviridae	<i>Tomato leaf curl New Delhi virus</i> (ToLCNDV)	ES, TN

*The regulatory status of this pest is under review.

The detailed examination and choice of appropriate phytosanitary measures to mitigate pest risk are addressed in a separate document.

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1. Introduction

1.1. Background

The purpose of this report is to present PPQ's assessment of the pest risk associated with the importation of commercially produced cuttings (stems, leaves) and *in vitro* plantlets of *Chrysanthemum* (= *Dendranthema*) spp., *Leucanthemella serotina*, and *Nipponanthemum nipponicum* for propagation from twenty countries (Belgium [BE], Bolivia [BO], Brazil [BR], Colombia [CO], Costa Rica [CR], El Salvador [SV], Ethiopia [ET], Germany [DE], Guatemala [GT], Kenya [KE], Mexico [MX], Nicaragua [NI], the Netherlands [NL], Panama [PA], Spain [ES], Tanzania [TZ], Tunisia [TN], Uganda [UG], the United Kingdom [GB], and Vietnam [VT]) and cuttings, *in vitro* tissue culture plantlets, *in vitro* tissue culture plants with roots, and bare-root plants of the same taxa from Canada (CA) (referred to as the export area) into the continental United States (referred to as the pest risk analysis or PRA area) for planting.

This is a qualitative risk assessment. The likelihood of pest introduction is expressed as a qualitative rating rather than using numerical terms. This methodology is consistent with guidelines provided by the International Plant Protection Convention (IPPC) in the International Standard for Phytosanitary Measures (ISPM) No. 11, "Pest Risk Analysis for Quarantine Pests" (IPPC, 2021). The use of biological and phytosanitary terms is consistent with ISPM No. 5, "Glossary of Phytosanitary Terms" (IPPC, 2024).

As defined in ISPM No. 11, this document comprises Stage 1 (Initiation) and Stage 2 (Risk Assessment) of risk analysis. Stage 3 (Risk Management) will be covered in a separate document.

1.2. Initiating event

The importation of plants for planting into the United States is regulated under Title 7 of the Code of Federal Regulation, Part 319 Subpart H – Plants for Planting (7 CFR §319.37) and as described in the [Agricultural Commodity Import Requirements](#). *Chrysanthemum* (= *Dendranthema*) spp., *Leucanthemella serotina*, and *Nipponanthemum nipponicum* are restricted from being imported or offered for entry into the United States due to the ability of this plant material to transport the quarantine pathogen *Puccinia horiana* P. Henn. Under this regulation, the entry of *Chrysanthemum* (= *Dendranthema*) spp., *Leucanthemella serotina*, and *Nipponanthemum nipponicum* cuttings and *in vitro* plantlets for propagation from Belgium, Bolivia, Brazil, Colombia, Costa Rica, El Salvador, Ethiopia, Germany, Guatemala, Kenya, Mexico, Nicaragua, the Netherlands, Panama, Spain, Tanzania, Tunisia, Uganda, the United Kingdom, and Vietnam and cuttings, *in vitro* plantlets for propagation, and rooted plants from Canada into the continental United States is currently not authorized pending pest risk analysis (NAPPRA) or requires postentry quarantine and other additional restrictions. This commodity pest list was initiated due to a request by APHIS in consideration of a regulatory change for chrysanthemum white rust (CWR) and a market access request for CWR hosts by multiple countries and U.S. stakeholders.

1.3. Potential weediness of the commodity

In some cases, an imported commodity could become invasive in the PRA area. If warranted, we analyze the commodity for weed risk.

A weed risk analysis is not required when (a) the commodity is already enterable into the PRA area from other countries, (b) the commodity plant species is widely established (native or naturalized) or cultivated in the PRA area, or (c) the imported plant part(s) cannot easily propagate on its own or be propagated. We determined that the weed risk of chrysanthemum does not need to be analyzed because it is widely cultivated in the United States.

1.4. Description of the pathway

A pathway is “any means that allows the entry or spread of a pest” (IPPC, 2018)2022). In the context of this document, the pathway is the commodity to be imported. The following description includes those conditions and processes the commodity undergoes from production through importation and distribution that may have an impact on pest risk and therefore were considered in our assessment. Commodities produced under different conditions were not considered.

1.4.1. Description of the commodity

The specific pathway of concern is the importation of unrooted cuttings, *in vitro* tissue culture plantlets, *in vitro* tissue culture plants with roots, and bare-root plants of *Chrysanthemum* (= *Dendranthema*) spp., *Leucanthemella serotina*, and *Nipponanthemum nipponicum* for planting.

1.4.2. Summary of the production, harvest, post-harvest, shipping, and storage conditions considered

The chrysanthemum cuttings could be grown in a greenhouse, in the field, or in a laboratory. We only considered assumptions about production practices for *in vitro* plantlets and *in vitro* plants with roots, which by definition are produced aseptically with monitoring and indexing for plant diseases. *In vitro* plantlets will be imported in their flasks with agar. Plants with roots have been grown in a greenhouse in soilless media, in the field, or in a laboratory (*in vitro*) and will be imported either bare-root for plants not grown in the laboratory, or in agar or a similar tissue culture medium for plants with roots grown *in vitro*. Harvesting and post-harvesting procedures in the exporting area are not being considered as part of the assessment. Further details on shipping conditions and storage conditions have not been specified.

2. Pest List and Pest Categorization

The pest list is a compilation of plant pests of quarantine significance to the continental United States. This list includes pests that are present in Belgium, Bolivia, Brazil, Canada, Colombia, Costa Rica, El Salvador, Ethiopia, Germany, Guatemala, Kenya, Mexico, Nicaragua, the Netherlands, Panama, Spain, Tanzania, Tunisia, Uganda, the United Kingdom, or Vietnam on any host and are known to be associated with *Chrysanthemum* (= *Dendranthema*) spp., *Leucanthemella serotina*, and *Nipponanthemum nipponicum* anywhere in the world. Pests are considered quarantine significant if they (a) are not present in the PRA area, (b) are actionable at U.S. ports of entry, (c) are regulated non-quarantine pests, (d) are under federal official control, or (e) require evaluation for regulatory action. Consistent with ISPM No. 5, pests that meet any of these definitions are considered “quarantine pests” and are candidates for analysis. Species with a reasonable likelihood of following the pathway into the PRA area are analyzed to determine their pest risk potential.

2.1. Pest list

We developed the pest list based on scientific literature and port-of-entry pest interception data. We listed the pests that are of quarantine significance to the PRA area in Table 1. For each pest, we provided evidence for the pest's presence in the exporting countries and its association with *Chrysanthemum* (= *Dendranthema*) spp., *Leucanthemella serotina*, and *Nipponanthemum nipponicum*. We indicated the plant parts with which the pest is generally associated and, if applicable, provided information about the pest's distribution in the United States. Pests that are likely to remain associated with the harvested commodity in a viable form are indicated by bolded text and are listed separately in Table 2.

Table 1. List of quarantine pests associated with *Chrysanthemum* (= *Dendranthema*) spp., *Leucanthemella serotina*, and *Nipponanthemum nipponicum* anywhere in the world and present in Belgium, Bolivia, Brazil, Canada, Colombia, Costa Rica, El Salvador, Ethiopia, Germany, Guatemala, Kenya, Mexico, Nicaragua, the Netherlands, Panama, Spain, Tanzania, Tunisia, Uganda, the United Kingdom, or Vietnam on any host.

Pest name	Presence in export area ¹	Host association	Plant part(s) ²	Considered further? ³
MITE: Acari: Eriophyidae <i>Epirimerus alinae</i> Liro	GB (Alford, 2012)	(Alford, 2012)	Stems, leaves (Alford, 2012)	Yes.
INSECT: Coleoptera: Elateridae <i>Athous haemorrhoidalis</i> (Fabricius)	CA (Douglas, 2011)	(Alford, 2012)	Stems (Alford, 2012)	Yes. Present in Massachusetts (Douglas, 2011).

¹ Country names are displayed using 2-letter codes: Belgium (BE), Bolivia (BO), Brazil (BR), Canada (CA), Colombia (CO), Costa Rica (CR), El Salvador (SV), Ethiopia (ET), Germany (DE), Guatemala (GT), Kenya (KE), Mexico (MX), Nicaragua (NI), the Netherlands (NL), Panama (PA), Spain (ES), Tanzania (TZ), Tunisia (TN), Uganda (UG), the United Kingdom (GB), and Vietnam (VT).

² The plant part(s) listed are those for the plant species under analysis. If the information has been extrapolated, such as from plant part association on other plant species, we note that.

³ "Yes" indicates simply that the pest has a reasonable likelihood of being associated with the harvested commodity; the level of pest prevalence on the harvested commodity (low, medium, or high) is not considered in this document.

Pest name	Presence in export area ¹	Host association	Plant part(s) ²	Considered further? ³
INSECT: Diptera: Agromyzidae <i>Chromatomyia horticola</i> Goureau; syn. <i>Phytomyza horticola</i> (Goureau)	BE (De Bryun, 1991); DE, ES (Griffiths, 1967); ET (Griffiths, 1967); GB (Spencer, 1973); NL (De Meijere, 1926); KE (Spencer, 1990); UG (Spencer, 1985); VN (Tran, 2009)	(CABI, 2016)	Leaves, stems (CABI, 2016)	Yes.
INSECT: Diptera: Agromyzidae <i>Liriomyza huidobrensis</i> (Blanchard)	BE, DE, NL, ES (EPPO, 2014); BR, CO (EPPO, 2014); CA (Scheffer et al., 2001); KE (EPPO, 2014); MX (Lonsdale, 2011); SV, GT, NI, PA (EPPO, 2014); VT (EPPO, 2014)	(Malipatil and Ridland, 2008)	Leaves (Malipatil and Ridland, 2008)	Yes.
INSECT: Diptera: Psilidae <i>Chamaepsila nigricornis</i> (Meigen); syn. <i>Psila nigricornis</i> Meigen	CA (Glendenning, 1952); GB (Yerbury, 1918)	(Alford, 2012)	Stools (Alford, 2012)	Yes.
INSECT: Diptera: Tephritidae <i>Trypeta zoe</i> Meigen	BE, NL, GB (Pitkin, 2016)	(Alford, 2012)	Leaves (Alford, 2012)	Yes.
INSECT: Hemiptera: Aphididae <i>Macrosiphoniella oblonga</i> (Mordvilko)	DE, GB (Heie, 1995); VT (Widespread in Asia (Blackman and Eastop, 2016))	(Brightwell and Dransfield, 2016; Heie, 1995)	Stems, leaves (Heie, 1995)	Yes.

Pest name	Presence in export area ¹	Host association	Plant part(s) ²	Considered further? ³
INSECT: Hemiptera: Aphididae <i>Macrosiphoniella yomogifoliae</i> (Shinji)	VT (Yoshitomi et al., 2015)	<i>Nipponanthemum nipponicum</i> (Franch. ex Maxim.) Kitam. (as <i>C. nipponicum</i>), <i>C. morifolium</i> , <i>Tanacetum</i> spp. (Blackman and Eastop, 2006)	Leaves (Blackman and Eastop, 2016)	Yes.
INSECT: Hemiptera: Aphididae <i>Trama troglodytes</i> von Heyden	DE, GB (Heie, 1995); VT (Widespread in Asia (Blackman and Eastop, 2016))	(Brightwell and Dransfield, 2016; Heie, 1995)	Subterranean parts of plant (Heie, 1995)	No.
INSECT: Hemiptera: Aphididae <i>Uroleucon tanacetii</i> (L.)	DE, GB (Heie, 1995); VT (Widespread in Asia (Blackman and Eastop, 2016))	(Brightwell and Dransfield, 2016; Heie, 1995)	Leaves (Heie, 1995)	Yes.
INSECT: Hemiptera: Cicadellidae <i>Euscelis incisa</i> (Kirschbaum)	BE, DE, NL, ES, GB, TN (Zahniser, 2007)	(CABI, 2016)	Stems, leaves (Dietrich, 2008)	No. Active, easily disturbed insect.
INSECT: Hemiptera: Cicadellidae <i>Hauptidia maroccana</i> (Melichar)	GB (CABI, 2016)	(Alford, 2012)	Stems, leaves (Alford, 2012)	No. Active, easily disturbed insect.
INSECT: Hemiptera: Coccidae <i>Ceroplastes rubens</i> Maskell	CO (Kondo, 2008); KE, TZ (EPPO, 2014); DE (Schonfeld, 2015); VT (Waterhouse, 1993)	(CABI, 2016; García Morales et al., 2016)	Stems, leaves (CABI, 2016)	Yes. Present in FL (Hamon and Williams, 1984).
INSECT: Hemiptera: Monophlebidae <i>Gueriniella serratulae</i> (Fabricius)	ES (García Morales et al., 2016)	(García Morales et al., 2016)	Monophlebids feed on leaves (Watson, 2022)	Yes.

