Potato Tuber Moth: Practical Management Guidelines

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Potatoes New Zealand

Potato Tuber Moth

THE PROBLEM

Potato tuber moth (PTM) is a significant pest in New Zealand potato production, particularly around the Franklin region. Larvae tunnel into leaves, stems, and critically into tubers — reducing both yield and marketability.

Multiple Generations
Completes several generations per season, accelerating damage rapidly

Hidden Infestation
Hides within crop canopy and soil, limiting chemical control effectiveness

Soil Cracking
Warm, dry conditions promote soil cracking, exposing tubers to moth egg-laying

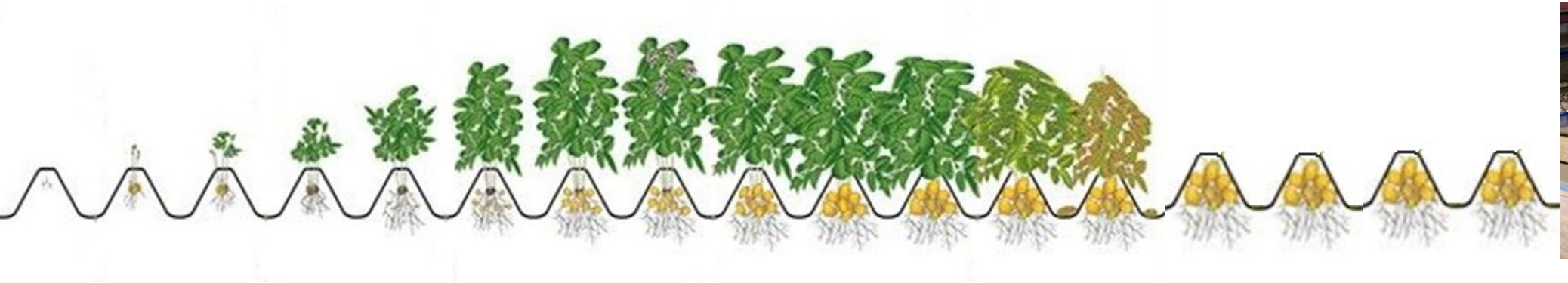
Pesticide Resistance
Resistance developed in some populations in Franklin region, particularly to Synthetic Pyrethroids

Storage & Crop Losses
Tunnelling damage continues in ground storage, causing yield reduction and increased rejection rates

PNZ Response

- ✓ Testing the efficacy of key chemical controls
- ✓ In field trapping program
- ✓ In field trials of alternative chemicals
- ✓ In store management of PTM (light trapping)

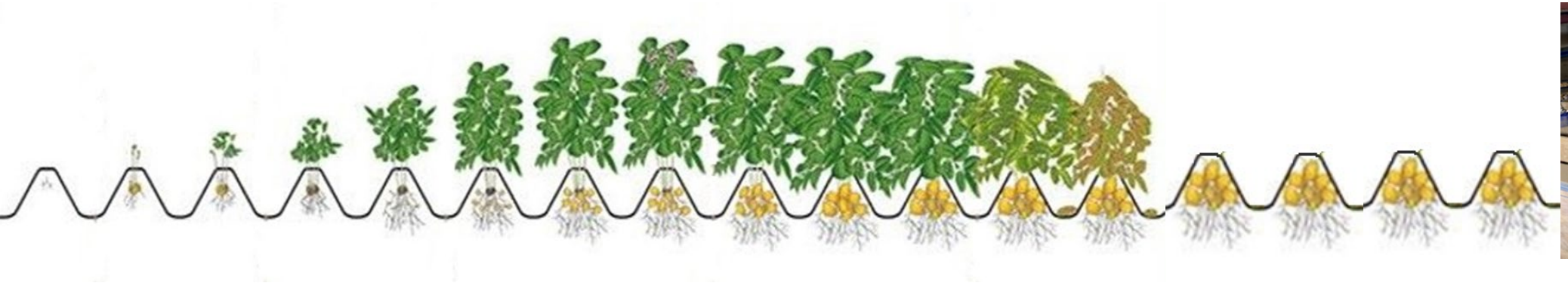
Potato Tuber Moth



Potato Tuber Moth

Controlling in canopy

Insecticides are the most common control option for in canopy control

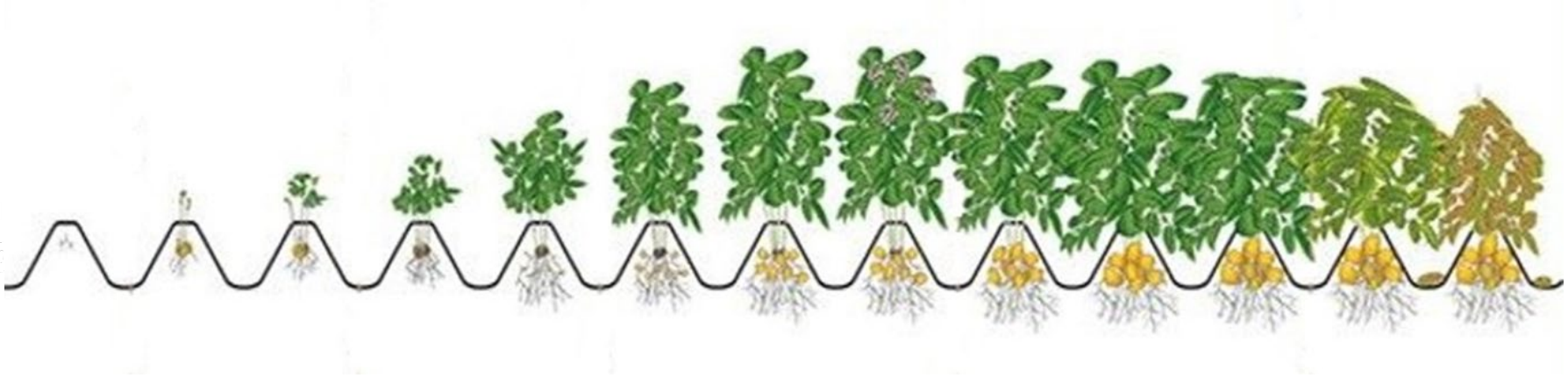


Potato Tuber Moth

Controlling in canopy

General considerations around insecticide programs:

