TENNESSEE STATE UNIVERSITY

ANR-PATH-01

Powdery Mildew on Crapemyrtle

Kripa Dhakal, Ph.D., Postdoctoral Researcher
Kaitlin Barrios, Ph.D., Nursery Extension Specialist
Karla M. Addesso, Ph.D., Professor
Fulya Baysal-Gurel, Ph.D., Associate Professor
Contact: 931-815-5143, fbaysalg@tnstate.edu

Crapemyrtle (*Lagerstroemia* spp.) (Myrtales: Lythraceae), a top-selling deciduous, flowering shrub or small tree, is widely cultivated throughout the southern United States. Powdery mildew is one of the most significant diseases affecting crapemyrtle in both nursery production and landscape settings. The fungi *Erysiphe australiana* (formerly *Erysiphe lagerstroemiae*) and *Phyllactinia guttata* (Erysiphales: Erysiphaceae) are the causative agents of powdery mildew on crapemyrtle.

The most visible symptom of powdery mildew is a white or grayish powdery coating on the leaves, stems, and flower buds, which can lead to reduced or abnormal flowering (Fig. 1). This coating often covers large areas of the plant and is typically the first sign of infection. Young plants and new growth are more susceptible to severe damage than older plants, leaves, or branches. Infected leaves may become distorted, curled, or stunted. In severe cases, powdery mildew can cause premature leaf drop, weakening the plant and reducing its aesthetic quality.

The fungal growth on the leaf surface blocks sunlight, hindering the plant's ability to photosynthesize, reducing plant vigor. This disease is particularly problematic in shady, damp locations where plants are crowded and have poor air circulation. The most favorable environmental conditions for powdery mildew growth and spread include warm days (60-80ºF) and cool nights with high

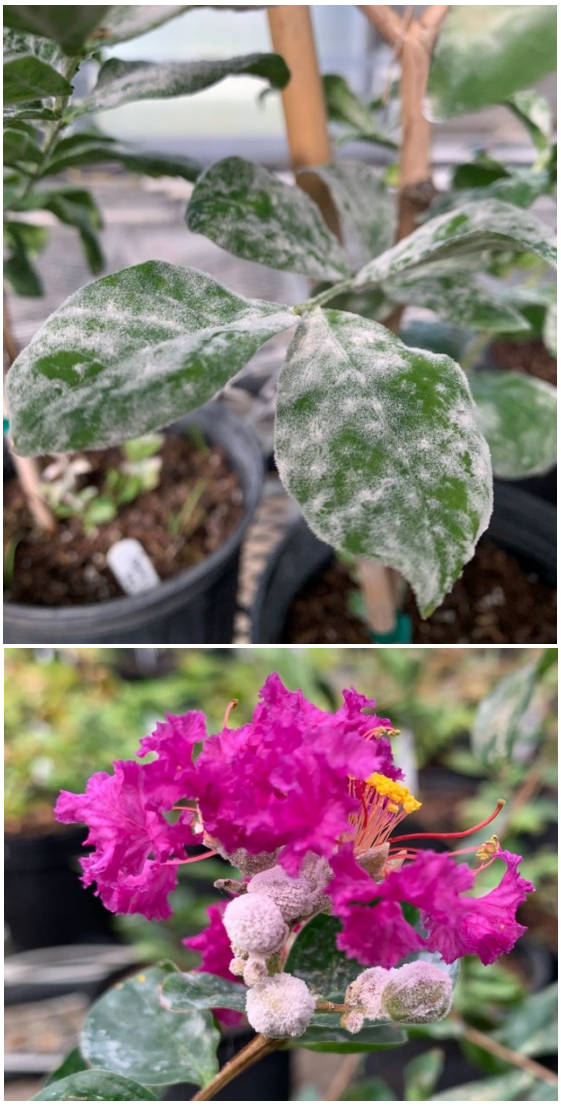

Figure 1. Symptoms of powdery mildew on leaves (top) and flower buds (bottom). Photo credit: Kripa Dhakal, Tennessee State University.

relative humidity.

The disease typically peaks during spring and early summer and can also be severe in the fall for field-grown plants, while it may occur year-round in greenhouse/shadehouse-grown plants. Powdery mildew significantly reduces the aesthetic and horticultural value of crapemyrtle plants by affecting their foliage, flowers and fruits.

Life cycle

The fungus produces airborne spores, which are the primary means of dispersal. These spores are produced in large numbers and can be spread by wind, direct plant contact, or water splash. Upon landing on a susceptible plant, the spores germinate under favorable conditions, typically high humidity and dry leaf surfaces. The fungus then forms a network of thread-like structures called mycelium on the surface of the leaves, stems, and buds and mycelium produces more spores, which can spread the infection throughout the plant and to neighboring plants. This cycle can repeat multiple times during the growing season, leading to a rapid buildup of the disease. The fungus overwinters on plant debris and dormant leaf buds.

Management

Effective control measures for powdery mildew include maintaining proper spacing between plants to promote good air circulation and pruning overcrowded branches to reduce humidity levels within

the plant canopy. It is also important to remove and destroy infected plant debris to reduce the sources of overwintering spores.

