ENTO-PU-248
September 2026

The Pasture Mealybug: A New Invasive Pest of Pastures and Hayfields in Texas

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Background

Figure 1. Pasture of grass suffering dieback associated with pasture mealybug infestation *(Photo courtesy of Stephen Biles)*

Since spring 2025, Texas pasture and hay producers have been reporting problems in their fields. These fields show grass patches becoming brown or necrotic, or patches that are completely dead. There have been extreme cases where entire fields show symptoms of grass desiccation (Fig. 1). In September 2025, USDA-APHIS confirmed the pasture mealybug (*Heliococcus summervillei*) is the species associated with the symptoms and cases previously mentioned. In 2015, a new biotype of *H. summervillei* was reported in Australia that was much more damaging than the previous biotype. However, recently, the new biotype has been designated as a new species: *Heliococcus novovillei*. Both species occur in Texas, but *Heliococcus novovillei* is thought to be the most prevalent. Distinguishing between these two species cannot be done in the field.

These insects are introduced pests and are newly recorded species in the United States. Although it is a new record for the continent, researchers suspect that the insects may have been introduced before 2022. This pest was first described in Australia in 1928, and the first detection of this species in the Western Hemisphere occurred in the Caribbean

between 2019 and 2020. The pest has been found across Texas. For a complete list of infested counties, refer to Texas A&M AgriLife's *current season infestation map* (https://agrilifeextension.tamu.edu/pasture-mealybug/).

Identification and Biology

Adult female mealybugs are 2 to 5 millimeters long and oval-shaped, with short, tube-like projections at the posterior (anal) end of the body. The insect body is usually covered with a waxy coat, giving it a white, "mealy" appearance. Older pasture mealybugs have fine hair, about as long as the width of their bodies. These extend out from all sides (Fig. 2). The youngest nymphs are very small (less than 1 millimeter in length) and can only be seen with a magnifier.

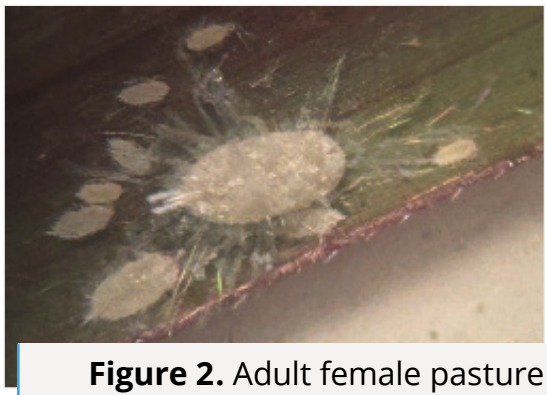

Figure 2. Adult female pasture mealybug surrounded by nymphs *(Photo courtesy of Stephen Biles)*

The mealybugs might be found feeding at the base of the plant and on roots. Nymphs are the damaging stage of the pest. The adults do not feed much. The pasture mealybug is mobile in all life stages and might be found at or below the soil surface or under dried cow patties (Fig. 3). Pasture mealybugs are not necessarily gregarious and may be found either in larger groups or individually on leaves.

Figure 3. Pasture mealybugs can be found in the soil or under dried cow patties *(Photo courtesy of Stephen Biles)*

The mealybug reproduces sexually, with both males and females passing through four instars. Males pupate at the third instar and emerge as winged adults, which are most abundant during the peak summer breeding season. Mating tends to occur in the dense thatch layer of summer pastures. The bodies of mature-mated females turn pink. Females can produce nearly 100 offspring within 24 hours. In the field, mated females will typically live for 10 days, but under optimal conditions may live as long as 100 days. Females can persist over the winter in the soil where they survive under dry and/or cold temperatures.

The pasture mealybug undergoes seasonal variations in intensity or population increases, depending on the weather and pasture management. High humidity, high temperatures, and rain events over the growing season are favorable conditions for the pest to increase population size and damage potential.

