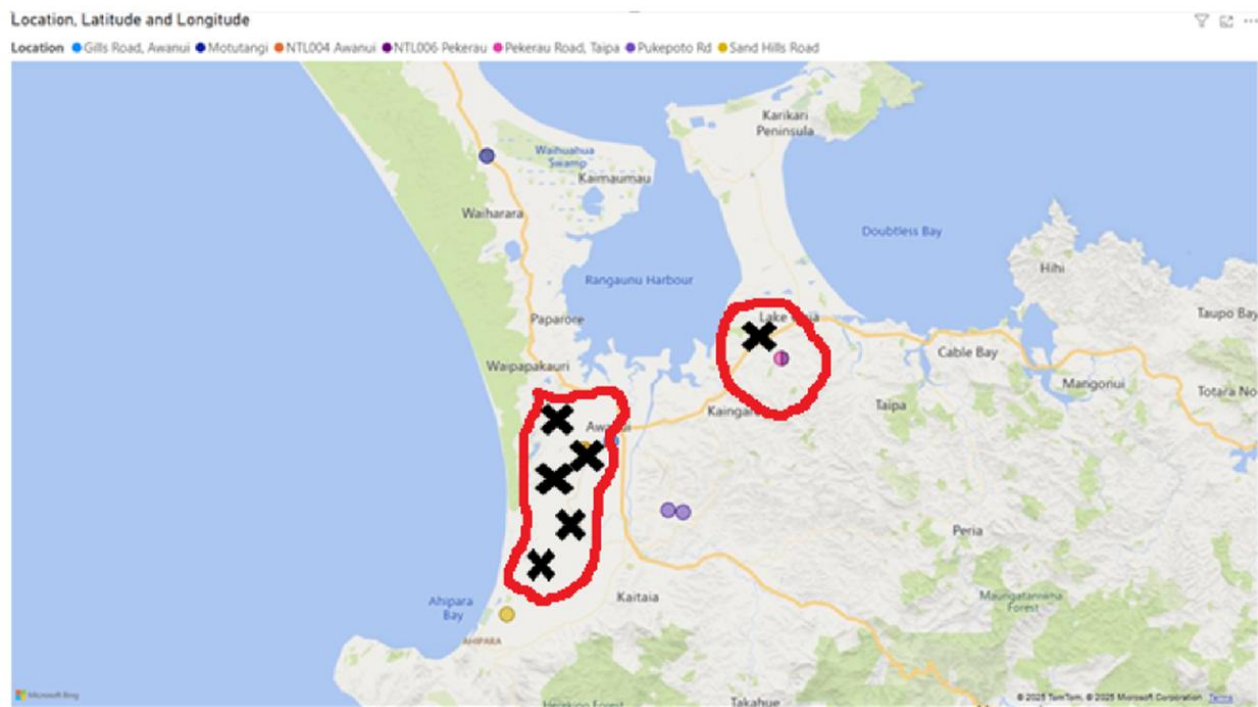


Fall armyworm (FAW), *Spodoptera frugiperda*, populations in the Far North of New Zealand in 2024/25

Dr J J Dymock
July 2025

FAW moth flights

Fall armyworm (FAW), *Spodoptera frugiperda*, bucket pheromone traps were stationed at 5 sites in the Awanui, Sweetwater, Pukepoto areas, near Kaitaia, and trapping continued at one site at Pekaurea, Lake Ohia, 15 km east of Awanui (see Map). A single trap was placed on the perimeter of each of 6 maize crops (5 maize silage crops and 1 maize grain crop). Traps were serviced weekly and fresh FAW pheromone deployed every 4 weeks.



