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2008 Florida Citrus Pest Management Guide: Postbloom Fruit Drop[1]

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Postbloom fruit drop (PFD) must be controlled on processing and fresh market fruit. PFD, caused by *Colletotrichum acutatum,* affects all species and cultivars of citrus, but severity on a given cultivar may vary according to the time of bloom in relation to rainfall. Navel and Valencia oranges have experienced the most severe damage in Florida.

Most spores of this fungus are produced directly on the surface of infected petals. Spores are splash-dispersed by rains to healthy flowers where they infect within 24 hours and produce symptoms in 4-5 days. The fungus survives between bloom periods as resistant structures on the surface of leaves, buttons, and twigs.

A model has been developed to assist growers in determining the need and timing of fungicide applications. The model is based on: 1) the amount of inoculum of the fungus present (i.e., the number of diseased flowers on a 20-tree sample, TD in the model); 2) the total rainfall for the last 5 days; and 3) the number of hours of leaf wetness above normal for the last 5 days. The model predicts the percentage of the flowers that will be affected 4 days in the future.

$$y = -13.63 + 1.16\sqrt{TD} + 0.48\sqrt{R \times 2500} + 1.77\sqrt{LW \times 5}$$

where :

y = *Percentage of flowers infected 4 days in the future*; *however, if* $y < 0$, *then* $y = 0$.

TD = *Total number of infected flowers on* 20 *trees*; *however*, *if* $TD < 75$, *then* $TD = 0$.

R = *Rainfall total for the last* 5 *days in inches*.

LW = *Average number of hours of leaf wetness daily for the last* 5 *days* − 10 *hours*.

Equation 1.

A fungicide application is indicated if these three criteria are met: 1) the model predicts a disease incidence of greater than 20%; 2) sufficient bloom is present or developing to represent a significant portion of the total crop; and 3) no fungicide application has been made in the last 10-14 days.

Groves with persistent calyxes (buttons) from the previous year should be closely examined once

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the bloom begins. If infected flowers are present on scattered early bloom, model recommendations should be followed once sufficient bloom is present. Groves with a history of PFD should be checked twice weekly during the bloom period. Ground and aerial applications are effective for control of PFD. The removal of declining trees, where off-season blooms may provide a site for fungal spore buildup, and a reduction in overhead irrigation during the bloom period should reduce disease severity.

An alternative to the PFD model, called the PFD-FAD system, has been developed. It is more complete in that it takes into consideration the disease history in the grove, the susceptibility of the variety, and the time of the last fungicide application. The PFD-FAD system is easy to use and requires less precise information than the PFD model. It can be found at: **http://pfd.ifas.ufl.edu/.**

Of the products recommended for control of PFD, Topsin is probably the most effective, Abound, Gem, and Headline may be less so, and Ferbam is least effective. Ferbam is not sufficiently effective to be used alone but can be combined with low rates of other products to maximize protection and reduce the risk of resistance development. No resistance has been detected to date. Extensive studies with Benlate have not detected resistance even in groves where it had been applied repeatedly. By analogy, Topsin can probably be applied alone without great risk of resistance development. Neither Abound, Gem, nor Headline should be used alone more than once per season, but can be used more than once if combined with Ferbam.

Recommended Chemical Controls

READ THE LABEL.

Rates for pesticides in Table 1 are given as the maximum amount required to treat mature citrus trees unless otherwise noted. To treat smaller trees with commercial application equipment including handguns, mix the per acre rate for mature trees in 125 gallons of water. Calibrate and arrange nozzles to deliver thorough distribution and treat as many acres as this volume of spray allows.

Table 1. Recommended Chemical Controls for Postbloom Fruit Drop

Pesticide	FRAC MOA[4]	Mature Trees Rate/Acre[1]
Abound 2.08 F	11	12.4-15.4 fl oz. Do not apply more than 92.3 fl oz/acre/season for all uses.
Abound 2.08 F + Ferbam	11, M2	12.4 fl oz + 5 lb
Gem 500 SC	11	1.9-3.8 fl oz. Do not apply more than 15.4 fl oz/acre/season.
Gem + Ferbam	11, M2	4.0 oz + 5 lb
Headline	11	9.0-12.0 fl oz. Do not apply more than 49 fl oz/acre/season for all uses.
Headline + Ferbam	11, M2	9.0 fl oz + 5 lb
Topsin M WSB[3]	1	2.0 lb. Do not make more than 2 applications per year for all uses.
Topsin M WSB + Ferbam Granuflo	1, M2	1.5 lb + 5 lb

[1]Lower rates can be used on smaller trees. Do not use less than the minimum label rate.

[2]No more than 4 lb of a benzimidazole fungicide (Topsin) may be applied per season.

[3]Sec. 18 emergency registration effective until March 2, 2008.

[4]Mode of action class for citrus pesticides from the Fungicide Resistance Action Committee (FRAC) 2003. Refer to ENY624, Pesticide Resistance and Resistance Management, in the 2007 Florida Citrus Pest Management Guide for more details.