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Issue 16, June 11, 2018

# Arkansas Plant Health Clinic Newsletter

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## Tomato

Bacterial speck of tomato one of the most serious and difficult tomato diseases to manage. The disease is caused by the bacterium *Pseudomonas syringae* pv. *tomato*. Symptoms on leaves are tiny, round, dark brown to black spots. Spots may run together under environmental conditions favorable for disease development, killing large areas of tissue. Lesions on stems and peduncles are elongated black areas. Fruit lesions are minute specks that are dark and rarely exceeding 1mm (.04inch). A dark green halo may be associated with the fruit spot. Controls are the same as for Bacterial spot. The pathogen survives in seed, crop debris, and volunteers. Control measures consist of crop rotation, using clean transplants, seed treatments, elimination of cull piles near production areas, and the timely application of bactericides when necessary. Kocide and mancozeb are labeled for tomato in Arkansas for bacterial diseases. Practice a three-year rotation where no peppers, tomato, eggplant or potato are grown in that spot. Practice a preventive copper + mancozeb spray program from bloom until the first-formed fruit are 1/3 their final size. After that point, the greatest risk of bacterial speck is passed; copper can be dropped from the program.

## Tomato Bacterial Speck-
***Pseudomonas tomato***

**Photo by john Gavin, University of Arkansas Cooperative Extension**

## Tomato Bacterial Speck-
***Pseudomonas tomato***

**Photo by Sherrie Smith, University of Arkansas Cooperative Extension**

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## Tomato Bacterial Speck-
***Pseudomonas tomato***

**Photo by Mark Keaton, University of Arkansas Cooperative Extension**

## Pepper/Tomato

Bacterial diseases of tomato and pepper are endemic wherever these crops are grown. Bacteria spot, caused by *Xanthomonas campestris* pv. *vesicatoria* affects all aboveground parts of the plant. Lesions are generally brown and circular on the leaves, stems, and fruit spurs. The spots are water soaked during wet or rainy periods. During dry

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periods the center of the lesions may fall out, giving a tattered appearance. Fruit lesions begin as tiny, raised blisters. They reach 6.35mm (1/4inch) in diameter as they age, becoming brown, and scab-like. A developing lesion may have a faint to prominent halo that eventually disappears. The pathogen survives in seed, crop debris, and volunteers. Control measures consist of crop rotation, using clean transplants, seed treatments, elimination of cull piles near production areas, and the timely application of bactericides when necessary. Kocide is labeled for tomato in Arkansas for bacterial diseases.

## **Pimiento/tomate** by Keiddy Urrea

Las enfermedades causadas por patógenos como bacterias en cultivos de tomate y pimentón son muy comunes, siendo generalmente endémicas en lugares donde estos cultivos son producidos. La enfermedad conocida como la mancha bacteriana que afecta a los pimentones es causada por la bacteria *Xanthomonas campestris* pv. *Vesicatoria*. Esta bacteria afecta principalmente la parte superior de las plantas. Los primeros síntomas son lesiones pequeñas de color amarillo-verde con un halo amarillento alrededor de los bordes. En condiciones de alta humedad, las lesiones tienen aspecto acuoso en los bordes. En condiciones de sequía, el centro de las lesiones se puede desprender y ocasionar la formación de pequeños callos alrededor del orificio dejado por el tejido muerto. A medida que la epidemia avanza, las lesiones toman un color café oscuro con diámetro de aproximadamente 6.35mm (1/4inch). La bacteria sobrevive en las semillas infectadas, residuos de la cosecha y en malezas. Las principales prácticas de manejo para el control de la mancha bacteriana son: el uso de plántulas saludables, tratamiento de la semilla con bactericidas antes de plantarlas, manteniendo buenas prácticas sanitarias en el cultivo por medio de la eliminación de residuos vegetales, y si es necesario, la aplicación de bactericidas. En el estado de Arkansas, Kocide es un funguicida/bactericida registrado para el control de la mancha bacteriana.

## Pepper Bacterial Spot-
***Xanthomonas campestris* pv. *vesicatoria***

**Photo by Sherrie Smith, University of Arkansas Cooperative Extension**

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## Pepper Bacterial Spot-
***Xanthomonas campestris* pv. *vesicatoria***

**Photo by Sherrie Smith, University of Arkansas Cooperative Extension**

## Tomato Bacterial Spot-
***Xanthomonas campestris* pv. *vesicatoria***

**Photo by Sherrie Smith, University of Arkansas Cooperative Extension**

## Tomato Bacterial Spot-
***Xanthomonas campestris* pv. *vesicatoria***

**Photo by Sherrie Smith, University of Arkansas Cooperative Extension**

## Pecan

Phylloxerans are tiny, cream colored to pale yellow insects related to aphids. Their feeding activity stimulates the plant to produce galls on leaves, stems, and nuts. There are three species of Phylloxerans found on pecans in Arkansas. The most damaging species is *Phylloxera devastatrix*. They produce large, green galls on stems, twigs, petioles, midribs, and nuts. When the galls are opened, this species is found to have wings. The Pecan Leaf phylloxera, *P. notabilis* produces small galls next to midribs or secondary veins of the leaflets. The galls are globular to ovoid, open on the underside of the leaf, green on top, and

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usually reddish beneath when first formed. P. notabilis is also winged. The third species, the Southern Pecan Leaf phylloxera, *P. russellae* forms small, round, flattened galls between the secondary veins on the leaf surface. The galls are open on the underside of the leaf and have a reticulated pattern on their surface. The opening has dense, short, white hairs. These phylloxeras are not winged. The galls of all three species turn brown as they age. A single egg overwinters within the body of a dead sexual female. These eggs begin hatching about the time the buds begin opening. The nymphs move to the open buds and begin feeding. A gall forms around the feeding insect. When the female reaches maturity, she begins laying eggs within the gall. When the eggs hatch, they feed within the gall, developing into wingless and winged females. They emerge from the galls and are dispersed within the tree and to nearby trees. They lay eggs on the upper and lower leaf surfaces. The eggs hatch into both males and females. They mate almost immediately, and a single egg forms within the body of the dying female. The egg hatches the following spring to repeat the cycle. Control of Phylloxerans must start at bud break. Products containing imidacloprid are effective. Commercial growers may use Centric 40WG, or Lorsban, or Moveto, or Provado 1.6 F, or Trimax Pro, or Warrior. Control is usually not practical for homeowners.

## Pecan Phylloxera- *Phylloxera devastatrix*

**Photo by Cecilia Harberson, University of Arkansas Cooperative Extension**

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## Pecan Phylloxera- *Phylloxera devastatrix*

**Photo by Sherrie Smith, University of Arkansas Cooperative Extension**

## Pecan Phylloxera- *Phylloxera notabilis*

**Photo by Jennifer Caraway, University of Arkansas Cooperative Extension**

## Pecan Phylloxera- *Phylloxera* sp.

**Photo by Debra Schneider, University of Arkansas Cooperative Extension**

This bulletin from the Cooperative Extension Plant Health Clinic (Plant Disease Clinic) is an electronic update about diseases and other problems observed in our lab each month. Input from everybody interested in plants is welcome and appreciated.

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