

DIF Temperature Control

A commonly used non-chemical method of height control is temperature control. Holding plants at cooler temperatures reduces growth. However, temperature may be used in a more controlled method to specifically control internode length. This method of height control using temperature is referred to as DIF.

DIF refers to the difference between the day and night temperatures (i.e. difference). The DIF is determined by subtracting the night temperature from the day temperature. A positive DIF occurs when the day temperature is greater than the night temperature. A negative DIF occurs when the night temperature is greater than the day temperature. A zero dif occurs when the temperatures are the same.

Plants grown under a positive DIF are taller than plants grown at a zero DIF, and plants grown under a zero DIF are taller and have longer internodes than plants grown under a negative DIF. As the DIF becomes more negative, plants tend to become shorter. There are some undesirable effects when the DIF is too negative (i.e. chlorosis in lilies). Usually, a -10 DIF has been found to be optimal.

A problem with maintaining temperatures higher at night than in the day is that of heating costs. However, it has been found that the first two hours in the morning is the period of time that DIF is most effective. Therefore, lowering the temperature below the night temperature (creating a negative DIF) for two hours at sunrise is just as effective at reducing plant height and internode length as is maintaining a negative DIF throughout the night.

For more information:

http://www.umass.edu/umext/floriculture/fact_sheets/greenhouse_management/altpgr.html

or just Google - Greenhouse DIF