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

Importation of corn (*Zea mays L.*) seeds for planting into the United States and Territories

A Qualitative, Pathway Initiated Pest Risk Assessment

Version 3

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Executive Summary

The purpose of this report is to assess the pest risks associated with importing commercially produced seed of corn, *Zea mays* (Poaceae), for planting, from anywhere in the world into the United States of America and its Territories (referred to as the United States).

Based on the internal request submitted by Plant Protection and Quarantine (PPQ), we considered the seed pathway to include the following processes and conditions: visual inspection. The pest risk ratings depend on the application of all conditions of the pathway as described in this document; corn seeds produced under different conditions were not evaluated and may pose a different pest risk.

We used scientific literature, port-of-entry pest interception data, to develop a list of pests with quarantine significance for the United States. These are pests that are associated with seed of *Zea mays* anywhere in the world.

The following organisms are candidates for pest risk management because they have met the threshold for unacceptable consequences and can follow the seed import pathway.

Pest type	Taxonomy	Scientific name	Notes
Fungus	Pleosporales: Pleosporaceae	*Bipolaris bicolor* (Mitra) Shoemaker	Seedborne
Fungus	Hypocreales: Clavicipitaceae	*Claviceps gigantea* S.F. Fuentes, Isla, Ullstrup & Rodriquez	Seedborne
Fungus	Hypocreales: Nectriaceae	*Fusarium brevicatenulatum* Nirenberg, O'Donnell, Kroschel & Andrianaivo; syn. *Fusarium pseudoanthophilum* Nirenberg, O'Donnell & Mubat.	Seedborne
Fungus	Hypocreales: Nectriaceae	*Fusarium cortaderiae* O'Donnell, T. Aoki, Kistler & Geiser	Seedborne
Fungus	Hypocreales: Nectriaceae	*Fusarium kyushuense* O'Donnell & T. Aoki	Seedborne
Fungus	Hypocreales: Nectriaceae	*Fusarium meridionale* T. Aoki, Kistler, Geiser & O'Donnell	Seedborne
Fungus	Hypocreales: Nectriaceae	*Fusarium miscanthi* W. Gams, Klamer & O'Donnell	Seedborne
Fungus	Hypocreales: Nectriaceae	*Fusarium nelsonii* Marasas & Logrieco	Seedborne

Pest type	Taxonomy	Scientific name	Notes
Fungus	Hypocreales: Nectriaceae	*Fusarium vorosii* B. Tóth, Varga, Starkey, O'Donnell, H. Suga & T. Aoki	Seedborne
Fungus	Magnaporthales: Magnaporthaceae	*Magnaporthiopsis maydis* (Samra, Sabet & Hing.) Klaubauf, Lebrun & Crous syn. *Cephalosporium maydis* Samra, Sabet & Hing., *Harpophora maydis* (Samra, Sabet & Hing.) W. Gams	Seed transmitted
Weed	Amaranthaceae	*Amaranthus thunbergii* Moq.	N/A
Weed	Cleomaceae	*Cleome monophylla* L.	N/A
Weed	Commelinaceae	*Commelina africana* L.	N/A
Weed	Poaceae	*Digitaria nuda* Schumach.	N/A
Weed	Poaceae	*Urochloa deflexa* (Schumach.) H. Scholz	N/A

The following organisms are likely to follow the pathway but were not assessed in this document because they have already been determined to pose an unacceptable risk to the United States. Domestic regulations are in place for these pests:

Pest type	Taxonomy	Scientific name	Code of Federal Regulations
Fungus	Oomycetes: Peronosporales	*Peronosclerospora philippinensis* (W. Weston) C.G. Shaw	7 CFR § 331, 2022
Fungus	Oomycetes, Sclerosporales	*Sclerophthora rayssiae* var. *zeae* Payak & Naras.	7 CFR § 331, 2022
Weed	Asphodelaceae	*Asphodelus fistulosus* L.	7 CFR § 360, 2022
Weed	Asteraceae	*Cirsium arvense* (L.) Scop	7 CFR § 361, 2022
Weed	Brassicaceae	*Lepidium draba* L. syn: *Cardaria draba* (L.) Desv.	7 CFR § 361, 2022
Weed	Commelinaceae	*Commelina benghalensis* L.	7 CFR § 360, 2022

Pest type	Taxonomy	Scientific name	Code of Federal Regulations
Weed	Convolvulaceae	*Convolvulus arvensis* L.	7 CFR § 361, 2022
Weed	Orobanchaceae	*Striga angustifolia* (Don) Saldanha	7 CFR § 330, 2020; 7 CFR § 360, 2022
Weed	Orobanchaceae	*Striga asiatica* (L.) Kuntze	7 CFR § 330, 2020; 7 CFR § 360, 2022
Weed	Orobanchaceae	*Striga aspera* (Willd.) Benth.	7 CFR § 330, 2020; 7 CFR § 360, 2022
Weed	Orobanchaceae	*Striga densiflora* (Benth.) Benth.	7 CFR § 330, 2020; 7 CFR § 360, 2022
Weed	Orobanchaceae	*Striga hermonthica* (Delile) Benth.	7 CFR § 330, 2020; 7 CFR § 360, 2022
Weed	Orobanchaceae	*Striga parviflora* (R. Br.) Benth.	7 CFR § 330, 2020; 7 CFR § 360, 2022
Weed	Poaceae	*Digitaria abyssinica* (Hochst. ex A. Rich.) Stapf	7 CFR § 360, 2022
Weed	Poaceae	*Digitaria ternata* (A. Rich) Stapf	7 CFR § 319.37-4, 2022
Weed	Poaceae	*Digitaria velutina* (Forssk.) P. Beauv.	7 CFR § 360, 2022
Weed	Poaceae	*Paspalum scrobiculatum* L.	7 CFR § 360, 2022
Weed	Poaceae	*Rottboellia cochinchinensis* (Lour.) Clayton	7 CFR § 360, 2022
Weed	Poaceae	*Sorghum halepense* (L.) Pers.	7 CFR § 361, 2022
Weed	Poaceae	*Urochloa panicoides* P. Beauv.	7 CFR § 360, 2022
Weed	Polygonaceae	*Rumex hypogaeus* T.M. Schust. & Reveal. Syn: *Emex australis* Steinh.	7 CFR § 360, 2022

The detailed examination and choice of appropriate phytosanitary measures to mitigate pest risk will be addressed in a ReFreSH participant's Seed Health Management Plan.

Table of Contents

Executive Summary **2**

1. Introduction **7**
1.1. Background 7
1.2. Initiating event 7
1.3. Potential weediness of the commodity 7
1.4. Seed as a pathway 7

2. Pest List and Pest Categorization **8**
2.1. Pest list 8
2.3. Pests considered but not included on the pest list 18
2.4. Pests selected for further analysis or already regulated 21

3. Likelihood of Introduction and Spread **24**
3.1. Introduction 24
3.3 Weed risk analyses 35

4. Summary **37**

5. Literature Cited **40**

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 corn (*Zea mays* L.) seed from anywhere in the world into the United States[1] (Referred to as the pest risk analysis or PRA area) for planting.

This is a qualitative risk assessment. The likelihood of introduction and spread 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, 2017a) and the ISPM No. 38, "International Movement of Seeds" (IPPC, 2021b). The use of biological and phytosanitary terms is consistent with ISPM No. 5, "Glossary of Phytosanitary Terms" (IPPC, 2018).

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 seeds into United States is authorized and is regulated under Title 7 of the Code of Federal Regulation, Part 319 Subpart – Plants for Planting (7 CFR §319.37), the Plants for Planting Manual (USDA-APHIS, 2017), Part 360 Noxious Weed Regulations (7 CFR § 360, 2022), and Part 361 Importation of Seed and Screenings Under the Federal Seed Act (7 CFR § 361, 2010). We received a PPQ-internal request to assess the risk of importing corn seed for planting into the United States from anywhere in the world; the results will be used to inform the Regulatory Framework for Seed Health and aid in the implementation of a pilot program with Chile for small lots of corn seed by identifying seed-associated pests of quarantine concern to PPQ.

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. We determined that the weed risk of *Zea mays* seeds does not need to be analyzed because this commodity is already enterable from other countries and is cultivated throughout the Continental United States and Puerto Rico (NRCS, 2022).

1.4. Seed as a 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. We consider pests (e.g., arthropods, nematodes, fungi and chromistans, bacteria and phytoplasmas, viruses, and noxious weed seeds) that have demonstrated the ability to be associated and follow the seed pathway and upon entry may result in infestation or infection when the seed is planted (IPPC, 2017b).

[1]The *United States* includes all states, the District of Columbia, Guam, the Northern Mariana Islands, Puerto Rico, the U.S. Virgin Islands, and any other territory or possession of the United States.

2. Pest List and Pest Categorization

The pest list is a compilation of plant pests of quarantine significance to the United States. This list includes pests that are present anywhere in the world on any host and are known to be associated with *Zea mays* seeds 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 seed pathway into the PRA area are analyzed to determine their likelihood of introduction and spread.

2.1. Pest list

We developed the pest list based on scientific literature and port-of-entry pest interception data. We listed in Table 1, the pests that are of quarantine significance to the PRA area and are associated with corn seeds (anywhere in the world). For each pest, we provided evidence for its association with corn seeds. If applicable, information about each pest or pathogen's distribution in the United States will also be included. For each pest, we indicate 1) whether the pest is likely to remain with the commodity seed in a viable form following harvesting from the field and prior to any post-harvest processing and 2) whether the pest has been reported anywhere in the PRA area. Pests that are likely to remain associated with corn seed in a viable form and are not already domestically regulated are indicated by bolded text and are listed separately in Table 2, whereas pests that are likely to remain associated with corn seed in a viable form and are domestically regulated are listed separately in Table 3.

Table 1. List of quarantine pests associated with *Zea mays* seeds anywhere in the world on any host.

Pest name	Presence in the United States	Association with host seeds	Considered further?[2]
FUNGUS *Bipolaris bicolor* (Mitra) Shoemaker	**Continental (Ma et al., 2003 Sivanesan, 1987)**	**Remesova et al., 2007**	**Yes. We found two reports of this pest in the United States (Ma et al., 2003; Sivanesan, 1987), however, only one of these specifies a state (CA). Given the limited reports of this pest in the continental United States we considered it a quarantine pest.**

[2] "Yes" indicates that the pest has a reasonable likelihood of being associated with seeds. These are analyzed in section 3: Assessing Pest Risk Potential.

Pest name	Presence in the United States	Association with host seeds	Considered further?[2]
FUNGUS *Claviceps gigantea* S.F. Fuentes, Isla, Ullstrup & Rodriquez	**No evidence found**	**Moreno-Manzano et al., 2016**	**Yes. *C. gigantea* infects unpollinated maize ears and replaces the kernel with a sclerotium (Fuentes et al., 1964).**
FUNGUS *Fusarium brevicatenulatum* Nirenberg, O'Donnell, Kroschel & Andrianaivo; syn. *Fusarium pseudoanthophilum* Nirenberg, O'Donnell & Mubat.	**No evidence found**	**Nirenberg et al., 1998; Tsehaye et al., 2017**	**Yes.**
FUNGUS *Fusarium cortaderiae* O'Donnell, T. Aoki, Kistler & Geiser	**No evidence found**	**Shang et al., 2022; Monds et al., 2005**	**Yes.**
FUNGUS *Fusarium kyushuense* O'Donnell & T. Aoki	**No evidence found**	**Shang et al., 2022; Wang et al., 2014; Zhou et al., 2018**	**Yes.**
FUNGUS *Fusarium meridionale* T. Aoki, Kistler, Geiser & O'Donnell	**No evidence found**	**Zhang et al., 2014a; Zhou et al., 2018**	**Yes.**
FUNGUS *Fusarium miscanthi* W. Gams, Klamer & O'Donnell	**No evidence found**	**Shang et al., 2021; Shang et al., 2022**	**Yes.**
FUNGUS *Fusarium nelsonii* Marasas & Logrieco	**No evidence found**	**Marasas et al., 1998**	**Yes.**

Pest name	Presence in the United States	Association with host seeds	Considered further?[2]
FUNGUS *Fusarium vorosii* B. Tóth, Varga, Starkey, O'Donnell, H. Suga & T. Aoki	**No evidence found**	**Lee et al., 2016**	**Yes.**
FUNGUS *Magnaporthiopsis maydis* (Samra, Sabet & Hing.) Klaubauf, Lebrun & Crous syn. *Cephalosporium maydis* Samra, Sabet & Hing., *Harpophora maydis* (Samra, Sabet & Hing.) W. Gams	**No evidence found**	**Singh and Siradhana, 1987; Jain et al., 1974; Michail et al., 1999**	**Yes. The fungus can survive in corn seed stored at 15 percent moisture for up to 10 months (Singh and Siradhana, 1987). It overwinters as mycelia or sclerotia on infected corn debris or in soil and infects roots of seedlings the next year (Dawood et al., 1979; Johal et al., 2004)**
FUNGUS *Peronosclerospora heteropogonis* J.A. Crouch syn. *Peronosclerospora heteropogoni* Siradhana, Dange, Rathore & S.D. Singh	**No evidence found**	**Rathore et al., 1987**	**Yes. Seed transmission occurs when infected fresh seeds with a moisture content of 39.2 percent are planted but is not detected when dried seeds with a moisture content below 22.3 percent are planted (Rathore et al., 1987)**
***Peronosclerospora maydis* (Racib.) C.G. Shaw syn. *Sclerospora maydis* (Racib.) E.J. Butler**	**No evidence found**	**Lukman et al., 2016; White, 1999**	**Yes.**

Pest name	Presence in the United States	Association with host seeds	Considered further?[2]
Peronosclerospora philippinensis (W. Weston) C.G. Shaw syn.: *Sclerospora philippinensis* W. Weston, *Peronosclerospora sacchari*	No evidence found	Weston Jr., 1920	No. It is regulated as a Select Agent (7 CFR § 331, 2022).
FUNGUS *Sclerophthora rayssiae* var. *zeae* Payak & Naras.	No evidence found	Putnam, 2007; Sangam and Thakur, 1989; Singh et al., 1968	No. It is regulated as a Select Agent (7 CFR § 331, 2022).
PHYTOPLASMA '*Candidatus* Phytoplasma cynodontis' Marcone et al. (16SrXIV)	No evidence found	Çağlar et al., 2019	No. While associated with seed, transmission has not been conclusively demonstrated and CABI (2022) states that '*Ca*. Phytoplasma cynodontis' is not seed-transmissible.
PHYTOPLASMA '*Candidatus* Phytoplasma solani' Quaglino et al. (16Sr XII-A)	No evidence found	Çağlar et al., 2021; Genov et al., 2014; Munkvold and White, 2016; Quaglino et al., 2013	No. While associated with seed, transmission has not been conclusively demonstrated and both CABI (2022) and EPPO (2022) state that '*Ca*. Phytoplasma solani' is not seed transmissible.
WEED: Amaranthaceae *Amaranthus thunbergii* Moq.	**South Carolina (Kartesz, 2022; NRCS, 2022)**	**Corn grain [*Amaranthus* sp. (AQAS, 2020)]**	**Yes. Weed of corn (Madamombe-Manduna et al., 2009)**

Pest name	Presence in the United States	Association with host seeds	Considered further?[2]
WEED: Asphodelaceae *Asphodelus fistulosus* L.	New Mexico, Texas, California, Arizona (GRIN Taxonomy, 2022; Kartesz, 2022; NRCS, 2022)	Corn grain and seed (ARM, 2022)	No. This species is regulated as a Federal Noxious Weed (7 CFR § 360, 2022).
WEED: Asteraceae *Cirsium arvense* (L.) Scop.	Present throughout the United States (GRIN Taxonomy, 2022; Kartesz, 2022; NRCS, 2022)	Corn grain [*Cirsium* sp. (AQAS, 2020)]	No. This species is regulated as a Noxious Weed Seed (7 CFR § 361, 2022). Major weed of corn (CABI, 2022a).
WEED: Brassicaceae *Lepidium draba* L.; syn. *Cardaria draba* (L.) Desv.	Present throughout the United States (GRIN Taxonomy, 2022; Kartesz, 2022; NRCS, 2022)	Corn grain [*Lepidium* sp. (AQAS, 2020)]	No. This species is regulated as a Noxious Weed Seed (7 CFR § 361, 2022). Major weed of corn (CABI, 2022a).
WEED: Cleomaceae *Cleome monophylla* L.	**Montgomery County, GA (Zomlefer, 2018)**	**Corn seed [*Cleome* sp. (AQAS, 2020)]**	**Yes. Weed of corn (Mncube and Banda, 2018; Rugare et al., 2018)**
WEED: Commelinaceae *Commelina africana* L.	**No evidence found**	**Corn grain and seed [*Commelina* sp. (AQAS, 2020)]**	**Yes. Weed of corn (Madamombe-Manduna et al., 2009)**

Pest name	Presence in the United States	Association with host seeds	Considered further?[2]
WEED: Commelinaceae *Commelina benghalensis* L.	Present in more than five states (Kartesz, 2022; NRCS, 2022)	Corn grain and seed [*Commelina* sp. (AQAS, 2020)	No. This species is regulated as a Federal Noxious Weed (7 CFR § 360, 2022). Major weed of corn (CABI, 2022b)
WEED: Convolvulaceae *Convolvulus arvensis* L.	Present throughout the United States (Kartesz, 2022; NRCS, 2022)	Corn grain (AQAS, 2020)	No. This species is regulated as a Noxious Weed Seed (7 CFR § 361, 2022).
WEED: Orobanchaceae *Striga asiatica* (L.) Kuntze	Listed as present in North and South Carolina (Kartesz, 2022; NRCS, 2022) but has been under eradication (Tasker and Westwood, 2012)	Corn seed [(*Striga* spp. (Berner et al., 1994)]	No. This species is regulated as a Federal Noxious Weed (7 CFR § 360, 2022) and a parasitic plant pest (7 CFR § 330, 2020). Corn is a major host (CABI, 2022b). Because seeds are dust-like and can blow onto surfaces such as corn (Berner et al., 1994), they may follow the pathway.

Pest name	Presence in the United States	Association with host seeds	Considered further?[2]
WEED: Orobanchaceae *Striga aspera* (Willd.) Benth.	No evidence found	Corn seed [(*Striga* spp. (Berner et al., 1994)]	No. Regulated as a parasitic plant pest (7 CFR § 330, 2020) and a Federal Noxious Weed (7 CFR § 360, 2022). Corn is a major host (CABI, 2022b). Because seeds are dust-like and can blow onto surfaces such as corn (Berner et al., 1994), they may follow the pathway.
WEED: Orobanchaceae *Striga densiflora* (Benth.) Benth.	No evidence found	Corn seed [(*Striga* spp. (Berner et al., 1994)]	No. Regulated as a parasitic plant pest (7 CFR § 330, 2020) and a Federal Noxious Weed (7 CFR § 360, 2022). Corn is a major host (CABI, 2022b). Because seeds are dust-like and can blow onto surfaces such as corn (Berner et al., 1994), they may follow the pathway.

Pest name	Presence in the United States	Association with host seeds	Considered further?[2]
WEED: Orobanchaceae *Striga hermonthica* (Delile) Benth.	No evidence found	Corn seed [(*Striga* spp. (Berner et al., 1994)]	No. This species is regulated as a Federal Noxious Weed (7 CFR § 360, 2022) and a parasitic plant pest (7 CFR § 330, 2020). Corn is a major host (CABI, 2022b). Because seeds are dustlike and can blow onto surfaces such as corn (Berner et al., 1994), they may follow the pathway.
WEED: Orobanchaceae *Striga parviflora* (R. Br.) Benth.	No evidence found	Corn seed [(*Striga* spp. (Berner et al., 1994)]	No. Regulated as a parasitic plant pest (7 CFR § 330, 2020) and a Federal Noxious Weed (7 CFR § 360, 2022). Species is a pest of corn (Kebede and Ayana, 2018). Because seeds are dustlike and can blow onto surfaces such as corn (Berner et al., 1994), they may follow the pathway.

Pest name	Presence in the United States	Association with host seeds	Considered further?[2]
WEED: Poaceae *Digitaria abyssinica* (Hochst. ex A. Rich.) Stapf; syn. *D. scalarum* (Schweinf.) Chiov.	Present in Hawaii and possibly elsewhere in the United States (GRIN Taxonomy, 2022; NRCS, 2022)	Corn grain [*Digitaria* sp. (AQAS, 2020)]	No. This species is regulated as a Federal Noxious Weed (7 CFR § 360, 2022). It is a major weed of corn (CABI, 2022a).
WEED: Poaceae *Digitaria nuda* Schumach.	**Florida, Puerto Rico, and the U.S. Virgin Islands (Kartesz, 2022; NRCS, 2022)**	**Corn grain [*Digitaria* sp. (AQAS, 2020)]**	**Yes. Weed of corn (Hugo et al., 2014)**
WEED: Poaceae *Digitaria ternata* (A. Rich.) Stapf	No evidence found	Corn grain [*Digitaria* sp. (AQAS, 2020)]	No. This species is regulated under NAPPRA (7 CFR § 319.37-4, 2022; APHIS, 2022). Weed of corn (Mengesha et al., 2019).
WEED: Poaceae *Digitaria velutina* (Forssk.) P. Beauv.; syn. *Phalaris velutina* Forssk.	Texas (NRCS, 2022)	Corn grain [*Digitaria* sp. (AQAS, 2020)]	No. This species is regulated as a Federal Noxious Weed (7 CFR § 360, 2022). Major weed of corn (CABI, 2022b).
WEED: Poaceae *Paspalum scrobiculatum* L.; syn. *P. orbiculare* G. Forst	Present in more than five states (GRIN Taxonomy, 2022; Kartesz, 2022; NRCS, 2022)	Corn grain (ARM, 2022)	No. This species is regulated as a Federal Noxious Weed (7 CFR § 360, 2022). Weed of corn (Imoloame, 2020).

Pest name	Presence in the United States	Association with host seeds	Considered further?[2]
WEED: Poaceae *Rottboellia cochinchinensis* (Lour.) Clayton	Present in more than five states (GRIN Taxonomy, 2022; Kartesz, 2022; NRCS, 2022)	Corn seed and grain (AQAS, 2020)	No. This species is regulated as a Federal Noxious Weed (7 CFR § 360, 2022). Major weed of corn (CABI, 2022b).
WEED: Poaceae *Sorghum halepense* (L.) Pers.	Present throughout the United States (Kartesz, 2022; NRCS, 2022)	Corn seed (Ilic and Kalinovic, 1995)	No. This species is regulated as a Noxious Weed Seed (7 CFR § 361, 2022). Major weed of corn (CABI, 2022b).
WEED: Poaceae *Urochloa deflexa* (Schumach.) H. Scholz; syn. *Brachiaria deflexa* (Schumach.) C. E. Hubb. ex Robyns	**Alabama and Florida (Kartesz, 2022; NRCS, 2022)**	**Corn grain [*Urochloa* sp. (AQAS, 2020)]**	**Yes. Weed of corn (Ekeocha, 2013; Murungu et al., 2011)**
WEED: Poaceae *Urochloa panicoides* P. Beauv.	Arizona, Maryland, New Mexico, and Texas (Kartesz, 2022; NRCS, 2022)	Corn grain (AQAS, 2020)	No. This species is regulated as a Federal Noxious Weed (7 CFR § 360, 2022). Major weed of corn (CABI, 2022b).

Pest name	Presence in the United States	Association with host seeds	Considered further?[2]
WEED: Polygonaceae *Rumex hypogaeus* T. M. Schust. & Reveal; syn. *Emex australis* Steinh.	No evidence found	Corn grain [*Rumex* sp. (AQAS, 2020)]	No. This species is regulated as a Federal Noxious Weed under the synonym *Emex australis* (7 CFR § 360, 2022). Minor weed of corn (CABI, 2022b).

2.3. Pests considered but not included on the pest list

2.3.1. Organisms with non-quarantine status

We found evidence of organisms that are associated with corn seeds, however, they are not of quarantine significance for the PRA area (see Appendix).

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

The following quarantine fungi were not included in Table 1 or the Appendix because we determined that the evidence for association with corn was insufficient or inappropriate, we found no evidence that the fungus was a pathogen of corn, or we found an old record we could not substantiate with recent evidence: *Acerbia maydis* Rehm (Ashton, 1920), *Alternaria diversispora* (Thuem.) E.G. Simmons, (syn. *Macrosporium diversisporum* Thuem. (de Thümen, 1877), *Alternaria lunariae* (Oudem. & C.J.J. Hall) E.G. Simmons (syn. *Macrosporium lunariae* Oudem. & C.J.J. Hall. (Gafforov, 2017), *Apiospora hysterina* (Sacc.) Pintos & P. Alvarado (syn. *Scirrhia bambusae* Turconi, *Apiospora bambusae* (Turconi) Sivan.) (Goos and Uecker, 1992), *Apiospora rasikravindrae* (Shiv M. Singh, L.S. Yadav, P.N. Singh, Rahul Sharma and S.K. Singh) Pintos and P. Alvarado (Tian et al., 2021), *Astragoxyphium catalpae* Bat., Nascim. & Cif. (Reflora, 2022), *Barnettella indica* (R.Y. Roy, R.S. Dwivedi & P.K. Khanna) P.Rag. Rao (Karunarathna et al., 2022), *Botryogene maydis* Ahmad (Karunarathna et al., 2022), *Botryosporium elegans* (Corda) Corda (Farr and Rossman, 2022), *Broomella zeae* Rehm. (Elmer, 1919; Uichanco et al., 1919), *Calloria succinella* Sacc (Cuboni and Mancini, 1886), *Calyptella cejpii* (Pilat) (Cooke, 1959), *Chaetophoma maydis* Speg. (Anonymous, 1921), *Cladosporium arundinicola* Berl. (Natural, 1921), *Cladosporium viride* (Fresenius) Z. Y. Zhang & T. Zhang (Mulenko et al., 2008), *Cochliobolus perotidis* Alcorn (Manamgoda et al., 2011), *Colletotrichum corchori* Pavgi & U.P. Singh (Farr and Rossman, 2022), *Curvularia alcornii* Manamgoda, L. Cai & K. D., Hyde (Manamgoda et al., 2012), *Curvularia borreriae* (Viegas) M.B. Ellis (Aveling et al., 2020), *Curvularia oryzae* Bugnic. (Yugandhara and Giri, 2019; Sivanesan, 1987), *Curvularia tsudae* (Tsuda & Ueyama) H. Deng, Y.P. Tan & R.G. Shivas (syn. *Cochliobolus australiensis* Tsuda & Ueyama Alcorn) (Sivanesan, 1986), *Diaporthe masirevicii* R.G. Shivas, L. Morin, S.M. Thomps. & Y.P. Tan (Thompson et al., 2016; Thompson et al., 2015), *Dinemasporium*

gramineum var. *atrigosulum* (Farr and Rossman, 2022), *Diplodina zeicola* Saccas. (Karunarathna et al., 2022), *Fusarium beomiforme* P.E. Nelson, Toussoun & L.W. Burgess (Laraba et al., 2017), *Fusarium carminascens* L. Lombard, Crous & Lampr. (Lombard et al., 2019), *Fusarium fabacearum* L. Lombard, Crous & Lampr. (Lombard et al., 2019), *Fusarium flocciferum* Corda (syn. *Gibberella heterochroma*) Wollenw. (Scauflaire et al., 2013b), *Fusarium globosum* Rheeder, Marasas & P.E. Nelson (Rheeder et al., 1996), *Fusarium languescens* L. Lombard & Crous (Lombard et al., 2019), *Gibberella fujikuroi* var. *fujikuroi* (Sawada) Wollenw. (Gonçalves et al., 2013), *Glomus dominikii* Blaszkowski, (Mułenko et al., 2008), *Glomus laccatum* Blaszkowski (Mułenko et al., 2008), *Harzia acremonioides* (Harz) Costantin (Huang et al., 2021; Schultes et al., 2017; Remesova et al., 2007), *Helminthosporium nadsonii* Jacz. (Gafforov, 2017), *Hendersonia commutata* Sacc. (Saccardo, 1882), *Humicola fuscoatra* var. *fuscoatra* Traaen (Remesova et al., 2007), *Lectera colletotrichoides* (J.E. Chilton) P.F. Cannon (Cannon et al., 2012), *Lenzites acuta* Berk. (Farr and Rossman, 2022), *Leptosphaeria patellaeformis* Passer. (Deighton, 1936), *Leptosphaeria seriata* Passer. (Beltrami, 1887), *Microsphaeropsis bakeri* Syd. (Farr and Rossman, 2022), *Mycosphaerella maydis* (Pass.) Lindau (Farr and Rossman, 2022), *Mucor circinelloides* f. *janssenii* (Lendn.) Schipper (Remesova et al., 2007), *Nectria giberelloides* Sacc. (Saccardo, 1892), *Nigrospora sacchari* (Speg.) Mason (Boesewinkel, 1982; Ramsey, 1990), *Oidiodendron rhodogenum* Robak (Mułenko et al., 2008), *Paraconiothyrium sporulosum* (W. Gams & Domsch) Verkley (syn. *Coniothyrium sporulosum* (W. Gams & Domsch) Aa (Remesova et al., 2007), *Pestalotiopsis arachidis* Satya (Farr and Rossman, 2022), *Phaeocytostroma plurivorum* B. Sutton (Sutton, 1980), *Phyllosticta citricarpa* (McAlpine) Aa (syn. *Phyllostictina citricarpa* (McAlpine) Petr.), *Physalospora linearis* Sacc. (Ashton, 1919), *Phakopsora pallescens* (Arthur) Buriticá & J.F. Hennen (Arthur, 1922), *Rhabdospora zeina* S. Ahmad (Raza et al., 2022), *Rhizoctonia nigricans* Sankar and Jeyarajan (Farr and Rossman, 2022), *Scutellospora calospora* (T.H. Nicolson & Gerd.) C. Walker & F.E. Sanders (Mulenko et al., 2008), *Septoria maydis* Schulz & Sacc (Ochuodho, 1986), *Septoria sorghi* (unknown authority) (Alvarez, 1976), *Sirococcus maydis* Speg, (Spegazzini, 1910), *Spegazzinia tessarthra var. deightonii* (Farr and Rossman, 2022), *Spermospora zeae* Crous (Crous et al., 2021), *Sphaerostilbella penicillioides* (Corda) Rossman, L. Lombard & Crous (syn. *Gliocladium penicillioides* Corda (Mulenko et al., 2008), *Sporidesmium maydis* Thm. (Farr and Rossman, 2022), *Stagonospora bubakii* Picbauer (Farr and Rossman, 2022), *Stagonospora zeina* Saccas (Farr and Rossman, 2022), *Stauronema sacchari* Syd., P. Syd. & E.J. Butler (Farr and Rossman, 2022), *Talaromyces pseudostromaticus* (Hodges, G.M. Warner, Rogerson) Samson, Yilmaz, Frisvad & Seifert (syn. *Penicillium purpureum* Stolk & Samson) (Mulenko et al., 2008), *Urocystis maydis* (unknown authority) (Pehr, 1936), *Xepiculopsis graminea* (Libert) Nag Raj (Nag Raj, 1993).

