United States Department of Agriculture
Animal and Plant Health Inspection Service
Plant Protection and Quarantine

Commodity Import Evaluation Document

Systems Approach for Importation of Table Grapes *Vitis vinifera* L. for consumption from Chile into the United States and territories

County of Origin: Chile **Date of Request**: December 2017

Commodity:
***Scientific name*:** *Vitis vinifera* L. **Common name(s)**: table grapes

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Introduction and current market access:

The National Plant Protection Organization (NPPO) of Chile (Servicio Agrícola y Ganadero - SAG) requested that Animal and Plant Health Inspection Service (APHIS) amend the entry requirements for Chilean table grapes to allow the importation into the United States under a systems approach to mitigate the risk of introduction of pests of concern to the United States. The systems approach would provide an alternative to the current import requirement of mandatory treatment with methyl bromide fumigation. This document outlines how the risk of each pest is mitigated by the systems approach.

Chile was initially granted market access for table grapes (*Vitis vinifera* L.) to the United States in 1924. In November 1960, USDA began requiring mandatory methyl bromide fumigation for apricots, grapes, nectarines, peaches, and plums from Chile due to frequent interceptions of the Chilean false red mite (USDA, 1960). Subsequently, this was revised so that fumigations were required only if pests were intercepted. Mandatory fumigation was reinstated in 1996 because of frequent mite interceptions. Table grapes from Chile are currently allowed to be exported into the United States if they have been fumigated with methyl bromide under APHIS treatment schedule T101-h-2 to mitigate the risk of EGVM. This fumigation treatment also mitigates against the Chilean false red mite (USDA, 2021a; 2021b).

APHIS has been importing table grapes from Chile since 1924. APHIS has records of 293 interceptions of pests from1984 to 1996 (AQAS, 2009). In 1994 and 1995 there were 118 interceptions of *Brevipalpus chilensis*. Subsequently APHIS required mandatory fumigation of Chilean table grapes with methyl bromide. The remaining 175 interceptions are pests that APHIS considers hitchhikers or pests of wood packing material. Interceptions include scarab beetles, aphids, mealybugs, grasshoppers, thrips, and predatory or fungus feeding mites. Medfly has never been intercepted with Chile grapes. There have never been any interceptions of EGVM with Chile grapes.

In August 2008 APHIS published a proposed rule to allow entry of Chilean table grapes produced under a systems approach to mitigate *Brevipalpus chilensis* (USDA, 2008). However, in 2008 Chile also reported an outbreak of EGVM. This moth spread through much of Chile affecting over 60% of the grape orchards. As a result of the EGVM outbreak and public comments on the proposed rule about the outbreak, APHIS did not move forward with a final rule to amend the regulations to allow the systems approach for *B. chilensis* mites.

Chile is recognized as fruit fly free except for periodic outbreaks of *Ceratitis capitata* (Wiedemann) (Mediterranean fruit fly, or Medfly), usually in the Metropolitan Region of Santiago. Due to these outbreaks of Medfly, the systems approach proposed below must be used in conjunction with pest free areas or APHIS approved treatments for *C. capitata* for areas of Chile under quarantine for Medfly (USDA, 2015). From areas quarantined for Medfly, APHIS currently requires that table grapes also be cold treated under APHIS treatment schedule T107-a, or under treatment schedule T108-a, which is a combination of cold treatment and methyl bromide fumigation (USDA, 2021a; 2021b).

