

Operational Guidelines

Export of Fresh Blueberry Fruit from Oregon to Korea

April 10, 2012

This document provides guidance on the operational aspects for the export to Korea of fresh blueberry fruit produced in the state of Oregon. It is to be used in conjunction with the “IMPORT PLANT QUARANTINE REQUIREMENTS FOR FRESH BLUEBERRY FRUIT FROM THE STATE OF OREGON, U.S.A.”, dated September 21, 2011.

Fresh fruit of blueberries (*Vaccinium corybosum* and *V. virginatum*) commercially produced in the state of Oregon qualify to be exported to Korea under this protocol.

Shipments of blueberry fruit from the state of Oregon may be transported to Korea via ship or air cargo.

Quarantine Pests of Concern:

A. Quarantine pests of concern associated with fresh blueberries identified by Korea’s Quarantine and Inspection Agency (QIA) as requiring specific mitigation measures under this protocol include:

- Pathogens:
 - *Monilinia vaccinii-corymbosi* (Mummy Berry)
 - *Phytophthora ramorum* (Sudden Oak Death)
 - Tobacco ringspot virus (TRSV)
 - Tomato ringspot virus (ToRSV)
- Insects:
 - *Argyrotaenia citrana* (Orange Tortrix)
 - *Choristoneura rosaceana* (Oblique Banded Leafroller)
 - *Grapholita packardii* (Cherry Fruitworm)

B. Quarantine pest of concern associated with fresh blueberries for which Korea’s Quarantine and Inspection Agency (QIA) has not identified specific mitigation measures:

- Insects:
 - *Hemiberlesia rapax* (Greedy scale)
 - *Leptocoris trivittatus* (Eastern Boxelder bug)

C. Quarantine pests of concern associated with fresh blueberries identified by Korea’s Quarantine and Inspection Agency (QIA) that are currently not known to occur in the state of Oregon include:

- Insects:
 - *Conotrachelus nenuphar* (Plum Curculio)
 - *Rhagoletis mendax* (Blueberry Maggot)
 - *Rhagoletis tabellaria* (White Banded Fruitfly)
 - *Acrobasis vaccinii* (Cranberry Fruitworm)
 - *Epiphyas postvittana* (Light Brown Apple Moth)

Registration:

A. Packing Facilities:

- a. Registration: Packing facilities intending to participate in the program to export fresh blueberries from Oregon to Korea must be registered with USDA/APHIS; registration will be through the Oregon Blueberry Commission. Packing facility registration forms are available from the Oregon Blueberry Commission. Completed registration forms must be sent to the Oregon Blueberry Commission by the posted deadline.
- b. Compliance Agreement: As part of the registration process, all packing facilities intending to participate in the program to export fresh blueberries from Oregon are also required to have a signed compliance agreement with the Oregon Department of Agriculture (ODA). Packing facilities must have completed a registration form with the Oregon Blueberry Commission to be eligible to enter into a compliance agreement with the Oregon Department of Agriculture. Packing facility compliance agreement forms are available from the Oregon Blueberry Commission. Signed compliance agreements must be sent to the Oregon Department of Agriculture by the posted deadline.
- c. Registered Packing Facility List: The Oregon Blueberry Commission will provide a list of registered packing facilities to USDA/APHIS and ODA after registration is closed. USDA/APHIS will provide this list to QIA upon request.
- d. Deadline: The deadline for packing facilities to register for the 2012 export season is March 1, 2012.

B. Growers and Production Fields:

- a. Registration: Growers intending to participate in the program to export fresh blueberries from Oregon to Korea must register production fields with USDA/APHIS; registration will be through the Oregon Blueberry Commission. Production field registration forms are available from the Oregon Blueberry Commission. Completed registration forms should be sent to the Oregon Blueberry Commission by the posted deadline.
- b. Compliance Agreement: As part of the registration process, growers intending to participate in the program to export fresh blueberries from Oregon are also required to have a signed compliance agreement with the Oregon Department of Agriculture (ODA) for each production field. Growers must have completed a registration form with the Oregon Blueberry Commission to be eligible to enter into a compliance agreement with the Oregon Department of Agriculture. Compliance agreement forms for growers to use for production fields are available from the Oregon Blueberry Commission. Signed compliance agreements must be sent to the Oregon Department of Agriculture by the posted deadline.
- c. Field Identification Codes (Lot Numbers): Each blueberry production field lot must be identified with a unique identification code (grower lot number).
- d. Maps: Growers must provide a map of each registered production field as an attachment to the production field registration form. The map must show the physical location of the production field and must be labeled with the grower's name, the name of the production field, and the lot number associated with that production field.

