Hybrid Geranium Shatter



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Production techniques for hybrid geraniums have been successfully worked out, popularity of the hybrid geranium has increased rapidly, and it is now firmly entrenched as a bedding plant. One of the problems that continues to plague this crop, however, is that of petal drop. The flower petals fall off not only during shipping but may also fall off on the bench if the crop can not be moved out of the greenhouse before full flowering is reached. Recent research at Michigan State University has shown that petal shatter is associated with warm temperatures and ethylene concentrations. Figure 1 shows that as temperatures rise, the amount of petal drop increases and petal drop can be held to almost zero with temperatures of 35-40°F. Some growers have already started to move their crops from the greenhouse to coolers during the spring period when flowers start developing. No problems with the plants resulted when they were kept in coolers for up to 4 davs.

Ethylene is a natural by-product of fruit and flowers, and as ethylene increases, so does petal shatter. Geraniums appear to be very sensitive to ethylene and petal shatter will occur when concentrations of ethylene are as low as 1 ppm. The longer the duration that the flowers are subjected to ethylene, the greater the shatter. Good ventilation and air movement will help to reduce any ethylene buildup. The grower must also be certain that no extra ethylene is introduced by faulty heaters, or exhaust from trucks.

Thirty-five cultivars of hybrid geranium were tested for tendency to shatter (Table 1). The results were taken over a two year period and a shaker was used to give an objective measurement of shatter. Not all cultivars were tested for both years and there was considerable differences between cultivars. The differences between cultivars may be taken advantage of by the grower by using proper cultivar selection to reduce the problem of petal shatter. Recent work in developing sprays for application to inflorescences in order to prevent shatter may prove very effective, yet much work remains to be done in this field. It is also likely that breeders will be introducing more double flowered or semidouble cultivars which will not shatter. However, other problems may result such as botrytis on the flowers in the garden.

However, there are things which the grower may do right now. (1) If the plants cannot be shipped at the bud stage, cool the plants by moving them into a cooler or by dropping greenhouse temperatures as low as possible. (2) Keep the greenhouse as ethylene free as possible by maintaining good air circulation and ventilation through the greenhouse or cooler. Check heater discharges and do not back trucks into the greenhouse for loading. (3) Select cultivars which are less prone to shattering.

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Cultivar	Abscission ^Z (%)		
	1979	1978	
Bright Eye	13	16	
Cherie	22		
Cherry Glow	33		
Encounter Red	12		
Encounter Salmon	21		
Firecracker		30	
Fireflash	34	40	
Friendship	16		
Heidi	22	19	
Ice Queen	30	31	
Innocence		22	
Jackpot	28	23	
Knockout	12		
Lovesong	1000	14	
Mustang	15	18	
Red Champion		36	
Red Express	26		
Red Standard	18		
Ringo Brick Red		23	
Ringo Rose	10		
Ringo Rouge	14		
Ringo Salmon	25	28	
Ringo Scarlet	14	20	
Rosita	37		
Salmon Flash	27	33	
Scarlet Flash		29	
SG 186	15		
Showgirl	19		
Sincerity		32	
Showdon	16	23	
Sooner Dp. Salmon	12	18	
Sooner Red	39	37	
Sprinter White	28		
Sprinter Salmon	25		
Sprinter Scarlet	16	16	
HSD 5%	13	12	

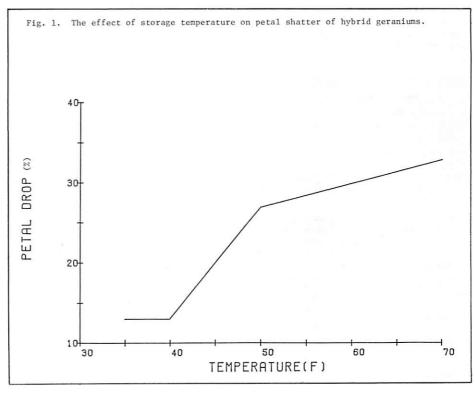


Table 1. Influence of mechanical shaking on petal abscission of seed propagated geranium cultivars (1978-79).