



Photo courtesy of Kimberly Toscano.

Chilling Out in the GARDEN

Story by
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The cool nights of fall offer a sigh of relief after the long, hot summer. For gardens, fall brings many changes. Some of these we celebrate, such as leaves changing to crimson and gold on our trees. Others we dread, like the demise of our tender annuals with the year's first frost. As we enter autumn, understanding weather can help us plan and prepare for changes in the landscape. Fortunately for Oklahoma gardeners, there are excellent resources available to help in planning for the shift in season.

When it comes to weather, there is no better resource than Oklahoma Mesonet (www.mesonet.org), a world-class network of environmental monitoring stations designed and implemented by scientists at the University of Oklahoma and Oklahoma State University. With 120 stations statewide and at least one station in every county, Mesonet offers the best in up-to-the-minute weather monitoring. Mesonet is also a valuable resource of detailed climate data for each county including temperature, precipitation, humidity, wind, soil and freeze data information. Having this information available on a local scale is a great benefit to gardeners, as weather certainly differs greatly across the state. Important information while planning for the fall and winter months is the first freeze date in fall and the average precipitation by month.

The first freeze date impacts a number of garden activities. Houseplants brought outside for the summer need to be moved back indoors, tender perennials may need protection, and winter annuals can be planted. As a rule of thumb, move houseplants indoors around the time the outside temperature is the same as that

indoors. This gives plants a chance to adjust to the indoors before you turn on the heat, and will also avoid unnecessary cold damage to tropical plants. Moving a plant directly from its perch on the sunny patio to its winter home in the dark living room is not advised. Instead, acclimate or slowly adjust plants to lower light levels by moving them to more and more heavily shaded areas over the course of a week before finally bringing the plants indoors.

Tender annuals typically turn to mush with the first hard frost. Various products are available to extend the life of annuals by increasing a healthy plant's natural cold tolerance by approximately 2 to 9 degrees. The effectiveness of these antifreeze products such as FreezePruf and Frost Patrol Plant Protector vary depending on plant type and severity of frost or freeze events. Application may extend the season by several weeks, but if you are looking to carry color into autumn, it may be better to plant cool-season annuals to replace tender heat lovers. Winter annuals provide color in the landscape between the first and last frosts of the season. Good candidates include ornamental cabbage and kale, dusty miller, (*Senecio cineraria*), pansy (*Viola x wittrockiana*), chard and snapdragon (*Antirrhinum majus*). Many perennials also add color in fall or early spring such as sweet William (*Dianthus chinensis*), sedge (*Carex* spp.), sweet flag (*Acorus* spp.), carpet bugle (*Ajuga reptans*), bergenia (*Bergenia cordifolia*), dead nettle (*Lamium maculatum*) and primrose (*Primula polyantha*). Fall is a good time to plant perennials as well as winter annuals, from late September through October.

When we look at average rainfall data for Oklahoma, fall and early winter tend to be very dry months. As cooler days and nights unfold, do not neglect irrigation. Many plants experienced severe water stress this past summer. Continued irrigation through fall and winter will help protect plants against winter damage from drying winds and cold temperatures.

VEGETABLES

With warm sunny days and cool nights, fall is an excellent time to grow vegetables. Planning the fall vegetable garden actually begins in July, when the first round of fall crops are planted. Planting continues through October, and harvests can extend well into February with a little plant protection. For example, cold frames and row covers allow for year-round salad crop production.

To determine the planting dates for fall vegetables, we need to understand how frost and freezing temperatures (Figure 2) affect the crops we wish to grow and how long the crop takes to mature, that is, the amount of time between planting and harvest. We also need to look at anticipated freeze dates for our area. Some vegetables need to be harvested before frost occurs, while others require freezing temperatures to complete ripening. We can divide fall vegetable plantings into two groups, tender and semihardy crops.

Tender crops are listed in Table 1 along with a planting window and average number of days to harvest. Days to maturity will vary by cultivar; more specific information on number of days to harvest can be found on vegetable seed packets and catalogues. Early maturing cultivars are recommended for fall gardens.

Figure 1.
Average first
frost dates
for Oklahoma

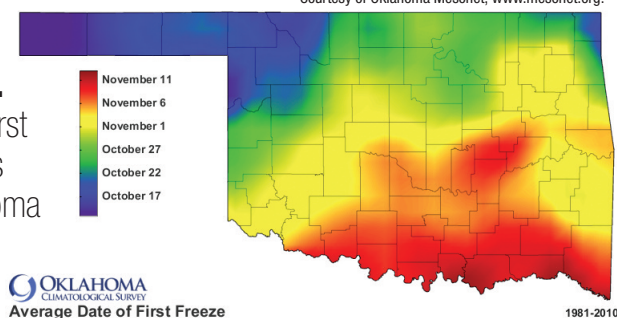


Figure 2. Frost or Freeze?

