

Assessing Fall Armyworm risk on dairy farms

Fall Armyworm (FAW; *Spodoptera frugiperda*) is a destructive horticultural and field pest that can devastate crops and pasture quickly.

Early detection and correct identification are critical to implementing effective control measures. Use this resource to assess the risk level of FAW on your farm and determine the steps to take to control it.

Are your crops and pastures at risk of Fall Armyworm?

If you answer **YES** to two or more of the questions below, your crops and pastures face 'High Risk' of FAW.

If you answer **NO** to two or more of the questions below, your crops and pastures face 'Low Risk' of FAW.

Do you live in an area where FAW is active?

Check the map for FAW activity risk (see Figure 1), ask local farmers and agronomists, or check pheromone trap results.

Has your farm had FAW problems before?

High FAW activity over summer indicates an increased risk of infestation in autumn.

Are you growing FAW-susceptible crops or pastures?

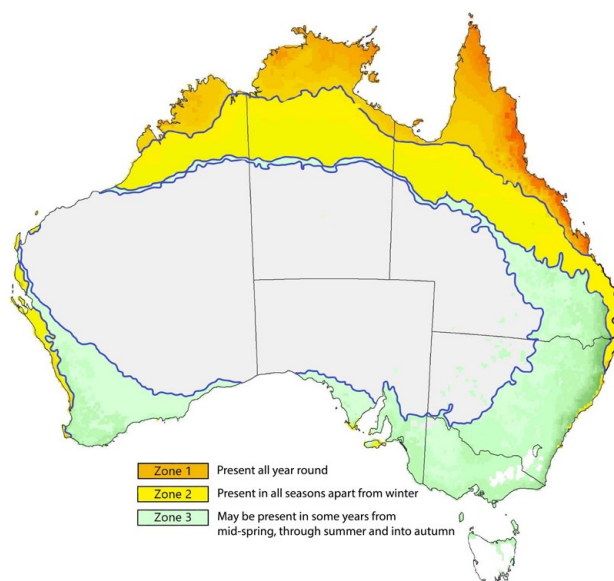
Summer crops: Maize and sorghum (both grain and fodder types) or white French millet.

Autumn/winter crops and pastures: Oats, annual ryegrass and early sown winter cereals.

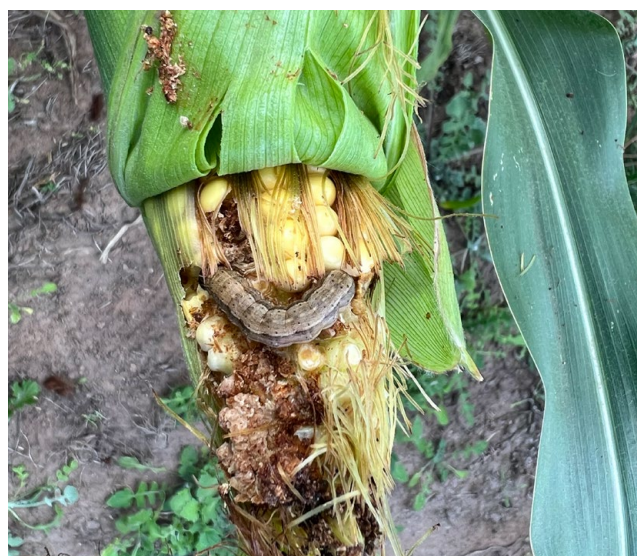
Consider crop or pasture growth phases.

Emerging and establishing crops and pasture are highly susceptible to defoliation and plant death resulting from FAW infestations.