- Need to balance PTM control with TPP & aphids.
- You want to target the most vulnerable life stages i.e., eggs and larvae.
- Need to be aware of resistance management guidelines around the use of different insecticides.
- Decisions should be made based on all available information, including field scouting, trap numbers, and crop stage risk



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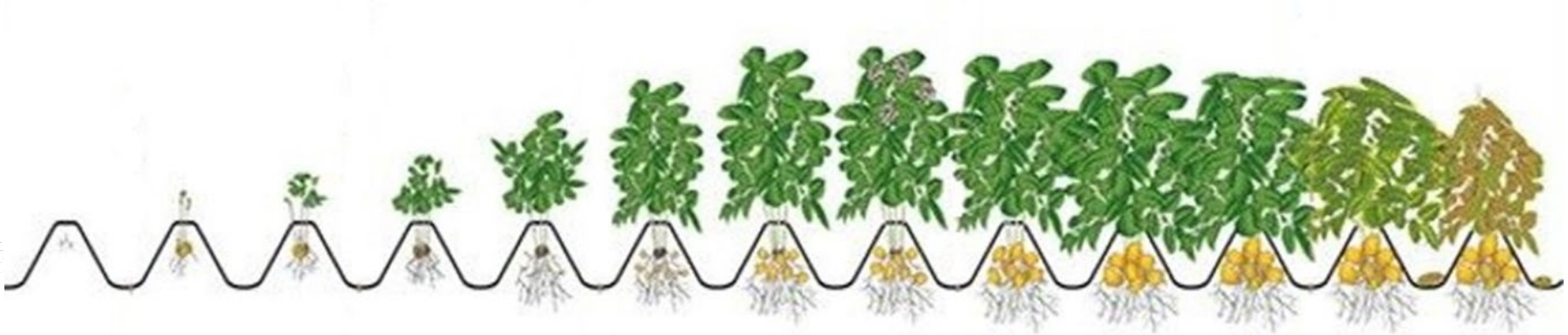
Controlling in canopy

- Eggs are laid on the underside of leaves, small and hard to see.
- Adults are mobile and have a coating that makes insecticides hard to stick.
- Larvae are limited to the crop, vulnerable to certain insecticides and are the longest life stage providing a wider window for control.