Damage and Symptoms

While adult pasture mealybugs do not feed much, immature pasture mealybugs feed by sucking plant sap with piercing/sucking mouthparts, and excrete sugary substances, or honeydew, over the leaves. The honeydew may grow sooty mold fungi, which may block photosynthesis. However, most of the damage is caused by injecting saliva into the plant, which is toxic to the grass (Fig. 4). As a result, the plants become weakened and more susceptible to secondary infections by plant pathogens such as *Fusarium*. The combination of the mealybug feeding and secondary infection of plant pathogens results in a condition known as "pasture dieback." This kills grasses and is currently affecting millions of hectares of highly productive grazing land across parts of Australia. Even low numbers of mealybugs may result in pasture dieback under the right conditions.

Figure 4. Pasture mealybugs (left) and a close-up with associated reddening of the grass blade (right) *(Photos courtesy of Stephen Biles)*

Mealybug symptoms can show up within a week of infestation, but it may take longer for the grass to die completely. Early symptoms of a mealybug infestation include yellowing grass, followed by purpling or reddening of the leaves (Fig. 5).

Figure 5. Yellowing (left) and reddening (right) of grass affected by feeding from pasture mealybug *(Photos courtesy of Danielle Sekula and Stephen Biles)*

Symptoms are often mistaken for nutrient deficiency. Plants may look stunted and show drought stress, even after a rainfall event, and generally have a poorly developed root system. These symptoms are noticed first in old leaves, starting from the tip and moving down the leaf blade in a dieback progression. Plants experiencing dieback will senesce prematurely, leading to infections of opportunistic pathogens that eventually cause the plants to die (Fig. 6).

Figure 6. Severe case of pasture dieback associated with pasture mealybug *(Photo courtesy of Stephen Biles)*

Hosts

The pasture mealybug is a primary pest on tropical and subtropical grasses. However, it has also been noted to infest some sedges. The pest has been reported infesting grass in Texas, Louisiana, Florida, and Georgia. Most of its economic impact has been documented in pastures grown for grazing and hay. Broadleaf plants, such as legumes or brassicas, are not affected by the pasture mealybug. In Texas, it has been recorded to occur on and damage most pasture grasses.

Scouting

- Inspect fields regularly, concentrating on areas with early symptoms, such as yellowing, slight reddening, and poorly growing grass.
- Check the edges of damaged areas more than the middle of dead grass patches.
- Look for mealybugs on the undersides of leaves, especially the lower leaves.
- Check the soil surface and thatch below the grass canopy for mealybugs. Often, the mealybugs may be in the thatch, and on or in the soil.
- In hay that is 14 to 30 days post-cutting, pull the grass stem back at the soil surface and look for mealybugs congregated on the stem just below the soil surface.

- Mealybug size ranges from less than 1 millimeter to 5 millimeters in length. If larger-sized mealybugs are present, be aware that many more tiny and nearly undetectable nymphs may be present.
- We have not determined a producer-/consultant-friendly method for estimating the size of the mealybug populations in the field. However, if mealybugs are readily found in a susceptible grass species, treatment is likely justified.

Management

- When grass injury symptoms are detected and the pest is present, management with cultural and chemical methods may be used to help reduce mealybug numbers.
- Cultural control methods include cutting/shredding and heavy grazing. Pasture mealybugs thrive in tall, dense forage, so reducing biomass by cutting/shredding and heavy grazing will also reduce the mealybug populations.
- Chemical control is still being evaluated, but there are several insecticides that research has shown to have activity against pasture mealybug.

i. Insecticides labeled for use in pastures in Texas.

1. Centric 40WG has a Section 18 Crisis Emergency Exemption for use at 2 to 3.44 ounces per acre. Research has shown Centric 40WG at 2.5 ounces per acre to be consistently effective in reducing mealybug populations. Pre-harvest interval is 7 days before cutting for hay and zero day for forage. Only a single application of Centric 40WG may be applied per cutting.
2. Sefina Inscalis at 8 to 10 fluid ounces per acre offers suppression of the pasture mealybug. Research suggests that managing high populations of mealybugs with this product may not produce desirable levels of control. Its best use is when crop injury is slight, and the mealybug population is not severe. Pre-harvest interval is zero day.

ii. Not labeled, but research shows they are active towards pasture mealybug.