- e. Deadline: The deadline for growers to register production fields for the 2012 export season is March 15, 2012.

C. Documentation:

- a. Copies of completed grower registration forms, maps and signed compliance agreements are to be provided to the packing facility (or facilities) that will pack fruit from that production field. These copies are to remain at the packing facility and are to be made available to USDA/APHIS, ODA and QIA upon request.
- b. Packing facilities will maintain a list of registered production fields for all grower lots that will be packed at their facility. This list will be provided upon request to the Oregon Blueberry Commission, USDA/APHIS and/or ODA.

D. Contact Information:

Oregon Blueberry Commission: Bryan Ostlund - bryan@ostlund.com

- The Oregon Blueberry Commission maintains a website of information related to the export of fresh blueberries from Oregon to Korea. The website address is: <http://www.oregonblueberry.com/korea>

Official Field Inspections:

- A. Official field inspections will be conducted by the Oregon Department of Agriculture once each year during the growing season (between bud-break and fruit harvest) to certify absence from *Phytophthora ramorum*, Tobacco ringspot virus and Tomato ringspot virus as per the following protocol:
- i. The Oregon Department of Agriculture will conduct visual inspections of 10% of blueberry production fields in the 10 major blueberry producing counties.
 - ii. If symptoms of suspected infection are detected as a result of the visual inspection, a minimum 15-leaf sample shall be taken and submitted for laboratory testing to the ODA Plant Health Laboratory. Tests will be conducted by USDA/APHIS approved experts.
 - iii. If testing is necessary, shipments of fruit from the associated production field will be suspended until the testing is completed.
 - iv. The laboratory test will be an ELISA test (or PCR test) conducted in accordance with USDA/APHIS/CPHST approved methods.
- B. If the laboratory test confirms the existence of *Phytophthora ramorum*, Tobacco ringspot virus and/or Tomato ringspot virus, APHIS is to be immediately notified in writing. APHIS will immediately notify the Oregon Blueberry Commission, ODA and QIA that exports of blueberries from the infected production field to Korea are suspended for the remainder of the season.

Production Field Monitoring and Trap Surveys:

Low pest prevalence or pest freedom for mummy berry (*Monilinia vaccinii-corymbosi*), Orange Tortrix (*Argyrotaenia citrana*), Oblique Banded Leafroller (*Choristoneura rosaceana*) and Cherry Fruitworm (*Grapholita packardi*) must be maintained in registered production fields in order for blueberry fruit from those fields to be eligible to pack for export to Korea.

All production fields registered to produce blueberries for export to Korea must comply with the field monitoring practices for the specific control of Mummy berry, Orange Tortrix, Oblique Banded Leafroller and Cherry Fruitworm as outlined below. Fruit from production fields which are determined to not be in compliance with these procedures will not be eligible to be exported to Korea for the current shipping season.

A. Monitoring requirements for the mummy berry pathogen (*Monilinia vaccinii-corymbosi*):

Commercial pest consultants, or similar persons who are qualified to identify symptoms of mummy berry, will monitor for mummy berry in each registered production field. ODA will also conduct trap monitoring upon request under a fee based service.

- a. Timing: Monitoring will be conducted during the growing season when fruit is beginning to size and prior to harvest. Intensified monitoring will be required in fields with a history of mummy berry infection.
- b. Records of monitoring results: Monitoring results for mummy berry will be recorded on the standard form developed by APHIS (see Attachment 2).
- c. Electronic records: Electronic records which mirror the data and format of the APHIS form may be used in lieu of the paper document. A fillable electronic version of the APHIS form is available from the Oregon Blueberry Commission or APHIS upon request. If a production field is selected for observation during the annual visit by QIA, a printed copy of the applicable mummy berry monitoring records must be available at the time of QIA's visit to the production field.

Production fields with history of mummy berry infection:

- a. Application of controls: Intensified preventive application regimes should be implemented in production fields that have been identified as having a history of mummy berry infection, as evidenced by the detection of infected fruit (fruit exhibits a characteristic shriveled, white appearance) during the previous growing season or harvest. A preventive spring fungicide application must be applied in these fields in accordance with Federal/State Cooperative Extension Service Integrated Pest Management (IPM) guidelines for blueberries. Controls applied for mummy berry must be specifically identified on pesticide usage records.
- b. Intensified monitoring: Once a field is identified as having mummy berry, more diligent scouting must be conducted. Scouting results must be documented on the standard APHIS monitoring form (see Attachment 2). Scouting protocols for fields identified with active infections include:
 - Identification of the infected sites: When mummy berry is detected, identify and record the specific site locations of the infections. GPS coordinates are acceptable.
 - Search for overwintering bodies: In subsequent years, look for overwintering bodies at each of the specific site location(s) of the infections.
 - Monitoring of spring growth: Inspect the spring growth at each of the specific site location(s) for evidence of primary infections on vegetative and floral growth
 - Visit each of the sites identified as a location of infection during the previous season. At least three sites per registered field should be designated for inspection. If less than three sites were identified as a location of infection the previous year, additional sites (as needed) should be chosen for inspection to meet the minimum.