FAW male moth flights

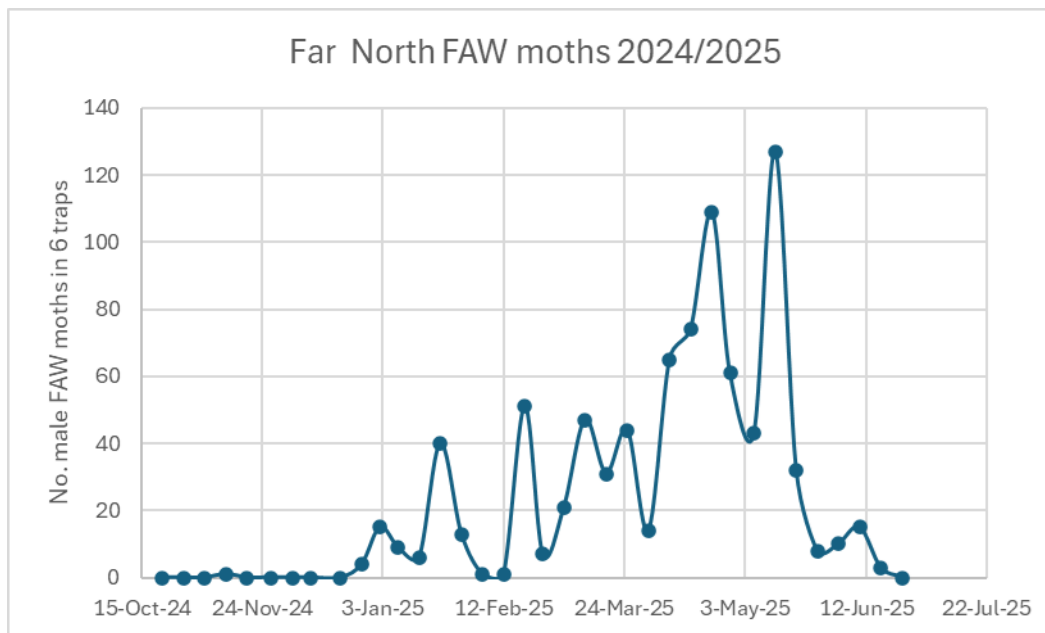
The first flight of FAW moths in the Far North in 2024 was recorded in the week to 12 November 2024 (Table 1), with one male FAW caught in the pheromone trap at Sandhills/Gill Rd corner silage maize crop.

Table 1. Date of first male FAW, *Spodoptera frugiperda*, moth flight in first and second flights and number of FAW males trapped in 6 pheromone bucket traps in the Far North of New Zealand in three years from Nov 2022 to Jan 2025

Season	Date of first male FAW moth in pheromone traps	No. FAW male moths caught in first flight	Date of first male FAW moth of second flight	No. FAW male moths caught in second flight
2022/23	23 Nov 2022	7	5 Jan 2023	109
2023/24	28 Nov 2023	2	24 Jan 2024	41
2024/25	12 Nov 2024	1	27 Dec 2024	87

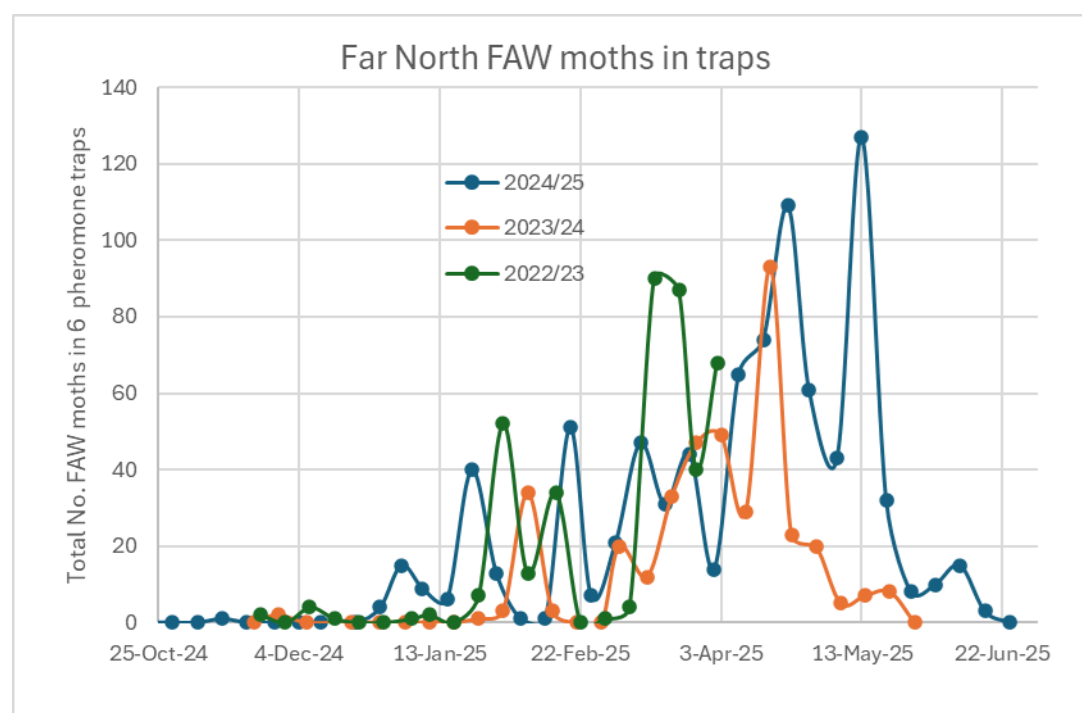
The second male FAW moth flight, which started in late December 2024, was a month earlier than in 2023/24 due to warmer temperatures in November and December 2024 (Table 1 and Fig. 1).

