

SUMMER NEWSLETTER 2020

OUR MISSION STATEMENT

Encourage, foster, support, and promote horticulture for all Master Gardener Volunteers and residents of Barron County and to promote the UW-Extension from which we are founded.

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BARRON COUNTY MASTER GARDENER VOLUNTEERS

Benefits of Gardening with Children

This year has been the perfect year for gardening with children as many were stuck at home for school. And with many summer activities cancelled or changed, it is not too late to involve the whole family in gardening. Gardening with children provides the perfect combination of skills and tasks for a child's development. Gardening is also a great physical development activity.



Young children can practice locomotor skills, body management skills and object control skills while they move from one place to the other carrying tools, soil, and water. They will be moving their bodies using large muscles and using muscles to balance and manage objects too. Fine motor skills such as whole-hand grasping and the pincer grasp (necessary skills for writing) are employed in gardening when children use a trowel or rake and pick up tiny seeds to plant. Further, being outdoors in the fresh air and moving around a lot is a good way to get exercise.

Another aspect of physical development is the sensory stimulation that you can experience in a garden. Water is a critical part of gardening and, if your child enjoys nothing else, playing with the hose or the watering can be a highlight.

Feeling the texture of the soil or the plant leaves is also interesting, as is the smell of the fresh garden and its plants.

Of course, most gardens are a visual explosion of colors, tones and shades. If you plant edible plants, this is one of the few areas where you can actually safely employ your child's sense of taste. Children are often more willing to try a new food if they have been involved in the process of growing it.

Literacy skills can be part of gardening, too. Learning the names of different plants and reading what their growth requirements are on the seed or plant packages is a literacy activity. Another reading/writing activity could be making a map of your garden or your yard and labeling the plants in it.

Cognitive development is all about intellectual skills such as remembering and analyzing information and predicting outcomes. You can do plenty of that in your garden with children. By asking open-ended questions about what you have already done in your garden and what they think you should do next, you are helping them think through the processes of preparing the soil, planting, watering and weeding. Ask them to tell you about the differences between the various plants you are growing or the different parts of the plants themselves. Show them the entire plant—roots, stem, leaves, flowers and seeds—or let them draw the plant at different stages of growth.

Finally, working together on your garden with your children is togetherness time. You build bonds with children and create memories from your experiences in the garden. While your children are learning a lifelong love of growing things, you are learning more about your children—how they think, what they like and dislike and how capable they really are. Your plants can create a beautiful environment, whether they are in a garden, a

raised bed or a pot, and you and your children will enjoy every stage of the process.

For more ideas about activities and articles on gardening with children, visit the Michigan State University Extension website and kidsgardening.org.

Lifelong Gardening from the SE WI Master Gardeners

Basic Tool Tips

Continuing in our series on Lifelong Gardening, here are some tips for basic tools. There are great tips whatever your age or health, and are good suggestions to teach “new gardeners,” whether they are 10 or 90.

1. Use lightweight, ergonomically designed tools; this means tools that work with you to minimize fatigue and discomfort. Note: some more durable tools can be heavier in weight.
2. Use longer handled tools to reach into garden beds and decrease bending. Choose lighter, long-handled tools to avoid excess weight.
3. Use smaller tool ends to reduce the weight of the tool. This will also reduce the force to move through or lift the soil.
4. Use two hands to do the job, if possible; for example, use a lopper instead of a one-handed pruner.
5. Store tools close to the garden to avoid carrying long distances and to eliminate extra trips to the storage area.
6. Transport tools and equipment in a two-wheeled cart as opposed to a wheelbarrow or heavy container, resulting in less strain on your back.
7. Keep tools (hoes, shovels, pruners, etc.) sharp to reduce the effort and strain when using them.

Always clean your tools after using. Soil is easily washed off and helps to avoid rust; spraying alcohol on tools will prevent spreading disease from plant to plant.

Plant Selection for the Gardener who wants success without working too hard

1. Choose plants that grow naturally in your area and adapt to your climate and soil. Also match plant needs to

the area planted (dry/wet, sun/shade, and space available); doing so will require less care.