- At each of the sites, inspect at least 10 bushes. These bushes should be spaced three to five plants apart and on both sides of the row, in order to cover a larger area at each site.
- Inspect bushes for symptoms of shoot blight and browning along the major veins. Look for wilted, brown foliage and bent twig tips resembling a shepherd's crook. Look for grayish green tufts of fungus associated with wilted foliage and blackened stems.
- **Fruit monitoring:** Monitor fruit as it sizes and immediately prior to harvest to determine whether there are still detectable, active infections and/or whether the infection level is increasing or decreasing.
 - Visit each of the sites identified as a location of infection during the previous season. At least three sites per registered field should be designated for inspection. If less than three sites were identified as a location of infection the previous year, additional sites (as needed) should be chosen for inspection to meet the minimum.
 - At each of the sites, inspect 10 bushes. These bushes should be spaced three to five plants apart and on both sides of the row, in order to cover a larger area at each site.
 - Inspect at least 10 fruit clusters for discolored, shriveled fruit or for any evidence of mummy berry infection (such as early coloring of fruit)
 - Search the ground underneath the bushes and gently shake the bushes to look for any evidence of mummy berry-infected fruit. Infected fruit shrivels and appears mummified as it develops; those “mummy berries” will drop to the soil.

Production fields with no history of mummy berry infection:

- a. **Application of controls:** Production fields which have not been identified as having a history of mummy berry infection may be treated with a preventive spring fungicide application in accordance with Federal/State Cooperative Extension Service Integrated Pest Management (IPM) guidelines for blueberries. Controls applied for mummy berry must be specifically identified on pesticide usage records.
- b. **Fruit Monitoring:** Monitor fruit as it sizes and immediately prior to harvest to determine whether there are mummy berry infections in the production field as follows:
 - Designate three sites to visit in the production field; sites should be spaced throughout the field.
 - At each of the three sites, inspect 10 bushes. These bushes should be spaced three to five plants apart and on both sides of the row, in order to cover a larger area at each site.
 - Inspect at least 10 fruit clusters for discolored, shriveled fruit or for any evidence of mummy berry infection (such as early coloring of fruit)
 - Search the ground underneath the bushes and gently shake the bushes to look for any evidence of mummy berry infected fruit. Infected fruit shrivels and appears mummified as it develops; those “mummy berries” will drop to the soil.

Detection of mummy berry infection in production fields during fruit monitoring:

- a. **Estimate and record the level of infection:** If mummy berry is detected during fruit monitoring in a production field, the level of infection must be estimated and documented on the scouting record for that field.

- b. Eligibility to pack for export: Blueberries are only eligible to pack for export to Korea from fields which are determined to be free of mummy berry or to have a low level of infection of the mummy berry disease. Blueberries from production fields that have infections of mummy berry at higher levels (higher than that which would be considered a “low” infection level) are not eligible to pack for export to Korea during the current shipping season.
- c. Additional requirements for fields with low levels of infection: If, as a result of fruit monitoring, a production field is identified as having a low level of mummy berry infection, the following protocol must be followed:
- An intensified fruit inspection regimen must be implemented at the time of harvest to prevent the harvest of fruit with symptoms of mummy berry infection.
 - Responsible packing facility personnel must be notified of the detection of mummy berry infection in the production field.
 - The packing facility must take extra care in sorting fruit from production fields identified as having with low infections of mummy berry during the current growing season.
 - Air blowers and mechanical sorters will be adjusted to maximize removal of infected fruit.
 - Packing facility staff that conduct the hand sorting of fruit will be notified that the lot being packed has been found to have a low infection of mummy berry and will be cautioned to search for and remove any fruit exhibiting symptoms of mummy berry fruit (fruit which is defective, shriveled, too small or off color).

Regulatory monitoring:

USDA/APHIS and or Oregon Department of Agriculture officials may review pesticide application records and monitoring records for registered production fields for the current and previous season to confirm the presence of a responsible/effective mummy berry prevention program. USDA/APHIS and or Oregon Department of Agriculture officials may inspect any registered blueberry production field to confirm that low pest prevalence or pest freedom for mummy berry is maintained.

