COLORADO FLOWER GROWERS ASSOCIATION

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SOME OBSERVATIONS ON LIGHTING CARNATIONS

Joe J. Hanan[1]

Carnation timing is the most critical cultural operation a grower may have to do. It requires considerable attention to detail and some luck, particularly when markets are subject to extreme fluctuations. Koon (CFGA Bul. 284) has probably done more to work out lighting schedules than anyone else. According to Koon (Bul. 284) and Holley and Schwartz (Bul. 257), proper lighting, particularly three weeks on and three weeks off, will put carnations into well-defined cycles which will improve grade as well as hitting suitable marketing periods. Lighting two-year plants is more feasible than one-year old plants, especially as lighting tends to reduce side breaking. If a first year crop is lighted for Christmas, the tailout is likely to be considerably extended with little or no return until spring (Bul. 296). However, if the crop is planted April or May, lighting the first crop seems to increase the peak, without delaying later crops, inasmuch as there is more light for new side break production. Cyclic lighting as a means to conserve energy has also been examined (CFGA Bul. 265), showing that the light intensity should be increased to 10 to 20 ft-c, as contrasted to 2 to 10 ft-c for dusk-to-dawn lighting.

As pointed out by Koon, each operation should work out its own schedules. In fact, discussion with several growers indicates that very few follow similar practices in lighting and that perhaps we should be doing some work to provide standards that the industry might use as guidelines. To provide some experience for the research range, we planted 'CSU Red' and 'CSU White' two years ago, and provided them with varying periods of dusk-to-dawn lighting at about 10 ft-c at bench level, and cyclic lighting (20% on) at 20 to 30 ft-c at bench level.

Three, 35-ft benches were planted to 'CSU Red' on Apr. 15, 1976, and two, 35-ft benches of 'CSU White' were planted May 15, 1976, 3.5 plants per sq. ft. One bench of the 'CSU Red' was in gravel, the remainder in soil. All were single pinched, and each bench divided into six plots, each plot containing 60 plants, 17 sq. ft. per plot. While records were kept on all plots, only two plots from each treatment (no light, dusk-to-dawn and cyclic) were summarized.

The data are presented with very general comments. Table 1 shows the lighting periods with the peak crops for cyclic lighting, and the number of weeks following lighting to the week of peak flowering. Figures 1 through 3 are smoothed weekly means for total treatment yield. In general, carnations in gravel appeared to respond quicker with higher peaks than carnations grown in soil. The number of weeks between lighting and peak varied from six in the summer and early fall to 12 in late winter. This seemed to be a week or so faster than schedules given by Koon whose plants were planted in the ground. Lighting for the first crop of either April or May plantings did not seem to hasten peak flowering by more than one week, and generally increased the number of flowers at the peak. It is doubtful that lighting the first crop is worthwhile under any circumstance. We were able to hit Christmas fairly well, but remained one to two weeks late for most of the remaining holidays. Note that we did not hit either Mother's Day or Memorial Day for all treatments, and summer production was excessively high. Standard and Fancy grade length flowers were nearly always cut, generally following the cutting schedule outlined by Koon in Bulletin 108.

[1]Professor, Department of Horticulture, Colorado State University.

Table 1: Cyclic lighting treatments on carnations, two years.

Benched	Lights On	Lights Off	Weeks of lighting	Date of peak crop	Weeks to peak crop
Apr. 15, 1976, 'CSU Red'					
Soil	6/14	7/4	3	8/15	7
	8/28	9/24	4	12/28	8
	10/22	11/13	3	2/22	12
	1/10	2/4	4	4/10	10
	9/5	10/3	4	12/11	10
	1/5	1/26	3	3/26	8
Gravel	6/14	7/4	3	8/8	6
	8/28	9/24	4	12/12-12/21	8-12[1]
	10/22	11/13	3	2/12	12
	1/10	2/4	4	4/18	10
	9/5	10/3	4	12/18	11
	1/5	1/26	3	3/26	8
May 15, 1976, 'CSU White'					
Soil	7/7	7/28	3	9/5	6
	9/24	10/15	3	12/12	7
	11/13	12/4	3	2/27	12
	1/23	2/14	3	4/10	8
	9/5	10/3	4	12/11	10
	1/5	1/26	3	4/2	9

