出國報告（出國類別：考察）

促進農業國際接軌與新南向市場布局-赴紐西蘭參訪入侵有害生物緊急防疫計畫

服務機關：行政院農業委員會動植物防疫檢疫局
行政院農業委員會農業試驗所
姓名職稱：李丹容 技士
黃毓斌 副研究員
派赴國家：紐西蘭
出國期間：109 年 1 月 11 日至 109 年 1 月 18 日
報告日期：109 年 4 月 6 日

摘要

本次行程由行政院農業委員會動植物防疫檢疫局(以下簡稱防檢局)李丹容技士及行政院農業委員會農業試驗所(以下簡稱農試所)黃毓斌副研究員於 109 年 1 月 11 日至 18 日赴紐西蘭奧克蘭參訪該國入侵有害生物緊急防疫體系。本次參訪針對紐西蘭因應入侵有害生物所建立之三層防護體系，由紐方介紹從境外、邊境至境內一系列生物安全作為，包括邊境生物安全作業 (Border operations) 、調查作業(Surveillance activities)、政府與產業間對生物安全工作之準備和應變協議(Government Industry Agreement, 以下簡稱 GIA 協議)、境內有害生物之應變及行動內容(Response model and implementation)的制度。再以果實蠅為例，瞭解紐西蘭果實蠅緊急應變措施及出口系統中有關生物安全之制度。實際參訪部分，紐方安排我方參觀植物健康及環境實驗室(Plant Health and Environment Laboratory, PHEL)、果實蠅總部(Fruit Fly Field Response Headquarters, FHQ)及北岸郊區三個懸掛果實蠅誘殺器之地點、紐西蘭 Mainfreight 物流公司和 Punchbowl Kiwifruit Services 奇異果園及包裝場兩個與出口作業相關之地點，藉以更貼近了解紐西蘭國內執行情形。本次參訪後所得之經驗將進一步對照我國目前國內防疫現況，提供基於維持貿易交流穩定的基礎上，強化我國現行防疫制度的建議，以供相關單位參考。

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壹、前言

有關國外防範入侵有害生物的經驗，紐西蘭是一個很值得研究的範例。紐西蘭以農牧業立國，更以農業躍居已開發國家，因此對於保護國內農業生產環境極其重視。為避免外來有害生物對國內產業造成龐大損失或影響對外貿易，紐西蘭擬定專法如生物安全法，並有計畫地推動外來有害生物之管制、評估、移除、調查及生態復育等措施。此外，紐西蘭為使民眾參與生物安全的工作，亦致力於與國內民眾之溝通，有助落實全民防疫的目標。我國對該國所展現執行生物安全之想法、決心與實際行動，認為可從中借鏡其優點進行參考及應用。

基於上述理由，防檢局於 107 年 11 月 29 日第 5 屆臺紐食品安全檢驗與動植物防疫檢疫聯合管理委員會會議中，向紐方代表提出欲前往該國瞭解其入侵有害生物緊急防疫制度，雙方獲致共識，防檢局遂選派李丹容技士及農試所黃毓斌副研究員，於 109 年 1 月 11 日至 18 日赴紐西蘭奧克蘭，以果實蠅為例，由紐西蘭初級產業部(Ministry for Primary Industries, MPI)協助安排研習及實地參訪緊急防疫實務作業內容。

貳、行程紀要

1 月 11 日、1 月 12 日（星期六、星期日）	1.由臺灣桃園國際機場搭乘中華航空 CI053 至澳洲布里斯本(Brisbane)中途停點，再由澳洲布里斯本搭乘同一班飛機前往紐西蘭奧克蘭(Auckland)機場。 2.紐西蘭於機場安排我方人員搭乘計程車前往晚上夜宿地點:宜必思埃勒斯利飯店(Ibis Ellerslie Hotel)。
1 月 13 日（星期一）	1.早上前往諾富特艾勒斯利飯店 (Novotel Ellerslie Hotel)會議室，由紐西蘭初級產業部市場進入組首席顧問 Ivan Veljkovic 代表紐方歡迎我方參訪成員。雙方於進行成員自我介紹後，由 Ivan Veljkovic 針對本次參訪行程進行概要說明。 2.研習紐西蘭因應入侵有害生物所建立之三層防護體系，上午由邊境作業主任 Mervyn Alexander 介紹邊境生物安全作業(Border operations) ，於用完中餐後，下午接續由植物健康首席顧問 Rory MacLellan 介紹生物安全調查作業(Surveillance activities)、 GIA 團隊負責人 Meredith Elley 介紹政府與產業間對生物安全工作之準備和應變協議(Government Industry Agreement, 以下簡稱 GIA 協議)、首席應變小組負責人 David Yard 介紹紐西蘭發生有害生物之應變及行動內容(Response model and implementation)。 3.夜宿宜必思埃勒斯利飯店。
1 月 14 日（星期二）	1.早上自宜必思埃勒斯利飯店(Ibis Ellerslie Hotel)出發前往紐西蘭植物健康及環境實驗室(Plant Health and Environment Laboratory, PHEL)(231 Morrin road, St Johns, Auckland)進行實地參觀，由實驗室負責人 Lalith Kumarasinghe 介紹實驗室，並帶領我方代表參觀實驗室內部。 2.下午至奧克蘭北岸(North Shore)郊區羅斯代爾(Rosedale)(17

	Ride Way, Rosedale)實地參觀果實蠅總部(Fruit Fly Field Response Headquarters, FHQ)，再至北岸郊區格林海斯(Greenhithe)、阿爾巴尼 (Albany)及 Schnapper Rock 等三個懸掛果實蠅誘殺器之地點進行參觀。 3.晚上與紐西蘭代表於 Harbour Society SO Sofitel Auckland (67 Customs St, Auckland)共進晚餐後，返回宜必思埃勒斯利飯店。
1 月 15 日（星期三）	1.早上前往諾富特艾勒斯利飯店 (Novotel Ellerslie Hotel)會議室，由 Michael Ormsby 介紹紐西蘭果實蠅緊急應變措施。下午由植物出口高級顧問 Henry Pak 介紹紐西蘭出口植物及植物產品系統中有關生物安全之制度，特別是有關初級產業部與民間機關獨立驗證機構(Independent Verification Agencies, 以下簡稱 IVA 機構)和初級產業部認可之組織(MPI Approved Organisation, 以下簡稱 MAO 組織)的分工。 2.晚上返回宜必思埃勒斯利飯店。
1 月 16 日（星期四）	1.早上前往紐西蘭 Mainfreight，由 AsureQuality 植物和種子小組負責人(IVA 機構人員)Yinan Tian，引領我方實地參觀 IVA 機構查核 MAO 組織之出口作業情形。下午至紐西蘭 Punchbowl Kiwifruit Services 奇異果園及包裝場 (646 Glenbrook Road, RD4 Pukekohe) ，由總經理 Colin Davies 引領我方實地參觀該廠的奇異果園及包裝場。 2.自包裝場返回宜必思埃勒斯利飯店。

1 月 17 日、1 月 18 日（星期五、星期六）	1.上午雙方針對本次行程進行回顧並交換參訪心得，我方對紐方安排參訪相關事宜表達感謝。 2.由紐西蘭安排我方搭乘計程車自宜必思埃勒斯利飯店前往紐西蘭奧克蘭機場搭乘中華航空 CI054 班機，經澳洲布里斯本中途停點，再搭乘同一班飛機返回臺灣桃園國際機場。

參、參訪內容與結果

一、 紐西蘭生物安全主管機關-初級產業部

2012 年 4 月 30 日，紐西蘭將農業與森林部(Ministry of Agriculture and Forestry, MAF)、紐西蘭食品安全局(New Zealand Food Safety Authority, NZFSA)及漁業部(Ministry of Fisheries, MF)等部門合併成為初級產業部，主要負責統籌及督導初級生產、食品安全和生物安全相關業務，及制定進出口標準，除保護紐西蘭初級產業免受外來有害生物危害外，並且同時努力開拓紐西蘭產品進入國外市場的管道，持續與貿易的夥伴交流資訊，保持雙方良好的關係。綜觀其業務涵蓋範圍，涉及我國農業委員會及所屬農糧署、動植物防疫檢疫局、林務局、漁業署，甚至跨機關涉及環保署及衛生福利部食品藥物管理署等單位之業務。本次參訪有關生物安全之應變措施的內容，大部分由隸屬於初級產業部下之生物安全局(Biosecurity New Zealand)所主導，透過國家安全系統(National Security System, NSS)和事件協調管理系統(Coordinated Incident Management System, CIMS)採用標準化、可信賴和經過測試的應變措施，維護境內生物安全相關事宜。

二、 紐西蘭因應入侵有害生物之防護體系

紐西蘭為因應外來有害生物之入侵，其國內防護體系可分類為三層，分別是境外有害生物的防範、邊境有害生物的驗證，及境內有害生物的調查、通報及管理。以下就每一層設立的目的及作為進行說明如下:

(一) 境外有害生物的防範-風險管理(Risk Management):

針對外來有害生物的管理上，最有效及耗費成本最少的方法即是防範其生物進入境內。因此，為保護國內農業生產及生態環境，紐西蘭在立法上除依據世界貿易組織(World Trade Organization, WTO)之食品安全檢驗及動植物檢疫協定(Agreement on the Application of Sanitary and Phytosanitary Measures, 以下簡稱 SPS 協定)、國際植物保護公約(International Plant Protect Convention, IPPC) 之國際植物防疫檢疫措施標準(International Standard of Phytosanitary Measures, 以下簡稱 ISPMs)、區域植

物防疫檢疫措施標準(Regional Standards for Phytosanitary Measures, RSPM)等原則外，並於 1993 年訂定生物安全法(Biosecurity Act 1993)，現由初級產業部作為主管機關，統籌該法之修訂及實際執行上所有相關事宜。任何進入紐西蘭之貨品及交通運輸工具等，需事先進行有害生物風險分析(Pest Risk Analysis, PRA)，評估相關貨品進入紐西蘭前之途經地區、疫病蟲害發生情形及風險管理內容。接著，起草進口衛生標準(Import Health Standard, 以下簡稱 IHS 標準)，在不違反國際貿易原則下，與申請者磋商其需求、談判出口計畫，及發布 IHS 標準後，即可開啟雙方貿易。另外，有關風險管理的規則上，特別注意應符合以下要件:

1.符合有害生物帶來的風險:即擁有越大風險性之有害生物，在管理的措施上應相對更加嚴格。例如，對紐西蘭來說定義為低風險性的檬果種子象鼻蟲(Mango seed weevil, *Sternochetus mangiferae*)，輸入其寄主時僅需進行檢查，而具高風險性的昆士蘭果實蠅(Queensland fruit fly, *Bactrocera tryoni*)，其寄主輸入時除檢查外，則必須再符合其他檢疫處理條件。

2.最低程度的保護:僅需達到保護植物健康的目的即可。

3.最低程度的限制:對貿易上的影響及限制儘可能減少。

4.市場自由競爭:不得以強行保護國內市場為由，拒絕接受國際競爭。

風險管理的執行需根據 ISPM 7 出口認證制度，於出口計畫述明如何遵守相關規則、有無遵守規則的能力(例如符合執行規定之人員和設施)，及確認規則得到遵守之方法(例如調查，監督與審核方式)，而植物檢疫證將作為符合上述出口條件之證明。

(二) 邊境有害生物的驗證(Verification)

所有乘客、貨品和運輸工具等在進入紐西蘭之前都必須經過生物安全檢查，以避免外來有害生物入侵境內。藉由邊境一系列的行動(Border Operations)，由紐西蘭委任或授權第三方機構進行分析、定位、檢查與檢疫，政府得適時介入確認委任或授權第三方是否符合執行規定，一旦發現目標有害生物才能即時應變並通知出口國家。

有關邊境生物安全的工作，紐西蘭政府納入非官方單位協助政府督導、評

估及執行生物安全工作，以委任及授權方式，讓民間機構或私人公司代表紐西蘭官方執行某項或數項經認可業務。以生物安全之輸出植物及植物產品制度為例，初級產業部身為主管機關，對 IVA 機構僅需審查及監督該機構是否具備足夠的資源及能力，來達成和維持初級產業部在生物安全上要求。在紐西蘭，IVA 機構為輸出植物檢疫及發證體系中被授權程度最高之民間機構，負責檢視擬加入初級產業部輸出植物檢疫及發證體系之民間公司的文件，並評估、督導及查核初級產業部認可之組織(MPI Approved Organisation, 以下簡稱 MAO 組織)在紐西蘭出口體系中之表現，例如:區域和生產場所之有害生物調查、業者擬輸出的貨物及其文件是否符合輸入國檢疫條件、貨物現場檢疫及針對合格者核發輸出植物檢疫證明書等業務。MAO 組織經初級產業部批准認可後加入植物檢疫及發證體系，可辦理輸出植物及其產品臨場檢疫、輸出前檢疫處理、維護生物安全及識別追溯貨品來源等，但執行與成效均受 IVA 機構所督導。

(三) 境內有害生物的調查(Surveillance)、通報(Response)及管理(Management)

紐西蘭為了確保與貿易夥伴的進出口安全，並於外來有害生物入侵境內當下，即時發現並進行應對，避免其生物擴散及建立族群，有關境內的調查依強度分為一般調查(General Surveillance)、專案調查(Targeted Surveillance)及高風險地區調查(High Risk Site Surveillance)。一般調查係任何人皆可通過免費電話，對境內中的任何病蟲害進行通報，每年通報可疑的有害生物種類平均約 10,000 種，其中又平均約 750 件的通報會啟動後續調查、應變及管理措施。專案調查係紐西蘭為了掌握境內特定的有害生物，例如紅火蟻(National invasive ant, NIA)，果實蠅(Fruit Fly, FF)，褐翅椿象(Brown marmotated stink bug, BMSB)及吉普賽舞蛾(Gypsy moth, GM)等發生情形，透過科學性的調查方式，有計畫的訂定調查方法及後續發現目標有害生物的應變措施(Response Plans)。另外，高風險地區調查指的是部分地區因發生高風險有害生物的機率較高，例如森林、城市樹木、果園和原生灌木，有必要特別加強調查之情形。

紐西蘭所採行的有害生物的應變措施，其中有關產業與政府之間的合作夥伴關係內容，有助讓產業亦具備相當之應變能力，縮短有害生物發生

後，政府與產業溝通之時間。此制度係2012年紐西蘭政府透過修訂生物安全法，對於可能嚴重損害紐西蘭初級產業、經濟和環境的有害生物，在法律基礎下，建立政府與產業間對生物安全工作之準備和應變協議(Government Industry Agreement, 以下簡稱 GIA 協議)。其目的是為了讓利害關係人參與生物安全工作的制度，政府在經過與產業就其業務性質進行協商後，擬定最大程度上降低有害生物入侵風險和影響的辦法以及準備有害生物入侵後應對及管理的行動計畫，並在雙方簽署 GIA 協議後，分工執行生物安全之工作及分擔生物安全所帶來的成本，有關成本的分配需要考量產業的規模、產業執行內容與能力、有害生物之經濟危害程度等多種因素，但最重要的因素還是取決政府與產業之間的協商。另外，特定產業以團體方式與政府簽署的 GIA 協議，更有利政府集中管理企業執行生物安全工作，而達成更好的生物安全效果，例如紐西蘭的奇異果產業與政府簽署相關有害生物如果實蠅、細菌性藤蔓潰瘍病(*Pseudomonas syringae* pv. *actinidiae*, *Psa*)等之 GIA 協議，就是最好的範例。

三、 紐西蘭防護體系下因應有害生物入侵後之緊急應變規劃-以果實蠅為例

有害生物的入侵對紐西蘭的農產品生產商和出口商而言，嚴重時甚至可能導致貿易的中斷，無疑是重大影響貿易進行的因素之一。為避免上述情形，紐西蘭針對有害生物入侵後的情形，制定了相關機制，以確保在發生有害生物入侵的情況下能繼續將產品貿易至進口國，最大程度上來降低有害生物入侵後之影響，以下以果實蠅為例進行介紹:

(一)預先規劃降低果實蠅入侵後而引發之貿易障礙

紐西蘭根據國家果實蠅調查計畫提供的科學數據，向國際證明國內仍維持果實蠅非疫區之狀態，即紐西蘭目前尚無發生具經濟危害性之果實蠅類(Tephritidae)立足於國內之情形。這歸功於紐西蘭擁有完整的生物安全系統，能在入侵有害生物發生時，快速提供相關發生及後續處理紀錄，供進口該貨物之國家檢視。在這樣背景之下，紐西蘭政府於 2015 年 12 月訂定發生果實蠅入侵時相關應變及管控機制(MPI Technical Standard: Fruit Fly Respone-Field operations)，除非貿易雙方另有其他協議外，依據國際公認的

標準及有害生物發生前雙方協商同意之原則，紐西蘭能快速確保果實蠅自入侵到根除為止，或即便有發生果實蠅無法成功根除之情形，也可以依據協商內容，建立國內特定區域作為非疫區的方式，確保出口貨品不具罹染有害生物的風險，而達到維持貿易繼續進行的目的。

(二)果實蠅發現後的管控機制

1. 案件的回應

當有害生物或疑似有害生物被發現時，有關案件是否需進行回應，第一階段須確定有害生物的類型，以決定是否須先控管發生有害生物之地區。第二階段依據有害生物發生情形及後續可能造成的影響，評估影響是否屬重大。當案件被評估有重大影響力，並確認為目標有害生物，則進入第三階段，於確認後一個小時內成立應變小組，正式通知利害關係人，進行後續溝通及共同執行相關防治措施。以果實蠅為例，因紐西蘭目前尚非屬果實蠅之疫區，爰當發現果實蠅時，必須對發現地區加以控管，從發現果實蠅的地點延伸，依據科學研究結果劃定出口限制區(Export restriction zone, ERZ)(如附表一)，初級產業部將禁止並管制該範圍內之所有貨物的出入。因果實蠅所造成的影響，於果實蠅入侵前，即被歸類為對紐西蘭產業極具重大影響之有害生物，因此，初級產業部可迅速啟動應變計畫，同步將訊息正式提供予國內產業利害關係人及受影響之進出口貿易夥伴。與政府簽屬 GIA 協議之產業，初級產業部負有法律上告知的義務，產業可派代表參與後續決策。若產業沒有與政府簽屬 GIA 協議，產業仍可得知相關訊息，但沒有參與後續決策的權利。

2. 確認及宣告有害生物入侵

依據國際植物檢疫措施標準第 26 號(ISPM 26)，果實蠅入侵係基於：(1)偵測到未發育為成蟲的個體； (2)偵測到已懷受精卵的雌蟲；(3) 偵測到兩隻或兩隻以上發育完成的成蟲。在紐西蘭如果確認發生果實蠅入侵之情形，初級產業部將依據 ISPM 26 確認 (1)確定果實蠅入侵後境內受影響的地區；(2)入侵訊息立即通知利害關係人及其他進口國的國家植物保護組織(如 NPPO)；(3)管制出口物品。在這基礎點上，果實蠅族群被認為是暫時性存在且正在持續被根除。

3. 建立緊急防治區和限制出口區

紐西蘭持續維持全國果實蠅調查計畫，若調查誘殺器中發現果實蠅時，初級產業部可依據 ISPM 26，在入侵後的 72 小時內，針對果實蠅可能偵獲之區域(Potentially Infested Area, 以下簡稱 A 區)及緩衝區(Buffer Zone, 以下簡稱 B 區)，建立果實蠅緊急防治區(Eradication Zone)。以昆士蘭果實蠅為例，A 區係果實蠅偵獲點為中心訂定最小半徑 200 公尺範圍的區域，B 區係圍繞 A 區訂定最小半徑 1.5 公里範圍的區域。除緊急防治區外，初級產業部亦建立出口限制區，該區由緊急防治區延伸 3.2 公里區域所組成。

4. 調查果實蠅發生情形

成立應變小組後，FHQ 將在 24~48 小時內建立，以戶外移動式實驗室，對收集回來可能孵化出果實蠅之寄主鮮果實樣本進行剖果檢查。初級產業部在執行的過程中將不斷與受影響的居民和社區進行廣泛的溝通，其調查區域內的住戶倘發現疑似個案亦有義務進行通報。

以紐西蘭北岸德文波特防治區域(Devonport Controlled Area)為例，初級產業部在防治區內設置了 173 個誘殺器(如附圖一)，A 區設置 93 個誘殺器，自發現果實蠅前 7 天，每天檢查一次，接下來每 3 天檢查一次，直到有更進一步的通知；B 區設置 80 個誘殺器，每平方公里約 20~30 個，每 3 天檢查一次，直到有更進一步的通知。另外，初級產業部亦配置了 141 個收集箱用來收集果實，A 區設置 113 個，B 區設置 28 個。以紐西蘭北岸諾斯科特防治區域(Northcote Controlled Area)來看，初級產業部在防治區內設置了 218 個誘殺器，A 區設置 95 個誘殺器，B 區設置 100 個誘殺器，在其他的高風險區再加設 23 個誘殺器。另外，初級產業部亦在 A 區配置了 120 個收集箱用來收集果實。A 區之收集箱每周收集的果實，除依規定進行包裝之果實外，區內所有健康的、即將掉落的、已掉落的、開始腐壞的果實等果實蠅寄主植物，皆在收集之範圍內。

5. 調查過程發現果實蠅

調查過程中倘發現果實蠅，其後續通報依據發現對象，區分為不同級別。1 級代表確認在紐西蘭存在一隻雄蠅。2 級代表偵測到卵、幼蟲、已懷受精卵的雌蠅或多隻雄蟲。3 級代表已有多族群的證據。當通報上升到 2 級時，初

級產業部將增加誘殺器作為因應。2019 年紐西蘭奧克蘭陸續偵測發現昆士蘭果實蠅如附表二，皆為 1 級通報。

6. 果實蠅移動管制

為避免果實蠅因人為因素加速擴散速度，初級產業部得限制個人及商業經營者所有物移動，以防止果實蠅從緊急防治區中移出。初級產業部會適時發出有害生物通報義務通知、管制通知和國內流動許可證，並在緊急防治區周圍放置標誌牌(如附圖二)，以標示果實蠅緊急防治區有關進出、聯繫方式等訊息。緊急防治區及其周圍區域出口，都放置大型收集箱以收集果實，上面也皆有相關聯繫方式(如附圖三)。

7. 依科學證據隨時更新限制出口區範圍

在緊急防治行動計畫期間，除出口限制區外，紐西蘭所有地區得被視為非疫區。如果在出口限制區以外發現果實蠅，紐西蘭則將立即審視以前果實蠅未出沒的地區，並依需要延伸現有或設定新的出口限制區。初級產業部將通知貿易夥伴及提供緊急防治區和出口限制區的詳細信息，並於入侵發生期間隨時更新。

8. 官方保證管控期間之執行內容符合進口國之規定

初級產業部為確保在整個出口產業鏈中，所有自各產區生產之果品經合格包裝後，均能保持植物檢疫安全性和可追溯性，爰所有從出口限制區或通過出口限制區的經營者，必須與初級產業部商定適當的流程及程序，如官方保證計畫(Official Assurance Programme, OAP)，於管制期間，有計畫的配合不同貿易夥伴出口要求執行相關工作，並加入溯源系統，以確保從生產地到出口期間，都可以追溯其物品之來歷，必要時，物品須進行檢疫處理，以防止產品或其包裝夾藏有害生物。

針對符合檢疫條件下的貨品，將會加註下列敘述於植物檢疫證書上，以向貿易夥伴保證該產品符合規定。

(1)產品非產自果實蠅出口限制區，且未途經出口限制區。

(2)產品非產自果實蠅出口限制區，雖有途經出口限制區，但經過前已依進口國檢疫要求進行處理。

(3)產品來自果實蠅出口限制區，但已依進口國檢疫要求進行處理。

倘在進口中被發現有果實蠅，除依與進口國交涉對貨物的處理外，初級產業部於接獲貨物攔截情況及相關資訊後，都會採取調查或提出必要的糾正措施，例如:相關途徑(包裝場，冷藏庫，貨運代理等)之貨品將暫時中止一切出口的運作。此調查目的是為了確認經營者是否遵守規定，並評估是否需要採取進一步的措施。待調查結果產生並與進口國協商後，由初級產業部決定是否恢復、刪除特定部分或中止出口計畫。

9. 執行中止，宣布取消出口限制

以昆士蘭果實蠅為例，沿用「澳大利亞操作規範」(Australian Code of Practice, COP)標準，自上次偵測到昆士蘭果實蠅以來，依據其生活史估算需要一代加上 28 天的時間，以作為調查地區重新建立非疫區的證據。有關目標有害生物的通報及應變機制在未解除管制前將一直存在，反之，當調查地區符合非疫區證明標準，紐西蘭政府即會關閉相關應變機制，移除區內所有誘殺器、誘餌、收集箱和標誌牌，將相關資訊提供予受影響的利害關係人表達意見，藉以評估可以改進的措施。又為鼓勵該期間內參與生物安全工作之人員，紐西蘭政府利用大眾媒體表達對所有人的感謝，以達到宣傳生物安全的作用。

依據 ISPM 26 規定，如果在其生物學和環境條件所確定的時間內沒有再進一步偵測到目標果實蠅，經確認後，則可宣布撲滅成功，並恢復非疫區及取消出口限制，例如 2015 年紐西蘭取消北島奧克蘭市 Grey Lynn 地區昆士蘭果實蠅管制區之寄主鮮果實輸往我國的限制。

(三)紐西蘭與貿易夥伴之進出口協商機制

當貨物入境後，對其證書和標籤進行檢查及對檢疫有害生物實施檢疫的過程中，如果發現不符合規定的文件、包裝損壞或發現有害生物，進口國得進行檢疫處理、退運、銷毀或釋放。雙方合作的過程中，初級產業部至少每 5 年會審查一次相關內容，以確保內容仍然有效並滿足雙方的需求，有助當問題發生時，即時解決雙方在解釋或執行方面的任何分歧，不僅有效降低了外銷上的阻力，亦讓雙方的合作關係能更加緊密。

四、 實際參訪紐西蘭執行應變及管理入侵有害生物之作為

紐西蘭為因應多元貿易及傳輸途徑、頻繁發生之氣候變遷、國內土地用途的改變及整合國內利害關係人在生物安全上不同的意見，一直持續思考並調整其執行的內容。為順利推動上述防檢疫體系之內容，以下就我方實際參觀之地點簡述紐西蘭生物安全之作為:

(一)參觀植物健康及環境實驗室(Plant Health and Environment Laboratory, PHEL):

紐西蘭的生物安全系統從有害生物的通報開始，乃至後續緊急應變的決策及管理措施的實施，其國內設置的植物健康及環境實驗室(Plant Health and Environment Laboratory, PHEL)(如附圖四、圖五)扮演相當重要的角色。本次參訪由實驗室負責人 Lalith Kumarasinghe 介紹實驗室之成立目的，並帶領我方代表參觀實驗室內部。該實驗室內部分別設立不同領域，包括昆蟲、真菌、病毒及類病毒、細菌及植物菌質體、線蟲及其他有害生物如蟎的專家團隊，協助辨識及測試各種有害生物樣本，除此之外，甚至還可提供科學和技術上的建議，只專心致力於支持初級產業部的各種活動，不接受任何來自民眾或產業的委託工作。有關執行生物安全的過程中採集到的樣本經測試或鑑定後，樣本具重要代表性者將製成標本或檢體統一存放於此(如附圖六、圖七)，進行系統性之管理，方便現場執行生物安全之人員或國內外專家學者，隨時進行影像調閱(如附圖八)，以加速案件鑑定及溝通效率。另，若有培育有害生物的需求，該實驗室內部亦設有高度安全的設施，包括隔離溫室(如附圖九)，組織培養設施和管制實驗室等空間，搭配相應管制措施，以避免有害生物進入環境造成嚴重的影響。

