



Colorado Flower Growers Association

IN COOPERATION WITH COLORADO A AND M COLLEGE

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Rose Cooling Can Be Overdone

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Cooling rose plants below their optimum summer growing temperature can be disastrous to yearly returns. That optimum temperature is probably 75 degrees F or above during the summer.

Two benches of 2-year plants of the variety Pink Delight were pruned gradually during June and July, 1956. All returning breaks were soft-pinned once before they were allowed to flower. These plants were located in identical positions in separate houses, having been planted 15 months earlier for just such studies. The previous year under almost identical conditions (except for being in different houses) yield and grade of flowers from the two benches was practically the same.

One of the houses was cooled with the fan and evaporative pad method. Fans came on and cut off automatically at 70°F ± 2°. The temperature in the shade of plants on hot days with fans and pads operating reached 80 to 85 degrees.

The other house was not cooled until August 12, when a high pressure mist system was installed. At this time one misting nozzle per 150 square feet of floor space was placed as high above the plants as the roof would allow. The system was controlled by a humidistat set to operate below 70% humidity. The mist system maintained the temperature approximately 3 degrees above that of the fan-pad cooled house on hot days. Previous to installation of the mist

system, temperatures in the shade of plants on hot days reached 95 to 102 degrees. Both methods of cooling were discontinued October 26, as cooler weather eliminated their need.

A careful study of the yield and grade of roses harvested from these two benches points up several precautions when using greenhouse cooling. Apparently the temperatures of the fan-pad cooled house were too low for Pink Delight. The foliage, head size and stems were magnificent. This observer has never seen finer roses. However, the decreased yield in this house would break most rose growers. This decrease in yield was even more pronounced in the fall and winter after all cooling was discontinued.

One of the accompanying charts shows the yields and grades of roses cut from these plants from June 3, 1956 to March 2, 1957. Note that the reduction in yield by temperatures maintained in the fan-pad cooled house was 16%. The reduction in each grade of roses is shown in the other chart.

YIELD and GRADE of PINK DELIGHT ROSE — JUNE 3, 1956 to MARCH 2, 1957

	GRADE						TOTAL
	9"	12"	15"	18"	21"	24"	
FAN - PAD Cooled MAY to Oct. 26	61	127	247	423	465	683	2006
MIST Cooled Aug. 12 - Oct. 26	99	325	415	544	511	630	2325

FAN-PAD COOLED HOUSE

33 LESS 9-in. ROSES

96 LESS 12-in ROSES

166 LESS 15-in ROSES

141 LESS 18-in ROSES

46 LESS 21-in ROSES

163 MORE 24" + UP.

Discussion and recommendations

The misted house was cooled only about half the cooling period so many of the flowers included in the chart resulted from the environment of an uncooled greenhouse. Within two or three weeks following the use of mist, distinct benefits were noted on the plants, foliage, and flowers.

Fan-pad cooling should be highly satisfactory for most rose varieties providing plants are not cooled too much. Fans and pads should be operated above 75°F, or possibly even 80°.

Mist cooling without fans is highly satisfactory for rose culture in Colorado. One nozzle per 90 to 100 square feet of floor space is a better spacing than the one used in this study. Nozzles should be placed over walks and as high as possible. A pressure of 400 psi has worked very well at Colorado A & M, in both cooling for rose houses and humidification for carnations during the fall and spring.

Mildew has not been a problem on mist cooled roses.
