

## 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*	<b>50F</b>	50–65F	germinates 40–55F, reseeds vigorously, very frost hardy, also a disease-suppressing fall cover crop
	Endive, Escarole*	<b>75F</b>	45–65F	germinates 35–85F, a week before harvest tie leaves together (blanche) to reduce bitterness
	Cilantro*	<b>50F</b>	max. 75F	bolts at 75F, then flowers attract beneficials (lacewings, ladybugs, hoverflies, parasitic wasps)
	Radish	<b>68F</b>	50–65F	germinates 55–85F, matures quickly, frost improves flavor/texture of winter varieties
best in spring	Lettuce*	<b>70F</b>	50–65F	germinates 40–85F, leaf varieties best in fall/winter, heat-tolerant varieties (like Batavian) in spring
	Turnips	<b>75F</b>	50–95F	germinates 45–85F, needs consistent moisture, tastes best when it matures in cool weather
	Snow Peas*	<b>68F</b>	40–75F	sow when soil temp. is at least 45–50F
	Peas*	<b>75F</b>	40–75F	germinates 40–85F, frost hardy but will not tolerate frozen ground
best in fall	Miner's Lettuce	<b>50F</b>	spring	germinates 50–55F, prefers cool & damp, very early, hard-freeze hardy, dries up in warm spring
	Potatoes	<b>45–50F</b>	45–95F	plant when daffodils/dandelions bloom, harvest after tops die back
	Mache	<b>45F</b>		will not germinate over 70F soil temp., sow in the fall to overwinter—hardy to 5F!
	Fava Beans	<b>50F</b>	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*	<b>85F</b>	60–80F	germinates 40–95F, tolerates heat, biennial (replant every 2 years), harvest outside leaves
	Mustard Greens	<b>77F</b>		germinates 45–85F, withstands frost, bitter raw, sweetens when cooked
best in spring	Carrots	<b>75F</b>	60–70F	moisten seed daily to germinate, sow with radishes to break the soil crust
	Collards	<b>77F</b>	60–65F	germinates 45–85F, withstands frost and heat, grows through summer, can also direct sow in fall
	Borage	<b>70F</b>		direct sow, does not transplant well, reseeds, grows all summer, flowers attract bees
	Parsley	<b>75F</b>		bolts every other year, attracts beneficials (lacewings, ladybugs, hoverflies, parasitic wasps)
fall	Onions	<b>77F</b>	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*	<b>68F</b>	40–75F	germinates 50–80F, problematic due to bolting, partial shade may help prevent bolting, self-sows
	Spinach*	<b>77F</b>	40–75F	requires cool temperatures and consistent moisture, young plants withstand cold down to 15–20F
	Kale*	<b>77F</b>	60–70F	germinates 45–85F, frost hardy, frost sweetens flavor, Red/White Russian produces thru summer
	Broccoli*	<b>77F</b>	50–65F	germinates 45–85F, needs 60–85 days to mature, must harvest before 80F, does not tolerate heat
fall	Cabbage*	<b>77F</b>	50–70F	germinates 45–85F, needs rich soil for fast growth, mulch to keep soil cool
	Beets	<b>77F</b>	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