USDA

United States Department of Agriculture

Animal and Plant Health Inspection Service

4700 River Road
Riverdale, MD
20737

December 18, 2009

Dr. Vanessa Findlay
General Manager Horticulture
Plant Biosecurity, Biosecurity Australia
Department of Agriculture, Fisheries and Forestry
Canberra Australia

Dear Dr. Findlay:

We are writing to thank you for your consideration of our October 2, 2009, comments on Biosecurity Australia's (BA) preliminary pest categorization for U.S. apples from the Pacific Northwest (PNW) States and to offer our comments on BA's "Draft Import Risk Analysis (IRA) Report: Fresh Apple Fruit from the U.S. Pacific Northwest States," published for comment October 22, 2009. We are pleased to offer our comments on:

- The scope of the draft IRA;
- Key quarantine pests for Australia and their mitigations; and
- BA's next steps for market access of PNW apples to Australia.

SCOPE OF THE IRA

We would like to advise BA that we will not seek access for PNW apples to Western Australia, and ask that the five quarantine pests for Western Australia be removed from further consideration in BA's final policy for PNW apples. The five Western Australia quarantine pests are: oriental fruit moth (*Grapholita molesta*), codling moth (*Cydia pomonella*), two Mucor rots (*Mucor piriformis* and *Mucor racemosus*), and apple scab (*Venturia inaequalis*). Further, we request that BA take into consideration the information provided in Attachment 1 to reassess its application of existing policy for the Western Australia pests to the two remaining *Grapholita* moths, *Grapholita packardii* and *Grapholita prunivora,* and the remaining *Mucor* rot, *Mucor mucedo*.

COMMENTS ON QUARANTINE PESTS AND THEIR MITIGATIONS

We are offering comments on BA's risk assessments and recommended mitigations for the following 15 pests: fire blight (*Erwinia amylovora*), apple leaf curling midge (*Dasineura mali*), apple maggot (*Rhagoletis pomonella*), cherry fruit worm (*Grapholita packardi*), lesser apple worm (*Grapholita prunivora*), Coprinus rot (*coprinus psychromorbidus*), *Mucor mucedo*, European canker (*Neonectria ditissima*), Sphaeropsis rot (*Sphaeropsis pyriputrescens*), *Phacidiopycnis piri*, *Phacidiopycnis washingtonensis*, cedar apple rust (*Gymnosporangium juniperi-virginianae* Schwein), pacific pear rust (*Gymnosporangium libocedri*), Apple blotch (*Phyllosticta arbutifolia*), and leaf spot (*Truncatella hartigii*). Our comments are enclosed to this letter in Attachment 1.

NEXT STEPS FOR BA'S REVIEW OF MARKET ACCESS FOR PNW APPLES TO AUSTRALIA

It is our understanding that BA'S review of market access for U.S. apples to Australia from the three PNW States, formally initiated on March 17, 2008, is on a regulated 30-month timeframe for an expanded IRA. We would appreciate BA's advice on its next steps for review of market access for U.S. apples from the PNW States and confirmation of the publication date for the final policy.

We appreciate your consideration of our comments and cooperation on this issue.

Sincerely,

Murali Bandla Ph. D.
Assistant Deputy Administrator
Phytosanitary Issues Management
Plant Protection and Quarantine

ATTACHMENT 1: COMMENTS ON INDIVIDUAL PESTS FROM THE DRAFT IMPORT RISK ANALYSIS REPORT: FRESH APPLE FRUIT FROM THE U.S. PACIFIC NORTHWEST STATES

DECEMBER 18, 2009

FIRE BLIGHT (*ERWINIA AMYLOVORA*)

In its draft IRA for PNW apples, BA indicates that it will apply its existing mitigation policy for fire blight for New Zealand apples to that of U.S. apples. In its final policy for New Zealand apples and draft IRA for U.S. apples, BA assessed the unrestricted risk for fire blight as "Low" and the likelihood of entry as "Very Low." We believe that BA's inclusion of fire blight in the draft IRA as a quarantine pest is appropriate, but disagree with BA's analysis of the likelihood of entry, establishment, and spread of this disease through imported mature, symptomless apple fruit.

We provided significant comments on BA's fire blight analysis in our September 5, 2008, comment letter on BA's July 2008 issues paper and make reference here to those comments.

In brief, while fire blight does occur in the United States, including the PNW states, mature, symptomless apples, the commodity to be exported to Australia, do not transmit the disease. Mature, symptomless apples do not transmit fire blight because they are not a pathway for the disease. Australia provided no new evidence in its Import Risk Analysis (IRA) for New Zealand apples that proves that mature, symptomless apples do transmit fire blight disease.

The scientific evidence indicates that *Erwinia amylovora*, the bacterium causing fire blight, is not associated internally with mature, symptomless apple fruit and is rarely associated externally with mature, symptomless apple fruit, even when harvested from blighted trees and orchards. Even if a mature, symptomless apple were externally contaminated with *Erwinia amylovora*, such bacteria are unlikely to survive normal commercial handling, storage, and transport of fruit, and there is no dispersal mechanism or vector to allow movement of such bacteria from the fruit to a suitable host. Hence, the chain of transmission of fire blight bacteria from association of the bacteria with fruit to bacterial survival of handling, storage, and transport to transmit the disease to a suitable host is never completed. This conclusion is supported by studies that unsuccessfully attempted to vector the bacteria to susceptible hosts.

Therefore, BA's existing policy for New Zealand apples as well as its application to U.S. apples from the PNW states is not supported by the scientific evidence. We recommend export inspection as the appropriate mitigation for fire blight in U.S. apples from the PNW states.

APPLE LEAF CURLING MIDGE (*DASINEURA MALI*)

BA assesses in the draft Import Risk Analysis (IRA) that the likelihood of entry, establishment, and spread of the Apple leaf curling midge (ALCM) in U.S. apples from commercial apple orchards of the PNW States is "High." BA bases its analysis on its assessment and existing policy for New Zealand apples. BA indicates that likelihood of ALCM occurring on apple fruit from Whatcom and Skagit counties in Washington State is comparable to that of New Zealand; that management practices for the United States are similar to those of New Zealand, although transport of apples from the United States to Australia is likely to take longer than from New Zealand; and that PNW apples would begin arriving in Australia in late September/early October, during the first flush of leaves is Australian apple orchards.

We would like to note 3 factors that which further reduce the likelihood of entry, establishment, and spread of ALCM in apples exported to Australia from the PNW States:

- ALCM is established in Whatcom and Skagit counties in Washington State west of the Cascade Mountains. However, this pest not known in the commercial apple orchards of central Washington, the major apple production area of Washington State. While formal surveys for ALCM have not been conducted in these areas, ALCM has not been reported through general surveillance to PNW state and university extension agents or entomologists.

- BA posits that apple fruit from the PNW States will be arriving in Australia as early as September/October during the first flush of leaves in Australian apple orchards, a particularly susceptible time for ALCM. However, Washington State's entomologist indicates that ALCM begins to appear in Whatcom and Skagit counties in the spring during first flush for apple orchards in the PNW States. ALCM populations peak in mid-summer (late June – early August), but begin to decline into September/October, as apples are harvested (LaGasa, 2009). Thus, the populations of ALCM that could be associated even with apples from orchards in Whatcom and Skagit counties in western Washington are lower at harvest than during the mid-summer months.

