

CULTURAL SUGGESTIONS FOR PREVENTION OF LOSSES IN AZALEAS

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North Carolina flower growers and nurserymen are confronted with a serious disease on both Kurume and indica azaleas caused by the parasitic (Cylindrocladium scoparium). Many cuttings are lost to the disease during propagation. The basal portion of the cutting usually turns brown and becomes water-soaked (Fig. 1A). In most instances the disease does not prevent rooting; rather, roots generally form above the rotted tissue (Fig. 1A), but when these diseased, rooted cuttings are potted most of them die before reaching maturity.

Small liners are also affected with a stem rot caused by the same pathogen. The first symptom observed is a gradual wilting of the foliage (Fig. 1B) which finally turns brown or black and drops from the plant. Infected plants fail to regain turgidity and die within several days. Occasionally the stem tissue at the soil line blackens and is completely girdled.

Methods

In July 1964, a study was initiated to determine if the disease could be controlled during propagation by cultural and/or chemical methods. The study consisted of 6 comparisons, replicated twice, involving 25 cuttings in each. The cuttings were rooted in a medium consisting of equal parts by volume of peat and horticultural perlite (Perl-Lome) placed in No. 42 market pak containers. Intermittent mist was utilized from 5:45 a.m. to 6:30 p.m. with intervals of 3 sec./minute during the period required for rooting.

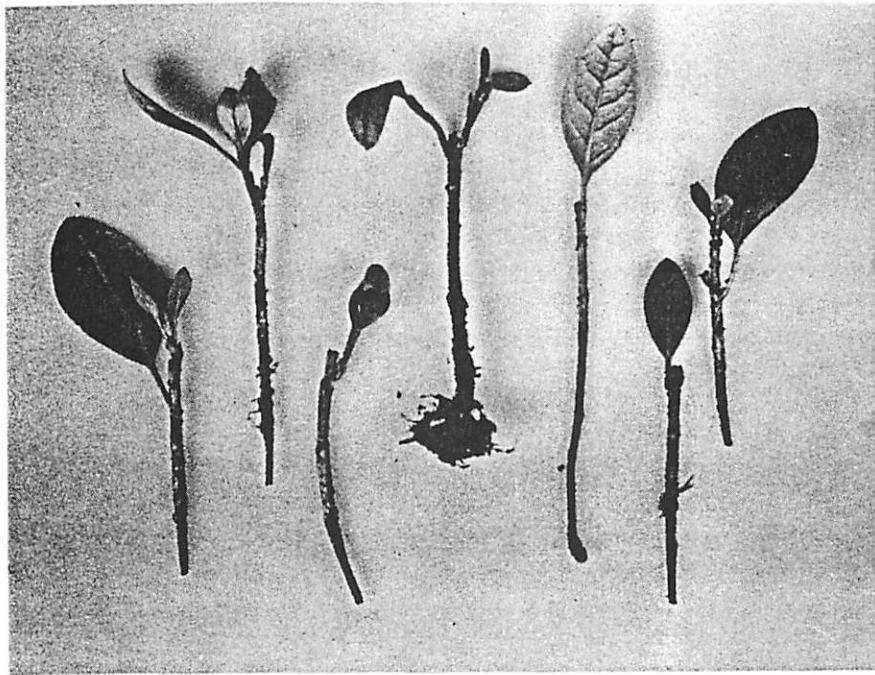
Cuttings of the azalea cultivar, Red Wing, were obtained from two commercial greenhouses. One set of cuttings (group "A") was taken from infected plants and hence, were not vigorous and not classifiable as choice cuttings. The second group of Red Wing cuttings (group "B") was selected only from vigorous, healthy-appearing plants. Contaminated cuttings (group "A") and clean cuttings (group "B") were dipped separately in (1) clear water or (2) a Thylate solution (4 level tbs./gal.) to which 1 tsp./gal. of wetting agent (Triton B-1956) was added. A third set (group "C") comprised a combination of equal numbers of groups "A" and "B" cuttings which were dipped in water or Thylate solution and were interset in the rotting medium.

Results and Discussion

The results of this study (Table 1) showed that the selection and use of cuttings from apparently healthy plants (group "B") resulted in good rooting and a low incidence of disease. Although this is not a 100% effective method to prevent infection with Cylindrocladium scoparium, growers who adhere to strict sanitary practices can help prevent excessive losses from the disease.

Indiscriminate selection of cuttings from groups "A" and "B" resulted in an unusually high percentage of diseased cuttings. This was shown in the propagation of equal numbers of clean and unclean cuttings together in the same container (group "C"). All workers therefore should be instructed to select cuttings from vigorous and clean-appearing shoots.

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1-A



1-B

Fig. 1 Disease symptoms on azaleas resulting from infection by Cylindrocladium scoparium:

- A. Basal stem rot on cuttings. Note poor rooting response.
- B. Typical wilt at advanced stages of the disease.

Thylate dips were found to be of no particular value when clean cuttings were selected. The difference in percentage rooting of group "B" cuttings that were dipped in water or in Thylate solution was insignificant. The percent rooting of unclean cuttings (group "A") was increased with a Thylate dip. However, the majority of these cuttings were infected by Cylindrocladium scoparium and were not considered of sufficient value to warrant continued propagation. All cuttings of group "A" that were not dipped in Thylate became infected and were considered useless.

Table 1. The effect of chemical and/or cultural practices on the control of Cylindrocladium scoparium.

Condition of cuttings at termination of study.	Group "A"		Group "B"		Group "C" Combination			
	Unclean Cuttings		Clean Cuttings		Dipped in Thylate		Dipped in Water	
	Dipped in:		Dipped in:		Condition of cuttings		Condition of cuttings	
	Thylate*	Water	Thylate	Water	Clean	Unclean	Clean	Unclean
% Good roots	68***	0	86	80	92	50	72	75
% Poor roots	16	88	14	18	8	8	20	0
% Not rooted	16	12	0	2	0	42	8	25
% Diseased**	60	100	14	16	58	92	58	100

* 18 grams per gal. water for 30 minutes (plus a spreader-sticker).

** Cylindrocladium scoparium.

*** Mean of 50 cuttings.

To control the disease in both commercial greenhouses and nurseries, the following practices are suggested:

1. Take cuttings only from vigorous and clean shoots. Avoid taking cuttings from the interior of the plant.
2. Dispose of all diseased plants, as soon as detected, especially those that wilt and fail to regain turgidity.
3. When possible, provide overhead protection against rain and sprinkler irrigation for those plants to be used as sources of cuttings.
4. As an added precaution, soak cuttings for thirty minutes in Thylate (4 lbs./100 gal.) or Zineb (4 lbs./100 gal.). Use a good spreader-sticker (1 tsp./gal.).