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Crapemyrtle Bark Scale

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Introduction

Crapemyrtle bark scale (CMBS), *Acanthococcus lagerstroemiae* (Kuwana) (Hemiptera: Eriococcidae), is an invasive scale pest that has become a significant concern in ornamental horticulture, particularly for crapemyrtles. Originating from Asia, this pest was first detected in the United States around 2004 and has since spread across 20 states in the southeastern and central regions. Infestation by CMBS can lead to aesthetic damage, weakened plants, and reduced flowering, thereby significantly diminishing the ornamental value of crapemyrtles (Fig.1).

Figure 1. *CMBS covering crapemyrtle branches. (Photo credit: Jim Robbins, University of Arkansas).*

Life cycle

CMBS is a small, soft-bodied insect covered in a white or gray waxy coating. It measures approximately 1/16 in (2 mm) in length, depending on its life stage. CMBS completes its life cycle within two to three months, with two to four generations per year depending on geographic location and climate. It can overwinter as eggs, nymphs, male pre-pupae, pupae, and females. The stages of CMBS development include:

Eggs: Eggs are pink, 0.2 to 0.4 mm long, and 0.1 to 0.2 mm wide, surrounded by white filaments. Female scales lay up to 300

eggs inside a white, felt-like ovisac secreted by the female.

Crawlers: Eggs hatch into mobile nymphs, also known as crawlers, from mid-to-late April to May. These tiny, pink nymphs disperse to find feeding sites on the bark (Fig. 2). Crawlers settle on new twigs and branches, feeding on the sugary phloem beneath the bark. This stage is the most vulnerable to management interventions, making it a critical time for effective pest control measures.

Figure 2. *CMBS crawlers (nymphs). (Photo credit: Jim Robbins, University of Arkansas).*

Nymph Stage: After the first molt, nymphs lose their legs, attach to the tree, and remain stationary as they feed and grow.

Adult Stage: Adult females develop a thick waxy covering and become immobile, remaining attached to the plant. In contrast, adult males are pink, winged, and capable of flying to locate females and mate. Male CMBS can be identified by two long white filaments at the tip of their abdomen. After mating, females lay eggs inside a white ovisac.

Damage

CMBS causes significant damage to crapemyrtle plants through its feeding and secondary effects. Infestations appear as white or gray waxy encrustations on stems, twigs, and trunks, though foliage is rarely affected. This pest especially congregates in branch crotches, pruning sites, and crevices. When crushed, live CMBS ‘bleeds’ pink (Fig. 3). The scale primarily feeds on the sap of crapemyrtle. Honeydew, a sugary excretion of the scales, fosters the growth of black sooty mold, which not only diminishes the plant’s visual appeal but also obstructs photosynthesis, reducing overall plant vitality (Fig. 4). Additionally, honeydew attracts yellow jackets, paper wasps, fire ants, and other stinging wasps. Infested plants may experience stunted growth, delayed leaf emergence, and reduced flowering, including smaller and fewer flower clusters. Heavy infestations can further weaken the plant, causing a general decline in health, increased susceptibility to other pests and diseases, and premature bark

peeling, which compromises the plant's structural integrity and appearance.

Figure 3. *CMBS crawlers (nymphs) exude pink/red when crushed. (Photo credit: Mengmeng Gu, Texas A&M AgriLife Extension, Bugwood.org).*

Figure 4. *A crapemyrtle suffering from CMBS covered with sooty mold. (Photo credit: Matt Borden).*

Management

Monitoring and early detection are key for preventing severe damage to crapemyrtle plants. Effective control of CMBS is challenging due to its protective waxy covering and its ability to hide in bark crevices. Successful management requires an integrated approach combining cultural, mechanical, biological, and chemical control methods.

Cultural control

Regular pruning reduces infestations by removing heavily infested branches. Additionally, practicing good sanitation, such as removing and destroying infested plant material, helps prevent the pest from spreading to other parts of the plant or nearby plants.

Mechanical control

Washing infested trunks with a strong stream of soapy water can dislodge the scales, particularly during the crawler stage. Physically scrubbing trunks and branches removes the protective waxy coverings, reducing the scales' ability to survive. Additionally, wrapping branches with double-sided sticky tape traps crawlers, helping to monitor hatching and determine when contact insecticide applications are needed.

Biological control

Natural predators, such as lady beetles, spiders, and lacewings, help reduce scale populations. Encouraging these

beneficial arthropods in the landscape can help reduce pest numbers naturally.

Chemical control

Chemical control is an effective method for managing CMBS, especially during heavy infestations. Table 1 lists insecticides labeled for managing soft scale insects in nursery and landscape settings. Horticultural oils can suffocate scales, particularly during the crawler stage, and should be applied thoroughly to the trunk and branches for full coverage. Crawler treatments typically require multiple applications. Recent research has shown that 1% limonene (orange oil) is highly effective in controlling CMBS in both greenhouse and landscape settings. Soil-applied systemic insecticides, such as imidacloprid, clothianidin, and dinotefuran are also highly effective, as they are absorbed by the roots and target sap-feeding scales. These insecticides are most effective when applied in early summer, or just before peak crawler activity. Keep in mind systemic insecticides can kill other arthropods feeding on the plant, including beneficial insects. It is crucial to carefully read and follow label instructions, including precautionary statements, before applying any insecticides.

