climatic conditions and/or the irrigation schedule, as demonstrated by trials grown during the same period in different locations and microclimates. A trial grown in the Monterey Bay area under moderate temperature and wind velocity decreased in precentage of dry matter as the plants approached market maturity. The dry matter at first harvest was 6.3%. In another trial grown some 35 miles from the Bay, under increased temperature and wind velocity, and with no irrigation during the 18 days before first harvest, the dry matter increased in the last 12 days to 9.1%.

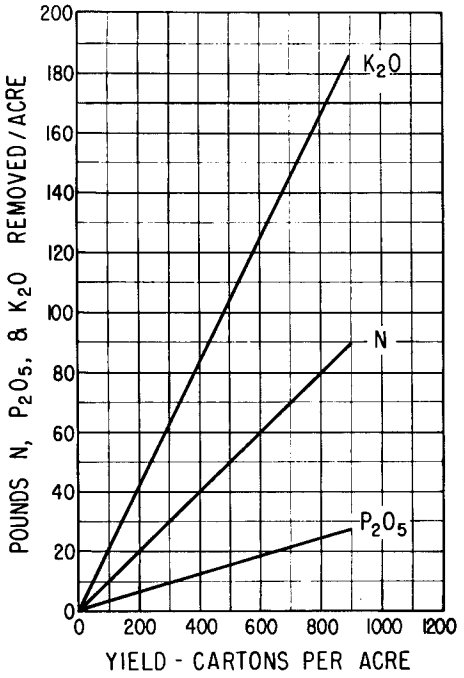
Great Lakes has a broader temperature adaptation range than the Imperial varieties and is widely adapted to culture under different environmental conditions. The temperature and growth data suggest that the Great Lakes variety can be grown to marketable size under conditions with a mean air temperature range of 51° to 67°F during the last three weeks before harvest.

Nutrient uptake

The nutrient removal from the soil by the crop was calculated from the plant analyses and growth rates based on an average of 22,200 plants per acre. The rate of nutrient removal was very slow during the early phase of growth. Approximately one week after thinning, the crops studied had removed less than 2.5 lbs of nitrogen, 1 lb of phosphoric acid (P_2O_5), and 4 lbs of potash (K_2O) per acre. Maximum rate of growth during the 21 days before first harvest was accompanied by the maximum rate of nitrogen, phosphorus, and potassium uptake. During this period, more than 70% of the nitrogen, phosphorus, and potassium was removed.

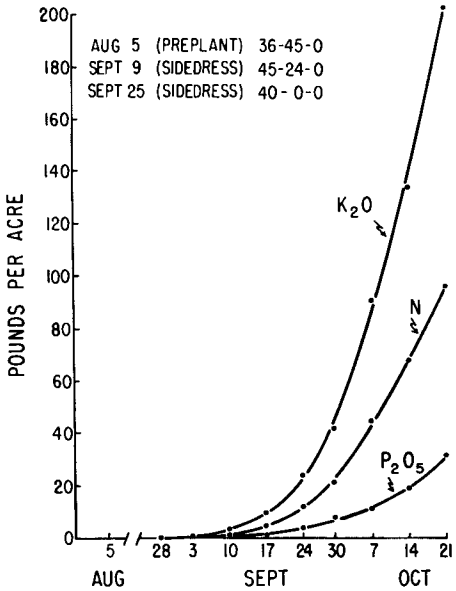
Similar trends for total absorption were found for calcium, magnesium, and sodium. The total uptake of nitrogen, phosphorus, and potassium was very similar to that of total dry-matter production. By first harvest the crop had removed an average of 95 lbs of nitrogen, 27 lbs of phosphoric acid (P_2O_5), 208 lbs of potash (K_2O), 9 lbs of sodium, 33 lbs of calcium, and 12 lbs of magnesium per acre. For best results, the fertilizer program should be evaluated on the basis of residual fertilizer in the soil and nutrient requirements, as indicated by the growth pattern of the crop.

The information reported here is also applicable to the Great Lakes variety when grown in the central coastal districts of California, because of the similarity in growing conditions.



POUNDS PER ACRE OF NITROGEN, PHOSPHORIC ACID, AND POTASH REMOVED AT DIFFERENT YIELD LEVELS—calculated on basis of 45 lbs. fresh-weight lettuce per carton at 6% dry matter and mineral content for N = 3.7, P = 0.5, and K = 6.4 expressed as % of dry weight.

MINERAL ABSORPTION OF LETTUCE PLANTS DURING THE GROWTH OF A TYPICAL TRIAL—based on 22,200 plants per acre, fertilizer rates expressed as pounds of N, P_2O_5, and K_2O per acre, dates of application shown.