Chile recently requested that the systems approach for mites be revisited to allow the export of table grapes from areas of Chile where EGVM is either absent or at very low prevalence. A PRA for Chile grapes was completed in 2005 and updated in 2012 to add EGVM which was recently established in Chile (USDA, 2005; 2012). APHIS prepared a new pest risk assessment (PRA) for the importation of commercially produced fresh grapes (*Vitis vinifera* L.) for consumption from Chile into the entire United States (USDA, 2021c) to evaluate pest risk. The PRA identified the following pests as candidates for risk management and rated them Low, Medium or High for probability of introduction:

Pest	**Taxa**	**Likelihood of Introduction**
Brevipalpus chilensis Baker	Acari: Tenuipalpidae	Medium
Copitarsia decolora (Guenée)	Lepidoptera: Noctuidae	Low
Pseudococcus cribata González	Hemiptera: Pseudococcidae	Low
Pseudococcus meridionalis Prado	Hemiptera: Pseudococcidae	Low
Accuminulia buscki Brown	Lepidoptera: Tortricidae	Low
Bonagota salubricola (Meyrick)	Lepidoptera: Tortricidae	Low
Chileulia stalactitis (Meyrick)	Lepidoptera: Tortricidae	Low
Lobesia botrana Denis & Schiffermüller	Lepidoptera: Tortricidae	Medium
Proeulia auraria (Clarke)	Lepidoptera: Tortricidae	Low
Proeulia chrysopteris (Butler)	Lepidoptera: Tortricidae	Low
Proeulia triquetra Obrazstov	Lepidoptera: Tortricidae	Low

Low rated pests only require standard port of entry inspection as a mitigation. Pests rated Medium and High for probability of introduction that have been identified in the PRA as candidates for risk management may require mitigations beyond standard port of entry inspection based on the biology of the pest. The general measures required in this systems approach will further mitigate against the low rated pests listed in the PRA. The medium-rated pests will be addressed by the systems approach below.

This document outlines the phytosanitary measures of the proposed systems approach and provides evidence to conclude that these measures will effectively prevent the introduction of quarantine pests. The systems approach will also continue to allow the current import requirement of treatment with methyl bromide, T101-h-2. As an alternative to the pest-specific measures of the systems approach we would also allow the treatment option of irradiation at 150 gy for fruit flies (T105-a-1), 300 gy for *Brevipalpus chilensis* mites and 400 gy for eggs and larvae of *Lobesia botrana* (T105-a-2). Below, we first discuss the proposed systems approach, then discuss the irradiation treatment option.

Systems Approach:

The general measures below will be required for the systems approach option for *Brevipalpus chilensis* and *Lobesia botrana* EGVM. These measures also mitigate risks associated with *Copitarsia decolora, Pseudococcus cribata, Pseudococcus meridionalis, Accuminulia buscki, Bonagota salubricola, Chileulia stalactitis, Proeulia auraria,* and *Proeulia chrysopteris,* and *Proeulia triquetra*.

1. Only commercially grown table grapes from approved places of production that are registered with the Chilean NPPO, will be exported to the United States. SAG will ensure that growers are participating in the program and following the guidelines. Packinghouses must also be registered and approved by SAG and meet the requirements of the systems approach. SAG must maintain all program records including records of detections of EGVM and *Brevipalpus chilensis* and must make the records available to APHIS upon request. SAG must maintain all records for at least one year.

2. SAG must provide an operational workplan to APHIS for approval that details the activities and responsibilities that SAG will carry out to meet the requirements of the systems approach. APHIS will be directly involved with SAG in monitoring and auditing implementation of the systems approach.

3. If SAG finds that a place of production or packinghouse is not in compliance with the requirements of the systems approach, no table grapes from the place of production or packinghouse will be eligible for export into the United States until APHIS and SAG conduct an investigation and appropriate remedial actions have been implemented.

4. The identity and origin of the fruit must be maintained throughout the process--from the grove, through the packing house, and through the exporting process to the United States--for traceability back to the place of production.

5. After harvest, all damaged or diseased fruits must be culled at the packinghouse, and the remaining fruit must be packed into new, clean boxes, crates or other packing containers approved by APHIS for fumigation (for fumigation to be an option if conditions of the systems approach are not met).

6. Each consignment of fruit must be accompanied by a phytosanitary certificate issued by the NPPO of Chile that contains an additional declaration stating that the table grapes in the consignment were produced in accordance with the systems approach and are free of *Brevipalpus chilensis* and *Lobesia botrana*.

