

Defining Color: What is the Perfect Color?

by Robert Spitzer



Exhibitors have asked many times over the years for a cavy hair color chart. This sounds like a simple task but actually is quite difficult. For example, the shine of the finished product and smoothness/texture of the paper can affect the color. Just think of how the sheen on satin cavies can make colors richer than in the non-satin breeds. It is the same idea.

Color is very much a question of personal perception. Everyone's eyes perceive light and color slightly differently (this is why the wife hates the color paint the husband selects, and vice versa, and why paint stores sell a million different shades). If you were to ask folks to best relate paint chips to specific colors, the results are varied. A good example of this was the presentation given by James Goodrich at the ACBA Specialty Show judge's conference in New York, but more about this later.



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time—some pleasing to the eye, some not so pleasing.

The reason a red cavy may exhibit a different hue in each room is various types of light bulbs give off a different spectrum of light rays, and so your eye sees it differently. Traditional household tungsten light bulbs are heavy on the yellow-white, and they make a red American look *very* nice. Traditional fluorescent is heavy on the blue-white, and give a much more washed out look to the red cavy. Grow lights for plant production is supposed to mimic the sun, but the lighting these give are more of an orange/pink than the natural sunlight we see outside. The color of walls, carpet, furniture, and type of light shade for a lamp all make a difference too. Then there are rooms with multiple sources of lighting, for example screw in fluorescent bulbs in lamps, tungsten bulbs overhead, and the addition of filtered

WHAT IS COLOR? WHAT MAKES A WHITE CAVY WHITE, A RED CAVY RED, AND A BLACK CAVY BLACK?

Genetics!

Yes, as far as breeding goes, it all comes down to genetics, but our eyes do not see genes when physically looking at a cavy. We see hair and hair color. Science teaches us all objects reflect some colors of light and absorb others. For example, when you look at a red cavy or a red car or a red balloon, what you are seeing is the color red reflecting back. All the other colors are absorbed. For a white cavy, all colors are reflected back. For a black cavy, all colors are absorbed and none reflected back (this is why a black car gets very hot inside, and a white one stays noticeably cooler).

Color	Wavelength
violet	380–450 nm
blue	450–475 nm
cyan	476–495 nm
green	495–570 nm
yellow	570–590 nm
orange	590–620 nm
red	620–750 nm

sunlight coming through a window.

For my caviary I have a two-bulb fixture mounted to the ceiling. I have a common screw-in fluorescent bulb on one side and a traditional tungsten bulb in the other. The two with their different spectrums actually provide a good balance of lighting for evaluating color, and for minimal cost!

Whenever in doubt, the only true source of light to trust for judging color is natural sunlight. Even outside thought, there can be variations. Shade gives a harsher blue than full sunlight. An early morning and late day sun favors the red spectrum. This is because the sun puts off different wavelengths of light. The sky is blue because the shorter wavelength blue rays scatter in the upper atmosphere giving its blue color. Red rays are a longer wavelength which tend to go straight on through, and we chiefly see them when the sun is low in the sky (a sunset). Dust and pollution thrown up during the day also help screen out blue. This is why sunsets are pretty reds and oranges, and sunrises are pale by comparison. Middle-of-the-day sunlight is a more balance mix of blue and red wavelengths for lighting.

Bottom line, there is a different mix of light rays from every source of home and showroom lighting, thus sensitive

WHY DOES MY CAVY LOOK LIKE IT HAS A DIFFERENT SHADE OF COLOR WHEREVER I TAKE IT?

This is true for certain colors. The best example is a red cavy. Try this experiment: take a red cavy and walk from the caviary to the bathroom to the kitchen to the living room. Then go outside into full sunlight to medium shade to dark shade, and maybe the defused lighting of a hazy day. You will likely see a slightly different shade of red every single



shades in cavies like red, red eyed orange, lilac, etc., will each look a little different here, there, everywhere.

