



Animal and Plant Health Inspection Service
U.S. DEPARTMENT OF AGRICULTURE

Measures to reduce risk of moving pasture mealybugs (*Helicococcus novovillei* and *Helicococcus summervillei*) with nursery plants



Pasture mealybugs on grass (Photo: Stephen Biles, Texas A&M AgriLife Extension Service)

Version 1
September 28, 2026

Agency Contact:

Plant Pest Risk Analysis
Science and Technology
Plant Protection and Quarantine (PPQ)
Animal and Plant Health Inspection Service (APHIS)
United States Department of Agriculture (USDA)
920 Main Campus Drive, Suite 400
Raleigh, NC 27606

Disclaimer: This report reflects the best scientific and technical information available at the time of preparation. APHIS PPQ may update this document as new or additional information becomes available. To submit new or corrected information, please email npag@usda.gov and include the assessed plant pest and report type in the subject line.

Table of Contents

Purpose and Scope.....	3
Background	3
Key Biological Information	4
Description	4
Life Cycle	4
Hosts	5
Damage Symptoms	6
Measures to Reduce Risk of Moving Infested Nursery Plants.....	6
Exclusion.....	7
Monitoring	7
Management.....	8
Host removal and destruction.....	8
Insecticides.....	8
Sanitation and maintenance	9
Pre-Shipment Measures.....	10
Pre-shipment insecticides	10
Pre-shipment inspection	10
Pre-shipment considerations	11
References.....	11
Appendix A: List of plant species on which pasture mealybugs have been reported	14
Appendix B. Insecticides that are registered for use in U.S. greenhouses and/or nurseries and that are used for general mealybug control.	17

Purpose and Scope

The purpose of this document is to provide an overview of mitigation measures to reduce the risk of pasture mealybugs being transported on nursery plants from infested areas to non-infested areas within the United States. The guidance focuses on measures relevant to production systems where ornamental grasses are produced, maintained, and sold. Other production systems, such as sod nurseries or farms (i.e., large-scale outdoor operations where turfgrass is grown and harvested as sod for transplanting) and pasture nurseries (i.e., where forage grasses are produced for pasture establishment, restoration, or seed production), are outside the scope of this assessment.

While there is currently no evidence that pasture mealybugs occur routinely in nurseries, mealybugs in general can be challenging nursery pests to manage because of their broad host ranges, tendency to occupy concealed locations, and ability to spread through the movement of infested plant material, people, clothing, and equipment (Boschma et al., 2024; Summerville, 1928). Some species may also persist in the absence of live host material. These characteristics underscore the importance of implementing measures to reduce the risk of pasture mealybugs being moved within nursery production systems.

Background

Pasture mealybug nymphs suck sap from leaves and roots and excrete sticky honeydew that promotes the growth of black sooty mold fungi which can reduce photosynthesis (Baker et al., 2024; Biles et al., 2026). However, most plant damage is caused by toxic saliva injected during feeding, which weakens grasses and increases their susceptibility to secondary infections by plant pathogens (Biles et al., 2026). The combined effects of mealybug feeding and pathogen infection can result in leaf discoloration, stunted growth, and eventual plant death (Boschma et al., 2024; Buck, 2017; Buck et al., 2025; Hauxwell and McNicholl, 2018).

Pasture mealybugs have been reported from Australia (Buck, 2017; MLA, 2021), Barbados (Gibbs, 2020), India (Ghosh, 1979; Ghosh and Ghose, 1987), Mexico (Aca-Martinez et al., 2025), New Caledonia (Brinon et al., 2004), and Pakistan (Brookes, 1978; Williams, 2004). More recently, pasture mealybugs were introduced to the United States, with the first report occurring in Texas in July 2025, where they were associated with damage to turfgrass and forage grasses used for grazing and hay production (Biles, 2025). Since then, they have also been reported in association with damage to grasses and commercial sugarcane in Louisiana (Blanchard, 2026), Florida (Esquivel, 2026; Powell and Hauxwell, 2026), and Georgia (GDA, 2026).

Pasture mealybug has historically been referred to as *Helicococcus summervillei* Brookes, but recent taxonomic work has shown that what was previously treated as a single species actually

comprises two species: *H. summervillei* and *Heliococcus novovillei* Powell and Miller (Powell, 2026). Current evidence suggests that *H. novovillei* is responsible for most recent damage in the United States, Mexico, and Australia; however, because both species now occur in the United States (Powell, 2026), this report treats the two species collectively and refers to them as “pasture mealybugs.”

Key Biological Information

Description

Adult females are wingless, white (unmated) or pink (mated), up to 5 mm long, and visible to the naked eye (Boschma et al., 2024; Hauxwell, 2022b). In contrast, adult males are winged, pink, and less than 1 mm long, while nymphs (juveniles) may be as small as 0.2 mm, both of which are difficult to detect without a hand lens and males are rarely observed (Boschma et al., 2024; Hauxwell, 2022b). Older mealybugs may have long, slender wax filaments extending in all directions ([Fig. 1](#)) (Biles et al., 2026).



