DICKEY: PROPAGATION MEDIA

of Cattleya, fifteen of Laeliocattleya, four of Brassocattleya and two of Brassolaeliocattleya have been found susceptible. Cattleya mossiae and C. trianae are most frequently affected.

The most outstanding symptom is the variegation or color break of the flower. In addition to this mottling there may be some malformation, such as rolling and twisting of the sepals and petals. The leaves may also show a mosaic mottling and some distortion.

CYMBIDIUM MOSAIC. — Generally confined to species of Cymbidium, but Cattleya sp. and Laeliocattleya shoshone have been found susceptible.

Symptoms are variable both in severity and pattern. At first small, hardly visible, elongated chlorotic areas may be noted. Soon the spots and streaks are well defined. Eventually the affected area enlarges as pale, chlorotic patches, generally three-quarters inch long and often marked with small streaks of darker green tissue.

EFFECT OF PROPAGATION MEDIA AND DIP TREATMENTS ON ROOTING OF FLOWERING DOGWOOD, FORMOSA AZALEA AND EAST PALATKA HOLLY

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Propagation is one of the most important phases of the nursery business. Increasing woody ornamental plants by cuttage is a very important method of propagation.

There are many factors that affect the rooting of cuttings, of these, the propagation medium and certain chemicals (e.g. sucrose and certain hormones) may affect the speed of rooting and number and volume of roots produced.

Watkins (7, 8, 9), Watkins and Blackmon (10, 11), Griffiths and Gammon (1), Griffiths, Miller and Sharpe (2), Sharpe (5, 6), Hyatt (3) and Jalil and Sharpe (4) have reported on work dealing with the effects of propagation media and chemical treatments on rooting of several woody ornamental and fruit plants grown in Florida.

Florida nurserymen produce most of their flowering dogwood plants from seed. However, a commercially satisfactory asexual method of propagation is desirable so that good clones can be increased. Outstanding success with mist propagation in recent years with a number of hard to root plants, using greenwood cuttings of half-ripened wood of present seasons growth, suggested the desirability of testing this method on flowering dogwood.

Materials and Methods

An experiment was initiated May 11, 1957, using four to five-inch greenwood cuttings of half-ripened wood of a desirable tree of Cornus florida, Ilex opaca var. East Palatka and Rhododendron indicum var. Formosa. The intermittent mist, controlled by an electronic leaf, under which cuttings were placed operated continuously for duration of the experiment. The propagation media were placed in 5” x 18” x 26” slatted bottom trays. The holes between the slats were covered with hardware cloth. These trays were placed on the bench of a greenhouse which had the glass painted so that the light intensity was reduced about one-half.

Propagation media used were mixtures (by volume) of: (1) 80 percent shavings and 20 percent peat; (2) 60 percent shavings and 40 percent peat; (3) 60 percent perlite #8 and 40 percent peat; (4) 60 percent perlite #8 and 40 percent perlite #30. Florida peat and pine shavings were used in this experiment.

The following dip treatments were given the cuttings before placing them in the rooting media: (1) none; (2) soaked for 24 hours in 170 ppm of sucrose; (3) soaked for 24 hours in 170 ppm of sucrose then treated with a commercial hormone powder.1

The experimental design was a split-split

1The commercial hormone powder, according to the manufacturer, contains the following active ingredients: (1) naphthalacetic acid 0.33%; (2) 2-methyl 1 naphthalacetic acid 0.33%; (3) 2-methyl 1 naphthalacetic acid 0.33%; (4) indole-3-butyric acid 0.33%.
TABLE 1. EFFECT OF PROPAGATION MEDIA AND DIP TREATMENTS ON ROOTING OF CUTTINGS OF THREE PLANT SPECIES.

<table>
<thead>
<tr>
<th>Dip Treatment</th>
<th>Peat+</th>
<th>Peat-</th>
<th>Perlite #8</th>
<th>Perlite #8</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>20%</td>
<td>10%</td>
<td>40%</td>
<td>60%</td>
</tr>
<tr>
<td>Dogs-</td>
<td>Dog-</td>
<td>Dog-</td>
<td>Dog-</td>
<td>Dog-</td>
</tr>
<tr>
<td>Shaving</td>
<td>Shaving</td>
<td>Shaving</td>
<td>Shaving</td>
<td>Shaving</td>
</tr>
<tr>
<td></td>
<td>80%</td>
<td>60%</td>
<td>60%</td>
<td>60%</td>
</tr>
<tr>
<td>None</td>
<td>Wood*</td>
<td>Wood*</td>
<td>Wood*</td>
<td>Wood*</td>
</tr>
<tr>
<td>Sugar</td>
<td>Sugar</td>
<td>Sugar</td>
<td>Sugar</td>
<td>Sugar</td>
</tr>
<tr>
<td>Sugar + Hormone</td>
<td>Sugar + Hormone</td>
<td>Sugar + Hormone</td>
<td>Sugar + Hormone</td>
<td></td>
</tr>
</tbody>
</table>

*Rooting rating scale: 1—no roots; 2—slight; 3—moderate; 4—heavy; 5—very heavy rooting.

plot with four rooting media as whole plot treatments, three plant species as sub-plot treatments and three dip treatments as sub-sub plot treatments. There were three replications with 10 cuttings of each plant species as the experimental unit.

