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EXTENSION

Master Gardener | Johnston County

The Gardener's Dirt

Johnston County Center

August 2017

Feature Article

Landscape Installation: Grading, Drainage, and Soil Preparation

Marshall Warren, Horticulture Extension Agent

In the January issue of "The Gardener's Dirt", I wrote about the importance of landscape planning and site analysis, and in the May issue, I focused on refining your vision by creating a landscape design and choosing plants. In this issue, you will learn about the steps needed to implement your design.

1. Have soil test in hand so you can correct any soil nutrient and pH deficiencies. If you haven't taken a soil test yet, stop reading now and go do it. If you are not sure how, see link:

https://content.ces.ncsu.edu/extension-gardener-handbook/1-soils-and-plant-nutrients#section_heading_7241

2. Establish priorities and a budget. A landscape installation can be very simple or extremely complicated. By establishing priorities, you can implement the landscape in stages. Decide which part of the landscape is most important, and consider the time of the year that is best to install certain parts and

The image shows a 'SOIL SAMPLE INFORMATION' form from the NCSU Agronomic Division. The form is titled 'SOIL SAMPLE INFORMATION - N.C. Soil Only' and includes sections for 'SAMPLE INFORMATION', 'PAYMENT', 'GROWER INFORMATION', and 'LABORATORY RESULTS'. It also features a table for 'LABORATORY RESULTS' with columns for 'LAB NUMBER', 'SAMPLE IDENTIFICATION', 'LIME APPLIED WITHIN PAST 12 MONTHS', and 'CROP'. A cardboard box with the text 'got to be NC AGRICULTURE' is partially visible in the background.

Photo Courtesy of Marshall Warren

consider your needs and budgetary constraints. You should also evaluate the skills and materials needed for installation and associated costs to determine whether these are DIY projects or whether money and time would be better spent by hiring a professional. When the job seems too big, call in a licensed professional landscape contractor.

3. Locate underground cables and utilities. Before you plan to grade or dig in an area, it is important to know the location of all above and below ground utilities such as cable, phone, gas, water, electricity lines and septic tank fields. To have the utility lines located for free, call 811 or 1-800-632-4949. Allow three working days before you plan on digging. Example: call Monday and dig on Friday.

4. Remove or kill any unwanted and noxious weeds before you prepare or grade the soil. Example: If you have Bermuda grass in unwanted areas and you would like to seed a Centipede grass lawn next spring; you will need to kill the Bermuda before it goes dormant.

5. Grading and Drainage. Observe your yard during a heavy rainstorm to determine how your yard handles runoff; note areas of maximum flow, puddling, or erosion. Your landscape plan should have been designed to eliminate or reduce the amount of water runoff entering storm sewers or onto your neighbor's property. Keeping water on site will help recharge groundwater. Install any needed swales, terraces, retaining walls, catch basins and piping to redirect, or allow water penetration, thus preventing erosion. If extensive grading is needed, remove the topsoil and stockpile it for replacement after the rough grade is established. The rough grade should conform to the final grade after the topsoil is replaced.

Compaction is a likely a problem if there has been recent construction or other traffic over the area. To help determine if your soil's subsurface drainage is adequate, it can be checked by digging several 18" holes around your property and filling them with water. If the water doesn't drain away within a couple of hours, subsurface drainage is inadequate and should be improved by deeply breaking up the soil to reduce compaction and allow air and water penetration. To simplify - if a pick ax appears to be the best tool for digging a planting hole, then your soil is probably too compacted; if the soil is fairly easy to dig into with a shovel, then it is probably not compacted.

Don't forget, if any hardscaping is to be done, make allocations for future easy accessibility of drainage lines, electrical and irrigation by installing underground access pipes.

6. Soil Preparation. Given the time, effort and money required for most landscape projects, it's important to get off to the best start possible - beginning with proper soil preparation. This certainly isn't the most exciting or glamorous aspect of a landscape project - however, it may be the most crucial for ensuring long-term success and the results are typically worth the investment.

More often than not - gardeners usually think about the chemical aspects first. Things like fertilizers, root stimulators, soil additives, etc. Sure, these are important - but it's the physical properties of a soil that can make or break a landscape planting. For optimum health and growth, plant roots need a good balance of air and water. Why is this important? Landscape soils that hold too much water typically have problems with root diseases. A significant lack of oxygen in the soil can also result in damage to the root system and ultimately plant death.

If you have hard, compacted soil, its condition can be improved by deep cultivation, amending the soil with organic matter, and applying the required nutrients and adjusting the pH as recommended by your soil test report. Deep cultivation is the mixing of the top 6 inches to 2 feet of soil (depending on severity of compaction) with either a backhoe, tiller, disk, or hand tools. Incorporation of organic matter during deep cultivation can help to rehabilitate soil structure by creating aggregates and both macropores (for drainage) and mesopores (for plant-available water).

