

EFFECTS OF SEASONAL VARIATION IN DAYLIGHT ON FLOWER INITIATION IN SPRAY CARNATION

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Growth and development of 32 year-round plantings of spray carnation *Dianthus caryophyllus* L.] cv 'West Pink' were determined. When flower initiation was microscopically detectable between 1 June and 1 October, the period between pinching and flower initiation, was approximately 70 days. When flower initiation was visible between 1 October and the first week of May, this growth period increased linearly to 180 days. The maximum growth period implies a pinching date in the first week of November. When plants were pinched between October and March the period till flower initiation decreased with exactly one day for every day pinching was delayed. This resulted in a microscopically visible flower initiation in the first week of May in a great number of plantings. At cellular level the initiation will take place in mid April at a day length of 13 hours. As soon as the carnation shoot changes to the generative

stage, it exhibits an abrupt threefold increase in extension rate. Frequent measurement of shoot length thus offers a non-destructive method to determine flower initiation.

If the above mentioned data are compared to the results with standard carnation, no important differences are found with respect to day length response.

The period between microscopically visible flower initiation and full bloom did not respond to daylength but varied with the seasonal variation in solar radiation. In the literature no year-round data on flower initiation are available. Results of our work with spray carnation, however, are in agreement with several published year-round series concerning the total period between planting or pinching and flowering of standard carnation.

FORT COLLINS GREENHOUSE CLIMATOLOGICAL SUMMARY FOR FOUR WEEKS, BEGINNING OCTOBER 4, 1987 (See Bulletin 426 for details.)

	Week beginning							
	Oct. 4		Oct. 11		Oct. 18		Oct. 25	
	Day	Night	Day	Night	Day	Night	Day	Night
Average outside temperature (°F)	60	47	55	42	49	40	60	47
Maximum outside temperature (°F)	83	71	74	61	73	66	76	68
Minimum outside temperature (°F)	31	28	32	24	34	25	36	29
Degree-days of heating	5	18	10	23	16	25	5	18
Accumulated total solar radiation (MJ/sq.m.)	89	1	74	1	76	1	71	1
Average relative humidity (%)	34	50	44	65	44	56	40	60
Maximum relative humidity (%)	79	82	100	99	87	95	90	100
Minimum relative humidity (%)	10	15	12	23	6	7	10	15
Average absolute vapor pressure (mb)	5	5	6	6	5	4	7	6
Average wind speed (mph)	2	1	2	1	2	1	3	1
Maximum wind speed (mph)	22	16	15	31	13	21	26	15
Average CO ₂ concentration (Pascal)	33	0	34	0	34	0	34	0
Maximum CO ₂ concentration (Pascal)	46	0	47	0	41	0	42	0
Accumulated gas consumption (cu.ft./sq.ft.)	11	39	6*	61	28	73	22	65

*Consumption for single layer fiberglass no thermal screens.



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