

The year 2019 marked the first year for legal growth of industrial hemp crop in Kansas. With a new host present in the crop fields came a new variety of diseases for the state. This newsletter presents the plant diseases found in industrial hemp field inspections in 2019.

BACTERIAL LEAF BLIGHT OF HEMP

In September 2019 KDA employee Bob Buhler was performing a regulatory inspection on an industrial hemp crop field in Sherman county, Kansas, and came upon hemp plants showing symptoms of disease. The field was variety T1. Upon examination in the lab it was found to be a bacterial disease, and when grown out on media in a petri dish, it was determined to be *Xanthomonas spp.*, causing a bacterial leaf blight. Bacterial leaf blight of hemp is characterized by brown, vein-limited leaf lesions, necrosis, and wilting (Fig. 1). It grows most favorably in high-temperature and high-humidity environments. It spreads via rain splashing the bacterial ooze from plant debris on the ground onto growing plants. It can overwinter in plant debris.



Figure 1: Bacterial leaf spot of hemp produces brown, necrotic lesions on leaves, which are vein-limited, and wilt of the plant.

WHITE LEAF SPOT OF HEMP

Also in September 2019, two KDA employees, Cherie Copeland and Braden Hoch, each collected T1 variety samples during regulatory inspections of industrial hemp fields, in Sedgwick and Jewell counties, respectively. Upon inspection in the lab, it was determined that the leaf spots were caused by *Phomopsis ganjae*, the causal organism of white leaf spot of hemp. This disease is characterized by white or beige spots on leaves and stems, surrounded by chlorotic leaf tissue. Black fungal fruiting bodies may develop in the spots in a pattern of concentric rings (Fig. 2). The disease can also cause defoliation at higher severity. It overwinters in crop debris and is spread via water. It also may be seedborne, so it is not recommended to plant seed that came from known infected female plants. Sanitation and careful pruning as well as crop rotation will help control this disease in the field.



Figure 2: White leaf spot of hemp causes white-beige spots on leaves and stems, with fungal fruiting bodies in a concentric ring pattern.

STEM CANKER OR TWIG BLIGHT OF HEMP

In October 2019, while scouting a research plot of industrial hemp in Sedgwick county, Jason Griffin of Kansas State University found hemp plants that were exhibiting symptoms of partial or complete wilt, dried up and necrotic leaves, and dry stems and branches with black surface-level lesions (Fig. 3). He supplied KDA with a stem sample for lab inspection. KDA was not able to conclusively diagnose this sample due to lack of leaves and dryness of stem (this made it extremely difficult to induce sporulation in a moist chamber). Based on the symptomology it was KDA's tentative diagnosis that this was one of

two diseases: hemp anthracnose or hemp twig blight. Anthracnose is caused by *Colletotrichum coccodes* and *Colletotrichum dematium* while twig blight is caused by *Dendrophoma marconii* and *Botryosphaeria marconii*. Both diseases can be controlled by using good sanitation and avoiding drought. This sample was more similar to twig blight than to anthracnose, so it is more likely that one of the pathogens causing twig blight caused these plants to perish. KDA is hoping for a new sample next year to attempt a second time to conclusively diagnose this disease.



Figure 3: This disease caused entire plant wilt and drying of twigs and stems, with black surface-level stem lesions. Photos by Jason Griffin, KSU.

Plant Protection and Weed Control staff work to ensure the health of the state’s native and cultivated plants by excluding or controlling destructive pests, diseases, and weeds. Staff examine and analyze pest conditions in crop fields, rangelands, greenhouses, and nurseries. Action taken to control potential infestations of new pests, whether they are insects, plant diseases, or weeds, is beneficial to the economy and the environment.

Our mission is to:

- Exclude or control harmful insects, plant diseases, and weeds;
- Ensure Kansas plants and plant products entering commerce are free from quarantined pests;
- Provide customers with inspection and certification services.

Visit our website at: agriculture.ks.gov

Author:
Gaelle Hollandbeck
State Plant Pathologist
1320 Research Park Drive
Manhattan, KS 66502
Phone: (785) 370-1046
Fax: (785) 564-6779