[1]See Fig. 2, two close peaks

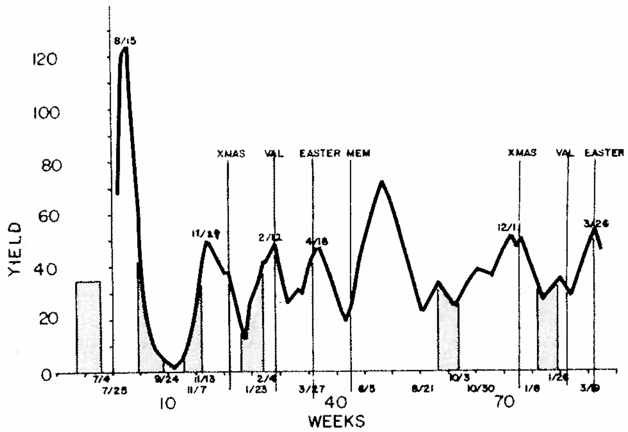

Fig. 1: Smoothed weekly treatment production of CSU Red, benched April 15, 1976, grown in soil, and subjected to cyclic lighting as indicated by the shaded areas, 120 plants, 3.5 per sq. ft.

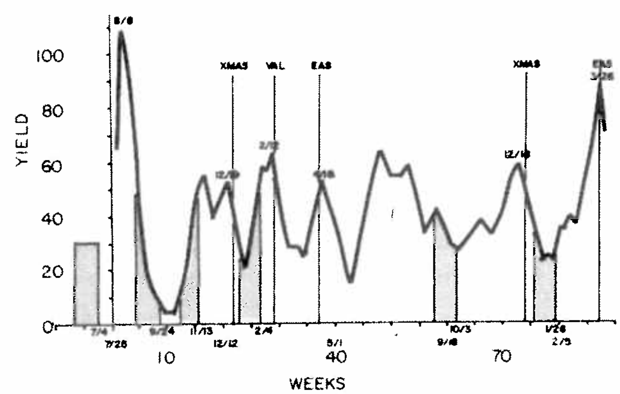

Fig. 2: Smoothed weekly treatment production of CSU Red, benched Apr. 15, 1976, grown in gravel, and subjected to cyclic lighting as indicated by the shaded areas, 120 plants, 3.5 per sq. ft.

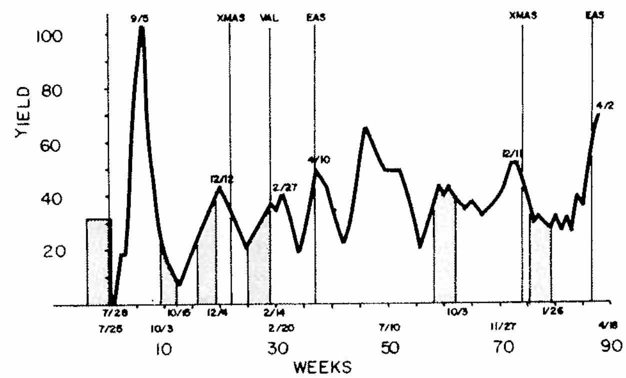

Fig. 3: Smoothed weekly treatment production of CSU White, benched May 15, 1976, grown in soil, and subjected to cyclic lighting as indicated by the shaded areas, 120 plants, 3.5 per sq. ft.

Tables 2 through 4 are summaries of total production and flower quality for the two year period. Gravel (no lighting) had the lowest yield, whereas gravel with cyclic lighting gave the highest yield when total time in the bench was figured (Table 4). Most of the variations in yield were probably not statistically significant, and resulted from the variations in timing. However, 46.0 to 54.3 flowers per sq. ft. per year was a difference of 18%, and would certainly make a difference in paying the bills.

The total yield for the entire period in the bench, as compared to yield when expressed on the basis of flowering period, indicate that a carryover crop is worth nearly ten flowers per sq. ft. per year to the grower. We have grown carnations for five years without plant loss. Disease control becomes extremely important in carryover crops, as a 10% loss from disease will reduce the possible potential of ten additional flowers to only five, assuming 50 per sq. ft.

Averages for flower quality for any particular treatment were not significantly different. But, when average weekly mean grade for carnations in gravel were compared with quality for plants in soil plots, mean grade was almost always one-half grade higher than 'CSU Red' grown in soil. There was no difference between 'CSU White' in soil and 'CSU Red' in gravel.

This preliminary study has pointed up to us some of the difficulties in carnation timing, and suggests that better studies should be started for defining what is possible with carnations under present-day conditions.

Table 2: Yield and grade of carnations benched April 15, 1976, and May 15, 1976, to July 24, 1977, and subjected to different lighting methods.