Frost	Light Freeze	Moderate Freeze	Severe Freeze
32-36 F	28-31 F	24-28 F	below 24 F

Table 1. Tender vegetables for the fall garden

Crop	Planting Dates	Days to Maturity
Beans, bush	Aug 10-20	50-60
Beans, pole	July 15-30	60-70
Beans, lima	Aug 10-20	70-80
Cilantro	July 15-Aug 1	50-60
Cucumber	Aug 10-20	60-70
Eggplant	July 15	80-90
Pepper	July 15	80-90
Pumpkin	July 15-30	100-120
Summer squash	July 15-Sept 1	40-50
Sweet corn	July 15	80-100
Tomatillo	July 15	90-100
Tomato	July 1-15	70-90
Winter squash	July 15-20	100-120

Reproduced from Oklahoma Cooperative Extension Fact Sheet HLA-6009; osufacts.okstate.edu.

Table 2. Semihardy vegetables for the fall garden

Crop	Planting Dates	Days to Maturity
Beet	Aug 1-15	60-70
Broccoli	July 15-Aug 15	70-80
Brussels sprouts	July 15-Aug 15	90-100
Cabbage	Aug 1-25	75-90
Chinese cabbage	Aug 1-25	75-90
Carrots	July 15-Aug 25	70-80
Cauliflower	Aug 1-25	70-80
Collards	Aug 1-Sept 1	75-85
Garlic	Sept 1-Oct 15	Early June the following year
Kale	Sept 1	50-65
Kohlrabi	Sept 1	50-70
Lettuce, leaf	Aug 1-15	60-70
Leek	Sept 1	Late spring the following year
Mustard	Sept 10-Oct 10	40-50
Onion	Sept 1	Late spring the following year
Parsnip	July 15-Aug 25	120
Peas, green	Aug 15-Sept 1	60-90
Potato, Irish	Aug 1-15	90-110
Radish	Aug 15-Oct 10	20-40
Rutabaga	Aug 15-Sept 15	80-90
Spinach	Sept 5-25	50-60
Swiss chard	Aug 1-Sept 15	50-60
Turnip	Aug 1-Sept 15	50-60

Reproduced from Oklahoma Cooperative Extension Fact Sheet HLA-6009; osufacts.okstate.edu.

Many gardeners look at the anticipated first frost dates when planning the fall vegetable garden. Tender vegetables must be harvested before the first frost, as freezing temperatures will kill plants and damage fruits. When growing tender vegetables, the expected frost date marks the last possible day to harvest the crop. We can use expected frost dates along with days required for crop maturity to determine appropriate planting time. Identify the expected first frost date from the Mesonet website and count backwards from that date based upon the number of days required to mature the desired crop. This represents the last possible date to plant and still expect some produce to harvest.

For example, 'Black Beauty' zucchini matures in 45-65 days. We would want to plant zucchini no less than 65 days before the first expected frost. However, planting at the last possible planting date does not provide a very long season of production. Zucchini plants can produce fruits for many weeks. To allow a longer production period, count back several more weeks in addition to the maturation time to determine an ideal planting time. For zucchini, that might be 65 days to reach maturity plus three or four weeks of production, requiring us to plant about 85 days before the first expected frost.

Counting days to maturity cannot always indicate proper harvest intervals as many factors influence plant growth including irrigation, temperature and soil fertility. It does, however, provide guidelines to help us adapt generalized planting recommendations to our specific, local conditions.

Semihardy crops are more tolerant of frost and freezing temperatures, and require cooler temperatures to grow. These crops are listed in Table 2 along with planting and maturity information. For these crops, a frost or freeze can mean many different things. Some plants, such as lettuce, should be harvested before frost damages foliage. Other crops benefit from freezing temperatures. The flavor of kale, for example, is improved by frost. Beets, chard and turnip can be harvested after several light freezes, while Brussels sprouts, Chinese (Napa) cabbage and parsnip tolerate several moderate freezes. Horseradish is harvested after several hard frosts have matured the crop. Many root crops can be mulched heavily and left in the ground for winter storage. These include beets, carrots, parsnip, rutabagas, turnips, radishes and Irish potatoes.

Fall is a great time to work in the landscape, whether with ornamentals or vegetable plants. Be prepared and stay on top of the weather to enjoy harvests and color well into the winter months. ❁

For more detailed Oklahoma information on probable freeze dates, visit cdo.ncdc.noaa.gov/climatenormals/clim20supp1/states/OK.pdf.

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