FOR INFORMATION AND ACTION
DA-2015-04
January 26, 2015

Subject: APHIS Revises Citrus Greening and Asian Citrus Psyllid Domestic Quarantine Regulatory Requirements for Certain Leaves for Consumption

To: State and Territory Agricultural Regulatory Officials

The Animal and Plant Health Inspection Service (APHIS) is revising the Asian citrus psyllid (ACP) and citrus greening (CG) domestic quarantine regulations for the interstate movement of fresh, mature leaves of certain plants that are intended for consumption from areas quarantined for ACP and CG.

Effective immediately, we are amending the regulations to establish a systems approach under which fresh, mature leaves of kaffir lime, curry, and bael intended for consumption from areas quarantined for CG and ACP may be moved interstate without fumigation or irradiation treatment. An APHIS risk evaluation has determined that the movement of such leaves is unlikely to transmit CG and that a series of mechanical and physical processing methods removes ACP from those leaves. The systems approach will provide an alternative to fumigation with methyl bromide and irradiation treatment while continuing to prevent the dissemination of ACP via the movement of these leaves.

A protocol that describes the requirements of the systems approach is attached and is also at:

http://www.aphis.usda.gov/plant-health/citrus-greening

APHIS will publish a notice of this change in the *Federal Register*. For additional information, you may call Citrus Health Response Program National Coordinator Prakash Hebbar at 301-851-2228 or National Policy Manager for Citrus Disease Programs Lynn Evans-Goldner at 301-851-2286.

/s/
Osama El-Lissy
Deputy Administrator
Plant Protection and Quarantine

Attachments: Federal Order and Protocol

FEDERAL ORDER

Citrus Greening (CG) and Asian Citrus Psyllid (ACP) Domestic Quarantine Regulatory Requirements for Certain Leaves for Consumption

DA-2015-04

January 26, 2015

Effective immediately, this Federal Order amends the CG and ACP regulations to establish a systems approach under which fresh, mature leaves of kaffir lime, curry, or bael intended for consumption from areas quarantined for CG and ACP may be moved interstate without fumigation or irradiation treatment.

This Federal Order is issued in accordance to the regulatory authority provided by the Plant Protection Act of June 20, 2000, as amended, Section 412(a), 7 U.S.C. 7712(a). The Act authorizes the Secretary of Agriculture to prohibit or restrict the movement in interstate commerce of any plant, plant part, or article, or means of conveyance, if the Secretary determines the prohibition or restriction is necessary to prevent the dissemination of a plant pest within the United States. This Federal Order is also issued pursuant to the regulations promulgated under the Plant Protection Act found at 7 *Code of Federal Regulations* (CFR) 301.76 et. seq.

The domestic quarantine regulations for CG and ACP are located at 7 CFR Part 301.76 et seq. The regulations designate certain articles, including leaves, as regulated articles for CG and ACP and specify the conditions under which such articles may be moved interstate from an area that is quarantined for CG and ACP.

The current CG and ACP regulations were established in an interim rule effective and published in the Federal Register on June 17, 2010 (75 FR 34322 34336, Docket No. APHIS-2008-0015). Since that time, we have received several requests to establish alternative conditions for the interstate movement of fresh, mature leaves of kaffir lime, curry, and bael intended for consumption. Such leaves are primarily marketed for use in salads and in specialty cuisine. The imposition of the ACP quarantine meant that fumigation with methyl bromide or treatment with irradiation was required to allow them to be moved interstate. These treatments have been economically unfeasible for growers of leaves of kaffir lime, curry, or bael intended for consumption—meaning that many growers who had been able to sell leaves interstate have no longer been able to do so. In addition, these leaves could not be moved interstate at all from areas quarantined for CG.

