Ministry for Primary Industries
Manatū Ahu Matua

Risk Management Proposal:

Fresh Onion Bulbs (*Allium cepa* L.) for consumption, from the People's Republic of China

FOR PUBLIC CONSULTATION

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New Zealand Government

Growing and Protecting New Zealand

Fresh Produce Imports
Import & Export Standards Branch
Ministry for Primary Industries
Pastoral House
25 The Terrace
PO Box 2526
Wellington 6011
New Zealand

Tel: +64 4 894 5514
Fax: +64 4 894 0662
Email: plantimports@mpi.govt.nz

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Purpose

1. The purpose of this document is to:
   - Provide a summary of the biosecurity risks associated with the import of fresh onion bulbs for consumption from the People's Republic of China.
   - Provide the rationale for the proposed phytosanitary measures considered for managing the biosecurity risks.
   - Seek stakeholder feedback on the proposed phytosanitary measures and importing requirements for fresh onion bulbs for consumption from the People's Republic of China to New Zealand.

Background

2. The Government of the People's Republic of China (hereafter referred to as PRC) requested market access for fresh onion bulbs (*Allium cepa*) for human consumption.

3. This pathway has the potential to introduce regulated pests into New Zealand therefore an import risk analysis for Fresh Onion Bulbs for Consumption from China (MAFBNZ, 2009) was conducted. The analysis, along with other available information assisted in determining the appropriate phytosanitary risk management measures proposed in this document.

COMMODITY DESCRIPTION

4. Fresh onion bulbs (*Allium cepa* (Asparagales: Alliaceae)) for human consumption are defined as commercially produced cured onion bulbs in their skin, of any size, with minimal root material still attached and the pseudostem removed to within 1-1.5cm from the bulb.

TRADE

5. There are currently import health standards (IHSs) for fresh onions from Australia, Japan and the United States of America (USA).

6. The majority of consignments of fresh onions are imported from the USA between June and December annually. Occasional consignments are imported from Australia and no onions have been imported from Japan since 1999.

SOURCE INFORMATION

7. In the development of the risk management proposal for importation of fresh onion bulbs from PRC, the following information was used to identify risk organisms and the appropriate measures to manage the risk of their entry and establishment in New Zealand. Import risk analysis for Fresh Onion Bulbs for Consumption from China (MAFBNZ, 2009) http://www.biosecurity.govt.nz/files/biosec/consult/draft-ira-onions-from-china.pdf;
   a) The information on pests and diseases associated with onion bulbs in PRC was provided by the General Administration for Quality Supervision and Inspection and Quarantine of PRC (AQSIQ, 2008);
   b) Pathway interception records (USA onions) from 1995 to 2008 (MAFBNZ, 2008a);
   c) Technical advice on pests associated with onion bulbs from PRC (MAF 2011b);
   d) Relevant literature and database searches.

INTERNATIONAL SETTING

8. Where possible, phytosanitary measures are aligned with international standards, guidelines and recommendations as per New Zealand's obligations under Article 3.1 of the World

Trade Organisation (WTO) Agreement on the Application of Sanitary and Phytosanitary Measures (SPS Agreement) (WTO, 1995), and section 23(4)(c) of the Biosecurity Act 1993.

9. The SPS agreement states that phytosantiary measures must not discriminate unfairly between countries or between imported and domestically produced goods and where there is a choice of phytosanitary measures to reduce risk to an acceptable level, WTO members must select the least trade restrictive measure.

Objective

10. The objective of the proposed measures is to effectively manage known phytosanitary risks associated with the importation of fresh onion bulbs for human consumption from PRC in a way that is consistent with New Zealand's domestic legislation and international obligations.

Summary of Risk

11. In total 242 organisms were found to be potentially associated with onion production in PRC. These include species that use the commodity for some part of their lifecycle, as well as species where there is existing evidence to suggest they have an opportunistic association with the commodity. Of these associated organisms, 105 were found to be potential hazards.

12. Reviews of the 105 potential hazards from the import risk analysis identified 14 regulated organisms that are likely to follow the pathway, are present in PRC, but not present or under official control in New Zealand. The regulated organisms have been grouped for this discussion of risk management (Table 1) however in the risk analysis, all potential hazards in each group were individually assessed.

