

Elements of IPM for Apples in New York State: Disease Forecasting and Monitoring

Information on Apple IPM Practices for Specific Pests	
Disease	Activity
Apple scab	Give special attention to protecting trees from the first significant infection period. Time sprays based on modified Mills table & weather , rain forecasts, tree phenology and ascospore maturity (squash mounts or the 32°F DD model). Time subsequent sprays ahead of rains to control primary scab until 2 wks after petal fall. Weather data and DD calculations are available from NYS IPM NEWA . Record spray dates and infection periods. Scout regularly for primary scab, base further sprays on scouting results. Conduct PAD counts, if below threshold consider a delayed spray program. To reduce over-wintering inoculum, flail mow &/or treat with urea to degrade leaf litter.
Powdery mildew	Time mildewcide* at tight cluster if history of powdery mildew, highly-susceptible varieties, mild winters &/or flag shoots. Only apply sprays targeted specifically for powdery mildew from tight cluster until the cessation of terminal growth. Strobilurin fungicides preferred for prebloom sprays. Scout susceptible varieties routinely to monitor spread and the need for treatment. Record the date of cessation of terminal growth.
Fire blight	Apply copper at green tip if history of fire blight &/or highly susceptible varieties. Time streptomycin sprays for the blossom blight phase of fire blight using MARYBLYT®, Cougar Blight , or CCE or advisor alerts. Weather data are available from NYS IPM NEWA . Scout after bloom and prune out infected shoots. After bloom, streptomycin is only applied after a summer hailstorm and only in orchards where fire blight is present or is present in nearby blocks. Choose fire blight resistant varieties and rootstocks as soon as available.
Apple rusts	If history of apple rust, time sprays to cover infection events from pink until 2 to 3 wks after petal fall. If practical and where disease pressure is high, remove nearby Juniperus spp. (red cedars, junipers) alternate hosts.
Sooty blotch and flyspeck	These diseases develop gradually during periods of high humidity. Prune, train, and thin to open tree canopy and fruit clusters. Where feasible, remove wild Rubus spp. (blackberry, raspberry) alternate hosts from orchard perimeters. Begin sprays after 300 hr of accumulated leaf wetting counted from petal fall. Maintain coverage to within 30 days of harvest whenever disease pressure is high and weather is humid, rainy and cloudy.

Frog-eye leaf spot Black rot on fruit	Most scab sprays are effective against frog-eye leaf spot. For black rot on fruit and when disease pressure is high, apply effective fungicides during the 2-6 wk period after petal fall and during the preharvest ripening period, especially in wet years. Fungicides are ineffective on canker phase of disease; prune out cankers to minimize spread of the disease to leaves, fruit and shoots.
White rot	Like black rot, critical periods for preventing white rot fruit infections are the 2-6 wk period after petal fall and the preharvest ripening period.
Phytophthora root rot	Establish orchards on well-drained sites and on resistant rootstocks. Avoid moderately to highly susceptible rootstocks (e.g. MM.106). In very wet years &/or in high risk orchards, scout in summer when trees are stressed and treat symptomatic trees.
Bitter rot	Scout for infection mid to late summer, especially following unusually hot, wet weather. If infections are found and wet, warm weather is forecast, apply captan at highest labeled rate before rain.
Storage decays	Sanitize field bins, storage rooms, and packinghouses at the end of each storage season. With good sanitation, no postharvest fungicide needed after harvest if fruit is kept dry. If fruit wetted in recycling solutions of DPA, an effective fungicide should be included in the solution. On the packing line, water flumes should be chlorinated to prevent dissemination of spores.

* Apple scab resistance to DMI fungicides such as Nova, Procure, or Rubigan, applied for powdery mildew, is known to occur in New York. Therefore, it may be necessary to tank mix a fungicide with a different mode of action for control of apple scab, particularly during critical timings such as tight cluster and pink.

DD — degree days

Consult [Cornell Pest Management Guidelines for Commercial Tree-Fruit Production](#) for further information.