Federal/State Cooperative Extension Service IPM guidelines for blueberries may be found at:

- <http://whatcom.wsu.edu/ipm/blue/index.html> and
- <http://plant-disease.ippc.orst.edu/ShowDisease.aspx?RecordID=182>
- <http://blueberries.msu.edu/uploads/files/Mummy%20berry.pdf>

B. Monitoring requirements for Orange tortrix (*Argyrotaenia citrana*), Oblique banded leafroller (*Choristoneura rosaceana*) and Cherry fruitworm (*Grapholita packardi*):

Each registered blueberry production field will be monitored for the presence of Orange Tortrix (OT), Oblique Banded Leafroller (OBLR) and Cherry Fruitworm (CFW) during the growing season by the use of trap surveys and visual inspection (scouting).

Trap Surveys (See Attachment 3)

- a. Trap type: Trap surveys will be conducted using Delta or standard wing-type traps with standard pheromone lures as recommended by the commercial pest consultant (PC).
- b. Replacement Intervals: Pheromone lures will be replaced at least every 30 days. Trap bottoms will be replaced when the effectiveness of the adhesive is compromised or at minimum, the trap bottoms will be replaced at east every 30 days when the pheromone lure is replaced.

- c. Pheromone Lures: It is recognized that the pheromone attractant in the lure used for OT also attracts OBLR. Traps using the pheromone lure for OT may also be used to survey for OBLR in lieu of placing separate traps for those two insects. CFW is not attracted to the pheromone lure used for OT and traps using a pheromone lure specific for CFW must be placed separately for that insect.
- d. Timing for Surveys: Traps must be in place in registered production fields beginning at petal fall and continuing until conclusion of harvest. For production fields with more than one variety and varieties with multiple harvest dates, traps will be monitored until the final harvest of fruit of the latest maturing variety in that production field. In the event that one or more of the traps is located in a variety that is harvested earlier than the remainder of the varieties, traps should not be repositioned into those later varieties.
- e. Trap Density: A minimum of two traps each using pheromone lures for OT/OBLR and CFW shall be placed in each registered production field. If a production field contains multiple varieties registered under a single grower lot number, the trap density shall be calculated using the total size of the registered production field. If the size of the production field is equal to or exceeds 10 acres, one additional trap of each type shall be placed for each additional 10 acres or fraction thereof.
- f. Trap Placement: Traps shall be placed in the upper third of the bush. Trap openings must be free of obstructions
 - OT/OBLR traps shall be placed in the production field as recommended by the commercial pest consultant.
 - CFW traps should be placed in the production field near edges that border woods or tree-lines, if applicable.
- g. Flagging Trap Locations: It is recommended that the trap locations be flagged at the end of the row to facilitate monitoring of the traps. In the event that a production field is selected for observation during the annual visit by QIA, trap locations must be flagged at the end of the row prior to the time of the visit.
- h. Maps: A map that indicates the location of each trap in the production field will be provided to regulatory officials upon request. In the event that a production field is selected for observation during the annual visit by QIA, a map showing the trap locations must be provided to USDA/APHIS and/or ODA prior to the time of the visit.
- i. Trap Labeling: Each trap will be numbered, and that number, along with the placement date, will be recorded on the trap body. As applicable, the trap number will contain a code “OT/OBLR” to identify the trap as targeting Orange Tortrix and Oblique Banded Leafroller or “CFW” to identify traps targeting Cherry Fruitworm.
- j. Servicing Records: Each servicing visit must be recorded on the trap body. When the trap bottoms and/or the lures are replaced, that information should also be recorded on the trap body. If the trap body is replaced, the trap number and date of re-placement must be noted on the new trap body. In the event that a trap must be replaced for some reason, it is not necessary to retain the old trap.

- k. Responsibility for Trap Monitoring: Trap monitoring will be conducted by commercial pest consultants. If a commercial pest consultant has personnel working under their supervision who are qualified to identify OT, OBLR, and CFW moth adults, as well as other moths, such as Carnation Tortrix (*Cacoecimorpha pronubana*), which might be attracted to the lures, then those personnel may service the traps under this program. The responsibility for the trap monitoring and documentation of the results remains with the supervising pest consultant. Growers who are also commercial pest consultants may not monitor traps in their own production fields. Upon request, ODA will also conduct trap monitoring under a fee based service.
- l. Trap Monitoring Interval: Traps will be monitored weekly from the time of placement until the last harvest of the latest maturing variety in the registered production field. Ideally, traps will be checked every 7 days, however, a trap check conducted one day before or after that will also be considered acceptable. Trap checks conducted at an interval of 6 days, 7 days or 8 days after the last servicing check will meet the requirement for weekly servicing.
- m. Recording Trap Catches: Trap catches will be recorded on the standard form developed by APHIS (see Attachment 2). Forms must be filled out clearly and completely; the grower lot number recorded must correspond to the number as registered for that production field under this program. One form is to be used per month; the month is to be recorded on the top of the form and trap servicing information is to be recorded in the column corresponding to the appropriate day. Trap catches for OT/OBLR traps must distinguish between numbers of OT and numbers of OBLR; those numbers are to be recorded separately.
- n. Electronic Trapping Records: Electronic records that mirror the data and format of the APHIS form may be used in lieu of the paper document. A fillable electronic version of the APHIS form is available from the Oregon Blueberry Commission or APHIS upon request. If a production field is selected for observation during the annual visit by QIA, a printed copy of the applicable trap records must be available at the time of QIA's visit to the production field.