Table 1. Regulated pest groups associated with fresh onion bulbs from PRC

Regulated pest group	Organisms
Arthropods	*Atherigona orientalis* *Bradysia odoriphaga* *Delia antiqua** *Delia floralis**
Pathogens - Bacterial pathogens - Fungal pathogens	 *Erwinia chrysanthemi* pv. *chrysanthemi* *Pantoea ananatis** *Alternaria palandui* *Cladosporium oxysporum* *Davidiella allii-cepae* *Penicillium oxalicum* *Phytophthora capsici* *Puccinia asparagi**
Nematodes	*Meloidogyne graminicola* *Rotylenchulus reniformis*

* *D. antiqua, D. floralis, P. ananatis* and *P. asparagi* are classified as additional declaration pests requiring specific pest control activities.

Arthropods

13. The organisms belonging to this group are phytophagous flies. These organisms are relatively small, and are found as eggs or larvae infesting onion bulbs and plant material. The main

lifestage associated with onion bulbs has some motility; larvae have the capability to move between bulbs and soil to pupate.

14. Full assessments for all the arthropods in this group have been conducted and can be found in the Fresh Onion Bulbs for Consumption from China import risk analysis (MAFBNZ, 2009). The likelihood of entry of these arthropods was considered to be moderate, the likelihood of exposure low, and the likelihood of establishment moderate to high. The economic consequences of establishment of these arthropods in New Zealand range from moderate to high, the environmental consequences low to moderate and the significance to human health negligible to moderate.

Pathogens

15. The organisms belonging to this group include bacterial and fungal pathogens. These pathogens can infect onion bulbs and be systemic, often entering via damage or injury sites. Pathogens are usually dispersed by rain or irrigation splash, but sometimes by air, wind and insect activity. Onion bulbs are often asymptomatic and the disease is not detectable until infection is well established. Infection of onion bulbs can continue after the bulb has been discarded, but spread to other plants is limited.

16. Full assessments for all the bacterial and fungal pathogens have been conducted and can be found in the import risk analysis for Fresh Onion Bulbs for Consumption from China (MAFBNZ, 2009). The likelihood of entry of bacterial and fungal pathogens was considered to be low to moderate, the likelihood of exposure low, and the likelihood of establishment very low to moderate. The economic consequences of establishment of these pathogens in New Zealand range from low to high, the environmental consequences negligible to high and the significance to human health negligible to low.

Nematodes

17. The organisms belonging to this group are very small and can be difficult to detect. The main lifestages associated with onion roots and surrounding soil are singular eggs, egg masses and mobile juveniles.

18. Full assessments for all the organisms in this group have been conducted and can be found in import risk analysis for Fresh Onion Bulbs for Consumption from China (MAFBNZ, 2009). The likelihood of entry of these organisms was considered to be very low to low, the likelihood of exposure low, and the likelihood of establishment to be low to moderate. The economic consequences of establishment of these nematodes in New Zealand range from low to moderate, the environmental consequences low and the significance to human health negligible.

Risk management

19. This following assessment of pre- and post-harvest practises reflects the current system for risk management employed by PRC's commercial producers of onions. It is proposed that commercial practises combined with specific pest control activities and phytosanitary inspection are used to manage the risks to New Zealand posed by specific regulated pests associated with the importation of onions from PRC (Table 2).

20. Table 2: Overview of the pre- and post-harvest pest control activities proposed for the export of fresh onions from PRC to New Zealand.

Activities	Outcome(s)
Pre-Harvest	
a) In-field pest control	a) Reduced pre-harvest pest prevalence
b) Monitoring activities	b) Detection and appropriate management of specific pests: *D. antiqua*, *D. floralis*, *P. ananatis*, *P. asparagi*
Post-Harvest	
a) Cleaning	a) Physical removal of external arthropod pests
b) Visual inspection & remedial action	b) Removal of infested/infected onions
Regulatory/Official	
a) Farm registration	a) NPPO operational system ensures pre-harvest activities are followed and product is traceable
b) Packhouse/storage facility registration	b) NPPO operational system ensures post-harvest activities are followed and product is traceable
c) Product security (pre- and post-phytosanitary inspection)	c) Prevention of pre-and post-phytosanitary inspection reinfestation/reinfection of consignments by regulated pests
d) Phytosanitary inspection & certification	d) Certification by NPPO that consignments are free from regulated pests
e) MPI inspection on arrival in NZ	e) Verification that requirements of the IHS have been met
f) Non-compliance contingencies	f) Treat/reship/destroy non-conforming consignment
g) Pathway monitoring	g) Assurance that IHS requirements are being met.

