

From the New England Dahlia Society's June 2023 Newsletter.

***Topic: What's Wrong with My Dahlias?  
Dahlia viruses and other diseases.***

**COMMON DAHLIA PROBLEMS IN EARLY SUMMER**

**(Not a comprehensive list!)**

**MAMMALS**

The worst damage to emerging dahlia plants is caused by the furry mammals in our backyards: rabbits, deer and groundhogs. Many types of deterrents are available, but only a good fence will keep away the most determined critters.

Recommendations: Rabbit Scram, or Deer Scram from Enviro Pro; Granular Repellent; ~\$35 for 5+ lbs. at Amazon. Groundhogs? – Let us know what works.

Floating row covers (see below) will also protect young plants from rabbits, deer, and maybe groundhogs.

**STALKS CHEWED OFF CLOSE TO GROUND – NOT CAUSED BY MAMMALS**

Most likely caused by cutworms. Gray or brown larvae of several moth species; live in the ground around weeds and under leaf litter; emerge to feed at night.

<https://www.almanac.com/pest/cutworms>

Recommendation: clean beds from weeds and plant debris to reduce habitat, food.

Tilling in early spring helps to kill cutworm larvae and pupae.

Place collars made from cardboard tubes (paper towels), foil or cans (both ends removed), or use floating row covers around the young plants and bury ~ 1-2" into the soil for protection.

Handpick worms at night with a flashlight.

**ROW COVER** materials can be purchased in various makes and sizes (e.g., Agribon). Lightweight materials are a quick, temporary solution against various insect pests and may also keep deer and rabbits from browsing on young plants. Some smaller premade tunnels come with integrated hoops. Example: [www.greenhousemegastore.com/products/giant-easy-fleece-tunnel](http://www.greenhousemegastore.com/products/giant-easy-fleece-tunnel)

Amazon: <https://a.co/d/hb0ex2O>

Or make your own hoops using PVC pipes (numerous YouTube tutorials).

A cheaper (but short-lived) alternative to professional row cover materials are bolts of lightweight tulle fabric. Can be draped directly over plants during early growth.

## CHEWED LEAVES

**Main damage on lower leaves:** check for the presence of snails, slugs in the evening/night

**Main damage on top leaves or throughout:** check for caterpillars, grasshoppers in daytime

If no pest can be found during the day, inspect plants with a flashlight at night. Some pests such as brown Asiatic beetles (*Maladera castanea*) feed only in the dark.

If insect damage is minor: handpick insects into a bucket with soapy water.

Extensive damage: use organic sprays such as garlic barrier insect repellent or Neem oil.

Arbico sells a variety of solutions for organic insect control. Their website also has a good problem solver guide: [www.arbico-organics.com/category/problem-solver-guide](http://www.arbico-organics.com/category/problem-solver-guide)

[picture credits: beetle damage from GZ; beetle, larvae on penny from <https://ipcm.wisc.edu/blog/2019/05/asiatic-garden-beetle/> ]



Damage to dahlia plants by Asiatic Garden Beetles (*Maladera castanea*).

Left: only leaf ribs remained

Middle: beetle larva, adult, pupae

Right: chewed leaf margins

## WILTING OF PLANT

Healthy looking dahlia plants can suddenly start to wilt despite adequate soil moisture.

Some possible causes:

**Too wet.** Heavy rains and waterlogged soils prevent roots from obtaining oxygen for cellular respiration, making them unable to transport water to the plant. Increase drainage by adding sand to the bed and planting holes or plant tubers in raised mounds.

**Rotting tuber:** early growth of dahlia sprouts can be supported entirely by the energy stored in the tuber even before roots are developed. If the tuber starts to rot, the sprout/plant may start wilting. Carefully dig up the plant, tuber and surrounding soil, remove rotted tuber tissues and replot the tuber in fresh soil. If tuber is a total loss, try to make cuttings from the sprout. (Rot can be caused by fungi or bacteria, see below.)

**Insects feeding on roots:** dig up the plant and look for pests such as grubs. Replant and grow in a container (maybe add a systemic insecticide to the soil) until the plant recovers.

**Stem borers:** moth larvae feeding inside hollow dahlia stems and other plants (corn, sunflowers, and more). Entire plant or parts of the plant wilt during hot weather. Later the entire plant may fall over. Borers are difficult to treat once a plant is infested. Destroy larvae and infested stalks; tubers might regenerate new growth but it will take time.

More info: <https://content.ces.ncsu.edu/european-corn-borer>

[picture credits: larvae damage on plants GZ; adult moth: [https://en.wikipedia.org/wiki/European\\_corn\\_borer](https://en.wikipedia.org/wiki/European_corn_borer) ]



Left: Borer Damage to Café au Lait plant.  
Middle: European Corn Borer Moth  
Right: Corn Borer larvae feeding inside of dahlia stem.



**Fungal Wilts: *Fusarium*, *Verticillium*, *Phytophthora*.** Wet weather promotes fungal (and bacterial) infections that can kill the entire plant. Difficult to diagnose and treat. Fungal wilts are soil borne fungal diseases that stay dormant and can survive indefinitely. They infect plants through the roots. Fungus grows into the water-conducting tissues in the stem (Xylem). In cross-sections of the Xylem, the fungus appears as a dark brown ring indicating 'plugged' stalks. Water can no longer reach the leaves resulting in wilting. Wilting of a single branch and streaking on leaves that turn yellow. Only laboratory examination can positively diagnose the exact type of fungal disease.

*Fusarium* is very host specific (e.g., tomatoes); *Verticillium*, *Phytophthora* have broader host ranges. *Phytophthora* is a 'water mold' favored by frequent irrigation, rain, wet soils.