- Leaves are the most common site for reproduction of ALCM, although eggs are sometimes laid on bracts of buds and developing flowers. Eggs are not laid on the fruit. Pupation most commonly takes place beneath the ground's surface; on occasion, the larva can fall from the leaves and land on the fruit. ALCM populations in the PNW States likely are not large enough to cause ALCM to drop onto the fruit and pupate on it (LaGasa, 2007).

Additionally, BA recommended a 3,000-fruit inspection level for ALCM as an extension of its existing policy for New Zealand apples. We believe that the rare presence of ALCM in commercial apple production areas of the PNW States, coupled with the likelihood that ALCM populations in the counties from which ALCM has been reported are low at harvest, does not support this 3,000-fruit inspection level. We suggest instead a standard 600-fruit inspection for ALCM.

APPLE MAGGOT (RHAGOLETIS POMONELLA)

BA assessed the likelihood of entry, establishment, and spread of apple maggot (*Rhagoletis pomonella*) in apple fruit from the PNW states as "Low," the unrestricted risk as "Moderate," and recommended pest free areas, pest free places of production, or a treatment as mitigations.

Apple maggot is a regulated pest for all three PNW States which restrict the inter- and intra-state movement of apples from areas where apple maggot is established into areas that are free of apple maggot. Under the States' apple maggot control programs, to move fruit to an apple maggot free area, it must come from areas free of apple maggot or be treated using one of two cold treatment schedules. States, counties, and universities work together to implement the apple maggot programs: the States conduct survey programs; the counties conduct suppression and eradication programs; and the universities conduct education programs.

Apples exported from the United States are regulated under authority of the Export Apple Act (Title 7 part 33), which requires a "0" tolerance for Apple maggot in apples for export. (A copy of this regulation is included as Attachment 2.) Under Federal Export Apple Act requirements, all apple fruit must be officially inspected prior to export, and standard inspection procedures require that a minimum of two fruit per inspected carton must be cut and inspected internally. In addition, during the phytosanitary export inspection of apples, any fruit which is suspected of having insect damage is cut and inspected internally. Washington State reported no interceptions of apple maggot during official inspections of 1.02 billion cartons of apples from 1993 through 2009.

In addition to the standard export inspection practices, under the requirements of work plans for Mexico and Taiwan, cutting and inspection for internal feeders is mandatory. In addition, the export work plan for apples to Taiwan mandates that 600 fruit per lot per pack day are cut and examined for insects by trained packinghouse technicians. Although any larvae detected during that cull cutting must be submitted for formal identification, apple maggot has never been detected. Not only has apple maggot never been detected during export inspections, apple maggot has never been reported as having been detected during port of entry inspections conducted by Mexico, Taiwan or any other trading partner. In the 2007-2008 shipping season alone, over 8,904,711 cartons of apples from Washington were shipped to Mexico and over 2,145,179 cartons were shipped to Taiwan.

CHERRY FRUIT WORM (GRAPHOLITA PACKARDI) AND LESSER APPLE WORM (GRAPHOLITA PRUNIVORA)

In BA's Draft Risk Analysis Report for Fresh Apple Fruit from the U.S. Pacific Northwest States, the likelihood that three *Grapholita* moths (*Grapholita molesta*, *Grapholita packardi*, and *Grapholita prunivora*), grouped together for the purposes of the assessment, will arrive in Australia with the commodity (fresh apples) was assessed to be "Moderate." BA also states that visual inspection of fruit alone may not be an appropriate risk management measure for these species. The first moth, Oriental fruit moth (*Grapholita molesta*), will be removed from further analysis as it is a quarantine pest for Western Australia, but not for the remainder of Australia.

In the light of the following evidence, APHIS believes that the likelihood of entry for *Grapholita packardii* and *Grapholita prunivora* has been overstated. We thus recommend visual inspection of apple fruit as an appropriate mitigation for these two *Grapholita* moths.

GRAPHOLITA PACKARDI: In the draft IRA report, BA cites Chapman and Lienk (1971) in stating that, on apples, *Grapholita packardi* is primarily associated with actively growing shoots, and few accounts are present which indicate that *G. packardi* feeds on apple fruit. A review of that document found that the authors further state that the literature contained five principal references to *G. packardii*'s use of apple as a host, all of which found that the species used actively growing shoots as food. Only two of the references found the feeding on growing shoots to extend to the fruit.

Those two principal references date from the early 20th century. Foster and Jones (1909) observed the feeding of a small larvae very closely resembling lesser apple worm in Arkansas, and noted that part of the first and third generation larvae favored fruit, but that the second generation larvae matured in young twigs and water sprouts. Adults of the species were determined to be *Epinotia pyricolana* (synonymous with *Grapholita packardi*). The authors also note that injuries to the fruit by that species had not been previously recorded.

In Garman (1918), the author states that the favorite food of this species consisted of the growing shoots of apple and that it had been reported from the fruit. The author does not indicate personal observation, but indicates that free use of all available literature on the subject had been used as a source. The author also indicates that no characters were known which would separate the young larvae from lesser appleworm, and that injury to apples was similar to that of lesser appleworm.

Chapman and Lienk also state that although they had recovered large numbers of larvae from the fruits of a native hawthorne, they had not found *G. packardi* in either the shoots or fruits of apples. The authors further note that the most extensive biological account of the species use of apple as a host was that of Sanderson, and that Sanderson had not found the species feeding on any part of the plant other than the shoot growth.

Given the extensive research which has been conducted on the use of apple fruit as a host of various lepidopteran species, the lack of additional reports of *G. packardi*'s use of apple fruit appears to indicate that the record by Foster and Jones is an anomaly and does not reflect the current host status of apple fruit in regards to its use by *G. packardi*. APHIS is unaware of any additional historical or contemporary records of this species feeding on the fruit of apple. EPPO supports this, stating that larvae had been recorded infrequently from fruits of apple, and that *G. packardi* has not been considered to be a significant pest of apples since the early part of the 20th century. This is further illustrated by the fact that there are no recommendations for control of cherry fruitworm on any tree fruit species in pest management guides for the Pacific Northwest.

Washington State University (WSU) Extension Educators and WSU Entomologists with responsibilities for eastern Washington reported to APHIS that they have never seen cherry fruitworm in any host, including apples, regardless of whether the fruits were produced in commercial orchards or were from residential trees. The WSU Extension Entomologist for Western Washington reported that he has only seen cherry fruitworm in blueberry fruit, but not in any other hosts, including apples. These observations are the result of a range of 4 to 33 years of professional experience.

Scientists at the Washington State University Research and Extension Center report that they have never seen or heard a report of cherry fruit worm attacking any commercial fruit in the production region. Washington State Department of Agriculture's (WSDA's) Entomologist located in western Washington reported that he has never seen cherry fruit worm in any host other than blueberries. WSDA's Entomologist located in eastern (central) Washington reported that he has never seen cherry fruit worm in any host fruit, including apple, regardless of whether the fruits were produced in commercial orchards or originated from residential trees. These observations are the result of 26 and 33 years of professional experience.

Official inspections conducted by the Washington Department of Agriculture on apples, support that apples in the PNW are not a host for cherry fruitworm. Under Federal Export Apple Act requirements, all apple fruit must be officially inspected prior to export, and standard inspection procedures require that a minimum of two fruit per inspected carton must be cut and inspected internally. In addition, during the phytosanitary export inspection of apples, any fruit which is suspected of having insect damage is cut and inspected internally. As previously reported by APHIS, results of official inspections for apples have been documented by WSDA since the 1993-1994 shipping season. From 1993 to 2009, 789,652,600 apple fruit have been inspected. Cherry fruitworm has never been reported in the results of official inspections for apples, nor has any detection of cherry fruitworm been reported as the result of port of entry inspections conducted by trading partners.

