OPERATIONAL GUIDELINES FOR THE EXPORT OF FRESH U.S. BLUEBERRY FRUIT TO VIETNAM UNDER A SYSTEMS APPROACH PROTOCOL
Dated April 1, 2019

This document provides guidance on the operational aspects of the systems approach protocol for the export of fresh blueberry fruit produced in the United States to Vietnam. It is to be used in conjunction with the "PHYTOSANITARY IMPORT REQUIREMENTS FOR FRESH BLUEBERRY FRUITS (*Vaccinium corymbosum, V. virginatum* and *V. corymbosum* hybrids) IMPORTED FROM THE U.S. INTO VIETNAM", dated February 13, 2019.

The phytosanitary import requirements for U.S. blueberries were developed by the Plant Protection Department (PPD), Ministry of Agriculture and Rural Development of Vietnam in consultation with the Animal and Plant Health Inspection Service (APHIS) of the United States Department of Agriculture (USDA) (hereinafter referred to as APHIS).

I. GENERAL INFORMATION

a) **Eligible product:** Fresh fruit of blueberries (*Vaccinum corybosum, V. virginatum* and *V. corymbosum* hybrids) commercially produced in the United States qualify to be exported to Vietnam under this systems approach protocol.
b) **Means of conveyance:** Shipments of blueberry fruit may be transported to Vietnam via ship or air cargo.
c) **Import permits:** Import permits (issued by PPD to the importer) are required for the import of U.S. blueberries. A copy of the import permit must be provided to the certifying official at the time of the phytosanitary export inspection request.
d) **On-site audit by PPD:** During the initial export season, APHIS shall invite Vietnam quarantine experts to conduct an on-site visit to a representative blueberry production area (or areas) in the United States to verify and confirm the implementation of the systems approach program. PPD will also be verifying the efficacy of the systems approach to ensure shipment freedom from quarantine pests listed in ***Annex 1*** (also listed below). The on-site survey will be at the expense of (cost-covered) the U.S. blueberry industry.

II. ANNEX I QUARANTINE PESTS

Quarantine pests of concern to Vietnam on U.S. blueberries include:

Note: Common names are shown in Section IV- SYSTEMS APPROACH RISK MITIGATION MEASURES

INSECTS	DISEASES
Acrobasis vaccinii	*Diaporthe vaccinii*
Ceratitis capitata	*Exobasidium vaccinii*
Choristoneura rosaceana	*Monilinia vaccinii-corymbosi*
Diaspidiotus ancylus	*Pseudomonas syringae* pv. *syringae*
Drosophila suzukii	*Pseudomonas viridiflava*
Grapholita packardi	
Lepidosaphes ulmi	
Pinnaspis strachani	
Rhagoletis mendax	

III. REGISTRATION REQUIREMENTS

1. Packing Facilities

a) Packing facilities intending to participate in the program to export fresh blueberry fruits to Vietnam must be registered with the APHIS. The administrative process of packing facility registrations will be handled by the U.S. Highbush Blueberry Council (USHBC).

b) Packing facilities must register anew for each export season. Registration will remain in effect for the current export season, but may be suspended by APHIS in the event of non-compliance.

c) Registration forms are available from the U.S. Highbush Blueberry Council at: http://ushbc.org/export/. Completed registration forms must be submitted to the USHBC by the posted deadline.

d) Registration information shall include the name and contact information (email and phone number) of the person at the packing facility who will be responsible for ensuring compliance with this protocol.

e) Packing facilities shall also designate a records coordinator who will be responsible for reviewing records to ensure that only fruits which meet the requirements of this program are submitted for phytosanitary inspection for export to Vietnam and for maintaining records associated with the program.

f) The USHBC will provide the list of registered packing facility names and location (physical address, city, county and state) to APHIS at least 45 days prior to the first expected export shipments. USHBC will provide copies of registration records to APHIS upon request.

g) Registered packing facilities will be monitored by APHIS and/or APHIS cooperators to ensure that measures are in place to prevent the entry of pests, to avoid infestation by pests after packing, and to ensure the safeguarding of shipments which have been inspected and certified for export.

