

Purple Spot Disease of Asparagus

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The Pathogen

Purple spot disease on asparagus spears and fern is caused by the fungus *Stemphylium*



vesicarium. The fungus survives the winter as sexual spores (ascospores) in a sac (ascus) produced in overwintering structures

Ascus with ascospores. (pseudothecia) that appear as small black dots on asparagus debris from the previous season. The ascospores are released from the



Pseudothecia and purple spot lesion on asparagus debris.

ascus by rain, and can be carried by the wind to newly emerged asparagus plants, where they cause the primary infection of the growing season.

These new infections result in spores (conidia) produced by an asexual process, which in turn can

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Conidia.

cause secondary infections, a process that is repeated as long as temperatures and rainfall are favorable.

The Disease

The emergence of purple spot as a significant problem in the production of asparagus in Michigan may be due to the adoption of a no-till cultural system, whereby the dried fern



Purple spot lesion.

from the previous season is chopped in April and left on the soil surface. This residue persists through the harvest season (mid-June) and is visible through the fern growth period (late June to September) and is the source of



Purple spot on asparagus stems.

ascospores which start infections early in the growing season. The disease appears as numerous, slightly sunken, purplish spots with brown centers occurring on harvested spears and fern. Lesions on spears are often found on the windward side, because blowing sand causes wounding which favors infection. During epidemic years spotting can occur on 60-90% of the spears and may result in rejection of the crop, especially for fresh-market sales. Spots also occur on the asparagus ferns, affecting the main stem, secondary branches and needles (cladophylls). Severe infection of the fern can result in premature defoliation of the plant. Increase in the severity of purple spot disease is associated with extended periods of rainfall, fog or dew.

Management

Removal of asparagus debris on a large scale does not appear to be feasible and burial of debris through cultivation is not practiced to minimize damage to crowns and possible Fusarium root rot infection. Thus, infected debris is visible in the field throughout the next growing season and serves as an inoculum source. Uncontrolled purple spot may critically reduce future yields, especially if disease is severe during consecutive years.

Research has determined that the Tom-Cast disease forecaster is a promising alternative to



Asparagus field with severe purple spot disease.

calendar-based spraying of fern in commercial asparagus fields. Tom-Cast alerts growers when the environmental conditions are favorable for purple spot disease development (extended dew or rainy periods accompanied by warm temperatures). Effective fungicides applied according to the Tom-Cast disease forecaster allows growers to manage purple spot disease of asparagus, while saving money and preserving the environment.

For more information on the Tom-Cast disease forecaster, see the bulletin, "Forecasting with Tom-Cast and Spectrum® Weather Equipment."

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