GRAPHOLITA PRUNIVORA: Although *Grapholita prunivora* has been recorded from the PNW states, the species prefers wild hawthorne and, as BA notes in the draft PRA, it is not considered to be a pest in commercial orchards. *G. prunivora* was found to be a problem in orchards in the Milton-Freewater area of Oregon in the late 1940's, but within a few years, it was no longer considered to be a pest of concern. Chapman and Lienk (1971) indicated that "the species has become a rarity in commercial orchards within recent years." Mantey et al (2000) reports that "lesser apple worm has not been a problem in most commercial orchards". This is further illustrated by the fact that there are no recommendations for control of lesser apple worm on apples in pest management guides for the Pacific Northwest, not even for apples produced in the Milton-Freewater area of Oregon. The Orchard Pest Management Guide for the PNW states that "it is not an economic pest in orchards". Mantey et al (2000) also state that "because the lesser apple worm's life history and habits are very similar to those of codling moth, the chemical control methods used to control codling moth also control lesser apple worm."

The rare occurrence of lesser apple worm in commercial orchards of the PNW is supported by observations provided by experts in the Pacific Northwest. Scientists at the Washington State University Tree Fruit Research and Extension Center (WSUTREC) report that they have observed lesser apple worm on pear, but not on apples. In the research work conducted at WSUTREC on cullage assessments, scientists report that they never saw lesser apple worm in apple fruit.

Washington State University (WSU) Extension Educators and WSU Entomologists reported to APHIS that they have never seen lesser apple worm in any host, including apples, regardless of whether the fruits were produced in commercial orchards or were from residential trees. These observations are the result of a range of 4 to 33 years of professional experience and are reported from experts providing coverage in both eastern and western Washington. The Oregon State University Extension Educator for the Milton-Freewater area of Oregon, where lesser apple worm had been reported at one time as a pest of orchards, reported that he had never seen lesser apple worm in apples in his experience in that area.

Reports from Washington State Department of Agriculture (WSDA) Entomologists also support the rare occurrence of lesser appleworm in apple. WSDA’s Entomologist in western Washington reported that he has never seen lesser apple worm in any host, while the WSDA entomologist in eastern Washington reported that he has seen lesser apple worm in apple only on rare occasion. These observations are the result of 26 and 33 years of professional experience. The Idaho State Department of Agriculture reported to APHIS that lesser apple worm has never been found in commercially managed orchards in that state.

The type of feeding damage caused by lesser apple worm has been documented by a number of sources. One of the most complete descriptions found of this feeding damage is in Quaintance and Scott (1932). The authors state that “the larvae, boring directly through the skin at the base of the calyx lobes, or more commonly, entering the calyx cavity, excavate mines or short burrows down into the flesh. Frequently also the larvae burrow out in the calyx basin just under the skin, producing winding or blotch mines. Such mines occur on the side of the apple, especially where two fruits are in contact. Young fruit thus injured usually falls or ripens prematurely. Late in the season the calyx-end injury is more common, the larvae eating out the flesh under the skin in large, irregular, more or less linear patches, which are quite conspicuous.” Such damage would be readily visible, and fruit would be removed during normal culling and grading processes in the packing facility.

Historical inspection records maintained by the Washington State Department of Agriculture support the rare occurrence of lesser apple worm in commercial apple fruit. Under Federal Export Apple Act requirements, all apple fruit must be officially inspected prior to export and standard inspection procedures require that a minimum of two fruit per inspected carton must be cut and inspected internally. In addition, during the phytosanitary export inspection of apples, any fruit which is suspected of having insect damage is cut and inspected internally. Inspection techniques targeted at the detection of codling moth, a major pest of concern, would also detect the presence of lesser apple worm.

As APHIS has previously reported, WSDA has documented the results of official inspections conducted on apple fruit since the 1993-1994 shipping season. From 1993 to 2009, 789,652,600 apple fruit have been inspected. During that time period, lesser apple worm was only detected in three shipping seasons (1996-97, 1997-98, 1998-99), with a total of eight lesser apple worm larvae detected. Lesser apple worm has not been detected in inspections conducted by WSDA during the last ten shipping seasons.

In addition, there have been no detections of lesser apple worm in apple fruit reported to APHIS by trading partners. The export work plan for apples to Taiwan mandates that 600 fruit per lot per pack day are cut and examined for insects by trained packinghouse technicians. Although any larvae detected during that cull cutting must be submitted for formal identification, neither cherry fruit worm or lesser apple worm have been detected. In the 2007-2008 shipping season alone, over 8,904,711 cartons of apples from Washington were shipped to Mexico and over 2,145,179 cartons were shipped to Taiwan.

In additional support of the rare occurrence of these two *Grapholita* species in apple fruit, APHIS would like to report that during the first six months of 2000, Mexican and U.S. inspectors conducted a cooperative study for which 3.6 million culled apples were inspected and 34,000 cut to look for *Grapholita molesta* (Oriental fruit moth) and other quarantine pests. A sample of culled apples is biased toward "problem" apples since the apples have been culled for the sample based on spots, blotches or other symptoms of pests and diseases. One lesser apple worm larva was detected in this cull sample; no cherry fruitworm larvae were detected.

COPRINUS ROT (*COPRINUS PSYCHROMORBIDUS*)

In BA's draft IRA, BA rates the likelihood that *Coprinopsis psychromorbida* (Coprinus rot) will arrive in Australia with apples from the PNW as "High." APHIS believes that the likelihood of that occurrence has been overstated, and that visual inspection of fruit is an appropriate mitigation for this pathogen.

The widespread distribution of this disease in the PNW states is cited as one of the reasons for the rating for importation as "High." Regardless of the distribution of this disease in the PNW, the actual incidence of Coprinus rot in apples from the PNW is very low. Support for this is shown in the results of the surveys of post harvest diseases in stored apples conducted in 2003, 2004 and 2005. During that survey, decayed apple fruit were sampled from lots representing orchards is various apple producing areas of Washington.

In the published results of those surveys, Coprinus rot was not even mentioned, although numerous minor rots were identified during those surveys (Xiao and Kim, 2008). In recent correspondence with APHIS, Dr. Xiao stated that, during the statewide survey, the authors rarely observed the disease. Dr. Xiao also indicated that research conducted in the past had identified that good control of Coprinus rot would be achieved through the use of zinc bis (dimethyldithiocarbamate) (Ziram) applied 10 days prior to harvest.

MUCOR MUCEDO (MUCOR ROT):

In its draft IRA, BA rates the likelihood that three Mucor rots - *Mucor piriformis*, *Mucor racemosus*, and *Mucor mucedo* - would arrive in Australia with apples from the PNW as "High." As only *Mucor mucedo* is relevant to an analysis of access to Australia of apples from the PNW states, APHIS believes that this likelihood has been overstated. APHIS requested that quarantine pests for Western Australia be removed from further consideration and only *Mucor mucedo* be evaluated further as a quarantine pest for all Australia.

In the PNW, *Mucor piriformis* is by far the most common of the 3 Mucor species associated with apples. Although *Mucor mucedo* has been recorded from the PNW, it is uncertain if this species occurs on commercial apples. Farr et al (1989) record *Mucor mucedo* on *Malus sylvestris* (crab apple), but not on commercial apple (*M. domestica*). Regardless, the actual incidence of Mucor rot, even that caused by *Mucor piriformis*, in apples from the PNW is very low. Support for this is shown in the results of the surveys of post harvest diseases in stored apples conducted in 2003, 2004 and 2005. During that survey, decayed apple fruit were sampled from lots representing orchards is various apple producing areas of Washington. In the published results of those surveys, the overall mean of Mucor rot (causal agent *Mucor piriformis*) was noted to have accounted for only 0.6% of the total decay over the course of the survey (Xiao and Kim, 2008).

