

Effects of Cutting Age and Collection Date on Rooting of Highbush Cranberry¹

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Abstract. Stem cuttings of highbush cranberry, *Viburnum edule* (Michx.) Raf., were collected at periodic intervals throughout the summer of 1986 from native stands growing near Fairbanks, Alaska. One-year-old and current season's growth were treated with IBA powder (0.8%) and rooted in perlite under intermittent mist to determine the optimum cutting age and collection date for maximum rooting percentages and rooted cutting survival. Rooting was best on current season's growth collected on August 16. Rooted cutting survival following transplanting exceeded 50% only on current season's growth. The period of greatest survival coincided with the timing of maximum rooting percentages for both current season's and one-year-old growth.

Introduction

Highbush cranberry, *Viburnum edule*, is an ornamental, shade-tolerant shrub native to Alaska which is useful in landscaping woodland areas and as revegetation material on severely disturbed areas such as mining, highway pipeline or similar construction sites. Highbush cranberry may be propagated by stem cuttings, but rooting success is seasonal. A previous study showed that 80 percent or more of softwood cuttings collected in July and treated with 0.8% IBA powder rooted within 6 weeks, whereas cuttings collected in September did not root (2). This seasonality is common in other *Viburnum* species with softwood cuttings being recommended frequently (1,3,4,5). The purpose of this study was to identify summer rooting patterns of one-year-old and current season's growth of highbush cranberry and determine the best timing of cutting collection for maximum rooting survival.

TABLE 1. Eight week rooting percentages and rooted cutting survival 4 weeks after transplanting of highbush cranberry, *Viburnum edule*, stem cuttings collected from current season's and one-year-old growth at various times during the growing season.

Collection date	Rooting (%)		Rooted cutting survival (%)		
	Current season's growth	One-year-old growth	Current season's growth	One-year-old growth	
June	7	40.8 ab*	9.1 cd	12.5 cd	0.8 d
	14	20.8 bcd	16.6 cd	16.8 cd	4.3 d
	21	37.4 abc	25.8 bcd	27.8 bc	17.5 cd
	28	24.1 bcd	22.5 bcd	11.8 cd	20.3 bc
July	12	24.1 bcd	47.5 ab	17.5 cd	41.5 ab
	26	37.5 abc	35.3 abc	54.0 a	43.3 ab
Aug	11	46.0 ab	45.8 ab	40.5 ab	23.3 bc
	16	61.0 a	26.5 bcd	56.8 a	12.3 cd
Sept	6	30.7 bcd	18.3 cd	29.3 bc	33.0 abc

*Mean separation within column pairs by Duncan's New Multiple Range Test, P = .01.

Materials and Methods

Stem cuttings were collected from native stands near Fairbanks at periodic intervals throughout the summer of 1986. On each date, 240 cuttings were collected: 120 cuttings each of current season's growth and one-year-old growth. The leafy stems were placed immediately into plastic bags and processed as soon as possible after collection to avoid excessive moisture loss. All cuttings were treated with 0.8% IBA powder, then stuck into flats of perlite. Cuttings were rooted in an intermittent mist propagation bench with a mist cycle of 12 sec every 10 min. The percentage of rooted cuttings was determined after 8 weeks from the 4 replicates of 30 cuttings per treatment age and date. Subsequently, rooted cuttings were transplanted to flats of potting soil, Lemeta peat and perlite, 1:1:1 by volume) and cutting survival was evaluated after an additional 4 weeks of growth. Data were analyzed for effects of age, date, and treatment interactions using the analysis of variance and Duncan's New Multiple Range Test, P = .01.

Results and Discussion

The effects of cutting age and collection date on rooting of highbush cranberry were both highly significant (P = .01), as was the interaction between date and age (Table 1). Rooting was best on current season's growth collected on August 16. Only on that date did the average rooting percentage exceed 50%. On that date the plants

growing in the wild had completed most of their stem elongation; stem length was ideal for cutting handling (average 12.5 cm), and all cuttings had fully developed leaves. The lowest rooting percentages were recorded during the period of maximum growth and leaf expansion from June 14 to July 12, and again at the end of the season on September 6.

Root production on one-year-old wood did not exceed 50% for any collection date. Like the current season's growth, best rooting occurred late in the season after the flush of new growth from July 12 through August 11.

Rooted cutting survival following transplanting exceeded 50% only on current season's growth collected on July 26 and August 16. The period of greatest survival coincided with the period of maximum rooting for both current season's and one-year-old growth.

Rooting percentages were significantly lower than previous studies with this species (2). The use of heterogeneous native stands and seasonal environmental differences probably contributed to these lower percentages. Highbush cranberry is similar to other *Viburnum* species in that seasonal timing is important to rooting success. Unlike some *Viburnum* species (1), *Viburnum edule* does not root well from actively growing, very young shoots, but is best rooted from partially ripened wood collected late in the growing season.

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