2. Generally, shrubs require less maintenance than perennial flowers; however, avoid shrubs that bloom only on new wood and require annual pruning. Perennial flowers usually require less maintenance than annuals. Grasses generally require little care once established, but make sure to avoid invasive grasses.

3. Use groundcover plants or mulch to reduce the need for weeding.



4. Use annuals, which have a shallower root system than perennials, when planting in a container that does not hold a large amount of soil.

5. Avoid plants that:

- need dividing each year or two to remain healthy and flowering.
- require staking to remain upright.
- need deadheading to continue to flower.
- go to seed; requiring removal each spring.
- are disease and pest prone.
- are not cold hardy for our area (exception would be annuals).
- require pinching to develop/maintain shape.
- have a short bloom time.
- provide food for wildlife.
- spread rapidly and require pulling or digging up to maintain.
- are short-lived.

Garden Scale Cover Crops—A Dane County UW-Extension

Publication by: Clarie Strader

What is a cover crop?

A cover crop is grown specifically to hold soil in place and improve soil structure and fertility. It is not harvested or eaten. Cover crops are also often called green manures when they are grown specifically to increase fertility or organic matter.

Why use cover crops?

Cover crops increase biodiversity in the garden, attract beneficial insects, hold soil in place, and increase soil organic matter. They also provide soil cover and can help suppress weeds. Soil that is left bare will start to erode and degrade and will also be an invitation to weeds. Cover crops are a great way to keep soil active and to crowd out weeds when the main garden crops are not present.

How to choose a cover crop

When choosing a cover crop is important to consider first what your goals are for the soil. Do you need to increase fertility, are weeds your biggest concern, or do you really want to attract beneficial insects? Different cover crops will be better suited to specific goals. Next, you have to know which of your main crops will be planted before and after the cover crop. The timing of those main crops will be an essential consideration when identifying which cover crops can work in that niche. Finally, you need to know the specific characteristics and requirements of the possible cover crop choices.

Generally, the easiest cover crops to start with are those that are winter-sensitive. These crops will be dead by spring and will leave behind a layer of mulch, thus protecting the soil while also providing a ready planting bed. Oats, peas, buckwheat and sorghum Sudan grass are some examples of cover crops that will winter-kill. They are also easy to seed, germinate well, and grow with little care. These covers are the best choice for beds that you will want to plant in early spring.

In the case of main crops that you will not plant until late spring or early summer, you may choose a cover crop that is winter-hardy. Hairy vetch, clover, and rye are all examples of cover crops that will survive winter and continue to grow in the spring. **When choosing one of these cover crops, it will be very important to know how you will kill the crop when you are ready to plant.** Rye and clover can be difficult to kill with hand tools. Hairy vetch is not difficult to kill and is a good choice when first trying winter-hardy cover crops.



How to plant

After clearing the bed, loosen the soil with a fork or shovel. Measure out the right amount of seed for your bed (see below) and spread the seed evenly over the bed. Use a fork or hard rake to cover the seed with soil and firm in into the bed. Keep the bed moist until the seeds germinate. Row cover can help keep the bed warm

and moist thus facilitating quick germination.

When to take down a cover crop

To get the most benefit out of a cover crop, take it down when in full flower and **before setting seed**. Mature seed that drops in the garden can create weed problems. Any cover crop may also be killed before it flowers, according to your timeline and needs, and will still provide significant benefit.

How to incorporate the cover crop and make ready for planting vegetables or flowers

Fall-planted winter-sensitive cover crops will all die over the winter and leave a mulch on the bed for the spring. Winter-hardy cover crops as well as those planted in spring or summer will need to be killed before planting vegetables. In either case, there are a few choices:

- Pull the cover crop off of the bed and use it as mulch in the same bed (after planting) or elsewhere in the garden. Loosen the soil and direct seed or transplant as usual.
- Pull the cover crop off of the bed and add it to your compost pile, to be returned to the garden later as

finished compost. Loosen the soil and direct seed or transplant as usual.

- Work the cover crop into the bed with a fork or shovel and allow at least 2 weeks for it to decompose before direct seeding or transplanting as usual. If it is possible to chop the cover crop up a bit while incorporating, it will decompose faster.

