Vegetable Planting Guide
for School Gardens in the Foothills & Mountains of North Carolina
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 vegetable garden opens the door for students to understand where their food comes from and why it is important to eat 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.
The first step toward planning a school vegetable 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 Foothills and Mountains. The east growing region includes the N.C. Foothills and Mountains. The region begins in the foothills at elevations above 1,500 feet and extends west to the Appalachian Mountains.

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**
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 vegetables. 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.

**SPRING AND FALL VEGETABLES**

<table>
<thead>
<tr>
<th>Arugula</th>
<th>Cilantro</th>
<th>Parsnips</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beets</td>
<td>Dill</td>
<td>Peas</td>
</tr>
<tr>
<td>Broccoli</td>
<td>Kale</td>
<td>Radishes</td>
</tr>
<tr>
<td>Cabbage</td>
<td>Kohlrabi</td>
<td>Spinach</td>
</tr>
<tr>
<td>Carrots</td>
<td>Lettuce</td>
<td>Swiss chard</td>
</tr>
<tr>
<td>Cauliflower</td>
<td>Mustard</td>
<td>Turnips</td>
</tr>
<tr>
<td>Chard</td>
<td>Parsley</td>
<td></td>
</tr>
</tbody>
</table>

**SUMMER VEGETABLES**

<table>
<thead>
<tr>
<th>Basil</th>
<th>Southern peas</th>
</tr>
</thead>
<tbody>
<tr>
<td>Snap beans</td>
<td>Peppers</td>
</tr>
<tr>
<td>Lima beans</td>
<td>Pumpkins</td>
</tr>
<tr>
<td>Cantaloupe</td>
<td>Squash</td>
</tr>
<tr>
<td>Cucumber</td>
<td>Tomatoes</td>
</tr>
<tr>
<td>Eggplant</td>
<td>Watermelons</td>
</tr>
<tr>
<td>Okra</td>
<td></td>
</tr>
</tbody>
</table>
### Cultural practices for common vegetable crops in N.C. Foothills and Mountains

<table>
<thead>
<tr>
<th>CROP</th>
<th>VISUAL DESCRIPTION</th>
<th>SPRING PLANTING DATE</th>
<th>FALL PLANTING DATE</th>
<th>PLANTING METHOD</th>
<th>DAYS TO HARVEST</th>
<th>PLANTING DEPTH AND SPACE</th>
<th>NUTRIENT INFO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arugala</td>
<td><img src="image" alt="Arugala" /></td>
<td>April 1–June 1</td>
<td>August 1–October 1</td>
<td>Direct seed</td>
<td>X</td>
<td>20–40</td>
<td>Depth 0.25 in  Space 2-4 in band  Vit. A &amp; C, calcium, folate, fiber</td>
</tr>
<tr>
<td>Asparagus</td>
<td><img src="image" alt="Asparagus" /></td>
<td>February 1–May 15</td>
<td>X</td>
<td>Plant crowns</td>
<td>X</td>
<td>2 years</td>
<td>Depth 6 in    Space 18 in  Vit. A, C, folate</td>
</tr>
<tr>
<td>Basil</td>
<td><img src="image" alt="Basil" /></td>
<td>May 10–July 15</td>
<td>X</td>
<td>Direct seed/Transplant</td>
<td>5–7</td>
<td>30–80</td>
<td>Depth 0.25 in  Space 8 in  Vit. A, C, K, iron, calcium, manganese, magnesium, potassium</td>
</tr>
<tr>
<td>Beans, Snap</td>
<td><img src="image" alt="Beans, Snap" /></td>
<td>March 1–July 15</td>
<td>X</td>
<td>Direct seed</td>
<td>X</td>
<td>50–55</td>
<td>Depth 1 in    Space 3 in  Vit. C, B₂, B₆, folate, fiber, magnesium, potassium</td>
</tr>
<tr>
<td>Beans, Lima</td>
<td><img src="image" alt="Beans, Lima" /></td>
<td>May 15–June 15</td>
<td>X</td>
<td>Direct seed</td>
<td>X</td>
<td>65–80</td>
<td>Depth 1.5 in  Space 6 in  Vit. C, B₂, B₆, folate, copper, potassium, zinc, manganese, fiber</td>
</tr>
<tr>
<td>Beets</td>
<td><img src="image" alt="Beets" /></td>
<td>April 1–May 15</td>
<td>July 1–August 15</td>
<td>Direct seed</td>
<td>5–6</td>
<td>55–60</td>
<td>Depth 0.5 in  Space 2 in  Folate</td>
</tr>
<tr>
<td>Broccoli</td>
<td><img src="image" alt="Broccoli" /></td>
<td>April 1–April 30</td>
<td>July 15–August 15</td>
<td>Transplant</td>
<td>5–7</td>
<td>70–80</td>
<td>Depth 0.5 in  Space 18 in  Vit. C, K, potassium, folate, fiber</td>
</tr>
<tr>
<td>Brussels Sprouts</td>
<td><img src="image" alt="Brussels Sprouts" /></td>
<td>X</td>
<td>July 1–August 1</td>
<td>Transplant</td>
<td>5–7</td>
<td>90–100</td>
<td>Depth 0.5 in  Space 20 in  Vit. C, folate, fiber</td>
</tr>
<tr>
<td>Cabbage</td>
<td><img src="image" alt="Cabbage" /></td>
<td>March 1–April 15</td>
<td>July 1–August 15</td>
<td>Transplant</td>
<td>8</td>
<td>70–80</td>
<td>Depth 0.5 in  Space 12 in  Vit. C, K, Fiber</td>
</tr>
</tbody>
</table>
### Cultural practices for common vegetable crops in N.C. Foothills and Mountains

