

Spinach Downy Mildew

(*Peronospora farinose* f. sp. *Spinaciae*)

by Lorraine Van Slooten

Downy mildew was found last year on farms in the northeastern U.S., particularly on Long Island. It has been a devastating production issue for years in the major spinach growing areas of California and Arizona.

The source of infection of spinach crops in New York may be infected spinach shipped from growers in these areas or it may be contaminated seed. The pathogens causing downy mildew are Oomycetes

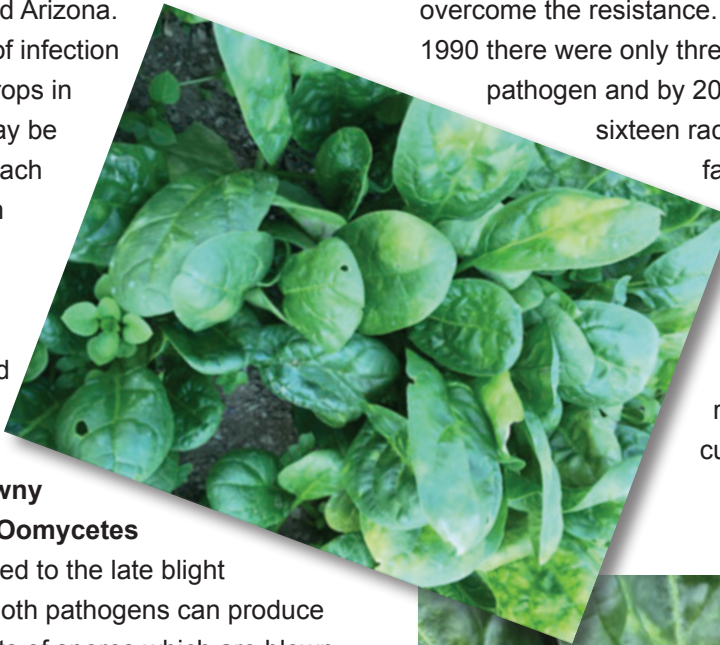
and are related to the late blight pathogen. Both pathogens can produce large amounts of spores which are blown and spread long distances by winds. Spinach leaves don't necessarily need to be wet, but appear to need only high humidity and cool temperatures to become susceptible to infection.

Symptoms that appear on the tops of spinach leaves are chlorotic spots that may develop before the fungus is even evident. The fungus grows inside the leaf and sporulates through stomata in the leaves, producing the purplish-gray spores on the underside of the leaf. The spores are produced overnight and spread by the wind during the day.

Planting resistant varieties of spinach in an area with good air circulation has been a good management practice. However, the pathogen has been quickly developing new genetic races that overcome the resistance. In California in 1990 there were only three races of the pathogen and by 2016 there were sixteen races identified. So far each outbreak of a new genetic race has been eventually matched by resistant spinach cultivars.

Growers of spinach this spring are being asked to inspect their crop for symptoms. If downy mildew is found or even just suspected, please contact your county CCE office/hotline and they will confirm and pass on information to Cornell researchers following this pest.

(Based on a Vegetable Disease Alert from Assoc. Prof. Margaret Tuttle McGrath, Plant Pathology & Plant Microbe Biology, Cornell University.)



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