

2006 Florida Plant Disease Management Guide: Macadamia (*Macadamia integrifolia*)¹

Ronald D. French-Monar and Pamela D. Roberts²

ALGAL SPOT (*Cephaleuros virescens*)

Symptoms: Leaves become greenish-gray, with circular spots that are slightly raised and prominent. These spots will appear red when the alga is reproducing. When leaves are heavily infected, some leaf drop may occur. The alga on branches can cause bark scaling and cracking of limbs.

Chemical Controls: No EPA-approved fungicides are legal for this use.

ANTHRACNOSE (*Colletotrichum gloeosporioides*)

Symptoms: Nuts, twigs, branches and leaves are susceptible to this pathogen. Brown lesions develop on leaves and nuts from rain-splashed spores coming from twig infections. Husks of nuts develop soft brown lesions ranging in size from 1/8 in. to less than 1/2 in. in diameter. Some nut drop may occur. Disease is enhanced under high humidity.

Cultural Controls: Collect and destroy fallen infected leaves and other plant material.

Chemical Controls: Fungicides applied at first disease onset will aid in disease management. See Table 1.

BLOSSOM/RACEME BLIGHT (*Botrytis cinerea*)

Symptoms: Moist periods with cool temperatures between 60-84°F favor the disease. Small, brown spots develop on petals and quickly spread to the flower stalk (raceme). The entire flower stalk may blacken and die within 2 days. Dead flower petals stay in place. The fungus produces spores as a grayish-brown mass from infected tissue.

Chemical Controls: Apply preventive fungicides during moist, cool weather which favors infection. See Table 1 for fungicides.

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 2. Ronald D. French-Monar, Ph.D., Research Associate, Plant Pathology Department, Southwest Florida Research and Education Center--Immokalee, FL; Pamela D. Roberts, Ph.D., Associate Professor, Plant Pathology Department, Southwest Florida Research and Education Center--Immokalee, FL; Florida Cooperative Extension Service, Institute of Food and Agricultural Sciences, University of Florida, Gainesville, FL.

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ROOT ROT (*Phytophthora cinnamomi*, *Pythium* sp.)

Symptoms: Root rots, caused by these oomycetes, primarily cause a rot of the small feeder roots, which become darkened and die. Heavy infestation may result in the absence of such roots which normally would allow for moisture uptake. Therefore, poor soil drainage will result in water accumulation in the soil in the absence of a good root system.

Cultural Controls: Good drainage of soils will allow for adequate soil moisture.

Chemical Controls: See Table 1.

SOOTY MOLD (*Capnodium* spp., other genera)

Signs/Symptoms: Sooty mold is the common name for several species of fungi that grow on the honeydew secretions on leaves and other plant parts. Scales, aphids, psyllids, and other insects that secrete honeydew can be responsible for sooty mold. Fungal mycelium is melanized (darkened), giving the appearance of soot covering the plant part. These fungi are ectoparasitic (growing on the surface) and will not infect plants. However, sunlight penetration is reduced and can result in stunted growth or yield reduction.

Cultural Controls: Cultural practices that will manage insect populations responsible for honeydew secretions in plant parts should be implemented. Such practices may include careful pruning of affected plant parts, control of ants that protect the insects responsible for honeydew, and high pressure washing of tissue with water and, if possible, with soap.

Chemical Controls: Use insecticides for control of ants and secretors of honeydew.

Table 1. Chemical controls for diseases of Macadamia.

Chemical	Fungicide Group ^a	Maximum Rate / Acre /		Min. Days to Harvest	Pertinent Diseases or Pathogens	Remarks ^b
		Applic.	Season			
Abound (azoxystrobin)	11	12.3 fl oz/A	2.31 quarts/A	45	Anthracnose Other leaf spots	May add an adjuvant at recommended rate. Do not make 2 sequential applications of this product or other QoI fungicides. Do not make more than 4 applications per season for fungicides in this group.
Gem (trifloxystrobin)	11	2.9 fl oz/A	15.4 fl oz	60		
Heritage (azoxystrobin)	11	6.4 oz/A	24 lb	45		
Badge, Champ DP, Champ 2F, Champion WP, Copper-Count-N, Cuprofix Disperss, Kocide 101, Kocide 2000, Kocide DF, Nordox 75WG, Nu-Cop 50WP, Nu-Cop 3L, Nu-Cop 50DF, Stretch (Various copper formulations)	M1				Anthracnose Botytris Raceme blight	See label for rates
Fosphite (Potassium phosphate)					Phytophthora	See label for various application guidelines
Pristine (Boscalid + Pyraclostrobin)	7 + 11	14.5 oz/A	58 oz/A	14	Anthracnose Other leaf spots	Same as Abound
Subdue GR and Subdue Maxx (mefenoxam)	4				Phytophthora root rot	Non-bearing nursery trees. See label for details
Topaz (Potassium phosphite)					Phytophthora	See label for various application guidelines

^aFungicide group (FRAC Code): Numbers (1-37) and letters (M, U, P) are used to distinguish the fungicide mode of action groups. All fungicides within the same group (with same number or letter) indicate same active ingredient or similar mode of action. This information must be considered for the fungicide resistance management decisions. M = Multi site inhibitors, fungicide resistance risk is low; U = Recent molecules with unknown mode of action; P = host plant defense inducers. Source: <http://www.frac.info/> (FRAC = Fungicide Resistance Action Committee). Be sure to read a current product label before applying any chemicals.

^bInformation provided in this table applies only to Florida. Be sure to read a current product label before applying any chemical. The use of brand names and any mention or listing of commercial products or services in the publication does not imply endorsement by the University of Florida Cooperative Extension Service nor discrimination against similar products or services not mentioned.