

Liquid Feeding

We have been injecting fertilizer chemicals into our greenhouse irrigation water at Colorado A&M for three years. The results have been excellent and we have learned a few things along the way.

All ages and sizes of plants can be watered with treated water exclusively. We have fed carnations, snapdragons, roses, cymbidium orchids, chrysanthemums, asters, poinsettias, hydrangeas and other pot plants with water treated at the same strength. Results have been very good.

We have irrigated with water containing the same amount of nitrogen for the past two years. We have found no reason to vary the nitrogen content from one time of the year to another. Apparently plants use nitrogen in direct proportion to the amount of water which they require, and this in turn is dependent upon the size of the plant and the amount of light which they receive. In summer the amount of light and the water required is high so the plants receive three or four times as much nitrogen as they will get in winter.

After liquid feeding for three years the variation in nitrate tests from bench to bench, or within a bench, is very small. At the rate we feed and water, our soils test rather uniformly around 50 ppm of nitrates (Spurway).

Our present rate of treatment per 1000 gallons of irrigation water is 3.1 pounds of ammonium nitrate (33%). When we use other nitrogen fertilizers the following amounts are equivalent in nitrogen:

	Pounds per 1000 gallons of water
Ammonium sulphate (20%)	5.2
Sodium nitrate (16%)	6.4
Calcium nitrate (15.5%)	6.7
Commercial urea (44%)	2.3

Potash fertilizers are less soluble hence they sometimes cause trouble with proportioner or injection systems of liquid feeding. We have been adding one and one-half pounds of muriate of potash (KCl) to each 1000 gallons of water, which very nearly fills the calculated potash requirements for carnation plants.

The liquid proportioner which we have used is made by Proportioneer's,

Inc. of Providence, R.I. These machines are also used to chlorinate water supplies and for many other industrial uses. Our machine has much greater accuracy than we need in liquid feeding. Several cheaper machines are now being developed. Those of you in the Denver Area should watch the liquid feed injector being tested at Emsbach's Greenhouses.

Your editor,

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