To respond to these requests, APHIS published a risk analysis titled “Assessing and Mitigating the Quarantine Risk of Asian Citrus Psyllid, *Diaphorina citri* Kuwayama (Hemiptera: Psyllidae) on Fresh, Mature Leaves of kaffir Lime (*Citrus hystrix* DC), Curry [*Bergera koenigii* (L.) Spreng.], and Bael [*Aegle marmelos* (L.) Corr. Serr.], for Consumption.” Based on the conclusions of the risk analysis, we are amending the regulations to allow the interstate movement of fresh, mature leaves of kaffir lime, curry, or bael from areas quarantined for CG

and ACP under the systems approach in the protocol. Recognizing that as we gain more experience with the systems approach, we may need to adjust the approach (for example, to allow the use of new washing products), we are placing the specific provisions of the systems approach in a protocol document rather than in the regulations.

*Intent of the Plant Protection and Quarantine (PPQ) Protocol to allow the interstate movement of fresh, mature leaves of kaffir lime, curry, and bael from areas quarantined for citrus greening (CG) and Asian citrus psyllid (ACP)*

The protocol allows the movement of fresh, mature leaves of kaffir lime, curry, or bael leaves intended for consumption if the facility in which the leaves are packed for sale enters into a compliance agreement with APHIS. As a condition of the compliance agreement, the facility will agree to meet the requirements for leaf origin, shaking, washing, rinsing, and drying as specified in the protocol. The compliance agreement will also specify that APHIS may amend the agreement. The protocol document contains the detailed description of the systems approach that is based on the risk analysis. APHIS will provide the protocol document to the owner or operator of the facility at the time he or she enters into the compliance agreement. APHIS will post the protocol document on PPQ's citrus diseases website, and it may be obtained from local PPQ offices that are listed in telephone directories.

We envision that any updates to the protocol document will usually be unsubstantial and that they will be intended to further explain the systems approach's requirements or provide options for meeting those requirements. If, however, we propose substantial modifications to the systems approach, we will publish a notice in the *Federal Register* to describe the proposed revisions and to request public comment. We will consider all comments we receive, and we will publish a second notice informing the public of our decision.

Whenever we update the protocol document, we will notify each state agricultural official and holder of a compliance agreement of the changes, and we will revise compliance agreements to reflect the updated protocol. It will be necessary for those operating under a compliance agreement to sign the revised agreement for continued eligibility to move fresh, mature leaves of kaffir lime, curry, and bael interstate for consumption.

*Areas quarantined for ACP/CG and citrus black spot, citrus canker, and/or sweet orange scab*

Some areas quarantined for ACP and CG are also quarantined for other diseases of citrus, and the movement of leaves from those areas is affected by this Federal Order.

Florida and portions of Louisiana are quarantined for citrus canker under § 301.75-4. As leaves are a pathway for the dissemination of citrus canker, the interstate movement of leaves from areas quarantined for citrus canker is prohibited. Certain areas within Florida are also quarantined for the disease citrus black spot under a Federal Order issued October 14, 2010, and updated on March 16, 2012. The movement of leaves for consumption from areas quarantined for citrus black spot is prohibited as well.

In a Federal Order issued on March 23, 2011, APHIS quarantined Arizona, Florida, Louisiana, Mississippi, and Texas for the disease sweet orange scab (SOS). The movement of leaves for consumption under a certificate from an area quarantined for SOS is allowed subject to certain conditions in the Federal Order. The conditions for movement are compatible with the conditions for movement of leaves from ACP and citrus greening quarantined areas established in this Federal Order. Specifically, the SOS Federal Order requires that the facility enter into a compliance agreement and that the articles moved interstate be visually inspected and found to be asymptomatic for SOS. These steps can be accomplished at the same time as similar steps in the protocol outlined in this Federal Order.

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

Protocol for Interstate Movement of Fresh, Mature Leaves of Kaffir Lime (*Citrus hystrix* DC.), Curry [*Bergera koenigii* (L.) Spreng.], and Bael [*Aegle marmelos* (L.) Corr. Serr.] Intended for Consumption

January 26, 2015

**Introduction**

The interstate movement of rutaceous leaves is prohibited from areas quarantined for Asian Citrus Psyllid (ACP) and Citrus Greening (CG), also known as *huanglongbing* (HLB) unless moved in accordance with (1) regulations contained in CFR §301.76, (2) all applicable state laws, and (3) the requirements below.

