COLD PROTECTION IN THE LOUISIANA LANDSCAPE
Ornamentals and Vegetables

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If you look around at some of our landscapes, particularly in south Louisiana, you would think we live in the tropics. Indeed, some winters the temperature never does dip much below the mid to upper twenties allowing tropicals to survive.

Despite the relative mildness of Louisiana winters overall, severe freezes do occur, and they can be devastating to tropical plants growing in our landscapes. All it takes is one night of temperatures in the low twenties or teens to severely damage or kill many tropicals.

Tropical and sub-tropical plants can be used effectively in the landscape, but they must be protected or replaced when necessary. The best idea is to plant a good combination of tender and hardy plants, so that your landscape is not totally devastated in the event of extremely cold weather.

Although they are subject to cold damage or loss in winter, tropicals remain popular for the colorful flowers, dramatic foliage and fragrance they bring to the summer landscape. Nothing else performs as well as tropical plants during the intense heat of summer. But using tropicals does mean that we sometimes need to help these plants to survive when freezes do occur.

HARDY VS TENDER

Two terms are used when it comes to the ability of a plant to tolerate cold. If a plant will endure temperatures below 32 degrees F with no damage, it is termed hardy. There are degrees of hardiness. A plant that will tolerate a temperature of 15 degrees is hardier than one that will be killed at temperatures below 25 degrees. Our commonly used landscape plants, including trees, shrubs, ground covers, lawns and vines, are hardy to at least 10 or 15 degrees and will not be damaged by typical winter weather.

Basically, a plant is considered hardy if it can reliably survive winter temperatures where you garden with no protection or, at most, some mulch.

The term tender refers to plants that are killed or severely damaged by temperatures below 32 degrees F. Surprisingly, many tropical plants are more cold tolerant than we give them credit for, and will tolerate light freezes where the temperatures dip briefly below freezing. But you do run a risk leaving them out or not covering them on nights when even light freezes occur.

Many tropicals may survive a damaging freeze by coming back from their lower trunk, crown, roots or below ground parts (tubers, bulbs, rhizomes, corms). Since the ground in Louisiana does not freeze, plant parts at or below the soil surface typically survive – and this allows these plants to be considered hardy.

Basically, a plant is considered tender when it will not reliably survive winter temperatures where you garden without extensive protection.

TYPES OF FREEZES

When freezes do come, they can be characterized as radiational or advective. Radiational freezes or frosts occur on calm, clear nights when heat radiates from surfaces of objects into the environment. These freezes are generally considered light and primarily damage the foliage of tropicals. Plant damage from a radiational freeze can be minimized by reducing radiant heat loss from plants by covering them.

Advective freezes occur when cold air masses move down from northern regions causing a drastic drop in temperature. Windy conditions are normal during advective freezes. Although radiant heat loss also occurs during an advective freeze, the conditions are quite different from a radiational freeze. The temperatures tend to be much lower and are liable to last longer during advective freezes, and protecting tropicals is more difficult.

Freeze Terms	**What happens without protection**
Frost – temperatures around 30 to 32 degrees	(little or no damage)
Light freeze – 28 to 30 degrees	(light damage mostly to foliage)
Hard freeze – mid-twenties	(kills more tender tropicals, substantial damage to others)
Severe freeze – low twenties	(major damage or death to virtually all tropicals)
Catastrophic freeze – teens	(death to most tropicals)

FACTORS INFLUENCING COLD INJURY

The most important factors in how much damage a plant receives from cold are how hardy it is and how cold it gets. There are, however, a surprising number of other factors that can play a big role in how much cold injury actually occurs.

Make sure good care is given to your landscape during the summer growing season. Plants, even hardy ones, doing poorly or in low vigor are more susceptible to cold damage. Pruning and fertilizing hardy trees, shrubs and ground covers should be avoided after September, as this can stimulate late growth which is not as cold hardy and may lead to freeze injury.

A sudden drop to below freezing temperatures from a period of relatively mild weather may cause damage even to hardy plants that might otherwise have suffered little or no damage. A gradual decrease in temperature over a period of time will harden off plants allowing them to withstand freezing temperatures better. This is not true for especially tender tropical plants, as they will not tolerate freezing temperatures regardless of the preceding temperatures.

The longer below freezing temperature persist, the more likely damage will occur. This is because as time goes by, heat stored in plants, soil, walls, etc. that initially moderates temperatures around the plant is lost. Freezes that last 8 hours or more are particularly damaging to tender plants.

Where a tropical plant is located in the landscape can make a big difference in how much damage occurs. The careful placement of tender or less hardy plants in sheltered areas that block cold north winds and trap the heat of the sun can help them survive freezes. Planting in areas covered with overhangs or tree canopies will also help to minimize cold damage.

