Australian Government
Department of Agriculture and Water Resources

# Required components of a systems approach for producing dormant *Zantedeschia* tubers for export from the Netherlands to Australia (Approved date: 29 October 2018)

Dormant tubers meeting all the components of the systems approach will not require growth in a post entry quarantine facility in Australia.

The final policy for *Zantedeschia* dormant tubers is available on the department's website at:

http://www.agriculture.gov.au/biosecurity/risk-analysis/plant/zantedschia-dormant-tubers/report

Biosecurity risk is managed in many steps along the import pathway. The following diagram provides an overview of the systems approach for the export of *Zantedeschia* tubers to Australia from the Netherlands. A number of practices undertaken prior to planting, during crop production and post-harvest, contribute to mitigating pest and disease risks. The pre-export phytosanitary inspection and treatment all reduce the risks even further. The on-arrival verification inspection is the final step prior to release of the consignment, providing assurance of the import pathway.

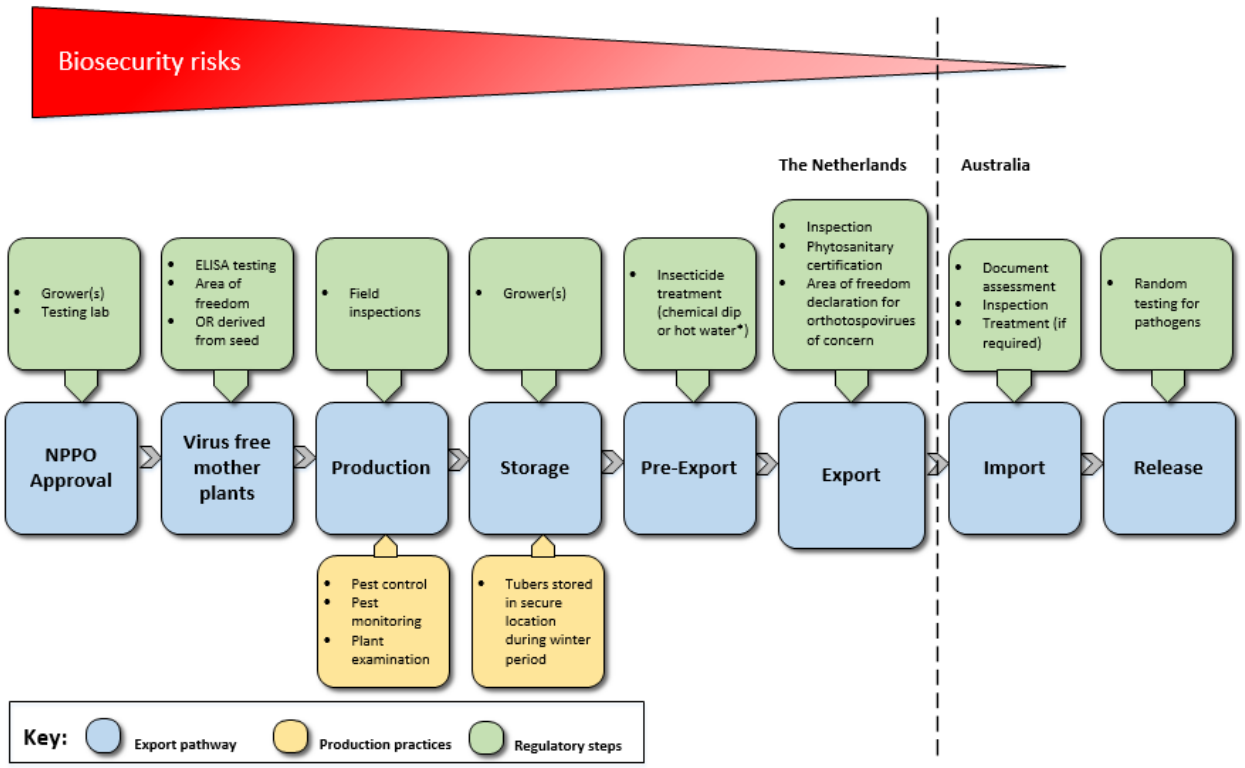


Table 1. The following table provides a summary of the key components of the systems approach for the Netherlands as outlined in the final policy for *Zantedeschia* dormant tubers.

*Hot water as a treatment option for *Zantedeschia* spp. tubers is currently unavailable.

| Components of the systems approach | Effect of the measure |
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| Exporting National Plant Protection Organisation (NPPO) oversight and approval of:<br>• growers/nurseries;<br>• testing laboratories;<br>• treatment facilities.<br>Records for registration, testing or treatment may be requested by the Department of Agriculture and Water Resources for audit purposes. | Provides assurance that the requirements of the systems approach are understood by the participants and are being monitored and met. |
| Dormant tubers for export are derived from mother plants:<br>• Grown from true seed*; **OR**<br>• Tested using PCR/ELISA and found free from viruses of concern to Australia (see table 1).<br>• Area freedom for Calla lily chlorotic spot virus, Lisianthus necrosis virus (also known as Eggplant mottled crinkle virus (EMCV)) and Watermelon silver mottle virus.<br>*Mother plants derived from true seed do not require pathogen testing.<br>* ELISA testing accepted for Konjac mosaic virus (KoMV). | Reduces the risk of introducing viruses of quarantine concern into the production chain. |
| At least two field inspections of the crop during the growing season should be undertaken, with at least one inspection at flowering time. NPPO or exporting NPPO authorised officer inspections to monitor for symptoms of fungal, bacterial and viral pathogens as well as thrips.<br>Exporting NPPO to maintain records of crop inspections. Records may be requested by the Department of Agriculture and Water Resources for audit purposes. | Regular monitoring allows inspectors to detect infected plants or signs of pest infestation and will reduce the introduction of pests of quarantine concern to Australia into the supply chain. |
| Registered growers must have a pest control program approved by the exporting NPPO that includes sanitation, surveillance and control measures (including chemical treatments) against pests, pathogens and their vectors.<br>Registered propagation nurseries to keep records of control measures. Records may be requested by the Department of Agriculture and Water Resources for audit purposes. | A pest control program will reduce the risk of introducing pests of quarantine concern to Australia into the supply chain. |

