Basil downy mildew is a disease caused by the fungal-like pathogen *Peronospora belbahrii*. This pathogen species is host specific, so it will not affect plants other than basil, although there are other species of downy mildew. The first reported case in the United States was in October 2007. Basil downy mildew has spread considerably since then and has been confirmed in field and greenhouse basil productions.

**DESCRIPTION**
Basil downy mildew is most common on sweet basils, known for their use in pesto, but it can affect all types. The pathogen *Peronospora belbahrii* can be spread by contaminated seed, infected basil leaves or plants, and most commonly as wind-dispersed spores, which can travel long distances. At this time, there are no commercially-standardized tests available to determine the contamination of individual seed lots.

Infected basil leaves produce an abundance of spores, and so the pathogen can spread widely once introduced to an area. Spores are not soil borne and will not overwinter in locations where basil is not grown continuously. The disease, however, can persist via air-borne spores in locations where basil is produced continuously, such as greenhouses with winter production and in warm climates, such as south Florida.

The conditions favoring disease development occur at high humidity levels with extended periods of leaf wetness.

**SYMPTOMS**
Basil downy mildew is characterized by a slight yellowing on the upper side of the leaves, often in bands between leaf veins, resembling a nutritional deficiency or sunscald. Purplish-gray spores develop on the lower surface, producing black “fuzz” on the underside of the leaf. More mature, dense, lower leaves are first to become infected with the disease quickly spreading up the plant and infecting newer growth.

*Above:* The upper and under sides of leaves show different symptoms of infection. The upper side shows yellowing between leaf veins. The underside houses the spores that aid in spreading the infection.

*Left:* A close-up of spores on the underside of the leaf.
MONITORING
Since the pathogen is readily spread through wind-dispersed spores, monitoring programs are important. Inspect and monitor plantings on a regular schedule.

Tips for monitoring:
- Check the lower leaves first, since the disease usually affects this area of the plant first.
- Purplish, gray spores on the undersides of the leaves are a clear indicator of infection.
- Stay up to date on reports of disease development in your region, especially during periods when conditions for disease development are optimal.

In 2009, Cornell University began a monitoring program for growers contribute their observations and review the input of others in their region. It can be found here:
http://vegetablemdonline.ppath.cornell.edu/NewsArticles/BasilDowny.html

More information on Basil Downy Mildew may be found at Cornell University. (Feb. 2017). Expect and Prepare for Downy Mildew in Basil. Cornell University Vegetable MD Online. Retrieved from:
http://vegetablemdonline.ppath.cornell.edu/NewsArticles/BasilDowny.html

PREVENTION
A regular schedule of fungicide applications can add a degree of protection against infestation, but only when used prior to the development of the disease in an area. Some effectiveness has been shown with preventative applications of Actinovate® and Oxidate® — these are both OMRI-approved materials.

In addition to a fungicide regiment, there are a number of things you can do to reduce the risk of disease development.

1. Select resistant varieties to grow.
2. Keep foliage dry.
3. Use drip irrigation or bottom-watering wherever possible to reduce humidity and leaf wetness.
4. Position plantings to ensure good airflow within and between rows, seedling flats, or containers.
5. Harvest early if the disease is present or the risk of infection is high due to disease presence in the area.
6. Remove and destroy any infected plants.
7. Report outbreaks to your local Cooperative Extension Service and your neighbors.