Urea-formaldehyde Nitrogen and Leaf Scorch of Croft Lilies

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Leaf Scorch in Croft lilies was reduced by 2 or 4 teaspoons per 6-inch pot of urea-formaldehyde nitrogen mixed into the soil at potting time. A greater reduction in leaf scorch occurred when the urea-formaldehyde nitrogen was used in combination with regular applications of a nitrogen-potassium liquid fertilizer. The number of yellow leaves at the base of the plant also was reduced at higher nitrogen levels.

Data presented in Table 1 indicate that two levels of urea-formaldehyde nitrogen used alone or in combination with bi-weekly applications of a nitrogen-potassium liquid fertilizer did not affect the average height, number of buds or leaves of Croft lily plants. Approximately 55 per cent of the leaves had scorch lesions present when no nitrogen was added during the forcing season. The amount of leaf scorch was reduced to 27 per cent with bi-weekly applications of the nitrogen-potassium liquid fertilizer.

At the 6 and 12 gram rates of urea-formaldehyde nitrogen, the amount of leaf scorch was approximately 15 and 13 per cent respectively, but when used in combination with the nitrogen-potassium liquid fertilizer, the percentage of scorched leaves was reduced 7.9 and 6.5 re-

spectively. The number of yellow basal leaves also was decreased approximately one-half at the 12 gram rate of urea-formaldehyde nitrogen in combination with the nitrogen-potassium liquid fertilizer.

Croft lily bulbs, 9 - 10 cm. in size, were potted into an unsterilized greenhouse soil formerly used for carnations. The soil had been originally conditioned with sphagnum peat moss and was medium high in nitrates, and extra high in phosphorus and potash (Morgan test). The pH of the soil was 5.6; therefore, ground limestone was added at the rate of 4 ounces per bushel (10 lbs. per 100 sq. ft.). Plants were grown continuously at a minimum night temperature of 60°F and data were collected at time of flowering, April 9-20.

Six and 12 grams, per 6-inch clay pot, of the 38-0-0 urea-formaldehyde nitrogen (Uramite) were mixed thoroughly into the soil before potting. The nitrogen-potassium liquid fertilizer consisted of 1 lb. of ammonium nitrate and 1 lb. of potassium nitrate per 100 gallons of water. Applications were made every two weeks.

Research by several workers (1) (2) (3) has shown that leaf scorch may be decreased with heavy applications of lime together with frequent applications of inorganic nitrogen during forcing. White (4) demonstrated that growth of Croft lilies fertilized with 38-0-0 urea-formaldehyde nitrogen was similar to that for plants regularly supplied with a 15-30-15 liquid fertilizer. He made no reference to the effect on leaf scorch.

Seeley and Velazquez (2) reported that adding an organic source of nitrogen at potting time to a soil low in organic matter did not reduce leaf scorch unless followed by regular applications of inorganic nitrogen during forcing. The need for supplementing urea-formaldehyde nitrogen (a synthetic organic source of nitrogen) with regular applications of soluble nitrogen to reduce leaf scorch also was demonstrated in the experiment reported in this paper.

References

1. Mastalerz, J. S. Leaf scorch of Croft lilies and application of lime. Mass. Flower Growers Assoc. Bul. 26: 3-5. 1954.
2. Seeley, J. F. and D. Valazquez. The effect of fertilizer applications on leaf burn and growth of Croft Easter lily. Proc. Amer. Soc. Hort. Sci. 60: 434-438. 1952.
3. Stuart, N. W., W. Skou and D. C. Kiplinger. Fertilizer and lime affect amount of leaf scorch in Croft Easter Lilies. Ohio Flor. Assoc. Bul. 292: 2-4. 1954.
4. White, H. E. The use of urea-formaldehyde nitrogen fertilizer in the culture of potted Croft Lilies. Mass. Flower Growers Assoc. Bul. 35: 1-3. 1956.

TABLE 1. Effect of 38-0-0 urea-formaldehyde fertilizer on growth and incidence of leaf scorch in Croft lilies. 1956.

TREATMENT	Ave. height per plant inches	Ave. no. buds per plant	Total no. leaves per plant	Total no. leaves with scorch lesions	Per cent leaves scorched	No. basal leaves nitrogen deficient
1. No. Nitrogen	15.0	5.8	83.7	46.4	55.4	31.8
2. Potassium nitrate ammonium nitrate applied bi-weekly	15.0	5.7	82.9	22.4	27.0	24.6
3. 6 grams 38-0-0	16.5	6.1	84.2	12.9	15.3	21.6
4. 12 grams 38-0-0	15.5	5.8	80.5	10.2	12.7	18.6
5. 6 grams 38-0-0 plus potassium nitrate ammonium nitrate applied bi-weekly	14.3	5.2	82.4	6.5	7.9	17.2
6. 12 grams 38-0-0 plus potassium nitrate ammonium nitrate	16.2	5.4	81.1	5.3	6.5	15.2