Figure 1 FAW activity map



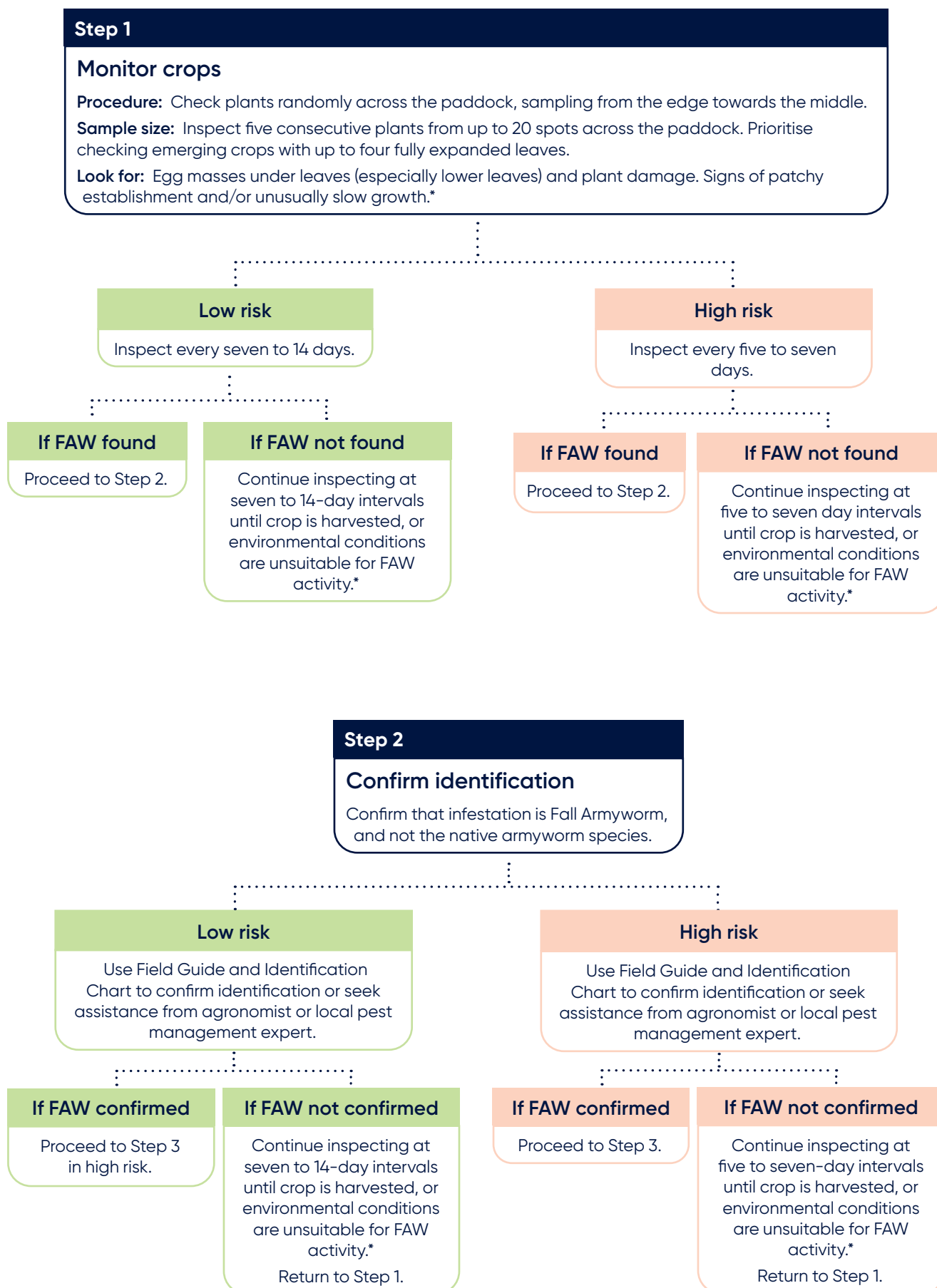
Source: Fall Armyworm continuity plan, Grains Research Development Corporation initiative



Active feeding in corn cob

Maize and sorghum

Below are the assessment steps to take if your farm is growing maize or sorghum.



* Refer to the Fall Armyworm Field Guide

Step 3

Assess infestation

Procedure: Conduct destructive sampling by pulling apart the plants to quantify the severity of the infestation as identified in Step 1.

Count & record:

- The number of egg masses per plant.
- The number of small, medium and large larvae per plant (excluding very small, hatching larvae).
- The number of plants checked.
- The number of plants with FAW and without FAW (% plants infested).

Look for: Severity of plant damage*. Damage to the stem and growing point in crops up to four fully expanded leaves mean plant death is likely, especially if one large larva (15+ mm) per plant is present.

⋮

High risk

Conduct destructive sampling to quantify the severity of infestation and then proceed to Step 4.

Step 4

Assess if treatment threshold reached

Check if the point has been reached where action is needed (the action threshold), and decide if treatment is required by looking at any reasons that might reduce the need for it.

Procedure: Confirm if action threshold reached and treatment is required. See Fall Armyworm Field Guide for details.

Check: If beneficials or natural enemies* have been observed as they may suppress low-moderate infestations.

Assess: Determine if the crop is vulnerable to economic loss due to its age or the intensity of infestation.

⋮

High risk

Look for mitigating factors such as natural predators suppressing the FAW infestation to assess if action is necessary.

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If action threshold not reached

Treatment is not required.
Continue inspecting every five to seven days.

If action threshold reached

Treatment is required.
Proceed to Step 5.

* Refer to the Fall Armyworm Field Guide

Step 5

Treatment

Procedure: Contact your agronomist for advice on treating crops.

Check: Only use products which are under permit or registered on the Australian Pesticides and Veterinary Medicines Authority website (apvma.gov.au).

⋮

High risk

Initiate appropriate treatment for Fall Armyworm infestation.
Proceed to Step 6.

Step 6

Post treatment assessment

Procedure: Seven to ten days after treatment, assess effectiveness by checking infestation levels and crop response.

Look for: Larvae that have survived the treatment (medium – large) or new larvae (small). New, undamaged leaves emerging.

Treatment may fail:

- If FAW has resistance to the product used (synthetic pyrethroids, carbamates).
- If there were issues with pesticide application that reduced efficacy.

