



Winter Kill Temperatures of Winter-Hardy Vegetables

25 November 2014 revision

Record how well your crops do in the colder season. My friend and neighboring grower Ken Bezilla of Southern Exposure Seed Exchange provided much of the information below, and has suggested the morbidly named Death Bed idea: set aside a small bed and plant a few of each plant in it to audition for winter hardiness. Note when the various plants die of cold, to fine tune your planting for next year (and send me an email!) It's worth noting that in a hoophouse plants seem able to tolerate temperatures lower than those listed here: they have the pleasant daytime conditions in which to recover. Salad greens in a hoophouse can survive nights with outdoor lows of 14°F (-10°C). All greens do a lot better with rowcover to protect them against cold drying winds.

Here are some starting numbers of killing temperatures, although your own experience with your soils, microclimates and rain levels may lead you to use different temperatures:

35°F (2°C): Basil.

32°F (0°C): Bush beans, cauliflower curds, corn, cowpeas, cucumbers, eggplant, limas, melons, okra, some Pak Choy, peanuts, peppers, potato vines, squash vines, sweet potato vines, tomatoes.

27°F (-3°C): Many cabbage, *Sugarloaf* chicory (takes only light frosts), radicchio.

25°F (-4°C): Chervil, chicory roots for chicons, and hearts, Chinese Napa cabbage (*Blues*), dill, endive (hardier than lettuce, Escarole more frost-hardy than Frisée), annual fennel, some mustards and Asian greens (*Maruba Santoh*, *Mizuna*, most *Pak Choy*, *Tokyo Bekana*), onion scallions (some much more hardy), radicchio.

22°F (-6°C): Arugula (may survive colder than this), large leaves of lettuce (protected hearts and small plants will survive even colder temperatures).

20°F (-7°C): Some beets, broccoli heads (maybe OK to 15F), some cabbage heads (the insides may still be good even if the outer leaves are damaged), celeriac, celtuce (stem lettuce), some

head lettuce, some mustards/Asian greens (*Tendergreen*, *Tyfon Holland* greens), radishes, most turnips with mulch to protect them (*Noir d'Hiver* is the most cold-tolerant variety).

15°F (-9.5°C): Some beets (*Albina Verduna*, *Cylindra*, *Lutz Winterkeeper*), beet leaves, some cabbage (*Kaitlin*, *Tribute*), celery (*Ventura*) with rowcover, cilantro, endive, fava beans (*Aquadulce Claudia*), Russian kales, kohlrabi, some lettuce, especially medium-sized plants (*Marvel of Four Seasons*, *Olga*, *Rouge d'hiver*, *Tango*, *Winter Density*), curly leaf parsley, flat leaf parsley, large leaves of broad leaf sorrel, turnip leaves, winter cress.

12°F (-11°C): Some cabbage (*January King*, Savoy types), carrots (*Danvers*, *Oxheart*), most collards, some fava beans (not the best flavored ones), garlic tops if fairly large, most fall or summer varieties of leeks (*Lincoln*, *King Richard*), large tops of potato onions, rutabagas (if mulched), *Senposai leaves* (core of the plant may survive 10F), some turnips (*Purple Top*), winter radish (including daikon).

10°F (-12°C): Beets with rowcover, *Purple Sprouting* broccoli for spring harvest, Brussels sprouts, chard (green chard is hardier than multi-colored types), a few varieties of cabbage (*Deadon*), some collards (*Morris Heading* can survive at least one night at 10F), *Belle Isle* upland cress, some endive (*Perfect*, *President*), young stalks of *Bronze fennel*, probably *Komatsuna*, some leeks (*American Flag*, *Jaune du Poiteau*), some head lettuce under rowcover (*Pirat*, *Red Salad Bowl*, *Salad Bowl*, *Sylvesta*, *Winter Marvel*), large leaves of savoyed spinach (more hardy than flat leafed varieties), *Tatsoi*, *Yukina Savoy*. Oats cover crop is killed around 10F.

5°F (-15°C): Brussels sprouts, Garlic tops if still small, some kale (*Winterbor*, *Westland Winter*), some leeks (*Bulgarian Giant*, *Laura*, *Tadorna*), some bulb onions (*Walla Walla*), potato onions and other multiplier onions, smaller leaves of savoyed spinach and broad leaf sorrel. Many of the Even*Star Ice Bred greens varieties are hardy down to 6°F (-14°C).

0°F (-18°C): Chives, some collards (*Blue Max*, *Winner*), corn salad, garlic, horseradish, Jerusalem artichokes, *Vates* kale (although some leaves may be too damaged to use), a few leeks (*Alaska*, *Durabel*); some bulb onions, some onion scallions (*Evergreen Winter Hardy White*, *White Lisbon*), parsnips (probably even colder), salad burnet, salsify, some spinach (*Bloomdale Savoy*, *Olympia*, *Tyee*).

Even Colder: Leaves of overwintering varieties of cauliflower are hardy down to -5°F (-19°C). *Walla Walla* onions sown in late summer are hardy down to -10°F (-23°C)
Winter Field Peas and Crimson clover (used as cover crops) are hardy down to -10°F (-23°C)
Hairy vetch and Dutch White clover cover crops are hardy down to -30°F (-34°C)
Narrow leaf sorrel and some cabbage (*January King*?) are said to be hardy in zone 3, -30°F to -40°F (-34°C to -40°C).
Winter wheat and winter rye (cover crops) are hardy to -40°F (-40°C).