

# COLOR COAT GENETICS



Sorrel



Chestnut



Bay



Brown



Black



Palomino



Buckskin



Cremello



Perlino



Red Dun



Dun



Grullo



Red Roan



Bay Roan



Blue Roan



Gray

# SORREL

## WHAT ARE THE COLOR GENETICS OF A SORREL?

Like CHESTNUT, a SORREL carries TWO copies of the RED gene only (or rather, non-BLACK) meaning it allows for the color RED only. SORREL possesses no other color genes, including BLACK, regardless of parentage. It is completely recessive to all other coat colors. When breeding with a SORREL, any color other than SORREL will come exclusively from the other parent. A SORREL or CHESTNUT bred to a SORREL or CHESTNUT will yield SORREL or CHESTNUT 100 percent of the time. SORREL and CHESTNUT are the most common colors in American Quarter Horses.



## WHAT DOES A SORREL LOOK LIKE?

The most common appearance of SORREL is a red body with a red mane and tail with no black points. But the SORREL can have variations of both body color and mane and tail color, both areas having a base of red. The mature body may be a bright red, deep red, or a darker red appearing almost as CHESTNUT, and any variation in between. The mane and tail are usually the same color as the body but may be blonde or flaxen. In fact, a light SORREL with a blonde or flaxen mane and tail may closely resemble (and is often confused with) a PALOMINO, and if a dorsal stripe is present (which a SORREL may have), it may be confused with a RED DUN.

## IF A SORREL HORSE HAS A DORSAL STRIPE, DOESN'T THAT MAKE IT A DUN?

Foals that will be SORREL are often born with light red hair coloration as well as having a distinct dorsal stripe. This characteristic is often confused with and mistaken as RED DUN. However, a SORREL is a non-diluted horse. A dorsal stripe can be inherited from a non-DUN parent. A SORREL foal usually loses the dorsal stripe upon shedding its first coat. But even if the SORREL retains the dorsal stripe as a mature horse, it still is not due to the DUN DILUTION gene. One may notice that the mature coat of the SORREL does not include zebra stripes on the legs.

## IF A RED OR SORREL COLORED HORSE HAS A BLACK MANE AND TAIL, DOESN'T THAT MAKE IT A BAY?

A BAY must have black on ALL points. Not only are the mane and tail black but also the tips of the ears and the lower legs from the coronet up. Oftentimes, a horse with a RED or SORREL body color will also have a very dark mane and tail that is often confused with black. However, the mane and tail are dark due to concentrated amounts of the RED pigment, giving them the appearance of black against the brighter RED coat color. One may notice that these horses do not have black tips on the ears nor is there black on the lower legs. This color is registered as CHESTNUT.

## WHAT ARE SOME OTHER ASPECTS WE NEED TO KNOW ABOUT SORREL?

Referring to the color of a horse as SORREL is common throughout the West. However, this color historically is referred to as CHESTNUT.

It is possible for SORREL to express the roan gene. AQHA recognizes this color as RED ROAN. (See RED ROAN)

A SORREL may have white hair scattered throughout the body or have white hair concentrated in specific areas. It is most often confused with ROAN but is neither the result of the ROAN nor GRAY genes. These areas are usually the flanks, between the fore legs, the root of the tail (usually in bands similar to that of a raccoon—hence, 'coon-tail'), and sometimes over the barrel, usually in vertical patterns directly over each rib. This distinct pattern of white is sometimes called rabicano (pronounced rab ih CON oh), a word of Spanish origin meaning "brush tail," referring to the bands of white hair at the root of the tail. It is also referred to sometimes as "ticking." One way to determine the difference between the 'classic' RED ROAN and a SORREL with white hair due to the rabicano or ticking trait is to notice the color of hair once the 'roan' areas have been scraped or rubbed off. On a 'classic' ROAN, the ROAN hair does not grow back once scraped off—only the base color will grow back, in this case, SORREL. On the horse exhibiting the rabicano trait, the hair that is scraped off will usually grow back solid white.

Some GRAY horses may have started out as SORREL. These horses may keep their RED points (or a variation) and much of their RED coat (or a variation) for an extended period of time. These horses still retain the RED gene and may produce SORREL horses.

# CHESTNUT



## WHAT ARE THE COLOR GENETICS OF CHESTNUT?

Like SORREL, a CHESTNUT carries TWO copies of the RED gene only (or rather, non-BLACK) meaning it allows for the color RED only. CHESTNUT possesses no other color genes, including BLACK, regardless of parentage. It is completely recessive to all other coat colors. When breeding with a CHESTNUT, any desired color other than SORREL or CHESTNUT will come exclusively from the other parent. A SORREL or CHESTNUT bred to a SORREL or CHESTNUT will yield SORREL or CHESTNUT 100 percent of the time.