Figure 1. The number of male fall armyworm moths (FAW), *Spodoptera frugiperda*, caught each week in 6 pheromone bucket traps in the Far North, New Zealand, from beginning November 2024 to end of June 2025.



The third male FAW moth flight was from the third week in February 2025 until the end of March, which was followed by a fourth, and largest, period of male FAW moth trap catches. Male FAW moths continued to be trapped until mid-June 2025 (Fig. 1) compared to mid-May 2024 (Fig. 2).

Figure 2. Number of fall armyworm moths (FAW), *Spodoptera frugiperda*, caught per pheromone bucket trap from 6 traps, cleared weekly from November 2022 to 2 April 2023 and from November to June in 2023/24 and 2024/25 in the Far North of New Zealand.



The total number of male FAW moths caught in pheromone traps in 2024/25 was higher than in 2023/24 with 852 male FAW moth caught in 6 pheromone traps in 2024/25 compared to 390 caught in 6 pheromone traps in 2023/24 (Table 2).

Table 2. The number of fall armyworm (FAW) *Spodoptera frugiperda*, caught in pheromone bucket traps at 6 sites in the Far North of New Zealand November to June, in 2022/23, 2023/24 and 2024/25.

Trap site	No. male FAW moths trapped Nov 2022-June 2023	No. male FAW moths trapped Nov 2023-June 2024	No. male FAW moths trapped Nov 2024-June 2025
^ Pekaiau, Lake Ohia	145	49	14
^^Pukepoto		28	79
^^Gill Rd, Awanui		41	210
Brass Rd, Ahipara		-	196
Spains Rd, Sweetwater		-	15*
Corner Gill/Sandhills Rds, Sweetwater		-	341
Motutangi		5	-
Sandhills Rd, near Ahipara		239	-
SH1, Kaitaia		28*	-
Total in 6 traps each summer		390	852

*maize sprayed with insecticide

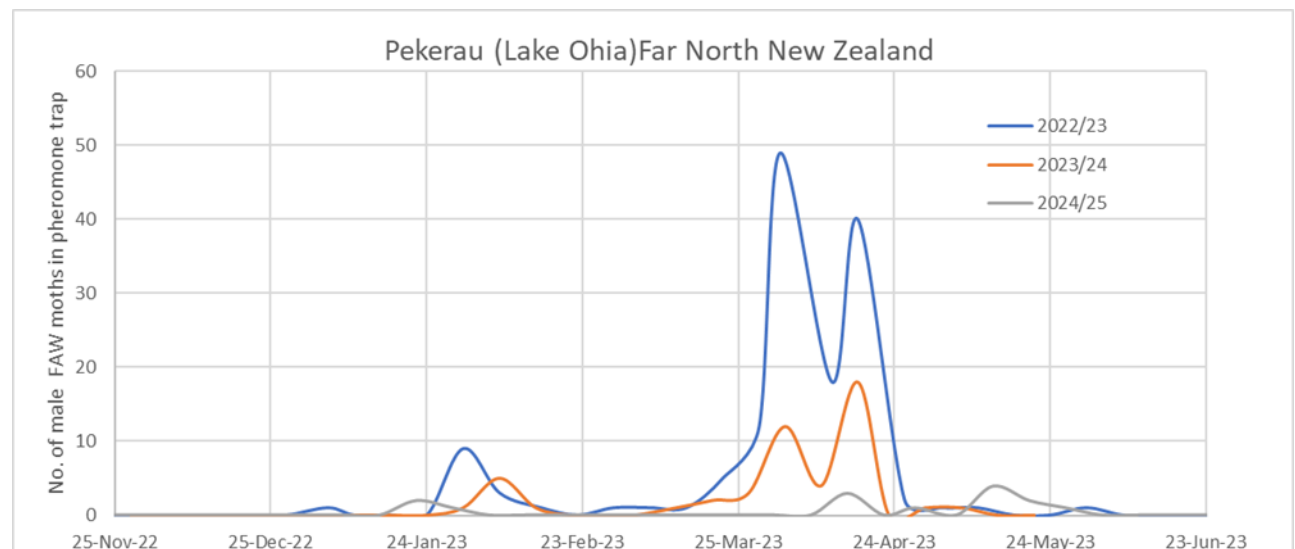
^Comparison over 3 seasons can only be made for the Pekerau site