(二)參觀田間應變總部(Field Response Headquarters, 以下簡稱 FHQ)及懸掛果實蠅誘殺器之地點:

紐西蘭為強化執行生物安全的人員現場診斷及處理能力，設立了戶外移動式 PC2、PC3 實驗室(Portable labs)(如附圖十、十一)，除可供執行人員深入到各個區域採集樣品外，亦可避免鑑定過程中發生有害生物逃逸的情形，使得執行人員能在實驗室中，對收集回來可能孵化出果實蠅之寄主作物快速進行剖果檢查及通報(如附圖十二、十三)。我方在離開 FHQ 後，再行前往具有懸掛果實蠅誘殺器之地點，我方前往時間雖非果實蠅族群發生高峰

期，但仍能看見懸掛誘殺雄蟲之誘殺器設施，有關本次參訪參觀三處懸掛誘殺器進行誘殺雄蟲之地點，經檢視後皆未發現有果實蠅。執行人員於檢視後，將各種訊息透過智慧型手機，製作現場調查紀錄，將勘查及衛星定位資訊傳送予相關單位(如附圖十四)。

(三)Punchbowl Kiwifruit Services 奇異果園及包裝場

奇異果產業是以團體方式與政府簽屬的 GIA 協議，此方法更有利政府集中管理企業執行如果實蠅或細菌性藤蔓潰瘍病(*Pseudomonas syringae* pv. *actinidiae*, *Psa*)等有害生物之生物安全管理工作。本次我方至 Punchbowl Kiwifruit Services 奇異果園及包裝場(如附圖十五)參訪時，因尚未到奇異果收穫時節，雖無法一窺奇異果執行包裝過程，但藉由該包裝場內部系統提供給我方的資料顯示，為讓國內所有農場品皆能順利進行外銷，奇異果收貨時，具有一定的分流程序，其目的是為了確保每一個奇異果皆能在符合不同國家之檢疫條件下順利出口，而且包裝後的果實在包裝場進行包裝後，需依據規定路徑運送至出口集貨地，期間並以 GPS 進行定位，有利貨品發生問題時，能迅速溯源貨品生產源頭及途經地區。而我方順道至該包裝場附近的奇異果園參訪其種植情形，發現園區通風且衛生管理良好，經檢視園內植株上的奇異果，也並無發現有疑似果實蠅鑽入之痕跡，另外，該園區甚至在園外面罩上一層網，用以阻擋鳥類及大形昆蟲取食。

(四)實地參觀 AsureQuality (IVA 機構)查核 Mainfreight(MAO 組織)之出口作業情形

本次參訪前往 Mainfreight，實地參觀 AsureQuality 查核出口作業情形(如附圖十六)。AsureQuality 依列出之查核項目，逐項確認 Mainfreight 是否符合生物安全標準。就產品取樣及檢測方面，AsureQuality 可於 Mainfreight 生物安全檢疫室，查核執行人員是否遵照規定，檢視或檢測相關產品。例如檢查種子前，檢疫人員須先確認檢測工具是否乾淨，經確認後才能打開產品之包裝，且每次打開下一個包裝前，必須確認前一個包裝已經密封，避免不同包裝內的種子有交互汙染的情形。取出後的種子及包裝上經過標示後，才能放入檢測儀器中進行後續分析。另外就產品包裝方面，AsureQuality 則須確認使用的包裝材質是否符合進口國規定、是否有確實包裹和密封、標

示及規格有無破損或與文件不符等情事。最後審視相關出口文件之正確性，以確保輸出的貨物及其文件皆符合進口國的檢疫條件。倘執行過程中發現有害生物或 MAO 組織有任何不符規定之情事，都必須立即通知初級產業部。

肆、心得與建議

一、本次研習承蒙紐西蘭初級產業部的安排，使我方對於紐西蘭對入侵有害生物的一系列的防範、應變及管理等制度及作業程序均有深刻之體認。針對有關入侵風險評估、調查系統、誘殺器設計、管理模式建置及機動性有效的防除管理流程，均能有條不紊，按部就班，分工合作的完成每個階段，值得我國學習。我國的生物安全防護體系，在制度與推行上尚有一段長遠的路途需要前進，但近年透過防檢局修法讓地方政府自行針對轄區內之特定有害生物執行專案調查的政策，加上大力推動大專院校培育植物醫生之專業人員，雖然執行的過程遭遇很多的阻礙，但仍以漸進的方式，一步一步改變以往生物安全工作僅靠中央機關微薄的人力及成本執行的困境。以下就紐西蘭執行生物安全的優點對照我國防疫制度現況提出建議分析，希望藉由本次參訪的經驗，能提供相關單位在防疫執行面的參考依據。

二、強化我國防疫檢疫法規內容

我國目前不似紐西蘭於生物安全上已訂有專法，也沒有主管機關負責生物安全管理之統籌及督導相關立法、政策、行動計畫、技術開發、資訊應用與數據管理、人力及資源運用與分配、風險管理、社群關係、媒體運用宣導、教育訓練、採購業務、經費籌措等工作。觀看紐西蘭初級產業部業務涵蓋範圍，涉及我國農業委員會及所屬農糧署、動植防疫檢疫局、林務局、漁業署，甚至跨機關涉及環保署及衛生福利部食品藥品管理署等單位之業務就可知道，我國不僅在入侵有害生物的法令分屬於不同政府機關單位，於案件歸屬上，也因分工複雜，不但易使民眾混淆，也容易造成執行上出現灰色地帶，目前我國唯一較具全國代表性之入侵有害生物單位，僅針對特定生物如紅火蟻，設立國家紅火蟻防治中心，整合對紅火蟻相關資源及疫情資訊。上述跨機關的問題，建議還是要先檢視我國政府組織及權責職掌範圍，倘機關間有執行上的衝突或灰色地帶，建議可由上級機關先進行協調，必要時調整組織間的職掌範圍，送請立法院審議，以使業務推動能更加明確。另外，有關現行防疫執行面上所遇到中央與地方分工之問題，近年我國與紐西蘭同樣藉由法規的制定與修正，強化防疫執行效益。例如我國植物防疫檢疫法第八條第一項陸續公告「中華民國植物特定

疫病蟲害種類及範圍」，並於 108 年開始推動地方政府執行該等疫病蟲害的調查及防治工作，就是典型藉由修法，促使地方政府與中央的合作。為更進一步加強國內農作生產安全，未來或可比照紐西蘭訂定 GIA 協議的模式，將利害相關人納入防疫工作的一環，與業界共同分工執行生物安全工作或分擔生物安全所帶來的成本。

三、平衡執行生物安全所帶來的權利與義務

探究紐西蘭在生物安全工作上與國內產業及民眾的配合，不只是因為紐西蘭以農牧業立國，讓政府、國內產業及民眾願意投入生物安全，也不只是因為靠強制立法要求產業及民眾共同配合，而是因為紐西蘭政府組織這幾年走向精緻化，對於屬於產業自由競爭或無需政府由民間亦可做到的事，政府寧願將相關事務回歸利害關係人，也絕不插手介入，除非大部分產業與民眾皆能重視並認同其重要性，並希望政府出面擔任督導、協調及管理的工作，以羊毛出在羊身上的概念，才讓政府的執行具有意義並有相應的預算與金援進行生物安全工作。當然，在政府執行的過程中，發生少數產業及民眾不願配合的情形實屬正常，但不願配合的原因係無理由或理由不足的情況下，紐西蘭政府得以其他方式，例如對特定少數產業及民眾加重抽稅、罰則，或取消政府介入手段，再次回復原有執行方式等進行處理，只是當回復原有執行方式，其責任與後續損失亦一併回歸利害關係人及民眾，而非由政府概括承擔。然不願配合的原因，理由充分合理，例如產業規模過小，無力負擔與規模較大之產業執行生物安全同等的成本，紐西蘭政府將以專案進行協商，以務求每個配合者承擔不同義務的同時，自當享有不同權利的待遇。

四、提升我國對入侵有害生物之應變能力

外來種種類數以萬計，在檢疫有害生物的分類上我國主要分為甲類及乙類，前者係該有害生物在疫區國家可能造成極為嚴重之危害且極難防除，為避免我國之植物遭受嚴重危害，因此完全禁止疫區國家將該有害生物之寄主植物或其產品輸入我國，除非有適當的檢疫殺滅處理方法或非疫生產點。後者是指該有害生物在疫區國家或某些地區造成危害，一旦生長環境條件適合時因具有相當大之危險性，可能對我國相關植物或

植物產品造成影響力，爰對於疫區國家或地區之該有害生物的寄主植物或其產品設立輸入檢疫條件，符合檢疫條件者始得輸入。因此，無論是列入甲類或乙類名單的物種，皆認為該有害生物於入侵後可能會對我國農業造成一定程度之危害。觀看我國過去採取單一植物有害生物入侵前預先規劃處理措施的對策，進而逐一擬定個案處理措施的方式，雖防範上較具全面性，但亦容易使執行的資源較為分散。而反觀紐西蘭的作法，係專注對經濟具備重大影響力的入侵有害生物，擬訂相關應變及處理措施，雖一定程度上可促使防範入侵有害生物上的資源更為聚焦，但也容易造成潛藏性的風險被忽略。另外，因應不同國家之氣候、土地、作物栽培種類及習慣等多樣因素，如何訂定標準來界定是否為經濟上具有重大影響力的入侵有害生物將是一大考驗。有鑑於此，為在風險及執行成本效益上取得平衡，建議第一步可比照紐西蘭，先將國內通報的機制，建立單一管道蒐集相關訊息，此部分可藉由科技力量來達成，透過結合即時通訊軟體及資訊上的整合與分析，快速篩選重要訊息，以即時掌握緊急疫情。第二步則建議可比照紐西蘭 IHS 標準及 GIA 協議內容，對我國農業生產環境風險性較大之外來種進行分類，例如果實蠅類、蛾類、象鼻蟲類等有害生物，後續將勘查及處理之作業程序標準化，納入有害生物的應變行動計畫中，來減少以往歷經專家會議、防疫人力及物資配置等耗費不少時間及人力的過程。第三步是建議可訂定有害生物不同階段的防治目標，該部分可透過與國內專家或產業進行討論及協商，研擬一套專屬我國評估作物損失的程序與標準，用以作為主管機關評估是否持續投入相應的人力及物力進行緊急防治。

五、確保執行人員具備相關能力可專心完成生物安全工作

由紐西蘭植物健康及環境實驗室可發現，該單位長駐包含來自不同國家之專業領域之專家，並配有熟悉相關業務的資深人員，各司其職，是確保生物安全能穩定進行的重要因素之一。對照我國入侵有害生物執行人員，除農委會及其所屬機關外，地方政府各權責單位大都欠缺相關專業人員，必須藉由多次教育訓練才能逐漸進入情況，又即使具備專業能力，也因為承辦人兼辦多種性質之業務，導致無法全心投入該項業務。雖說防檢局已於

108 年正式啟動特定疫病蟲害回歸地方政府監測的業務，但各縣市人員流動率太高或執行人員能力參差不齊的情形，使得在面對入侵有害生物的挑戰時，無法於第一時間進入狀況。對此問題，倘未來我國植物醫生的制度能正式確立，藉由政府透過法規將生物安全工作納入利害相關人的工作業務上，或許能在擴大植物醫生執業範圍的同時，也同步提升我國防疫上的能量。

六、提升執行生物安全工作的效益

我國為提升執行生物安全工作的效率，有關行動化生物安全工作訊息交換部分，透過科技的輔助應非難事，但在規劃上，如何讓使用者在操作的過程中，藉由系統引導順利完成通報和疫情調查作業，就需要再仔細考量。例如:紐西蘭屬於果實蠅非疫區之國家，以智慧型手機執行調查、鑑定、疫情通報乃至後續處理的程序較為單一，參與生物安全的人員皆能很快進入狀況；然而我國在果實蠅類的調查及後續處理上，外來入侵種及本土種果實蠅的調查目的及處理辦法卻大不相同，前者是要依偵獲與否採取緊急行動，後者則是要搭配整合性防治基礎的數量，提供生產者的防治基準。因此，如何讓所有參與生物安全的人員透過系統瞭解上述之區別，在未來在開發相關通報的平台機制上，建議應對執行調查及啟動後續程序進行更彈性的設計，讓使用者在操作的過程中，能透過系統引導，順利完成通報和疫情調查作業。

七、強化生物安全資訊的推行與溝通

紐西蘭認為生物安全不應僅限於政府及利害關係人，而是國內每一位國民的共同義務。從企業開始，藉由將管理有害生物的風險，變成企業業務上的一環，進而推廣至每位國民的日常生活，以達成每一位國民皆可作為生物安全風險管理者的目標。為了此目標，如何將資訊確實傳達給執行人員、利害關係人及民眾，使其理解或共同配合生物安全工作，就非常重要。紐西蘭在各類行動計畫的設計上，通常都會有資訊傳遞方式、每個角色相關執行內容及派遣代表人於協商中進行溝通之資訊。在我國雖然也有相似的制度，但在與利害關係人在有害生物發生前的事先協商這部分，因不具或法令效力較為薄弱的情形下，即使改以施以誘因的方式，亦不一定

能達成效果。當然，即便擁有生物安全法的紐西蘭在這部分實際操作面上，也還在探索階段，目前係藉由推行過程中遭遇到之大小阻礙，作為政策修正方向，但我們從紐西蘭生物安全 2025 的施政方向(Biosecurity 2025 Direction Statement)中的策略之一:A biosecurity team of 4.7 million 不難發現，紐西蘭政府欲藉由生物安全資訊的推行與溝通，期望未來不僅要讓每個企業自主自發管理生物安全風險，更要讓民眾意識到生物安全的重要性，最終讓全國人民都成為生物安全風險管理者的願景，我國或許可參考其精神，規劃出一份適合我國推行生物安全資訊的方式。

伍、附表與附圖

附表一、不同種類果實蠅出口限制區(Export restriction zone, ERZ)

果實蠅種類	瓜實蠅 (Melon Fly) *Bactrocera cucurbitae*	昆士蘭果實蠅 (Queensland Fruit Fly) *Bactrocera tryoni*	東方果實蠅 (Oriental Fruit Fly) *Bactrocera dorsalis*	地中海果實蠅 (Mediterranean Fruit Fly) *Ceratitits capitata*
啟動 ERZ	監測到幼蟲或懷孕的雌蟲 或者 ERZ 區 14 天內調查到 2 隻成蟲	監測到幼蟲或懷孕的雌蟲 或者 ERZ 區 14 天內調查到 3 隻成蟲	監測到幼蟲或懷孕的雌蟲 或者 ERZ 區 14 天內調查到 2 隻成蟲	監測到幼蟲或懷孕的雌蟲 或者 ERZ 區 28 天內調查到 1 隻成蟲
ERZ 大小(單位:公尺)	2,680	3,200	5,480	6,520

附表二、2019 年紐西蘭奧克蘭發現昆士蘭果實蠅情形

2 月 14 日	昆士蘭果實蠅單隻雄蠅	北岸德文波特
2 月 20 日	昆士蘭果實蠅單隻雄蠅	北岸諾斯科特
2 月 23 日	昆士蘭果實蠅單隻雄蠅	北岸諾斯科特
2 月 28 日	昆士蘭果實蠅單隻雄蠅	北岸諾斯科特
3 月 04 日	昆士蘭果實蠅單隻雄蠅	北岸諾斯科特
3 月 10 日	昆士蘭果實蠅單隻雄蠅	北岸諾斯科特
3 月 14 日	昆士蘭果實蠅單隻雄蠅	北岸諾斯科特
4 月 25 日	昆士蘭果實蠅單隻雄蠅	北岸諾斯科特
5 月 10 日	昆士蘭果實蠅單隻雄蠅	北岸諾斯科特
5 月 31 日	昆士蘭果實蠅單隻雄蠅	北岸諾斯科特
7 月 15 日	昆士蘭果實蠅單隻雄蠅	北岸諾斯科特


圖一、田間執行監測人員確認果實蠅誘殺器。

圖二、果實蠅緊急防治區標誌牌，說明區域進出管制內容及聯繫方式。

圖三、附有聯繫方式之蔬果收集箱。

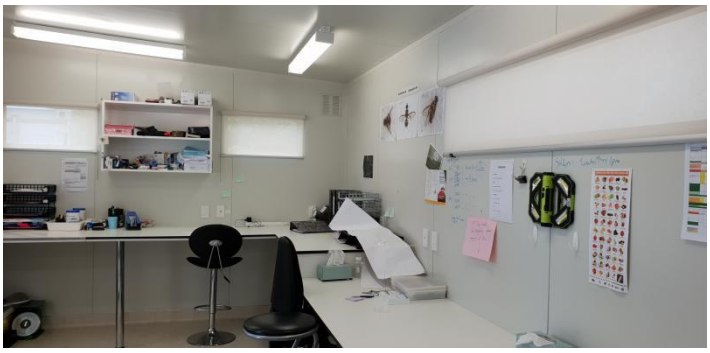
圖四、植物健康及環境實驗室。 圖五、Lalith Kumarasinghe 介紹實驗室。

圖六、實驗室標本存放室。 圖七、存放室內昆蟲標本。

圖八、調閱影像比對採集樣本。 圖九、實驗室內部隔離溫室。

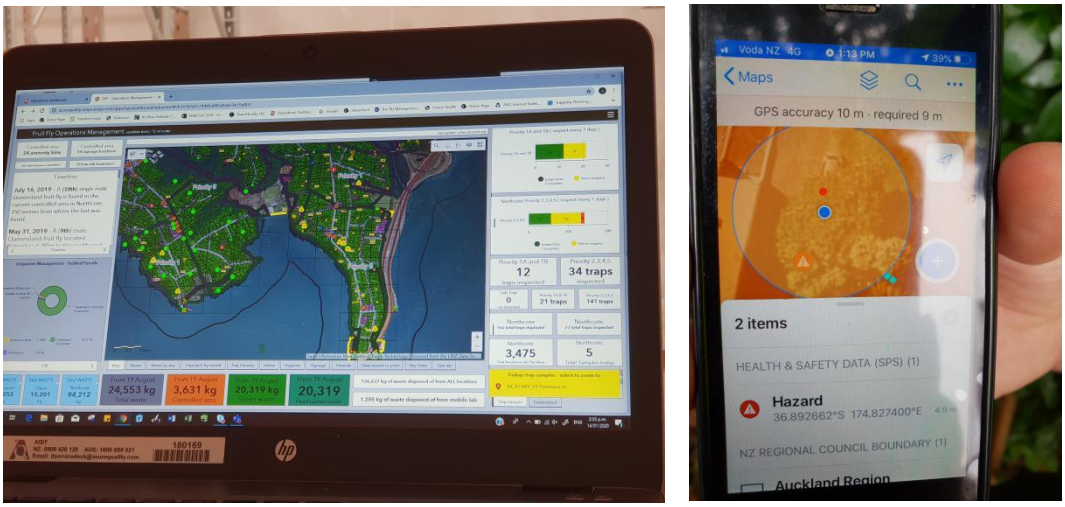
圖十、戶外移動式實驗室。

圖十一、戶外移動式實驗室正門。

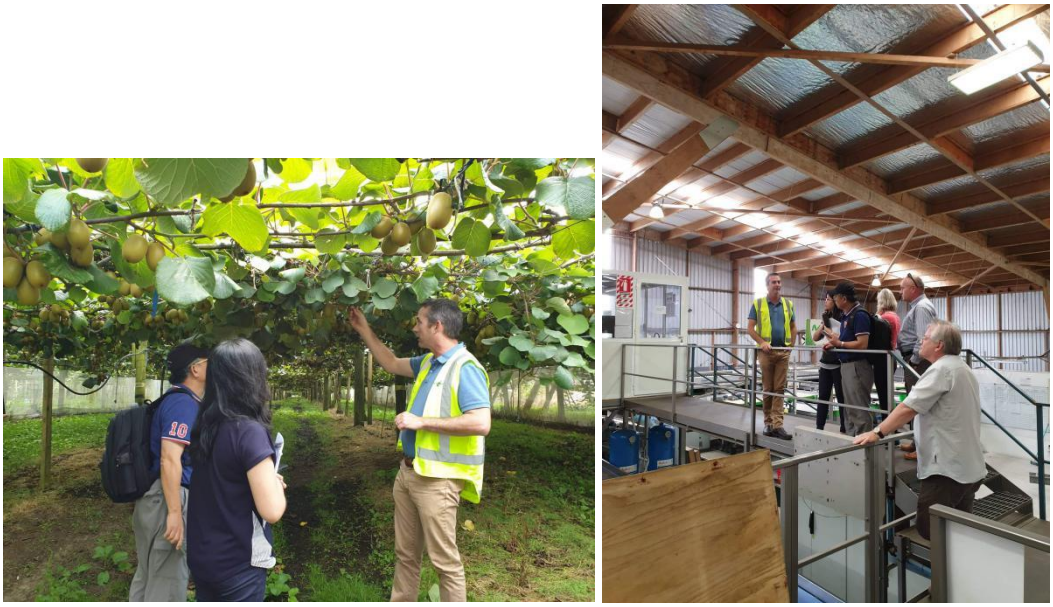


圖十二、實驗室內部檢查台。

圖十三、果實切片器。



圖十四、以智慧型手機做紀錄及通報(右)，將疫情及衛星定位資訊傳送予相關單位之系統(左)。



圖十五、參訪紐西蘭奇異果園(左)及包裝廠(右)。

圖十六、參訪獨立驗證機構執行臨場檢疫工作。

<附錄>

附錄一、紐西蘭參訪簡報

1. New Zealand's Biosecurity System
2. Current System for Developing Import Requirements
3. MPI's Response Model and Implementation
4.Negotiating Trade Contingency Protocols for Fruit Fly Incursions
5. New Zealand Plant Export System

Ministry for Primary Industries
Manatū Ahu Matua

New Zealand's Biosecurity System

November 2018

Growing and Protecting New Zealand

Overview

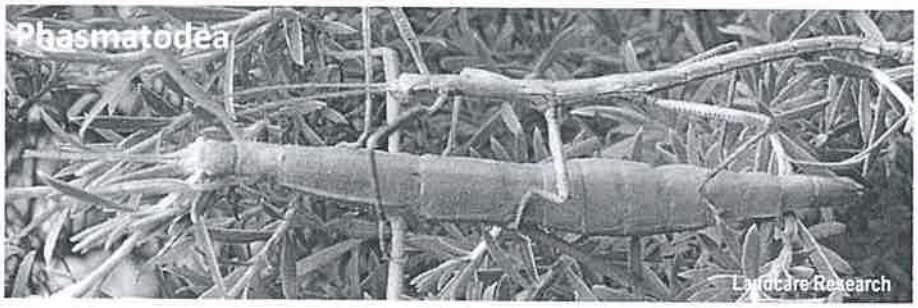
- Why it's important to keep pests out of New Zealand?
- How we do it?
  - The multiple layers of protection
  - Pre-border, border, post-border
- Managing increasing pest pressure
  - Challenges
  - The way forward

Why it's important to keep pests out?

New Zealand:

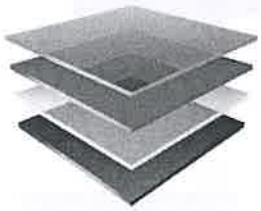
- Is geographically remote
- 80% of flora and 90% of insects are endemic
- Is free of many pests and diseases
- Is reliant on primary industries
- Exports 90% of the food produced

Why it's important to keep pests out?



- **To protect** our natural resources (unique flora, fauna and ecosystems)
- **To protect** physical resources (all organisms, landscape, geology, structures and systems)
- **To protect** human health
- **To protect** cultural values
- **To protect** our trading partners from pests we have
- **To grow** our economy while minimising biological threats

How we do it?

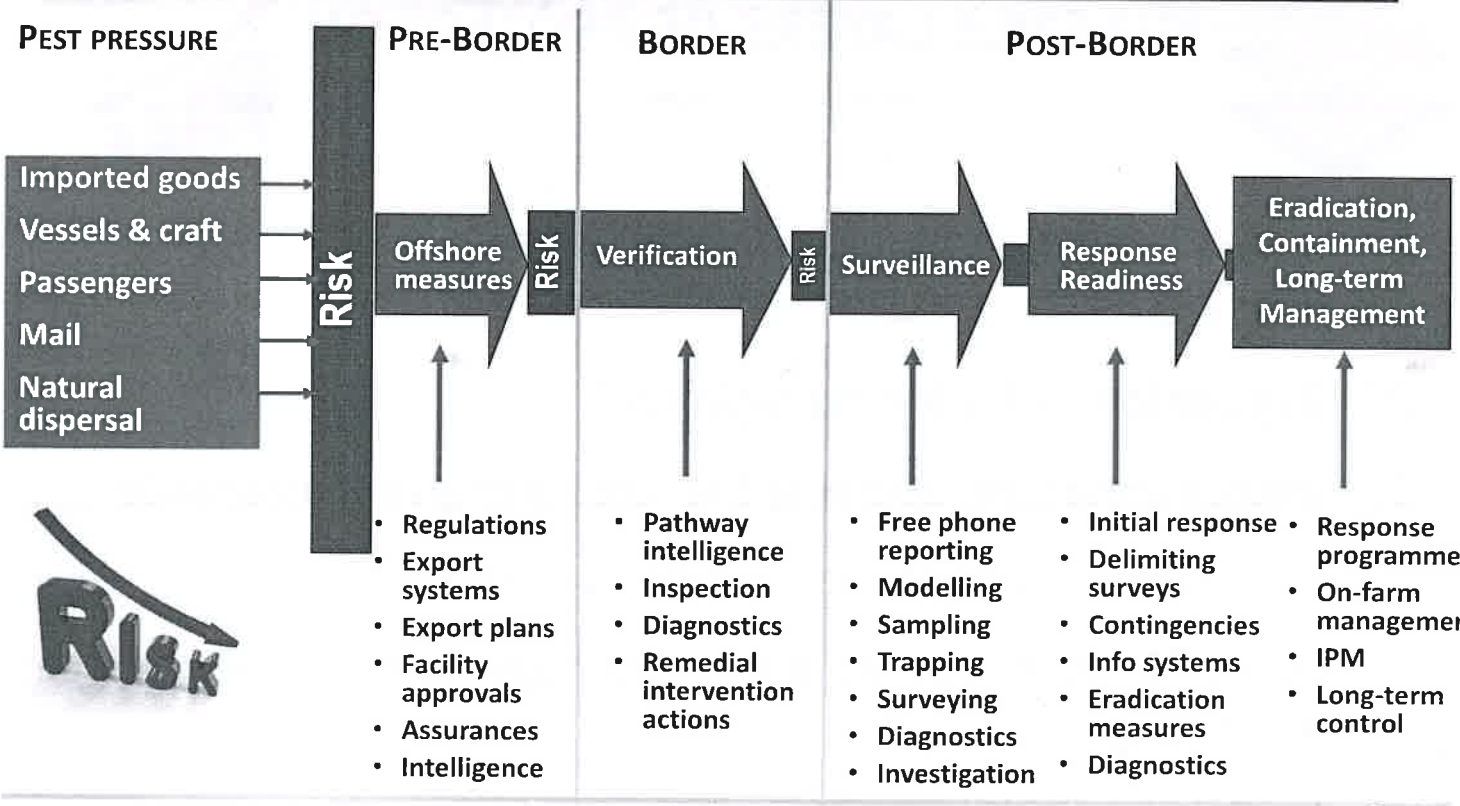


MULTIPLE LAYERS OF PROTECTION

PRE-BORDER → BORDER → POST-BORDER

1. **Framework and Governance:** the approach to managing pest risk
2. **Regulation:** rules for managing risk
3. **Implementation:** applying the rules and giving assurance
4. **Verification:** confirming the rules are applied
5. **Surveillance, Response & Pest Management:** keeping watch and acting

How we do it?