As noted by BA, Mucor rots are soil borne fungi and infection of apple fruit occurs during harvest or in the dump tank during processing in the packing house. BA also indicates that late harvested, overmature or injured apples are particularly susceptible to infection. Standard commercial practices are currently employed both in orchards and packing facilities which would mitigate the risk of infection of fruit by these pathogens. Food safety regulations prohibit the use of any fruit which has come into contact with the ground, therefore fruit which as fallen to the ground in the orchard may not be placed into picking bins. Commercial practices would also be in place to minimize injury to the fruit, any fruit exhibiting damage would be removed during packing. Food safety requirements and standard commercial practices in the packing facilities would require a disinfectant in the dump water, thorough rinsing and drying of fruit before packing and placing into storage.

APHIS believes that commercial practices currently utilized by growers and packing house operators are sufficient to mitigate any risk of *Mucor mucedo* or other Mucor rots being present on apple fruit from the PNW and that any additional measures are not warranted.

EUROPEAN CANKER (*NEONECTRIA DITISSIMA/NEONECTRIA GALLIGENA*)

In BA's draft IRA, BA rates the likelihood of entry, establishment, and spread of European canker as "Low" and the unmitigated risk as "Low." BA's concern is that export fruit with latent infections will arrive in Australia where the disease will spread and establish. APHIS believes that BA has overestimated the risk because the disease is rare in the PNW States; the climatic conditions in the PNW commercial production areas are not conducive to the development of the disease; and the transfer scenario for this disease is highly unlikely. Therefore, we believe that visual inspection of the fruit is the appropriate mitigation for this disease.

BA observes that European canker can be spread by rain drops splashing on apple trees in the orchard. European canker has not been reported in the apple growing areas of central Washington State, Oregon, or Idaho. It has been our experience that three key factors are necessary for the infection of apple fruit with European canker: 1) conducive climatic conditions; 2) the presence of a susceptible host; and 3) a sufficient concentration of inoculum. Favorable occurrence of all three of these factors is necessary for infection of apple fruit to occur. The climatic conditions east of the Cascade Mountains of the Pacific Northwest are not conducive to the development of this disease.

The United States has further concerns that the transfer scenario for European canker from mature, export quality apples set forth in the final IRA for apples from New Zealand and the draft IRA for apples from the United States is also highly unlikely. For successful infection from mature, export quality apple fruit, there must be a coincidence of a sporulating apple, a certain duration of wetness, and a susceptible host. The United States considers this an unlikely event that should have been treated as such in the IRA.

***SPHAEROPSIS PYRIPUTRESCENS* (SPHAEROPSIS ROT)**

Although, as noted by BA, Sphaeropsis rot (causal agent *Sphaeropsis pyriputrescens*), is a recently recognized postharvest disease of apples in Washington State, it is unknown whether the disease was recently introduced, or if it has been present in the region for a long time (Xiao and Kim, 2008).

Infection of fruit by *Sphaeropsis pyriputrescens* occurs in the orchard and symptoms develop after some time in storage. Since Sphaeropsis rot is an orchard related post-harvest disease, both pre- and post-harvest applications of effective controls are management options.

Studies conducted by the Washington State University Tree Fruit Research and Extension Center in 2004 tested the sensitivity of *S.pyriputrescens* to various pre-harvest fungicides; in 2005 research expanded to include testing the effectiveness of newly registered postharvest fungicides. As a result of those studies, recommendations were developed for pre-harvest and post-harvest control of Sphaeropsis rot. The post harvest fungicides fludioxonil (Scholar), thiabendazole (Mertect), pyraclostrobin + boscalid (Pristine) were found to be highly effective in inhibiting mycelia growth of the fungus when applied as a pre-storage drench; pyrimethanil (Penbotec) was effective only at higher rates (including the label rate). Pristine was also effective at inhibiting spore formation (Xiao 2007 unpublished). In the studies conducted in 2004, Captan, macozeb (Dithane), zinc bis (dimethyldithiocarbamate)) (Ziram), Mertect and triflumizole (Procure) were highly effective in inhibiting in vitro mycelial growth of the fungus (Xiao unpublished 2005). In commercial orchard trials conducted in 2005-2006 season, Pristine and thiophanate-methyl (Topsin) applied pre-harvest significantly reduced Sphaeropsis rot on inoculated fruit. Inconsistent results were obtained for orchard trials for Ziram, further evaluation will be needed to determine whether timing of infection affects the efficacy of this fungicide. (Xiao unpublished 2007).

PHACIDIOPYCNIS PIRI (PHACIDIOPYCNIS ROT) AND PHACIDIOPYCNIS WASHINGTONENSIS (SPECK ROT)

Phacidiopycnis piri (Phacidiopycnis rot) is one of the major post harvest diseases affecting d'Anjou pears in Washington, but during a survey of post-harvest diseases of apples conducted in 2003-2005, it was found to be only a very minor disease in apple (Xiao and Kim, 2008). In personal communication with APHIS, Dr. Xiao indicated that "we only occasionally observed this disease on apple during our survey; even if it was present the incidence was very low." Unlike *P. piri*, *Phacidiopycnis washingtonensis* is more commonly associated with apple.

Although only recently recognized as a postharvest disease of apples in Washington State, it is possible that *P. washingtonensis* has been present in the region for a long time (Xiao and Kim, 2006). During a post harvest disease study conducted by the Washington State University Tree Fruit Research and Extension Center in 2003-2005, *P. washingtonensis* was found to occur sporadically in apple lots originating from orchards located throughout the major apple production areas of central Washington. The percentage of apples infected with the disease was found to vary by lot; although some lots had higher incidences of infection, Kim and Xiao state that "the incidence of this disease as a percentage of the total decay observed over the 3-year survey was low." In a recent communication with APHIS, Dr. Xiao indicated that during that postharvest disease survey, "fruit from 17-26% of the grower lots (orchards) had the disease (*P. washingtonensis*), which accounted for only 1- 4% of the total decay during storage."

Although in the draft IRA, BA cites Xiao and Kim 2006 as stating that the percentage of fruit affected by this disease has been increasing following the first detections in the 2002 and 2003 storage seasons, in a recent communication with APHIS, Dr. Xiao stated that any differences noted in the percentage of fruit affected by the disease were the results of natural variation and sampling levels, and that, in fact, the percentage of fruit infested by the disease had actually decreased in the 2005 storage season from levels reported for the 2004 season.

In 2008-2009 researchers at WSUTREC screened the effectiveness of registered fungicides against *P. washingtonensis* in the laboratory, followed by field studies to evaluate selected pre- and post-harvest fungicide treatments for controlling the fungus on apple fruit. Four preharvest fungicides, including pyraclostrobin + boscalid (Pristine), triflumizole (Procure), thiophanate-methyl (Topsin) and zinc bis (dimethyldithiocarbamate) (Ziram), showed effectiveness in inhibiting in-vitro fungal growth, as did three postharvest fungicides fludioxonil (Scholar), thiabendazole (Mertect) and pyrimethanil (Penbotec). In the field test, ziram applied two weeks before harvest and Pristine and Topsin applied one week before harvest reduced fruit rot by 82%, 30% and 53% percent respectively. The three postharvest fungicides provided similar levels of control and reduced fruit rot incidence by over 92% compared to untreated controls. Research will continue to evaluate pre- and postharvest fungicide treatments. (Xiao 2009 unpublished).