7. All grapes exported from Chile under the systems approach for *Lobesia botrana* and *Brevipalpus chilensis* **must** be pre-cleared in Chile under an APHIS approved pre-clearance program. Grapes may also be exported from Chile using approved treatments under 7 CFR part 305.

Systems approach mitigations that apply to EGVM

8. Grapes may only be exported from pest free places of production in areas of low prevalence for *Lobesia botrana*. The regions that may be considered for export under this systems approach include Arica and Parinacota, Tarapacá, Antofagasta, Atacama, Coquimbo and Valparaiso. EGVM trapping and control in each region must follow the guidelines for Chile's National *Lobesia botrana* control program. Changes to the requirements for exportation of grapes to the United States must be approved by APHIS. All grape production sites must be trapped at levels specified in the operational workplan. All regulatory steps and control measures required by Chile's National *Lobesia botrana* control program must be followed by all exporting places of production.

9. To qualify for export under the systems approach places of production must have no adult captures of EGVM for 2 shipping seasons prior to export. There may be no finds of immature stages within contiguous grape places of production in the prior 2 shipping seasons. Mating disruption may not be used in these production sites, except as part of pest management to eradicate an outbreak. The NPPO of Chile will certify eligible places of production in each eligible region for export without methyl bromide fumigation and will update the list as necessary when production sites lose, or gain export status based on EGVM trap catches or immature stage finds.

10. If during field inspection or export inspections of packed table grapes immature stages of EGVM are found, that consignment (or shipment) may not be exported, and that production site may subsequently export only using MB fumigation until reinstated to the system approach program.

11. Reinstatement of export status for a suspended production site (to be able to export table grapes without MB fumigation for EGVM) requires 1 year with no more than 1 adult EGVM trapped, and 2 years with no immature stages of EGVM found in the field or in packed table grapes.

12. If CBP (or APHIS) finds any stage of EGVM during inspection at the port of entry into the United States, trace back will be initiated, and that production site may only export with methyl bromide fumigation until reinstated to the systems approach.

Systems approach mitigations that apply to *Brevipalpus chilensis*

13. Places of production approved to export to the United States must have low prevalence of *Brevipalpus chilensis.* To establish this for an export harvest shipping season, between 1 and 30 days prior to harvest, random samples of fruit must be collected from each registered place of production under the direction of Chile's NPPO. These samples must undergo a pest detection and evaluation method as follows: The bunch of grapes, including fruit and rachis, must be washed using a flushing method, placed in a 20 mesh sieve on top of a 200 mesh sieve, sprinkled with a liquid soap and water solution, washed with water at high pressure, and washed with water at low pressure. The process must then be repeated. The contents of the 200-mesh sieve must then be placed on a petri dish and analyzed for the presence of live *Brevipalpus chilensis* mites. If a single live *B. chilensis* mite is found, the place of production will not qualify for certification as a low prevalence place of production and will be eligible to export fruit to the United States only if the fruit has been treated with methyl bromide under APHIS treatment schedule T101-i-2-1. Each place of production may have only one opportunity per season to qualify as a low prevalence place of production, and certification of low prevalence will be valid for one harvest season only. The NPPO of Chile will present a list of certified places of production to APHIS.

14. Consignments of table grapes must be inspected for all pests at an APHIS-approved inspection site in Chile under the direction of APHIS inspectors in coordination with SAG, following any post-harvest processing. Fruit presented for inspection must be identified in the shipping documents accompanying each lot of fruit to specify the place of production, in which the fruit was produced, and the packing shed or sheds, in which the fruit was processed. This identification must be maintained until the fruit is released for entry into the United States. A sample of boxes, crates, or other packing containers from each consignment must be selected by SAG, which will detect a 6% infestation rate with 95% confidence based on the biometric sample. The table grapes and panicles from these boxes must be visually inspected for quarantine pests. The sample of grapes specified in the operational workplan must be washed with soapy water and the collected filtrate must be microscopically examined for *B. chilensis*. If a single live *B. chilensis* mite is found, the fruit will be eligible for importation into the United States only if it is fumigated in Chile in accordance with APHIS treatment schedule T101-i-2-1 and monitored by APHIS personnel.

