May 26, 2015

The first and most important point is that no color or outfit can bring hunting accidents to zero. Our aim is to reduce them as much as possible. Blaze orange is required for hunting in many states but it is not popular with some women hunters. Therefore, this study was performed to provide alternative(s) that are as safe as blaze orange, yet provide more choices to women hunters.

Why Deer Spot Hunters

Detect Movement:

Deer have an amazing ability to detect movement. A deer's eyes can detect even the slightest hint of movement.

Human Scent:

Deer like dogs have an excellent capability to detect scents. Their nose can be anywhere from 500 to 1,000 times more acute than a human's. Hunters should avoid scented detergents for washing their clothing.

Deer Hearing:

Deer hearing isn't much better than that of humans. However, deer ears are small satellite dishes that tip back and forth and roll around to pick up, sort and lock onto various sounds. Therefore, hunters should avoid making noise.

Color of Clothing:

Deer eyes like the humans' have photo sensitive cells called Rod and Cone. Cone cells help see fine details and colors, and work best in bright light conditions. Rod cells help see movement and broad details, and work best in low-light conditions.

The human eye has three different types of cones (red, green and blue) but deer have only two (blue and green). Therefore, deer are dichromatic animals. Research at the University of Georgia indicates that deer can detect only greens, blues, yellows and UV. In general, humans and many daylight animals tend to have more cones, whereas animals who shun daylight typically have more rods. Deer have a much higher density of rods than humans do.

UV Effect:

A deer's ability to detect UV light is better than humans. Most detergents have brighteners in them that emit UV as well as visible light. Therefore, hunters should use a detergent that doesn't have these additives.

This research and its conclusion:

It is well established that the visibility of objects (i.e. hunting clothing), depends on many factors including the amount of light that scatters from the objects and their color contrast with the surroundings. This study has used spectrophotometer to measure and analyze the amount of light scattered (reflected) from several blaze orange hunting hats and compared them with blaze pink colors. It has also investigated the color contrasts with green and orange (the colors most found in the woods) under different light sources.

It is well known that blaze orange provides a very good contrast in the wooded areas in the spring and summer. However, when visually compared to the orange colors found in the fall leaves, blaze orange was harder to detect than the pink colors that were tested. The pink colors provided a better color contrast. Our spectrometric analysis indicated that the blaze pink that was tested had similar visibility to most blaze orange hats and was even better than a couple of them. Therefore, based on this small study, it can be concluded that the blaze pink we tested were as safe as the "Orange Blaze" hunting hats.

Although this was a preliminary study, the results were very significant. Therefore, it is believed that a more in-depth study will result in very similar conclusions. It is also important to remember that the effect of color in spotting hunters by deer is far less significant than effect of hunter's scent, movement, detergents used, and noise.

Majid Sarmadi, Ph.D.
Rothermel Bascom Professor, Textile Science
Design Studies Department, School of Human Ecology
Nelson Institute for Environmental Studies, Professor
Materials Science Graduate Program, Professor
UW-Madison
Dept. Design Studies
Room 3214 Nancy Nicholas Hall
1300 Linden Drive
Madison WI 53706-1524
Tel 608-262-7492 - Fax 608-265-5099
majidsar@wisc.edu