For the following species we found only a single record of each in the United States and weak association with corn, so their quarantine status is unclear: *Curvularia tuberculata* P.C. Jain (Jain, 1962; Reddy and Reddy, 1989; Fell and Hunter, 1979), *Fusarium awaxy* Petters-Vandresen, Galli-Terasawa, Terasawa & Glienke (Breunig, 2021; Crous et al., 2019b), *Leptosphaeria hyalospora* Sacc. (Farlow and Seymour, 1888), *Lophiosphaera zeicola* Ellis & Everh, (Ellis and Everhart, 1893), *Macrosporium maculatum* Cooke & Ellis (Farr and Rossman, 2022), *Phyllosticta hispida* Ellis & Dearn. (Farr and Rossman, 2022), *Sphaerella paulula* Cooke (Noel, 1917), *Thamnidium elegans* Link : Fr. (Lichtwardt et al., 1958).

Tobacco necrosis virus (TNV) has several strains and ICTV taxonomizes them into *Alphanecrovirus Tobacco necrosis virus A* and *Betanecrovirus Tobacco necrosis virus D* ICTV, 2022. The report (von Wechmar et al., 1992) that TNV is seedborne in corn is unconfirmed (CABI, 2022a; DPV, 2022).

The fungal pathogen *Fusarium oxysporum* Schltdl. is associated with corn seed (Görtz et al., 2008; Niaz and Dawar, 2009; Shang et al., 2022 Zhou et al., 2018). However, since the *formae speciales* (f.sp.) and races of isolates infecting corn have not been characterized, it is unclear if any isolates are indeed quarantine pathogens for the United States. Without knowing the *formae speciales* or races of *F. oxysporum* associated with this commodity we could not consider it further.

The following weed species have no presence or limited presence in the United States (GRIN Taxonomy, 2022; NRCS, 2022) and are associated with corn (Chikoye et al., 2008; Chikoye et al., 2007; Mabasa and Nyahunzvi, 1994; Mashingaidze, 2004; Nezomba et al., 2017; Ngome et al., 2012; Rugare et al., 2018; Vibrans, 1998), but they are not included on the pest list because we found only limited evidence of their potential to be weedy: **Asteraceae**: *Bidens ballsii* Sherff, *Bidens serrulata* (Poir.) Desf (syn. *B. bipontina* Sherff), *Erigeron longipes* DC., *Ethulia conyzoides* L.f., *Tagetes filifolia* Lag., and *Tridax coronopifolia* (Kunth) Hemsl.; **Brassicaceae**: *Descurainia impatiens* (Cham. & Schltdl.) O.E.Schulz and *Descurainia virletii* (E.Fourn.) O.E.Schulz; **Carophyllaceae**: *Arenaria reptans* Hemsl. and *Drymaria malachioides* Briq.; **Commelinaceae**: *Tripogandra purpurascens* (Schauer) Handlos [syn. *Callisia purpurascens* (S.Schauer)]; **Convolvulaceae**: *Ipomoea aquatica* Forssk.; **Fabaceae**: *Crotalaria recta* Steud. ex A. Rich., *Dalea foliolosa* (Aiton) Barneby, and *Dalea reclinata* (Cav.) Willd.; **Gisekiaceae**: *Gisekia africana* (Lour.) Kuntze; **Lamiaceae**: *Leucas martinicensis* (Jacq.) W. T. Aiton; **Malvaceae**: *Corchorus tridens* L., *Hibiscus nigricaulis* Baker f. (syn. *H. meeusei* Exell), and *Urocarpidium jacens* (S. Watson) Krapov. [syn. *Fuertesimalva jacens* (S.Watson) Fryxell]; **Poaceae**: *Setaria homonyma* (Steud.) Chiov.; **Rosaceae**: *Alchemilla procumbens* Rose; **Rubiaceae**: *Crusea hispida* (Mill.) Rob.; and **Urticaceae**: *Didymodoxa caffra* (Thunb.) Friis & Wilmot-Dear.

The following weed species have no presence or limited presence in the United States (GRIN Taxonomy, 2022) and are reportedly associated with corn (Desalegn et al., 2011; Mabasa and Nyahunzvi, 1994; Madamombe-Manduna et al., 2009; Mavudzi et al., 2001; Ngome et al., 2012; Oluwatobi and Olorunmaiye, 2014; Rahman et al., 2019; Vibrans, 1998), but they are not included on the pest list because the evidence for their association with commercial corn is weak or unlikely (e.g., woody shrubs and trees): **Acanthaceae**: *Justicia flava* (Forssk.) Vahl; **Anacardiaceae**: *Lannea edulis* (Sond.) Engl.; **Annonaceae**: *Annona senegalensis* Pers.; **Asteraceae**: *Parthenium bipinnatifidum* (Ortega) Rollins, *Polydora poskeana* (Vatke & Hildebrandt) H. Rob. (syn. *Vernonia poskeana* Vatke & Hildebrandt), *Sabazia humilis* (Kunth) Cass.; **Boraginaceae**: *Phacelia platycarpa* (Cav.) Spreng.; **Cucurbitaceae**: *Momordica foetida* Schumach.; **Fabaceae**: *Albizia antunesiana* Harms; **Malvaceae**: *Sida cordifolia* L.; **Molluginaceae**: *Corrigiola capensis* Willd.; **Oxalidaceae**: *Oxalis divergens* Benth. ex Lindl. and *Oxalis obliquifolia* Steud. ex A.Rich.; **Poaceae**: *Panicum novemnerve* Stapf and *Sacciolepis africana* C. E. Hubb. & Snowden; and **Zygophyllaceae**: *Kallstroemia rosei* Rydb.

2.4. Pests selected for further analysis or already regulated

We identified 18 quarantine pests for further analysis (Table 2). The Federal Seed Act (7 CFR §361, 2022) requires seed to undergo a visual inspection at a U.S. port-of-entry prior to being released to its destination. Certain noxious weed pests were not assessed because such pests are generally detectable using visual inspection (7 CFR §361, 2022) as they are larger than three millimeters. Insect or noxious weed pests that may escape visual detection, however, were assessed as needed.

Table 2. Pests selected for further analysis.

Pest type	Taxonomy	Species names	Detection method
Fungus	Ascomycetes: Pleosporales	*Bipolaris bicolor* (Mitra) Shoemaker	Molecular (PCR)
Fungus	Ascomycetes: Hypocreales	*Claviceps gigantea* S.F. Fuentes, Isla, Ullstrup & Rodriquez	Visual inspection, molecular (PCR)
Fungus	Ascomycetes: Hypocreales	*Fusarium brevicatenulatum* Nirenberg, O'Donnell, Kroschel & Andrianaivo; syn. *Fusarium pseudoanthophilum* Nirenberg, O'Donnell & Mubat.	Molecular (PCR)
Fungus	Ascomycetes: Hypocreales	*Fusarium cortaderiae* O'Donnell, T. Aoki, Kistler & Geiser	Molecular (PCR)
Fungus	Ascomycetes: Hypocreales	*Fusarium kyushuense* O'Donnell & T. Aoki	Molecular (PCR)
Fungus	Ascomycetes: Hypocreales	*Fusarium meridionale* T. Aoki, Kistler, Geiser & O'Donnell	Molecular (PCR)
Fungus	Ascomycetes: Hypocreales	*Fusarium miscanthi* W. Gams, Klamer & O'Donnell	Molecular (PCR)
Fungus	Ascomycetes: Hypocreales	*Fusarium nelsonii* Marasas & Logrieco	Molecular (PCR)
Fungus	Ascomycetes: Hypocreales	*Fusarium vorosii* B. Tóth, Varga, Starkey, O'Donnell, H. Suga & T. Aoki	Molecular (PCR)
Fungus	Sordariomycetes: Magnaporthales	*Magnaporthiopsis maydis* (Samra, Sabet & Hing.) Klaubauf, Lebrun & Crous syn. *Cephalosporium maydis* Samra, Sabet & Hing., *Harpophora maydis* (Samra, Sabet & Hing.) W. Gams	Molecular (PCR)

Pest type	Taxonomy	Species names	Detection method
Fungus	Oomycetes: Sclerosporales	*Peronosclerospora heteropogonis* J.A. Crouch syn. *Peronosclerospora heteropogoni* Siradhana, Dange, Rathore & S.D. Singh	Molecular (PCR)
Fungus	Oomycetes: Sclerosporales	*Peronosclerospora maydis* (Racib.) C.G. Shaw syn. *Sclerospora maydis* (Racib.) E.J. Butler	Molecular (PCR)
Weed	Amaranthaceae	*Amaranthus thunbergii* Moq.	Detectable with a hand lens or dissecting microscope
Weed	Cleomaceae	*Cleome monophylla* L.	Detectable with a hand lens or dissecting microscope
Weed	Commelinaceae	*Commelina africana* L.	Detectable with a hand lens or dissecting microscope
Weed	Poaceae	*Digitaria nuda* Schumach.	Detectable with a hand lens or dissecting microscope
Weed	Poaceae	*Urochloa deflexa* (Schumach.) H. Scholz	Detectable with a hand lens or dissecting microscope

The following pests can follow the seed pathway; however, they were not assessed because they were previously determined to pose an unacceptable risk to the PRA area and domestic regulations are in place. These pests are candidates for risk mitigation.

Table 3. Pests considered Select Agents or Program Pests.

Pest type	Scientific name	Code of Federal Regulation	Notes
Fungus	*Peronosclerospora philippinensis* (W. Weston) C.G. Shaw	7 CFR § 331, 2022	Seed transmission occurs if kernels are planted directly after harvest. Undried kernels with 30–36 percent moisture developed into diseased seedlings, while kernels with 14–30 percent moisture did not (Advincula and Exconde, 1975).

Pest type	Scientific name	Code of Federal Regulation	Notes
Fungus	*Sclerophthora rayssiae* var. *zeae* Payak & Naras.	7 CFR § 331, 2022	Seed transmission occurs at a rate of less than 1 percent (Sangam and Thakur, 1989). Infected seeds dried to 14 percent moisture or less and stored for 4 or more weeks were found not to be capable of transmitting the disease (White, 1999).
Weed	*Asphodelus fistulosus* L.	7 CFR § 360	No notes
Weed	*Cirsium arvense* (L.) Scop	7 CFR § 361	No notes
Weed	*Lepidium draba* L.	7 CFR § 361	No notes
Weed	*Commelina benghalensis* L.	7 CFR § 360	No notes
Weed	*Convolvulus arvensis* L.	7 CFR § 361	No notes
Weed	*Striga angustifolia* (Don) Saldanha	7 CFR § 330	No notes
Weed	*Striga asiatica* (L.) Kuntze	7 CFR § 360; 7 CFR § 330	No notes
Weed	*Striga aspera* (Willd.) Benth.	7 CFR § 330	No notes
Weed	*Striga densiflora* (Benth.) Benth.	7 CFR § 330	No notes
Weed	*Striga hermonthica* (Delile) Benth.	7 CFR § 360; 7 CFR § 330	No notes
Weed	*Striga parviflora* (R. Br.) Benth.	7 CFR § 330	No notes
Weed	*Digitaria abyssinica* (Hochst. ex A. Rich.) Stapf	7 CFR § 360	No notes
Weed	*Digitaria ternata* (A. Rich) Stapf	7 CFR § 319.37-4	No notes
Weed	*Digitaria velutina* (Forssk.) P. Beauv.	7 CFR § 360	No notes
Weed	*Paspalum scrobiculatum* L.	7 CFR § 360	No notes
Weed	*Rottboellia cochinchinensis* (Lour.) Clayton	7 CFR § 360	No notes
Weed	*Sorghum halepense* (L.) Pers.	7 CFR § 361	No notes

Pest type	Scientific name	Code of Federal Regulation	Notes
Weed	*Urochloa panicoides* P. Beauv.	7 CFR § 360	No notes
Weed	*Rumex hypogaeus* T.M. Schust. & Reveal	7 CFR § 360	Regulated under the synonym *Emex australis* Steinh.

3. Likelihood of Introduction and Spread

3.1. Introduction

For each pest[3] selected for further analysis, we estimate its likelihood of introduction and spread. In this risk assessment, we first determine if an endangered area exists within the United States for pests associated with the seed of *Zea mays*. The endangered area is defined as the portion of the PRA area where ecological factors favor establishment of the pest and where its presence will likely result in economically important impacts to the commodity or other potential hosts. If a pest causes an unacceptable impact, that means it could adversely affect agricultural production by causing a yield loss of 10 % or greater, by increasing U.S. production costs, by impacting an environmentally important host, or by impacting international trade. After defining the endangered area, we assessed the likelihood of introduction of the pest into that area via the imported commodity. We define our uncertainty about the pest potential as follows:

- Negligible uncertainty: Additional or better evidence is very unlikely to change the conclusion.
- Low uncertainty: Additional or better evidence probably will not change the conclusion.
- Moderate uncertainty: Additional or better evidence may or may not change the conclusion.
- High uncertainty: Reliable evidence is not available.

For imported seeds, we do not assess the likelihood of entry in detail because it is assumed to occur. This is due to the pest association and the intended use of seeds. These seeds will be used for planting in a suitable environment for the plant to grow, which would presumably allow seed-borne or seed-transmitted pests to establish.

3.2. Likelihood of Introduction and Spread

3.2.1. *Bipolaris bicolor* (Mitra) Shoemaker (Pleosporales; Pleosporaceae)

Bipolaris bicolor is a fungal pathogen of a wide host range of plants. It was isolated from healthy corn seeds (Remesova et al., 2007) and pathogenicity tests showed that it infects roots and reduces seedling emergence (Chambers, 1987). It causes leaf spot in pepper (Didvania et al., 2012), in rice (Safari Motlagh and Kaviani, 2008), and in rubber tree (Liang et al., 2019). It was also found on pepper (Deena and Basuchaudhary, 1984), sorghum (Costa Carvalho et al., 2014), rice (Safari Motlagh and Kaviani, 2008) and wheat (Morejon et al., 2006) seeds. *Bipolaris bicolor* occurs commonly in warm temperate and tropical regions (Manamgoda et al., 2014).

[3] If needed, regulated weed species that are associated with seed of the commodity will be assessed for weed risk using a separate process. The result(s) of this process will be summarized in a separate section.

The endangered area for *Bipolaris bicolor* within the whole United States

<u>*Climatic suitability:*</u> *Bipolaris bicolor* has been reported from **Africa**: Cote d'Ivoire (Farr and Rossman, 2022), Morocco (Kadri et al., 2013), Nigeria, South Africa, Swaziland, Tanzania, and Zimbabwe (Farr and Rossman, 2022); **Asia**: China (Liang et al., 2019), Iran (Safari Motlagh and Kaviani, 2008), Nepal, Taiwan (Farr and Rossman, 2022), Thailand (Suwanaqul et al., 2013), India (Didvania et al., 2012); **Central America**: Cuba (Neninger et al., 2003); **Europe**: Denmark (Farr and Rossman, 2022), Yugoslavia (Farr and Rossman, 2022); **North America**: Canada (Farr and Rossman, 2022); Mexico (Farr and Rossman, 2022); **Oceania**: Australia (Paul and Parbery, 1966), New Zealand, (Farr and Rossman, 2022) and **South America**: Argentina, (Farr and Rossman, 2022), Brazil (Costa Carvalho et al., 2014; Poltronieri et al., 2013), Guyana (Farr and Rossman, 2022). Based on a comparison of the distribution of this pathogen with Global Plant Hardiness Zones (Takeuchi and Fowler, 2018), we estimated that *B. bicolor* could establish in areas of the United States corresponding to plant hardiness zones 5-12.

<u>*Hosts in PRA area:*</u> *Bipolaris bicolor* infects: **Arecaceae**: açai (*Euterpe oleracea*) (Poltronieri et al., 2013), palm (*Bactris gasipaes*) (Rodriguez-Morejon et al., 1998); **Cucurbitaceae:** bitter gourd (*Momordica charantia*) (Qin et al., 2019); **Euphorbiaceae**: rubber tree (*Hevea brasiliensis*) (Liang et al., 2019); **Fagaceae**: quercus (*Quercus xalapensis*) (Manamgoda et al., 2014); **Poaceae:** multiple species: (Farr and Rossman, 2022; Manamgoda et al., 2014; Paul and Parbery, 1966), including corn (*Zea mays*) (Chambers, 1987), sorghum (*Sorghum bicolor*) (Costa Carvalho et al., 2014), wheat (*Tritichum aestivum*) (Paul and Parbery, 1966 Bach and Kimati, 2004), rice (*Oryza sativa*) (Kadri et al., 2013; Safari Motlagh and Kaviani, 2008); **Solanaceae**: bell pepper (*Capsicum annuum*)(Didvania et al., 2012; Jadon and Shah, 2012b Jadon and Shah, 2012a); and **Vitaceae**: grape (*Vitis vinifera*)(Nair, 1985). Bell peppers, corn, rice, sorghum, and wheat are widely distributed throughout Zones 5-12 of the United States (NASS, 2022).

<u>*Economically important hosts*[4]*:*</u> Bell pepper, corn, rice, sorghum, and wheat are economically important crops in the United States (NASS, 2022).

<u>*Potential consequences on economically important hosts at risk:*</u> *Bipolaris bicolor* is likely to cause unacceptable consequences. It infects corn roots, reducing seedlings emergence (Chambers, 1987). It causes leaf blight and fruit rot in bell pepper (Didvania et al., 2012; Jadon and Shah, 2012b). It causes brown spots on rice: an Iranian study, showed that *B. bicolor* induced symptoms within two days of inoculation (Safari Motlagh and Kaviani, 2008) and in a study carried out in Morocco, its disease severity on rice ranged from 44 to 53% (Kadri et al., 2013). In India it was found associated with foot rot of wheat but, "since then the fungus has been infrequently recorded and is not regarded as an important pathogen" (Paul and Parbery, 1966); in Brazil it was found causing spot blotch in wheat (Morejon et al., 2006). The incidence of *B. bicolor* on sorghum seeds, was between 8.0 and 88 percent (Costa Carvalho et al., 2014). Our uncertainty about its potential to cause economic damage is low, as a significant amount of research has been conducted on it.

[4] As defined by ISPM No. 5, potential economic importance applies to crops, the environment (ecosystems, habitats, or species), and other specified values such as tourism, recreation, and aesthetics (IPPC, 2022).

Endangered area: *Bipolaris bicolor* occurs more commonly in warm temperate and tropical regions (Manamgoda et al., 2014), so it would likely be most damaging in areas corresponding to U.S. Plant Hardiness Zones 9 and higher.

Likelihood of natural dispersal and spread: *Bipolaris bicolor* was isolated from seeds of several species: corn (Remesova et al., 2007), pepper (Deena and Basuchaudhary, 1984), sorghum (Costa Carvalho et al., 2014), rice (Safari Motlagh and Kaviani, 2008) and wheat (Morejon et al., 2006). We found no specific evidence about natural dispersal and spread of *B. bicolor*, but studies on another related species, *B. oryzae*, show that primary infection is seed-borne, while secondary infection is generated from wind-borne inoculum from other infected plants, debris, and soil (Chakraborty et al., 2021).

3.2.2 *Claviceps gigantea* S.F. Fuentes, Isla, Ullstrup & Rodriquez (Hypocreales: Clavicipitaceae)

Claviceps gigantea is an endemic pathogen to the State of Mexico (Fucikovsky and Moreno, 1971) and it is not present in the United States. *Claviceps gigantea* infects unpollinated maize ears and replaces the kernel with a sclerotium (Fuentes et al., 1964). The fallen sclerotia overwinter on the ground and produce ascospores to infect pistillate flowers of maize the following year (Moreno-Manzano et al., 2016). The sclerotia can remain viable for 12 months under simulated field conditions (Fuentes et al., 1964). The comma-shaped sclerotia can reach to a size of 8 x 5 cm and are easily detected during inspection (Fuentes et al., 1964).

The endangered area for *Claviceps gigantea* within the whole United States

Climatic suitability: *Claviceps gigantea* has only been reported from limited areas of Mexico (Fucikovsky and Moreno, 1971; Fuentes et al., 1964). Based on areas where *C. gigantea* occurs in Mexico, we estimate that it could establish in areas of the United States corresponding to Global Plant Hardiness Zones 9b through 10b (Takeuchi et al., 2018).

Hosts in PRA area: *Claviceps gigantea* only infects *Zea mays* (maize) (Moreno-Manzano et al., 2016), which is grown within the PRA area (NRCS, 2022).

Economically important hosts [5]*:* Corn is the only known host of this fungus and is economically important in the United States. (NASS, 2022).

Potential consequences on economically important hosts at risk: This pest is likely to cause unacceptable consequences. *Claviceps gigantea* has been reported to cause 90% losses in hybrid corn (Moreno-Manzano et al., 2016). About 50 percent of seeds lost germination capacity although only one kernel on a cob was infected by this pathogen (Fucikovsky and Moreno, 1971). Aside from grain damage, the pathogen produces ergot alkaloids that pose a food safety risk to animal and human health (Solano-Báez et al., 2018).

Endangered area: The endangered area includes areas of the United States in Plant Hardiness Zones 9 through 10 where the host plant is present.

[5] As defined by ISPM No. 5, potential economic importance applies to crops, the environment (ecosystems, habitats, or species), and other specified values such as tourism, recreation, and aesthetics (IPPC, 2022).

Likelihood of natural dispersal and spread: Sclerotia fallen on the ground or mixed with seeds will be a source of inoculum when planted (Fuentes et al., 1964). It took around 6 months from sclerotial gemination to ascospore release (Moreno-Manzano et al., 2016). Ascospores are a primary inoculum source and can spread naturally by wind or insects. Sclerotia in harvested ears or in soil could be a pathway for long distance spread of this pathogen (Munkvold and White, 2016). Low temperature and high humidity favor disease development (Moreno-Manzano et al., 2016).

3.2.3. *Fusarium brevicatenulatum* Nirenberg, O'Donnell, Kroschel & Andrianaivo, *Fusarium cortaderiae* O'Donnell, T. Aoki, Kistler & Geiser, *Fusarium kyushuense* O'Donnell & T. Aoki, *Fusarium meridionale* T. Aoki, Kistler, Geiser & O'Donnell, *Fusarium miscanthi* W. Gams, Klamer & O'Donnell, *Fusarium nelsonii* Marasas & Logrieco, and *Fusarium vorosii* B. Tóth, Varga, Starkey, O'Donnell, H. Suga & T. Aoki (Hypocreales; Nectriaceae)

The endangered area for *Fusarium* spp. within the United States:

Fusarium brevicatenulatum is a pathogen of corn, cucumber, sorghum, and tomato (Chehri et al., 2010b; Dewan and Albehadli, 2015; Tesso et al., 2010). It was isolated from rotten corn ears (Darnetty et al., 2008), from passion fruit plant material with dieback symptoms (Amata et al., 2012), from *Striga asiatica* plants with browning, wilting, rots, or lesions (Nirenberg et al., 1998), and from millet (Amata et al., 2010). It was isolated from seeds including corn (Mubatanhema et al., 1999; Nirenberg et al., 1998; Tsehaye et al., 2017), rice (Amatulli et al., 2010) and sorghum (Abdel-Hafez et al., 2014). It produces mycotoxins (Glenn, 2007; Mubatanhema et al., 1999; Tsehaye et al., 2017).

Fusarium cortaderiae causes corn stalk rot disease (Xi et al., 2021). It was isolated from diseased corn ears with other *Fusarium* spp. (Shang et al., 2022), and reported to cause head blight on annual ryegrass (Machado et al., 2015). It reduces seedling emergence causing pre-emergence damping off in soybean (Barros et al., 2014). It was isolated from wheat with head blight symptoms (Balmas et al., 2015; Boutigny et al., 2011). It was isolated from seeds including corn (Boutigny et al., 2014; Kuhnem et al., 2016; Monds et al., 2005; Shang et al., 2022), rice (Gomes et al., 2015), and wheat (Del Ponte et al., 2015). It also has the genes involved in the production of mycotoxins (Shang et al., 2022).

Fusarium kyushuense causes corn ear rot (Wang et al., 2014), and wilting and stunting in tobacco (Wang et al., 2013). It was isolated from symptomatic corn kernels (Shang et al., 2022; Zhou et al., 2018), wheat (Aoki and O'Donnell, 1998) and rice seeds (Zhao and Lu, 2007). It causes stem rot in *Dendrobium officinale* (Cao et al., 2022).

Fusarium meridionale causes head blight in corn (Kuhnem et al., 2016; Machado et al., 2021; Shang et al., 2022; Xi et al., 2021; Zhou et al., 2018), rice (Dong et al., 2020a), and wheat (Ceron-Bustamante et al., 2016). It causes canker and wilting in hop (Augusto Moretti Ferreira Pinto et al., 2022). In China it caused loss of 10 percent in ryegrass pastures (Wang et al., 2022). It was isolated from soybean, and studies showed it causes seedling crown rot, seed decay, necrotic lesions on cotyledons and root rot (Barros et al., 2014) and pod blight that can reduce

kernel weight (Chiotta et al., 2016). There is a record of this fungus being isolated from orange twigs, but no information about the disease or damage was found (Hafez et al., 2020). It produces mycotoxins (Zhou et al., 2018).

Fusarium miscanthi has been reported from silver grass straw buried in the soil (Gams et al., 1999). It causes rhizome rot to *Miscanthus* × *giganteus* (Scauflaire et al., 2013a) and kernel ear rot in maize (Shang et al., 2022; Shang et al., 2021).

Fusarium nelsonii was found to be associated with corn, sorghum, and wheat seeds where it has also been found producing trichothecene mycotoxin (Chehri et al., 2010a; Lincy et al., 2011; Marasas et al., 1998; Silva-Rojas et al., 2013). It is a pathogen on corn causing stalk rot and consequentially, premature death of plants (Zhang et al., 2021). Furthermore, it causes flower blight on cucumber plants and root rot in pear trees (Ahmad et al., 2020; Hasson, 2013).

Fusarium vorosii was isolated from barley, corn, and rice grain sampled in the field at a frequency lower than one percent (Lee et al., 2016); all six isolates examined induced head blight symptoms on barley grains, and ear-stalk rot on corn and barley appeared to be the most susceptible (Lee et al., 2016). It produces mycotoxins (Lee et al., 2016).

<u>*Climatic suitability:*</u>
Fusarium brevicatenulatum has been reported from: **Africa:** Egypt (Abdel-Hafez et al., 2014), Ethiopia (Tsehaye et al., 2017), Kenya (Amata et al., 2010), Madagascar (Amata et al., 2010), South Africa (Amobonye et al., 2021) and Zimbabwe (Nirenberg et al., 1998); **Asia:** Iran (Amini et al., 2013; Chehri et al., 2010a), Iraq (Dewan and Albehadli, 2015); **Europe:** Italy (Amatulli et al., 2010); **Oceania:** Indonesia (Chehri et al., 2010b; Darnetty et al., 2008).

Fusarium cortaderiae is distributed in the following regions: **Africa**: South Africa (Boutigny et al., 2011); **Asia:** China (Xi et al., 2021); **Europe:** France (Boutigny et al., 2014), Italy (Balmas et al., 2015; Valverde-Bogantes et al., 2020); **South America:** Argentina (Barros et al., 2014; Del Ponte et al., 2015), Brazil (Machado et al., 2015; Monds et al., 2005), Uruguay (Umpiérrez et al., 2013); **Oceania:** New Zealand (O'Donnell et al., 2004).

Fusarum kyushuense has been reported from: **Asia:** China (Cao et al., 2022 Shang et al., 2022; Wang et al., 2014), Japan (Aoki and O'Donnell, 1998).