Finally, plants do not “feel” wind chill. Do not focus on wind chill temperatures – it is the actual temperature you need to pay attention to.

WHAT TO DO BEFORE A FREEZE

WATER

If the soil is dry, thoroughly watering landscape plants before a freeze may help them better deal with the cold. Cold weather is often accompanied by strong, dry winds. These winds may cause damage by drying plants out and watering helps to prevent this.

Wetting the foliage of plants before a freeze does not, however, provide any cold protection. Neither will a layer of ice protect plants once the water is turned off. A spray of water must continue through the entire freezing period for it to provide protection.

MOVE INSIDE

Move all tender plants in containers and hanging baskets into buildings where the temperature will stay above freezing. If this is not possible, group all container plants in a protected area (like the inside corner of a covered patio) and cover them with plastic. If plants are kept inside for extended periods, make sure they receive as much light as possible.

MULCH

For plants growing in the ground, mulches can help protect them. Use a loose, dry material such as pine straw or leaves. Mulches will only protect what they cover. Mulch at the base of a bird-of-paradise will help the roots, but will provide no added protection to the leaves. Mulches, then, are best used to protect below ground parts, crowns or may be used to completely cover low growing plants to a depth of four inches. Leave mulch that completely covers plants in place no more than three or four days. Mulch at the base of a plant can remain in place all winter.

COVER

If they are not too large, individual plants can be protected by covering them with various sized cardboard or Styrofoam boxes.

Larger plants can be protected by covering them with fabric or plastic. Fabric coverings, such as sheets, can get wet and heavy if rains occur. Plastic would be better in rainy weather. However, wherever a leaf touches a plastic cover it will freeze. Both of these issues can be resolved by providing simple supports under the cover to support wet fabric or keep a plastic cover from contacting the foliage. The structure holds the covering off the foliage preventing branch breakage and improving cold protection. It need be nothing more elaborate than three stakes slightly taller than the plant driven into the ground. The cover should extend to the ground and be sealed with soil, stones or bricks. Clear plastic covers should be vented or removed on sunny, warm days.

The covers will work best for radiational freezes by preventing or blocking heat loss. The extreme, prolonged cold that occurs during advective freezes is not so easily dealt with. Many plants will still die even with protection. This can be helped by providing a heat source under the covering. A safe, easy way to do this is to generously wrap or drape the plant with small outdoor Christmas lights (not LED lights). The lights provide heat but do not get hot enough to burn the plant or cover. Please be careful and use only outdoor extension cords and sockets.

If necessary, you may prune back a large plant, like a hibiscus, to make its size more practical to cover. For trees, such as palms and citrus, that are too large to cover, you may at least want to wrap the trunk with an insulating material such as foam rubber or blankets. Even if the top dies, you may be able to regrow the tree from the surviving trunk. For palms, the trunk must be wrapped from ground level to the base of the leaves to protect the trunk and crown.

If you are growing vegetables, harvest any broccoli, cauliflower, fava beans or peas that are ready. Freezing temperatures will not hurt the plants, but can damage the heads, pods and flowers. Also, any ripe citrus fruit should be harvested from the tree prior to a hard freeze.

WHAT TO DO AFTER A FREEZE

Unless you are keeping them inside for the rest of the winter, move container plants back to their spots outside. Plants do not mind being moved in and out as needed through the winter.

For plants that you covered, remove or vent clear plastic covers on plants to prevent excessive heat buildup if the next day is sunny and mild. You do not need to completely remove the cover if it will freeze again the next night. You may leave plants covered with blankets, sheets or black plastic for several days without harming them, but eventually the covers will need to be removed so they can get light.

Pruning

Do not prune anything for a week or more after a freeze. It often takes a week or so for all of the damage to become evident.

Damaged growth on **herbaceous or non-woody tropical plants**, such as cannas, elephant ears, birds-of-paradise, begonias, impatiens, philodendron and gingers, may be pruned away back to living tissue. This pruning is optional, and is done more to neaten things up than to benefit the plants. However, if the damaged tissue is oozy, mushy, slimy and foul smelling, it should be removed.

If you don't prune before, be sure to cut back or prune these herbaceous tropicals in spring after danger of freezes is past and before they make substantial new growth.

You may remove the damaged foliage from banana trees but do not cut back the trunk unless you can tell for sure that it has been killed. It will look brown, feel mushy, feel loose in the soil and will bleed a lot if punctured. The exception would be any banana trees that produced a bunch of fruit last year. They will not send up any more new growth, and should be cut to the ground to make room for new shoots that will come up this summer.