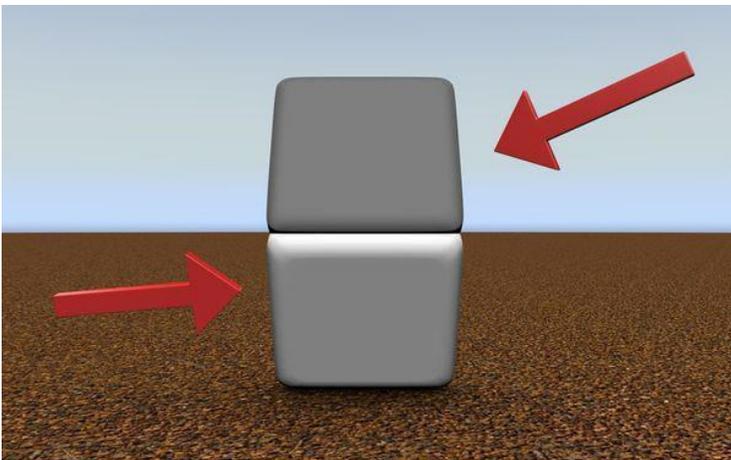
What is the optimum lighting for a showroom? Well, ideally that would be bright, natural light. However, most shows are held indoors under artificial lighting and each club is at the mercy of the facility for the kind, intensity, and quality. Show locations are often dictated by size, availability, and cost. Lighting is way down the list. Windows do help considerably and often the judges will turn around and evaluate a cavy under this lighting.

The worst lighting I have ever seen for a show was one of our ACBA Specialties. It was held in a gymnasium with strange yellow lights. The creams and blacks had what appeared to be tremendous color with perfect under color. The reds looked like muddy goldish things with shadowy highlights. Not good.

YOUR EYE TRICKS YOU INTO SEEING DIFFERENT SHADES OF COLOR

The eye takes in light through the lens, and it strikes rods (which see in black and white) and cones (color). These messages are then sent to the brain where it translates the signals into the image you believe you are seeing. What you believe you see may not be exactly what your friends see. This may be true with your very own two eyes.

Try this experiment: Sit and stare at something light colored such as this newsletter. Now, alternate having one eye open at a time, each eye, back and forth, back and forth. Do you see two slightly different shades of paper? Some of you may not notice any difference (try again under different lighting). With some people, one eye sees a slightly warmer tone, and the other slightly cooler. When both eyes are open, you don't notice it, perhaps because your brain is averaging what each sees together to create one unified color. Again, this is probably why our exhibitors have different favorite colors, and within the same color have a different favorite shade of that color, and have different opinions on what is the perfect shade of said color.



Background makes a large difference in what is seen by the eye too. A light background tricks the eye into interpreting the subject's color as darker. A dark background gives the appearance of the subject being lighter. Don't believe me? [Look at the pictures of the odd-shaped blocks in the photo above, then the cropped blocks to the left.](#) Depending on how much they are cropped, you will see different shades of gray, or identical color. Yes, they were cropped from the same photo! They really are the

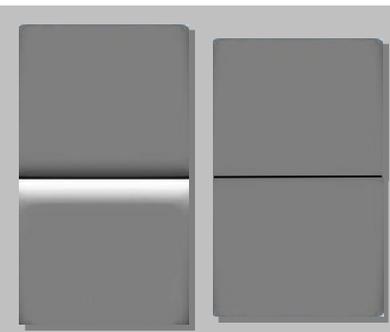
same shade of gray in each photo, but look different, because the background tricks the brain into seeing something that simply isn't true. In other words, the color of a show table cover makes a difference too. A very light cover material will trick our eyes into seeing a darker shade of animal; and conversely, a dark covered table will give the opposite effect. People have often asked me why our show boards are to be covered in standard burlap. I believe this is one reason why. The natural beige color of a basic feed store burlap sack is neutral to the eye, thus gives no advantage or disadvantage to the animal.

This brings us to our point. What is the perfect shade of, say, lilac? Is there a perfect shade of lilac? Well, no two judges seem to agree on a perfect or best shade. Given what variables are involved to create in our brains the 'same' simple color of gray, now maybe exhibitors will have an understanding why judges do not agree. Our eyes just do not quite see 100% identically, show table color and wall color and overhead lighting mixed with available window light all make a big difference, and we haven't even touched on matters of opinion.



