NITROGEN DEMAND AND UPTAKE CAPACITY OF ALTERNATE-BEARING PISTACHIO TREES
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Seventeen poinsettia cvs and 3 seedlings were grown in a mesh shade house and a glass house during 1990. Cube-rooted cuttings were potted on 8/31, pinched to 6 nodes on 9/17, and treated with pgrs on 10/5 and 10/12. Lighting was provided at night from 9/15 through 10/5. Data collected included number of days to first bract color, days to marketability, plant ht. and diam, inflorescence diam, no. of laterals, and no. of bracts in color on 12/12. Seedlings were compared to 6 cvs in a post-production room for 4 weeks. Days to marketability ranged from 55 to 66 days. (Ecke's sdlg 490) to 67.8 days (Peace Frost), compared to Gutbier V-10 and V-8 Amy (44.9), Gross Subjibi (45.7), Gutbier V-14 Glory (52.2), and Annette Hegg Dark Red (53.7). Tallest plants were Ecke's sdlg 490 (46.6 cm) and Eckespoint Lilo (45.8 cm) while V-10 Amy plants were the shortest (27.4 cm). Limbs of V-10 Amy were weak and often collapsed at flowering. The remaining cvs ranged in height from 27.7 to 39.4 cm. Sdlg 490 produced inflorescences similar in diameter to Subjibi, had more bracts, but had slightly smaller individual bracts. Sdlg 490 exhibited leaf retention intermediate to Supjibi and V-14 Glory.

ROTTED CHRYSANTHEMUM LONGEVITY AFFECTED BY FLOWER RESPIRATION AND CARBOHYDRATES
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Chrysanthemum cultivars vary in longevity under interior conditions. Four chrysanthemum cultivars (IncaTM, Jose, Supjibi, and Tip) with different postproduction longevity were grown to flowering and moved to interior conditions (12 pmol s·m-2 of cool white fluorescent light for 12 hr daily and 21±1°C) to determine interior longevity (consequence of the inflorescence). Also, carbon exchange rates (CER), dry matter (DM) and nonstructural carbohydrates were determined at flowering and after 17 days postproduction. Whole plant dark respiration, flower and root respiration, whole plant light compensation point, flower stem nonstructural carbohydrates, root soluble sugars and total root nonstructural carbohydrates decreased from flowering to 17 days postproduction. Flower respiration after 17 days postproduction was negatively correlated with postproduction longevity. No correlation was found between whole plant or plant part DM or carbon partitioning to the flower and plant longevity. Stem nonstructural carbohydrates at flowering, flower respiration and root soluble sugars after 17 days postproduction were positively correlated with postproduction longevity. The percent of leaf starch in total leaf nonstructural carbohydrates after 17 days postproduction was negatively correlated with postproduction longevity. These results indicate that flower respiration and carbohydrates may serve as valuable physiological indicators of potted chrysanthemum longevity.

DIFFERENCES BETWEEN ROSE CULTIVARS IN SUSCEPTIBILITY TO INFECTION BY BOTRYTIS CINEREA
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Differences in susceptibility of rose flowers (Rosa hybrida) to grey mold, caused by Botrytis cinerea, were investigated. 'Supra' and 'Royalty', rose flowers were inoculated with various concentrations of B. cinerea conidia and stored in humidified chambers at 21°C. Disease severity was quantified 2 days later as the number of lesions that had developed on each flower. The slope of the inoculum concentration - disease severity (ICDS) regression line was used as a measure of susceptibility. In five separate experiments 'Supra' was consistently more susceptible than 'Royalty', although the susceptibility of each cultivar and the difference in susceptibility changed over the growing season. In experiments using isolated petal disks there was no difference between the cultivars in the germination of B. cinerea conidia on the petal surfaces, but fewer of the germinated conidia penetrated into the 'Royalty' petals. The site of inhibition of penetration is being investigated.
VOLATILES PRODUCED BY CARNATION FLOWERS TREATED WITH 2,4-D

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It has previously been demonstrated that exceedingly high concentrations of 2,4-D, when taken up by cut carnations, inhibit petal senescence, while application of low concentrations of this synthetic auxin promote petal senescence. The mode of action of such high concentrations of 2,4-D has not been elucidated.

In previous work, it was observed that significant amounts of volatiles always emanated from those flowers treated with high 2,4-D, and which displayed inhibition of ethylene synthesis as well as petal senescence. In the present work, the nature of these volatiles was tested by gas chromatography after enclosure for a short period of time. Two of the major constituents of the volatiles produced by the treated flowers were found to be ethanol and acetone.

Since ethanol has formerly been shown to delay senescence in carnation flowers, and since 2,4-D has been shown to induce alcohol dehydrogenase, it is suggested that the mode of action of 2,4-D in this case is by means of the ethanol produced as a result of the 2,4-D treatment.