

CONTROL OF BRANCHING AND FLOWER PRODUCTION OF CARNATIONS

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Dr. Healy's doctoral research at Minnesota showed that a sequence of 30 natural days followed by 75 short days, then 30 natural days with long days until carnation harvest promoted a 75% increase in yield. Maybe we need to see what can be done in Colorado with alternating long and short days on carnations?

Long day treated carnation shoots showed increased movement of radioactive carbon-containing products to the shoot tip compared to short day treated shoots during vegetative and flowering phases, with a peak in movement towards the tip at floral initiation. Short day treated plants showed movement of radioactive carbon-labeled products to the lateral shoots. After short day treated shoots initiated 12 nodes, a decrease in movement to the apex compared to long day treated shoots was observed. Thus, the short day promotion of lateral branching in carnations is related to a decrease in the movement of photosynthetic products to the shoot tips versus the side branches.

The number of consecutive short days after the first 45 days of shoot growth was correlated with increased

branching and growth and flower production. Short days during transition of the primary shoot tip from vegetative to flowering resulted in plants with an increased number of nodes and actively growing lateral shoots.

Flower yield per plant, during the 8.5 month growing period, was maximum when the first flower harvested had more than 15 nodes below the flower and the second flower harvested had fewer than 17 nodes. After pinching, a sequence of 30 natural days, 75 short days, 30 natural days and long days until flower harvest, promoted a 75% increase in flower production over the natural day controls of cuttings planted in June and discarded in March.

Plants lighted from dusk to dawn with incandescent lamps flowered 13 days earlier with 22% fewer side shoots than plants grown under 14 hr natural photoperiods. Compared to dusk to dawn lighting, 4 hr day continuation or night interruption with red or far-red fluorescent treatment increased side shoot development but delayed the number of days to flower.

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