- For transplants only: Pull the **dead** cover crop away from the transplant holes just enough to transplant as usual and leave the dead cover crop in place as mulch.

- For transplants only: Pull the **live** cover crop up by the roots and stack it on the side. Work the soil with a fork to kill roots. Transplant into the soil and then spread the stacked cover crop on the bed as a mulch.

Cover crop varieties

Buckwheat is winter-sensitive, frost-sensitive, and grows best in summer. It grows fast, and will generally flower and need to be killed within 35 to 50 days. The flowers attract beneficial insects and the roots pull phosphorus to the surface from deeper in the soil. Buckwheat can be sown after the last frost (around mid-May) up until late August. Take it down when it is at full flower (or somewhat before) to prevent it from going to seed in your garden and becoming a weed. Seed 4 oz. per 100 ft².

Cow Peas are winter-sensitive, frost-sensitive, and grow best in summer. Also known as black-eyed pea, these nitrogen-fixing legumes can be planted on their own or with Sorghum Sudan grass, which they will climb. Sow after the last frost through July, with the appropriate inoculant. Seed 3 oz. per 100 ft².

Oats are winter-sensitive, frost-hardy and grow best in spring and fall. They can be planted with peas or on their own. They germinate easily and their fibrous roots do a great job of holding the soil in place over winter. Plant as soon as the soil can be worked up through May, and again in August through early September. Seed 6 oz. per 100 ft².

Peas are winter-sensitive, frost-hardy, and grow best in spring and fall. They are a legume that will fix nitrogen and can be planted on their own or mixed

with oats as support of the pea vines. Plant with the appropriate inoculant as soon as the soil can be worked up through May, and again in August through early September. For seeding alone, use 8 oz. per 100 ft². Plant a 3/1 mix of peas and oats at 8 oz. of mix per 100 ft².



Radishes: Daikon, Tillage or Ground Hog are winter-sensitive, frost-hardy, and grow best in the fall. While these have been popular on some farms, they are not a good choice for gardens where other brassicas are grown. They are susceptible to all the pests and diseases that cause problems for other brassicas and can actually bring those pests and

diseases to the garden. In the right setting, they will produce large taproots that can both alleviate soil compaction and bring up nutrients from deep in the soil. As the roots rot, they can also increase soil biological activity and leave channels for water infiltration and increased soil penetration by subsequent crops. Plant in mid to late August. Seed 2 oz. per 100 ft².

Sorghum Sudan Grass is winter-sensitive, frost-sensitive, and grows best in summer. It is a relative of corn and will grow very tall and produce a great deal of biomass. It is a great choice for suppressing weeds and easy to kill over winter. It is best planted in late June through July and left in place until the following spring. Seed 4 oz. per 100 ft².

Sunn Hemp is a winter-sensitive, frost-sensitive, and grows best in summer. This nitrogen-fixing legume can be planted on its own or with a summer grass like

Sorghum Sudan grass. Be aware that it is very attractive to Japanese beetles which can not only damage this cover crop but also other crops in the garden. Plant after the last frost through July. Seed 1.5 oz per 100 ft².

Vetch, Hairy is winter-hardy and grows best in the fall and spring. It is a legume that fixes nitrogen and should not be confused with crown vetch. It can be planted on its own or with rye and is easy to seed and germinate. When on its own, it can be

killed easily in the spring by cutting it down and working up the roots. Plant in August through late September. Seed 1 oz. to 1.5 oz. per 100 ft².



What's Eating My Ferns? BY: Carol Kettner

I recently received a question and a photo from a neighbor who wanted to know what was happening to his ostrich ferns. He said it happens every year and the ferns almost completely disappear.

P.J. Liesch, at the UW Madison, Insect Diagnostic Lab, had the following suggestion: "when I see damage like this in spring it's typically damage caused by sawfly larvae. Thorough scouting would be advised to confirm. The sawfly larvae often blend in as they tend to have a color similar to the ferns. Check both upper and undersides of the foliage. In many cases, the sawfly larvae can easily be controlled with insecticidal soap."