Figure 1. Adult female pasture mealybug surrounded by nymphs (Photo: Stephen Biles, Texas A&M AgriLife Extension Service)

Life Cycle

Pasture mealybugs overwinter in the field as early-instar nymphs or adult females beneath debris or the soil surface. In spring and summer, overwintering individuals emerge to infest actively growing host plants ([Fig. 2](#)) (Hauxwell, 2022b; Hauxwell and McNicholl, 2018). First-instar nymphs, known as crawlers, move onto the leaves to feed and disperse before returning to the crown of the plant, where they settle and complete development (Hauxwell, 2022b). Populations of feeding nymphs peak in late summer under hot, humid conditions (Baker et al., 2024; Boschma et al., 2024; Buck et al., 2025; Hauxwell, 2022b). Adults do not feed and are typically found within the dense crown and thatch layer of grasses; adult males are generally only present during the summer (Hauxwell, 2022b; Hauxwell and McNicholl, 2018).

A single female can produce more than 100 offspring¹ within 24 hours of mating² (Hauxwell, 2022b) and up to around 250 offspring over her lifetime (Summerville, 1928). Most females die within 10 days after reproduction, although some have lived 88 to 100 days; males have a shorter life cycle of 29 to 33 days (Hauxwell, 2022b). A complete generation can be completed in 37 to 47 days (Biles et al., 2026; Hauxwell, 2022b), with approximately three generations occurring throughout the year (Boschma et al., 2024).

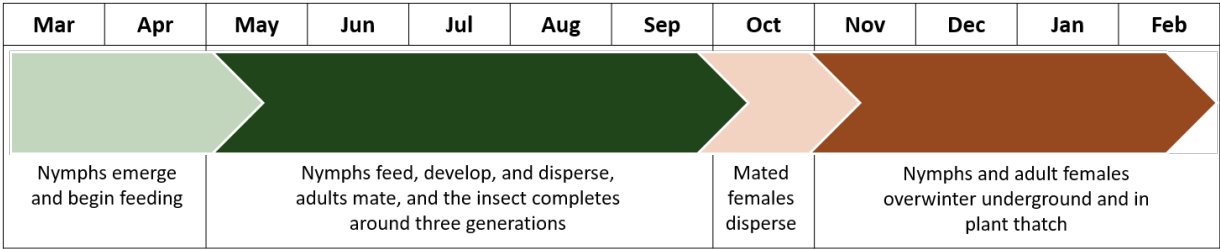


Figure 2. Seasonal activity of pasture mealybug (modified from Hauxwell (2022b) and Boschma et al. (2024))

Hosts

Pasture mealybugs are primarily pests of grasses (Poaceae) but can also infest some sedges (Cyperaceae). In the United States, pasture mealybugs have been reported from Bermudagrass, Bahia grass, St. Augustine grass, Johnsongrass, hay grazer (sorghum-sudangrass), several bluestem species (Biles et al., 2026), limpograss (Esquivel, 2026), and sugarcane (Blanchard, 2026), among others. Tropical and subtropical pasture grasses are particularly at risk (Hauxwell et al., 2022). Broadleaf plants, including brassicas and forage legumes like alfalfa, are generally not affected (Buck et al., 2025; Hauxwell, 2022a; Hauxwell, 2022b; Hernandez-Europa, 2024). We found no information on which grass species commonly found in nurseries may be more susceptible to infestations; therefore, include pasture mealybugs in inspections of all grasses considered within these systems. Ornamental grasses within the Poaceae family—such as *Miscanthus*, *Panicum*, *Pennisetum*, and *Festuca*—are susceptible to mealybugs; however, there are currently no U.S. records of *H. novovillei* or *H. summervillei* infesting these hosts in ornamental settings.

[Appendix A](#) provides an extensive, though not exhaustive, list of plant species on which pasture mealybugs have been reported, some of which may be incidental hosts—plants that may not support full development. However, the host range of pasture mealybugs is likely more

¹ Pasture mealybug females do not oviposit eggs (Ghosh and Ghose, 1987); instead, eggs hatch within the oviduct of females who then give birth to first-instar nymphs.
² The literature reports both sexual and asexual reproduction; asexual reproduction through parthenogenesis typically occurs only when females overwinter (Hauxwell, 2022b).

extensive than currently documented, as new host species have recently been identified in the United States that have not been reported in other regions.

Damage Symptoms

Symptoms of nymphal feeding on pasture grasses include yellow, red, or purple discoloration of the leaves ([Fig. 3](#)) (Hauxwell, 2022b) that varies among grass species (Baker et al., 2024).

Discoloration begins at the tip of the oldest leaves and moves along the leaf blade (Baker et al., 2024). Most of the leaves will eventually discolor, and plant growth will become stunted or stop (Baker et al., 2024). Affected plants will have fewer leaves, tillers (new shoots), and feeder roots, and ultimately die (Baker et al., 2024). In sugarcane, feeding results in severe yellowing of the leaves, a condition referred to as yellow canopy syndrome (Blanchard, 2026; Xu et al., 2024).



Figure 3. Discolored (yellow, red, or purple) grass after becoming infested with pasture mealybug (Photo: Stephen Biles, Texas A&M AgriLife Extension Service)

Measures to Reduce Risk of Moving Infested Nursery Plants

Multiple measures should be employed concurrently as part of a systems approach to reduce the risk of moving nursery stock infested with pasture mealybugs from areas where the pests occur. Applying multiple mitigation measures provides several points of protection, reducing the likelihood of pest entry, establishment, and spread through nursery plant shipments.