Fusarium meridionale has been reported from: **Africa:** South Africa (Boutigny et al., 2011); **Asia:** China (Xi et al., 2021), Korea (Lee et al., 2016), Iran (Khaledi et al., 2017); **North America**: Mexico (Ceron-Bustamante et al., 2016); **Oceania:** New Caledonia (Hafez et al., 2020); **South America** Argentina (Barros et al., 2012), Brazil (Augusto Moretti Ferreira Pinto et al., 2022; Gomes et al., 2015)

Fusarium miscanthi is distributed in the following regions**: Asia:** China (Shang et al., 2022; Shang et al., 2021); **Europe:** Belgium (Scauflaire et al., 2013a), Denmark (Gams et al., 1999).

Fusarium vorosii has been reported from **Asia:** Japan **(**Starkey et al., 2007); Korea (Lee et al., 2016); **Europe:** Hungary (Starkey et al., 2007), Russia (Gagkaeva et al., 2021; Yli-Mattila et al., 2009), Serbia (Obradović et al., 2022).

Fusarium nelsonii has been reported from **Africa**: South Africa (Marasas et al., 1998); **Asia**: China (Ahmad et al., 2020), India (Lincy et al., 2011), Iran (Chehri et al., 2010b). Iraq (Hasson, 2013); **North America**. Mexico (Silva-Rojas et al., 2013).

Comparing plant hardiness zones with these known geographic distributions, we anticipate one or more of these fungi could survive across a wide range of plant hardiness zones (3-13) (Takeuchi and Fowler, 2018), so we estimate it could establish broadly where suitable hosts occur.

<u>*Hosts in PRA area:*</u> *Fusarium* can infect a wide host range of plants that includes: **Bromeliaceae:** *Ananas comosus* (pineapple); **Cannabaceae:** *Humulus lupulus* (hop); **Cucurbitaceae:** *Cucumis sativus* (cucumber), **Fabaceae:** G*lycine max* (soybean), *Medicago* sp.; **Orchidaceae:** *Dendrobium officinale*; **Poaceae:** *Lolium perenne* (ryegrass), *Miscanthus sinensis* (silver grass); *Nicotiana tabacum* (tobacco), *Oryza sativa* (rice), *Saccharum* sp. (sugarcane), *Sorghum bicolor* (sorghum), *Sorghum* sp., *Triticum aestivum, Triticum durum* (wheat), and *Zea mays* (corn); **Rosaceae:** *Pyrus* sp. (pear); **Solanaceae:** *Solanum lycopersicum* (tomato), (Abdel-Hafez et al., 2014; Ahmad et al., 2020; Amatulli et al., 2010; Aoki and O'Donnell, 1998; Arias et al., 2013; Augusto Moretti Ferreira Pinto et al., 2022; Balmas et al., 2015; Barros et al., 2014; Boutigny et al., 2014; Boutigny et al., 2011; Cao et al., 2022; Chehri et al., 2010b; Chidi et al., 2020; Chiotta et al., 2016; Del Ponte et al., 2015; Dewan and Albehadli, 2015; Gams et al., 1999; Gomes et al., 2015; Ibrahim et al., 2015; Kuhnem et al., 2016; Lee et al., 2016; Machado et al., 2015; Monds et al., 2005; Ocamb and Kommedahl, 1994; Shang et al., 2022; Silva-Rojas et al., 2013; Tesso et al., 2010; Wang et al., 2013; Wang et al., 2014; Xi et al., 2021; Zhao and Lu, 2007).

<u>*Economically important hosts*</u>[6]: Alfalfa, corn, cucumber, pears, sorghum, soybean, tobacco, tomato, and wheat (NASS,2022).

<u>*Potential consequences on economically important hosts at risk*</u>: *Fusarium brevicatenulatum* is a pathogen of corn and sorghum that causes stalk rot (Chehri et al., 2010b; Tesso et al., 2010). In Iraq it was found causing tomato and cucumber fruit rot (Dewan and Albehadli, 2015), while in Iran pathogenicity tests failed to demonstrate its ability to cause disease in tomato (Amini et al., 2013). It was isolated among other *Fusarium* from corn ear rot (Darnetty et al., 2008). It has been isolated from different hosts, but we could not find specific evidence of yield loss.

Fusarium cortaderiae causes stalk rot disease (Xi et al., 2021). It was isolated from rotted corn ears Shang et al., 2022at 0.8 percent (Shang et al., 2022). In a survey conducted in Brazil, it represented the 14 percent of the *Fusarium* isolated, and it was present in 12 percent of kernels (Kuhnem et al., 2016). It was reported to cause head blight on annual ryegrass (Machado et al., 2015). In an experiment carried out in Argentina on soybean seedlings, it caused crown rot, seed decay, necrotic lesions on cotyledons and 15 percent of the plants showed root rot (Barros et al., 2014). It reduced seedling emergence causing pre-emergence damping off by 68 percent (Barros

[6] As defined by ISPM No. 5, potential economic importance applies to crops, the environment (ecosystems, habitats, or species), and other specified values such as tourism, recreation, and aesthetics (IPPC, 2022).

et al., 2014). It was isolated from wheat with head blight symptoms (Balmas et al., 2015; Boutigny et al., 2011). In a study carried out in Brazil, it was isolated in 14.6 percent of rice kernels (Gomes et al., 2015); despite *F. cortaderiae* carrying the genes involved in the production of mycotoxins (Shang et al., 2022), it did not produce detectable levels of any trichothecene in the rice substrate (Gomes et al., 2015). Isolated from seeds: corn (Boutigny et al., 2014; Kuhnem et al., 2016; Monds et al., 2005; Shang et al., 2022), rice (Gomes et al., 2015), and wheat (Del Ponte et al., 2015).

Fusarium kyushuense is likely to cause unacceptable consequences. It causes corn ear rot (Wang et al., 2014), wilting and stunting in tobacco (Wang et al., 2013). It was isolated from symptomatic corn kernels (Shang et al., 2022), wheat (Aoki and O'Donnell, 1998), and rice seeds (Zhao and Lu, 2007). In China it was found in a greenhouse where it affected 30 percent of seedlings of *Dendrobium officinale* with stem rot, wilting, and vascular discoloration (Cao et al., 2022).

Fusarium meridionale is likely to cause unacceptable consequences. It was isolated from maize ear and kernel rot in China (Duan et al., 2016; Shang et al., 2022; Shang et al., 2021 Zhou et al., 2018). In China, among 12 species of *Fusarium* causing stalk rot in corn, *F. meridionale* was found to be the most aggressive and prevalent (40.5 percent) (Xi et al., 2021). In another survey it was also the dominant species causing maize rot, representing the 29 percent of the total population (Shang et al., 2022). In South Africa *F. meridionale* was isolated from root rot in corn (Boutigny et al., 2011). In Brazil surveys in corn fields found that *F. meridionale* was the most prevalent fungus present in kernels (67 percent) and in stalks (97.8 percent) (Kuhnem et al., 2016). A recent Brazilian study hypothesized that its dominance over *F. graminearum* in causing ear rot may be because of increased aggressiveness and competitiveness (Machado et al., 2021). It causes *Fusarium* head blight in rice and pathogenicity tests showed that it infected 34 percent of plants (Dong et al., 2020a). In a survey in Brazil in rice kernels it was found in only one isolate (Gomes et al., 2015). *Fusarium meridionale* was isolated from grain of wheat plants showing symptoms such as ear blight (Boutigny et al., 2011; Khaledi et al., 2017). In pathogenicity tests it infected 96.4 percent of florets causing head blight (Ceron-Bustamante et al., 2016). In an experiment carried out in Argentina on soybean seedlings *Fusarium meridionale* caused crown rot, seed decay, necrotic lesions on cotyledons and root rot (Barros et al., 2014). Another study in Argentina showed that it causes soybean pod blight and a significant reduction in kernel weight compared to the control treatment (Chiotta et al., 2016).
In Brazil it caused wilting, cankers in the crown, foliar necrosis, and death of infected hop plants (Augusto Moretti Ferreira Pinto et al., 2022).

Fusarium miscanthi has been reported from silver grass straw buried in the soil (Gams et al., 1999). It causes rot to rhizome to the hybrid *Miscanthus* × *giganteus* perennial grass (*Miscanthus sinensis* x *M. sacchariflorus*) (Scauflaire et al., 2013a) and kernel and ear rot in maize (Shang et al., 2022; Shang et al., 2021).

Fusarium nelsonii is likely to cause unacceptable consequences because it causes stalk rot and premature death of corn plants (Zhang et al., 2021). It causes flower blight on cucumber plants (Ahmad et al., 2020). In pears it reduced seed germination to 2-30 percent (Hasson, 2013).

Fusarium vorosii was isolated from barley, corn, and rice grain sampled in the field at a frequency lower than one percent (Lee et al., 2016); all six isolates examined induced head blight symptom on barley grains, and ear/ stalk rot on corn and barley appeared to be the most susceptible (Lee et al., 2016). It produces mycotoxins (Lee et al., 2016).

Endangered area: Corn, cucumber, pears, sorghum, soybean, tobacco, tomato and wheat are grown in the majority of the United States (NASS, 2022). This area is encompassed by plant hardiness zones (3-13) (Takeuchi and Fowler, 2018).

Likelihood of natural dispersal and spread: Plant residue in the soil is the primary source of inoculum for infections (Munkvold, 2003). *Fusarium* species survive on maize crop residue as mycelium or other survival structures, such as chlamydospores (Munkvold, 2003). *Fusarium* can remain in the soil for long periods of time even without the presence of the host plant on organic matter and in the rhizosphere (Fravel et al., 2003; Gordon and Martyn, 1997; Ocamb and Kommedahl, 1994; Salgado-Neto et al., 2016). The mycelium can colonize senescent tissues of other crop and weed species that are not considered hosts for these pathogens (Munkvold, 2003). It has also been proposed that, for instance, the airborne ascospores of *F. cortaderiae* could assist in the spread of this species from hosts such as pampas grass to cereal crops (Monds et al., 2005). Fusarium ear rot inoculum is dispersed primarily as microconidia, although macroconidia also act as infectious propagules. Microconidia typically are more numerous and more easily wind-dispersed than macroconidia. They also disperse through air, water splash, and rainwater (Munkvold, 2003; Rodríguez Zafra et al., 2016). Some *Fusarium* spp. can also be dispersed by insects (Salgado-Neto et al., 2016). In China, *Fusarium meridionale* was the most aggressive species among other *Fusarium* species to infect maize stalks (Shang et al., 2022; Xi et al., 2021). Xi et al. (2021) believed that differences in compositions of *Fusarium* spp. associated with maize stalk rot disease were caused by local climatic conditions.

Our uncertainty about their potential to cause economic damage is low, as a significant amount of research has been conducted on most of these species.

3.2.4. *Magnaporthiopsis maydis* (Samra, Sabet & Hing.) Klaubauf, Lebrun & Crous (Magnaporthales: Magnaporthaceae)

Magnaporthiopsis maydis is the causal agent of late wilt or black bundle disease, which is a soil-borne and externally and internally seed-borne vascular wilt pathogen of corn (*Zea mays* L.) (Bergstrom et al., 2008; Michail et al., 1999). This is a destructive disease in corn production in Egypt, India, Israel, and other countries (Bergstrom et al., 2008; Michail et al., 1999). The fungus infects the roots around six weeks after sowing but a rapid wilting becomes visible before tasseling and lasts until soon before maturity. As disease progresses, lower portions of stalks dry out and become hollow and shrunken (Bergstrom et al., 2008; Samra et al., 1963). This pathogen overwinters as spores or sclerotia in host debris. Soil temperatures of 8–10 °C with low soil moisture (25 percent saturation) favor sclerotia survival (Dawood et al., 1979). Under laboratory conditions sclerotia survived for more than 15 months (Sabet, 1984). *Magnaporthiopsis maydis* can also cause rot of seeds and seedlings (Jain et al., 1974). The fungus can survive in corn seed stored at 15 percent moisture for up to 10 months (Singh and Siradhana, 1987) and host resistance can affect seed transmission rates (Michail et al., 1999). *Magnaporthiopsis maydis* can

be detected in the seed coat, endosperm, and embryo of freshly harvested or from stored corn seeds (Michail et al., 1999). *Magnaporthiopsis maydis* has not been reported in the U.S.

The endangered area for *Magnaporthiopsis maydis* within the whole United States
Climatic suitability: Magnaporthiopsis maydis occurs in **Africa:** Egypt (Samra et al., 1963); **Asia:** India (Payak et al., 1970), Israel (Dor and Degani, 2019); and **Europe:** Hungary (Pecsi and Nemeth, 1998), Portugal and Spain (Molinero-Ruiz et al., 2010). We estimate that it could establish in areas of the United States corresponding to Global Plant Hardiness Zones 7 through 12 (Takeuchi et al., 2018). Environmental conditions in the southern and western portions of the U. S. Corn Belt are favorable for establishment and development of this pathogen (Bergstrom et al., 2008).

Hosts in PRA area: Magnaporthiopsis maydis can infect: **Fabaceae:** *Lupinus termis* (lupine); **Malvaceae:** *Gossypium hirsutum* (cotton) (Dor and Degani, 2019). **Poaceae**: *Setaria viridis* (bristlegrass), *Zea mays* (maize) (Bergstrom et al., 2008; Dor and Degani, 2019).

Economically important hosts[7]*:* Economically important hosts of this fungus are corn and cotton. (NASS, 2022).

Potential consequences on economically important hosts at risk: Late wilt is one of the most important fungal diseases in corn fields. In Egypt, 100 percent infection has been observed in some fields (Galal et al., 1979) and yield losses could reach up to 40 percent in susceptible varieties due to late wilt (Saleh et al., 2003). In India, the incidence of late wilt reached 70 percent with a yield loss of around 51 percent (Payak and Sharma, 1985). Late wilt caused significant economic damage in the leading maize cultivar, Royalty, due to an outbreak in 2013 (Degani and Cernica, 2014). Disease incidence of about 60 percent has been reported in corn in Portugal and Spain (Molinero-Ruiz et al., 2010).

***Endangered area*:** The endangered area includes areas of the United States in Plant Hardiness Zones 7 through 12 where host plants are present.

***Likelihood of natural dispersal and spread*:** *Magnaporthiopsis maydis* overwinters as mycelia or sclerotia on infected corn debris or in soil and infects roots of seedlings the next year (Dawood et al., 1979; Johal et al., 2004). It can survive in seeds for 10 months under low humidity and high temperatures; however, it survives longer in locations with lower temperatures. The pathogen persists in infected stems up to 24 months at room temperature while it remains viable for 12 months on the soil surface and for 10 months when buried in soil (Singh and Siradhana, 1987). Movement of infested soil, crop residues, infected seeds, or infected hosts can spread this pathogen (Degani et al., 2020; Johal et al., 2004).

[7] As defined by ISPM No. 5, potential economic importance applies to crops, the environment (ecosystems, habitats, or species), and other specified values such as tourism, recreation, and aesthetics (IPPC, 2022).

3.2.5. *Peronosclerospora heteropogonis* J.A. Crouch and *Peronosclerospora maydis* (Racib.) C.G. Shaw syn. *Sclerospora maydis* (Racib.) E.J. Butler (Peronosporales: Peronosporaceae)

Rajasthan downy mildew, caused by *Peronosclerospora heteropogonis,* is an important fungal disease of maize in Rajasthan, India (Trivedi et al., 2006); while Java downy mildew, caused by *P. maydis*, is found primarily in corn and has caused considerable yield losses in Indonesia (Hooda et al., 2020). *Peronosclerospora heteropogonis* has been detected in the embryos of corn seeds. Planting fresh seeds with a moisture content of 39 percent showed a 13.6 percent transmission rate**,** but seed transmission has not been detected when sowing mature seeds dried to 22.3 % moisture content or below (Rathore et al., 1987). Seed treatment with fungicide significantly reduced disease incidence and grain yield loss due to downy mildew (Trivedi et al., 2006).

Peronosclerospora maydis is an obligate parasite that causes Java downy mildew, an economically important disease of corn (Rustiani et al., 2015; Semangoen, 1970; Setyawan et al., 2016). It can occur at any stage of maize development, though it primarily affects seeds and seedlings (Lukman et al., 2016). Affected leaves show yellow stripes that become necrotic. If the infection becomes systemic, plants can be stunted (White, 1999). Plants may develop multiple and deformed cobs, leaflike tassels and cobs, and either elongated or shortened stalks (Lukman et al., 2016). It is a seed-borne pathogen (Purakusumah, 1965). Oospores have been identified in corn seeds, especially in sweet corn (Lukman et al., 2016). Mycelium is detected in the immature seeds but is rare in mature and dry seeds (Semangoen, 1970). There was 100 percent seedling infection when infected undried seeds with high moisture content (34 percent) were planted, no seed transmission has been observed from seeds dried to 18 percent moisture content, therefore, infected fresh seeds left in the field can be an important source of infection (Mikoshiba, 1983). It is dispersed by air, conidia can infect maize up to 42 m away although 70- 85 percent of infections occur within 20 m (Mikoshiba, 1983). Both pathogens cannot be cultured on artificial media (Hooda et al., 2020; Lukman et al., 2016). a

The endangered area for *Peronosclerospora heteropogonis* and *Peronosclerospora maydis* within the United States

<u>*Climatic suitability*</u>: *Peronosclerospora heteropogonis* has only reported from Rajasthan, India (Trivedi et al., 2006); based on the region where *P. heteropogonis* occurs, we estimate that it could establish in areas of the United States corresponding to Global Plant Hardiness Zone 10 (Takeuchi et al., 2018).

Peronosclerospora maydis is present in **Africa**: Congo (de Preter and Vanderweyen, 1960), **Asia**: China (Guangxi) (MOA, 2018), India (Thakur and Mathur, 2002), Indonesia (Lukman et al., 2016), the Philippines (Reinking, 1919), Thailand (Janruang and Unartngam, 2018); **North America**: Jamaica (CABI, 2022); **Oceania**: Australia (Ramsey and Jones, 1988; Shivas et al., 2012; Suharjo et al., 2020); and **South America**: Venezuela (Nass et al., 1976). We estimate that it could establish in areas of the United States corresponding to Global Plant Hardiness Zones 8 through 14 (Takeuchi et al., 2018).

<u>*Hosts in PRA area*</u>: The primary host of *Peronosclerospora heteropogonis* is **Poaceae:** *Zea mays* (maize) (Siradhana et al., 1980). Other hosts include **Poaceae:** *Heteropogon contortus* (twisted tanglehead) and *Heteropogon melanocarpus* (sweet tanglehead) (Hooda et al., 2020; Siradhana et al., 1980). These hosts grow within the PRA area (NASS, 2022).

Peronosclerospora maydis primarily infects **Poaceae**: *Zea mays* (corn) (Bonde et al., 1992; Semangoen, 1970) but has also been reported on *Sorghum bicolor* subsp. *verticilliflorum* (synonym: *S. arundinaceum*) (Lenné, 1990); *Pennisetum* spp. (White, 1999).

Economically important hosts [8]: The most economically important hosts of these fungi are corn and sorghum (NASS, 2022).

Potential consequences on economically important hosts at risk: *Peronosclerospora heteropogoni* caused about 67.9 percent infection, with a yield loss of 35.5 percent in India (Trivedi et al., 2006). *Peronosclerospora maydis* causes Java downy mildew of corn, which is one of the most economically important diseases of corn in Indonesia (Semangoen, 1970; Setyawan et al., 2016; White, 1999). In Indonesia, *P. maydis* typically causes 50-80 percent losses in corn, and sometimes up to 100 percent (Setyawan et al., 2016; Rustiani et al., 2015). A 90 percent rate of infection by *P. maydis* with total yield loss has been reported in Indonesia (Purakusumah, 1965). Infected plants exhibit white to yellow leaf streaks that become necrotic. The infection can also become systemic and cause chlorosis. Plants become stunted, sterile, and often lodge (White, 1999). Our uncertainty about its potential to cause economic damage is low, as a significant amount of research has been conducted on it.

Endangered area: The endangered area of *Peronosclerospora heteropogonis* includes areas of the United States in Plant Hardiness Zone 10, while *P. maydis* includes areas of the United States in Plant Hardiness Zones 8 through 14 where host plants are grown.

Likelihood of natural dispersal and spread: *Peronosclerospora heteropogonis* needs a collateral host to complete its disease cycle in maize. However, *P. heteropogonis* can survive on its collateral hosts in the absence of maize (Dange et al., 1974). Both conidia and oospores of *P. heteropogonis* are produced on hosts other than maize while only conidia are observed on maize plants (Siradhana et al., 1980). Oospores of *P. heteropogonis* overwinter in the soil with infected residues of *Heteropogon* grass and form on the leaves of grass seedlings to provide primary inoculum to infect corn plants, which are at the 2-3 leaf stage (Hooda et al., 2020). Conidia of *P. heteropogonis*, which are produced on maize and leaves of *Heteropogon* grass, are the main source of secondary inoculum sources in the corn field (Hooda et al., 2020). Seed transmission occurs when infected fresh seeds with a moisture content of 39.2 percent are planted but is not detected when dried seeds with a moisture content below 22.3 percent are planted (Rathore et al., 1987). Only maize plants at the early stage of growth are susceptible to this pathogen (Dange et al., 1974). A temperatures range of 22.9 ℃ to 28.6 ℃ and a RH>85 percent favored the disease development (Rathore, 2002; Siradhana et al., 1978).

Maize plants infected by *P. maydis* show systemic symptoms when they are 30 to 100 cm high and may die soon after infection. The ears of diseased maize plants are small with little or no grain. Zoospore formation of *P. maydis* was not observed on maize (Semangoen, 1970). Conidia dispersed by air can be a source of infection within a range of 42 m and corn prior to 6th leaf stage are sensitive to *P. maydis* (Mikoshiba, 1983). Seed transmission was observed in fresh

[8] As defined by ISPM No. 5, potential economic importance applies to crops, the environment (ecosystems, habitats, or species), and other specified values such as tourism, recreation, and aesthetics (IPPC, 2022).

seeds with a high moisture content (34 percent) from infected maize plants, but not detected in dried seeds with a moisture content of 18 percent. Infected ears or residues in the field from the previous season can be a primary source of infection for corn grown year-round in Indonesia. In Indonesia, the average temperature (20.2 ℃ to 32.7 ℃) and field humidity during night (>95 percent) are favorable for the disease development throughout the year (Mikoshiba, 1983). Oospores have been found in seeds collected from both infected field and sweet corn in Indonesia (Lukman et al., 2016) and can be a source of inoculum. In Venezuela, oospores from wild sorghum, as reservoirs of *P. maydis*, are a primary source of infection (Nass et al., 1976).

Based on the information above, specifically the lack of fungal material detected in seed with low moisture content, stored dried seeds are unlikely to bring *Peronosclerospora heteropogonis* and *P. maydis* to new areas.

3.3 Weed risk analyses

3.3.1 *Amaranthus thunbergii* (Amaranthaceae)

Amaranthus thunbergii is an annual C_4 herb that can grow up to 55 cm tall. It is an agricultural weed in its native range and infests corn, cotton, sunflower, and sugarcane. It is native to southeastern Africa and naturalized in Australia and the United Kingdom. The seeds are dispersed in wool and birdseed, and likely in grain as well because seeds of *Amaranthus* species have been intercepted in corn grain at U.S. ports of entry. The plant is also eaten as a vegetable and sold in markets in several African countries and could be intentionally introduced. Pollen is carried by wind, and seeds are 1 to 1.5 mm long. They can persist in the seed bank for long periods. The weed can be competitive with crop plants even at low densities. It is a major weed in Mozambique, Zimbabwe, and South Africa. The species has appeared as a waif in South Carolina, but it is not established in the United States. Under NAPPRA, all *Amaranthus* propagules except seeds, including cut flowers and greenery, are prohibited entry into the United States from all countries except Canada. Seeds of all *Amaranthus* species are regulated in Indiana, but *A. thunbergii* itself is not specifically regulated by APHIS or any state. It could, however, have economic consequences if it were to become established in the United States. Based on its native range in southeastern Africa, it could potentially establish in the southern United States, Hawaii, and the island territories (PPQ, 2020).

3.3.2 *Cleome monophylla* (Cleomaceae)

Cleome monophylla is an annual herb that can be a weed of agriculture. It is native to most of Africa and to Yemen, naturalized in Australia, and present in India, Indonesia, and the Philippines. The seeds are dark brown, 1.8 mm in diameter, and ridged and striated with a thick horseshoe shape. They have been dispersed as agricultural contaminants. The species is in the horticultural trade and has been recommended for commercial cultivation in South Africa. *Cleome monophylla* is a major weed in Zimbabwe, South Africa, Swaziland, and Uganda; a common weed in India and Kenya; and a weed in Tanzania. It infests rice in Indonesia, India, and the Philippines, and it is a weed of corn in South Africa, Swaziland, and Tanzania. It is regulated in Taiwan. The species has been observed in cotton and peanut fields in Montgomery County, GA but is not otherwise known to be present in the United States. The species is not regulated by APHIS or any state, and we found no evidence that it is managed in Georgia; however, it was only first detected in 2015 and could have economic consequences if it were to

spread in the United States. Based on its distribution elsewhere in the world, we expect that it could establish in the southern states, Hawaii, and the island territories (PPQ, 2022a).

3.3.3 *Commelina africana* (Commelinaceae)

Commelina africana is an annual to perennial herb that grows in grasslands, agricultural fields, and coffee plantations. It is native to most of Africa, as well as Saudi Arabia and Yemen, and it has been introduced to Australia and India. It is a major weed of peanuts in Ghana. PPQ has intercepted seeds of the genus *Commelina* in corn grain for consumption and seed for planting, but those interceptions were not identified to the species level. Therefore, *C. africana* could likely be moved as a contaminant. Its seeds are 2.2 to 3.5 mm by 1.3 to 2 mm and dispersed internally by cattle. The plant can also root from cuttings and tolerates heavy grazing. Although it grows up to 50 cm tall, it has a creeping growth habit and can smother low-growing crops such as peanuts, reducing yield. The species also infests teff and corn. It is not regulated by APHIS or any state, but it is not established in the United States and could have economic consequences if it were to become established. The congener *C. benghalensis* is a Federal Noxious Weed and is regulated in Florida, Mississippi, and North Carolina. Based on the distribution of these species elsewhere, we expect that it could establish in the southern United States, Hawaii, and the island territories (PPQ, 2022b).

3.3.4 *Digitaria nuda* (Poaceae)

Digitaria nuda is an annual grass, 10 to 50 cm tall, with a creeping growth habit. It reproduces by seed and does not form rhizomes. It grows in open and disturbed areas, including a variety of agricultural fields. The species is native to tropical Africa and southeastern Asia and naturalized in southern Africa. It is also present in Mexico and Central and South America, though sources disagree on whether it is native or exotic in those regions. PPQ has intercepted seeds of the genus *Digitaria* in corn grain, but those interceptions were not identified to the species level. Therefore, *D. nuda* could likely be moved as a contaminant. The spikelets are 2 to 3.7 mm long; we found no information on their natural dispersal vectors. Seeds show dormancy and can germinate throughout the growing season. In Brazilian sugarcane fields, *D. nuda* is increasing in abundance because it is less sensitive than other grasses to commonly used herbicides. The plant causes yield loss in sugarcane and corn and has also been reported as a weed of rice, coffee, beets, and peanuts. It is present in Puerto Rico and the U.S. Virgin Islands, though sources disagree on whether it is native or exotic. It has also appeared as a waif in one county of Florida. Although *D. nuda* is not regulated by APHIS or any state, it could have economic consequences if it spread in the United States. Based on its native range in tropical Africa and Asia and its naturalized range in more temperate southern Africa, we expect that this species could establish in the southern United States and Hawaii (PPQ, 2022c).

3.3.5 *Urochloa deflexa* (Poaceae)

Urochloa deflexa is an annual, early successional grass that grows in agricultural fields and disturbed areas. It is native to Africa, the Arabian Peninsula, India, and Pakistan. It has appeared as a casual alien in the United Kingdom, where it may have entered as a contaminant of birdseed. Seeds of the genus *Urochloa* have been intercepted in corn grain at U.S. ports of entry, indicating some potential for one or more members of the genus to be contaminants. A non-shattering variety of *U. deflexa* with larger grains is grown in western Africa and could potentially be exported for wider cultivation. The spikelets are 2.5 to 3.5 mm long, and the seeds

may be dispersed internally by cattle and sheep. The plant tolerates drought and salinity. It is a weed of corn, yams, and cowpea in Africa. *Urochloa deflexa* has been reported from Alabama and Florida, but the age and scarcity of herbarium records suggest that it may not be established. Although *U. deflexa* is not currently regulated by APHIS or any state, it could have economic consequences if it were to become established in the United States. Based on its distribution elsewhere in the world, it could potentially establish in the southern United States, Hawaii, and the island territories (PPQ, 2022d).

4. Summary

The following pests are considered quarantine significant for the United States. The pests have a reasonable likelihood of following the seed pathway and would likely cause unacceptable consequences if introduced into the PRA area (Table 4). Thus, the pests are candidates for risk management.

Table 4. Summary of quarantine pests that are candidates for risk management.