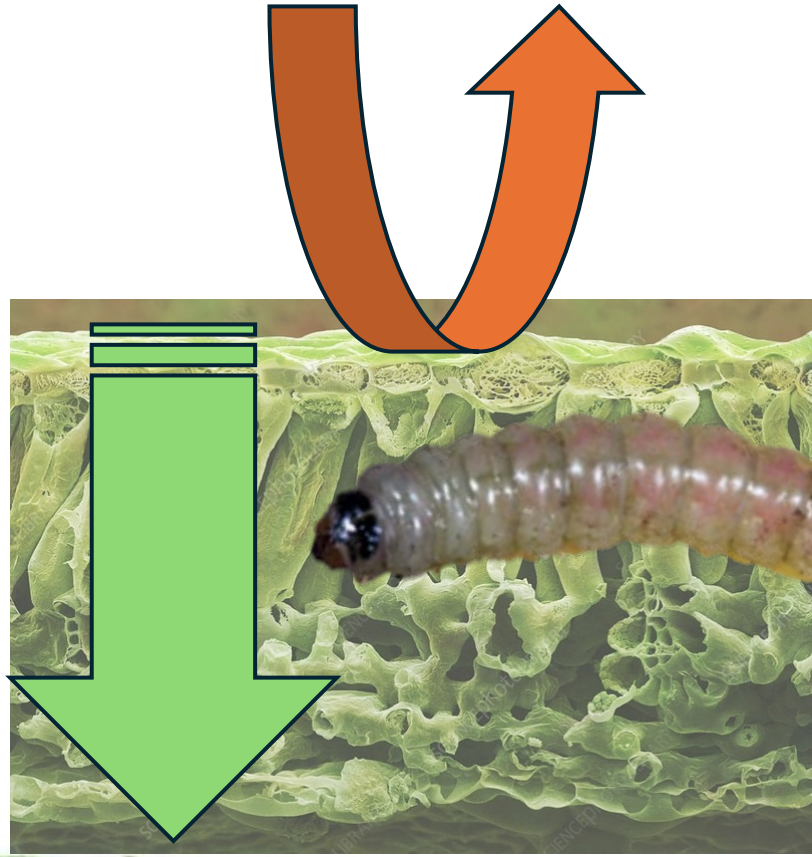


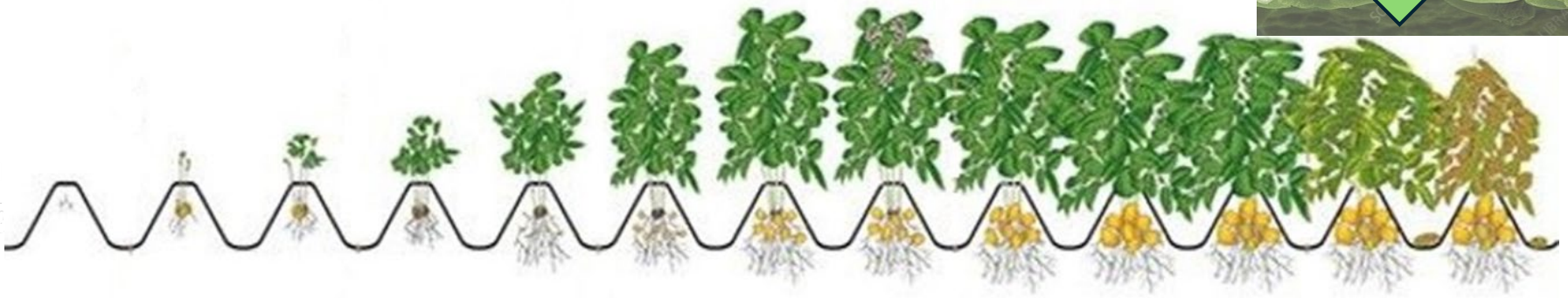
Potato Tuber Moth

Controlling in canopy

Larvae mine their way through the leaf. Protecting them from contact insecticides.

This makes translaminar & systemic insecticides the most effective options for control.





Potato Tuber Moth

Product	Benevia	Coragen	Entrust Naturalyte	Sparta	Capra	Abamectin	Lufenuron
Active	**Cyantraniliprole**	**Chlorantraniliprole**	**Spinosad**	**Spinetoram**	**Indoxacarb**	**Avid**	**Nuron**
Group (IRAC)	28	28	5	5	21A	6	15
Translaminar/ systemic	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Efficacy	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Target	Larvae	Larvae	Larvae	Larvae	Larvae	Larvae	Larvae
Beneficial insect	Soft	Soft	Moderate	Moderate	Moderate	Moderate	Soft
Other pests	Aphids, TPP	No	No	TPP	No	TPP	TPP
Maximum applications	3 (for all group 28)		4 (for all group 5)		2 Sequential, Max 4	4	2

Potato Tuber Moth

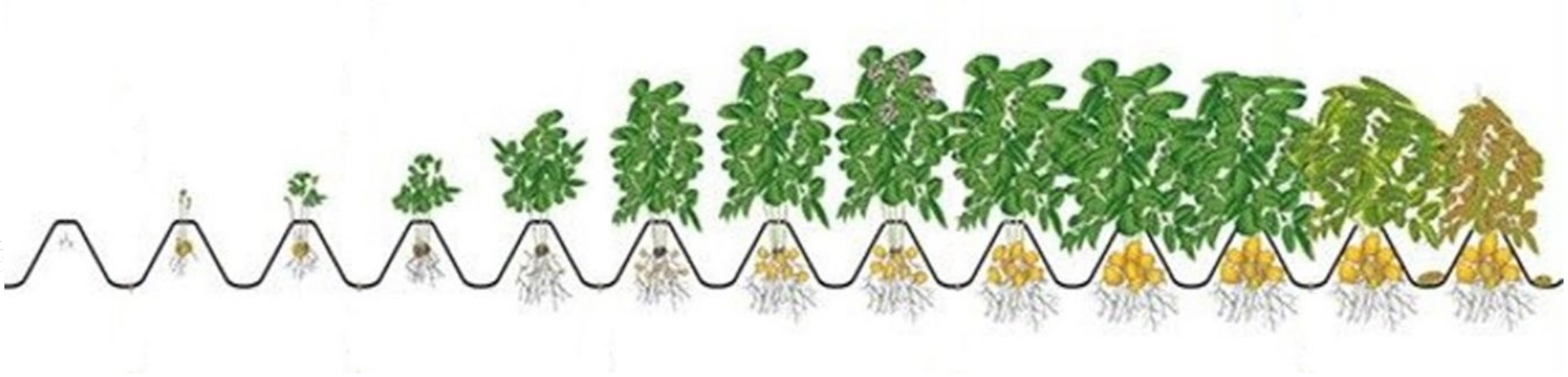
KEEP WHAT WORKS WORKING

Have the resistance management conversation now.
keepwhatworksworking.co.nz

Controlling in canopy

How these insecticides are put together will depend on crop stage, PTM pressure, other insect pests.

- Use trap data and in-field monitoring to drive decisions.
- Coverage is critical, most agrichemicals only move upwards, so need effective canopy penetration.
- Sprayer calibration, water rate, pressure, nozzle size, boom height, weather conditions will all play an important role.
- Use adjuvants based on label requirements of insecticides.
- Be aware of resistance management guidelines. Ensure anyone making recommendations for your crop also follows these guidelines.



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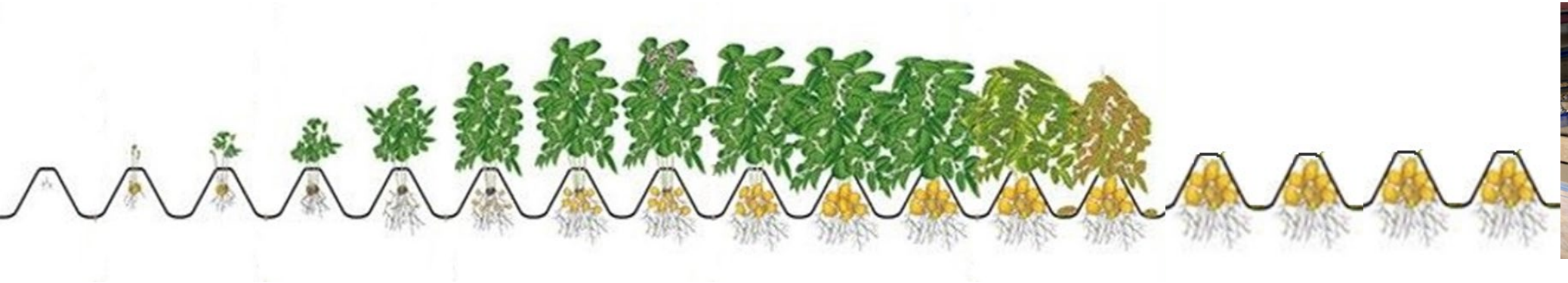
Managing in storage

