Causal organism and history

Bacterial leaf spot of lettuce, caused by *Xanthomonas campestris pv. vitians*, was first reported in the United States in 1918 on head lettuce in New York. In Florida, bacterial leaf spot was first reported in the 1992-93 lettuce growing season. All major types of lettuce (crisphed, butterhead, and leaf) were affected, but the disease was more severe in romaine lettuce. So far the disease has not been observed on endive lettuce.

Symptoms

Symptoms of bacterial leaf spot are black, angular, water-soaked lesions that occur primarily on mature, fully expanded leaves (Figure 1). These lesions coalesce as the disease develops, resulting in large necrotic areas and collapse of the leaf. Occasionally, the pathogen may also infect stem tissue, causing stem rot, stunting, and collapse of young plants.

Weeds and disease epidemiology

Infected weeds and epiphytic populations on weeds growing in close proximity to lettuce can be possible sources of initial *Xanthomonas campestris pv. vitians* inoculum. *Xanthomonas campestris pv. vitians* causes bacterial leaf spot symptoms in broadleaf weeds, including prickly lettuce, trumpet firewood, annual sowthistle, field bindweed, panicked willoweed, shepherd's purse, pineapple weed, netleaf goosefoot, common knotweed, little mallow, and common groundsel. However, it does not cause any bacterial leaf spot symptoms on grass weeds. The most common broadleaf weed species in and around lettuce fields in the Everglades Agricultural Area (EAA) include common lambsquarters, *Amaranthus* spp., common purslane, common ragweed, ragweed parthenium, and horse purslane. *Xanthomonas campestris pv. vitians* or its epiphytes do not

---


2. D.C. Odero, assistant professor, Agronomy Department, Everglades REC–Belle Glade, FL, UF/IFAS Extension, Gainesville, FL 32611.

The use of trade names in this publication is solely for the purpose of providing specific information. UF/IFAS does not guarantee or warranty the products named, and references to them in this publication do not signify our approval to the exclusion of other products of suitable composition. All chemicals should be used in accordance with directions on the manufacturer's label.

The Institute of Food and Agricultural Sciences (IFAS) is an Equal Opportunity Institution authorized to provide research, educational information and other services only to individuals and institutions that function with non-discrimination with respect to race, creed, color, religion, age, disability, sex, sexual orientation, marital status, national origin, political opinions or affiliations. For more information on obtaining other UF/IFAS Extension publications, contact your county’s UF/IFAS Extension office. U.S. Department of Agriculture, UF/IFAS Extension Service, University of Florida, IFAS, Florida A & M University Cooperative Extension Program, and Boards of County Commissioners Cooperating. Nick T. Place, dean for UF/IFAS Extension.
cause any symptoms on these weed species (Figure 2, 3, and 4). Similarly, no growth of *Xanthomonas campestris* pv. *vitiens* occurs on glucose nutrient agar following streaking with inoculum from weeds inoculated with *Xanthomonas campestris* pv. *vitiens* strains (Figure 5). Thus, these weed species may not be sources of *Xanthomonas campestris* pv. *vitiens* inoculum around lettuce fields in the EAA. Nonetheless, control programs for these weed species in and around lettuce fields should be practiced to forestall other negative effects on production.

![Figure 2. Spiny amaranth 4 weeks after inoculation with Xanthomonas campestris pv. vitiens strain (Photo by Nikol Havranek)](image2)

![Figure 3. Common lambsquarters 4 weeks after inoculation with Xanthomonas campestris pv. vitiens strain (Photo by Nikol Havranek)](image3)

![Figure 4. Common purslane 4 weeks after inoculation with Xanthomonas campestris pv. vitiens strain (Photo by Nikol Havranek)](image4)

![Figure 5. Growth of Xanthomonas campestris pv. vitiens following streaking with inoculum from common purslane, spiny amaranth, common lambsquarters, and lettuce previously inoculated with Xanthomonas campestris pv. vitiens strain (lettuce showing and confirming Xanthomonas campestris pv. vitiens growth while the weeds show no growth) (Photo by Nikol Havranek)](image5)

**References**