Pest name	Presence in export area ¹	Host association	Plant part(s) ²	Considered further? ³
INSECT: Hemiptera: Pseudococcidae <i>Atrococcus cracens</i> Williams	DE (Fauna Europaea, 2018); GB (García Morales et al., 2016)	(García Morales et al., 2016)	Roots, leaves (ARM, 2024)	Yes. Occurring on roots and leaves of herbaceous plants (ARM, 2024).
INSECT: Hemiptera: Pseudococcidae <i>Maconellicoccus hirsutus</i> (Green)	BR (EPPO, 2014); CO (Kondo et al., 2012); CR (IPPC, 2014); GT (CABI/EPPO, 2004); KE, TZ (CABI/EPPO, 2004); MX (CABI/EPPO, 2004); TN (Halima-Kamel et al., 2015); VT (CABI/EPPO, 2004)	<i>Chrysanthemum</i> sp. (Milonas and Partsinevelos, 2017)	Stems, leaves (García Morales et al., 2016)	Yes. Present in FL (Hoy et al., 2006).
INSECT: Lepidoptera: Hepialidae <i>Korscheltellus lupulina</i> (L.); syn. <i>Hepialus lupulinus</i> (L.)	CA (Beadle and Leckie, 2012); GB (Cooper, 2016)	(Cooper, 2016; Edwards and Dennis, 1960)	Stems, roots (Edwards and Dennis, 1960)	Yes.
INSECT: Lepidoptera: Noctuidae <i>Agrotis segetum</i> Denis & Schiffermuller	BE, DE, NL, ES, GB (EPPO, 2014); ET (CIE, 1987); KE, TZ, TN, UG (EPPO, 2014); VT (Waterhouse, 1993)	(Plantwise, 2016)	Roots, stems, leaves (Plantwise, 2016)	No. Nocturnal feeder, hides in soil by day (Akol et al., 2011).
INSECT: Lepidoptera: Noctuidae <i>Autographa gamma</i> (L.)	BE (Wauters and Legrand, 1996); DE (Terytze et al., 1987); GB (Taylor et al., 1973); NL (Theunissen and den Ouden, 1978)	(CABI, 2016)	Leaves (CABI, 2016)	No. Large larvae that fold leaves (CABI, 2016). Invasions have been via moths; adults are migratory (CABI, 2016).

Pest name	Presence in export area ¹	Host association	Plant part(s) ²	Considered further? ³
INSECT: Lepidoptera: Noctuidae <i>Chrysodeixis chalcites</i> (Esper)	BE, DE, NL, ES, GB (Karsholt and Razowski, 1996); CA (Murillo et al., 2013); KE, TN, UG (CIE, 1977)	(CABI, 2016)	Fruit, leaves (CABI, 2016)	Yes.
INSECT: Lepidoptera: Noctuidae <i>Chrysodeixis eriosoma</i> Doubleday	VT (Waterhouse, 1993; Zhang, 1994)	(CABI, 2016)	Stems, leaves (CABI, 2016)	Yes. Present in HI (EPPO, 2014).
INSECT: Lepidoptera: Noctuidae <i>Gortyna flavago</i> (Denis & Schiffermüller); syn. <i>G. ochracea</i> (Hübner)	GB (Carter, 1984);	(Carter, 1984)	Stems (Carter, 1984)	Yes.
INSECT: Lepidoptera: Noctuidae <i>Lacanobia oleracea</i> (L.)	BE (CABI, 2016); DE, ES (CABI, 2024); GB (Kimber, 2015)	(CABI, 2016)	Leaves, fruit (CABI, 2016)	Yes.
INSECT: Lepidoptera: Noctuidae <i>Mamestra brassicae</i> (L.)	BE, DE, NL, ES, GB (EPPO, 2014)	(CABI, 2016)	Leaves, stems, flowers (CABI, 2016)	Yes.
INSECT: Lepidoptera: Noctuidae <i>Naenia typica</i> (L.)	GB (Carter, 1984); (Kimber, 2015)	(Carter, 1984)	Leaves (Carter, 1984); (Kimber, 2015)	Yes.
INSECT: Lepidoptera: Noctuidae <i>Phlogophora meticulosa</i> (L.)	BE, GB, ES, NL (Fauna Europaea, 2018); DE (Wagner, 2005-2016)	(Alford, 2012; Carter, 1984)	Leaves (Alford, 2012)	Yes.
INSECT: Lepidoptera: Noctuidae <i>Spodoptera littoralis</i> (Boisduval)	BE, ES (EPPO, 2014); ET, KE, TZ, TN, UG (CIE, 1967)	(CABI, 2016)	Fruit, leaves (CABI, 2016)	Yes.
INSECT: Lepidoptera: Noctuidae <i>Spodoptera litura</i> (Fabricius)	GB (Jones, 1966); VT (Noma et al., 2010; Waterhouse, 1993)	(Noma et al., 2010)	Stems, leaves (Noma et al., 2010)	Yes.

Pest name	Presence in export area¹	Host association	Plant part(s)²	Considered further?³
INSECT: Lepidoptera: Sphingidae <i>Agrius convolvuli</i> (L.)	BE, DE, NL, ES, GB (Pittaway, 1993); ET, KE, TZ, UG (Carcasson, 1968); TN (Pittaway, 1993); VT (Savela, 2015; Waterhouse, 1993)	(CABI, 2016)	Leaves (CABI, 2016)	No. Large, obvious larvae (CABI, 2016).
INSECT: Lepidoptera: Tortricidae <i>Cnephasia asseclana</i> (Denis & Schiffermüller); syn. <i>C.</i> <i>interjectana</i> (Haworth)	CA (Mutuura, 1982); GB (Kimber, 2015)	(Hill, 1987; Kimber, 2015)	Flowers, leaves (Kimber, 2015) Shoots, buds (Hill, 1987)	Yes.
INSECT: Lepidoptera: Tortricidae <i>Cnephasia incertana</i> (Treitschke)	BE, GB (Jonko, 2014)	(Carter, 1984)	Leaves, stems (Carter, 1984)	Yes.
INSECT: Lepidoptera: Tortricidae <i>Epichoristodes acerbella</i> (Walker)	ES (EPPO, 2014); KE (EPPO, 2014)	(CABI, 2016)	Leaf and stem cuttings (CABI, 2016)	Yes.
INSECT: Lepidoptera: Tortricidae <i>Homona coffearia</i> (Nietner)	VT (Waterhouse, 1993)	(CABI, 2016)	Larvae produce webbed nests on leaves (CABI, 2016)	Yes.
INSECT: Thysanoptera: Thripidae <i>Thrips angusticeps</i> Uzel	BE, DE, ES, GB (EPPO, 2014); TN (Jenser, 1982)	(CABI, 2016)	Flower, fruit, stems, leaves (CABI, 2016)	Yes.
INSECT: Thysanoptera: Thripidae <i>Thrips flavus</i> Schrank	DE, ES (Natural History Museum, 2014); GB (Morison, 1968)	(CABI, 2016)	Flowers (CABI, 2016)	No.

Pest name	Presence in export area ¹	Host association	Plant part(s) ²	Considered further? ³
INSECT: Thysanoptera: Thripidae <i>Thrips palmi</i> Karny	BR (Monteiro et al., 1995); CO (EPPO, 2014); CR (EPPO, 2014); VT (Quyen et al., 2008)	(CABI, 2016)	Leaves, flowers (CABI, 2016)	Yes. Present in HI, FL (EPPO, 2014).
CHROMISTAN: <i>Phytophthora chrysanthemi</i> Naher, Hi. Watan., Chikuo & Kageyama	DE (Götz et al., 2017; Naher et al., 2011)	(Götz et al., 2017; Naher et al., 2011)	Stems, roots (Naher et al., 2011)	Yes. Only reported once in Ohio, United States (Lin et al., 2017).
FUNGI: <i>Puccinia horiana</i> Henn.	TN, BE, NL, DE, UK, MX, NI, PA, GT, BR, CO (Farr & Rossman, 2016)	(Farr & Rossman, 2016)	Leaves (Demers et al., 2015)	Yes. Considered quarantine for CONUS (ARM, 2024), however, the regulatory status of this pest is under review.
FUNGI: <i>Sphaerulina socia</i> (Pass.) Quaedvlieg, Verkley & Crous syn. <i>Septoria socia</i> (Pass.)	DE (Farr & Rossman, 2024)	(Farr and Rossman, 2016)	Leaves (Farr and Rossman, 2016)	Yes.
VIRUS: <i>Carnation Italian ringspot virus</i> (CIRV)	DE, NL, UK (Koenig et al., 2009; Webster et al., 2024)	(Seo et al., 2015)	Leaves, whole plants (Seo et al., 2015)	Yes. Present in MN (Kiambi et al., 2018)
VIRUS: <i>Chrysanthemum stem necrosis virus</i> (CSNV)	BR (Bezerra et al., 1999; EPPO, 2020), BE (De Jonghe et al., 2013; EPPO, 2020)	(De Jonghe et al., 2013)	Leaves, stem (Bezerra et al., 1999; De Jonghe et al., 2013; Gleason et al., 2009)	Yes.
VIRUS: <i>Tomato leaf curl New Delhi virus</i> (ToLCNDV)	ES (Juárez et al., 2014), TN (Mnari-Hattab et al., 2015)	(Ashwathappa et al., 2020)	Leaves (Ashwathappa et al., 2020)	Yes.

Pest name	Presence in export area ¹	Host association	Plant part(s) ²	Considered further? ³
MOLLUSK <i>Achatina fulica</i> Bowdich; syn. <i>Lissachatina fulica</i> (Bowdich)	BO, BR (CABI, 2016); ES (CABI, 2024); ET, KE, TZ (CABI, 2016); VT (CABI, 2016)	CABI, 2024	Leaves and stems (CABI, 2016)	No. Unlikely to follow pathway because of size of young; adults are large and are visually detectable, as is their feeding damage, and eggs are laid in soil (CABI, 2016).

2.2. Pests considered but not included on the pest list

2.2.1. Organisms with non-quarantine status

We found evidence of organisms that are associated with *Chrysanthemum* (= *Dendranthema*) spp., *Leucanthemella serotina*, and *Nipponanthemum nipponicum* and are present in the export area; however, they are not of quarantine significance for the PRA area (see Appendix).

2.2.2. Quarantine pests considered but not included on the pest list

Gonipterus gibberus Boisduval (Coleoptera: Curculionidae) has been reported from Brazil (Fenilli, 1982), and associated with *Chrysanthemum* (CABI, 2016). However, it has since been shown that the species in Brazil is *Gonipterus pulverulentus* Lea, a species that only affects *Eucalyptus* (Mapondera et al., 2012). Therefore, we did not include it in the pest list.

2.3. Pests identified as potential risks

All organisms identified as having a reasonable likelihood of being associated with the commodity plant part(s) at the time of harvest and remaining with the commodity, in viable form, throughout the harvesting process are consolidated in the Executive Summary of this document.

3. Conclusions of Pest List

Of the organisms associated with *Chrysanthemum* (= *Dendranthema*) spp., *Leucanthemella serotina*, and *Nipponanthemum nipponicum* cuttings and *in vitro* plantlets worldwide and present in Belgium, Bolivia, Brazil, Canada, Colombia, Costa Rica, El Salvador, Ethiopia, Germany, Guatemala, Kenya, Mexico, Nicaragua, the Netherlands, Panama, Spain, Tanzania, Tunisia, Uganda, the United Kingdom, or Vietnam, we identified 35 organisms that have a reasonable likelihood of following the commodity import pathway.

Detailed examination and choice of appropriate phytosanitary measures to mitigate pest risk are part of the pest risk management phase within APHIS and are not addressed in this document.

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5. Appendix: Pests with non-quarantine status

We found evidence that the organisms listed below are associated with *Chrysanthemum* and are present in Canada, Ethiopia, Kenya, Tanzania, Tunisia, Uganda, Belgium, Germany, the Netherlands, Spain, the United Kingdom, Mexico, Costa Rica, Guatemala, El Salvador, Nicaragua, Panama, Bolivia, Brazil, Colombia, or Vietnam; however, none are of quarantine significance for the continental United States (ARM, 2024, or as defined by ISPM No. 5 [(IPPC, 2024)]). Although we did not intensively evaluate the evidence, we provide references supporting each pest’s potential presence in the exporting countries, presence in continental United States (if applicable), and association with the *Chrysanthemum*. If any of the organisms are **not** present in the continental United States, we also provided justification for their non-quarantine status. Unless otherwise noted, these organisms are non-actionable at U.S. ports of entry (ARM, 2024).