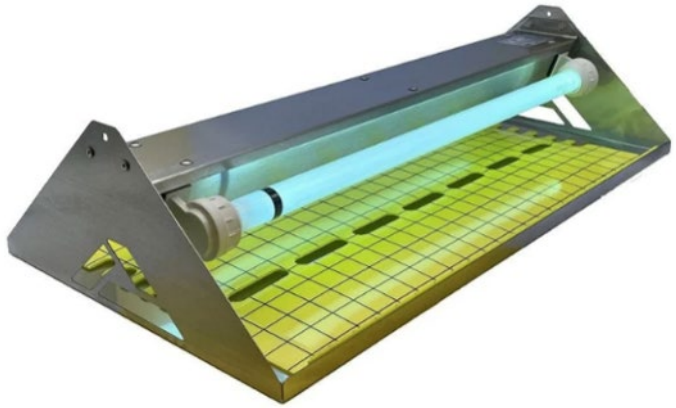


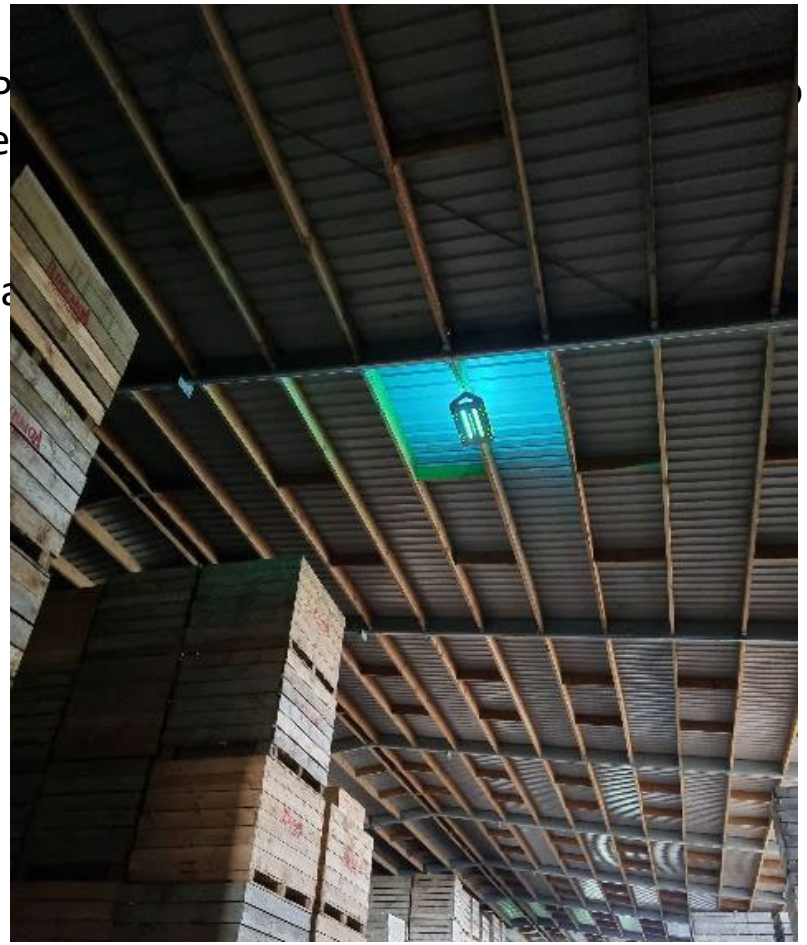
Potato Tuber Moth

Managing in storage

While ideally, we would want to control P
see high populations of moths and larvae