^^Comparison over 2 seasons (2023/24 and 2024/25) can only be made for Pukepoto and Gill Rd, Awanui

The fourth period of male FAW flights occurred throughout May and June 2025 after all the maize had been harvested by mid-April 2025. There were some volunteer maize plants in the Pukepoto and Sandhills areas where FAW larvae were found feeding on volunteer maize on 10 and 23 June 2025. FAW larvae collected from volunteer maize in June 2025 fed on the C4 kikuyu grass, *Cenchrus clandestinus*, in captivity. Development and survival of these FAW larvae over the winter will determine the timing and size of the first FAW moth emergence in spring 2025.

Numbers of FAW male moths trapped in the 3 seasons in 2022/23, 2023/24 and 2024/5 can only be compared at the Pekerau (Lake Ohia) area. At the Pekerau maize silage crop area the numbers of FAW males caught in the pheromone traps continued to decline over the 3 seasons of trapping (Fig.4). In summer 2025 there were no FAW larvae in maize cobs sampled at Pekerau. Maize crops at Pekerau are 12 km from the area covered by the other 5 pheromone bucket traps in the Awanui, Sweetwater, Sandhills, Pukepoto areas (see map). Pekerau is a more discrete area, bounded by hills, and hence sheltered, in all directions except from the north. In contrast, the areas northwest of Kaitiaia, cover a greater area and are more exposed to south and south-westerly winds but sheltered from coastal westerly winds off 90 Mile Beach. These sites may be more susceptible to immigration of FAW moths from elsewhere, including Australia.

Figure 4. Number of fall armyworm moths (FAW), *Spodoptera frugiperda*, caught in the Pekerau (Lake Ohia) pheromone bucket trap weekly from 1 November to 30 June in 2022/23, 2023/24 and 2024/25 in the Far North of New Zealand



Immature stages of FAW

The number of FAW larvae in maize cobs was recorded at 6 sites each week in 50 randomly selected maize cobs from 22 January to 8 April 2025 (2350 cobs examined in total). Maize plants at the 2-6 leaf stage (November and December) are the most vulnerable to FAW feeding damage when maize plants can be killed by larval feeding. Severe mortality of young maize plants occurred at one crop occurred on Spains Rd, Sweetwater in November 2024. Each of the 16 paddocks of maize crops at Spains Rd were sheltered by bamboo shelter belts on all 4 sides and the area is in the lee of the sandhills of 90 Mile Beach. After the FAW larval feeding damage was detected in the maize at Spains Rd, one paddock was subsequently re-sown and the entire area of maize sprayed with insecticide.

Although, in 2024/25, there were increased numbers of FAW male moths trapped, more FAW moth flights and an extended duration when moths were trapped, the number of maize cobs with FAW larvae present did not increase in 2025 compared to 2024. Maximum percentage of cobs sampled where FAW larvae were present ranged from 6-7% (Fig. 5) from 25 February to 11 March 2025. This is compared to a maximum of 10% of cobs sampled where FAW larvae were found in 2024 (Fig. 6).