Pest type	Scientific name	Notes
Fungus	*Bipolaris bicolor* (Mitra) Shoemaker	No Notes
Fungus	*Claviceps gigantea* S.F. Fuentes, Isla, Ullstrup & Rodriquez	No Notes
Fungus	*Fusarium brevicatenulatum* Nirenberg, O'Donnell, Kroschel & Andrianaivo; syn. *Fusarium pseudoanthophilum* Nirenberg, O'Donnell & Mubat.	No Notes
Fungus	*Fusarium cortaderiae* O'Donnell, T. Aoki, Kistler & Geiser	No Notes
Fungus	*Fusarium kyushuense* O'Donnell & T. Aoki	No Notes
Fungus	*Fusarium meridionale* T. Aoki, Kistler, Geiser & O'Donnell	No Notes
Fungus	*Fusarium miscanthi* W. Gams, Klamer & O'Donnell	No Notes
Fungus	*Fusarium nelsonii* Marasas & Logrieco	No Notes
Fungus	*Fusarium vorosii* B. Tóth, Varga, Starkey, O'Donnell, H. Suga & T. Aoki	No Notes

Pest type	Scientific name	Notes
Fungus	*Magnaporthiopsis maydis* (Samra, Sabet & Hing.) Klaubauf, Lebrun & Crous syn. *Cephalosporium maydis* Samra, Sabet & Hing., *Harpophora maydis* (Samra, Sabet & Hing.) W. Gams	No Notes
Fungus	*Peronosclerospora philippinensis* (W. Weston) C.G. Shaw	N/A. Regulated in 7 CFR § 331, 2022
Fungus	*Sclerophthora rayssiae* var. *zeae* Payak & Naras.	N/A. Regulated in 7 CFR § 331, 2022
Weed	*Amaranthus thunbergii* Moq.	No notes
Weed	*Asphodelus fistulosus* L.	N/A. Regulated in 7 CFR § 360, 2022
Weed	*Cirsium arvense* (L.) Scop.	N/A. Regulated in 7 CFR § 361, 2022
Weed	*Lepidium draba* L.; syn. *Cardaria draba* (L.) Desv.	N/A. Regulated in 7 CFR § 361, 2022
Weed	*Cleome monophylla* L.	No notes
Weed	*Commelina africana* L.	No notes
Weed	*Commelina benghalensis* L.	N/A. Regulated in 7 CFR § 360, 2022
Weed	*Convolvulus arvensis* L.	N/A. Regulated in 7 CFR § 361, 2022
Weed	*Striga angustifolia* (Don) Saldanha	N/A. Regulated in 7 CFR § 360, 2022; 7 CFR § 330, 2020
Weed	*Striga asiatica* (L.) Kuntze	N/A. Regulated in 7 CFR § 360, 2022; 7 CFR § 330, 2020
Weed	*Striga aspera* (Willd.) Benth.	N/A. Regulated in 7 CFR § 360, 2022; 7 CFR § 330, 2020
Weed	*Striga densiflora* (Benth.) Benth.	N/A. Regulated in 7 CFR § 360, 2022; 7 CFR § 330, 2020
Weed	*Striga hermonthica* (Delile) Benth.	N/A. Regulated in 7 CFR § 360, 2022; 7 CFR § 330, 2020
Weed	*Striga parviflora* (R. Br.) Benth.	N/A. Regulated in 7 CFR § 360, 2022; 7 CFR § 330, 2020
Weed	*Digitaria abyssinica* (Hochst. ex A. Rich.) Stapf; syn. *D. scalarum* (Schweinf.) Chiov.	N/A. Regulated in 7 CFR § 360, 2022

Pest type	Scientific name	Notes
Weed	*Digitaria nuda* Schumach.	No notes
Weed	*Digitaria ternata* (A. Rich.) Stapf	N/A. Regulated in 7 CFR § 319.37-4, 2022
Weed	*Digitaria velutina* (Forssk.) P. Beauv.; syn. *Phalaris velutina* Forssk.	N/A. Regulated in 7 CFR § 360, 2022
Weed	*Paspalum scrobiculatum* L.; syn. *P. orbiculare* G. Forst	N/A. Regulated in 7 CFR § 360, 2022
Weed	*Rottboellia cochinchinensis* (Lour.) Clayton	N/A. Regulated in 7 CFR § 360, 2022
Weed	*Sorghum halepense* (L.) Pers.	N/A. Regulated in 7 CFR § 361, 2022
Weed	*Urochloa deflexa* (Schumach.) H. Scholz; syn. *Brachiaria deflexa* (Schumach.) C. E. Hubb. ex Robyns	No notes
Weed	*Urochloa panicoides* P. Beauv.	N/A. Regulated in 7 CFR § 360, 2022
Weed	*Rumex hypogaeus* T. M. Schust. & Reveal; syn. *Emex australis* Steinh.	N/A. This species is regulated as a federal noxious weed under the synonym *Emex australis* (7 CFR § 360, 2022)

[a] N/A: The likelihood of introduction was not assessed for Select Agents and Program Pests - federal regulations are in place for these pests because they were previously determined to pose an unacceptable risk to U.S. agriculture or natural resources.

Our assessment of risk is contingent on the application of all components of the pathway as described in section 1.4. The detailed examination and choice of appropriate phytosanitary measures to mitigate pest risk are addressed in a separate document.

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6. Appendix: Pests not associated with seeds and/or with non-quarantine status

We found evidence that the organisms listed below are associated with corn however, there are two reasons why pests were considered in this section: 1) they are quarantine pests but not associated with seeds [indicated with bolded text]; and/or 2) they are pests of non-quarantine significance for the PRA area (ARM, 2021, or as defined by ISPM No. 5). For non-quarantine pests, we did not intensively evaluate the evidence and we provide references supporting the potential presence of each pest in the export area, presence in the PRA area (if applicable), and association with the commodity. If any of the organisms are not present in the PRA area, we also provided justification for their non-quarantine status.

Organism	In U.S.	Host Association	Notes
FUNGUS *Absidia corymbifera* (Cohn) Sacc. & Trotter	Continental U.S. and HI (Alvarez et al., 2009; Dunn and Baker, 1984; Farr and Rossman, 2022; Knudtson and Kirkbride, 1992)	Farr and Rossman, 2022	No notes
FUNGUS *Acremoniella atra* (Corda) Sacc.	Continental U.S. (Farr and Rossman, 2022)	Farr and Rossman, 2022	It is non reportable at Continental U.S. Ports of Entry (ARM, 2022). No evidence of presence in the Territories
FUNGUS *Acremonium sclerotigenum* (Moreau & R. Moreau ex Valenta) W. Gams	Continental U.S. (Farr and Rossman, 2022)	Farr and Rossman, 2022	No evidence of presence in the Territories; not under official control
FUNGUS *Acrostalagmus luteoalbus* (Link : Fr.) Zare, W. Gams & Schroers; syn. *Acrostalagmus cinnabarinus* Corda	Continental U.S. (Farr and Rossman, 2022)	Farr and Rossman, 2022	No evidence of presence in the Territories; not under official control
FUNGUS *Actinomucor elegans* (Eidam) C.R. Benj. & Hesselt.	Continental U.S. (Barnes, 1971; Cooke, 1968; Farr and Rossman, 2022)	Farr and Rossman, 2022	No evidence of presence in the Territories; not under official control
FUNGUS *Albifimbria verrucaria* (Alb. & Schwein. : Fr.) L. Lombard & Crous; syn. *Myrothecium verrucaria* (Alb. & Schwein. : Fr.) Ditmar	Continental U.S., PR and USVI (Farr and Rossman, 2022)	Farr and Rossman, 2022	It is non reportable at Continental U.S. Ports of Entry (ARM, 2022)
FUNGUS *Albonectria rigidiuscula* (Berk. & Broome) Rossman & Samuels; syn. *Fusarium decemcellulare* C. Brick	Continental U.S., PR and USVI (Farr and Rossman, 2022)	Farr and Rossman, 2022	No notes
FUNGUS *Alternaria alternata* (Fr.: Fr.) Keissl.; syn. *Alternaria tenuissima* (Nees & T. Nees: Fr.) Wiltshire	Continental U.S., HI, PR and USVI (Farr and Rossman, 2022)	Farr and Rossman, 2022	It is non reportable at Continental U.S. Ports of Entry (ARM, 2022)
FUNGUS *Alternaria botrytis* (Preuss) Woudenb. & Crous; syn. Ulocladium botrytis Preuss	Continental U.S. (Farr and Rossman, 2022)	Farr and Rossman, 2022	No evidence of presence in the Territories; not under official control

Organism	In U.S.	Host Association	Notes
FUNGUS *Alternaria brassicae* (Berk.) Sacc.	Continental U.S., HI, PR and USVI (Farr and Rossman, 2022)	Farr and Rossman, 2022	It is non reportable at Continental U.S. Ports of Entry (ARM, 2022)
FUNGUS ***Alternaria burnsii* Uppal, Patel & Kamat**	**No evidence found**	**Xu et al., 2022**	**We found no evidence of seed association**
FUNGUS *Alternaria infectoria* E.G. Simmons; *syn. Pleospora infectoria Fuckel*	Bruce et al., 1984; Farr and Rossman, 2022; USDA-ARS, 1960	Andersen et al., 2009; Farr and Rossman, 2022	It is non-reportable at U.S. ports of entry (ARM, 2022).
FUNGUS *Alternaria longissima* Deighton & MacGarvie	Continental U.S. (Farr and Rossman, 2022	Farr and Rossman, 2022	No evidence of presence in the Territories; not under official control
FUNGUS *Apiospora curvispora* (Speg.) Rehm; syn. *Apiospora camptospora* Penz. & Sacc.	Farr and Rossman, 2022; Hudson, 1960	Farr and Rossman, 2022	No notes
FUNGUS *Apiospora sphaerosperma* (Pers.) Pintos & P. Alvarado; syn. *Papularia sphaerosperma* (Pers.) Höhn.	Continental U.S. and HI (Farr and Rossman, 2022; Lichtwardt et al., 1958; USDA-ARS, 1960)	Farr and Rossman, 2022; Lichtwardt et al., 1958	No notes
FUNGUS *Arthrinium phaeospermum* (Corda) M.B. Ellis	Farr and Rossman, 2022	Farr and Rossman, 2022	No notes
FUNGUS *Ascochyta ischaemi* Sacc.; syn. *Ascochyta zeae* G.L. Stout	IL, OH (Farr and Rossman, 2022; Munkvold and White, 2016)	Munkvold and White, 2016	No evidence of presence for the Territories; not under official control.
FUNGUS *Ascochyta maydis* G. L. Stout	IL (Stout, 1930)	Stout, 1930; White, 1999	No evidence of presence for the Territories; not under official control.
FUNGUS *Ascochyta sorghi* Sacc.	Farr and Rossman, 2022	Farr and Rossman, 2022	No notes
FUNGUS *Ascochyta tritici* Hori & Enjoji	Continental U.S. (Farr and Rossman, 2022; Scharen and Krupinsky, 1971)	Farr and Rossman, 2022	No evidence of presence for the Territories; not under official control.
FUNGUS *Ascochyta zeicola* Ellis & Everh.	Continental U.S. (Farr and Rossman, 2022)	Farr and Rossman, 2022	No evidence of presence for the Territories; not under official control.

Organism	In U.S.	Host Association	Notes
FUNGUS *Ascochyta zeina* Sacc.	Continental U.S. (Munkvold and White, 2016)	Munkvold and White, 2016; Watson, 1971	Isolated in the U.S. (Munkvold and White, 2016). No evidence of presence for the Territories; not under official control.
FUNGUS *Aspergillus alliaceus* Thom & Church	Farr and Rossman, 2022	Farr and Rossman, 2022	Genus is non-reportable at U.S. ports of entry (ARM, 2022).
FUNGUS *Aspergillus alutaceus* Berk. & M.A. Curtis; syn. *Aspergillus ochraceus* G. Wilh.	Farr and Rossman, 2022	Farr and Rossman, 2022	Genus is non-reportable at U.S. ports of entry (ARM, 2022).
FUNGUS *Aspergillus amstelodami* Thom & Church	Farr and Rossman, 2022	Farr and Rossman, 2022	Genus is non-reportable at U.S. ports of entry (ARM, 2022).
FUNGUS *Aspergillus caespitosus* Raper & Thom	Farr and Rossman, 2022	Farr and Rossman, 2022	Genus is non-reportable at U.S. ports of entry (ARM, 2022).
FUNGUS *Aspergillus candidus* Link: Fr.	Farr and Rossman, 2022	Farr and Rossman, 2022	Genus is non-reportable at U.S. ports of entry (ARM, 2022).
FUNGUS *Aspergillus carbonarius* (Bainier) Thom	Farr and Rossman, 2022	Farr and Rossman, 2022	Genus is non-reportable at U.S. ports of entry (ARM, 2022).
FUNGUS *Aspergillus chevalieri* Thom & Church; syn.: *Eurotium chevalieri* L. Mangin	Farr and Rossman, 2022	Farr and Rossman, 2022	Genus is non-reportable at U.S. ports of entry (ARM, 2022).
FUNGUS *Aspergillus chevalieri* var. *intermedius* Thom & Raper	Farr and Rossman, 2022	Farr and Rossman, 2022	Genus is non-reportable at U.S. ports of entry (ARM, 2022).
FUNGUS *Aspergillus clavatus* Desm.	Farr and Rossman, 2022	Farr and Rossman, 2022	Genus is non-reportable at U.S. ports of entry (ARM, 2022).
FUNGUS *Aspergillus elegans* Gasp.	Farr and Rossman, 2022	Farr and Rossman, 2022	Genus is non-reportable at U.S. ports of entry (ARM, 2022).
FUNGUS	Farr and Rossman, 2022	Farr and Rossman, 2022	Genus is non-reportable at U.S.

Organism	In U.S.	Host Association	Notes
Aspergillus flavipes (Bainier & Sartory) Thom & Church			ports of entry (ARM, 2022).
FUNGUS *Aspergillus flavus* Link	Farr and Rossman, 2022; Hodges, 1962	Farr and Rossman, 2022	Genus is non-reportable at U.S. ports of entry (ARM, 2022).
FUNGUS *Aspergillus flavus* var. *columnaris* Raper & Fennell	States, 1978 Toscano and Reeves, 1973	DAFF South Africa, 2012	Genus is non-reportable at U.S. ports of entry (ARM, 2022).
FUNGUS *Aspergillus flavus* var. *oryzae* (Ahlb.) Kurtzman, M.J. Smiley, Robnett & Wicklow	Farr and Rossman, 2022	DAFF South Africa, 2012	Genus is non-reportable at U.S. ports of entry (ARM, 2022).
FUNGUS *Aspergillus foetidus* Thom & Raper	Farr and Rossman, 2022	DAFF South Africa, 2012	Genus is non-reportable at U.S. ports of entry (ARM, 2022).
FUNGUS *Aspergillus fumigatus* Fresen.	Farr and Rossman, 2022	Farr and Rossman, 2022	Genus is non-reportable at U.S. ports of entry (ARM, 2022).
FUNGUS *Aspergillus glaucus* (L.) Link	Farr and Rossman, 2022	Farr and Rossman, 2022	Genus is non-reportable at U.S. ports of entry (ARM, 2022).
FUNGUS *Aspergillus manginii* Thom & Raper	Farr and Rossman, 2022	Farr and Rossman, 2022	Genus is non-reportable at U.S. ports of entry (ARM, 2022).
FUNGUS *Aspergillus nidulans* (Eidam) G. Winter	Farr and Rossman, 2022	Farr and Rossman, 2022	Genus is non-reportable at U.S. ports of entry (ARM, 2022).
FUNGUS *Aspergillus niger* Tiegh.	Farr and Rossman, 2022; Hodges, 1962	Farr and Rossman, 2022	Genus is non-reportable at U.S. ports of entry (ARM, 2022).
FUNGUS *Aspergillus parasiticus* Speare	Farr and Rossman, 2022	Farr and Rossman, 2022	Genus is non-reportable at U.S. ports of entry (ARM, 2022).
FUNGUS *Aspergillus reptans* Samson & W. Gams	Farr and Rossman, 2022	Farr and Rossman, 2022	Genus is non-reportable at U.S. ports of entry (ARM, 2022).
FUNGUS *Aspergillus restrictus* G. Sm.	Farr and Rossman, 2022	Farr and Rossman, 2022	Genus is non-reportable at U.S.

Organism	In U.S.	Host Association	Notes
			ports of entry (ARM, 2022).
FUNGUS *Aspergillus ruber* (König, Spieckermann & W. Bremer) Thom & Church	Farr and Rossman, 2022	Farr and Rossman, 2022	Genus is non-reportable at U.S. ports of entry (ARM, 2022).
FUNGUS *Aspergillus stellatus* Curzi	Farr and Rossman, 2022	Farr and Rossman, 2022	Genus is non-reportable at U.S. ports of entry (ARM, 2022).
FUNGUS *Aspergillus sulphureus* (Fresen.) Wehmer	Farr and Rossman, 2022	Farr and Rossman, 2022	Genus is non-reportable at U.S. ports of entry (ARM, 2022).
FUNGUS *Aspergillus sydowii* (Bainier & Sartory) Thom & Church	Farr and Rossman, 2022	Farr and Rossman, 2022	Genus is non-reportable at U.S. ports of entry (ARM, 2022).
FUNGUS *Aspergillus tamarii* Kita	Farr and Rossman, 2022	Farr and Rossman, 2022	Genus is non-reportable at U.S. ports of entry (ARM, 2022).
FUNGUS *Aspergillus terreus* Thom	Farr and Rossman, 2022	Farr and Rossman, 2022	Genus is non-reportable at U.S. ports of entry (ARM, 2022).
FUNGUS *Aspergillus terreus* var. *aureus*	Varga et al., 2005	Farr and Rossman, 2022	Genus is non-reportable at U.S. ports of entry (ARM, 2022).
FUNGUS *Aspergillus terricola* Marchal & E.J. Marchal	Farr and Rossman, 2022	DAFF South Africa, 2012	Genus is non-reportable at U.S. ports of entry (ARM, 2022).
FUNGUS *Aspergillus tubingensis* Mosseray	Farr and Rossman, 2022; Horn et al., 2013	DAFF South Africa, 2012	Genus is non-reportable at U.S. ports of entry (ARM, 2022).
FUNGUS *Aspergillus umbrosus* (Bainier & Sartory)	Farr and Rossman, 2022	Farr and Rossman, 2022	Genus is non-reportable at U.S. ports of entry (ARM, 2022).
FUNGUS *Aspergillus unguis* (Emile-Weil & L. Gaudin) Thom & Raper	Farr and Rossman, 2022	Farr and Rossman, 2022	Genus is non-reportable at U.S. ports of entry (ARM, 2022).
FUNGUS	Farr and Rossman, 2022	Farr and Rossman, 2022	Genus is non-reportable at U.S.

Organism	In U.S.	Host Association	Notes
Aspergillus ustus (Bainier) Thom & Church			ports of entry (ARM, 2022).
FUNGUS *Aspergillus versicolor* (Vuill.) Tirab.	Farr and Rossman, 2022	Farr and Rossman, 2022	Genus is non-reportable at U.S. ports of entry (ARM, 2022).
FUNGUS *Aspergillus violaceus* Fennell & Raper	No evidence found	Farr and Rossman, 2022	Genus is non-reportable at U.S. ports of entry (ARM, 2022).
FUNGUS *Aspergillus wentii* Wehmer	Farr and Rossman, 2022	Farr and Rossman, 2022	Genus is non-reportable at U.S. ports of entry (ARM, 2022).
FUNGUS *Athelia rolfsii* (Curzi) Tu & Kimbr.; syn.: *Corticium rolfsii* Curzi, *Sclerotium rolfsii* Sacc.	Farr and Rossman, 2022; Sprague, 1950	Farr and Rossman, 2022	No notes
FUNGUS *Aureobasidium pullulans* (de Bary) G. Arnaud	Farr and Rossman, 2022	Farr and Rossman, 2022	No notes
FUNGUS *Aureobasidium zeae* (Narita & Hirats.) Dingley	Farr and Rossman, 2022	Farr and Rossman, 2022	No evidence of presence in the Territories; not under official control.
FUNGUS *Bahusaganda elaeodes* (Pound & Clem.) J.L. Crane & A.N. Mill.; syn. *Clasterosporium zeae* Sacc. & Syd.	Anonymous, 1960; Crane and Miller, 2016	Crane and Miller, 2016	No evidence of presence in the Territories; not under official control.
FUNGUS *Barriopsis fusca* (N.E. Stevens) A.J.L. Phillips, A. Alves & Crous; syn. *Botryosphaeria disrupta* (Berk. & M.A. Curtis) Arx & E. Müll.	Continental U.S. and HI, PR, and USVI (Farr and Rossman, 2022)	Farr and Rossman, 2022	No notes
FUNGUS *Basidiobotrys pallida* (Berk. & M.A. Curtis) S. Hughes	OH, NJ (Farr and Rossman, 2022)	Farr and Rossman, 2022	No evidence of presence in the Territories; not under official control.
FUNGUS *Berkeleyomyces basicola* (Berk. & Broome) W.J. Nel, Z.W. de Beer, T.A. Duong & M.J. Wingf.; syn.: *Thielaviopsis basicola* (Berk. & Broome) Ferraris	Farr and Rossman, 2022	Farr and Rossman, 2022	No notes
FUNGUS	Farr and Rossman, 2022	Farr and Rossman, 2022	No evidence of presence in the

Organism	In U.S.	Host Association	Notes
Bipolaris cookei (Sacc.) Shoemaker; syn. *Bipolaris sorghicola* (Lefebvre & Sherwin) Alcorn			Territories; not under official control.
FUNGUS *Bipolaris cynodontis* (Marignoni) Shoemaker; syn. *Cochliobolus cynodontis* R.R. Nelson	Continental U.S. and HI (Farr and Rossman, 2022; Raabe et al., 1981)	Farr and Rossman, 2022	No notes
FUNGUS *Bipolaris maydis* (Y. Nisik. & Miyake) Shoemaker; syn. *Cochliobolus heterostrophus* (Drechsler) Drechsler, *Drechslera maydis* (Y. Nisik. & Miyake) Subram. & P.C. Jain	Continental U.S. and HI (Farr and Rossman, 2022)	Farr and Rossman, 2022	No notes
FUNGUS *Bipolaris oryzae* (Breda de Haan) Shoemaker; syn. *Cochliobolus miyabeanus* (Ito & Kurib.) Drechsler ex Dastur; *Helminthosporium oryzae* Breda de Haan	Continental U.S. and PR and USVI (USDA-ARS, 1960 Farr and Rossman, 2022)	Farr and Rossman, 2022; Karami et al., 2020	No notes
FUNGUS *Bipolaris peregianensis* Alcorn; syn. *Cochliobolus peregianensis Alcorn*	**No evidence found**	**Manamgoda et al., 2011**	**We found no evidence of seed association**
FUNGUS *Bipolaris sacchari* (E.J. Butler) Shoemaker	Farr and Rossman, 2022	Farr and Rossman, 2022	No notes
FUNGUS *Bipolaris setariae* (Sawada) Shoemaker	Continental U.S. and HI (Farr and Rossman, 2022)	Farr and Rossman, 2022	No notes
FUNGUS *Bipolaris sorokiniana* (Sorokin) Shoemaker; syn. *Cochliobolus sativus* (Ito & Kuribayashi) Drechs. ex Dastur	Farr and Rossman, 2022	Farr and Rossman, 2022	No notes
FUNGUS *Bipolaris stenospila* (Drechsler ex Faris) Shoemaker	Continental U.S., HI, PR and USVI (Farr and Rossman, 2022)	Farr and Rossman, 2022	No notes
FUNGUS *Bipolaris urochloae* (Putterill) Shoemaker	**HI (Farr and Rossman, 2022)**	**Sivanesan, 1987**	**We found no evidence of seed association**
FUNGUS *Bipolaris victoriae* (F. Meehan & Murphy) Shoemaker	Farr and Rossman, 2022	Farr and Rossman, 2022	No notes

Organism	In U.S.	Host Association	Notes
FUNGUS *Bipolaris zeae Sivan.*	ND (Krupinsky et al., 2004; Manamgoda et al., 2014); MD (Stricker et al., 2016)	Guo et al., 2016; Sivanesan, 1987	No evidence of presence in the Territories; not under official control.
FUNGUS *Bipolaris zeicola* (G.L. Stout) Shoemaker; syn. *Cochliobolus carbonum* R.R. Nelson, *Drechslera zeicola* (G.L. Stout) Subram. & P.C. Jain	Continental U.S. and HI (Farr and Rossman, 2022)	Warham et al., 1996	No notes
FUNGUS *Blakeslea trispora* Thaxt.	Continental U.S. and PR (Farr and Rossman, 2022; Stevenson, 1975)	Farr and Rossman, 2022	No notes
FUNGUS *Botryosphaeria festucae* (Lib.) Arx & E. Müll.; syn. *Diplodia frumenti* Ellis & Everh.	Continental U.S. (Farr and Rossman, 2022)	Farr and Rossman, 2022	No evidence of presence in the Territories; not under official control.
FUNGUS *Botryosphaeria quercuum* (Schwein.: Fr.) Sacc.	Continental U.S. (Farr and Rossman, 2022)	Farr and Rossman, 2022	It is non reportable at Continental U.S. Ports of Entry (ARM, 2022). No evidence of presence in the Territories
FUNGUS *Botryosphaeria zeae* (G.L. Stout) Arx & E. Müller; syn. *Physalospora zeae G.L.* Stout	Continental U.S. (Bezuidenhout and Marasas, 1978; Farr and Rossman, 2022)	Farr and Rossman, 2022	No evidence of presence in the Territories; not under official control.
FUNGUS *Botryotrichum piluliferum* Saccardo et Marchal	CA (Steiman et al., 2004); GE (Hammill, 1970); IL (Carris et al., 1989)	Farr and Rossman, 2022	No evidence of presence in the Territories; not under official control.
FUNGUS *Botrytis cinerea* Pers.: Fr.	Continental U.S, HI, PR and USVI (Farr and Rossman, 2022)	Farr and Rossman, 2022	No notes
FUNGUS *Candida albicans* (C.P. Robin) Berkhout	Continental U.S. and HI (Buck, 1990; Farr and Rossman, 2022; Kishimoto and Baker, 1969)	Farr and Rossman, 2022	No evidence of presence in the Territories; not under official control.
FUNGUS	IA (Farr and Rossman, 2022)	Farr and Rossman, 2022	No evidence of presence in the

Organism	In U.S.	Host Association	Notes
Candida intermedia (Cif. & Ashford) Langeron & Guerra			Territories; not under official control.
FUNGUS *Candida krusei* (Castell.) Berkhout	CA, IA (Farr and Rossman, 2022)	Farr and Rossman, 2022	No evidence of presence in the Territories; not under official control.
FUNGUS *Candida parapsilosis* (Ashford) Langeron & Talice	IA (Farr and Rossman, 2022)	Farr and Rossman, 2022	No evidence of presence in the Territories; not under official control.
FUNGUS *Candida pseudotropicalis* (Castell.) Basgal	IA, MN (Farr and Rossman, 2022)	Farr and Rossman, 2022	No evidence of presence in the Territories; not under official control
FUNGUS *Catenulocercospora fusimaculans* (G.F. Atk.) C. Nakash., Videira & Crous; syn. *Phaeoramularia fusimaculans* (G.F. Atk.) X.J. Liu & Y.L. Guo	Continental U.S., PR and USVI (Farr and Rossman, 2022; Phengsintham et al., 2012)	Farr and Rossman, 2022	No notes
FUNGUS *Ceratobasidium cereale* Murray & Burpee; syn. *Rhizoctonia cerealis* Hoeven	Farr and Rossman, 2022	CABI, 2022	No evidence of presence in the Territories; not under official control
FUNGUS *Ceratobasidium setariae* (Sawada) Oniki, Ogoshi & T. Araki; syn. *Rhizoctonia oryzae-sativae* (Sawada) Mordue	AR (Wamishe et al., 2017); CA (Chaijuckam et al., 2010)	Kumar et al., 2021	No evidence of presence in the Territories; not under official control.
FUNGUS *Ceratosporella bicornis* (Morg.) Höhn.	OH (Farr and Rossman, 2022; Grootmyers, 2021)	Farr and Rossman, 2022	No evidence of presence in the Territories; not under official control.
FUNGUS *Cercospora apii* Miura	Farr and Rossman, 2022	Farr and Rossman, 2022	No notes
FUNGUS *Cercospora sorghi* Ellis & Everh	Farr and Rossman, 2022	Farr and Rossman, 2022	No notes
FUNGUS *Cercospora sorghi* var. *maydis* Ellis & Everh.	Continental U.S. (Chupp, 1953; Crous et al., 2011)	Chupp, 1953	No evidence of presence in the Territories; not under official control.
FUNGUS *Cercospora zeae-maydis* Tehon & E.Y. Daniels	Crous et al., 2006; Farr and Rossman, 2022	Farr and Rossman, 2022	No notes
FUNGUS *Cercospora zeina* Crous & U. Braun	Continental U.S. (Crous et al., 2006; Swart et al., 2017)	Farr and Rossman, 2022	No evidence of presence in the Territories; not under official control.