PEST PRESSURE
PRE-BORDER
BORDER
POST-BORDER
Imported goods
Vessels & craft
Passengers
Mail
Natural dispersal
Risk
Offshore measures
Risk
Verification
Risk
Surveillance
Response Readiness
Eradication, Containment, Long-term Management
Regulations
Export systems
Export plans
Facility approvals
Assurances
Intelligence
Pathway intelligence
Inspection
Diagnostics
Remedial intervention actions
Free phone reporting
Modelling
Sampling
Trapping
Surveying
Diagnostics
Investigation
Initial response
Delimiting surveys
Contingencies
Info systems
Eradication measures
Diagnostics
Response programmes
On-farm management
IPM
Long-term control
Framework & Governance – legislation, standards, agreements

Framework & Governance

The approach to managing risk

- **Domestic legislation**
  - Biosecurity Act 1993
- **International Agreements**
  - WTO SPS Agreement
- **Free Trade Agreements**
- **International Standards**
  - ISPMs
- **Regional Standards**
  - RSPMs
- **MPI Policies**

NZ Biosecurity Act 1993

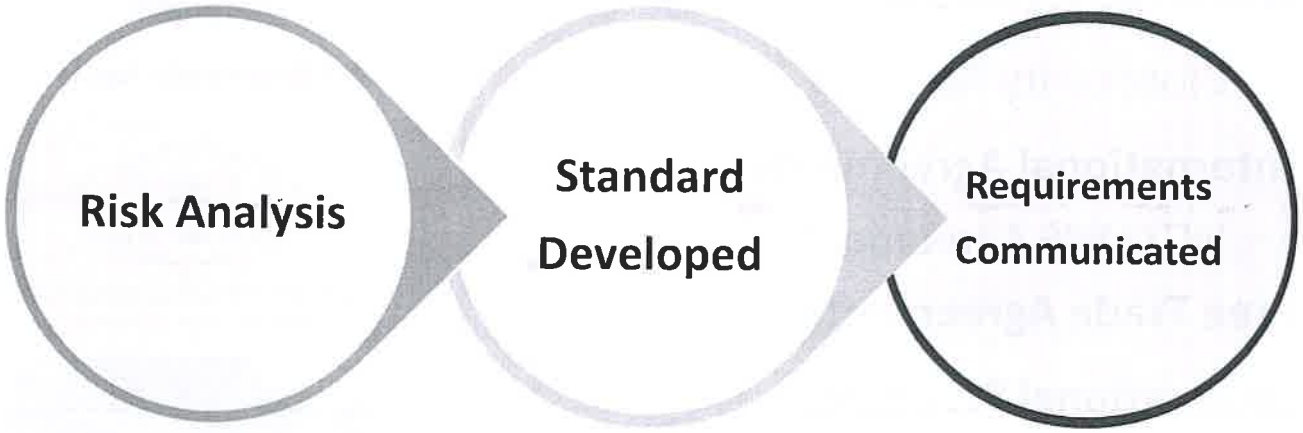
International Plant Protection Convention

Protecting the world's plant resources from pests

ASEAN-Australia-NZ FTA (AANZFTA)

Regulations Setting the Rules

PRE-BORDER



- Pathway assessment
- Pest risk assessment
- Research input
- Intelligence & profiling
- Risk management assessment

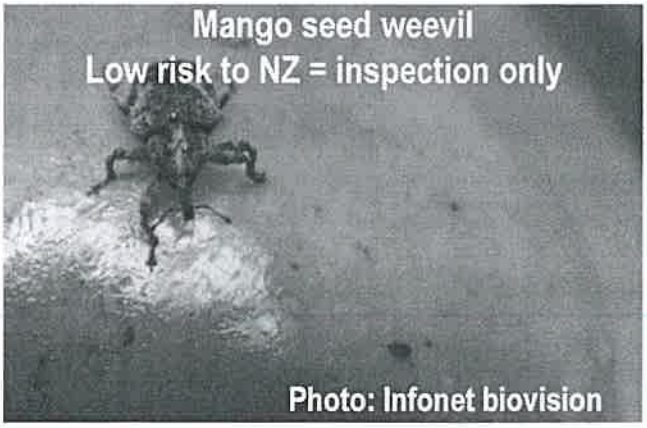
- Import Health Standard drafted i.e. the rules are set

- Consultation & WTO notification
- Export Plan negotiated
- IHS issued
- Trade begins

Regulations Rules for managing risk PRE-BORDER

Strength of measures must:

- match the risk posed by a pest
- be sufficient only to protect plant health
- be the least trade restrictive
- not be imposed to protect a domestic market from international competition



Implementation applying the rules and giving assurance PRE-BORDER

Making it happen

Export system as per ISPM 7

Export plan how to comply with the rules

Approved people & facilities
competency to met the rules

Monitoring, oversight & audit
confirming the rules are consistently met

Phytosanitary Assurances
Attesting that rules have been met

Verification Confirming rules are applied

BORDER

- Profiling and targeting
- Checking & inspection
- Interventions if needed
- Feedback to exporting country if significant pests detected

Surveillance, Response & Pest Management

keeping watch and acting **POST-BORDER**

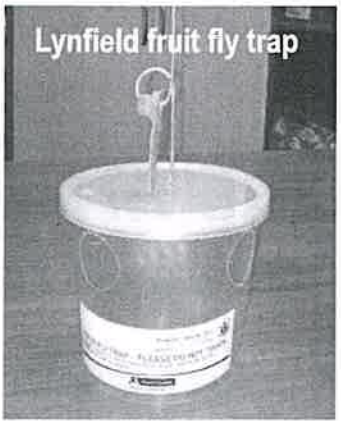
Why surveillance?

1. To assure trading partners that NZ exports are safe
2. Respond to outbreaks
3. Understanding & controlling established pests and diseases

Burnt pine longhorn beetle, *Arhopalus ferus* surveillance programme

Surveillance, Response & Pest Management

keeping watch and acting POST-BORDER



General Surveillance:

- for any pest or disease in any environment
- free phone for reporting
  - 10,000 suspected pests reported annually
  - About 750 reports lead to investigation

Targeted Surveillance:

- Specialised insect programmes include ants, fruit flies, bee pests and diseases, virus-transmitting midges (*Culicoides*), saltmarsh mosquito, and burnt pine longhorn beetle

High Risk Site Surveillance:

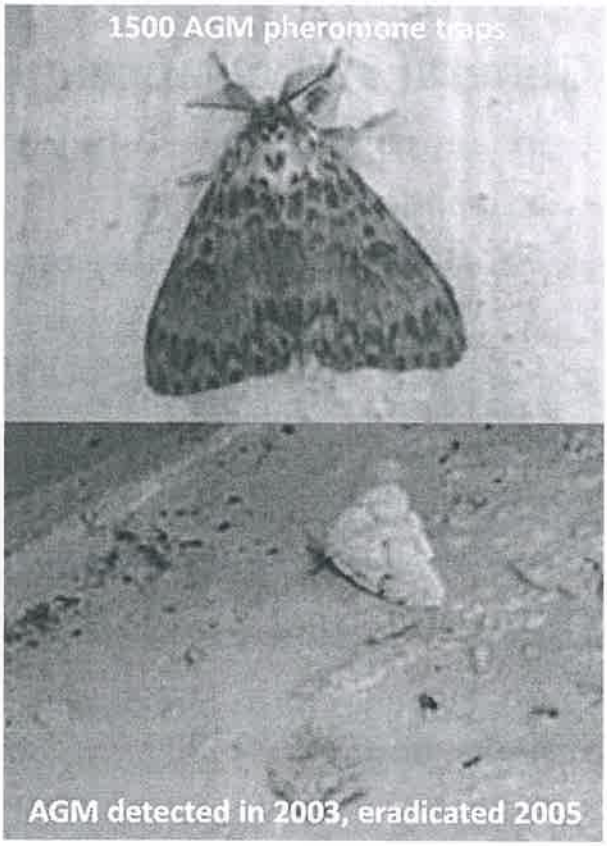
- Watching for pests and diseases of forests, urban trees, orchards and native bush.

Surveillance, Response & Pest Management

keeping watch and acting POST-BORDER

- Response Plans are in place for fruit fly and other high risk pests
- Other response plans developed in partnership with industry as part of the Government-Industry Agreement

Biosecurity Response Knowledge Base
http://brkb.biosecurity.govt.nz/



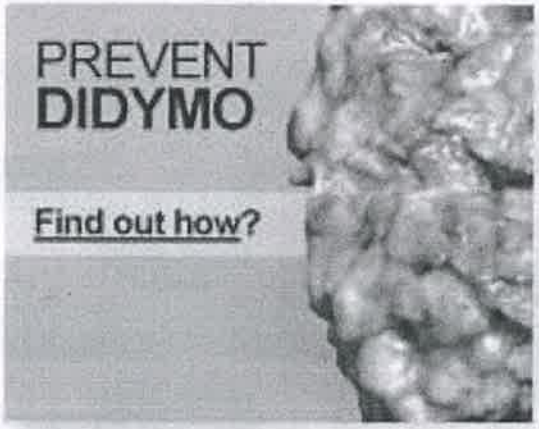
Surveillance, Response & Pest Management

keeping watch and acting

POST-BORDER

Pest management plans in place for:

- Freshwater pests
- Pest plants
- Fungus-like pathogen



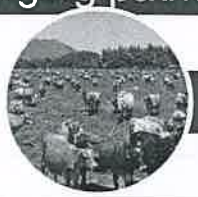
Managing increasing pest pressure: The Challenges

Greater diversity of trade

Climate change

Changing pathways

Stretched infrastructure



Changing land use

Increasing travel & trade

Availability of tools

Spread of pests & diseases

Stakeholders want their say

Managing increasing pest pressure

Biosecurity 2025:

A project to future-proof NZ's biosecurity system

1. Everyone activity participates in biosecurity
2. New and better tools
3. Faster and better use of information
4. Effective leadership and governance
5. The best skills and assets for the future

http://www.mpi.govt.nz/protection-and-response/biosecurity/biosecurity-2025/

Conclusion

"Growing and Protecting New Zealand is like a marathon without a finish line. The threats to New Zealand's primary industries will never cease nor will the opportunities for growth"

From: Performance Improvement Framework Review of the Ministry for Primary Industries – March 2016

Ministry for Primary Industries
Manatū Ahu Matua

Current System for Developing Import Requirements

Growing and Protecting New Zealand

Import Health Standards

- Commodity specific
- Sets the import requirements for New Zealand
  - Import Health Standards identifies the measures that must be applied to reduce the likelihood that regulated pests may enter and establish on the pathway.

Import Health Standard Development

- IHS development process
  - Pathway assessment
  - Hazard identification
  - Risk assessment
  - Pest list negotiation (products for consumption)
  - Risk management proposal/measures
  - International and domestic consultation
  - Negotiation of an Export Plan (where applicable)
  - Pathway assurance assessment

Pathway assessment

- Understanding of production system
- National Plant Protection Organisation (NPPO) oversight
  - ISPM 7. *Phytosanitary certification system*
  - Phytosanitary security, traceability
  - Documentation of activities and systems
  - Implementation of importing country's requirements

Hazard identification

Likelihood or probability of an unwanted organism or "hazard" could be introduced into New Zealand that could cause unwanted harm, in association with a pathway or goods

- Presence in exporting country
- Presence in New Zealand
- Association with pathway or goods

Risk assessment

Likelihood or probability of an adverse event (in this case the occurrence of a new organism or "hazard"), and the impact or consequence of the event

- Capable of entering
- Capable of establishing
- Capable of causing economic or environmental impact

Risk assessment

Considers information provided by the exporting country or observed during the pathway assessment

- Production
- Harvest
- Packing
- Transport
- Distribution
- Use
- Disposal

Pest list negotiation

- Draft pest list = hazard identification + risk assessment
- Draft pest list provided to affected trading partners for comment
- MPI welcomes the provision of technical information supporting the removal of a organism from the pest list

Risk management proposal/measures

- Risk management proposal (RMP) bridges the risk assessment and the level of measure required in the IHS
  - Supporting document for public consultation
- Outlines how the measures are identified, evaluated and selected to reduce the risk to an acceptable level

Risk management proposal = risk communication

- Authorities in the exporting country
- Domestic and foreign industry groups
- Domestic producers
- Consumer groups
- Environmental groups

Risk management proposal = risk communication

- Terminology
  - Regulated pests: A quarantine pest or a regulated non-quarantine pest.
  - Quarantine pests: A pest of potential economic importance to the area endangered thereby and not yet present there, or present but not widely distributed and being officially controlled.
  - Non regulated: A non-quarantine pest, but not a regulated non-quarantine pest, with no potential to vector a regulated pest into New Zealand. A pest for which phytosanitary actions would not be undertaken if the pest was intercepted.
  - Non-Quarantine pest: Pest that is not a quarantine pest for an area.
  - Non plant pest: Not associated directly with the commodity [e.g. hitch-hiker or human health risk].

New MPI Terminology – level of measure

- Basic Measures [low risk]
  - Commercial production
- Targeted Measures [moderate risk]
  - Negotiated between exporting country and MPI
  - Require an Export Plan
- MPI-Specified Measures [high risk]
  - Specified by MPI
  - Usually an international standard or equivalence
  - Require an Export Plan

Domestic and international consultation

- Domestic consultation under the Biosecurity Act (1993)
  - New Zealand residents
  - 6 week duration (time may vary)
- International consultation under the WTO
  - WTO signatories
  - 60 day consultation period

Finalised IHS

- Review of submissions (domestic)
- Response to trading partners (international)
- 10 day provisional period required by the Biosecurity Act (1993)
  - Independent review
- Final IHS issued
  - Requirement for an Export Plan for trade to commence

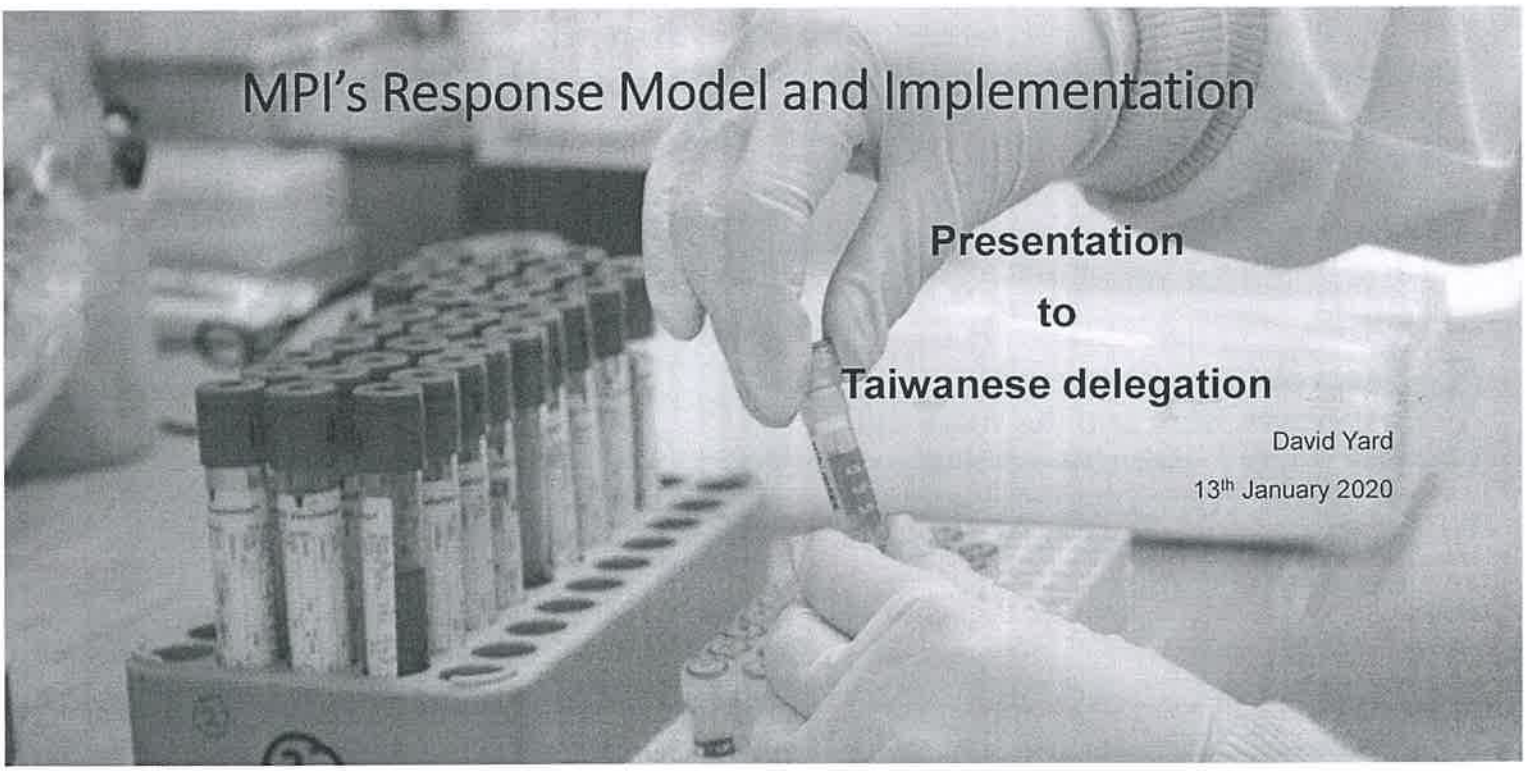
Negotiation of an Export Plan

- An Export Plan identifies how Targeted and MPI-Specified measures will be applied
  - During production
  - During transport
  - In the packhouse
- Negotiated between supply country NPPO and MPI
- Basis for Pathway Assurance visits (audits)
- No trade unless Export Plan in place [where required]

Pathway assurance

- Once trade has begun
- Regular pathway assurance visits (audits) on the Export Plan
- Additional visits may occur following the interception of significant pests
- Audit of export supply chain components as described in the Export Plan

THANK YOU



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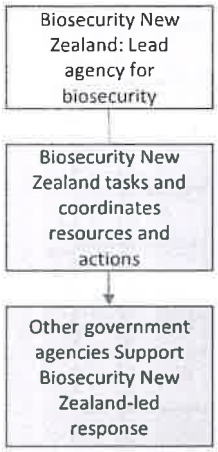
Biosecurity New Zealand
Tiakitanga Pūtaiao Aotearoa

The New Zealand Government Biosecurity Response Guide

- MPI manages biosecurity responses in accordance with the Response Guide.
- It sets out how biosecurity responses work and the roles that government, industry, service providers, community stakeholders and other New Zealanders play in response

Biosecurity New Zealand is the Lead Agency

- Biosecurity responses are led by Biosecurity New Zealand, using a standardised, trusted and tested way of responding (New Zealand's National Security System; and the Coordinated Incident Management System (CIMS)
- Biosecurity New Zealand leads the response and coordinates response operations to biosecurity hazards and their impacts.



In its leadership role, Biosecurity New Zealand will:

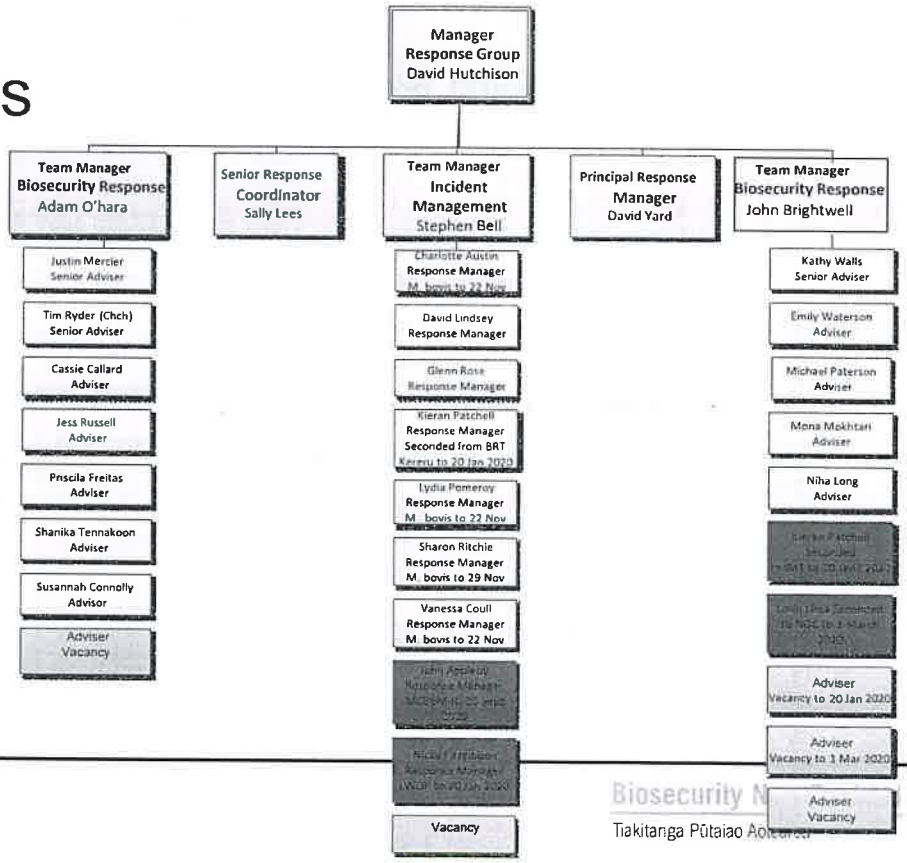
- Play its part in the whole of government response framework for national emergencies, including the National Security System (NSS).
- Organise the necessary response governance arrangements to provide executive-level oversight, direction and decision making.
- Stand up a control structure to run the response.
- Co-ordinate planning and the delivery of necessary measures.
- Co-ordinate planning for recovery and transition from response to recovery.

Other government agencies will assist Biosecurity New Zealand by undertaking supporting roles or managing associated issues and risks within their own sphere of responsibility, depending on the specific threat.

Support agencies often have statutory responsibilities and specific objectives of their own, which need to be accommodated.

Response Teams

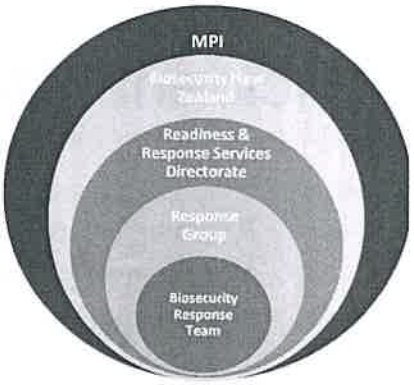
- Two biosecurity response teams
- Incident Management Team
- Principal Response Manager



Incident Management Team

- Manages major and severe biosecurity and other responses (including adverse events, food safety, trade, animal welfare, All of Government etc.)
- All of Government and MPI training and readiness activities
- Major support to the *M. bovis* response

Biosecurity Response Teams



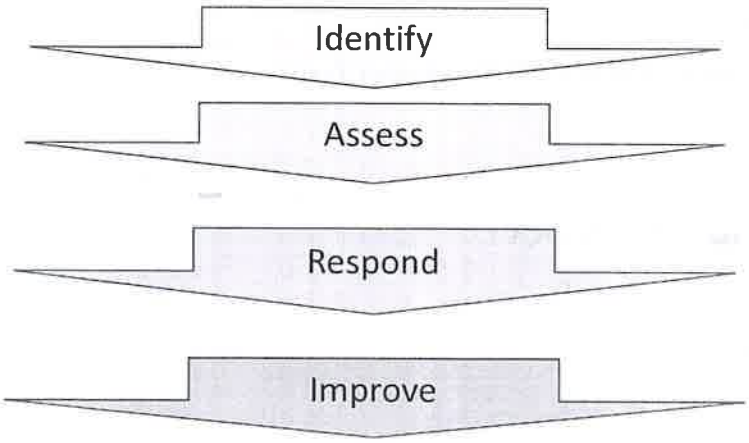
- Two teams – Kereru and Kiwi
- This is administrative only – operate a matrix management model
- Primary focus is new to New Zealand organisms
- But team members may be deployed into other types of response if required

How do we process biosecurity issues

- Broad issue management process:
  - Accept/not accept Rapid Assessment Report received from an Incursion Investigator (DSS Directorate)
  - Issue under consideration
  - Seek approval to escalate to response/or not
- Not everything goes to response
- There may be significant activity in the under consideration phase

Biosecurity Responses: biosecurity responses (large or small) progress through the following phases, which may overlap or progress together

Phases in biosecurity response



Phase 1. A potential pest or disease is **identified.**

Phase 2. The potential pest or disease is **assessed** to determine whether a response is needed. (If the issue is serious this may happen in Phase 1.) During this phase, we will contain the pest or disease, and understand more about where it is and the affect it may have.

Phase 3. Undertake **response** work. During a response, we engage with stakeholders and work deliberately to achieve defined response objectives. During this stage, early planning of recovery begins and transitional arrangements are prepared so the transition to recovery is seamless.

Phase 4. The response is ended. **Improvements** are noted for the future.

How do we manage biosecurity issues?

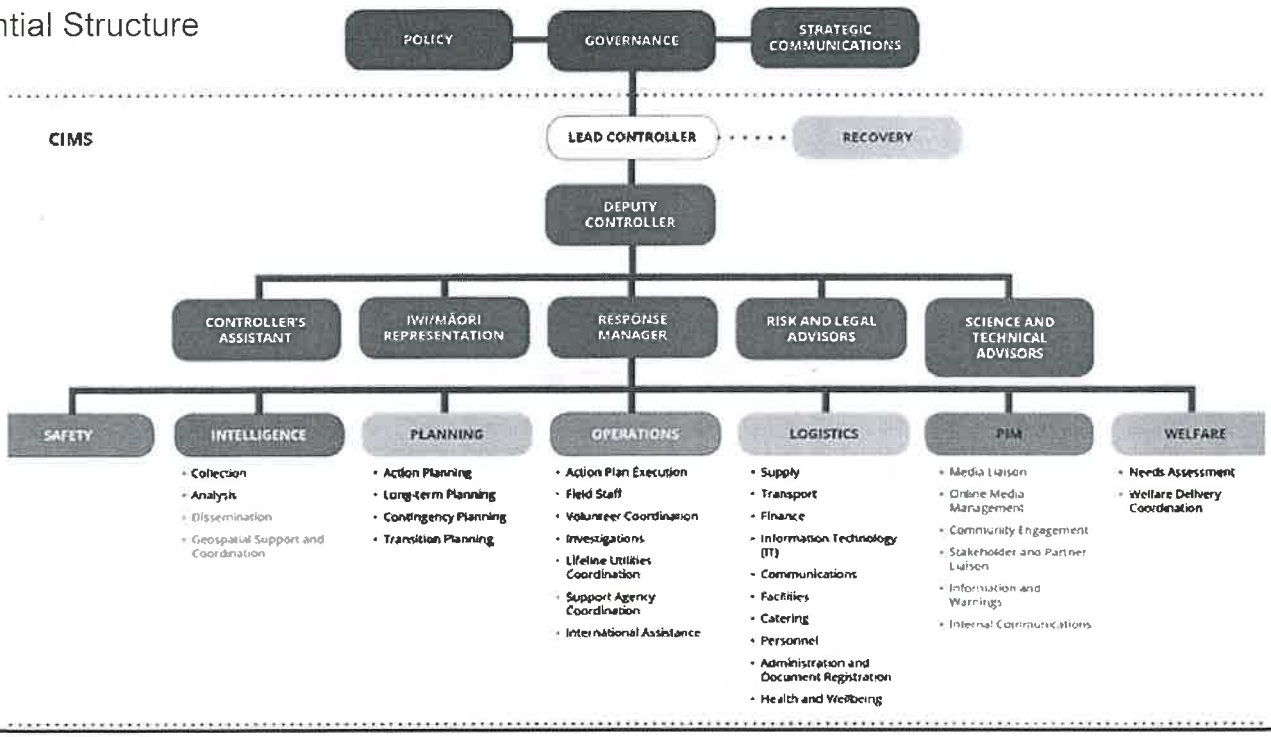
- We have three broad management strategies:
  - Eradication
  - Long term management
  - Baseline scenario

Endless variations on this, but there are only three management strategies

Consistent Response Structure across responses

- Use of the Co-ordinated Incident Management System (version 3) CIMS
- Ensures a consistent and replicable response structure across any government led response
- Structure is scalable dependent on size of response
- Thorough training across government on CIMS allows and easier start up, assists in putting the right staff into the right roles and opens up a huge pool of suitably trained staff across government.