Quarantine treatment options for *Brevipalpus chilensis* and *Lobesia botrana*.

Fumigation

1. Consignments of table grapes that do not meet the conditions of the systems approach for *Brevipalpus chilensis* but do meet the requirements of the systems approach for EGVM may be imported into the United States if the fruit is fumigated either in Chile or at the port of first arrival in the United States with methyl bromide in accordance

with T101-i-2-1 or other approved treatment under 7 CFR 305. An APHIS inspector will monitor the fumigation of the fruit and will prescribe such safeguards as may be necessary for unloading, handling, and transportation preparatory to fumigation. The final release of the fruit for entry into the United States will be conditioned upon compliance with prescribed safeguards and required treatment.

2. Consignments of table grapes that come from areas regulated for EGVM and don't meet the conditions of the systems approach for *Lobesia botrana* may be imported into the United States if the fruit is fumigated either in Chile or at the port of first arrival in the United States with methyl bromide in accordance with T101-h-2 or other approved treatment under 7 CFR 305. T101-h-2 is the current approved treatment for Chile grapes and mitigates for both EGVM and *Brevipalpus chilensis*. An APHIS inspector will monitor the fumigation of the fruit and will prescribe such safeguards as may be necessary for unloading, handling, and transportation preparatory to fumigation. The final release of the fruit for entry into the United States will be conditioned upon compliance with prescribed safeguards and required treatment.

Irradiation

If irradiation is pursued instead of one or more of the pest-specific measures of the systems approach, the following requirements adhere:

1. The fruit must be commercially produced and be part of a commercial consignment as defined in 7 CFR Section 319.56-2.
2. Each consignment of fruit must be inspected by the NPPO of Chile prior to departure. A Phytosanitary Certificate (PC) issued by the NPPO of Chile is required to accompany each consignment.
3. The fruit must be irradiated with a minimum absorbed dose of 400, 300 or 150 Gy in the United States depending on the pest of concern (dosages for EGVM, *B. chilensis* or fruit flies respectively) and follow the requirements of 7 CFR part 305*.
4. United States Customs and Border Protection (CBP) will inspect fruit consignments upon arrival at the first port of entry to the United States.

*If in the future when irradiation facilities become available in Chile, irradiation may be applied in Chile and it must follow all requirements of 7 CFR parts 305, including APHIS facility approval, an operational workplan and addendum.

Risk Management Measures – Systems Approach Justification

The section below discusses various parts of the system approach for Chilean table grapes, and how each part of the system acts together to mitigate risks.

General measures for systems approach.

Requiring commercial consignments in the systems approach results in including fruit that has been grown to high standards of quality, subjected to pest control, sorted for quality, subjected to culling, and postharvest treatments to maintain quality. Sanitation, such as removing and discarding fallen fruit and pesticide applications, as essential components of good agricultural practices, are mainstays of commercial fruit production (e.g., Kirk *et al*., 2001). Cultural, chemical, or mechanical means (e.g., field sanitation, pre-harvest application of pesticides, resistant cultivars) eliminate pests from fields or prevent fruit infestation/infection. Commercially produced fruit is thus far less likely to contain quarantine pests (USDA, 2011).