This protocol:

- Provides conditions for the unrestricted interstate movement of leaves of kaffir lime (*Citrus hystrix*), curry (*Bergera koenigii*), or bael (*Aegle marmelos*) intended for consumption from areas quarantined for ACP and CG; and
- Is *not* for use in areas quarantined for citrus canker (CC), and/or citrus black spot (CBS); and
- Is based on a USDA APHIS PPQ systems approach, protocol, and risk assessment document (See reference section); and
- Was demonstrated in the field under commercial conditions and was determined to be feasible and acceptable to growers.

## I. General Requirements

### A. Compliance Agreements, Certificates, and Inspection

1. Facilities engaged in processing, handling, and packaging of fresh, mature leaves of kaffir lime, curry, and bael must enter into a compliance agreement with APHIS if he or she wishes to ship the aforementioned articles interstate.
2. The fresh, mature leaves of kaffir lime, curry, or bael intended for consumption may be shipped interstate to all States if accompanied by a certificate issued by an inspector verifying that all conditions of this protocol and any additional requirements stipulated in the compliance agreement have been met. A copy of the certificate must be attached to the consignee's copy of the accompanying waybill.
3. A compliance agreement that has been issued may be withdrawn, either orally or in writing, by an inspector if he or she determines that the holder of the compliance agreement has not complied with all conditions in this protocol. If the withdrawal is oral, the withdrawal and the reasons for the withdrawal will be confirmed in writing as

promptly as circumstances allow. Any person whose compliance agreement has been withdrawn may appeal the decision in writing to the Administrator within 10 days after receiving the written notification of the withdrawal. The appeal must state all of the facts and reasons upon which the person relies to show that the compliance agreement was wrongfully cancelled. The Administrator must grant or deny the appeal, in writing, stating the reasons for the decision, as promptly as circumstances allow. If there is a conflict as to any material fact, a hearing will be held to resolve the conflict. Rules of practice concerning the hearing will be adopted by the Administrator.

4. The adoption and use of these guidelines must be subject to monitoring by an inspector who is responsible for documenting inspection and compliance.

## II. Leaf Processing Steps

### A. Harvesting

1. Fresh, mature leaves must only be harvested from groves that are actively being managed for ACP and that have a low prevalence of the pest.
2. ACP population levels in groves can be determined by examining yellow sticky traps placed in the orchard or by visual examination of plants in the grove.
3. Upon arrival at the site and prior to harvesting leaves, inspectors must check traps or inspect trees to determine the prevalence of ACP in the grove.
4. If ACP is detected in the grove, the inspector must notify the grower that pest management measures should be applied before the next leaf harvest.

### B. Shaking

1. The location where leaves are shaken must be physically separated (e.g., different area, enclosed room, or screened area) from the area where the leaves will be washed. Separation of the two areas must be verified by the inspector.
2. Harvested leaves must be shaken using a tumbling device or an equivalent method approved by a regulatory official.
3. The mesh size of the tumbling device should be one-half inch or larger to allow the ACP to pass through mesh.
4. The device should not be filled more than half full of leaves by volume.
5. Leaves must be continuously mechanically shaken at ambient air temperature for 2 minutes to dislodge any ACP that may be present on the leaves.
6. Leaves must be shaken over a reservoir of water mixed with detergent or wash product to capture any insects that are dislodged during the shaking process.
7. After shaking, leaves should be placed in a clean container and moved to the washing area.

## C. Washing

1. Leaves that are contained in a clean washtub or other container must be washed in potable water amended with a single washing product.
2. The washing product must be applied at the following concentration:

| Product | Amount |
|---|---|
| • Environné | ¼ cup per gallon |
| • Rebel Green | ¼ cup per gallon |
| • Veggie Wash | ¼ cup per gallon |

(See Appendix I for more information about the washing products)

3. Leaves must be washed at ambient air temperature with continuous agitation for 2 minutes.
4. The volume of leaves per volume of water must not exceed 50% and leaves must be completely submerged during the entire washing step.

