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Arkansas Plant Health Clinic Newsletter

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Hollyhock

This is the time of year the clinic starts to receive hollyhock samples with Hollyhock Rust. This old-fashioned biennial comes in an array of pretty colors with both single and double flowering varieties available. Unfortunately, hollyhock is very susceptible to rust. Hollyhock Rust caused by *Puccinia malvacearum* can cause serious damage. Both Hollyhock, (*Althea* spp), and *Malva* spp. are susceptible. The surface of the leaves develops numerous yellow to orange spots. However, symptoms are most striking on the underside of the leaves, where large orange-brown pustules appear. Pustules may also form on stems and green flower parts. The disease often becomes worse as the season progresses, with most of the leaves killed by fall. Sanitation is crucial to control of Hollyhock Rust. All plants should be cut level with the ground in the fall. All leaves should be collected and burned or otherwise disposed of. Fungicides such as Daconil, sulfur, or myclobutanil should be used as first leaves are expanding. Note that sulfur may damage leaves if temperatures are above 85 F.

Hollyhock Rust-*Puccinia malvacearum*



Photo by Mark Keaton, University of Arkansas Cooperative Extension

Hollyhock Rust-*Puccinia malvacearum*



Photo by Mark Keaton, University of Arkansas Cooperative Extension

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Hollyhock Rust-*Puccinia malvacearum*

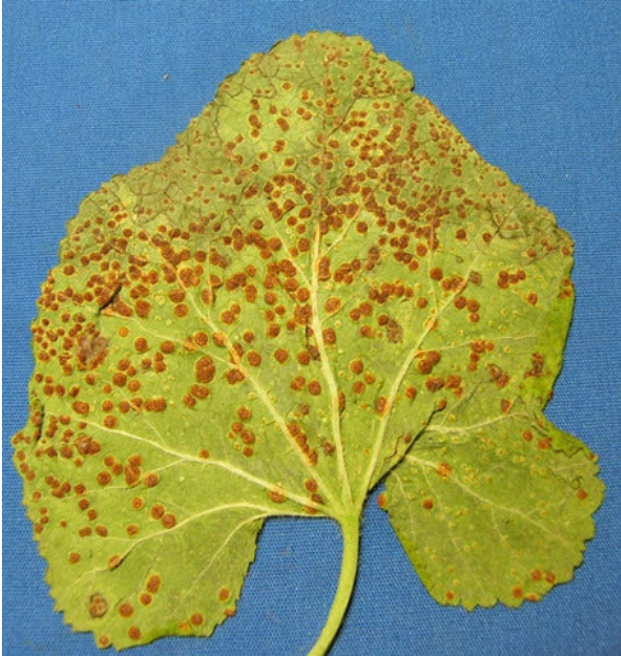


Photo by Mark Keaton, University of Arkansas Cooperative Extension

Tomato Cucumber Mosaic Virus (CMV)-Cucumovirus



Photo by Sherrie Smith, University of Arkansas Cooperative Extension

Tomato

Cucumber Mosaic Virus (CMV)

It is tomato growing season, and we are starting to see viral diseases. Cucumber Mosaic Virus (CMV) infects more than 750 plant species and can be found wherever tomatoes are grown. CMV is usually transmitted by aphids. Infected plants are stunted and bushy with distorted and malformed leaves. Leaves may also show green or yellow mottling. The most classic symptom is extreme shoe stringing of leaf blades. This symptom is sometimes confused with herbicide injury. Infected plants sometimes produce no fruit or small fruit.

Tomato Mosaic Virus (TMV)

Tomato Mosaic Virus (ToMV) and Tobacco Mosaic Virus (TMV) are transmitted mechanically from infected crops or weeds. They can be transmitted via unwashed hands or clothing that has come in contact with infected plants or tobacco products. Smokers



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are often the means of transmission. They can also be transmitted by chewing insects or tools. Additionally, the viruses can persist in the soil on root debris for at least two years. Leaf symptoms are light and dark green mottling to bright yellow mottling. Leaves often have puckered areas, and leaflets may be narrowed giving the plant a ferny appearance. Infected fruit may have green and yellowish-red rings or mottling and dark brown spots. Internal browning of fruit can also occur. Severely infected plants are stunted and affected fruit is not marketable. There are good varieties resistant to these viruses.

Tomato Mosaic Virus (ToMV)- Tobamovirus



Photo by Sherrie Smith, University of Arkansas Cooperative Extension

Tomato Spotted Wilt Virus (TSWV)

Tomato spotted wilt virus (TSWV) is appearing across the state. Symptoms include stunting, wilting, and sometimes a one-sided growth

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habit. Young leaves often turn a bronze or black color with numerous dark spots. Growing tips may die back. Young plants with these symptoms will usually not produce fruit. Older plants will fruit, but the fruit will have chlorotic rings and necrotic spots. Potatoes, peppers, and eggplant are among the many plant hosts that are vulnerable to TSWV. There is no cure or treatment for any viral disease. Affected plants should be pulled up and destroyed to prevent the disease from being spread to new plants by thrips.

Tomato Spotted Wilt Virus- Tospovirus



Photo by Sherrie Smith, University of Arkansas Cooperative Extension



Tomato Spotted Wilt Virus- Tospovirus



Photo by Sherrie Smith, University of Arkansas
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Tomato Spotted Wilt Virus- Tospovirus



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Hosta

Hosta Virus X is a sap transmitted virus, and like all viruses is not curable. The virus comes into a nursery from producer fields. This is largely due to machine harvesting and bulk washing to prepare for shipping. At the nursery or the homeowners, it is spread by trimming or dividing infected plants. The virus is not spread by insects nor is it soilborne. To prevent virus transmission, great care must be taken to dip tools in a 10% bleach solution before handling another hosta. Wearing disposable gloves and changing them between plants is also advisable. Symptoms are blue or yellow ring spots, mottling, bleeding along veins, and/or a zipper pattern. The bleeding along the veins is often blue in color. This virus seldom kills a plant but weakens them and often causes unsightly necrotic spots on the leaves as well as the mottling. The clinic has a reliable Elisa test to detect the virus. Remember that viruses are not curable and leaving one in the ground that has been confirmed to have virus endangers other hostas.

Hosta Virus X (HVX)-Potexvirus



Photo by Sherrie Smith, University of Arkansas
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Hosta Virus X (HVX)-Potexvirus



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Hosta Virus X (HVX)-Potexvirus



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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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