The best organic matter for amending compacted soils



The best organic matter for use in landscape soils has a good distribution of coarse and fine particles. The finer the organic matter, the greater the water holding characteristics. The best amendments for clay soils are pine bark fines ½ inch diameter, and/or compost, such as composted leaves. The addition of compost will also improve the conditions and water retention in sandy soils. Till soil when it is moist, but don't work the soil when it is too wet, because it can cause it to become tight and compacted.



Photo Courtesy of Dana Warren



Photo Courtesy of Marshall Warren

Pine Bark Fines



Photo Courtesy of Marshall Warren

Composted Leaves

If you don't have an adequate depth of quality soil in all planting areas the importation and spreading of quality topsoil and/or incorporation of composts to support landscape planting may be required. Adding this new topsoil to existing soil may also create drainage problems when water moves through the purchased topsoil and reaches the compacted layer. The water can pool and create unfavorable conditions for root growth. It is important to not just spread topsoil over these compacted areas without first deeply breaking and loosening them to allow for air and water penetration. Afterwards, it is okay to add the topsoil and amendments.

If you are planting trees, it is best to not amend the soil with organic matter in each hole, but to use the existing soil to backfill the hole, or better yet, you may plant it within a large amended planting bed.

Now is a good time to get out and start preparing your soil. Once it is ready, go ahead and apply a 2 to 3" layer of mulch to control weeds, and then wait until fall which is the most favorable planting season. Once fall arrives and the fun of installing your plants from your landscape design begins, you will have confidence that you are giving them the best start possible.

Feature Plant

***Viburnum macrocephalum* - Chinese Snowball Viburnum**

(Grown and recommended by Johnston County Nurserymen)



Photo Courtesy of Taylor's Nursery

Much hype and publicity is directed toward landscape gardeners about the newest, latest and greatest plant introductions. But why not consider one of the plants that has proven itself hardy and dependable as well as breathtakingly eye-catching when in flower? If you like the look of hydrangea flowers, then you will love the Chinese snowball, a classic viburnum that has graced Southern gardens for generations.

Chinese snowball viburnum is semi-evergreen and easy to grow, the largest of the "snowball" viburnums, and the most spectacular of the viburnums when in bloom. The flower buds are naked, similar to small cauliflower heads, and send forth apple-green florets that mature glistening white but have no fragrance. The entire flowering

process is stretched out over six to eight weeks from April thru May, and sometimes will surprise you by having sporadic blooms throughout the growing season. The inflorescences range from 5 to 8 inches in diameter and can provide enduring cut flowers for vase display. Fruits are not formed because the inflorescence is sterile.

Few diseases or pests target this shrub known to easily grow to 15 feet if permitted. It has a rounded habit but can be trained into a small accent tree. If restraint is required, the plant can be periodically pruned and cut back severely just after flowering, to two to three feet high. There will be a loss of the next year's blooms, but they will return with vigor and flowers in following years. It likes full sun to part shade and well-drained, slightly acidic soil. Fertilize and prune after flowering to remove any dead wood and shape.

A Veggie Tale

Veggie Varieties for Fall

Tiffany Whichard, Extension Master Gardener Volunteer

With the mercury soaring and humidity covering us like a heavy, oppressive cloak, it's hard to think about Fall at all...much less cold-tolerant crops. August and September, though, is the ideal time for planting and installing these vegetables that will see us through much of the early Winter season.

As a general rule, anything with a maturity cycle of 60 to 80 days can be planted any time after August 1. For faster maturing crops, plan on waiting a bit. Those veggies that don't take long should be seeded in September instead. This insures that all your work won't result in prematurely-bolted plants (or poor germination) and that the flavor of the end product is better.

And don't forget to do multiple plantings, spaced a



Photo Courtesy of Pixabay

And don't forget to do multiple plantings, spaced a week or two apart, for a continuous harvest!

The possibilities are nearly endless. Should you use a cold-frame or a frost cover (a spun-poly blanket that is both light and water permeable) to shield your plants from icy temps and brutal winds, you can extend your harvest on frost-hardy cultivars all the way through Spring.

So, what should you plant? Well, at [my community garden](#), we're particularly fond of Green Magic broccoli for it's tolerance and productivity. Early Jersey Wakefield cabbage is tops for its consistency. As far as carrots, we tend toward the blunt-tipped cultivars that grow well in pots. This includes: Danvers Half-Long, Scarlet Nantes, Red-Cored Chantenay and the marble-sized Thumbelina, just to name a few.