*Fusarium* and *Verticillium* in contrast favor droughty conditions and temperatures of 70 - 85°F. *Verticillium* has a broad host range of 400+ species of trees, shrubs, vines, fruits, vegetables, and herbaceous ornamentals such as dahlias. Transmitted by infected tubers, non-symptomatic plant stock, pruning tools, soil or compost and plant eating insects. Outbreaks are more

common when warm temperatures follow cooler weather.

**Recommendations:** These fungi persist indefinitely in soil and are difficult to control. There are no known treatments. Rotate crops with non-susceptible plants in the same spot. Avoid stressing plants due to lack of water or fertilizer. Remove and bag diseased plant materials. Don't compost infected leaves since the fungus persists in soil. Sterilize tools with bleach between cuts.

## **PLANT FAILS TO THRIVE**

**Transplant shock:** newly transplanted dahlias plants may need a week or more to adjust to the root damage and the new conditions. Make sure the plant has adequate moisture and provide shade if it's very hot (umbrellas, cardboard, newspaper).

**Too hot or too cold:** plants slow their growth if temperatures are too high or low.

**Non-obvious pests:** some insects such as mites, thrips, aphids, leafhoppers, ants can be hard to detect. They feed on plant sap, slowing overall growth or transmitting diseases. Organic treatments are available.

**Nutritional deficiencies, soil pH:** symptoms are difficult to diagnose, but there are good guides for crop plants. For example: [www.yara.us/crop-nutrition/potato/nutrient-deficiencies-in-potatoes/](http://www.yara.us/crop-nutrition/potato/nutrient-deficiencies-in-potatoes/)

Do a soil test: U. of RI Master Gardeners offer free soil pH testing to residents of RI and surrounding areas. You can bring your soil sample to one of several Kiosk events during the summer. More info: <https://web.uri.edu/mastergardener/soil-testing-service/>

In MA, you can have your soil tested at UMass Amherst. <https://ag.umass.edu/services/soil-plant-nutrient-testing-laboratory>

## **Bacterial Diseases: Leafy Gall and Crown Gall**

Both bacteria have a wide host range. Bacteria enter plants through wounds in roots, crown, stem, contaminated tools, soil, or water. Leafy gall and crown gall are often used interchangeably but are caused by two different bacteria that result in different types of deformations on tubers.

**Leafy gall caused by *Rhodococcus fascians*** causes dense clusters of distorted leafy shoots. A mass of eyes, buds or short shoots tightly packed together and fused at the base appears beneath the soil or near the soil line at the base of the stem and the tuber. Leafy gall does not systemically infect plants and the bacteria are mostly limited to leaf surfaces, but some underlying cells do become infected. Affected plants may grow less vigorous, abnormally short, have fewer flowers and fewer roots.

**Crown gall is caused by *Rhizobium radiobacter*.** It stimulates plant tissues to produce swollen galls, tumors or a mass on stems and roots that look like cauliflower. Crown gall prevents new



shoots from forming from the critical area of the crown zone. Crown gall does not produce masses of shoots that differentiate into buds or stems as in Leafy gall. Crown gall has a wide host range and hundreds of different plants can be infected.

Both bacteria are present in the soil where they can persist 1-2 years around diseased plants. Most often introduced by infected tubers or cuttings of infected plants and then spread by water run-off and splashing. Can be present on plants for months before symptoms develop. Some dahlia cultivars are susceptible while others are not.

**Recommendations:** There are no treatments against bacterial infection and control measures are focused on sanitation. Dispose dahlia clumps showing signs of disease in the trash to avoid infecting other plants. Do not compost! Plants can be infected with *R. fascians* for weeks prior to symptom development and even healthy-looking plants could be infected. Do not make cuttings from questionable plants or plants nearby. Sterilize pruning tools between plants. The bacteria are spread by water and need water to infect and multiply. Avoid runoff that can disperse bacteria and minimize the length of time the leaves are wet. Good ventilation helps too. More info on the ADS website and here: <https://wildhorsegardens.com/category/dahlia-disease-biology-series/>

[Picture credits below. Left: leafy gall on tuber GZ; middle: Leafy gall on dahlia plant - <https://www.longfield-gardens.com/article/common-dahlia-pests-and-diseases> ; right: crown gall on tuber: <https://pnwhandbooks.org/node/2620/print> ]



Left: Leafy gall infection of dahlia tuber showing masses of eyes. Middle: mass of sprouts on planted dahlia. Right: Crown gall on dahlia tuber with typical cauliflower like mass.

**Plant Viruses:** Dahlias can be infected by several types of viruses. Most infections are transmitted by insects (aphids, thrips) or mechanical means (cutting tools). Infected dahlias display specific symptoms on the foliage and may fail to thrive. However, not all virus infections cause symptoms, and not all virus infected plants need to be discarded. The American Dahlia Society has a virus information page with documents describing symptoms and recommended management approaches. [https://www.dahlia.org/docsinfo/understanding\\_virus\\_in\\_dahlia/](https://www.dahlia.org/docsinfo/understanding_virus_in_dahlia/)

[Picture credits: American Dahlia Society]



Symptoms of dahlia mosaic virus infection. Left: deformed growth with leaf yellowing. Middle: mosaic spots. Right: Veinal chlorosis or vein yellowing along the path of virus spread.



Yellow patterns on leaves caused by Tomato Spotted Wild Virus. Left: fan-leaf pattern (arrow). Right: ring-like netting.

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[www.newenglanddahliasociety.org](http://www.newenglanddahliasociety.org)

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