The first step in developing a risk-reduction strategy is to identify and map potential pathways for introduction and spread of pasture mealybugs within and between nursery facilities.

Nurseries should identify points where infested plant material or other sources of mealybugs could enter the facility, move among production areas, or be transferred between plants.

Because mealybugs in general can be difficult to control in greenhouse and nursery settings, management is most effective when infestations are detected early, before populations become

established. Measures commonly used for general mealybug management in nurseries are likely to provide some suppression of pasture mealybugs. However, although biological control is often recommended as part of an integrated approach to mealybug management in nurseries and greenhouses, effective parasitoids or predators specifically targeting pasture mealybugs are not known at this time (Hauxwell, 2022b).

Exclusion

Purchase new plants from licensed nurseries following best management practices or from non-infested areas. Place new plant material in a designated quarantine area within the nursery and examine plants for pasture mealybugs ([Fig. 1](#)) and associated damage ([Fig. 3](#)). Keep in mind that pasture mealybugs are small and cryptic, making them difficult to detect, especially when populations are low. Because they feed on roots and may occur below the soil surface, watering newly acquired plants immediately upon receipt may encourage mealybugs to move to the soil surface, where they are easier to detect. After initial inspection, maintain physical separation from potential host plants for at least two weeks and avoid comingling plant shipments or plants from different suppliers during this period.

If pasture mealybugs are found, nurseries should [remove and destroy infested plants](#) or treat them with an appropriate [insecticide](#). Treated plants should be quarantined for 7 to 14 days to allow the treatment to take effect, followed by a thorough inspection for any remaining mealybugs before the plants are returned to the general nursery population.

Maintaining quarantined plants in enclosed environments, such as insect-proof cages or screened greenhouses with approximately 0.2-millimeter aperture, will prevent individuals from escaping, although these measures may not be practical for all nurseries. Pest exclusion barriers (e.g., screens) can also be used to prevent entry of mealybugs from the surrounding environment. Screens may be particularly useful for protecting high-value plants in areas with high populations of pasture mealybug or areas where pasture mealybugs are reported in other crops.

Monitoring

The risk of spreading pasture mealybugs from a nursery in an infested area to a non-infested area is dependent, in part, on the population of the mealybug within the nursery. In areas where pasture mealybugs are present in the surrounding environment, routine monitoring can improve confidence that mealybug pressure is low but will never guarantee complete absence. Because pasture mealybugs can be cryptic and difficult to detect, repeated examinations conducted on different days can improve the likelihood of detecting an infestation. The strength of mitigation measures should be adjusted based on pest pressure in the nursery and the surrounding environment.

Monitoring can be accomplished using visual surveys for pasture mealybugs and associated damage. Mealybugs may occur individually or in large groups in the soil or on the roots, crowns, and leaves of actively growing host plants. Pasture mealybugs may also be found away from host plants, such as beneath plant pots, under benches, or on other materials near host plants. Dense foliage may conceal pasture mealybug so thorough inspections of hosts plants are recommended.

Look for white flecks or cottony residues on leaves and stems ([Fig. 1](#)), focusing on midribs and near the base of leaves and plants, especially in thick grasses. Symptoms of feeding include leaf discoloration, stunted growth, and eventual plant death ([Fig. 3](#)), while signs of infestation include honeydew, sooty mold, and ant activity, as ants are attracted to honeydew produced by mealybugs. Nurseries near infested areas could consider monitoring or managing ants which may facilitate mealybug dispersal.

Because only the short-lived winged males are capable of flight, yellow sticky cards are not a reliable method for detecting pasture mealybugs.

Management

Host removal and destruction

Because pasture mealybugs feed on a variety of grasses, complete removal of all host grasses in and around nurseries may not be feasible. However, host plant removal and destruction can be combined with other management measures, such as insecticide applications to improve control. Infested host plant material should be double-bagged and disposed of through deep burial/landfill or burning where permitted.

Insecticides

We found no information on the use of insecticides against pasture mealybugs in nursery production systems, and efficacy has not been confirmed under these conditions. Although insecticide trials for pasture mealybugs are ongoing, they have been conducted only in forage production systems and sugarcane. [Table 2](#) lists insecticides that are registered for use in U.S. greenhouses and/or nurseries with potential efficacy demonstrated through preliminary U.S. testing or research in Australia. [Appendix B](#) lists insecticides registered for other mealybug species that may be effective but have not yet been tested on pasture mealybugs. Where registered for use, these insecticides can be considered for treating nursery plants or reducing mealybug populations in vegetation surrounding nurseries to help limit migration into the nursery. Insecticides should be applied when mealybugs are in the early instar stage, particularly during the crawler stage (see [Life Cycle](#) and [Fig. 2](#)), because they are most susceptible to treatments at this time. Both pot drenches and foliar applications are recommended to treat subterranean and foliar mealybugs, respectively. Repeated applications

may be necessary because crawlers do not emerge simultaneously, and populations may contain multiple overlapping generations.