<table>
<thead>
<tr>
<th>CROP</th>
<th>VISUAL DESCRIPTION</th>
<th>SPRING PLANTING DATE</th>
<th>FALL PLANTING DATE</th>
<th>PLANTING METHOD</th>
<th>DAYS TO HARVEST</th>
<th>PLANTING DEPTH AND SPACE</th>
<th>NUTRIENT INFO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cantaloupe</td>
<td>May 15–July 15</td>
<td>X</td>
<td>Direct seed</td>
<td>X</td>
<td>85–100</td>
<td>Depth 1 in Space 24 in</td>
<td>Vit. A, C, folate</td>
</tr>
<tr>
<td>Carrots</td>
<td>March 1–June 1</td>
<td>July 15–August 15</td>
<td>Direct seed</td>
<td>X</td>
<td>85–95</td>
<td>Depth 0.25 in Space 2 in</td>
<td>Vit. A, C</td>
</tr>
<tr>
<td>Cauliflower</td>
<td>April 1–April 30</td>
<td>July 15–August 15</td>
<td>Transplant</td>
<td>5–7</td>
<td>55–65</td>
<td>Depth 0.5 in Space 18 in</td>
<td>Vit. C, folate</td>
</tr>
<tr>
<td>Celery</td>
<td>April 15–June 30</td>
<td>X</td>
<td>Transplant</td>
<td>10–12</td>
<td>80–100</td>
<td>Depth 0.125 in Space 6–8 in</td>
<td>Vit. A, C</td>
</tr>
<tr>
<td>Cilantro/Coriander</td>
<td>April 1–July 15</td>
<td>X</td>
<td>Direct seed/Transplant</td>
<td>5–7</td>
<td>leaf 50–55 seed 90–105</td>
<td>Depth 0.5 in Space 4 in</td>
<td>Fiber, iron, magnesium, manganese</td>
</tr>
<tr>
<td>Collards</td>
<td>April 1–August 15</td>
<td>X</td>
<td>Transplant</td>
<td>5–7</td>
<td>60–100</td>
<td>Depth 0.5 in Space 18 in</td>
<td>Vitamin A, C, folate, calcium, fiber</td>
</tr>
<tr>
<td>Corn</td>
<td>April 15–July 1</td>
<td>X</td>
<td>Direct seed/Transplant</td>
<td>3–4</td>
<td>85–90</td>
<td>Depth 1.5 in Space 12 in</td>
<td>Vit. C</td>
</tr>
<tr>
<td>Cucumber</td>
<td>May 15–July 31</td>
<td>X</td>
<td>Direct seed</td>
<td>3–4</td>
<td>50–65</td>
<td>Depth 1 in Space 10 in</td>
<td>Vit. C</td>
</tr>
<tr>
<td>Dill</td>
<td>April 1–April 15</td>
<td>X</td>
<td>Direct seed/Transplant</td>
<td>5–6</td>
<td>leaf 40–55 seed 85–105</td>
<td>Depth 0.25 in Space 2–4 in</td>
<td>Calcium, manganese, iron</td>
</tr>
<tr>
<td>CROP</td>
<td>VISUAL DESCRIPTION</td>
<td>SPRING PLANTING DATE</td>
<td>FALL PLANTING DATE</td>
<td>PLANTING METHOD</td>
<td>DAYS TO HARVEST</td>
<td>PLANTING DEPTH AND SPACE</td>
<td>NUTRIENT INFO</td>
</tr>
<tr>
<td>------------</td>
<td>--------------------</td>
<td>----------------------</td>
<td>--------------------</td>
<td>-----------------</td>
<td>----------------</td>
<td>--------------------------</td>
<td>---------------</td>
</tr>
<tr>
<td>Eggplant</td>
<td></td>
<td>May 15–July 15</td>
<td>X</td>
<td>Transplant</td>
<td>6–8</td>
<td>Depth 0.5 in Space 24 in band</td>
<td>Fiber</td>
</tr>
<tr>
<td>Garlic</td>
<td></td>
<td>September 1–November 1</td>
<td>Plant clove</td>
<td>X</td>
<td>210–240</td>
<td>Depth 1.25 in Space 4 in manganese, selenium</td>
<td></td>
</tr>
<tr>
<td>Kale</td>
<td></td>
<td>March 1–May 1</td>
<td>August 1–September 1</td>
<td>Transplant</td>
<td>5–7</td>
<td>Depth 0.5 in Space 6 in</td>
<td>Vit. A, C, K, calcium, potassium, manganese</td>
</tr>
<tr>
<td>Kohlrabi</td>
<td></td>
<td>April 1–June 15</td>
<td>July 15–August 15</td>
<td>Transplant</td>
<td>5–7</td>
<td>Depth 0.5 in Space 4 in</td>
<td>Vit. C</td>
</tr>
<tr>
<td>Leeks</td>
<td></td>
<td>April 1–August 15</td>
<td>X</td>
<td>Transplant</td>
<td>8–10</td>
<td>Depth 0.5 in Space 4 in</td>
<td>Vit. A, C, folate</td>
</tr>
<tr>
<td>Lettuce</td>
<td></td>
<td>March 15–April 15</td>
<td>August 1–September 1</td>
<td>Direct seed/Transplant</td>
<td>5–6</td>
<td>Depth 0.25 in Space 10 in</td>
<td>Vitamin A, C, K, manganese, folate, chromium</td>
</tr>
<tr>
<td>Mustard</td>
<td></td>
<td>March 15–May 1</td>
<td>July 15–September 1</td>
<td>Direct seed/Transplant</td>
<td>5–6</td>
<td>Depth 0.5 in Space 2 in</td>
<td>Vit. A</td>
</tr>
<tr>
<td>Okra</td>
<td></td>
<td>May 15–July 31</td>
<td>X</td>
<td>Direct seed/Transplant</td>
<td>4–5</td>
<td>Depth 1 in Space 12 in</td>
<td>Vitamin C, magnesium, folate, fiber</td>
</tr>
<tr>
<td>Onions</td>
<td></td>
<td>February 15–April 15</td>
<td>August 15–September 30</td>
<td>Transplant sets</td>
<td>10–12</td>
<td>Depth 2 in Space 4 in</td>
<td>Vit. C, fiber</td>
</tr>
</tbody>
</table>