## D. Rinsing

1. The rinsing process may be conducted in the same area where the leaves are washed.
2. The leaves may be rinsed at ambient air temperature by:
    - Submersion, with continuous agitation, in a tub or basin containing potable water. The volume of leaves per volume of rinse water should not exceed 50%; or
    - Arranging the leaves in a single layer on a one-half inch mesh screen then spraying the leaves with potable water using a power sprayer or hose nozzle.
3. The leaves must be rinsed for a minimum of 2 minutes or until the wash water and washing product residues are removed.

## E. Drying

1. The drying process may be conducted in the same area where the leaves are washed and rinsed; if possible, move the washed, cleaned, and rinsed leaves to a separate clean area for drying.
2. If it is necessary to move the leaves for drying, move the leaves in a clean container.
3. Yellow sticky traps must be placed and continuously maintained in the drying area.
4. The traps must be monitored before inspection of the final leaf product.
5. If ACP are found on the traps:
    - The official may require that a larger number of leaves must be sampled before the final product can be released; and

- The grower should be informed that increased safeguarding efforts to exclude ACP should be adopted.

## F. Packaging

1. Washed, rinsed, and dried leaves must be packaged in clean, insect-proof packaging.

## G. Final Inspection

1. Before shipment the leaves and packing material must be inspected.
2. Inspect the washed, rinsed, and dried leaves and packing material in an ACP-free area.
3. Open the bags of leaves in a clean, ACP-free area.
4. Remove the leaves from the packaging material.
5. Spread the leaves on a clean white cloth or white paper in a well-lit area.
6. Inspect by:
    - Inspecting inside surfaces of packaging, and
    - Turning over and examining surfaces of leaves, and
    - Inspecting the cloth or paper after lifting off the leaves.
7. A 10x hand lens or lighted magnifier may aid in closely examining the leaves.
8. The number of leaves that must be inspected is based upon the sampling guidelines listed below in Table 1.
9. Table 1 - Instructions for use:
    - There are approximately 500 leaves per pound.
    - Determine the weight and total number of leaves per lot to be shipped.
    - Then select the number of leaves from the lot given in the third column from the left for inspection.
    - If there are more than 20 pounds per lot, then divide the lot into parts of 20 pounds or less and sample each part based on the weight.
    - If a lot is divided into smaller parcels, then take some of the sample from each parcel.
    - The fourth column is the number of leaves that the person examining the leaves would skip when taking a sample. The goal is to sample the lot of leaves in a stratified manner rather than in a random manner.
    - Example: for the first line in the table, skip 1 leaf for every 20 leaves sampled; for the second line, skip 1 leaf for every 4 leaves sampled.

| Table 1: Leaf Sampling Guidelines for Final Inspection of Washed, Rinsed, Dried, and Packaged Kaffir lime, Curry, and Bael Leaves. | | | |
|---|---|---|---|
| **Weight in 1/4 lbs.** | **Total Leaves** | **Number of Leaves to Sample** | **Leaf Skip Interval** |
| 0.25 | 125 | 119 | 1.0504 |
| 0.50 | 250 | 194 | 1.2887 |
| 0.75 | 375 | 291 | 1.2887 |
| 1.00 | 500 | 316 | 1.5823 |
| 1.25 | 625 | 329 | 1.8997 |
| 1.50 | 750 | 395 | 1.8987 |
| 1.75 | 875 | 394 | 2.2208 |
| 2.00 | 1,000 | 450 | 2.2222 |
| 2.25 | 1,125 | 442 | 2.5452 |
| 2.50 | 1,250 | 435 | 2.8736 |
| 2.75 | 1,375 | 478 | 2.8766 |
| 3.00 | 1,500 | 468 | 3.2051 |
| 3.25 | 1,625 | 459 | 3.5403 |
| 3.50 | 1,750 | 495 | 3.5354 |
| 3.75 | 1,875 | 485 | 3.8660 |
| 4.00 | 2,000 | 517 | 3.8685 |
| 4.25 | 2,125 | 506 | 4.1996 |
| 4.50 | 2,250 | 496 | 4.5363 |
| 4.75 | 2,375 | 524 | 4.5324 |
| 5.00 | 2,500 | 514 | 4.8638 |
| 5.25 | 2,625 | 505 | 5.1980 |
| 5.50 | 2,750 | 529 | 5.1985 |
| 5.75 | 2,875 | 520 | 5.5288 |
| 6.00 | 3,000 | 542 | 5.5351 |
| 6.25 | 3,125 | 533 | 5.8630 |
| 6.50 | 3,250 | 524 | 6.2023 |
| 6.75 | 3,375 | 544 | 6.2040 |
| 7.00 | 3,500 | 536 | 6.5299 |
| 7.25 | 3,625 | 528 | 6.8655 |
| 7.50 | 3,750 | 546 | 6.8681 |
| 7.75 | 3,875 | 538 | 7.2026 |
| 8.00 | 4,000 | 556 | 7.1942 |
| 8.25 | 4,125 | 548 | 7.5274 |
| 8.50 | 4,250 | 540 | 7.8704 |
| 8.75 | 4,375 | 556 | 7.8687 |
| 9.00 | 4,500 | 549 | 8.1967 |
| 9.25 | 4,625 | 542 | 8.5332 |
| 9.50 | 4,750 | 557 | 8.5278 |
| 9.75 | 4,875 | 550 | 8.8636 |
| 10.00 | 5,000 | 564 | 8.8652 |