Potential Structure



Active Biosecurity Responses (18)

including operational spend from start of response to 30 June 2019 (subject to final confirmation)

- *Mycoplasma bovis* 2017: run as a programme by the *M. bovis* directorate since 1 July 2018 **($184.3m)**
- Queensland fruit fly (QFF) Devonport, Auckland 2019 and QFF Northcote, Auckland 2019 **(combined spend $7.983m)**
- Pea weevil Wairarapa 2016 **($1.81m)**
- Facialis fruit fly Otara, Auckland 2019 **($442k)**
- European alpine newts Waihi 2013 **($1.046m)**
- *Culex Sitiens* (mosquito) Kaipara 2018 **($552k)**
- Potato mop top virus Canterbury 2018 **($526k)**
- PEQ (non-compliant imported nursery stock) 2018 **($345k)**
- NZ Rickettsia-like organism Marlborough 2015 **($217k)**
- Black grass Canterbury 2016 **($154k)**
- Great willowherb Canterbury 2018 **($120k)**
- Plague skinks Havelock 2018 and Plague skinks Riverlands 2018 **(combined spend $54k)**
- Seeds on circus floor tiles Hamilton 2017 **($34k)**
- Cabomba Auckland 2016 **($40k)**
- Indian ringneck parakeets Havelock North 2016 **(< $20k)**
- Spiked awl snail Auckland 2014 **(< $20k)**

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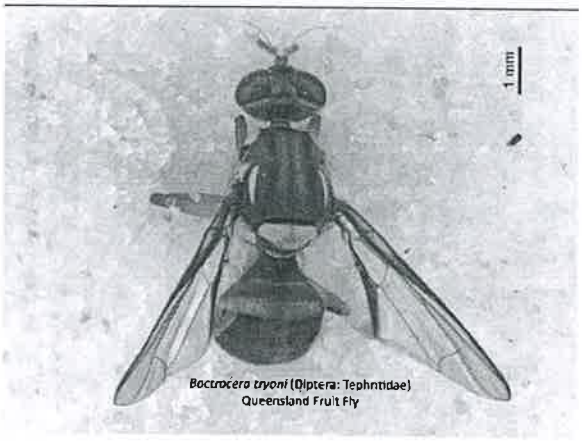
A worked example
How MPI managed a recent fruit fly response

Growing and Protecting New Zealand

www.mpi.govt.nz

Bactrocera tryoni – Queensland fruit fly

- One male fly detected in a surveillance
- trap in Devonport
- Two males detected in Northcote
- Native to Australia (NT, Queensland,
- NSW, Vic)
- The most costly horticultural pest in
- Australia
- Affects most commercial fruiting crops,
- damage can be 100%
- More than 100 recorded species



Preparedeness- the fruit fly standard and monitoring

- MPI have developed a Fruit Fly Standard which provides consistency in approach.
- It has been developed in conjunction with Industry who sit collectively with MPI on the Fruit Fly Council.
- The standard is based on the experience gained over many fruit fly responses undertaken over several years
- Outlines 3 levels of response:
- Level 1 – a single male fly is confirmed present in NZ
- Level 2 – detection of eggs, larvae, mated female flies or multiple males indicating a breeding population
- Level 3 – evidence of multiple populations

Legal status

- Fruit fly are both unwanted and notifiable organisms under the Biosecurity Act 1993.
- As such there is a responsibility for anyone who has suspicion that they may have detected the fly to report it.
- The status also means that MPI (specifically Biosecurity New Zealand) and persons appointed under the Act have appropriate powers to take actions to attempt to eradicate the fly.

Initial detection

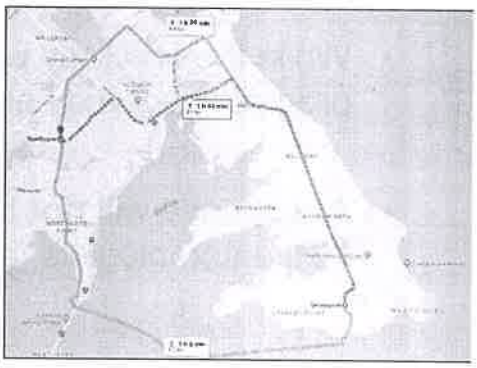
- MPI operate a national fruit fly monitoring programme during the fruit fly season targeting areas of the country capable of supporting the development of fruit fly

- While the find may well come from the outcome of the surveillance programme it may also come from public reporting.

- A response will **not** be mounted until the suspect fly has been confirmed by MPI entomologists, and an official notification to the response team made.

Fruit fly detections in Northcote/Devonport 2019

- **Timeline: Queensland Fruit Fly:**
- **1) February 14 –** Single male Queensland fruit fly -Devonport, North Shore.
  2) February 20 – Single male Queensland fruit fly -Northcote, North Shore.
  3) February 23 – Single male Queensland fruit fly -Northcote, North Shore.
- **4) February 28 –** Single male Queensland fruit fly -Northcote, North Shore.
- **5) March 04 –** Single male Queensland fruit fly -Northcote, North Shore.
- **6) March 10 –** Single male Queensland fruit fly -Northcote, North Shore.
- **7) March 14 –** Single male Queensland fruit fly -Northcote, North Shore.
- **8) April 25 –** Single male Queensland fruit fly -Northcote, North Shore.
  9) May 10 – Single male Queensland fruit fly -Northcote, North Shore.
- **10) May 31 –** Single male Queensland fruit fly -Northcote, North Shore.
- **11) July 15 –** Single male Queensland fruit fly -Northcote, North Shore.

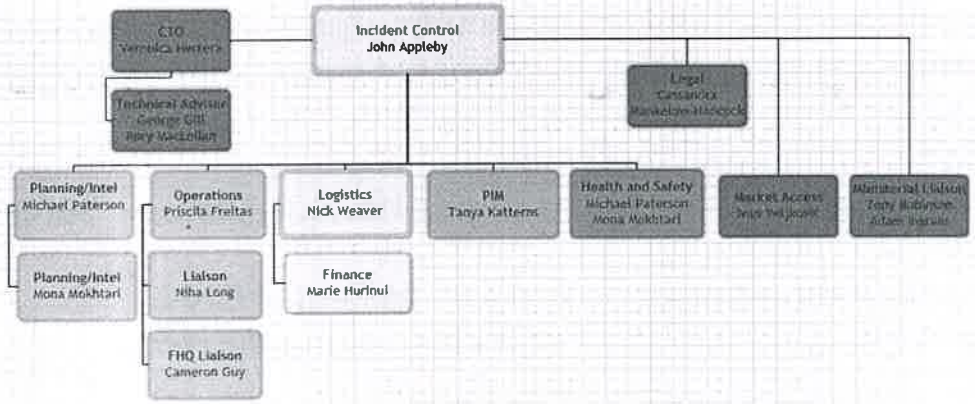


Set up a response team

Cost Centre: 1043
Activity Code QFF: 401654

Fruit Fly Feb 2019 - Response Structure
Northcote, Auckland

TRS Codes (QFF)
Normal Hours: BFSR084
Extra Hours: BFSR085



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17:00
16/08/2019

Notify stakeholders

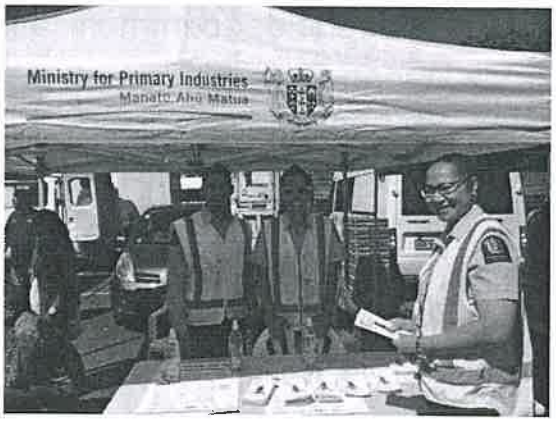
- MPI have a legal responsibility to inform and involve affected industry stakeholders (if they are Government Industry Agreement signatories)
- These industries will be expected to contribute towards the cost of the response and will be involved in all key decision making (thave representation on Response Governance Group)
- All affected non signatory industries will also be kept informed, but they will NOT have decision making rights
- Public announcement of detection and requirement of CAN
- Market access will liaise with affected trading partners directly

Speed of actions

- Speed in responding to the detection, is of the essence to minimise the risk of further spread
- The Response team will be formed within an hour of the confirmation of detection.
- Stakeholder communication will commence immediately
- Operations will commence as soon as possible including enhanced surveillance, waste bins, signage etc
- FHQ will be established preferably within 24-48 hours and mobile labs on site within similar timeframes.

Communications

- MPI undertake extensive communications with affected residents and the wider community
- Produce communications material and visit markets etc to ensure the requirements of the CAN are complied with.



Enhanced surveillance

- As part of the response, additional traps will be placed in the A and B zones of the CAN- the precise distance between traps are defined in the fruit fly standard.
- These response traps are in addition to the existing National Surveillance traps in the area
- These traps are checked at the defined frequency in the fruit fly standard

Field Diagnostic Capability- Two fully portable labs

- MPI have two mobile laboratories which can be used to complement our already extensive laboratory diagnostic capabilities
- The laboratories are fully mobile and can be moved on site and fully functional within 24- 48 hours
- The laboratories are rated as PC2/3 containment facilities to ensure that there are no accidental release of flies
- The laboratories are used for slicing, examination and incubation of collected fruit

Movement controls

Biosecurity New Zealand has set up a Controlled Area around each fruit fly detection site. This area is divided into two zones:

- Zone A which is the higher risk area – extends approximately 200m from the find
- Zone B which extends approximately 1.5 km

Devonport Controlled Area

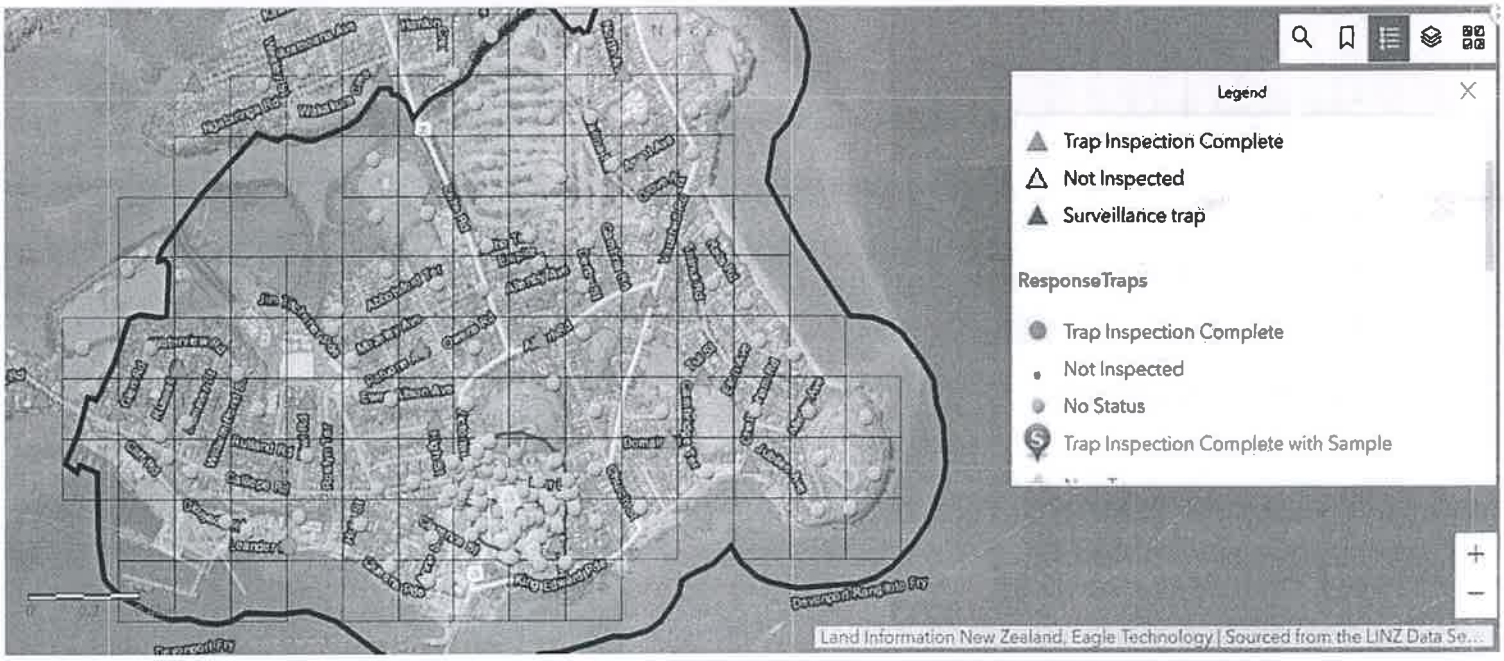
173 traps deployed within the Controlled Area

- 93 traps in Zone A – 1 trap per property
- Inspected daily for the first seven days, then every three days until further notice
- 80 traps in Zone B – 20 – 30 per km^2
- Inspected every three days, until further notice

141 bins distributed

- 113 in zone A
- 28 in zone B

Devonport controlled Area



Northcote Controlled Area

218 traps deployed within the Controlled Area

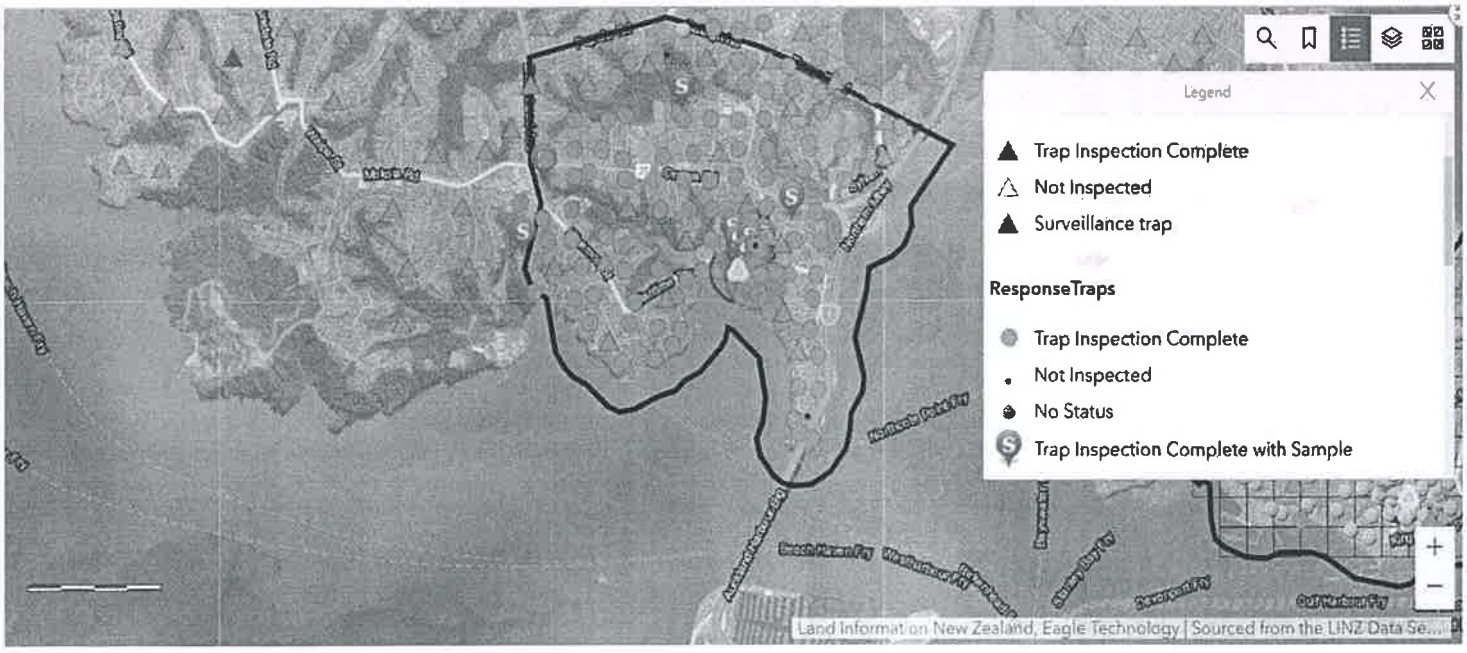
- 95 traps in Zone A
- 23 in enhanced zone
- 100 traps in Zone B

120 bins distributed

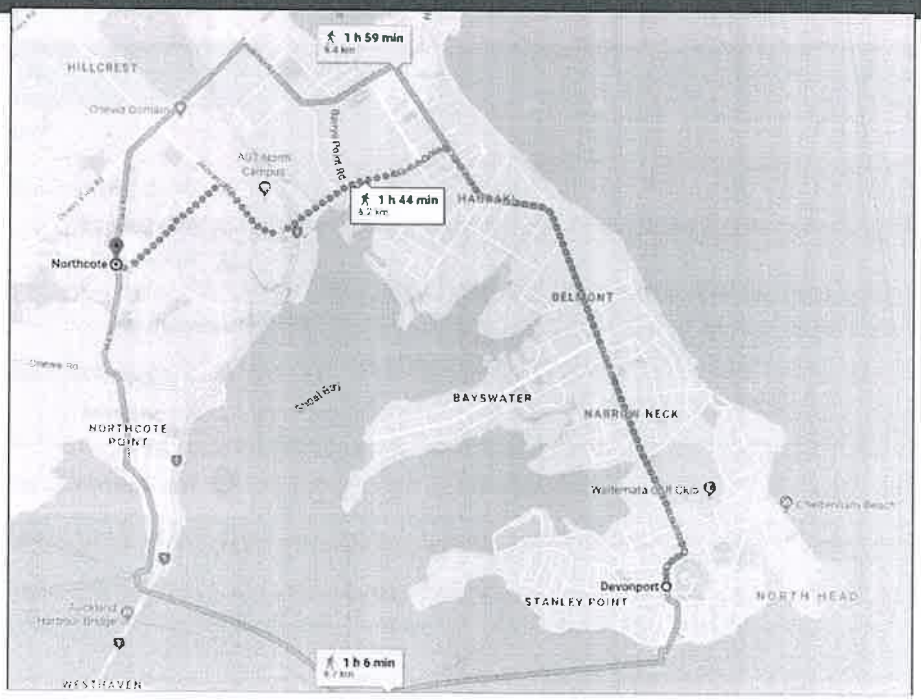
- 120 in zone A

Deployment ongoing

Northcote Controlled Area



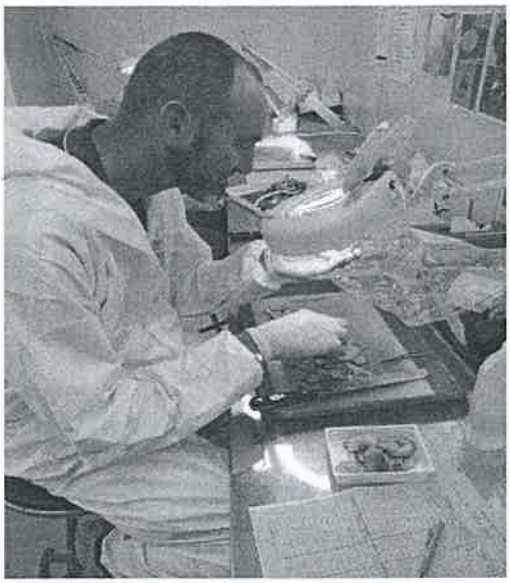
Spatial relationship between Northcote and Devonport



Fruit Collection

Fruit is collected weekly from the A zone

- Decomposing fallen fruit
- Fallen fruit
- Shaken fruit
- Sample of ripe fruit
- More than 3700kg of fruit processed



Waste disposal

Enhanced level of response

If multiple detections of fruit fly are detected over a period of time, evidence of eggs or larvae a gravid female or there is evidence that a breeding population is established, as per the fruit fly standard the response will move to Level 2 response

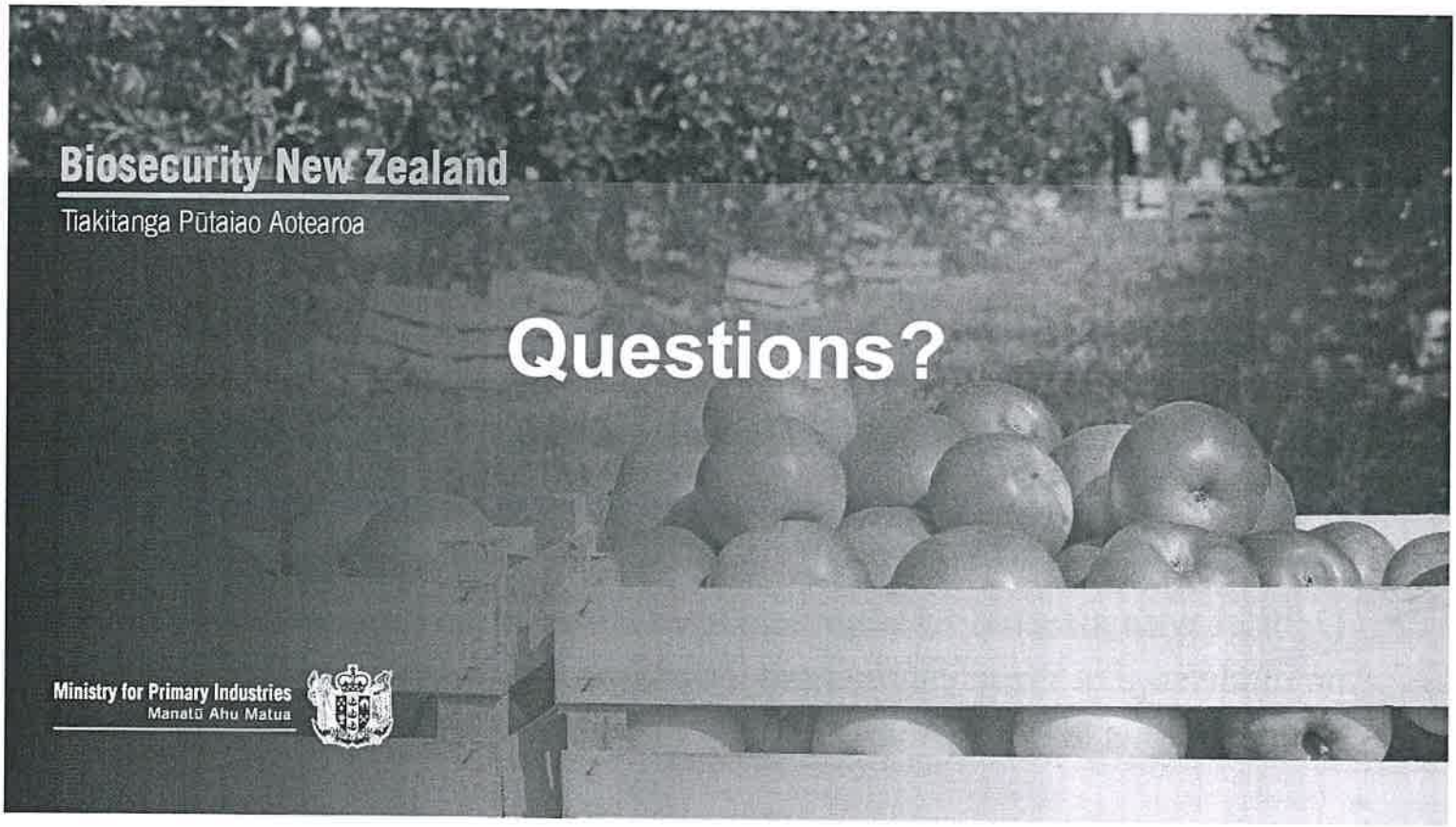
This will entail baiting as well as enhanced trapping

Duration of response and confidence of outcomes

The response will remain in place until we can establish proof of freedom from Queensland fruit fly. An estimate of the time it takes for one (1) generation + 28 days since the last detection of a Q-fly life stage is required. This is an accepted method as outlined in the Australian Code of Practice (COP) and forms the basis for the reestablishment of pest-free area status to those areas where Q-fly have been detected and

Close out of response

- Once the criteria for proof of freedom has been met the response will be closed
- Public communications are prepared to thank the community for their involvement
- All traps, baits, bins and signage removed
- Debrief with affected stakeholders to evaluate improvements that can be made so that these can be embedded into the next response- a cycle of continuous learning and improvement


Biosecurity New Zealand
Tiakitanga Pūtaiao Aotearoa
Questions?
Ministry for Primary Industries
Manatū Ahu Matua

Negotiating Trade Contingency Protocols for Fruit Fly Incursions

Bi-Lateral Meeting Between MPI and Taiwan
January, 2020

Dr Michael Ormsby

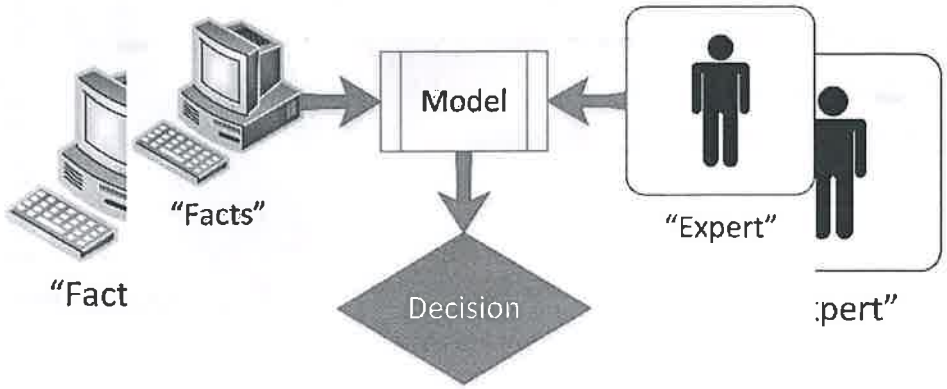
Technical Background to MPI Proposal

- Modelling vs expert opinion and how in-principle decision making works
- Uncertainty vs modelling vs reality
- Assumptions made for the model and how the model works
- Outputs of the model for NZ and when applied to Australia and California, USA

Modelling vs expert opinion

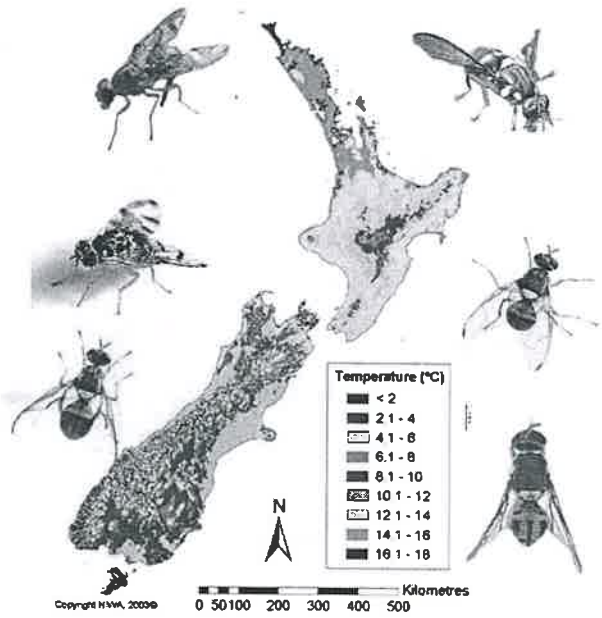
"No model is correct, but some are useful"

(*Box, G. E. P.; Hunter, W. G. (1978) Statistics for Experimenters, John Wiley & Sons.*)



Modelling vs expert opinion

This model was developed to enable New Zealand to estimate trade contingency protocols for a range of fruit flies (fruit flies that may enter New Zealand) under New Zealand's environmental and response conditions.