The postharvest fungicides fludioxonil (Scholar), thiabendazole (Mertect) and pyrimethanil (Penbotec) are recommended for use on pears as postharvest drenches against *P. piri;* pyraclostrobin + boscalid (Pristine) is recommended for use on pears as a pre-harvest fungicide treatments against *P. piri* (Good Fruit Grower October 2008).

CEDAR APPLE RUST (GYMNOSPORANGIUM JUNIPERI-VIRGINIANAE SCHWEIN) AND PACIFIC PEAR RUST (*GYMNOSPORANGIUM LIBOCEDRI*)

BA assessed these two fungal diseases together in its draft IRA. BA ranked the likelihood of entry of these two pathogens as “Low,” their likelihood of establishment as “Moderate,” and their likelihood of spread as “High.” BA premised its ranking for the likelihood of entry on the possibility that apple fruit will be infected by cedar apple rust or Pacific pear rust; symptomless, infected fruit will be exported to Australia; and this fruit will be distributed near potential hosts in Australia. Based on the rare presence of these two fungal pathogens in apple fruit from the PNW States discussed below, we recommend visual inspection of the fruit as a mitigation for these two diseases.

CEDAR APPLE RUST (GYMNOSPORANGIUM JUNIPERI-VIRGINIANAE SCHWEIN): The sole record of occurrence in the PNW states of the disease cedar apple rust, caused by the fungus *Gymnosporangium juniperus-virginiana*, is of a find on Juniper in Washington State in 1822 (Shaw 1973). Juniper is the alternate host of Cedar apple rust. While cedar apple rust has been reported from apple in the eastern United States, it has never been reported from apple in any state west of the Rocky Mountains (Farr et al, 1989). Cedar apple rust fungus can persist only if both hosts are present (cedar trees and apple trees) in near proximity.

Telia of cedar apple rust are produced on twigs and branches of Juniper in the spring. In moist conditions, the telia germinate in place and produce basidiospores, which are dispersed and able to infect apple trees if located near the Juniper trees. Infections from the basidiospores give rise to pycnia borne on the upper surface of the apple leaves or occasionally on fruits. The pycnia are visible from late spring to early summer. Later, aeciospores are produced inside tubular protective sheaths (peridia) on the underside of the leaves. Lesions of cedar apple rust rarely appear on apple fruits. Infection of fruit does not persist after infected leaves or fruit have fallen from the tree (EPPO, 2003).

EPPO does not recommend mitigations for cedar apple rust in apple plants or fruit. According to EPPO, introduction of *Gymnosporangium juniperus-virginiana* on apple plants is very unlikely as infection is not persistent in the dormant stage during winter; while fruit could be infected, it is also very unlikely that infected fruits would be harvested or meet quality standards for export. The Oregon State University plant disease control guide recommends cultural and chemical controls for cedar apple rust in Juniper plants; it does not recommend controls for apple plants.

PACIFIC PEAR RUST (*GYMNOSPORANGIUM LIBOCEDRI*): There are two records of Pear rust in apple in Oregon. However, the primary host of this pathogen is pear. The Oregon State University plant disease control guide recommends cultural and chemical controls for pear. No recommendations are made for apple.

APPLE BLOTCH (*PHYLLOSTICTA ARBUTIFOLIA/SOLITARIA*)

In BA's draft IRA, BA rates the likelihood that Apple blotch will enter, establish, and spread in Australia from PNW apple fruit as "Low" and cites concerns that this fungal pathogen is present in the PNW States and could enter Australia in mildly-infected fruit.

There is only one report of Ellis & G. Martin, [syn.: *Phyllosticta solitaria* Ellis & Everh.] of Apple blotch in Washington State that dates to 1973 (Farr and Rossman, 2009), although this pathogen is known to occur in the eastern United States. According to plant pathology faculty at Washington State University, this organism is rarely observed in Washington State on apple (Xiao, 2009).

The European EPPO datasheet on this pathogen indicates that "*P. solitaria* is only locally dispersed by rain-splashed conidia. International movement is only likely [emphasis added] on seedlings or planting material with cankers." In IPM management guides for apple diseases in the PNW states, this pathogen and disease are not mentioned; no control recommendations are given (Smith, 2001).

We note the unlikely scenario of a mildly-infected apple fruit being exported to Australia where it would sporulate and transmit the fungus through rain-splashed conidia to a susceptible host tree in Australia. We thus recommend that inspection of apple fruit is an appropriate mitigation for this rarely occurring pathogen. Restrictions on the entry of nursery stock would exclude this fungus from entering the 3 PNW states.

LEAF SPOT (*TRUNCATELLA HARTIGII*)

BA assessed the likelihood of Truncatella leaf spot (*Truncatella hartigii or Pestalotia hartigii*) arriving in Australia with the importation of U.S. apple fruit to be "High" because it is present in the PNW states on apples, has been reported as a post-harvest decay organism, and may not be symptomatic when kept in cold storage. We respectfully request that BA revise its assessment based on its rare occurrence in the PNW states.

There is only one record of *T. hartigii* in the Northwest on apple. Shaw (1973) stated that *Pestalotia hartigii* Tub. occurs on *Malus* and *Pyrus* in Washington State. However, the report does not include specific information on what part of the apple plant was infected.

Truncatella hartigii is reported on leaves of apple trees (Farr and Rossman 2009). Smith *et al.* (1988) state that fungal species in the genera *Pestalotia* and *Pestalotiopsis* are weakly parasitic or saprophytic. In the Compendium of Apple and Pear Diseases (Jones and Aldwinckle,1990; pp 60-61), *T. hartigii* is included (under the synonym, *Pestalotia hartigii* Tub.) as one of approximately 25 fungal taxa. This large group of fungi is listed in a category of *Miscellaneous Postharvest Decay Fungi*, Of these fungi, the following statement is made......"Most of these fungi are rarely found in apples from commercially tended orchards if the fruit are stored under modern cold-storage conditions." Jones (2000), author of the most recent American Phytopathological Society (APS) pest list for apple diseases, did not include *Pestalotia hartigii* among the plant pathogens that occur on apples. Dr. Chang-lin Xiao, an expert in post-harvest decay fungi in Washington State, indicated to APHIS that he has not seen this fungus in apple fruit in Washington State (Xiao, 2009).

Our review of the literature and communication with pathologists from the PNW states indicates that the fungus is likely an endophyte or a saprophyte on conifer debris. It may also be weakly parasitic on conifer seedlings (Boyce, 1961; Smith *et al.* 1988; Sutton, 1980), but is only rarely associated with commercial apple fruit (Farr and Rossman, 2009). *T. hartigii* has not been reported from apples for many decades (Farr and Rossman, 2009; Jones, 2000) and will not follow the export quality apple fruit pathway because it is controlled by cultural practices that have been put in place to control diseases caused by other fungi (Milligan *et al.* 2009; Smith, 2001). We thus recommend that inspection of apple fruit is an appropriate mitigation for this rarely occurring pathogen.