2. Production Fields

a) Blueberries for export to Vietnam must be produced in fields which are managed for pests of concern to Vietnam, in accordance with this protocol, and must be packed at a facility that is registered to export blueberries to Vietnam.

b) Registered packing facilities must maintain a list of fields that are designated to produce blueberry fruits for export to Vietnam during the current export season.

c) Packing facilities must have a system in place to ensure that all fruits can be traced to the supplying production field. At minimum, each blueberry production field will be identified by a unique identification code (grower lot number) and fruits from that field will be identified by that number throughout the production, packing, and export process.

d) Records of designated production fields will be available, upon request, to APHIS. In the event of a non-compliance or on-site audit, PPD may also request to inspect the records.

IV. SYSTEMS APPROACH RISK MITIGATION MEASURES

Systems approach risk mitigation measures, as detailed in the components listed in this section, must be implemented for blueberries exported to Vietnam.

Continental U.S. pest free status for *Ceratitis capitata* (Mediterranean fruit fly):

In the event of an incursion of *Ceratitis capitata* (Mediterranean fruit fly) into any blueberry production area of the continental United States, APHIS will immediately suspend the export of blueberries from any production orchards located within the Mediterranean fruit fly regulated

area. That suspension will remain in place until eradication of the incursion is declared and APHIS has provided notification of the eradication to PPD.

1. Production Field

Fields producing blueberries for export to Vietnam must be managed according to the Federal/State Cooperative Agricultural Extension Service integrated pest management (IPM) guidelines for the relevant production area. Pest monitoring activities specified in this section must be conducted by a licensed Pest Control Advisor (PCA), or by a trained person under the supervision of a licensed PCA. Growers must ensure that adequate control is provided for the following insects and diseases of quarantine concern to Vietnam:

Insects:

- *Acrobasis vaccinii* (cranberry fruitworm)
- *Choristoneura rosaceana* (oblique banded leafroller)
- *Drosophila suzukii* (spotted winged drosophila)
- *Grapholita packardi* (cherry fruitworm)
- *Rhagoletis mendax* (blueberry maggot)
- *Diaspidiotus ancylus* (Putnam scale)
- *Lepidosaphes ulmi* (oystershell scale)
- *Pinnaspis strachani* (lesser snow scale)

Diseases:

- *Pseudomonas syringae* pv. *syringae* (bacterial blight/canker)
- *Pseudomonas viridiflava* (bacterial blight)
- *Diaporthe vaccinii* (phompsis twig blight/canker)
- *Exobasidium vaccinii* (exobasidium leaf and fruit spot)
- *Monilinia vaccinii-corymbosi* (mummy berry disease)

Specific pest risk mitigation measures to be applied in fields producing blueberries for export to Vietnam follow.

a) ***Risk mitigation measures for Drosophila suzukii (spotted winged drosophila):*** Growers in all production states must specifically apply management measures to control *Drosophila suzukii* (spotted winged drosophila). At minimum, management measures must include the repeat application of insecticides and monitoring of fields for the presence of larvae in fruit as follows.

   i. Insecticide application: Specifically, insecticides must be applied every 7-14 days (depending upon the product label), beginning at the time fruit is first susceptible (when the color turns from green to pink) and continuing through the time of the final harvest of all varieties in that production field. Alternatively, if the presence of spotted winged drosophila adults is monitored through a trapping program, either at the grower or production area level, insecticide applications must begin when any adult is trapped and the fruit is susceptible. Trapping at the grower level must be conducted by a licensed Pest Control Advisor (PCA), or by a trained person under the supervision of a licensed PCA.

ii. Monitoring production field for the presence larvae in fruit: Once fruit is susceptible to infestation, the production field must be monitored at least weekly by a licensed PCA or by a trained person under the supervision of a licensed PCA, to determine the presence of spotted winged drosophila larvae in fruit. Fruit will be sampled and inspected following an approved fruit extraction method using a solution of brown sugar or salt and water. An example of an approved fruit extraction method may be found in *"A Detailed Guide for Testing Fruit for the Presence of Spotted Winged Drosophila (SWD) Larvae"* located at: https://catalog.extension.oregonstate.edu/em9096

iii. The dates and results of the monitoring must be recorded and provided to the packing facility prior to or at the time of the harvest of any blueberries potentially destined for export to Vietnam.