Generally, it's a good idea to delay hard pruning of **woody tropical plants**, such as hibiscus, tibouchina, angel trumpet, croton, ixora, schefflera, copper plant and rubber tree, until new growth begins in the spring and you can more accurately determine which parts are alive and what is dead. Dead leaves on woody tropical plants can be picked off to make things look neater. If you can clearly determine what branches are dead on a woody plant you can prune them back. Try scratching the bark with your thumbnail. If the tissue underneath is green, it's still alive. If the tissue is tan or brown the branch is dead. Start at the top and work your way down to see how far back the plant was killed.

Cold Tolerance Temperatures of Commonly Grown Plants

These temperatures are cautious. You may find plants will take several more degrees of cold than indicated in the chart. But, to absolutely prevent damage, take action to protect or bring inside when these temperatures are predicted.

Plants will often return from their crowns, roots or below ground parts (bulb, rhizome, tuber, corm) if frozen back.

Plant	**Temperature plant may be damaged or killed**
Agapanthus * (*Agapanthus*)	23 to 15degrees or below
Agave * (*Agave americana*)	23 to 15 degrees or below
Allamanda (*Allamanda cathartica*)	32 to 28 degrees or below
Aloe (*Aloe vera*)	28 to 23 degrees or below
Amaryllis * (*Hippeastrum*)	28 to 23 degrees or below
Angel's Trumpet * (*Brugmansia*)	28 to 23 degrees or below
Ardisia * (*Ardisia japonica, A. crenata*)	23 to 15 degrees or below
Areca Palm (*Dypsis lutescens*)	32 to 28 degrees or below
Asparagus Fern * (*Asparagus* species)	25 to 23 degrees or below
Azaleas * (*Rhododendron* cultivars)	16 to 10 degrees or below
Banana * (*Musa*, hardiness depends on species)	32 to 28 degrees or below
Bamboos* (hardiness depends on species)	28 to 23 degrees or below
Bird of Paradise * (*Strelitzia reginae*)	25 to 23 degrees or below
Blue Daze (*Evolvulus glomeratus*)	32 to 28 degrees or below
Boston Fern * (*Nephrolepis exaltata*)	28 to 23 degrees or below
Bottle Brush Bush (*Callistemon rigidus*)	23 to 15 degrees or below
Bougainvillea (*Bougainvillea*)	32 to 23 degrees or below
Yesterday-Today-Tomorrow* (*Brunfelsia*)	25 to 23 degrees or below
Butterfly Vine * (*Mascagnia macroptera*)	25 to 23 degrees or below
Canna Lily *(*Canna*)	30 to 28 degrees or below
Camphor Tree * (*Cinnamomum camphora*)	23 to 15 degrees or below
Carissa (*Carissa grandiflora*)	28 to 23 degrees or below
Cassava * (*Manihot esculenta*)	32 to 30 degrees or below
Cassia * (*Cassia* [*Senna*] species; hardiness varies)	25 to 23 degrees or below
Castor Bean (*Ricinus communis*)	32 to 28 degrees or below
Chinese Fan Palm (*Livistona chinensis*)	20 to 15 degrees or below
Rice Paper Plant* (*Tetrapanax papyriferus*)	25 to 23 degrees or below
Citrus (hardiness varies depending on type)	25 to 15 degrees or below
Clerodendrum* (hardiness varies depending on species)	28 to 23 degrees or below
Clivia * (*Clivia miniata*)	30 to 28 degrees or below
Queen Palm (*Syagrus romanzoffiana*)	23 to 15 degrees or below
Coleus (*Solenostemon scutellarioides*)	32 to 28 degrees or below
Confederate Jasmine* (*Trachelospermum jasminoides*)	23 to 15 degrees or below
Copper Leaf* (*Acalypha wilkesiana*)	30 to 28 degrees or below
Croton (*Codiaeum variegatum*)	30 to 28 degrees or below
Crybaby Tree * (*Erythrina crista-galli*)	25 to 20 degrees or below
Date Palm (*Phoenix dactylifera*)	20 to 15 degrees or below
Dracaenas (*Dracaena* species and cultivars)	30 to 28 degrees or below
Duranta* (*Duranta erecta*)	28 to 23 degrees or below
Elephant Ears* (*Colocasia esculenta*; *Alocasia*)	32 to 28 degrees or below
Eucalyptus* (*Eucalyptus cineraria*)	23 to 15 degrees or below
Fatsia* (*Fatsia japonica*)	23 to 15 degrees or below
Fig Vine* (*Ficus repens*)	23 to 15 degrees or below

