



Fall Gardening

K - STATE RESEARCH & EXTENSION



Why a Fall Garden?

Fall gardens in Kansas can be very productive and enjoyable after a hot summer. While many of our summer vegetables will continue to grow and produce until frost, a well-planned fall garden can provide vegetables into the early winter, while some plants can be over-wintered to get an early start the following spring. Cooler temperatures make it refreshing for gardeners to spend more time in the garden again during the fall.



What to Plant

Vegetables for fall gardens generally fall into the “cool season” vegetable category. These are vegetables that prefer the cooler, more moderate temperatures of the spring or fall in Kansas. Many of them will also tolerate cold weather in the early winter.

Types of Vegetables

The three main types of vegetables that will do well in a fall garden are:

- Leafy salad greens
- Root vegetables
- Brassicas (broccoli, cauliflower, cabbage, etc)

While not every vegetable in each of those categories is a

good choice for fall, many of them will do very well. Lettuces, spinach, arugula, Swiss chard, Asian greens, collards, beets, carrots, turnips, radishes, some onions, chicories, kale, broccoli, cauliflower, broccoli raab, leeks, and other related vegetables do well in fall plantings.

Vegetables that Grow Best in Fall

Although our fall weather can still be quite hot at times, the trend is always toward cooler temperatures. This allows for some vegetables, especially the Brassicas, to be more productive and better quality in the fall. Often when planted in a warm spring, they will go directly to flower (bolting) rather than producing a good crop. Cauliflower in particular may be more productive and of better quality when planted in the fall. Bok choy and other Asian greens will also be much less likely to bolt and develop a strong flavor in the fall. Likewise many lettuces will have a crisper, sweeter characteristic in the fall.

Vegetables that Do Not Grow Well in the Fall

A few vegetables that we plant in the spring will not be as productive in the fall.

- Peas love cool weather, but they also require a cool soil for good germination. Our soil temperature is typically too warm in early fall for the peas to germinate and produce well. When planted later in the fall, they may not have enough time to mature and produce a crop. Snow peas may be more successful when planted in late August than other types of peas.
- Potatoes can be planted for a fall crop in the northern parts of Kansas, but in southern Kansas the soil is too warm and usually the yields are poor on fall planted potatoes.
- Fall planted onions will produce great green onions and some small onions, but they will typically not produce

the large storage onions due to the shorter season. Some types of onions may do better than others, and some may also overwinter well.

Choosing Varieties for the Fall Garden

While you can often use the same seeds you planted in the spring to grow again in the fall, there are also times when it is beneficial to choose different varieties specifically for fall plantings. Depending on your planting plan, you may want to look for varieties that have more heat tolerance for the late summer transplanting. You may also want to consider varieties with great cold tolerance to allow your garden season to stretch even further into the winter. Another consideration on some crops is to choose a variety with a shorter “days to maturity” to ensure that you get a crop before it gets too cold, especially if you end up planting later due to hot weather in August. (See table below for recommendations.)

Less Common Vegetables for Fall Gardening in Kansas

Some vegetables are not commonly grown in Kansas gardens because our climate is a challenge for them. These vegetables will often thrive in a fall-planted garden, although the results may be variable.

Chicories—Chicories, related to lettuces, include endive, escarole, Italian dandelion, and radicchio. These are vegetables that do the best in cool conditions and are quite cold hardy. Radicchio in particular has best color development and flavor as the weather gets colder. While we cannot always grow vegetables of the size you might see in the grocery store, you can grow a crop that is good to use in your kitchen. Chicories are best started indoors from seed in mid- to late July and then transplanted outdoors in late August or early September.

Bulbing Fennel—While the leafy types of fennel grow well in the spring and early summer, if you want to try growing the bulb-forming types of fennel, the fall is the best time to grow them. The longer, more consistently cool weather will allow for the production of a better quality bulb. Bulbing fennel planted in the spring may bolt (flower) before producing a good bulb. Bulbing fennel can be started indoors and transplanted or direct seeded.

