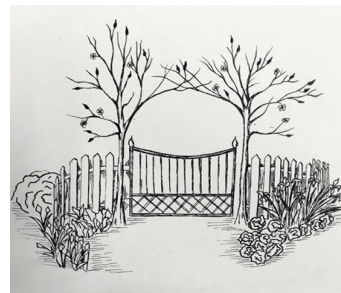


IN THE GARDEN NOW

HELPING GARDENERS PUT KNOWLEDGE TO WORK

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Vegetables and Summer's Heat



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As temperatures rise, we start to see a common problem in the vegetable garden. You may notice that your plants are producing lots of flowers, but little to no fruit is being set, and that means little or nothing to harvest. While this problem is most noticeable on tomatoes, it also affects peppers, beans, squash and several other summer crops.

What causes summer vegetables to appear healthy but fail to produce? Shade or too much nitrogen could do this, but in mid-summer the heat is often to blame. Research has shown that as daytime temperatures rise over 90 to 95°F and nighttime temperatures above 70 to 75°F, fruit set in many vegetables declines and in some cases stops. This is partially due to poor pollen or sterile pollen production during high night temperatures and explains why this phenomena happens more often in our coastal areas where the nights stay warm. Without viable pollen, plants cannot set fruit and the flowers abort or drop off. Individual varieties respond to heat differently so you may notice that one variety of tomatoes continues to set some fruit while another one shuts down entirely. Fruits that do set often ripen very slowly.

This slow ripening is related to the second reason that plants may stop setting fruit during the hottest part of summer and that is water stress during the heat of the day. Plants need water to fill the cells of the fruit being produced. When daytime temperatures reach up into the 90s, many plants have trouble moving enough water into their leaves to keep them from drooping, even when there is enough water in the soil. When plants can't keep their leaves full of water, they also don't have the water to spare for producing fruits such as tomatoes, peppers or beans. In addition, plants under water stress close the stomates or tiny pores in their leaves that allow gas exchange. Closing the stomates protects the plant from unrestricted water loss. But these stomates are also where carbon dioxide is exchanged with the atmosphere. This carbon dioxide is necessary for photosynthesis – the plant process that results in the development of sugars and energy for plant growth. So plants under water and heat stress have to make a choice – they close their stomates to survive but that means that they are just maintaining rather than growing vigorously and ripening fruit.

While still edible, the fruits that do mature during hot weather are usually less flavorful than those that ripen under more mild conditions. Green tomatoes that have already formed on the vines will continue to ripen, but often do so unevenly. A common heat related complaint is yellow or green shoulders – this occurs when the top of the tomato fruit stays green or yellow while the rest turns red. Yellow shoulders occur when the surface temperature of the tomato heats up and inhibits the development of red pigment. Maintaining a nice cover of leaves on the plant by controlling foliar diseases and not overpruning is a good way to prevent yellow shoulders.

A less obvious disorder is the development of internal white spots on the tomato. On the outside, the fruits usually look completely normal but when cut open, you will find areas of hard white tissue within the fruit walls. Some varieties are more prone to developing internal white spots than others. This condition is exacerbated by low soil potassium. So go ahead and test your soil, to determine just how much potassium and other nutrients your garden needs.

Fortunately, one day of these extreme temperatures is not enough to cause problems. Instead, it's the accumulation of five to seven days or more in a row that causes problems when it comes to production. There is little gardeners can do to control the weather. However, there are a couple of steps that we can take to ensure our garden is as productive as possible. First, water consistently to keep soil evening moist. Do not allow plants to dry out during dry spells and do not over fertilize with high nitrogen fertilizers. Make sure you harvest frequently to keep vegetable plants productive. Leaving fruit on too long reduces the amount of fruit that the plant will set in the future. So be sure to pull large fruit off the vegetable plant before they drain energy necessary for new flower production.

Follow these steps to keep your garden healthy during the heat of summer so when the temperatures cool down a little, production will start back up.

Cistern Bed Planting



I'd like to give a big shout out to the Master Gardener Volunteers! They have put a lot of time and energy in the last two months in to planting the bed around cisterns on the back of the Multipurpose Building. First, I have to thank Amy Borsay, who developed the landscape design for this space. She did a great job of choosing and laying out plants.