In James Goodrich's demonstration at the ACBA Specialty judge's conference mentioned above, he took paint swatches and attached identical sets to several posters. He then grouped participants together and asked them to choose a best shade for each color. Even though all exhibitors viewed the swatches under identical lighting, no group exactly matched any other group as to placement.

Another factor to consider in color interpretation is the brightness of room lighting. Colors appear much more intense in bright, natural light than in dim light. Dim light will make colors appear more muddy or muted. This is normal for our eyes, and the reason why is the rods function better in dim light and register black and white, not color. Cones function best in bright light and see colors. So the dimmer the light, the less cones are able to function, while rods do.



Try this experiment: At night, whether outside in the yard or inside with the light off, see what colors your eyes are able to reasonably see. Now you may know a



light, and a few muted colors when lighting is slightly improved, and all colors well under normal bright light.

WHY DOESN'T THE ARBA JUST PUT IDEAL COLOR SWATCHES IN THE STANDARD OF PERFECTION?

It would be very helpful to have in our standard color swatches of the perfect lilac, beige, red eyed orange, etc. However, there are inherent difficulties in reproducing these colors on paper accurately. The process of capturing the color into digital form can produce varied results depending on many of the factors discussed above, and on the quality of the camera. Today's digital cameras have about ten to fifteen different settings to correct various kinds of lighting so what the camera sees will look 'natural' to our eye. The ARBA can create a color charts on their computer, and be happy with how they appear on their monitors, but it may appear totally different on another monitor. When printed on paper, the colors appear differently depending on the kind, whiteness, and smoothness of paper, and is subject to the accuracy of the printing machine as well. In other words, the end product might end up nothing like the original. This is why the ARBA has struggled over the years to reproduce the pictures of proper eye color in rabbits. Besides the difficulty of getting absolute consensus of what is the perfect shade of lilac or beige or red eyed orange, this perfect shade may not look the same when finally printed in the ARBA *Standard of Perfection*.

THEN HOW DO JUDGES DETERMINE WHAT IS THE CORRECT—OR PERHAPS PERFECT—COLOR AT A SHOW?

Every judge must judge by the standard. The standard does give good guidelines of what a color should be. For the above example of lilac, the standard states on page 235, "Color is to be a light gray with an even purple cast, having no hint of orange or brown. Color is to be carried to the skin, with ears and feet to match. Allow for darker shading in Juniors. Eyes-Pink." This begs the question, how light is...too light, or darker...too dark? Lilacs come in every conceivable shade from off-white to darker than battleship gray. These extremes are definitely not desirable to see on the show table. The standard does state darker is allowed in juniors; still, extreme light and dark of any age may be labeled unworthy of award.

When judging lilacs, I personally, am willing to accept a range of lilac as long as it fits the standard's description. I also take into consideration evenness of the surface color (splotchy color is a problem in this variety, and is to be faulted) and depth of color. For the American breed, there are thirty points on color in selfs, so it weighs heavily in class placement. For marked Americans color is ten points (the markings are another fifty). In long coat breeds, color (including markings) is only ten points. Ironically, some of the best lilacs I've seen have been long coats.

JUDGING COLOR IN POOR LIGHT/STRANGE LIGHT

Consider that sameness is an equalizing factor. In other words, the judge is seeing all the animals under the same lighting conditions, and so all of a given self-colored variety are beginning at the same benchmark level, just as all receive the same advantage under quality light. The problem noted above is where certain lighting is

bedspread is red, and perhaps under the severely diminished lighting, you can make out the appearance of a very dark maroon (Or is your brain interpreting it to be that, since you believe the object to be red to begin with?). To combat 'knowing' something is a certain color, take several different colored washcloths, put them in a covered container, and open up the box in very dim lighting to see if you can identify what color cloth is which. Are you able to tell pale pinks from yellows? Are you able to truly tell which one is your darker green or blue or orange or red? Probably you will see varying shades of grays. This is just to show you, under normal conditions, you will see in black and white in very poor to little



NORM EYENRANN PHOTO

an advantage to some colors and a severe disadvantage to others.