Plant	**Temperature plant may be damaged or killed**
Gerbera Daisy* (	28 to 23 degrees or below
Gingers* (many are root hardy)	30 to 28 degrees or below
Golden Rain Tree* (*Koelreuteria bipinnata*)	20 to 10 degrees or below
Hibiscus* (*Hibiscus rosa-sinensis*)	27 to 23 degrees or below
Impatiens (*Impatiens walleriana*)	32 to 28 degrees or below
Ixora (Ixora coccinea)	32 to 28 degrees or below
Jelly Palm (*Butia capitata*)	20 to 15 degrees or below
Lady Palm* (*Rhapis excels*)	20 to 10 degrees
Lantana* (*Lantana camara*)	28 to 23 degrees or below
Mandevilla (*Mandevilla*)	32 to 28 degrees or below
Mediterranean Fan Palm* (*Chamaerops humilis*)	20 to 15 degrees or below
Mexican Heather* (*Cuphea hyssopifolia*)	28 to 23 degrees or below
Night-blooming Jasmine *(*Cestrum nocturnum*)	28 to 23 degrees or below
Norfolk Island Pine (*Araucaria heterophylla*)	25 to 23 degrees or below
Oleander* (*Nerium oleander*)	20 to 15 degrees or below
Orchid Tree* (*Bauhinia* species)	28 to 23 degrees or below
Papaya* (*Carica papaya*)	30 to 28 degrees or below
Passion Vine* (*Passiflora* species and hybrids)	28 to 23 degrees or below
Periwinkle (*Catharanthus roseus*)	32 to 28 degrees or below
Split-leaf Philodendron* (*Philodendron bipinnatifidum*)	32 to 28 degrees or below
Plumbago* (*Plumbago auriculata*)	25 to 23 degrees or below
Poinsettia *(*Euphorbia pulcherrima*)	30 to 28 degrees or below
Primrose Jasmine *(*Jasminum mesnyi*)	23 to 15 degrees or below
Rangoon Creeper* (*Quisqualis indica*)	30 to 25 degrees or below
Rosemary (*Rosmarinus officinalis*)	20 to 15 degrees or below
Rubber Plant *(*Ficus elastica*)	28 to 23 degrees or below
Sago Palm *(*Cycas revoluta*)	20 to 15 degrees or below
Schefflera (*Schefflera arboricola, S. actinophylla*)	30 to 25 degrees or below
Shrimp Plant *(*Justicia brandegeeana*)	28 to 23 degrees or below
Spineless Yucca* (*Yucca elephantipes*)	23 to 20 degrees or below
Spider Plant *(*Chlorophytum comosum*)	28 to 23 degrees or below
Sweet Olive (*Osmanthus fragrans*)	20 to 15 degrees or below
Sweet Viburnum* (*Viburnum odoratissimum*)	20 to 15 degrees or below
Umbrella Plant *(*Cyperus alternifolius*)	25 to 23 degrees or below
Viburnum* (*Viburnum suspensum*)	23 to 15 degrees or below
Walking Iris* (*Neomarica gracilis*)	28 to 23 degrees or below
Walking Iris, Blue* (*Neomarica caerulea*)	25 to 20 degrees or below
Washingtonia Palm (*Washingtonia robusta*)	20 to 15 degrees or below
Wax Leaf Begonia (*Begonia semperflorens-cultorum*)	30 to 25 degrees or below
Wedelia *(*Wedelia trilobata* [*Sphagneticola trilobata*])	28 to 23 degrees or below
Weeping Fig (*Ficus benjamina*)	30 to 28 degrees or below

** Plants will often return from their crowns, roots or below ground parts (bulb, rhizome, tuber, corm) if frozen back.*

COLD PROTECTION FOR WINTER VEGETABLES

Although winter vegetables are generally hardy, new plantings may need to be protected from hard freezes as will certain vegetables near or at harvest stage. If temperatures below 30 degrees F are predicted, young seedlings should be covered with a layer of loose mulch, sheets or tarps. The cover may remain over the plants for a few days, but remove it as soon as the freezing episode is over.

Even though the plants are hardy into the teens, broccoli and cauliflower heads are tender. Also, the leaves of lettuce and the leaves and flowers and pods of peas may be damaged by hard freezes in the mid to low twenties. Although protection with covers is an option, the gardener should consider harvesting all mature and nearly mature produce before a major freeze.

The following lists will give you a quick guide to the ability of some vegetables to endure freezes. Remember that such factors as the age of the plant, prior weather conditions and the location of the plants are also factors in addition to the temperatures.

LESS HARDY

Protect or harvest if temperatures are predicted to go below the mid to upper twenties: fava beans, broccoli heads ready to harvest, cauliflower heads ready to harvest, lettuce and peas.

MODERATELY HARDY

Will tolerate temperatures down to the mid to low twenties with little or no damage: Swiss chard, Chinese cabbage, kohlrabi, mustard, spinach, radishes and turnips.

VERY HARDY

Will survive temperatures in the low twenties and teens: beets, Brussels sprouts, carrots, celery, collards, garlic, onions, parsley, leeks and shallots.

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