8. Failure by grafting too early or too late (in short — poor timing).
9. Failure to dip the grafts in wax so as to completely cover the union.
10. Failure to maintain proper ventilation and air movement in the greenhouse.
11. Failure to water properly, especially after grafting.
12. Failure by bringing the young grafts out of the greenhouse too soon and subjecting them to frost.

Now you know the causes of failure — eliminate them and you will have **SUCCESS.**

MODERATOR ZONDAG: Our next paper is entitled, "Growing Crapemyrtles in a Marginal Climate", by Ben Davis and Lonnie Lankford.

GROWING CRAPEMYRTLES IN A MARGINAL CLIMATE

BEN DAVIS II and LONNIE LANKFORD

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Ozark Nurseries is located in the Cookson Hills (a part of the Ozark Mountain range) in northeastern Oklahoma. This places us in USDA plant hardiness zone 7a. Although the average minimum temperature for this zone is given as 0 to 10°F, we nearly always experience 2 or 3 days of -5°F or lower at sometime during the winter.

This climate makes it difficult to grow crapemyrtle [*Lagerstroemia indica*] by the conventional method of propagating from unrooted hardwood cuttings lined out directly in the field. Because of the cold winter temperatures, cuttings lined out before mid-April are many times freeze-damaged. Late planted cuttings do not make enough growth in one season for most of the plants to reach salable size. It is very risky to leave them in the field 2 years because in most years the 1 year old plants will nearly all be winter-killed. We have tried digging all of the plants at 1 year, before extremely cold weather, grading out the plants large enough to sell, and lining back out the smaller plants. As a rule this did not work well because, while the plants were too small to see, they were too large to transplant easily through our transplanting machines. This practice usually resulted in poor stands from these re-lined out plants.

For the previously mentioned reasons we formerly purchased most of our crapemyrtle plants from growers who were located further south. However, economic conditions gradually changed, making this alternative no longer feasible. Some of our former suppliers went out of business. The others raised prices to that it was no longer possible to buy crapemyrtle and be able to re-wholesale them at a competitive price. Also, the supply of colors other than red was often short and unreliable.

These conditions caused us to consider the possibility of propagating crapemyrtle from softwood cuttings. We felt it would be possible to root the cuttings in outdoor mist beds, dig them as soon as we had a light frost to loosen the foliage, and pack them to be held in cold storage until it was safe to plant them in the spring. We also felt that by lining out a rooted cutting, it would be possible to grow most of the plants to salable size in one growing season, provided that they were fertilized heavily.

In the summer of 1971 we stuck our first batch of cuttings to try out our theory. Cuttings were taken during a period between July 15 and August 27. Cuttings were made 6 inches long, and the lower 1-1/2 inches were stripped as they were taken. Cuttings were then dipped in a solution of 1 tbs Captan per gal water. The basal ends of the cuttings were then dipped for 5 seconds in a solution of 0.25% IBA prepared as follows. Five grams of IBA were dissolved in 500 ml isopropyl alcohol, making a 1% base solution. Then 100 ml of the base solution was added to 100 ml of alcohol and 200 ml of water to make the 0.25% solution. Cuttings were stuck in outdoor mist beds in a medium of soil which had peat moss and sand added and stirred in with a rotary tiller.

The cuttings rooted in about 10 to 14 days. Unfortunately, they were stuck too late in the summer and the resulting liners were very weak and spindly. Partly because of this and partly because they were packed too wet, about 50% of the liners rotted in the storage during the winter. In spite of this setback the remaining liners, when lined out, made enough growth in one season to live up to our expectations.

In the summer of 1972 we stuck most of our cuttings earlier; from about June 20 to July 5. As soon as they were rooted, we began fertilizing them moderately. It was necessary to shear the cuttings to keep them about 12 inches tall to prevent them from shading out the slower growing cuttings in the bed. By digging time in the fall we had very heavy liners which stored well and transplanted well the following spring (1973). The cuttings rooted well enough to produce about 80% heavy liners. These plants, after lining out, grew well enough to be about 95% salable size by the fall of 1973.

At the present market price of crapemyrtle we feel that our propagation and production program is an economically sound one. This is a good example of the way in which changing economic conditions can make a change in propagation and production methods not only possible, but necessary.

MODERATOR ZONDAG: Thank you, Lonnie. Our next paper is by Joe Cesarini and is entitled, "Rooting of *Betula alba* clones."[1]

MODERATOR ZONDAG: Our next paper is on propagation of rhodendron cuttings and will be presented by Mike Medeiros.

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[1] EDITOR'S NOTE Mr Cesarini discussed his methods of rooting selected clones of *Betula alba* and Roger Coggeshall spoke on propagating own-rooted lilacs

ALL YEAR PROPAGATION OF RHODODENDRONS BY CUTTINGS

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Most nurseries which propagate rhododendrons take the cuttings when a new flush of growth matures. In my area this is in early July and in September. Although these times generally produce the optimum rooting, it is possible to root rhododendrons very successfully at other times of the year.

If you propagate rhododendrons almost exclusively, as we do, after the fall crop is rooted you will have an empty cutting house. Starting another crop at this time spreads out the work load and keeps our facilities operating year round.

Before giving a month-by-month accounting of our cutting activity, I would like to describe our propagating structures and materials.

Our propagating house is a Quonset-type structure covered with polyethylene. It has a bench on either side with a path in the middle. Each bench is constructed to support three rows of flats. The bench is a pipe structure covered by a length of copper naphthenate-treated snow fence. This allows the bottom of the flats to be heated by a hot air poly duct which runs the length of each bench. The sides of the bench are enclosed with poly to keep the hot air under the flats.

A mist line is suspended over each bench where it will not