



Reflectors - Let there be Light

By Trevor Shields

And let there be light. Lots and lots of light. But where there is smoke, there is fire where there is an all-you-can eat pizza bar there is Oprah Winfrey, and where there is light there is heat. Accumulated heat can be a huge detriment to a hydroponic garden; possibly burning leaves from condensation build-up, and without proper ventilation, contributing to the formation of fungus. So, how does a person get Oprah out of the buffet?

The answer to this is to maximize your light radius by adequately distributing your light. Eliminating heat is actually secondary to the redirection of otherwise useless light. Think of using a reflector as supercharging and economizing your grow system at the same time: An impossible combination to achieve in the automotive world, yet simple to accomplish in the hydroponics world. As with automobiles, reflectors come in many shapes, sizes and models. No matter the size of your growing space or your budget, you can find the right solution for you.

Ask a few questions when purchasing a reflector from your local store, as the construction of your reflector will determine its effectiveness. Generally, with the exception of mechanically vented models, reflectors are an easy piece of equipment to manufacture. Because of this, many outlets will simply have a local metalwork shop fabricate them. This allows for a great variety of reflectors available to a home gardener, but also makes it almost impossible to standardize quality. Check the gauge of aluminum used in the construction of your reflector. A lighter gauge is normally fine, but will easily deform if it is dropped or misused. This can reduce its efficiency. Make sure that it is easily mountable to your existing lighting system. Baling wire and duct tape works great on Red Green, but can become a possible fire hazard in the real world.

Also, the finish of the reflector reflects (sorry, couldn't resist) the maximum possible percentage of redirected light. The whiter and brighter the finish the better. Titanium Oxide provides a high quality sheen that will last for a couple decades without any noticeable loss of quality, as long as you keep it clean. The 'Sunray' reflector is possibly the most economical version of the reflector, both in cost and design. It is merely a small sheet of aluminum with 2 bends, lending it the appearance of an upside down trough. This form of reflector is more than adequate with a single bulb over a flow table, or small rectangular grow area. The "Flat" reflector is a circular sheet of metal, with one thin pie-slice shape removed from it. Joining the sides of the pie-slice turn the reflector into a very gradual cone. This reflector is best used in a multi-bulb environment or larger garden, as it diffuses light over a larger radius, rather than concentrate it.

Taking the “Flat” reflector, and improving on its simplistic design is the “Parabolic” reflector. The parabolic also is cone-shaped in design, but manufactured by assembling trapezoid shaped pieces of aluminum. Its design ‘curves’ below the bottom of the actual bulb itself capturing the light and redistributing it. It is extremely efficient at reflecting moderate light over a large area.

“Natural Convection-Vented” reflectors share their basic design with the “Sunray”, however, their ends are completely contained. Louvres are built into these reflectors to allow heat to escape upward, instead of becoming trapped close to the bulb. Its highly concentrated direction of light makes this a good choice for a small, compact garden, or where available space is a major concern.

“Mechanically Vented” reflectors are the Lamborghini of the reflector world. Instead of relying on natural convection to dissipate heat from around the bulb, ducting, fans and ventilation force the heat out of your grow area. These models are completely enclosed, with a base of tempered glass. This aggressive removal of accumulated heat allows these reflectors to be positioned much closer to the garden itself, resulting in much stronger, more concentrated light.

If possible, do a little research before making your final decision. Keep the size of your garden in mind, and visit your local hydroponics store. Chances are, they will have demonstration gardens utilizing a couple of the different reflectors mentioned here. Ask to use a light meter, should they have one on hand, and check the levels for yourself. Whichever option provides the best light for the best price will be your best bet. Now, move it Oprah, its closing time.

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