

Planting Guide

for School Gardens in the **Piedmont**
and **Coastal Plain** of North Carolina

Reaching into the earth...

and pulling out a potato can feel like a treasure hunt to a young person who has never experienced a garden. With their red, purple, yellow and brown skins, potatoes can be viewed as art, botany, and food with a history. This guide is designed to get teachers started with planning a school vegetable garden to enhance student learning.

Growing a school garden opens the door for students to understand where their food comes from and why it is important to eat fruits and vegetables. Studies have shown that youth involved in gardening consume more fruits and vegetables than youth who have not experienced a garden. School gardens can also nurture young leaders by helping students to develop proficiency in critical thinking, problem-solving, responsibility, and communication. Growing a school garden can foster positive attitudes toward science, grow a strong sense of curiosity, and cultivate environmental stewardship among students.

A school garden transforms learning by engaging students in activities that bring the classroom curriculum to life. The garden is an integrative space where many subjects can be explored. Connections among classroom subjects can be taught in the garden and furthered. For example, students can understand how plants grow and develop by sowing seeds and watching them change from sprouts to mature plants that bloom and turn back to seeds. Math skills can also be applied by planning the spacing needed for plants to grow or graphing the amount of yield produced based on a specific nutrient treatment. Social studies can be incorporated by exposing students to cultural practices within North Carolina, connecting students with the historical and current relevance of agriculture to the state.



Geographic Range

The first step toward planning a school garden is deciding what to plant, when to plant it, and how long it takes to mature. This guide is a starting place that will help you to get growing.

This planting guide includes information on growing in the Piedmont and Coastal Plain.

The east growing region includes the N.C. Piedmont and Coastal Plain. The region begins in the foothills at elevations below 1,500 feet and extends east to the Atlantic Ocean.

Some areas within the growing regions experience pockets of warmer or colder weather, so this guide should be used as a starting point for planning. Your county Cooperative Extension center can provide specific information for your location. For the most accurate planting schedule, consult **FIGURE 1** to determine the average date of the first killing frost in the fall and **FIGURE 2** to determine the average date of the last freeze in the spring. For fall plantings, count backwards from the frost date, using the number of days to crop maturity to determine the best time to plant in your area. In the spring, use the last freeze date as a time to begin planting seeds or transplants in the ground.

