

Spring & fall cool-season vegetables

Faster germination equals more success!

optimal soil temp. for germination **optimal air temp. for growth**



UCCE Nevada County Master Gardeners

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DIRECT SOW WHEN SOIL TEMPERATURE COOL (take soil temperature 3–4" deep into the soil surface)

spring & fall	Arugula*	50F	50–65F	germinates 40–55F, reseeds vigorously, very frost hardy, also a disease-suppressing fall cover crop
	Endive, Escarole*	75F	45–65F	germinates 35–85F, a week before harvest tie leaves together (blanche) to reduce bitterness
	Cilantro*	50F	max. 75F	bolts at 75F, then flowers attract beneficials (lacewings, ladybugs, hoverflies, parasitic wasps)
	Radish	68F	50–65F	germinates 55–85F, matures quickly, frost improves flavor/texture of winter varieties
best in spring	Lettuce*	70F	50–65F	germinates 40–85F, leaf varieties best in fall/winter, heat-tolerant varieties (like Batavian) in spring
	Turnips	75F	50–95F	germinates 45–85F, needs consistent moisture, tastes best when it matures in cool weather
	Snow Peas*	68F	40–75F	sow when soil temp. is at least 45–50F
	Peas*	75F	40–75F	germinates 40–85F, frost hardy but will not tolerate frozen ground
best in fall	Miner's Lettuce	50F	spring	germinates 50–55F, prefers cool & damp, very early, hard-freeze hardy, dries up in warm spring
	Potatoes	45–50F	45–95F	plant when daffodils/dandelions bloom, harvest after tops die back
	Mache	45F		will not germinate over 70F soil temp., sow in the fall to overwinter—hardy to 5F!
	Fava Beans	50F	40–75F	very frost hardy, sow in November for spring harvest, delicious to eat or just use as cover crop

DIRECT SOW WHEN SOIL TEMPERATURE WARMER (use plastic row covers to warm the soil more quickly)

spring & fall	Swiss Chard*	85F	60–80F	germinates 40–95F, tolerates heat, biennial (replant every 2 years), harvest outside leaves
	Mustard Greens	77F		germinates 45–85F, withstands frost, bitter raw, sweetens when cooked
best in spring	Carrots	75F	60–70F	moisten seed daily to germinate, sow with radishes to break the soil crust
	Collards	77F	60–65F	germinates 45–85F, withstands frost and heat, grows through summer, can also direct sow in fall
	Borage	70F		direct sow, does not transplant well, reseeds, grows all summer, flowers attract bees
	Parsley	75F		bolts every other year, attracts beneficials (lacewings, ladybugs, hoverflies, parasitic wasps)
fall	Onions	77F	60–80F	requires rich, well-drained soil, tolerates frost, tops grow in cool weather, bulbs in hot weather
	Garlic			plant cloves in November, 8 mos. to maturity, save largest bulbs for planting your next crop

START SEED WITH BOTTOM HEAT (68–77F) IN SPRING or DIRECT SOW IN FALL WHILE SOIL STILL WARM

spring & fall	Bok/Pak Choy*	68F	40–75F	germinates 50–80F, problematic due to bolting, partial shade may help prevent bolting, self-sows
	Spinach*	77F	40–75F	requires cool temperatures and consistent moisture, young plants withstand cold down to 15–20F
	Kale*	77F	60–70F	germinates 45–85F, frost hardy, frost sweetens flavor, Red/White Russian produces thru summer
	Broccoli*	77F	50–65F	germinates 45–85F, needs 60–85 days to mature, must harvest before 80F, does not tolerate heat
fall	Cabbage*	77F	50–70F	germinates 45–85F, needs rich soil for fast growth, mulch to keep soil cool
	Beets	77F	40–75F	germinates 50–85F, rich, loose well drained soil, beet greens are also delicious

*Benefits from shade cloth as summer heat arrives

Cover crop: the contribution of organic matter to the soil from a cover crop is comparable to adding 9–13 tons per acre of farmyard manure or 1.8–2.2 tons dry matter per acre.

Sources of information: UC Davis, Cornell University, University of Arizona, Univ. of Minnesota Extension Service, Oklahoma State, Clemson Cooperative Extension