**Level 3: Future Proofing Strategies**

**Strategy to Mitigate a Biological Influence Worksheet.**

**Rise in Fall Armyworm Numbers**

Written by Staff Reporters 25 Jan 2025

<https://www.ruralnewsgroup.co.nz/rural-news/rural-general-news/rise-in-fall-armyworm-numbers>

[](https://www.ruralnewsgroup.co.nz/media/k2/items/cache/03dd5a780fbc4d9a3e119790c074a94b_XL.jpg)

Second generation fall armyworm have already been observed in Northland.

**Populations of fall armyworm are two to three weeks more advanced than they have been in previous seasons, bringing calls for maize and sweetcorn growers to scout their crops as often as possible.**

Foundation for Arable Research (FAR) biosecurity officer Ash Mills says that second generation fall armyworm (FAW) have already been observed in Northland, where small populations have been widespread since November. While FAW population densities in maize crops are reaching up to 10% in small hotspots in the region, these levels remain below economic thresholds where maize growers would consider the use of pesticides for management.

Adult moths have also been observed in the Tasman region, with second-generation larvae expected in maize crops shortly. FAW has also been confirmed in Auckland and Waikato, as well as the South Island's West Coast, with possible findings in the Bay of Plenty and Gisborne.

Actively scouting crops and monitoring for any signs of FAW presence allows growers time to assess infestations and consider numbers in terms of economic damage and treatment thresholds. Economic thresholds may vary depending on crop, end use and growth stage. For example, damage to maize silage crops is unlikely to cause a severe economic loss, whereas any pest damage on sweetcorn cobs intended for human consumption will.

"Scouting is the number one effective tool for identifying pests and damage levels. The window of time from egg laying to the early larval stage, when FAW is small and susceptible on leaves is very short. Once FAW larvae are bigger and move into the whorl of the plant, identification and, if necessary, control, become more difficult," Mills says.

It is also important not to confuse FAW with other maize pests, particularly Cosmopolitan armyworm and corn earworm which can also cause damage.

Overuse of chemicals can disrupt beneficial insects such as the parasitoid wasp *Cotesia ruficrus* and generalist predators such as spiders, which help manage egg and early larval stages of FAW.

"Early detection allows for timely decisions, whether relying on natural predators or implementing targeted interventions, to minimise losses while protecting beneficial insect populations."

Mills encourages maize and sweetcorn growers to share experiences with their neighbours, as well as talking to their advisor; communication at a local, regional and national level are important to learn how to manage this pest.

Up to three generations of FAW have been recorded in Northland in previous years, but early indications suggest that up to four generations are likely this season. Living up to its fall armyworm name, this means bigger numbers and potentially more damage as populations multiply in autumn or "fall".

"Maize crops are looking great now, and early indications suggest that that parasitism rates of FAW larvae are increasing as the season progresses and the pest population grows.

"In more tropical climates, five or six generations of FAW can develop in a season; this is when severe crop damage occurs. Modelling shows that New Zealand is not expected to get five generations, but this year we will likely get four. However, it is also anticipated that by the time that happens, most crops will have been harvested," Mills says.

A Ministry for Primary Industries (MPI) Sustainable Food and Fibre Futures (SFFF) project, led by FAR and supported by Vegetables NZ is covering a range of topics including identifying economic thresholds for chemical control for maize silage, maize grain and sweetcorn and investigating FAW specific integrated pest management strategies.

**Level 3: Future Proofing Strategies - Strategy to Mitigate a Biological Influence Worksheet.**

**Questions**

1. From the article, state two future proofing strategies an agribusiness could use to mitigate the biological influence.
2. How have these strategies ensured the business’ long-term viability?
3. Can you provide two new strategies that would mitigate this biological influence? Explain each strategy.
4. Using the new strategies, explain which of these strategies would best meet the business’ future needs?

**Answers**

1. From the article, state two future-proofing strategies an agribusiness could use to mitigate the biological influence.

* Regular crop scouting and monitoring - Growers are encouraged to scout crops frequently to detect early signs of fall armyworm (FAW) infestation when it is most manageable.
* Integrated pest management (IPM) practices - This includes using beneficial insects like parasitoid wasps and generalist predators (e.g. spiders) and only applying pesticides when economic thresholds are reached.

1. How have these strategies ensured the business’ long-term viability?

* Regular scouting:  
  By detecting FAW early, farmers can respond quickly and avoid major crop damage. This reduces the need for emergency pesticide applications and helps maintain yield and crop quality, which protects revenue.
* IPMpractices:  
  Using a balanced approach that includes natural predators and careful pesticide use:
* Reduces reliance on chemicals and therefore lower costs and maintains revenue.
* Preserves environmental health and biodiversity, so the business can continue to grow maize and sweet corn crops, maintaining revenue.
* Delays the development of pesticide-resistant pests, ensuring that the grower can continue to produce maize and sweet corn crops, maintaining revenue.
* Meets the consumer need of reducing or not using chemical pesticides, ensuring consumers will purchase the crops and maintaining revenue.

Both strategies contribute to sustainable farming, maintaining productivity while minimizing environmental and economic risks, which supports long-term viability.

1. Can you provide two **new** strategies that would mitigate this biological influence? Explain each strategy.

Examples are:

* Investment in predictive modelling and weather-based pest forecasting - Using digital tools and climate data to forecast FAW outbreaks based on seasonal patterns (e.g. temperature and humidity that favour pest development).
* Crop diversification and resistant crop varieties - Planting a mix of crops and/or using genetically resistant FAW maize or sweetcorn varieties to reduce the impact of FAW on the entire farm system. This will provide alternative incomes streams and protect being able to grow maize and sweet corn.
* Adoption of precision agriculture technologies - using drones, sensors, satellite imagery, or digital tools for monitoring.
* Strengthening biosecurity protocols on-farm - high farm-level hygiene and traceability systems to prevent the pest occurring on the farm.
* Continuous staff training and upskilling on pest monitoring to ensure earlier detection of FAW.

1. Using the new strategies, explain which of these strategies would best meet the business’ future needs?

Examples are:

Best strategy: Predictive modelling and weather-based pest forecasting is the best strategy to meet future needs because it is a more immediate, precise, and scalable solution for ongoing and future biological threats like FAW than crop diversification.

Predictive modelling and weather-based pest forecasting is

* Proactive management - Allows farmers to act *before* infestations cause damage, instead of reacting afterward.
* Cost-effective - Reduces unnecessary pesticide use by targeting the right time and place.
* Scalable - Can be used across regions and shared among growers, enabling regional and national preparedness.
* Tech-aligned - Future farming will rely more on data and digital tools; this fits into that trend, keeping the business modern and competitive.