



WHAT COLOR IS IT, ANYWAY? A PRIMER ON FOAL COLOR

By Laura Hornick Behning

The safe arrival of a newborn foal is cause for celebration. After checking to make sure all is well with the mare and her new addition, the questions start to fly. What gender is it? Which traits did the foal get from each parent? And what color is it, anyway? Many times this question is not easily answered unless the breeder has seen many foals, of many colors, throughout many foaling seasons. In the landmark 1939 movie, “The Wizard of Oz,” MGM used gelatin to dye the “Horse of a Different Color,” but Mother Nature does a darn good job of creating the same spectacular special effects on her foals!

The foal’s color from birth to the foal shed (which generally occurs between three and four months of age) can change due to many factors, prompting some breeders to describe their foal as “born one color, but later changed to another.” Now, genetically speaking, this is impossible; a foal is born with all the color genes it ever will have. But the foal’s color at birth often is a paler version of its eventual adult color, with silvery lower legs and light hair in the tail, called “foal fringes.” The lower legs can be so pale that it is difficult to discern any leg markings. Even within specific colors, there can be a huge variance in shade in both foals and their same-color adult counterparts, so identifying the foal’s color from birth can be tricky if it is not one of the more typical expressions of a given color. Many foals have dorsal stripes and leg barring, similar to (and thus often mistaken for) a dun’s, which is part of nature’s camouflage for a small helpless creature. Throughout the next few

months the sun bleaches the foal’s birth coat, altering its appearance even more. Other environmental issues, such as type and quality of feed, also can have a profound effect on color. And as we shall see, some colors do change drastically in appearance with age, such as gray and the roany type of sabino. Finally, when the foal shed occurs, the new color coming in often looks dramatically dark. Is it any wonder that so many foals are registered an incorrect—and sometimes genetically impossible—color each year?

So how do you identify your foal’s color? First, let’s keep some basic rules of genetics in mind. Two chestnuts will only produce chestnut; horses of the cream, dun, and silver dilutions must have had at least one parent with that particular dilution themselves; and grays must always have one gray parent. Remembering these three things will help us narrow down the field of color possibilities for your new addition.

The Base Colors: Black and Chestnut

Let’s begin with the base colors. It’s simple: every horse of any color is either black or chestnut. All of the other colors, including bay and brown, are built from additional genes that modify the two base colors.

Black foals often are born a silvery or mousey gray color with lighter lower legs. They can be mistaken for gray or grulla and may in some cases even have primitive striping similar to a dun’s. But in the absence of a gray or dun parent, they can’t be either of those



(Opposite, left to right) *Ancan Butch Cassidy*, black, owned by Anne Wyland; *Ancan Fall Colors*, chestnut, owned by Anne Wyland; *EagleRest Challenger*, brown, owned by Peggy Cline; *Patented*, bay, owned by the author. (This page, left to right) *BNWD Freya Av Vanir*, palomino, owned by Vicki Salomonsen; *Hmstd Commander And Chief*, buckskin, owned by Homestead Morgans. *Commander* shows the most typical shade of buckskin foal coloring, that of a pale golden-tan shade; *Hmstd Sweet Magnolia*, buckskin, owned by Homestead Morgans. This filly is at the “bay-looking” end of the buckskin spectrum, as is her also-buckskin dam.

colors. More rarely, black foals are born pitch black. Some black foals (and adults) have a tendency to sun fade to a dark brownish shade, but darken again for awhile after each change of coat. The first time a breeder witnesses this phenomenon they may erroneously think they have a dark chestnut foal on their hands!

At birth, chestnut foals have the least amount of variance in shade of any color. They are some shade of red, no matter how dark a chestnut they may eventually end up. The skin on most chestnut foals is pinkish; it will darken to black in a few days after birth. Chestnut foals have the lighter lower legs and light foal fringes in the tail, which are common on most foals.

The darkest shades of chestnut, called liver chestnut or black chestnut, can be incorrectly registered as black when they shed out so dark at the foal shed. These are still chestnuts, no matter how dark they end up being. The way to discern the difference (absent color testing) is to remember that all chestnut foals are born some shade of red, unlike black foals, which are born grayish silver or black.

Those chestnut foals that eventually will be flaxen generally do not show much in the way of light hair in their manes at birth. Parting the roots of the mane will reveal the lighter hair, which will become more and more visible as it grows in.

Bay and Brown

Bay and brown horses are a modification of black, caused by the agouti gene. Agouti restricts the black to just the points: the mane, tail, and lower legs. The strength of this effect varies; bay horses have more restriction of black to the points, and browns have less restriction of black to the points.

