Ministry for Primary Industries
Manatū Ahu Matua

Discussion Document

Contingency Export Protocols during Fruit Fly Incursion into New Zealand and Implications for Phytosanitary Policy for the Management of Offshore Pest Free Areas

FOR PUBLIC CONSULTATION

6 April 2016

New Zealand Government

Growing and Protecting New Zealand

Plant Imports
Plants, Food & Environment
Ministry for Primary Industries
Pastoral House
25 The Terrace
PO Box 2526
Wellington 6140
New Zealand
Tel: +64 4 894 0100
Email: plantimports@mpi.govt.nz

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Requests for further copies should be directed to:

Plant Imports
Plants, Food & Environment
Ministry for Primary Industries
PO Box 2526
Wellington 6140
New Zealand

Email: plantimports@mpi.govt.nz

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Submissions

The Ministry for Primary Industries (MPI) invites comment from interested parties on the technical paper 'Evaluation of Import and Export Parameters for Fruit Fly Export Restriction Zones' (MPI, 2016), which is supported by this discussion document. MPI is seeking stakeholders' comments on the technical paper (MPI, 2016), and application of this model to the export & import of fresh produce. Submissions should be received by close of business on **6 May 2016**.

The technical paper (MPI, 2016) explains the scientific model and criteria used to determine both the extent and duration of export restriction zones (ERZ) during any future fruit fly incursion in New Zealand or in a recognised offshore pest free area (PFA). The model has been extensively peer-reviewed by recognised domestic and international experts. The paper has been developed to support negotiation of a contingency protocol for export of New Zealand's horticultural produce with international trading partners.

Submitters should be aware that New Zealand has obligations under the WTO Sanitary and Phytosanitary Measures Agreement (SPS) and the International Plant Protection Convention 1997 (IPPC) to accept equivalent phytosanitary measures (refer ISPM1 & the SPS). Trading partners could choose to apply the same principles of the model (with appropriate variables) when negotiating conditions for exporting product to New Zealand during any incursion into their pest free areas.

In preparing a submission, please consider the following:

- Comments should be specific to a particular aspect of the proposal and reference the section headings and page numbers.
- Comments should be supported with technical justification and/or examples, including published references.
- This discussion document provides supporting information only and is not the subject of consultation.
- MPI welcomes practical alternative suggestions.

Please include the following in your submission:

- Your name and title (if applicable).
- Your organisation's name (if applicable).
- Your address and contact phone number.

MPI encourages respondents to forward comments electronically. Submissions can be sent to plantimports@mpi.govt.nz.

Should you prefer to make a written submission, please post it to:

Submission – Fruit Fly Management Protocols
Plant Imports
Ministry for Primary Industries
PO Box 2526
Wellington 6140
New Zealand

Submissions received by the closing date (6 May 2016) will be considered by MPI.

Official Information Act 1982

Please be aware that your submission is public information.

It is MPI policy to publish submissions and the review of submissions for public consultation processes on the MPI website.

While individual submissions and the review of submissions for this consultation process may not be published on MPI's website, individual submissions and the review of submissions will be shared with relevant industry forums.

Submissions may also be the subject of requests for information under the Official Information Act 1982 (OIA). The OIA specifies that information is to be made available to requesters unless there are sufficient grounds for withholding it, as set out in the OIA.

Submitters may wish to indicate grounds for withholding specific information contained in their submission, such as the information is commercially sensitive or they wish personal information to be withheld. Any decision to withhold information requested under the OIA is reviewable by the Ombudsman.

Purpose

1. The purpose of this discussion document is to:
    a) Explain, at a high level, the technical paper (MPI, 2016) that supports the fruit fly market access contingency protocol, including the scientific methodology applied and data inputs.
    b) Identify and discuss implications of the protocol on MPI policies for:
        - the export of fruit fly host commodities during fruit fly incursions in New Zealand; and
        - the import of fruit fly host commodities during fruit fly incursions into offshore pest free areas (country or area freedom).
    c) Seek comments from interested domestic parties (e.g. industry bodies, producers, exporters and importers) on:
        - the methodology and inputs considered in the technical paper; and
        - the effect the proposed contingency protocol will have on policy for the export and import of fruit fly host commodities during any future fruit fly incursions.

