



Companion Planting Chart for Vegetables and Herbs

Organic gardeners know that a diverse mix of plants makes for a healthy and beautiful garden. Companion planting can use garden space efficiently, prevent pest problems, attract beneficial insects and keep soil healthy.

Plant	Good Companions	Bad Companions
Basil	Pepper, Tomato, Marigold	
Bush Beans	Beets, Cabbage, Carrots, Celery, Corn, Cucumbers, Eggplant, Lettuce, Pea, Radish, Strawberry, Savory, Tansy, Marigold	Onion
Pole Beans	Carrots, Corn Cucumber, Eggplant, Lettuce, Pea, Radish, Savory, Tansy	Beets, Onion
Beets	Bush Beans, Cabbage, Onion, Sage	
Cabbage Family	Bush Beans, Beets, Celery, Onions, Tomato, All Strong Herbs, Marigold, Nasturtium	Strawberry
Carrots	Bush Beans, Pole Beans, Lettuce, Onion, Peas, Radish, Tomato, Sage	Dill
Celery	Bush Beans, Cabbage, Onion, Spinach, Tomato	
Corn	Bush Beans, Pole Beans, Cucumber, Melons, Peas, Squash	Tomato
Cucumbers	Bush Beans, Pole Beans, Corn, Lettuce, Onions, Peas, Radish, Marigold, Nasturtium, Savory	No Strong Herbs
Eggplant	Bush Beans, Pole Beans, Spinach	
Lettuce	Bush Beans, Pole Beans, Carrots, Cucumbers, Onion, Radish, Strawberries	
Melons	Corn, Nasturtium, Radish	
Onion	Beets, Cabbage, Carrots, Celery, Cucumber, Lettuce, Pepper, Squash, Strawberries, Tomato, Savory	Bush Beans, Pole Beans, Peas
Parsley	Tomato	
Peas	Bush Beans, Pole Beans, Carrots, Corn Cucumber, Radish, Turnips	Onion
Pepper	Onion	
Radish	Bush Beans, Pole Beans, Carrots, Cucumber, Lettuce, Melons, Peas, Squash	Hyssop
Spinach	Celery, Eggplant, Cauliflower	
Squash	Corn, Onion, Radish	
Strawberry	Bush Beans, Lettuce, Onion, Spinach	Cabbage
Tomato	Cabbage, Carrots, Celery, Onion, Mint	Corn, Fennel

Cool Season Crops (55-75°F air temperature)

Cold Hardy:

- Asparagus
- Bok Choy
- Broccoli
- Brussel sprouts,
- Cabbage
- Kohlrabi
- Onions, garlic, chives
- Parsley
- Peas
- Radish,
- Turnips

- Rhubarb
- Spinach

Cool Hardy:

- Beets
- Carrots
- Cauliflower
- Chard
- Napa Cabbage
- Lettuce
- Parsnip
- Potato

Warm Season Crops (70-90°F air temperature)

Tender:

- New Zealand Spinach
- Snap Beans
- Sweet Corn
- Tomato

- Eggplant
- Cantaloupe
- Okra
- Sweet and chili peppers
- Pumpkin, squash
- Sweet Potatoes
- Watermelon

Very Tender:

- Cucumber

Minimum Soil Temperatures for Vegetable Seed Germination

35° F	40 F	50° F	60° F
Spinach	Turnip	Corn	Bean
Lettuce	Radish	Tomato	Cucumber
Parsnip	Pea		Eggplant
	Parsley		Cantaloupe
	Chard		Pepper
	Cauliflower		Pumpkin
	Carrot		Squash
	Cabbage		Watermelon
	Beet		
	Celery		

Organic Amendments and Fertilizers

Below is a selection of widely available organic amendments and fertilizers. In most cases, they can be worked into the soil during tilling in either fall or spring (fresh manures are best applied in the fall so they can partially decompose over the winter). Fertilizers can be applied once or twice during the growing season for crops needing a nutrient boost or for new plantings. Unless otherwise noted, amendments that change pH should be used as often as soil tests indicate.