Organism	Presence in the exporting area	In U.S.	Host association	Notes
INSECT: Hemiptera: Diaspididae: <i>Aonidomytilus albus</i> (Cockerell)	Kenya, Tanzania, Uganda, Brazil (Nakahara, 1982); Mexico (EPPO, 2014); Colombia (Kondo, 2001)	US (Nakahara, 1982)	<i>Chrysanthemum</i> (CABI, 2016)	N/A
INSECT: Hemiptera: Aphididae: <i>Aphis fabae</i> Scopoli	Widespread in Europe, Africa, and North America (Alford, 2012)	(Blackman and Eastop, 2016)	<i>Chrysanthemum</i> (Alford, 2012)	N/A
INSECT: Hemiptera: Aphididae: <i>Aphis gossypii</i> Glover	Canada (CABI, 2018); Cosmopolitan (Alford, 2012)	(Blackman and Eastop, 2016)	<i>Chrysanthemum</i> (Alford, 2012)	N/A
INSECT: Hemiptera: Aphididae: <i>Aulacorthum circumflexum</i> (Buckton)	Canada (Richards, 1972)	(Blackman and Eastop, 2016)	<i>Chrysanthemum</i> (Alford, 2012)	N/A
INSECT: Hemiptera: Aleyrodidae: <i>Bemisia tabaci</i> (Gennadius); syn. <i>Bemisia argentifolii</i> Bellows & Perring	Canada (CABI, 2018); Ethiopia, Kenya, Tanzania, Tunisia, Uganda, Mexico, Costa Rica, El Salvador, Guatemala, Nicaragua, Panama, Bolivia, Brazil, Colombia, Belgium, Germany, Netherlands, Spain, UK (EPPO, 2014); Vietnam (Waterhouse, 1993);	US (EPPO, 2014)	<i>Chrysanthemum</i> (CABI, 2016)	N/A
INSECT: Lepidoptera: Geometridae: <i>Biston betularia</i> (L.)	Europe (Carter, 1984); Europe and North America (Zhang, 1994)	US (MPG, 2016)	<i>Chrysanthemum</i> (Alford, 2012)	N/A

Organism	Presence in the exporting area	In U.S.	Host association	Notes
INSECT: Hemiptera: Aphididae: <i>Brachycaudus helichrysi</i> Kaltenbach	Canada (CABI, 2018); Germany (Schliephake and Karl, 1995); Netherlands (De Bokx and Piron, 1990); UK (Hartfield and Campbell, 1996); Cosmopolitan (Blackman and Eastop, 2016)	US (Oetting et al., 1977)	<i>Chrysanthemum</i> (Alford, 2012)	N/A
INSECT: Acari: Tenuipalpidae: <i>Brevipalpus obovatus</i> Donnadieu	Canada (Baker and Tuttle, 1964); Kenya, Tanzania, Uganda, Belgium, Spain (CIE, 1988a); Mexico (Schotman, 1989); Costa Rica (Aguilar and Murillo, 2012)	US (Schotman, 1989)	<i>Chrysanthemum</i> (Alford, 2012)	N/A
INSECT: Lepidoptera: Tortricidae: <i>Cacoecimorpha pronubana</i> Hübner	Canada (Hill, 1987); Tunisia (EPPO, 2014); Africa (Carter, 1984); (Zhang, 1994). Germany, Netherlands, Spain, United Kingdom (EPPO, 2014). <i>Chrysanthemum</i> (CABI, 2016).	CABI, 2018	<i>Chrysanthemum</i> (CABI, 2018)	Non-quarantine for continental United States (ARM, 10/24/2024).
INSECT: Hemiptera: Miridae: <i>Calocoris norvegicus</i> (Gmelin); syn. <i>Closterotomus norvegicus</i>	Canada (Knight, 1941); Germany, UK (Alford, 2012)	US (UC IPM, 2014)	<i>Chrysanthemum</i> (Alford, 2012)	N/A
INSECT: Hemiptera: Coccidae: <i>Ceroplastes floridensis</i> Comstock	Kenya, Tanzania, Uganda, Mexico, Costa Rica, Guatemala, Nicaragua, Panama, Brazil, Colombia (CABI/EPPO, 2010); Tunisia (Jendoubi et al., 2012); Vietnam (Ben-Dov, 1993)	US (CABI/EPPO, 2010)	<i>Chrysanthemum</i> (Alford, 2012)	N/A
INSECT: Thysanoptera: Thripidae: <i>Chaetanaphothrips orchidii</i> (Moulton)	Brazil Costa Rica (CIE, 1988b); Mexico (Stannard, 1968)	US (Stannard, 1968)	<i>Chrysanthemum</i> (Alford, 2012)	N/A

Organism	Presence in the exporting area	In U.S.	Host association	Notes
INSECT: Diptera: Agromyzidae: <i>Chromatomyia syngenesiae</i> Hardy; syns. <i>Phytomyza chrysanthemi</i> ; <i>P. syngenesiae</i> (Hardy)	Canada (Hill, 1987); Europe (Alford, 2012) & North America (Alford, 2012)	US (Alford, 2012)	<i>Chrysanthemum</i> (Alford, 2012)	N/A
INSECT: Lepidoptera: Noctuidae: <i>Chrysodeixis includens</i> (Walker)	Brazil (Camargo, 2001); Colombia (Rodriguez et al., 1984); Nicaragua (Manley, 1983); North, Central, & South America (Zhang, 1994)	US (MPG, 2016)	<i>Chrysanthemum</i> (CABI, 2016)	N/A
INSECT: Lepidoptera: Tortricidae: <i>Cnephasia longana</i> (Haworth)	Canada (Cram and Tonks, 1959); Belgium, Germany, Netherlands, Spain, UK (Karsholt and Razowski, 1996)	US (Coop et al., 1989)	<i>Chrysanthemum</i> (Alford, 2012)	N/A
INSECT: Lepidoptera: Tortricidae: <i>Cnephasia stephensiana</i> (Doubleday)	Canada (Mutuura, 1982), Europe (Meijerman and Ulenberg, 2004)	US (Moth Photographer's Group, n.d.)	<i>Chrysanthemum</i> (Carter, 1984) (Meijerman and Ulenberg, 2004)	Not listed in ARM, but commonly found in northeastern US (Moth Photographer's Group, n.d.).
INSECT: Hemiptera: Coccidae: <i>Coccus hesperidum</i> L.	Canada (CABI, 2018); Vietnam, Kenya, Tanzania, Ethiopia, Uganda, Mexico, El Salvador, Panama, Brazil, Colombia, Belgium, Germany, Spain, UK (Ben-Dov, 1993); Tunisia, Costa Rica, Guatemala (CIE, 1972a); Netherlands (CABI, 2016)	US (Ben-Dov, 1993)	<i>Chrysanthemum</i> (CABI, 2016)	N/A
INSECT: Hemiptera: Coccidae: <i>Coccus viridis</i> (Green);	Ethiopia, Kenya, Tanzania, Uganda, Mexico, El Salvador, Guatemala, Nicaragua, Bolivia, Brazil, Colombia (EPPO, 2014); Costa Rica	US (Fasulo, 2007)	<i>Chrysanthemum</i> (CABI, 2016)	N/A

Organism	Presence in the exporting area	In U.S.	Host association	Notes
	(MAGS, 2009); UK (Malumphy & Tresedor, 2012); Vietnam (Waterhouse, 1993)			
INSECT: Hemiptera: Aphididae: <i>Coloradoa rufomaculata</i> (Wilson)	Canada (Miller and Stoetzel, 1997); Cosmopolitan (Alford, 2012)	US (Blackman and Eastop, 2016)	<i>Chrysanthemum</i> (Alford, 2012)	N/A
INSECT: Hemiptera: Diaspididae: <i>Diaspidiotus perniciosus</i> (Comstock); syn. <i>Comstockaspis perniciosus</i>	Canada (CABI, 2018); Vietnam (Danzig, 1993); Tunisia, Brazil, Germany, Netherlands, Spain (EPPO, 2014); Mexico (Borchsenius, 1966); Bolivia (García Morales et al., 2016)	US (García Morales et al., 2016)	<i>Chrysanthemum</i> (CABI, 2016)	N/A
INSECT: Lepidoptera: Tortricidae: <i>Dichrorampha sedatana</i> (Busck)	UK (Zhang, 1994)	US (MPG, 2016)	<i>Chrysanthemum</i> (CABI, 2016)	N/A
INSECT: Thysanoptera: Thripidae: <i>Echinothrips americanus</i> Morgan	Europe (Alford, 2012)	Eastern US (Alford, 2012)	<i>Chrysanthemum</i> (Alford, 2012)	N/A
INSECT: Coleoptera: Meloidae: <i>Epicauta pestifera</i> Werner; syn. <i>E. marginata</i>	Brazil (Acioli et al., 2014)	US (Arnett, 1985)	<i>Chrysanthemum</i> (Weigel, 1923)	N/A
INSECT: Lepidoptera: Tortricidae: <i>Epiphyas postvittana</i> Walker	United Kingdom (Carter, 1984)	US (CABI, 2016)	<i>Chrysanthemum</i> (Noma et al., 2010)	Non-quarantine for continental US (ARM, queried 10/24/2024).
INSECT: Diptera: Syrphidae: <i>Eristalis tenax</i> (L.)	Europe (Alford, 2012)	US (Alford, 2012)	<i>Chrysanthemum</i> (Alford, 2012)	N/A
INSECT: Hemiptera: Cicadellidae: <i>Eupteryx melissae</i> Curtis	Canada (Hamilton, 1983); UK (Bantock, 2008)	US (Bartelt, 2011)	<i>Chrysanthemum</i> (Alford, 2012)	N/A
INSECT: Dermaptera: Forficulidae: <i>Forficula auricularia</i> L.	Canada (CABI, 2018); Widespread in Europe (Alford, 2012)	US (Capinera, 2010)	<i>Chrysanthemum</i> (Alford, 2012)	N/A
INSECT: Thysanoptera: Thripidae:	Canada (CABI, 2018); Belgium, Germany, Netherlands, Spain,	US (Nakahara, 1982)	<i>Chrysanthemum</i> (CABI, 2016)	N/A

Organism	Presence in the exporting area	In U.S.	Host association	Notes
<i>Frankliniella intonsa</i> (Trybom)	UK (CABI/EPPO, 1999)			
INSECT: Thysanoptera: Thripidae: <i>Frankliniella occidentalis</i> (Pergande)	Canada (CABI, 2018); Kenya, Guatemala, Costa Rica, Brazil, Colombia (Nakahara, 1982); Tunisia, UK (Kirk and Terry, 2003); Uganda, Belgium, Germany, Spain (EPPO, 2014)	US (Kirk and Terry, 2003)	<i>Chrysanthemum</i> (Alford, 2012)	N/A
INSECT: Thysanoptera: Thripidae: <i>Frankliniella panamensis</i> Hood	Colombia (Cárdenas and Corredor, 1993)	US (CABI, 2016)	<i>C. moriolium</i> (Cárdenas and Corredor, 1993)	Non-quarantine (ARM, 2024).
INSECT: Thysanoptera: Thripidae: <i>Frankliniella tritici</i> (Fitch)	Spain (CABI, 2016)	US (Lewis, 1973; Cluever et al., 2015)	<i>Chrysanthemum</i> (CABI, 2016)	N/A
INSECT: Orthoptera: Gryllotalpidae: <i>Gryllotalpa gryllotalpa</i> (L.)	Belgium (Jansen, 2004); Germany (Schreiber, 2004); Netherlands (Tempelman, 2002); Spain (CABI, 2016); UK (Sheppard and Marshall, 2004)	US (Frank et al., 2004)	<i>Chrysanthemum</i> (CABI, 2016)	N/A
INSECT: Lepidoptera: Noctuidae: <i>Helicoverpa zea</i> (Boddie); syn. <i>Heliothis obsoleta</i> (auct.)	Mexico, Costa Rica, El Salvador, Guatemala, Nicaragua, Panama, Bolivia, Brazil, Colombia (EPPO, 2014); North, Central, & South America (Carter, 1984; Zhang, 1994)	US (Arnett, 1985)	<i>Chrysanthemum</i> (Weigel, 1923)	N/A
INSECT: Thysanoptera: Thripidae: <i>Heliothrips haemorrhoidalis</i> (Bouché); syn. <i>H. adonidium</i> Haliday	Canada (CABI, 2018); Vietnam (Waterhouse, 1993); Kenya, Tanzania, Uganda, Bolivia, Brazil, Belgium, Germany, Netherlands, Spain (CIE, 1961); Panama (CABI, 2016);	US (CIE, 1961)	<i>Chrysanthemum</i> (Alford, 2012)	N/A