The operational work plan ensures that the general risk management measures listed above will ensure that only sites approved by the Chilean NPPO and following all aspects of the systems approach will be approved for export. The NPPO of Chile and APHIS will ensure that any production sites that don't follow the requirements of the OWP will be removed from the systems approach. Orchard registration with the NPPO of Chile allows trace-back to place of production and correction of phytosanitary issues or removal of places of production from the fruit exportation program. Orchard registration ensures that the NPPO of Chile will provide oversight and that registered places of production follow the export program. Since the fruit never loses its identity (all fruit remain traceable back to the original place of production), origin can be determined even after the fruit has reached the consumer distribution outlets and other points of sale. Trace-back and registered places of production allow backtracking of pest detections and remedial mitigation or removal of places of production or areas from the program. Requiring packing in pest exclusionary packing houses prevents infestation of fruit by pests after harvest and prevents hitchhiking pests (pests not normally associated with the fruit) from following the pathway of packed table grapes. Registration of places of production will allow trace back to the place of production if pests are found on fruit shipped to the United States. Places of production with pest detections can then be removed from the program for the remainder of the shipping season and until further mitigation measures have been taken to reduce pest populations.

Requiring a phytosanitary certificate ensures that the NPPO of Chile has inspected the fruit and certified that the shipment has been produced in accordance with the operational workplan and meets the conditions for export to the United States. Inspection is a primary tool for interdicting plant pests from entering the United States. APHIS and Customs and Border Protection (CBP) intercept 1.5 million prohibited plants and plant products and 40,000 to 50,000 plant pests per year by inspection (Cavey, 2003). The requirement of a Phytosanitary Certificate (PC) ensures that the NPPO in the country of origin inspects the commodity. Each consignment of table grapes is subject to inspection

at the port of entry to the United States. Inspection ensures that various stages of any pest present will be detected; this is particularly effective against pests whose life stages are large and readily detected (Borror *et al.,* 1989; Kahn & Mathur, 1999; Vincent et al., 2003). Inspection is a primary method used by APHIS and CBP to interdict plant pests upon entry to the United States (Cavey, 2003).

The general measures required in this systems approach will mitigate against the low rated pests *Copitarsia decolora, Pseudococcus cribata, Pseudococcus meridionalis, Accuminulia buscki, Bonagota salubricola, Chileulia stalactitis, Proeulia auraria, Proeulia chrysopteris*, and *Proeulia triquetra*. All of these low rated pests except *Pseudococcus cribata* and *P. meridionalis* are foliage feeding Lepidoptera larvae that may be present in the clusters of grapes. These larvae do not feed internally in the grapes, and produce webbing, feeding damage and frass (insect waste). The two *Pseudococcus* spp. are mealybugs that feed externally on plant parts and are conspicuous and readily detected by inspection. The combination of the following measures will remove all of these low rated pests from the pathway: commercial production, culling of damaged fruit, operational workplan, traceback to production sites, inspection, and a phytosanitary certificate. These measures are all currently in place under the operational workplan for exporting fresh fruit from Chile and have been effective in removing the pests listed above.

Systems approach mitigations that apply to EGVM.

Pest free places of production in areas of low prevalence are required under this systems approach for *Lobesia botrana*. The regions that may be considered for export under this systems approach include Arica and Parinacota, Tarapacá, Antofagasta, Atacama, Coquimbo and Valparaiso. APHIS will require that the EGVM trapping and control in each region must follow the guidelines for Chile's National *Lobesia botrana* control program. Pest free areas and pest free places of production are considered effective standalone measures to mitigate against pests (ISPM 10). Here they will be used in conjunction with several other measures to prevent movement of *Lobesia botrana*. SAG has been operating the National control program for *Lobesia botrana* for 10 years. During this time, they have had very few captures of *Lobesia botrana* in Arica and Parinacota, Tarapacá, Antofagasta, Atacama and Coquimbo. Valparaiso has had moderate levels of captures in some areas. Much of the area in this part of Chile is a desert with no host plants for *Lobesia botrana.* The table grape growing areas in these Region of Chile consists of irrigated orchards in river valleys. These valleys are isolated from the more infested Regions of Chile (Metropolitan, O'Higgins and Maule) by many kilometers of desert, ranging from a few hundred (Coquimbo and Valparaiso) to over 2,000 kilometers (Arica and Parinacota). The flight capacity of adult *Lobesia botrana* is low, usually they only fly a few hundred meters. The main dispersal agent for EGVM is the movement of grapes by humans. As part of the National control program for EGVM, movement of grapes is strictly regulated. In addition, the trapping and control program identifies and neutralizes outbreaks in these outlying provinces. The main issue in controlling EGVM in heavily infested parts of Chile is the high prevalence of backyard grapes in urban areas. The Northern regions that will be part of this program do not have

