UNIVERSITY OF ILLINOIS EXTENSION
College of Agricultural, Consumer and Environmental Sciences

report on
PLANT DISEASE

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DEPARTMENT OF CROP SCIENCES
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APPLE BLISTER SPOT

Blister spot of apple is caused by the bacterium *Pseudomonas syringe* pv. *papulans*. The reports prior to 2000 show that at least 25 apple cultivars were susceptible to blister spot. Most of those cultivars are no longer in commercial production. Since the turn of the twenty-first century, the disease has mainly been of economical concern on the Mutsu (Crispin) cultivar, which is highly susceptible to blister spot. In the past two decades, no blister spot was noticed in Illinois. In 2024, however, sever blister spot was observed on Fuji cultivar in one commercial orchard in southwest of the state. Then, a quick survey of commercial orchards in 2024 showed that blister spot occurred on 'Matsu' and 'Fuji' apples in five commercial orchards in western and southern parts of Illinois. Blister spot has been reported in other the Midwestern states, Canada, Europe, and Japan on 'Mutsu' apple.

Figure 1. Blister spot on 'Mutsu' apple fruits in Illinois in 2024.

Symptoms

Purplish black lesions develop on fruits. Symptoms are first noticeable 2-3 months after petal fall as small, green, water-soaked raised lesions that develop on fruits surfaces (Figures 1 and 2). As the growing season progresses, the lesions expand to 4-5 mm in diameter and become darkened (Figure 2). More than 100 lesions may develop on a single fruit. A midvein necrosis of 'Matsu' apple leaves may appear prior to the development of fruit lesions. Affected leaves are curled, puckered, and misshapen and may exhibit white to necrotic spots.

Disease Cycle

P. syringe pv. *papulans* overwinters in buds and leaf scars and may also overwinter on diseases fruits on the orchard floor. Throughout the growing season, *P. syringe* pv. *papulans* may survive as an epiphyte on foliage and fruit and on weeds in the orchard. As symptoms become visible, masses of bacteria associated with fruit can be observed using microscope. Young 'Mutsu' fruits have shown an increased susceptibility to infection beginning about two weeks after petal fall.

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This period of susceptibility lasted about 6 weeks. The pathogen may be spread in water, and blister spot development appears to be favored by wet weather.

Disease Management

Figure 2. Blister spot on 'Fuji' apple fruits in Illinois in 2024. Left, early stage of lesion development; right, advanced stages of developed blister lesions.

Streptomycin applications have been reported to be most effective in managing blister spot. The first spray is applied 10-14 days after petal fall, followed by two sprays at weekly intervals. Strains of the pathogen resistance to streptomycin have been reported. Other antibiotics and copper materials have been tested for blister spot control, with only moderate success. It is reported that an application of fixed copper early in the season (at the green-tip stage) is effective in reducing disease severity. Also, it has been reported that phosphorus acid-based compounds have some potential for managing this disease.

This is a newly emerging disease in Illinois. If the disease becomes an economically important problem, efficacy of potential compounds for managing blister spot should be investigated.