Name	Function	Application Rate	Comments
Blood meal	Fertilizer. Provides nitrogen.	2 lbs./100 sq. ft.	Also called dried blood. When using as a side dressing, keep 2 to 3 inches away from plant stems.
Bone meal	Fertilizer. Provides phosphorous, calcium.	2 lbs./100 sq. ft.	Work into topsoil immediately after applying; otherwise pungent odor may attract rodents.
Chicken manure, rotted	Amendment/fertilizer. Adds organic matter. Provides nitrogen, phosphorous, potassium.	1-inch layer	Work into topsoil in fall or compost before using.
Compost	Amendment/fertilizer. Loosens clay soils, binds sandy soils, increases water-holding capacity. Adds organic matter. Provides nitrogen, phosphorous, potassium.	2- to 3-inch layer	Best all-purpose amendment.
Cottonseed meal	Fertilizer. Provides nitrogen, phosphorous, potassium.	2.5 lbs./100 sq. ft.	May be contaminated by pesticides
Cow manure, rotted	Amendment/fertilizer. Adds organic matter. Provides nitrogen, phosphorous, potassium.	1- to 2-inch layer	Work into topsoil in fall or compost before using.
Fish emulsion	Fertilizer. Provides nitrogen.	.25 oz./100 sq. ft.	Sold as concentrated liquid that is diluted for use. Can also be applied as a foliar spray.
Fish meal	Fertilizer. Provides nitrogen, phosphorous.	2 lbs./100 sq. ft.	Also called fish scrap, fish tankage. Apply just before planting or as a side dressing during the growing season.
Greensand	Amendment/fertilizer. Retards soil compaction, loosens clay soils, increases water-holding capacity. Provides potassium, trace elements.	5 lbs./100 sq. ft.	Use in conjunction with organic matter to amend clay soil.
Gypsum	Amendment. Loosens clay soils, balances pH. Provides calcium, sulfur.	2 lbs./100 sq. ft.	Also called land plaster, sulfate of lime. Pellets easier to use than powder.
Horse manure, rotted	Amendment/fertilizer. Adds organic matter. Provides nitrogen, phosphorous, potassium, trace elements.	1- to 2-inch layer	Work into topsoil in fall or compost before using.
Leaf mold	Amendment/fertilizer. Builds up soil humus content quickly. Adds organic matter. Provides nitrogen, phosphorous, potassium.	2-inch layer	Also called woods-soil when sold commercially. Can also be used as a mulch; apply a 2- to 3-inch layer.
Limestone	Amendment. Raises pH. Provides calcium, magnesium.	6 lbs./100 sq. ft. (clay) 4 lbs./100 sq. ft. (loam) 2 lbs./100 sq. ft. (sand)	Also called ground limestone, dolomitic limestone. Avoid hydrated lime or quicklime - they dissolve too quickly in the soil and can burn plant roots and kill soil life.
Peat moss	Amendment. Loosens clay soils, lowers pH, increases water-holding capacity. Adds organic matter.	1- to 2-inch layer	Also called sphagnum peat moss. Work into topsoil.
Rock phosphate	Amendment/fertilizer. Raises pH. Provides phosphorous, trace elements.	2.5 lbs./100 sq. ft.	Most effective if applied to acid soils.
Sawdust	Amendment. Adds organic matter. Provides nitrogen, potassium.	1-inch layer	Apply only well-rotted sawdust to soil. Best if added to the compost pile.
Seaweed meal	Fertilizer. Provides nitrogen, potassium, trace elements.	1 to 2 lbs./100 sq. ft.	Also called kelp meal. Apply in early spring and work into topsoil.
Straw	Amendment. Adds organic matter. Provides nitrogen, phosphorous, potassium.	2- to 3-inch layer	Buy straw labeled weed free. Can also be applied as a mulch, then turned under when it decays.
Sulfur	Amendment. Loosens clay soils, improves water-holding capacity, lowers pH.	Up to 1 lb./100 sq. ft. applied every 8 weeks	Also called soil sulfur. After working into topsoil, water thoroughly.

Mulch Materials

Mulch	Benefits (All materials suppress weeds and hold in moisture)	Notes
<i>Wood Chips</i>	Attractive, readily available,	May tie up Nitrogen
<i>Compost</i>	Adds nutrients and builds tilth	Make your own or purchase in bags or bulk
<i>Straw</i>	Quick coverage	Do not use hay which is full of weed seeds
<i>Grass Clippings</i>	Usually plentiful	Use thin layers and dry in between. Use herbicide free
<i>Chopped Leaves</i>	Plentiful Fall mulch	Chop finely
<i>Newspaper</i>	Good for layering with other mulches	Do not use colored sections
<i>Pebbles & Stones</i>	Can be very attractive and versatile	Can be expensive, but is long lasting
<i>Black Plastic</i>	Warms soil, blocks light to seeds	Unattractive-use other mulch on top
<i>Landscape Fabric</i>	Lets in surface water.	Cover with more attractive mulch
<i>Clear Plastic</i>	Warms more than black	Lets in light