We had a total of three workdays, three hundred plants, and over a dozen volunteers who showed up to do the work. Thank you to everyone who showed up, dug holes, sweated, hauled mulch, watered, weeded and more!



Last but certainly not least, thanks to Onslow County Soil and Water for providing funds for this critical area planting. This will allow us to protect and stabilize the area around the cisterns, which are an essential part of our storm water plan. This planting also beautifies the space around the building and illustrates plants that can be grown in home gardens here in Onslow County. So swing by and check it out!

Plan Now for Fall Harvest

The summer heat and humidity often cause our gardens to languish but it doesn't need to be that way. July and August are an excellent time to plant vegetables and herbs for harvest through the fall and even in to the winter months.

Mid-July is a good time to reenergize your garden by planting a second round of warm season crops. You can replant bush beans, pole lima beans, tomatoes (especially if you lost plants to TSWV earlier in the season). When choosing varieties, look for options that have a short "days to maturity" to ensure that you harvest before the first frost. When choosing tomatoes, determinant varieties such as Celebrity and Amelia are a good option since they set and ripen their fruit in a relatively short window. So you can harvest more fruit before the first frost. If you lost your summer squash or zucchinis to squash vine borers, consider replanting. We are past the flight period for these moths in our area so while you will have other issues to look out for, squash vine borers shouldn't be one of them.

Set out a couple of new basil plants to replace your early crop which will be going to flower by now. Let the old basil plants flower. Basil flowers are a favorite of bees and other beneficial insects. Consider setting out a second round of cucumber plants too. These plants performed well for me this spring but the vines are getting a little worn out. A new planting will produce more fruit this fall. Keep an eye out for squash bugs and pickleworms. If you find them on your mature plants, treat and get control of them now before setting out new tender plants for them to feast on! Now is also a good time to start cool season root vegetables with a longer growing season, such as carrots and rutabagas.

In mid to late August, you can plant cauliflower, broccoli, collards, cabbage and turnips. These members of the mustard family will grow well past the last frost. I find they do best as transplants at this point in the season. Keep a close eye on them and stay one step ahead of caterpillars through regular scouting. The application of a product containing *Bt* (*Bacillus thuringiensis*) or spinosad at the first sign of caterpillar damage will protect your crop while minimizing impact to beneficial insects. Another option is to cover the row with a fabric row cover. Row covers physically prevent pests from reaching your crop. Just remember that you will need to scout regularly under the row cover to ensure that pesky bugs don't make their way under the cover and have a field day in the protected area underneath.



Try planting a round of edible pod peas like sugar snaps or snow peas. While they don't appreciate the warm weather at the end of summer, they will produce well past the first frost in the fall.

Herbs such as dill, cilantro and parsley grow best during the cooler weather of fall and spring. Starting in mid to late August, make several plantings two to three weeks apart for a consistent supply.

Just remember to save a little space in the garden because early September is an excellent time to plant cool season crops with a short growing season. Radishes, lettuce and spinach will be ready to harvest within a month or two of sowing. Harvest lettuce and spinach as "cut and come again" crops to harvest earlier and extend your harvest window. When the new seedlings get up to 3-4 inches tall, cut them with a set of kitchen shears being careful not to damage the growing point at the base of the plant. These little plants will resprout and can be harvested this way 3 or 4 times. Put out onion sets and garlic cloves in September or October for harvest next spring.

With a little bit of planning, you can harvest vegetables out of your garden every month of the year in coastal North Carolina!



tips & tricks

Tip and Tasks

- Remember to water according to plant needs. Vegetables and newly established plants require more frequent watering than established lawns and plants. Sandy soil requires more frequent watering than heavier soils.
- Mulch plants to conserve moisture, inhibit weeds and reduce disease.
- Drip irrigation and soaker hoses deliver water to the root zone without wetting leaves. Moisture on leaves can contribute to disease development. If you must use sprinklers, water early in the day so leaves dry quickly.
- Provide appropriate support for fruit and vegetable plants such as tomatoes. Trellises and staking will reduce disease and make maintenance easier.
- Harvest fruits and vegetables as they ripen. Remove overripe, damaged or diseased fruits immediately to help control diseases and insects.
- Watch for insects and diseases. If you find an insect or disease, have it identified and get recommendations for control. In Onslow County, call the extension office at 910.455.5873 or email lisa_rayburn@ncsu.edu.
- Mow lawns regularly and at the correct height to promote dense turf and reduce weeds. Centipede, bermuda and zoysia should be mowed to 1 inch, while St. Augustine should be mowed at 3 inches.
- Deadheading promotes new blossoms for many annuals and perennials.
- Remove weeds before they set seed.

