

GREENHOUSE COVERS — POLYETHYLENE, FIBERGLASS, OR GLASS?

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When I was asked to speak on this subject, 'Polyethylene, Fiberglass or Glass — Which Would I Prefer', I had never seriously considered whether I really had any deep preferences. Probably like most growers we had gone along solving problems as they came up in the most suitable manner, dictated by economic necessities. I think it is safe to say there are a far greater number of growers in the United States today who have had to consider the necessities of economics in this decision than those fortunate enough to have ample funds available so that the decision could be one of a purely technical or scientific decision. Not being a student or a researcher I am not going to attempt to delve into all the various considerations of depreciation, taxes, investment costs, etc. that should be considered as I am sure that each one of us is going to have to make these decisions for himself depending upon his local situation with regard to taxes and building codes and his own requirements for climate control.

Let us consider the various advantages and disadvantages of each:

Polyethylene;

Advantages: Low initial cost for supporting structure.

High light transmission — good diffusion.

Tight and weather proof.

Heat Saving — By using double layer with air space one can save approximately 40% in heating costs.

Versatility of use of structure.

Good humidity retention — less watering.

Because of lower capital investment — lower taxes.

Disadvantages: Short life — generally six months to one year, depending upon type of polyethylene

Easily damaged — vulnerable to storms.

Condensation and drip problems.

Fiberglass:

Advantages: Economy — less expensive than glass.

Ease of construction. Lightweight. Rigid.

Diffused light.

Semi-permanence; good for several years.

High humidity retention.

Tight and weatherproof.

Disadvantages: Not as permanent as glass.
Light transmission deterioration. Expense of treatment.
Taxes higher for more permanent type structure.

Glass:

Advantages: Excellent light transmission.
Permanent.
No condensation problems.

Disadvantages: High initial cost.
More heat requirement — not as weathertight.
Higher maintenance.
Taxes higher for permanent structure.

These are the most obvious advantages and disadvantages of each. We could more than likely get into some lively discussion about the quality and type of light rays transmitted, etc., but in my requirements these more technical aspects were not major considerations.

We are growers of bedding plants and ground cover plants, grown in flats. We have a high seasonal requirement for a great deal of greenhouse space during winter and spring. We have a high requirement for shade house spacing summer and early fall. Initially in the construction of our nursery we erected several conventional glasshouses. We like these very much and I would not want to give them up. We use them for production of our seedlings principally, and for other of our most vulnerable crops. I like the feeling of security we have on a windy day or night that our hundreds of flats of seedlings in various stages are not going to lose their protection.

We also have several acres of poly houses with which I am very pleased. As I mentioned we have a very large requirement for greenhouse space in spring. Poly gives us this space. We have experimented with many types of poly structures through the years and now have several with which I am very pleased. They offer reasonable security to storms and, with good equipment for climate control, are as good as or even better than glass for production of our type of crops. Also, we can remove the poly covers in summer and cover with saran shade cloth to give us additional shade houses for production of our summer crops.

We have, as I mentioned, several types of structures. We are now adapting all of these with the relatively new method of fastening poly down by clamping it between two pieces of extruded aluminum which are made specifically for this purpose. This is a great time and labor saver in the annual job of replacing the poly covers and provides a very secure method of fastening. We are also now covering most of our poly houses with two layers of poly and blowing air from within the houses between

the two layers to separate them and provide air space which acts as an insulating barrier, resulting in a great reduction in heating costs. Another benefit of the air inflation is that we have less flapping of the poly which extends the life by several weeks or months.

We also find that we have far less vulnerability to wind damage with the inflated poly covers. One other advantage is the tremendous reduction in condensation within the house.

We have one fiberglass house which does a good job for us. However, I am not as fond of it personally as I am with either our glasshouses or our newer poly houses. I will admit that our fiberglass house was an economy model. We used a light-weight fiberglass that was not coated, consequently I can see considerable deterioration in light transmission. We have not, in all fairness, given the maintenance to the fiberglass that it should have. In last winter's severe wind in our area several panels were blown off the roof so there is some vulnerability. But considering the cost of the structure it was a good investment for us and fills a need we have for production of several of our crops. I have seen several very fine ranges of fiberglass houses of which the owners were very proud and producing some top quality materials.

In conclusion, I would say that we have a need in our operation for all three. Sure we could do with any one of them and do an excellent job but, if I had my druthers, I would do just as we are. I think they all have their place and we need each one.