For Swiss chard, we grow Bright Lights year round. Can't say enough about that variety! It's both beautiful and easy care for and would look great in a mixed border. Cauliflower has proved a little trickier but we like Early Snowball. As far as kale is concerned, Dwarf Blue Vates kale was a great discovery for us this year. We regularly begin our lettuces in flats, using a light-weight propagation/seed starting mix (you can purchase bags at Walmart) and have found good results with Salad Bowl, Oak Leaf varieties and Black-Seeded Simpson. For spinach we tend towards Bloomsdale. And, of course, you mustn't forget peas! There's the always reliable Sugar Ann and Sugar Snap.

Radishes are fun and rewarding because they're so fast. The equivalent of (almost) instant gratification in the garden! We especially like White-Tipped Sparklers and the cylindrical White Icicle. Purple Top White Globe turnips are also great, but need consistency. And then there is the standout White Vienna kohlrabi. And all the others you may not have considered growing: arugula, beets, Brussels sprouts, collards, onions and rutabagas.

If you have questions and want to get a head start on your Fall gardening goodness, feel free to give us a call. We'll be glad to help you.

Visit our PAR Facebook page; <https://www.facebook.com/PlantARowJoCo/>

Quick Tip

Bird Feeder Squirrel Deterrent

Silvia Caracciolo, Extension Master Gardener Volunteer

Many tips are suggested to keep pesky squirrels away from your bird feeder. Lubricants such as WD-40 or Vaseline can be put on the pole of the feeder. Cone shaped covers on the top and baffles for the pole can foil their attempts (use metal for both). There are even novel feeders that deter the squirrels by spinning and tossing them away and even a feeder which administers a mild electrical shock for correction - Ouch!



Photos Courtesy of Pixabay

Community Alert!

Staying Hydrated in the Heat of Summer

Cassidy Hobbs, Family & Consumer Sciences Extension Agent



Photos Courtesy of Pixabay

Summer is here, and that means our wonderful North Carolina weather is hot and humid! With heat and humidity in mind, it is important to stay hydrated.

Humans can survive for about one month without food, but survival is only possible for a few days without water. The average adult is composed of about 60% water, and the adult brain is composed of 70% water. Additionally, 92% of blood plasma is made up of water, which contributes to 55% of blood volume being water. Water not only contributes to the composition of the body, but water functions within the body as well. Water is responsible for moistening the eyes, mouth, and nasal tissues, regulating body temperature, lubricating joints, and lessening the burden on the liver and kidneys as the body flushes out toxins. Water also dissolves minerals for our bodies to use appropriately, carries nutrients and oxygen to various cells, and aids in digestion.

Water is lost through breathing, sweating, and urination. According to the Institutes of Medicine, adult men need to drink about 13 cups of water each day, and women should drink about 9 cups per day. If you are very active, outside working, or enjoying a day in the sun, you need to drink more water and remain conscious of staying hydrated.

Thirst, the very first sign of dehydration is oftentimes overlooked. If you feel thirsty, you are already becoming dehydrated. Thirst is your brain's way of notifying you to drink more water. Be sure to drink water throughout the day before you begin to feel thirsty to ensure that you are staying hydrated. Decreased urine output is an additional signal of dehydration. The color of your urine will indicate if you are dehydrated. Shoot for almost-clear to light yellow coloration of urine. Urine coloration darker than light yellow indicates dehydration. Headaches and dizziness may also indicate dehydration. When the body is dehydrated, blood does not have as much water composition, thus thickening the blood and causing a rise in blood pressure. Headaches can be caused by increased blood pressure levels.

So, you've decided that staying hydrated is something you should take note of, and you're going to start drinking more fluids. Not so fast! Before you choose your drink, take note of these next few things.

Caffeinated and sugary beverages can be refreshing, but don't let those drinks be your source of hydration. While caffeinated drinks and teas provide some water to help rehydrate, the caffeine operates as a diuretic. Diuretics cause more frequent urination, thus expelling much of the water which was just ingested. Don't think that caffeine-free means you are good to go! Consider the effects of sugar. Sugary drinks provide us with the water our bodies need, but the high sugar content in these drinks makes us crave even more water so that our bodies can dilute the excess sugar it has taken in. Sugary drinks increase the risk for diabetes and can cause weight-gain. Added sugar is a high-calorie, flavor-enhancer with no nutritional benefit. With added sugar in mind, be sure to read the ingredients list on the back of the container. Often times, even drinks you think are healthy have large amounts of added sugar. The

most popular example is Gatorade.