PRE-HARVEST ACTIVITIES

a) In-field pest control

21. All registered farms implement pest management activities outlined in an integrated pest management (IPM) and monitoring programme. Each farm uses accredited (trained by Entry-Exit Inspection and Quarantine Bureau of China (CIQ[1])) personnel for farm management and pesticide applications. All pesticide suppliers are approved by CIQ (AQSIQ, 2008); pesticide use is limited to prevent the development of pesticide resistance.

22. Application of an efficacious insecticide is applied if necessary, to manage the risk of *D. antiqua* and *D. floralis* infestation. Application of an efficacious preventative fungicide for *P. asparagi* is utilised. Records of control measures are retained.

23. All diseased and infected plants/plant parts will be removed and destroyed. Farms have programmes in place for weed control. This general approach is expected to limit the presence of additional declaration and inspection pests.

[1] CIQ is the designated National Plant Protection Organisation (NPPO) regulatory authority for China under the General Administration of Quality Supervision, Inspection and Quarantine (AQSIQ).

b) Monitoring activities

Delia antiqua and *D. floralis*

24. Production sites must be monitored by a CIQ accredited personnel trained in detection and recognition of arthropod pests of concern to New Zealand, specifically for *D. antiqua* and *D. floralis*. The inspection frequency should be increased when populations are expected to increase because of climatic conditions or a decrease in natural predator populations. When needed, chemical controls must be applied according to the CIQ approved IPM programme.

Pantoea ananatis and *Puccinia asparagi*

25. Production sites must be monitored by a CIQ accredited personnel trained in detection and recognition of pathogens of concern to New Zealand, specifically for *P. ananatis* and *P. asparagi*. Onion bulbs from production sites where disease symptoms of *P. asparagi* and *P. ananatis* are found are not eligible for export to New Zealand.

26. Activities involving monitoring crops at production sites for additional declaration pests with nil detection throughout the export growing season provide CIQ with assurance that the aforementioned regulated pests are not present on the individually registered sites. Once verified, CIQ may issue an additional declaration confirming this status during the pre-export phytosanitary inspection and certification.

POST-HARVEST ACTIVITIES

a) Cleaning

27. Onion bulbs for export to New Zealand must be cleaned, manicured and graded by CIQ accredited staff, during processing at a CIQ registered packhouse. Cleaning, manicuring and grading includes the removal of soil and foreign material, removal of fibrous roots leaving each onion bulb with minimal root material, removal of the pseudostem to within 1-1.5cm from the bulb and the removal of the loose outer skin to ensure no soil remains (AQSIQ, 2008).

28. Onion bulbs showing signs of damage, pest infestation, symptoms of disease, contamination or growth of sprouts or roots, are removed and labelled for disposal during the physical cleaning process.

29. Physical cleaning is expected to reduce the presence of regulated pests.

b) Visual inspection and remedial action

30. Visual inspection occurs at several points during the commercial export pathway for onion bulbs from PRC. These include:

- In-field monitoring during the growing season;
- Pre-harvest CIQ crop inspection;
- Cleaning, manicuring and grading;
- Packaging of onion bulbs for export;
- CIQ phytosanitary inspection.

31. Specialised staff are trained by CIQ to recognise regulated pests of concern to New Zealand, as shown in Table 1. Detection of any regulated pest (Table 1) will result in the application of an appropriate treatment or exclusion of the onion lot from the New Zealand export pathway.

32. During the growing season and at the pre-harvest CIQ crop inspection, monitoring is conducted for arthropods or for signs and symptoms of disease associated with the above ground onion plant parts. Following harvest all onion bulbs are inspected for all lifestages of regulated pests. Damaged bulbs may have noticeable secondary infection, arthropods or nematodes associated with them. Visual inspection is expected to reduce the presence of regulated pests.

