

Poinsettia Pinching

by

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Introduction

The poinsettia is pinched to release the plant from apical dominance and cause the lateral branches to grow. Apical dominance is defined as the inhibition of lateral bud growth by a growing apex. As long as the apex remains intact, growth of the buds below is inhibited. In many plants including free branching poinsettia cultivars, the inhibition of lateral buds increases as proximity to the growing apex increases. This means that lateral buds further away from the apex will be less inhibited than those closer to the apex.

Scientists are not exactly sure how apical dominance is maintained in the plant. It is however known that removing the apex of a plant shoot will allow the growth of inhibited buds. It is also known that immature expanding leaves play a major role in maintaining apical dominance, especially in the poinsettia. Therefore, removal of all immature leaves

in addition to the apex is essential in the poinsettia if apical dominance is to be completely broken.

Traditional Pinching

Traditionally, poinsettia plants are pinched by decapitating the plant apex with a finger-nail or a knife. All the tissue above the point of the pinch is removed. The objective in pinching is to get rapid and uniform growth of the lateral shoots on a plant. To achieve this goal, it is desirable to remove all the plant parts which maintain apical dominance. This means that **all** the immature leaves on the stem should be removed when pinching a poinsettia shoot. Traditionally, growers pinch poinsettias based on the amount of vegetative growth at the time of the pinch. Pinches range from a hard pinch where one or more inches of stem are removed to a very soft pinch where less than 1/4 inch of stem is removed. The type of pinch used greatly influences the release of the lateral shoots from apical dominance, the growth of the lateral shoots and the final appearance of the plant.

Types Of Pinches

Hard Pinch:

Recommendations for pinching the poinsettia have been to use a "hard pinch", removing 3/4 to 1 inch of stem tissue and the associated leaves (Figure 1). It is not surprising that this strategy

should be successful since all or nearly all the expanding leaves are removed in this type of pinch.

Advantage: Hard pinching is easy, fast and generally results in good breaking (release from apical dominance) of the lateral buds.

Disadvantages: A hard pinch can only be used on plants which have attained sufficient size before pinching. If plants are not large enough on the desired pinch date, pinching must be delayed or a softer pinch must be used. Occasionally one of the uppermost two lateral shoots of plant given a hard pinch will grow excessively tall resulting in an uneven flowering canopy.

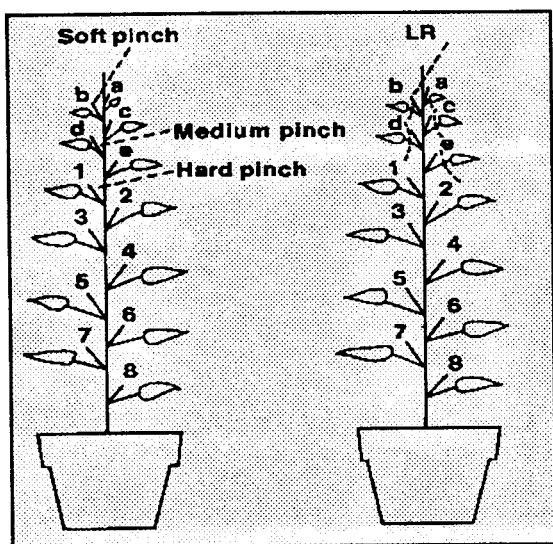


Figure 1. Diagram of plant parts removed by various pinching techniques.

Soft Pinch:

In a soft pinch only the growing point and the very small leaves (less than 1/4 inch long) are removed (Figure 1). Using a soft pinch has never been recommended for the poinsettia. The reason for this is not clear. The immature leaves left behind after pinching continue to exert apical dominance and thus inhibit the growth of the lateral shoots. Continued apical dominance caused by the immature leaves means that growth of the lateral shoots in plants given a soft pinch will be delayed (Figure 2). This delay means less time for growth before flower initiation and hence shorter lateral shoots with fewer leaves than with plant given a hard pinch on the same date.