The cuttings which were stuck on May 11, were removed from the propagation media and rated on July 18, after 68 days in the propagation media. A rating system was used to measure treatment effects. The rating score of each cutting was gotten by a visual inspection of its root system. The principal factors determining the “rooting rating” of each cutting were number of roots, length of roots and density of the root system. Of these, length and density had a greater effect on “rooting rating” score than did number of roots. The “rooting rating” values of Table 1 and Fig. 1 are: 1—no roots; 2—slight; 3—moderate; 4—heavy; 5—very heavy rooting.

RESULTS

The rooting data for the highly significant propagation medium x dip treatment x species interaction are given in Table 1 and Fig. 1.

Formosa azalea rooted equally well in each of the four media and rooting was not influenced by any of the dip treatments. In another experiment now in progress Formosa azalea responded similarly as rooting was as good in perlite #8 medium as in media composed of peat alone or mixtures of peat and perlite #8 in various combinations.

Flowering dogwood rooted as well in medium 4 (60 percent perlite #8 – 40 percent peat) as in the three other media when given sucrose or sucrose-hormone dip treatments. Since the sucrose and sucrose-hormone dip treatments were equally good, this indicates that the response was to sucrose because the addition of the hormone powder had no added beneficial effect on rooting (Fig. 1).

American holly var. East Palatka responded to the sucrose-hormone dip treatment in all media except medium 3 (60 percent perlite #8 – 40 percent peat). Since it did not noticeably respond to sucrose it can be inferred that the hormone dip was responsible for the increase in rooting.

DISCUSSION

Flowering dogwood and Formosa azalea had significantly higher rooting scores than East Palatka holly which means that, under
the conditions of this experiment, they produced a slightly higher percentage of cuttings with higher "rooting rating" scores than did holly. These differences may be those that normally exist between these species and varieties in their response to rooting.

Medium 1 and 2, mixtures of peat and shavings, are in use in commercial nurseries in Florida and have given very satisfactory results in rooting cuttings. The medium of 60 percent peat and 40 percent perlite #8 (medium 3) produced as good rooting of the cuttings of the three plants used as those media composed of mixtures of peat and shavings (medium 1, 2).

Medium 4, composed of a mixture of two grades of perlite, was not as good for rooting cuttings of flowering dogwood and East Palatka holly given no dip treatment as was medium 1, 2 and 3. However, when East Palatka holly was treated with the sucrose dip and flowering dogwood with the sucrose-hormone dip, rooting was comparable to that gotten in the other three media except medium 3.

Cuttings of three plant species were rooted in four media following three dip treatments set up in a split-split plot experimental design. Formosa azalea rooted equally well regardless of media or dip treatment. Flowering dogwood rooted equally well in medium 1, 2 and 3 and in medium 4 only when sucrose or sucrose-hormone dip was used. Otherwise dip treatments did not significantly affect rooting of dogwood. East Palatka variety of American holly responded to the sucrose-hormone dip treatment in all media.

Acknowledgment

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Literature Cited


A STUDY OF SOME FACTORS AFFECTING AMARYLLIS FLOWERING

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There seems to be some confusion in the literature with regard to the proper time to dig amaryllis for forcing and the minimum bulb circumference necessary for flowering. Laurie (1) states that for January forcing the bulbs should be potted in October and that the plants should have had a complete rest during the summer. Post (3) states that amaryllis are dug when the tops cease to grow in September and October. They are potted from October to January. He mentions nothing about a rest period. He cites also the work of Miss Luyten in Holland. Luyten (2) found that bulbs less than 20 cm in circumference did not normally flower unless subjected to hot water treatment. Florida's warm climate should promote faster development.

The authors questioned the validity of the statements or inferences above that only a large sized bulb that has gone through a rest period will flower satisfactorily when forced. In Florida where the amaryllis remains green throughout the year over most of the state, small sized bulbs have been known to produce satisfactory flowers without going through a period of rest or loss of foliage.