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## Squirrely Snapdragon Growth

*When visiting a grower, problematic snapdragon plants with spindly growth, blotchy yellow leaf patches, and lower leaf drop on only one cultivar series were observed. After further investigation, downy mildew was identified on only one cultivar series suggesting cultivar susceptibility differences.*

Downy mildew (*Peronospora sp.*) attacks a wide range of greenhouse crops such as impatiens, coleus, roses, and basil. Luckily most downy mildew species are plant specific. For example, what this means is coleus downy mildew will not infect snapdragons. *Peronospora antirrhini* is the downy mildew species that attacks snapdragons.

Disease occurrence is common with cool temperatures (41 to 70F) coupled with high humidity and wet weather that that favors prolonged leaf wetness.

During the spring and fall when dew often forms on leaves is the prime season for downy mildew. Spores can be introduced into your container production setting through a variety of ways including spreading by splashing water, air currents, or wind. For cut snapdragons grown in beds, leaf litter and prior crop plant debris that may contain thick-walled resting spores (oospores) can contribute to disease outbreaks. While another common mildew in the greenhouse is powdery mildew, the key difference is that powdery mildew will generally occur on the top of the leaf while downy mildew will be observed on the bottom.



Figure 1. Pale yellow-greenish leaves with greater intensity on the lower foliage is often the first sign of a downy mildew infection. (Photo: Brian Whipker)

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Recently when visiting a grower, concerns were raised about one cultivar of snapdragons (*Antirrhinum majus*) that was not performing as well as the others. All plants were grown under the same environmental conditions and were intermixed; however, this cultivar exhibited a pale yellow-greenish leaves with greater intensity on the lower foliage (Figs. 1&2). Additionally, when looking at the bottom of the leaves a light grey fungal growth was observed on the impacted plants (Fig. 3). In severe cases, leaf drop will occur generally beginning with the lower foliage.

When diagnosing the problem, examining the other cultivars of snapdragon surrounding the impacted plants suggested that it was not an abiotic problem because only a small portion of the crop was impacted (Fig. 4). After determining that all of the impacted plants were the same cultivar series this suggested a difference of cultivar susceptibility. Disease incidence and severity are a result of the environmental conditions. Wet and or humid conditions will increase the incidence and severity of downy mildew incidences while dry weather can often result in less observed incidences.

There are a wide range of control options available for downy mildew, the first option is to prevent optimum habitats for establishment by cultural control. Lowering the humidity of the greenhouse through a combination of ventilation and or air movement, removal of impacted plants by paying close attention to the bottom side of the foliage, avoiding overhead irrigation of plants specifically at times that would keep plants wet for extended periods, and select resistant cultivars and or less susceptible cultivars.



Figure 2. A yellow-greenish discoloration was observed on the upper side of the leaves with greatest intensity on the lower foliage on downy mildew-impacted plants. (Photo: Patrick Veazie)



Figure 3. Light grey fungal growth on the bottom side of the foliage is the most common sign that can be used for identifying the pathogen. (Photo: Patrick Veazie)



Figure 4. Close up of the leaf underside. (Photo: Brian Whipker)



Figure 5. The impacted plants were surrounded by other snapdragons of the same series, however, only this cultivar appeared incoherent suggesting varietal differences in susceptibility. (Photos: Left - Patrick Veazie, Right - Brian Whipker)

Chemical control options are also available but should be utilized before symptom development to prevent significant establishment. Rotating fungicide's mode of action is critical for preventing resistance. Chemical controls are available for downy mildew and a variety of options with different modes of action are listed in the [GrowerTalks: Insecticide, Miticide, and Fungicide guide](#).

For growers who are producing a wide range of susceptible species, monitoring all crops for occurrences is critical to limit the spread of downy mildew within your production setting.

#### Additional Resources.

Wegulo, S.N. and A.R. Chase. Chap. 25 Diseases of Snapdragon. In R.J. McGovern and W.H. Elmer (eds). Handbook of Florists' Crops Diseases, Handbook of Plant Disease Management. Springer Int. [https://doi.org/10.1007/978-3-319-39670-5\\_24](https://doi.org/10.1007/978-3-319-39670-5_24)

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