Advantages: More nodes are left on the mother plant (Table 1). Because the immature internodes left on the mother stem of the plant at pinching continue to elongate and the lateral shoots are generally short, the plants become tall and narrow (Table 1). This could be an advantage since plants given a soft pinch require less bench space, however the tall narrow plants are much less aesthetically pleasing.

Disadvantages: Plants are tall and narrow with more of the lateral shoots terminating below the flower canopy. A smaller percentage of the potential lateral shoots develop to flowering shoots in plants given a soft pinch than in plants given a hard pinch.

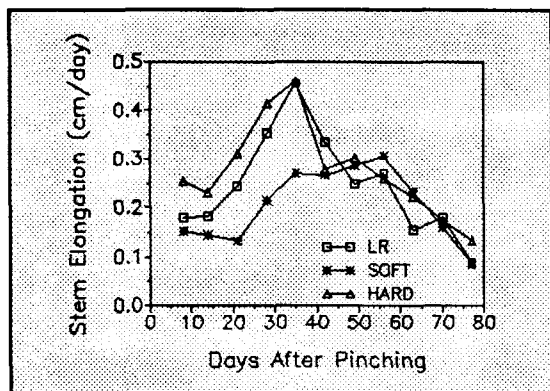


Figure 2 - Growth rate of lateral shoots for plants given hard, soft, and leaf-removal (LR) pinches

Medium Pinch:

Intermediate pinching (Figure 1) techniques give intermediate results. Any immature leaves left on the plant continue to impose apical dominance on the lateral buds. The degree of inhibition of lateral shoot growth is directly related to the number of immature leaves left on the plant at pinching.

Advantages: More nodes are left on the plant than with a hard pinch and hence more inflorescence may develop. Fewer immature leaves left on the plant at pinching reduce the delay in lateral shoot growth compared to a soft pinched plant.

Disadvantages: Immature leaves left on

the mother plant still inhibit the growth of lateral shoots below. This results in the tendency for the uppermost lateral shoots to be longer, sticking out above the plant flower canopy making the plant height uneven.

Non-Traditional Pinching

Leaf-removal Pinching:

The leaf removal pinch is a soft pinch with the simultaneous removal of the immature leaves left on the mother stem (Figure 1). This procedure usually involves removing about 4 immature leaves in addition to the apex. The leaf removal technique takes advantage of the fact that the immature leaves cause the inhibition of lateral shoot growth observed in soft and medium pinched plants. If these leaves are removed by pinching through the leaf petiole without damaging the lateral bud on the mother stem, lateral shoot growth occurs rapidly and uniformly (Figure 2).

There are 2 situations where using the leaf-removal pinching technique can be particularly beneficial. The first is when cuttings are too small to receive a hard pinch. The leaf-removal pinch allows additional nodes to be left on the mother stem without lateral shoots suffering the delay in release from apical dominance associated with a soft pinch. The second benefit of using leaf-removal pinching is to improve plant quality (see below).

Advantages: The leaf-removal technique combines some of the advantages of the

hard pinch with those of the soft pinch. Release of lateral shoots from apical dominance occurs quickly and uniformly as in hard pinched plants and the number of nodes on the mother stem is increased as in soft pinched plants. In contrast to soft pinched plants, however, more of these lateral shoots contribute to the inflorescence canopy (Table 1).

There are also some unexpected advantages to using the leaf-removal pinching technique. Because the "feeder" leaves from the upper nodes of the mother stem have been removed in the pinch, the lateral shoots developing from these nodes, particularly the top 2, are shorter than the rest of the lateral shoots in the leaf-removal plants (Table 2). The result is an incredibly uniform flower canopy. Plants given a leaf-removal pinch have a broad symmetrical flower canopy with an average of 2 more inflorescence in the flower canopy compared to hard or soft pinched plants. The evenness of the flowering canopy can be perceived as improved quality in these plants.

Disadvantages: The leaf-removal pinching technique requires more work than a traditional hard pinch. Flowering is delayed in plants given a leaf-removal pinch compared to plants given a soft or hard pinch (Table 1). The magnitude of the delay in flowering is dependent on the cultivar used but normally is no more than 2 to 3 days.