REGULATORY/OFFICIAL ACTIVITIES

33. The following operational, phytosanitary maintenance and verification system ensures the proposed risk management measures have been met and are maintained.

a) Farm registration

34. CIQ, as the designated National Plant Protection Organisation (NPPO) regulatory authority for PRC, registers all commercial farms. Only commercially produced onion bulbs from registered farms may be imported into New Zealand. Registration is required to ensure approved production procedures are followed and provide product traceability along the export pathway.

b) Packhouse/ storage facility registration

35. CIQ register all packing and storage facilities processing onion bulbs for export to New Zealand. CIQ verify packing and storage facilities are compliant with agreed packhouse operations, and sanitation procedures. Packhouse and storage facility registration is expected to limit the presence of hitchhiker pests and allow trace-back information in the event of non-compliance.

c) Product security (pre- and post-phytosanitary inspection)

36. Product security is achieved through segregation, identification and maintaining the integrity of lots. Onion bulbs for export to New Zealand are to be kept secure and segregated at all times from any onion bulbs for the domestic and other markets to prevent substitution, manipulation or re-infestation. Onion bulb lots are sourced from registered farms, packhouses and storage facilities; identification code allows product traceability through the export pathway.

d) Phytosanitary inspection and certification

37. All consignments must be sampled and visually inspected for pests and diseases prior to issuance of a phytosanitary certificate by CIQ. Where a regulated pest is detected, appropriate pest mitigation action will be conducted (e.g. resorting, treatment or rejection). When no pests or diseases are found and all requirements of the import health standard (IHS) have been met a phytosanitary certificate will be issued.

e) MPI inspection on-arrival in New Zealand

38. MPI will inspect export documentation on arrival in New Zealand. In addition, MPI may inspect a sample from each lot on arrival in New Zealand to verify requirements of the IHS have been met.

f) Non-compliance contingencies

39. If regulated pests, diseases or extraneous plant material are intercepted in New Zealand, one or more of the following actions will be undertaken: re-sorting of the consignment, treatment where an efficacious treatment is available, re-shipment or destruction of the consignment and/or the temporary suspension of the pathway on the detection of pests for where pre-export phytosanitary measures are required. The suspension will continue until the cause of the non-compliance has been identified and corrective actions have been implemented and approved by MPI.

g) Pathway monitoring

40. MPI will monitor interceptions of regulated pests and hitchhikers and the appropriateness/effectiveness of phytosanitary measures on the commencement of trade. Currently, organisms have their regulatory status classified on the MPI Biosecurity Organisms Register for Imported Commodities (BORIC) (http://www.maf.govt.nz/biosecurity/pests-diseases/registers-lists/boric/).

Feasibility & practicality of measures

41. PRC exports onions to over 40 countries and therefore has established regulatory systems and export phytosanitary systems in place.

Proposed IHS requirements

42. Phytosanitary measures to manage the risk of the regulated pests on the import pathway include the use of pre- and post-harvest pest control activities, operational systems and phytosanitary inspection and certification.

43. Other risk management measures will be assessed as equivalent, when supporting evidence is provided in accordance with ISPM 24: *Guidelines for the determination and recognition of equivalence of phytosanitary measures* (IPPC, 2005).

44. Based on the evaluation of measures for the management of regulated pest groups, the following specific conditions for fresh onion bulbs (Commodity Sub-Class: Fresh Fruit/Vegetables) from the People's Republic of China are recommended, including additional declarations to be included on the phytosanitary certificate.

45. **Official assurance programme** (OAP) documents the procedures and activities used by the export country NPPO prior to the export of a commodity. It does not add additional requirements to the IHS and is used as the basis for any audit by MPI. Onion bulbs may only be imported into New Zealand from PRC under the terms of an OAP between New Zealand and PRC.

46. **Phytosanitary certificate:** Required and issued by AQSIQ/CIQ when satisfied that the activities required by MPI have been met.

47. The proposed **additional declarations** to the phytosanitary certificate are:

The onion bulbs in this consignment have:

(i) been inspected according to appropriate official procedures and found free from all regulated pests specified by New Zealand Ministry for Primary Industries (NZ MPI)

> NOTE: This additional declaration is not required if the phytosanitary certificate issued by the People's Republic of China NPPO is in accordance with the ISPM 12 model phytosanitary certificate.

