

CARBON DIOXIDE FERTILIZATION

You will be interested in the summary of a paper which was presented by Dr. Harry C. Kohl, Department of Landscape Horticulture, University of California, Davis. Here are the details:

"There is considerable evidence that carbon dioxide fertilization can be worthwhile. However, it is neither foolproof nor a cure-all as some might suggest. In its use the grower should try to decrease growing time for a crop rather than increase the plant load per unit area. For most crops, especially young plants, an increase in growing temperature during bright weather--but not during dull weather--is an appropriate procedure.

"Effective concentrations above 750 ppm are probably not worthwhile. Furthermore, during dull weather, concentrations of more than 300 ppm are not worthwhile. This last statement should not be interpreted to mean that there should be no carbon dioxide input during dull weather for, if there is no ventilation, greenhouse carbon dioxide concentrations may fall below 300 ppm which should result in a reduction in photosynthesis even at low light intensity.

"The above points are of major importance but two other points are of interest as follows:

1. At the end of the night the carbon dioxide concentration in a closed greenhouse is higher than normal and for the first hour after sunrise the stomates are opening so that it would seem wasteful to add carbon dioxide during this period.

2. Unless there is a reasonable amount of air circulation in the greenhouse the carbon dioxide concentration near the leaf, i.e. the effective carbon dioxide concentration, may be considerably lower than the average concentration.

"The economics of carbon dioxide fertilization are difficult to figure out because of many factors such as importance of quick turn-over for a holiday, per cent of time the vents can be closed, weather conditions, the cost of the equipment, the cost of the gas, and, of course, the possible over-all additional production. Each business situation is unique and it is beyond my competence to advise as to whether a particular enterprise should use carbon dioxide fertilization."

A copy of this paper can be obtained by contacting your farm advisor.

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