Table 2 - Lateral shoot length (cm) of poinsettia given hard, soft, and leaf-removal pinches.

Lateral shoot position	Pinching treatment		
	Soft	Hard	LR
a	13.8	----	8.8
b	15.8	----	14.5
c	15.6	----	17.4
d	14.3	----	18.4
e	15.4	----	20.6
1	14.4	23.4	21.9
2	14.3	22.3	21.8
3	12.4	22.0	18.2
4	11.7	19.2	16.1
5	11.1	18.8	14.3
6	12.3	18.1	18.3
7	12.3	12.6	12.5
8	18.4	16.3	18.7

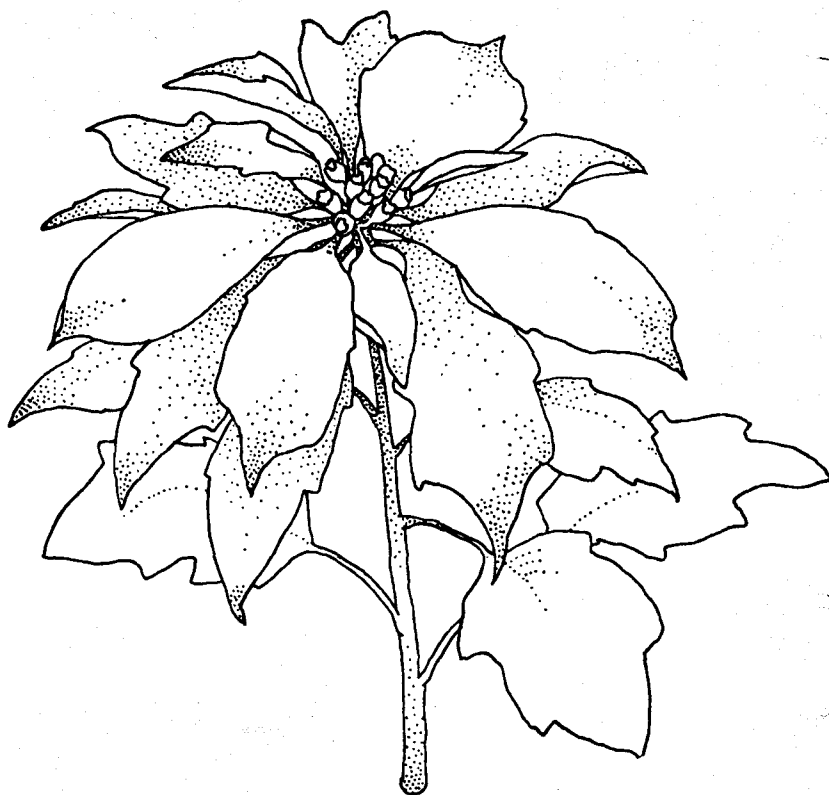


Table 1. Growth characteristics at flowering of 4 poinsettia cultivars given soft, hard, or leaf-removal pinches.

Cultivar	Pinch type	Days from pinch to flowering	Height to width ratio	Primary stem length (cm)	Total nodes on primary stem	Inflorescences in the bract canopy
Annette Hegg	soft	48	.85	19.9	13.5	6.3
Dark Red	hard	51	.85	10.9	8.4	5.5
	leaf removal	56	.74	16.7	13.6	8.2
Annette Hegg	soft	48	.79	17.3	12.7	6.3
Brilliant	hard	53	.68	10.4	7.5	5.7
	leaf removal	54	.67	14.3	11.9	8.7
V-14 Glory	soft	66	.74	15.4	11.9	7.6
	hard	78	.59	9.9	7.4	6.3
	leaf removal	80	.55	11.9	11.3	8.9
Regal Velcet	soft	55	.73	10.9	11.8	3.3
	hard	61	.67	9.0	9.3	3.8
	leaf removal	61	.59	9.6	11.5	4.3

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4	11.7	19.2	16.1
5	11.1	18.8	14.3
6	12.3	18.1	18.3
7	12.3	12.6	12.5
8	18.4	16.3	18.7