A total of 91 FAW larvae were found in 2350 sampled maize cobs across 6 maize crops in 2025. 63% (57 larvae) of those found were from a late sown maize crop at Gill Rd, Awanui which was sown 3.5 weeks later than the other 5 maize crops. Maize cobs first formed around mid-February 2025 in Gill Rd maize crop compared to the other 5 maize crops where cobs formed early to mid-January 2025. Later sown maize (December/early January) was more vulnerable to damage from second generation FAW larval population in January and February.

Lepidopteran feeding damage to kernal was predominantly at the corn silk end of the cobs. No FAW larvae were found in the maize cobs sampled at Pekerau and the Sandhills/Gill Rds maize crops throughout summer 2025.

Presence of *Helicoverpa armigera* larvae found in maize cobs reached a maximum of 18% in late January 2025 (Fig. 5), compared to 40% of cobs at the start of 2024 (Fig.6). *Mythimna separata* were found in a maximum of 21% maize cobs sampled on 4 March 2025, predominantly the result of an outbreak at Pukepoto.

Figure 5. Percentage of maize cobs with Lepidoptera larvae present at 6 sites in the Far North of New Zealand from January to April 2025.

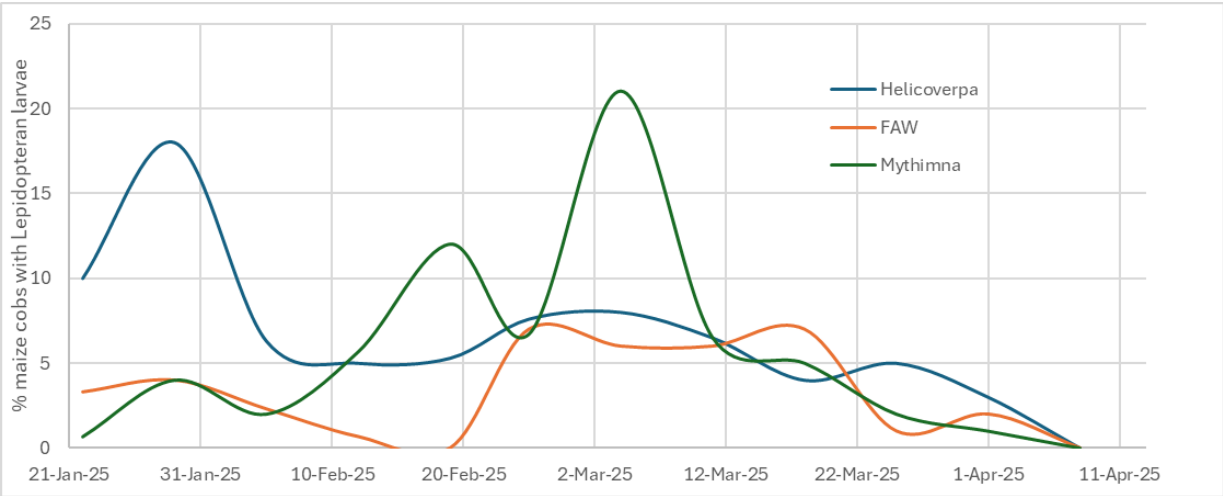
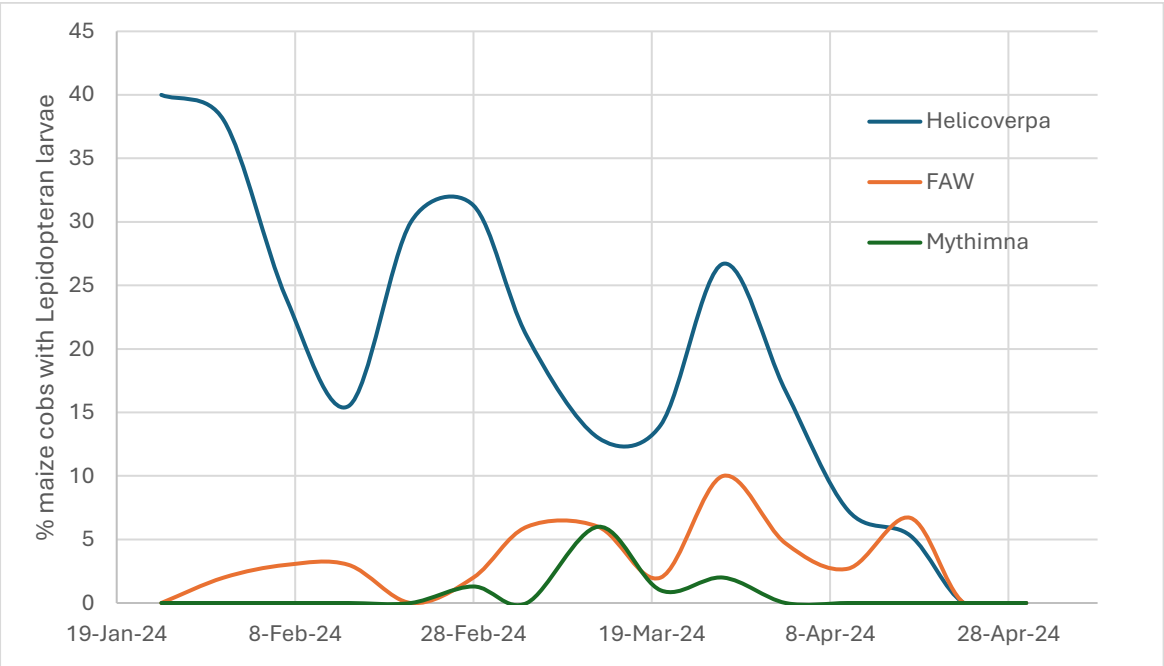