AND

(ii) undergone appropriate pest control activities that are effective against *Delia antiqua*, *Delia floralis*, *Pantoea ananatis* and *Puccinia asparagi* in accordance with the Official Assurance Programme

> NOTE: "appropriate pest control activities" is a broad term that is inclusive of a range of phytosanitary measures. Examples of these measures include sourcing of high health material, in-field pest controls and post-harvest processing.

References

AQSIQ (2008) Technical data on Chinese onions exporting to New Zealand. Reference document supplied by the General Administration for Quality Supervision and Inspection and Quarantine of the People's Republic of China.

IPPC (2002) ISPM 14 - The use of integrated measures in a systems approach for pest risk management. Accessed online https://www.ippc.int/file_uploaded/1323945406_ISPM_14_2002_En_2011-11-29_Refor.pdf

IPPC (2005) ISPM 24 - Guidelines for the determination and recognition of equivalence of phytosanitary measures. Accessed online https://www.ippc.int/file_uploaded/1323946244_ISPM_24_2005_En_2011-11-29_Refor.pdf

IPPC (2011a) ISPM 7 - Export certification system. Accessed online https://www.ippc.int/file_uploaded/1337674518_ISPM_07_2011_En_2012-05-21.pdf

IPPC (2011b) ISPM 12 - Guidelines for phytosanitary certificates. Accessed online http://www.ippc.int/file_uploaded/1323945276_ISPM_12_2011_En_2011-11-29_Refor.pdf

MAFBNZ (2008a) Interceptions on onions (*Allium cepa*) imports from the United States of America, 1995-2008. MAF database QuanCargo report.

MAFBNZ (2008b) Policy for MAF's Responses to Risk Organisms – Appendix Five: Decisions Framework: Steps and Principles: http://www.biosecurity.govt.nz/files/biosec/policy-laws/response-policy-risk-organisms.pdf

MAF (2011b) Technical advice on pests associated with onions from China. MAF unpublished report.

MPI (2013) IHS 152-02: http://www.biosecurity.govt.nz/files/ihs/152-02.pdf

MAFBNZ (2009) Import Risk Analysis: Onion (*Allium cepa* Liliaceae) Fresh Bulbs from China. MAF Biosecurity New Zealand.

Nault, B. A., Straub, R. W. & Taylor, A. G. (2006) Performance of novel insecticide seed treatments for managing onion maggot (Diptera: Anthomyiidae) in onion fields. *Crop Protection*, 25(1): 58-65.

Opara L. U. (2003) Chapter XXVI Onions: Post-Harvest Operation, Mejia D, Parrucci E, (eds) Compendium on Post – Harvest Operations, FAO Information Network on Post-harvest Operations. Available online at http://www.fao.org/inpho/

Taylor, A. G., Hoepting, C. A., Nault, B. A., Lorbeer, J. W. & McDonald, M. R. Leskovar, D. I. (2008). Onion seed treatment and coating technologies. *Acta Horticulturae*, 782:129-134.

WTO (1995) World Trade Organisation - Agreement on the application of Sanitary and Phytosanitary Measures. Accessed online http://www.worldtradelaw.net/uragreements/spsagreement.pdf

Yokoyama, V. Y. & Miller, G. T. (2000) Response of Omnivorous Leafroller (Lepidoptera: Tortricidae) and Onion Thrips (Thysanoptera: Thripidae) to low-temperature storage. *Journal of Economic Entomology*, 93(3): 1031-1034.

APPENDIX 1: REGULATED PESTS

The list below has been generated from the different information sources described in the paragraph *Information considered*.
Exclusions from the list include:

1. All non-regulated organisms present in New Zealand.
2. Organisms identified to genus level only, as a genus may contain species that are not a risk on the commodity.
3. Organisms where insufficient evidence exists that they are present in the People's Republic of China.
4. Organisms that are associated with onion plants but not associated with the onion bulb fresh produce pathway.
5. Organisms that are associated with onion bulbs but that cannot establish in New Zealand via the onion bulb fresh produce pathway.
6. Organisms not added to the regulated pest list but still remain 'regulated pests' that warrant action upon interception.