Attachment 2: Excerpts from "Australia – Measures Affecting the Importation of Apples from New Zealand (WT/DS367): Third Party Submission of the United States of America"

2. Mature, Symptomless Apples are Not a Pathway for Fire Blight Disease

29. Mature, symptomless apples do not transmit fire blight because they are not a pathway for the disease, and Australia has provided no evidence that proves the contrary. As the United States explained in *Japan – Apples*, the scientific evidence indicates that: (1) *Erwinia amylovora* are not associated internally with mature, symptomless apple fruit; (2) *Erwinia amylovora* are rarely associated externally with mature, symptomless apple fruit, even when harvested from blighted trees and orchards; (3) even if a mature, symptomless apple were externally contaminated with *Erwinia amylovora*, such bacteria are unlikely to survive normal commercial handling, storage, and transport of fruit; and (4) even if the imported commodity were externally contaminated with *Erwinia amylovora*, there is no dispersal mechanism or vector to allow movement of such bacteria from the fruit to a suitable host.[49] Imported apples are not a means of transmission of fire blight bacteria because the chain of transmission – from association of bacteria with fruit to bacterial survival of handling, storage, and transport to vectoring of bacteria to a suitable host – is never completed.[50] Accordingly, the United States considers that Australia lacks a scientific basis to restrict imports of mature, symptomless apple fruit because they are not a pathway for the transmission of the disease.

30. The scientific evidence indicates that mature symptomless apples do not harbor fire blight bacteria internally and that external bacteria on mature, symptomless apples are rarely found. In a 1989 study, Roberts *et al.* found no internal or external bacteria either in or on the surface of 1,555 mature, symptomless apples harvested from blighted orchards in the State of Washington.[51] The Roberts (2002) study cited by New Zealand was a major investigation that sampled 30,900 apple fruit and also found no internal disease symptoms.[52] As part of that study, nine hundred fruit were sampled at harvest from trees that actually had fire blight disease, but no *Erwinia amylovora* were found when scientists from the Japanese and U.S. governments tested them simultaneously. Moreover, the study evaluated an additional 30,000 apples harvested at various distances from these infected trees for the incidence of fire blight disease development during commercial storage, but not a single apple developed the disease.

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[49] *Japan – Apples (Panel)*, para. 4.82.

[50] *Japan – Apples (Panel)*, para. 4.83.

[51] R.G. Roberts *et al.*, *Evaluation of mature apple fruit from Washington State for the presence of Erwinia amylovora*, Plant Disease 73: 917-921 (1989) (Exhibit NZ-97).

[52] NZ FWS, para. 4.11 (citing R.G. Roberts, *Evaluation of buffer zone size on the incidence of* Erwinia amylovora *in mature apple fruit and associated phytosanitary risk*, Acta Horticulturae 590: 47-53 (2002) (Exhibit NZ-20)).

31. Even in the rare event that mature, symptomless apples were externally contaminated with *Erwinia amylovora*, the bacteria would be unlikely to survive normal commercial handling, storage, and transport conditions. This is evidenced by the Hale and Taylor (1999) study cited by New Zealand, which examined the survival of *Erwinia amylovora* on apple fruit subject to normal commercial cooling and storing by surface-inoculating fruit with varying numbers of bacteria and measuring surviving bacteria after storage.[53] The study found that under both "commercial conditions" and "laboratory conditions," of 570 inoculated fruit, bacteria were eliminated on all but two fruit after storage for 25 days at cool temperatures and 14 days at room temperature. Bacteria were only isolated from some of the fruit that had been inoculated with extremely large numbers of bacteria, levels far higher than those that have been found on harvested mature, symptomless fruit.[54]

32. The scientific evidence further demonstrates that there is no documented vector or dispersal mechanism to transfer external fire blight bacteria from mature, symptomless apple fruit to a susceptible host. As the Roberts *et al.* 1998 literature review explained, "[t]here are no specific pathways recorded that document movement of *E. amylovora* fruit, either imported or domestic in origin, to susceptible host tissues in an orchard or nursery."[55] This is true despite studies that attempted to vector the bacteria to susceptible hosts. For instance, New Zealand points to a study by Hale *et al.* (1996). In that study, heavily inoculated apple fruit were suspended in the canopy of apple trees "as close as possible to blossom clusters containing open flowers," but there "was no spread of *E. amylovora*" to "any of the immature or mature fruit [in such trees] sampled," and "[n]o symptoms were seen in any blossom clusters" in the immediate vicinity of the inoculated fruit.[56] In a 2003 study, Taylor and Hale placed 1,800 apple fruit that had been contaminated with a marked strain of fire blight bacteria into an orchard. Even under conditions conducive for fire blight development, the discard of contaminated fruit in an orchard led neither to lateral spread of the bacterium to new host material nor to the development of fire blight disease in surrounding trees that could be attributed to the marked strain.[57] Taken together, this scientific evidence indicates that mature, symptomless apples are not a pathway for fire blight disease.

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[53] NZ FWS, para. 4.18 (citing C.N. Hale & R.K. Taylor, *Effect of cool storage on survival of Erwinia amylovora in apple calyxes*, Acta Horticulturae 489: 139-43, (1999) (Exhibit NZ-24)).

[54] Hale, C.N. and R.K. Taylor, *Effect of cool storage on survival of Erwinia amylovora in apple calyxes*, Acta Horticulturae 489: 139-43, 141 (1999) (Exhibit NZ-24).

[55] R.G. Roberts *et al.*, *The potential for spread of Erwinia amylovora and fire blight*, Crop Protection 17: 19-28, 23 (1998) (Exhibit NZ-22).

[56] C.N. Hale *et al.*, *Ecology and epidemiology of fire blight in New Zealand*, Acta Horticulturae 411: 79-85, 83 (1996) (Exhibit NZ-27).

[57] Taylor, R.K., Hale, C.N, Gunson, F.A., and Marshall, J.W., *Survival of the fire blight pathogen, Erwinia amylovora, in calyxes of apple fruit discarded in an orchard*, Crop Protection 22 (4): 603-608 (2003) (Exhibit US-1).

4. Australia's Measures for Apples from New Zealand

36. The United States considers particularly problematic some of the measures imposed by Australia that are the same or similar to those that the Dispute Settlement Body ("DSB") in *Japan – Apples (Article 21.5)* found were being maintained without sufficient scientific evidence. For instance, Australia requires apples to be sourced from areas free of fire blight symptoms, orchard inspections, and the suspension of an orchard/block if visual symptoms of fire blight are detected.[68] But the *Japan – Apples (Article 21.5)* panel found that requirements that an "orchard be free of apple trees or other plant infected with fire blight, that the orchard...be inspected once per year at the early fruitlet stage, and that detection of a blighted tree in this area by inspection will disqualify the orchard as a whole cannot be considered to be supported by sufficient scientific evidence."[69]

37. Australia further requires disinfection of apples at the packing house and cleaning and disinfecting of packing house equipment before each Australian packing run.[70] These requirements, however, are contrary to the conclusions of the *Japan – Apples (Article 21.5)* panel that "surface disinfection is not justified by scientific evidence" and that "the scientific evidence does not justify chlorine disinfection of packing facilities in order to prevent contamination of mature, symptomless apples by *E. amylovora*."[71] Australia also requires that packing houses registered for export source apple fruit only from registered orchards, which essentially imposes a separation requirement on apples exported to Australia.[72] But in *Japan –Apples (Article 21.5),* the panel concluded that "separation of fruit destined for Japan is not supported by sufficient scientific evidence."[73] In light of the findings of the *Japan – Apples (Article 21.5)* with respect to the aforementioned measures, the United States is of the view that the similar measures imposed by Australia are also maintained without sufficient scientific evidence, in violation of Article 2.2 of the SPS Agreement.

