

## Rose Downy Mildew

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During the past twenty-five years, rose downy mildew has become a serious problem, causing significant losses to growers almost every year. The disease has been found in nearly every state across the US (and Canadian provinces) although it does not occur every year due to weather variation.

The cause of rose downy mildew is *Peronospora sparsa*, which also attacks certain caneberries (blackberry, boysenberry and raspberry) and all types of roses, both wild and cultivated.

### SYMPTOMS

Rose downy mildew is remarkably variable but the most common symptom has been angular, tan spots with a very small amount of white crystalline sporulation on leaf undersides. The name of the pathogen—*Peronospora sparsa*—reflects the “sparse” production of white spores. Under moist conditions, leaves turn yellow and drop and severe leaf drop occurs. A white, downy growth may occur on leaf undersides, but this is usually too hard to see without a microscope.

Under drier conditions, leaf spots appear as brown burned areas, mimicking spray injury. Reddish streaks or sunken cankers can also occur on rose canes. Rarely, downy mildew



sporulation can be observed directly on discolored spots on canes, if they are first incubated at a high humidity for a few days. Since similar cankers can be caused by other pathogens like Botrytis and Coniothyrium (common canker), it is a good idea to have them diagnosed by a lab.

### CULTURAL CONTROL

Downy mildew weather is cool to warm, humid and rainy—not hot and dry. Fans or wind easily move spores from plant to plant but are your best allies in preventing downy mildew outbreaks since they improve air circulation around plants, dry leaves rapidly and reduce relative humidity. Wet leaves and high humidity trigger sporulation overnight. Six hours of constant leaf wetness is enough for spores of many downy mildew pathogens to germinate and infect leaves.

Try to water whenever leaves will dry quickly, to ensure dry foliage at night. Check all new plants for symptoms upon receipt. Early detection is the only way to control downy mildew. Scout all plants for symptoms at least once a week and preferably every 2-3 days.

The cultural steps that should be taken when growing garden roses are:

1. Destroy rose debris from previous crops —spores can over-winter in leaves and canes.
2. To protect them from infection, isolate new shipments well away from last year's plants.



3. Space plants to allow rapid drying of leaves. If leaves are touching, they are too close. As the canopy closes in, the humidity increases, making downy mildew (and other diseases) more severe.
4. Water at a time of day that will promote the fastest possible drying.
5. Apply fungicides preventively.

### FUNGICIDES FOR CONTROL

The most consistently effective products for downy mildew on rose have been Subdue MAXX (1-2 oz/100 gal) used as a foliar spray, Micora (8 oz/100 gal), Stature SC (12.25 oz/100 gal), Aliette (2.5 lb/100 gal) and Segway (3.5 oz/00 gal). Remember to follow labels carefully. Subdue MAXX and Adorn must be tank-mixed with another product from a different MOA group that is effective on downy mildew (like each other). It is illegal for you to apply a spray of either Adorn or Subdue MAXX if you do not tank-mix it with another effective downy mildew product.

You cannot rotate products with the same FRAC group number. That means products in FRAC group 40 (Stature, Micora and Orvego) while really effective cannot be rotated with each other. Similarly, if you decide to use a strobilurin (or FenStop) they all belong to FRAC 11 and rotation dictates using something from another FRAC group.

Another fact that appeared in reviewing the available trials was that a shorter interval is usually more effective. Generally, a “curative” program would employ weekly rotations and the preventative on a 14 day interval. In the

absence of any downy mildew symptoms and weather that is dry and hot, no sprays are warranted. Spraying more often is counter-productive since it usually simply adds more water to a disease that thrives in wet leaf conditions.

A final word - make sure you are treating the right disease. It is surprising how many times roses are being sprayed for black spot when they really have downy mildew. Get a diagnosis.

### The table below summarizes trials performed on rose downy mildew.

Fungicide	FRAC group	Rate/ 100 gal	Result
Adorn	43	1-2 oz	some
Aliette	33	2.5 lb	some to very good
Compass	11	1-4 oz	some (all rates)
FenStop	11	5 oz	excellent (one trial)
Heritage	11	1-4 oz	none to good (best at 4 oz)
Insignia	11	2-4 oz	none to some
Micora	40	4-8 oz	very good to excellent (8 oz)
Mural	7 and 11	7 oz	good
Orvego	40 and 45	11- 14 oz	very good (14 oz)
Pageant Intrinsic	7 and 11	12-18 oz	very good
Segovis	U15	0.5 oz	good
Segway O	21	3.5-5 oz	very good to excellent
Stature SC	40	6.12-12.25 oz	very good to excellent
Subdue MAXX	4	1-2 oz	very good to excellent (spray)