

## Thermal Films

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Most of us are aware that the greatest energy loss in a greenhouse is through conduction, and the greatest savings are realized with a double layer glazing system such as the typical inflated double poly house. Studies have shown that a properly inflated double poly house can save over 40% in fuel costs compared to a single layer glazing. What you may not realize is that an additional 15-20% can be saved by using a thermal film as one of the layers.

Thermal films lower energy costs by reducing the radiant heat loss from the greenhouse. They act as a shield between your warm plants and the cold night air, slowing the radiant heat loss that naturally occurs when your warm plants come into contact with cold night air. Since the radiant heat loss is reduced, heaters cycle less often and require less energy to maintain their set-point temperature.

Thermal films should be installed as the bottom layer of a double poly system to take advantage of the anti-condensate properties. Although there is no harm in using two layers of thermal films, a second layer of thermal film does not significantly increase the energy savings.

#### NOTE

*Install thermal films as the bottom layer of a double poly system to take advantage of the anti-condensate properties.*

### How Do Thermal Films Work?

During the day, plants, soil, and the materials that make up a greenhouse absorb sunlight, which is comprised of both visible light and short wave infrared light. This causes the plants, soil, and greenhouse materials to heat up. During the night, all objects that have absorbed this energy release it as long wave infrared radiation. A thermal film *absorbs* and *reflects* this energy, keeping it within the greenhouse environment—resulting in higher nighttime temperatures within the greenhouse.

### Crop Response

AT Films' thermal films will often have a positive effect on crop performance.

Many growers report earlier color and/or compact plants. This is most likely due to the increase in nighttime plant tissue temperature associated with reduced radiant heat loss. While these effects are subtle, you should expect crop development to be slightly accelerated when using Dura-Film® Thermax™ and Dura-Film® Thermax Plus™.

