

Carnation — Seasonal Growth Rates

Bunt, A. C. 1972. Effect of season on the carnation I. growth rate. *Jour. hort. Sci.* 47:467-477.

The effect of seasonal variation in the glasshouse environment on the initial growth rate of carnation was determined from the increase in dry weight of rooted cuttings of the cultivar White Sim grown for a 27-day period; observations were repeated at 14-day intervals over a period of one year.

Absolute growth rates varied over the year by a factor of ten, values ranging from 0.01 grams per day in winter to 0.1 grams per day in summer. (To roughly convert dry weight to fresh weight multiply by 5.33.) Growth rate was found to be a linear function of the mean daily light energy during the growing period. Plants that were grown at the same time in 50% shade produced half the growth.

Relative growth rates of plants grown under full greenhouse light ranged from 1% per day in winter to 4.5% per day in summer. Ed. notes — This work was

one on the south coast of England where light is lower in summer and very much lower in winter than that received in Colorado. Since growth of carnation is so closely tied with light energy, we should expect 2 to 2½% increase in growth per day in winter and possibly 5 to 6% per day in summer. This is of course for young plants in their first 4 weeks.

Dave Cheever (CFG A Bul. 207) found that 8-gram carnation cuttings gained an average of 20% in fresh weight of tops during the rooting period. For the first 27 days of growth after these cuttings were planted in soil the gain in fresh weight was from 9.6 grams to 21.1, a relative growth of 120%, or 4.5% per day. Cheever's work was done in February and March, which approaches our average light energy levels. It is the same relative growth rate found by Bunt for summer in England. By the way, Bunt has measured several times this growth rate for chrysanthemum in previous work.