Figure 6. Percentage of maize cobs with Lepidoptera larvae present at 6 sites in the Far North of New Zealand from January to April 2024.



At the time of harvest, the percentage of cobs where Lepidopteran larval feeding was observed was lower in 2025 compared to 2024 (Table 3).

Table 3. Cumulative percentage of maize cobs at harvest with Lepidopteran larval feeding damage in 2024 and 2025 in the Far North of New Zealand.

Maize crop site	Date maize harvested in 2024	Cumulative % maize cobs with Lepidopteran larval feeding damage	Date harvested in 2025	Cumulative % maize cobs with Lepidopteran larval feeding damage
Brass Rd, Ahipara			25 Feb	68%
Sandhills/Gill Corner crop			11 March	4%
*Spains Rd, Awanui			4 March	20%
Sandhills Rd, Ahipara	28 Feb	100%		
Pekerau, lake Ohia	20 March	40%	18 March	56%
^Pukepoto	17 April	100%	1 April	64%
Gill Rd, Awanui	17 April	100%	8 April ^^	90%
SH1, Kaitaia	17 April	100%		

*sprayed with insecticide

^maize grain crop

^^late sown maize silage crop in 2025

Parasitoids and predators

The following predators and parasitoids were recorded from maize crops in the Far North in 2024/25.

Cotesia ruficrus - parasitoid wasp

Mallada basalis – lacewing

Meteorus pulchicornis - parasitoid wasp

Cermetulus nasalis - soldier bug

Lissopimpla excelsa – pupal parasitoid

Nabis kinbergii – predatory bug

Polistes chinensis – Asian paper wasp

Parasitism of FAW larvae by *Cotesia ruficrus* in the Far North

FAW larvae collected from field crops of maize were individually reared in 5 ml vials on lima bean diet provided by Anne Barrington at Plant and Food Research (see photo).



None of the 5th and 6th instar FAW larvae collected (82 in total) were parasitised by *Cotesia ruficrus*. The overall percentage of 2-4th instar larvae parasitised was 40.3% and 34.9% (Table 3) successfully pupated. The remainder died of unidentified causes. After mid-January only 5-6th instar FAW were found in maize.