Introduction

2. New Zealand is currently free from economically significant fruit flies. MPI bases phytosanitary assurances of fruit fly freedom to trading partners on an extensive fruit fly surveillance programme (refer Appendix 1).
3. Export trade disruption resulting from the detection of fruit flies is a significant risk for New Zealand's horticultural producers and exporters. Importing countries may consider that a fruit fly detection or incursion in New Zealand poses a potential biosecurity risk (e.g. countries where that fruit fly is not present) and require additional phytosanitary measures.
4. Queensland fruit fly (Q-Fly) has been detected in New Zealand four times in the last four years (Auckland 2012; Whangarei, January & April 2014; Auckland, 2015) (MPI, 2015a). Mediterranean fruit fly (Med-fly) and Oriental fruit fly[1] (OFF) were detected in Auckland in 1996 (Gilbertson, 2012). While all fruit fly detections to date have occurred in Auckland or Northland regions, economically significant fruit flies have the potential to establish throughout New Zealand. The detection of a fruit fly currently results in MPI initiating a biosecurity response and notifying trading partners. Trading partners may implement additional phytosanitary measures.
5. ISPM 26: E*stablishment of pest free areas for fruit flies (Tephritidae)* provides a framework and guidance for how countries should approach fruit fly incursions in the pest free areas of their trading partners, but does not provide specific parameters for additional phytosanitary measures (e.g. triggers for establishment and size of export restriction zones (ERZ)).

[1] Detection of Papaya fruit fly (*Bactrocera papaya*), subsequently reclassified as Oriental fruit fly (*B. dorsalis*)

6. As part of a joint MPI/industry working group, MPI has drafted a protocol to support negotiating bilateral market access conditions with trading partners, which can be applied in the event of any fruit fly incursion in New Zealand. Reaching bilateral agreements with our trading partners in advance of any future fruit fly incursion in New Zealand will provide more assurance that trade can continue with minimal disruption by using approved contingency assurance programmes, which will be implemented during any future biosecurity response.
7. The draft protocol is focused on four species of economically significant fruit flies:
    - *Bactrocera tryoni* - Queensland fruit fly (Q-Fly);
    - *B. dorsalis* - Oriental fruit fly (OFF);
    - *B. cucurbitae* - Melon fly; and
    - *Ceratitis capitata* - Mediterranean fruit fly (Med-fly).
8. MPI has developed a scientific model to support market access conditions in the protocol:
    - when an export restriction zone (ERZ) should be established;
    - how big the ERZ should be; and
    - when this area can regain pest free status.
9. In order for our proposal to be accepted by our trading partners, MPI needs to support it with robust scientific methodology, and meet the principles of relevant international standards (e.g. ISPM 26: E*stablishment of pest free areas for fruit flies (Tephritidae)*).
10. The model and the implications of applying the model are summarised in the next two sections.
11. Following negotiation and agreement with trading partners on application of the model, MPI will develop a contingency official assurance programme (cOAP) to address the requirements for each country. cOAPs will be used by MPI Approved Organisations (MAOs) to develop procedures for official assurances for their export plant material during any future fruit fly incursion.
12. As a second stage to the project, treatments will be developed to support export trade from within the ERZ.
13. Under the principles of the SPS Agreement, IPPC Convention and ISPM 1, which New Zealand has signed, trading partners may ask New Zealand to accept the same technical justification as the basis for produce imported into New Zealand when fruit flies are detected in their (offshore) PFAs. The scientific basis and the principles supporting the protocol must therefore be of a standard acceptable to New Zealand for produce we import.
14. This consultation process is seeking industry comment and support for implementing the model for New Zealand exports during any future fruit fly incursion; and the acceptance of the principles being used by trading partners to export product to New Zealand during any incursion into their pest free areas.
    - The model has been designed to take account of individual countries circumstances. Final outputs will vary depending on environmental conditions and the details of fruit fly surveillance programmes.