	Lighting treatment			
	None	Dusk-to-Dawn	Cyclic	HSD[1]
Soil, benched Apr. 15, 1976. 'CSU Red'				
1. Average weekly yield per plot (60 plants per plot)	20	20	18	— —
2. Total average yield per plot (52 weeks of flowering)	1040	1040	947	
3. Yield per square foot	61.2	61.2	55.7	
4. Mean flower quality	3.73	3.65	3.41	0.17
Gravel, benched Apr. 15, 1976. 'CSU Red'				
1. Average weekly yield per plot (60 plants per plot)	17	20	20	2.7
2. Total average yield per plot (52 weeks of flowering)	882	1027	1029	
3. Yield per square foot	51.9	60.4	60.5	
4. Mean flower quality	3.67	3.60	3.64	0.23
Soil, benched May 15, 1976. 'CSU White'				
1. Average weekly yield per plot (60 plants per plot)	18	18	17	— —
2. Total average yield per plot (49 weeks of flowering)	937	949	930	
3. Yield per square foot	55.1	55.8	54.7	
4. Mean flower quality	3.54	3.41	3.44	— —

[1]Differences required for significantly different averages.

Table 3: Yield and grade of carnations from July 25, 1977, through April 16, 1978, second year's production, and subjected to different lighting methods.

	Lighting treatment			
	None	Dusk-to-Dawn	Cyclic	HSD
Soil, benched Apr. 15, 1976. 'CSU Red'				
1. Average weekly yield per plot (60 plants per plot)	19	19	19	— —
2. Total average yield per plot (38 weeks of flowering)	720	722	708	
3. Yield per square foot	42.3	42.5	41.6	
4. Mean flower quality	3.51	3.53	3.55	— —
Gravel, benched Apr. 15, 1976. 'CSU Red'				
1. Average weekly yield per plot (60 plants per plot)	19	18	22	2.4
2. Total average yield per plot (38 weeks of flowering)	682	677	816	
3. Yield per square foot	40.1	39.8	48.0	
4. Mean flower quality	3.62	3.51	3.56	— —
Soil, benched May 15, 1976. 'CSU White'				
1. Average weekly yield per plot (60 plants per plot)	18	20	19	— —
2. Total average yield per plot (38 weeks of flowering)	689	757	741	
3. Yield per square foot	40.5	44.5	43.6	
4. Mean flower quality	3.65	3.46	3.57	— —

Table 4: General summary for two years of flowering.

	Lighting treatment		
	None	Dusk-to-Dawn	Cyclic
Soil, benched Apr. 15, 1976. 'CSU Red'			
1. Total yield, 104 weeks in bench	1760	1762	1655
2. Yield per sq. ft. per year	51.8	51.8	48.7
Gravel, benched Apr. 15, 1976. 'CSU Red'			
1. Total yield, 104 weeks in bench	1564	1704	1845
2. Yield per sq. ft. per year	46.0	50.1	54.3
Soil, benched May 15, 1976. 'CSU White'			
1. Total yield, 100 weeks in bench	1626	1706	1671
2. Yield per sq. ft. per year	49.7	52.2	51.1

Why Businesses Fail
Archie J. Clapp

It has been said that we learn more from our failures than from our successes. That may be true, but it's an awfully expensive way to get an education.

It makes a lot more sense to learn from someone else's failures, if at all possible. Not many of us enjoy seeing someone fail at what he's trying to do. But if he's going down the tubes anyway, we might as well learn whatever we can from his experiences.

A recent study shows the failures which get most small businessmen into enough trouble to start them on the downhill slide. Undoubtedly many businessmen compound their problems by committing more than one of these errors, which hasten their demise. Still in all, each error is important enough to merit concern by any prudent businessman.

The major management mistakes made by small businessmen include the following:

1. Failure to define their market. They fail to recognize who and where all possible customers are and why they are, or should be, their customers.
2. Failure to cultivate steady customers. They concentrate on making sales with little or no regard for the customer's needs and wants.
3. Failure to keep adequate records. If a businessman doesn't know where his company has been, he can't possibly know where it is going.
4. Failure to be thoroughly familiar with his own product line. They fail to know enough about each product to capitalize on its strengths and minimize its weaknesses when dealing with customers.
5. Failure to keep abreast of what the competition is doing. They flounder around trying to make sound judgments in a information vacuum.
6. Failure to control cash flow. Credit policies create a high percentage of the problems; if too tight, good business is lost; if too loose, too much effort is expended in chasing bad debts.
7. Failure to view the business objectively. All too often, small businessmen become so emotionally involved with their creation that they fail to recognize its shortcomings.
8. Failure to keep alert to factors affecting the market. They neglect to stay tuned in to trends. They make no effort to seek out new and unusual products, so the competition consistently beats them to the punch.
9. Failure to anticipate accurately the market for goods and services. As a consequence, they overstock slow-moving items, resulting in lost space and high inventory costs. At the same time, they understock fast-moving items, then lose sales due to unavailability.

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Dick Kingman, Executive Director
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Direct inquiries to:
Office of the Editor
Horticulture Department
Colorado State University
Fort Collins, Colorado 80523

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