Many different insects like to feed on fern fronds. They include: cutworms, beetles, crickets and grasshoppers, and the larvae of a variety of butterflies. But as P.J. said, at this time of the year it is most likely sawfly or Lepidoptera (butterfly) larvae. The important thing to remember is that these insects do not keep eating your ferns for the whole season. And some only feed at night.

Once you have identified which hungry critters you have, you must decide how to deal with them. If they are the larvae of a butterfly, leave them alone. If they are sawflies, you have to make some choices. According to Gretchen Voyle, Horticultural Educator in Michigan, "Ferns are very sensitive and many pesticides can cause more damage than the insects. Whoever your chewers are, they prefer this fern. Liking one does not necessarily translate into liking others. So removing the ferns does not solve anything."

If you are not eager to use pesticides, the recommendation for control is insecticidal soap. But make sure to test a small area first – some ferns are sensitive to soap.

Next spring, begin monitoring the ferns before you see any damage. As soon as you see any evidence of chewing, get the insecticidal soap out again.



Resources – Where to find answers

Factsheets – <https://pddc.wisc.edu/>

UWEX Publications
<https://learningstore.uwex.edu>

Insect Information
<http://labs.russell.wisc.edu/insectlab/>

General Wisconsin horticulture info
<https://hort.uwex.edu>

Horticulture training and articles
<https://wimastgardener.org/articles/>

Weed identification
<https://weedid.wisc.edu>

Wisconsin Pest Bulletin –
<https://datcpservices.wisconsin.gov/pb/>

Sawflies

Description of Sawflies

Sawflies are wasps. They don't look like wasps (in the minds of most people). They look like fat-bodied flies without the pinched waist that is characteristic of the better-known wasps. Sawflies have four wings, while all of the true flies have only two. Sawfly wasps cannot sting.

Sawfly larvae look like hairless caterpillars. They feed on the foliage of plants unlike better-known wasps such as hornets, yellowjackets and paper wasps whose larvae feed on insects. Sawfly larvae look like caterpillars but have small differences that are sometimes hard to determine. Sawfly larvae have prolegs (stubby, unsegmented, fleshy pairs of legs) on every segment of the abdomen whereas caterpillars have prolegs in the middle and at the tail end. Caterpillars may have up to five pairs of abdominal prolegs but never more. Sawfly larvae always have six or more pairs.

Distinguishing between caterpillars and sawfly larvae



Caterpillars have five or fewer pair of prolegs (fleshy outpouchings of tissue on the abdomen) and hooks called crochets at the base of the prolegs. The adults are butterflies or moths.



Sawfly larvae have six or more pairs of prolegs and no crochets. The adults look similar to wasps.

Source: Michigan State University. IPM Scouting in woody landscape plants. MSU publication E-2839.

Insecticidal Soap

Insecticidal soaps can be a valuable tool to manage insect and mite pests on houseplants, vegetables, fruits and ornamentals. Soaps control many targeted pests with fewer potential adverse effects to the user, beneficial insects and the environment compared to more traditional pesticides. To be most effective, it's important to understand how insecticidal soaps "work," to know their mode of action, and to recognize their benefits and limitations.



What is insecticidal soap?

Insecticidal soaps are potassium salts of fatty acids. A soap is made from the action of an alkali such as potassium hydroxide on a fat. Fats consist mainly of fatty acids. Commercial products contain a blend of selected fatty acid chain lengths.

How do insecticidal soaps work?

Insecticidal soaps work only on direct contact with the target pests. The most common soaps are made of the potassium salts of fatty acids. The fatty acids disrupt the structure and permeability of the insects' cell membranes. The cell contents are able to leak from the damaged cells, and the insect quickly dies. There is no residual insecticidal activity once the spray application has dried. Insecticidal soaps rapidly degrade and wash off of leaf surfaces.

Benefits of Insecticidal Soap

Insecticidal soaps are most effective on soft-bodied pests such as aphids, adelgids, lacebugs, leafhoppers, mealybugs, thrips, sawfly larvae (pear and rose slugs), scale insects (especially scale crawlers), plant bugs, psyllids, spider mites and whiteflies. Insecticidal soap has less effect against insect eggs. Insecticidal soap is also less effective against hard bodied pests such as beetles. Some soaps are labeled for suppression of powdery mildew on certain plants.