Intensified Visual Inspection: In addition to inspecting for OT, OBLR and CFW during any routine scouting conducted in the production fields, intensified visual inspection for OT, OBLR and CFW must be conducted in accordance with the following guidelines:

- a. Intensified Visual Inspection for OT and OBLR: If the trap catch for any single trap exceeds 20 moths of OT or OBLR in any single week of the trapping survey, the following intensified visual inspection protocol must be implemented:
- An area will be designated for a visual search for larvae within the area of the relevant trap site (10 acre maximum area to be searched per trap site).
 - Within the designated area, three separate sites shall be selected.
 - At each selected site, 10 bushes will be inspected. The bushes selected for inspection should be spaced three to five plants apart and be located on both sides of the row, in order to maximize the area covered at each site.
 - Ten (10) leaf tips and/or fruit clusters shall be closely examined for Lepidoptera larvae. If any larvae are found, the larvae must be identified at the time of detection or be collected and labeled for follow-up identification. The identification of the

larvae, along with the number of larvae and location of the detection(s) must be recorded. Standard scouting records may be used.

- b. Intensified Visual Inspection for CFW: If the trap catch for any single trap exceeds 2 moths of CFW in any single week of the trapping survey, the following intensified visual inspection protocol must be implemented:
 - An area will be designated for a visual search for CFW eggs and larvae within the area of positive CFW trap site (s) (10 acre maximum area to be searched per trap site).
 - Within the designated area, three separate sites shall be selected.
 - At each selected site, 10 bushes will be inspected. The bushes selected for inspection should be spaced three to five plants apart and be located on both sides of the row, in order to maximize the area covered at each site.
 - Ten (10) fruit clusters per bush shall be closely examined for the presence of CFW eggs or larvae. Inspection for CFW eggs and early season larvae should target the calyx cups, later in the season larvae may be indicated by the presence of webbing or frass.
 - If any eggs or larvae are found, the eggs and/or larvae must be identified at the time of detection or be collected and labeled for follow-up identification. The identification of the eggs and larvae, along with the number of larvae and location of the detection(s) must be recorded. Standard scouting records may be used.
- c. Application of Controls: If OT, OBLR larvae, or CFW eggs or larvae are detected during the above visual inspection, appropriate controls must be applied as recommended in IPM guidelines or pesticide labeling. Controls applied for OT, OBLR or CFW must be specifically identified on pesticide usage records.
- d. Regulatory Monitoring: USDA/APHIS and or Oregon Department of Agriculture officials may inspect any registered blueberry production field to confirm that low pest prevalence or pest freedom for OT, OBLR and CFW is maintained.

C. Monitoring, Trap Survey, Scouting and Pesticide Application Records:

- a. Records of Monitoring Activities: Records documenting the results of monitoring for Mummy Berry, trap surveys for OT, OBLR and CFW, and if applicable, the results of follow up visual inspections for OT, OBLR and CFW, must be submitted to the packing facility before the first blueberries from the production field are delivered to the packing facility, or upon arrival of the first blueberries at the packing facility. In the event that additional trap monitoring or visual inspections have been conducted between the time that initial trap data was submitted for a lot and subsequent harvest dates, updated records will be provided to the packing facility prior to or at the time of arrival of fruit from those subsequent harvest dates.
- b. Records of Controls Applied: In the event that controls were applied for Mummy Berry, OT, OBLR or CFW, copies of the pesticide usage records for the production field with relevant controls specifically identified must be submitted to the packing facility at the time that the monitoring records for that production field are submitted.
- c. Submission of Records: The grower will be responsible for submitting the completed records to the packing facility, prior to, or at the time of delivery of the lot to the packing facility. The

packing facility will be responsible for submitting the completed records to the APHIS Cooperator, prior to, or at the time of delivery of the lot to the packing facility.