When to plant Vegetables

Last Frost Date April 30th-First Frost Date October 16th

Plant	Indoor Seeding-	Transplant Out	Direct Seed Out	Direct Seed Out For Fall Crop#	Notes
Basil	4/15	5/30	5/15	-	Very frost sensitive
Beans-Snap	-	-	5/10-6/30	7/15-31	Best to direct sow
Beets*	-	-	4/15	7/15-31	Best to direct sow
Broccoli	2/28-3/30	4/15	-	7/15-31	Start seeds indoors mid June for transplants
Cabbage	2/28-3/30	4/1-4/15	-	7/15-31	Start seeds indoors mid June for transplants. May need cold protection
Carrots*	-	-	4/15	7/15-31	Only direct sow, let some go to seed for their beautiful flowers
Chard*	2/28-3/15	4/15-4/30	4/1-4/15	7/1-15	Best to direct sow
Chives	1/22-2/5	4/30-5/07	4/1-4/15	-	Perennial
Cilantro	4/7-4/15	5/15-30	5/15-30	-	Doesn't transplant well
Corn	-	-	5/10	-	Only direct sow
Cucumbers	3/30-4/15	5/20-30	5/17	7/15-31	
Dill	4/7-4/15	4/30	4/01-5/15	-	Reseeds, best to direct sow
Eggplant	3/15-3/30	5/15-30	-	-	
Garlic	-	-	-	10/01-10/15	Best planted in early Fall for Spring crop and mulched with straw
Green Beans	-	-	5/15-6/15	-	Best to direct sow
Kale*	2/5-3/1	3/25-4/1	4/1-20	8/01-8/15	Best to direct sow
Lettuce*	2/28-4/10	4/15	3/15-4/15	8/15-30	Protect from heat
Melons	4/1-4/15	5/15-5/30	5/17	-	Start in peat or newspaper pot- Best to direct sow



Onion Sets	-	-	4/1-4/15	-	
Onions (green)	-	-	4/1-4/15	7/15-31	Best to direct sow
Onion-seeds	2/5-3/15	4/15	3/25-4/15	8/1 to overwinter	Overwinter under hay, mulch
Parsley	3/15	4/07-4/30	4/1-4/15	-	Will flower the second year (biennial)
Peas*	-	-	3/15-3/25	8/1-15	Best to direct sow
Peppers	3/15-3/30	5/25	5/15-5/30	-	
Potatoes	-	-	4/5-4/15		Best to direct sow
Pumpkins	4/1-4/15	5/31	5/30	-	Start in peat or newspaper pot- Best to direct sow
Radishes*	-	-	4/01-5/01	7/15-8/30	Best to direct sow
Spinach*	2/28-3/30	3/15-30	3/15-3/30	7/15-8/15	Protect from heat-can be overwintered under protection
Squash-Summer	4/1-4/15	5/30	5/30	-	Start in peat or newspaper pot Best to direct sow
Squash-Winter	4/1-4/15	5/30	5/30	-	Start in peat or newspaper pot- Best to direct sow
Tomatoes	3/1-3/15	5/15-30	5/15-30	-	Can put out earlier with wall o'waters

*Plant every two weeks during the season for successively mature plants.

#Choose early maturing varieties for fall crops. Keep seeds moist and mulched well. Protect from heat with row cover during hottest part of summer.

USU Extension has great vegetable fact sheets. Go to <http://extension.usu.edu/htm/publications>, click on Horticulture, then Horticultural Fact Sheets. Some plants are not there yet, but they keep adding more.



