



## GROWING A FALL VEGETABLE GARDEN

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Many vegetables are well adapted to planting in the summer for fall harvest. Planting a fall garden will extend the gardening season so you can continue to harvest fresh produce after earlier crops have finished. The fall harvest can be extended even further by providing protection from early frosts or by planting in cold frames or hotbeds.

Many cool-season vegetables, such as carrots, broccoli, cauliflower, and Brussels sprouts, produce their best flavor and quality when they mature during cool weather. In North Carolina, the spring temperatures often heat up quickly. Vegetables, such as lettuce and spinach, tend to bolt or develop bitter flavor when they mature during hot summer weather.

Growing a productive fall vegetable garden requires thoughtful planning and good cultural practices. July and August are the

main planting times for the fall garden. Table 1 provides recommended planting dates. Vegetables that have a 60 to 80 day maturity cycle should be planted around August 1 in the piedmont. Planting of quick maturing vegetables, such as turnips and leafy greens, can be delayed until September. Keep in mind that the planting dates can be as much as 7 to 10 days earlier in western North Carolina and 7 to 10 days later in the eastern North Carolina. Be sure to adjust the planting dates for your specific location. For a more accurate planting schedule, consult Figure 1 to determine the average date of the first killing frost in the fall. Count backwards from the frost date, using the number of days to maturity to determine the best time to plant in your area.

### Preparing the Site

Before preparing the soil for a fall garden, you must decide what to do with the remains of the spring garden. In most cases, the

**Figure 1. Average Date of the First Killing Frost in the Fall.**



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decision is not difficult because the cool-season crops have already matured and the warm-season vegetables are beginning to look ragged. Remove the previous crop residue and any weed growth. Prepare the soil by tilling or spading to a depth of at least 6 to 8 inches.

If the spring crops were heavily fertilized, you may not need to make an initial pre-plant fertilization. Otherwise, 1 to 2 lb of a complete fertilizer such as 10-10-10 may be applied per 100 ft<sup>2</sup> of bed space. Thoroughly incorporate the fertilizer.

## **Planting the Fall Garden**

Direct seeding (planting seeds rather than using transplants) for crops such as broccoli, cabbage, and collards is often used in the fall. However, the success of this planting method depends on having adequate moisture available to keep the young seedlings actively growing after germination. If you do not have an irrigation source available, you would be wise to buy vegetable transplants from a local garden center.

Seeds should be planted deeper in the fall because the moisture level is lower in the soil and the surface temperature is higher. In many cases, the planting depth may be 1 1/2 to 2 times as deep as for spring planting of the same crop.

Our summers can be hot and dry. Soils may form a hard crust over the seeds which can interfere with seed germination, particularly in heavy clay soil. Seeds of lettuce and spinach will not germinate if the soil temperature exceed 85 °F. You may need to cover the seeded area with burlap cloth, newspapers, or boards to keep the soil cool and moist. Shading the soil or using a light mulch over the seed row will help keep the temperatures more favorable for germination. The shading material must be removed as soon as the seeds begin to germinate. Another useful technique is to open a furrow, seed, and cover the seeds with potting soil or vermuclite. Young transplants may also benefit from light shading for the first few days after transplanting.

## **Watering/Fertilizing**

Most vegetables require 1 inch of water per week. It's best to make a single watering that penetrates deeply

rather than frequent shallow applications. Young seedlings and germinating seeds may need more frequent, light waterings. Do not allow seedlings to dry out excessively. New transplants may also benefit from frequent light waterings until they develop new roots.

Many fall maturing vegetables benefit from sidedressing with nitrogen just as do spring maturing vegetables. Most leafy vegetables will benefit from an application of nitrogen three and six weeks after planting.

## **Insects and Diseases**

It is not uncommon for insects and diseases to be more abundant in the fall. Most problems from insects and diseases result from a buildup in their populations during the spring and summer. There is hope of keeping these pests at tolerable levels, however, if a few strategies are followed. Strive to keep fall vegetables healthy and actively growing; healthy plants are less susceptible to insects and diseases. Check the plants frequently for insect and disease damage. When sufficient damage is detected, use an approved pesticide. You may decide not to grow vegetables, such as squash, corn, and cucumbers, that are specially insect and disease prone during late summer and fall.

## **Frost Protection**

You can extend the season of tender vegetables by protecting them through the first early frost. In North Carolina, we often enjoy several weeks of good growing conditions after the first frost. Cover growing beds or rows with burlap or a floating row cover supported by stakes or wire to keep the material from directly touching the plants. Individual plants can be protected by using milk jugs, paper caps, or water-holding walls.

