The Diseases of Peppermint and Spearmint

Purdue University Cooperative Extension Service
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Peppermint Mentha piperita L. and Spearmint Mentha spicata L. are grown in Indiana exclusively on the muck soils of the northern part of the state. These crops are produced for their essential oils which are used widely for flavoring in chewing gum, candies, pharmaceuticals, etc. In 1956, mint occupied more than 20,000 acres in Indiana with a total production of approximately 650,000 lbs. of oil. The value of this crop exceeded $3.5 million. The total acreage in the U.S. was nearly 100,000 acres with a yield valued at $14,000,000.

The mints are subject to three serious diseases—Verticillium wilt, Anthracnose or Leopard Spot and Mint Rust—and to attack by certain insect pests, particularly the mint flea beetle.

Verticillium wilt is the most serious disease of both peppermint and spearmint and is widespread throughout the mint producing area of the state. Much of the good mint producing acreage is no longer suitable for planting this crop because of this disease. The disease first appears in late May or June. Affected plants may be somewhat dwarfed and show uneven growth. The most striking symptom is a bronzing of the top leaves and a marked distortion of these leaves. As the season progresses, the infected plants become yellowed and die progressively from the lower part of the stem upward. During hot, dry weather plants may die rapidly.

Verticillium wilt is virtually impossible to control after it becomes established in a mint planting. The microscopic fungus that causes this disease survives in the soil for long periods of time and will infect new plantings made in later years. At the present time, many growers are relying on crop rotation to help check the spread and severity of this disease but this practice will not prevent infection. The rotation sequence usually includes 2 years of mint and 3 or more years corn and other crops.

Another practice that has offered a means of reducing the severity of Verticillium wilt is a deep plowing technique. The infested field is plowed to a depth of 28-30", using especially designed equipment that also turns the top 12-14" into the furrow before the deep cut is made. More than 2000 acres have been plowed in this manner and results have been generally good. However, indications are that the soil will become reinfested with the fungus from headlands, back furrows, etc.; so control is not permanent.

The most promising method of control appears to be in the development of mint varieties resistant to this disease. This has proved to be a complex problem, however, and there are no varieties yet available for commercial production that are resistant to Verticillium wilt.

Cooperative Extension Service PURDUE UNIVERSITY Lafayette, Indiana
Department of Botany and Plant Pathology, Life Science Building
Since the disease was first discovered in Michigan in 1924, it has spread rapidly to other mint-producing areas through the use of infected planting stock. Growers who are planning to start mint cultivation in new areas or who are now growing mint that is free from wilt should take special precautions to secure wilt-free material for planting.

Spearmint is somewhat more resistant to Verticillium wilt than peppermint and can usually be grown on infested land for a longer period of time. However, spearmint is not as profitable a crop to grow since prices are generally lower for the oil of this crop.

Leopard Spot or Anthracnose has been very destructive at times in Indiana. This disease is more prevalent on peppermint than on spearmint, but will occur on both plants.

The first symptoms of Anthracnose are small, brown, sunken spots on the young stems and stolons. Those spots enlarge to 1/16-1/4" in size, become oval in shape and develop light gray centers with distinct reddish brown margins. With heavy infections the spots run together and produce irregular lesions that may cause the stem to split. Such infections frequently kill young stem and stolons.

The leaves are infected from the stem and stolon lesions by seed-like spores carried by splashing rain. Similar spots appear on the leaves and there may be extreme killing and defoliation of infected leaves. The loss of foliage greatly reduces the yield of oil.

The fungus that causes mint Anthracnose overwinters mainly in old mint refuse and not in the soil. In meadow mint, heavy infection may occur from the pathogen which survives on crop debris from the previous season. The most practical and economical means of control of mint Anthracnose is to be certain that all of the crop refuse is plowed down when the crop is plowed in the fall or spring. It is advisable to equip the plow with trash shields and to be certain that all of the old mint is covered. Stolons that are buried rarely produce new infections the following spring in spite of the fact that they were heavily infected the previous season.

The use of sprinkler irrigation in mint production greatly increases the hazard of Anthracnose development, since the disease is spread mainly by water in some form. Ditch banks, headlands, fence rows, etc. should be cleared of volunteer mint to reduce the carry over of this disease from one season to the next.

If Anthracnose appears in established mint fields, the disease can be checked by frequent applications of Bordeaux mixture 6-6-100 or 4%–6%/100 Tri Basic copper sulfate or similar insoluble copper fungicide.
Fig. 1. *Verticillium* wilt of peppermint

Fig. 2. Leopard Spot or Anthracnose of peppermint

Fig. 3. Rust of spearmint

Fig. 4. Plow unit used for "deep plowing" to control mint wilt
Mint Rust is restricted to spearmint in Indiana and in other states of the Midwest. This disease appears in the spring and early summer as light yellow to brown spots on deformed stems, leafstalks and leaf midribs. Later in the summer these spots are replaced by golden or cinnamon-brown to dark chocolate brown spots on the leaves and stems. Badly diseased leaves curl and die and the quantity of oil produced from other infected leaves is reduced.

Rust usually develops late in the growing season, especially if there is abundant rainfall. When rust begins to be serious it can be controlled by spraying or dusting at 10-14 day intervals with Phygon at the rate of 1\frac{1}{2} lb/100 gals. of water or a 1 1/2% dust applied at the rate of 30 to 40 lbs/acre. Clean plowing and the destruction of volunteer plants in waste areas is also essential to good control.