

Dealing with Freeze Damage on Plants
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It will take weeks or months to know the extent of the damage to our plants, if or when, they start to resprout and what part of the plant resprouts.

Evergreen Woody Shrubs (abelia, Asian jasmine, azaleas, banana shrub, camellias, eleagnus, fatsia, fig ivy, gardenias, Indian hawthorn, Japanese blueberry, ligustrum, loquat, loropetalum, oleander, pittosporum, privet, red tip photinia, sasanquas, sweet olive, Texas sage, viburnum, wax myrtle, etc.): Wait until they start to resprout from the existing stems or the ground, then cut away dead and leave what is alive and growing. Split stems will be dead. There will most likely be no blooms this year and all old foliage will most likely fall off. Many of these plants are from milder parts of southeastern Asia and simply aren't used to zero degrees. Most broadleaf evergreens prefer milder climates while narrow leafed evergreens and deciduous plants are more adapted to colder climates. Nandinas and hollies appear to be fine. Boxwoods have tip burn than can be sheared in spring.

Roses: Many roses in Texas and the South have taken a severe hit and will have varying degrees of freeze damage. At first glance it appears that many will freeze back to and resprout from the snow line. Hybrid teas, grandifloras, floribundas, polyanthas, and modern shrub roses like Knockouts and Drifts are considered more cold hardy while uniquely Southern roses like Teas, Chinas, Noisettes, Banksias, etc. will have suffered the most damage. Once you see which stems are brown/dead and which stems are green and resprouting, cut them back with loppers or hand pruners, sprinkle a bit of lawn fertilizer, and they should look nice again by fall. Unfortunately many will have frozen to the ground.

Vines: Native vines like coral honeysuckle and crossvine may be just fine while others like Carolina jessamine and confederate jasmine may be damaged. Still others like coral vine and creeping fig may have been killed. English ivy may have had foliage damage only. Once you see the stems split open and the plants resprout, cut them back to that point, even if it's at the ground. Deciduous vines like wisteria will be fine.

Crapemyrtles: There will be different amounts of damage on different cultivars in different microclimates. Don't do anything until they start to sprout then cut back to where new growth is occurring, even if it's at the ground. They will grow back vigorously. In the 1980s *Lagerstroemia fauriei* froze and died, 'Natchez' and

many hybrids froze to the ground, and there were varying degrees of damage to most older indica cultivars.

Magnolias: Other than ice damage to southern magnolias, they appear to be fine like many native plants are. Deciduous magnolias lost their flower buds but will be fine.

Palm Trees and Sago “Palms”: Many will be damaged or dead but do nothing but cut off the dead fronds for now. It will take months to see if they resprout. Historically the only palms reliably cold hardy here in northeast Texas and the only ones to survive zero degrees in the 1980s were Mexican/Texas sabal palms, Brazoria palms, dwarf palmettos, and a number of windmill palms. All others froze and died. Sagos aren't true palms, are less cold hardy, and back then were only cold hardy from I-10 south.

Fruit trees: Most are cold hardy except avocado, citrus, pomegranates, olives, and figs which will have varying degrees of damage and death. Most citrus above I-10 will have severe damage. Once again, do nothing for now and prune back to live growth when they sprout. Open flowers and fat buds on blueberries, peaches, and pears froze, but the trees should be alive and sprout as normal. Unfortunately fruit production will be limited. I'd think blackberries will be fine.

Live oaks: All foliage will be lost which would have been lost when the new foliage came out in spring anyway. There however many be varying degrees of damage including death like there was in Dallas during the 1980s when all the bark eventually popped off, but once again nothing you can do right now but take a cold tater and wait. Live oaks are coastal trees not used to zero degree weather. Friend Neil Sperry says they'll be fine so we'll all hope for the best!

Pines: Pine in some areas have turned brown. This is mostly likely just freeze damage to the needles but the buds and stems should be fine. Our native pines along with all our other native plants have learned to survive periodic Arctic blasts. Note that nature made sure that short leaf pine occurred further north, loblolly pine with medium length needles occurred farther south, and longleaf pine occurred the most south. It's all about holding up to ice and snow but all have always been cold hardy here for thousands of years. Most conifers including pines and cedars will be fine although they may be damaged and broken from snow and ice. Saw off the broken branches close to the trunk or nearest major branch wherever you can.

Deciduous Trees (ash, baldcypress, blackgum, Chinese pistache, deciduous magnolias, dogwoods, ginkgos, other oaks, Japanese maples, pecan, possumhaw holly, vitex, willow, etc.): Most deciduous trees and shrubs (those that drop their leaves in winter) will be just fine although they may have lost their bloom buds (deciduous magnolias). Deciduous plants evolved with cold winters. Spireas appear fine. Mophead and lace cap hydrangeas may have different degrees of damage. Once again, only prune away what is dead once they sprout. Oakleaf hydrangeas are probably fine.

Groundcovers: Some such as aspidistra, English ivy, ferns, and lirioppe may have foliage damage only. Others like Asian jasmine may have suffered even more damage. Cut off, shear, or mow the dead leaves, scatter a sprinkling of lawn fertilizer and most will grow back after the nights get warm and the days longer.

St. Augustine and Centipede lawns: There will possibly be dead areas and freeze damage. Mow as normal but avoid pre-emergent herbicides which can damage injured grass. Do not fertilize until nights are warmer in mid-April and do not water until June, July, and August, once per week, one inch per application. Watering in the spring contributes to gray leaf spot and brown patch. Most folks water too often and cause their own problems. Bermudagrass and zoysiagrass are more cold hardy and should be just fine.

Perennials: Cut away the dead mush (wait until April 1 if you can stand it) and wait till mid spring to see what comes up. Many perennials are cold hardy but many we grow in the South are more tender and tropical (confederate rose, fire bush, fire spike, lantana, Mexican heather, Mexican petunia, and lots more) and may not make it when the ground freezes.

