WHERE DID CARBON DIOXIDE GO?

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Carbon dioxide fertilization of greenhouse crops through enrichment of the atmosphere has been proven one of the best investments possible for ranges in the northern U.S. It is possible to obtain a return of 4 to 10 times the investment every year.

For instance, a chrysanthemum crop returning $1.50 per square foot ($2.00 is likely), an extra return of 20¢ per square foot of bench per year may be expected. This is based solely on reducing the growing time from 15 to 14 weeks on two crops, thus producing an extra 1/7 crop in the same space.

Or, looking at it another way, a square foot of bench requires (with some heat conservation measures) three gallons of oil to heat to 60°F for a year. If one week is saved in December and another in March, the decrease in heating cost is perhaps 15-20¢/sq.ft. The decrease in labor, day length control, fertilization, pest control, etc., might save another cent or two.

Figures in rose production show an even greater return on investment. Many other crops respond as much but data is not as well defined. Only a few crops do not seem to respond.

This return is realized from a capital investment of 6 to 12¢/sq.ft. plus an operations cost of 3 to 6¢/sq.ft./year for gas.

But these figures do not tell the entire story. Even with a 7 day reduction in growing time for mums, the weight produced may be increased 10%. If this increases the flower

grade enough to demand an extra nickel per stem, another 20¢/sq.ft./crop may be realized. Adding this to the 20¢ in paragraph two gives a 7 fold return on investment (40¢-6¢ operating cost).

This increase in grade is particularly noticeable in snapdragons flowering during December and January when weight gains of 20 to 50% have been obtained. Then from January to April the time required to produce a crop may be reduced by as much as four weeks! (See Univ. Conn. Bull. 75-20, Snapdragons in the Greenhouse.)

This article is written to express concern over the reduction in CO_2 usage. Many greenhouses are now tightly enclosed to reduce air infiltration and conserve energy. CO_2 is more likely to be deficient in these houses than in conventional glass houses. Its usage is even more important. But few growers are using CO_2, so some suppliers have stopped handling the generators.

Furthermore, CO_2 is FREE (CT Greenhouse Newsletter 77:18-19, 1977). Heat is supplied by gas combustion. Raising the greenhouse temperature 15 or 20° instead of only 10° during the day warms up everything in the greenhouse. This latent heat reduces heating requirements at night.

The heat saved more than pays for the gas consumed. The benefits of increased growth really cost nothing.

Don't overlook this practice in the management of your greenhouse!