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Is Your Double-Poly Greenhouse Properly Inflated with Outside Air?

Making sure that your double-poly greenhouse is properly filled with air will increase the lifespan of your poly and help avoid other costly problems.



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Do you want to easily reduce your energy bills and condensation and increase your light levels in your double-polyethylene greenhouse? By properly using small and inexpensive electric blowers or inflation fans [also referred to as squirrel-cage fans (Figure 1)] to fill the space between the two layers of plastic with outside air, you can increase the quality of your crops and save money! Why is this air-space so important? By creating an energy-saving “dead air” space, your double-poly greenhouse becomes taut and

smooth, thus increasing its strength. More importantly, you create an insulation layer that prevents heat loss at half the rate of single-paned glass.

If your inflation fans or blowers are not maintaining the air space due to motor malfunctions or tears in the poly, the value of having two poly layers becomes almost nonexistent. Therefore, it is recommended that you routinely check your poly for holes and make sure your fans are properly functioning, especially in the winter. The general recommendation is to maintain an air space of 6 to 8 inches (15 to 20 cm) between the two layers of poly, but always check with the manufacture for their specific recommendations as over inflation can cause problem as well. An inexpensive manometer can be used to measure



Figure 1. Inflation fans should use air from outside the greenhouse instead of from the inside to reduce the potential for humid air causing condensation between the two layers of poly.

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Figure 2. An example of a baffle on the outside air inlet for the inflation fan, this particular baffle is homemade, simply a piece of wood large enough to cover the entire hole and attached with a single screw at one corner. The baffle can be rotated to open or close the hole at any degree.

the amount of air pressure between the two layers of poly to insure you are correctly filling the air space. Once the tip of the manometer is inserted in between the two layers of poly, you should look for a reading between 0.2 to 0.4 inches (0.5 to 1 cm). Again check the manufacturer's specific recommendations as not to void the warranty. Adjusting the air pressure is simple to do; most fans come with a simple baffle (usually a small piece of metal attached at one place allowing it to rotate) that allows you to increase and decrease the opening to the fan. If the fan you are using does not have a baffle, you can use a small piece of sheet metal or wood (Figure 2). When adjusting the air pressure allow several hours to pass to allow the pressure to stabilize before any re-adjustments. Lastly,

it is also very important to maintain uniformity between the poly layers from one end of the house to the other.

Growers are strongly encouraged to place these blowers inside the greenhouse, but use outside air to fill the air space. Why? It is no surprise that air inside a greenhouse is warm and moist compared to outside air which is colder and less humid. When the greenhouse air is used to inflate the two layer of double-poly, condensation occurs in between the layers (Figure 3) and reduces light transmission and eventually water accumulates (Figure 4). Remember to use blowers with an intake and exhaust manifolds.

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Figure 3. When inside air is used to fill the airspace between double-poly, condensation begins to form.



Figure 4. Condensation between the two layers will lead to water accumulation and eventually damage to the poly.

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