Proposed model of the ERZ

15. To support the cOAP, MPI has developed a technical model with conditions for establishing an export restriction zone (ERZ), how big it should be, and when this area can regain pest free status (MPI, 2016).
16. The model provides the basis for decision making on export of fruit fly free host material from New Zealand, providing phytosanitary assurance in the event of any future fruit fly incursion. It may also be used to ensure safe import of the fruit fly host material from the pest free areas of our trading partners during fruit fly incursions.
17. The technical paper and model have been developed in accordance with the principles of ISPM 26: *Establishment of pest free areas for fruit flies (Tephritidae)*. They have been extensively reviewed by a number of domestic and international experts in fruit fly biology and modelling (a list is provided on page 3 of the technical paper).
18. To demonstrate how the model could be used, two scenarios have been analysed:
    - Q-Fly incursions into PFAs in Australia, and
    - OFF incursions into PFAs in California, USA.

    Table 1 (below) provides a summary of ERZ parameters under these two scenarios.

Table 1. Summary of modelled fruit fly incursion management criteria.

	Queensland fruit fly		Oriental fruit fly	
	New Zealand	**Australia**	**New Zealand**	**California**
Establishment of an ERZ	Detection of any juvenile or gravid female OR Detection of 4 males in 3200m (surveillance areas) radius within 2 weeks.	Detection of any juvenile or gravid female OR Detection of 4 males in 3200m (urban) or 7840m (commercial growing areas) radius within 2 weeks.	Detection of any juvenile or gravid female OR Detection of 5 males in 5480m (surveillance areas) radius within 2 weeks.	Detection of any juvenile or gravid female OR Detection of 2 males within 5120m (urban) or 6240 (commercial growing areas) radius within 2 weeks.
Size of ERZ	3200m (surveillance areas)	3200m (urban) or 7840m (commercial growing areas)	5480m (surveillance areas)	5120m (urban) or 6240m (commercial growing areas)
Disestablishment of ERZ	Zero detections in the greater of: - one generation from egg to adult plus 28 days - 14 weeks OR The onset of colder temperatures*	Zero detections in the greater of: - one generation from egg to adult plus 28 days - 16 weeks	Zero detections in the greater of: - one generation from egg to adult plus 28 days - 6 weeks OR The onset of colder temperatures*	Zero detections in the greater of: - one generation from egg to adult plus 28 days - 34 weeks

*(for Wellington region and the South Island)

Determining when to initiate an ERZ

19. It is necessary to determine when a breeding population becomes established in an area previously free of fruit fly as this may pose a risk of viable fruit fly eggs and larvae being present in host commodities. The breeding population size will trigger the establishment of an ERZ, and additional phytosanitary measures should be applied to any host commodities leaving the area.
20. Part 3 of the technical paper considers the following factors in order to determine the breeding population size which will trigger the initiation of an ERZ:
    - The biology of the fruit fly.
    - The minimum number of flies that constitute a 'breeding population'.

- The sensitivity of the incursion response surveillance programme, including the density of traps and the effective sampling area of the traps.
- The number of flies that are likely to be trapped in the incursion response surveillance programme if a breeding population is present.

21. The model proposes the following triggers for establishing an ERZ, based on the New Zealand incursion response surveillance programme (see Appendix 1):
    - the detection, at any time, or any juvenile or gravid female fruit fly; or
    - the detection of 4[2] or more adult male Q-Fly within 14 days (within the ERZ radius); or
    - the detection of 5[2] or more adult male OFF within 14 days (within the ERZ radius)
22. The model proposes the following triggers for establishing an ERZ, based on the Australian and Californian data:
    - Australia Q-Fly – 4[2] adult male, or any juvenile or gravid female.
    - California OFF – 2[2] adult male, or any juvenile or gravid female.
23. MPI seeks comment on the **model methodology** and **types of data inputs** used to determine these triggers for initiating an ERZ. Technical information should be presented to support submissions.