Organism	Presence in the exporting area	In U.S.	Host association	Notes
	Colombia (Escobar et al., 1985); UK (Mound, 1976)			
INSECT: Thysanoptera: Thripidae: <i>Hercinothrips femoralis</i> (Reuter)	Tanzania, Brazil, Spain (CIE, 1979)	US (CIE, 1979)	<i>Chrysanthemum</i> (CABI, 2016)	N/A
INSECT: <i>Hydraecia micacea</i> (Esper); Lepidoptera: Noctuidae	Europe (Alford, 2012); Europe & North America (Carter, 1984; Zhang, 1994)	US (MPG, 2016)	<i>Chrysanthemum</i> (Alford, 2012)	N/A
INSECT: Hemiptera: Ortheziidae: <i>Insignorthesia insignis</i> (Browne)	Kenya, Tanzania, Brazil (CIE, 1957); Uganda (Epila, 1986); Mexico, El Salvador, Guatemala, Panama, Germany (García Morales et al., 2016); Colombia, Belgium (CABI, 2016)	US (García Morales et al., 2016)	<i>Chrysanthemum</i> (CABI, 2016)	N/A
INSECT: Coleoptera: Elateridae: <i>Limonius californicus</i> (Mannerheim)	Canada (CABI, 2018)	US (CABI, 2018)	<i>Chrysanthemum</i> (CABI, 2018)	N/A
INSECT: Thysanoptera: Thripidae: <i>Limothrips cerealium</i> Haliday	Belgium, Germany, Netherlands, Spain (CIE, 1968)	US (CIE, 1968)	<i>Chrysanthemum</i> (Alford, 2012)	N/A
INSECT: Diptera: Agromyzidae: <i>Liriomyza sativae</i> Blanchard	Canada (CABI, 2018); Europe (Alford, 2012)	US (Alford, 2012)	<i>Chrysanthemum</i> (Alford, 2012)	N/A
INSECT: Diptera: Agromyzidae: <i>Liriomyza trifolii</i> Burgess	Canada (CABI, 2018); Vietnam, Ethiopia, Kenya, Tanzania, Tunisia, Costa Rica, Guatemala, Brazil, Colombia, Belgium, Netherlands, Spain, UK (EPPO, 2014); Mexico (Martinez, 2002)	US (EPPO, 2014)	<i>Chrysanthemum</i> (Alford, 2012)	N/A
INSECT: Coleoptera: Curculionidae: <i>Listroderes costirostris</i> Schönherr	Spain, Brazil, Bolivia (Morrone, 1993)	US (O'Brien and Wibmer, 1982)	<i>Chrysanthemum</i> (CABI, 2016)	N/A

Organism	Presence in the exporting area	In U.S.	Host association	Notes
INSECT: Hemiptera: Miridae: <i>Lygocoris pabulinus</i> L.	Canada (Kelton, 1971); United Kingdom (Jones, 1966)	US (CABI, 2016)	<i>Chrysanthemum</i> (Jones, 1966)	Non- quarantine for continental US (ARM, 10/24/2024).
INSECT: Hemiptera: Aphididae: <i>Macrosiphoniella sanborni</i> (Gillette)	Canada (Robinson, 1987); Brazil, Colombia (Schotman, 1989); UK (Blackman and Eastop, 2016); Cosmopolitan (Blackman and Eastop, 2016)	US (Blackman and Eastop, 2016)	<i>Chrysanthemum</i> (Alford, 2012)	N/A
INSECT: Coleoptera: Chrysomelidae: <i>Mantura chrysanthemii</i> (Koch)	Canada (Riley et al., 2003)	US (CABI, 2016)	<i>Chrysanthemum</i> (Howarth and Williams, 1968)	N/A
INSECT: Hemiptera: Pentatomidae: <i>Murgantia histrionica</i> (Hahn)	Mexico (Barrios-Diaz, 2004)	US (Arnett, 1985)	<i>Chrysanthemum</i> (CABI, 2016)	N/A
INSECT: Hemiptera: Aphididae: <i>Myzus persicae</i> Sulzer	Canada (CABI, 2018); Vietnam (Waterhouse, 1993); Ethiopia, Kenya, Tanzania, Uganda (Millar, 1994); Tunisia, Belgium, Germany, Netherlands, Spain, UK (CIE, 1979); Mexico, Costa Rica, El Salvador, Guatemala, Bolivia, Brazil, Colombia (Smith and Cermeli, 1979); worldwide (Blackman and Eastop, 2016)	US (Smith and Parron, 1978)	<i>Chrysanthemum</i> (Alford, 2012)	N/A
INSECT: Agromyzidae <i>Nemorimyza maculosa</i> (Malloch); syn. <i>Amauromyza maculosa</i> (Malloch)	Canada (CABI, 2018)	US (Stegmaier Jr., 1967)	<i>Chrysanthemum</i> (Alford, 2012)	N/A
INSECT: Hemiptera: Aphididae: <i>Neomyzus circumflexus</i> (Buckton); syn. <i>Aulacorthum</i>	Tunisia (CABI, 2016)	US (Blackman and Eastop, 2016)	<i>Chrysanthemum</i> (Alford, 2012)	N/A

Organism	Presence in the exporting area	In U.S.	Host association	Notes
<i>circumflexum</i> (Buckton)				
INSECT: Hemiptera: Pseudococcidae: <i>Nipaecoccus viridis</i> (Newstead)	Kenya, Tanzania, Uganda, Mexico, Vietnam (García Morales et al., 2016)	FL (Stocks and Hodges, 2010)	<i>Chrysanthemum</i> (García Morales et al., 2016)	Non- quarantine (USDA, 2021)
INSECT: Lepidoptera: Noctuidae: <i>Noctua</i> <i>pronuba</i> (L.)	Tunisia (Soures, 1948); Germany (Pape, 1964); UK (Heath and Emmet, 1979); Europe & Africa (Carter, 1984; Zhang, 1994)	US (MPG, 2016)	<i>Chrysanthemum</i> (Alford, 2012)	N/A
INSECT: Lepidoptera: Crambidae: <i>Omiodes</i> <i>indicata</i> (Fabricius)	Brazil (Camargo, 2001); Vietnam (Waterhouse, 1993)	US (BAMONA, 2016; MPG, 2016)	<i>Chrysanthemum</i> (CABI, 2016)	N/A
INSECT: Lepidoptera: Crambidae: <i>Ostrinia</i> <i>nubilalis</i> (Hübner)	Canada (CABI, 2018); Tunisia, Belgium, Germany, Netherlands, Spain, UK (EPPO, 2014); Europe, Africa, & North America (Carter, 1984; Zhang, 1994)	US (Arnett, 1985; MPG, 2016)	<i>Chrysanthemum</i> (CABI, 2016)	N/A
INSECT: Coleoptera: Curculionidae: <i>Otiorhynchus sulcatus</i> (Fabricius)	Canada (CABI, 2018); Belgium, Germany, Spain, UK (EPPO, 2014)	US (O'Brien and Wibmer, 1982)	<i>Chrysanthemum</i> (CABI, 2016)	N/A
INSECT: Lepidoptera: Noctuidae: <i>Peridroma</i> <i>saucia</i> (Hübner)	Canada (CABI, 2018); Tunisia (Soures, 1948); Mexico, Costa Rica, Guatemala, Brazil (Hampson, 1903); Colombia (Chacon & Rojas, 1981); Belgium, Germany, Netherlands, Spain, UK (Nowacki and Fibiger, 1996)	US (MPG, 2016)	<i>Chrysanthemum</i> (Alford, 2012)	N/A
INSECT: Hemiptera: Pseudococcidae: <i>Phenacoccus</i> <i>solenopsis</i> Tinsley	Canada (CABI, 2018); Vietnam (Nguyen and Huynh, 2008); Mexico, Panama (Williams and Granara de Willink, 1992); Guatemala, Brazil (Hodges et al., 2008); Nicaragua (Maes, 2009); Netherlands (Jansen,	US (McKenzie, 1967)	<i>Chrysanthemum</i> (CABI, 2016)	N/A

Organism	Presence in the exporting area	In U.S.	Host association	Notes
	2004); Colombia (De Willinck et al., 2007);			
INSECT: Hemiptera: Cercopidae: <i>Philaenus spumarius</i> (L.)	Canada (CABI, 2018); Widespread in Europe (Alford, 2012)	US (DeLong and Severin, 1950)	<i>Chrysanthemum</i> (Alford, 2012)	N/A
INSECT: Acari: Tarsonemidae: <i>Phytonemus pallidus</i> (Banks)	Canada (CABI, 2018); Mexico (Diaz-Castro, 1981); Costa Rica (Ochoa et al., 1996); Brazil (Flechtmann, 1967); Colombia (Urueta Sandino and Alzate, 1978); Belgium (Heungens, 1986); Germany (Hauschildt, 1978); Netherlands (Heungens and Daele, 1980); UK (Vernon et al., 1965);	US (USDA, 1971)	<i>Chrysanthemum</i> (CABI, 2016)	N/A
INSECT: Hemiptera: Pseudococcidae: <i>Planococcus citri</i> (Risso); syn. <i>Pseudococcus citri</i> (Risso)	Vietnam (Waterhouse, 1993); Brazil, Colombia, Costa Rica, El Salvador, Guatemala, Mexico, Spain, Tunisia, UK (García Morales et al., 2016)	US (García Morales et al., 2016)	<i>Chrysanthemum</i> (Weigel, 1923)	N/A
INSECT: Lepidoptera: Tortricidae: <i>Platynota stultana</i> Walsingham	Mexico (EPPO, 2014); Spain (Groenen and Baixeras, 2013); Europe (Zhang, 1994)	US (Zhang, 1994; MPG, 2016)	<i>Chrysanthemum</i> (CABI, 2016)	N/A
INSECT: Acari: Tarsonemidae: <i>Polyphagotarsonemus latus</i> Banks	Canada (CABI, 2018); Vietnam (Duong, 1998); Ethiopia, Kenya, Tanzania, Uganda, Nicaragua, Brazil, Colombia, Belgium, Germany, Netherlands, Spain, UK (CIE, 1986); Costa Rica (Aguilar and Murillo, 2012); Panama (CABI, 2016)	US (CIE, 1986)	<i>Chrysanthemum</i> (Alford, 2012)	N/A
INSECT: Hemiptera: Pseudococcidae: <i>Pseudococcus longispinus</i> Targioni Tozzetti; syn.	Brazil, Colombia, Costa Rica, El Salvador, Germany, Guatemala, Mexico,	US, widespread (Miller, 2014)	<i>Chrysanthemum</i> (Weigel, 1923)	N/A

Organism	Presence in the exporting area	In U.S.	Host association	Notes
<i>Pseudococcus adonidum</i> (L.)	Netherlands, Panama, Vietnam (Miller, 2014)			
INSECT: Diptera: Cecidomyiidae: <i>Rhopalomyia chrysanthemi</i> Ahlberg; syn. <i>Diarthronomyia hypogaea</i> Loew, <i>D. chrysanthemi</i>	Canada (Gibson, 1917); UK (Natural History Museum, 2014); Colombia (unconfirmed: (CABI, 2016), Germany (Fauna Europaea, 2018)	US (Fauna Europaea, 2018; Schotman, 1989)	<i>Chrysanthemum</i> (CABI, 2016)	N/A
INSECT: Hemiptera: Coccidae: <i>Saissetia coffeae</i> (Walker)	Vietnam (Waterhouse, 1993); Ethiopia, Tanzania, Costa Rica, El Salvador, Guatemala, Brazil, Colombia (CIE, 1973); Kenya, Uganda, Panama, Germany, Spain (Ben-Dov, 1993); Mexico (CABI, 2016; Maes, 2004); Belgium, Netherlands, UK (CABI, 2016)	US (Ben-Dov, 1993)	<i>Chrysanthemum</i> (Weigel, 1923)	N/A
INSECT: Lepidoptera: Noctuidae: <i>Spodoptera albula</i> (Walker)	Costa Rica, Nicaragua, Colombia (CABI, 2016); Central & South America (Zhang, 1994)	US (BAMONA, 2016; MAGS, 2009)	<i>Chrysanthemum</i> (CABI, 2016)	N/A
INSECT: Lepidoptera: Noctuidae: <i>Spodoptera eridania</i> Stoll	Mexico, Nicaragua, Brazil (EPPO, 2014); Central & South America (Zhang, 1994)	US (EPPO, 2014; MPG, 2016)	<i>Chrysanthemum</i> (CABI, 2016)	N/A
INSECT: Lepidoptera: Noctuidae: <i>Spodoptera exigua</i> (Hübner)	Canada (CABI, 2018); Vietnam (Waterhouse, 1993); Ethiopia, Kenya, Tanzania, Tunisia, Mexico, Germany, Spain (CIE, 1972b); Costa Rica (MAGS, 2009); Nicaragua (Perez et al., 2000); Belgium (Smagghe, 2000); UK (Tremewan, 2002); Europe, Africa, Southeast Asia (Carter, 1984; Zhang, 1994)	US (CIE, 1972b; MPG, 2016)	<i>Chrysanthemum</i> (Alford, 2012)	N/A

