



Food and Agriculture
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International
Plant Protection
Convention



IPPC Global Workshop on Systems Approaches

Santiago, Chile
1 – 4 December 2025

In partnership with:



Canada



Australian Government
Department of Agriculture,
Fisheries and Forestry

New Zealand's Systems Approach for Managing Codling Moth for the Export of Apple Fruit

Determining the efficacy of each measure, individually and in combination



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Overview

1) Systems approach measures

- Pre-harvest: Phenology directed control application, monitoring
- Post Harvest: High-pressure water washing

2) Confirming efficacy

- Seasonal audit of orchards and packhouses
- Orchard withdrawal- mandatory or voluntary
- Phytosanitary inspection
- NPPO reporting

3) Refinement of programme





Codling Moth, *Cydia pomonella*

- Larvae cause damage to fruit
- Typically one generation per season in New Zealand
- Naturally low population pressure
- Eggs laid on upper branches, leaves or fruit
- Egg emergence is triggered by temperature





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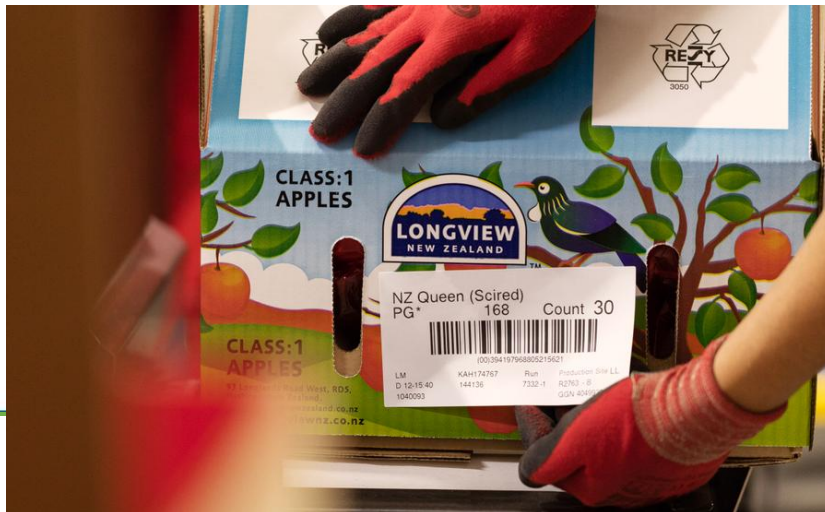
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Codling Moth export programme

- Export volumes 2025 to codling moth sensitive markets.
- Approx. 141,600,000 kg of apples
- Approx. 7000 phytosanitary certificates



Ministry for Primary Industries
Manatū Ahu Matua





Codling moth programme: Independent measures

1. On-orchard pest control	2. Post-harvest controls	Confirmation
Pest management: Biologically timed mandatory spray <ul style="list-style-type: none"> Phenology modelling to target CM egg emergence. 	High pressure washing: <ul style="list-style-type: none"> Optimised for pest removal depending on washer type Demonstrated efficacy 	Audit of orchard and packhouse operators
Pest Monitoring: Pheromone trapping requirements <ul style="list-style-type: none"> One trap per ha. Weekly readings from end of flowering until harvest 	Packhouse processing: Grading and quality analysis	Packhouse reporting
Pest management: Thresholds for additional actions		Phytosanitary inspection
		NPPO reporting



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Incorporation of industry actions

- The New Zealand Apples and Pear Industry operate an Integrated Fruit Production programme
- High-quality apples produced with a focus on human health and environmental sustainability
- Monitoring of production pest presence in orchard
- Targeted pest control threshold based on research and historical evidence
- Based on Integrated Pest Management (IPM) principles





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Codling Moth programme oversight

- Production sites and facilities are registered
- System approach measures required
- Independent audits confirm compliance at each stage
- Corrective actions required where non-compliance is detected
- Phytosanitary inspection and product security
- All fruit is traceable and documented from orchard to export.
- Regulated pest interception reported by an NPPO triggers a traceback investigation.



Pre-harvest control: Pest management

- A mandatory spray must be applied at larval emergence
- Growers use degree-day phenology model based on local climate data
- Model built upon >40 years NZ research in CM phenology
- BIOFIX programme

Additional actions:

- If monitoring thresholds are met then additional spray is required
- If CM is detected in apples for export the orchard must use mating disruption pheromone the following season





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Post-harvest control: High-pressure washer

- Optimised for pest removal depending on washer type
- Research data supports of washer efficacy for insect removal





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Phytosanitary inspection

- MPI Technical Standard for Phytosanitary Inspection in alignment with ISPM 31
- Inspection sample of 600 fruits
- Trained phytosanitary inspectors
- Data available on export inspections and detections of quarantine pests



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Orchard withdrawal from codling moth programme

There are three main reasons for site withdrawals:

- 1) Pre-export codling moth detection
- 2) Non-compliance with the programme, or
- 3) Voluntary withdrawal of the production site, due to:
 - High pest pressure, including based on codling moth trapping
 - Weather events leading to the inability to meet programme requirements
 - Commercial decisions, including deciding not to export to specific overseas markets



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NPPO reporting

- Programme established in 2003 derived from industry Integrated Fruit Production system





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Key points

- 1) Utilising industry practices and knowledge base
- 2) Monitoring performance and adjustment of programme
- 3) Communication with NPPOs





Questions and Answers



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