

2019–2020 Florida Citrus Production Guide: Postbloom Fruit Drop¹

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

Most spores of this fungus are produced directly on the surface of infected petals. Spores are splash-dispersed by rain to healthy flowers where they infect within 24 hours and produce symptoms in 4–5 days. The fungus survives between bloom periods as resistant resting structures on the surface of leaves, buttons, and twigs. Flowers are susceptible from the button stage (with white tissue present) until they are open.

Groves with persistent calyxes (buttons) from the previous year should be closely examined once the bloom begins. If infected flowers are present on scattered early bloom, fungicide application recommendations should be followed once sufficient bloom is present for the fungicide application to be economical. Groves with a history of PFD should be scouted twice weekly during the bloom period. Ground and aerial applications are effective for control of

PFD. Low-volume application equipment can be used if good coverage of the flowers is provided and minimum volume levels are followed according to the label. To reduce disease severity, remove declining trees such as those with HLB, blight or phytophthora, where off-season blooms may provide a site for fungal spore buildup, and limit overhead irrigation during bloom.

A fungicide application decision system, called the PFD-FAD system, has been developed and is available at <http://pfd.ifas.ufl.edu/>. The system takes into consideration the disease history in the grove, cultivar susceptibility, weather conditions (rainfall and leaf wetness duration), and the time of the last fungicide application. The PFD-FAD system is easy to use but should be checked daily, and fungicides should be applied within 48 hours after the recommendation. The system is also available in Spanish and Portuguese.

More recently, the Citrus Advisory System (CAS; Figure 1) was developed to further facilitate grower's decisions on the need for fungicide applications. The system uses real-time weather data from Florida Automated Weather Network (FAWN) stations throughout the state to determine whether risk for PFD is low (green), moderate (yellow), or high (red). Specific fungicide spray recommendations are given according to the disease risk conditions. CAS

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is available at <http://agroclimate.org/tools/cas>. If desired, notifications can be sent via SMS or e-mail for an alert to check the system because an infection event has occurred.



Figure 1. Citrus PFD Advisory System available at <http://agroclimate.org/tools/cas>.

Preventive fungicide programs are difficult to implement, especially in groves with large numbers of declining trees, which might bloom for an extended period since the number of fungicides available as well as the number of applications for each fungicide is limited. As a reminder, groves with a history of PFD should be checked twice weekly during bloom. If symptomatic flowers are found on scattered bloom, PFD-FAD or CAS recommendations should be followed once sufficient bloom is present to justify a fungicide application.

Of the products recommended for control of PFD, the strobilurin-containing fungicides Abound, Amistar Top, Gem, Headline, Priaxor, and Pristine are effective but do not have a long residual effect. Ferbam is less effective and should not 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. The strobilurin-containing fungicides should not 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 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 MOA²	Mature Trees Rate/Acre¹
Ferbam Granuflo	M03	5–6 lb. Maximum 3 Ferbam applications a year, and do not apply more than 6 lb ai/acre in a single application.
Abound ³	11	12.0–15.5 fl oz. Do not apply more than 92.3 fl oz/acre/season for all uses.
Abound ³ + Ferbam	11, M03	12.0 fl oz + 5 lb. Do not apply more than 92.3 fl oz/acre/season of Abound for all uses. Maximum 3 Ferbam applications a year, and do not apply more than 6 lb ai/acre in a single application.
Amistar Top (formerly Quadris Top) ^{3,4}	11 + 3	15.4 fl oz. Do not apply more than 61.5 fl oz/acre/year. Do not apply more than 0.5 lb ai/acre/season difenoconazole. Do not apply more than 1.5 lb ai/acre/season azoxystrobin.
Gem 500 SC ³	11	1.9–3.8 fl oz. Do not apply more than 15.2 fl oz/acre/season for all uses. Do not apply within 7 days of harvest.
Gem ³ + Ferbam	11, M03	1.9 fl oz + 5 lb. Do not apply more than 15.2 fl oz/acre/season of Gem for all uses. Do not apply within 7 days of harvest. Maximum 3 Ferbam applications a year, and do not apply more than 6 lb ai/acre in a single application.
Headline SC ³	11	12–15 fl oz. Do not apply more than 54 fl oz/acre/season for all uses.
Headline ³ + Ferbam	11, M03	12 fl oz + 5 lb. Do not apply more than 54 fl oz/acre/season of Headline for all uses. Maximum 3 Ferbam applications a year, and do not apply more than 6 lb ai/acre in a single application.
Pristine ^{3,4}	11 + 7	16–18.5 oz. Do not apply more than 74 oz/acre/season for all uses.
Priaxor ^{3,4}	11 + 7	9–11 fl oz. Do not apply more than 44 fl oz/acre/year.

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

² Mode of action class for citrus pesticides according to the Fungicide Resistance Action Committee (FRAC) 2018. Refer to ENY624, *Pesticide Resistance Management*, in the 2019–2020 Florida Citrus Production Guide for more details.

³ Do not use more than 4 applications of strobilurin fungicides/season. Do not make more than 2 sequential applications of strobilurin fungicides.

⁴ Do not make more than 4 applications of Pristine, Amistar Top, or Priaxor/season. Do not make more than 2 sequential applications of Pristine, Amistar Top, or Priaxor before alternating to a non-strobilurin, SDHI, or DMI.