F. W. Zink is Specialist in the Experiment Station, Department of Vegetable Crops; and M. Yamaguchi is Associate Olericulturist in the Experiment Station, Department of Vegetable Crops, University of California, Davis.

Growing Short

—THREE TREATMENTS

H. C. KOHL, JR. · R. L.

Leaf-spray treatment of poinsettias with the growth retardant N-dimethylaminosuccinamic acid (B995) decreased plant height without injury or increased production time, but did not result in foliage density and bract size comparable with plants treated with CCC. Both CCC and B995 were more effective in shortening plants than variable temperature-forcing treatments.

BOTH VARIABLE TEMPERATURE forcing and drenching with 2-chloroethyltrimethyl-ammonium chloride (CCC) have been reported in previous articles as methods for producing short poinsettias. These methods are compared in this report with a leaf-spray treatment using N-dimethylaminosuccinamic acid (B995) which had been reported to have growth retardant properties on other plant species.

The small side shoots, resulting from terminal pinch on September 10 of rooted

CALIFORNIA AGRICULTURE

Progress Reports of Agricultural Research, published monthly by the University of California Division of Agricultural Sciences.

William W. Paul.....*Manager*
Agricultural Publications

Jerry Lester.....*Editor*
California Agriculture

Poinsettias

COMPARED

NELSON · A. M. KOFRANEK

cuttings received in late August, were at the proper stage of development for treatment on October 16, and the 10 treatments listed in the table were started. There was no visible injury from treatment to any of the plants except that the young leaves of sprayed plants showed a slight puckering, caused by the wetting agent. The puckering disappeared within a few days.

The photos and table show that B995 does decrease the height of poinsettias without visual injury to the plant and without prolonging the production period. However, foliage density and bract size of the B995-treated plants were not equal to the CCC-treated plants. The variable temperature forcing was less effective in reducing height than treatments with either CCC or B995.

In these tests, plants treated to reduce height, produced smaller bracts. However, earlier treatments with CCC and variable temperature have been reported not to reduce bract size—and it is considered possible that the same is true for B995.

H. C. Kohl, Jr., is Associate Professor; R. L. Nelson is Laboratory Technician; and A. M. Kofranek is Associate Professor, Department of Floriculture and Ornamental Horticulture, University of California, Los Angeles.

HEIGHT AND FLOWERING CHARACTERISTICS OF BARBARA ECKE SUPREME POINSETTIAS UNDER 10 TREATMENTS TO REDUCE HEIGHT. TREATMENTS WERE MADE OCTOBER 16, 1962 FOR DECEMBER BLOOM DATE. THERE WERE 10 MATCHED PLANTS PER TREATMENT

Treatment	Av. plant height (in.)	Height as % of Treat. No. 1	Infloresc. per plant	Av. dia. infloresc. (in.)
1. Standard (60° greenhouse)	20.5	100	2.9	14.4
2. CCC—¼ gram per 6" pot[2]	13.5	66	3.3	12.8
3. CCC—½ gram per 6" pot[2]	11.3	55	3.1	12.5
4. CCC—1 gram per 6" pot[2]	11.8	58	3.2	11.8
5. Variable temperature[3]	16.0	78	3.4	12.5
6. Treatments 3 plus 5	11.5	56	3.3	11.0
7. B995—2000 ppm[4]	15.0	73	3.1	11.8
8. B995—4000 ppm[4]	14.0	68	3.2	11.0
9. B995—8000 ppm[4]	13.2	64	3.1	10.9
10. Treatments 5 plus 8	11.1	55	3.2	10.8

AVERAGE BLOOM DATE WAS DECEMBER 19 FOR TREATMENTS 1, 2, 3, 4, 8 AND 9; DECEMBER 21 FOR TREATMENT 7; DECEMBER 24 FOR TREATMENTS 5 AND 6; AND DECEMBER 29 FOR TREATMENT 10.

[1] Noted as the date when ½ the nectaries were full.
[2] Applied as a soil drench in 200 ml of water.
[3] Grown outdoors in screen house Oct. 16–Nov. 13. At other times grown in 60°F. greenhouse.
[4] Applied as foliar spray to runoff. 2% Tween 20 as a wetting agent added.

Side view of representative poinsettia plants of the greenhouse check, and the three outdoor treatments indicating the relative height and foliage density of the plants. Left to right, treatments 1, 5, 6, and 10, as outlined in the table. Top view of same plants illustrating relative showiness of bracts. Left to right top, treatments 1 and 5; bottom, left to right, 6 and 10.

Side view of representative poinsettia plants of two CCC and two B995 treatments showing relative height and foliage density. From left to right, treatments 7, 8, 2 and 3. Top view of same plants illustrating relative showiness of bracts. Top, left to right, treatments 2 and 3; bottom, left to right, treatments 7 and 8.