

Fall Armyworm case study

Managing Fall Armyworm Risk in a High-Production Dairy System

Tom Middlebrook - Mid North Coast, NSW

Farm overview

The Middlebrook family milk around 600 cows at 'Bowman Farm' near Gloucester on the Mid North Coast of New South Wales. Their production system integrates mixed dryland and irrigated pastures with forage and grain crops as part of a partial mixed ration (PMR) system.

Summer forage production includes kikuyu and forage sorghum, alongside maize. Each winter, kikuyu-dominant areas are over-sown with mixes of winter cereals and Italian ryegrass, while summer cropping areas are rotated through winter cereals, shorter-term annual ryegrass and legumes.

Learning to manage fall armyworm

Tom manages much of the farm's cropping and pasture program and has spent the past four years developing strategies to manage the challenges posed by Fall Armyworm (FAW) in maize, grain sorghum and forage sorghum.

The approach has evolved significantly. For the past two years, Tom has relied on at least weekly crop inspections, beginning shortly after germination, to identify early signs of leaf damage or caterpillar activity. Where infestations are detected, the priority is to respond quickly before populations can build and cause significant damage. Tom works with his consultant to determine best strategies around reducing the impact on the summer crops.

"Every year we now must manage FAW in our summer crop," Tom explains. "It has become normal for us to have to spray at least once, if not up to three times. Otherwise, the damage to yields and forage quality is unacceptable."

Tom uses a rotational approach to registered insecticides, with drone application providing a practical way to target infestations. Where spray applications have been made promptly, crop damage has generally been minimised.

However, the summer of 2023–24 demonstrated that FAW could create challenges well beyond the traditional summer cropping period.



Tom Middlebrook's dairy farm on the Mid North Coast of NSW was significantly impacted by Fall Armyworm

A costly lesson in summer crops

During January and February 2024, Tom faced mixed infestations of FAW and *Heliothis* in maize and forage sorghum. In some moderately affected maize, spray windows had been missed, and Tom made the decision not to treat.

Initially, the level of damage was considered tolerable. However, in some areas, the damage ultimately reduced maize yield by as much as 25%.

In the forage sorghum, the situation was managed differently. Rather than relying on chemical control, short-rotation grazing was used to curtail the damage and avoid the challenges associated with chemical withholding periods.

It was, however, only the beginning of the farm's FAW problems that year.

When FAW moved into winter crops

Establishing early winter feed is a core strategic objective at Bowman Farm. While establishing winter crops following summer grazing or forage crops is generally routine, sowing winter crops directly into kikuyu during autumn can be considerably more challenging.

To allow earlier sowing, Tom occasionally uses low rates of glyphosate to suppress kikuyu without completely killing the pasture. In early March, this approach was used on 30 hectares of prime irrigated country, following a silage cut to remove pasture residues.

The paddock was then sown to a mixture of feed barley at 60 kg/ha and insecticide treated Italian ryegrass at 30 kg/ha. Initially, establishment appeared promising.



*Damaged pasture and Ibis Gloucester Region
2024 Image courtesy Neil Moss Scibus*

Around three weeks after planting, however, the crop began to look increasingly patchy.

Tom had noticed numerous ibises in the paddock. Close inspection revealed a much more serious problem.

"The ground was moving."



*Image of captured FAW larvae from Autumn pastures, Gloucester region
NSW image courtesy Neil Moss Scibus*

Tom initially suspected a common armyworm infestation. A spray of a registered synthetic pyrethroid had minimal effect, prompting him to seek a more formal identification of the larvae which both his farm consultant and local rural store agronomist identified from photos as being a mix of both common and FAW, with the FAW predominantly surviving the insecticide treatment.

A second attempt suffers the same fate

The infestation eventually appeared to subside naturally, giving Tom an opportunity to try again. Concerned that FAW could be particularly attracted to cereals, Tom changed his strategy. Rather than another mixed cereal and ryegrass crop, he sowed a straight stand of treated Italian ryegrass at 30kg/ha.

Germination was successful, but there was damage again, as FAW moved into the crop. The young ryegrass was rapidly consumed, with around 80% of the new pasture removed. Finally, a replant of Italian ryegrass in late April was successful, but by then the cost to the enterprise had become substantial.

The cost went beyond seed and sowing

Tom estimates that the repeated establishment failures cost at least \$12,000 in additional seed and contracting expenses. The greater impact was the delay in accessing 30 hectares of high-quality winter pasture.

The repeated crop failures resulted in up to 90 days of lost access to pasture and slowed the herd's return to normal autumn production following a difficult summer.

Tom estimates that up to 100 tonnes of high-quality pasture dry matter needed to be replaced using a combination of hay and by-products.

The experience highlighted that the cost of FAW is not necessarily confined to the value of the damaged crop. In a high-production dairy system, delayed pasture establishment can affect feed availability, herd performance and the timing of the transition back to normal production.

Balancing the benefits and risks of early sowing

The experience has created an ongoing degree of uncertainty around the risk associated with early winter sowing at Bowman Farm.

Tom has become more confident in managing FAW in summer crops through regular monitoring and timely insecticide applications. However, controlling the pest across the entire farm remains difficult, particularly when environmental conditions favour FAW populations in surrounding grasslands.

At the same time, early winter feed remains strategically important. Getting high-quality pasture established in autumn can have a significant impact on feed availability and herd production through the following months.

This means the decision to sow early has become a balance between the potential benefits of early feed and the risk of crop damage or establishment failure.

"We have rolled the dice this year (2026) and got away with it, with good early crops in irrigation and dryland," Tom said. "But we know each year will be different. We need to keep FAW well controlled on our summer crops, but it is hard to control the whole area and the weather that may favour them in the local grasslands."

For the Middlebrooks, FAW has become more than a summer cropping pest. It is now a factor that needs to be considered across the entire forage program, from summer crop establishment and management through to the timing and success of autumn winter-feed establishment.

Middlebrook farm – Key insights

- Needed to conduct at least weekly crop inspections.
- Worked with consultant to determine best strategies around reducing the impact on summer crops.
- A spray of a registered synthetic pyrethroid had minimal effect.
- Repeated crop failures resulted in up to 90 days of lost access to pasture and slowed the herd's return to normal autumn production following a difficult summer.

Key messages

Assess FAW risk and decide on a plan even if you have not experienced FAW on your farm.
See **Assessing Fall Armyworm risk on dairy farms**.

Monitor and inspect paddocks at least every five to seven days – frequency depends on assessed risk.
See **Fall Armyworm Record sheet** and the **Fall Armyworm Calculator**.

Accurate identification is critical – make sure it's FAW and not another caterpillar species.
See **Fall Armyworm Identification guide**.

Seek support quickly – If you suspect FAW, check in with your adviser or agronomist immediately. Do not wait.
See **Fall Armyworm Field Guide**.

Dairy Australia FAW resources – Comprehensive FAW resources are available through your local Dairy Australia team or on **dairyaustralia.com.au**.

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