| Table 1: Leaf Sampling Guidelines for Final Inspection of Washed, Rinsed, Dried, and Packaged Kaffir lime, Curry, and Bael Leaves. | | | |
|---|---|---|---|
| **Weight in 1/4 lbs.** | **Total Leaves** | **Number of Leaves to Sample** | **Leaf Skip Interval** |
| 10.25 | 5,125 | 557 | 9.2011 |
| 10.50 | 5,250 | 550 | 9.5455 |
| 10.75 | 5,375 | 564 | 9.5301 |
| 11.00 | 5,500 | 557 | 9.8743 |
| 11.25 | 5,625 | 551 | 10.2087 |
| 11.50 | 5,750 | 563 | 10.2131 |
| 11.75 | 5,875 | 557 | 10.5476 |
| 12.00 | 6,000 | 569 | 10.5448 |
| 12.25 | 6,125 | 563 | 10.8792 |
| 12.50 | 6,250 | 558 | 11.2007 |
| 12.75 | 6,375 | 569 | 11.2039 |
| 13.00 | 6,500 | 563 | 11.5453 |
| 13.25 | 6,625 | 558 | 11.8728 |
| 13.50 | 6,750 | 568 | 11.8838 |
| 13.75 | 6,875 | 563 | 12.2114 |
| 14.00 | 7,000 | 573 | 12.2164 |
| 14.25 | 7,125 | 568 | 12.5440 |
| 14.50 | 7,250 | 563 | 12.8774 |
| 14.75 | 7,375 | 573 | 12.8709 |
| 15.00 | 7,500 | 568 | 13.2042 |
| 15.25 | 7,625 | 563 | 13.5435 |
| 15.50 | 7,750 | 572 | 13.5490 |
| 15.75 | 7,875 | 567 | 13.8889 |
| 16.00 | 8,000 | 576 | 13.8889 |
| 16.25 | 8,125 | 572 | 14.2045 |
| 16.50 | 8,250 | 567 | 14.5503 |
| 16.75 | 8,375 | 576 | 14.5399 |
| 17.00 | 8,500 | 571 | 14.8862 |
| 17.25 | 8,625 | 567 | 15.2116 |
| 17.50 | 8,750 | 575 | 15.2174 |
| 17.75 | 8,875 | 571 | 15.5429 |
| 18.00 | 9,000 | 579 | 15.5440 |
| 18.25 | 9,125 | 574 | 15.8972 |
| 18.50 | 9,250 | 570 | 16.2281 |
| 18.75 | 9,375 | 578 | 16.2197 |
| 19.00 | 9,500 | 574 | 16.5505 |
| 19.25 | 9,625 | 570 | 16.8860 |
| 19.50 | 9,750 | 577 | 16.8977 |
| 19.75 | 9,875 | 573 | 17.2339 |
| 20.00 | 10,000 | 581 | 17.2117 |

10. Retain and report detected insects for identification.
11. If any live ACP nymphs or adults, or flush material are found, the lot(s) being inspected must be rejected and corrective action taken.
12. Rejected lots may be re-shaken, re-washed, re-rinsed, dried, re-packaged in new insect-proof material, be subjected to go through steps 2-7 above, and be subject to another inspection or be fumigated.
13. The tolerance is zero live ACP nymphs or adults and no flush material.

