

ETHYLENE INJURY OF CHRYSANTHEMUMS

Over the years we have occasionally observed isolated houses of chrysanthemums in the winter time which failed to flower properly, plants had closely spaced or rosetted internodes with dark green foliage which was thicker than usual and either no flower buds or some by-passed crown buds. In each case where this has been observed, space heaters were being used and incomplete combustion occurred. This poor combustion can usually be traced to inadequate supplies of fresh air for the heater, improper adjustment of the burners, or both. No attempt was made to determine the specific gases involved in this injury symptom.

Marlin N. Rogers, David E. Hartley, and Benny Tija at the University of Missouri observed some of the same symptoms in midwest plantings and performed some experiments to determine if ethylene is the gas involved and at what concentrations and under which conditions the injury occurs.

In a series of growth chamber experiments as well as tests in small plastic greenhouses, the injury was produced at levels of 1 to 2 parts per million of ethylene gas. Source of the gas (apples, pure ethylene, incompletely burned gas) made no difference in results. Ethylene during the dark period was more damaging than during the daylight period.

In a preliminary test with poinsettias, similar results were noted, giving some indications that the response may be typical of short day plants in general.

From a practical point of view, the information tells us that gas heaters should be properly adjusted and vented and that most importantly, provisions must be made for a supply of fresh air while the greenhouse is closed to insure total combustion of the gases.

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