

ROSE PRODUCTION TIMING BY DESHOOTING

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Deshooting, developed by Dr. Zieslin and his assistants in Israel, consists of terminal bud removal of the flowering shoot and continuous lateral bud removal from the lower leaf axils (1). Zieslin found that lateral bud removal (deshooting) can increase flower production and "enhance structural shoot formation (bottom breaks)" (1). The production of bottom breaks was attributed to the reallocation of stored food within the plant, which normally would have been utilized in flower production. Similar research has been carried out at the University of California, Davis (2).

We felt that the manual deshooting process may be too labor intensive to be economically feasible in a commercial range. A power hedger was used to see if similar results could be obtained as with hand deshooting. Deshooting was thought to be a possible cultural practice, which if incorporated into the greenhouse schedule, could aid the growers in meeting demand periods.

Materials and Methods

Three year old 'Forever Yours' and 'Town Crier' plants were cut back to 24" on May 13, 1977. They were grown in 33 × 3½ foot plots in alternating soil and gravel beds. All roses were soft pinched twice, June 7-14 and July 11-18, when terminal flower buds were the size of a pea. The treatments, which were replicated in each media, were (1) hand deshooting, (2) mechanical deshooting (power hedger) and (3) control.

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The control roses were allowed to bloom and go into normal production after the second pinch. In the hand deshooting treatment, which started on July 25 and continued until October 30, all lateral shoots above 36" plant height were removed completely at four day intervals. The lower shoots, below 36 inches, were pinched to a 5-leaflet-leaf. Plants were mechanically deshooted to a 36 inch height every six days. Deshooting ceased on October 30 to allow the proper amount of time needed for Christmas and Valentine's Day crops.

Rose production for the control treatment began on August 2 and continued until June 1, 1978. Flowering for the deshooted treatments began on November 28 for 'Town Crier' and December 4 for 'Forever Yours' after deshooting stopped. The control treatment was not pinched for the Valentine's Day crop, however, it was scheduled from the time it was soft-pinched in July.

Results

The effect of deshooting was expected to "wear-off" after the Valentine's Day crop, however, this was not the case. The deshooted plants, in both varieties and media showed no spreading of production peaks throughout the growing season (Figure 1). The production peaks corresponded perfectly with the higher demand at Christmas, Valentine's Day and Mother's Day. Rose demand at Easter was not as high as Valentine's Day or Mother's Day, but it was treated as a timed peak period. Flower production varied among deshooting treatments, varieties and media. The highest production in the whole experiment was in the hand deshooted, 'Forever Yours', which was grown in gravel.