If you are looking for juices, be sure you choose juices that are 100% juice and no added sugars. Beware of tricks that food companies use to make you think that you're choosing a healthy option. If you want to stay hydrated while reducing your sugar intake, try fruit-infused water. Get creative! Lemons are not the only fruit worthy of adding to your glass of water. Try slicing up strawberries and kiwis to add to your water or sliced grapes and chunks of melon. You can incorporate things like mint and lavender into your water's flavor pool as well. Test a variety of combinations and see what you like. This is a great way to get kids on-board with drinking more water, and it allows them to experience independence as they choose what they want in their water.

Staying hydrated doesn't just mean drinking tons of water. You can eat your way into staying hydrated! Many fruits and vegetables have high-water contents. This means that they are mostly made up of water, offering hydration without lots of calories. A few fruits with high water-content are watermelons, citrus fruits, grapes, apples, papayas, strawberries, apricots, and cherries. Vegetables with a high water-content include carrots, bell peppers, lettuce, tomatoes, squash, celery, cucumbers, broccoli, cauliflower, and spinach.

For more health and wellness tips, contact Cassidy Hobbs, Family and Consumer Science Agent at the Johnston County Cooperative Extension Office. Cassidy can be reached via email, cdhobbs3@ncsu.edu, or by calling the Johnston County Cooperative Extension Office at 919-989-5380.

Monthly Garden Tasks

August Garden Tasks

GENERAL REMINDERS

- Collect soil samples for testing so you'll know how much fertilizer and lime to add this fall. Test your lawn, flowerbeds and vegetable garden using the free kits from Cooperative Extension. Testing should be done once every 3 years.
- Watering deeply but infrequently encourages a deep and extensive root system for better drought tolerance.
- Control fungal diseases by watering early in the morning, allowing the sun to dry water droplets from the foliage.
- Mulch trees and shrubs with a 2-3" layer of mulch to keep roots cool, conserve moisture, and control competing weeds and grasses. Avoid mulching more than 4" deep, and leave 3-4" between mulch and the trunk of the tree/shrub.
- Avoid pruning shrubs and trees during late summer. Pruning stimulates new growth which will not have sufficient time to harden off before cold weather.
- Avoid nitrogen fertilizers during late summer. New growth at this time of year is vulnerable to frost damage in the fall. If your soil test shows you need to add phosphorus or potassium to your soil, add them now. These nutrients will help your plants better withstand the winter.
- Cut back leggy summer flowers, then fertilize them. They'll regrow within a few weeks and look great till frost.
- Plan for Fall Bulbs. Autumn-blooming crocus and colchicum add color to your fall garden. Since these bulbs are not always available locally, order them now from a mail-order source. They need to be planted in September.
- Prepare garden spaces for fall garden veggies. Greens, cabbage, carrots, parsnips, beets, radishes and lettuces can be started by mid August.
- New tomato plants and fall cucumbers need to be planted quickly.



Photo Courtesy of Pixabay

LAWN CARE

- Check out the Lawn Maintenance Calendar for your grass and learn how best to care for it. <http://www.turffiles.ncsu.edu/>
- August is the best time to prepare for planting cool season grasses. The optimal planting time is the second half of September.
- Prepare to treat for winter weed control using pre-emergents.

Cool Connections

[NC Extension Gardener Manual](#)

[Past Issues of Gardeners Dirt](#)

[NCSU Publication Links](#)

[NC Extension Gardening Portal](#)

[NC Extension Plant Database](#)

[Going Native \(Selecting and Planting Native Plants\)](#)

[NCSU Pruning Trees and Shrubs](#)

[Cooperative Extension Search](#)



Photo Courtesy of Pixabay

Upcoming Events

If you are interested in starting a commercial strawberry farm , please attend: Strawberry Pre-plant Meeting - August 29th starting at 6pm, at the Johnston County Center. Contact Brandon Parker for more information; bkparker@ncsu.edu or 919-989-5380

Certified Plant Professional Training Course

A series of 7 cumulative classes to prepare for the October 26, 2017 Certified Plant Professional (CPP) Exam in Wilson, NC will start on **September 7**. Registration deadline is August 18. See flyer for more information and registration at: <https://www.ces.ncsu.edu/2017-wilson-cpp-training-course-2/>. To learn more about the CPP program visit: <http://www.ncnla.com>

NEWSLETTER EDITED BY: Silvia Caracciolo, Katie Maynard and Marshall Warren

*** If you would like to receive this newsletter monthly via email, send an email to mhwarren@ncsu.edu asking to be added to "The Gardener's Dirt" email list.

For accommodations for persons with disabilities, contact Bryant Spivey at (919) 989-5380, no later than five business days before the event.

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Contact: **Marshall Warren**, Extension Agent Commercial and Consumer Horticulture

2736 NC 210 Hwy, Smithfield, NC 27577
919-989-5380

 [Home Horticulture in Johnston County, NC](#)

[Johnston County NC Extension Master Gardener Volunteers](#)