Organism	In U.S.	Host Association	Notes
FUNGUS *Chaetomium bostrychodes* Zopf	Farr and Rossman, 2022	Farr and Rossman, 2022	Genus is non-reportable at U.S. ports of entry (ARM, 2022).
FUNGUS *Chaetomium brasiliense* Bat. & Pontual	Farr and Rossman, 2022	Farr and Rossman, 2022	Genus is non-reportable at U.S. ports of entry (ARM, 2022).
FUNGUS *Chaetomium cupreum* L.M. Ames	Farr and Rossman, 2022	DAFF South Africa, 2012	Genus is non-reportable at U.S. ports of entry (ARM, 2022).
FUNGUS *Chaetomium dolichotrichum* L.M. Ames	Farr and Rossman, 2022	Farr and Rossman, 2022	Genus is non-reportable at U.S. ports of entry (ARM, 2022).
FUNGUS *Chaetomium elatum* J.C. Schmidt & Kunze: Fr.	Farr and Rossman, 2022	Farr and Rossman, 2022	Genus is non-reportable at U.S. ports of entry (ARM, 2022).
FUNGUS *Chaetomium funicola* Cooke	Farr and Rossman, 2022	Farr and Rossman, 2022	Genus is non-reportable at U.S. ports of entry (ARM, 2022).
FUNGUS *Chaetomium globosum* Kunze	Farr and Rossman, 2022	Farr and Rossman, 2022	Genus is non-reportable at U.S. ports of entry (ARM, 2022).
FUNGUS *Chaetomium indicum* Corda	Farr and Rossman, 2022	Farr and Rossman, 2022	Genus is non-reportable at U.S. ports of entry (ARM, 2022).
FUNGUS *Chaetomium murorum* Corda	Farr and Rossman, 2022	Farr and Rossman, 2022	Genus is non-reportable at U.S. ports of entry (ARM, 2022).
FUNGUS *Chaetomium osmaniae* Rama Rao & Ram Re; syn. *Chaetomium jodhpurense* Lodh	No evidence found	Farr and Rossman, 2022	Genus is non-reportable at U.S. ports of entry (ARM, 2022).
FUNGUS *Chaetomium torulosum* Bainier	Farr and Rossman, 2022	Farr and Rossman, 2022	Genus is non-reportable at U.S. ports of entry (ARM, 2022).
FUNGUS *Choanephora cucurbitarum* (Berk. & Ravenel) Thaxt.	Continental US, HI, PR and USVI (Farr and Rossman, 2022)	Farr and Rossman, 2022	No notes

Organism	In U.S.	Host Association	Notes
FUNGUS *Chromelosporium ollare* (Pers.) Hennebert; syn. *Chromelosporium fulvum* (Link: Fr.) McGinty, Korf & Hennebert	Continental U.S. (Farr and Rossman, 2022 Cooke, 1985)	Farr and Rossman, 2022	No evidence of presence in the Territories; not under official control
FUNGUS *Chrysosporium luteum* (Constantin) Carmichael	WA (Kleyn and Wetzler, 1981) PA(Fergus, 1978)	Farr and Rossman, 2022	No evidence of presence in the Territories; not under official control
FUNGUS *Circinella muscae* (Sorokin) Berl. & De Toni	AZ (Wicklow and Rebar, 1988); IA (Farr and Rossman, 2022); NV (Durrell and Shields, 1960)	Farr and Rossman, 2022	No evidence of presence in the Territories; not under official control
FUNGUS *Cladosporium aphidis* Thüm.	Continental U.S. and HI, PR and USVI (Farr and Rossman, 2022)	Farr and Rossman, 2022	No notes
FUNGUS *Cladosporium brunneolum* Sacc.	Continental U.S. (Farr and Rossman, 2022; USDA-ARS, 1960)	Farr and Rossman, 2022	No evidence of presence in the Territories; not under official control
FUNGUS *Cladosporium cladosporioides* (Fresen.) G.A. De Vries	Farr and Rossman, 2022	Farr and Rossman, 2022	No notes
FUNGUS *Cladosporium herbarum* (Pers.: Fr.) Link; syn. *Davidiella tassiana* (De Not) Crous & U. Braun	Farr and Rossman, 2022	Farr and Rossman, 2022	No notes
FUNGUS *Cladosporium herbarum* var. *indutum* Thüm.; syn. *Cladosporium astroideum* var. *astroideum* Ces	CA, IL, NJ, SC (Bensch et al., 2012; Farr and Rossman, 2022)	Bensch et al., 2012; Farr and Rossman, 2022	No evidence of presence in the Territories; not under official control
FUNGUS *Cladosporium macrocarpum* Preuss	Farr and Rossman, 2022	Farr and Rossman, 2022	No notes
FUNGUS *Cladosporium oxysporum* Berk. & M.A. Curtis	Farr and Rossman, 2022	DAFF South Africa, 2012	No notes
FUNGUS *Cladosporium sphaerospermum* Penz.	Continental U.S. (Farr and Rossman, 2022)	Farr and Rossman, 2022	It is non reportable at Continental U.S. Ports of Entry (ARM, 2022). No evidence of presence in the Territories; not under official control.

Organism	In U.S.	Host Association	Notes
FUNGUS *Cladosporium tenuissimum* Cooke	Farr and Rossman, 2022	DAFF South Africa, 2012	No notes
FUNGUS *Cladosporium zeae* Peck	Continental U.S. (Farr and Rossman, 2022)	DAFF South Africa, 2012	No evidence of presence in the Territories; not under official control.
FUNGUS *Clonostachys rosea f. catenulata* (J.C. Gilman & E.V. Abbott) Schroers syn. *Gliocladium catenulatum* J.C. Gilman & E.V. Abbott	Continental US and HI (Carris et al., 1989; Chen et al., 1994; Farr and Rossman, 2022; Miller et al., 1957; Raabe et al., 1981	Remesova et al., 2007	No notes
FUNGUS *Clonostachys rosea* f. *rosea* (Link: Fr.) Schroers et. al	Farr and Rossman, 2022	DAFF South Africa, 2012	No notes
FUNGUS *Colletotrichum cereale* Manns	Farr and Rossman, 2022	Farr and Rossman, 2022	No notes
FUNGUS *Colletotrichum coccodes* (Wallr.) S. Hughes	Farr and Rossman, 2022	Farr and Rossman, 2022	No notes
FUNGUS *Colletotrichum gloeosporioides* (Penz.) Penz. & Sacc.; syn. *Glomerella cingulata* (Stoneman) Spauld. & H. Schrenk	Farr and Rossman, 2022	Farr and Rossman, 2022	No notes
FUNGUS *Colletotrichum graminicola* (Ces.) G.W. Wilson; syn. *Glomerella graminicola*	Farr and Rossman, 2022	Farr and Rossman, 2022	No notes
FUNGUS *Colletotrichum sublineola* Henn. ex Sacc. & Trotter	Farr and Rossman, 2022	Farr and Rossman, 2022	No notes
FUNGUS *Coniothyrium phyllachorae Maubl*	No evidence found	Farr and Rossman, 2022	It is non-reportable at Continental U.S. ports of entry (ARM, 2022). No evidence of presence in the Territories
FUNGUS *Corynascus sepedonium* (C.W. Emmons) Arx; syn. *Thielavia sepedonium* C.W. Emmons	Continental U.S. (Farr and Rossman, 2022; Hanlin, 1973)	Farr and Rossman, 2022	No evidence of presence in the Territories; not under official control.
FUNGUS *Crocicreas cyathoideum* (Bull.: Fr.) S.E. Carp.	Continental U.S. (Farr and Rossman, 2022)	Farr and Rossman, 2022	No evidence of presence in the Territories; not under official control.

Organism	In U.S.	Host Association	Notes
FUNGUS *Cryptococcus laurentii* (Kuff.) C.E. Skinner	Continental U.S. and HI (Bourret, 2012; Farr and Rossman, 2022; Kishimoto and Baker, 1969)	Farr and Rossman, 2022	No notes
FUNGUS *Curvularia aeria* (Bat., J.A. Lima & C.T. Vasconc.) Tsuda	Continental U.S. (da Cunha et al., 2013; Farr and Rossman, 2022)	Farr and Rossman, 2022	No evidence of presence in the Territories; not under official control
FUNGUS *Curvularia affinis* Boedijn	Farr and Rossman, 2022	Farr and Rossman, 2022	No notes
FUNGUS *Curvularia australiensis* (Bugnic. ex M.B. Ellis) Manamgoda, L. Cai & K.D. Hyde;syn. *Bipolaris australiensis* (Bugnic. ex M.B. Ellis) Tsuda & Ueyama	Continental U.S. (Dyer et al., 2008; Farr and Rossman, 2022; Viola and Sutton, 2010)	Farr and Rossman, 2022	No evidence of presence in the Territories; not under official control
FUNGUS *Curvularia chiangmaiensis* Y. Marín, Senwanna & Crous	**No evidence found**	**(Marin-Felix et al., 2017)**	**We found no evidence of seed association**
FUNGUS *Curvularia coicis* E. Castell.; syn. *Helminthosporium coicis* Y. Nisik., *Drechslera coicis* (Y. Nisik.) Subram. & Jain, *Bipolaris coicis* (Y. Nisik.)	**No evidence found**	**Chang and Hwang, 2003; Sivanesan, 1987**	**We found no evidence of seed association**
FUNGUS *Curvularia cymbopogonis* (C.W. Dodge) J.W. Groves & Skolko; syn. *Cochliobolus cymbopogonis* J.A. Hall & Sivan.	IL (McPartland and Cubeta, 1997); LA (Walker and White, 1979); VA (Farr and Rossman, 2022)	DAFF South Africa, 2012	No evidence of presence in the Territories; not under official control
FUNGUS *Curvularia ellisii* Y. Marín & Crous	**No evidence found**	**Marin-Felix et al., 2020**	**We found no evidence of seed association.**
FUNGUS *Curvularia eragrostidis* (Henn.) J.A. Mey.; syn. *Cochliobolus eragrostidis* (Tsuda & Ueyama) Sivan.; *Curvularia maculans* (C.K. Bancr.) Boedijn	Continental U.S (Hanlin et al., 1978; USDA-ARS, 1960)	Gan et al., 2017	It is non reportable at Continental U.S. Ports of Entry (ARM, 2022). No evidence of presence in the Territories; not under official control.
FUNGUS *Curvularia geniculata* (Tracy & Earle) Boedijn; syn. *Cochliobolus geniculatus* R.R. Nelson	Continental U.S (USDA-ARS, 1960)	Zhang et al., 2018	It is non reportable at Continental U.S. Ports of Entry (ARM, 2022).

Organism	In U.S.	Host Association	Notes
			No evidence of presence in the Territories; not under official control.
FUNGUS *Curvularia inaequalis* (Shear) Boedijn	Farr and Rossman, 2022	Farr and Rossman, 2022	No notes
FUNGUS *Curvularia intermedia* Boedijn	Continental U.S. (Farr and Rossman, 2022)	Farr and Rossman, 2022	No evidence of presence in the Territories; not under official control
FUNGUS *Curvularia lunata* (Wakker) Boedijn; syn. *Cochliobolus lunatus* R.R. Nelson & Haasis	Farr and Rossman, 2022	Farr and Rossman, 2022	No notes
FUNGUS *Curvularia micropus* (Drechsler) Hern.-Restr., Y.P. Tan & Crous; syn. *Bipolaris micropus* (Drechsler) Shoemaker, *Helminthosporium micropus* Drechsler	Continental U.S. (Farr and Rossman, 2022)	DAFF SOUTH AFRICA, 2012	No evidence of presence in the Territories; not under official control.
FUNGUS ***Curvularia neoindica* (J.N. Rai, Wadhwani & J.P. Tewari) Manamgoda, Rossman & K.D. Hyde syn.; *Bipolaris indica* J.N. Rai, Wadhwani & J.P. Tewar, *Drechslera indica* (J.N. Rai, Wadhwani & J.P. Tewari) Mouch.**	**No evidence found**	**Mall et al., 2016**	**We found no evidence of seed association**
FUNGUS *Curvularia ovoidea* (Hiroë) Munt.-Cvetk.	**No evidence found**	**Martyniyuk, 2003; Mehraban et al., 2006**	**We found no evidence of seed association**
FUNGUS *Curvularia pallescens* Boedijn	Farr and Rossman, 2022	Farr and Rossman, 2022	No notes
FUNGUS *Curvularia protuberata* R.R. Nelson & Hodges	Continental U.S.(Farr and Rossman, 2022)	Farr and Rossman, 2022	No evidence of presence in the Territories; not under official control
FUNGUS *Curvularia ravenelii* (M.A. Curtis) Manamgoda, L. Cai, & K.D Hyde; syn. *Cochliobolus ravenelii* Alcorn	Continental U.S., HI, PR and USVI (Farr and Rossman, 2022)	DAFF SOUTH AFRICA, 2012	No notes
FUNGUS	Farr and Rossman, 2022	Farr and Rossman, 2022	No notes

Organism	In U.S.	Host Association	Notes
Curvularia senegalensis (Speg.) Subram.			
FUNGUS *Curvularia spicifera* (Bainier) Boedijn; syn. *Bipolaris spicifera* (Bainier) Subram.	Farr and Rossman, 2022	Farr and Rossman, 2022	No notes
FUNGUS *Curvularia trifolii* (Kauffm.) Boedijn	Continental U.S. and HI (Farr and Rossman, 2022)	Farr and Rossman, 2022	No notes
FUNGUS *Curvularia verruculosa* Tandon & Bilgrami ex M.B. Ellis; syn. *Pseudocochliobolus verruculosus* Tsuda & Ueyama, *Cochliobolus verruculosus*	Continental U.S. and HI (da Cunha et al., 2013 Raabe et al., 1981; Rosa Jr et al., 1994)	Sivanesan, 1987	No notes
FUNGUS *Cylindrocarpon didymum* (Harting) Wollenw.	Continental U.S. (Farr and Rossman, 2022)	Farr and Rossman, 2022	No evidence of presence in the Territories; not under official control.
FUNGUS *Dactylospora stygia* (Berk. & M.A. Curtis) Hafellner; syn. *Karschia stygia* (Berk. & M.A. Curtis) Massee	Continental U.S. (Farr and Rossman, 2022; Grootmyers, 2021; USDA-ARS, 1960)	Farr and Rossman, 2022	No evidence of presence in the Territories; not under official control.
FUNGUS *Dendrophoma zeae* Tehon	Continental U.S. (Farr and Rossman, 2022)	Farr and Rossman, 2022	No evidence of presence in the Territories; not under official control.
FUNGUS *Dendryphion nanum* (Nees: Fr.) S. Hughes	Farr and Rossman, 2022	Farr and Rossman, 2022	No notes
FUNGUS *Dialonectria episphaeria* (Tode: Fr.) Cooke; syn. *Fusarium episphaeria* (Tode : Fr.) W.C. Snyder & H.N. Hansen	Continental U.S. and HI, PR and USVI (Ayers and Nelson, 1972; Farr and Rossman, 2022)	Ayers and Nelson, 1972; Farr and Rossman, 2022	No notes
FUNGUS *Dialonectria ullevolea* Seifert & Gräfenhan; syn. *Fusarium aquaeductuum* var. *medium* Wollenw.	IL, PA (Farr and Rossman, 2022)	Farr and Rossman, 2022	No evidence of presence in the Territories; not under official control.
FUNGUS *Diaporthe destruens* (Harter) Hirooka, Minosh. & Rossman;syn. *Plenodomus destruens* Harter	Continental U.S. (Farr and Rossman, 2022)	Farr and Rossman, 2022	No evidence of presence in the Territories; not under official control.

Organism	In U.S.	Host Association	Notes
FUNGUS *Diaporthe incongrua* Ell. & Ev	KS, LA (Farr and Rossman, 2022)	Farr and Rossman, 2022	No evidence of presence in the Territories; not under official control.
FUNGUS *Diaporthe phaseolorum* (Cooke & Ellis) Sacc.	Continental U.S. and HI (Farr and Rossman, 2022)	Farr and Rossman, 2022	No notes
FUNGUS *Didymella americana* (Morgan-Jones & J.F. White) Q. Chen & L. Cai; syn. *Phoma americana* Morgan-Jones & J.F. White, *Peyronellaea americana* (Morgan-Jones & J.F. White) Aveskamp, Gruyter & Verkley	Continental U.S. (Farr and Rossman, 2022)	Farr and Rossman, 2022	No evidence of presence in the Territories; not under official control
FUNGUS *Didymella maydis* (Arny & R.R. Nelson) Qian Chen & L. Cai; syn. *Peyronellaea zeae-maydis* (Mukunya & Boothr.) Aveskamp, Gruyter & Verkley, Phoma zeae-maydis Punith, *Phyllosticta maydis* Arny & R.R. Nelson	Chen et al., 2015; Farr and Rossman, 2022; Hanlin et al., 1978	Farr and Rossman, 2022	No notes
FUNGUS *Didymella subglomerata* (Boerema, Gruyter & Noordel.) Qian Chen & L. Cai; syn. *Peyronellaea subglomerata* (Boerema, Gruyter & Noordel.) Aveskamp, Gruyter & Verkley, *Phoma subglomerata* Boerema, Gruyter & Noordel.	Continental U.S. (Aveskamp et al., 2009; Chen et al., 2015)	Farr and Rossman, 2022	No evidence of presence in the Territories; not under official control.
FUNGUS *Didymium iridis* (Ditmar) Fr.	Continental U.S. (Betterley and Collins, 1983; Farr and Rossman, 2022)	Farr and Rossman, 2022	No evidence of presence in the Territories; not under official control.
FUNGUS *Didymosphaeria futilis* (Berk. & Broome) Rehm syn	Farr and Rossman, 2022	Farr and Rossman, 2022	No notes
FUNGUS *Dinemasporium strigosum* (Pers.: Fr.) Sacc.	Farr and Rossman, 2022	Farr and Rossman, 2022	No notes
FUNGUS *Diplodia zeicola* Saccas.	**No evidence found**	**Resplandy et al., 1954; Watson, 1971**	**We found no evidence of seed association**

Organism	In U.S.	Host Association	Notes
FUNGUS *Doratomyces stemonitis* (Pers.: Fr.) F.J. Morton & G. Sm.	Farr and Rossman, 2022; States, 1978;Wang, 2010 Wang, 2010	Farr and Rossman, 2022	No evidence of presence in the Territories; not under official control.
FUNGUS *Ellisembia folliculata* (Corda) Subram.; syn. *Sporidesmium folliculatum* (Corda) E. Mason & S. Hughes; *Helminthosporium folliculatum* Corda	Continental U.S., PR and USVI (Farr and Rossman, 2022; Stevenson, 1975)	Farr and Rossman, 2022	No evidence of presence in the Territories; not under official control.
FUNGUS *Epicoccum neglectum* Desm.	Farr and Rossman, 2022	Farr and Rossman, 2022	Genus is non-reportable at U.S. ports of entry (ARM, 2022).
FUNGUS *Epicoccum nigrum* Link	Farr and Rossman, 2022	Farr and Rossman, 2022	Genus is non-reportable at U.S. ports of entry (ARM, 2022).
FUNGUS *Epicoccum ovisporum* Valenzuela-Lopez, Stchigel, Crous, Guarro & Cano	No evidence found	Valenzuela-Lopez et al., 2018	Genus is non-reportable at U.S. ports of entry (ARM, 2022).
FUNGUS *Epicoccum purpurascens* Ehrenb.	Farr and Rossman, 2022	Farr and Rossman, 2022	Genus is non-reportable at U.S. ports of entry (ARM, 2022).
FUNGUS *Epicoccum sorghinum* (Sacc.) Aveskamp, Gruyter & Verkley, variant spelling *Epicoccum sorghi*	Farr and Rossman, 2022	Farr and Rossman, 2022	Genus is non-reportable at U.S. ports of entry (ARM, 2022).
FUNGUS *Epicoccum tritici* Henn.	No evidence found	Farr and Rossman, 2022	Genus is non-reportable at U.S. ports of entry (ARM, 2022).
FUNGUS *Exserohilum holmii* (Luttr.) K.J. Leonard & Suggs	Continental U.S. (Leonard et al., 1988); Farr and Rossman, 2022; Hernández-Restrepo et al., 2018)	Farr and Rossman, 2022	No evidence of presence in the Territories; not under official control.
FUNGUS *Exserohilum pedicellatum* (A.W. Henry) K.J. Leonard & Suggs; syn. *Drechslera pedicellata* (A.W. Henry) Subram. & P.C. Jain, *Setosphaeria pedicellata*	Continental U.S. (Farr and Rossman, 2022)	Farr and Rossman, 2022	No evidence of presence in the Territories; not under official control.

Organism	In U.S.	Host Association	Notes
(R.R. Nelson) K.J. Leonard & Suggs			
FUNGUS *Exserohilum rostratum* (Drechsler) K.J. Leonard & Suggs	Farr and Rossman, 2022	Farr and Rossman, 2022	No notes
FUNGUS *Exserohilum turcicum* (Pass.) K.J. Leonard & Suggs; syn. *Drechslera turcica* (Pass.) Subram. & P.C. Jain	Farr and Rossman, 2022	Farr and Rossman, 2022	No notes
FUNGUS *Fibulorhizoctonia centrifuga* (Lév.) G.C. Adams & Kropp; syn. *Corticium centrifugum*	Continental U.S. (Farr and Rossman, 2022)	Farr and Rossman, 2022	No evidence of presence in the Territories; not under official control.
FUNGUS *Fusarium acuminatum* Ellis & Everh.; syn. *Gibberella acuminata* Wollenw.	Farr and Rossman, 2022	Farr and Rossman, 2022	No notes
FUNGUS *Fusarium andiyazi* Marasas, Rheeder, Lampr., K.A. Zeller & J.F. Leslie	CO (Marasas et al., 2001)	Leyva-Madrigal et al., 2015; Zhang et al., 2014b	No evidence of presence in the Territories; not under official control.
FUNGUS *Fusarium anguioides* Sherb.	MO, NY (USDA-ARS, 1960)	Mulenko et al., 2008	No evidence of presence in the Territories; not under official control.
FUNGUS *Fusarium armeniacum* (G.A. Forbes, Windels & L.W. Burgess) L.W. Burgess & Summerell; syn. *Fusarium acuminatum* subsp. *armeniacum* G.A. Forbes, Windels & L.W. Burgess	Continental U.S. (Farr and Rossman, 2022; Korir, 2019)	Burgess et al., 1993	No evidence of presence in the Territories; not under official control.
FUNGUS *Fusarium arthrosporioides* Sherb.	Continental U.S. (Farr and Rossman, 2022)	Farr and Rossman, 2022	No evidence of presence in the Territories; not under official control.
FUNGUS *Fusarium asiaticum* O'Donnell, T. Aoki, Kistler & Geiser	LA (Gale et al., 2010), IL (Yasuhara-Bell et al., 2018)	Desjardins and Proctor, 2011; Dong et al., 2020b;	No evidence of presence in the Territories; not under official control.
FUNGUS *Fusarium avenaceum* (Fr.: Fr.) Sacc.; syn. *Gibberella avenacea* R.J. Cooke	Farr and Rossman, 2022	Farr and Rossman, 2022	No notes
FUNGUS *Fusarium boothii* O'Donnell, T. Aoki, Kistler & Geiser	Farr and Rossman, 2022	Farr and Rossman, 2022	No notes

Organism	In U.S.	Host Association	Notes
FUNGUS *Fusarium brachygibbosum* Padwick	CA (Punja et al., 2018 Stack et al., 2016), FL (Pisani et al., 2021)	Fallahi et al., 2019; Shan et al., 2016	No evidence of presence in the Territories; not under official control.
FUNGUS *Fusarium cerealis* (Cooke) Sacc.	Continental U.S. (Farr and Rossman, 2022)	Farr and Rossman, 2022	No evidence of presence in the Territories; not under official control.
FUNGUS *Fusarium chlamydosporum* Wollenw. & Reinking	Continental U.S. (Farr and Rossman, 2022; Klich, 1986; O'Donnell et al., 2016a)	DAFF South Africa, 2012	No evidence of presence in the Territories; not under official control.
FUNGUS *Fusarium commune* K. Skovg., O'Donnell & Nirenberg 2003	Continental U.S. and HI (Ellis et al., 2013; Farr and Rossman, 2022)	Farr and Rossman, 2022	No notes
FUNGUS *Fusarium compactum* (Wollenw.) W.L. Gordon; syn. *Fusarium scirpi* var. *compactum* Wollenw.	Farr and Rossman, 2022	DAFF South Africa, 2012	No notes
FUNGUS *Fusarium concentricum* Nirenberg & O'Donnell	NJ (Rajmohan et al., 2011), NC (Bolton et al., 2016)	Du et al., 2020; Shang et al., 2022	No evidence of presence in the Territories; not under official control.
FUNGUS *Fusarium culmorum* (Wm.G. Sm.) Sacc.	Farr and Rossman, 2022	Farr and Rossman, 2022	No notes
FUNGUS *Fusarium dlaminii* Marasas, P.E. Nelson & Toussoun	MD (Nirenberg and O'Donnell, 1998)	Nirenberg and O'Donnell, 1998	No evidence of presence in the Territories; not under official control.
FUNGUS *Fusarium equiseti* (Corda) Sacc; syn. *Gibberella intricans* Wollenw.	Farr and Rossman, 2022	Farr and Rossman, 2022	No notes
FUNGUS *Fusarium fujikuroi* Nirenberg; syn. *Gibberella fujikuroi* (Sawada) S. Ito	Farr and Rossman, 2022	Farr and Rossman, 2022	No notes
FUNGUS *Fusarium graminearum* Schwabe; syn. *Gibberella zeae* (Schwein.: Fr.) Petch	Farr and Rossman, 2022	Farr and Rossman, 2022	No notes
FUNGUS *Fusarium heterosporum* Nees & T. Nees: Fr.	Continental U.S. and PR (Farr and Rossman, 2022; USDA-ARS, 1960)	Bottalico et al., 1989; Farr and Rossman, 2022	No notes

Organism	In U.S.	Host Association	Notes
FUNGUS *Fusarium incarnatum* (Desm.) Sacc.	Continental U.S and PR (Farr and Rossman, 2022)	Shabana et al., 2022; Zhou et al., 2018	No notes
FUNGUS *Fusarium lateritium* Nees: Fr. ; syn. *Gibberella baccata* (Wallr.) Sacc.	Continental U.S., HI, and PR (Farr and Rossman, 2022; USDA-ARS, 1960)	Farr and Rossman, 2022	No notes
FUNGUS ***Fusarium madaense* C.N. Ezekiel, Sand.-Den., Houbraken & Crous**	**No evidence found**	**Costa et al., 2022**	**We found no evidence of seed association**
FUNGUS *Fusarium moniliforme* J. Sheld.	Farr and Rossman, 2022	Farr and Rossman, 2022	No notes
FUNGUS *Fusarium nygamai* L.W. Burgess & Trimboli	OK (Ghimire et al., 2011), PR (Burgess and Trimboli, 1986)	Chehri et al., 2010; Leyva-Madrigal et al., 2015; Watson et al., 2014	Only one record in continental U.S., o evidence of presence in HI and USVI; not under official control.
FUNGUS *Fusarium oxysporum* f. sp. *vasinfectum* (G. F. Atk.) W. C. Snyder & H. N. Hansen; syn.: *Fusarium vasinfectum* G.F. Atk	Farr and Rossman, 2022	Farr and Rossman, 2022	No notes
FUNGUS *Fusarium poae* (Peck) Wollenw.	Farr and Rossman, 2022	Farr and Rossman, 2022	No notes
FUNGUS *Fusarium proliferatum* (Matsush.) Nirenberg ex Gerlach & Nirenberg; syn. *Fusarium proliferatum* var. *minus* Nirenberg	Continental U.S. and HI (Farr and Rossman, 2022; Kommedahl et al., 1986; WPFUS, 2018)	Farr and Rossman, 2022	No notes
FUNGUS *Fusarium pseudograminearum* O'Donnell & T. Aoki	Continental U.S. (Farr and Rossman, 2022)	Kazan and Gardiner, 2018	No evidence of presence in the Territories; not under official control.
FUNGUS *Fusarium redolens* Wollenw.; syn. *Fusarium oxysporum* var. *redolens* (Wollenw.) W.L. Gordon	Continental U.S. and HI (Bienapfl et al., 2010; Dobbs et al., 2021; Farr and Rossman, 2022; Moya-Elizondo et al., 2011; Parikh et al., 2018; Sherbakoff, 1916)	Richardson, 1990	No notes
FUNGUS *Fusarium roseum* Link: Fr.	Continental U.S. and HI (Farr and Rossman, 2022)	Farr and Rossman, 2022	No notes

Organism	In U.S.	Host Association	Notes
FUNGUS *Fusarium sacchari* (E.J. Butler & Hafiz Khan) W. Gams	Continental U.S. and PR (Farr and Rossman, 2022; Herron et al., 2015 Byrnes and Carroll, 1986)	Duan et al., 2019	No notes
FUNGUS *Fusarium sambucinum* Fuckel	Farr and Rossman, 2022	Farr and Rossman, 2022	No notes
FUNGUS *Fusarium sarcochroum* (Desm.) Sacc.	Continental U.S. (Farr and Rossman, 2022)	Farr and Rossman, 2022	No evidence of presence in the Territories; not under official control.
FUNGUS *Fusarium scirpi* Lambotte & Fautrey	Continental U.S. (Farr and Rossman, 2022)	Farr and Rossman, 2022	No evidence of presence in the Territories; not under official control.
FUNGUS *Fusarium sporotrichioides* Sherb.; Syn. *Fusarium sporotrichiella* var. *sporotrichioides* (Sherb.) Bilai	Continental U.S. (Farr and Rossman, 2022)	Farr and Rossman, 2022	No evidence of presence in the Territories; not under official control.
FUNGUS *Fusarium subglutinans* (Wollenw. & Reinking) P.E. Nelson, Toussoun;syn.; *Fusarium moniliforme* var. *subglutinans* Wollenw. & Reinking	Farr and Rossman, 2022; Steenkamp et al., 2002	Farr and Rossman, 2022	No notes
FUNGUS *Fusarium sulphureum* Schltdl.	Farr and Rossman, 2022	Farr and Rossman, 2022	No notes
FUNGUS *Fusarium temperatum* J. Scauflaire & F. Munaut	ID, IA (Lanza et al., 2016; Ridout et al., 2016; Ridout et al., 2019).	Boutigny et al., 2017; Lanza et al., 2016	The species was isolated in the United States in 2004 and 2009 (Munkvold et al., 2009; Scauflaire et al., 2011). It was then isolated in 2015 and 2016 under the current name (Lanza et al., 2016; Ridout et al., 2019), but without evidence of official control.
FUNGUS *Fusarium thapsinum* Klittich, J.F. Leslie, P.E. Nelson & Marasas; syn. *Gibberella thapsina* Klittich, J.F. Leslie, P.E. Nelson & Marasas	Continental U.S. (Klittich et al., 1997)	Farr and Rossman, 2022	No evidence of presence in the Territories; not under official control.