<u>Determining the size (radius) of the ERZ</u>

24. The ERZ should be a sufficient size to ensure that host material grown and exported from outside the ERZ remain within a pest free area and is therefore free of fruit flies.
25. Part 4 of the technical paper (MPI, 2016) considers the following factors in order to determine the appropriate size for the ERZ:
    - The biology of the fruit fly;
    - The minimum number of flies that constitute a 'breeding population';
    - The sensitivity of the incursion response surveillance programme (including the density or traps and the effective sampling area of the traps);
    - The number of generations of flies likely to exist in the area before detection of the trigger number of flies by the incursion response surveillance programme;
    - The maximum dispersal distance for the species of fruit fly (i.e. the area that a breeding population may be present in);
    - Other environmental factors; and
    - The appropriate size of the buffer zone.
26. The model proposes that the ERZ should be of a radius of:
    - 3200m for Q-Fly (surveillance areas); or
    - 5480m for OFF (surveillance areas).

    based on the New Zealand incursion response surveillance programme.
27. The model proposes the following potential ERZ sizes based on the Australian and Californian data:
    - Australia Q-Fly (3200m urban and 7840m commercial growing areas).
    - California OFF (5120m urban and 6240m commercial growing areas) scenarios.

[2] Detection of 1 fly triggers increased surveillance. Detection of further flies triggers the establishment of an ERZ. The numbers provided are the cumulative number of flies detected.

28. MPI seeks comment on the **model methodology** and **types of data inputs** used to determine the size of the ERZ. Technical information should be presented to support submissions.

Determining when to disestablish the ERZ (return to PFA)

29. A return to pest free area status and therefore dis-establishment of the ERZ will occur when a breeding population of fruit flies no longer exists in the ERZ, and therefore fruit fly host material from within the ERZ is free of fruit flies.
30. Part 5 of the technical paper (MPI, 2016) considers the following factors in order to determine the appropriate criteria for dis-establishing the ERZ:
    - The minimum number of flies that constitute a 'breeding population';
    - The sensitivity of incursion response surveillance programme (including the density of traps and effective sampling area of the traps);
    - Biological characteristics of the fruit fly, including the minimum temperature required for development, and the temperature at which no life stage can survive over the winter;
    - The maximum dispersal distance for the species of fruit fly (i.e. the likely distribution of the breeding population).
31. The model proposes the following criteria for disestablishing the ERZ (note that these criteria were used to declare freedom from the Auckland 2015 Q-Fly incursion):
    a) Q-FLY
        - The greater of:
            - 14 weeks; OR
            - one generation (from egg to mature adult) plus 4 weeks

          with zero flies detected within the ERZ; OR
        - For the Wellington region and the South Island, the onset of colder temperatures.

    a) OFF
        - The greater of:
            - 6 weeks; OR
            - one generation (from egg to mature adult) plus 4 weeks

          with zero flies detected in the ERZ; OR
        - For the Wellington region and the South Island, the onset of colder temperatures.
32. The model proposes the following criteria for dis-establishing the ERZ based on the model for Australian and Californian data:
    - for Australian Q-Fly, the greater of:
        - 16 weeks; OR
        - one generation (from egg to mature adult) plus 4 weeks

      with zero flies detected within the ERZ; and
    - for California OFF, the greater of:
        - 34 weeks; OR
        - one generation (from egg to mature adult) plus 4 weeks

      with zero flies detected within the ERZ
33. MPI seeks comment on the **model methodology** and **types of data inputs** used to determine criteria for the disestablishment of the ERZ. Technical information should be presented to support submissions.

