

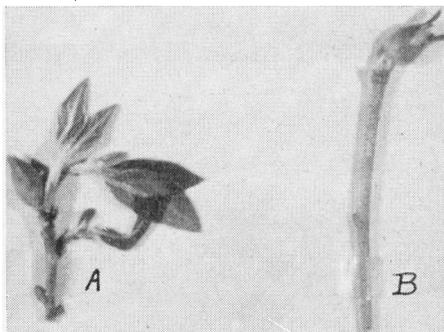
Bud Initiation of Azaleas

preliminary studies on flower development indicate frequent removal of branch terminals will produce abundant flowering

Harry C. Kohl and R. H. Sciaroni

Azalea plants are forced to bloom in large quantities for the retail market from Christmas through Easter. To achieve an abundance of flowers, even flowering, and rapid forcing, the grower must remove branch terminals—pinch—frequently to cause profuse branching which is a forerunner to abundant flowering. To make the plants flower rapidly they must be given a low temperature treatment after the buds are developed and before forcing begins. For an even flowering all buds must be initiated and developed simultaneously.

In other sections of the country where there are definite seasons, bud initiation and flowering are locked with seasonal rhythm; they are definite and even. In coastal California—with cool summers and mild winters—bud initiation and development take place over a longer period of the year. Hence initiation and flowering are more irregular and the coastal California grower must pinch all branches on his plants in the same period to obtain a steady, even blooming. The period of pinching must not be too close to the cold treatment or the flower buds will not have developed sufficiently to re-



Azalea shoots with older leaves removed. A, Variety Rose Queen pinched July 1. B, Variety Rose Queen pinched August 11. More desirable flower bud without by-pass shoots. Photographed November 10.

spond. Nor must it be too long before the cold treatment or new vegetative shoots will be formed and they will bypass the bud developed on shoots following the pinch. These by-pass shoots will break erratically and will have initiated flower buds in many different stages when the cold treatment is given. The result will be very irregular blooming of the forced plants.

To time the pinch period properly a grower needs to know how long after a pinch his plants will initiate flower buds and how fast those flower buds will develop.

In a series of studies in San Mateo and Los Angeles counties plants of a number of varieties were pinched on varying dates. Several growing points were gathered at weekly intervals following the pinch. These growing points were sectioned, stained and examined for evidence of flower initiation and development.

Most of the varieties used in this test initiated—as shown in the table—at about the same time following a pinch on any one date. The average number of days from pinch to initiation was 45 for plants pinched in June and July. The variety Rose Queen pinched on August 11, initiated at a much slower rate than that of the June-July average. The variety Jane Peters when pinched as late as August 11 failed to initiate flower buds by December 15 when the investigation was terminated.

Development of flower buds of the variety Rose Queen is given in the graph. The flower bud development curves

parallel each other closely although temperatures and day length were decidedly different, but initiation was markedly delayed for the late—August 11—pinch when compared with either the June 1 pinch or the midseason—July 1—pinch.

The development of the flower buds following the July 1 pinch finally caught up to that following the June 1 pinch and both ceased visual development at the same stage.

Because these studies were by no means exhaustive, the subject of azalea flower initiation and development is being investigated further.

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Date of Flower Bud Initiation and Days from Pinch to Flower Bud Initiation of Azaleas

Variety	Date of pinch	Location	Date of flower bud initiation	Days from pinch to flower bud initiation
Sweet-heart supreme	1954 June 1	Los Angeles	1954 July 10	40
	July 1	Los Angeles	Aug. 20	51
	April-May	East Palo Alto	About 8/10	
Miss Cottage Garden	June 30	"	Aug. 17	48
	July 22	"	Sept. 11	51
Hexe	April-May	"	About Aug. 7	
	June 30	"	Aug. 20	51
Jean Hearrens	July 22	"	Aug. 27	36
	April-May	"	About July 27	
Jane Peters	June 30	"	Aug. 20	51
	July 22	"	Aug. 27	36
Rose Queen	June 1	Los Angeles	July 10	40
	July 1	"	Aug. 10	41
	Aug. 11	"	None by 1/1/55	
Rose Queen	June 1	Los Angeles	July 18	48
	July 1	"	Aug. 10	41
	Aug. 11	"	Oct. 13	64

Line graph showing the development of flower buds of azalea variety Rose Queen pinched on June 1, July 1, and August 11. Stages of development were as follows: 0, Vegetative. 1, Change in shape of terminal. 2, First row floral parts originated. 3, Petals differentiated. 4, Anthers differentiated. 5, Style differentiated and open. 6, Style elongate and closed. 7, Ovary well developed. 8, Ovules well developed. 9, Buds show color. 10, Full bloom.