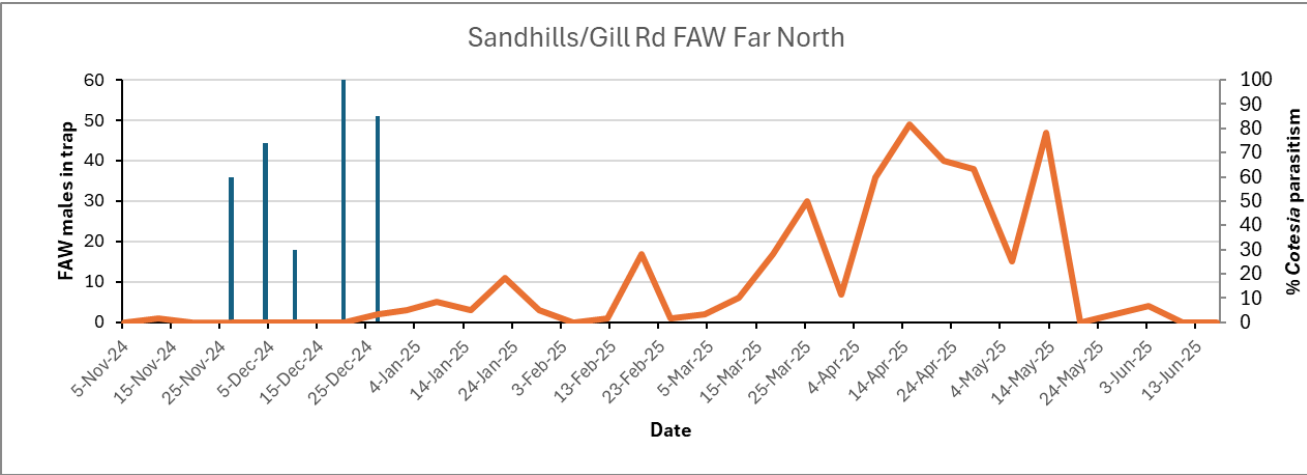
Table 3. Percentage 2-4th instar FAW, *Spodoptera frugiperda*, collected from x maize crops in the Far North, parasitised by *Cotesia ruficrus*

Date collected	Total FAW larvae collected	No. parasitised by <i>Cotesia ruficrus</i>	% parasitism by <i>Cotesia ruficrus</i>	No. pupated	% pupated
21 Nov 2024	5	3	60.0	1	20.0
27 Nov 2024	31	18	58.1	7	22.6
4 Dec 2024	32	10	31.3	10	31.3
10 Dec 2024	4	4	100	0	0
20 Dec 2024	7	2	28.6	3	42.9
27 Dec 2024	17	10	58.8	7	41.2
2 Jan 2025	3	1	33.3	1	33.3
15 Jan 2025	30	4	13.3	16	53.3
Total	129	52	40.3	45	34.9

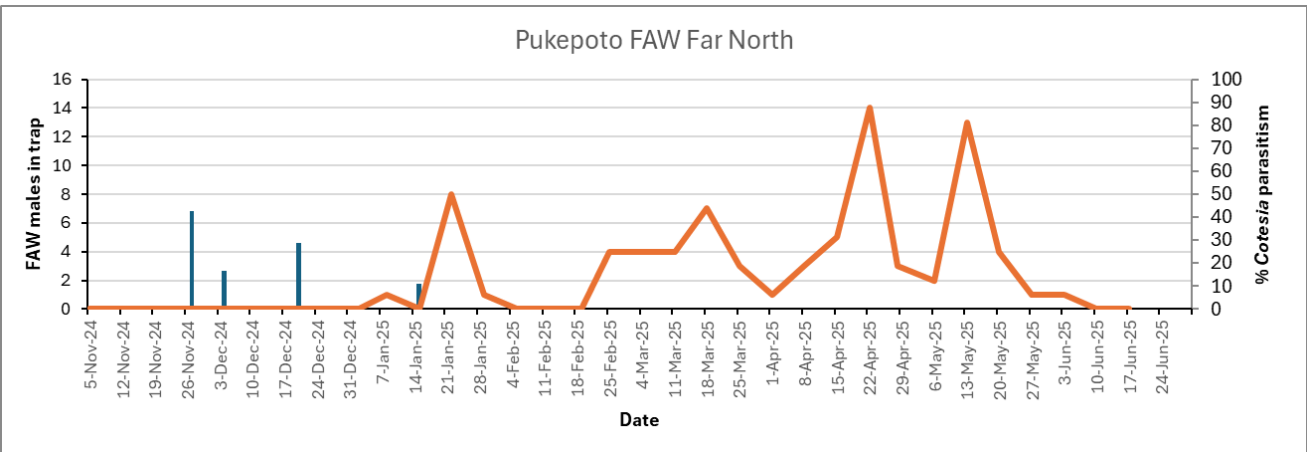
Figure 7 shows the percentage of FAW larvae collected from 3 maize crops which were found to be parasitised by *Cotesia ruficrus*.