large urban areas. SAG has provided yearly updates with survey data from their EGVM program, and the data provides evidence that these areas are mainly free of *Lobesia botrana* (Servicio Agricola y Ganadero, 2015; 2016; 2017; 2018a; 2018b). In January 2018 APHIS conducted a site visit as part of a trade bilateral with Chile (USDA, 2018). The group visited grape production sites in Copiapó, Atacama and reviewed SAG procedures and records. There had not been a capture of an EGVM in that production area for over a year, and the area was regulated and under surveillance for EGVM. There have been no further captures of EGVM in Atacama since January 2018 site visit (SAG, 2020).

Trapping and control program for EGVM.

SAG's protocols for trapping and control of EGVM in the National EGVM program have been developed over 10 years in consultation with a technical working group including U.S. and European scientists. The methodology for trapping and control is based on the best available science and ISPM standards. SAG standards are very similar to the successful CDFA (California Department of Agriculture) USDA EGVM eradication program in California.

Pest Free Places of Production in Pest Free Areas for EGVM.

Establishment and maintenance of pest free places of production in pest free areas proposed for EGVM in northern Chile conform to International Standards for Phytosanitary Measures (ISPM) # 4, (ISPM) # 22 and (ISPM) # 29, which include systems to establish freedom, phytosanitary measures to maintain freedom, and checks to verify freedom has been maintained. These PFA components were achieved through data assembly, trapping surveys (delimiting, detection and monitoring), regulatory controls, audits and documentation (IPPC, 1995; 2005; 2007).

Systems approach mitigations that apply to *Brevipalpus chilensis* mites.

Place of production low prevalence certification will identify problematic places of production and prevent shipment of fruit with *Brevipalpus chilensis* mites from these sites. This mite sampling has been tested in Chile and found to be successful in identifying areas with high and low populations of mites (Servicio Agricola y Ganadero, 2002; 2007). During the 2002/2003 and 2006/2007 growing season, a pilot program of a systems approach for table grapes was conducted under the guidance of USDA-APHIS (Servicio Agricola y Ganadero, 2002; 2007). This program consisted of the SAG certification of places of production as low prevalence for *B. chilensis*; USDA-APHIS / SAG joint inspection of samples in Chile; and shipment of samples to Philadelphia, where they were inspected by APHIS-PPQ. Grapes produced under this systems approach were found to have no detections of live *B. chilensis* during the inspections performed in Chile or in the United States. The results of the pilot study provided sufficient evidence that a systems approach that includes low prevalence of *B. chilensis* effectively removes this pest from the importation pathway.

Post-harvest processing such as culling damaged fruit and sampling for mites will remove fruit that may contain pests. Culling is a standard procedure to produce quality fruit without pests.

Quarantine treatment options for *Brevipalpus chilensis* and *Lobesia botrana*.

Irradiation treatment (Schedule T105-a-3) at 400 gy is approved for treating grapes for *Lobesia botrana* (USDA, 2021b). A minimum absorbed dose of 400 Gy has been determined by APHIS regulations 7 CFR 305.9 to be adequate to neutralize all insects except pupae and adults of Lepidoptera. The APHIS treatment manual lists a minimum absorbed dose of 300 Gy as effective against *B. chilensis* (USDA, 2021b). A minimum absorbed dose of 150 Gy has been determined by APHIS regulations 7 CFR 305.9 to be adequate to neutralize all Tephritidae fruit flies in case there are outbreaks of *Ceratitis capitata* in Chile (USDA, 2021b). The irradiation treatment, along with commercial consignments and required inspections will mitigate the risks from all the insects listed above. Irradiation has been used successfully to mitigate pest risk for different types of fruits imported from many countries.