Lights have been investigated to provide a





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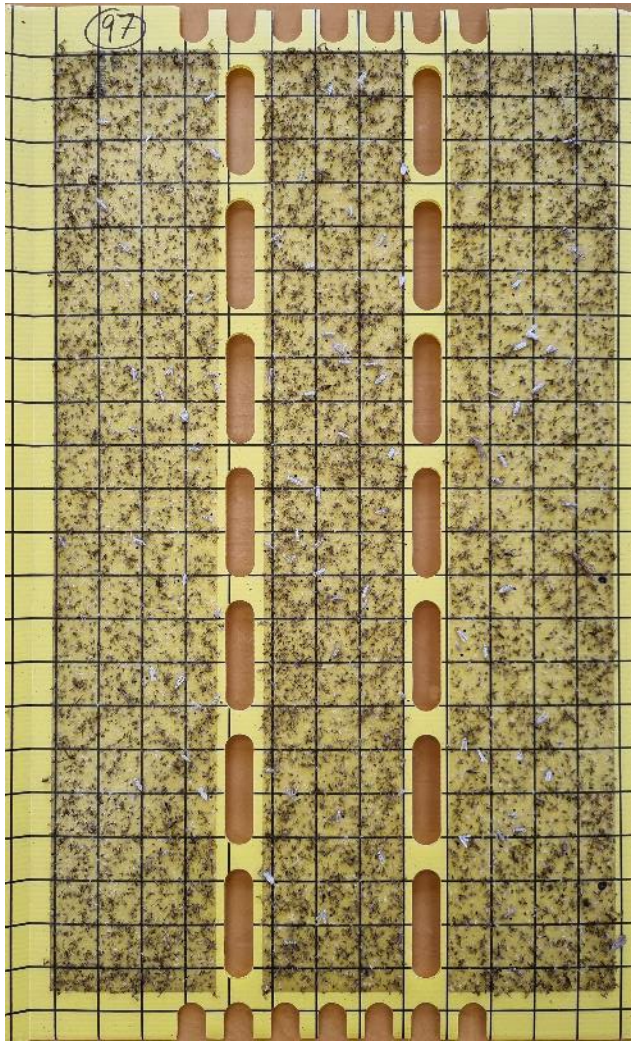
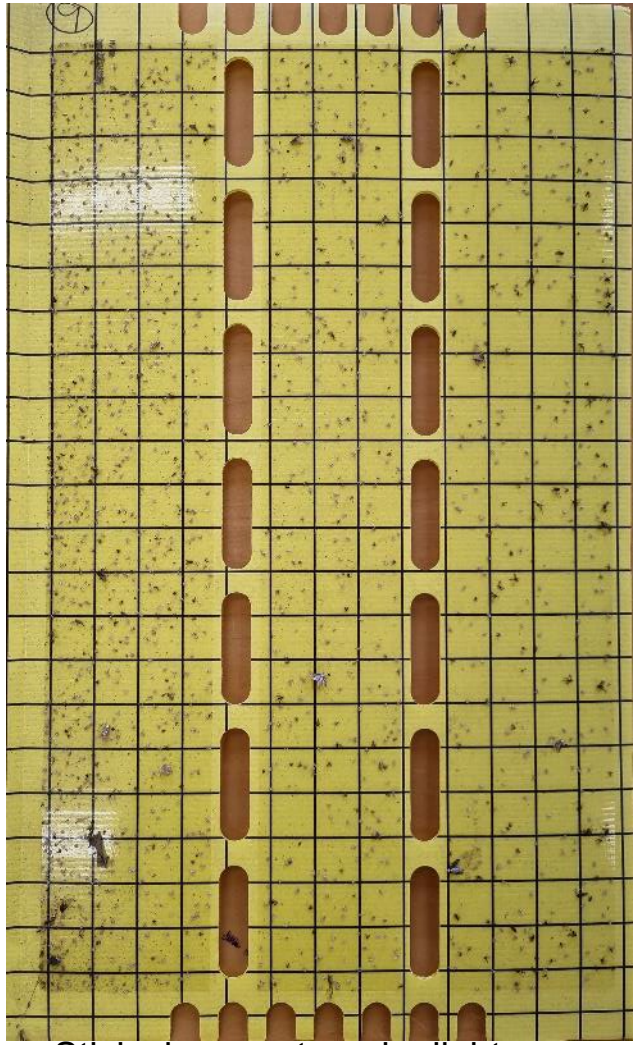
Managing in storage



Sticky base under light



Sticky base not under light

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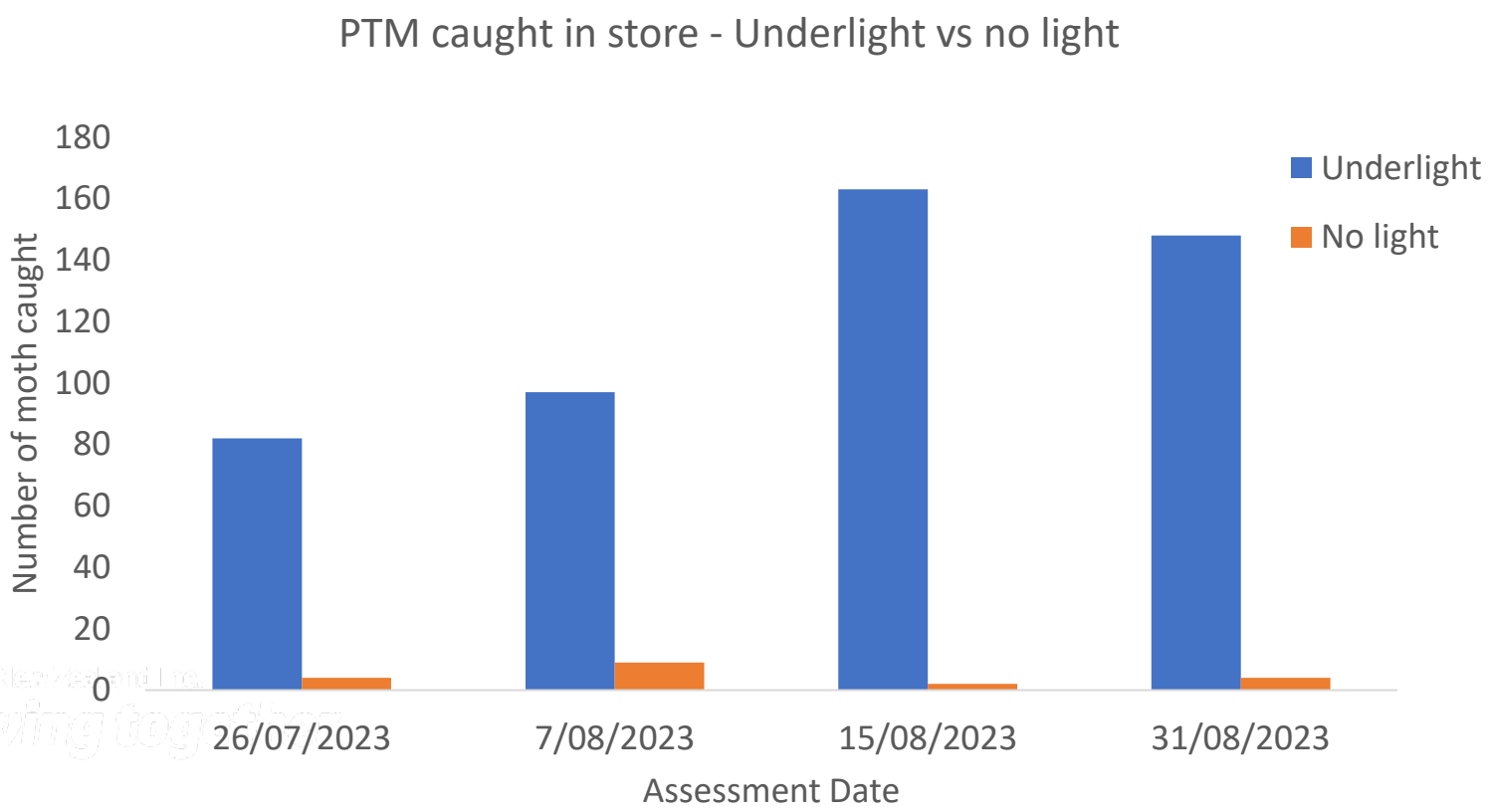
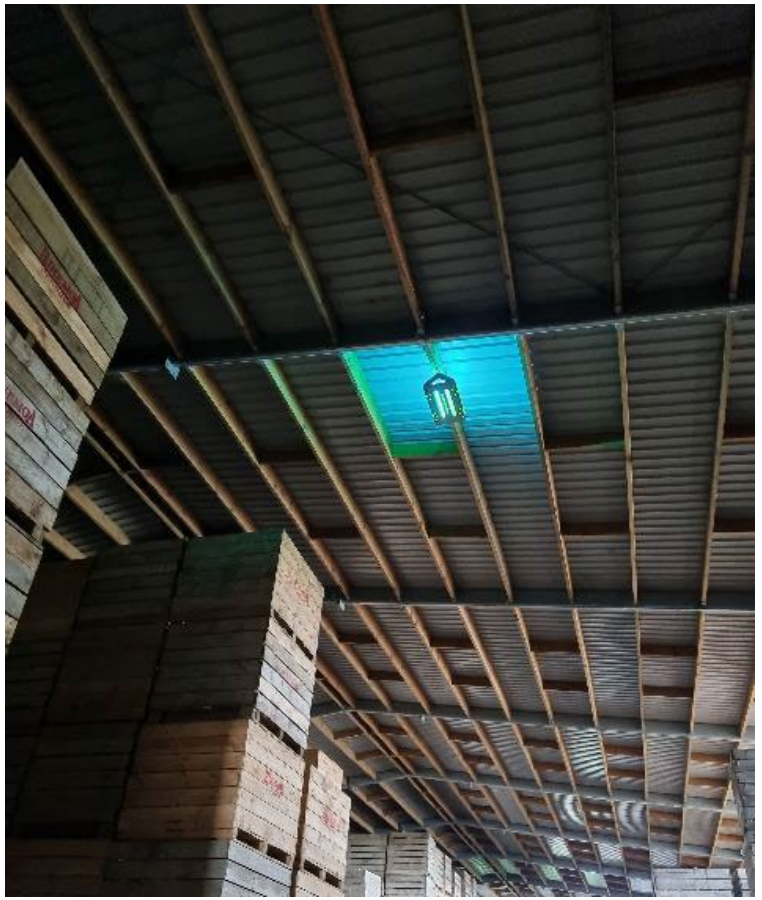
French Eco Technologies