Resources

Books

Accessible Gardening: Tips and Techniques for Seniors & the Disabled- Joann Woy
Botany For Gardeners-Brian Capon
Carrots Love Tomatoes: Secrets of Companion Planting for Successful Gardening-Louise Riotte
Green Nature/Human Nature-Charles A. Lewis
How to Grow More Vegetables-John Jeavons
Joy of Gardening-Dick Raymond
Just The Facts! Dozens of Garden Charts-Editors of Garden Way Publishing
Lasagna Gardening-Patricia Lanza
Natural Enemies Handbook-Mary Louise Flint and Steve H. Dreistadt
Plant Propagation-American Horticultural Society
Planters, Containers, and Raised Beds-Chuck & Barbara Crandall
Rodale's Illustrated Encyclopedia of Gardening and Landscaping Techniques-Barbara Ellis, editor
Rodale's All-New Encyclopedia of Organic Gardening-Fern Marshall Bradley and Barbara W. Ellis, editors
Roots, Boots, Buckets, and Shoots-Sharon Lovejoy (gardening with children)
Square Foot Gardening-Mel Bartholomew
Trellises and Arbors-Editors of Sunset Magazine
The Garden Problem Solver-The Reader's Digest Association
The Organic Garden-Christine and Michael Lavelle
The Truth About Garden Remedies-Jeff Gillman
The Truth About Organic Gardening-Jeff Gillman
Western Garden Problem Solver-Sunset Publishing
Western Garden Book-Sunset Publishing
Worms Eat My Garbage-Mary Appelhof

Waterwise Information

Utah's Choice Plants-www.utahschoice.org
Slow the Flow Program-www.slowtheflow.org, 877-SAVE-H2O
Waterwise Plants-www.waterwiseplants.utah.gov
Conservation Garden Park at Jordan Valley-www.conservationgardenpark.org

Tools and Gardening Supplies:

Amazon-www.amazon.com
Charley's Greenhouse-www.charleysgreenhouse.com
Corona Tools- <http://www.coronaclipper.com/>, 800-847-7863
Fiskars-www.fiskars.com
Fist Grip Tools-various web sites
Gardeners Supply-www.gardeners.com
Gardens Alive-www.gardensalive.com
Gardenscape-www.gardenscape.on.ca/
OXO International-www.oxo.com
Peaceful Valley Farm & Garden Supply-www.groworganic.com
Peta Easi-Grip-www.peta-uk.com/usashop/acatalog/In_the_Garden.html
Planet Natural-www.planetnatural.com
Radius Tools-www.radiusgarden.com
Download Free Templates & Forms at Speedy Template <http://www.SpeedyTemplate.com/>

Accessible Gardening Websites:

American Horticultural Therapy Association-www.ahta.org
Gardening for Good-www.gardening4good.org
Chicago Botanic Garden-www.chicagobotanic.org
Garden Forever-www.gardenforever.com
Gardening With Ease-www.gardeningwithease.com
Life With Ease-www.lifewithease.com

Raised Beds

Information from Texas A&M-<http://aggiehorticulture.tamu.edu/extension/raisedbed/>
Gardeners Supply-www.gardeners.com
Earth Easy-www.eartheasy.com

Vegetable Fact Sheets from USU

<http://extension.usu.edu/htm/publications/by+category/category=43>
or go to extension.usu.edu/htm/horticulture/ to *publications to horticulture to horticulture fact sheets*

Seeds and Plants

Heirloom Seeds-P.O. box 245, W. Elizabeth, PA, 15088-0245
High Altitude Gardens-seedsave.org (site for other information too)
High Country Gardens-www.highcountrygardens.com
Park Seed Co.-www.parkseed.com (seed tapes)
Rene's Garden Seeds-www.reneesgarden.com
Seeds of Change-www.seedsofchange.com
Select Seeds-www.selectseeds.com
Territorial Seeds-www.territorial-seed.com
Totally Tomatoes-www.totallytomato.com
Vermont Bean Seed Company-www.vermontbean.com
Wood Prairie Farm-www.woodprairie.com (organic seed potatoes)

Compost

Central Valley Water Reclamation Facility-www.cvwrf.org
Replenish Landscape Garden Products-replenishcompost.com
Salt Lake County Landfill-www.slvlandfill.slco.org

Worms and castings

Rott'n Apple Worm Farm-www.rottenapplewormfarm.com (He comes to our Farmer's Market)
Western Worm-435-336-9676

Other Useful Websites

Horticulture Magazine-www.hortmag.com
Organic Gardening Magazine-www.organicgardening.com
Red Butte Gardens-www.redbuttegarden.org
Salt Lake Master Gardeners-www.slmg.org
USU soil testing-www.usual.usu.edu
Utah Native Plant Society-www.unps.org
Utah State University Extension-www.extension.usu.edu
Wasatch Community Gardens-www.wasatchgardens.org