Uncertainty vs modelling vs reality

As with all models: the data used in parametrisation are incomplete, the model itself is simplistic when compared to the complexity of nature and biology, and as such the results are approximate at best.

New Zealand is undertaking further research to improve the quality of the data used to parametrise the model, to reduce the level of uncertainty, and to improve the model (where we can).

Uncertainty vs modelling vs reality

The model parameters were calibrated against response observations on one well studied fruit fly (Queensland Fruit Fly in Australia). In effect the model was:

1. Developed from measurable parameters;
2. Calibrated against the extensive records of response to Queensland Fruit Fly in Australia; and
3. Applied under New Zealand conditions to other fruit flies for which there is far fewer records of response.


INTERNATIONAL STANDARDS
FOR FRUIT FLY
PEST FREE AREAS

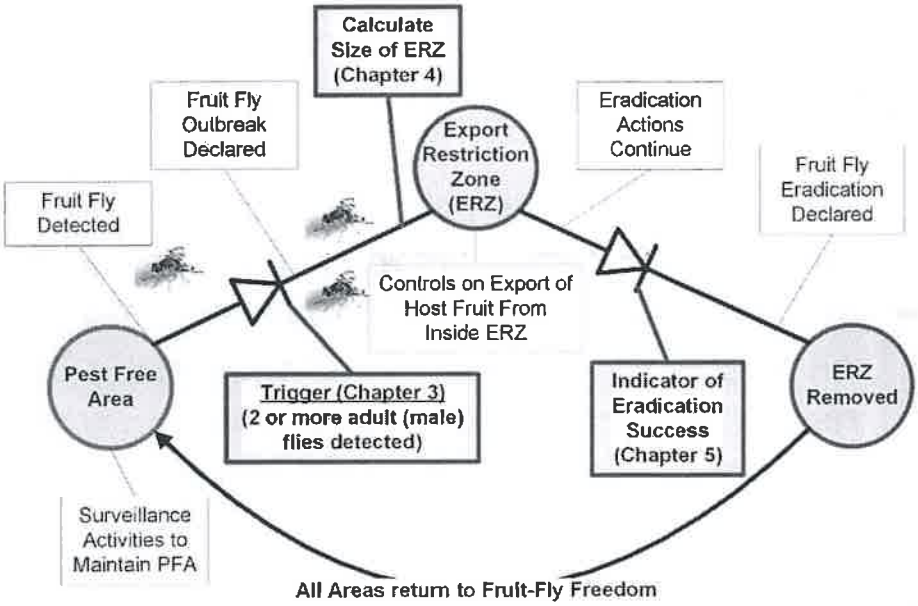
International Standards for Fruit Fly PFAs

ISPM 26: *Establishment of pest free areas for fruit flies (Tephritidae)* identifies three primary components related to the suspension of a pest free area (a fruit fly outbreak):

1. (Section 2.4.1) The **trigger** for the suspension;
2. (Section 2.4.1) The **area suspended** (no longer considered pest free);
3. (Section 2.4.2) The **reinstatement** of pest freedom.

International Standards for Fruit Fly PFAs

Simplified process diagram for a fruit fly incursion or outbreak.



International Standard Definitions

ISPM 5: *Glossary of phytosanitary terms* includes the following definitions:

1. An "**outbreak**" is defined as "*A recently detected **pest** population, including an **incursion**, or a sudden significant increase of an established **pest** population in an **area***"
2. An "**incursion**" is defined as "*An isolated population of a **pest** recently detected in an **area**, not known to be **established**, but expected to survive for the immediate future*".

International Standards for Fruit Fly PFAs

Section 2.4.1 of ISPM 26: *Establishment of pest free areas for fruit flies (Tephritidae)* identifies three main triggers for a fruit fly outbreak (and suspension of a pest free area). Detection, within a defined period and distance, of:

1. An immature fruit fly life stage (in local fruit or soil);
2. Two or more fertile adults;
3. An inseminated female.

International Standards for Fruit Fly PFAs

In practice, as we only effectively trap for mature or nearly mature adult males, the effective triggers are:

1. An immature fruit fly life stage (in local fruit or soil);
2. An adult female (mature or inseminated);
3. Two **or more** male flies (within a defined **period and distance**)

The challenge: what is "**or more**", and how to define the "**period and distance**".

Ministry for Primary Industries
Manatū Ahu Matua

New Zealand Plant Export System

Regulatory framework

Henry Pak

January 2020

Growing and Protecting New Zealand

Presentation Structure

- New Zealand plant export certification system overview
- Regulatory model and roles
- Phytosanitary certification
- Official Assurances
- Export of fruit fly host material during a response

IPPC Requirements

NPPOs are required to:

- Have a system for documenting procedures
- Keep records
- Provide a description of organisational arrangements to other countries on request

- Many functions may be carried out by authorised non-government personnel provided they are qualified and skilled, and responsible to the NPPO.

Ministry for Primary Indusrties (MPI)

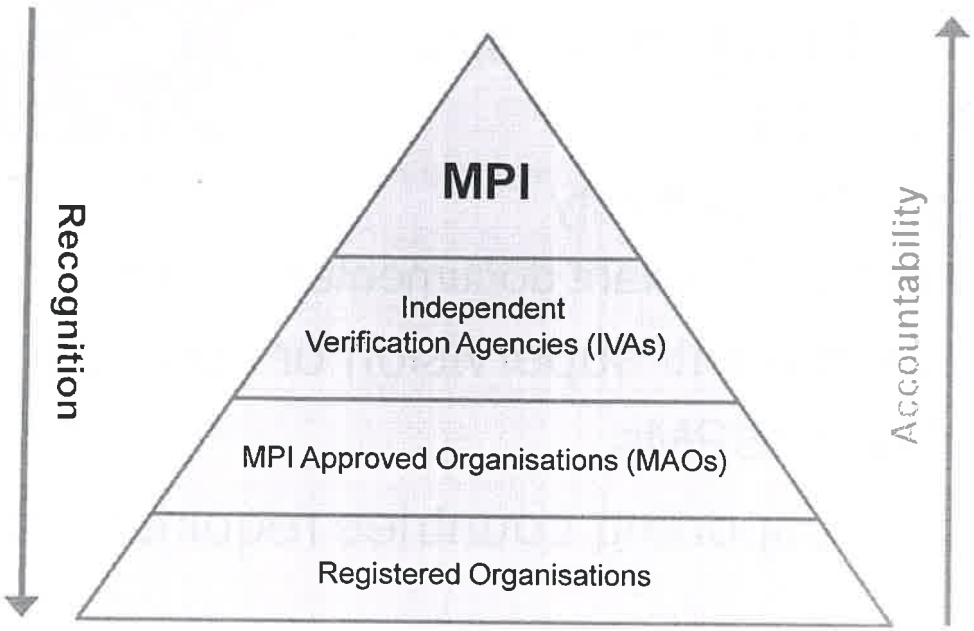
MPI is NZ's NPPO and is responsible for:

- Setting and regulating export and import standards
- Protecting NZ primary industry from biological risks that could harm local production
- providing assurances for exports that meet importing countries' requirements
- Building and maintaining good relationships with trading partners to enhance trade (with MFAT)
- Negotiating for new and improved market access conditions for NZ's primary products

MPI's export certification system?

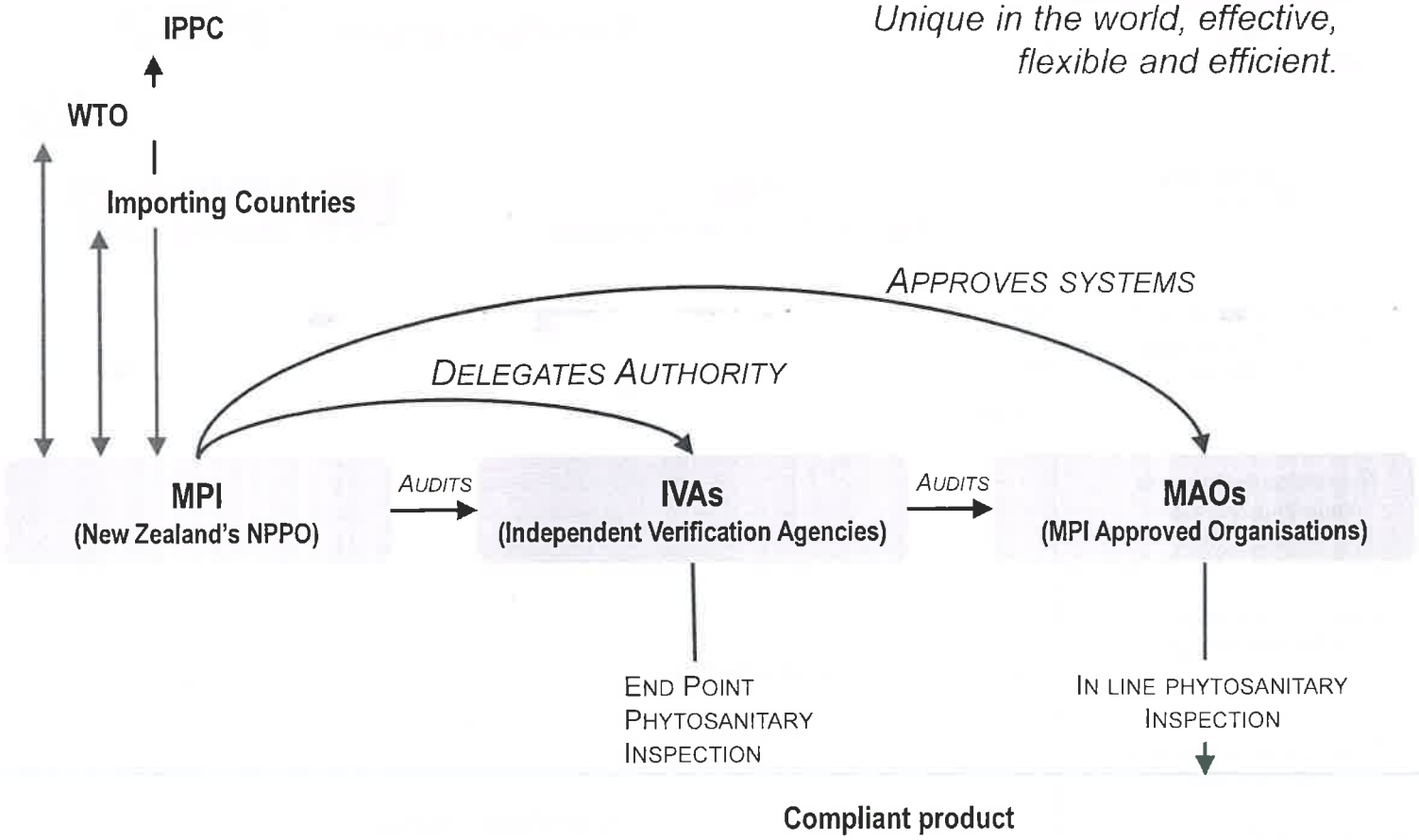
- Unique in the world
- Effective, flexible and efficient
- Based on MPI:
  - Delegation of authority
  - Approval of compliant documented systems
- options: endpoint/ supervision or approval
- Aligned with ISPMs
- addresses importing countries requirements

Export Certification System Overview

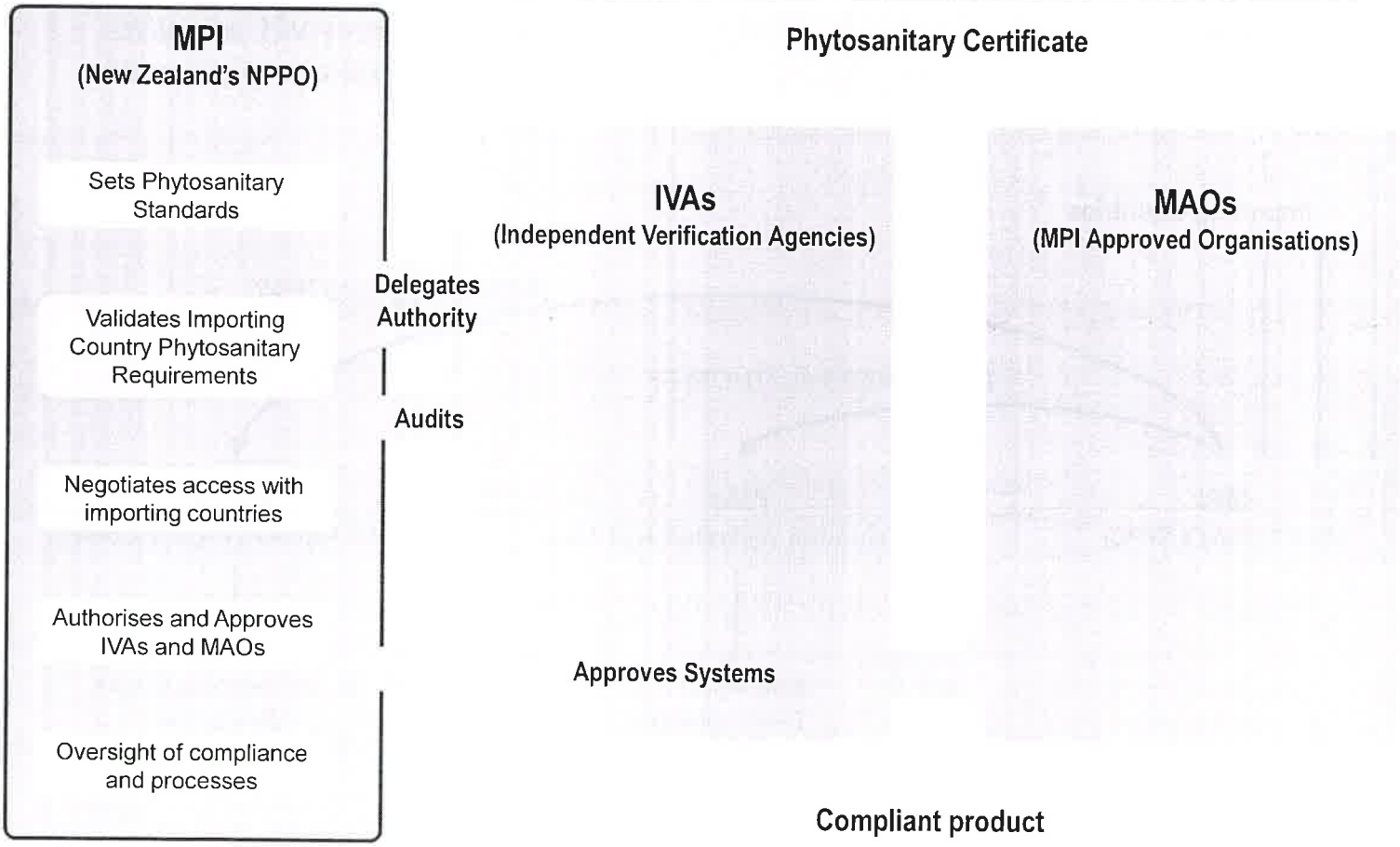


Export Certification System Overview

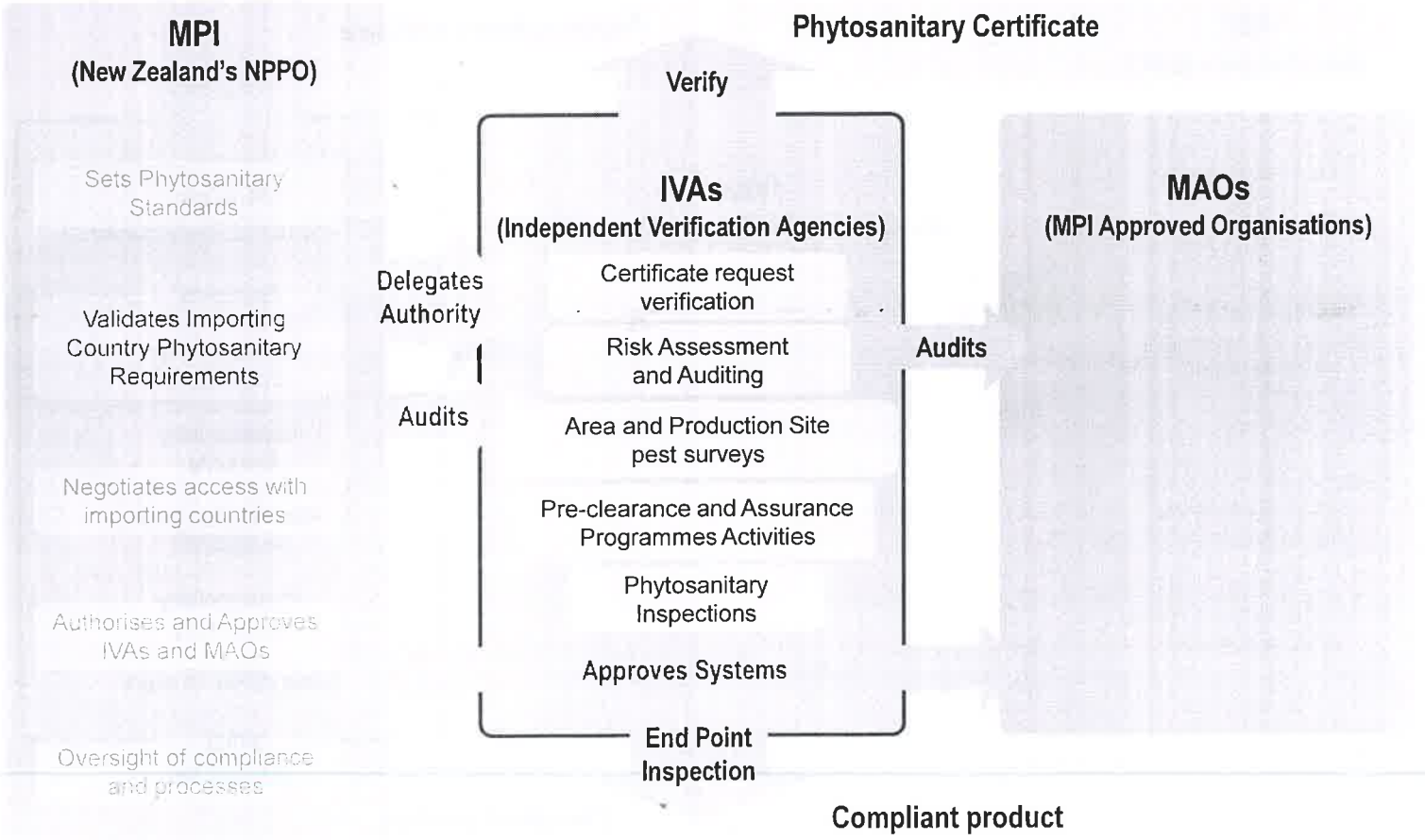
Unique in the world, effective, flexible and efficient.



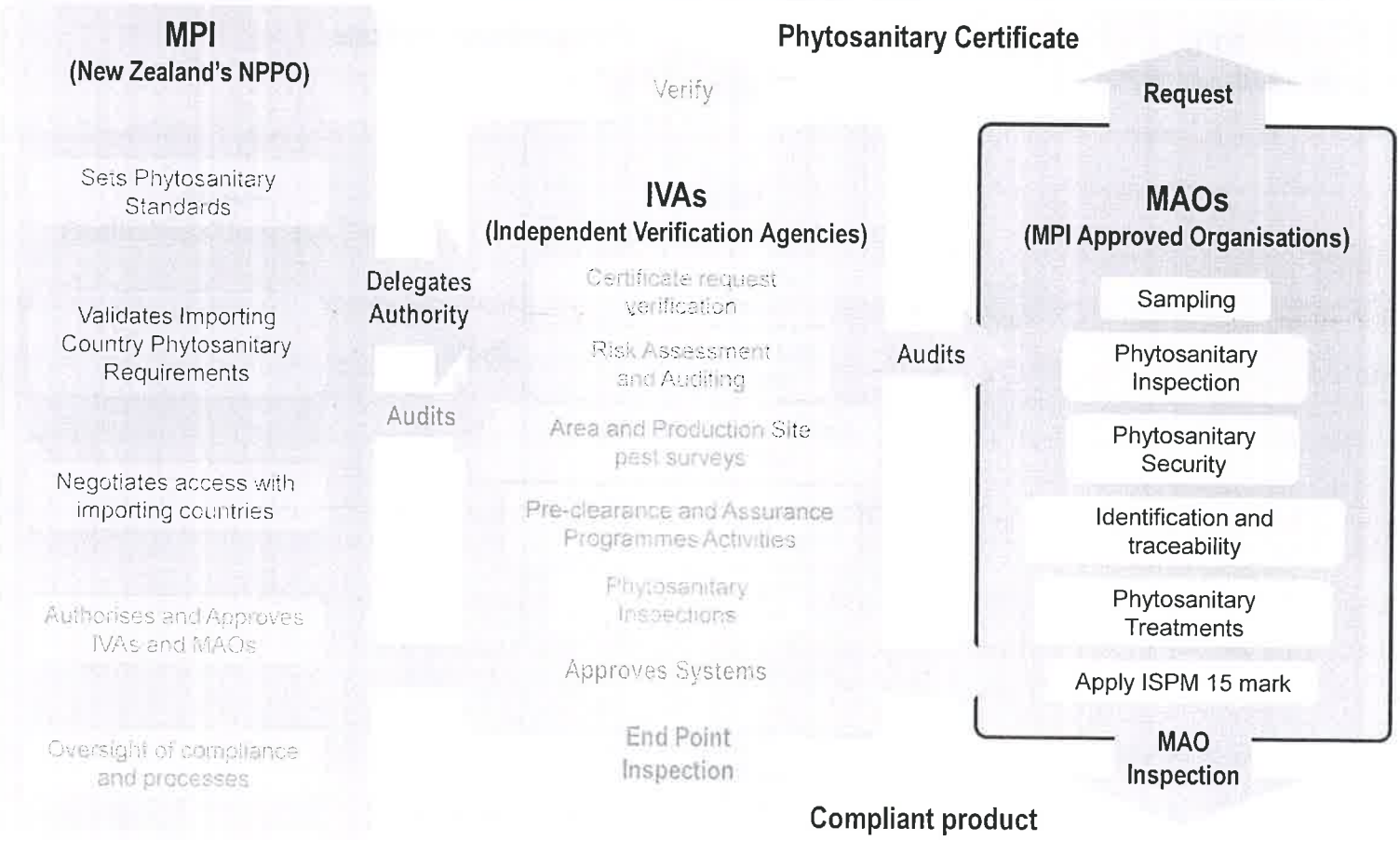
MPI - role as NPPO



Independent Verification Agency (IVA) Role



MPI Approved Organisation (MAO) Role



Audit Frequency

- Higher level for new organisations

- Higher level for non-compliance
- Higher level for higher risk activities

Phytosanitary Certification

The phytosanitary certificate:

- Is a **government-to-government certificate** of compliance
- Is issued by MPI as the NPPO
- States that the **produce has been inspected** prior to export
- Meets the **importing country's phytosanitary requirements**
- Provides specific **IPPC data elements**

International Plant Protection Convention
Protecting the world's plant resources from pests

Meets international obligations for:

- Transparency
- Technically justification
- Protection of plant, animal or human health

NEW ZEALAND MINISTRY FOR PRIMARY INDUSTRIES

PHYTOSANITARY CERTIFICATE FROM NEW ZEALAND

TO THE PLANT PROTECTION ORGANISATION(S) OF:

CHINA

Cert. No. NZL2018/EXAMPLE/13977

Name and address of exporter: Example Example Example address Example City 0000 NEW ZEALAND		**Declared name and address of consignee:** Joe Bloggs 123 Sesame Street China 1234	
Place of Origin: NEW ZEALAND	**Port of Loading:** Tauranga	**Declared Means of Conveyance:** Air, NZ1234, 1234	**Declared Point of Entry:** Shanghai P

Certifying Statement:
This is to certify that the plants, plant products or other regulated articles described herein have been inspected and/or tested according to appropriate official procedures and are considered to be free from the quarantine pests specified by the importing contracting party and to conform with the current phytosanitary requirements of the importing contracting party, including those for regulated non-quarantine pests.
They are deemed to be practically free from other pests.

Additional Declarations:

Date of Inspection: N/A
Import Permit Numbers: N/A
Additional Official Phytosanitary Information: N/A

Number and Description of Packages: 50 Bags	**Container Identification Numbers (Seal Numbers):** N/A
Distinguishing Marks on Package: N/A	

Item: Botanical Name / Common Name:	**Product Description:**	**Net Quantity:**
Panax ginseng Ginseng	Vegetables - Dried, Cured, Processed	100 Kilograms

Disinfestation and or Disinfection Treatment: N/A

NZ's Electronic Certificate Production System – "ePhyto system"

- ePhyto system is the MPI internet application used for providing government to government (official) assurances about the compliance of New Zealand's plants and plant products with importing country regulatory requirements.

- Is used to submit, approve, print and revoke export certificates.

- ePhyto users must register with MPI and have a RealMe govt login with the Department of Internal Affairs (DIA).

- ePhyto users have different permissions depending on their roles (e.g. certificate submitter, certificate printer, certificate verifier, etc).

ePhyto system

- There are two standard certificate templates available for:
  - Standard phytosanitary certificate;
  - Phytosanitary certificate for re-export.

- An export certificate is supported by documentation which can be uploaded.

- Relays email notifications with certificate information

MPI Export Certification Standards

- Assurance System Framework
- IVA Requirements
- Organisation Requirements
- Technical Standards including:
  - Phytosanitary Inspection
  - Phytosanitary Certificates
  - Audit
  - Certification mark for Wood packaging
  - Pest Freedom survey
  - Treatment

Official Assurance Programmes (OAPs)

Purpose?

