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# Weeds and Epidemiology of Bacterial Leaf Spot of Lettuce

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# Bacterial leaf spot (BLS) of lettuce

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- Cause:
  - *Xanthomonas campestris* pv. *vitians*
- History
  - 1918: first reported on head lettuce in New York
  - 1992-93: widespread and damaging outbreak on romaine, crisphead, butterhead, and leaf lettuce in the EAA, FL
- Lettuce is an important winter vegetable crop in the organic soils of the EAA

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# Symptoms of BLS

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- Lesions begin as small water-soaked spots on outer leaves
- As the lesions mature, they become brown to black and greasy-looking
- Mature lesions may remain water-soaked on the underside of leaves
- On romaine-type lettuces, a "peppery" look will develop among lesions
- Lesions are most prominent on fully expanded leaves
- So far the disease has not been observed on endive

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# Evaluation of BLS on EAA weeds

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- Weed species evaluated
  - Broadleaf
    - Spiny amaranth, common lambsquarters, common purslane, common ragweed, ragweed parthenium, wild mustard
  - Grass and grass-like
    - Goosegrass, crabgrass, yellow nutsedge, spreading dayflower

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# Weed inoculation

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- BLS stain collected on April 23, 2010 used
- Strain was grown on glucose-nutrient agar before spraying on plants
- Plants (6-true leaf to mature) sprayed with BLS strain
- Plants immediately covered with clear plastic bags and placed in the greenhouse
- Bags removed 2 days later
- Experiment was repeated twice

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# Recovery of BLS from weed leaves

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- Weed species were evaluated for BLS symptoms 2 weeks after treatment
- Results
  - Spiny amaranth showed some leaf damage
    - BLS was not evident
  - The rest of the weed species evaluated showed no BLS symptoms

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# Way forward

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1. Another experimental run will be conducted
2. Collect weed species around fields in EAA at least 1 month after harvest of lettuce that had BLS
  - Weeds collected will be assayed for BLS
  - If BLS is present, then strains will be tested for pathogenicity on lettuce

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# 2011 Weed Research at EREC

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- Influence of phosphorus on the critical timing of weed removal in lettuce
- Split application and timing of pursuit for weed control in lettuce
- Dissipation and residual effect of pursuit on organic soils



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# Acknowledgments

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- Paul Orsenigo
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# References used in making this presentation

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