iv. Fruit from fields with detections of spotted winged drosophila larvae may not be packed for export to Vietnam, unless the fields have been treated with an appropriate insecticide and subsequent fruit sampling in those fields confirms that fruits are free from larvae.

b) ***Risk mitigation measures for Rhagoletis mendax (blueberry maggot):*** Growers in states other than California, Oregon and Washington must specifically apply management measures to control *Rhagoletis mendax* (blueberry maggot). At minimum, management measures must include the repeat application of insecticides once adults are determined to be present. Monitoring for blueberry maggot must be conducted by a licensed PCA, or by a trained person under the supervision of a licensed PCA.
Management measures will not be required for blueberries produced in the states of California, Oregon, or Washington; those states are officially recognized and maintained as pest free areas for this pest.

i. Determination of adult presence: The presence of adult blueberry maggot flies may be determined through the results of an area-wide or production field specific trapping program, or through degree-day model predictions.

ii. Insecticide application: The initial application of an insecticide targeting blueberry maggot must applied within 7 days of the detection of the first adult (either in the production area or in the production field, depending upon the type of monitoring used), or the predicted date of the first adult emergence in the area. Insecticide applications must be repeated every 7-10 days until the final harvest of fruit from the production field.

c) ***Risk mitigation measures for Acrobasis vaccinii (cranberry fruitworm), Grapholita packardi (cherry fruitworm), and Choristoneura rosaceana (oblique banded leafroller):*** Growers must specifically apply management measures to control *Acrobasis vaccinii* (cranberry fruitworm), *Grapholita packardi* (cherry fruitworm), and *Choristoneura rosaceana* (oblique banded leafroller) in areas where those insects occur as pest of blueberries. At minimum, management measures must include:

i. Monitoring for pest presence: The production field shall be monitored by a licensed PCA, or by a trained person under the supervision of a licensed PCA, using pheromone trapping to detect adults and visual scouting to detect the presence of

eggs and/or larvae. The results of monitoring will be used to determine the need for insecticidal controls.

ii. Application of insecticides: Insecticides shall be applied as needed, based upon monitoring results in the production field. Alternatively, insecticides may be applied prophylactically, based upon the relevant phenology model.

d) ***Risk mitigation measures for Exobasidium vaccinii (Exobasidium leaf and fruit spot):*** Fields producing blueberries for export shall be intensively managed for *Exobasidium vaccinii* (Exobasidium leaf and fruit spot) in areas where it occurs, and for leaf spot diseases in general. Chemical controls will be applied as needed in response to the detection of disease symptoms in the production field during visual scouting, or may be applied prophylactically as a preventative measure.

e) ***Risk mitigation measures for Monilinia vaccinii-corymbosi (mummy berry disease):*** Fields producing blueberries for export shall be managed for control of *Monilinia vaccinii-corymbosi* (mummy berry disease). At minimum, management measures must include the following:

i. Detection of disease presence: Production fields will be monitored by a licensed PCA, or by a trained person under the supervision of a licensed PCA, to detect the presence of mummy berry disease. At least one monitoring inspection will be conducted at the appropriate time to detect the overwintering form of the fungus.

ii. Application of fungicidal controls: If mummy berry disease is detected, or if the field has a history of mummy berry disease, the production field must be treated with a preventive spring fungicide application in accordance with recommendations of the relevant IPM guidelines.

f) **Records:**

i. Growers must maintain records of management, monitoring, and control activities undertaken in production fields throughout the growing season.

ii. Controls applied for quarantine pests of concern to Vietnam must be specifically identified on the pesticide usage record.

iii. Records of management, monitoring, and control activities must be provided to the packing facility prior to or at the time fruit from that production field is delivered to the packing facility.

iv. Records will made available upon request to APHIS and/or APHIS cooperators. In the event of a non-compliance, these records will also be made available to PPD upon request.