Consignments of grapes that do not meet the conditions of the systems approach for *Lobesia botrana* may be imported into the United States if the fruit is fumigated either in Chile or at the port of first arrival in the United States with methyl bromide in accordance with T101-i-h-2. This is the current market access requirement for grapes from Chile. This fumigation treatment also mitigates against the Chilean false red mite, *Brevipalpus chilensis* Baker (Acari: Tenuipalpidae) (USDA, 2021a; 2021b).

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References

AQAS 2009. Agriculture Quarantine Activity System. Pest ID database. Accessed Nov. 2009.

Borror, D. J., Triplehorn, C. A. and N. F. Johnson. 1989. Introduction to the study of insects, 6th edition. Harcourt Brace Jovanovich College Publishers, TX. 213 pp.

Cavey, J.F. 2003. Mitigating introduction of invasive plant pests in the United States. pp. 350 – 361. (Chapter 13) in Invasive Species: Vectors and Management Strategies, G.M. Ruiz and J.T. Carlton editors. Island press, Washington DC.

IPPC. 1995. International Standards for Phytosanitary Measures. Requirements for the establishment of pest free areas. ISPM 4. UN-FAO-IPPC, Italy.

IPPC. 2005. International Standards for Phytosanitary Measures. Requirements for the establishment of areas of low pest prevalence. ISPM 22. UN-FAO-IPPC, Italy.

IPPC. 2007. International Standards for Phytosanitary Measures. Recognition of pest free areas and areas of low pest prevalence. ISPM 29. UN-FAO-IPPC, Italy.

Kahn, R. P. and S. B. Mathur. 1999. Containment Facilities and Safeguards. American Phytopathological Society, St. Paul, MN. 213 pp.

Kirk, K., Bessin, R., Hartman, J., O'Leary, J. and Strang, J. 2001. Total quality assurance: apple production: best management practices. Kentucky Coop. Ext. Serv. ID-137.

Servicio Agricola y Ganadero. 2002. Chile Pre Clearance Program Low Prevalence Pilot Program for *Brevipalpus chilensis* B. in Grapes. Servicio Agricola y Ganadero, Gobierno de Chile, Santiago, Chile. 108 pp.

Servicio Agricola y Ganadero. 2007. Chile Pre Clearance Program Low Prevalence Pilot Program for *Brevipalpus chilensis* B. in Grapes. Servicio Agricola y Ganadero, Gobierno de Chile, Santiago, Chile. 25 pp.

Servicio Agricola y Ganadero. 2015. National Program against EGVM. Surveillance Results as of April 10, 2015. SAG, Ministry of Agriculture, Government of Chile. 13 pp.

Servicio Agricola y Ganadero. 2016. National Program against EGVM. Monitoring Results 2015-2016 Season. SAG, Ministry of Agriculture, Government of Chile. 14 pp.

Servicio Agricola y Ganadero. 2017. National Program against EGVM. Monitoring Results at the end of the 2016-to-2017 Season. SAG, Ministry of Agriculture, Government of Chile. 11 pp.

Servicio Agricola y Ganadero. 2018a. National Program against EGVM. Monitoring Results at the end of the 2017-to-2018 Season. SAG, Ministry of Agriculture, Government of Chile. 12 pp.

Servicio Agricola y Ganadero. 2018b. National Program against EGVM. Monitoring Results at November 23 of the 2018 - 2019 Season. SAG, Ministry of Agriculture, Government of Chile. 12 pp.

Servicio Agricola y Ganadero. 2020. National Program against EGVM. Monitoring Results at November 22 of the 2019 - 2020 Season. SAG, Ministry of Agriculture, Government of Chile. 11 pp.

