

## CO<sub>2</sub> AND YOU

Allen C. Botacchi  
Extension Horticultural Agent

According to Dr. John W. Mastalerz, "When the greenhouse atmosphere is enriched with carbon dioxide, one can expect 1) an improvement in quality, 2) an increase in yield, and 3) more rapid development and earlier maturity." These benefits are realized, depending on cultivar, and assuming that water, fertility, temperature, and light are at the optimum levels.

Commercial CO<sub>2</sub> generators are on the market which will meet individual grower requirements. Large ranges find the liquid carbon dioxide under pressure or purified flue gas units to be the most cost effective. Smaller ranges can economically use natural gas, propane, or kerosene fueled units to generate CO<sub>2</sub>.

These units are sized according to cubic foot capacity. Normally a 1000-1500 ppm carbon dioxide level is maintained in a closed greenhouse during the daylight hours.

When combustion CO<sub>2</sub> generators are operated within the greenhouse, extreme care must be exercised to insure the clean and proper burning of the fuel. This will avoid the production of ethylene. Likewise the fuel source must be essentially free of sulfur which may form sulfur dioxide in the combustion process. Both ethylene and sulfur dioxide are extremely toxic to plants in very low concentrations.

When combustion CO<sub>2</sub> generators are installed in plastic covered greenhouses, adequate outside air must be introduced to insure complete combustion. If incomplete combustion occurs, carbon monoxide, which is toxic to humans, ethylene, and/or sulfur dioxide may be evolved.

Once the unit is properly installed, you will observe significant crop improvement.

Contact your jobber and try a CO<sub>2</sub> unit. See if CO<sub>2</sub> atmosphere enrichment is cost effective for you.

### REFERENCE

Mastalerz, J.W. 1977. *The greenhouse environment*. John Wiley & Sons, New York. pp. 1-629.