Soaps have low mammalian toxicity. However, they can be mildly irritating to the skin or eyes. Insecticidal soaps are biodegradable, do not persist in the environment, and they do not contain any organic solvents. Many formulations of insecticidal soap can be used on various food crops up to the day of harvest.

Limitations in the Use of Insecticidal Soap

As mentioned earlier, once an insecticidal soap spray has dried, there is no residual activity because insecticidal soaps work only on contact. If an insect has not been coated with the spray, it will not be affected by walking over or ingesting plant material that has been treated with soap.

As with any contact insecticide, familiarity with the biology and life cycle of the targeted pest will lead to more effective management. For example, insecticidal soaps are useful in controlling azalea lace bug nymphs but will have no effect against lace bug eggs. In addition, all stages of the lace bug are found on the undersides of leaves. Spraying only on the upper surfaces will have no effect, as the treatment will not come in contact with the targeted pest. Regular scouting to detect when the lace bug nymphs hatch from the eggs will determine the best time for treatment.



Insecticidal soaps are effective on aphids

Plants that may be sensitive to applications

- Insecticidal soaps may cause phytotoxicity (causing plant injury) symptoms, such as yellow or brown spotting on the leaves, burned tips or leaf scorch on certain sensitive plants.

- Plant sensitivity can be influenced by pest pressure, cultivar, plant vigor, environmental conditions, spray concentration, pH of spray mixture as well as the timing, number and frequency of applications.
- Plants under stress such as hot (greater than 90 °F), humid or drought conditions, young transplants, unrooted cuttings and plants
- develop phytotoxic symptoms and should not be treated with soap.
- Do not apply to very sensitive plants such as horse chestnut, Japanese maple, mountain ash, bleeding heart or sweet peas.
- Begonia, chrysanthemum, Crown of Thorns, cucumber, delicate ferns, narrow leaf evergreens (especially when stressed or when tender new growth is present), dieffenbachia, fuchsia, gardenia, impatiens, jade plant, lantana, ornamental ivy, palms, poinsettia, redbud, river birch, schefflera, Zebra plant and some succulents may be sensitive. The open blooms or flowers of many plants may also be injured.
- Glaucous bloom on spruces and waxy bloom on grapes may be altered. When uncertain, spot treat a portion of the cultivar, and wait at least 24 hours to see if any phytotoxic (plant damaging) symptoms develop before treating an entire group of plants.
- Dishwashing soaps and detergents are designed to remove grease from dishes and may cause plant damage by dissolving the waxy cuticle on plant leaf surfaces. There is increased risk of plant injury with the use of dishwashing soaps and detergents (not labeled as a pesticide) when used as a spray.

How to Apply

Insecticidal soaps should be applied when conditions favor slow drying to maximize effectiveness, e.g., in the early morning hours with dew coverage or in the early evening. Avoid treating with soaps on hot sunny afternoons which promote rapid drying. Thorough coverage is vital for the soap to be effective: Spray thoroughly, but not beyond the point of runoff. Repeat applications may also be needed as determined by follow up scouting.

Insecticidal soap mixed in hard water with a high mineral content may be less effective and more toxic to the treated plants. A precipitate (soap scum) may be formed

when the metal ions (e.g., calcium, iron or magnesium) found in hard water bind to the fatty acids in the soap. Because insecticidal soaps are toxic to fish and aquatic organisms, do not use near bodies of water. In summary, soaps are effective tools in an integrated approach toward pest management if they are used properly with an understanding of their limitations and benefits. Carefully follow all label instructions.

Despite good cultural practices, pests and diseases at times may appear. Chemical control should be used only after all other methods have failed.

Department of Plant Science and Landscape Architecture
UConn Extension

By Leanne Pundt, Extension Educator, University of Connecticut.

Can't I just plant marigolds?

Research has demonstrated that plants such as marigolds, basil and nasturtiums do not provide protection when planted next to most vegetables. In fact, they often attract and support many of a garden's common pests. Diversifying a garden by interplanting different plant types can help reduce problems but requires knowledge of which insects attack each plant. In general, the fewer pests two plants have in common, the better companions they are.

