

Personalized Shot Cotton

There is a new cotton available to dyers, developed by cotton spinner, weaver, and dyer Eileen Hallman of New World Textiles. She first introduced the cotton fiber to spinners, then yarn to weavers. As a weaver working with the yarns, the idea came to produce some mill woven fabrics for dyers.

The cotton is a specialty cotton that has been treated to accept any dye without the need for chemical assists or mordants. It also needs less dye, and requires less rinsing.

Shot cotton is described as fabric woven with different colors in the warp and weft. Depending on the colors used, this can produce an iridescent effect with complementary colors, a blend with two colors, or a richer color with two similar colors. By using the specialty cotton only in the weft, a two step sequence of dyeing without auxiliaries and then dyeing a different color with the auxiliaries will give a directional dyed/overdyed effect.

With the availability of Dye-Lishus® cotton, a new fabric woven with unbleached, untreated organic cotton in the warp and the newly available treated cotton that accepts dyes without auxiliaries in the weft, a medium shade can easily be achieved by simply immersing the fabric in a solution of dye and warm water. Depending on the dye, the untreated cotton will remain white or will take on a light tint while the treated cotton will accept the dye. The treated weft yarn is either used as all of the weft or arranged half and half with untreated cotton for pixels or stripes.

To dye the untreated warp and weft, a second dye sequence is required. In addition to the self striping pattern, shibori techniques can be used to achieve four areas: undyed, dyed with the first dye, dyed with the second dye, and dyed with both dyes.

First, dye the fabric without auxiliaries. Second, treat as usual for the dye technique, with the auxiliaries added to either the fabric or the dye. This will dye the regular untreated cotton, and will overdye the previously dyed portion. You could change the order; you will get a different effect in the overdye. The treated cotton will always be overdyed.

For pastels, one set of threads will remain white or light if only dye and water are used.

For a rich color, two similar colors can be used in the dye/overdye sequence, or primary colors can be used to give visual blending. As an example, yellow as a base color overdyed in blue will appear blue-green from a distance, but will have blue in one direction and green in the other. Order matters; if the blue is dyed first and then the yellow, one set of threads will be yellow and the other green, giving the appearance of yellow-green.

With yarn dyed fabrics, where the yarns are dyed before weaving, iridescence can be achieved by using complementary colors in each direction. Iridescence can not be created dyeing in the fabric form. Since you will be dyeing and then over dyeing one set of threads, it won't be possible to get complementary colors. Revisit your color wheel to see this; as an example, there is no way to obtain orange by adding something to blue, and no way to obtain green by adding something to red. But you can get secondary and tertiary colors and beyond, as well as richer color if you stay within the same hue.

The new treatment was developed for fiber reactive dyes, although it works with natural, acid, and direct dyes as well. The direct dyes and most natural sources of yellow will tint the untreated cotton a paler shade, so take that into consideration when you choose your dyestuffs. As a general rule, acid dyes will only dye the treated portion, so if you want yellow and white, then acid yellow is the dye of choice. Also, if you are dyeing with acid dyes for the treated portion and using a different dye class for the second color, do dye the acid dye first, as some acid dyes will remove some other dyes. Do test!

Some examples of blending the primaries; blue + red = purple, red + yellow = orange, yellow + blue = green. If you use Procion MX dyes and mix each of the primaries without soda ash, you can dye a piece in each bath, then treat the fabrics with soda ash and dye them in the opposite bath. Figure 1 shows the results on the pixelated fabric of first dyeing blue, then over dyeing red and yellow. The schematic is shown on the right.

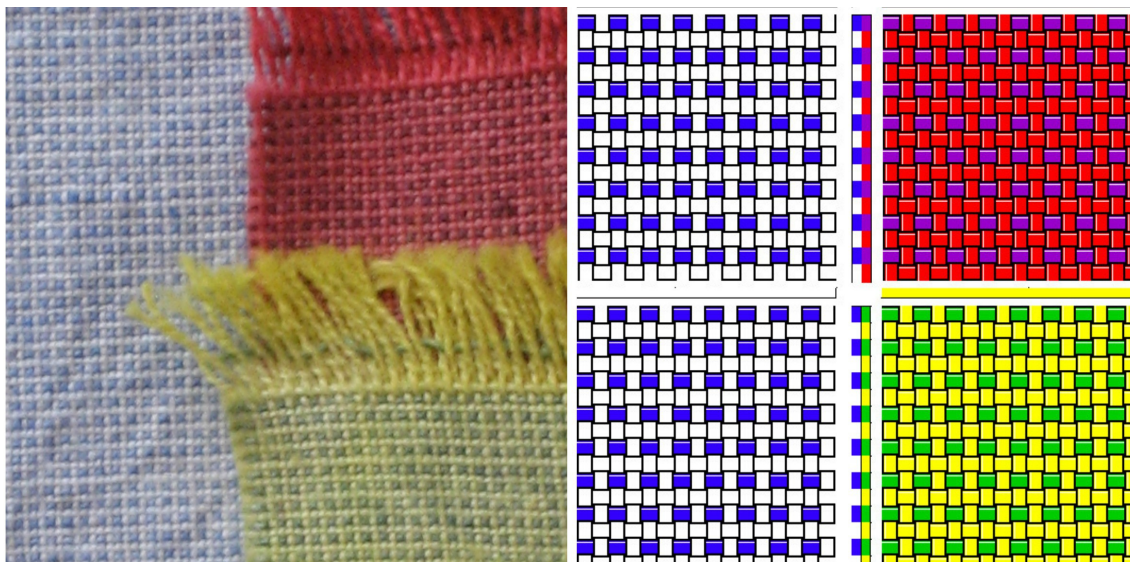


Figure 1: Pixelated fabric dyed blue, then one piece overdyed red and one overdyed yellow

Order of the colors matters, as does the concentration of dyestuff. Some dyes strike very fast and leave little room for the second dye. Also, the weave pattern makes a difference. In the pixelated fabric, the treated yarn shows as a dot with a white border when dyed once without auxiliaries. If the first color is blue and the second red, then there will be a purple dot with a red border. At a distance, this will appear red-purple. If the order is swapped, a purple dot with a blue border will appear blue-purple. You can see this in the photo below.



Figure 2: The pixelated fabric on the left was dyed blue, then tied and dyed red. On the right, the fabric was tied, dyed red, the first ties undone and second ties tied, then dyed blue.

Using Saxon blue, an acid dye that normally gives gray on cotton, the treated cotton will give a beautiful blue. Overdyeing in turmeric, a substantive natural dye, both the treated and untreated cottons will accept the dye. Dye some yarn at the same time, and use it for stitching.