Bay foals have a reddish body coloring and a black mane, and their tails can carry extensive white foal fringes on the sides, leading some to mistake them for chestnuts. Leg points are not fully developed on bay foals, which may further confuse some breeders. However, bay foals always will have black tipped ears and often have tiny triangles of black on the backs of their heels, hints of the black leg points to come, which indicate they are indeed bay. A variant of bay is wild bay. Wild bay horses' leg points are very low,

sometimes not reaching much past the fetlock. This can lead them to being mistaken for chestnuts.

Brown foals are born a darker shade of red-brown and generally have more black on the lower legs than their bay counterparts. They have black countershading along the dorsum, often concentrated over the neck and withers. Very dark brown foals can be nearly indistinguishable from black foals; color testing for the presence of the agouti gene will sort these out.

Cream Dilute Colors

Three of the five dilution genes known to exist in equine are present in the Morgan breed. These are the cream dilution, the dun dilution, and the silver dilution (sometimes called silver dapple and not to be confused with gray, which is another gene entirely). All of these genes are dominant, which means they cannot skip generations. If a Morgan foal is one of the dilute colors, it must have at least one parent of that specific dilution. Keeping this very important fact in mind can rule out or rule in many color possibilities.

Buckskin foals (bay or brown plus a cream gene) generally are born a pale tan or gold color, with or without darker countershading along the dorsum, and a black mane and tail. But buckskin foals can be born looking very similar to bay or brown foals, and in these cases, color testing for the presence of the cream gene is especially valuable. Sometimes, as with all of the cream dilute colors, the buckskin foal may have blue eyes. They will darken in the next few weeks or months. The buckskin foal's tail may have lighter foal fringes. Because buckskin is a bay-based color, they have similar “point indicators” of black tipped ears and black triangles at the heels. As with bays and browns, full development of the buckskin's black leg points only occurs after the foal sheds. If a buckskin has the sooty gene, which adds a dark or black dappled overlay on the horse's body, they can become quite dark after they shed their foal coat. This also is true of brown-based buckskins. These may then be mistaken for a non-dilute bay or brown.

The typical palomino (chestnut plus a cream gene) foal is born a pale tan-gold with a white mane and tail. However, palominos can



(Top row, left to right) Devine Gemini, perlino, owned by Devine Morgans; FFCF Alabaster Shores, gray, owned by Flying Circle F Farms; Positively Charmed, black silver, owned by the author; R Anchor Red Rock, red dun, owned by Larry Ash. (Bottom row, left to right) Spiritwoods Midnight Jazz, smoky black, owned by Heather and Joel Gartner; Tocaras Master Of Success, bay dun, owned by Candi Rousseau; Tocara's Jerico Blue, grulla, owned by Candi Rousseau; Unconventional, bay silver; owned by Coulee Bend Morgans.

run the gamut of looking nearly indistinguishable from a chestnut foal, right down to the red mane and tail, to nearly white in shade! Like their chestnut-base color coun-

terparts, palomino foals are born with pinkish skin, which darkens in a few days to a few weeks after birth. Many palomino foals have blue eyes, which also darken in a few

weeks to months. At the foal shed, palominos can often become quite dark, with prominent dapples; this is the effect of the sooty gene, which also can darken the mane and tail to gray or silver. Palominos this dark often have been mistaken for chestnuts, especially when the mane and tail are so darkened by sooty that they become essentially the same color as the body.

One cream gene does not have much of an effect on black hair, which is why the black points of buckskins remain black. So when a black foal inherits one cream gene, it basically looks very much like a non-dilute black foal. These are called smoky blacks. This is another case where color testing can definitely provide answers! Smoky black foals may tend to show a brownish tint to their coats, sunbleaching into liver chestnut or dun look-alikes. Indeed, many smoky black foals have been misregistered as chestnut or dun.

The cream gene has an interesting effect in that when two of them are present, the horse becomes diluted even more to a nearly white color with pink skin and blue eyes. These double cream dilutes are called perlino (bay with two cream genes), cremello (chestnut with two cream genes), and smoky cream (black with two cream genes). As foals, it is hard to distinguish among the three in appearance, although the perlino generally has a touch of reddish

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coloration in the mane and tail and the smoky cream tends to be of a darker overall tone than the other two. Some smoky cream foals have been born with interesting dark streaks or patches on them, which then disappear at the foal shed. If there is any question, color testing will sort out the base color for a double cream dilute foal. There is not much shade difference between foal color and the eventual adult color, although double cream dilute foals may be a few shades darker than they will be as adults. Double cream dilute foals must have two cream dilute parents; if they only have one, either one parent actually is a previously unidentified cream dilute or the foal is a pale palomino and not a double cream dilute.