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| Mandatory off-shore or on-shore treatment:<br>• methyl bromide fumigation 32 g/m3 for 6 hours at 21 °C and above; or<br>• hot water treatment (tuber core temperature maintained at a minimum of 44°C for one hour).<br>• insecticidal dip (Imidacloprid) at 100 milligrams per litre and one percent eco-oil® for a minimum of 30 seconds<br>Registered treatment facilities to keep records for all lots. Records may be requested by the Department of Agriculture and Water Resources for audit purposes. | These treatments will ensure that only pest-free dormant tubers are planted in Australia. |
| Cleaning of tubers to remove soil and other trash prior to export. | Cleaning tubers will reduce the risk of introducing weed seeds and other soil-borne pests into Australia. |
| Packaging and labelling. Consignments must be labelled with plant species name along with identification numbers of the exporting NPPO registered export propagation nursery and treatment facility (if applicable). | Details of propagation nursery, treatment facility and packing house for the purposes of trace back. |
| Pre-export phytosanitary inspection by NPPO of dormant tubers. | Inspections will ensure that only pest-free dormant tubers are supplied to Australia. |
| Phytosanitary certification by NPPO including a description of consignment, pre-export treatments and additional declarations as listed on BICON and/or import permit. | Provides assurance that the requirements of the systems approach are met. |

Dormant tubers may be treated with hormones prior to export to start the priming process. This will result in small sprouts as indicated in the pictures, present at the moment of import. Tubers with this appearance are still considered dormant.

Table 2: Quarantine pests[1] for Zantedeschia dormant tubers from all sources (August 2016)

| Pest type | Common name | Guarantee based on |
|---|---|---|
| **DIPTERA (flies)** | | |
| *Eumerus strigatus* | Lesser bulb fly | Export inspection |
| **HEMIPTERA (Mealybugs)** | | |
| *Pseudococcus maritimus* | Grape mealybug | Export inspection |
| **BACTERIA** | | |
| *Pseudomonas veronii* | Bacterial soft rot | Field inspection |
| **FUNGI** | | |
| *Phytophthora* meadii | Rubber secondary leaf fall | Field inspection |
| Phytophthora richardiae | Tuber rot of Calla lily | Export inspection |
| **VIRUSES** | | |
| *Calla lily chlorotic spot virus* (CCSV) | Calla lily chlorotic spot | Field inspection, AD |
| *Konjac mosaic virus* (KoMV) | Konjac mosaic | Testing (ELISA) |
| *Lisianthus necrosis virus* (LNV)[2] | Lisianthus necrosis | Field inspection, AD |
| *Watermelon silver mottle virus* (WSMoV) | Watermelon silver mottle disease | Field inspection, AD |

[1] Uncategorised pests

If an organism is detected on *Zantedeschia* tubers prior to export or on-arrival in Australia that has not been categorised, it will require assessment by the department to determine its quarantine status and if phytosanitary action is required. The detection of any pests of quarantine concern not already identified in the analysis may result in remedial action and/or temporary suspension of trade while a review is conducted to ensure that existing measures continue to provide the appropriate level of protection for Australia.

[2] Lisianthus necrosis virus (LNV) is referred to as "Eggplant mottled crinkle virus (EMCV)" in the Netherlands.

**Additional declarations**

Dormant *Zantedeschia* tubers from the Netherlands produced under the approved system require phytosanitary certification with the following additional declarations:

1. *"The Zantedeschia tubers in this consignment have been produced in [insert country name] in accordance with the approved systems approach for producing dormant Zantedeschia tubers for export to Australia."*

AND

2. *"The Zantedeschia tubers are sourced from [insert country name] which is free from Calla lily chlorotic spot virus, Lisianthus necrosis virus and Watermelon silver mottle virus."*

**Department of Agriculture and Water Resources on-arrival verification**

The department will conduct on-arrival inspection as well as random PCR testing on *Zantedeschia* tubers for target pathogens, at the department's discretion. The detection of any pests of quarantine concern may result in remedial action and/or temporary suspension of the affected pathway while a review is conducted to ensure that existing measures continue to provide the appropriate level of protection for Australia.

Any consignments not treated pre-shipment with either methyl bromide fumigation, insecticidal dip or hot water at the prescribed rates will be subject to treatment on-arrival.

**Ongoing assurance and Review**

Ongoing approval of the systems approach for dormant *Zantedeschia* tubers from the Netherlands will be subject to review every 2-3 years to ensure the systems approach continues to meet Australian requirements. The review will include a desk audit of participant records and information, and may include an on-site audit undertaken by the department. It is anticipated that the costs for future review and audit activities will need to be borne by industry.

| **Review details** | |
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| Date of Approval | *29 October 2018* |
| Scheduled Review Date | *29 October 2020* |

| **Document history** | |
|---|---|
| Version 1 | *13 November 2016* |
| Version 2 | *17 September 2019* |