

COLD PROTECTION AT WIGHT NURSERIES

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*Wight Nurseries
Cairo, Georgia*

Wight Nurseries is in climatic zone 9 where normally lowest temperatures are in the range of 20° to 25°F. We have potentially damaging weather about 1 in 5 years. We have had snow one time since 1954, but we had 6°F weather in January, 1977.

We produce about 4 million container-grown plants per year, approximately 1/3 conifer and the balance broadleaf. We have never had damage to coniferous evergreens and have never made any effort to jam or space these plants. We do not jam azaleas but do put a polyethylene windbreak around the shade houses. Quite frankly I would hate to be growing a large quantity of container plants in a colder zone than this, particularly if the production were in broadleaves.

We have found that our biggest crop, *Ilex*, starts having severe root damage at around 12°F and sustained temperatures of 10°F or lower will kill them if some protection is not given.

Our protection at Wight Nurseries is very simple. As a preventive each year, all plants that do not have large tops and that will not be damaged by prolonged periods of jamming, are jammed together in beds 100 feet long and 10 cans wide. The beds are then wrapped with a Kraft paper that we buy from Union Camp Corporation (minimum order is 10,000 pounds). This paper lasts one season only. We make no effort to re-use it. We have obtained dramatic results from this paper which simply acts as a windbreak to the bed of cans. In years when we did not use paper, but jammed only, we lost the outside row of plants all the way around and occasionally the second row if the cold were severe. We have a policy at the nursery that we do not take Thanksgiving vacation unless this cold protection is completed.

The only other cold protection is the covering of our 76 plastic houses. For the propagation crew this is required for them to get a Thanksgiving vacation. That seems to be motivation enough to have it completed each year on time. As long as records have been kept, there has never been a cold in Cairo, Georgia, that would damage plants prior to Thanksgiving.

The hard part is the jamming together of the big finished plants, the salable choice ones that cannot be jammed over long periods because of damage to the plants. We jam these only when cold weather is coming and predictions are for mid- to low teen temperatures.

It is our policy to require all employees to work at this and the pay is double the normal rates. There is no effort to jam in pretty uniform beds; simply push everything together as tightly as possible. Because of the large tops on cultivars like *Ilex crenata* 'Helleri' or *Ilex vomitoria* 'Nana', jamming cannot be accomplished tightly. Therefore, these plants tend to sustain the greater losses. We do know that the larger the beds, the less damage we have because the severest damage is on the outside edges.

"Unjamming" is also important because winter temperatures can be high in our zone; we have 80°F days in January.

We think the younger plants, and plants with smaller heads, that can be jammed tightly and wrapped with paper receive about a 10°F benefit from this paper. Plants wrapped like this had no damage at 6°F last winter, although I am sure if temperatures stayed at 6°F a long period of time, the damage would have been great. Heavy finished plants that could not be jammed tightly were severely damaged at 6°F in January, 1977. I suspect we had as high as 50% mortality in some holly cultivars, with the highest mortality occurring in *Ilex vomitoria* 'Nana' and *Ilex crenata* 'Helleri.'

Some of the reasons there is benefit from Kraft paper around the cans is given in Table 1, which shows the effects of the "chill factor" when temperatures are at 20°F, 10°F and 0°F, with winds of 5, 10, 15, 20 and 25 mph. High winds are often associated with low temperatures.

Table 1. Wind Chill Factors.¹

Estimated Wind Speed MPH	Actual Thermometer Reading, °F				
	20	10	0	-10	-20
	EQUIVALENT TEMPERATURE, °F				
Calm	20	10	0	-10	-20
5	16	6	-5	-15	-26
10	4	-9	-21	-33	-46
15	-5	-18	-36	-45	-58
20	-10	-25	-39	-53	-67
25	-15	-29	-44	-59	-74

¹ Taken from a publication of the Grady County Electric Membership Corporation.

We are growing between 4 million and 5 million plants in containers. A major activity at Wight Nurseries, or any other nursery in our area, is devising the very best plan of cold protection that is economically feasible — treat the plan like insurance — consider the cost like an annual premium, and then make sure that the plan is implemented prior to the date of the first possible damaging freeze. Our plan simply involves:

1. Placing windbreaks around azaleas in shade houses.
2. Jamming when we can; making beds as large as possible.
3. Wrapping with Kraft paper on the north and west sides only.

Knowing what to do, but not doing it, will not save your plants.

WINTER PROTECTION FOR CONTAINER-GROWN RHODODENDRONS

TED RICHARDSON

Rhododendron Farm

Mountain Home, North Carolina

A great hazard of growing container rhododendrons is that of loss due to winter cold. Young plants have been a very serious problem as the wood is more susceptible to tissue injury. In the absence of protection large numbers with one or two flushes of growth are either fully lost or highly depreciated in value due to bark splitting. Hardy cultivars with 4 or more flushes of growth do not have this problem in our operation but do suffer from tissue water deficiency if exposed to direct sunlight when the roots are frozen. The degree of this type of injury varies with cultivar and exposure. Older plants may also suffer from root damage. A fourth problem is that of frost injury to actively growing tissue on both young and older plants.

I have attempted to solve the first mentioned problem by having no plants with less than four flushes of growth to carry through the winter. My propagation is done in late June. In early November the rooted cuttings are potted out in South Florida and two or three flushes of growth occur by the end of April. The plants then return to North Carolina, hopefully after frost damage is past, and two or three additional flushes are added during the summer. This leaves only mature plants to be carried through the winter.

Rhododendrons tend to roll their leaves when temperatures are low. It seems that leaves of the more tender cultivars unroll before those of the hardier ones. As soon as the sun hits, the leaves unroll and begin transpiring rapidly while the stem and root are still frozen. Protection from direct sunlight is, therefore, essential and is provided by a six foot high snow fence mounted vertically and oriented east and west. During late November, December, January, and early February, a 12-foot shadow is cast on the north side of the fence. The plants in each bay are pushed up tight into the shadow. This has proven