

CROPS AND CULTIVARS FOR SMALL-SPACE FOOD PRODUCTION

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Container tomatoes on an outdoor balcony or porch. Plants are supported and pruned to increase light interception and enable the highest plant number possible in the area.

Growing your own fruits and vegetables is possible even if you don't have access to soil or outdoor yard space. Whether you live in a townhouse or apartment, or simply prefer small space gardening, there are options for you to grow your own food crops. This third publication in the small-space food series focuses on selecting crops and cultivars for success in small space outdoor or indoor growing areas. For more information on sites and growing systems, check out the first and second publication in the series focused on growing small space outdoor and indoor food production.

- A. UT Extension Publication W1288-A Small-space Outdoor Food Production (site, light, containers, media, and management)
- B. UT Extension Publication W1288-B Small-space indoor food production (site, supplemental lighting, growing systems, and management)
- C. UT Extension Publication W1288-C Crops and Cultivars for Small-Space Food Production (vegetable, herb, and small fruit crops and cultivars)

SELECTING CROPS AND CULTIVARS FOR SMALL-SPACE PRODUCTION

Crop and cultivar (cultivated varieties, so the specific varieties of a crop) selection should be based on gardener preferences as well as site conditions, such as lighting and growing system. Leafy crops are some of the fastest to harvest and can be a great place to begin your small-scale food production. Herbs also are a fun way to begin because a few plants can make a big impact in your kitchen. An increasing array of compact vegetable cultivars, such as tomatoes, peppers, and cucumbers are available for gardeners to grow in outdoor containers. Very compact tomatoes can even be grown indoors under lights. For fruit crops, such as blueberries and raspberries, recent breeding efforts have introduced more options in compact cultivars that do well in containers. However, it is a challenge to provide sufficient light levels for fruit crops indoors, so outdoors locations may be the best place to begin. Another option would be citrus, such as Meyer lemons, which are often grown outdoors in the summer and indoors during winter. Regardless of the crop you choose, purchasing high quality plants or seeds is essential. Don't settle for only what is most easily accessible. Research options that work well in your small space location and growing system. Then, select and purchase ideal cultivars instead of trying to make do with available plants. High quality, healthy plants and seeds are an asset to your food garden.

COOL SEASON VEGETABLES FOR SMALL-SPACE PRODUCTION

Many vegetable crops are well suited to small space gardens, and they fall into two main categories. Cool season crops grow well with moderate temperatures and can have both spring and fall seasons. Dates for spring and fall planting are listed in the table below. The goal with these dates is to avoid maturing these cool season crops in the heat of summer. Cool season vegetables can survive frost, but the exact low temperature they can survive depends on the crop, age, and recent conditions. Cool season crops tend to be shorter season because leaves, roots, or stems are eaten rather than the fruit. They also often have more shallow root systems, which works well in shallower beds and containers.

Table 1. Cool season crops for small space food production.