FIGURE 1: FIRST FROST OF THE FALL

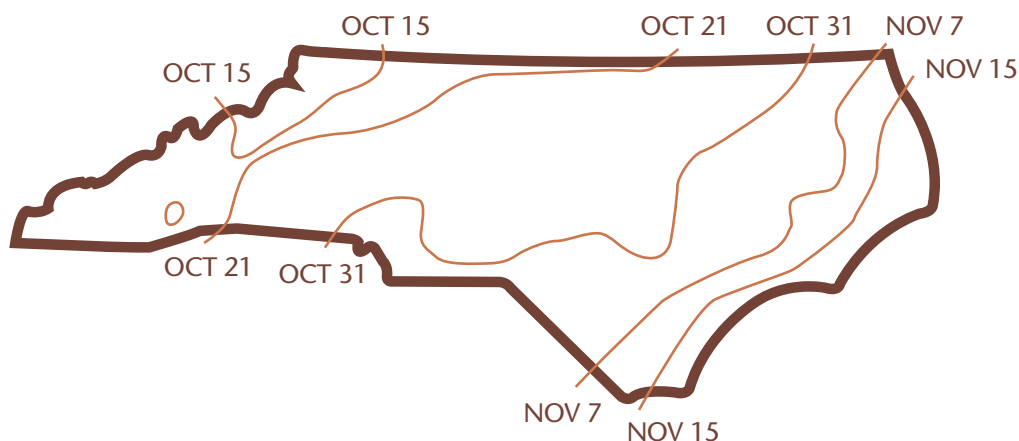


FIGURE 2: LAST FREEZE OF THE SPRING

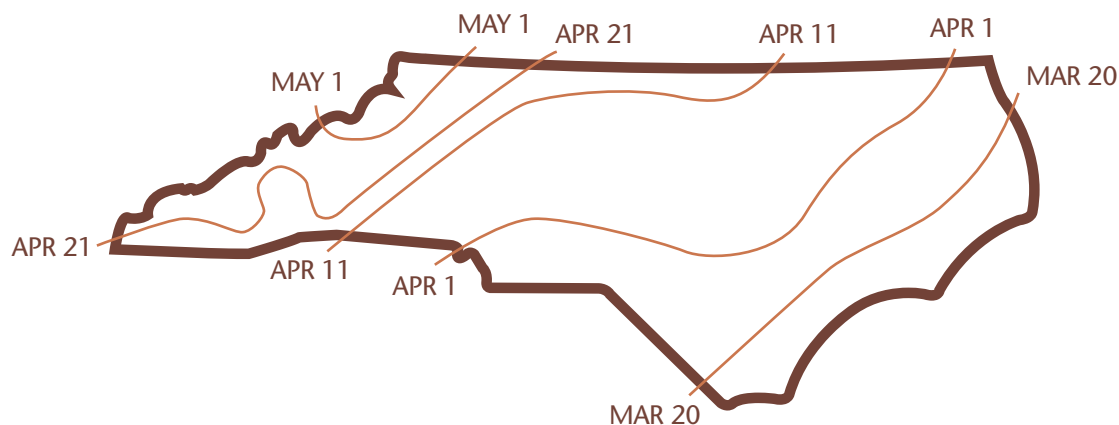


Table Categories

The rest of this document contains a table that provides research-based information on vegetables commonly grown in North Carolina. Each of the following categories corresponds to a column of information in the table. You will need this information to successfully grow a school vegetable garden.

Spring and Fall Planting Dates

North Carolina has a long growing season that is ideal for growing crops. Cool springs, warm summers, and mild winters enable gardeners to have three seasons in which to produce a bounty of crops. Many vegetables can be planted twice during the year. For example, plants in the cabbage family, such as broccoli, cabbage, collards, kale and kohlrabi, can be grown during the spring and again in the fall and into winter. Some warm-season crops, such as tomatoes, squash, pepper and beans, can be grown only in months when there is no danger of freezing temperatures. Understanding the climate and length of growing season in your location will help you decide when to plant a garden.

Planting Method

Depending on the crop and length of growing season at your location, gardeners can directly sow seeds of some crops into the ground (think pumpkin, squash, beans, lettuce, carrots), while other crops perform best if started indoors (for example, tomatoes, peppers, kale, leeks). Crops that do not transplant well should be sown directly into the garden beds. These crops are labeled in the planting guide as “direct seed.” To grow transplants by planting seeds indoors, fill a growing container with a peat-based potting media. Sow seeds to the depth given in the planting guide, and grow transplants in a sunny window or under grow lights for the time listed in the planting guide.

Plant Indoors

For crops that will be sown indoors, this column lists the number of weeks you need to plan for until seedlings are ready to be transplanted into the garden. Use the planting date, and count backwards by the number of weeks a seedling needs to be indoors to determine the sowing date.

Days to Harvest

Crops have a broad range of days they need to grow until they are ready for harvest. For example, radishes might take only 30 days, whereas an asparagus crown takes nearly three years to mature and produce spears that are ready for picking. Climatic conditions and cultivar choices can also have a big influence on the number of days to harvest.

Planting Depth

A common rule of thumb is to plant seeds at a depth that is two to three times the width of the seed. Most seeds prefer to be covered by soil at the recommended depth. But some seeds, such as carrots and turnips, only need to be gently pressed into the soil with a bare covering of soil.

Plants per Square Foot

This column lists the number of plants or seeds per square foot to plant in order to ensure optimal growth and development. Place the number of plants or seeds evenly in the square foot. Many seeds have variable germination percentages and rates and can be sown closer together and later thinned to proper spacing.










SPRING AND FALL CROPS

Arugula	Cilantro	Parsnips
Beets	Dill	Peas
Broccoli	Kale	Radishes
Cabbage	Kohlrabi	Spinach
Carrots	Lettuce	Swiss chard
Cauliflower	Mustard	Turnips
Chard	Parsley	




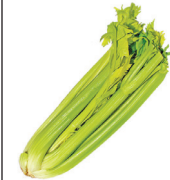



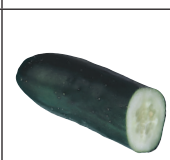

SUMMER CROPS

Basil	Southern peas
Snap beans	Peppers
Lima beans	Pumpkins
Cantaloupe	Squash
Cucumber	Tomatoes
Eggplant	Watermelons
Okra	