## H. Definitions

*Certificate.* A document, stamp, or other means of identification approved by APHIS and issued by an inspector or person operating under a compliance agreement when he or she finds that, because of certain conditions, a regulated article can be moved safely from an area quarantined for Asian citrus psyllid and/or citrus greening without spreading the psyllid or the disease.

*Compliance Agreement.* A written agreement between APHIS and a person engaged in the business of growing, maintaining, processing, handling, packing, or moving regulated articles for interstate movement, in which the person agrees to comply with these guidelines.

*Flush.* Newly developing cluster of very young and feather stage leaves of kaffir lime (*Citrus hystrix*), Curry (*Bergera koenigii*), and Bael (*Aegle marmelos*) that are on the expanding plant terminals and that are pale green in color and not yet fully hardened.

*Fresh.* Leaves that are newly harvested.

*Inspector.* An individual authorized by the Administrator to perform the duties required under this protocol.

*Mature*. Leaves that have completed growth and natural development.

## I. Reference

*USDA-APHIS-PPQ. 2012.* Assessing and Mitigating the Quarantine Risk of Asian Citrus Psyllid, *Diaphorina citri* Kuwayama (Hemiptera: Psyllidae) on Fresh, Mature Leaves of Kaffir Lime (*Citrus hystrix* DC.), Curry [*Bergera koenigii* (L.) Spreng.], and Bael [*Aegle marmelos* (L.) Corr. Serr.] for Consumption. 30 pp.

## Appendix I: Fruit and Vegetable Wash Ingredients

1. Veggie Wash: Water, natural cleaners made from corn, palm and coconut oil, citrus oil, sodium citrate (a natural derivative of citrus fruit), glycerin (from coconut oil) and grapefruit seed extract. Beaumont Products, Inc. Kennesaw, GA 30144. www.veggie-wash.com
2. Environné: Purified water, natural cleaning agents (derived from plant oils), polysorbate-20 (derived from sorbitol/berries), grapefruit seed extract and lemon-orange extract. Consumer Health Research, Inc. Rosenburg, OR 97470. www.environne.com
3. Rebel Green: Purified water, natural cleansing agents (derived from plant oils), polysorbate-20 (derived from sorbitol/berries), grapefruit seed extract and lemon-orange extract. Rebel Green LLC, Milwaukee, WI 53202. www.rebelgreen.com

## Appendix II: Examples of Equipment

Figure 1. Raffle drum-type tumbler with catch tray.

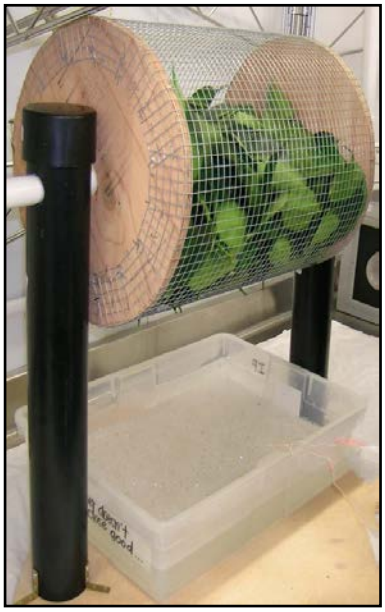

Figure 2. Raffle drum-type tumbler with catch pan.

Figure 3. Leaf wash basin.

Figure 4. Rinse hose and mesh to support leaves.

Figure 5. Raffle drum with shield to direct falling debris.

Figure 6. Cylindrical mesh basket in wash drum.

Figure 7. Mesh wash basket.

Figure 8. Wash tub with air hose to produce foaming action.

Figure 9. Rinse hose with potable water.

Figure 10. Leaves spread out to dry.