Dun and Grulla Dilutions

Bay dun (bay plus dun), red dun (chestnut plus dun), and grulla (black plus dun) foals generally have a muted or dusty coat color and prominent primitive markings. These include a darker mask on the bridge of the nose, dark tipped ears, and a crisp dorsal stripe that runs down into the tail, with lighter frosting at the tail-head and fringing the mane. The leg barring of a dun may or may not be present at birth, but generally shows after the foal shed. Dun foals show interesting “eyebrow markings,” which look somewhat like the eyebrows of a cartoon character and slant upward from the inside corner of their eyes.

Bay dun foals appear similar to buckskin foals, but are a less intense shade of tan. Red dun foals look like a washed out chestnut, with a mane and tail that is darker than the body. After their foal shed, their lower legs will be darker than the body as well. Grulla foals are silvery gunmetal gray, sometimes with a brownish

tint, and a black mane and tail. All dun foals have the typical lighter lower legs with undeveloped points in the beginning, which darken after the foal shed.

It is believed that all of the duns in the Morgan breed descend from the 1964 smoky grulla (registered as buckskin) mare Pendleton Buck Missy. This can help with determining color in a foal you may suspect of being dun, because if your “dun” foal does not have a dun parent with Missy in its pedigree, chances are it’s not a dun.

Silver Dilutes

The silver dilution only affects black hair, so chestnuts can carry it but not show any outward signs. They can, however, pass it on to their offspring. Chestnut foals that are carrying silver look just like “regular” chestnut foals. If a black-based horse has a silver gene, all of the black hair on the body will be diluted to chocolate, sometimes with dappling, and a silver-gray mane and tail. Most silver foals have silvery-gray eyelashes.

Black-silver foals are an extremely interesting shade of silver-gray with a slight hint of brown tint at birth; the color has been described as similar to that of a Weimeraner dog. They tend to have a lot of white hair in the tail, but the mane may be much the same color as the body until it starts to lighten from the effects of the sun. Like many black-based foals, they go through a “biscuit” colored phase as their foal coat sunbleaches before shedding to their mature coat color of chocolate.

Bay and brown silver foals have a red or chocolate body, a grayish mane and silver tail. As with most black-based newborns, the lower legs are light colored and the leg points are not fully



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developed until after the foal shed. A bay silver adult has chocolate colored lower legs, sometimes with dappling.

The silver dilution is still quite rare in our breed. Most of the known silver Morgans trace their color back to the 1916 chestnut stallion Dan through two of his descendants: the 1966 chestnut (carrying silver) stallion Topside Jolly Roger and the 1994 chestnut (carrying silver) mare Amanda's Suzy Q. This is a help in determining whether your foal might be silver, as it needs a direct line of chestnuts and/or silvers to one of those two (or another descendant of Dan) for it to be possible.

Silver foals (and adults) historically were mistaken for flaxen chestnuts. Nowadays the reverse is more often true, with some mistaking flaxen chestnuts for silver. There is a test for silver, which can settle any questions.

Gray

Gray foals are born any color and then "go gray" over time. While foals of other colors often are muted in shade and have pale lower legs, gray foals generally are born looking much like an adult horse, color-wise, with fully colored lower legs and a darker, more intense body color. They often show faint gray hairs around the eyes and muzzle, if not at birth then within the first few days or weeks. A few will show gray hairs on the body early on but not on the head; the way a horse grays tends to be an individual thing.

Gray is a progressive color, which means more gray hairs appear each time the horse sheds its coat. Most gray horses are completely white by the time they are ten. Homozygous grays go gray faster than heterozygotes, often being completely white by age four. Gray is the only color that changes so drastically in appearance from birth through adulthood.

Pinto Patterns

Three of the four major pinto patterns occur in the Morgan: sabino, frame overo, and splash. Sabino is by far the most common and frame is rarest, with just two individuals known to exist at this time.

Splash recently was discovered to exist in the Morgan and there probably are many more lines carrying it than have so far

been identified. Splash is like the cream gene in that when two of them are present (homozygous), the horse has more flamboyant white than if it has just one splash gene (heterozygous). Splash foals are recognized by their smooth-edged white face and leg markings, and one or both eyes may be blue or partially blue. Homozygous splash foals have body white that spreads upward from the belly and legs, giving the appearance of a horse that was dipped, feet first, into a can of white paint. Splash face markings are "bottom heavy," meaning they are wider toward the nostrils and often are skewed more toward one nostril.