Cultural practices for common crops in N.C. Coastal Plain and Piedmont

CROP	Visual description	Spring planting date	Fall planting date	Planting method	Plant indoors Weeks before transplanting to the garden	Days to harvest	Planting depth and plants per square foot	Nutrient info
Arugula		February 15-March 31	August 1-September 31	Direct seed	X	20-40	Depth 0.25 in Plants 16	Vit. A & C, calcium, folate, fiber
Asparagus		January 1-March 31	November 15-December 31	Plant crowns	X	2 years	Depth 6 in Plants 1	Vit. A, C, folate
Basil		April 1-July 31	X	Direct seed/ Transplant	5-7	30-80	Depth 0.25 in Plants 2	Vit. A, C, K, iron, calcium, manganese, magnesium, potassium
Beans, Snap		March 15-July 31	August 1-September 1	Direct seed	X	50-55	Depth 1 in Plants 9	Vit. C, B ₁ , B ₆ , folate, fiber, magnesium, potassium
Beans, Lima		April 15-June 30	July 1-August 1	Direct seed	X	65-80	Depth 1.5 in Plants 9	Vit. C, B ₃ , B ₅ , folate, copper, potassium, zinc, manganese, fiber
Beets		March 1-April 15	August 1-September 15	Direct seed	5-6	55-60	Depth 0.5 in Plants 9	Folate
Broccoli		February 15-April 15	August 1-September 15	Transplant	5-7	70-80	Depth 0.5 in Plants 1	Vit. C, K, potassium, folate, fiber
Brussels Sprouts		X	July 1-August 31	Transplant	5-7	90-100	Depth 0.5 in Plants 1	Vit. C, folate, fiber
Cabbage		February 15-April 15	August 1-September 15	Transplant	8	70-80	Depth 0.5 in Plants 1	Vit. C, K, fiber






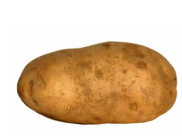



Cultural practices for common crops in N.C. Coastal Plain and Piedmont

CROP	Visual description	Spring planting date	Fall planting date	Planting method	Plant indoors Weeks before transplanting to the garden	Days to harvest	Planting depth and plants per square foot	Nutrient info
Cantaloupe		April 15-May 15	July 1-July 15	Direct seed	X	85-100	Depth 1 in Plants 1	Vit. A, C, folate
Carrots		February 15-March 31	June 15-September 15	Direct seed	X	85-95	Depth 0.25 in Plants 16	Vit. A, C,
Cauliflower		February 15-April 15	August 1-September 30	Transplant	5-7	55-65	Depth 0.5 in Plants 1	Vit. C, folate
Celery		March 1-March 31	June 15-August 15	Transplant	10-12	80-100	Depth 0.125 in Plants 2	Vit. A, C
Cilantro/Coriander		February 1-March 31	September 1-September 30	Direct seed/Transplant	5-7	leaf 50-55 seed 90-105	Depth 0.5 in Plants 9	Fiber, iron, magnesium, manganese
Collards		February 15-June 30	July 1-September 15	Transplant	5-7	60-100	Depth 0.5 in Plants 4	Vit. A, C, folate, calcium, fiber
Corn		March 15-May 31	X	Direct seed/Transplant	3-4	85-90	Depth 1.5 in Plants 2	Vit. C
Cucumber		April 15-June 30	July 1-August 15	Direct seed	3-4	50-65	Depth 1 in Plants 2	Vit. C
Dill		March 1-March 31	August 1-September 15	Direct seed/Transplant	5-6	leaf 40-55 seed 85-105	Depth 0.25 in Plants 9	Calcium, manganese, iron









Cultural practices for common crops in N.C. Coastal Plain and Piedmont

CROP	Visual description	Spring planting date	Fall planting date	Planting method	Plant indoors Weeks before transplanting to the garden	Days to harvest	Planting depth and plants per square foot	Nutrient info
Eggplant		April 15-June 15	August 1-August 15	Transplant	6-8	80-85	Depth 0.5 in Plants 1	Fiber
Garlic		X	September 15- November 15	Plant clove	X	180-210	Depth 1.25 in Plants 4	Vit. C, B6, manganese, selenium
Kale		February 15-June 30	August 1-September 15	Transplant	5-7	40-50	Depth 0.5 in Plants 2	Vit. A, C, K, calcium, potassium, manganese
Kohlrabi		February 15-June 30	August 1-September 15	Transplant	5-7	50-60	Depth 0.5 in Plants 4	Vit. C, fiber
Leeks		February 15-June 30	X	Transplant	8-10	120-150	Depth 0.5 in Plants 6	Vit. A, C, folate
Lettuce		February 1-April 30	August 1-September 30	Direct seed/ Transplant	4-5	leaf 40-50 head 70-85	Depth 0.25 in Plants 16	Vit. A, C, K, folate
Mustard		February 15-June 30	August 1-September 15	Direct seed/ Transplant	5-6	30-40	Depth 5 in Plants 1	Vit. A, C, K, folate manganese
Okra		May 1-June 15	August 1-August 31	Direct seed/ Transplant	4-5	60-70	Depth 1 in Plants 1	Vit. C, magnesium, folate, fiber
Onions		February 1-March 15	August 15-September 15	Transplant sets	10-12	60-80	Depth 2 in Plants 9	Vit. C, fiber