Most of the semi-hardy and hardy vegetables will require little or no frost protection. Semi-hardy vegetables should be harvested before a heavy freeze. Root crops such as carrots and radishes should be harvested or mulched heavily before a hard freeze. The harvest of mulched root crops can often be extended will into the winter. During mild winters, harvest may continue till spring.

**Table 1. Fall Vegetable Planting Guide**

Vegetables	Suggested Planting <sup>1</sup>	Suggested Cultivars	Inches Between Plants	Planting Depth (inches)	Cold Tolerance <sup>2</sup>	Days to Maturity
Asparagus (crowns)	Nov. 15–Mar. 15	Mary Washington, Jersey Giant, Jersey Gem	15	6.0	--	2 years
Beets	July 15–Aug. 15	Ruby Queen, Early Wonder, Red Ace, Pacemaker II	2	0.5 to 1.0	Semi-hardy	55–60
Broccoli	July 15–Aug. 15	DeCicco, Packman, Premium Crop, Green Duke, Emperor	18	0.5 to 1.0	Hardy	70–80
Brussels sprouts	July 1–15	Long Island Improved, Jade Cross Hybrid	20	0.5 to 1.0	Hardy	90–100
Cabbage (plants)	Aug 1–15	Round Dutch, Early Jersey Wakefield, Red Express, Red Rookie, Sweetbase	12	0.5 to 1.0	Hardy	70–80
Cabbage, Chinese	Aug. 1–15	Pak Choi, Mei Ching, Jade Pagoda, China Pride	12	0.5 to 1.0	Hardy	75-85
Carrots	July 1–15	Danvers Half Long, Spartan Bonus, Little Finger, Thumbelina, Scarlet Nantes	2	0.25 to 0.5	Hardy	85–95
Cauliflower	Aug 1–15	Early Snowball “A”, Violet Queen, Snowcrown	18	0.5 to 1.0	Semi-hardy	55–65
Collards	July 15–Aug. 15	Vates, Morris’ Improved Heading, Carolina, Blue Max	18	0.5 to 1.0	Hardy	60–100
Cucumbers, pickling	Aug. 1–15	Carolina, Calypso, Liberty (mnts.), County Fair ’83	10	1.0 to 1.5	Tender	40–50
Cucumbers, slicing	Aug. 1–15	Poinsett 76, Sweet Slice, County Fair ’83, Salad Bush, Fanfare	10	1.0 to 1.5	Tender	40–50
Kale	Aug. 15–Sept. 1	Green Curled Scotch, Early Siberian, Vates, Dwarf Blue Curled Scotch, Blue Knight	6	0.5 to 1.0	Hardy	40–50
Kohlrabi	Aug. 1–Sept. 1	White Vienna, Grand Duke Hybrid	4	0.5 to 1.0	Hardy	50–60
Lettuce (leaf)	Aug. 1–Sept. 1	Grand Rapids, Salad Bowl, Buttercrunch, Red Sails, Romulus	6	0.25 to 0.5	Semi-hardy	40–50
Lettuce (head)	Aug. 15–31	Great Lakes, Ithaca	10	0.25 to 0.5	Semi-hardy	70–85
Mustard	Aug. 1–Sept. 15	Southern Giant Curled, Tendergreen, Savannah	2	0.5 to 1.0	Hardy	30–40
Onions (seeds)	Sept. 1–30	Texas 1015, Granex 33, Candy	4	0.5 to 1.0	Hardy	130–150
Onions (sets or plants)	Sept. 1–15	Ebenezer, Excell, Early Grano	4	—	Hardy	60–80
Radishes	Aug. 15–Sept. 15	Early Scarlet Globe, Cherry Belle, Snowbells, White Icicle	1	0.5 to 1.0	Hardy	25–30
Radish, Diakon	Aug. 15–Sept. 15	April Cross, H. N. Cross	4	0.5 to 1.0	Hardy	60-75
Rutabagas	July 1–Aug. 1	American Purple Top, Laurentian	4	0.5 to 1.0	Semi-hardy	70–80
Spinach	Aug. 1–15	Hybrid 7, Dark Green Bloomsdale, Tye Hybrid	6	0.5 to 1.0	Hardy	50–60
Turnips	Aug. 1–31	Purple Top White Globe, Just Right, Tokyo Cross Hybrid, White Egg, All Top	2	0.5 to 1.0	Hardy	55–60

<sup>1</sup> Dates shown are for the upper coastal plain and lower piedmont. In western North Carolina plant 7 to 10 days earlier. In eastern North Carolina plant 7 to 10 days later.

<sup>2</sup> Tender vegetables (damaged by a light frost), semi-hardy vegetables (tolerant to light frost), hardy vegetables (tolerant to hardy frost)