Organism	Presence in the exporting area	In U.S.	Host association	Notes
INSECT: Lepidoptera: Noctuidae: <i>Spodoptera frugiperda</i> Smith	Canada (CABI, 2018); Mexico (Sifuentes, 1978); Costa Rica, El Salvador, Guatemala, Panama, Bolivia, Brazil, Colombia, Germany (EPPO, 2014); Nicaragua (Huis, 1981); Central & South America (Zhang, 1994)	US (Greathead and Greathead, 1992; MPG, 2016)	<i>Chrysanthemum</i> (CABI, 2016)	N/A
INSECT: Acari: Tetranychidae: <i>Tetranychus cinnabarinus</i> (Boisduval)	Kenya (Anyango, 2003); Tunisia (Grissa and Sahraoui, 2007); Uganda (Nyiiri and Mutinga, 1977); Mexico (Urias Lopez and Sanchez, 1983); Costa Rica (Ochoa, 1990); Brazil (Samways, 1979); Colombia (Guerrero and Bellotti, 1980); Spain (Garcia, 1986); UK (Foster and Barker, 1978)	US (Mollet and Sevacherian, 1984)	<i>Chrysanthemum</i> (CABI, 2016)	N/A
INSECT: Acari: Tetranychidae: <i>Tetranychus ludeni</i> Zacher	Kenya (Wandahwa et al., 1996); Brazil, Colombia, Costa Rica, El Salvador, Mexico, Nicaragua, Spain (CABI, 2016)	US (CABI, 2016)	<i>Chrysanthemum</i> (Wandahwa et al., 1996)	Non-quarantine (USDA, 2021).
INSECT: Acari: Tetranychidae: <i>Tetranychus urticae</i> Koch	Canada (CABI, 2018); Vietnam (Waterhouse, 1993); Kenya, Tanzania, Tunisia, Uganda, Mexico, Costa Rica, Brazil, Colombia, Belgium, Germany, Netherlands, Spain, UK (CIE, 1996)	US (CIE, 1996)	<i>Chrysanthemum</i> (CABI, 2016)	N/A
INSECT: Thysanoptera: Thripidae: <i>Thrips hawaiiensis</i> (Morgan)	Vietnam, Mexico (Nakahara, 1982); Uganda (CIE, 1983); Spain (Goldarazena, 2011)	US (Nakahara, 1982)	<i>Chrysanthemum</i> (CABI, 2016)	N/A
INSECT: Thysanoptera:	Kenya; Tanzania, Belgium, Germany,	US (CIE, 1980)	<i>Chrysanthemum</i> (Alford, 2012)	N/A

Organism	Presence in the exporting area	In U.S.	Host association	Notes
Thripidae: <i>Thrips nigropilosus</i> Uzel	Netherlands, UK (CIE, 1980);			
INSECT: Thysanoptera: Thripidae: <i>Thrips tabaci</i> Lindeman	Canada (CABI, 2018); Vietnam (Waterhouse, 1993); Ethiopia, Kenya, Tanzania, Uganda, Mexico, Costa Rica, Brazil, Colombia, Belgium, Germany, Netherlands, UK (UK CAB International, 1969); Tunisia (Jenser, 1982); Nicaragua (Rueda and Shelton, 2003)	US (UK CAB International, 1969)	<i>Chrysanthemum</i> (Alford, 2012)	N/A
INSECT: Hemiptera: Aleyrodidae: <i>Trialeurodes vaporariorum</i> Westwood	Canada (CABI, 2018); Ethiopia, Kenya, El Salvador, Guatemala, Brazil, Netherlands (Byrne, 1990); Mexico (Lopez and Botto, 1995); Costa Rica, Colombia, Belgium, Germany, Spain UK (EPPO, 2014); Panama (CABI, 2016)	US (Byrne, 1990)	<i>Chrysanthemum</i> (Alford, 2012)	N/A
INSECT: Lepidoptera: Noctuidae: <i>Trichoplusia ni</i> (Hübner)	Canada (CABI, 2018); Vietnam (Waterhouse, 1993); Ethiopia, Kenya, Tanzania, Tunisia, Mexico, Nicaragua, Bolivia, Brazil, Netherlands, Spain (CIE, 1974); Costa Rica (MAGS, 2009); UK (Kloet and Hincks, 1967); Europe & North America (Zhang, 1994)	US (MPG, 2016)	<i>Chrysanthemum</i> (CABI, 2016)	N/A
INSECT: Lepidoptera: Nymphalidae: <i>Vanessa cardui</i> (L.); syn. <i>Cynthia cardui</i> L.	Europe & UK (Hoskins, 2016); cosmopolitan except South America (Zhang, 1994);	US (BAMONA, 2015; MPG, 2016)	<i>Chrysanthemum</i> (CABI, 2016)	N/A
INSECT: Lepidoptera: Noctuidae: <i>Xestia c-nigrum</i> (L.)	Canada (CABI, 2018); Vietnam (De Joannis, 1928); Mexico, Belgium, Germany,	US (MPG, 2016)	<i>Chrysanthemum</i> (CABI, 2016)	N/A

Organism	Presence in the exporting area	In U.S.	Host association	Notes
	Netherlands, Spain, UK, El Salvador (Lafontaine, 1998); Europe, Africa, & North America (Carter, 1984; Zhang, 1994)			
NEMATODE: <i>Aphelenchoides besseyi</i> Christie	Kenya, Tanzania, Uganda, Belgium, Brazil, El Salvador, Panama, Vietnam, Mexico (CABI, 2016)	US (CABI, 2016)	<i>Chrysanthemum</i> (CABI, 2016)	N/A
NEMATODE: <i>Aphelenchoides fragariae</i> (Ritzema-Bos)	Canada (CABI, 2018)	US (CABI, 2016)	<i>Chrysanthemum</i> (Trolinger et al., 2018)	N/A
NEMATODE: <i>Aphelenchoides ritzemabosi</i> (Schwartz) Steiner & Buhner	Africa, Belgium, Germany, UK, Netherlands, Spain, Brazil, Central America, Mexico (CABI, 2016)	US (CABI, 2016)	<i>Chrysanthemum</i> (CABI, 2016)	N/A
NEMATODE: <i>Meloidogyne hapla</i> Chitwood	Canada (CABI, 2018)	US (CABI, 2016)	<i>Chrysanthemum</i> (CABI, 2018)	N/A
NEMATODE: <i>Meloidogyne incognita</i> (Kofoid & White)	Canada (CABI, 2018)	US (CABI, 2016)	<i>Chrysanthemum</i> (CABI, 2018)	N/A
NEMATODE: <i>Pratylenchus brachyurus</i> (Godfrey) Filipjev & Schuurmans Stekhoven syn.: <i>Pratylenchus pratensis</i> (de Man) Filipjev	Canada (CABI, 2018)	US (CABI, 2016)	<i>Chrysanthemum</i> (McCain, 2018)	N/A
NEMATODE: <i>Pratylenchus penetrans</i> (Cobb) Filipjev & Schuurmans Stekhoven	Canada (CABI, 2018)	US (CABI, 2016)	<i>Chrysanthemum</i> (Trolinger et al., 2018)	N/A
FUNGUS: <i>Alternaria alternata</i> (Fr.:Fr.) Kiessl. (Syn.: <i>Alternaria tenuis</i>)	Kenya (Farr and Rossman, 2016)	US (Farr and Rossman, 2016)	<i>Chrysanthemum</i> (Farr and Rossman, 2016)	N/A
FUNGUS: <i>Alternaria leucanthemi</i> Nelen (syn: <i>Teretispora leucanthemi</i> (Nelen) E.G. Simmons, syn.	Germany (Farr and Rossman, 2016)	US (Farr and Rossman, 2016)	<i>Chrysanthemum</i> (Farr and Rossman, 2016)	N/A

Organism	Presence in the exporting area	In U.S.	Host association	Notes
<i>Alternaria chrysanthemi</i> E.G. Simmons & Crosier)				
FUNGUS: <i>Alternaria tenuissima</i> (Nees & T. Nees: Fr.) Wiltshire	Mexico (Farr and Rossman, 2016)	US (Farr and Rossman, 2016)	<i>Chrysanthemum</i> (Dominguez-Serrano et al., 2016; Farr and Rossman, 2016)	N/A
FUNGUS: <i>Athelia rolfsii</i> (Curzi) Tu & Kimbr.; syn. <i>Sclerotium rolfsii</i> Sacc.	Brazil, Colombia, Mexico, Ethiopia, Kenya, Tanzania, Uganda, Costa Rica, Nicaragua, Panama, Guatemala, El Salvador, Spain, Germany, and US (Farr and Rossman, 2016)	US (Farr and Rossman, 2016)	<i>Chrysanthemum</i> (Farr and Rossman, 2016)	N/A
FUNGUS: <i>Bipolaris setariae</i> (Sawada) Shoemaker (<i>Cochliobolus setariae</i> (S. Ito & Kurib.) Drechsler ex Dastur (teleomorph), syn. <i>Drechslera setariae</i> (Shoemaker) Subram. & B.L. Jain	Ethiopia and US (Farr and Rossman, 2016)	US (Farr and Rossman, 2016)	<i>Chrysanthemum</i> (Farr and Rossman, 2016)	N/A
FUNGUS: <i>Botrytis cinerea</i> Pers.: Fr, syn.: <i>Botryotinia fuckeliana</i> (de Bary) Whetzel	Canada (Connors, 1967)	US (Farr and Rossman, 2016)	<i>Chrysanthemum</i> (Connors, 1967);	N/A
FUNGUS: <i>Calonectria morganii</i> Crous, Alfenas & M.J. Wingf. – [Alternate State (Anamorph): <i>Cylindrocladium scoparium</i> Morg.]	Brazil, Belgium, Mexico (Farr and Rossman, 2016)	US (Farr and Rossman, 2016)	<i>Chrysanthemum</i> (Crous, 2002)	N/A
FUNGUS: <i>Ceratobasidium anceps</i> (Bres. & Syd.) H. Jacks.	Germany, UK, Brazil (Farr and Rossman, 2016)	US (Farr and Rossman, 2016)	<i>Chrysanthemum</i> (Farr and Rossman, 2016)	N/A
FUNGUS: <i>Cercospora beticola</i> Sacc.	Kenya, Ethiopia, Tanzania, Uganda, Brazil, Colombia, Costa Rica, El Salvador, Nicaragua,	US (Farr and Rossman, 2016)	<i>Chrysanthemum</i> (Farr and Rossman, 2016)	N/A

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	Panama, Spain, Germany, UK (Farr and Rossman, 2016)			
FUNGUS: <i>Cercospora bidentis</i> Tharp	Brazil, Panama, Tanzania, Kenya, UK, (Farr and Rossman, 2016)	US (Farr and Rossman, 2016)	<i>Chrysanthemum</i> (Farr and Rossman, 2016)	N/A
FUNGUS: <i>Cercospora chrysanthemi</i> Heald & F.A. Wolf; syn. <i>Cercospora chrysanthemi-coronarii</i> Sawada	Brazil (Farr and Rossman, 2016)	US (Farr and Rossman, 2016)	<i>Chrysanthemum</i> (Farr & Rossman, 2016)	N/A
FUNGUS: <i>Cladosporium macrocarpum</i> Preuss	Germany, Netherlands, UK (Farr and Rossman, 2016)	US (Farr and Rossman, 2016)	<i>Chrysanthemum</i> (Farr and Rossman, 2016)	N/A
FUNGUS: <i>Coleosporium tussilaginis</i> (Pers.) Lév.	Belgium, Germany, Netherlands, Spain, UK, Brazil, Bolivia (Farr and Rossman, 2016)	US (Farr and Rossman, 2016)	<i>Chrysanthemum</i> (Farr and Rossman, 2016)	N/A
FUNGUS: <i>Colletotrichum acutatum</i> J.H. Simmonds	Netherlands (Farr and Rossman, 2016)	US (Farr and Rossman, 2016)	<i>Chrysanthemum</i> (Farr and Rossman, 2016)	N/A
FUNGUS: <i>Colletotrichum carthami</i> (Fukui) S. Uematsu, Kageyama, Moriwaki & Toy. Sato; syn. <i>Colletotrichum chrysanthemi</i> (Hori) Sawad	Netherlands (Farr and Rossman, 2016)	US (Farr and Rossman, 2016)	<i>Chrysanthemum</i> (Farr and Rossman, 2016)	N/A
FUNGUS: <i>Colletotrichum destructivum</i> O'Gara	Tanzania, the Netherlands (Farr and Rossman, 2016)	US (Farr and Rossman, 2016)	<i>Chrysanthemum</i> (Farr and Rossman, 2016)	N/A
FUNGUS: <i>Colletotrichum gloeosporioides</i> (Penz.) Penz. & Sacc.	Ethiopia, Kenya, Tanzania, Tunisia, Uganda, Germany, UK, Netherlands, Spain, Guatemala, El Salvador, Nicaragua, Panama, Colombia, Brazil, Bolivia, Mexico (Farr and Rossman, 2016)	US (Farr and Rossman, 2016)	<i>Chrysanthemum</i> (Farr and Rossman, 2016)	N/A