Cultural practices for common crops in N.C. Coastal Plain and Piedmont

CROP	Visual description	Spring planting date	Fall planting date	Planting method	Plant indoors Weeks before transplanting to the garden	Days to harvest	Planting depth and plants per square foot	Nutrient info
Parsley		February 15-April 15	August 1-September 30	Transplant	6-8	75-85	Depth 0.25 in Plants 2	Vit. A, C, K
Parsnips		February 15-April 30	August 1-September 30	Direct seed	X	110-120	Depth 0.5 in Plants 9	Vit. A, C, folate, fiber
Peas, Garden		February 1-April 15	August 1-September 30	Direct seed	X	65-70	Depth 1 in Plants 8	Vit. A, C, folate, fiber
Peas, Southern		March 15-June 30	August 1-August 30	Direct seed	X	55-65	Depth 1 in Plants 4	Folate, fiber
Peppers		April 15-June 15	August 1-August 15	Transplant	6-8	75-80	Depth 0.5 in Plants 1	Vit. A, C
Potatoes		February 15-March 31	X	Plant tuber	X	95-120	Depth 5 in Plants 1	Vit. C, potassium
Pumpkins		April 15-July 15	X	Direct seed/ Transplant	3-4	115-120	Depth 1.5 in Plants 1	Vit. A, C
Radishes		February 1-June 30	August 1-September 15	Direct seed	X	25-30	Depth 0.5 in Plants 16	Vit. C, K, B6
Rutabagas		February 1-April 15	August 1-September 30	Direct seed	X	70-80	Depth 0.5 in Plants 4	Vit. C, fiber

Cultural practices for common crops in N.C. Coastal Plain and Piedmont

CROP	Visual description	Spring planting date	Fall planting date	Planting method	Plant indoors Weeks before transplanting to the garden	Days to harvest	Planting depth and plants per square foot	Nutrient info
Spinach		February 15- June 30	August 1- September 30	Direct seed	X	50-60	Depth 0.5 in Plants 9	Vit. A, C, K, iron, folate, fiber, magnesium
Squash, Summer		April 15- June 30	July 1- August 15	Direct seed/ Transplant	3-4	50-60	Depth 1.5 in Plants 1	Vit. C, zinc, manganese
Squash, Winter		April 15- August 15	X	Direct seed/ Transplant	3-4	70-95	Depth 1 in Plants 1	Vit. A
Sweet Potatoes		May 1- July 15	X	Plant root/ Transplant slips	X	95-125	Depth X Plants 1	Vit. A, C, fiber, potassium, manganese, zinc
Swiss Chard		March 1- April 30	August 1- September 15	Direct seed/ Transplant	5-6	60-70	Depth 0.5 in Plants 2	Vit. A, C, magnesium
Tomatoes		April 15- July 31	August 1- August 15	Transplant	5-7	75-85	Depth 0.5 in Plants 1	Vit. A, C, potassium
Turnips		February 15- June 30	August 1- September 15	Direct seed	X	55-60	Depth 0.5 in Plants 9	Vit. C
Watermelons		April 15- June 30	X	Direct seed/ Transplant	3-4	90-100	Depth 1.5 in Plants 1	Vit. A, C

Resources

Listed below are the sources used to collect the data for this publication.

North Carolina Cooperative Extension

Contact your county Extension center to find out the first and last frost dates for your location.

North Carolina Cooperative Extension centers are listed on this Web site

<http://www.ces.ncsu.edu/local-county-center/>

These sources provide detailed information on cultural requirements for commonly grown vegetables

Evans, E. Vegetable Garden Planting Guide Spring. Raleigh N.C. State University, Department of Horticultural Science.

<http://www.ces.ncsu.edu/depts/hort/consumer/quickref/vegetable/plantingguide.html>

Evans, E. (1999). Growing a Fall Vegetable Garden (HIL – 8100). Raleigh N.C. State University, Department of Horticultural Science. <http://www.ces.ncsu.edu/depts/hort/hil/hil – 8001.html>

Jones, D. and D. Roos. (2012). Planting and Harvesting Guide for Piedmont Vegetables and Herbs. Pittsboro, N.C.: Chatham County Center, N.C. Cooperative Extension.

<http://www.ces.ncsu.edu/chatham/ag/SustAg/plantingguide.html>

Southeastern Vegetable Extension Workers Group (SEVEW). (2012). Vegetable Crop Handbook For Southeastern United States. Lincolnshire, Ill.: Vance Publishing Corp.

www.thegrower.com/south-east-vegetable-guide

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