Table 2. Insecticides registered^{1,2} for use in U.S. greenhouses and/or nurseries with potential efficacy against pasture mealybugs (PMB) demonstrated through preliminary U.S. testing or research in Australia. **Before setting up any management program, confirm registration in the United States, use rates, and site restrictions.**

IRAC Class (Mode of Action) ³	Active Ingredient	Notes ⁴
Neonicotinoids (4A)	Imidacloprid	Testing has shown some efficacy against PMB in TX (Biles, 2026) and AUS (Hauxwell et al., 2022) pastures, and FL sugarcane (Kammerer et al., 2026).
Neonicotinoids (4A)	Thiamethoxam	Testing has shown efficacy against PMB in TX pastures (Biles, 2026).
Butenolides (4D)	Flupyradifurone	Testing has shown some efficacy against PMB in TX (Biles, 2026) and FL (FDACS, 2026) pastures, and FL sugarcane (Kammerer et al., 2026).
Pyropenes (9d)	Afidopyropen	Low to moderate PMB populations have been suppressed in TX pastures (Biles, 2026).
Tetronic and Tetramic acid derivatives (23)	Spirotetramat	Manages small PMB populations in AUS pastures (Hauxwell et al., 2022).
Fungus (UNF)	<i>Beauveria bassiana</i>	Testing in AUS pastures suggests plant exposure to <i>Beauveria</i> spp. may enhance resilience to PMB (Hauxwell, 2022a).

¹ Mention of compounds does not imply recommendation or endorsement by the USDA over others not mentioned. USDA neither guarantees nor warrants the standard of any product mentioned. Compound names are mentioned solely to report factually on available data and to provide specific information.

² Registration status and pest labeling confirmed by CDMS (2026) and/or EPA (2026). Chemistries are listed by active ingredients only; check labels to determine approved usage for your state.

³ For full definitions see [Mode of Action Classification for Insecticides](#).

⁴ Notes summarize reported activity or population suppression based on available testing and observations. Results may not apply under all conditions. See references for details.

Sanitation and maintenance

Maintain strict sanitation protocols whenever pasture mealybugs are detected and continue these practices routinely in nurseries to limit pest movement and reinfestation. Prevent the spread of mealybugs on clothing, tools, and other materials by cleaning items before moving between facilities or production areas using rubbing alcohol sprays, washing, steam treatment, hot-water immersion, brushing or lint rolling, or disposable clothing. Install a footbath station with an approved disinfectant or use sticky mats at every greenhouse or facility entrance to prevent soil-dwelling nymphs from being tracked indoors.

Clean greenhouse facilities regularly—ideally at least twice a week—to remove mealybugs from surfaces; however, high-pressure water should be used cautiously, as it may disperse insects throughout the greenhouse. Remove weeds, plant debris, and excess organic material daily, and

keep waste in tightly sealed containers to reduce reinfestation risk. Clean and sanitize benches between crops, scraping and chemically treating structural cracks, crevices, and the undersides of benches where overwintering individuals may remain unnoticed, and avoid reusing contaminated pots.

Avoid high nitrogen fertilization, which promotes soft, succulent growth favored by mealybugs, and maintain adequate spacing between mature ornamental containers to eliminate foliage contact and reduce crawler movement between plants.

Pre-Shipment Measures

Pre-shipment insecticides

An insecticide should be applied a few days to a week prior to shipment, or within the timeframe required by the destination state, to reduce the risk of pest presence during transit. Systemic activity is preferred to ensure efficacy against early instar nymphs that emerge after treatment to feed on leaves. For nurseries with active infestations or that did not implement the [measures](#) described above, multiple treatments may be required to first eliminate the current infestation and then protect visually clean plants during transit. To manage pesticide resistance, rotate active ingredients among different modes of action if multiple insecticide applications occur (See Insecticide Resistance Action Committee (IRAC) classification in [Table 2](#)).

Plants in nurseries that have followed the [measures](#) described above and have had no detections of pasture mealybugs may not require insecticide treatments. In addition, nurseries that have routinely monitored for pasture mealybugs and have treated plants following detections may also forgo insecticide treatments if no detections occur 2 to 3 weeks pre-shipment. However, if the area immediately surrounding the nursery is known to be infested, pre-shipment insecticide treatment is warranted as re-introduction from the surrounding environment is likely.

Pre-shipment inspection

All plants should undergo a final inspection to confirm the absence of pasture mealybugs within 24 hours before shipping. Carefully examine plants, particularly the undersides of leaves, stems, dense crowns, and the thatch layer of grasses. Multiple inspections should be conducted in high-risk nurseries, that is nurseries where monitoring has not been completed, is infrequent, or where mealybugs have been detected and the nursery does not take action to remove them from the production system. Plants should be moved to holding areas to ensure no infestation occurs before shipment. If pasture mealybugs are detected during pre-shipment inspection, treat shipments with a systemic insecticide and reinspect after 2 to 5 days. For large shipments, such as those containing more than 1,000 plants, a subsample of 300 plants should be examined rather than inspecting every plant.

Pre-shipment considerations

Planting stock from multiple nurseries should not be combined during shipment. Shipping bare-root plants will reduce the risk of transporting soil-dwelling mealybugs.

