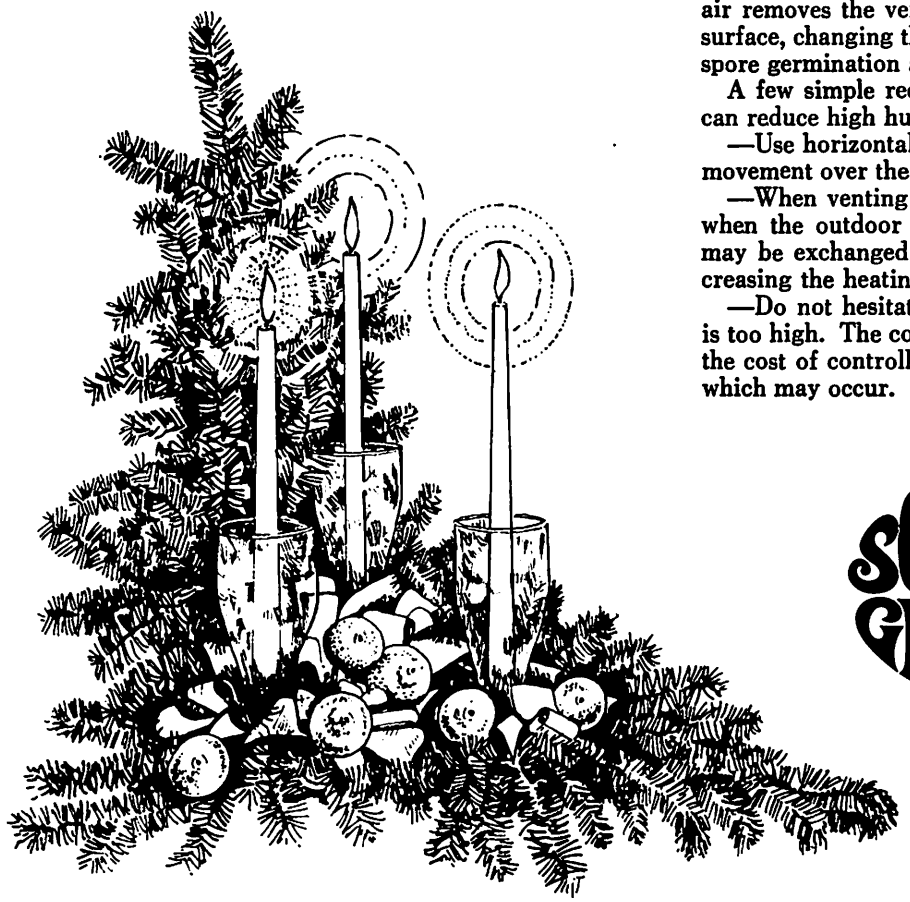
Combating High Humidity in Double Poly Greenhouses

Carl A. Salsedo, Connecticut Extension Horticultural Agent

The greenhouse industry awakened to the agony of the fuel embargo and price increases when the energy crisis came in 1973-74. As the cost of traditional fuel doubled, quadrupled then octupled over the past several years, the industry developed techniques to reduce the cost of heating greenhouses.

Probably the most widely used energy-saving method adopted by many growers is the use of double poly, alone or over glass or FRP plastic. Its main advantage is a sizeable energy savings.

These tighter, better insulated greenhouses result in higher humidity which provides conditions for increased crop disease. Outdoor air generally has a lower dew point than greenhouse air. Introducing this drier air, either by leaks or by ventilation, reduces the greenhouse humidity.



The temperature of the skin affects greenhouse humidity since a cold skin will cause condensation, drying the greenhouse air. A double glazed house will have a warmer internal skin and less water will be condensed out of the air.

Plants may be kept drier in three ways: 1) ventilation, 2) heating and 3) moving the air. Bringing in drier air through ventilation decreases the relative humidity. So does raising the air temperature by heating. Moving the air removes the very moist layer of air next to the plant surface, changing this microclimate and inhibiting disease spore germination and infection.

A few simple recommendations can be followed which can reduce high humidity build-up:

—Use horizontal air flow to keep a constant rate of air movement over the plant surfaces to reduce plant diseases.

—When venting is necessary, ventilate during mid-day when the outdoor air is warm, so that greater volumes may be exchanged to remove more moisture without increasing the heating load excessively.

—Do not hesitate to ventilate at night if the humidity is too high. The cost of heating will probably be less than the cost of controlling disease or the reduction in quality which may occur.