BIOSECURITY & PEST MANAGEMENT

Implications of the Painted Apple Moth eradication programme

Report to the Minister of Biosecurity

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BIOSECURITY & PEST MANAGEMENT

To: The Hon Marian Hobbs – Minister for the Environment & Biosecurity

INTRODUCTION

The Society Targeting Overuse of Pesticides (STOP) [1] is extremely worried about the failure of The Ministry of Agriculture and Forestry (MAF) to eradicate the 15 month-old Painted Apple Moth infestation in Auckland, and the implications for pest management strategies in New Zealand.

At the end of **Operation Ever Green** in 1998 when the White Spotted Tussock Moth (WSTM) had been officially eradicated, the campaign was acknowledged as an internationally significant achievement. Dr Gordon Hosking who led the operational team considered that New Zealand now had a wealth of experience and expertise to employ against any future pest invasion. [2]

Less than one year later, at the outbreak of the Painted Apple Moth infestation, it was as if Operation Ever Green had never taken place. STOP believes every hard won lesson learnt, every breakthrough made, every successful strategy or initiative employed - has been wasted or ignored.

Operation Ever Green was not just a campaign to eradicate an alien pest – it was a multi-million dollar investment that all of us paid into. The Society considers that investment has been squandered over the last two years, and that unless changes are implemented now it will be lost forever.

This report details what the Society believes is the need for an urgent review of current biosecurity, pest management programmes and policy.

[1] STOP was formed by residents during the intensive aerial campaign to eradicate the White Spotted Tussock Moth four years ago, and has maintained a watching biosecurity brief since then

[2] MAF Website

1.0 PAINTED APPLE MOTH (*TEIA ANARTOIDES)* OUTBREAK

Background

In April 1999 a widespread outbreak of Painted Apple Moth (PAM) was confirmed by MAF in an industrial area of Glendene in Auckland. Eggs, caterpillars and winged adults of the Australian moth were initially found, and a one kilometre radius survey in early May 1999 confirmed egg masses, larvae and cocoons on 22 properties. Spraying with Chlorpyrifos commenced.

In late September 1999 a new outbreak was discovered in Mt Wellington 15km from Glendene. By mid October, after a 1km survey, large egg masses, caterpillars and larvae were confirmed on 11 properties. Spraying with Chlorpyrifos commenced.

As detailed in the attached timeline [3] - new infestations of the moth continued to be found in both areas. By July 2000, fifteen months after the first outbreak, live and old life stages material was still being found in both areas. There were eighteen known properties in Mt Wellington, and the site of the original infestation had expanded to forty properties covering Glendene**,** Kelston & Avondale**.**

Neither eradication nor control of the Painted Apple Moth has been achieved in fifteen months of spraying, vegetation removal and weekly ground checks. In comparison – only three months after spraying commenced in the Tussock Moth campaign, no sign of any eggs, caterpillars or pupae were found, despite intensive ground searches. Male moths caught in the pheromone traps were the only evidence of the presence of a remnant population.

2.0 ERADICATION COMPARISONS

The stark difference between two eradication campaigns of two similar moths clearly illustrates the problem.

2.1 Sprays

Although there are strong similarities between the Painted Apple Moth and the White Spotted Tussock Moth, MAF has not chosen the successful WSTM spray *Bacillus thuringiensis (*Bt) but has reverted to the use of toxic chemicals.

- A highly toxic spray (Chlorpyrifos) has been used as first resort. This chemical is an organo-phosphate pesticide which is toxic to all insects as well as fish and marine organisms. More important it is also known to have harmful effects particularly in children and babies. The chemical persists in the environment after evaporation and will be carried into houses, factories and schools. The US EPA has recently taken action to drastically reduce its use. [4] Due to rapid evaporation Chlorpyrifos has only a short period of action. Any insects sheltering or inactive for 24 hours will survive.

[3] H Blackmore – Pest Timeline
[4] Soil & Health Jul/Aug 2000

- The second chemical used is a synthetic pyrethroid, Deltamethrin. While less toxic (except to fish) and applied in lower amounts, material remaining after a week no longer kills, but is sufficiently irritating to cause the insects to disperse and not lay their eggs nearby.

The action of both these sprays is considered counterproductive to eradication, and these concerns would appear to be borne out by the persistence and spread of this pest. In comparison – successful eradication of the Tussock Moth was achieved in three months with only one organic spray - Bacillus Thuringiensis

There has also been strong criticism of the use of these toxic sprays in urban areas from members of the original WSTM Science team.[5] They consider public safety should be uppermost in the selection of any pesticide.

2.2 Pheromones

The consequences of spraying choices for the ultimate success of eradication, pales in relation to a pheromone component. In spite of the critical importance of pheromones in the successful WSTM eradication, MAF appears to have downgraded this vital tool.

- The WSTM pheromone's ability to attract male moths when all ground surveys were returning empty handed, underlines its significance. Its place in both field monitoring and the trapping programme was vital.

- Breeding programmes at the Forest Research unit in Rotorua were providing females for the WSTM monitoring traps three months into the spraying campaign. Research into a synthetic pheromone was initiated at the beginning of the programme and in a world first, was produced eleven months later in time to replace the female moths in the field in year two.