Onslow County Farmers' Market Days and Times



Don't forget that the Onslow County Farmers Market is open for the season. Come out and support your local farmers, vendors and crafters. You will find a selection of local produce, meats, cheese, baked goods, wines, wares, jams and jellies, prepared foods and hand crafted items. Vendors vary from market to market so make sure you check out all three locations:

- Saturdays from 8:30 to 1:30 at 4024 Richlands Highway
- Tuesdays from 10 to 2 aboard Camp Lejeune in front of the commissary
- Thursday from 10 to 2 on Western Boulevard in front of Big Lots

To learn more about the Farmers' Market and upcoming special events, check out their website or follow their Facebook page for more details:

<http://onslowncfarmersmarket.com/>

<https://www.facebook.com/pages/Onslow-County-Farmers-Market/111126258908994>

Find the Gardening Information on the Radio



I host the Garden Journal on Public Radio East. The Garden Journal airs Friday at noon on all PRE Stations and Saturday at noon on News and Ideas. In Onslow County, that is 91.5 FM and 89.3 FM on Fridays and 91.5 FM Saturdays. Tune in and join me. Is there a topic that you would like me to address on the show? If so, email me at lisa_rayburn@ncsu.edu and you may hear your answer on the air.

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Upcoming Classes

*****All classes are held at the extension office. Must Pre-register.
Please call (910) 455-5873 to register.***

Extending the Harvest- July 16, 10 am - noon

We'll cover fall vegetable plantings as well as tips and tricks that you can use for extending your garden harvest.

Jam and Jellies- July 27, 6pm – 9pm

How great would it be to enjoy your fresh fruits in the winter? Well, we can teach you how to preserve the freshness of the fruit by making jams and jellies.

Cost: \$10 MUST PRE-REGISTER!!!

Salsas- Aug. 3, 6pm – 9pm

Learn to use summer's bounty. We will make fresh salsa for now and canned salsa for later. Cost: \$10 MUST PRE-REGISTER!!!

Summer Gardening Series

Our summer gardening series continues! All classes are free and open to the public. This series runs Monday nights from 6-8 pm at the extension office.

- **Best Planting and Pruning Practices** – July 18
Learn how to plant, prune and care for your new plants to ensure their success.
- **Dealing with Water Issues** – July 25
Do you have wet spots, ditches or standing water on your property? We'll discuss common water issues and how to deal with them.
- **Dividing Perennials** – August 1
We'll discuss when and how to divide perennials. Be prepared to get a little dirty and have fun making new plants.
- **Equipment Maintenance** – August 8
Learn how to care for your lawn and garden equipment. We'll cover basic care and maintenance as well as winterizing.

Association Meetings

Onslow County Farmers' Market Association Meeting

July 5, 4 pm

Contact: Marie Bowman, 910.459.3463, marie.s.bowman@gmail.com

Onslow County Master Gardener Volunteer Association Meeting

July 14, 9 am

Contact: Lisa Rayburn, 910.455.5873, lisa_rayburn@ncsu.edu

Onslow County Beekeepers' Association Meeting

July 12, 7 pm

Contact: Jeff Morton, 910.330.5732 or jeff_morton@ncsu.edu

CONTACT US

If you have questions about lawn, landscape or garden problems, contact your local Cooperative Extension office. In Onslow County call 455-5873, Mon – Fri. 8 am – 5 pm, or visit us online anytime at <http://onslow.ces.ncsu.edu>. While you are there, you can post your questions to be answered by email using the “Ask an Expert” widget (in the upper left hand corner).

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