Figure 7. Percentage parasitism of FAW 2-4th instar larvae by the parasitoid wasp, *Cotesia ruficrus*, at three maize crops in the Far North of New Zealand from November 2024 to January 2025.

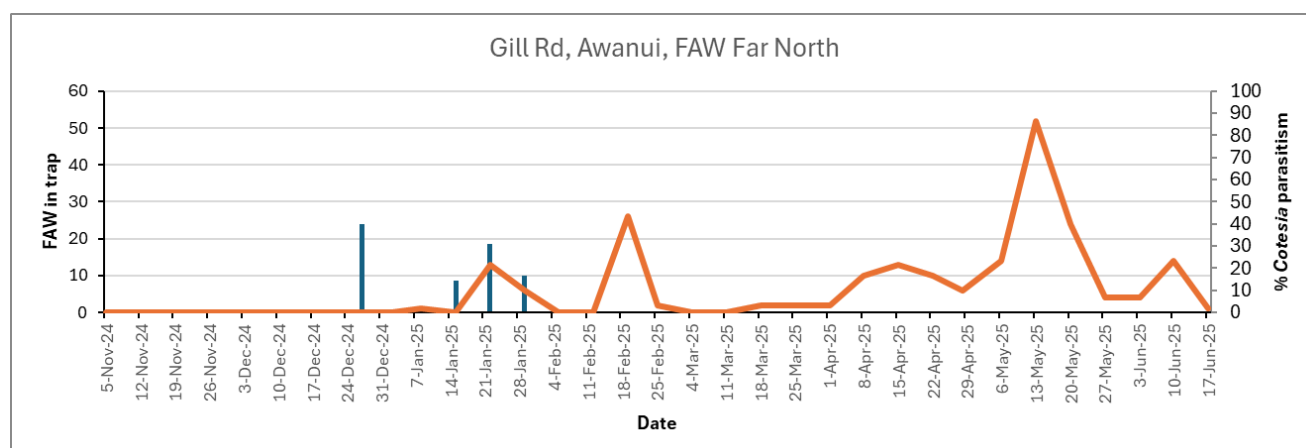
No FAW larvae found in maize cobs at Sandhills/Gill Rd corner maize crop in 2025. Cumulative percentage feeding damage to cobs by Lepidoptera larvae was 4%.



Maize grain crop at Pukepoto experienced an outbreak of *Mythimna separata* larvae in the first half of March 2025.



FAW larvae were found in cobs during March 2025 at a late sown maize silage crop (sown in late December 2024) on Gill Rd, 500m from this FAW pheromone trap.



Conclusions

- In the Far North of New Zealand, there were more FAW male moths trapped in 6 pheromone bucket traps in 2024/25 (142 moths/trap) than in 2023/24 (65 moths/trap).
- There were 4 periods of male moth flights on 2024/25 compared to 3 in 2022/23 and 2023/24.
- The fourth male moth flight was larger and 4 weeks later than the third FAW male flight in 2023.
- The fourth, and largest, moth flight occurred in May and June 2025 after all maize in the area had been harvested by mid-April 2025.
- FAW larvae were found after maize harvest in volunteer maize until 23 June 2025.
- The percentage of maize cobs where FAW larvae were found, sampled from 6 maize crops in the Far North, was similar in 2025 compared to 2024 with a maximum of 6-7% maize cobs with FAW larvae in 2025 compared to a maximum of 10% in 2024.
- There were no FAW larvae found in maize cobs sampled at two of the 6 maize crops in 2025.
- Fifth and sixth instar FAW larvae collected were not parasitised by the parasitoid wasp, *Cotesia ruficrus*.
- 40% of 2-4 instar FAW larvae collected from mid- November 2024 to mid-January 2025 were parasitised by *Cotesia ruficrus*.