In comparison, MAF has not used the specialist Rotorua facility and appears to have no breeding programme for the Painted Apple Moth. A contract to produce a synthetic pheromone was finally let six months after spraying commenced and they have had to go to Australia for material and field trials. No traps of any kind have been deployed.

MAF's apparent decision not to initiate or contract pheromone research until after a six month spraying campaign has failed, could be devastating. Male moths caught in WSTM pheromone traps were the only guide to the presence of a remnant population. Without this pheromone tool MAF has little way of knowing whether control is succeeding or how far the pest has spread.

Huge concern is now being expressed, that without the ability to delimit the infestation area, a return to aerial spraying with its consequential pesticide exposure of a far greater population may be the only eradication option left.

[5] Soil & Health Jan/Feb 2000

2.3 Teams & Personnel

In this operational area, any similarities that might exist between the two eradication programmes have disappeared completely. Regardless of the fact that MAF are dealing with a similar infestation in a similar urban setting, less than a year after the successful eradication of a similar moth, they have proceeded as if Operation Ever Green never happened.

- The multi-disciplinary Operation Ever Green team has been shut out of the Painted Apple Moth eradication campaign. Offers of help, assistance and advice have been ignored or rejected.

- The specially built quarantine facilities at Rotorua where the Tussock Moth breeding and feeding research programmes were carried out so successfully, have not been used. Its experienced scientists have been sidelined.

- The internationally acclaimed scientific team who developed the Tussock Moth pheromone were not even approached to work on the Painted Apple Moth. Help offered as soon as the moth was discovered in April 1999 was ignored. They were not invited to tender for $70,000 government funding to develop a pheromone. Even when an international body offered the Tussock Moth team independent funding to identify the Painted Apple moth pheromone, requests to MAF for live material have been ignored.

- No attempt has been made to communicate with organisations and members involved in the Tussock Moth advisory groups (eg Soil & Health and STOP), even when concerns were being raised about the pesticides being used.

- Reported concerns raised by members of the scientific community both within and outside the Ministry, have not been answered by either past or present governments.

MAF's vaunted 'wealth of experience and expertise' gained in Operation Ever Green has been totally rejected. Working relationships, and channels of communication cultivated and fostered during the eradication campaign of the Tussock Moth, have been cut with clinical precision and its members rebuffed and repudiated.

CONCLUSIONS, IMPLICATIONS & RECOMMENDATIONS

CONCLUSIONS

The stark contrast between the eradication operations for two similar moths in similar urban settings, illustrates only too clearly a pest management strategy that is failing. **The implications for ongoing biosecurity policy and programmes are profound.**

In its current Painted Apple Moth eradication programme, MAF has rejected the wealth of Tussock Moth field tested strategies and operational methods. It has reverted to scientifically questionable toxic sprays that have failed to control let alone eradicate a fifteen month old infestation, and it has failed to initiate timely pheromone research vital for monitoring and delimiting the infestation. But over-riding all these debatable pest management strategies is the rejection and exclusion of everyone who contributed and participated in Operation Ever Green.

The unique cross-industry and interdisciplinary collaboration and co-operation that was developed and deployed during Operation Ever Green has been totally wasted. The implications are immense and ongoing.

IMPLICATIONS

The Society believes the ability to respond to all biosecurity emergencies, whether now or in the future, is vitally dependent on building an effective team experienced in eradication and pest management campaigns. This view is not unique.

The success of Operation Ever Green has been recognised around the world. US Forest Service Gypsy Moth expert Dr William Wallner considered that the WSTM eradication approach *"will serve as a template for future similar pest invasions around the world."*[6]

Therefore MAF's exclusion of Operation Ever Green members from the very next pest incursion, is unbelievable and embarrassing. Instead of recognising and building on this uniquely effective team the Biosecurity Authority sidelined these acclaimed New Zealand scientists and proceeded to 're-invent the wheel'.

Like a series of falling dominoes, the next invasion inevitably sees the Operation Ever Green team even further out of the loop because of their lack of in-house contact and ongoing experience. Innovative research contributions that could be vital to an eradication of the Varroa bee mite have gone unheard. What happens if the Asian Gypsy Moth gets a toehold next week?

New Zealand's investment in these people is huge and we cannot afford to lose it. A government review of current pest management programmes and ongoing policy is urgently needed. We recommend as a starting point:

[6] MAF Website

RECOMMENDATIONS

1.0 That an independent panel be set up to review the Painted Apple Moth eradication project as a matter of urgency.

2.0 That the decision not to award any funding for the Painted Apple Moth pheromone identification to the developers of the WSTM pheromone be urgently reviewed, particularly in view of MAF's request for further funding for Hort Research over and above the $70,000 already unsuccessfully expended.

3.0 That a culture of Painted Apple Moth be established in the dedicated quarantine rearing facility at Rotorua FRI to provide live material to approved pheromone identification teams.

4.0 That an option to re-visit a Varroa Bee Mite eradication proposal be kept open.

5.0 That the proposal by the Hon Marian Hobbs on TV1's Assignment programme earlier this year to set up and fund a biosecurity "Rapid Response Team" be investigated further in consultation and collaboration with Operation Ever Green personnel.

Hana Blackmore for STOP
August 2000