Cultural practices for common vegetable crops in N.C. Foothills and Mountains.
<table>
<thead>
<tr>
<th>CROP</th>
<th>VISUAL DESCRIPTION</th>
<th>SPRING PLANTING DATE</th>
<th>FALL PLANTING DATE</th>
<th>PLANTING METHOD</th>
<th>PLANT INDOORS Weeks before transplanting to the garden</th>
<th>DAYS TO HARVEST</th>
<th>PLANTING DEPTH AND SPACE</th>
<th>NUTRIENT INFO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parsley</td>
<td><img src="image" alt="Parsley" /></td>
<td>April 1–August 15</td>
<td>X</td>
<td>Transplant</td>
<td>6–8</td>
<td>75-85</td>
<td>Depth 0.25 in Space 15 in band</td>
<td>Vit. A, C, K</td>
</tr>
<tr>
<td>Parsnips</td>
<td><img src="image" alt="Parsnips" /></td>
<td>April 1–August 15</td>
<td>X</td>
<td>Direct seed</td>
<td>X</td>
<td>110-120</td>
<td>Depth 0.5 in Space 2-3 in</td>
<td>Vit. C, folate, fiber</td>
</tr>
<tr>
<td>Peas, Garden</td>
<td><img src="image" alt="Peas" /></td>
<td>February 15–April 15</td>
<td>X</td>
<td>Direct seed</td>
<td>X</td>
<td>65-70</td>
<td>Depth 1 in Space 1 in</td>
<td>Vit. A, C, folate, fiber</td>
</tr>
<tr>
<td>Peas, Southern</td>
<td><img src="image" alt="Peas" /></td>
<td>May 1–June 30</td>
<td>X</td>
<td>Direct seed</td>
<td>X</td>
<td>55-65</td>
<td>Depth 1 in Space 4 in</td>
<td>Folate, fiber</td>
</tr>
<tr>
<td>Peppers</td>
<td><img src="image" alt="Peppers" /></td>
<td>May 15–June 30</td>
<td>X</td>
<td>Transplant</td>
<td>6–8</td>
<td>75-80</td>
<td>Depth 0.5 in Space 15 in</td>
<td>Vit. A, C</td>
</tr>
<tr>
<td>Irish Potatoes</td>
<td><img src="image" alt="Irish Potatoes" /></td>
<td>March 15–April 15</td>
<td>X</td>
<td>Plant tuber</td>
<td>X</td>
<td>95-120</td>
<td>Depth 5 in Space 10 in</td>
<td>Vit. C, zinc, potassium</td>
</tr>
<tr>
<td>Pumpkins</td>
<td><img src="image" alt="Pumpkins" /></td>
<td>May 15–June 30</td>
<td>X</td>
<td>Direct seed/Transplant</td>
<td>3-4</td>
<td>115-120</td>
<td>Depth 1.5 in Space 48 in</td>
<td>Vit. A, C</td>
</tr>
<tr>
<td>Radishes</td>
<td><img src="image" alt="Radishes" /></td>
<td>March 1–May 1</td>
<td>August 1–August 30</td>
<td>Direct seed</td>
<td>X</td>
<td>25-30</td>
<td>Depth 0.5 in Space 1 in</td>
<td>Vit. C, K, B&lt;sub&gt;6&lt;/sub&gt;, riboflavin</td>
</tr>
<tr>
<td>Rutabagas</td>
<td><img src="image" alt="Rutabagas" /></td>
<td>March 1–April 15</td>
<td>July 15–August 15</td>
<td>Direct seed</td>
<td>X</td>
<td>25-30</td>
<td>Depth 0.5 in Space 4 in</td>
<td>Vit. C, folate, fiber</td>
</tr>
</tbody>
</table>
### Cultural practices for common vegetable crops in N.C. Foothills and Mountains