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High risk

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If treatment was effective

Continue regular crop monitoring.

If treatment was ineffective

Investigate reasons for failure
AND
Retreat with a different mode of action, if required.
Continue monitoring until crop is no longer susceptible or FAW infestation declines below damaging levels.

Pasture

Below are the assessment steps to take if your farm is growing pasture.

Step 1

Monitor pasture

Procedure: Check plants randomly across the paddock, sampling from the edge towards the middle. It is best to inspect plants at night when larvae are actively feeding.

Equipment: You can use a sweep net for a rapid assessment of the presence of pests in pasture.

Sample size: Inspect five consecutive plants from up to 20 spots across the paddock.

Look for:

- Plant damage*
- Larvae (on the plant and in the soil at the base of plants)
- Egg masses under leaves (especially low on the plant)

Prioritise: Checking from emergence to first light graze at six weeks.

Visual monitoring: With sweep net, take 10 sweeps from up to 20 spots across the paddock.

Low risk

Inspect every seven to 14 days.
Look for plant damage*, signs of patchy establishment and/or unusually slow growth.

High risk

Inspect every five to seven days.
Prioritise checking post emergence to first light graze at six weeks.

If FAW found

Proceed to Step 2.

If FAW not found

Continue inspecting at seven to 14-day intervals until pasture is no longer susceptible to loss, or environmental conditions are unsuitable for FAW activity.*

If FAW found

Proceed to Step 2.

If FAW not found

Continue inspecting at five to seven-day intervals until pasture is no longer susceptible to loss, or environmental conditions are unsuitable for FAW activity.*

* Refer to the Fall Armyworm Field Guide

Step 2

Confirm identification

Confirm that infestation is Fall Armyworm, not the native armyworm species.

Low risk

Use FAW Field Guide to confirm identification or seek assistance from agronomist or local pest management expert.

If FAW confirmed

Proceed to Step 3 in high risk.

If FAW not confirmed

Continue inspecting at seven to 14-day intervals until pasture is no longer susceptible to loss, or environmental conditions are unsuitable for FAW activity.*

High risk

Use FAW Field Guide to confirm identification or seek assistance from agronomist or local pest management expert.

If FAW confirmed

Proceed to Step 3.

If FAW not confirmed

Continue inspecting at five to seven-day intervals until pasture is no longer susceptible to loss, or environmental conditions are unsuitable for FAW activity.*

Step 3

Assess infestation

Procedure: Either use the inspection procedure described in Step 1 or use a sweep net* taking 10 sweeps per sample and 10 samples per paddock. A sweep net covers approximately 0.5 square metre in 180° arc.

Assess:

- The severity of plant damage*.
- The capacity of the pasture to recover.

High risk

Conduct structured sampling to quantify the severity of infestation.
Proceed to Step 4.

* Refer to the Fall Armyworm Field Guide

Step 4

Assess if treatment threshold reached

Check if the point has been reached where action is needed (the action threshold), and decide if treatment is required by looking at any reasons that might reduce the need for it.

Procedure: Confirm if treatment is required. **NO thresholds** are known for Australian pasture production systems. As a guide **only** US action threshold is reached when more than 21-32 FAW larvae found per square meter.

Check: If predators and parasitoids* have been observed killing FAW eggs and larvae as they may suppress low-moderate infestations.

Assess: Determine if the pasture is vulnerable to economic loss due to its age or the intensity of infestation.*

High risk

Look for mitigating factors such as natural predators suppressing the FAW infestation.

If action threshold not reached

Treatment not required.
Continue inspecting every five to seven days.

If action threshold reached

Treatment is required.
Proceed to Step 5.

Step 5

Treatment

Action: Check with your local agronomist on permitted or registered options for pasture.

Ensure: Only use products which are listed as under permit or registered on the Australian Pesticides and Veterinary Medicines Authority website (apvma.gov.au).

Avoid: Insecticides that are used for cutworm, common armyworm, loopers and cluster caterpillar (synthetic pyrethroids and carbamates) as FAW is resistant to them.

High risk

Initiate appropriate treatment for Fall Armyworm infestation.
Proceed to Step 6.

Step 6

Post treatment assessment

Action: Seven to ten days after treatment, assess effectiveness by checking infestation levels and pasture response.

Treatment may fail:

- If FAW has resistance to the product used (synthetic pyrethroids, carbamates).
- If there were issues with pesticide application that reduced efficacy.

High risk

Check if treatment has been effective on infested pasture.

If treatment was effective

Continue monitoring until pasture is no longer susceptible or FAW infestation declines below damaging levels.

If treatment was ineffective

Investigate reasons for failure
AND
Retreat with a different mode of action, if required.
Continue monitoring until pasture is no longer susceptible or FAW infestation declines below damaging levels.

Dairy Australia recognises that all photos in this document belong to the Queensland Government's Department of Primary Industries.

Disclaimer

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