Organism	In U.S.	Host Association	Notes
FUNGUS *Fusarium tricinctum* (Corda) Sacc.	Farr and Rossman, 2022)	Farr and Rossman, 2022	No evidence of presence in the Territories; not under official control.
FUNGUS ***Fusarium venenatum* Nirenberg**	**No evidence found**	**Nirenberg, 1995**	**No evidence of seed association. On maize flour is able to produce mycotoxins (Han et al., 2014)**
FUNGUS *Fusarium verticillioides* (Sacc.) Nirenberg	Farr and Rossman, 2022	Farr and Rossman, 2022	No notes
FUNGUS *Fusicolla matuoi* (Hosoya & Tubaki) Gräfenhan & Seifert syn. *Fusarium matuoi* Hosoya & Tubaki -	TX (Le, 2019)	Farr and Rossman, 2022	No evidence of presence in the Territories; not under official control.
FUNGUS *Fusicolla merismoides* (Corda) Gräfenhan, Seifert & Schroers; syn. *Fusarium merismoides* Corda	Continental and HI (Farr and Rossman, 2022)	Farr and Rossman, 2022	No notes
FUNGUS *Fusidium griseum* Link	Continental U.S. (Farr and Rossman, 2022; Singh et al., 1994; Wang, 2010)	Farr and Rossman, 2022	No evidence of presence in the Territories; not under official control.
FUNGUS *Gaeumannomyces graminis* (Sacc.) Arx and D.L. Olivier; syn. *Gaeumannomyces graminis* var. *graminis* (Sacc.) Arx and D.L. Olivier	Farr and Rossman, 2022	Farr and Rossman, 2022	No notes
***Gaeumannomyces hyphopodioides* M. Hern.-Restr. & Crous; syn. *Phialophora radicicola var. radicicola* sensu Deacon**	**No evidence found**	Hernandez-Restrepo et al., 2016	**We found no evidence of seed transmission**
FUNGUS *Gaeumannomyces radicicola* (Cain) J. Luo & N. Zhang; syn. *Harpophora radicicola* (Cain) W. Gams	RI (Farr and Rossman, 2022)	Hernandez-Restrepo et al., 2016	Only one record in the United States: Rhode Island (Farr and Rossman, 2020). No evidence of presence in the Territories; not under official control.
FUNGUS *Ganoderma lucidum* (Curtis: Fr.) P. Karst.; syn. *Polyporus lucidus* (Curtis) Fr.	Continental U.S., HI and PR (Farr and Rossman, 2022)	Farr and Rossman, 2022	No notes

Organism	In U.S.	Host Association	Notes
FUNGUS *Geotrichum candidum* Link	Continental U.S., PR and USVI (Farr and Rossman, 2022)	Farr and Rossman, 2022	It is non reportable at Continental U.S. Ports of Entry (ARM, 2022).
FUNGUS *Glabrocyphella ellisiana* W.B. Cooke	NJ (Farr and Rossman, 2022)	Farr and Rossman, 2022	Only record found. No evidence of presence in the Territories; not under official control.
FUNGUS *Gliomastix felina* (Marchal) Hammill; syn. *Acremonium roseogriseum* (S.B. Saksena) W. Gams	Farr and Rossman, 2022; Kiyuna et al., 2011	Farr and Rossman, 2022	Genus is non-reportable at U.S. ports of entry (ARM, 2022).
FUNGUS *Gliomastix masseei* (Sacc.) Matsush.	No evidence found	Farr and Rossman, 2022	Genus is non-reportable at U.S. ports of entry (ARM, 2022).
FUNGUS *Gliomastix murorum* (Corda) S. Hughes; syn. *Acremonium murorum* (Corda) W. Gams, *Torula murorum* Corda	Cooke and LaCourse, 1975; Dickinson, 1968; Hammill, 1981; Steiman et al., 2004	Farr and Rossman, 2022	Genus is non-reportable at U.S. ports of entry (ARM, 2022).
FUNGUS *Globisporangium attrantheridium* (Allain-Boulé & Lévesque) Uzuhashi, Tojo & Kakish.	Continental U.S. (Farr and Rossman, 2022)	Farr and Rossman, 2022	No evidence of presence in the Territories; not under official control.
FUNGUS *Globisporangium debaryanum* (R. Hesse) Uzuhashi, Tojo & Kakish; syn.: *Pythium debaryanum* R. Hesse	Farr and Rossman, 2022	Farr and Rossman, 2022	It is non-reportable at U.S. ports of entry (ARM, 2022).
FUNGUS *Globisporangium heterothallicum* (W.A. Campb. & F.F. Hendrix) Uzuhashi, Tojo & Kakish; syn. *Pythium heterothallicum* W.A. Campb. & F.F. Hendrix	Continental U.S. (Farr and Rossman, 2022)	Farr and Rossman, 2022	No evidence of presence in the Territories; not under official control.
FUNGUS *Globisporangium irregulare* (Buisman) Uzuhashi, Tojo & Kakish. syn. *Pythium irregulare* Buisman	Continental U.S. and HI (Farr and Rossman, 2022)	Farr and Rossman, 2022	No notes
FUNGUS *Globisporangium orthogonon* (Ahrens) Uzuhashi, Tojo &	Continental U.S. (Farr and Rossman, 2022; Navi et al., 2019)	Farr and Rossman, 2022	No evidence of presence in the Territories; not under official control.

Organism	In U.S.	Host Association	Notes
Kakish.; syn. *Pythium orthogonon* Ahrens			
FUNGUS *Globisporangium paroecandrum* (Drechsler) Uzuhashi, Tojo & Kakish.; syn. *Pythium paroecandrum* Drechsler	Continental U.S. (Farr and Rossman, 2022; USDA-ARS, 1960)	Farr and Rossman, 2022	No evidence of presence in the Territories; not under official control.
FUNGUS *Globisporangium pulchrum* (Minden) Uzuhashi, Tojo & Kakish.; syn. *Pythium pulchrum* Minden	Continental U.S. (Farr and Rossman, 2022; French, 1989)	Farr and Rossman, 2022	No evidence of presence in the Territories; not under official control.
FUNGUS *Globisporangium rostratifingens* (De Cock & Lévesque) Uzuhashi, Tojo & Kakish.; syn. *Pythium rostratifingens* De Cock & Lévesque	Continental U.S. (Farr and Rossman, 2022)	Farr and Rossman, 2022	No evidence of presence in the Territories; not under official control.
FUNGUS *Globisporangium rostratum* (E.J. Butler) Uzuhashi, Tojo & Kakish.	Continental U.S. (Farr and Rossman, 2022)	Farr and Rossman, 2022	No evidence of presence in the Territories; not under official control.
FUNGUS *Globisporangium spinosum* (Sawada) Uzuhashi, Tojo & Kakish.	Continental U.S. and HI (Farr and Rossman, 2022)	DAFF South Africa, 2012	No notes
FUNGUS *Globisporangium splendens* (Hans Braun) Uzuhashi, Tojo & Kakish.; syn. *Pythium splendens* Hans Braun	Farr and Rossman, 2022	Farr and Rossman, 2022	No notes
FUNGUS *Globisporangium sylvaticum* (W.A. Campb. & F.F.Hendrix) Uzuhashi, Tojo & Kakish.	Continental U.S. (Farr and Rossman, 2022)	Farr and Rossman, 2022	No evidence of presence in the Territories; not under official control.
FUNGUS *Globisporangium ultimum* (Trow) Uzuhashi, Tojo & Kakish.; syn. *Pythium ultimum* Trow	Farr and Rossman, 2022	Farr and Rossman, 2022	No notes
FUNGUS *Colletotrichum falcatum* Went	Continental U.S., HI, PR and USVI (Farr and Rossman, 2022)	Farr and Rossman, 2022	No notes
FUNGUS *Glomus caledonium* Schenck &Smith emend. Koske	Continental U.S. (He et al., 2020)	Mułenko et al., 2008	No evidence of presence in the Territories; not under official control.

Organism	In U.S.	Host Association	Notes
FUNGUS *Glomus claroideum* Schenck & Smith	Continental U.S. (He et al., 2020)	Mułenko et al., 2008	No evidence of presence in the Territories; not under official control.
FUNGUS *Glomus clarum* Nicolson & Schenck	Continental U.S. (He et al., 2020)	Mułenko et al., 2008	No evidence of presence in the Territories; not under official control.
FUNGUS *Glomus deserticola* Trappe, Blos & Menge	Continental U.S. (Ferguson and Menge, 1986)	Mułenko et al., 2008	No evidence of presence in the Territories; not under official control.
FUNGUS *Glomus etunicatum* Becker & Gerdermann	Continental U.S. (He et al., 2020)	Mułenko et al., 2008	No evidence of presence in the Territories; not under official control.
Glomus fasciculatum (Thaxter) Gerdermann & Trappe emend. Walker & Koske	Continental U.S. (He et al., 2020)	Mułenko et al., 2008	No evidence of presence in the Territories; not under official control.
FUNGUS *Glomus geosporum* Nicolson & Gerdermann Walker	Continental U.S. (He et al., 2020)	Mułenko et al., 2008	No evidence of presence in the Territories; not under official control.
FUNGUS *Glomus heterosporum* Smith &Schenck	Continental U.S. (Smith and Schenck, 1985)	Mułenko et al., 2008	No evidence of presence in the Territories; not under official control.
FUNGUS *Glomus macrocarpum* Tulasne & C. Tulasne	Continental U.S. (He et al., 2020)	Mułenko et al., 2008	No evidence of presence in the Territories; not under official control.
FUNGUS *Glomus microcarpum* Tulasne & C. Tulasne	Continental U.S. (He et al., 2020)	Mułenko et al., 2008	No evidence of presence in the Territories; not under official control.
FUNGUS *Glomus mosseae* (Nicolson & Gerdermann) Gerdermann & Trappe	Continental U.S. (He et al., 2020)	Mułenko et al., 2008	No evidence of presence in the Territories; not under official control.
FUNGUS *Glomus tenue* (Greenhall) Hall	Continental U.S. (Hopkins, 1987; Rabatin et al., 1993)	Mułenko et al., 2008	No evidence of presence in the Territories; not under official control.
FUNGUS *Gonatobotrys simplex* Corda	Farr and Rossman, 2022	Farr and Rossman, 2022	No notes
FUNGUS	Farr and Rossman, 2022	Farr and Rossman, 2022	No notes

Organism	In U.S.	Host Association	Notes
Gonatobotrys zeae M.C. Futrell & D. Bain			
FUNGUS *Gonytrichum macrocladium* (Sacc.) Hughes	Continental U.S. (Carris et al., 1989; Hammill, 1970; Hodges, 1962; Shearer, 1988)	Farr and Rossman, 2022	No evidence of presence in the Territories; not under official control.
FUNGUS *Graminopassalora graminis* (Fuckel) U. Braun, C. Nakash., Videira & Crous; syn. *Cercospora graminicola* Tracy & Earle	Continental U.S., PR and USVI (Farr and Rossman, 2022)	Farr and Rossman, 2022	No notes
FUNGUS *Graphium penicillioides* Corda	Continental U.S. and HI (Dunn and Baker, 1984; Farr and Rossman, 2022; Wang, 2010)	Farr and Rossman, 2022	No notes
FUNGUS *Hansenula anomala* (E. Hans.) Syd. & P. Syd.	Continental U.S. (Farr and Rossman, 2022)	Farr and Rossman, 2022	No evidence of presence in the Territories; not under official control.
FUNGUS *Haplographium griseum* Ell. & Langl.	LA (Cash, 1952)	Cash, 1952	No evidence of presence in the Territories; not under official control.
FUNGUS *Harzia tenella* (Berk. & M.A. Curtis) D.W. Li & N.P. Schultes syns. *Oidium tenellum* (Berk. & M.A. Curtis) Linder, *Olpitrichum tenellum* (Berk. & M.A. Curtis) Hol.-Jech.	Farr and Rossman, 2022; Grootmyers, 2021	Farr and Rossman, 2022	No notes
FUNGUS *Harzia verrucosa* (Tognini) Hol.-Jech.	Farr and Rossman, 2022	Farr and Rossman, 2022	No notes
FUNGUS *Helicosporium panacheum* R.T. Moore	Continental U.S. and HI (Farr and Rossman, 2022 Raabe et al., 1981 Wang, 2010)	Farr and Rossman, 2022	No notes
FUNGUS *Helminthosporium ahmadii* M.B. Ellis	NY (Farr and Rossman, 2022)	Farr and Rossman, 2022	No evidence of presence in the Territories; not under official control.
FUNGUS *Helotiella pygmaea* E. & E.	OH (Cash, 1952)	Cash, 1952	No evidence of presence in the Territories; not under official control.

Organism	In U.S.	Host Association	Notes
FUNGUS *Hormodendrum olivaceum* (Corda) Bonord.	IA (Paine, 1927) TX (Morrow, 1932) PR (Stevenson, 1975)	Farr and Rossman, 2022	No notes
FUNGUS *Humicola fuscoatra* Traaen	Continental U.S. and HI (Farr and Rossman, 2022)	Farr and Rossman, 2022	No notes
FUNGUS *Hyphochytrium catenoides* Karling	Continental U.S. (Sprague, 1950; USDA-ARS, 1960)	Farr and Rossman, 2022	No evidence of presence in the Territories; not under official control.
FUNGUS *Ilyonectria destructans* (Zinssm.) Rossman, L. Lombard & Crous syn. *Ilyonectria radicicola* (Gerlach & L. Nilsson) P. Chaverri & C. Salgado	Continental U.S. and HI (Farr and Rossman, 2022)	DAFF South Africa, 2012	No notes
FUNGUS *Isariopsis subulata* Ellis & Everh.	Hanlin et al., 1978	Hanlin et al., 1978	No notes
FUNGUS *Juxtiphoma eupyrena* (Sacc.) Valenzuela-Lopez, Cano, Crous, Guarro & Stchigel	Continental U.S. (Farr and Rossman, 2022)	Farr and Rossman, 2022	It is non reportable at Continental U.S. Ports of Entry (ARM, 2022)
FUNGUS *Lagenocystis radicicola* (Vanterp. & Ledingham) H. Copel.; syn. *Lagena radicicola* Vanterpool and Ledingham	**No evidence found**	**Sprague, 1950; Truscott, 1933**	**We found no evidence of seed association**
FUNGUS *Lasiodiplodia pseudotheobromae* A.J.L. Phillips, A. Alves & Crous	**Puerto Rico (Serrato-Diaz et al., 2020)**	**Swamy et al., 2020**	**We found no evidence of seed association**
FUNGUS *Lasiodiplodia theobromae* (Pat.) Griffon & Maubl.	Continental US, HI, PR and USVI (Farr and Rossman, 2022)	Farr and Rossman, 2022	No notes
FUNGUS *Lecanidion atratum* (Hedw.) Rabenh.	Continental US and HI (Farr and Rossman, 2022)	Farr and Rossman, 2022	No notes
FUNGUS *Lectera colletotrichoides* (J.E. Chilton) P.F. Cannon; syn. *Volutella colletotrichoides* J.E. Chilton	**No evidence found**	**Cannon et al., 2012**	**Eradicated in Iowa (Cannon et al., 2012). We found no evidence of seed association**

Organism	In U.S.	Host Association	Notes
FUNGUS *Lentithecium arundinaceum* (Sowerby: Fr.) K.D. Hyde, J. Fourn. & Yin. Zhang	Continental U.S. (Farr and Rossman, 2022)	Farr and Rossman, 2022	No evidence of presence in the Territories; not under official control.
FUNGUS *Leptographium reconditum* Jooste	**No evidence found**	**Weber et al., 1996**	**We found no evidence of seed association**
FUNGUS *Leptosphaeria orthogramma* (Berk. & M.A. Curtis) Sacc.	Continental U.S. (Farr and Rossman, 2022; Grootmyers, 2021; Tiffany et al., 1990)	Farr and Rossman, 2022	No evidence of presence in the Territories; not under official control.
FUNGUS *Leptosphaerulina trifolii* (Rostr.) Petr.	Farr and Rossman, 2022	Farr and Rossman, 2022	No notes
FUNGUS *Leptothyrium zeae* G.L. Stout	IL (Stout, 1930)	Farr and Rossman, 2022	No evidence of presence in the Territories; not under official control.
FUNGUS *Ligniera junci* (E.J. Schwartz) Maire & A. Tison	NC, NY (Farr and Rossman, 2022)	Farr and Rossman, 2022	No evidence of presence in the Territories; not under official control.
FUNGUS *Limonomyces roseipellis* Stalpers & Loer.	Continental U.S. (Dicklow and Madeiras, 2019; Horst, 2008)	Farr and Rossman, 2022	No evidence of presence in the Territories; not under official control.
FUNGUS *Lophiostoma arundinis* (Pers.: Fr.) Ces. & De Not.	Continental U.S. (USDA-ARS, 1960)	Farr and Rossman, 2022	No evidence of presence in the Territories; not under official control
FUNGUS *Macrophomina phaseolina* (Tassi) Goid.; syn. *Macrophoma phaseolina* Tassi	Farr and Rossman, 2022	Farr and Rossman, 2022	No notes
Marasmius sacchari Wakker	Continental U.S., HI, and PR (Farr and Rossman, 2022; Sprague, 1950)	Farr and Rossman, 2022	No notes
FUNGUS *Mariannaea elegans* var. *elegans* (Corda) Samson; syn. *Spicaria elegans* var. *sorghina* Sacc., *Mariannaea elegans* (Corda) Samson	Farr and Rossman, 2022; Hanlin et al., 1978	Farr and Rossman, 2022	No notes

Organism	In U.S.	Host Association	Notes
FUNGUS *Melanospora zamiae* Corda; syn. *Melanospora pampeana* Speg.	Continental U.S (Farr and Rossman, 2022)	Farr and Rossman, 2022	No evidence of presence in the Territories; not under official control.
FUNGUS *Meliola bidentata* Cooke	Continental U.S., HI, PR and VI(Farr and Rossman, 2022)	Farr and Rossman, 2022	No notes
FUNGUS *Microascus cinereus* Curzi	CA, GE, IA (Farr and Rossman, 2022; Steiman et al., 2004; Roberts et al., 1986)	Farr and Rossman, 2022	No evidence of presence in the Territories; not under official control.
FUNGUS *Microascus cirrosus* Curzi	Continental U.S. (Baddley et al., 2000; Barron et al., 1961; Krisher et al., 1995)	Farr and Rossman, 2022	No evidence of presence in the Territories; not under official control.
FUNGUS *Microascus desmosporus* (Lechmere) Curzi	Continental U.S (Farr and Rossman, 2022; Sandoval-Denis et al., 2016)	Farr and Rossman, 2022	No evidence of presence in the Territories; not under official control.
FUNGUS *Mycosphaerella zeae* (Sacc.) Woronow	Continental U.S (Farr and Rossman, 2022; Stout, 1930	Farr and Rossman, 2022	No evidence of presence in the Territories; not under official control.
FUNGUS *Microascus longirostris* Zukal	Continental U.S. (Barron et al., 1961; Sandoval-Denis et al., 2016)	Farr and Rossman, 2022	No evidence of presence in the Territories; not under official control.
FUNGUS *Pithoascus schumacheri* (E. Hans.) Arx; syn. *Microascus schumacheri* (E. Hans.) Curzi	IA, PN (Barron et al., 1961)	Farr and Rossman, 2022	No evidence of presence in the Territories; not under official control
FUNGUS *Microdochium albescens* (Thüm.) Hern.-Restr. & Crous; syn. *Rhynchosporium oryzae* Hashioka & Yokogi	Farr and Rossman, 2022	Farr and Rossman, 2022	Genus is non-reportable at U.S. ports of entry (ARM, 2022).
FUNGUS *Microdochium bolleyi* (R. Sprague) De Hoog & Herm.-Nijh.; syn. *Aureobasidium bolleyi* (R. Sprague) Arx	Continental U.S. (Farr and Rossman, 2022)	Farr and Rossman, 2022	Genus is non-reportable at U.S. ports of entry (ARM, 2022).

Organism	In U.S.	Host Association	Notes
Microdochium seminicola Hern.-Restr., Seifert, Clear & B. Dorn	No evidence found	Hernández-Restrepo et al., 2016	Genus is non-reportable at U.S. ports of entry (ARM, 2022).
FUNGUS *Microdochium majus* (Wollenw.) Glynn & S.G. Edwards; syn. *Fusarium nivale* var. *majus* Wollenw.	No evidence found	Farr and Rossman, 2022	Genus is non-reportable at U.S. ports of entry (ARM, 2022).
FUNGUS *Microdochium maydis* (E. Müll & Samuels) Hern.-Restr. & Crous; syn. *Monographella maydis* E. Müll. & Samuels	**No evidence found**	**McCoy et al., 2019**	**We found no evidence of seed association**
FUNGUS *Microdochium nivale* (Fr.: Fr.) Samuels & I.C. Hallett; syn. *Monographella nivalis* (Schaffnit) E. Müll.	Continental U.S. and HI (Farr and Rossman, 2022)	Farr and Rossman, 2022	No notes
FUNGUS *Microdochium sorghi* (D.C. Bain & Edgerton ex Deighton) U. Braun	Continental U.S. (Farr and Rossman, 2022)	Farr and Rossman, 2022	No evidence of presence in the Territories; not under official control.
FUNGUS Moesziomyces bullatus (J. Schröt.) Vánky	Continental U.S. (Farr and Rossman, 2022)	Farr and Rossman, 2022	No evidence of presence in the Territories; not under official control.
FUNGUS *Monascus purpureus* Went	Continental U.S. (Farr and Rossman, 2022)	Farr and Rossman, 2022	No evidence of presence in the Territories; not under official control.
FUNGUS *Monilia martinii* Ellis & Sacc.	Continental U.S. (Britton, 1881; Farr and Rossman, 2022; Sumstine, 1913)	Farr and Rossman, 2022	No evidence of presence in the Territories; not under official control.
FUNGUS *Monodictys levis* (Wiltshire) S. Hughes	NY (Wang, 2010), OR (Roth, 2005)	Farr and Rossman, 2022	No evidence of presence in the Territories; not under official control.
FUNGUS *Montagnula donacina* (Niessl) Wanas., E.B.G. Jones & K.D. Hyde; syn. *Munkovalsaria donacina* (Niessl) Aptroot	Continental U.S.and HI (Farr and Rossman, 2022	Farr and Rossman, 2022	It is non-reportable at Continental U.S. ports of entry (ARM, 2022).
FUNGUS *Mucor circinelloides* Tiegh.	Farr and Rossman, 2022	Farr and Rossman, 2022	Genus is non-reportable at U.S.

Organism	In U.S.	Host Association	Notes
			ports of entry (ARM, 2022).
FUNGUS *Mucor circinelloides* f. *lusitanicus* (Bruderlein) Schipper	Farr and Rossman, 2022	Remesova et al., 2007	Genus is non-reportable at U.S. ports of entry (ARM, 2022).
FUNGUS *Mucor fragilis* Bainier	Farr and Rossman, 2022	Farr and Rossman, 2022	Genus is non-reportable at U.S. ports of entry (ARM, 2022).
FUNGUS *Mucor hiemalis* Wehmer	Farr and Rossman, 2022	Farr and Rossman, 2022	Genus is non-reportable at U.S. ports of entry (ARM, 2022).
FUNGUS *Mucor mucedo* Fresen.	Farr and Rossman, 2022	Farr and Rossman, 2022	Genus is non-reportable at U.S. ports of entry (ARM, 2022).
FUNGUS *Mucor plumbeus* Bonord.; syn.*Mucor spinosus* Schrank	Farr and Rossman, 2022	Farr and Rossman, 2022	Genus is non-reportable at U.S. ports of entry (ARM, 2022).
FUNGUS *Mucor racemosus* Fresen.	Farr and Rossman, 2022	Farr and Rossman, 2022	Genus is non-reportable at U.S. ports of entry (ARM, 2022).
FUNGUS *Mycosarcoma maydis* (DC.) Bref.; syn. *Ustilago maydis* (DC.) Corda, *Ustilago zeae* (Link) Unger	Continental U.S., PR and USVI (Farr and Rossman, 2022; Stevenson, 1975)	Farr and Rossman, 2022	No notes
FUNGUS *Mycosphaerella zeicola* G.L. Stout	IL (Stout, 1930); IN (USDA-ARS, 1960)	Farr and Rossman, 2022	No evidence of presence in the Territories; not under official control.
FUNGUS *Mycosphaerella zeina* Saccas.	**No evidence found**	**Watson, 1971**	**We found no evidence of seed association**
FUNGUS *Myrothecium cinctum* (Corda) Sacc.	FL, OK (Farr and Rossman, 2022; Levetin and Shaughnessy, 1997)	Farr and Rossman, 2022	No evidence of presence in the Territories; not under official control.
FUNGUS *Myrothecium gramineum* Lib.	VA (Roane, 2009); IL (Farr and Rossman, 2022)	Farr and Rossman, 2022	No evidence of presence in the Territories; not under official control.

Organism	In U.S.	Host Association	Notes
FUNGUS *Neocosmospora falciformis* (Carrión) L. Lombard & Crous; syn. *Fusarium falciforme* (Carrión) Summerb. & Schroers	Continental U.S. (Brackrog, 2022; O'Donnell et al., 2016b; Paugh et al., 2021)	Douriet-Angulo et al., 2019; Farr and Rossman, 2022	No evidence of presence in the Territories; not under official control.
FUNGUS *Neocosmospora haematococca* (Berk. & Broome) Samuels, Nalim & Geiser; syn. *Haematonectria haematococca* (Berk. & Broome) Samuels & Rossman	Continental U.S. and HI (Farr and Rossman, 2022)	Farr and Rossman, 2022	No notes
FUNGUS *Neocosmospora solani* (Mart.) L. Lombard & Crous; syn. *Fusarium solani* (Mart.) Sacc.	Continental US, HI, PR and USVI (Farr and Rossman, 2022	Farr and Rossman, 2022	No notes
FUNGUS *Neurospora crassa* Shear et Dodge	Continental U.S., and PR (Anonymous, 1960; Jacobson et al., 2004; Stevenson, 1975; Wallace and Dickinson, 1978)	Farr and Rossman, 2022	No notes
FUNGUS *Neurospora sitophila* Shear & B.O. Dodge; syn. *Chrysonilia sitophila* (Mont.) Arx	Continental U.S., and HI (Farr and Rossman, 2022)	Farr and Rossman, 2022	No notes
FUNGUS *Nigrospora oryzae* (Berk. & Broome) Petch; syn. *Khuskia oryzae* H.J. Huds.	Farr and Rossman, 2022	Farr and Rossman, 2022	Genus is non-reportable at U.S. ports of entry (ARM, 2022).
FUNGUS *Nigrospora sphaerica* (Sacc.) E.W. Mason	Farr and Rossman, 2022	Farr and Rossman, 2022	Genus is non-reportable at U.S. ports of entry (ARM, 2022).
FUNGUS *Oidiodendron flavum* Svilv.	WI (Christensen and Whittingham, 1965)	Farr and Rossman, 2022	No evidence of presence in the Territories; not under official control.
FUNGUS *Ophiobolus acuminatus* (Sowerby: Fr.) Duby	**Continental U.S. (Farr and Rossman, 2022)**	**Farr and Rossman, 2022**	**It is reportable at U.S. ports of entry for the Territories (ARM, 2022). No Action required except for propagation only. We found no**

Organism	In U.S.	Host Association	Notes
			evidence of seed association
FUNGUS *Ophiosphaerella herpotricha* (Fr.) J.C. Walker	Farr and Rossman, 2022	Farr and Rossman, 2022	No notes
***Orphanocoela maydis* (Latterell & A.E. Rossi) Nag Raj; syn. *Hyalothyridium maydis* Latterell & A.E. Rossi**	**No evidence found**	**Korsman et al., 2012; Latterell and Rossi, 1984**	**We found no evidence of seed association.**
FUNGUS *Paecilomyces niveus* Stolk & Samson; syn. *Byssochlamys nivea* Westling	IA, NY (Farr and Rossman, 2022; Wang and Hodge, 2022)	Farr and Rossman, 2022	No evidence of presence in the Territories; not under official control.
FUNGUS *Papularia vinosa* (Berk. & M.A. Curtis) E. Mason	Continental U.S., PR and USVI (Farr and Rossman, 2022)	Farr and Rossman, 2022	No notes
FUNGUS *Paraconiothyrium fuckelii* (Sacc.) Verkley & Gruyter; syn. *Coniothyrium fuckelii* Sacc., *Leptosphaeria coniothyrium* (Fuckel) Sacc., *Kalmusia coniothyrium* (Fuckel) Huhndorf	Farr and Rossman, 2022	Farr and Rossman, 2022	No notes
FUNGUS *Paraglomus occultum* (C.Walker) J.B.Morton & D.Redecker	Continental U.S. (Morton and Redecker, 2001)	Mulenko et al., 2008	No evidence of presence in the Territories; not under official control.
Paraleptosphaeria macrospora (Thüm.) Gruyter, Aveskamp & Verkley; syn. *Leptosphaeria macrospora* Thüm	Continental U.S. (Farr and Rossman, 2022)	Farr and Rossman, 2022	No evidence of presence in the Territories; not under official control.
FUNGUS *Paraphaeosphaeria michotii* (Westend.) O.E. Erikss.	Farr and Rossman, 2022	Farr and Rossman, 2022	No notes
FUNGUS *Penicillium adametzioides* S. Abe ex G. Sm.	No evidence found	DAFF South Africa, 2012	Genus is non-reportable at U.S. ports of entry (ARM, 2022).
FUNGUS *Penicillium armeniacum* Berk.	No evidence found	DAFF South Africa, 2012	Genus is non-reportable at U.S. ports of entry (ARM, 2022).
FUNGUS *Penicillium aurantiogriseum* Dierckx	Farr and Rossman, 2022	Farr and Rossman, 2022	Genus is non-reportable at U.S.