2. Harvest

a) Blueberry fruits for export to Vietnam must be hand harvested. Only marketable quality fruit will be selected for harvest. Any fruit exhibiting signs of insect damage, or symptoms of disease [specifically symptoms of *Exobasidium vaccinii* (Exobasidium leaf and fruit spot disease) and *Monilinia vaccinii-corymbosi* (mummy berry disease)], will not be harvested.

b) Harvest trays or bins will be identified with the grower lot number for traceability.

3. Post-harvest

Vietnam has a zero tolerance for any quarantine pest (Annex 1) in fruit packed for export. The following risk mitigation measures must be applied at the packing facility to ensure that blueberry fruits packed for export to Vietnam are free of quarantine pests.

a) Fruit sampling and inspection using a fruit extraction method to confirm freedom from larvae.

i. A representative sample of fruit will be collected randomly from each load of fruit arriving at the packing facility.

ii. Each sample will consist of a minimum of 1 liter (approx. 1.4 lbs.) of fruit.

iii. Each fruit sample will be subjected to an approved fruit extraction method (i.e. either a brown sugar or salt water flotation test) to confirm freedom from *Drosophila suzukii, Rhagoletis mendax, Acrobasis vaccini, Choristoneura rosaceana,* and *Grapholita packardi* larvae.

iv. Either a concentrated sugar or salt solution may be used. See the following for examples of solution composition:

- Sugar solution: Dissolve 3.5 kg of brown sugar in 20 liters of water. The resulting solution should have a brix reading of at least 15.
- Salt solution: Dissolve 1 liter of salt in 16 liters of water.

v. Ideally samples will be tested as soon as possible after the fruit arrives at the packing facility, but must be tested within 24 hours of the time of harvest.

vi. Packing facilities must have a designated area for fruit testing with good lighting and appropriate equipment and materials.

vii. The solution must be carefully inspected for larvae. An example of the inspection process may be found in *"A Detailed Guide for Testing Fruit for the Presence of Spotted Winged Drosophila (SWD) Larvae"* located at: https://catalog.extension.oregonstate.edu/em9096

viii. Inspections must be conducted by trained packing facility staff and are subject to oversight/monitoring by regulatory officials. Alternatively, the inspections may be conducted an APHIS approved regulatory official.

ix. Any larvae detected must collected and identified by an APHIS approved regulatory official.

x. The results of each fruit sample inspection must be documented on the form provided by APHIS (an equivalent document may be used if approved by APHIS).

xi. If any larvae of *Drosophila suzukii, Rhagoletis mendax, Acrobasis vaccini, Choristoneura rosaceana,* or *Grapholita packardi* is detected during this fruit sampling, fruit from that lot will not be eligible to pack for export to Vietnam.

xii. A copy of the inspection results confirming that all lots in the consignment were found to be free of larvae of *Drosophila suzukii, Rhagoletis mendax, Acrobasis vaccini, Choristoneura rosaceana,* and *Grapholita packardi* must be provided to APHIS and/or the APHIS cooperator with the request for phytosanitary inspection.

b) Fruits which are found to be free of larvae will be subjected to the following sorting and packing processes.
   i. Fruit for export to Vietnam must be kept separate from fruit that is not eligible to pack for export to Vietnam; it may not be sorted or commingled with fruit that is not eligible for export to Vietnam.
   ii. If blueberries not eligible for export to Vietnam are packed in the same packing room, before any lots qualified for Vietnam 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.
   iii. Fruits will pass through an air cleaner to remove leaves, debris and small or shriveled fruits.
   iv. Fruits will be sorted at least two times before packing into the export carton:
      - Fruits will be sorted mechanically using electronic sorters to remove damaged, soft or off color fruits
      - After mechanical sorting, fruits will be hand sorted by packing house staff to remove all deformed or damaged fruits that may remain.
   v. Fruits will be packed into new, clean packaging.
   vi. The outside of the export packing boxes of fresh blueberry fruits will be marked with "For Vietnam", and with the grower lot number and the name of packing houses.
   vii. The packing materials shall be compliant with ISPM 15.

