

1 Post Bloom Fruit Drop of Citrus

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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 (R); and 3) the number of hours of leaf wetness above normal for the last 5 days (LW). The model predicts the percentage of the flowers that will be affected 4 days in the future (PI).

$$\text{Formula: PI} = -13.63 + 1.16\sqrt{\text{TD}} + 24\sqrt{\text{R}/25.4} + 1.77\sqrt{\text{LW}}$$

Predicted percentages of flowers affected using the equation developed for various hypothetical levels of disease and rainfall. Values in the shaded area (>20%) would indicate the need for a spray.

1.1 The Way μ METOS uses the Post Bloom Fruit Drop Model

μ METOS is calculating two values on base of this model. First the percentage of flowers which will be affected in 4 days on base of 133 infected flowers on 20 trees as amount of inoculum (TD). This value indicates the disease pressure during the last 5 days. Second the number of affected fruits on 20 trees which will lead to 20% of infected flowers in four days. This second value is the threshold of already infected fruits at the actual climate situation.

μ Link is presenting both values as progress lines in graph. The forecasted percentage for infected flowers on base of 133 already infected flowers at 20 trees is ranging from 0 to 100 (black). And the threshold of already infected fruits for spraying can vary from 625 fruits per 20 trees down to 0 fruits per 20 trees (pink).

1.2 Practical Use of the Post Bloom Fruit Drop Model

The forecasted percentage of infected fruits on base of 133 already infected fruits per tree is an indicator for disease pressure. If this indicated raises significantly it will be needed to check the orchards for already infected fruits. And if the number of infected fruits is higher than the threshold for spraying displayed by the μ METOS or the μ LINK a fungicide application is needed.