Organism	In U.S.	Host Association	Notes
			ports of entry (ARM, 2022).
FUNGUS *Penicillium aurantiogriseum* var. *viridicatum* (Westling) Frisvad & Filt.	No evidence found	DAFF South Africa, 2012	Genus is non-reportable at U.S. ports of entry (ARM, 2022).
FUNGUS *Penicillium brevicompactum* Dierckx	Farr and Rossman, 2022	Farr and Rossman, 2022	Genus is non-reportable at U.S. ports of entry (ARM, 2022).
FUNGUS *Penicillium canescens* Sopp	Farr and Rossman, 2022	Farr and Rossman, 2022	Genus is non-reportable at U.S. ports of entry (ARM, 2022).
FUNGUS *Penicillium fellutanum* Biourge	Farr and Rossman, 2022	Farr and Rossman, 2022	Genus is non-reportable at U.S. ports of entry (ARM, 2022).
FUNGUS *Penicillium chrysogenum* Thom	Farr and Rossman, 2022	Farr and Rossman, 2022	Genus is non-reportable at U.S. ports of entry (ARM, 2022).
FUNGUS *Penicillium dierckxii* Biourge	Farr and Rossman, 2022	Farr and Rossman, 2022	Genus is non-reportable at U.S. ports of entry (ARM, 2022).
FUNGUS *Penicillium citrinum* Thom	Farr and Rossman, 2022	Farr and Rossman, 2022	Genus is non-reportable at U.S. ports of entry (ARM, 2022).
FUNGUS *Penicillium claviforme* Bainier	Farr and Rossman, 2022	Farr and Rossman, 2022	Genus is non-reportable at U.S. ports of entry (ARM, 2022).
FUNGUS *Penicillium commune* Thom	Farr and Rossman, 2022	Farr and Rossman, 2022	Genus is non-reportable at U.S. ports of entry (ARM, 2022).
FUNGUS *Penicillium corylophilum* Dierckx	Farr and Rossman, 2022	DAFF South Africa, 2012	Genus is non-reportable at U.S. ports of entry (ARM, 2022).
FUNGUS *Penicillium crustosum* Thom	Farr and Rossman, 2022	Farr and Rossman, 2022	Genus is non-reportable at U.S. ports of entry (ARM, 2022).
FUNGUS	Farr and Rossman, 2022	Farr and Rossman, 2022	Genus is non-reportable at U.S.

Organism	In U.S.	Host Association	Notes
Penicillium cyaneum (Bainier & Sartory) Biourge			ports of entry (ARM, 2022).
FUNGUS *Penicillium decumbens* Thom	Farr and Rossman, 2022	Farr and Rossman, 2022	Genus is non-reportable at U.S. ports of entry (ARM, 2022).
FUNGUS *Penicillium digitatum* (Pers.) Sacc.	Farr and Rossman, 2022	Farr and Rossman, 2022	Genus is non-reportable at U.S. ports of entry (ARM, 2022).
FUNGUS *Penicillium duclauxii* (Delacr.) Samson, Yilmaz, Frisvad & Seifert	Farr and Rossman, 2022; Steiman et al., 2004	Farr and Rossman, 2022	Genus is non-reportable at U.S. ports of entry (ARM, 2022).
FUNGUS *Penicillium expansum* Link; syn. *Penicillium variabile* Wehmer	Farr and Rossman, 2022	DAFF South Africa, 2012; Farr and Rossman, 2022	Genus is non-reportable at U.S. ports of entry (ARM, 2022).
FUNGUS *Penicillium funiculosum* Thom	Farr and Rossman, 2022	Farr and Rossman, 2022	Genus is non-reportable at U.S. ports of entry (ARM, 2022).
FUNGUS *Penicillium glabrum* (Wehmer) Westling	Farr and Rossman, 2022	Farr and Rossman, 2022	Genus is non-reportable at U.S. ports of entry (ARM, 2022).
FUNGUS *Penicillium granulatum* Bainier	Farr and Rossman, 2022	DAFF South Africa, 2012	Genus is non-reportable at U.S. ports of entry (ARM, 2022).
FUNGUS *Penicillium griseofulvum* Dierckx	Farr and Rossman, 2022	Farr and Rossman, 2022	Genus is non-reportable at U.S. ports of entry (ARM, 2022).
FUNGUS *Penicillium herqueri* Bainier & Sartory	Thormann and Rice, 2007	Farr and Rossman, 2022	Genus is non-reportable at U.S. ports of entry (ARM, 2022).
FUNGUS *Penicillium implicatum* Biourge	Farr and Rossman, 2020	Farr and Rossman, 2022	Genus is non-reportable at U.S. ports of entry (ARM, 2022).
FUNGUS *Penicillium islandicum* Sopp	Farr and Rossman, 2022	DAFF South Africa, 2012	Genus is non-reportable at U.S. ports of entry (ARM, 2022).
FUNGUS *Penicillium janthinellum* Biourge	Farr and Rossman, 2022	Farr and Rossman, 2022	Genus is non-reportable at U.S.

Organism	In U.S.	Host Association	Notes
			ports of entry (ARM, 2022).
FUNGUS *Penicillium jensenii* Zaleski	Farr and Rossman, 2022	Farr and Rossman, 2022	Genus is non-reportable at U.S. ports of entry (ARM, 2022).
FUNGUS *Penicillium puberulum* Bainier	Farr and Rossman, 2022	Farr and Rossman, 2022	Genus is non-reportable at U.S. ports of entry (ARM, 2022).
FUNGUS *Penicillium manginii* Duche & R. Heim; syn. *Penicillium lapidosum* (Raper & Fennell) G. Sm.	No evidence found	DAFF South Africa, 2012	Genus is non-reportable at U.S. ports of entry (ARM, 2022).
FUNGUS *Penicillium miczynskii* K.M. Zalessky	HI (Farr and Rossman, 2022)	DAFF SOUTH AFRICA, 2012	Genus is non-reportable at U.S. ports of entry (ARM, 2022).
FUNGUS *Penicillium minioluteum* Dierckx	No evidence found	DAFF SOUTH AFRICA, 2012	Genus is non-reportable at U.S. ports of entry (ARM, 2022).
FUNGUS *Penicillium multicolor* Grigorieva-Manoilova et Poradielova	Farr and Rossman, 2022	Farr and Rossman, 2022	Genus is non-reportable at U.S. ports of entry (ARM, 2022).
FUNGUS *Penicillium olsonii* Bainier & sartory	Farr and Rossman, 2022	DAFF SOUTH AFRICA, 2012	Genus is non-reportable at U.S. ports of entry (ARM, 2022).
FUNGUS *Penicillium oxalicum* Currie & Thom	Farr and Rossman, 2022	Farr and Rossman, 2022	Genus is non-reportable at U.S. ports of entry (ARM, 2022).
FUNGUS *Penicillium pinophilum* Thom	HI (Farr and Rossman, 2022)	DAFF SOUTH AFRICA, 2012	Genus is non-reportable at U.S. ports of entry (ARM, 2022).
FUNGUS *Penicillium puberulum* Bainier	Farr and Rossman, 2022	Farr and Rossman, 2022	Genus is non-reportable at U.S. ports of entry (ARM, 2022).
FUNGUS *Penicillium purpureogenum* Stoll	Farr and Rossman, 2022	Farr and Rossman, 2022	Genus is non-reportable at U.S. ports of entry (ARM, 2022).
Penicillium purpurogenum var. *rubri-sclerotium* Thom	Kopeloff and Woodward, 1917	Farr and Rossman, 2022	Genus is non-reportable at U.S.

Organism	In U.S.	Host Association	Notes
			ports of entry (ARM, 2022).
FUNGUS *Penicillium raistrickii* G. Sm.	Farr and Rossman, 2022; Hodges, 1962	DAFF SOUTH AFRICA, 2012	Genus is non-reportable at U.S. ports of entry (ARM, 2022).
FUNGUS *Penicillium restrictum* Gilman & E.V. Abbott	Farr and Rossman, 2022	Farr and Rossman, 2022	Genus is non-reportable at U.S. ports of entry (ARM, 2022).
FUNGUS *Penicillium roquefortii* Thom	Farr and Rossman, 2022	Farr and Rossman, 2022	Genus is non-reportable at U.S. ports of entry (ARM, 2022).
FUNGUS *Penicillium roseopurpureum* Dierckx	Houbraken et al., 2011	Farr and Rossman, 2022	Genus is non-reportable at U.S. ports of entry (ARM, 2022).
FUNGUS *Penicillium rubrum* Stoll	Farr and Rossman, 2022	Farr and Rossman, 2022	Genus is non-reportable at U.S. ports of entry (ARM, 2022).
FUNGUS *Penicillium simplicissimum* (Oudem.) Thom	Farr and Rossman, 2022; Grabley et al., 1992; Hodges, 1962	DAFF SOUTH AFRICA, 2012	Genus is non-reportable at U.S. ports of entry (ARM, 2022).
FUNGUS *Penicillium solitum* var. *crustosum* (Thom)	No evidence found	DAFF SOUTH AFRICA, 2012	Genus is non-reportable at U.S. ports of entry (ARM, 2022).
FUNGUS *Penicillium solitum* Westling	Farr and Rossman, 2022	Farr and Rossman, 2022	Genus is non-reportable at U.S. ports of entry (ARM, 2022).
FUNGUS *Penicillium spinulosum* Thom	Farr and Rossman, 2022	Farr and Rossman, 2022	Genus is non-reportable at U.S. ports of entry (ARM, 2022).
FUNGUS *Penicillium thomii* Maire	Farr and Rossman, 2022	Farr and Rossman, 2022	Genus is non-reportable at U.S. ports of entry (ARM, 2022).
FUNGUS *Penicillium velutinum* J.F.H. Beyma	Cooke, 1968	Farr and Rossman, 2022	Genus is non-reportable at U.S. ports of entry (ARM, 2022).
FUNGUS *Penicillium verrucosum* Dierckx	Farr and Rossman, 2022	Farr and Rossman, 2022	Genus is non-reportable at U.S.

Organism	In U.S.	Host Association	Notes
			ports of entry (ARM, 2022).
FUNGUS *Penicillium viridicatum* Westling	Farr and Rossman, 2022	Farr and Rossman, 2022	Genus is non-reportable at U.S. ports of entry (ARM, 2022).
FUNGUS *Penicillium waksmanii* K.M. Zalessky	Farr and Rossman, 2022; Hodges, 1962	Farr and Rossman, 2022	Genus is non-reportable at U.S. ports of entry (ARM, 2022).
FUNGUS *Perichaena vermicularis* (Schwein.) Rostr.	Continental U.S. and HI (Eliasson, 2004; Evenson, 1961; Farr and Rossman, 2022)	Farr and Rossman, 2022	
FUNGUS *Periconia byssoides* Pers.	Continental U.S. and HI (Farr and Rossman, 2022)	Farr and Rossman, 2022	It is non reportable at Continental U.S. Ports of Entry (ARM, 2022)
FUNGUS *Periconia circinata* (L. Mangin) Sacc.	Continental U.S. (Farr and Rossman, 2022)	Farr and Rossman, 2022	No evidence of presence in the Territories; not under official control.
FUNGUS *Periconia digitata* (Cooke) Sacc.	Continental U.S. and HI (Farr and Rossman, 2022)	Farr and Rossman, 2022	
FUNGUS *Periconia echinochloae* (Bat.) M.B. Ellis	FL (Farr and Rossman, 2022)	Farr and Rossman, 2022	No evidence of presence in the Territories; not under official control.
FUNGUS *Periconia macrospinosa*	Continental U.S. (Farr and Rossman, 2022)	Farr and Rossman, 2022	No evidence of presence in the Territories; not under official control.
FUNGUS *Perisporium zeae* Berk. & M.A. Curtis	Continental U.S. (Farr and Rossman, 2022)	Farr and Rossman, 2022	No evidence of presence in the Territories; not under official control.
FUNGUS ***Peronosclerospora eriochloae* Ryley & Langdon**	**No evidence found**	**Ryley and Langdon, 2001; Telle et al., 2011**	**We found no evidence of seed association**
FUNGUS *Peronosclerospora sorghi* (W. Weston & Uppal) C.G. Shaw; syn. *Sclerospora sorghi*	Continental U.S. (Farr and Rossman, 2022; Isakeit and Jaster, 2005)	Farr and Rossman, 2022	No evidence of presence in the Territories; not under official control.
FUNGUS *Peronosclerospora spontanea* (W. Weston) C.G. Shaw; syn.	**No evidence found**	**Munkvold and White, 2016;**	**We found no evidence of seed association**

Organism	In U.S.	Host Association	Notes
***Sclerospora spontanea* W. Weston**		**Weston Jr., 1923**	
FUNGUS *Pestalotiopsis neglecta* (Thüm.) Steyaert	**HI (Keith et al., 2006)**	**Tagne and Mathur, 2001**	**We found no evidence of seed association**
FUNGUS *Pestalotiopsis palmarum* (Cooke) Steyaert	Farr and Rossman, 2022	Farr and Rossman, 2022	No notes
FUNGUS *Pestalotiopsis versicolor* (Speg.) Steyaert	Continental U.S., PR and USVI (Farr and Rossman, 2022; Stevenson, 1975	Peregrine and Bin Ahmad, 1982	No notes
FUNGUS *Phaeocytostroma ambiguum* (Mont.) Petr.; syn. *Phaeocytosporella zeae* G.L. Stout	Farr and Rossman, 2022; Koehler, 1960	Farr and Rossman, 2022	No notes
FUNGUS *Phaeocytostroma sacchari* (Ellis & Everh.) B. Sutton; syn. *Pleocyta sacchari* (Massee) Petr. & Syd.	Continental U.S., HI, and PR (Farr and Rossman, 2022; Raabe et al., 1981 Stevenson, 1975)	Farr and Rossman, 2022	No notes
FUNGUS *Phaeoseptoriella zeae* Crous	**No evidence found**	**Crous et al., 2019a**	**We found no evidence of seed association**
FUNGUS *Phaeosphaeria eustoma* (Fuckel) L. Holm	Farr and Rossman, 2022	Farr and Rossman, 2022	No notes
FUNGUS *Phaeosphaeria luctuosa* (Niessl) Otani & Mikawa	Farr and Rossman, 2022	Farr and Rossman, 2022	No notes
Phaeosphaeria maydis (Henn.) Rane, Payak & Renfro; syn. *Sphaerulina maydis* Henn.	FL (Carson, 2005)	Carson, 2005; Watson, 1971	No evidence of presence in the Territories; not under official control.
FUNGUS *Phaeosphaeria nigrans* (Roberge ex Desm.) L. Holm	Farr and Rossman, 2022	Farr and Rossman, 2022	No notes
FUNGUS *Phaeosphaeria variiseptata* (G.L. Stout) Shoemaker & C.E. Babc.	IL (Stout, 1930; USDA-ARS, 1960; White, 1999)	White, 1999	No evidence of presence in the Territories; not under official control.
FUNGUS *Phaeotrichoconis crotalariae* (M.A. Salam & P.N. Rao) Subram.; syn. *Trichoconis*	FL (Chase, 1982)	Peregrine and Bin Ahmad, 1982	It is non reportable at Continental U.S. Ports of Entry (ARM, 2022).

Organism	In U.S.	Host Association	Notes
crotalariae M.A. Salam & P.N. Rao			No evidence of presence in the Territories; not under official control.
FUNGUS *Phakopsora zeae* (Mains) Buriticá; syn. *Angiopsora zeae* Mains, *Physopella zeae* (Mains) Cummins & Ramachar	FL, PR and USVI (Farr and Rossman, 2022)	Bonde et al., 1982; Heath and Bonde, 1983)	No notes
FUNGUS *Phoma herbarum* var. *herbarum* Westend.	Continental U.S. and HI (Farr and Rossman, 2022)	Farr and Rossman, 2022	No notes
FUNGUS *Phoma zeicola* Ellis & Everh.	Farr and Rossman, 2022	Farr and Rossman, 2022	No notes
FUNGUS *Phycomyces nitens* Kunze	Farr and Rossman, 2022	Farr and Rossman, 2022	No notes
FUNGUS *Phyllachora graminis* (Pers.: Fr.) Fuckel	Farr and Rossman, 2022	Farr and Rossman, 2022	No notes
FUNGUS ***Phyllachora maydis* Maubl.**	**IN, IL (Ruhl et al., 2016); FL, IA, MI, WI (McCoy et al., 2019); OH, MN MO (Kleczewski et al., 2020); PR and VI (Farr and Rossman, 2022)**	**McCoy et al., 2019**	**Reportable; no action required when destined to Puerto Rico and U.S. Virgin Islands (ARM, 2022). We found no evidence of seed transmission**
FUNGUS *Phyllosticta zeae* G.L. Stout	Continental U.S. (Farr and Rossman, 2022)	Farr and Rossman, 2022	No evidence of presence in the Territories; not under official control.
FUNGUS *Phymatotrichopsis omnivora* (Shear) Hennebert	Continental U.S. (Farr and Rossman, 2022; USDA-ARS, 1960)	Farr and Rossman, 2022	No evidence of presence in the Territories; not under official control.
FUNGUS *Physalospora abdita* (Berk. & M.A. Curtis) N. Stevens	Continental U.S. and HI (Farr and Rossman, 2022)	Farr and Rossman, 2022	No notes
FUNGUS *Physarum pusillum* (Berk. & M.A. Curtis) G. List.	Farr and Rossman, 2022	Farr and Rossman, 2022	Genus is non-reportable at U.S. ports of entry (ARM, 2022).
FUNGUS *Physoderma maydis* (Miyabe) Miyabe	Continental U.S. and HI (Farr and Rossman, 2022)	Farr and Rossman, 2022	No notes
FUNGUS *Phytophthora cactorum* (Lebert & Cohn) J. Schröt.	Farr and Rossman, 2022	Farr and Rossman, 2022	No notes

Organism	In U.S.	Host Association	Notes
FUNGUS *Phytophthora drechsleri* Tucker	Continental U.S. and HI (Farr and Rossman, 2022)	Farr and Rossman, 2022	No notes
FUNGUS *Phytophthora nicotianae* Breda de Haan	Farr and Rossman, 2022	Farr and Rossman, 2022	No notes
FUNGUS *Phytopythium helicoides* (Drechsler) Abad, De Cock, Bala, Robideau, Lodhi & Lévesque; syn. *Pythium helicoides* Drechsler	Continental U.S. (Farr and Rossman, 2022; Yang et al., 2013)	Xie et al., 2021	No evidence of presence in the Territories; not under official control
FUNGUS *Phytopythium vexans* (de Bary) Abad, de Cock, Bala, Robideau, Lodhi & Lévesque; syn. *Pythium vexans* de Bary	Continental U.S. and HI (Farr and Rossman, 2022)	Farr and Rossman, 2022	No notes
FUNGUS *Pilobolus crystallinus* (Wiggers) Tode	Continental U.S. and PR (Foos and Rakestraw Jr, 1985; Grootmyers, 2021; Raeder, 1921; Stevenson, 1975)	Farr and Rossman, 2022	No notes
FUNGUS *Pithoascus intermedius* (C.W. Emmons & B.O. Dodge) Arx; syn. *Microascus intermedius* C.W. Emmons & B.O. Dodge	Continental U.S. (Barron et al., 1961)	Farr and Rossman, 2022	No evidence of presence in the Territories; not under official control.
FUNGUS *Pithomyces maydicus* (Sacc.) M.B. Ellis	Farr and Rossman, 2022; Gulya Jr. T. J. et al., 1979; Shurtleff et al., 1993	Farr and Rossman, 2022	No notes
FUNGUS *Pleospora straminis* Sacc. & Speg.	MA (Farr and Rossman, 2022)	Farr and Rossman, 2022	No evidence of presence in the Territories; not under official control
FUNGUS ***Pleurophragmium flumeanum* (Sacc.) S. Hughes; syn. *Helminthosporium curvulum* Sacc. non Sacc.**	**FL (Farr and Rossman, 2022)**	**Biologie et al., 1926; Mabadeje, 1969)**	**We found no evidence of seed transmission.**
FUNGUS *Podospora minor* Ellis & Everh.	KS (Farr and Rossman, 2022)	Farr and Rossman, 2022	No evidence of presence in the Territories; not under official control.

Organism	In U.S.	Host Association	Notes
FUNGUS *Polymyxa graminis* Ledingham	Continental U.S. (Farr and Rossman, 2022)	Farr and Rossman, 2022	No evidence of presence in the Territories; not under official control.
FUNGUS *Polyschema olivacea* (Ellis & Everh.) M.B. Ellis; syn. *Clasterosporium elaeodes* Pound & Clem.	NJ (Cash, 1952)	Farr and Rossman, 2022	Only one record in the U.S. No evidence of presence in the Territories; not under official control.
FUNGUS *Pseudopestalotiopsis theae* (Sawada) Maharachch., K.D. Hyde & Crous; syn. *Pestalotiopsis theae* (Sawada) Steyaert	**PR (Polishook et al., 1996); HI (Mordue and Holliday, 1971)**	**Williams and Liu, 1976**	**Not present in Continental U.S. We found no evidence of seed association.**
FUNGUS *Pseudopithomyces chartarum* (Berk. & M.A. Curtis) J.F. Li, Ariyawansa & K.D. Hyde; syn. *Pithomyces chartarum* (Berk. & M.A. Curtis) M.B. Ellis	Continental U.S. and HI (Farr and Rossman, 2022)	Farr and Rossman, 2022; Remesova et al., 2007	No notes
FUNGUS *Puccinia polysora* Underw.	Farr and Rossman, 2022	Farr and Rossman, 2022	No notes
FUNGUS *Puccinia purpurea* Cooke	Farr and Rossman, 2022	Farr and Rossman, 2022	No notes
FUNGUS *Puccinia sorghi* Schwein.	Farr and Rossman, 2022	Farr and Rossman, 2022	No notes
FUNGUS *Purpureocillium lilacinus* (Thom) Luangsa-ard, Houbraken, Hywel-Jones & Samson	Continental U.S. (Farr and Rossman, 2022)	Farr and Rossman, 2022	No evidence of presence in the Territories; not under official control.
FUNGUS ***Pyrenochaetopsis indica* (T.S. Viswan.) Gruyter, Aveskamp & Verkley; syn. *Pyrenochaeta indica* T.S. Viswan.**	**No evidence found**	**Ramsey, 1990**	**We found no evidence of seed association.**
FUNGUS *Pyrenophora biseptata* (Sacc. & Roum.) Crous; syn. *Drechslera biseptata* (Sacc. & Roum.) M.J. Richardson & E.M. Fraser	Continental U.S. and HI (Farr and Rossman, 2022)	Farr and Rossman, 2022	It is non reportable at Continental U.S. Ports of Entry (ARM, 2022)
FUNGUS *Pyrenophora teres* Drechsler	Farr and Rossman, 2022	DAFF South Africa, 2012	No notes
FUNGUS *Pyrenophora tritici-repentis* (Died.) Drechsler	Continental U.S. (Farr and Rossman, 2022)	Farr and Rossman, 2022	No evidence of presence in the Territories; not under official control.

Organism	In U.S.	Host Association	Notes
FUNGUS *Pyricularia grisea* Sacc.; syn. *Magnaporthe grisea* (T.T. Hebert) M.E. Barr	Continental U.S., HI, and PR (Farr and Rossman, 2022)	Farr and Rossman, 2022	It is non-reportable at U.S. ports of entry (ARM, 2022). Action Required when "Triticum Pathotype" occurs at origin. We found no Triticum Pathotype" occurring on corn.
FUNGUS *Pyricularia oryzae* Cavara; syn. *Magnaporthe oryzae* B.C. Couch	Continental U.S., HI, and PR (Farr and Rossman, 2022)	Farr and Rossman, 2022	No notes
FUNGUS *Pyronema omphalodes* (Bull. : Fr.) Fuckel; syn. *Pyronema confluens* (Pers. : Pers.) Tul. & C. Tul	Continental U.S. and PR (Bates, 2006; Farr and Rossman, 2022; Grootmyers, 2021; Stevenson, 1975)	Farr and Rossman, 2022	No notes
FUNGUS *Pythiogeton zeae Jee*, H.H. Ho & W.D. Cho	**No evidence found**	**Jee et al., 2000**	**We found no evidence of seed association**
FUNGUS *Pythium acanthicum* Drechsler	Continental U.S. (Farr and Rossman, 2022)	Farr and Rossman, 2022	No evidence of presence in the Territories; not under official control.
FUNGUS *Pythium adhaerens* Sparrow	Alcala et al., 2016; Farr and Rossman, 2022	Farr and Rossman, 2022	No evidence of presence in the Territories; not under official control.
FUNGUS *Pythium aphanidermatum* (Edson) Fitzp.	Farr and Rossman, 2022	Farr and Rossman, 2022	No notes
FUNGUS *Pythium aristosporum* Vanterp.	Rojas et al., 2016; USDA-ARS, 1960	Ding et al., 2021	No evidence of presence in the Territories; not under official control.
FUNGUS *Pythium arrhenomanes* Drechsler	Continental U.S. and HI (Farr and Rossman, 2022; Hanlin et al., 1978; Reddy and Reddy, 1989)	Farr and Rossman, 2022	No notes
FUNGUS *Pythium arrhenomanes* var. *philippinensis*	**No evidence found**	**Rands and Dopp, 1938**	**We found no evidence of seed association**
FUNGUS *Pythium dissotocum* Drechsler	Continental U.S., HI and PR (Farr	Farr and Rossman, 2022	No notes

Organism	In U.S.	Host Association	Notes
	and Rossman, 2022)		
FUNGUS *Pythium graminicola* Subramanian	Continental U.S., HI, PR and USVI (Farr and Rossman, 2022)	Farr and Rossman, 2022	No notes
FUNGUS *Pythium inflatum* V.D. Matthews	Farr and Rossman, 2022	Farr and Rossman, 2022	No notes
FUNGUS *Pythium myriotylum* Drechsler	Farr and Rossman, 2022	DAFF South Africa, 2012	No notes
FUNGUS *Pythium oopapillum* Bala, de Cock & Lévesque	Farr and Rossman, 2022	Farr and Rossman, 2022	No evidence of presence in the Territories; not under official control.
FUNGUS *Pythium schmitthenneri* M.L. Ellis, Broders & Dorrance	MN (Radmer et al., 2017); OH (Ellis et al., 2012)	Farr and Rossman, 2022	Described in the U.S. No evidence of presence in the Territories; not under official control.
FUNGUS *Pythium selbyi* M.L. Ellis, Broders & Dorrance	OH (Ellis et al., 2012)	OH (Ellis et al., 2012)	Described in the U.S. No evidence of presence in the Territories; not under official control.
FUNGUS *Pythium torulosum* Coker & P. Patt.	Continental U.S. and HI (Farr and Rossman, 2022)	Farr and Rossman, 2022	No notes
FUNGUS *Pythium vanterpoolii* V. Kouyeas & H. Kouyeas	Continental U.S. (Farr and Rossman, 2022)	Farr and Rossman, 2022	No evidence of presence in the Territories; not under official control.
FUNGUS *Ramulispora sorghi* (Ellis & Everh.) L.S. Olive & Lefebvre	Continental U.S. (Farr and Rossman, 2022)	Farr and Rossman, 2022	No evidence of presence in the Territories; not under official control.
FUNGUS *Rhexoacrodictys erecta* (Ellis & Everh.) W.A. Baker & Morgan-Jones; syn. *Mystrosporium erectum* Ellis & Everh., *Acrodictys erecta* (Ellis & Everh.) M.B. Ellis	Continental U.S. (Cash, 1952; Farr and Rossman, 2022)	Farr and Rossman, 2022	No evidence of presence in the Territories; not under official control.
FUNGUS *Rhizoctonia solani* J.G. Kühn ;syn. *Thanatephorus cucumeris* (A.B. Frank) Donk	Farr and Rossman, 2022	Farr and Rossman, 2022	No notes
FUNGUS	Continental U.S. (Farr and Rossman,	Farr and Rossman, 2022	No evidence of presence in the