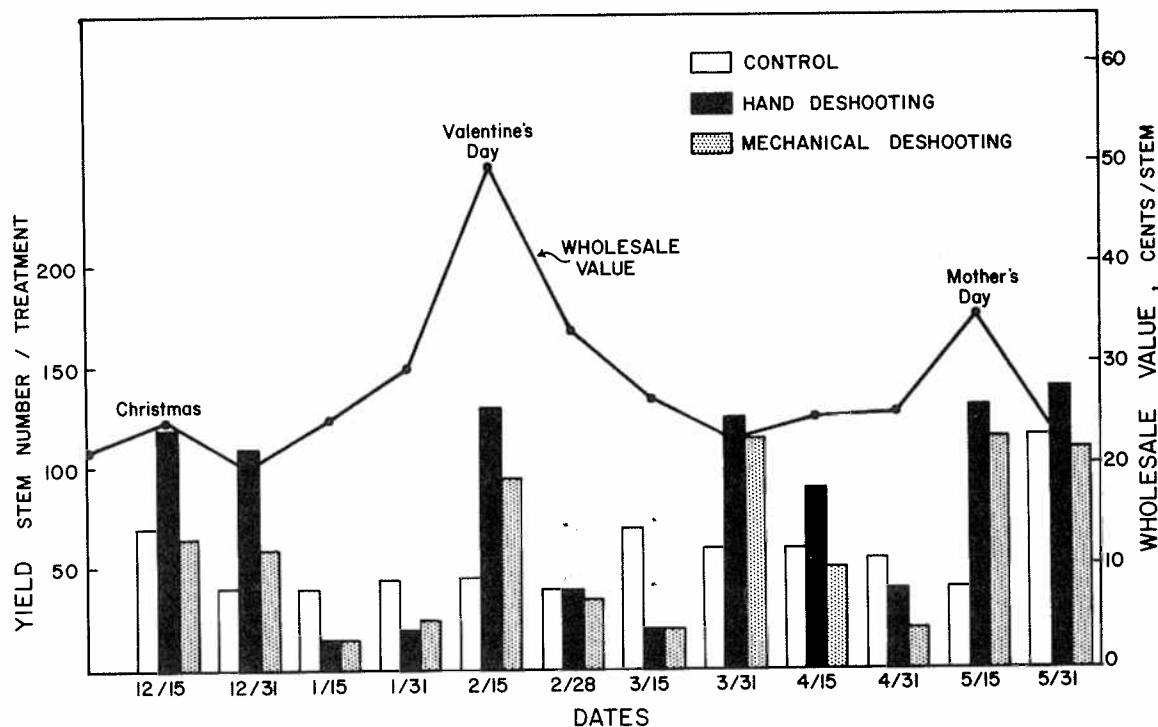


Fig. 1: Production of 'Forever Yours' roses relative to their wholesale value after deshooting treatments. Deshooting cycled production into holiday periods of relatively higher wholesale prices.

Rose production in the control treatments was high during the fall, but during the remainder of the growing season consisted of numerous low peaks at unimportant times. The average rose stem length in the experiment was 24-26 inches.

'Town Crier' responded poorly to the mechanical deshooting treatment with a greater number of shorter grade flowers than the hand deshooted and control treatments. During mechanical deshooting, the whole shoot was not completely removed, leaving numerous short shoots brooming out from the top of the plant. The new flowering shoots from these nodes were often blind, or, if they did flower had considerably shorter stems. It took several crops to bring the rose plants out of the abnormal growth caused by mechanical deshooting. Decreased production was the primary effect of mechanical deshooting. Stems on the hand deshooted plants, usually produced two, vigorous, nonblind shoots.

Discussion

Deshooting can be used as a management tool in timing rose production for peak demand periods. Both the hand deshooted and mechanical deshooted plots had crops which corresponded perfectly to the consumer demand peaks. The greatest number of roses were available at times when the price per stem was the highest.

The hand deshooted and control plants produced long stems and high quality roses throughout the season, but the mechanical deshooted plants grew abnormally short stems with continual hedging. The mechanical deshooted crops corresponded with the peaks, but there were considerably more blind shoots and the flower quality and production decreased. Mechanical deshooting would not be recommended as a commercial practice.

Table 1: Number of 'Forever Yours' and 'Town Crier' flowers by grade and deshooting treatment from Nov. 1, 1977 to June 1, 1978. Rose plants were grown in a gravel medium, 33 square feet per treatment.

TREATMENTS	Flower Grade - Stem Length			
	30"+	22-30"	14-22"	10-14"
'Forever Yours'				
MECHANICAL DESHOOTING	84	383	195	59
HAND DESHOOTING	125	632	182	40
CONTROL	90	484	149	28
'Town Crier'				
MECHANICAL DESHOOTING	10	266	191	58
HAND DESHOOTING	56	413	178	25
CONTROL	155	540	99	9

Although different varieties respond differently to deshooting, we noted a positive response to deshooting in both 'Forever Yours' and 'Town Crier'. Our best results were from 'Forever Yours' grown in gravel. There was noticeably higher production in the treatments grown in gravel than those grown in soil.

Conclusion

Deshooting caused a slight increase in production for the 'Forever Yours' rose variety, however, there was no production increase in 'Town Crier'. Considering the

Table 2: Number of flowers and their return per square foot after deshooting treatments from November 1, 1977 to June 1, 1978. Rose plants were grown in a gravel medium. Dollar return based on wholesale prices, Denver, Colorado.

TREATMENTS	Total Number Flowers/Ft ²	Dollar Return/Ft ²
'Forever Yours'		
MECHANICAL DESHOOTING	22	6.25
HAND DESHOOTING	30	8.82
CONTROL	23	7.10
'Town Crier'		
MECHANICAL DESHOOTING	16	4.39
HAND DESHOOTING	20	5.82
CONTROL	24	6.84

amount of labor required to deshoot continuously, the slight production increase would limit the feasibility of deshooting. It was felt that regular pinching, prior to peak demand periods, yields the same number of marketable flowers as deshooting plants.

Mechanical deshooting, a labor saving alternative, caused abnormal plant growth and lower production. This would not be an advised deshooting method.

Literature Cited

1. Zieslin, N., Y. Mor, A. Bachrach, H. Haaze and A. M. Kofranek. 1976. Controlling the growth and development of rose plants after planting. *Scientia Horticulturae* 4:63-72.
2. Byrne, Thomas G., 1978. Flower Bud Pinching and Lateral Bud Deshooting for increased Productivity. *Roses Incorporated Bulletin*. April 1978.