

Shade Cloth and other aids for Cooling Plants

by Phyllis Pugnetti

We've had excessive heat this summer, and it appears that more is on the way. Many gardeners have turned to shade cloth to protect their crops and tender plants. Shade cloth is an open weave synthetic fabric that allows for somewhat reduced amounts of air, light, and water to pass through. Shade cloth is often used by commercial plant nurseries to cover greenhouses for shade loving plants, like hostas and ferns. It has advantages over other fabrics, for example cotton sheets can become heavy when wet, and there is no way to know how much light sheets block out. On the other hand, shade cloth is available in 30%, 60%, and 80% light reduction, with 60% being the most commonly available at garden centers and big box stores. It is usually 6 feet wide and sometimes sold by the linear foot. Other times it comes in pre-cut lengths of 25-100 foot lengths. At big box stores and garden centers in Yakima, pricing for 6 feet by 25 feet of pre-cut shade cloth was around \$30. Of course many other sizes are available on line but sometimes require a



minimum purchase of an amount that is more than most home gardeners need.

Before buying shade cloth it is important to ask what you want it to do—reduce light or reduce heat? They are not the same.

Shading to reduce light intensity is different than shading for a cooling effect. Black shade cloth provides the darkest shade, but black absorbs more of the sun's heat, which results in less of a cooling effect. Unless plants are shade loving, they

may become spindly and leggy as they grow. On the other hand, light colored shade cloth allows the same percent of light to pass through into the inside of the structure but the light color is more reflective so the light bounces around making it more usable to plants. The reflective nature of the light colored shade cloth means that it absorbs less heat and provides a cooler, lighter environment. Many people automatically reach for black, brown, or dark green shade cloth to get the darkest shade, assuming they will also be getting the best cooling effect. If you have already purchased dark shade cloth, no worries. The difference between the two is only a few degrees. By raising the fabric cover several feet above the leaf canopy and leaving one side open (the side away from direct sunlight) you will allow more reflected light to enter the structure and better ventilation to help vent the heat out.

My personal experience with shade cloth is that the light tan color reduces the temperature under the cloth by about 13° as long as the structure is open to a breeze. The growth of the plants under light tan shade cloth has never been stunted or spindly. The dark green and dark brown shade cloth lowers the temperature by about 10° but the plants do become a little spindly. The structures I've used all allow for some direct sun in the early morning and again in the late afternoon so plants don't get leggy.

For extra cooling, irrigation water is about 55° when it hits the soil. Watering the garden bed in the middle of the afternoon will help cool the soil and still allow the foliage to dry before sundown. In addition, using misters or micro emitters for 5 to 10 minutes 2 or 3 times during the hottest part of the day can also lower the heat inside the structure by another 10° for 30-60 minutes. Shade cloth seems to reduce evaporation leaving soil more consistently moist. Some people report that they use up to 60% less irrigation inside shade cloth structures; so be sure to adjust your irrigation as needed.

Also using misters a couple time each afternoon helps reduce the temperature during the hottest part of the day. The plant foliage dries quickly so mold or powdery mildew has never been a problem under the shade cloth. Putting up shade cloth is an extra chore in the garden but the results are well worth the effort.

For any gardening questions - you are always welcome to contact our Master Gardener Clinic at 509-574-1604 or email gardener@co.yakima.wa.us.