Organism	In U.S.	Host Association	Notes
Rhizomucor pusillus (Lindt) Schipper; syn. *Mucor pusillus* Lindt	2022; Knudtson and Kirkbride, 1992)		Territories; not under official control.
FUNGUS *Rhizopus arrhizus* A. Fisch.; syn. *R. maydis* Bruderl., *R. oryzae* Went & Prins. Geerl.	Farr and Rossman, 2022; Hanlin, 1973; Stevenson, 1975; USDA-ARS, 1960	Farr and Rossman, 2022	Genus is non-reportable at U.S. ports of entry (ARM, 2022)
FUNGUS *Rhizopus microsporus Tiegh.*	Farr and Rossman, 2022	Farr and Rossman, 2022	Genus is non-reportable at U.S. ports of entry (ARM, 2022)
FUNGUS *Rhizopus nodosus* Namysł.	Farr and Rossman, 2022	Farr and Rossman, 2022	Genus is non-reportable at U.S. ports of entry (ARM, 2022)
FUNGUS *Rhizopus stolonifer* (Ehrenb.: Fr.) Vuill.	Farr and Rossman, 2022	Farr and Rossman, 2022	Genus is non-reportable at U.S. ports of entry (ARM, 2022)
FUNGUS *Rhopographus zeae* Pat.	Continental U.S. (Farr and Rossman, 2022)	Farr and Rossman, 2022	No evidence of presence in the Territories; not under official control.
FUNGUS *Sarocladium strictum* (W. Gams) Summerb.; syn. *Acremonium strictum* W. Gams	Continental U.S. and PR (Farr and Rossman, 2022)	Farr and Rossman, 2022; Warham et al., 1996	No notes
FUNGUS *Sarocladium zeae* (W. Gams & D.R. Sumner) Summerb.; syn. *Acremonium zeae* W. Gams & D.R. Sumner	Continental U.S. (Farr and Rossman, 2022 Perdomo et al., 2011	Farr and Rossman, 2022	No evidence of presence in the Territories; not under official control.
FUNGUS *Sclerophthora macrospora* (Sacc.) Thirum., C.G. Shaw & Naras.	Continental U.S. (Farr and Rossman, 2022)	Farr and Rossman, 2022	No evidence of presence in the Territories; not under official control.
FUNGUS *Sclerospora graminicola* (Sacc.) J. Schröt.	Continental U.S., HI and PR (Farr and Rossman, 2022)	Farr and Rossman, 2022	No notes
FUNGUS *Sclerotinia sclerotiorum* (Lib.) de Bary	Farr and Rossman, 2022; Koike, 2000	Farr and Rossman, 2022	No notes
FUNGUS *Scopulariopsis brevicaulis* (Sacc.) Bainier	Farr and Rossman, 2022	Farr and Rossman, 2022	No notes

Organism	In U.S.	Host Association	Notes
FUNGUS *Scutellospora dipurpurescens* Morton et Koske	WV (Morton and Koske, 1988)	Mulenko et al., 2008	No evidence of presence in the Territories; not under official control.
FUNGUS *Septoria zeicola* G.L. Stout	IL (Stout, 1930)	Stout, 1930	Only one report; it was described in the U.S.
FUNGUS *Septoria zeina* G.L. Stout	IL (Stout, 1930)	Stout, 1930	Only one report it was described in the U.S.
FUNGUS *Setophoma terrestris* (H.N. Hansen) Gruyter, Aveskamp & Verkley	Continental U.S. and HI (Farr and Rossman, 2022)	Farr and Rossman, 2022	It is non reportable at Continental U.S. Ports of Entry (ARM, 2022)
FUNGUS *Sordaria fimicola* (Roberge ex Desm.) Ces. & De Not.	Farr and Rossman, 2022	Farr and Rossman, 2022	No notes
FUNGUS *Sorocybe resinae* (Fr.: Fr.) Fr.	Continental U.S. (Farr and Rossman, 2022; Shaw, 1973)	Farr and Rossman, 2022	No evidence of presence in the Territories; not under official control.
FUNGUS *Spegazzinia tessarthra* (Berk. & M.A. Curtis) Sacc.	Farr and Rossman, 2022	Farr and Rossman, 2022	No notes
FUNGUS *Sphaerellopsis filum* (Biv. : Fr.) B. Sutton	Farr and Rossman, 2022	Farr and Rossman, 2022	No notes
FUNGUS *Spongospora subterranea* (Wallr.) Lagerh.	Farr and Rossman, 2022	Farr and Rossman, 2022	No notes
FUNGUS *Sporisorium cruentum* (Kühn) Vánky; syn. *Ustilago sorghi* Pass.	Farr and Rossman, 2022	Farr and Rossman, 2022	No notes
FUNGUS *Sporisorium reilianum* (J.G. Kühn) Langdon & Full; syn. *Sporisorium holci-sorghi* (Rivolta) Vánky, *Sphacelotheca reiliana* (J.G. Kühn) G.P. Clinton	Continental U.S. and HI (Farr and Rossman, 2022)	Farr and Rossman, 2022	No notes
FUNGUS *Sporisorium sorghi* Ehrenb. ex Link	Farr and Rossman, 2022	Farr and Rossman, 2022	No notes
FUNGUS *Sporoschisma hemipsilum* (Berk. & Broome) Zelski et al.; syn. Melanochaeta hemipsila (Berk. & Broome) E. Müll., Harr & Sulmont ,*Sporoschisma saccardoi* E.W. Mason & S. Hughes	Continental U.S. (Li and Yang, 2004; Wang, 2001)	Farr and Rossman, 2022	No evidence of presence in the Territories; not under official control.

Organism	In U.S.	Host Association	Notes
FUNGUS *Sporotrichum atropurpureum* Peck	Farr and Rossman, 2022	Farr and Rossman, 2022	No notes
FUNGUS *Sporotrichum roseum* Link: Fr.	Batest et al., 2019	Farr and Rossman, 2022	No notes
FUNGUS *Sporidesmiella hyalosperma* (Corda) P.M. Kirk	NY (Wang, 2010)	Crous et al., 2020	No evidence of presence in the Territories; not under official control.
FUNGUS *Stachybotrys zeae* Morgan-Jones & Karr	AL (Karunarathna et al., 2022), PR (Garcia, 2016)	Karunarathna et al., 2022	Not under official control.
FUNGUS *Stachylidium bicolor* Link: Fr.	Farr and Rossman, 2022	Farr and Rossman, 2022	No notes
FUNGUS *Stagonospora arenaria* (Sacc.) Sacc.	Continental U.S. (Farr and Rossman, 2022)	Farr and Rossman, 2022	No evidence of presence in the Territories; not under official control.
FUNGUS *Stauronema cruciferum* (Ellis) Syd., P. Syd. & E.J. Butler; syn. *Dinemasporium bicristatum* Cooke	NJ, SC (Farr and Rossman, 2022)	Farr and Rossman, 2022	No evidence of presence in the Territories; not under official control.
FUNGUS *Stemphylium vesicarium* (Wallr.) *E.G. Simmons;* syn. *Pleospora herbarum* (Pers.: Fr.) Rabenh.	Farr and Rossman, 2022	Farr and Rossman, 2022	No notes
FUNGUS *Stenocarpella macrospora* (Earle) B. Sutton; syn. *Stenocarpella zeae* Syd. & P. Syd	Continental U.S. (Farr and Rossman, 2022)	Farr and Rossman, 2022	No evidence of presence in the Territories; not under official control.
FUNGUS *Stenocarpella maydis* (Berk.) B. Sutton; syn. *Diplodia maydis* (Berk.) Sacc.	Farr and Rossman, 2022	Farr and Rossman, 2022	No notes
FUNGUS *Stictis radiata* Pers.: Fr.	Farr and Rossman, 2022	Farr and Rossman, 2022	No notes
FUNGUS *Syncephalastrum racemosum* Coh ex J. Schröt	Continental U.S. (Farr and Rossman, 2022; Hodges, 1962; Miller et al., 1957)	Farr and Rossman, 2022	No evidence of presence in the Territories; not under official control.
FUNGUS *Talaromyces flavus* (Klöcker) Stolk & Samson	Continental U.S. (Farr and Rossman, 2022; Fravel and Adams, 1986)	Farr and Rossman, 2022	No evidence of presence in the Territories; not under official control.

Organism	In U.S.	Host Association	Notes
FUNGUS *Talaromyces funiculosus* (Thom) Samson, N. Yilmaz, Frisvad & Seifert	Continental U.S. (Farr and Rossman, 2022)	Farr and Rossman, 2022	No evidence of presence in the Territories; not under official control.
FUNGUS *Talaromyces luteus* (Zukal) C.R. Benj.	Continental U.S. (Farr and Rossman, 2022)	Farr and Rossman, 2022	No evidence of presence in the Territories; not under official control.
FUNGUS *Talaromyces rugulosus* (Thom) Samson, N. Yilmaz, Frisvad & Seifert	Continental U.S. (Farr and Rossman, 2022)	Farr and Rossman, 2022	No evidence of presence in the Territories; not under official control.
FUNGUS *Talaromyces stipitatus* (Thom) C.R. Benj.	Continental U.S. (Farr and Rossman, 2022)	Farr and Rossman, 2022	No evidence of presence in the Territories; not under official control.
FUNGUS *Talaromyces trachyspermus* (Shear) Stolk & Samson	Continental U.S. (Farr and Rossman, 2022)	Farr and Rossman, 2022	No evidence of presence in the Territories; not under official control.
FUNGUS *Talaromyces verruculosus* (Peyronel) Samson, N. Yilmaz, Frisvad & Seifert; syn. *Penicillium verruculosum* Peyronel	Continental U.S. (Farr and Rossman, 2022; Hodges, 1962)	DAFF South Africa, 2012	No evidence of presence in the Territories; not under official control.
FUNGUS *Tetraploa aristata* Berk. & Broome	Continental U.S., PR, VI (Farr and Rossman, 2022)	Farr and Rossman, 2022	No notes
FUNGUS *Thermomyces lanuginosus* Tsikl.	Continental U.S. and HI (Farr and Rossman, 2022)	DAFF South Africa, 2012	No notes
FUNGUS *Thielaviopsis paradoxa* (De Seynes) Höhn.; syn. *Ceratocystis paradoxa* (Dade) C. Moreau	Continental U.S., HI and PR (Farr and Rossman, 2022)	DAFF South Africa, 2012	No notes
FUNGUS *Tiarosporella graminis* (Piroz. & Shoemaker) Nag Raj	Continental U.S. (Farr and Rossman, 2022; Raj, 1973)	DAFF South Africa, 2012	No evidence of presence in the Territories; not under official control.
FUNGUS *Tomentella punicea* (Alb. & Schwein.: Fr.) J. Schröt.	Continental U.S. (Farr and Rossman, 2022)	Farr and Rossman, 2022	No evidence of presence in the Territories; not under official control.
FUNGUS *Torula hariotiana* Gonz.	No evidence found	Farr and Rossman, 2022	Genus is non-reportable at U.S. ports of entry (ARM, 2022)

Organism	In U.S.	Host Association	Notes
FUNGUS *Torula herbarum* (Pers. : Fr.) Link	Farr and Rossman, 2022	Farr and Rossman, 2022	Genus is non-reportable at U.S. ports of entry (ARM, 2022)
FUNGUS *Torula lucifuga* Oudemans	No evidence found	Farr and Rossman, 2022	Genus is non-reportable at U.S. ports of entry (ARM, 2022)
FUNGUS *Torula monilioides* Corda	No evidence found	Farr and Rossman, 2022	Genus is non-reportable at U.S. ports of entry (ARM, 2022)
FUNGUS *Torula sulphurea* Preuss; syn. *Oospora sulphurea* (Preuss) Sacc. & Voglino	Farr and Rossman, 2022	Farr and Rossman, 2022	Genus is non-reportable at U.S. ports of entry (ARM, 2022)
FUNGUS *Trichoderma atroviride* P. Karst.	Farr and Rossman, 2022	Farr and Rossman, 2022	Genus is non-reportable at U.S. ports of entry (ARM, 2022)
FUNGUS *Trichoderma aureoviride* Rifai	Farr and Rossman, 2022	DAFF South Africa, 2012	Genus is non-reportable at U.S. ports of entry (ARM, 2022)
FUNGUS *Trichoderma harzianum* Rifai	Farr and Rossman, 2022	Farr and Rossman, 2022	Genus is non-reportable at U.S. ports of entry (ARM, 2022)
FUNGUS *Trichoderma koningii* Oudem.	Farr and Rossman, 2022	Farr and Rossman, 2022	Genus is non-reportable at U.S. ports of entry (ARM, 2022)
FUNGUS *Trichoderma longibrachiatum* Rifai	Farr and Rossman, 2022	DAFF South Africa, 2012	Genus is non-reportable at U.S. ports of entry (ARM, 2022)
FUNGUS *Trichoderma polysporum* (Link: Fr.) Rifai	Farr and Rossman, 2022	Farr and Rossman, 2022	Genus is non-reportable at U.S. ports of entry (ARM, 2022)
FUNGUS *Trichoderma viride* Pers.: Fr.	Farr and Rossman, 2022	Farr and Rossman, 2022	Genus is non-reportable at U.S. ports of entry (ARM, 2022)
FUNGUS *Trichothecium roseum* (Pers.: Fr.) Link	Farr and Rossman, 2022	Farr and Rossman, 2022	Genus is non-reportable at U.S. ports of entry (ARM, 2022)

Organism	In U.S.	Host Association	Notes
FUNGUS *Tritirachium oryzae* (Vincens) De Hoog	Farr and Rossman, 2022	Farr and Rossman, 2022	Genus is non-reportable at U.S. ports of entry (ARM, 2022)
FUNGUS *Tubeufia cylindrothecia* (Seaver) Höhn.; syn. *Ophionectria cylindrothecia* Seaver	OH (Seaver, 1909); PR (Nieves-Rivera and Santos-Flores, 2005)	Farr and Rossman, 2022	No evidence of presence in the Territories; not under official control.
FUNGUS *Tubeufia paludosa* (P. Crouan & H. Crouan) Rossman	OH (Farr and Rossman, 2022)	Farr and Rossman, 2022	No evidence of presence in the Territories; not under official control.
FUNGUS *Typhula phacorrhiza* (Reichard: Fr.) Fr.	Continental U.S. (Farr and Rossman, 2022; Grootmyers, 2021; Shaw, 1973; USDA-ARS, 1960)	Farr and Rossman, 2022	No evidence of presence in the Territories; not under official control.
FUNGUS *Typhula variabilis* Riess	Farr and Rossman, 2022	Farr and Rossman, 2022	No notes
FUNGUS *Urocystis agropyri* (Preuss) A.A. Fisch. Waldh.	Farr and Rossman, 2022	Farr and Rossman, 2022	No notes
FUNGUS *Ustilaginoidea virens* (Cooke) Takah.	Continental U.S., PR and VI (Farr and Rossman, 2022)	Farr and Rossman, 2022	No notes
FUNGUS *Ustilago tritici* (Pers.) Rostr.	Continental U.S., HI, and PR (Farr and Rossman, 2022)	Farr and Rossman, 2022	No notes
FUNGUS *Verticillium albo-atrum* Reinke & Berthier	Farr and Rossman, 2022	Farr and Rossman, 2022	No notes
FUNGUS *Verticillium dahliae* Kleb.	Continental U.S. (Farr and Rossman, 2022)	Farr and Rossman, 2022	It is non reportable at Continental U.S. Ports of Entry (ARM, 2022).
Waitea circinata var. *prodigus* Kammerer & al.	VA (Singh et al., 2022); FL(Kammerer et al., 2011); CA (Chen et al., 2011)	Singh et al., 2022	No evidence of presence in the Territories; not under official control.
FUNGUS *Waitea circinata* Warcup & P.H.B. Talbot	Continental U.S. (Chen et al., 2007; Farr and Rossman, 2022; Flor et al., 2008; Leiner and Carling, 1994)	Farr and Rossman, 2022	No evidence of presence in the Territories; not under official control.

Organism	In U.S.	Host Association	Notes
FUNGUS *Wolfiporia cocos* (F.A. Wolf) Ryvarden & Gilb.	Continental U.S. (Farr and Rossman, 2022)	Farr and Rossman, 2022	No evidence of presence in the Territories; not under official control.
NEMATODE *Aphelenchoides besseyi* Christie	Continental United States, Hawaii (WPNUS, 2022)	Kleynhans et al., 1996	No notes
NEMATODE *Aphelenchoides eltayebi* Zeidan & Geraert	**No evidence found**	**Talwana et al., 2008**	**No notes**
NEMATODE *Belonolaimus longicaudatus* Rau	Continental United States (WPNUS, 2022), Puerto Rico (CABI, 2022a)	Munkvold and White, 2016	No notes
NEMATODE *Criconema ananas* (Heyns) Siddiqi	**No evidence found**	**DAFF South Africa, 2012**	**No notes**
NEMATODE *Criconema carolinae* Van den Berg	**No evidence found**	**DAFF South Africa, 2012**	**No notes**
NEMATODE *Criconema corbetti* (De Grisse) Raski & Luc	**No evidence found**	**DAFF South Africa, 2012**	**No notes**
NEMATODE *Criconema lefodium* (Van den Berg) Raski & Luc	**No evidence found**	**DAFF South Africa, 2012**	**No notes**
NEMATODE *Criconema mundum* Van den Berg & Tiedt	**No evidence found**	**DAFF South Africa, 2012**	**No notes**
NEMATODE *Criconema mutabile* (Taylor) Raski & Luc	Continental United States (WPNUS, 2022; McKenry et al., 1990)	DAFF South Africa, 2012	No notes
NEMATODE *Criconema zeae* (Van den Berg & Heyns) Raski & Luc	**No evidence found**	**DAFF South Africa, 2012**	**No Notes**
NEMATODE *Criconemoides informis* (Mikoletzky) Taylor syn.: *Criconemella informis* (Micoletzky) Luc & Raski	Iowa (Norton, 1983)	Norton, 1983	No notes
NEMATODE *Criconemoides parvus* Raski	Nevada (Munawar et al., 2018)	DAFF South Africa, 2012	NO notes
NEMATODE *Discotylenchus iranicus* Ghaemi, Pourjam, Atighi, Pedram & Karssen	**No evidence found**	**Ghaemi et al., 2012**	**No notes**

Organism	In U.S.	Host Association	Notes
NEMATODE *Ditylenchus africanus* Wendt, Swart, Vrain & Webster	**No evidence found**	**DAFF South Africa, 2012**	**Pest seedborne in peanut (*Arachis hypogaea*) (De Waele et al., 1997)**
NEMATODE *Ditylenchus destructor* Thorne	**Continental United States (WPNUS, 2022), Hawaii (Raabe et al., 1981)**	**Pan et al., 2021**	**Pest reportable at United States ports-of-entry for Hawaii, Puerto Rico or United States territories (ARM, 2022).**
NEMATODE *Ditylenchus dipsaci* (Kühn) Filip'ev	**Continental United States (WPNUS, 2022), Hawaii (Raabe et al., 1981)**	**Abbad Andaloussi and Bachikh, 2001**	**Pest reportable at United States ports-of-entry for Hawaii, Puerto Rico or United States territories (ARM, 2022).**
NEMATODE *Helicotylenchus dihystera* (Cobb) Sher	Continental United States, Hawaii (WPNUS, 2022), Puerto Rico (CABI, 2022a)	Munkvold and White, 2016	No notes
NEMATODE *Helicotylenchus martini* Sher	Florida [limited distribution] (Lehman, 2002)	DAFF South Africa, 2012	No notes
NEMATODE *Helicotylenchus microcephalus* Sher	**No evidence found**	**DAFF South Africa, 2012**	No notes
NEMATODE *Helicotylenchus minzi* Sher	Idaho, Washington (USDANC, 2022)	DAFF South Africa, 2012	The pest is established in the United States and is not under official control.
NEMATODE *Helicotylenchus multicinctus* (Cobb) Golden	Continental United States, Hawaii (WPNUS, 2022)	DAFF South Africa, 2012	No Notes
NEMATODE *Helicotylenchus paraplatyurus* Siddiqi	**Arkansas (Wehunt et al., 1991)**	**DAFF South Africa, 2012**	**Pest reportable at United States ports-of-entry (ARM, 2022)**
NEMATODE *Helicotylenchus platyurus* Perry	Continental United States (WPNUS, 2022)	Norton, 1983	No Notes
NEMATODE *Helicotylenchus pseudorobustus* Steiner and Lamprecht, Golden	Continental United States (WPNUS, 2022)	Munkvold and White, 2016	No Notes
NEMATODE *Helicotylenchus vulgaris* Yuen	Tennessee (Norton et al., 1984),	DAFF South Africa, 2012	The pest is established in the United States

Organism	In U.S.	Host Association	Notes
	Maryland, Pennsylvania (USDANC, 2022)		and is not under official control.
NEMATODE *Hemicriconemoides brachyurus* (Loos) Chitwood & Birchfield	**No evidence found**	**DAFF South Africa, 2012**	**No Notes**
NEMATODE *Hemicriconemoides mangiferae* Siddiqi	**California (CABI, 2022a), Florida (MacGowan, 1984), Pennsylvania (USDANC, 2022)**	**MacGowan, 1984**	**Pest reportable at United States ports-of-entry for Hawaii, Puerto Rico and United States territories (ARM, 2022).**
NEMATODE *Hemicycliophora labiata* Colbran	**Kansas, Tennessee (López et al., 2013)**	**DAFF South Africa, 2012**	**Pest reportable at United States ports-of-entry for Hawaii, Puerto Rico and United States territories (ARM, 2022).**
NEMATODE *Hemicycliophora lutosa* Loof & Heyns	**No evidence found**	**DAFF South Africa, 2012**	**No Notes**
NEMATODE *Hemicycliophora typica* de Man	**Florida (Lehman, 2002)**	**DAFF South Africa, 2012**	**Pest reportable at United States ports-of-entry for Hawaii, Puerto Rico and United States territories (ARM, 2022)**
NEMATODE *Hemicycliophora uniformis* Thorne	Iowa (Norton, 1983)	Norton, 1983	The pest is established in the United States and is not under official control.
NEMATODE *Heterodera elachista* Ohshima	**No evidence found**	**De Luca et al., 2013**	**No Notes**
NEMATODE *Heterodera oryzae* Luc & Berdon Brizuela	**No evidence found**	**SON, 2003**	**Pest reportable at United States ports-of-entry (ARM, 2022)**
NEMATODE *Heterodera sacchari* Luc & Merny	**No evidence found**	**Coyne and Plowright, 1999**	**Pest reportable at United States ports-of-entry (ARM, 2022)**
NEMATODE *Heterodera zeae* Koshy, Swarup & Sethi	Maryland, Virginia (Munkvold and White, 2016)	Munkvold and White, 2016	The pest is established in the United States and is not under official control.

Organism	In U.S.	Host Association	Notes
			Pest borne externally among grains (Mezzalama, 2016).
NEMATODE *Hirschmanniella oryzae* (van Breda de Haan) Luc & Goodey	Florida (CABI, 2022a), Arkansas, Louisiana, Texas (WPNUS, 2022)	DAFF South Africa, 2012	No Notes
NEMATODE *Hoplolaimus columbus* Sher	Alabama, Georgia, North Carolina, South Carolina (WPNUS, 2022)	Munkvold and White, 2016	No Notes
NEMATODE *Hoplolaimus aegypti* Shafiee & Koura	**No evidence found**	**Ibrahim et al., 2010**	**No Notes**
NEMATODE *Hoplolaimus galeatus* (Cobb) Filipjev & Schuurmans Stekhoven	Continental United States (WPNUS, 2022)	Munkvold and White, 2016	No Notes
NEMATODE *Hoplolaimus indicus* Sher	**No evidence found**	**SON, 2003**	**Pest reportable at United States ports-of-entry (ARM, 2022).**
NEMATODE *Hoplolaimus pararobustus* (Schuurmans Stekhoven & Teunissen) Sher	**No evidence found**	**DAFF South Africa, 2012**	**No Notes**
NEMATODE *Longidorus monile* Heyns	**No evidence found**	**DAFF South Africa, 2012**	**No Notes**
NEMATODE *Longidorus pisi* Edward, Misra & Singh	**No evidence found**	**De Waele and Jordaan, 1988**	**No Notes**
NEMATODE *Meloidogyne africana* Whitehead	**No evidence found**	**Luc et al., 2005**	**No Notes**
NEMATODE *Meloidogyne ethiopica* Whitehead	**No evidence found**	**Conceição et al., 2012**	**No Notes**
NEMATODE *Meloidogyne javanica* (Treub) Chitwood	Continental United States, Hawaii, (WPNUS, 2022), Puerto Rico (CABI, 2022a)	Munkvold and White, 2016	No Notes
NEMATODE *Meloidogyne luci* Carneiro, Correa, Almeida, Gomes, Deimi, Castagnone-Sereno & Karssen	**No evidence found**	**Maleita et al., 2021**	**No Notes**

Organism	In U.S.	Host Association	Notes
NEMATODE *Mesocriconema ferniae* (Luc) Loof & De Grisse syn.: *Criconemoides ferniae* Luc	**No evidence found**	**DAFF South Africa, 2012**	**No Notes**
NEMATODE *Mesocriconema obtusicaudatum* (Heyns) Loof & De Grisse syn.: *Criconemoides obtusicautus* Heyns	**No evidence found**	**DAFF South Africa, 2012**	**No Notes**
NEMATODE *Mesocriconema rusticum* (Mikoletzky) Loof & De Grisse syn.: *Criconemella rustica* (Raski and Golden, Luc & Raski	Iowa (Norton, 1983)	Norton, 1983	No Notes
NEMATODE *Mesocriconema sphaerocephalum* (Taylor) Loof syn.: *Criconemoides sphaerocephalus* Taylor	South Carolina, Hawaii (Raski and Golden, 1966)	DAFF South Africa, 2012	No Notes
NEMATODE *Mesocriconema xenoplax* Raski and Golden, Loof & De Grisse syn.: *Criconemoides xenoplax* Raski	Continental United States, Hawaii (UNL, 2022)	DAFF South Africa, 2012	No Notes
NEMATODE *Nanidorus minor* (Colbran) Siddiqi syn.: *Paratrichodorus minor* (Colbran) Siddiqi	Continental United States (WPNUS, 2022), Puerto Rico (CABI, 2022a)	Munkvold and White, 2016	No Notes
NEMATODE *Nanidorus renifer* Siddiqi syn.: *Paratrichodorus renifer* Siddiqi	Arizona (WPNUS, 2022), Oregon, Washington (Forge et al., 2009; Zasada et al., 2010)	DAFF South Africa, 2012	The pest is established in the United States and is not under official control.
NEMATODE *Paratrichodorus lobatus* (Colbran) Siddiqi	**No evidence found**	**DAFF South Africa, 2012**	**No Notes**
NEMATODE *Paratrichodorus porosus* López et al., Siddiqi	Continental United States (WPNUS, 2022), Hawaii (CABI, 2022a)	Munkvold and White, 2016	No Notes
NEMATODE *Paratylenchus audriellus* Brown syn.: *Gracilacus audriellae* (Brown) Raski	Iowa (Norton, 1983)	Norton, 1983	The pest is established in the United States and is not under official control.
NEMATODE *Paratylenchus microdorus* Andrássy	Iowa (Norton, 1983)	Norton, 1983	The pest is established in the United States

Organism	In U.S.	Host Association	Notes
			and is not under official control.
NEMATODE *Paratylenchus obtusicaudatus* Raski	**No evidence found**	**DAFF South Africa, 2012**	**Pest reportable at United States ports-of-entry (ARM, 2022)**
NEMATODE *Paratylenchus projectus* Jenkins	Continental United States (WPNUS, 2022)	Norton, 1983	No Notes
NEMATODE *Pratylenchus brachyurus* (Godfrey) Filip'ev & Schuurmans Stekhoven	Continental United States (WPNUS, 2022), Hawaii, Puerto Rico (CABI, 2022a)	Munkvold and White, 2016	No Notes
NEMATODE *Pratylenchus coffeae* (Zimmermann) Filip'ev & Schuurmans Steckhoven	Continental United States (WPNUS, 2022), Hawaii, Puerto Rico (CABI, 2022a)	Luc et al., 2005	No Notes
NEMATODE *Pratylenchus crenatus* Loof	Continetal United States (WPNUS, 2022)	DAFF South Africa, 2012	No Notes
NEMATODE *Pratylenchus delattrei* Luc	**Maryland (USDANC, 2022)**	**DAFF South Africa, 2012**	**Pest reportable at United States ports-of-entry for Hawaii, Puerto Rico and United States territories (ARM, 2022)**
NEMATODE *Pratylenchus goodeyi* Sher & Allen	Arizona, California, Pennsylvania (WPNUS, 2022)	Talwana et al., 2008	No Notes
NEMATODE *Pratylenchus hexincisus* Taylor & Jenkins	Continental United States (WPNUS, 2022)	Munkvold and White, 2016	No Notes
NEMATODE *Pratylenchus loosi* Loof	**Florida (CABI, 2022a), Kansas (USDANC, 2022)**	**CABI, 2022a; USDANC, 2022**	**Action required when destined to Hawaii, Puerto Rico, Guam, and US Territories except American Samoa (ARM, 2022)**
NEMATODE *Pratylenchus neglectus* (Rensch) Filip'ev & Schuurmans Stekhoven	Continental United States (WPNUS, 2022)	Munkvold and White, 2016	No Notes

Organism	In U.S.	Host Association	Notes
NEMATODE *Pratylenchus penetrans* (Cobb) Filip'ev & Schuurmans Stekhoven	Continental United States (WPNUS, 2022)	Munkvold and White, 2016	No Notes
NEMATODE *Pratylenchus pratensis* (de Man) Filipjev	**Continental United States (WPNUS, 2022)**	**Luc et al., 2005**	**Pest reportable at United States ports-of-entry for Hawaii, Puerto Rico and United States territories (ARM, 2022).**
NEMATODE *Pratylenchus rwandae* Singh, Nyiragatare, Janssen, Couvreur, Decraemer & Bert	**No evidence found**	**Singh et al., 2018**	**No Notes**