Implications of the Model

Implications for export of fruit fly host commodities

34. An incursion is declared when surveillance reveals that a breeding population of fruit flies may be present in an area. Biosecurity responses include both organism management of the fruit fly population and maintenance of ongoing trade.
35. MPI is required to notify importing countries of an incursion. In the absence of any agreed import protocols, MPI must also negotiate for continued market access for product from the export restriction zone (ERZ) to fruit fly sensitive markets. The ERZ extends for a set distance from each detection. Currently the size of the ERZ must be negotiated with each importing country for each incursion.
36. It is important to note that the size of the ERZ, and criteria for declaring the ERZ pest free currently needs to be negotiated at the time of an incursion. Importing countries may impose different requirements (i.e. size of ERZ and/or treatments), and exports maybe disrupted until agreements are reached with each individual trading partner.
37. Having pre-agreed protocols will be a major step forward during a future incursion. With a pre-agreed protocol, ERZ criteria are pre-agreed, and industries can develop contingency plans and ensure any required infrastructure (e.g. for transportation, treatment and/or segregation of product) is available prior to an incursion occurring.
38. Under the proposed protocol and in the event of a fruit fly incursion:
    - Produce grown within the Controlled Area (organism management response zones A & B, of 200m and 1500m radii respectively) will be under the direct control of MPI and is subject to Section 131 of the Biosecurity Act 1993. Fruit fly host material is subject to movement controls as described by the Controlled Area Notice (CAN). This will vary depending on the circumstances of the fruit fly detection (note, this is unchanged from current practice). 'MPI Standard: Fruit Fly Response (Field Operations)' (MPI 2015b) provides additional detail on movement controls during a response. The Controlled Area is inside the ERZ.
    - Produce grown within the ERZ (see Table 2) can be exported when phytosanitary measures are applied (e.g. a treatment). Phytosanitary measures are agreed between trading partners, and will be negotiated as a second stage of this project. Phytosanitary measures may not be available for all fruit fly host commodities or species of fruit fly.
    - Produce which is exposed to the ERZ (e.g. transported through, packed or stored in) will require additional measures (e.g. transport in a pest free manner or application of a treatment).
39. The protocol is being prepared for Q-Fly, Med-fly, OFF and Melon fly. If an incursion of a different fruit fly species occurs, or an incursion occurs in an area not covered by the New Zealand surveillance grid, appropriate phytosanitary measures would need to be agreed with our export markets. MPI would propose ERZ criteria to export markets based on 'the model' (MPI, 2016), with inputs appropriate to the species of fruit fly. However some disruption to trade may occur.
40. New Zealand's fruit fly surveillance programme (see Appendix 1) is focused on high risk locations, including urban areas and centres for tourism and trade (MacLellan & King, 2015). If an incursion occurs in an area not covered by the New Zealand

surveillance grid, the size of the ERZ would have to be determined and negotiated on a case by case basis.

Implications for import of fruit fly host commodities

41. In keeping with New Zealand's obligations under the WTO Sanitary and Phytosanitary Measures Agreement (SPS) and the International Plant Protection Convention (IPPC), phytosanitary measures must be justified and based on scientific principles. Trading partners have the right to provide a level of protection they deem appropriate but must ensure this does not result in unnecessary barriers to trade. There should be no discrimination where identical or similar conditions prevail, including between their own territory and that of their trading partners.
42. SPS obligations also require acceptance of equivalence if it can be demonstrated that alternative measures or procedures can provide the same level of protection.

Table 2. Summary of current vs modelled fruit fly incursion management criteria.

	Australian system for Queensland fruit fly		Californian system for Oriental fruit fly	
	Bilaterally agreed criteria	**Modelled criteria**	**Bilaterally agreed criteria**	**Modelled criteria**
Establishment of an ERZ	Detection of any juvenile or gravid female OR Detection of 5 males within 1000m radius within 2 weeks.	Detection of any juvenile or gravid female OR Detection of 4 males in 3200m (urban) or 7840m (commercial) radius within 2 weeks.	Detection of any juvenile or gravid female OR Detection of 6 (urban) or 8 (commercial) males within 4800m radius within 4 weeks.	Detection of any juvenile or gravid female OR Detection of 2 males within 5120m (urban) or 6240 (commercial) radius within 2 weeks.
Size of ERZ	15000m	3200m (urban) or 7840m (commercial)	8200m	5120m (urban) or 6240m (commercial)
Disestablishment of ERZ	Zero detections in the greater of: - one generation from egg to egg plus 28 days - 12 weeks	Zero detections in the greater of: - one generation from egg to adult plus 28 days - 16 weeks	Zero detections in 3 generations (egg to egg).	Zero detections in the greater of: - one generation from egg to adult plus 28 days - 34 weeks

43. Table 2 (above) provides a summary for comparison of the modelled ERZ parameters and the existing parameters that are currently bilaterally agreed with Australia and California, USA.
    - Australia (Q-Fly):
        - Using the model, the trigger for establishing an ERZ reduces (i.e. application of a lower threshold) from 5 flies in a 1000m radius in 2 weeks to 4 flies in a 3200m (urban) / 7840m (commercial) radius in 2 weeks.
        - The size of an ERZ in a commercial growing area (e.g. the Riverland PFA), could reduce from 15000m to 7840m.
        - Application of the model results in the ERZ being implemented earlier (less flies in a larger area). The ERZ would be considerably smaller for both urban and commercial growing areas than are currently implemented.

