

Powdery Mildew on Pecans

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Fig 1. Powdery mildew on pecan fruit. Photo Credit: Clemson University – USDA Cooperative Extension Slide Series; www.ipmimages.org

The phone has been ringing the last several weeks with questions pertaining to powdery mildew on pecans. We have not only received calls but have also documented powdery mildew outbreaks in our research trials at the Cimarron Valley Research Station in Perkins, Oklahoma.

The fungus *Microsphaera penicillata* causes powdery mildew of pecan. On pecan, powdery mildew primarily appears mid-to-late season and will generally only affect fruit, but can be found on leaflets occasionally. Powdery mildew can be damaging to the crop by causing under-sizing of kernels. It has been documented that if outbreaks of powdery mildew occur in the early stages of fruit development, kernel weight can be reduced by as much as 20%. As fruit

mature they become increasingly resistant to powdery mildew. Therefore, the onset of late-season powdery mildew epidemics is considered of less importance than early-to-mid season outbreaks.

In Oklahoma, powdery mildew can occur sporadically and may not be present each year. However, when weather is consistently humid with widely fluctuating temperatures, conditions are generally favorable for powdery mildew outbreaks. The development of powdery mildew is

more likely when cool, moist nights are followed by warm daytime temperatures. Powdery mildew is also more common when trees are crowded or poor air circulation exists. Considering these weather requirements it isn't a surprise that we are seeing powdery mildew on pecan this season.

Many growers indicate that they have been spraying for scab and are surprised to see powdery mildew despite the diligent fungicide applications. Many of the fungicides that are effective for scab are not effective in controlling powdery mildew. Products that are labeled for powdery mildew are listed in Table 1 (end of newsletter). Users should be warned that while these products are labeled for controlling or suppressing powdery mildew on pecan, no efficacy data is currently available for these formulations in Oklahoma. Clients should be advised that these may or may not be effective for control of powdery mildew on pecan in Oklahoma, despite a legal use label. Other products may be available but be sure that the label specifically mentions powdery mildew on pecan. Growers should also consider fungicide resistance management and spraying for scab when making decisions to spray for powdery mildew. If a scab spray is due soon, growers might look to a fungicide, which provides control for both scab and powdery mildew. These products have an asterisk next to the common name in Table 1. As always, preventative applications of fungicide are recommended over curative or rescue treatments to achieve the best control.

Southern Blight in Ornamentals

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Southern blight can be a devastating problem on many species of nursery and ornamental plants. Several cases of southern blight have come in to the Plant Disease and Insect Diagnostic lab over the last several weeks. The fungus *Sclerotium rolfsii* is the causal agent of southern blight. The fungus can infect both woody and herbaceous plants. Weather conditions for the last several weeks have been favorable for disease development. Overwatering in the landscape, high humidity, daytime temperatures that exceed 86°F, and nighttime temperatures that do not fall below 70°F are conducive for fungal growth and infection. The fungus can survive on old, decaying plant material (saprobic activity) in potting media. When heavy rains are followed by hot, dry conditions, sclerotia often germinate and the fungus infects plant parts below, or at the soil surface. Early symptoms include wilting or flagging of shoots. Cankers at the crown or damage to the roots may also be present (Fig 1). Fungal growth or mats may also be noted at the soil surface (Fig 1). As an infected plant begins to die, the fungus will begin to produce sclerotial survival structures in and on the plant or debris (Fig 2).

Cultural practices and sanitation are critical in managing southern blight in the nursery and landscape. Pots should be carefully cleaned and disinfected. Potting media should never be recycled. When repotting always use new potting mix that was stored preferably on a concrete pad, not on bare ground. Soil to be mixed with potting media should be disinfested, preferably with steam. Production and landscape beds should be raised and have good drainage. Do not over irrigate the crop and fertilize only as needed. Increasing air movement in a block to

minimize the relative humidity above the surface of the containers can also be helpful. Maintaining a soil pH that is only slightly acidic is preferred. Highly acidic media (pH 3-6) can favor growth of the fungus. Plants diagnosed with southern blight should be removed from the site and destroyed. If the area is a hard surface for growing container plants the surface should be blown or swept free of plant and soil debris.



Fig 1. Canker on a woody plant caused by *Sclerotium rolfsii*. Note the white thread-like growth, which is mycelium of the fungus.



Fig 2. Survival structures (sclerotia) of *Sclerotium rolfsii* on woody plant debris (see arrow and inset).

Chemical controls should be used preventatively. Several fungicides are available and vary depending on the crop. Consult the 2010 OSU Extension Agents' Handbook of Insect, Plant Disease and Weed Control for chemical recommendations. Drenches in nursery operations with a history of southern blight should begin just prior to the onset of hot, humid weather. Treatments should continue at regular intervals until the prevailing weather patterns become cool and dryer. As with any pesticide, read the entire fungicide label prior to application.

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Table 1. Select fungicides labeled for control or suppression of powdery mildew of pecan^a.

Common Name ^b	Trade Name	Manufacturer	Mode of Action Code ^c
Fenbuconazole*	Enable 2F	Dow Agrosciences	3
Potassium Bicarbonate	Armicarb 100	Helena Chemical Co.	NC
	Armicarb O	EcoMate	NC
	Milstop	BioWorks	NC
Potassium Phosphite	Fosphite Fungicide	JH Biotech	33
	Fungi-Phite	Plant Protectants	33
	Rampart	Loveland Industries	33
	Topaz	Winfield Solutions	33
Propiconazole*	Bumper 41.8 EC	MANA	3
	Orbit	Syngenta	3
	Propimax EC	Dow Agrosciences	3
	Tilt	Syngenta	3
Sulfur	Kumulus DF	Arysta Life Science	M2
	Micro Sulf	Nufarm Ag Products	M2
	Microthiol Disperss	United Phosphorus	M2
Thiophanate-methyl*	T-methyl 70 W WSB	Arysta LifeScience	1
	Topsin 4.5 FL	United Phosphorus	3
	T-Methyl E-AG 4.5 F	Etigra	3
	Topsin-M 70 WDG	Cerexagri-Nisso LLC	3
Triphenyltin hydroxide*	Agri Tin	Nufarm Ag Products	30
	Super Tin 4L	United Phosphorus	30
	Super Tin 80WP	United Phosphorus	30

^a No efficacy data for control of powdery mildew on pecan trees is currently available for these formulations in Oklahoma. Clients should be advised that these may or may not be effective for control of pecan powdery mildew in Oklahoma, despite a legal use label. Other products may be available but be sure that the label specifically mentions powdery mildew of pecan.

^b * indicates that the fungicide is also labeled for control of scab.

^c Mode of action codes are based on the Fungicide Resistance Action Committee (FRAC) system of coding (www.frac.info).