- Requirements for Non-MAOs e.g. growers
- Requirements outside our Plant Export Certification Standards
- E.g. orchard activities; pest surveys

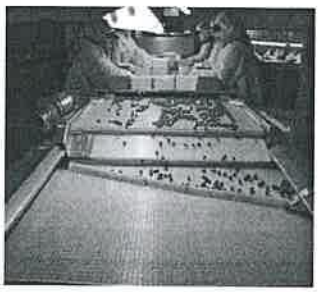
What does it mean for growers, packing facilities, coolstores?

- Registration and contract with MPI (website)
- Compliance audits

MPI provides Official Assurances

Grower

- controls pests & diseases



Packing facilities

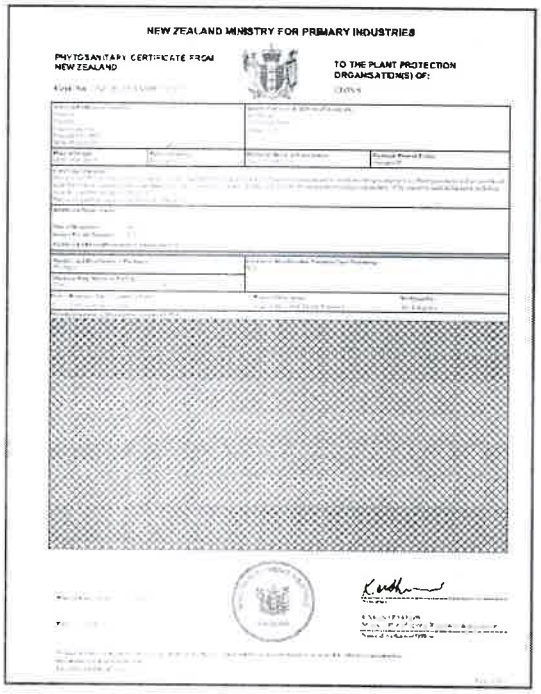
- traceability
- sorting, grading, packing
- washing, drying
- post harvest pest/disease control

Exporter

- meets importing country requirements
- requests phytosanitary certificate*

MPI

- verify
- government to government Official Assurance

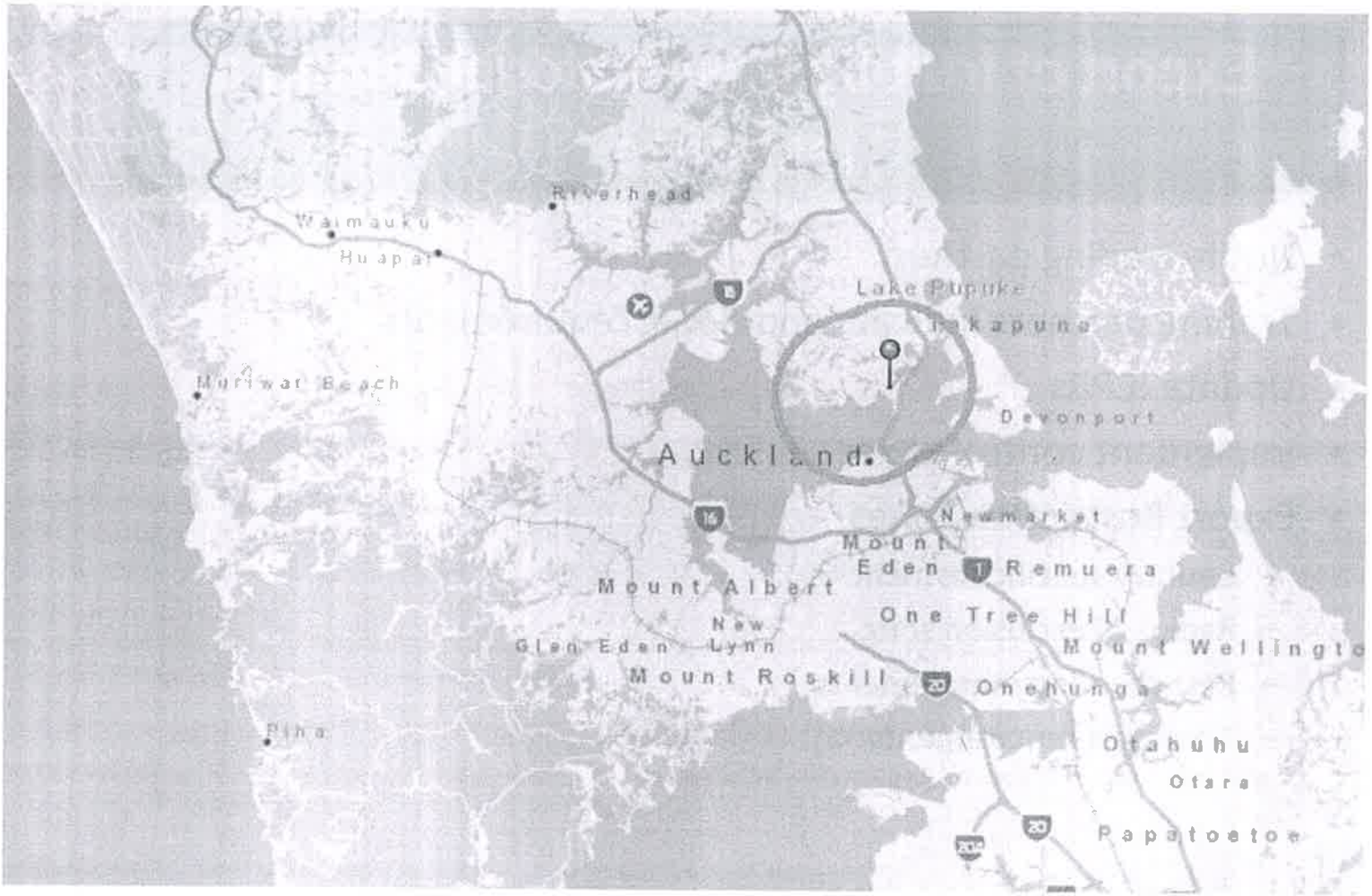

NEW ZEALAND MINISTRY FOR PRIMARY INDUSTRIES

PHYTOSANITARY CERTIFICATE FROM NEW ZEALAND

TO THE PLANT PROTECTION ORGANISATION(S) OF:

Export of fruit fly host material during a response

- Notify trading partners
- Trading partners indicate additional requirements
- Update ICPRs
- Implement control zones
- Export Restriction Zones
  - Country specific restrictions
  - Radius of exclusion zone
  - Pest proofing requirements
  - Transport requirements


Riverhead
Waimauku
Huapai
Muriwai Beach
Lake Pupuke
Takapuna
Devonport
Auckland
Newmarket
Mount Eden
Remuera
Mount Albert
New Lynn
Glen Eden
One Tree Hill
Mount Wellington
Mount Roskill
Onehunga
Pihe
Otahuhu
Otara
Papatoetoe

Specific restrictions within an ERZ

- Growing – production sites
- Packing
- Storage
- Transport
- Freight Fowarders (proximity to air and sea ports)

Communication with industry during a response

- Close and regular contact with stakeholders
  - IVAs
  - Plant Market Access Council
  - Horticulture NZ
  - Fruit fly working group
  - Individual export commodity organisations
    (Zespri, Avocado Industry Council, Pipfruit NZ, Summerfruit NZ, etc)
- MPI website
  - ERZ's
  - Requirements and guidance for exporters
  - FAQ's

Official Assurance Programme

- Draft "Official Assurance Programme for the export of fruit fly host material" developed for use during an incursion
  - Currently being consulted on with industry
- Improve management of export eligibility during an incursion
- Participants must pre-register with MPI
- Fruit fly procedures for inclusion in MAO system require MPI approval

Thank you for your attention

Questions?

附錄二、果實蠅入侵時相關應變及管控機制(MPI Technical Standard: Fruit Fly Respone-Field operations)

Biosecurity New Zealand

Tiakitanga Pūtaiao Aotearoa

MPI Technical Standard: Fruit Fly Response (Field Operations)

Prepared for: Chief Technical Officer,
Director,
Diagnostic and Surveillance Services, Operations Branch, MPI

By Principal Adviser,
Biosecurity Surveillance & Incursion Investigation,
Diagnostic & Surveillance Services, Operations Branch, MPI

ISBN No: XXX-X-XXXXX-XXX-X (online)

September 2018

Endorsement

This Ministry for Primary Industries operational standard is hereby approved.

Chief Technical Officer
Director,
Diagnostic and Surveillance Services,
Operations,
Ministry for Primary Industries

Date: 14 February 2019

Version Number	Comments	Date
1.0	ORIGINAL	22 December 2015
2.0	Draft for review	21 September 2017
2.1	Draft for review	November 2018
2.2	FINAL DRAFT (Review)	14 January 2019
2.0	FINAL	14 February 2019

Review

This standard is subject to periodic review and amendment. Amendments will be made to the signed original as required. Schedules to the MPI Standard will be changed as appropriate to incorporate new requirements supported by peer-reviewed research findings, official government reports and/or the issue of new chemical approvals. The signed original will be held by the Chief Technical Officer, Director, Diagnostic and Surveillance Services Directorate, Operations, MPI, Pastoral House, 25 The Terrace, Wellington.

During responses, adjustments may be required at short notice: these will be managed at the time through documented decisions, CTO approved documents and specific communications to cover their implementation. They may lead to subsequent adjustment and re-issue of this Standard.

Acknowledgements:

This standard replaces MPI Standard: Fruit Fly Response (Field Operations) December 2015 and incorporates material researched and sourced by the Entomology Group of the Plant Health and Environment Laboratory, Investigation Diagnostic Centres and Response, at the Ministry for Primary Industries. It also includes input provided by the Biosecurity Group of AsureQuality Ltd.

Contents

1 INTRODUCTION

1.1 CONTEXT

This standard is the latest version of a document initially prepared in 1991 to manage fruit fly detections in New Zealand. Its purpose is to specify technical and operational requirements and outcomes to ensure readiness and to enable prompt eradication of fruit flies from New Zealand after detection. Its preparation is based on fruit fly eradication procedures used in Australia and the USA, and it has been subject to international review throughout its existence. MPI uses the Standard to inform the preparation of readiness capability, underpin contracts for service provision and to manage actions during responses. All responses since 1991 have been conducted according to this standard, with appropriate adjustments applied to account for differences in biology of the different fruit fly species (e.g. lure response, hosts, life cycle, and mating and dispersal behaviour). Any departures from its requirements have resulted from advice provided by technical experts and have been approved by the Chief Technical Officer before implementation.

1.2 PURPOSE

This Standard documents how the Ministry for Primary Industries (MPI), its contractor agency (AsureQuality), other third party providers and GIA industry partners will manage and undertake operational activity in response to the detection of fruit fly in New Zealand. The Standard (i) sets out the operational and technical requirements for operational activity in response to the detection of fruit fly in New Zealand, and (ii) is the set of specifications for contracted services associated with the response to the detection of fruit fly in New Zealand.

This Standard documents MPI's technical requirements for operational activity to eradicate fruit fly and prescribes requirements which will be met by the contracting agency (AsureQuality). It covers a summary of governance arrangements, responsibilities of the Chief Technical Officer and other critical roles, stakeholders and response participants, and how these all link to contracted Field Operations Procedures (FOPs) to ensure delivery according to specification.The Standard conforms with requirements contained in ISPM Standards endorsed by the IPPC, and provides clarity and assurance to overseas trading partners as well as New Zealand stakeholders.

Technical requirements include:

- Timeframes for completion of critical tasks.
- Requirements for the deployment of traps.
- Specification for chemical treatment application to eradicate.
- Movement control of host material.

This Standard does not cover the following, which are covered by policies and procedures documented elsewhere:

- Response Governance structure, roles and responsibilities.

- Communications with the Minister and stakeholders.
- Trade.
- Public Information Management (PIM).
- Welfare (including recovery).

1.3 PLAN OWNERSHIP

Ministry for Primary Industries:

Dr Veronica Herrera, Chief Technical Officer, Director, Diagnostics & Surveillance Services, Operations Branch, MPI.

Contact: George Gill, Principal Adviser (Plant Health), Diagnostic & Surveillance Services, Operations Branch, MPI.

Charles Fergusson Tower, 34-38 Bowen Street, Wellington 6011. Email: george.gill@mpi.govt.nz Telephone: +64 4 894 0532.

AsureQuality:

Jonathon Pettigrew, Business Manager Training & Biosecurity, AsureQuality Ltd.

Contact: Jonathon Pettigrew, Email: Jonathon.Pettigrew@asurequality.com
Telephone: +64 3 357 5511. Mobile: +64 21 225 6159.

1.4 READERSHIP

This Standard must be understood by the MPI Biosecurity Response Group, the contractor, GIA Signatories to the Fruit Fly Operational Agreement (GIA partners) and other associated industry stakeholders who contribute to ensuring timely delivery of its requirements, which will minimise impacts to production and market access. The MPI Director Diagnostic and Surveillance Services is the accountable Chief Technical Officer and has approved these requirements.

The Standard is available on the MPI website to ensure information on planned response activities is available to trading partners and other interested parties.

This Standard will be followed by the Controller and the National Coordination Centre during a fruit fly response. It will also be used by MPI's readiness and contracting teams to ensure qualified and trained staff, stores and facilities are in place.

The functions and requirements of the MPI Field HQ Entomologist and Fruit Fly Reference Entomologist for facilities are included.

2 REFERENCES

Agricultural Compounds and Veterinary Medicines Act 1997.

AS/NZS 2243.3: 2002 Safety in Laboratories. Part 3 Microbiological aspects and containment facilities (Section 12)

Biosecurity Act 1993 (and Amendments).

Hazardous Substances and New Organisms Act 1996

Health and Safety at Work Act 2015 (and Amendments).

Health and Safety in Employment Act 1992

ISPM Standards (various) https://www.ippc.int/en/core-activities/standards-setting/ispms/#publications

MAF Standard 154.02.08: Transitional and Containment Facilities for Invertebrates. 31 October 2002.

http://mpi.govt.nz/law-and-policy/requirements/transitional-facilities-standards/

MPI Standard 155.04.03: Diagnostic facilities undertaking identification of new organisms, excluding animal pathogens. 28 April 2005.

http://mpi.govt.nz/law-and-policy/requirements/transitional-facilities-standards/

Ministry of Agriculture and Forestry Fruit Fly Response Procedures: June 2007 or the current version as updated at the time of reading this plan.

MPI Containment Manual CM-08: Containment of Fruit Flies during a response – the current version as updated at the time of reading this plan.

MPI Single and Scalable Response Model. 1st edition. March 2015, Ministry for Primary Industries.

New Zealand Coordinated Incident Management System (CIMS). 2nd edition. April 2014.

http://www.civildefence.govt.nz/assets/Uploads/publications/CIMS-2nd-edition.pdf

Resource Management Act 1991 (and Amendments).

2.1 DEFINITIONS

The following definitions apply:

Term	Definition
Action Plan	A document that describes how the response will be managed and how response agencies will integrate activities to achieve response objectives.
AQ Field Headquarters Manager (AQ-FHQ Manager)	Senior AQ representative located at FHQ. The AQ FHQ Manager is accountable for the delivery of contracted operational services.
Bait	Fruit fly attractant based upon food or host odours, and commonly based on protein. Primarily effective against female fruit flies.

Biosecurity Response Knowledge Base (BRKB)	Overall processes, standards and other resources for leading and managing biosecurity responses. The BRKB is intended for use by MPI, its employees, subcontracted staff, GIA partners, and partner agencies.
Biosecurity Response Services (BRS) Master Agreement	The agreement between MPI and AsureQuality whereby the requirements of the Standard are delivered.
Chief Technical Officer (CTO)	A person appointed under section 101 of the Biosecurity Act to be responsible for the authorisation of specific biosecurity powers. In this instance the Director, DSS, Operations Branch, Ministry for Primary Industries is the relevant CTO.
Contractor	The organisation contracted by MPI to undertake and manage operational activities during a fruit fly response. The current contractor agency is AsureQuality.
Controlled Area	An area that a CTO has declared a controlled area under Section 131 of the Biosecurity Act. There may be more than one controlled area and there may be controlled areas within controlled areas, e.g. conditions are imposed over a large area and more stringent conditions are imposed in a smaller area.
Controller	The person in charge of the response who directs response activities, and fulfils management functions and responsibilities. Reports to Response Governance.
Coordinated Incident Management System (CIMS)	A system designed to achieve coordinated incident management across responding agencies through the establishment of common structures, functions and terminology, while enabling agencies to develop their own processes, procedures and training.
Deputy Controller	The Deputy Controller is the person with delegated responsibility to oversee the detailed operation of the NCC.
Diagnostics Manager	The Diagnostics Manager is responsible for the implementing and overseeing all diagnostic testing during the response, communicating the results outside of the laboratory, and assisting with the interpretation of the results as required by other functions. Reports to the Controller.
Enhanced Surveillance Zone (ESZ)	An area where increased surveillance is undertaken usually using traps deployed for the National Surveillance Programme and in-filled to provide coverage. The ESZ may be centred on the site of detection, but outside the B-zone. It may also include individual high-risk sites
Field Headquarters (FHQ)	The site from which the operational activities are coordinated and managed. Includes the site of the FHQ Entomology Laboratory.
Field Headquarters Coordinator	MPI's senior representative on site, ensuring smooth operations of the FHQ and coordination of MPI FHQ staff. This role may be undertaken by the Operations Manager should the two roles be merged.

Fruit Fly	Insects of the order Diptera, family Tephritidae, which belong to economically important genera such as *Anastrepha*, *Bactrocera*, *Ceratitis*, *Dacus*, *Rhagoletis* and *Toxotrypana*.
Fruit Fly Adviser(s)	MPI Adviser(s) with knowledge of fruit fly biology, ecology and response who can provide advice to the Controller, Response Governance and the response as required. Also a member of the Technical Working Group.
Headquarters Entomologist	The MPI scientist at the field headquarters who is responsible for identifications, provision of biological information and quality assurance at the entomology laboratory. The headquarters entomologist is responsible for the management of the FHQ entomology laboratory.
Fruit Fly KTP Entomologist	An MPI entomologist authorised by internal MPI quality systems as being a Key Technical Person (KTP) capable of the authoritative identification of fruit fly to species level.
Fruit fly host material	Plant material suitable for egg-laying and larval development of fruit fly. It does not include root and leafy vegetables, nor cooked, processed, preserved, dried, frozen or canned fruit.
Governance	Oversees the response and makes major strategic-level decisions. The function is not responsible for providing operational coordination or support.
Government Industry Agreement Signatories (GIA Partners)	Industry bodies who are Signatories to both the GIA Deed and the Fruit Fly Operational Agreement.
High-risk locations	Locations, such as ports, airports and high concentrations of people where fruit fly is likely to be detected, or where establishment of fruit fly would have a major impact on the primary sector.
Infested place (IP)	A defined area where a fruit fly population is present. An Infested Place is subject to quarantine and eradication or control procedures.
Initiation (Day 0)	Initiation (Day 0) of the response occurs when the CTO, or deputy contacts the contracting supplier and informs them that a fruit fly response has been activated.
International Standard for Phytosanitary Measures (ISPM)	An international standard adopted by the Conference of the FAO, The Interim Commission on Phytosanitary Measures or the Commission on Phytosanitary Measures, established under the IPPC.
Lure	Specific attractants i.e. para-pheromone or pheromone lures that are male specific. The common types are methyl eugenol, cuelure and trimedlure/capilure. These cover most of the risk species and

	are used (as polymer plugs or wafers) in MPI's fruit fly surveillance programme.
Movement permitting	The processing of movement requests in accordance with the conditions and restrictions specified in the Controlled Area Notice.
National Coordination Centre (NCC)	The location where the whole response is managed from; including market access considerations, export coordination, Ministerial coordination etc. Most likely to be MPI head office in Wellington.
Notification	Formal communication to the contractor covering significant requests, including initiating and standing down a fruit fly response.
Operations Manager	The MPI Operations Manager is responsible to the Controller for the implementation of the action plan, and reports to the Controller. They are also responsible for coordination of volunteers (e.g. science, industry etc.). Normally situated at NCC.
Organism Management (OM)	Decisions on, and programmes for, containing, controlling or eradicating a risk organism.
Primary signage	Signs erected at the principle entry and exit points of the Controlled Area (B-zone).
Reference Entomologist	The specialist MPI Entomologist trained and authorised to identify to species level any fruit fly submitted from the surveillance system, including obtaining validation. Identification includes morphological and molecular methods, and may involve recognised international experts.
Response Governance	See Governance
Response Zones	Zones (A, B and ESZ) are defined by the CTO at the time that a response is initiated
Risk	The probability of suffering harm from a hazard which incorporates both likelihood and consequence.
Risk goods	Any organism, organic material, thing, or substance, that by reason of its nature, origin etc. is reasonable to suspect constitutes, harbours, or contains an organism that may 1. Cause unwanted harm to natural and physical resources or human health, or 2. Interfere with the diagnosis, management, or treatment, of pests or unwanted organisms.
Single and Scalable Response Model (SSRM)	How MPI implements CIMS, includes CIMS itself and the two specific extensions that MPI has added i.e. Diagnostics and Compliance Liaison. The extensions meet common needs across MPI response which CIMS does not address.
Surveillance	An activity, based primarily on lure traps but also including fruit monitoring, designed to detect fruit fly populations.
Technical Advisory Group (TAG)	Internationally recognised experts who provide independent advice to the response when requested.

Technical Working Group (TWG)	A group of MPI and industry personnel who possess technical knowledge of fruit fly biology, ecology and response management that provide operational technical advice to the response.
Termination	Official notification to the contractor to begin shut-down procedures for field operations.
Tracing	An activity to identify pathways for the introduction of fruit fly (backwards tracing), and movements of risk material from an infested place or another property in the A-zone (forward tracing).
Urgent Measures Authorisation	The formal MPI document that provides authority to the contracting party to undertake immediate activities to respond to a fruit fly incursion, usually with the intent of ensuring containment and preventing spread.
Unwanted organism	An organism that a CTO believes is capable or potentially capable of causing unwanted harm to any natural and physical resources or human health.
Windfall fruit	Fruit lying upon the ground beneath, or where ground is sloping is associated with, a host plant.
Working day	For a fruit fly response a working day may be any day of the week inclusive of weekends and public holidays in order to achieve key objectives.
Working hours	Those hours within a working day when work may occur and will usually not exceed 10 hours per person within any 24 hour time period.

3 POLICY AND LEGAL FRAMEWORK

3.1 POLICY

Should fruit fly be detected in New Zealand, MPI's policy is to delimit any population and, if possible, effect its eradication in the most efficient and effective manner to maintain New Zealand's fruit fly free status.

This will be achieved through the rapid detection of fruit fly by the MPI National Fruit Fly Surveillance Programme (http://www.biosecurity.govt.nz/pests/surv-mgmt/surv/fruit-fly), and on detection, the deployment of enhanced surveillance around the detection site and the use of treatments and control measures to eradicate the pest if found to be establishing.

This approach ensures minimum delay in regaining fruit fly-free country status in accordance with international standards and the earliest possible return to unrestricted international trade.

This Standard details MPI's technical requirements and outcomes to effectively manage a fruit fly response.

3.2 LEGAL FRAMEWORK

Activities undertaken during a biosecurity response are primarily regulated by the Biosecurity Act 1993. Other legislation that applies includes the Resource Management Act 1991, the Hazardous Substances and New Organisms Act 1996, the Agricultural Compounds and Veterinary Medicines Act 1997, and the Health and Safety at Work Act 2015.

3.2.1 Biosecurity Act 1993

Actions taken during a fruit fly response are regulated by the Biosecurity Act, particularly powers under Part 6. Actions must comply with all other legislative requirements unless the Biosecurity Act gives precedence to certain provisions (see sections 7 – 7B Biosecurity Act).

It is unlikely that a fruit fly detection would trigger a biosecurity emergency under Part 7 of the Biosecurity Act. However, should exceptional circumstances necessitate the declaration of a biosecurity emergency additional powers to assist management would be available. These additional powers can be exercised whether or not they conflict with certain other legislation listed in section 7, for example, the Resource Management Act.

3.2.2 Biosecurity (Notifiable Organisms) Order (Current Order)

The Notifiable Organisms list is a list of organisms that have been identified as being of significant concern to New Zealand and, by Order in Council been declared a notifiable organism by the Governor General. It places a duty on "Every person who at any time suspects the presence.....shall without unreasonable delay report to the Chief Technical Officer its presence or possible presence (s46 (1) Biosecurity Act 1993). Currently there are 31 fruit fly species declared to be notifiable

organisms. It should be noted that the declaration of an organism to be notifiable does not automatically mean that a response will be initiated against it, nor does the absence of a fruit fly species from the list mean that a response will not be mounted.

3.2.3 Resource Management Act 1991

The Resource Management Act (RMA) provides the legislative framework for environmental management, including the sustainable management of New Zealand's natural and physical resources.

Some response activities under the Biosecurity Act may not be permitted under the RMA. Examples include aerial application of insecticides or dispersal of sterile insects. Two options are available to allow these activities:

- Declare a biosecurity emergency under the Biosecurity Act, or
- Obtain a Ministerial exemption from Part 3 of the RMA under Section 7A of the Biosecurity Act. This option only applies if the proposed activity is in breach of Part 3 of the RMA.

Declaration of a biosecurity emergency removes any obligations under the RMA and enables the, exercise of any power, function or duty conferred by Part 7 of the Biosecurity Act.

Some biosecurity activities are consistent with the RMA because they are permitted by the relevant regional/district plans and/or National Environmental Standards. During a response, the relevant district and regional councils should be consulted to determine whether the proposed action complies or not before acting.

3.2.4 Hazardous Substances and New Organisms Act 1996

The Hazardous Substance and New Organisms (HSNO) Act regulates the management of risks from hazardous substances and new organisms and is administered by the Environmental Protection Authority (EPA). MPI is the enforcement agency for the new organism provisions of the HSNO Act.

There may be a requirement to deploy organism management tools such as new pesticides, novel lure and kill techniques or the use of sterile insects that require EPA approval.

The exercise of Biosecurity Act powers must comply with the HSNO Act, including during biosecurity emergencies.

3.2.5 Health and Safety at Work Act 2015

The Health and Safety at Work Act is administered by the Ministry of Business, Innovation and Employment, and enforced by Work Safe New Zealand. The Act applies to safe practice in all New Zealand workplaces, and actions during biosecurity responses are not exempt.

3.2.6 Agricultural Compounds and Veterinary Medicines Act 1997

All agricultural compounds imported, manufactured, sold or used in New Zealand must be authorised under the Agricultural Compounds and

Veterinary Medicines (ACVM) Act. Products applied to home-grown fruit and vegetables are included. MPI administers the ACVM Act.

Agricultural compounds are registered for specific uses and are subject to strict conditions, including use "off-label". Pesticide use for a response may be off-label, and consultation with the ACVM Group prior to use is essential to check whether compounds are registered for the proposed use. If they are not registered, an application must be made for a special circumstances exemption under section 8C of the ACVM Act.

4 SERVICE OUTLINE

The MPI Chief Technical Officer (Director, DSS) will declare a fruit fly response upon reputable advice of the DSS-PHEL that the presence of fruit fly is probable. Declaration will be made under consultation or in pre-agreement with GIA partners.

4.1 RESPONSE LEVEL

The response level will be defined by the Chief Technical Officer (CTO) following discussion with relevant technical experts and GIA partners.

There are three levels of response depending on the circumstances of the find. These are called Response 1, Response 2, and Response 3 and have different activity requirements (Table 1).