- d. Review of Records: Packing facilities will review the records submitted by the grower for compliance with the monitoring requirements for Mummy Berry, OT, OBLR and CFW and the application of controls, if applicable, as outlined in the above sections.
- e. Non-Compliance: Failure to comply with the requirements for maintaining low pest prevalence or pest freedom for Mummy Berry OT, OBLR and CFW or failure to provide records documenting compliance will result in the disqualification of the registered production field from export to Korea for the current shipping season.

D. Packing Facilities:

- a. Packing facilities and cold storage areas should be kept clean.
- b. Packing facilities and cold storage areas should be equipped with pest exclusion devices such as insect screens, air curtains, rubber curtains, plastic curtains or automatic closing doors.
- c. USDA/APHIS and/or ODA will verify that export packing facilities meet the above requirements each year before export to Korea begins.
- d. Packing facilities that will be ship fresh blueberries to Korea via air freight must provide USDA/APHIS with the name of any freight forwarder(s) that they will use prior to the shipping season.

Sorting and Packing:

- a. Fruit for export to Korea must be kept separate from fruit that is not eligible to pack for export to Korea; it may not be sorted or commingled with fruit that is not eligible for export to Korea.
- b. If blueberries not eligible for export to Korea are packed in the same packing room, before any lots qualified for Korea are packed, a general cleaning shall be conducted and the packing facility must verify that the packing lines are clear of any loose blueberries or debris.
- c. Fruit that is shrunken, shriveled, scarred, discolored, deformed, over-ripe or otherwise of poor quality will be removed manually by packing facility sorting personnel during the normal sorting process.
- d. Shipments of fruit destined to Korea must be free of contaminants such as leaves, branches and soil.

Packaging and Labeling:

- a. Each clamshell will be labeled with information to identify the production field.
- b. Each packed carton or pallet for export to Korea shall be clearly marked with the name of the packing facility.

- c. Each packed carton or pallet for export to Korea shall be clearly marked with the designation “For Korea”. Either upper or lower case font size is acceptable for carton markings, the pallet identification label will use upper case font.
- d. If the name of the blueberry packing facility and the words “For Korea” are marked on each carton, then cartons of fruit should be stacked on pallet in a manner that will ensure that those markings face out from the center of each pallet and are visible from all sides of each pallet.
- e. Shipments for export to Korea will be handled in a manner to prevent insect infestation during storage and transportation.

E. Phytosanitary Export Inspection:

- a. Prior to conducting the export inspection for the submitted lot(s) the certifying official will review documentation to verify that lots submitted for export inspection meet the conditions of this protocol. Any lots not in compliance with the conditions of this protocol will not be eligible for export to Korea.
- b. APHIS Cooperators shall take a random sample of at least 2 percent of the fruits to inspect for each shipment. The selection of samples should be representative of all the lots in the shipment.
- c. Phytosanitary inspections should especially be targeted for detection of *Monilinia vaccinii-corymbosum* (Mummy Berry), *Argyrotaenia citrana* (Orange Tortrix), *Choristoneura rosaceana* (Oblique Banded Leaf Roller) and *Grapholita packardi* (Cherry Fruitworm).
- d. Shipments must be free of pests of concern to Korea.
- e. The Authorized Certifying Official will sign and issue the phytosanitary certificate for each qualifying shipment. The phytosanitary certificate will contain the following **two** additional declarations:
 - “Fruits in this shipment were produced in the field where *Phytophthora ramorum*, *Tomato ring spot virus* and *Tobacco ring spot virus* are not present.” AND
 - “Fruits in this consignment are not infested with *Monilinia vaccinii-corymbosum*, *Argyrotaenia citrana*, *Choristoneura rosaceana*, and *Grapholita packardi*.”
- f. The name of the packing facility must be shown on the phytosanitary certificate.

F. Sealing Requirement:

- a. Ocean Freight: After loading the shipment into the shipping container, the container will be sealed by the packing facility. The number of the industry applied seal will be included on the shipping documents.
- b. Air Freight:
 - Before placing the first layer of individual cartons on the pallets, a solid sheet of cardboard (no holes or openings), plastic, screening (1.6 mm or smaller mesh size) or other insect roof material must be placed on the pallet surface to provide a barrier to exclude the movement of insects onto the cartons of fruit through the open areas of the pallet.

- Each pallet of fruit shall be wrapped with screening (1.6 mm or smaller mesh size), plastic, or other materials such as “Cool-Guard” to completely enclose all cartons on the pallet.
- The wrapping material will then be sealed to itself and to the pallet and/or barrier covering the pallet surface with USDA/APHIS/ official tape (see Attachment 4 for an image of the tape).
- Air freight shipments that will be subjected to TSA screening must be handled by a freight forwarding facility that is under compliance with USDA/APHIS to handle shipments of fresh blueberries from Oregon for export to Korea.