    - California, USA (OFF):
        - Using the model the trigger for establishing an ERZ reduces (i.e. application of a lower threshold) from 6 flies (urban) / 8 flies (commercial growing areas) in 4800m radius in 4 weeks (roughly equivalent to 3 flies urban / 4 flies

commercial growing areas in 4800m radius in 2 weeks) to the detection of 2 flies in 5120m (urban) / 6240m (commercial growing areas) radius within 2 weeks.

- The size of an ERZ in a commercial area could reduce from 8200m to 6240m.
- Application of the model could result in ERZ being implemented slightly earlier. The ERZ would be slightly smaller in urban and commercial growing areas than is currently implemented.

Comments

44. MPI seeks comment on the acceptability of applying the proposed model to trade (import and export) of fruit fly host commodities where fruit flies are detected in PFAs.
45. Support for the application of the model (MPI, 2016) to manage phytosanitary risk for export trade means that application of the model to manage phytosanitary risk associated with importing produce from fruit fly pest free areas is also supported.
46. Submissions on technical aspects should be supported by references from appropriate technical publications.

Key Abbreviations

CAN	Controlled Area Notice
cOAP	Contingency official assurance programme
ERZ	Export restriction zone
ISPM	International Standard for Phytosanitary Measures
MAO	MPI approved organisations
MPI	Ministry for Primary Industries
OFF	Oriental fruit fly; *Bactorcera dorsalis*.
PFA	Pest free area
Q-Fly	Queensland fruit fly; *Bactrocera tryoni*.
SPS	Sanitary and Phytosanitary

References

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MPI, 2014. National fruit fly surveillance 2013-2014. MPI Technical Paper No: 2014/36. Retrieved 22/09/2015 from http://www.mpi.govt.nz/document-vault/3413.

MPI, 2015a. Fruit fly surveillance programme. http://www.biosecurity.govt.nz/pests/surv-mgmt/surv/fruit-fly (accessed 22/09/2015).

MPI, 2015b. MPI Standard: Fruit Fly Response (Field Operations), December 2015.

MPI, 2016. Evaluation of import and export parameters for fruit fly export restriction zones, 1 April 2016.

Resource list

IPPC Convention	https://www.ippc.int/en/publications/128/
ISPM 1	https://www.ippc.int/en/publications/596/
ISPM 26	https://www.ippc.int/en/publications/594/
SPS Agreement	https://www.wto.org/english/tratop_e/sps_e/spsagr_e.htm

Appendix 1 - New Zealand fruit fly surveillance system

1. New Zealand's National Fruit Fly Surveillance Programme has operated since the mid 1970's to provide assurance that New Zealand is free of economically significant fruit fly species, and act as an early warning of any fruit fly incursions. The system is based on internationally recognised standards (Australia and USA) and is considered to be best practice. It has a proven track record of performance.
2. The surveillance programme deploys approximately 7,700 traps each year from September to June, with traps concentrated in populated areas serving as centres for tourism and/or trade, and areas climatically conducive to the establishment of fruit flies (MacLellan & King, 2015; MPI, 2015a; MPI, 2014).
3. Surveillance traps are laid out in grids. The density of traps in the grids is designed to detect the presence of fruit flies before a permanent population can establish, by utilising the effective trapping distances of each type of lure and the biology of the target fruit fly.
4. The grid trapping densities used in New Zealand's surveillance system are:
    - For cue-lure responsive fruit flies (e.g. Melon Fly and Q-Fly) traps are placed every 400m (a 400m grid).
    - For methyl eugenol responsive fruit flies (e.g. OFF) traps are placed every 1200 m (a 1200m grid).
    - For trimedlure responsive fruit flies (e.g. Med-fly) traps are placed every 400m (a 400m grid) (MacLellan & King, 2015; MPI, 2015a; MPI, 2014).
5. Traps contain pheromone lures which attract male fruit flies. Female and non-mobile life stages do not respond to these lures.
6. All traps include insecticides to ensure attracted flies are killed and retained in the trap (MacLellan & King, 2015; MPI, 2015a; MPI, 2014).
7. When a fruit fly is found during routine surveillance, additional traps are deployed and a zone of enhanced surveillance (the Controlled Area) is established (MPI, 2015b; MPI, 2016).