4.1.1 Response 1:

This is the initial investigative phase and includes trapping, fruit monitoring and movement controls (in the A-zone) to determine whether a breeding population exists. Organism management activity is not part of Response 1.

Response 1 will be declared when at least one fruit fly is confirmed present in New Zealand.

4.1.2 Response 2:

Response 2 includes additional activity to that specified in Response 1, specifically additional movement controls, organism management activities such as fruit collection, bait-insecticide application, cover spraying, ground treatment, and where appropriate, male annihilation technique may be deployed.

Response 2 will be declared when evidence of a breeding population of fruit fly in New Zealand is reasonably suspected based upon:

- Detection of eggs or larvae in locally produced fruit; or
- Detection of mated female flies; or
- Over a 14 day period[1], further detections of male flies in traps in a pattern that indicates a population is present; or
- Other evidence that indicates a population of fruit flies is present.

[1] Refers to a period of 14 days after the return of the first surveillance trap inspection results to the Controller

4.1.3 Response 3:

Response 3 covers unusual situations such as the detection of species that do not respond to lures. Given continued commitment to the current active surveillance programme, escalation to Response 3 is considered unlikely.

There are a number of alternative strategies available to facilitate an effective response in such situations. These include the deployment of the male annihilation technique (MAT), mass-trapping and the sterile insect technique. Deployment of any particular strategy will be informed by technical advice and recommendations to the CTO and Response Governance.

4.2 DEFINITION OF RESPONSE ZONES BY THE CTO

There are three response zones, designated A, B and the Enhanced Surveillance Zone (ESZ):

- The A-zone has a minimum radius of 200 metres around the fruit fly find.
- The B-zone has a minimum radius of 1.5 kilometres around the find.
- The Enhanced Surveillance Zone (ESZ) , if required, has a radius defined by the CTO at the time of a response.

Exact size and boundaries of the A-zone and the B-zone will be defined by the CTO and notified via a public notice, media (newspapers, radio/television, electronic media), and the MPI website in order to inform the public promptly.

4.2.1 A- and B-zone boundary changes

The zones within the Controlled Area may be increased or otherwise changed by the CTO depending on information gathered from the field and subsequent analysis.

4.2.2 New detections

Single male fly detections within the A-zone:

- A-zone size may be increased by the CTO. Such detections are unlikely to require changes to the B-zone boundaries.

Single male fly detections within the B-zone:

- Each detection will be managed as per Response 1 with consideration of the option of applying A-zone movement control measures.
- Outer B-zone boundary may be altered to manage risks identified as a result of the detection and with reference to benefits and costs. The preferred option is to maintain the existing boundary to minimise public confusion.

Detection of a breeding population(s) within the B-zone:

- Declaration of new A- and adjustment to the B-zone centred on the new detection.
- Movement controls and response activities as per Response 2 will

be implemented.

4.2.3 Reducing the size of enlarged A-zones

Where the A-zone has been enlarged to a size greater than 200 m radius and evidence is sufficient to determine that the area can be reduced without increasing risk, the boundary may be adjusted. The adjusted zone will continue to be centred around known infestations and the boundary will not be less than 200 metres radius.

4.3 RESPONSE STRUCTURE

4.3.1 Governance

A governance body consisting of senior MPI managers, including the CTO and GIA Fruit Fly Operational Agreement Signatory industry representatives will be established to oversee the response. Within the parameters of this standard Response Governance will be accountable for major decisions that commit substantial resource inputs, including any required adjustments to response level and associated investment. These decisions will take into account cost-share arrangements as set out in the Fruit Fly Operational Agreement. Response Governance is not responsible for operational coordination or support.

4.3.2 Response Management

The Controller, in consultation with the CTO will determine an appropriate response structure consistent with the MPI Single and Scalable Response Model (SSRM), which will include clear accountability for MPI staff, contracted inputs, efficient and effective monitoring and reporting. The model provides for flexibility and scalability so that appropriate levels of input are applied to meet the demands of each event. Diagnostics as an MPI managed front-line input will report directly to the Controller and CTO as required.

4.4 ESTABLISHMENT OF COORDINATION CENTRES:

A National Coordination Centre (NCC) will be established, to ensure co-ordination across Government and industry. A Field Headquarters will be established for on-the-ground management of the operational aspects of the response.

The activities associated with the different levels of response are summarised in Table 1.

Table 1: Components of the Three Fruit Fly Response Levels.

Component (function)	Response 1	Response 2	Response 3
Detection site inspection	+	+	+
Mapping and GIS	+	+	+
Trapping (surveillance)	+	+	+
Fruit monitoring (surveillance)	+	+	+
Movement Control	+[2]	+[3]	+
Tracing (surveillance)		+	+
Fruit collection (organism management)		+	+
Bait application (organism management)		+	+
Ground spraying (organism management)		+	+
Infested tree spraying (organism management)[4]		+	+
Alternative methods			+

[2] Movement control required for A-zone only.
[3] Movement controls apply for all zones as per Section 6.8 of this Standard.
[4] Cover or strip spraying.

5 SERVICE REQUIREMENTS

5.1 GENERAL REQUIREMENTS

The requirements of this Standard are met under the Biosecurity Response Services (BRS) Master Agreement, dated 22 November 2013 (as amended) between the Ministry for Primary Industries and AsureQuality (the contractor). The Requirements of the Guidance for the Implementation of the BRS Agreement also apply.

The BRS Annual Business Plan prepared by MPI and AsureQuality ensures that sufficient capability and response stores are available to enable delivery of response functions to meet this Standard.

AsureQuality will maintain Field Operations Procedures to cover all the fruit fly response activities that are required to meet this Standard. Any changes to the procedures will be submitted to MPI for agreement before implementation. MPI may undertake quality assurance audits to ensure alignment with the requirements of this standard.

5.2 CRITICAL OUTCOMES

On notification the contractor must achieve the outcomes listed in Tables 2 and 3 within the specified times.

Table 2: Administration: Key Outcomes

Outcome	**Maximum time for achievement from notification of a response.**
AQ FHQ Manager identified and mobilised Operations Manager (MPI) mobilised through MPI system	6 hours from notification
At response location	
AQ FHQ Manager on location MPI FHQ Coordinator/Operations Manager on location[5]	1 day (close of business on day 1)
All necessary resources on location	
High risk locations[6]	2 days (close of business on day 2)
Any other New Zealand location	3 days
Outside Response Zones: The contractor must have systems in place which ensure all necessary resources are mobilised as needed during a response to meet specified outcomes.	

[5] This is an MPI accountability.

[6] High-risk locations are Kerikeri, Whangarei, metropolitan Auckland, Pukekohe, Hamilton, Tauranga, Whakatane, Rotorua, Gisborne, New Plymouth, Napier/Hastings, Whanganui, Palmerston North, Levin, Masterton, metropolitan Wellington, Nelson, Motueka, Blenheim and Christchurch.

Table 3: Outcomes managed from the FHQ, as detailed in the Technical Requirements (Section 6)

Outcome	Time for achievement from notification (Day 0) (days)
Response 1, 2 and 3	
Areas of zones mapped	1 day
A-zone properties surveyed	2 days
A-zone leaflets delivered	1 day
A-zone signage erected	2 days
B-zone leaflets delivered	2 days
Controlled Area Notice issued	2 days
Signage erected in B-zone	2 days
Amnesty bins deployed A-zone (and B-zone as directed)	2 days
For cuelure and trimedlure/capilure responsive species	
All A-zone traps placed	2 days[7]
All B-zone traps placed	3 days
Traps placed within 10km from the periphery of B-zone	7 days
For methyl eugenol responsive species	
Traps placed in A-zone and B-zone properties	3 days
For species that do not respond to lures	
All A-zone bait traps placed	3 days
All B-zone bait traps placed	3 days
Fruit monitoring commenced in A-zone.	3 days
RESPONSE 2 AND 3	
Bait applied to all properties with suitable vegetation:	
Within the A-zone	2 days[8]
Around the outer B-zone boundaries (covering 30% of B-zone); these must be treated first	3 days
In the remaining area of B-zone	5 days
Collection of windfall fruit commenced from all A-zone properties with host trees	3 days

[7] Results for A-zone will become available from Day 3 onwards.
[8] From declaration of response 2 (or 3).

5.3 KEY PERSONNEL

5.3.1 Controller

Control function:

The Controller is responsible for the response functions and the management team in the National Coordination Centre (NCC), including regional Coordination Centres if they are in place, and reporting to Response Governance.

5.3.2 Response Management

Response Management which includes the Deputy Controller is responsible for routine operations in the NCC:

- Oversees daily operation of the coordination centre and reporting progress and issues to the Controller;
- Within delegations makes decisions in the absence of the Controller;
- Ensures the action plan is implemented;
- Resolves internal conflicts;
- Daily planning;
- As required represents the Controller for outside business, including securing specialist inputs from e.g. science and industry.

5.3.3 Field Headquarters Coordinator (Operations)

The Field Headquarters (FHQ) Coordinator acts as MPI's senior representative on site, ensuring smooth operations of the FHQ, and is based at FHQ. The FHQ Coordinator will work closely with the AQ FHQ Manager to ensure effective on-site operations. The FHQ Coordinator will coordinate all MPI staff on site. The FHQ Coordinator will facilitate visits by key stakeholders.

5.3.4 AQ Field Headquarters Manager (Operations)

The AQ FHQ Manager is the senior AQ representative located at FHQ and will be pre-appointed in consulation with MPI. The AQ FHQ Manager is accountable for the delivery of contracted operational services.

The AQ FHQ Manager provides daily, or as required, reports to the Operations Manager detailing operational activity (Trapping, Fruit Collection and Disposal, Bait and Insecticide Application, Movement Control, Tracing) completed in the field. The AQ FHQ Manager will be knowledgeable about pre-prepared contingencies for deploying trained staff and stores, and the actions that are required to implement the requirements of this Standard.

5.3.5 Diagnostics Manager (Diagnostics)

The Diagnostics Manager is responsible for the implementation of the operation of diagnostics during the response, communicating the results,

and assisting in the interpretation required by other functions. The role will be responsible for co-ordinating technical advice on the fruit fly of concern to other response functions, and will have training and qualifications that cover entomology, fruit fly biology and identification and the actions required in a response.

5.3.6 Field Headquarters Entomology Team Leader (Diagnostics)

The FHQ Entomology Team Leader is responsible for coordinating and controlling the day-to-day activities of the FHQ Entomology Laboratory. The FHQ Entomology Team Leader is also responsible for providing on-site technical guidance, with the assistance of other off-site technical experts. Reports to the Diagnostics Manager.

5.4 COORDINATION CENTRES

5.4.1 National Coordination Centre (NCC)

The response will be managed from a National Coordination Centre. The NCC will be situated in Wellington unless otherwise directed. The CTO and subsequently the Controller will direct the response from the NCC.

The following activities occur at the NCC:

- policy/strategy decision-making;
- briefing and information distribution to Minister and MPI Senior Leadership and Response Governance;
- co-ordination of information distribution to external parties as required.

To facilitate these activities:

- the contractor's management representative or delegate with authority to mobilise contractor resources must be available at least between 08:00 and 18:00 hours inclusive of weekends and public holidays (guaranteed contactability via telecommunication link is acceptable);
- the minimum requirement is for calls to the contractor's nominated telephone or pager number or default number, to be immediately answered at least between 08:00 and 18:00 hours inclusive of weekends and public holidays and for the elected management representative to reply within 30 minutes;
- the contractor must also have procedures for the mobilisation and deployment of resources to the control centres as required.

5.4.2 Fruit Fly Field Headquarters (FHQ)

The contractor will establish FHQs as required for each response, and will have prepared plans and contingencies to ensure appropriate facilities are available for effective response management. These facilities will include work space and facilities to enable all groups to work effectively and efficiently, and will include furniture, communications, equipment and all services to accommodate staff welfare.

The FHQ Manager shall manage containment and eradication activities within the response zones from the FHQ at the location of the response.

The FHQ may need to operate for extended hours.

The Contractor shall have contingencies in place to ensure response activities can be sustained and that all Health and Safety requirements are met. Provisions for rostering staff are required, including ensuring sufficient staff with training and experience are available to fulfil rostering requirements.

The CTO will dispatch an MPI FHQ Entomologist to the FHQ who will be on duty according to a duty roster with other nominated MPI FHQ Entomologists.

The contractor will provide working accommodation for the FHQ Entomologist as outlined below and in accordance with MPI Containment manual CM-08.

5.4.3 Field Headquarters Entomology Laboratory

Unless otherwise advised by MPI, the contractor will be responsible for transporting and securely positioning the MPI mobile Entomology Laboratory units 1 and 2 at the FHQ site and connecting the required services.

With the Controller's approval following advice from the Diagnostics Manager alternative arrangements for an Entomology Lab(s) may be made at FHQ locations and these may include modifications of existing space or use of relocatable units.

The FHQ Entomology Lab will include:

- Accession laboratory - specimen reception and general diagnostics laboratory (Mobile Unit 1).
- A PC2 Dirty Laboratory - where fruit is sliced to determine the presence of fruit fly larvae (Mobile Unit 1).
- A PC3 Dirty Laboratory - where fruit incubation begins and fruit from incubation is sliced to determine the presence of fruit fly larvae (Mobile Unit 2).
- A PC3 Incubation Room – where fruit is incubated to allow immature fruit fly stages to mature for identification and provide biological information (Mobile Unit 2).

The specifications and service requirements for these Laboratory facilities is set out in Schedule 1. The positioning, modifications and connection to services must be in consultation with the the Diagnostics Manager. The operation of these laboratory areas is set out in the MPI Containment Manual CM-08.

The laboratory facilities will be sited within a secure fenced area at the FHQ.

5.5 ACCOUNTABILITIES DURING A RESPONSE

The CTO is responsible for:

- Declaration of a response;
- Initial definition of the fruit fly response zones;
- Response level;
- The host list for the species involved;
- Any specific technical requirements to be followed during the response;
- Authorising Urgent Measures;
- Ensuring provision of technical advice which may include convening a Technical Advisory Group.

Technical requirements in addition to this specification will be documented in writing, and these may include host lists, lures and traps and treatments according to the species and circumstances of detection.

The Chief Executive of the contractor organisation is accountable to the Director, Readiness and Response, for providing the resources to implement the response in accordance with this specification and any additional requirements as above. This includes all readiness activities, including staff training and management of stores. This is managed under the Biosecurity Response Services Master Agreement between MPI and the contractor organisation.

The Controller is accountable for operations within the response zones and in localities outside response zones if required. This may include following up and taking action to secure consignments of host material that have left response zones.

The Diagnostics Manager and FHQ Entomology Team Leader are responsible for:

- ensuring that laboratory operations and fruit processing are conducted to specification;
- providing information from the A-zone about hosts and general environment for fruit fly population development and dispersal, to assist with decision making on any additional containment actions that may be needed;
- assisting with quality assurance audits of contractor activities as required by the CTO and/or Controller;
- conducting additional field and technical investigations if required;
- providing daily updates as required;
- reporting on actions and issues at debriefing sessions at the end of each day;
- providing recommendations to the Controller as appropriate.

Entomologists have no authority to direct or become involved with the management of field operations unless otherwise directed by the CTO, Controller or delegated representative.

- The FHQ Entomologist will provide authoritative and prompt identification of new finds of Tephritidae and will report these to the CTO, Controller, Diagnostics Manager, Operations Manager and the AQ FHQ Manager within the specified time frames. Specimens will be kept and subject to validation by the Reference Entomologist.

6 TECHNICAL REQUIREMENTS

6.1 MAPS

Prompt provision of mapping services is required to provide an accurate and up to date depiction of field events as the response progresses, and to assist with operational management. Data inputs from the Contractor are required via ESRI and ARCGIS compatible applications for MPI to obtain maps with the features listed below.

Within six working hours from notification

- A- and B-zones matching current legal descriptions, and the location of the fruit fly detection;
- Matching aerial or satellite photographs;
- Names of towns, suburbs, roads, highways, rivers and natural features including hills, parks, scrub and forest areas,as harbours, rivers etc;
- A-zone, all sites presenting risks with host management e.g. backyards with fruit trees;
- B-zone, premises known to be trading in locally grown host produce;
- Existing surveillance traps.

Within 12 working hours from notification

- Mapped area extended to include a perimeter around the B-zone up to 10 km wide where additional traps may be required;
- Location, addresses, and nature of business of horticultural properties including glasshouse operations, orchards and packhouses etc.;
- Locations, addresses of retailers (markets, supermarkets, wholesalers of host material, garden centres, landfill sites, composting operations, community gardens etc.);
- Location of landfills, composting operations and other activities that may represent a risk of fruit fly spread.

Ongoing in real time as the response proceeds

- New trap sites, labelled to distinguish from existing surveillance traps;
- Infested properties – identified on the basis of life stage found;
- Quarantine signage;
- Previously unlisted horticultural and retail businesses dealing in hosts.

Ongoing, within 2 hours of each deployment

- Progress with bait application;
- Changes to response zones;

- Location of bins for removal of regulated plant material;
- The Contractor may require additional maps to assist with managing field operations.

The official response map will be created by MPI using GIS applications that are shared with the contractor. Maps showing A- and B-zones around the detection are required.

The information supplied will include the associated metadata such as accuracy, latest update, level of resolution and source.

6.2 PROPERTY NOTIFICATION

All A-zone properties will be visited by close of business on day 1 from initiation of the response. Occupiers will be notified of the fruit fly detection, and will be provided with details of MPI's response, their obligations and how they can help, which includes listing consignments of host fruit that they have given away within the last six weeks, and a free-of-charge contact phone number and website/email address. Leaflets will be provided, or, if occupiers are not available, leaflets will be placed in letterboxes.

All B-zone properties will be visited by close of business on day 2 from initiation of the response. Occupiers will be notified of the detection and their obligations in the B-zone. Leaflets will be provided to occupiers, or, if occupiers are not available leaflets will be placed in letterboxes.

6.3 PROPERTY SURVEY

A-zone:

Information on all properties will be obtained within 2 days from notification of the response (close of business day 2) to obtain and or verify the following information:

- occupier and contact details;
- owner and contact details if property is rented;
- property address and property type;
- access limitations;
- presence of host plants and ripe or maturing host material ;
- details of any hosts that have left the property and control zones to initiate tracing.

B-zone:

The contractor must ensure relevant contingencies are in place should new flies be detected, and to meet requirements for rapid deployment of traps and application of organism management actions in accordance with the timelines specified in Table 3. Some B-zone surveying may be required to inform this contingency preparation.

6.4 TRAPPING

On notification, a network of traps must be deployed to assist with determining population status and extent, and for monitoring eradication progress if a breeding population is confirmed. Within response Zones, all traps specific to the

fruit fly species under containment and eradication action are the responsibility of the Operations Manager / FHQ Manager, including the pre-exisiting surveillance traps.

During a response an Enhanced Surveillance Zone (ESZ) maybe established. Trap density will be as per the National Fruit Fly Surveillance Programme with areas of identified risk in-filled with additional traps as requiredESZ

The following requirements apply to a response in an urban area. In the unlikely event of a response occurring outside an urban area, the CTO will specify any alteration to these requirements.

6.4.1 Trap Types

Unless otherwise specified on notification, Lynfield traps must be used for lure responsive fruit fly species.

Appropriate bait traps must be used for species that do not respond to lures e.g. McPhail or Nakagawa bait traps for *Anastrepha* spp., ammonium acetate and protein hydrolysate "baited" Pherocon® AM traps for *Rhagoletis* spp. or other types specified by MPI.

For non-lure responsive species, 50 McPhail or Nakagawa traps shall be deployed in A-zone.

Deployment of bait traps during Response 1 surveillance operations is at the discretion of the Controller on advice from the response Technical Working Group (which includes the FHQ Entomologist).

		Placement Specification (In fruiting host trees)			Placement Schedule		
Lure	**Trap Type**	**A-zone**	**B-zone**	**Enhanced Surveillance zone (ESZ)**	**A-zone**	**B-zone**	**ES**
Cuelure	Lynfield	At least 1 trap per property	20-30 traps per km² evenly distributed throughout the area	~400m apart (~8 traps/km²) where more than 15 dwellings/km².	Deployed within 2 days of notification	Deployed within 3 days of notification[10]	Schedu be agre with the Control
Trimedlure **Capilure**	Lynfield	At least 1 trap per property	40-55 traps/km² evenly distributed throughout the area				
Methyl eugenol	Lynfield	10-15 traps per km² evenly distributed throughout the area.		~1200m apart where more than 15 dwellings/km² and on all horticultural properties if no active insecticide programme			
Bait Traps (non-lure responsive flies)	As specified	At least 1 trap per property	30-40 traps/km² evenly distributed throughout the area	~400m apart (~8 traps/km²) where more than 15 dwellings/km².			

Table 4: Summary table of trap placement specification and schedule and inspection

[9] Amendment to the inspection schedule will be informed by field information, and assessment of risk. The Controller will inform the contactor of new requireme
[10] B-zone traps will be deployed around A-zone perimeter initially and then progressively outward to the specified B-zone boundary.
[11] Inspections in the B-zone may be undertaken on a "rolling basis" to optimise resources (e.g. Inspections on Monday/Thursday or Tuesday/Friday).

6.4.2 Selection of trap sites

Traps must be placed in specified plants. Top priority are host plants with ripening fruit that are preferably well foliated.

Traps must be placed as follows:

- In the foliage and not below the canopy;
- At least1.3 m above the ground;
- Dense foliage that may block the entrance or give the fly a resting place that would prevent it entering a trap must be avoided.

For some fruit fly species (e.g. *Bactrocera cucurbitae*, with its preference for melons, cucumbers and pumpkins), the CTO may direct that traps be placed as close as practicable to the preferred host(s).

At fruit disposal sites and sites receiving refuse from A-zone and B-zones, traps will be placed in the nearest suitable foliated trees to a pattern approved by the Fruit Fly Adviser. Traps will be inspected twice per week unless otherwise specified e.g. if they are close to or inside the A-Zone.

There must be at least 3 m between traps if there is more than 1 trap on a property (e.g. a bait and a lure trap, or 2 lure traps one of which is a surveillance lure trap unrelated to the response).

6.4.3 Placement of Lure Traps

Traps must be placed in **fruiting host trees** where they are available. In the absence of host trees, other foliated, non-coniferous trees may be used, and records of these will be kept and reported to MPI, who may request adjustment. Additional requirements may be specified by the Controller upon receipt of advice from the Fruit Fly Adviser.

For Cuelure Responsive Species

A-zone:

At least 1 trap on each property.

B-zone:

At 20 to 30 traps per km^2, if sufficient trees are available, evenly distributed throughout the area.

Enhanced Surveillance Zone:

Traps must be placed approximately 400 m apart (approx. 8 traps per km^2) anywhere there are more than 15 dwellings per km^2.

For Trimedlure/capilure Responsive Species:

A-zone:

At least 1 trap on each property.

B-zone:

40 to 55 traps per km^2, evenly distributed throughout the area.

Enhanced Surveillance Zone:

Traps must be placed approximately 400 m apart (approx. 8 traps per km^2) anywhere where there are more than 15 dwellings per km^2.

For methyl eugenol responsive species:

A- and B-zones:

Traps must be placed in host trees at 10 to 15 traps per km^2, evenly distributed throughout the area.

Enhanced Surveillance Zone:

Traps must be placed approximately 1200 m apart (1 trap per km^2) in host trees anywhere where there are more than 15 dwellings per km^2. Traps must also be placed on all horticultural properties, approximately 1200 m apart in hosts, if there is no active insecticide programme.

6.4.4 Lure trap placement schedule

A-zone:

Traps must be deployed first and placed within 2 days of notification.

B-zone:

Traps must be placed within 3 days of notification.

Enhanced Surveillance Zone:

Within an inner area of 10 kilometres from the B-zone, traps must be placed within 7 days. Traps must be placed through the rest of the C zone at a minimum rate of 200 traps per day, commencing after all traps have been placed in the A- and B-zones and inner area of the Enhanced Surveillance Zone.

6.4.5 Lure Trap inspection schedule

The trap inspection schedule below shall apply during Response 1, and for Response 2 until such time as the Controller authorises a 2 inspections per week schedule.

Where a two inspections per week schedule is implemented the inspections shall occur on Mondays and Thursdays, or Tuesdays and Fridays. Allowances for public holidays can be made.

A-zone:

Traps must be examined daily for the first 7 days after placement, with subsequent examination every 3 days, unless otherwise instructed by the Controller.

B-zone:

Traps must be examined every 3 days, unless otherwise instructed by the Controller. Inspections may be scheduled on a rolling basis to optimise resources.

Enhanced Surveillance Zone:

Traps must be examined every 7 days, unless otherwise instructed by the Controller.

6.4.6 Servicing and relocation of lure traps

Where lure-impregnated polymer plugs or wafers and insecticide-impregnated plastic strips are used, cue lure and methyl eugenol polymer plugs or wafers must be replaced every 12 weeks and trimedlure impregnated polymer plugs or wafers every 6 weeks. Insecticide-impregnated strips must be replaced every 6 weeks.

Where liquid lure-insecticide mix is used, replenishment must be carried out every 12 weeks. Two ml. of lure-insecticide mix is loaded onto 2 dental rolls for each trap. Lure must not contaminate the outside of traps, nearby soil or plant material. Traps must be replaced where dental rolls become wet from heavy rain or irrigation sprinklers.

Trimedlure traps must be re-located to new host trees every 6 weeks or as directed by the Response Manager.

6.4.7 For species that do not respond to lures:

There are a number of fruit fly species that do not respond to the three lures specified above (e.g. *Rhagoletis* spp. and *Anastrepha* spp.). For such flies bait traps will be used. Bait trap placement shall be as follows:

A-zone:

Bait traps must be placed in fruiting host trees with at least 1 trap on each property with fruiting host trees, with a minimum of 50 traps deployed in total.

B-zone:

Unless specified otherwise by MPI, bait traps must be placed in fruiting host trees at 30 to 40 traps per km^2 and if sufficient trees are available, evenly distributed throughout the area.

Enhanced Surveillance Zone:

Bait traps must be placed approximately 400 m apart (approx. 8 traps per km^2) in fruiting host trees anywhere where there are more than 15 dwellings per km^2.

6.4.8 Bait trap placement schedule

MPI and the contractor will negotiate a deployment schedule to enable trap procurement and achieve rapid field deployment.

6.4.9 Servicing of bait traps

For bait traps containing liquid bait, the bait mixture must be replaced each time the trap is inspected. Frequency of bait trap inspection should be aligned with the lure trap inspection schedule 6.4.5. Pherocon® AM traps must be replaced every two weeks.

Re-loading of the insecticide in Nakagawa traps must be carried out every 6 weeks.

6.4.10 Specimen identification (Responsibility of MPI Entomology Group)

All samples collected from traps must be left with the FHQ Entomology Laboratory on the same day of collection. Specific arrangements are required for any samples that cannot be delivered to the FHQ within normal working hours, to cover notification of late arrival, security of storage and prompt delivery at the beginning of the next day.

An FHQ entomologist will examine any specimens of Diptera to ascertain whether Tephritidae or not within 15 minutes of receipt. If Tephritidae, the genus (and species, if possible), and the reproductive status will be determined as soon as possible and within a maximum of one working day.

6.4.11 Reporting

All findings of Tephritidae will be reported to the CTO, Controller and Diagnostics Manager by the FHQ entomologist by telephone within 15 minutes of identification, and if required, will be followed by a conference call which will include the CTO, Controller, Operations Manager, Fruit Fly Adviser and FHQ Entomology Team Leader, to discuss implications.