Host plant suitability and resistance

Research has shown that *Lagerstroemia speciosa* exhibits resistance to the growth and development of CMBS, making it a less favorable host. In contrast, several other species (*L. fauriei*, *L. indica*, *L. limii*, *L. subcostata, L. californicum*, and *L. caudata*), including most of the commercially available crapemyrtle cultivars, are suitable host plants. Planting non-susceptible plant species or incorporating resistant varieties of crapemyrtle into the landscape industry will be key to managing this pest.

Table 1. Chemical insecticides for the management of soft scale in nursery and landscape sites.

IRAC#[1]	Active Ingredient	Trade Names[2]
1A	carbaryl	Sevin SL
1B	acephate	Orthene, Lepitect
	chlorpyrifos	Dursban 50W[N], DuraGuard ME[N]
	dicrotophos	Inject-A-Cide B[L]
	dimethoate	Dimethoate 4E[N], 4EC[N]
	malathion	Malathion 5EC[L]
	methidathion	Supracide 2E[N]
	oxydemeton methyl	Harpoon[L]
3A	bifenthrin	Menace GC, Onyx[L], Onyx Pro, Talstar S Select[N]
	cyfluthrin	Decathlon
	beta-cyfluthrin	Tempo Ultra WP, SC Ultra[L]
	lambda-cyhalothrin	Demand[L], Scimitar CS[L], Scimitar GC
	pyrethrins	Tersus[N], Pyganic[N], Pyganic 5.0 EC[N]
	pyrethrum	Pyrethrum TR[N]
3A + 4A	bifenthrin + clothianidin	Aloft LC G[L], LC SC[L]
	bifenthrin + imidacloprid	Allectus SC[L]
	cyfluthrin + imidacloprid	Discus N/G[N]
	lambda-cyhalothrin + thiamethoxam	Tandem[L]
	zeta-cypermethrin + bifenthrin + imidacloprid	Triple Crown T&O[L]
4A	acetamiprid	TriStar 8.5 SL
	clothianidin	Arena 0.25 G ; 50 WDG
	dinotefuran	Safari 2G, 20SG, Zylam Liquid[L], Transtect 70 WSP[L]
	imidacloprid	Xytect 75WSP, 2F, Marathon II[N], 60WP[N], Mantra 1G[N], Merit[L], CoreTect[L], Discus Tablets[N]
	thiamethoxam	Flagship 25WG[N], Meridian 0.33G[L], 25WG[L]
4A + 28	thiamethoxam + chlorantraniliprole	Mainspring Xtra
4C	sulfoxaflor	Transform WG[N]
6	abamectin	Aracinate TM
7C	pyriproxyfen	Distance IGR, Fulcrum
8D	sodium tetraborohydrate decahydrate	Prev-AM Ultra[N]
16	buprofezin	Talus 70DF
21A	tolfenpyrad	Hachi-Hachi SC

23	spirotetramat	Kontos[N]
28	chlorantraniliprole	Acelepyrn[L]
	cyantraniliprole	Mainspring GNL
	cyclaniliprole	Sarisa[N]
29	flonicamid	Aria
28 + 29	cyclaniliprole + flonicamid	Pradia[N]
Unknown	azadirachtin	Azatin O, XL[N], Azatrol EC, Ornazin EC
Unclassified	horticultural oil	SuffOil-X, TriTek, Ultra-Pure Oil
	neem oil	Trilogy, Triact 70
	potassium salts of fatty acids	M-Pede
	d-limonene	Orange guard, D'bug

[1]*IRAC = Insecticide Resistance Action Committee.*

[2]*Trade Names are provided as examples only and should not be considered a complete list of products available.*

[N] *= Pesticide labeled for use in nurseries but not landscapes.*

[L] *= Pesticide labeled for use in landscapes but not nurseries.*

References

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For additional information, contact your local nursery specialist at:

Tennessee State University, Otis L. Floyd Nursery Research Center

472 Cadillac Lane McMinnville, TN 37110
http://www.tnstate.edu/agriculture/nrc/
931-259-4824

Precautionary Statement

To protect people and the environment, pesticides should be used safely. This is everyone's responsibility, especially the user. Read and follow label directions carefully before you buy, mix, apply, store or dispose of a pesticide. According to laws regulating pesticides, they must be used only as directed by the label.

Disclaimer

This publication contains pesticide recommendations that are subject to change at any time. The recommendations in this publication are provided only as a guide. It is always the pesticide applicator's responsibility, by law, to read and follow all current label directions for the specific pesticide being used. The label always takes precedence over the recommendations found in this publication. Use of trade, brand, or active ingredient names in this publication is for clarity and information; it does not imply approval of the product to the exclusion of others that may be of similar and suitable composition, nor does it guarantee or warrant the standard of the product. The author(s) and Tennessee State University assume no liability resulting from the use of these recommendations.

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