Regulated pest	**Common name**	**Measures**
Additional declaration pests		
Pantoea ananatis	fruitlet rot of pineapple	Commercial production practices Pre- and post-harvest pest control activities: - in-field pest control - monitoring activities (low pest prevalence) - physical cleaning - visual inspection and remedial action* Operational and phytosanitary maintenance and verification - production site, packhouse and storage facility registration - product security - phytosanitary inspection and certification - auditing
Puccinia asparagi	asparagus rust	
Delia antiqua	onion fly	
Delia floralis	turnip maggot	
Inspection pests		
Erwinia chrysanthemi pv. *chrysanthemi*	lettuce marginal leaf blight	
Alternaria palandui	leaf spot	
Cladosporium oxysporum	seedling blight of passion fruit	
Davidiella allii-cepae	black mould	
Penicillium oxalicum	blue mould	
Phytopthora capsici	soft rot	
Atherigona orientalis	pepper fruit fly	
Bradysia odoriphaga	Chinese chive maggot	
Meloidogyne graminicola	rice root-knot nematode	
Rotylenchulus reniformis	reniform nematode	
Note: The pest control activities targeting additional declaration pests are considered to also manage the risk posed by inspection pests on the pathway. *: Remedial action (depending on the location of the inspection) may include: treatment of the consignment to ensure that the pest is no longer viable or withdrawing the consignment from export to New Zealand.		

APPENDIX 2: SUMMARY OF THE ONION EXPORT PATHWAY FROM PRC

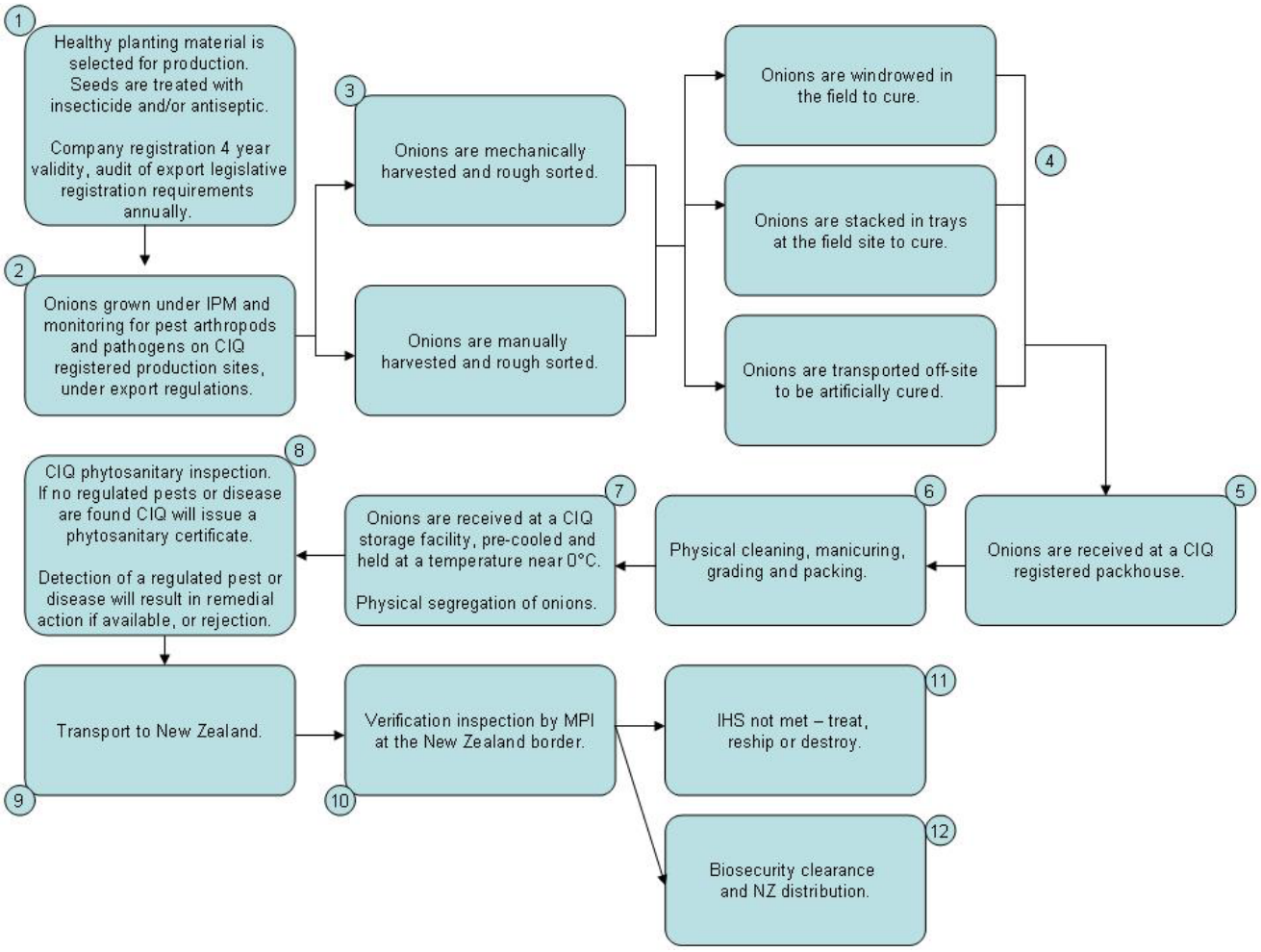
PRC's regulatory framework for onion exports