The most sustainable approach for managing powdery mildew is to select crapemyrtle cultivars that exhibit resistance or tolerance to the disease (Table 1). Choosing resistant cultivars such as *Lagerstroemia indica* × *fauriei* hybrid cultivars can significantly reduce the need for chemical controls. In contrast, susceptible species and cultivars, such as many *L. indica* cultivars, should be planted in full sun with good air circulation to help prevent powdery mildew.

Fungicides are most effective in managing powdery mildew when applied early in the disease's development. It is recommended to select fungicides containing active ingredients such as myclobutanil, propiconazole, thiophanate-methyl, or copper-based fungicides (Table 2). Multiple applications may be required, and preventative fungicide sprays may be necessary before symptoms appear, particularly during periods of high humidity. It is important to follow label directions and rotate fungicides to prevent the development of resistance. However, it is always wise to integrate chemical methods with cultural, biological, and other management strategies.

Table 1. Susceptibility of *Lagerstroemia* cultivars to powdery mildew.

Cultivar	Parentage	Powdery mildew	References
Acoma	*L. indica* × *L. fauriei*	Resistant	Chappell et al. (2012)
Apalachee	*L. indica* × *L. fauriei*	Moderately Resistant	Hagan et al. (1998)
Basham's Party Pink	*L. indica* × *L. fauriei*	Moderately Resistant	
Berry Dazzle	*L. indica* × *L. fauriei*	Resistant	Chappell et al. (2012)
Caddo	*L. indica* × *L. fauriei*	Moderately Resistant	Hagan et al. (1998)
Carolina Beauty	*L. indica*	Susceptible	
Cherokee	*L. indica*	Moderately Resistant	
Chickasaw	*L. indica* × *L. fauriei*	Resistant	Chappell et al. (2012)
Cherry Dazzle	*L. indica* × *L. fauriei*	Resistant	
Comanche	*L. indica* × *L. fauriei*	Resistant	
Dazzle Me Pink	*L. indica* × *L. fauriei*	Resistant	
Diamond Dazzle	*L. indica*	Resistant	
Fantasy	*L. fauriei*	Resistant	Hagan et al. (1998), Chappell et al. (2012)
Kiowa	*L. fauriei*	Resistant	Chappell et al. (2012)
Lipan	*L. indica* × *L. fauriei*	Resistant	
Majestic Beauty	*L. indica*	Susceptible	Hagan et al. (1998)
McFadden's Pinkie Myrtlette	*L. indica* × *L. fauriei* × *L. subcostata*	Resistant	Chappell et al. (2012)
Miami	*L. indica* × *L. fauriei*	Resistant	
Natchez	*L. indica* × *L. fauriei*	Resistant	
Near East	*L. indica*	Resistant	
Orbin Adkins	*L. indica*	Susceptible	Hagan et al. (1998)
Osage	*L. indica* × *L. fauriei*	Resistant	Chappell et al. (2012)
Osage Blush	*L. indica* × *L. fauriei*	Resistant	
Pecos	*L. indica* × *L. fauriei*	Resistant	Chappell et al. (2012)
Peppermint Lace	*L. indica*	Susceptible	Hagan et al. (1998)

Pocomoke	*L. indica* × *L. fauriei*	Resistant	Chappell et al. (2012)
Powhatan	*L. indica*	Susceptible	Hagan et al. (1998)
Raspberry Sundae	*L. indica*	Susceptible	
Red Rooster	*L. indica*	Resistant	Chappell et al. (2012)
Sarah's Favorite	*L. indica* × *L. fauriei*	Resistant	
Seminole	*L. indica*	Susceptible	Hagan et al. (1998)
Sioux	*L. indica* × *L. fauriei*	Resistant	Chappell et al. (2012)
Strawberry Dazzle	*L. indica*	Resistant	
Sweetheart Dazzle	*L. indica*	Resistant	
Tonto	*L. indica* × *L. fauriei*	Resistant	Hagan et al. (1998)
Townhouse	*L. fauriei*	Resistant	Chappell et al. (2012)
Tuscarora	*L. indica* × *L. fauriei*	Resistant	Hagan et al. (1998), Chappell et al. (2012)
Tuskegee	*L. indica* × *L. fauriei*	Resistant	
Wichita	*L. indica* × *L. fauriei*	Resistant	Chappell et al. (2012)
Wonderful White	*L. indica*	Susceptible	Hagan et al. (1998)
World's Fair	*L. indica*	Resistant	Chappell et al. (2012)
Yuma	*L. indica* × *L. fauriei* × *L. amabilis*	Resistant	

Table 2. Fungicides/biofungicides for the management of powdery mildew on crapemyrtle.