The Diagnostics Manager will also report positive trap finds to the Operations Manager and the AQ FHQ Manager.

Daily updates listing the identifications of all Tephritidae collected for that day and the location of traps involved must be provided to the CTO and the Controller by the FHQ Entomology Team Leader.

Daily up-to-date reports must be provided to the AQ Field Headquarters Manager and the Operations Manager listing, for each zone, the number and types of traps managed from the HQ, and the traps inspected on that day.

6.5 FRUIT MONITORING

6.5.1 Sampling programme

Ripe fruit from specified hosts must be sampled from all A-zone properties within 4 working days of notification, and examined for larvae.

Collections must be repeated at weekly intervals unless otherwise directed by the Controller.

Heavy rainfall can compromise field data collection and field staff safety. In this event the AQ FHQ Manager will inform the FHQ Entomology Team Leader and the Operations Manager, and adjustments to the programme will be agreed with the Controller. Any collected fruit must be examined, and sampling must resume at first opportunity when conditions improve.

6.5.2 Fruit transportation security

All fruit must be examined at the FHQ Entomology Laboratory. Fruit must be transported from the A-zone to the FHQ under containment to prevent escape of larvae.

6.5.3 Incubation of fruit (MPI responsibility sections 6.5.3 – 6.5.6)

This activity is the responsibility of the FHQ Entomology Team Leader and is undertaken at the FHQ Entomology Laboratory. A brief description follows:

- Fruit shall be incubated at the FHQ Entomology Laboratory for a maximum of 5 days.
- The laboratory is under control of the FHQ Entomology Team Leader.
- The laboratory is a containment facility registered under section 39 of the Biosecurity Act 1993 and the Manager of the IDC&R – PHEL will be a registered containment facility operator under section 40 of the Act.
- The facility must
    - prevent escape of any fruit fly life stage; and
    - have a system in place for the safe disposal of fruit; and
    - have a system in place that controls entry ; and
    - be of an insect (fruit fly) -proof construction.

Further details are in Schedule 1: MPI Entomology Laboratory.

6.5.4 Rearing of fruit fly larvae (MPI responsibility)

After identification and determination of the life-stage(s) by the FHQ Entomology group, retention of live fruit fly larvae in the invertebrate containment facility for rearing is subject to approval by the Chief Technical Officer; molecular tests for identification may remove the need to do this, depending on the level of certainty that is required.

6.5.5 Disposal of fruit

All examined fruit must be disposed of by a method approved by the Controller that guarantees total larval mortality.

Removal and disposal of fruit from the laboratory will be managed by Movement Control.

6.5.6 Reporting

Any find of fruit fly eggs or larvae and the instar will be reported by telephone to the CTO and the Controller within 15 minutes of identification by the Diagnostics Manager. The Diagnostics Manager will also report this information to the AQ FHQ Manager and the Operations Manager within 30 minutes.

Daily up-to-date information on identifications of all suspect specimens collected from specified fruit and the corresponding addresses of properties from which the fruit was collected must be provided by the FHQ Entomology Team Leader to the Controller.

Similarly, daily up-to-date information on the types and amount of specified host fruit collected from each A-zone property for monitoring must be provided by the FHQ Entomology Team Leader to the Controller.

6.6 FRUIT COLLECTION AND DISPOSAL – RESPONSE 2 AND 3

6.6.1 Fruit collection

In urban properties, all windfall fruit and vegetables from specified hosts shall be collected from all A-zone properties within 2 working days of initiation of a Response 2 or 3.

Collection of all windfalls shall be repeated at weekly intervals unless otherwise directed by the Controller.

Alternatives for dealing with windfall host material from horticultural properties in A-zone are:

- windfall collection as for urban properties;
- implement a CTO approved cover and ground spray programme under the direction of the Controller.

6.6.2 Fruit transportation security

Collected fruit must be transported to disposal sites under conditions that provide security against escape of fruit flies and that do not contravene movement control requirements. Fruit will be transported in sealed heavy duty plastic bags that have been surface treated with insecticide.

6.6.3 Fruit disposal

The disposal method must ensure contained transport to the disposal site and 100% mortality of live fruit fly. The method will be approved by the CTO and subject to audit.

Deep burial is acceptable as a method of disposal where the fruit has been bagged, treated with insecticide and buried to a depth greater than 30 cm and covered with compacted soil. Disposal of bagged fruit at landfill sites is acceptable.

6.6.4 Reporting

Up-to-date reports specifying the numbers of properties from which fruit was not collected (their locations) and the reason for non-collection must be provided to the Operations Manager weekly.

Up-to-date reports listing any horticultural properties in the A-zone and the action taken to deal with windfall host material must be provided to the Operations Manager weekly.

6.7 INSECTICIDE USE – RESPONSE 2 AND 3

6.7.1 Insecticides, baits and additives

Only insecticides, baits and additives specified in this Standard (and Schedules) will be used. Currently approved insecticides are specified in Schedule 3: Organism Management. In instances where specified treatments are unable to be used, the Controller will provide alternatives on advice from the Fruit Fly Adviser.

Prior to commencing any insecticide application (cover, ground and baiting) the relevant local authority (e.g. council, regional council etc.) will

be notified. The CTO will approve any variations to the programme that must be made in order to enable its use under local regulations.

6.7.2 Notification of property occupiers

All occupiers of properties where insecticides are to be applied must be notified at least one working day before the first application. If occupiers are not present at the time of application, a notice must be left explaining that pesticides have been applied.

6.7.3 Bait application

In Responses 2 and 3, bait must be applied to vegetation specified in 6.7.5 in the A-zone and B-zone to eradicate adult fruit flies.

Bait treatment consists of the targeted placement of insecticide and hydrolysed protein mixture in the form of 50 ml bait spots. This is applied to the inside and in the centre of tree canopies to contact trunks, branches and leaves where fruit flies are most likely to be sheltering.

Bait is applied in a manner that avoids contact with fruit and flowers to keep it away from bees.

6.7.4 Bait composition

A protein bait and insecticide mixture will be used attract and kill female flies. The bait mixture will be prepared according to the specifications in Schedule 3: Organism Management. The bait must be made up daily.

6.7.5 Bait application rate

Unless an exemption has been granted (refer section 6.7.9), bait must be applied to properties in A-zone and B-zone where suitable vegetation is available, at the rate of two hundred 50-ml bait spots per hectare.

All specified host trees with fruit must be treated, even if this basic application rate is exceeded.

Suitable vegetation listed in priority order is as follows:

- Likely host trees and vines with fruit;
- Host trees in leaf with no fruit;
- Broadleaf trees more than 2.5 m high, with foliage 1.5 – 2.5 m from the ground;
- Shrubs and small trees 1.5 – 2.5 m high;
- Shrubs less than 1.5 m high.

The CTO will approve any additional requirements for bait application.

The baiter will stand as near as possible to the tree or foliage without entering the splash zoneand will aim the bait into the centre of the foliage where fruit flies are most likely to be sheltering.

The shady parts of the fruit trees, ornamental trees and shrubs will be baited.

The trees or foliage will be approached from a different angle in alternate baitings, to avoid treating the same surfaces.

6.7.6 Bait treatment schedule

The A-zone must be treated within 2 working days of the CTO initiating Response 2 or 3.

A strip inside the outer boundary of the B-zone covering 30% of the B-zone area must be treated within 3 working days of the initiation of Response 2 or 3. The remainder of B-zone must be treated within 5 working days of the initiation of a Response 2 or 3.

Bait must be applied to the A-zone twice during the first week following the initiation of a Response 2 or 3, with subsequent applications at 7-day intervals.

Applications to the B-zone must be repeated at 7-day intervals.

Bait must be immediately re-applied if sufficient rainfall occurs to saturate foliage and wet the ground under trees.

Bait treatment shall continue until otherwise directed by the Controller.

6.7.7 Ground treatment

In Response 2 and 3, unless otherwise directed by the Controller, insecticide must be applied under infested trees in the A-zone.

Ground treatment involves the broadcasting of an approved insecticide (usually a granular formulation) on the ground under the infested tree within the drop line/fruit roll areas.

Acceptable insecticides and application rates are specified in Schedule 3: Organism Management.

The treatment shall be applied to the ground within the drop zone of all infested (or otherwise specified) host trees with fruit. Long grass must be cut to lawn height prior to application. Any ground exposed to windfall fruit must be treated, including where it rolls down slopes.

The entire surface of all compost heaps shall be treated.

6.7.8 Ground treatment schedule

The first application must be within 7 days of the CTO initiating a Response 2 or 3. The insecticide must be applied 3 times at 10-day intervals (± 2 days).

Or

Plastic (black) sheeting may be securely placed over the ground following the first application of insecticide. This shall be installed to prevent any escape of emergent fruit fly. The Controller, upon receiving advice will determine whether further insecticide treatment is required.

6.7.9 Treating infested trees

In Responses 2 and 3, treatments must be applied to infested host trees (identified as a result of fruit monitoring) in the A-Zone. One of the following spray regimes will be specified:

(i) A contact insecticide spray applied to an infested tree as a cover spray. Foliage must be treated to run off.

Or

(ii) A protein bait spray applied as four equidistant strips of a minimum 50cm width from the top of the trees, and dividing the tree into quarters. All exposed foliage in each strip will be treated (bait applied to give >30% coverage).

For bushes/shrubs all exposed foliage will be treated.

Trees must be treated within 1 working day of detection of the infestation, and must receive 3 treatments at 10-day intervals (± 2 days).

Acceptable insecticides and rates are specified in Schedule 3: Organism Management.

6.7.10 Exemption of properties from insecticide applications

Unless otherwise instructed by the CTO, the names and addresses of property occupiers requesting exemption or concessions from the baiting/spraying programmes must be discussed with the Controller, who will either reject the request for exemption or, if appropriate, specify alternative treatment(s).

6.7.11 Reporting

Daily up-to-date reports must be provided to the Operations Manager specifying:

- the numbers of properties and their locations given exemptions from insecticide applications, reasons for exemption and alternatives that have been implemented;
- within each 7-day bait treatment schedule, the date of completion of baiting in the A-zone;
- the date of completion of the strip inside the outer boundary of the B-zone covering 30% of the zone;
- the date of completion the remainder of B-zone ;
- the properties and targets of treatment (i.e. specified host trees and/or compost heaps) to which the insecticide has been applied;
- the properties (and infested host trees) to which cover sprays have been applied.

6.8 MOVEMENT CONTROL

6.8.1 Strategy

The Controlled Area Notice (CAN) and Notices of Direction (Appendix 1) will reflect the movement control strategy defined below. The model to be followed will support the public and foster their commitment to prevent high-risk host material from leaving control zones and achieve required outcomes with minimal inconvenience and to maintain trust. There may be a need for legally based enforcement in cases where the requirements of the CAN are deliberately breached and eradication outcomes are potentially compromised.

The strategy consists of:

For all responses:

- The CAN will define the A- and B-zones.
- A-zone residents notified of the response and their obligations within specified time frames (5.2 and 6.2).
- Restrictions on A-zone properties applied to prevent host material from being removed, and bins provided to each property to enable safe removal and destruction of waste host material.
- Provisions applied at public events to prevent host material from leaving the B-zone. Public events include farmers' markets, concerts, cultural and sporting events.
- Movement of host material by commercial operators controlled.
- Export controls on host products grown within or moving through response zones applied to satisfy requirements stipulated by trading partners and to align with the Export Exclusion Zone (EEZ) administered by MPI Plant Exports.

For Response 1:

A-zone:

- Movement controls will be applied to all properties to ensure no host material leaves the zone. Host material will be allowed to enter and will then be subject to A-zone controls.

B-zone

- Public support and commitment will be sought through daily publicity and provision of readily accessed bins at exits to ensure no host material leaves the B-zone. Note that provision to park vehicles will be required where bins are placed.
- Commercially produced host fruit from outside the B-zone will not require movement controls to be applied for movement through and out of the B-zone (excluding the A-zone), unless otherwise directed by the CTO.
- Listings of B-zone commercial outlets of host material are required within 12 hrs of notification.
- B-zone commercial outlets must be made aware of the response and the possibility that movement control restrictions may be applied within 24 hrs of notification.

For Responses 2 and 3:

In addition to the above requirements the following is required:

- Within 1 working day of notification of Response 2 or 3, all commercial operators inside the A- and B- zones must be informed that movement of host material out of the A- and B-zones must cease immediately until further notice. Commercial operators include growers, packers, transporters, wholesalers, processors, supermarket distribution centres,

produce markets and exporters of fruit fly host material;

- This ban will remain in force until the CTO has released the movement control policy.

6.8.2 Movement Control Policy

The movement control policy adopted by the CTO will include the following:

For all responses:

A-Zone:

- Host material is not allowed to leave properties, other than for surveillance or eradication activities or under permit according to the CTO's approved conditions.

B-zone:

Response 1:

- Commercially produced host material from outside the B-zone is allowed to enter and leave the B-zone.
- Host material grown inside the B-zone is not allowed to leave the B-zone.

Response 2 and 3:

- Host material is not permitted to leave the B-zone, other than for surveillance or eradication activities or under permit according to the CTO's approved conditions.
- Host material is allowed to be moved within the zone to enable purchase of fruit and vegetables by residents and movement through the zone of domestic commercial consignments (see below for export consignments).
- The policy will take into account risk and source of host material.
- The policy will specify conditions for movement out of the B-zone, which will include retail outlets and may include permits when justified. Restrictions on commercial operations will be removed once origins of hosts and mode of transport have been cleared of risk i.e. produce was grown outside of the Controlled Area and its management excludes the likelihood of exposure to fruit flies.

Transit movement into and through response zones (Export).

Export consignments in transit through response zones will be under permit and subject to additional requirements stipulated by trading partners, such as insect proofing.

6.8.3 Permits to move and sell produce

Permits for host material to be moved out of the Controlled Area may be subject to the following conditions:

- adherence to an approved pre-harvest spray schedule;
- implementation of on-going surveillance procedures (e.g.

trapping) on properties prior to harvest;

- application of post-harvest treatment;
- post-harvest inspection;
- use of insect-proof packaging and transport systems;
- shipment to pre-defined points with specified end-use (e.g. processing);
- use of comprehensive labelling on bins, cartons and containers.

6.8.4 Sale of host material to the public in Response 2 and 3.

Businesses in the Controlled Area will not be allowed to sell host produce until risk management procedures meeting the CTO's requirements have been applied. Procedures will cover source of produce from fruit fly free areas, and measures taken to prevent infestation including use of enclosures, screening, air curtains or plastic bags. Approved systems will be allowed to operate without permits and will be subject to audits to ensure compliance.

Trade in host produce in the A-zone will not be allowed until the response has been terminated.

6.8.5 Signage and amnesty bins

6.8.5.1 Signage

Approved signs will be placed around the perimeter of the B-zone at primary/major exit and entry points or as directed by the Controller within 2 days from start of the response or to agreed timeframes appropriate to the location of the response.

Signs will specify the following details:

- Entry to or exit from a Fruit Fly Response zone.
- Name of Response (Fruit Fly Response).
- Ministry for Primary Industries logo and contact details.
- A free phone contact number.

Signs will comply with appropriate Transport Authority requirements relating to placement and size.

6.8.5.2 Amnesty bins (Urban areas)

Specification of amnesty bins:

- Upright wheelie bin with lid containing a heavy grade burst-proof plastic bag liner.
- Inner surface of lid to be treated with a domestic aerosol type residual insecticide.
- Bins placed on all A-zone properties.
- Bins in public places to be secured to a fixed object such as a fence or pole.
- Contents of A-zone bins to be emptied daily, with bags sealed to prevent escapes, treated with insecticide and transported under

quarantine security to disposal sites.

Bins to be labelled as follows:

- Alert – Fruit Fly.
- Fruit and Vegetable Collection Bin.
- Ministry for Primary Industries logo and contact number.

6.8.5.3 Roadsides out of zones and other public places

Amnesty bins will be placed at exit points around the perimeter of B-zone and in other locations or as directed by the Controller within 2 days from the start of the response or to agreed timeframes appropriate to the location of the response.

Additional signage and amnesty bin deployment may be required according to response needs and location. These will be specified by the Controller during the response.

Bins will be placed in consultation with the Police road safety as close as feasible to the gazetted boundaries of control zones. Additional signage will be placed to inform the public to dispose of hosts in the amnesty bins and warn them in time to stop safely and park. Signs on the bins will provide details of host material to be disposed of, the response free phone number, and the MPI logo and web address.

6.8.5.4 Private property

Amnesty bins will be issued to all properties in A-zone within 2 days from the start of the response.

6.8.5.5 Bin management

Amnesty bin security, signage, waste disposal and quarantine will be the responsibility of the contractor in communication with the Controller.

Disposal and destruction of bin contents will be under containment and will conform to requirements specified for fruit disposal from the Entomology Laboratory and for fruit collection off properties.

For rural or non-urban environments the internal distribution of amnesty bins may be altered to provide one bin for every property or independent block of land within A- and B-zones. Exit and entry point signage and amnesty bin requirements will be the same as in urban areas above.

6.8.6 Contractor activities and legal authority

The contractor must be able to:

For all responses:

- Issue notices or directions to occupiers and/or owners.
- Ensure that, the conditions specified in the notices and directions issued, are monitored for compliance and non-compliance is referred to MPI Compliance for consideration of enforcement

options.

- Manage enquiries in accordance with the approved response communications strategy.
- Implement the CTO/Controller's requirements concerning certification of export produce. This may require implementation of procedures for:
  - product identification (including product type, grower, packer, exporter and destination).
  - product security (including arrangements for packaging, insect- proofing and sealing, post-harvest treatment, storage, transport and issue of export approvals).
  - Implement the public awareness campaign in accordance with the MPI communication strategy.

Arrangements to cover provision of Inspectors and Authorised Persons under the Biosecurity Act 1993 are required.

6.8.7 For Responses 2 and 3

In addition, the following are required:

- increased emphasis and specification from the CTO/Controller on control of movement of commercial products;
- industry co-operation with control of commercial product;
- increased public communication in accordance with an MPI communications strategy to inform the public, shops and supermarkets about their role in preventing host material leaving from leaving control zones;
- ensuring interactions with the public are friendly and directed at all times to building commitment to following movement control restrictions;
- assist MPI Compliance staff with compliance investigations as required to build cases for prosecution where deliberate and intentional breaches of movement control requirements are identified;
- issuing MPI permits in accordance with the CTO/Controller's requirements to implement movement control requirements;
- Monitor compliance of movement control permit conditions.

6.9 TRACING (RESPONSE 2 AND 3)

Tracing the movement of host material may be required. Forward tracing may be required to determine the destination of host material from risk properties including domestic properties within the A-zone so that it can be contained and destroyed. Backward tracing may also be required to determine the origins of consignments and other items of interest.

6.9.1 Actions

Traces that involve host material that is connected to fruit fly infestations will be followed up by immediate action to secure, treat and destroy it:

- Movement and destruction will be under secure conditions approved by the Controller;
- Traps will be placed according to directions from the Controller if this host material has not been contained;
- Trap placement will be subject to consultation with the Fruit Fly Adviser and CTO approval.

6.9.2 Reporting

Daily reports are required of all traces involving positive detection of fruit fly and their outcomes must be reported to the Controller.

6.10 ALTERNATIVE METHODS – RESPONSE 3

Alternative control methods will be specified at the same time the CTO declares a Response 3.

7 TERMINATION

Termination of the response will occur when the response objectives have been met. Scientific assessment of surveillance information and trade requirements will inform the decision to terminate the response.

In general, and dependant on advice received, Response 1 will operate for a period of at least 14 days following the last detection of fruit fly, and, if no further flies are detected or other evidence that indicates a fruit fly population may be present, then the response will close.

Responses 2 and 3 will continue for a period that provides confidence that no further fruit flies are present in the response area. Scientific analysis of the environmental conditions, the biology of the species and results obtained from surveillance will inform this decision, as well as requirements specified by trading partners.

As the response progresses, some actions such as bait application will be stopped and Movement Control will be adjused to minimise public inconvenience.

The contractor shall prepare a plan for submission to the Controller that outlines activities, timelines and milestones for the orderly wind-down and closure of response activities. The Controller will brief the CTO and Response Governance on progress.

When the CTO or Controller informs the Chief Executive or delegate of the contractor organisation of termination, the contractor shall promptly cease response activities.

Following termination of the response, the Operations Manager shall provide to the Controller a summary report detailing the termination of response activities, and actions required/undertaken to re-establish response capacity, such as de-briefs and stores purchases.

Schedule 1: MPI Entomology Laboratory

Note that full specifications are contained in the relevant MPI Standards.

The MPI Entomology Laboratory is situated at the FHQ and comprises three areas:

- Accession laboratory (specimen reception): For reception and documentation of packaged samples received for testing; including a general examination area with microscopes. Broadband connectivity is required to enable access to the internet and the MPI network.
- PC2 Dirty Laboratory – A Physical Containment examination facility: For Initial examination and processing of fruit monitoring samples.
- PC3 Dirty Laboratory – Incubation commences and incubated fruit is sliced to determine presence of fruit fly.
- PC3 Fruit Fly Incubation Room: A Physical Containment incubation facility with anteroom: – Temperature control is required to maintain room temperature between 20 – 30°C, with a variation of ± 2°C of the set temperature.

The Physical containment areas will meet the requirements of MAF (MPI) Standard 154.02.08 and will require registration as containment facilities under section 39 of the Biosecurity Act 1993.

Details of furniture and equipment required to fit out these facilities are documented in the Ministry of Agriculture and Forestry (MPI) Fruit Fly Response Procedures: June 2007.

Required items for communication are a telephone with internal dialling to other staff in the FHQ, direct access to an external line, internet access and at least two document printers.

The facility will be established in consultation with the FHQ Entomologist.

Fruit Monitoring:

At the FHQ, fruit must be incubated for up to a maximum of 5 days in a secure containment facility under the control of the FHQ entomologist. This facility is required to be registered as a containment facility under section 39 of the Biosecurity Act 1993, and the Manager (PHEL) of the facility is also required to be registered as a containment facility operator (section 40 of the Act). Requirements for registration are contained within MAF Biosecurity Authority Standard 154.02.08: Transitional and Containment Facilities for Invertebrates.

Sections 4.1 and 4.2 of MAF Standard 154.02.08 provide background guidelines and MPI Containment Manual CM-08 provides detail. The facility must prevent any escape of immature or adult fruit flies, and therefore must have systems for disposal of waste fruit, for controlling access and have an insect (fruit fly)-proof construction. Operation must include procedures for using access, ventilation and waste disposal systems. Temperature control is required to control and maintain ambient temperature between 20-30°C, with variation ±2°C of set temperature.

For incubation to allow any eggs or small larvae to develop to a stage where they can be readily detected, fruit shall be placed on non-toxic absorbent material in the

bottom of suitably aerated containers. Containers shall be labelled to allow source of fruit to be traced.

Schedule 2: Trap Types

During a fruit fly response two broad types of trap are used: Lure and Bait. These traps are described below.

Lure Traps:

The **Lynfield** lure trap is a non-sticky pot trap containing a fruit fly attractant (lure impregnated polymer plug or wafer) and insecticide.

It is a modified translucent plastic container measuring 85 mm in diameter at the base, 105 mm in diameter at the top and 100 mm deep. The removable lid is 100 mm in diameter. The base of the trap contains 4 drainage holes (2.5 mm in diameter) 5 mm from the side, 90o apart and directly below the fruit fly entry holes. There are 4 fruit fly entry holes (25 mm in diameter) 90° apart and 15 mm below the lid of the trap.

Bait Traps:

The **McPhail** trap is an invaginated glass or plastic trap with a fluid reservoir containing liquid bait.

The **Nakagawa** bait trap is a pot trap. It is a white plastic 2-litre bucket with a removable lid. The bucket has a carrying handle which can be used to suspend the trap in a host tree, by hooking the handle into a piece of tying wire (150 mm long and 1-2 mm in diameter). One (1) ml of insecticide is loaded onto 1 dental roll held in place under the lid by wire. There are 8 fruit fly entry holes (22 mm in diameter) 45° apart and 25 mm below the lid of the trap. A protein hydrolysate bait mixture comprising 1.5 – 2.0% protein solids and a mould inhibitor is contained in the trap.

The commercially available standard **Pherocon® AM trap** (Trécé Inc., Salinas, California) is comprised of a fluorescent yellow cardboard rectangle (approximately 14 cm wide x 23 cm long) coated on both sides with polybutene adhesive (e.g. Stickum™, Tangle-Trap®) mixed with ammonium acetate and protein hydrolysate.

Schedule 3: Organism Management

Bait:

The following protein bait, insecticide and thickeners are approved for use in fruit fly responses:

1. **Insecticide:**

   Albatross® SC 200 (200 grams/litre active ingredient fipronil).

   Sparta™ (120 grams/litre active ingredient spinetoram).

2. **Protein:**

   NatFlav® (420 grams/litre protein) or other approved protein hydrolysate.

3. **Thickener:**

   Keltrol® gel additive.

Bait composition:

Albatross® SC 200 as 2.5 ml product per 10 litres (i.e. 0.005% fipronil a.i. concentration) of liquid comprising the protein hydrolysate diluted with water to achieve 2.0 ± 0.2% protein solids. Keltrol® gel additive (thickener) is added to the bait mix at 0.5% concentration (i.e. 5 g keltrol in 1 L of final bait mix).

OR

Sparta™ as 8.4 ml product per 10 litres of liquid comprising the protein hydrolysate diluted with water to achieve 2.0 ± 0.2% protein solids. Keltrol® gel additive (thickener) is added to the bait mix at 0.5% concentration (i.e. 5 g Keltrol® in 1 L of final bait mix).

Bait application rate

Unless an exemption has been granted, bait must be applied to properties in the A- and B-zones in accordance with section 6.7.5 of this Standard.

Ground Treatment:

Bifenthrin as a granular insecticide (Brigade® or Biforce®) broadcast at a rate of 160 kg product per hectare (equivalent to 320 g a.i. per hectare). Immediately after application irrigate the area with 4 mm of water.

OR

Diazinon at the rate of 4 kg active ingredient per hectare. Immediately after application irrigate the area with 4 mm of water.

Treatment of Infested Trees

Cover Spray:

Application of a cover spray in accordance with Section 6.7.9

Talstar® (Talstar® 80SC) 50ml in 10 litres of water in conjunction with a compatible non-phytotoxic surfactant.

OR

Bait strip application:

Albatross® SC 200 (200 g fipronil a.i. per litre) as 2.5 ml product per 10 litres (i.e. 0.005% fipronil a.i. concentration) of liquid comprising the protein hydrolysate diluted with water to achieve 2.0 ± 0.2% protein solids. Keltrol® gel additive (thickener) is added to the bait mix at 0.5% concentration (i.e. 5 g Keltrol® in 1 L of final bait mix).

Appendix 1: Templates

1. Urgent Measures Authorisation Template:

Urgent Measures
Authorisation Templ

2. Controlled Area and Movement Control Declaration:

QFF TEMPLATE
Controlled Area Dec

3. Controlled Area and Movement Control Revocation:

QFF TEMPLATE
Revoke Controlled A

4. Sections 122 and 130 Direction:

TEMPLATE s122
Direction .docx

5. Sections 122 and 130 Revocation:

S122,130
RREVOCATION.docx

6. Restricted Place Notice a section 122 Direction

TEMPLATE QFF RP
Notice and 122 Dire