Organism	Presence in the exporting area	In U.S.	Host association	Notes
FUNGUS: <i>Corynespora cassicola</i> (Berk. & M.A. Curtis) C.T. Wei	Brazil, Panama, Germany, Mexico, Guatemala, Tanzania, UK (Farr and Rossman, 2016)	US (Farr and Rossman, 2016)	<i>Chrysanthemum</i> (Farr and Rossman, 2016)	N/A
FUNGUS: <i>Entyloma calendulae</i> (Oudem.) de Bary	Spain, Germany, UK, Tunisia, Kenya, Netherlands, Colombia, Mexico (Farr and Rossman, 2016)	US (Farr and Rossman, 2016)	<i>Chrysanthemum</i> (Farr and Rossman, 2016)	N/A
FUNGUS: <i>Entylomella chrysanthemi</i> (Ellis & Dearn.) Höhn. ex Cif., syn.: <i>Cylindrosporium chrysanthemi</i> Ellis & Dearn.	Canada (Conners, 1967); (Trent, 1939)	US (Farr and Rossman, 2016)	<i>Chrysanthemum</i> (Conners, 1967)	N/A
FUNGUS: <i>Erysiphe pisi</i> var. <i>pisii</i> DC., syn. <i>Erysiphe communis</i> DC.	Ethiopia, Kenya, Tunisia, Tanzania, Uganda, Germany, UK, Netherlands, Belgium, Spain, Guatemala, El Salvador, Colombia, Brazil (Farr and Rossman, 2016)	US (Farr and Rossman, 2016)	<i>Chrysanthemum</i> (Farr and Rossman, 2016)	N/A
FUNGUS: <i>Fusarium acuminatum</i> Ellis & Everh, syn. <i>Gibberella acuminata</i> Wollenw.	Colombia, Brazil, Kenya, Spain, UK (Farr and Rossman, 2016); Canada (Conners, 1967)	US (Farr and Rossman, 2016)	<i>Chrysanthemum</i> (Farr and Rossman, 2016)	N/A
FUNGUS: <i>Fusarium cerealis</i> (Cooke) Sacc., syn. <i>Fusarium roseum</i> f. <i>cereale</i> (Cooke) W.C. Snyder & H.N. Hansen	Germany, Spain (Farr and Rossman, 2016)	US (Farr and Rossman, 2016)	<i>Chrysanthemum</i> (Farr and Rossman, 2016)	N/A
FUNGUS: <i>Fusarium chlamydosporum</i> Wollenw. & Reinking, syn. <i>Fusarium fusarioides</i> (Gonz. Frag. & Cif.) C. Booth	Brazil, Kenya, Tanzania (Farr and Rossman, 2016)	US (Farr and Rossman, 2016)	<i>Chrysanthemum</i> (Farr and Rossman, 2016)	N/A
FUNGUS: <i>Fusarium equiseti</i> (Corda) Sacc	Brazil, Ethiopia, Kenya, Tanzania, Guatemala, Panama, Spain (Farr and Rossman, 2016);	US (Farr and Rossman, 2016)	<i>Chrysanthemum</i> (Farr and Rossman, 2016)	N/A

Organism	Presence in the exporting area	In U.S.	Host association	Notes
	Canada (Connors, 1967)			
FUNGUS: <i>Fusarium filiferum</i> (Preuss) Wollenw., syn. <i>Fusarium scirpi</i> var. <i>filiferum</i> (Preuss) Wollenw	Kenya, Tanzania, Kenya, Costa Rica, Guatemala, Mexico, Colombia (Farr and Rossman, 2016)	US (Farr and Rossman, 2016)	<i>Chrysanthemum</i> (Farr and Rossman, 2016)	N/A
FUNGUS: <i>Fusarium haematococcum</i> Nalim, Samuels & Geiser, syn. <i>Nectria haematococca</i> Berk. & Broome	Brazil (Farr and Rossman 2016)	US (Farr and Rossman, 2016)	<i>Chrysanthemum</i> (Farr and Rossman, 2016)	N/A
FUNGUS: <i>Fusarium lateritium</i> Nees: Fr	Kenya, Tanzania, Costa Rica, El Salvador, Panama, Belgium, Germany, Brazil, UK (Farr and Rossman, 2016).	US (Farr and Rossman, 2016)	<i>Chrysanthemum</i> (Farr and Rossman, 2016)	N/A
FUNGUS: <i>Fusarium moniliforme</i> J. Sheld.	Kenya, Colombia, Nicaragua, Guatemala, Costa Rica, Brazil, Mexico, Tanzania, Spain, Germany (Farr and Rossman, 2016)	US (Farr and Rossman, 2016)	<i>Chrysanthemum</i> (Farr and Rossman, 2016)	Infects <i>Chrysanthemum</i> sp., <i>C. morifolium</i> in several exporting countries.
FUNGUS: <i>Fusarium oxysporum</i> f. sp. <i>chrysanthemi</i> Littrell, Armstr., syn.: <i>F. oxysporum</i> f. sp. <i>tracheiphilum</i> (Sm.) Snyder and Hans.	Canada (Connors, 1967).	US (Farr and Rossman, 2016)	<i>Chrysanthemum</i> (Connors, 1967)	N/A
FUNGUS: <i>Fusarium oxysporum</i> f. sp. <i>conglutinans</i> (Wollenw.) W.C. Snyder & H.N. Hansen	Brazil, Netherlands, Panama, Mexico (Farr and Rossman, 2016)	US (Farr and Rossman, 2016)	<i>Chrysanthemum</i> (Farr and Rossman, 2016)	N/A
FUNGUS: <i>Fusarium oxysporum</i> f. sp. <i>tracheiphilum</i> (Sm.) Snyder & Hansen; syn. <i>Fusarium tracheiphilum</i> E.F. Sm.	Brazil, Mexico (Farr and Rossman, 2016)	US (Farr and Rossman, 2016)	<i>Chrysanthemum</i> (Farr and Rossman, 2016)	N/A
FUNGUS: <i>Fusarium oxysporum</i> Schldtl.: Fr.	Ethiopia, Brazil, Ethiopia, Tunisia, Tanzania, Kenya, El Salvador, Nicaragua,	US (Farr and Rossman, 2016)	<i>Chrysanthemum</i> (Farr and Rossman, 2016)	N/A

Organism	Presence in the exporting area	In U.S.	Host association	Notes
	Guatemala, Panama, Mexico, UK, Netherlands, Germany, Spain, Belgium, Brazil, Colombia (Farr and Rossman, 2016)			
FUNGUS: <i>Fusarium poae</i> (Peck) Wollenw. syn. <i>Fusarium tricinctum</i> f. sp. <i>poae</i> (Peck) W.C. Snyder & H.N. Hanse	Spain, Brazil, UK (Farr and Rossman, 2016)	US (Farr and Rossman, 2016)	<i>Chrysanthemum</i> (Farr and Rossman, 2016)	N/A
FUNGUS: <i>Fusarium roseum</i> Link: Fr.	Brazil, Mexico, El Salvador, Nicaragua (Farr and Rossman, 2016)	US (Farr and Rossman, 2016)	<i>Chrysanthemum</i> (Farr and Rossman, 2016)	N/A
FUNGUS: <i>Fusarium solani</i> (Mart.) Sacc	Brazil, El Salvador, Nicaragua (Farr and Rossman, 2016)	US (Farr and Rossman, 2016)	<i>Chrysanthemum</i> (Farr and Rossman, 2016)	N/A
FUNGUS: <i>Fusarium solani</i> var. <i>coeruleum</i> (Lib. ex Sacc.) Booth, syn. <i>Fusarium coeruleum</i> Lib. ex Sacc.	Brazil (Farr and Rossman, 2016)	US (Farr and Rossman, 2016)	<i>Chrysanthemum</i> (Farr and Rossman, 2016)	N/A
FUNGUS: <i>Fusarium sporotrichioides</i> Sherb.	Brazil, Tanzania, Germany (Farr and Rossman, 2016)	US (Farr and Rossman, 2016)	<i>Chrysanthemum</i> (Farr and Rossman, 2016)	N/A
FUNGUS: <i>Fusarium verticillioides</i> (Sacc.) Nirenberg, syn. <i>Fusarium moniliforme</i> var. <i>intermedium</i> Neish & M. Legg.	Brazil (Mendes et al., 1998); also in Nicaragua, Guatemala, Mexico, Spain, Germany, Vietnam (Farr and Rossman, 2016)	US (Farr and Rossman, 2016)	<i>Chrysanthemum</i> (Farr and Rossman, 2016)	N/A
FUNGUS: <i>Globisporangium debaryanum</i> (R. Hesse) Uzuhashi, Tojo & Kakish., syn. <i>Pythium debaryanum</i>	Brazil, Colombia, Mexico, Tanzania, Costa Rica, the Netherlands, Germany (Farr and Rossman, 2016)	US (Farr and Rossman, 2016)	<i>Chrysanthemum</i> (Farr and Rossman, 2016)	N/A
FUNGUS: <i>Globisporangium irregulare</i> (Buisman) Uzuhashi, Tojo & Kakish., syn. <i>Pythium irregulare</i>	Brazil, Mexico, the Netherlands, Spain (Farr and Rossman, 2016)	US (Farr and Rossman, 2016)	<i>Chrysanthemum</i> (Farr and Rossman, 2016)	N/A

Organism	Presence in the exporting area	In U.S.	Host association	Notes
FUNGUS: <i>Globisporangium mamillatum</i> (Meurs) Uzuhashi, Tojo & Kakish., syn. <i>Pythium mamillatum</i> Meurs	Brazil, Netherlands (Farr and Rossman, 2016)	US (Farr and Rossman, 2016)	<i>Chrysanthemum</i> (Farr and Rossman, 2016)	N/A
FUNGUS: <i>Globisporangium megalacanthum</i> (de Bary) Uzuhashi, Tojo & Kakish., syn. <i>Pythium megalacanthum</i> de Bary	Germany, UK (Farr and Rossman, 2016)	US (Farr and Rossman, 2016)	<i>Chrysanthemum</i> (Farr and Rossman, 2016)	N/A
FUNGUS: <i>Globisporangium rostratum</i> (E.J. Butler) Uzuhashi, Tojo & Kakish., syn. <i>Pythium rostratum</i> E.J. Butler	Brazil, Netherlands, UK (Farr and Rossman, 2016)	US (Farr and Rossman, 2016)	<i>Chrysanthemum</i> (Farr and Rossman, 2016)	N/A
FUNGUS: <i>Globisporangium splendens</i> (Hans Braun) Uzuhashi, Tojo & Kakish., syn. <i>Pythium splendens</i> Hans Braun	Belgium, Netherlands, UK (Farr and Rossman, 2016)	US (Farr and Rossman, 2016)	<i>Chrysanthemum</i> (Farr and Rossman, 2016)	N/A
FUNGUS: <i>Globisporangium ultimum</i> (Trow) Uzuhashi, Tojo & Kakish., syn. <i>Pythium ultimum</i> Trow	Brazil, Colombia, Mexico, Kenya, Tanzania, Costa Rica, Netherlands, UK (Farr and Rossman, 2016)	US (Farr and Rossman, 2016)	<i>Chrysanthemum</i> (Farr and Rossman, 2016)	N/A
FUNGUS: <i>Golovinomyces cichoracearum</i> (DC.) V. P. Heluta, syn. <i>Erysiphe cichoracearum</i> DC.; <i>Erysiphe cichoracearum</i> var. <i>cichoracearum</i> DC.	Germany, Spain, Belgium, Netherlands, Brazil, Colombia, Bolivia, Mexico, Kenya, Tanzania, Uganda, Ethiopia, El Salvador, Guatemala, Nicaragua, Costa Rica, Panama (Farr and Rossman, 2016); Canada (Amano (Hirata), 1986); (Connors, 1967)	US (Farr and Rossman, 2016)	<i>Chrysanthemum</i> (Farr and Rossman, 2016)	N/A