At any rate marigolds, basil, and nasturtiums add interest to your garden and are all edible.

An in-depth publication at learningstore.uwex.edu, #A2088, **Managing Insects in the Home Vegetable Garden**, can be downloaded free.



Watering Myths—by Suzanne DeJohn

During the hottest part of the summer, it's especially important to make the most of every drop of water. With so much information available it can be challenging to separate fact from fiction. Here are five common myths about watering:

Myth: Plants need 1 inch of water per week

Although the "inch-a-week" recommendation is often cited as a rule of thumb, the truth is that plants vary widely in their water needs. Young seedlings and new transplants have limited root systems and need a consistent supply of moisture, so they may need daily watering if the weather is sunny and hot. Established trees and shrubs, on the other hand, may need supplemental watering only during extended dry spells because they have more extensive root systems. The amount of water a plant needs depends on a number of factors, including the type of plant, its stage of growth, type of soil, weather and time of year.

The best way to water most plants is by applying enough to moisten the plant's entire root system, and then letting the soil dry out slightly before watering again. Apply water slowly so it's absorbed by the soil rather than running off. Avoid daily light sprinklings, which encourage roots to grow near the soil surface where they're vulnerable to drying out.

Plants wilt when roots are unable to supply sufficient moisture to the stems and leaves. Wilting for short periods of time does not harm plants. Sometimes a plant wilts on a hot day because moisture is evaporating from the leaves faster than the roots can take it up. If there is ample soil moisture, the plant will absorb water in the evening to restore turgor (rigidity) to the stems and leaves.

Myth: Wilting is a sign that it's time to water

Yes, wilting is a sign that the leaves aren't getting enough moisture, but that doesn't necessarily mean that the soil is dry. Anything that damages plant roots can cause wilting.

Plant roots need a fairly constant supply of both air and water. Too little water and the roots die from lack of moisture. Too much water and the spaces between soil particles remain filled with water, suffocating roots. Both situations reduce a plant's ability to deliver enough water to stems and leaves, resulting

in wilting. Root diseases, physical damage (such as dis-

turbing roots while you're hoeing) and soil-borne insects can also harm roots to the point that they can't fully hydrate the plant.

Damage to stems can also cause wilting. Some diseases and insects (especially borers) prevent water distribution throughout the plant, causing some or all of it to wilt.

The only way to tell if lack of water is causing wilting is to check soil moisture.

Overwatering can cause wilt, yellowing leaves, brown leaves, and root rot. If your plants are wilting and you keep watering them, check to see if they are water-logged. If they are in a large pot, the pot may need more holes.

Myth: Overhead watering on a sunny day can scorch leaves

There are good reasons to avoid watering your garden on a sunny afternoon, but causing scorched leaves isn't one of them. The myth that water droplets act like tiny magnifying glasses and burn plant leaves has no basis in fact, and anyone who has watched the sun come out after a summer shower knows that the water quickly evaporates.

Leaf damage can be caused by all sorts of things, including:

- too much or too little soil moisture
- fertilizer burn from improperly diluted synthetic fertilizer
- insect or disease problems
- weather conditions such as wind or frost

Try to avoid watering on sunny afternoons to minimize the amount of moisture lost to evaporation, but don't worry about leaf scorch.



Watering Myths—Continued . . .

Myth: Avoid overhead watering with a sprinkler

It's usually best to apply water directly to the soil around plants rather than watering with a sprinkler. Less water is lost to evaporation, especially on hot, sunny days. Foliage stays dry, minimizing disease problems.

But there are times when an overhead shower is called for. During dry, windy weather a fine layer of dust can build up on leaves, reducing the plants' ability to photosynthesize efficiently. Some insects, including aphids and spider mites, can be kept in check by simply hosing them off plants. Finally, heat-stressed plants that have wilted even though their roots are moist can benefit from a cooling shower — the effect won't last long on a sunny day, but it may provide some relief.

Remember — do not water solanaceous plants

(tomatoes, peppers, etc.) overhead because it increases the chance of blight.