Fall or Winter Radishes—The small, spicy spring radishes are well known to Kansas gardeners, but the larger fall radishes are much less common. Many of these radishes are Chinese or Oriental radishes, such as the daikon. Other varieties include



Recommended Vegetable Varieties for Fall Gardens

Asian Greens: Most mizunas, tatsoi, komatsunas, Vitamin Green, Yukina Savoy

Beets: Any variety

Bok Choy: Mei Qing Choi, Joi Choi, Red Choi, Most other varieties

Broccoli: Marathon, Arcadia

Broccoli, Sprouting: Santee, Atlantis, Rudolph, Apollo, Purple Peacock

Cabbage: Most varieties

Carrots: Napoli, Mokum, Nelson, Most other varieties,

Cauliflower: Denali, Amazing, Snow Crown, Graffiti, Panther, Cheddar, Veronica

Chicory/Endive/Escarole/Radicchio: Most varieties

Collards: Any variety

Fennel: Orion, Zefa Fino, Victorio

Mustard Greens: Most varieties

Kale: Any variety

Kohlrabi: Any variety

Leeks: Lancelot, Tadorna, Lexton, Bandit, Bleu de Solaize

Lettuce: Green Star, Ruby Sky, Green Forest, Sylvesta, Skyphos, Red Saladbowl, Green Saladbowl, Winter Density, Black Seeded Simpson, Most other varieties

Onions: Most bunching onions, any variety harvested for green onions

Radishes (spring): Any variety

Radishes (fall): Red Meat (Watermelon), Mantanghong, Green Meat, Most daikons, Nero Tondo (Black Round)

Salad Greens, Less Common: Most arugulas, Most cresses, Most corn salad/mache, Claytonia (Miner’s Lettuce)

Spinach: Tyee, Space, Olympia, Most varieties

Swiss Chard: Bright Lights, Any variety

Turnips: Any variety

Watermelon radishes (aka Red Meat or Mantanghong varieties), Black Spanish Round radishes, and a variety of other Chinese specialty radishes. These radishes are usually large – the size of a baseball for the round types or larger than most carrots for the daikons.

Fall radishes are typically sweeter and less spicy than the spring radishes, and are often used in cooked dishes rather than just salads. Fall radishes will also store longer under similar storage conditions to turnips, carrots, and potatoes in a root cellar.

Bok Choy—Bok Choy is an Asian green that is becoming common in grocery stores. It has crunchy, stems similar to celery and dark green leaves. This vegetable is frequently found in Asian stir-fries and can be used much like celery in many dishes. Bok choy grown in the spring will often become strong flavored, even bitter quickly. It will also flower before a good quality rosette of leaves has developed. While fall grown bok choy may also bolt in a warm spell, the quality of the vegetable is much better than in the spring, in most years.



Leeks—Like onions, leeks can be planted again in the fall. Leeks should be started indoors and then transplanted in



the fall to provide a longer growing season. Fall planted leeks may not be as large as leeks planted in the early spring, but they are very cold hardy and can be harvested well into

the winter. Some types of leeks will also overwinter successfully in southern Kansas, allowing for continued growth in the spring.

When to Plant

The general recommendation for planting a fall garden is to plant most vegetables starting in late July through mid-August. A few vegetables that need colder temperatures and grow quickly, such as lettuce, radishes, spinach, and turnips are generally planted from mid-August to mid-September. However, sometimes the summer weather does not recommend itself to those planting ranges.

Watching the Weather

When the weather in late July or early August is very hot and dry, it may be preferable to wait to plant many fall crops for a couple of weeks, even though that may delay harvest or result in smaller harvests. The heat can make it extremely difficult to germinate seeds successfully outdoors. It can also be a challenge to establish transplants at that time. It is important to watch the weather closely and be ready to plant as soon as there is a slight break in hot weather. Even if the daytime highs are still hot, when the overnight temperatures drop below 70 degrees, most fall vegetables will be able to survive.

Taking Risks for Late Plantings

If the weather is not favorable in the late summer, it is still possible to plant many fall vegetables later than the general recommendations. The success of these plantings depends on how long mild fall weather persists. Often we do not have consistently cold temperatures until mid-November, giving many vegetables extra time to mature if planted late. Row covers can also keep plants warmer to promote continued growth.

Staggering Plantings

Vegetables that mature quickly, such as radishes, lettuce, and other salad greens, can be planted multiple times over the course of 6+ weeks to provide harvests throughout the fall. Seeds planted in late August will grow quickly, while seeds planted in late September will typically be slower growing. To successfully stagger crops, you should plant 1 week apart in August and stretch that out to 2 weeks apart by late September. Using both transplanting and direct seeding will also help stagger your harvests of these vegetables.