Crop	Planting Dates* (MM/DD)	Spacing	Days to Harvest	Suggested Cultivars**
Arugula	2/1-4/1 and 8/1-10/15	½ to 2 inches	25 to 40 days from seed	Baby leaf or larger- <i>Astro</i>
Beet (roots)	3/15-4/15 and 9/1-10/1	2-4 inches	40-70 days from seed	Red Ace, Detroit Dark Red, Boro, Cyindra, Babybeat. Avalanche (white), Boldor (gold), Chioggia (striped)
Swiss Chard, Beet (greens)	3/1-4/15 and 9/1-10/1	2-4 in. beets, 6-10 in. chard	35-55 days from seed	Beet greens- <i>Early Wonder, Bulls Blood</i> Swiss chard- <i>Bright Lights</i> , Rhubarb, Fordhook giant
Carrot	3/1-5/1 and 8/1-9/15	2-4 inches	45-75 days from seed	Atlas (short), Yaya, Bolero, Adelaide, Purple Haze, Sugarsnax 54
Turnip	3/1-5/15 and 7/15-9/1	2-4 inches	40-55 days from seed	Hakurei, Purple Top White Globe, Toyko Cross, White Lady
Broccoli	3/1-5/1 and 8/1-9/15	8-18 inches	45-75 days from transplant	Packman, Green Magic, Emperor, Diplomat, Marathon, Artwork, Arcadia
Cabbage	3/1-5/1 and 8/1-9/15	6-18 inches	45-75 days from transplant	Tiara, Caraflex, Dynamo, Blue Vantage, Ruby Perfection
Collards	2/15-5/1 and 7/15-9/15	6-18 inches	45-65 days from seed	Champion, Flash, Top Bunch
Kale	2/15-5/1 and 8/1-10/1	½ to 6 inches	20-55 days from seed	Baby leaf- <i>Red Russian, Toscano</i> Baby or Full- <i>Toscano, Black Magic, Lacinato, Prizm, Redbor, Scarlet, Winterbor, Starbor</i>
Kohlrabi	3/1-5/1 and 8/1-9/15	4-8 inches	35-45 days from transplant	Winner, Konan, Early Purple Vienna, Korist
Lettuce (leaf)	3/1-5/1 and 8/1-10/1	40-60 in. seeds/foot baby leaf	20-40 days from seed	Green Star, Salad Bowl, Two Star, Tropicana, New Red Fire, Starfighter, Riptide, many lettuce mixes
Lettuce (small head)	3/1-5/1 and 8/1-10/1	6-12 inches	20-40 days from transplant	<i>Butterhead- Sandy, Adriana, Nancy, Mirlo, Red Cross, Salanova, Cegolaine; Oakleaf-Panisse, Oskar, Baur Romaine-Coastal Star, Green Forest, Salvia, Winter Density</i>
Mustard, Mizuna	2/15-5/1 and 7/1-9/15	½ -6 inches	20 to 50 days from seed	<i>Green Wave, Red Kingdom, Golden Frills, Scarlet Frills</i>
Pak Choi	3/1-5/1 and 9/1-10/1	40-60 seeds/foot baby leaf or 6-10 in. full-sized head	20-40 days from seed	Baby leaf- <i>Rosie</i> , Full sized head- <i>Rosie, Asian Delight, Mei Qing, Black Summer</i>
Onions, Garlic	2/15-4/1 and 9/15-11/1		60-120 days from seed/set	Bunching green onions- <i>Parade, Warrior</i> , intermediate day onions or overwintering garlic- see pubs linked below for more info
Peas	2/15-4/15	2-4 inches	50-75 days from seed	Sugar Snap, Sugar Ann, Oregon Sugar Pod, Snak Hero, Patio Pride
Radish	3/1-5/1 and 8/1-10/1	1-3 inches	20-45 days from seed	Pink Beauty, Easter Egg, Watermelon, Roxanne, Cherry Belle, Sweet Baby (purple), White Icicle
Spinach	2/1-4/1 and 8/15-10/15	20-40 seeds/foot baby leaf or 2-3 inches full sized leaf	30-60 days from seed	Tyee, Bloomsdale, Space, Seaside, Whale, Red Snapper

*Planting dates are general guides, and warmer parts of western and southern Tennessee will be able to plant earlier in the spring and later in the fall. Additionally, warmer urban sites may be able to plant a little earlier and later than the dates listed.

** Cultivars listed in italics are best suited for small scale hydroponics systems

WARM SEASON VEGETABLES FOR SMALL-SPACE PRODUCTION

Warm season vegetables perform best in the warmer months between frost dates because they are killed by frost. Since many warm season crops are fruiting crops, they often take longer to produce but bear for several weeks or months. These larger, longer-lived plants often have larger root systems requiring larger and deeper containers than many cool season vegetables. Reference UT Extension Publication W1288-A Small-Space Outdoor Food Production for more details on containers, media, and sizing.

Table 2. Warm season crops for small space food production.