References

- Aca-Martinez, E.A., González-Hernández, H., Hernández-Romero, O., Vejar-Cota, G. and Bautista-Martinez, N., 2025. *Heliococcus summervillei*, a new potential pest of sugarcane in North America. *Southwestern Entomologist*, 50: 1211–1215.
- Baker, S., Buck, S.R., Jennings, N., Hopkins, K. and Boschma, S., 2024. Pasture Dieback Identification Guide, New South Wales Government, Queensland Government.
- Biles, S., 2025. Mealybugs in Pastures and Hayfields, Texas A&M University, Pest Management News. <https://agrillife.org/mid-coast-ipm/mealybugs-in-pastures-and-hayfields/>.
- Biles, S., 2026. Pasture Mealybug Scouting, Management, and Recovery. Mid-Coast IPM, Texas A&M University. <https://midcoastipm.blogspot.com/2026/07/pasture-mealybug-scouting-management.html>.
- Biles, S., Sekula, D., Santiago-González, J., Xiong, C. and Kerns, D., 2026. The pasture mealybug: A new invasive pest of pastures and hayfields in Texas, Texas A&M Agrilife Extension, ENTO-PU-248.
- Blanchard, T., 2026. Pasture mealybug, a new invasive pest, confirmed in Louisiana. Louisiana State University, College of Agriculture.
- Boschma, S., Baker, S., Jennings, N., Kidston, J. and Klein, T., 2024. Pasture mealybug and its role in pasture dieback, New South Wales Government, Department of Primary Industries and Regional Development, Orange, New South Wales.
- Brinon, L., Matile-Ferrero, D. and Chazeau, J., 2004. Extension et régression d'une Cochenille nuisible aux Graminées, introduite en Nouvelle-Calédonie, *Heliococcus summervillei* Brookes (Hemiptera, Pseudococcidae). *Bulletin de la Société entomologique de France*, 109(4): 425–428.
- Brookes, H.M., 1978. A new species of *Heliococcus* Sulc from Australia and Pakistan and a redescription of *Heliococcus glacialis* (Newstead) comb. n. (Homoptera: Pseudococcidae). *Australian Journal of Entomology*, 17: 241–245.
- Buck, S., 2017. Pasture dieback: Past activities and current situation across Queensland (2017), Department of Agriculture and Fisheries, Queensland Government.
- Buck, S.R., Hopkins, K. and Shadur, P., 2025. Situational analysis of pasture dieback in eastern Australia. 2025 Proceedings of the 12th International Rangeland Congress, 251: 2066–2070.
- CDMS, 2026. CDMS advanced search. Crop Data Management Systems, Inc. <https://www.cdms.net/Label-Database/Advanced-Search>.
- EPA, 2026. Pesticide product and label system. United States Environmental Protection Agency (EPA) <https://ordspub.epa.gov/ords/pesticides/f?p=PPLS:1>.
- Esquivel, I.L., 2026. Pasture mealybug detected in Florida pastures, University of Florida, <https://blogs.ifas.ufl.edu/nfrec/2026/06/18/pasture-mealybug-detected-in-florida-pastures/>.
- FDACS, 2026. Products to consider for the control of pasture mealybug, Florida Department of Agriculture and Consumer Services (FDACS). <https://www.fdacs.gov/Agriculture-Industry/Pests-and-Diseases/Plant-Pests-and-Diseases/Pasture-Mealybug/Products-to-Consider-for-the-Control-of-Pasture-Mealybug>.
- GDA, 2026. Pasture Mealybug, Georgia Department of Agriculture (GDA), Atlanta, Georgia. <https://agr.georgia.gov/pasture-mealybug>.
- Ghosh, A.B., 1979. Studies of some mealybugs of economic importance, Bidhan Chandra Krishi Viswavidyalaya, West Bengal, India.