FRAC Code[1]	Active Ingredient	Trade Names[2]
1	thiophanate methyl	Allban Flo, 3336, SysTec 1998
3	metconazole	Tourney
	myclobutanil	Eagle 20
	propiconazole	Banner Maxx II, Propiconazole, Strider, Fathom
	triticonazole	Trinity TR, Trinity
	imazalil	Fungaflor TR
	triflumizole*	Terraguard
	triadimefon	Bayleton 50
	tebuconazole	Torque
5	piperalin	Pipron
11	fluoxastrobin	Disarm O
	trifloxystrobin	Compass O
	fenamidone	FenStop
	azoxystrobin*	Heritage
	kresoxim-methyl	Cygnus
19	polyoxin D Zn salt	Affirm
33	potassium phosphite	Vital
44	*Bacillus subtilis* strain QST 713	Cease
50	pyriofenone*	Seido
7+11	benzovindiflupyr + azoxystrobin*	Mural
	fluxapyroxad + pyraclostrobin	Orkestra Intrinsic
	boscalid + pyraclostrobin*	Pageant Intrinsic
11 + 3	trifloxystrobin + triadimefon	Trigo

9 + 12	cyprodinil + fludioxonil	Palladium
7 + 3 + 11	pydiflumetofen + propiconazole + azoxystrobin*	Picatina Gold
M1	copper hydroxide	CuPRO 2005 T/N/O, Nu-Cop 50, Nu-Cop HB, Nu-Cop 3L, Champ
	copper salts of fatty and rosin acids	Camelot
	copper sulfate	Basicop
	tribasic copper sulfate	Cuproxat
	copper sulfate pentahydrate	Phyton 27, Phyton 35
M5	chlorothalonil	Daconil Ultrex, Daconil Zn, Daconil Weather Stik, Mainsail
M5+ 1	chlorothalonil + thiophanate methyl	Spectro 90
	mancozeb + thiophanate methyl	Zyban
M3 + 3	mancozeb + myclobutanil	Clevis
M5 +3	chlorothalonil + propiconazole*	Concert II
M1+ M3	copper hydroxide + mancozeb	Junction
Not Classified	potassium bicarbonate	MilStop
	didecyldimethylammonium chloride*	KleenGrow

[1]*FRAC = Fungicide Resistance Action Committee.*

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

** These products were tested by the Baysal-Gurel lab.*

References

Baysal-Gurel, F., and Simmons, T. 2018. Evaluation of fungicide rotations at different application intervals for the control of powdery mildew of crapemyrtle, 2017. Plant Disease Management Report No. 12:OT003. Online publication. The American Phytopathological Society, St. Paul, MN.

Baysal-Gurel, F., Simmons, T., and Jennings, C. 2021. Evaluation of fungicides for control of powdery mildew on crapemyrtle, 2020. Plant Disease Management Report No. 15:OT007. Online publication. The American Phytopathological Society, St. Paul, MN.

Baysal-Gurel, F., Simmons, T., and Jennings, C. 2022. Evaluation of fungicides for the control of powdery mildew of crapemyrtle, 2021. Plant Disease Management Report No. 16:OT020. Online publication. The American Phytopathological Society, St. Paul, MN.

Baysal-Gurel, F., Simmons, T., Liyanapathiranage, P., and Kabir, Md. N. 2017. Evaluation of fungicides for the control of powdery mildew of crapemyrtle, 2016. Plant Disease Management Report No. 11:OT013. Online publication. The American Phytopathological Society, St. Paul, MN.

Chappell, M. R., Braman, S. K., Williams-Woodward, J., and Knox, G. 2012. Optimizing plant health and pest management of *Lagerstroemia* spp. in commercial production and landscape situations in the southeastern United States: a review. Journal of Environmental Horticulture, 30(3), 161-172.

Dirr, Michael A. 2009. Manual of woody landscape plants: Their identification, ornamental characteristics, culture, propagation and uses. 6th ed. Stipes Publishing L.L.C., Champaign, IL.

Hagan, A.K. 2001. Crapemyrtle diseases, In: R.K. Jones and D.M. Benson, editors. Diseases of woody ornamentals and trees in nurseries. APS Press, St. Paul, MN. 114-116.

Hagan, A.K., Keever, G.J., Gilliam, C.H., Williams, J.D., and Creech, G. 1998. Susceptibility of crapemyrtle cultivars to powdery mildew and Cercospora leaf spot in Alabama. J. Environ. Hort. 16(3):143-147.

Hagan, A.K., Keever, G.J., Gilliam, C.H., Williams, J.D., and Creech, G. 2002. Resistance of selected crapemyrtle cultivars to powdery mildew and Cercospora leaf spot. Alabama Ag. Exp. Station Bulletin 644, pp. 14.

Thurn, M., Lamb, E., and Eshenaur, B. 2019. Disease and insect resistant ornamental plants: *Lagerstroemia* (crapemyrtle). New York state integrated pest management program, Cornell University, Cornell University Library, 3-6.

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 fungicide recommendations that are subject to change at any time. The recommendations in this publication are provided only as a guide. It is always the fungicide applicator's responsibility, by law, to read and follow all current label directions for the specific fungicide 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.

TSU-25-002(A)-12b-13515- Tennessee State University is an EEO employer.