Myth: Drought-tolerant plants don't need to be watered

Many young echinacea, sedum and black-eyed Susan plants have perished because these "drought-tolerant" plants didn't get sufficient water at planting time and during their first season of growth.

When you set out a new container-grown plant, the roots are confined to the shape of the pot. The plants need a consistent supply of water during their first growing season, until their roots grow out into the surrounding soil. Water them as you would your annual flowers in their first season. During their second and subsequent growing seasons, drought-tolerant plants may need supplemental water only during extended dry spells. Note, however, that just because a plant is drought-tolerant doesn't mean it doesn't fare better with a regular supply of moisture.

Even drought-tolerant types of plants need regular watering their first season or two, until they get established.

Do you have an automatic sprinkler system? Does it continue to water your yard during a downpour? Or do you set it to run only when needed? Check with your system's installer if necessary, so you are not overwatering and/or wasting water.

Tomato Disorder: Physiological Fruit Problems

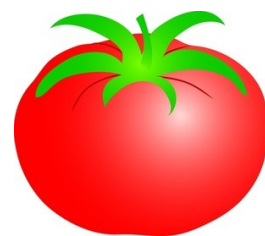
Environmental factors can affect the look—and sometimes the flavor—of developing tomato fruits. Because these problems are not caused by disease organisms, there are no pesticide recommendations for prevention or management. For information about additional fruit problems, please refer to Extension publication *Tomato Disorder: Post-Harvest Fruit Diseases* (A3799).

Blossom end rot

What to look for:

Initially, water-soaked spots appear at or near the blossom end of mature fruits. The spots enlarge rap-

idly and may merge to form large damaged areas. As the damaged tissue dries, the surface becomes shrunken, leathery, and dark brown to black. The lesions provide an entry area for secondary organisms that cause soft rot and fruit decay. In some cases, there may be no external symptoms, but the inside of the tomato may be discolored and shrunken.



Why it happens:

Blossom end rot is caused by a shortage of calcium in the developing fruit. Calcium, which is carried in the water-conducting vessels, becomes deficient when water is

limiting. Even slight wilting is enough to cause calcium deficiency in the fruit. When moisture is again available, the plant resumes regular growth. However, because water moves first to the areas that transpire most (the leaves), calcium levels within the fruit will continue to lag for a while. Calcium may also become deficient following applications of nitrogen in the form of urea, animal manure, or ammonium. The plant responds with new leaf growth, using large amounts of water and nutrients; very little goes to the fruit.

What you can do:

You can reduce the incidence of blossom end rot by providing timely irrigation, mulching to conserve soil moisture and avoiding excessive nitrogen fertilizer applications. Although varieties differ in susceptibility, none currently have sufficient tolerance to provide dependable control. Pear- and plum-shaped tomato varieties are most susceptible. Timely and repeated spraying of tomato fruit and foliage with a dilute solution of calcium chloride has been reported to prevent blossom end rot, but the benefits are often variable.

Blotchy ripening

What to look for:

As the name suggests, blotchy ripening is characterized by areas of the fruit that fail to ripen properly. White or yellow blotches appear on the surface of ripening fruit while the tissue inside remains hard. The affected area is usually on the upper portion of the fruit. Symptoms are similar to those produced by tobacco mosaic virus, but with the latter you will also see mosaic discolorations on the leaves.

Why it happens:

Blotchy ripening is caused by inadequate fertilizer application or low availability of nutrients. This problem is more prevalent in cool weather and is exacerbated by

too much or too little water.

What you can do:

Blotchy ripening is cultivar specific and appears more frequently on older cultivars.

Catfacing

What to look for:

Catfacing describes the presence of deep indentations in the blossom end of the fruit. In some cases, the fruit is misshapen, becoming kidney-shaped or otherwise distorted.

Why it happens:

This damage occurs when temperatures fall below 50°F during flowering and fruit set, resulting in poor pollination. In some cases, excess heat, 2,4-D herbicide injury, and erratic soil moisture can lead to catfacing. High

levels of nitrogen will aggravate this disorder.

What you can do:

Catfacing is cultivar specific and appears more frequently on older heirloom varieties. Large-fruited cultivars are most susceptible.