4. Post-harvest storage and transport

a) Standard industry process will be used to quickly chill fruit as soon as possible upon arrival at the packing facility.
b) Cold fruit temperatures are to be maintained throughout the packing, storage and shipping process.
c) Packed fruit will be transported in refrigerated trucks to ports of export.
d) Cold temperatures, ideally below 35°F (1.67 °C), will be maintained during air or sea transport.

V. Phytosanitary Export Inspection

a) Prior to submitting a shipment for phytosanitary export inspection, the packing facility or shipper will review the records and confirm that all lots in the shipment meet the requirements for export to Vietnam. Copies of the records, along with a copy of the import permit, will be submitted to the certifying official at the time the inspection is requested.

b) Prior to conducting the export inspection for the submitted lot(s) the certifying official will review records to confirm that lots submitted for export inspection meet the conditions of this protocol for export to Vietnam.

c) The certifying official will select a random sample of 2% of the shipment, representative of all lots in the shipment, for inspection.

d) All fruits in the selected sample will be visually inspected for quarantine pests of concern to Vietnam. Suspect fruit (such as fruits which are soft, deformed, or exhibiting signs of feeding damage) will be cut and inspected for internally feeding larvae (i.e. *Drosophila suzukii, Rhagoletis mendax, Acrobasis vaccini, Choristoneura rosaceana,* and *Grapholita packardi*).

e) The shipment must be also practically free from soil, plant debris/leaf.

f) Shipments with detections of quarantine pests (***Annex 1***) will be rejected for export to Vietnam.

g) The Authorized Certifying Official will sign and issue the phytosanitary certificate for each shipment that is free of quarantine pests (***Annex 1***) and meets all entry requirements

h) Each phytosanitary certificate must be include the following additional declaration:

"The consignment of blueberry fruits has been produced and prepared for export in accordance with the phytosanitary import requirements for importation of fresh blueberry fruits (*Vaccinium corymbosum* L.*, Vaccinium virginatum* Aiton and *Vaccinium corymbosum* hybrid) from the U.S. into Vietnam".

VI. Records:

At minimum, all records pertaining to this program will be maintained at least through the end of the following export season. Records must be made available upon request to APHIS and/or APHIS cooperators. In the event of a non-compliance, these records will also be made available, upon request, to PPD.

Annex 1: List of quarantine pests

Ceratitis capitata

Drosophila suzukii

Pseudomonas syringae pv. *syringae*

Pseudomonas viridiflava

Rhagoletis mendax

Diaspidiotus ancylus

Lepidosaphes ulmi

Pinnaspis strachani

Acrobasis vaccinii

Choristoneura rosaceana

Grapholita packardi

Diaporthe vaccinii

Exobasidium vaccinii

Monilinia vaccinii-corymbosi

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PACKING FACILITY ARRIVAL INSPECTION RECORD - RESULTS OF SALT WATER OR SUGAR WATER SOLUTION FRUIT EXTRACTION TESTS

PACKING FACILITY NAME: _____ DATE:_____

NAME & SIGNATURE OF RESPONSIBLE PACKING FACILITY PERSON:

_____

Note: Each delivery of fruit to the packing facility from a qualifying production field must be sampled at a minimum 1 liter sample size at the time of delivery to the packing facility. The fruit sample must be subjected to a fruit extraction test using a salt water solution or sugar water solution.					
GROWER LOT NUMBER	**NUMBER OF TRAYS OR BINS**	**EXTRACTION TESTING METHOD (Check appropriate column)**		**INITIALS OF PERSON CONDUCTING INSPECTION***	**NUMBER OF AND IDENTIFICATION OF ANY LARVAE FOUND (Name and signature of regulatory official confirming ID must be provided below)**
		SALT SOLUTION	**SUGAR SOLUTION**		

***Inspections must be conducted by trained facility staff and are subject to oversight/monitoring by regulatory officials. The identity of any live larvae detected must be determined, or confirmed, by a qualified regulatory official and the identification recorded. Only lots free of quarantine pests will be allowed to pack for export to Vietnam.**

NAME AND SIGNATURE OF REGULATORY OFFICIAL (must be included if any larvae are detected)