Bulbs (corms, rhizomes, etc.): Although the foliage has been damaged and many blooms lost on spring bulbs, most should survive with possibly reduced bloom next year due to less foliage this year. I wouldn't be surprised if many heirlooms produced more foliage and bloomed almost normal next year. Note due to their geographic genetics, narcissus are the least hardy, jonquils more hardy, and daffodils the most hardy. Some daffodils may still bloom. However anything that already had buds won't bloom this year. Tulips seem OK. Spider lilies (lycoris) and oxblood lilies lost their foliage but will be fine with possibly reduced bloom this fall. Cannas and Hymenocallis may have rhizome and bulb damage if the ground froze. You will have to wait and see if any, some, are all of the clumps come back. Except for a few tender types, most crinums will be fine.

Bamboo: Most have at least top damage. Some, like timber bamboo are cold sensitive and will be dead; some types like golden bamboo and Green Goddess will most likely freeze to the ground and resprout, and a few like our native switch cane will be unscathed. All you can do is cut the frozen dead stems to the ground now and wait to see what comes up. You'll know by early summer whether they are growing back or not. You can leave the dead canes if you like but you'll have a mess of dead ones mixed with the live ones if you do.

Ornamental Grasses: With the exception of purple fountain grass, lemon grass, napier grass, and vetiver, most are cold hardy and will sprout back from the crown. Go ahead and cut them back to the crowns now and wait until early summer to see what comes back.

Herbs: Many herbs like rosemary and bay laurel will be dead and will need to be replaced, certainly those in pots which are always less cold hardy than those in the ground. Some rosemary cultivars are more cold hardy than others but very few can survive zero degrees. Most herbs are Mediterranean and prefer mild winters and dry soils. Some lavender may have survived but generally dies during wet winter or wet summers.

Vegetables: Most were frozen and will need to be replanted including onions, potatoes and cool season greens. There's still time to get in a late crop of cool season plants like lettuce, greens, cabbage, broccoli, etc. It's still too early for tomatoes and peppers and I wish folks would quit putting them out for sale. Never plant those before March 15.

Native Plants and Wildflowers (Texas bluebonnets, Texas mountain laurel, Texas persimmon, Texas redbud, Texas red oak, and lots more): Unless they are planted north of their native range, most are perfectly fine as they evolved to deal with periodic Arctic blasts and blue northers.

House plants (airplane plant, aloe vera, Christmas cactus, croton, diffenbachia, Norfolk Island pine, orchids, peace lily, philodendron, plumeria, ponytail palm, pothos, sanseveria, weeping fig, etc.): If they were left out outside, they should be dead, even if covered. Count it as a minor miracle if not. These plants aren't designed to withstand 32 degrees much less 0!

Succulents (Agaves, aloes, cactus, manfredas, opuntia, sedums, yuccas, etc.): Some of these guys are very tender and will be dead while others are more-cold hardy and will be fine. When it warms up and the mush dries, peel it away and see what comes back.

Tropicals (allamanda, asparagus fern, bananas, bleeding heart, Boston fern, bottlebrush, bougainvillea, brugmansia, elephant ears, esperanza, mandevilla, Mexican heather, plumbago, pride of barbados, purple fountain grass, trailing lantana, tropical hibiscus, etc.): Cut away the dead mush and stems (wait until April 1 if you can stand it) and wait till mid spring to see what comes up. The general rule on tropicals is if the air freezes the tops die and if the ground or soil freezes the whole plant dies. Those left outside in pots are probably dead and should be replaced in April/May when the nights warm up. This is a good time to learn about hardiness zones which indicate which zone/low temperatures plants are cold hardy to. Look up your plant. If it's listed as zone 9 or 10 it probably froze and died. If it's listed as zone 8 it probably froze to the ground. If it's listed as zone 7 or lower, it probably survived.

Weeds: The reason many weeds survived is that they are cool season plants from colder parts of Europe while most of the dead or damaged plants are from warm parts of Asia. Hot temperatures kill cool season weeds, not cold temperatures.

Invasives: Chinese tallow and Chinese privet will suffer freeze damage like many other southeastern Asian plants have with both foliage and stem die back but other than seedlings will mostly likely resprout from their stems and certainly roots.

If plants are green and not withered, they are most likely fine. It all has to do with their evolutionary and geographical genetics as to whether they can survive zero degrees. But just because they are brown doesn't mean they are dead. It's possible that the stems or roots may still be alive. Give them time.

Genetics, provenance, and acclimation: Cold hardiness has much to do with the genetics and evolution of a species (Who's your daddy and where are you from?); what part of the historic range the seed source was from (live oak seed from colder Virginia or live oak seed from warmer South Louisiana); and how warm it was and how actively the plant was growing before it froze (plants freeze much more easily when they are growing than when they are dormant). This explains why National Arboretum crapemyrtles never froze in Washington D.C. and more northern climates but have frozen numerous times in Texas over the years.

There is absolutely nothing you can do to speed up this freeze damage/healing process. Watering, pruning, or fertilizing won't make it happen any quicker. Most work now is purely cosmetic. The solution is warm nights, warm days, and longer day lengths. Once the plants start to grow (or not), we will

know the answer and what parts to cut away or which plants to replace. Some damage doesn't show up for months and some plants that appear dead come back to life from the root system. Some plants with green stems like roses will show what's dead even quicker and can be cut back sooner. The stems on others will split to show that they are damaged. Remember just cut off the stems as the roots may still be alive.

For more information on dealing with the freeze damage, visit the Aggie Horticulture Facebook page, the Smith County Master Gardener Facebook page, and Neil Sperry's GARDENS Facebook page.

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