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[68] Final Import Risk Analysis Report for Apples from New Zealand ("IRA"), Part B, Biosecurity Australia (November 2006) pp. 106, 316, 318 (Exhibit NZ-1).

[69] *Japan – Apples (Article 21.5)*, para. 8.89.

[70] IRA, p. 318 (Exhibit NZ-1).

[71] *Japan – Apples (Article 21.5),* paras. 8.97 and 8.102.

[72] IRA, p. 317 (Exhibit NZ-1).

[73] *Japan – Apples (Article 21.5),* para 8.107.

C. The Scientific Evidence on European Canker

38. New Zealand and Australia have set forth competing interpretations of the scientific evidence regarding whether mature, symptomless apples are a pathway for transmitting European canker. The United States does not address all of the scientific evidence in this debate, but instead offers its views below on three key factors necessary for the infection of apple fruit with European canker, in part based on its own experience. These three factors are: 1) conducive climatic conditions; 2) the presence of a susceptible host; and 3) a sufficient concentration of inoculum. Favorable occurrence of all three of these factors is necessary for infection of apple fruit to occur. In light of these three factors, and the U.S. knowledge of the disease, the United States does not consider that Australia has adduced sufficient scientific evidence to establish that apples will be latently infected with European canker and can transfer the disease to susceptible hosts.

39. Preliminary, the United States notes that it is important to distinguish between the infection of trees and the infection of fruit with European canker. Although trees may be infected with European canker, this does not necessarily mean that fruit will likewise become infected. For instance, during a 1956 outbreak of European canker in Sonoma County, California, wood canker was the only phase of the disease that was of concern, and no infection of fruit occurred during the outbreak.[74]

40. Conducive climatic conditions is the first factor that is needed for the infection of apple fruit with European canker. European canker has not been reported as present in the major apple producing regions of central Washington State. The United States believes that the absence of European Canker in these areas is because the climate is not suitable to the development of the disease. A range of factors is necessary for the climatic conditions to be conducive to the infection of apple fruit, including favorable temperatures and the timing, duration, and quantities of rainfall. During a 1965 outbreak of European canker in Sonoma County, California in which fruit were infected, rainfall above 100 centimeters per year, foggy weather, and moderate temperatures seemed to be the unifying factors that resulted in the appearance of the causal organism in the orchards. This outbreak was also the result of favorable epidemiological and biological conditions, such as leaf fall at the appropriate time and conidial production.[75]

41. In terms of suitable climatic conditions, a 1975 study by Dubin and English found that several consecutive days of wetness, without a dry period, are necessary to achieve a high level of European canker infection. Conidia – the asexual fungal spores of *Nectria galligena* – are dispersed by water in liquid form and easily dry out, even at high levels of relative humidity. Dubin and English (1975) found that over 90 percent of conidia germinated in water in liquid form, but the ability of conidia to germinate dropped significantly in lower humidity. For instance, spore germination was reduced

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[74] Nichols, C.W. and Wilson, E.E., *An outbreak of European canker in California*, Plant Disease Reporter 40: 952-953 (1956) (Exhibit US-2).

[75] Dubin, H.J. and English, H., *Epidemiology of European Apple Canker in California*, Phytopathology: 65: 542-550 (1975) (Exhibit US-3).

by half when conidia were subjected to high relative humidity of 100 percent, but with no free water, and temperatures of 19 degrees Celsius for 12 hours.[76] This study indicates that inoculum potential will be lower in periods without rain and when relative humidity falls below saturation.

42. The second factor that is necessary for the infection of apple fruit is the presence of a susceptible host. Although the infection of apple fruit with European canker in the United States is rare, the presence of a susceptible host has been studied in other countries, particularly in relation to the timing of fruit infection. Swinburne (1971) found that fruit in storage were more likely to develop rots if they had been infected on the tree late in the summer.[77] Fruit infected early in the season contained a natural resistance to European canker in the form of benzoic acid, which is toxic to the pathogen.[78]

43. The third factor necessary for infection of apple fruit is a high concentration of spores to serve as an inoculum. Dubin and English (1974) found that five conidia per leaf scar wound were not sufficient to cause infection, 50 conidia per leaf scar wound caused only 20 percent of the leaf scar wounds to be infected, and 500 conidia resulted in infection of 80 percent of the leaf scar wounds.[79] Furthermore, the susceptibility of leaf scar wounds to infection by *Nectria galligena* declines with time. Another study found that only 6 percent of the leaf scar wounds were infected after 28 days, as compared with a 20-percent rate of infection for fresh scar wounds.[80]

44. As for whether European canker infection could be transmitted to a host orchard, apple fruit has never been reported to be an important source of inoculum for the spread of European canker. Individual apple fruits that have been discarded on the ground will most likely either decompose or be consumed by animals before any latent infection that might exist would have a chance to cause decay, and the fungus can sporulate. In the unlikely event of an apple fruit producing spores, these spores will be unlikely to cause an infection of European canker in trees because lengthy wet periods, as well as high levels of inoculum, are needed.

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[76] Dubin, H.J. and English, H., *Effects of Temperature, Relative Humidity, and Dessication on Germination of Nectria Galligena Conidia,* Mycologia: 67: 83-88 (1975) (Exhibit NZ-12).

[77] Swinburne, T.R., *The Seasonal Release of Spores of Nectria Galligena from Apple Cankers in Northern Ireland,* Annuals of Applied Biology. 69: 97-104 (1971) (Exhibit Aus-76).

[78] Swinburne, T.R., *European canker of Apple (Nectria galligena),* Review of Plant Pathology. 54: 787-799 (1975) (Exhibit NZ-9).

[79] Dubin, H. J. and English, H., *Factors affecting apple scar infection by Nectria galligena conidia,* Phytopathology 64: 1201-1203 (1974) (Exhibit Aus-67).

[80] Wilson, E. E., *Development of European canker in a California apple district,* Plant Disease Reporter. 50:182-186 (1966) (Exhibit NZ-64).

45. Furthermore, in the unlikely event that a sporulating apple is discarded on the ground, it would be a poor source of inoculum for trees in an apple orchard because conidia are dependent on splashing rain drops for dissemination, and the concentration of spores a few meters from the sporulating fruit will likely be well below the threshold required for infection. And spores that are dispersed by air will be subject to even greater dilution than spores dispersed by rain. Australia also posits that birds and insects may be a possible means for European canker to be transmitted from a sporulating apple on the orchard floor to a host tree.[81] But there is no scientific evidence that supports this proposition.

46. In closing, the United States notes that Australia's risk assessment acknowledges that fruit are unlikely to spread European canker. The risk assessment states that "[n]o studies exist in the literature to demonstrate long-distance disease spread from fruit infections...."[82] Later, the risk assessment recognizes that, "[t]here is no evidence in the literature that indicates that long distance spread of the disease is due to movement of fruit." Rather, the risk assessment explains that, "[l]ong-distance movement of European canker is primarily the result of movement of infected nursery stock."[83]

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[81] Aus. FWS, para. 615.

[82] IRA, p. 142 (Exhibit NZ-1).

[83] IRA, p. 142 (Exhibit NZ-1).

Attachment 3 – Export Apple Act

Title 7: Agriculture

PART 33—REGULATIONS ISSUED UNDER AUTHORITY OF THE EXPORT APPLE ACT

Section Contents

Definitions

Authority: Sec. 7, 48 Stat. 124; 7 U.S.C. 587.

Source: 71 FR 70644, Dec. 6, 2006, unless otherwise noted.