Crop	Planting Dates* (MM/DD)	Spacing	Days to Harvest	Suggested Cultivars
Bush beans	4/15-8/15	2-4 inches	45-65 from seed	Provider, Jade II, Contender, Crockett, Mascotte, Maxibel, Calima, Nickel
Pole beans	4/15-7/15	4-6 inches	65-85 from seed	Trellis needed- Kentucky Blue, Kentucky Wonder, Seychelles, Rattlesnake, Turkey Crow
Cucumber	4/15-8/15	8-18 inches	30-50 days from seed	Compact (may not require trellising) - Saladmore, Fanfare, Patio Snacker, Bush Crop, Spacemaster Likely to require trellising: Traditional- The General, Bristol, Marketmore 76. <i>Snacker/Seedless- Diva, Green Light, Picolino, Socrates, Quirk</i>
Zucchini	4/15-8/15	12-24 inches	40-60 days from seed	Desert, Green Tiger, Green Machine, Mexicana, <i>Easy Pick Green, Easy Pick Gold II</i> , Eight Ball, Bossa Nova, Tigress, Sunburst, Slik Pik YS 26
Watermelon	4/15-6/30	12-36 inches	60-90 days from seed	Compact- Mini Love, Cal Sweet Bush
Tomato (determinate/compact)	4/15-7/15	12-24 inches	40-75 days from transplant	Determinate slicer/plum- Defiant, Galahad, Stellar, Homeslice, Plum Regal, Little Napoli Determinate small fruit- Gold Nugget, Patio Choice Yellow, Tidy Treats Very Compact/container- Red Robin, Cocoa, Microtom
Pepper	4/15-6/15	12-18 inches	50-75 from transplant	Sweet bell: Islander (purple), Alliance, Red Knight, King Arthur, BigBertha, Mecate (yellow), Orange Blaze Small or baby bell: Sweetie Pie, Cute Stuff Red, Cute Stuff Gold- Sweet roasting pepper: Carmen, Escamillo, Mama Mia Giallo, CorintoGiallo (yellow), Cubanelle Jalapeno: Emerald Fire, Pot-a-peno, Jedi, Jalafuego Ornamental edible: Candy Cane, Pretty N Sweet, Quickfire, Black Pearl
Eggplant	4/15-6/15	12-18 inches	50-75 from transplant	Patio Baby, Getel, Fairy Tale, Hansel
Okra	4/15-6/15	4-6 inches	50-65 days from seed	Candle Fire- red, Baby Bubba, Annie Oakley II- dwarf
Malabar spinach	5/1-8/1	4-6 inches	60 to 90 days from seed	Often found as red and green leaf types. Will require trellis.
New Zealand Spinach	5/1-8/1	4-6 inches	30 to 50 days from seed	Often found as Tetragonia

*Planting dates are general guides. Warmer and more protected urban sites may be able to plant a little earlier and later than the dates listed. Harvest may extend further into the fall if plants are well maintained.

** Cultivars listed in italics are best suited for small scale hydroponics systems



Annual herbs can be grown in small containers both indoors and outdoors while perennial herbs provide the opportunity for several years of production in well-sized pots outdoors.

HERBS FOR SMALL-SPACE PRODUCTION

Herbs can be grown from seed or purchased as transplants. It is important to know whether your selected herbs are annual (grow and die in one calendar year), biennial (grow across two calendar years), or perennial (grow and live for more than one calendar year) as well as whether they are warm or cool season. While some herbs, like basil, prefer more moisture in their growing mix, many herbs prefer very well-drained growing media. Therefore, select container sizes and growing mixes carefully to prevent excessive moisture and root issues which often leads to disease or death for herbs like rosemary and lavender.

Table 3. Herbs for small space production

Crop	Growing Information	Suggested Cultivars*
Basil	Warm season annual, grown from seed or transplant; 60-80 days from seed to harvest	<i>Devotion, Obsession, Newton, Nufar, Aroma II, Prospera Compact, Everleaf, Spicy Bush, Deep Purple</i>
Thyme	Perennial grown from transplants with harvest in 80-90 days.	Summer, Orange, German Winter
Sage	Perennial grown from seed or transplants with harvest in 80 days.	Common sage
Rosemary	Perennial grown from transplants with harvest in 80-100 days.	Rosemary
Lavender	Perennial although hardiness varies. Grown from transplant with harvest around 100 days.	Ellagance, Munstead, Phenomenal
Oregano (Greek)	Perennial grown from transplant with harvest in 80-90 days.	Greek Oregano
Marjoram	Sweet marjoram is an annual generally grown from transplant and harvested in 70-90 days	Zaatar, Sweet common
Parsley	Cool season biennial often grown as annual from seed. Harvest in 75 days.	Giant of Italy, Darki, Menuette, Italian Flat Leaf
Dill	Annual, grown from seed or transplant; 40-50 days from seed to leaf harvest	<i>Teddy, Bouquet, Fernleaf</i>
Cilantro	Cool season annual, grown from seed or transplant; 50-60 days from seed to leaf harvest	<i>Santo, Calypso, Confetti</i>
Mint	Perennial grown from transplants or cutting. Harvest in 70-80 days.	Common (mint in a container can be a great method of containment!)
Chives	Perennial, grown from seed or transplant; 70-80 days from seed to harvest	Polyvert, Giesha Garlic, Staro
Fennel	Bulb fennel grown as cool season annual, 70-80 days from seed to harvest	Antares, Dragon

* Cultivars listed in italics are best suited for small scale hydroponics systems

FRUIT FOR SMALL SPACE PRODUCTION

Most fruit crops are best grown in natural lighting due to the high light needs for fruit production. As a result, success with these crops is best achieved on well-lit patios or porches.