<table>
<thead>
<tr>
<th>CROP</th>
<th>VISUAL DESCRIPTION</th>
<th>SPRING PLANTING DATE</th>
<th>FALL PLANTING DATE</th>
<th>PLANTING METHOD</th>
<th>DAYS TO HARVEST</th>
<th>PLANTING DEPTH AND SPACE</th>
<th>NUTRIENT INFO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spinach</td>
<td>![Spinach Icon]</td>
<td>March 1–June 1</td>
<td>August 1–September 1</td>
<td>Direct seed</td>
<td>X</td>
<td>Depth 0.5 in Space 6 in band</td>
<td>Vit. A, C, K, iron, folate, fiber, magnesium</td>
</tr>
<tr>
<td>Squash, Summer</td>
<td>![Squash Icon]</td>
<td>May 15–July 31</td>
<td>X</td>
<td>Direct seed/Transplant</td>
<td>3–4</td>
<td>Depth 1.5 in Space 24 in</td>
<td>Vit. C, zinc, manganese</td>
</tr>
<tr>
<td>Squash, Winter</td>
<td>![Squash Icon]</td>
<td>May 15–June 30</td>
<td>X</td>
<td>Direct seed/Transplant</td>
<td>3–4</td>
<td>Depth 1 in Space 36 in</td>
<td>Vit. A</td>
</tr>
<tr>
<td>Swiss Chard</td>
<td>![Chard Icon]</td>
<td>March 15–April 30</td>
<td>July 15–August 15</td>
<td>Direct seed/Transplant</td>
<td>5–6</td>
<td>Depth 0.5 in Space 6 in</td>
<td>Vit. A, C, magnesium</td>
</tr>
<tr>
<td>Tomatoes</td>
<td>![Tomato Icon]</td>
<td>May 10–June 30</td>
<td>X</td>
<td>Transplant</td>
<td>5–7</td>
<td>Depth 0.5 in Space 18 in</td>
<td>Vit. A, C, potassium</td>
</tr>
<tr>
<td>Turnips</td>
<td>![Turnip Icon]</td>
<td>March 1–May 1</td>
<td>July 15–August 15</td>
<td>Direct seed</td>
<td>X</td>
<td>Depth 0.5 in Space 2 in</td>
<td>Vit. C</td>
</tr>
<tr>
<td>Watermelons</td>
<td>![Watermelon Icon]</td>
<td>May 15–June 30</td>
<td>X</td>
<td>Direct seed/Transplant</td>
<td>3–4</td>
<td>Depth 1.5 in Space 60 in</td>
<td>Vit. A, C</td>
</tr>
</tbody>
</table>
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


PREPARED BY

Elizabeth Driscoll
4-H Youth Specialist
Departments of Crop Science, Entomology, Horticulture and Soil Science

Dr. Chris Gunter
Vegetable Extension Specialist
Department of Horticultural Science
North Carolina State University
Published by North Carolina Cooperative Extension