Definitions

§ 33.1 Act.

Act and *Export Apple Act* are synonymous and mean “An act to promote the foreign trade of the United States in apples to protect the reputation of American-grown apples in foreign markets, to prevent deception or misrepresentation as to the quality of such products moving to foreign commerce, to provide for the commercial inspection of such products entering such commerce, and for other purposes,” approved June 10, 1933 (48 Stat. 123; 7 U.S.C. 581 *et seq.*), and amended November 12, 1999 (113 Stat. 1321; 7 U.S.C. 581 *et seq.*).

§ 33.2 Person.

Person means an individual, partnership, association, corporation, or any other business unit.

§ 33.3 Secretary.

Secretary means the Secretary of Agriculture of the United States or any officer or employee of the United States Department of Agriculture to whom authority has heretofore been delegated or to whom authority may hereafter be delegated to act in his stead.

§ 33.4 Carrier.

Carrier means any common or private carrier, including, but not limited to trucks, railroads, airplanes, vessels, tramp or chartered steamers whether carrying for hire or otherwise.

§ 33.5 Apples.

Apples mean fresh whole apples in packages whether or not they have been in storage.

§ 33.6 Package.

Package means any container of apples.

§ 33.7 Less than carload lot.

Less than carload lot means a quantity of apples in packages not exceeding 20,000 pounds gross weight or 400 standard boxes or equivalent.

Regulations

§ 33.10   Minimum requirements.

No person shall ship, or offer for shipment, and no carrier shall transport, or receive for transportation, any shipment of apples to any foreign destination unless:

(a) Apples grade at least U.S. No. 1 or U.S. No. 1 Early: *Provided,* That apples for export to Pacific ports of Russia shall grade at least U.S. Utility or U.S. No. 1 Hail for hail-damaged apples, as specified in the United States Standards for Apples (Sections 51.300–51.323 of this chapter): *Provided further,* That apples for export to any foreign destination do not contain apple maggot, and do not have more than 2 percent, by count, of apples with apple maggot injury, nor more than 2 percent, by count, of apples infested with San Jose scale or scale of similar appearance;

(b) Decay, scald or any other deterioration which may have developed on apples after they have been in storage or transit shall be considered as affecting condition and not the grade.

(c) Each package of apples is packed so that the apples in the top layer shall be reasonably representative in size, color, and quality of the contents of the package; and

(d) Each package of apples is marked plainly and conspicuously with:

(1) The name and address of the grower, packer, or domestic distributor: *Provided*, That the name of the foreign distributor may be placed on consumer unit packages shipped in a master container if such master container is marked with the name and address of the grower, packer, or domestic distributor;

(2) The variety of the apples;

(3) The name of the U.S. grade or the name of a state grade if the fruit meets each minimum requirement of a U.S. grade specified in this section.

§ 33.11   Inspection and certification.

(a) Each person shipping, or offering for shipment, apples to any foreign destination shall cause them to be inspected by the Federal or Federal-State Inspection Service in accordance with regulations governing the inspection and certification of fresh fruits, and vegetables and other products (Part 51 of this chapter) and certified as meeting the requirements of the Act and this part. No carrier shall transport, or receive for transportation, apples to any foreign destination unless they have been so inspected and certified. Inspection and certification may be obtained at any time prior to exportation of the apples. Such a Federal or Federal-State certificate shall be designated as an “Export Form Certificate” and shall include the following statement: “Meets requirements of Export Apple Act.” The shipper shall deliver a copy of the Export Form Certificate or

Memorandum of Inspection to the export carrier. Whenever apples are inspected and certified at any other point other than the port of exportation, the shipper shall deliver a copy of the Export Form Certificate or Memorandum of Inspection to the agent of the first carrier that thereafter transports such apples and such agent shall deliver such copy to the proper official of the carrier on which the apples, covered by such certificate or memorandum, are to be exported. A copy of the Export Form Certificate or Memorandum of Inspection shall be filed by the export carrier for a period of not less than three (3) years after date of export.

(b) If the inspector has reason to believe that samples of a lot of apples have been obtained for a determination as to compliance with tolerance for spray residue, established under the Federal Food, Drug and Cosmetic Act, as amended (52 Stat. 1040; U.S.C. 301 *et seq.*), he shall not issue a certificate on the lot unless it complies with such tolerances.

Exemptions

§ 33.12 Apples not subject to regulation.

Except as otherwise provided in this section, any person may, without regard to the provisions of this part, ship or offer for shipment, and any carrier may, without regard to the provisions of this part, transport or receive for transportation to any foreign destination:

(a) A quantity of apples to any foreign country not exceeding a total of 5,000 pounds gross weight or 100 boxes of apples packed in standard boxes on a single conveyance:

(b) Apples to Pacific ports west of the International Date Line which do not meet maturity standards of the grade specified in §33.10, if the packages are conspicuously marked or printed with the words “Immature Fruit;” (in letters at least two inches high) if inspected and certified as meeting all other requirements of §§33.10 and 33.11.

(c) Apples for processing which do not meet the grade standards specified in §33.10, if such apples grade at least U.S. No. 1 as specified in U.S. Standards for Apples for Processing (§§51.340 to 51.344 of this chapter), and if the containers are conspicuously marked “Cannery” (in letters at least two inches high) if inspected and certified as meeting all other requirements of §§33.10 and 33.11.

Withholding Certificates

§ 33.13 Notice.

If the Secretary is considering withholding the issuance of certificates under the Act for a period of not exceeding 90 days to any person who ships, or offers for shipment, apples to any foreign destination in violation of any provisions of the Act or this part, he or she shall cause notice to be given to the person accused of the nature of the charges against him or her and of the specific instances in which violation of the Act or the regulations in this part is charged.

§ 33.14 Opportunity for hearing.

The person accused shall be entitled to a hearing, provided he or she makes written requests therefore and files a written responsive answer to the charges made not later than 10 days after service of such notice on him or her. The right to hearing shall be restricted to matters in issue. At such hearing, he or she shall have the right to be present in person or by counsel and to submit evidence and argument in his or her behalf. Failure to request a hearing within the specified time or failure to appear at the hearing when scheduled shall be deemed a waiver of the right to hearing. Such person may, in lieu of requesting an oral hearing, file a sworn written statement with the Secretary not later than 10 days after service of such notice upon him or her.

§ 33.15 Suspension of inspection.

Any order to withhold the issuance of a certificate, as provided in section 6 of the Act, will be effective from the date specified in the order but no earlier than the date of its service upon the person found to have been guilty. Such order will state the inclusive dates during which it is to remain in effect, and during this period no inspector employed or licensed by the Secretary shall issue any Export Form Certificate or Memorandum of Inspection to such person.

§ 33.16 Service of notice or order.

Service of any notice or order required by the Act or prescribed by the regulations in this part shall be deemed sufficient if made personally upon the person served, by registered mail, or by leaving a copy of such notice or order with an employee or agent at such person's usual place of business or abode or with any member of his immediate family at his or her place of abode. If the person named is a partnership, association, or corporation, service may similarly be made by service on any member of the partnership or any officer, employee, or agent of the association or corporation.

Interpretive Rules

§ 33.50 Apples for processing.

The terms “apples for processing” as used in §33.12 of this part apply only and is restricted to packages of apples which were originally packaged for processing and marked “Cannery” as required by §33.12(c) of this part. Packages of apples not so originally packaged and marked are not eligible for certification as “apples for processing” for purposes of this part.

§ 33.60 OMB control number assigned pursuant to the Paperwork Reduction Act.