Strawberries. Short day or day neutral cultivars can be grown in small space settings. Short day cultivars are often planted in the spring and bear fruit the following spring (May-early June). They have one harvest season per year. Short day cultivars often produce more runners, but they can be grown in containers if well managed. Day neutral or long day cultivars are generally planted in the spring but often bear multiple times in the season. However, the total production of the multiple harvests will likely yield less than one harvest period of short-day cultivars.

Raspberries and Blackberries. Raspberries traditionally bear on second year canes, but many cultivars can bear on first year canes (often called fall bearing or everbearing). Some of these everbearing cultivars have a more compact habit requiring little support (Heritage). Raspberry Shortcake is a compact cultivar bred for bush habit and container production. However, pruning and management practices used for in-ground caneberries are still needed for plants grown in containers or raised beds. The smaller plant size of raspberries generally makes them better suited to containers than blackberries. However, there are some newer options. Baby Cakes Blackberry is a container option that was selected for compact habit. Raspberries are not as strong against summer heat as blackberries, so select outdoor locations that avoid high heat loads for best performance.

Blueberries. Rabbiteye blueberries that perform well in ground in Tennessee are challenging in containers due to their large size. Some of the best small space blueberries are hybrids with some highbush or lowbush blueberry genetics. It is important to select those with enough chill hours, so they don't bloom too early in Tennessee. Aim for at least 500 chill hours for blueberry cultivars whether highbush or dwarf/container hybrids.



Container blueberry that is a selection bred from highbush and lowbush genetics to have a habit well suited to containers and small space.

Figs. Figs can be a great crop for small space plantings and containers because the location can be tailored to provide ideal temperatures. In-ground plantings can be killed back to the ground due to low temperatures in many East Tennessee sites, so containers provide good opportunities to take advantage of warmer southern or western facing sites. In containers, figs are managed in a bush form and containers can be sized up as plants grow. Often plants are started in five gallon or larger containers and sized up to at least 10 gallons as they grow.

Citrus. Growing tropical fruits like citrus is intriguing for small space gardeners. One of the most successful methods is bringing the container grown plant outdoors during the summer to grow and produce with natural light. Plants are then taken indoors during the winter to a well-lit sunroom or patio, or indoors with supplemental lighting. Growing citrus can be a long-term process with trees often growing six to 10 feet tall and taking a few years to fruit. Careful pruning and container sizing are used to manage the size of the tree.

Table 4. Herbs for small space production

Crop	Time to Harvest	Suggested Cultivars
Blueberry	Often spring planted, should remove berries for a year or two to support root and plant growth, so plants are often 3-4 years old when harvest begins	Top Hat, Berrybux, Jelly Bean, Perpetua, Pink Icing
Raspberry	Often spring planted, can bear in a few months if everbearing or ~ 1 year if not	Raspberry Shortcake, Heritage, Caroline, Anne, Glencoe Purple
Strawberry	Spring planting with bearing in a few months to a year	Day neutral/long day- Albion, Seascape Shortday- Earliglow, Jewel, Flavorfest, Allstar
Fig	Fruiting may take 3 to 5 years	Chicago Hardy, Celeste, Brown Turkey
Citrus	Fruiting will take at least 1 to 2 years	Meyer lemon, Key lime, Calamondin

ONLINE RESOURCES

UT Extension Publication W 1288-A Small-Space Outdoor Food Production - tiny.utk.edu/W1288-A

UT Extension Publication W 1288-B Small-Space Indoor Food Production - tiny.utk.edu/W1288-B

ADDITIONAL INFORMATION AND REFERENCES CITED:

Home Garden Variety Trial Report: tiny.utk.edu/HGVT2024

Selecting Culinary Herbs for Tennessee Gardens: tiny.utk.edu/W1255-A

Growing Culinary Herbs in Tennessee Gardens: tiny.utk.edu/W1255-B

Leafy crops: tiny.utk.edu/D68

Root crops: tiny.utk.edu/D70

Cole crops: tiny.utk.edu/D59

Vine crops: tiny.utk.edu/D62

Beans: tiny.utk.edu/D58

Peppers: tiny.utk.edu/D60

Container tomatoes: tiny.utk.edu/D142

Onions, Leeks, Shallots: tiny.utk.edu/D127

Garlic: tiny.utk.edu/D75

Strawberries: tiny.utk.edu/W895C

Blueberries: tiny.utk.edu/W895-A

Caneberries: tiny.utk.edu/W895-B

Figs: tiny.utk.edu/D234B

Conventional and organic materials: tiny.utk.edu/W661



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