In the PRC, the onion pathway from production to export is overseen by the Entry-Exit Inspection and Quarantine Bureau of PRC (CIQ). CIQ are the government regulatory organisation enacted by the General Administration for Quality Supervision and Inspection and Quarantine of PRC (AQSIQ), the National Plant Protection Organisation (NPPO) (AQSIQ, 2008).

Proposed export pathway description

AQSIQ (2008) provided MPI with information on the standard commercial practices used in production of onion bulbs. This information includes pre-harvest, harvest and post-harvest practices in PRC that are considered to be standard for export of onion bulbs from PRC.

Figure 1. Proposed export pathway diagram



a) Healthy planting material is selected for production and seeds are treated with an insecticide and/ or disinfestation agents.

b) Onion bulbs are commercially grown on CIQ export registered farm production sites. In field monitoring and pest control activities are carried out for arthropods and pathogens

c) Onion bulbs are mechanically or manually harvested and initially manually sorted.

d) Harvested onion bulbs are either windrowed in open sites, stacked into trays at the production site to cure or transported off-site for artificial curing, where bulbs are cured at 30°C, with 60-75% relative humidity.

e) Onion bulbs are received at a CIQ export registered packhouse. Lots are identified by farm and production unit code and date of harvest for traceability.

f) Onion bulbs are cleaned, manicured and graded. Onion bulbs are manicured by cutting the pseudostem, removal of fibrous roots to ensure no soil remains and outer loose skins of the bulb are removed. Onion bulbs with signs or symptoms of pest infestation or infection, abnormality, double cores or mechanical injury are removed and labelled for disposal. Onion bulbs are graded according to size and packed into clean inert packaging material.

g) Onion bulbs are transported and received at a CIQ export registered storage facility. Packed onions for export are entered into a constant-temperature cool room, are pre-cooled and stored at a temperature near 0-1°C. Onion consignments are kept separate from those not destined for export to New Zealand.

h) CIQ performs the phytosanitary inspection of the onion bulbs. If no regulated pests and disease symptoms are found, CIQ issues the phytosanitary certificate. Where a regulated pest is detected, appropriate pest mitigation action will be conducted (e.g. resorting, treatment or rejection).

i) Export documents including the phytosanitary certificate and any treatment certificate accompany each onion consignment that is freighted to New Zealand.

j) Onion consignment samples and relevant export documents are examined in New Zealand by MPI inspectors to ensure compliance with New Zealand's phytosanitary import requirements.

k) Any consignment not complying with New Zealand's phytosanitary imported requirements is treated, reshipped or destroyed, and/or the temporary suspension of the pathway on the detection of risk organisms for pre-export phytosanitary measures are required. The exporting country is notified of the non-compliance.

l) Onion bulbs receiving biosecurity clearance are able to be distributed by the importer.