Organism	Presence in the exporting area	In U.S.	Host association	Notes
FUNGUS: <i>Golovinomyces orontii</i> (Castagne) Heluta, syn. <i>Erysiphe orontii</i> Castagne; <i>Erysiphe polyphaga</i> Hammarl	Italy, UK, Germany, Spain, Netherlands, Mexico, Guatemala, Brazil, Kenya, Tanzania (Farr and Rossman, 2016)	US (Farr and Rossman, 2016)	<i>Chrysanthemum</i> (Farr and Rossman, 2016)	N/A
FUNGUS: <i>Itersonia perplexans</i> Derx.	Netherlands, UK (Farr and Rossman, 2016)	US (Farr and Rossman, 2016)	<i>Chrysanthemum</i> (Farr and Rossman, 2016)	N/A
FUNGUS: <i>Lasiodiplodia theobromae</i> (Pat.) Griffon & Maubl., syn. <i>Botryodiplodia theobromae</i> Pat.	In most of the 20 countries listed, apart from Northern Europe (Farr and Rossman, 2016)	US (Farr and Rossman, 2016)	<i>Chrysanthemum</i> (Farr and Rossman, 2016)	N/A
FUNGUS: <i>Macrophomina phaseolina</i> (Tassi) Goid., syn. <i>Rhizoctonia bataticola</i> (Taubenh.) E.J. Butler	Brazil, Colombia, Mexico, Ethiopia, Kenya, Tanzania, Tunisia, Uganda, Nicaragua, Panama, and US (Farr and Rossman, 2016)	US (Farr and Rossman, 2016)	<i>Chrysanthemum</i> (Farr and Rossman, 2016)	N/A
FUNGUS: <i>Neocosmospora solani</i> (Mart.) Lombard & Crous, syn.: <i>Fusarium solani</i> (Mart.) Sacc.	Canada (Vujanovic et al., 1999)	US (Farr and Rossman, 2016)	<i>Chrysanthemum</i> (Mun et al., 2012)	N/A
FUNGUS: <i>Paraperonospora leptosperma</i> (de Bary) Constant.	Spain, Germany, UK (Farr and Rossman, 2016)	US (Farr and Rossman, 2016)	<i>Chrysanthemum</i> (Farr and Rossman, 2016)	N/A
FUNGUS: <i>Paraphoma chrysanthemicola</i> (Hollós) Gruyter, Aveskamp & Verkley	Netherlands, Germany, UK (Farr and Rossman, 2016)	US (Farr and Rossman, 2016)	<i>Chrysanthemum</i> (Farr and Rossman, 2016)	N/A
FUNGUS: <i>Peronospora radii</i> de Bary	Mexico, Belgium, Spain, Germany, UK (Farr and Rossman, 2016)	US (Farr and Rossman, 2016)	<i>Chrysanthemum</i> (Farr and Rossman, 2016)	N/A
FUNGUS: <i>Phoma glomerata</i> (Corda) Wollenw. & Hochapfel	Kenya, Tanzania, the Netherlands, Germany (Farr and Rossman, 2016)	US (Farr and Rossman, 2016)	<i>Chrysanthemum</i> (Farr and Rossman, 2016)	N/A
FUNGUS: <i>Phoma herbarum</i> var. <i>herbarum</i> Westend.	Ethiopia, Kenya, Belgium, Netherlands, Spain, UK (Farr and Rossman, 2016)	US (Farr and Rossman, 2016)	<i>Chrysanthemum</i> (Farr and Rossman, 2016)	N/A

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FUNGUS: <i>Phoma multirostrata</i> var. <i>microspora</i> (Allesch.) Boerema	Netherlands (Farr and Rossman, 2016)	US (Farr and Rossman, 2016)	<i>Chrysanthemum</i> (Farr and Rossman, 2016)	N/A
FUNGUS: <i>Phoma omnivirens</i> Aveskamp, Gruyter & Verkley	Tanzania, Belgium, and Netherlands (Farr and Rossman, 2016); opportunistic, soil-inhabiting saprophyte (Romberg, 2016)	US (Farr and Rossman, 2016)	<i>Chrysanthemum</i> (Farr and Rossman, 2016)	N/A
FUNGUS: <i>Phyllosticta chrysanthemi</i> Ellis & Dearn.	Brazil (Farr and Rossman, 2016)	US (Farr and Rossman, 2016)	<i>Chrysanthemum</i> (Farr and Rossman, 2016)	N/A
FUNGUS: <i>Phymatotrichopsis omnivora</i> (Shear) Hennebert	Mexico (Farr and Rossman, 2016)	US (Farr and Rossman, 2016)	<i>Chrysanthemum</i> (Farr and Rossman, 2016)	N/A
CHROMISTA: <i>Phytophthora cactorum</i> (Lebert & Cohn) J. Schröt.	Belgium, Netherlands, Spain, Germany, UK, Brazil, Mexico, Kenya, Tanzania (Farr and Rossman, 2016)	US (Farr and Rossman, 2016)	<i>Chrysanthemum</i> (Farr and Rossman, 2016)	N/A
CHROMISTA: <i>Phytophthora cinnamomi</i> Rands	Brazil, Bolivia, Mexico, Costa Rica, Panama, Guatemala, El Salvador, Netherlands, Spain, Germany, UK (Farr and Rossman, 2016)	US (Farr and Rossman, 2016)	<i>Chrysanthemum</i> (Farr and Rossman, 2016)	N/A
CHROMISTA: <i>Phytophthora citricola</i> Sawada	Mexico, Guatemala, Brazil, Netherlands, Spain, Germany, UK (Farr and Rossman, 2016)	US (Farr and Rossman, 2016)	<i>Chrysanthemum</i> (Farr and Rossman, 2016)	N/A
CHROMISTA: <i>Phytophthora cryptogea</i> Pethybr. & Laff.	Brazil, Mexico, Netherlands, Spain, Germany, UK (Farr and Rossman, 2016)	US (Farr and Rossman, 2016)	<i>Chrysanthemum</i> (Farr and Rossman, 2016)	N/A
CHROMISTA: <i>Phytophthora drechsleri</i> Tucker	Brazil, Colombia, the Netherlands, Spain, Germany, UK, and US (Farr and Rossman, 2016)	US (Farr and Rossman, 2016)	<i>Chrysanthemum</i> (Farr and Rossman, 2016)	N/A
CHROMISTA: <i>Phytophthora nicotianae</i> Breda de Haan	Brazil, Colombia, Ethiopia, Kenya, Tanzania, Tunisia, Costa Rica, Nicaragua, Panama, Guatemala, El	US (Farr and Rossman, 2016)	<i>Chrysanthemum</i> (Farr and Rossman, 2016)	N/A

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	Salvador, Netherlands, Spain, Germany, UK, Mexico (Farr and Rossman, 2016)			
FUNGUS: <i>Phytophthium vexans</i> (de Bary) Abad, de Cock, Bala, Robideau, Lodhi & Lévesque; syn. <i>Pythium vexans</i> de Bary	Brazil, Tanzania, Netherlands (Farr and Rossman, 2016)	US (Farr and Rossman, 2016)	<i>Chrysanthemum</i> (Farr and Rossman, 2016)	N/A
FUNGUS: <i>Plectosphaerella cucumerina</i> (Lindf.) W. Gams, syn: <i>Plectosporium tabacinum</i>	Germany, UK, Guatemala (Farr and Rossman, 2016)	US (Farr and Rossman, 2016)	<i>Chrysanthemum</i> (Farr and Rossman, 2016)	N/A
FUNGUS: <i>Plenodomus chrysanthemi</i> (Zachos, Constantinou & Panag.) Gruyter, Aveskamp & Verkley (<i>Phoma tracheiphila</i> f. sp. <i>chrysanthemi</i> K.F. Baker, L.H. Davis, S. Wilh. & W.C. Snyder)	Europe (Farr and Rossman, 2016)	US (Farr and Rossman, 2016)	<i>Chrysanthemum</i> (Farr and Rossman, 2016)	N/A
FUNGUS: <i>Pleospora herbarum</i> (Pers.: Fr.) Rabenh.	Brazil, Mexico, Kenya, Tanzania, Tunisia, Spain, Germany (Farr and Rossman, 2016)	US (Farr and Rossman, 2016)	<i>Chrysanthemum</i> (Farr and Rossman, 2016)	N/A
FUNGUS: <i>Pleospora penicillus</i> (J.C. Schmidt) Fuckel	Spain, Germany, UK, and US (Farr and Rossman, 2016); saprophytic fungus, lack of association as a disease causing organism (Romberg, 2016)	US (Farr and Rossman, 2016)	<i>Chrysanthemum</i> (Farr and Rossman, 2016)	N/A
FUNGUS: <i>Podosphaera fuliginea</i> (Schltld.) U. Braun & S. Takam. (<i>Sphaerotheca fuliginea</i> (Schltld.) Pollacci)	Brazil, Mexico, Ethiopia, Uganda, Belgium, Netherlands, Germany, Spain, UK (Farr and Rossman, 2016)	US (Farr and Rossman, 2016)	<i>Chrysanthemum</i> (Farr and Rossman, 2016)	N/A
FUNGUS: <i>Podosphaera fusca</i> (Fr.	Mexico, Belgium, Netherlands, Germany,	US (Farr and Rossman, 2016)	<i>Chrysanthemum</i> (Farr and Rossman, 2016)	N/A

Organism	Presence in the exporting area	In U.S.	Host association	Notes
: Fr.) U. Braun & S. Takam.	Spain, UK (Farr and Rossman, 2016)			
FUNGUS: <i>Puccinia chrysanthemi</i> Roze	Brazil, Colombia, Kenya, Tanzania, Spain, Germany, UK (Farr and Rossman, 2016); Canada (Connors, 1967); (Ginns, 1986)	US (Farr and Rossman, 2016)	<i>Chrysanthemum</i> (Farr and Rossman, 2016)	N/A
FUNGUS: <i>Puccinia cnici-oleracei</i> Pers., syn. <i>Puccinia leucanthemi</i> Pass.	Brazil, Colombia, Mexico, Ethiopia, Kenya, Tanzania, Uganda, Nicaragua, Panama, Guatemala, El Salvador, Germany, UK (Farr and Rossman, 2016)	US (Farr and Rossman, 2016)	<i>Chrysanthemum</i> (Farr and Rossman, 2016)	N/A
FUNGUS: <i>Puccinia diplachnis</i> Arthur	Brazil, Mexico, Costa Rica, Germany, UK (Farr and Rossman, 2016)	US (Farr and Rossman, 2016)	<i>Chrysanthemum</i> (Farr and Rossman, 2016)	N/A
FUNGUS: <i>Puccinia stipae</i> Arthur	Bolivia (Farr and Rossman, 2016),	US (Farr and Rossman, 2016)	<i>Chrysanthemum</i> (Farr and Rossman, 2016)	N/A
FUNGUS: <i>Puccinia tanacetii</i> DC., syn. <i>Puccinia pyrethri</i> Rabenh.	Brazil, Colombia, Belgium, Spain, Germany, UK, Mexico (Farr and Rossman, 2016)	US (Farr and Rossman, 2016)	<i>Chrysanthemum</i> (Farr and Rossman, 2016)	N/A
FUNGUS: <i>Pythium aphanidermatum</i> (Edson) Fitzp.	Brazil, Mexico, Vietnam, Kenya, Tanzania, Costa Rica, Panama, Spain (Farr and Rossman, 2016)	US (Farr and Rossman, 2016)	<i>Chrysanthemum</i> (Farr and Rossman, 2016)	N/A
FUNGUS: <i>Rhizoctonia solani</i> J.G. Kühn	Brazil, Colombia, Bolivia, Mexico, Ethiopia, Kenya, Tanzania, Tunisia, Uganda, Costa Rica, Nicaragua, Panama, Guatemala, El Salvador, Belgium, Netherlands, Spain, Germany, UK (Farr and Rossman, 2016); Canada (Connors, 1967)	US (Farr and Rossman, 2016)	<i>Chrysanthemum</i> (Farr and Rossman, 2016)	N/A