- Ghosh, A.B. and Ghose, S.K., 1987. *Novonilacoccus*, a new genus (Pseudococcidae: Hemiptera), and a new species, *Novonilacoccus oryzae* with the descriptions of all the instars. Proceedings of the Zoological Society, Calcutta, 36: 37–51.
- Gibbs, I., 2020. First Report of *Heliococcus summervillei*, International Plant Protection Convention, Rome, Italy.
- Hauxwell, C., 2022a. B.PAS. 0006 - Resistant Grass Varieties and Endophytes, Meat and Livestock Australia Limited, North Sydney, NSW.
- Hauxwell, C., 2022b. Final report: B.PAS.0004 - Biology of Pasture Mealybug and Identification of Natural Enemies, Meat and Livestock Australia Limited, North Sydney, NSW.
- Hauxwell, C. and McNicholl, D., 2018. Mealybugs and pasture dieback, Institute for Future Environments, Queensland University of Technology with Meat and Livestock Australia, North Sydney, Australia.
- Hauxwell, C., Tarlinton, B., Dickson, G., Patrick, D., Bryans, E., Hernandez-Europa, Y. and Martin, S., 2022. B. PAS. 0003 Glasshouse assays to determine the role of mealybug in pasture dieback, Meat and Livestock Australia Limited, North Sydney NSW.
- Hernandez-Europa, Y., 2024. Pasture mealybug (*Heliococcus summervillei*) host range, microbiome and endosymbiont cophylogeny, Queensland University of Technology.
- Jubenville, J., 2026. Greenhouse insect pest management 2026, Michigan State University Extension. <https://www.canr.msu.edu/resources/greenhouse-insecticides>.
- Kammerer, C., VanWeelden, M., Beuzelin, J. and Mou, D.-F., 2026. Pasture Mealybug in Florida Sugarcane, University of Florida, Institute of Food and Agricultural Sciences.
- MLA, 2021. Pasture Dieback: A Management Guide for Producers and Agronomists, Meat & Livestock Australia (MLA), North Sydney, New South Wales.
- MLA, 2023. How do I... select grass varieties tolerant to pasture dieback?, Meat & Livestock Australia, North Sydney, New South Wales.
- Powell, E.C., 2026. A new species of pasture mealybug, *Heliococcus novovillei* Powell and Miller (Hemiptera: Pseudococcidae), is responsible for damage of pasture and sugarcane in North America, but *Heliococcus summervillei* Brookes is here, too. *Insecta Mundi*, 1205: 1–27.
- Powell, E.C. and Hauxwell, C., 2026. Pasture mealybug, *Heliococcus summervillei* Brookes (Hemiptera: Coccothraupidae: Pseudococcidae), an invasive pest of pasture grass, turf grass, and sugarcane has been detected in Florida, USA, Florida Department of Agriculture and Consumer Services Division of Plant Industry.
- PPQ, 2026. Domestic Diagnostic Record. United States Department of Agriculture, Animal and Plant Health Inspection Service, Plant Protection and Quarantine (PPQ).
- Scherr, M. and Nackley, L., 2025. Chemical control of nursery pests, Pacific Northwest Pest Management Handbooks. <https://pnwhandbooks.org/insect/hort/nursery/chemical-control-nursery>.
- Summerville, W.A.T., 1928. Mealy bug attacking *Paspalum* grass in the Cooray District. *Queensland Agricultural Journal*, 30(3): 201–209.
- UC IPM, 2022. Floriculture and ornamental nurseries pest management guidelines: Foliar-feeding mealybugs, University of California, Integrated Pest Management Program. <https://ipm.ucanr.edu/agriculture/floriculture-and-ornamental-nurseries/foliar-feeding-mealybugs/>.
- UF and FDACS, 2026. Webinar: Understanding Pasture Mealybug: Science, Management, & What We Know So Far. University of Florida (UF) and Florida Department of Agriculture & Consumer Services (FDACS). <https://www.youtube.com/watch?v=Fv0wfKprSZE>.
- Williams, D.J., 2004. Mealybugs of Southern Asia. The Natural History Museum, Kuala Lumpur, Malaysia, 896 pp.

Xu, H., Humpal, J.A., Wilson, B.A.L., Ash, G.J. and Powell, K.S., 2024. Mealybug population dynamics: A comparative analysis of sampling methods for *Saccharicoccus sacchari* and *Heliococcus summervillei* in sugarcane (*Saccharum* sp. hybrids). *Insects*, 15(7): 1–16.

Appendix A: List of plant species on which pasture mealybugs have been reported

Host Name	Additional Notes and References
<i>Andropogon</i> sp. (bluestem)	Reported in FL (Powell, 2026; UF and FDACS, 2026)
<i>Axonopus compressus</i> (syn. <i>Paspalum compressum</i>) (broadleaf carpetgrass)	Reported in FL (Powell, 2026) (Brinon et al., 2004)
<i>Bothriochloa bladhii</i> (Australian bluestem, Caucasian bluestem)	(Hauxwell, 2022a; MLA, 2021; MLA, 2023)
<i>Bothriochloa insculpta</i> (creeping bluegrass, sweetpitted grass)	(MLA, 2021; MLA, 2023)
<i>Bothriochloa ischaemum</i> (yellow bluestem)	Reported in TX (Powell, 2026)
<i>Bothriochloa laguroides</i> (silver beardgrass)	Reported in TX (PPQ, 2026)
<i>Bromus japonicus</i> (field brome)	Reported in TX (PPQ, 2026)
<i>Cenchrus ciliaris</i> (syn. <i>Pennisetum ciliare</i>) (buffelgrass)	Reported in TX (PPQ, 2026) (Hauxwell, 2022a; MLA, 2021; MLA, 2023)
<i>Cenchrus clandestinus</i> (syn. <i>Pennisetum clandestinum</i>) (kikuyugrass)	(Hauxwell, 2022a; MLA, 2021; MLA, 2023)
<i>Cenchrus echinatus</i> (southern sandbur)	Reported in FL (Powell, 2026; UF and FDACS, 2026)
<i>Chloris gayana</i> (Rhodes grass)	(Hauxwell, 2022a; MLA, 2021; MLA, 2023)
<i>Coleataenia anceps</i> (beaked panicgrass)	Reported in TX (PPQ, 2026)
<i>Cucumis melo</i> var. <i>agrestis</i> (wild melon)	(Aca-Martinez et al., 2025)
<i>Cynodon aethiopicus</i> (syn. <i>C. nlemfuensis</i>) (Ethiopian dogstooth grass, stargrass)	Reported in FL (Powell, 2026; UF and FDACS, 2026)
<i>Cynodon dactylon</i> (Bermudagrass)	Reported in TX (Biles et al., 2026; Powell, 2026)
<i>Cyperus rotundus</i> (nutgrass)	(Hauxwell, 2022a)
<i>Dichanthium sericeum</i> (Queensland bluegrass, silky bluestem)	(Hauxwell, 2022a; MLA, 2023)
<i>Digitaria bicornis</i> (Asian crabgrass)	Reported in FL (Powell, 2026; UF and FDACS, 2026)
<i>Digitaria californica</i> (Arizona cottontop)	Reported in TX (PPQ, 2026)
<i>Digitaria ciliaris</i> (southern crabgrass)	Reported in FL (Powell, 2026; UF and FDACS, 2026)
<i>Digitaria didactyla</i> (crabgrass)	(Hauxwell, 2022a)
<i>Digitaria eriantha</i> (Pangola grass, digitgrass)	Reported in FL (Powell, 2026; UF and FDACS, 2026) (Hauxwell, 2022a; MLA, 2021; MLA, 2023)