G. Record Retention:

- a. All records pertaining to the program shall be retained for a minimum of one year.

H. QIA On-Site Survey:

- a. QIA will conduct an on-site survey every year to verify the overall implementation of Korea’s import requirements for blueberries from Oregon.
- b. After two years, the need for the on-site survey will be reviewed.
- c. All expenses associated with the on-site survey will be paid by the Oregon blueberry industry.

**Attachment 1- Trapping protocol for Blueberry Production Fields
Registered for Export to Korea**

Target name	Name code for trap	Trap type	Set by date	Lure change interval	Lure Type	Removal	Trap Density	Threshold level
Orange tortrix: <i>Argyrotaenia citrana</i>	OT	Delta or standard winged trap	Petal Fall	30 days	OT pheromone lure is attractive to OT and OBLR. One trap may be used to attract both Species. Record trap catches separately.	After harvest of the latest variety in the production field	Minimum of two traps for production fields of less than 10 acres; if 10 acres or more, add one trap for each additional 10 acres or fraction thereof.	30 moths per trap per week triggers follow up using visual inspection protocol
Oblique banded leaf roller: <i>Choristoneura rosaceana</i>	OBLR							
Cherry fruitworm : <i>Grapholita packardi</i>	CFW	Delta or standard winged trap	Petal Fall	30 days	CFW specific pheromone lure	After harvest of the latest variety in the production field	Minimum of two traps for production fields of less than 10 acres; if 10 acres or more, add one trap for each additional 10 acres or fraction thereof.	5 moths per trap per week triggers follow up using visual inspection protocol

ATTACHMENT 2- APHIS MONITORING RECORD FOR MUMMYBERRY

OREGON BLUEBERRIES TO KOREA SCOUTING RECORD FOR MUMMYBERRY

GROWER NAME:		DATE:					
GROWER CODE:	FIELD LOCATION:						
DOES FIELD HAS HISTORY OF MUMMYBERRY INFECTION:							
MONITORING OF SPRING GROWTH FOR MUMMYBERRY							
Inspect the spring growth at each of the specific site location(s) for evidence of primary infections on vegetative and floral growth • Within the designated area visit three sites. • At each of the three sites, inspect 10 bushes. These bushes should be spaced 3-5 plants apart and on both sides of the row, in order to cover a larger area at each site. • Inspect bushes for symptoms of shoot blight and browning along the major veins. Look for wilted, brown foliage and bent twig tips resembling shepherd's crook. Look for grayish green tufts of fungus associated with wilted foliage and blackened stems. Record number of infected shoots on each bush.							
Number of bush	Site 1 - Number of Infected shoots	Site 2- Number of Infected shoots	Site 3 - Number of Infected shoots	Other Notes			
Bush 1							
Bush 2							
Bush 3							
Bush 4							
Bush 5							
Bush 6							
Bush 7							
Bush 8							
Bush 9							
Bush 10							
FRUIT MONITORING FOR MUMMYBERRY AFTER FRUIT HAS SIZED AND PRE-HARVEST							
SCOUTING AFTER FRUIT HAS SIZED:	YES	NO	SCOUTING AT PRE-HARVEST:	YES	NO	EST. DATE OF HARVEST	
Monitor fruit as it sizes and immediately prior to harvest to determine whether there are mummyberry infections in the production field • Within the designated area visit three sites. • At each of the three sites, inspect 10 bushes. These bushes should be spaced 3-5 plants apart and on both sides of the row, in order to cover a larger area at each site. • Inspect at least 10 fruit clusters for discolored, shriveled fruit or for any evidence of mummyberry infection (such as early coloring of fruit) • Search the ground underneath the bushes and gently shake the bushes to look for any evidence of mummyberry infected fruit. Infected fruit shrivels and appears mummified as it develops; those "mummyberries" will drop to the soil. Record the number of fruit clusters with infected fruit (IFC) and/or bushes with dropped fruit (DF).							
Number of bush	Site 1-IFC	Site 1-DF	Site 2-IFC	Site 2-DF	Site 3-IFC	Site 3-DF	Other Notes
Bush 1							
Bush 2							
Bush 3							
Bush 4							
Bush 5							
Bush 6							
Bush 7							
Bush 8							
Bush 9							
Bush 10							
Estimated level of field infection (if any) (None) (Very Low) (Low) (Medium) (Medium High) (High) :							