Managing in storage



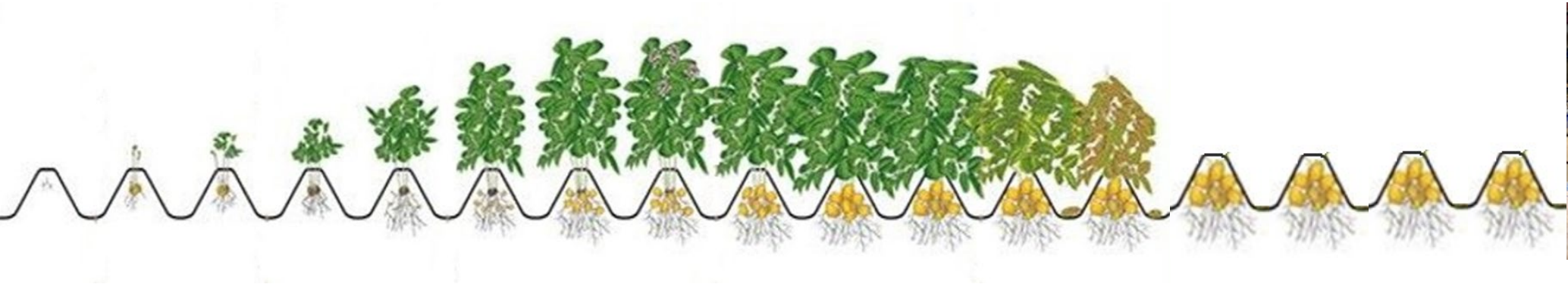


Potato Tuber Moth

Controlling during ground storage

Mound integrity is the single largest factor to minimise PTM in tubers.

- High setting varieties (Agria), in high cracking soils (Pukekohe) are the most at risk.
- Soil cracks give moth direct access to tubers, to lay eggs and infest tubers.
- As little as 10mm of soil, can reduce tuber moth infestation of tubers.
- Water management is typically the best way to manage this risk.



Mound Integrity Trial

Te Ahikawariki
Vegetable Industry Centre of Excellence

OBJECTIVE

Evaluate different management practices to reduce soil cracking and keep potato mounds together, making it harder for PTM to reach the tubers.

This will help build resilience in a grower's production system and move away from a reliance on agrichemical control.

PROJECT METHODOLOGY

Variety: Marabel *Trial area*:(4 x) 24m x 30m research plot(s) *Planting date*: 18/11/25 – 24/11/25

Post-Senescence Cover Crop Oats (200 kg/ha)

Low-cost, fast-establishing species used for soil protection

Post-Senescence Cover Crop multi-species mix (60 kg/ha)

Multi-species selected suitable for drier summer conditions

Re-Mounding

Re-mounding post-irrigation to seal cracks, reinforcing soil integrity

Irrigation

Regular watering to maintain soil moisture and reduce the risk of soil cracking

In-Crop Cover Crop Clover + Oats (285 + 400kg/ha)

Clover's soil-binding properties were combined with the rapid establishment of oats to improve mound stability and early weed suppression.