Host Name	Additional Notes and References
<i>Digitaria longiflora</i> (Indian crabgrass)	Reported in FL (Powell, 2026; UF and FDACS, 2026)
<i>Digitaria milaniana</i> (Madagascar crabgrass, digitgrass)	(Brinon et al., 2004; Hauxwell, 2022a; MLA, 2023)
<i>Digitaria sanguinalis</i> (hairy crabgrass)	Reported in TX (PPQ, 2026)
<i>Eleusine indica</i> (Indian goosegrass)	Reported in FL (Powell, 2026; UF and FDACS, 2026)
<i>Eragrostis superba</i> (Wilman lovegrass)	Reported in TX (PPQ, 2026)
<i>Eustachys</i> sp. (fingergrass)	Reported in FL (Powell, 2026; UF and FDACS, 2026)
<i>Hemarthria altissima</i> (limpograss)	Reported in FL (Esquivel, 2026; Powell, 2026; Powell and Hauxwell, 2026)
<i>Heteropogon contortus</i> (black spear grass, tanglehead)	(Buck, 2017; Hauxwell, 2022a; MLA, 2021)
<i>Hymenachne hemitoma</i> (syn. <i>Panicum hemitomon</i>) (maiden cane)	Reported in FL (Powell, 2026; UF and FDACS, 2026)
<i>Imperata cylindrica</i> (cogongrass)	Reported in FL (Powell, 2026; UF and FDACS, 2026)
<i>Ipomoea</i> sp. (morning glory)	(Aca-Martinez et al., 2025)
<i>Lolium rigidum</i> (annual ryegrass)	(Hauxwell, 2022a)
<i>Megathyrsus maximus</i> (syns. <i>Urochloa maxima</i> ; <i>Panicum maximum</i>) (guinea grass, panic grass)	Reported in FL (Powell, 2026; UF and FDACS, 2026) (Brinon et al., 2004; Hauxwell, 2022a; MLA, 2021; MLA, 2023)
<i>Melinis minutiflora</i> (molasses grass)	(Hauxwell, 2022a)
<i>Melinis repens</i> (red natal grass)	(Hauxwell, 2022a)
<i>Nassella leucotricha</i> (Texas wintergrass)	Reported in TX (PPQ, 2026)
<i>Oplismenus</i> sp. (basketgrass)	Reported in FL (Powell, 2026; UF and FDACS, 2026)
<i>Oryza sativa</i> (rice)	While rice has been reported as a host of PMB (as synonym <i>Novonilacoccus oryzae</i>) (Ghosh, 1979; Ghosh and Ghose, 1987), we found no additional information, and the host status is uncertain.
<i>Panicum coloratum</i> (kleingrass)	(MLA, 2021; MLA, 2023)
<i>Pappophorum vaginatum</i> (whiplash pappusgrass)	Reported in TX (PPQ, 2026)
<i>Paspalum dilatatum</i> (dallisgrass)	(Brinon et al., 2004; Hauxwell, 2022a; MLA, 2023)
<i>Paspalum mandiocanum</i> (broad-leaved paspalum)	(Hauxwell, 2022a; MLA, 2023)

Host Name	Additional Notes and References
<i>Paspalum notatum</i> (bahiagrass)	Reported in TX (Biles et al., 2026) and FL (Powell, 2026; UF and FDACS, 2026) (Hauxwell, 2022a; MLA, 2021; MLA, 2023)
<i>Paspalum setaceum</i> (thin paspalum)	Reported in FL (Powell, 2026; UF and FDACS, 2026)
<i>Saccharum officinarum</i> (sugarcane)	Reported in LA (Blanchard, 2026) and FL (Powell, 2026; UF and FDACS, 2026) (Hauxwell, 2022a; Xu et al., 2024)
<i>Schizachyrium scoparium</i> (little bluestem)	Reported in TX (PPQ, 2026)
<i>Sorghastrum nutans</i> (Indiangrass)	Reported in TX (PPQ, 2026)
<i>Sorghum bicolor</i> (sorghum)	Reported in TX (Powell, 2026)
<i>Sorghum × drummondii</i> (Sudangrass)	Reported in TX (Powell, 2026)
<i>Sporobolus airoides</i> (alkali sacaton)	Reported in TX (PPQ, 2026)
<i>Sporobolus indicus</i> (smut grass)	Reported in FL (Powell, 2026)
<i>Rottboellia cochinchinensis</i> (itch grass)	(Aca-Martinez et al., 2025)
<i>Setaria sphacelata</i> (syn. <i>S. splendida</i>) (African bristleglass)	(Hauxwell, 2022a; MLA, 2021; MLA, 2023)
<i>Sorghum halepense</i> (Johnsongrass)	Reported in TX (Biles et al., 2026; Powell, 2026).
<i>Stenotaphrum secundatum</i> (buffalo grass, St. Augustine grass)	Reported in TX (Biles et al., 2026) and FL (Powell, 2026) (Hauxwell, 2022a)
<i>Themeda triandra</i> (Kangaroo grass)	(Hauxwell, 2022a)
<i>Urochloa brizantha</i> (palisade grass)	(MLA, 2023)
<i>Urochloa decumbens</i> (syn. <i>Brachiaria decumbens</i>) (signal grass, spreading liverseed grass)	(Hauxwell, 2022a; MLA, 2021; MLA, 2023)
<i>Urochloa mosambicensis</i> (African liverseed grass)	(Brinon et al., 2004)
<i>Urochloa oligotricha</i> (signal grass)	(Hauxwell, 2022a)