USDA. 1960. Title 7— AGRICULTURE Chapter III— Agricultural Research Service, Department of Agriculture PART 319— FOREIGN QUARANTINE NOTICES Subpart— Fruits and Vegetables Administrative Instructions Prescribing Method of Fumigation of Apricots, Grapes, Nectarines, Peaches, and Plums from Chile. Wednesday, November 16, 1960. Federal Register Vol. 25(223): 10865-10866.

USDA. 2005. Importation of table grapes, *Vitis vinifera*, from Chile into the United States. A pathway-initiated risk assessment. June 2005. United States Department of Agriculture (USDA), Animal and Plant Health Inspection Service (APHIS), Plant Protection and Quarantine (PPQ), Center for Plant Health Science and Technology (CPHST), Plant Epidemiology and Risk Analysis Laboratory (PERAL), Raleigh, NC. 75 pp.

USDA. 2008. Importation of Grapes from Chile under a Systems Approach. Proposed Rule. Federal Register Wednesday, August 27, 2008. Vol. 73(167): 50577-50582.

USDA. 2011. Plant Pest Risk Associated with Fruits and Vegetables in Passenger Baggage. A Risk Management Document. United States Department of Agriculture (USDA), Animal and Plant Health Inspection Service (APHIS), Plant Protection and Quarantine (PPQ), Washington, D.C. 9 pp.

USDA. 2012. Importation of table grapes, *Vitis vinifera*, from Chile into the United States. A pathway-initiated risk assessment. Oct. 2009, revised June 2012. United States Department of Agriculture (USDA), Animal and Plant Health Inspection Service (APHIS), Plant Protection and Quarantine (PPQ), Center for Plant Health Science and Technology (CPHST), Plant Epidemiology and Risk Analysis Laboratory (PERAL), Raleigh, NC. 91 pp.

USDA. 2015. FEDERAL ORDER. Import Restrictions on Mediterranean fruit fly Host Material from Quarantine Areas in Chile. July 31, 2015. DA-2015-42. https://www.aphis.usda.gov/import_export/plants/plant_imports/federal_order/downloads/2015/DA-2015-42.pdf

USDA. 2018. Chile Bilateral Site Visit – January 5-14, 2018. United States Department of Agriculture (USDA), Animal and Plant Health Inspection Service (APHIS), Plant Protection and Quarantine (PPQ), Washington, D.C. 15 pp.

USDA. 2021a. Fruit and Vegetable Import Requirements (FAVIR) database. https://epermits.aphis.usda.gov/manual/index.cfm?ACTION=pubHome Accessed April 2021.

USDA. 2021b. Treatment Manual. USDA-APHIS, PPQ; https://www.aphis.usda.gov/import_export/plants/manuals/ports/downloads/treatment.pdf Accessed April 2021.

USDA. 2021c. Importation of grapes (*Vitis vinifera*) for consumption from Chile into the United States and territories. A pathway-initiated risk assessment. Oct. 1, 2021. Version 1. United States Department of Agriculture (USDA), Animal and Plant Health Inspection Service (APHIS), Plant Protection and Quarantine (PPQ), Science and Technology (S&T), Plant Pest Risk Analysis (PPRA), Raleigh, NC. 93 pp.

Vincent, C., G. Hallman, B. Panneton and F. Fleurat-Lessard. 2003. Management of agricultural insects with physical control methods. Annual Review of Entomology. 48: 261-281.

Recommendations

APHIS concludes that shipments of fresh grapes that originate from Arica and Parinacota, Tarapacá, Antofagasta, Atacama, Coquimbo, and Valparaiso Regions of Chile may safely be imported to the United States without the risk of introducing *Brevipalpus chilensis* and *Lobesia botrana* using a combination of the mitigations listed above.

_X_ APPROVED

___ DISAPPROVED

____ Walter P. Gould_____ ____September 29, 2021____

Signature (name) **Date**