Growth cracks

What to look for:

The skin on tomatoes may develop cracks that split in circles around the stem end or they may spread outward from the stem scar. Cracks typically appear as fruit matures. The earlier it happens, the deeper the cracks become.

Why it happens:

Growth cracks often appear when conditions drastically change the rate of growth, such as wide fluctuations in temperature and moisture. For example, dry weather followed by heavy rains causes radial cracking in many tomato cultivars. High nitrogen and low potassium may also cause fruit cracking.



Is Wild Ginger a 'Garden Invader'? Or a great plant for shady sites? By Mary Meyer, University of Minnesota Extension

I love wild ginger, *Asarum canadense*, and was so happy to get it growing in my garden in the past few years. I was happy to see how easy it was to grow in my predominately dry shade garden.



Once I had a large patch or two, I tried moving it and found the basal stems easily rooted and if I cut back the large leaves, it was easy to transplant, even more so if I dug up the rhizomes. So from two clumps, I soon had 4 or 5 and gee, that was easy and wow, wild ginger became my go to plant for any bare corner in the shade.

Is it a garden 'invader'?

Fast forward to 2020 and I am beginning to think this plant is quite aggressive and can quickly take over an area. And now small plants are appearing often in my garden. And nowhere near other wild ginger.

Where are these seedlings coming from? How can the seed be dispersing? Suddenly wild ginger is everywhere. Is this lovely native plant a garden invader that I will never be rid of?

How it spreads to surprising places...

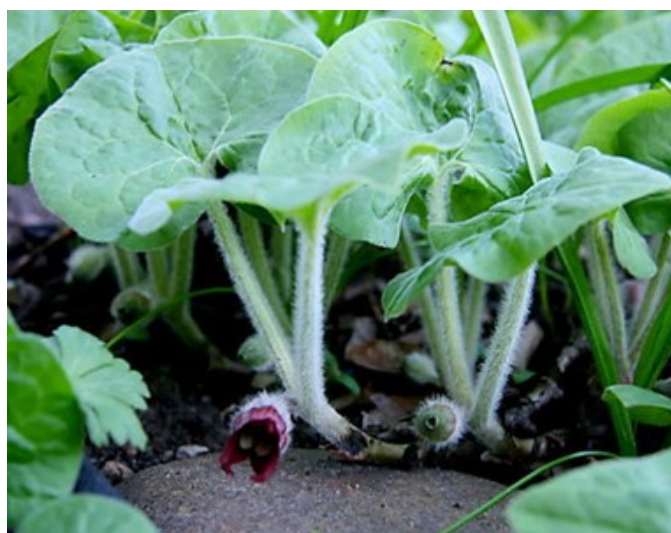
Maybe. I am still loving it, but do be careful where you place it. Clumps can grow quite large quickly especially with adequate rain and moist conditions. Wild ginger flowers are unusual and sit just at the soil where soil insects can easily pollinate them.

Ants love wild ginger seeds due to the small oil filled appendage on the seed called an elaiosome that is attractive food. Ants carry wild ginger seeds to their nests, eating the elaiosome, and leaving the seed to germinate, thus spreading the ginger throughout our gardens.

Can I use it to make tea?

Although the root may smell like ginger, this is really not an edible plant, so do not try to make tea with it or use it like the herb ginger, *Zingiber officinale* that we commonly eat. Our native wild ginger is mildly poisonous and although Native Americans had uses for it, many references will advise against ingesting the plant.

For now, I am happy to have wild ginger as a plant for shade, and dry shade, which continues to in-



Note from the U.S. Forest Service:

*Native Americans and early Euro-American settlers have used wild ginger as a spice. The root is harvested, dried, and then ground into a powder. Early settlers also cooked pieces of the root in sugar water for several days to obtain a ginger-flavored, candied root. The left over liquid was then boiled down to syrup that was used on pancakes and other food items. **However, you should be aware that scientists have determined that the plants may contain poisonous compounds and consumption of the plant is highly discouraged.***

Native Americans and then Euro-American settlers also used the plant as a poultice to treat wounds. Medical researchers have identified two antibiotic compounds in the plant so its historical use as an antibiotic has been validated.



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