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# Apple Scab *Venturia inaequalis*



**Fig. 1.** Symptoms of early infection on apple leaves (Note the olive-green spots with indefinite borders) (Photograph: A. Merwin, Cornell University 1996)



**Fig. 2.** Primary fruit infection. ( Photograph: A. Merwin, Cornell University 1996)

**Introduction:** Apple scab occurs wherever apples are grown and may be a very serious disease on susceptible varieties. The disease can also infect crabapple and mountain ash. Scab diseases similar to apple scab occur on pear, firethorn, and hawthorne. The scab-like leaf spots and fruit spots, from which the name was developed, may cause defoliation and reduction in fruit quantity and quality.

**Symptoms:** The disease may affect leaves, petioles, pedicels, fruit and twigs. The symptomatic spots are most noticeable on leaves and fruit. Infections first appear as olive-green spots with indefinite borders (Fig. 1 & 2). With age, these spots become more prominent and darken to greenish-black with a velvety appearance (Fig. 3 & 4). Severe spotting will cause leaves to senesce and fall off. Spots on young fruit result in deformation and cracking. If infection is severe, the fruit may drop off before ripening. Defoliation may result in a reduction of flower bud formation so that bloom or fruit yield the next year will be reduced.

**Disease Cycle:** This disease, caused by the fungus *Venturia inaequalis* (anamorph *Spilocaea pomi*), may be quite severe when rainy, cool weather occurs in the spring. Fungal spores are produced in early spring on dead, fallen apple leaves about the time buds begin to develop. These spores are splashed by rain and blown by wind to land on developing plant tissue and initiate infections. After spots appear on the newly formed leaves, more spores are produced that spread infection to other parts of the tree. Again, rainy weather greatly encourages spore spread and infection during the secondary phase of spore production. The fungus overwinters on fallen leaves.

**Management Strategies:** Collect and dispose of fallen leaves in autumn. This will help reduce the inoculum that may cause disease the following spring.

A spray schedule with emphasis on the early part of the season is usually required for maximum production of high quality fruit. Applications should be made at pink, bloom, petal fall, and 10-14 days after petal fall. Several products are registered to treat apple scab in New York State.

**For ornamental plantings,** use Serenade for suppression, or use Spectracide Immunox Multi-Purpose Fungicide (MPF) or Greencure, or use a registered fungicide containing chlorothalonil or propiconazole.



**Fig. 3.** Later stage symptoms on a maturing apple. (Photograph: Clemson University, USDA Cooperative Extension Slide Series [www.bugwood.org](http://www.bugwood.org) )



**Fig. 4.** Later stage symptoms on a mature apple (Photograph: Clemson University, USDA Cooperative Extension Slide Series [www.bugwood.org](http://www.bugwood.org) )

**In the home orchard,** use Spectracide Immunox MPF or Greencure, or use a registered product containing copper soap (copper octanoate), lime sulfur, or sulfur for suppression. Do not apply products containing copper after the 'pink bud' stage. Some multipurpose spray mixtures may be available that may also help to control other pests. Be certain any formulation(s) of pesticide(s) you purchase are registered for the intended use. Follow the label instructions for all pesticides used, and avoid the use of insecticides during bloom so that bees are not harmed.

Note that sulfur may injure certain apple varieties (MacIntosh, Golden Delicious, Jonathan, and others). Also, myclobutanil may not be registered for all uses on Long Island. For commercial applications, please refer to the appropriate commercial pest management guidelines, or contact your local Cooperative Extension Office for more information on currently registered products.

**Resistant apple trees:** If plans are underway to plant more apple trees, consider planting cultivars that are resistant to apple scab. These include Enterprise, Goldrush, Liberty, Jonafree, Macfree, Prima, Pristine, Redfree, and Sir Prize.

**Resistant crabapple trees:** Several crabapple cultivars show a high resistance to scab and some resistance to some other common diseases of crabapple. These include: 'Adams', 'Adirondack', American Spirit™ ('Amerspirzam'), *baccata* 'Jackii', 'Cardinal', Centurion® ('Centsam'), 'Dolgo', 'Donald Wyman', 'Doubloons', *floribunda*, 'Henry Kohankie', 'Indian Summer', 'Liset', 'Ormiston Roy', 'Prairiefire', 'Professor Sprenger', 'Purple Prince', Red Jewel™ ('Jewelcole'), 'Robinson', Royal Raindrops™ ('JFS-KW5'), 'Sentinel', 'Strawberry Parfait', Sugartyme® ('Sutyzam'), x *zumi* 'Calocarpa'. Many additional varieties have also shown resistance to scab, but may be highly susceptible to other diseases or may require further evaluation to fully determine the degree of their resistance to scab.

**Reprinted from:** *Apple Scab Venturia inaequalis*, The Plant Disease Diagnostic Clinic at Cornell University, Ithaca, NY Updated SLJ, 12/09.

The Pesticide Management Education Program (PMEP), in cooperation with the New York State Department of Environmental Conservation (NYSDEC), maintains a web site with a searchable database for pesticide products currently registered in New York State. Individuals who have Internet access can locate currently registered products containing the active ingredients suggested above at

<http://pmp.cce.cornell.edu/pims/current> (NYS PIMS).

**This publication contains pesticide recommendations. Changes in pesticide regulations occur constantly and human errors are still possible. Some materials mentioned may no longer be available, and some uses may no longer be legal. All pesticides distributed, sold or applied in New York State must be registered with the New York State Department of Environmental Conservation (DEC). Questions concerning the legality and/or registration status for pesticide use in New York State should be directed to the appropriate Cornell Cooperative Extension specialist or your regional DEC office. Read the label before applying any pesticide.**

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