

## Managing Leaf Rust in the Evergreen Production System

Under the evergreen production system for southern highbush blueberry (SHB), which is used extensively in the south-central and central regions of Florida, blueberry plants do not go dormant and are harvested early in the season. One of the primary management necessities in the evergreen system is to keep the foliage healthy and intact through the harvest season. A significant challenge to accomplishing this can be fungal leaf disease, in particular rust, which must be managed from late fall through harvest.

Rust symptoms are initially observed as small, somewhat angular yellow spots, turning red to black, on the upper surfaces of leaves. This is usually limited by larger leaf veins, resulting in lesions with parallel straight or angular sides. Multiple lesions can occur on the same leaf, turning the leaves yellow and red over time (Figure 1). Yellow to orange rust colored spores appear on the underside of the leaf, opposite the lesions on the upper leaf surface, giving this disease its name. The presence of these spores is key to distinguishing this disease from other leaf spot diseases (Figure 2).



Figure 1. Rust symptoms on upper side of leaf  
Credits: P. Harmon, UF/IFAS



Figure 2. Rust symptoms on underside of leaf  
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Plants with rust can show premature defoliation, decreased floral bud differentiation, and reduced yield. Different levels of susceptibility to this disease can be found in SHB; for example, certain cultivars, such as 'Optimus', are known to be susceptible.

In evergreen production the rust pathogen can survive on infected leaves that remain on the plants throughout winter, with its spores spreading by wind. Spores can also survive on other evergreen plants of *Vaccinium* species in the areas surrounding production fields. New leaf infections can begin in spring during or just after harvest, and disease activity increases again in early fall.

Application of systemic fungicides are the best method for managing rust. Most products will only reduce or delay the amount of sporulation because fungicides do not effectively kill the fungus inside the leaf. Fungicides do a better job protecting against new infections than treating existing ones, so repeated applications to maintain a protective residue on the leaves is key to preventing the disease. The most effective fungicides for managing rust include Proline™ (DMI), Quilt Xcel™(QoI+DMI), and Propulse™ (DMI+SDHI). Quash™ (DMI) has also shown very good effectiveness, with Indar™ (DMI), Tilt™ (DMI), Bravo™ (multi) (must be used before bloom due to long PHI), and Abound™ (QoI) exhibiting good effectiveness. Pristine™ (QoI+SDHI), copper, and Captan typically have fair effectiveness. Be sure to check the labels for PHI before selecting any of these products after bloom. It is important to rotate or tank mix fungicides with different modes of action (listed in parentheses by the products above) in order to minimize the development of fungicide resistance. Begin applications after harvest and continue through late October on susceptible varieties. In the evergreen system scouting for rust should begin in September, especially in the lower and inner portions of the plant canopy that take longer to dry.

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