APHIS 04-04-12

ATTACHMENT 3- APHIS TRAP SERVICING RECORD

MONTH:	OREGON BLUEBERRIES TO KOREA - APHIS TRAP SERVICING RECORD															YEAR:																
GROWER NAME :	GROWER CODE:					FIELD LOCATION:					GROWER FIELD ID #:																					
INITIAL LURE PLACEMENT DATE:	BLUEBERRY VARIETY(S):					ACRES:					# OF TRAP SETS:																					
<small>TRAP LABELLING CODES: OT = ORANGE TORTRIX (<i>Argyrotaenia citrana</i>) OBLR = OBLIQUE BANDED LEAFROLLER (<i>Choristoneura rosaceana</i>) CFW = CHERRY FRUIT WORM (<i>Grapholita packardii</i>) Note: One trap with OT lure may be used for both OT and OBLR but each moth type must be recorded separately</small>																																
TRAP NO.	DAYS OF THE MONTH																															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
OT-1																																
	B	P	B	P	B	P	B	P	B	P	B	P	B	P	B	P	B	P	B	P	B	P	B	P	B	P	B	P	B	P	B	P
OBLR-1																																
	B	P	B	P	B	P	B	P	B	P	B	P	B	P	B	P	B	P	B	P	B	P	B	P	B	P	B	P	B	P	B	P
CFW-1																																
	B	P	B	P	B	P	B	P	B	P	B	P	B	P	B	P	B	P	B	P	B	P	B	P	B	P	B	P	B	P	B	P
OT-2																																
	B	P	B	P	B	P	B	P	B	P	B	P	B	P	B	P	B	P	B	P	B	P	B	P	B	P	B	P	B	P	B	P
OBLR-2																																
	B	P	B	P	B	P	B	P	B	P	B	P	B	P	B	P	B	P	B	P	B	P	B	P	B	P	B	P	B	P	B	P
CFW-2																																
	B	P	B	P	B	P	B	P	B	P	B	P	B	P	B	P	B	P	B	P	B	P	B	P	B	P	B	P	B	P	B	P
OT-3																																
	B	P	B	P	B	P	B	P	B	P	B	P	B	P	B	P	B	P	B	P	B	P	B	P	B	P	B	P	B	P	B	P
OBLR-3																																
	B	P	B	P	B	P	B	P	B	P	B	P	B	P	B	P	B	P	B	P	B	P	B	P	B	P	B	P	B	P	B	P
CFW-3																																
	B	P	B	P	B	P	B	P	B	P	B	P	B	P	B	P	B	P	B	P	B	P	B	P	B	P	B	P	B	P	B	P
OT-4																																
	B	P	B	P	B	P	B	P	B	P	B	P	B	P	B	P	B	P	B	P	B	P	B	P	B	P	B	P	B	P	B	P
OBLR-4																																
	B	P	B	P	B	P	B	P	B	P	B	P	B	P	B	P	B	P	B	P	B	P	B	P	B	P	B	P	B	P	B	P
CFW-4																																
	B	P	B	P	B	P	B	P	B	P	B	P	B	P	B	P	B	P	B	P	B	P	B	P	B	P	B	P	B	P	B	P
Initials																																

INSTRUCTIONS: Put the number of moths found in the trap under the appropriate day of the month.
 If you change the trap bottom, put a "X" in the "B" box on the date you made the change.
 If you change the pheromone, put an "X" in the "P" box on the date you made the change.
 When you have completed harvest of your orchard, draw a vertical line through the next column.
 If fewer than four sets of traps are placed, draw a line through any unused trap numbers or delete unused trap numbers.

TRAP DENSITY: Minimum of two traps of each type for less than 10 acres; for 10 acres or more, add one trap for every additional 10 acres or fraction thereof
NOTE: TRAP RECORDS ARE TO BE SUBMITTED TO APHIS AND APHIS COOPERATORS UPON REQUEST. COMPLETED RECORDS MUST BE PROVIDED TO THE PACKING FACILITY PRIOR TO PACKING.
 Updated March 26, 2012

ATTACHMENT 4 – OFFICIAL TAPE

U.S. EXPORT TO KOREA

Tampering With Shipment Is Prohibited While in Transit

- Text will be in green letters on two inch wide clear tape
- The words “U.S. EXPORT TO KOREA” will be in one-inch high letters. “Tampering With Shipment Is Prohibited While In Transit” will be in as large a type size as possible not to exceed one-half inch tall letters and will be centered below the words “U.S. EXPORT TO KOREA”.
- The blocks of text will repeat continuously at a spacing of one-half inch.

U.S. EXPORT TO KOREA

Tampering With Shipment Is Prohibited While in Transit