Appendix B. Insecticides that are registered^{1,2} for use in U.S. greenhouses and/or nurseries and that are used for general mealybug control.

IRAC Class (Mode of Action) ³	Active Ingredient	References
Organophosphates (1B)	Acephate	(UC IPM, 2022)
Organophosphate (1B)	Phosmet	(Scherr and Nackley, 2025)
Pyrethroids/Pyrethrins (3A)	Bifenthrin	(UC IPM, 2022)
Pyrethroids/Pyrethrins (3A)	Cyfluthrin	(UC IPM, 2022)
Pyrethroids/Pyrethrins (3A)	Fenpropidin	(UC IPM, 2022)
Pyrethroids/Pyrethrins (3A)	Permethrin	(UC IPM, 2022)
Pyrethroids/Pyrethrins (3A)	Pyrethrins	(UC IPM, 2022)
Pyrethroids/Pyrethrins (3A)	Tau-Fluvalinate	(UC IPM, 2022)
Pyrethroids/Pyrethrins (3A)/ Neonicotinoids (4A)	Cyfluthrin/ Imidacloprid	(UC IPM, 2022)
Neonicotinoids (4A)	Acetamiprid	(Scherr and Nackley, 2025; UC IPM, 2022)
Neonicotinoids (4A)	Clothianidin	(Scherr and Nackley, 2025)
Neonicotinoids (4A)	Dinotefuran	(Scherr and Nackley, 2025; UC IPM, 2022)
Neonicotinoids (4A)	Imidacloprid	(UC IPM, 2022)
Neonicotinoids (4A)	Thiamethoxam	(UC IPM, 2022)
Butenolides (4D)	Flupyradifurone	(Scherr and Nackley, 2025)
Spinosyns (5) / Sulfoximines (4C)	Spinetoram + Sulfoxaflor	(Jubenville, 2026)
Juvenile hormone analogues (7A)	S-kinoprene	(UC IPM, 2022)
Pyriproxyfen (7C)	Pyriproxyfen	(Jubenville, 2026)
Pyridine azomethine derivatives (9B)	Pyrifluquinazon	(UC IPM, 2022)
Pyropenes (9d)	Afidopyropen	(Scherr and Nackley, 2025)
Buprofezin (16)	Buprofezin	(Scherr and Nackley, 2025; UC IPM, 2022)
METI acaricides and insecticides (21A)	Fenpyroximate	(Scherr and Nackley, 2025)
METI acaricides and insecticides (21A)	Tolfenpyrad	(UC IPM, 2022)

IRAC Class (Mode of Action) ³	Active Ingredient	References
Tetronic and Tetramic acid derivatives (23)	Spirotetramat	(Scherr and Nackley, 2025; UC IPM, 2022)
Diamide (28)	Cyclaniliprole	(Scherr and Nackley, 2025)
Diamide (28)	Cyclaniliprole/ flonicamid	(Scherr and Nackley, 2025)
Flonicamid (29)	Flonicamid	(Scherr and Nackley, 2025; UC IPM, 2022)
Unknown (UN)	Azadirachtin	(UC IPM, 2022)
Bioinsecticide (UNB)	<i>Burkholderia</i> spp.	(Scherr and Nackley, 2025)
Botanical oil (UNE)	Neem oil	(Scherr and Nackley, 2025; UC IPM, 2022)
Fungus (UNF)	<i>Beauveria bassiana</i>	(Scherr and Nackley, 2025)
Fungus (UNF)	<i>Isaria fumosorosea</i> Apopka strain 97	(UC IPM, 2022)
Fungus (UNF)	<i>Metarhizium brunneum</i>	(Jubenville, 2026)
Class not defined (UNM)	Mineral oils	(Jubenville, 2026)

¹ Mention of compounds does not imply recommendation or endorsement by the USDA over others not mentioned. USDA neither guarantees nor warrants the standard of any product mentioned. Compound names are mentioned solely to report factually on available data and to provide specific information.

² Registration status and pest labeling confirmed by CDMS (2026) and/or EPA (2026). Chemistries are listed by active ingredients only; check labels to determine approved usage for your state.

³ For full definitions see [Mode of Action Classification for Insecticides](#).