At a show with poor lighting, I use different ways to check color on cavies, and in some cases, whether or not the animal is a satin or regular coat. If there is a window behind me, I take full advantage of this. Lights are not always directly overhead, thus backlighting greatly affects what the eye sees. At one show I had an extremely bright spotlight shining in my eyes. The rest of the place was dark. To evaluate color and under color in these conditions put me at a severe disadvantage. I found tipped varieties in satin to be the worst of the lot to evaluate. I could not see distribution of ticking. Under substandard lighting conditions, I am in the habit of picking up the cavy to physically turn around and at different angles to have the tips catch the light so I may see distribution. When there is a window, I will turn around and check the color with the help of the light filtering in behind me.

As suggested above, for judging agoutis and solid ticked varieties, I like to turn the animal all different directions. I will physically turn the animal all around to judge distribution of ticking. Darker showrooms compounded with darker red tips in Golden Agouti makes it very difficult for the judge to see distribution. Again, turning around and angling the animal to catch the light helps to better see distribution, and I will do this with each of the animals in that class.

JUDGING SHEEN IN POOR LIGHT

Satins have the same issue as agouti and solid ticked varieties as to how available light reflects off and is transmitted through the hair shaft which lets me see the sheen. I have watched Teddy Satin exhibitors become very frustrated that they could see plenty of sheen from 'their' side of the table, yet the judge, from his position, could not see any; and vice versa, where the judge will see very good sheen, but the audience cannot. Certain ages on some satin breeds just do not exhibit the same quality of sheen either. Teddy Satins have a dull stage they go through at about young intermediate. As a judge I am aware of this, but I still need to see sheen on that animal or I will disqualify it (standard says to disqualify for lack of apparent sheen).

Just as poor light affects colors, cloudy days and dull light affect sheen as well. I had a judge say my Abyssinian Satin Chocolate did not exhibit sheen, and he disqualified it. I had to agree. I honestly could not see any sheen either. The next week I brought the animal to another show and handed it to the judge (he was exhibiting this time) so he could see the animal under different lighting. This time, the animal not only exhibited sheen, but had very good sheen. He was understandably surprised at how different the two days and source of lighting conditions affected sheen on this one animal. I was too.

UNDER COLOR

Out of sight, so out of mind. Not exactly. Under color is worth points too and is not to be ignored.

The same rules of quality light apply to evaluating under color as top color. Where on the animal you



choose to check under color is just as important. The ARBA Standard of Perfection suggests the flank is the best place (see page 231), and for good reason. This area of the hip is where under color will fade the most if it does fade. Flip back the coat here to check and see. Also check for fading and stray colored hairs over the rest of the animal.

Now I also do this when judging distribution on smooth coat Brindles and Roans. Smooth coat breeds do not have the advantage of Abyssinians which have exposed hair shafts going in all directions. As a result the true display of distribution isn't observable in the same way. Just like I am checking under color and for stray hairs, I will check multiple places on a smooth coat Brindle and Roan to see better see its true distribution. An excellent Brindle and Roan will exhibit quality distribution on the surface too. However, a less than perfection one won't, and then there is the matter of determining if the animal meets the minimum distribution allowable. Brindles need a minimum of 50% percent over the body, and Roans 75%. If they don't meet the minimum, they are to be disqualified.

ANOTHER INVISIBLE

When judging, it is easy to just look at the top and sides of an animal. Even though the belly is invisible to those standing upon the spectator side of the table, the judge has the power to turn the cavy over and look at the underside. And oh, how this may make or break the class placings or even Best of Breed or higher. For solids and marked, an excellent belly is often what makes that animal rise to the next level. Consider the Dalmatian cavy. To see quality spotting on the top and sides isn't that uncommon, but to also find a filly spotted belly is thrilling for the judge, to say the least. The same is true of an excellent belly band on agoutis, and checker patching on a TSW. So for the breeder in culling, just like the judge, take a look at the belly.



CONCLUSION

The onus is on the exhibitor/breeder to know what they have and decide what to cull and keep. When evaluating varieties affected by different sources of light, make it a point to cull a litter based on the same source of light, preferably a natural source. When judges do not like the shade, it may be the showroom lighting, and not necessarily the animal (or that the judge is *blind*). If every judge never seems to like the color, then there truly is a color problem. However, be aware some color varieties improve with age.

Yes, it really took me a little over three thousand three hundred words to simply say, "Check for color under good lighting." At least now you know why it is important to do so.