Example of Staggered Plantings

Late July – Plant lettuce seeds indoors

Early August – Plant lettuce seeds indoors

Late August – Transplant first lettuce seedlings, plant lettuce seed directly in the garden

Early September – Transplant second lettuce seedlings, plant more lettuce seed directly in the garden

Late September – Harvest lettuce from first transplant group

Early October – Harvest lettuce from second transplant group

Mid- to Late October – Harvest lettuce from first and second direct seeding groups

Fall Gardening Timeline		
Late June to Early July	Late July to Early August	August
<ul style="list-style-type: none"> Start seeds indoors for late July/early August planting 	<ul style="list-style-type: none"> Start seeds indoors for late August/early September plantings Transplant Brassicas and other longer season fall vegetables Plant beet, carrot, and similar root vegetable seeds directly in the garden 	<ul style="list-style-type: none"> Continue seeding root vegetables directly in the garden Begin seeding leafy vegetables directly in the garden
Late August to Early September	September	October
<ul style="list-style-type: none"> Transplant leafy greens started indoors Plant leafy greens, radish, and turnip seeds directly in the garden 	<ul style="list-style-type: none"> Continue planting shorter season leafy greens and radishes Begin harvesting transplanted leafy greens as they are ready 	<div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;">Late October to Mid-November</div> <ul style="list-style-type: none"> Begin harvesting fall crops as ready Harvest remaining fall vegetables in advance of a hard freeze (low 20s) OR Put in place row covers and other techniques to keep plants growing

Fall Gardening Timeline

Planning ahead is the key to a successful fall gardening, especially if you are going to be using transplants to get your fall garden started.

Dealing with Late Summer Heat

When establishing vegetables during late summer heat, there are several techniques that can make your plantings more successful. Using shade cloth, mulches, transplanting, and careful watering will all improve your fall garden success.

Shade cloth

A white or black, lightweight shade cloth can be used either close to the soil surface to help with seed germination or 1-2 feet above the ground to provide light shade to seedlings and transplants. The shade cloth will help cool the soil and the air temperature around the plants, as well as reduce moisture loss from the soil. A shade cloth that is too thick or heavy will reduce the light penetration too much and can reduce air flow, resulting in poor germination or plant growth. The shade cloth should be removed either after seedlings or transplants are well established or when the temperatures become more moderate.

Mulch

Mulches of organic materials (straw, shredded paper, wood chips, herbicide-free grass clippings) have the effect of cooling the soil. They will also help keep the soil more evenly moist when germinating seeds. These mulches can be applied very close to the seeding row or around new transplants. It can be very effective to apply the mulch to an area up to 2 weeks before planting, allowing the soil underneath to cool slightly. Then the mulch can be pulled back for seeding or transplanting later.

Later in the fall, mulches can be removed to allow better warming of the soil by the sun to encourage late fall growth.

Transplanting

Some fall garden vegetables must be planted by transplants to provide a long enough growing season. Broccoli, cauliflower, cabbage, onions, leeks, and radicchio will all do best if seeds are started indoors 4-6 weeks before transplanting. Onions, leeks, and radicchio are often very slow to grow from seed and may need to be started even earlier. Root vegetables (beets, carrots, radishes, and turnips) do not generally transplant well.

Starting leafy greens and similar vegetables indoors allows them to get a good start when the weather may still be too

hot outdoors. For example, lettuce started in late July will be ready to transplant into the garden by late August, giving you a 4 week head start on your fall lettuce crop. You can then seed additional plantings directly in the garden if desired.

When transplanting vegetables in the late summer, it is important to give the plants a chance to adapt to the warm and windy outdoor conditions. Plants should be set outside for 1-2 weeks to adapt to the brighter light and higher temperatures. The first day, place the plants in a protected location with partial shade for only a few hours. Each day for 7-10 days, they should be placed in a location with more exposure to the sun and other elements. During this time they should receive adequate water, but not excessive water so they can adapt to drier conditions.

Managing Water Needs

When direct seeding in the garden in late summer, it is important to keep the top 1-2 inches of the soil evenly moist to facilitate seed germination. Typically the seeds will germinate quickly due to the warm soils, and then you will need to gradually reduce watering to encourage deep root growth.

Likewise, newly planted transplants may need more water initially, but you should decrease watering quickly to encourage deep root growth.

