Horticulture Research, 1987 – Overton

Research Center Technical Report 87-1

Texas A&M University Agriculture Research &
Extension Center at Overton

Texas Agricultural Experiment Station
Texas Agricultural Extension Service

Overton, Texas

1987

AUTUMN PROPAGATION OF SEMI-HARDWOOD BLUEBERRY CUTTINGS

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INTRODUCTION

Commercial propagation of rabbiteye blueberries by semi-hardwood cuttings may only have a 50% success rate. This poor rooting percentage greatly reduces the efficiency of a blueberry nursery operation. The objective of this study was to determine if certain treatments could improve rooting of blueberry cuttings taken in the autumn

MATERIALS AND METHODS

Semi-hardwood cuttings were taken every two weeks from 'Tifblue' plants starting October 16 until November 13. Cuttings were 12 cm long (6 inches) with all but the two most apical leaves removed. Cuttings were rooted in a climate controlled greenhouse in pure peat media. Misting was every 2 minutes for 5 seconds during the daylight hours.

Treatments were factorially arranged in the propagation bed with three bi-monthly cutting times, two day-lengths (8 and 16 hours) and 4 cutting treatments (chilling treatment (2 weeks at 5°C), 10 second dip in 0.2% IBA, heated rooting bed (30°C) and control). The 8 hour daylength was achieved by covering the cuttings with a black plastic frame box from 4 p.m. to 8 a.m. The 16 hour daylength was achieved by extending the normal daylength with grow lamps. There were eight cuttings per replication and six replications per treatment in a completely random design. Cuttings were evaluated both six and ten weeks after sticking. Cuttings were rated on a scale of 1 to 9, with 1 = dead, 2 = alive but no callus, 3 = small callus, 4 = medium callus, 5 = large callus, 6 = roots initiating, 7 = small root system, 8 = medium root system and 9 = large root system. Only categories eight and nine were considered marketable cuttings.

RESULTS

The interactive effects between factors were highly significant. Early season cuttings resulted in improved rooting only within the

check and IBA treatment (Table 1). Long days resulted in improved rooting with all treatments except the cold treatment, IBA treatment, and the check on the first cutting time and the cold treatment on the third cutting time. Heated root beds were deliterious with short days but highly advantageous to rooting in long days.

DISCUSSION

The earlier cuttings can be taken in the autumn, the better the rooting. The use of IBA was beneficial for rooting regardless of the cutting selection time or daylength. A heated rooting bed would be important for outdoor propagation houses that are not climate controlled. In climate controlled greenhouse situations, the lack of effect was probably due to the already warm rooting area (25°). Increasing the daylength appears to be another way of improving the rooting percentage of cuttings in autumn. The longer photoperiod may provide cuttings with a longer time to produce photosynthates during the low light conditions in the autumn and winter or rooting may be modified by a simple photoperiodic effect. Long days have been reported to be beneficial compared to natural daylenth, even for summer propagated cuttings of rabbiteye blueberries.

Table 1. Interactive Effects for Autumn Applied Rooting Treatments of Rabbiteye Blueberry Cuttings after 10 weeks.

Cutting time	Day length (hours)	Mean Rooting Score			
		Check	IBA	Cold	Heat
16 October	8	6.3	6.9	5.2	3.6
	16	6.1	6.4	4.4	7.6
1 November	8	3.7	4.5	4.0	2.1
	16	4.5	6.3	4.7	5.5
13 November	8	4.9	5.2	4.7	3.7
	16	5.2	6.2	4.8	4.6