In-Crop Cover Crop Clover (285kg/ha)

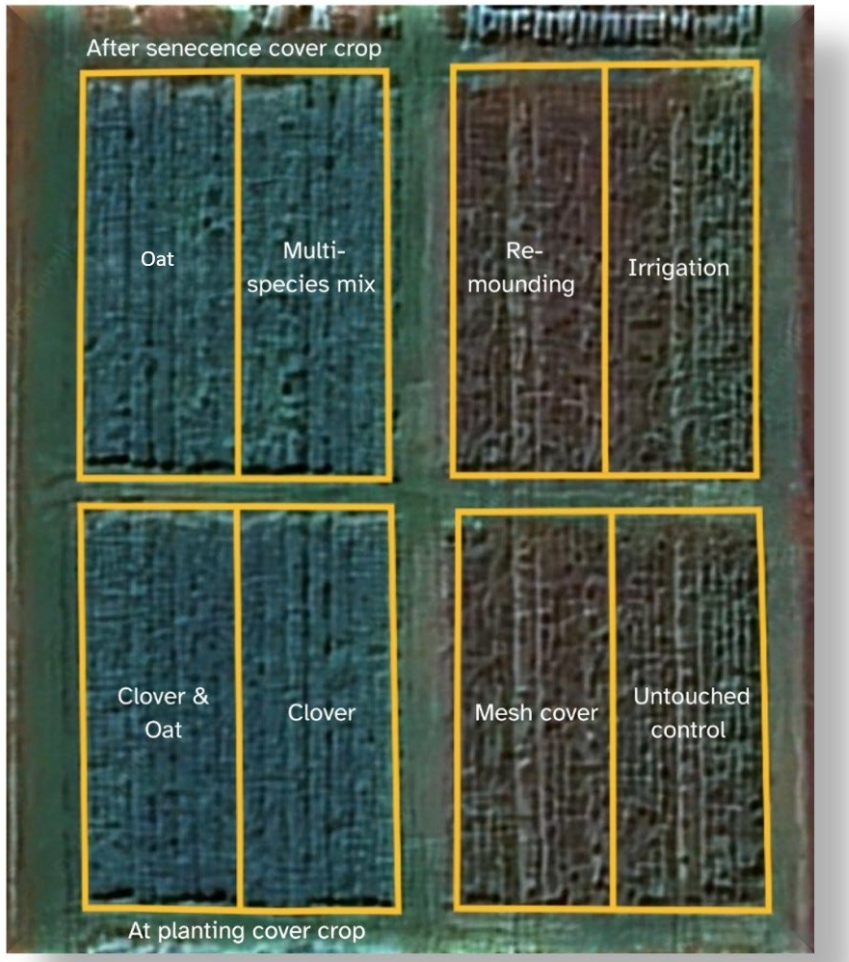
Clover established at potato planting to hold the mounds together and reduce cracking

Crop Mesh

Physical barrier preventing moth access to soil

Untreated Control

Baseline — no intervention post-senescence



- Crop grown under the same agronomic inputs across all four plots
- Post-senescence, different management practices were evaluated

EXPECTED OUTCOMES

What Success Looks Like

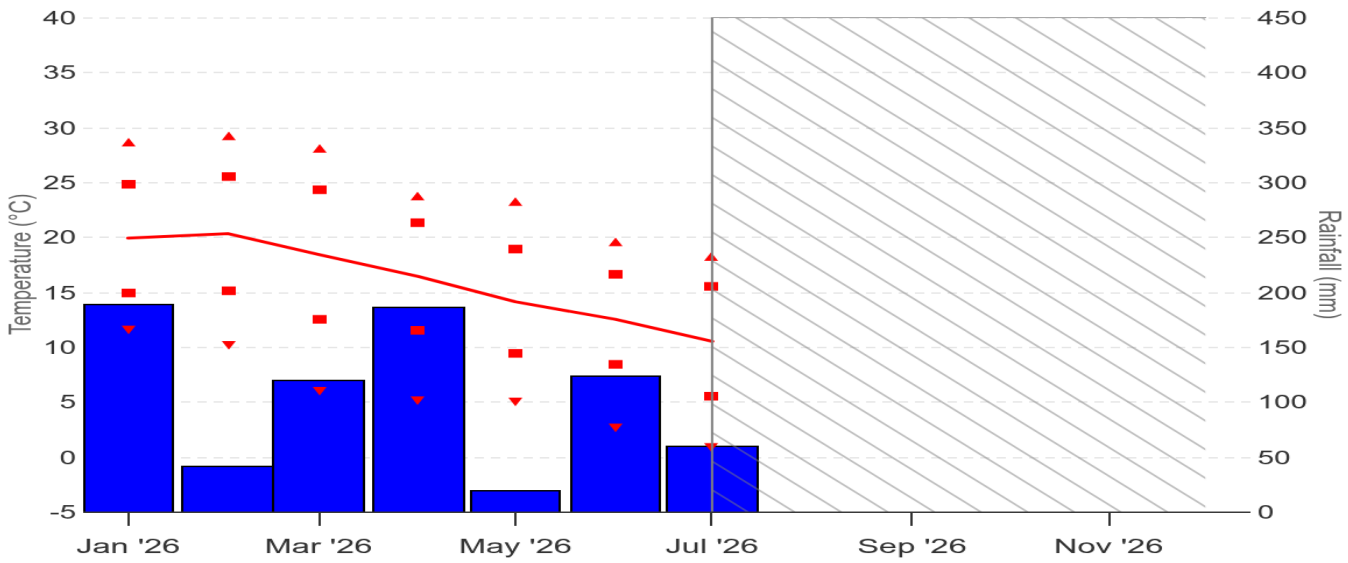
Research Outcomes

- Identify which practices most effectively reduce soil cracking and limit PTM access to tubers
- Compare marketable yield between treated and untreated plots
- Quantify PTM infestation levels across different barrier methods
- Assess practicality of each approach for commercial adoption