As the weather cools and we experience more frequent fall rains, less water will need to be applied. In some falls, there will be adequate rainfall for a successful garden. Most fall gardens will need about 1 inch of water each week after the heat of the summer has passed.

Dealing with Late Fall Cold

While heat is the biggest challenge when planting your fall garden, by the end of fall there is the challenge of cold weather. In an average year, the first light frost will usually occur in mid- to late October, although sometimes the first frost occurs sometime in November. A light frost, where the low temperature dips down to 30-32 degrees will not damage fall vegetables. The cold may even improve the color and flavor of the vegetables. Most fall vegetables will tolerate temperatures down to 28 degrees without significant damage. In fact, allowing exposure to below-freezing temperatures will often allow the plants to better adapt to the cold, increasing their hardiness to later cold weather.

On a cold morning before the temperature is back above freezing, your plants may look wilted and permanently damaged. However, by the time the temperature is back

above 32 degrees, they will recover and continue growing. It is important not to harvest these fall vegetables until the temperatures are back above 32 degrees and the plants have naturally recovered from the frost.



When low temperatures dip below the mid- to upper 20s, it will be necessary to protect semi-hardy fall vegetables with a light row cover to minimize damage on those

vegetables. Some particularly hardy vegetables, such as spinach and kale, will not need extra protection until the low temperature is near 20 degrees.

It is usually best to remove the row covers during the day to allow the sun to warm the soil more efficiently when we are still getting intermittent frosts. As we get later into the year, leaving the row covers on may help create a mini “greenhouse effect” and prolong your growing season once we are regularly dipping into the 20s overnight.

Kansas Climate Conditions for Winter Gardens

While most gardeners consider temperature to be the limiting factor in growing vegetables during the winter in Kansas, often it is the amount of sunlight that truly limits plant growth, because row covers and other techniques can keep very cold hardy plants alive throughout the coldest part of the winter.

From November 20th to January 20th there is less than 10 hours of daylight in south central Kansas. Most fall planted vegetables will exhibit extremely slow growth during this time period because there is not enough sunlight to encourage more growth. Any vegetables still alive during this timeframe should be either harvested and enjoyed or protected for growth to resume in the early spring. If you are planning to overwinter any vegetables or keep them past mid-November, you should plant early enough that they are mostly mature by mid-November.

In south central Kansas, our average low temperatures throughout the winter months show that we can successfully sustain many of our cool season vegetables throughout the winter.

Average Winter Months Low Temperatures:

November – 34 degrees
December – 24 degrees
January – 20 degrees
February – 25 degrees
March – 34 degrees

Although we can have winter low temperatures down below zero, many vegetables will be able to tolerate those short-term low temperatures if given adequate protection with row covers and mulch.

Overwintering Vegetables for Spring

There are two groups of vegetables that can be successfully overwintered into the spring: root vegetables and very cold hardy leafy greens.

Root vegetables should be planted early enough that they are a mature size for harvest by mid-November. As the ground begins to freeze, the root vegetables can be heavily mulched with straw to keep the soil from freezing. This method can provide an outdoor cold storage for the root vegetables. They can then be dug and used throughout the winter, as long as the soil is not frozen. Row covers can also assist with this goal.



Spinach, kale, some varieties of lettuce, and some specialty greens such as mache and claytonia are very cold tolerant and can be successfully overwintered with a couple layers of row cover. Depending on the winter and the amount of protection given, these vegetables may be harvestable for much of the winter or they may not have harvestable leaves until it

is warmer with longer days in early March.

Using Row Covers Successfully

Row covers can be as simple as a thin, old sheet. However, for best success a lightweight, spun-bonded polypropylene fabric is recommended. This type of row cover can be found at local garden centers at certain times of year as well as

through garden supply catalogs.

Row covers can be laid on the ground right over the plants to be protected or stretched over hoops. Because of frequent wind, it may be preferable to use hoops to prevent excessive rubbing of the row cover on the tops of the plants. As the weather gets colder, multiple layers of row cover can be used to provide a few more degrees of protection.



Row covers should be carefully secured on the edges so that the wind does not blow them off the plants. When using hoops, the tighter the row cover is stretched over the hoops, the better. The edges can be secured with bricks, cement block, heavy timbers, metal pins, or old milk jugs filled with water.



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