1. Non-labeled insecticides that have shown good activity in research trials include Admire Pro at 6 fluid ounces per acre, Sivanto Prime at 14 fluid ounces per acre, Assail 70WP at 3.4 ounces per acre, and Transform at 2.75 ounces per acre.

iii. Insecticides that have proven ineffective in research trials include Besiege, Dimilin, Carbaryl, and Lannate; and those with the active ingredients of pyrethroids and fipronil.

iv. **Adjuvants**. We recommend including adjuvants to facilitate product spread on the leaf surface and leaf absorption. Methylated seed oils have demonstrated good ability to enhance leaf absorption in other crops.

v. **Avoid broad-spectrum insecticides**. For sustainable control of pasture mealybugs, reliance on pest predators and parasitoids is critical. To prevent eliminating these natural enemies, avoid treating pasture-mealybug-infested pastures with these types of insecticides: carbamates (group 1A), organophosphates (group 1B), or pyrethroids (group 3A).

Optimizing Control

- The key reason pasture mealybug is often difficult to control with insecticides is poor insecticide coverage due to tall, thick grass canopies. These steps will optimize control:

i. **Reduce the biomass**. Where damage and mealybugs are detected, the best thing to do is to eliminate the canopy by cutting or shredding. Where possible, bale the grass to remove as much dry grass material from the field.

ii. **Allow regrowth**. Allow the grass to regrow to 6 to 8 inches tall. The insecticides that show good activity towards pasture mealybug must have green leaf tissues to work.

iii. **Treat**. After sufficient regrowth has occurred and mealybugs are detectable, apply insecticide. Because the canopy has been reduced, insecticide coverage and activity should improve significantly.

iv. **Environmental conditions might affect insecticide efficacy**. The efficacy of insecticide applications may be reduced under drought conditions. When dry conditions persist and the grass is no longer actively growing, mealybugs may move from the plants into the thatch layer or soil. Under these conditions, insect activity, including feeding and movement, may also be reduced. As a result, mealybugs may have less exposure to insecticides, potentially reducing treatment efficacy.

Pasture Recovery

- When pastures are heavily damaged, a decision must be made to attempt to recover or replace the grass.
- **Seeded grasses**
    i. Grass species such as Bahiagrass and bluestems are good seed-producing grasses. Depending on the severity and timing of mealybug infestations, these grasses might have produced enough seed to reseed themselves and not require grass replacement.
    ii. If reseeding, less susceptible grass species should be strongly considered, despite currently limited data. In mixed stands of Gordo and Medio bluestem, Gordo was less preferred and/or affected.
- **Non-seeding grasses**
    i. Some grass species do not reproduce well through seeds, and these might be more difficult to reestablish in severely affected areas by themselves.
    ii. Although data comparing the susceptibility of various grass species and varieties is unavailable, anecdotal observations suggest there are differences. Thus far, all pasture grasses seem to be susceptible and subject to injury and pasture dieback. However, it appears Coastal Bermudagrass is more tolerant than Tifton 85 Bermudagrass.
- If the decision is made to start over, removing all grasses from the field will be better for reducing mealybug survival and should be done as soon as possible. This will also help in the establishment of the next crop.
- Applying pyrethroid insecticides to the fallow field may help reduce mealybug numbers, but this has not been studied. The residual control may be enhanced by disking the field immediately after application.

Reporting Infested Pastures: It is important to understand the geographic range of the current pasture mealybug infestation.

If pasture mealybugs are found in a county not previously reported, please contact your Texas A&M AgriLife County Extension Agent.

Acknowledgements

This work is supported in part by the Crop Protection and Pest Management, Extension Implementation Program, project award no. 2024-70006-43508, from the U.S. Department of Agriculture's National Institute of Food and Agriculture. Any opinions, findings, conclusions, or recommendations expressed in this publication are those of the authors and should not be construed to represent any official USDA or U.S. Government determination or policy.

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