Organism	Presence in the exporting area	In U.S.	Host association	Notes
FUNGUS: <i>Sclerotinia minor</i> Jagger	Brazil, Spain (Farr and Rossman, 2016), and Kenya (Farr and Rossman, 2016; Wandahwa et al., 1996)	US (Farr and Rossman, 2016)	<i>Chrysanthemum</i> (Farr and Rossman, 2016)	N/A
FUNGUS: <i>Sclerotinia sclerotiorum</i> (Lib.) de Bary	Brazil, Colombia, Bolivia, Mexico, Vietnam, Ethiopia, Tanzania, Costa Rica, Nicaragua, Panama, Guatemala, El Salvador, the Netherlands, Spain, Germany, UK (Farr and Rossman, 2016); Canada (Connors, 1967); (Ginns, 1986)	US (Farr and Rossman, 2016)	<i>Chrysanthemum</i> (Farr and Rossman, 2016)	N/A
FUNGUS: <i>Septoria cercosporoides</i> Trail	UK (Farr and Rossman, 2016)	US (Farr and Rossman, 2016)	<i>Chrysanthemum</i> (Farr and Rossman, 2016)	N/A
FUNGUS: <i>Septoria chrysanthemella</i> Sacc.	Brazil, Kenya, Tanzania, Netherlands, Germany, UK (Farr and Rossman, 2016); Canada (Connors, 1967); (Ginns, 1986)	US (Farr and Rossman, 2016)	<i>Chrysanthemum</i> (Farr and Rossman, 2016)	N/A
FUNGUS: <i>Septoria leucanthemi</i> Sacc. & Speg.	Colombia, Guatemala, Germany, UK (Farr and Rossman, 2016); Canada (Connors, 1967); (Ginns, 1986)	US (Farr and Rossman, 2016)	<i>Chrysanthemum</i> (Farr and Rossman, 2016)	N/A
<i>Septoria obesa</i> Syd.	Germany (Farr and Rossman, 2016)	US (Farr and Rossman, 2016)	<i>Chrysanthemum</i> (Farr and Rossman, 2016)	N/A
<i>Sordaria destruens</i> (Shear) Hawker	Kenya and Tunisia (Farr and Rossman, 2016)	US (Farr and Rossman, 2016)	<i>Chrysanthemum</i> (Farr and Rossman, 2016)	N/A
FUNGUS: <i>Stagonosporopsis chrysanthemi</i> (Stevens) Crous, Vaghefi & P.W. Taylor, syn. <i>Stagonosporopsis ligulicola</i> var. <i>ligulicola</i> (Baker, Dimock & Davis)	Brazil, Netherlands, Germany, and US (Farr and Rossman, 2016); Canada (Ginns, 1986)	US (Farr and Rossman, 2016)	<i>Chrysanthemum</i> (Farr and Rossman, 2016)	N/A

Organism	Presence in the exporting area	In U.S.	Host association	Notes
Aveskamp, Gruyter & Verkley				
FUNGUS: <i>Stemphylium botryosum</i> Wallr.	Brazil, Colombia, Mexico, Guatemala (Farr and Rossman, 2016)	US (Farr and Rossman, 2016)	<i>Chrysanthemum</i> (Farr and Rossman, 2016)	N/A
FUNGUS: <i>Stemphylium lycopersici</i> (Enjoji) W. Yamam. (<i>Stemphylium floridanum</i>)	Brazil, Costa Rica, and US (Farr and Rossman, 2016); Canada (Ginns, 1986)	US (Farr and Rossman, 2016)	<i>Chrysanthemum</i> (Farr and Rossman, 2016)	N/A
FUNGUS: <i>Stromatoseptoria castaneicola</i> (Desm.) Quaedvlieg, Verkley & Crous, syn. <i>Cylindrosporium castaneae</i> (Lév.) Krenner	Spain, UK (Farr and Rossman, 2016)	US (Farr and Rossman, 2016)	<i>Chrysanthemum</i> (Farr and Rossman, 2016)	N/A
FUNGUS: <i>Synchytrium aureum</i> J. Schröt.	Netherlands, Germany, UK (Farr and Rossman, 2016)	US (Farr and Rossman, 2016)	<i>Chrysanthemum</i> (Farr and Rossman, 2016)	N/A
FUNGUS: <i>Thielaviopsis basicola</i> (Berk. & Broome) Ferraris	Brazil, Colombia, Mexico, Belgium, Netherlands, UK (Farr and Rossman, 2016)	US (Farr and Rossman, 2016)	<i>Chrysanthemum</i> (Farr and Rossman, 2016)	N/A
FUNGUS: <i>Tilletiopsis minor</i> Nyland	Netherlands (Farr and Rossman, 2016)	US (Farr and Rossman, 2016)	<i>Chrysanthemum</i> (Farr and Rossman, 2016)	N/A
FUNGUS: <i>Verticillium albo-atrum</i> Reinke & Berthold	Brazil, Tanzania, Tunisia, Nicaragua, Guatemala, El Salvador, the Netherlands, Germany, UK (Farr and Rossman, 2016); Canada (Ginns, 1986)	US (Farr and Rossman, 2016)	<i>Chrysanthemum</i> (Farr and Rossman, 2016)	N/A
FUNGUS: <i>Verticillium dahliae</i> Kleb.	Brazil, Mexico, Kenya, Tanzania, Tunisia, the Netherlands, Spain, Germany, UK (Farr and Rossman, 2016); Canada (Ginns, 1986)	US (Farr and Rossman, 2016)	<i>Chrysanthemum</i> (Farr and Rossman, 2016)	N/A
PHYTOPLASMA: 'Candidatus Phytoplasma asteris'	Belgium, Germany, Spain, Brazil, Central America, Mexico (CABI, 2016), Tanzania, and Panama	US (CABI, 2016)	<i>Chrysanthemum</i> (CABI, 2016)	N/A

Organism	Presence in the exporting area	In U.S.	Host association	Notes
	(Farr and Rossman, 2016); Canada (CABI, 2018)			
BACTERIUM: <i>Dickeya chrysanthemi</i> (Burkholder) Samson; syn. <i>Erwinia chrysanthemi</i> (Burkholder et al.) Young et al.	Kenya, Costa Rica, Guatemala, Panama, Bolivia, Brazil, Colombia, Belgium, Germany, Netherlands, Spain, UK (CABI, 2016)	US (CABI, 2016)	<i>Chrysanthemum</i> (Horst and Nelson, 1997)	N/A
BACTERIUM: <i>Dickeya zea</i> Samson et al.	Mexico, Costa Rica, Brazil, Colombia, Germany, Netherlands, Spain, UK (CABI, 2016)	US (CABI, 2016)	<i>Chrysanthemum</i> (CABI, 2016)	N/A
BACTERIUM: <i>Pseudomonas cichorii</i> (Swingle) Stapp	UK, Spain, Germany (CABI, 2016; (Horst and Nelson, 1997); Canada (Piening and MacPherson, 1985)	US (CABI, 2016)	<i>Chrysanthemum</i> (CABI, 2016; (Horst and Nelson, 1997)	N/A
BACTERIUM: <i>Pseudomonas corrugata</i> Roberts & Scarlett (1981), emend. Sutra et al. 1997	Brazil (CABI, 2016); Tanzania (Black et al., 1999; CABI, 2016), Germany, Spain, UK (Bradbury, 1986b; CABI, 2016; Kohn, 1982; Lopez et al., 1994; Naumann, 1980; Scarlett et al., 1978), Mexico (CABI, 2016; (Yáñez-Morales et al., 2003)	US (CABI, 2016)	<i>Chrysanthemum</i> (CABI, 2016)	N/A
BACTERIUM: <i>Pseudomonas syringae</i> pv. <i>syringae</i> van Hall	Ethiopia, Kenya, Tanzania, Tunisia, Uganda, Belgium, Germany, UK, Netherlands, Spain, Brazil, Guatemala, El Salvador, Panama, Mexico (CABI, 2016)	US (CABI, 2016)	<i>Chrysanthemum</i> (CABI, 2016)	N/A
BACTERIUM: <i>Pseudomonas viridiflava</i> (Burkholder) Dowson	Kenya, Tanzania, Uganda, Belgium, Germany, UK, Netherlands, Spain, Brazil (CABI, 2016)	US (CABI, 2016)	<i>Chrysanthemum</i> (CABI, 2016)	N/A
BACTERIUM: <i>Rhizobium radiobacter</i> (Beijerinck & van	Ethiopia, Kenya, Tanzania, Uganda, Belgium, Germany,	US (CABI, 2016)	<i>Chrysanthemum</i> (Horst and Nelson, 1997)	N/A

Organism	Presence in the exporting area	In U.S.	Host association	Notes
Delden) Young; syn. BACTERIUM: <i>Agrobacterium tumefaciens</i>	UK, Netherlands, Bolivia, Brazil, Colombia, Central America, Mexico (CABI, 2016); Canada (Bradbury, 1986a); (CABI, 2018)			
BACTERIUM: <i>Rhodococcus fascians</i> (Tilford) Goodfellow	Uganda, Tanzania, Nicaragua, Guatemala, Panama, Brazil, Colombia, Germany, UK, Vietnam, Mexico (CABI, 2018); Canada (Bradbury, 1986a)CABI, 2018)	US (CABI, 2016)	<i>Chrysanthemum</i> (CABI, 2016; Oduro, 1975)	N/A
VIROID: <i>Chrysanthemum stunt viroid</i>	Belgium, Germany, Netherlands, UK, Brazil (EPPO, 2016); Canada (CABI, 2018)	US (EPPO, 2016)	<i>Chrysanthemum</i> (CABI, 2016)	N/A
VIRUS: <i>Beet yellows virus</i> (BYV)	Canada (CABI, 2018)	US (CABI, 2016)	<i>Chrysanthemum</i> (CABI, 2018)	Per PPQ guidelines, this pest is non-actionable.
VIRUS: <i>Chrysanthemum virus B</i>	Belgium, Germany, UK, Netherlands (Adams and Antoniw, 2006)	US (CABI, 2016)	<i>Chrysanthemum</i> (CABI, 2016)	N/A
VIRUS: <i>Cucumber mosaic virus</i>	Ethiopia, Kenya, Tanzania, Tunisia, Uganda, Belgium, Germany, UK, Netherlands, Spain, Brazil, Colombia, Costa Rica, El Salvador, Panama, Vietnam, Mexico (CABI, 2016); Canada (CABI, 2018)	US (CABI, 2016)	<i>Chrysanthemum</i> (CABI, 2016)	N/A
VIRUS: <i>Tospovirus Impatiens necrotic spot</i>	Uganda, Belgium, Germany, UK, Netherlands, Spain, South America, Costa Rica, Mexico (CABI, 2016; Verma et al., 2007); Canada (CABI, 2018)	US (CABI, 2016)	<i>Chrysanthemum</i> (CABI, 2016)	N/A

Organism	Presence in the exporting area	In U.S.	Host association	Notes
VIRUS: <i>Iris yellow spot virus</i>	Brazil, Netherlands, Spain, Guatemala (Sansford and Woodhall, 2007), Kenya, Tunisia, Uganda, Belgium, Germany, UK, Brazil, Guatemala, and Mexico (CABI, 2016); Canada (CABI, 2018)	US (Sansford and Woodhall, 2007)	<i>Chrysanthemum</i> (CABI, 2016)	N/A
VIRUS: <i>Pelargonium zonate spot virus</i> (PZSV)	Spain (EPPO Global Database, 2013); (Liu and Sears, 2007).	US (California) (EPPO Global Database, 2013); (Liu and Sears, 2007).	<i>Chrysanthemum</i> (Gallitelli, 1987)	N/A
VIRUS: <i>Potato virus Y</i>	Ethiopia, Tanzania, Tunisia, Belgium, Germany, UK, Netherlands, Spain, Brazil, Colombia, Costa Rica, El Salvador, Vietnam, Mexico (CABI, 2016); Canada (CABI, 2018)	US (CABI, 2016)	<i>Chrysanthemum</i> (CABI, 2016)	N/A
VIRUS: <i>Soybean mosaic virus</i>	Ethiopia, Tanzania, Uganda, Germany, Brazil, Colombia (CABI, 2016)	US (CABI, 2016)	<i>Chrysanthemum</i> (CABI, 2016)	N/A
VIRUS: <i>Tomato aspermy virus</i>	UK (Horst and Nelson, 1997); Canada (CABI, 2018)	US (Adams and Antoniw, 2006)	<i>Chrysanthemum</i> (Horst and Nelson, 1997)	N/A
VIRUS: <i>Tomato spotted wilt virus</i>	Kenya, Tanzania, Tunisia, Uganda, Belgium, Germany, UK, Netherlands, Spain, Bolivia, Brazil, Colombia, Costa Rica, Mexico (CABI, 2016); Canada (CABI, 2018)	US (CABI, 2016)	<i>Chrysanthemum</i> (CABI, 2016; Verma et al., 2003)	N/A
VIRUS: <i>Tobacco streak virus</i>	Brazil, Mexico, Netherlands, UK (CABI, 2016)	US (CABI, 2016)	<i>Chrysanthemum</i> (CABI, 2016)	N/A
VIRUS: <i>Zucchini yellow mosaic virus</i>	Tunisia, Belgium, Germany, the Netherlands, Spain,	US (CABI, 2018)	<i>Chrysanthemum</i> (Niu et al., 2015)	N/A

Pest list for Chrysanthemum propagative material from 21 countries

Organism	Presence in the exporting area	In U.S.	Host association	Notes
	UK, Mexico, Costa Rica, Panama, Brazil, and Vietnam (CABI, 2018)			