Grower Impact

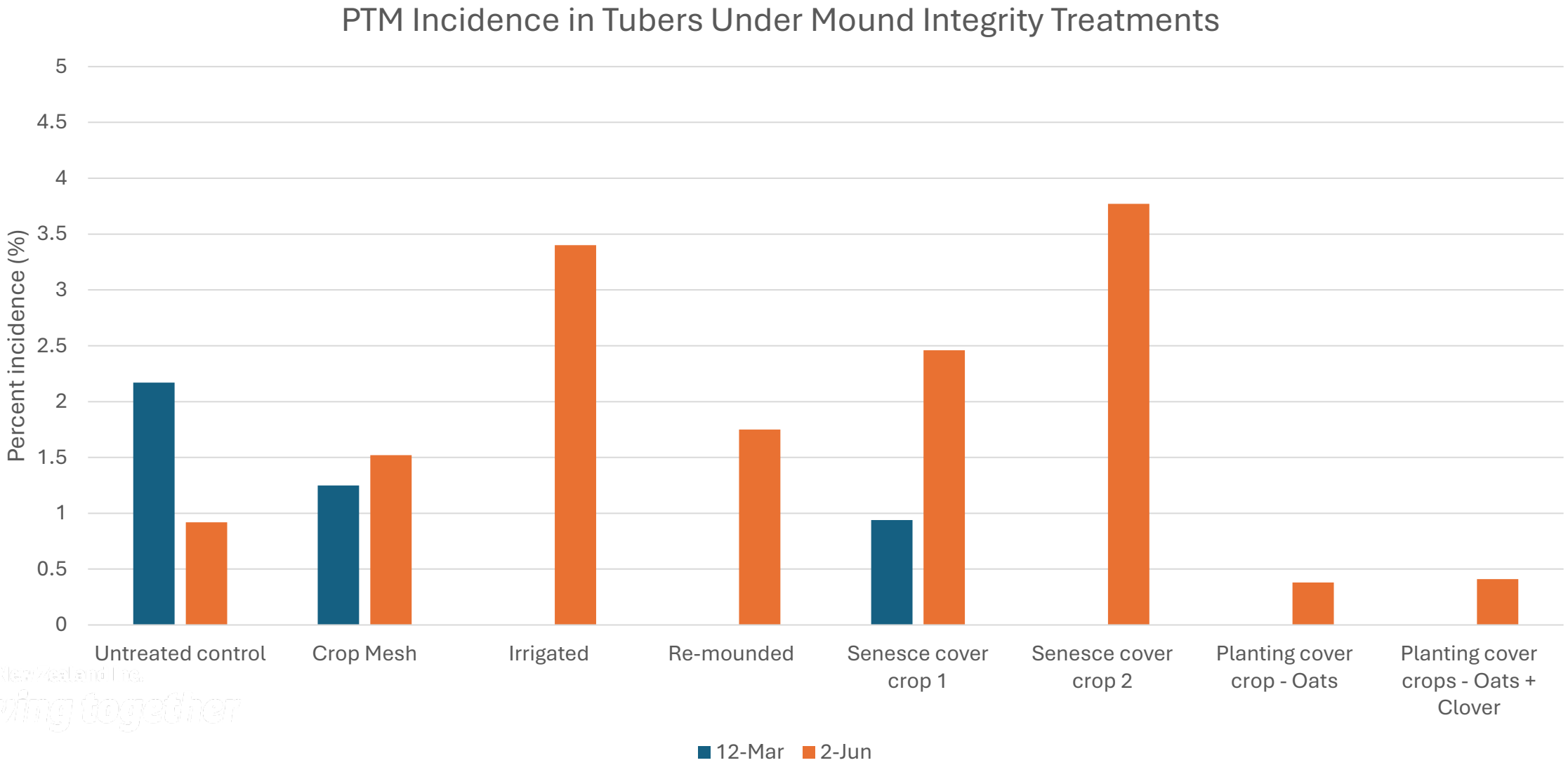
- Practical, demonstrated solutions growers can adopt as part of integrated PTM management
- Reduced crop losses and rejection rates from tuber moth damage
- Regionally adaptable strategies for areas without irrigation infrastructure

Trial overview



- Crop desiccated on 26/02/2026
- Crop mesh installed on 4/03/2026
- Post-senescence cover crops sown on 23/03/2026
- Irrigation and re-mounding treatments were not applied due to a wet season preventing soil cracking
- Moth pressure hasn't been high this year
- Harvested 4th July

Franklin PTM numbers (average per day)



What we learnt

Constant rainfall helps keep mounds together.

Establishing a cover crop at planting was straight forward.

Establishing a cover crop post-senescence was not.

The cover crop created some concerns around harvest.

Where to from here?

- Repeat the mound integrity trial under higher PTM pressure.
- Refine practical cover crop systems.
- Continue evaluating non-chemical approaches.
- Integrate mound management with monitoring and insecticide programmes into a complete PTM management package.

Take home messages

- Good canopy control is achievable using existing insecticide programmes.
- Protecting mound integrity remains the biggest opportunity to reduce tuber infestation during ground storage.
- Integrated management, combining monitoring, resistance management and practical soil management, offers the best long-term solution.

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