Sabino is a pattern that is caused by several different genes, only one of which can be tested for at this time. Sabino markings have jagged or roaned edges and the face white generally will include white on the bottom lip or wrapping up under the jaw. They may have a belly spot or spots. Some color experts believe all so-called "normal" white markings are caused by one or more of the sabino complex of genes.

Frame overo markings typically are found only on the face and sides of the body, not the legs. The white markings are "framed" by the horse's base color when looking at the animal from the side. If a frame overo has leg markings, they are due to another pinto pattern or patterns working in conjunction with frame. Frames may have blue eyes. They can be very minimally marked with just a blaze and these "stealth overos" may be lying as yet undiscovered in our breed. Frame is lethal when homozygous; these "lethal whites" have an incomplete intestinal tract and die within a few days of birth. Testing for lethal white overo will show whether a horse has the frame gene. To avoid producing a lethal white foal, two frame overos should never be bred together.

First, all pinto foals have some base color, of course, so under their chrome they appear similar to their less flashy counterparts. They are born with all the white markings they ever will have. Sabino foals sometimes are an exception to this; they can shed their foal coat to reveal roaned hairs scattered or in patches on the body and more roan hairs may appear with each successive shed. Because of this, some roany sabinos have been confused with gray or true roan.

COAT COLOR TESTING THROUGH AMHA

Coat color testing is available through the AMHA Registry and costs less than dealing directly with the lab. Coat Color Testing (CCT) can be done at the time of registration simply by checking the appropriate box on the front of the registration application. This option is available on current applications only. Call the Registry or visit our website at www.morganhorse.com to obtain a current application. CCT can also be done on horses that already are registered simply by contacting the Registry.

Coat color tests that are available include:

Red Factor and Agouti Defines the base coat colors of chestnut, bay, or black and identifies homozygous black or carriers of red (chestnut) pigment.

Cream Dilution Identifies the presence of one or two copies of the cream gene. Typical colors for one copy are palomino, buckskin, and smoky black. Typical colors for two copies are cremello, perlino, and smoky cream.

Sabino 1 Identifies the presence of one or two copies of the sabino gene. Horses with one copy typically have two or more white legs, blaze, spots or roaning in the midsection, and jagged margins around white areas. If the horse has two copies, a complete or nearly complete white phenotype expected.

Silver Identifies the presence of the silver gene that dilutes black pigment.

Lethal White Overo Identifies carriers of the lethal white foal syndrome.

If you test your horse through the AMHA program, it costs less than testing directly with the lab. Plus, if your horse tests positive for any of these characteristics, that information becomes part of the horse's file and can be recorded directly on the registration certificate.

To contact the Registry, call (802) 985-4944 or e-mail Registry@morganhorse.com to request forms or if you have questions about the Coat Color Testing program.

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Other Color Possibilities

A few color genes, like tobiano and champagne, do not exist in the Morgan breed. Still other colors could be found in the breed at one time, but sadly are now thought to be extinct. True dark-headed roan is quite possibly one of them. It is more likely that if you have a foal with roaning, that it is sabino or another roaning pattern, rabicano, rather than true roan. Rabicanos have roaning concentrated on their undersides, especially in the flanks and sides, where it may form brindling. The tailhead of a rabicano has white hairs in a banded pattern, called a "coon tail."

There are also color combinations. Thus far there are not many of these in the Morgan breed, although through time we surely will see more. Horses that are a combination of colors have several different dilutions, gray and/or pinto patterns—all on one horse! These have the color characteristics of each gene present, which can be confusing when you are used to seeing each individual color by itself. For example, a palomino that also has a dun gene, called a dunalino, looks like a palomino foal, but with pale primitive markings like a dun. There are several buckskin silvers in the breed, which look like pale buckskins with silver manes and tails and chocolate leg points instead of black. There are a few other color combinations that exist in the breed at present. But most people, unless they already are dedicated color breeders, are not going to have to worry about identifying them!

If this article has made your head swim with the dizzying array of color choices and you are still unsure of your foal's color, don't despair! Many colors can be determined or at least narrowed down by using DNA color testing, which is now available at the time you register your Morgan foal. While it is wonderful to be able to determine a new foal's color immediately, sometimes we have to be a little more patient to have a definite answer! ■

If you would like to learn more about color in the Morgan breed, including which lines carry the various color genes, please visit the Morgan Colors website at <<http://colormorgans.tripod.com/colorful.htm>>. The author also welcomes questions about color and can be reached at <morgans@mindspring.com>.