DOWNY MILDEW IN MICHIGAN HOPYARDS
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The most common and important disease problem of hops in Michigan is downy mildew (Pseudoperonospora humuli), a fungus-like organism classified as an oomycete (water mold). It can systemically infect plants and overwinter in crown buds and roots, to become a perennial disease management issue.

There are cultivars available that are tolerant or resistant to downy mildew; however the market for varieties is strongly influenced by brewer preference. It is important to start a new hopyard with disease-free planting material.

Good field sanitation practices help reduce the amount of inoculum present in a field. Hand removal of spikes is time consuming but can be very effective in reducing downy mildew. Spring pruning, before training, should occur as late as possible without affecting yield. Later if needed, remove diseased shoots by hand and retrain healthy shoots in their place. Use drip rather than overhead irrigation. Keep weed growth under control and consider stripping the lower leaves in established hop plantings, chemically or mechanically to help improve airflow.

An early season preventative fungicide program for downy mildew is recommended. Subsequent fungicide applications should be applied just before or directly after conditions that favor downy mildew. Make use of systemic fungicides and rotate to different modes of action to delay fungicide resistance.

Fig. 1 left: Basal spikes in spring–leaves are stunted. Photo: Diane Brown

Fig. 2 right: Basal spikes later in the season. (mid-June) Leaves are chlorotic, brittle and tend to curl under. Photo: Doug Higgins

Fig. 3 Aerial spike on left; leaf with typical gray-black sporulation on underside of leaf on right. Photo: Doug Higgins

Fig. 4 Angular, water soaked lesions on hop leaf. Photo: Doug Higgins

Fig. 5 Shortened internodes on aerial spike. Photo: Doug Higgins


Michigan Resources for Hop Production: www.hops.msu.edu