CO_2 and Temperature Recommendations

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On the basis of research results over the past five years, the following recommendations are presented for adding CO_2 to roses and carnations in Colorado:

Time

Sunrise to one hour before sunset.

Flow Rate

Recommended CO_2 flow rate[a] in cubic feet per 1000 sq. ft. of greenhouse area

	Light[b]			Approximate levels in greenhouse when ventilation off
	Low	Medium	High	
Carnation	3	--5-----		450 - 550 ppm
Rose	4	6	9	700 - 850 ppm

a/ If flow meters are calibrated for CO_2, these rates should be used. If calibrated for air, and many flow meters are, add 20 percent to these rates.

b/ Approximate light levels: Low, up to 1500 ft-c; medium, 1500 - 4000; high, above 4000.

Temperature

Where CO_2 is added regularly to carnations the maximum day temperature should be increased 5 degrees F. This maximum temperature should be produced by solar heat and should be allowed only when there is sufficient sun to warm the greenhouses to this point. A higher temperature allows the plants to use CO_2 more efficiently and increases the time CO_2 can be added.

Our current temperature recommendations for Colorado during the heating season are:

CARNATIONS
Night temperature 52 - 54°F.
Heat to 60°F from 7 am to 5 pm
Cool or ventilate at 70F when CO_2 is being added regularly
Cool at 65F where no CO_2 is being used.

ROSES
Night temperature 62°F
Heat to 72F from 7 am to 5 pm
Ventilate at 80F on first or low stage
84F on second stage
90F setting for high temperature alarm

A minimum relative humidity of 70 percent is maintained with these temperatures. When CO_2 is not used for roses, 75 to 80F is satisfactory.