## WHAT DOES A CHESTNUT LOOK LIKE?

CHESTNUT, like SORREL, is the most common color in American Quarter Horses, both having a base color that is solid RED, although CHESTNUT may not appear red. A mature CHESTNUT may exhibit a deeper red with an almost 'wine colored' sheen. It is oftentimes a red so dark that it appears BROWN and may be confused with 'seal' BROWN. (The RED FACTOR test can be performed where such a question occurs. Contact AQHA for more information.) The mane and tail are usually the same as the body color but may also be blonde or flaxen. In fact, a CHESTNUT with a blonde or

flaxen mane and tail may closely resemble (and is often confused with) a dark or 'chocolate' PALOMINO. The mane and tail may be so dark that they appear BLACK, but a CHESTNUT will never have true black points. Like the SORREL, a CHESTNUT may also have a dorsal stripe.

## IF A CHESTNUT HORSE HAS A DORSAL STRIPE, DOESN'T THAT MAKE IT A DUN?

A CHESTNUT with a dorsal stripe is not related to DUN. Remember, a CHESTNUT is a non-diluted horse. A dorsal stripe can be inherited from a non-DUN diluted parent. Foals that will be CHESTNUT are often born with light red hair coloration as well as having a distinct dorsal stripe. This characteristic is often confused with and mistaken as RED DUN. Quite often, a CHESTNUT foal will lose the dorsal stripe upon shedding its first coat. Even if the CHESTNUT retains the dorsal stripe, it still is not due to the DUN DILUTION gene. One may notice that a mature CHESTNUT does not have zebra stripes on the legs.

## IF A RED OR CHESTNUT COLORED HORSE HAS A BLACK MANE AND TAIL, DOESN'T THAT MAKE IT A BAY?

A BAY must have black on ALL points. Not only are the mane and tail black but also the tips of the ears and the lower legs from the coronet up. Oftentimes, a horse with a RED or SORREL body color will also have a very dark mane and tail that is often confused with black. However, the mane and tail are dark due to concentrated amounts of the RED pigment, giving them the appearance of black against the brighter RED coat color. One may notice that these horses do not have BLACK tips on the ears nor is there true black on the lower legs. The CHESTNUT or SORREL colored horse with a very dark mane and tail is registered as CHESTNUT.

## WHAT ARE SOME OTHER ASPECTS WE NEED TO KNOW ABOUT CHESTNUT?

It is possible for CHESTNUT to express the roan gene. AQHA recognizes this color as RED ROAN. (See RED ROAN)

A CHESTNUT may have white hair scattered throughout the body or have white hair concentrated in specific areas. These areas are usually the flanks, between the fore legs, the root of the tail (usually in bands similar to that of a raccoon—hence, 'coon-tail'), and sometimes over the barrel, usually in vertical patterns directly over each rib. It is most often confused with ROAN but is neither the result of the ROAN nor GRAY genes. This distinct pattern of white is sometimes called rabicano (pronounced rab ih CON oh), a word of Spanish origin meaning "brush tail," referring to the bands of white hair at the root of the tail. It is also referred to sometimes as "ticking." One way to determine the difference between the 'classic' RED ROAN and a CHESTNUT with white hair due to the rabicano or ticking trait is to notice the color of hair once the 'roan' areas have been scraped or rubbed off. On a 'classic' ROAN, the ROAN hair does not grow back once scraped off—only the base color will grow back, in this case, CHESTNUT. On the rabicano affected horse, the hair that is scraped off will usually grow back solid white, the same that would happen if the horse were a solid CHESTNUT.

Some GRAY horses may have started out as CHESTNUT. They may keep their CHESTNUT points (or a variation) and much of their CHESTNUT coat (or a variation) for an extended period of time. These horses still retain the RED gene and may produce CHESTNUT horses.

## WHAT DOES A BAY LOOK LIKE?

Basically, a BAY has a general base color that ranges anywhere from a deep tan, to copper-red (similar to the color of SORREL), to a darker, brownish-red (similar to that of CHESTNUT). Add to this the color black that is localized to the points (mane and tail, lower legs, tips and rims of ears). As with other coat colors, there are variations of BAY. In addition to the RED color range of the body, a BAY may also have black covering or counter shading over most of the body giving it a 'sooty' or 'smutty' appearance. The lighter-colored or 'tan' BAYS are not to be confused with BUCKSKINS, although oftentimes they are, sometimes having very gold areas on the body. BAY, which may have a dorsal stripe, is often confused with DUN. (See below for further explanation) (See DUN and BUCKSKIN)



## WHAT ARE THE COLOR GENETICS OF A BAY?

On a BAY, the color BLACK is distributed only to the points due to the presence of the agouti gene (pronounced ah GOO tee). (See Agouti gene in index) When this gene is present, it tells the color BLACK to be located at the points only. The base color is left as some variation of RED which may include a deep, red-tinted tan that is not associated with either BUCKSKINS or DUNS. BAY must have at least one parent that is BLACK or has black points. BAY will always carry the BLACK color gene.

Also, some BAY horses are homozygous for the agouti gene. This means that each parent of the BAY passed on one copy of this gene; thus, the foal received two copies. The homozygous BAY will produce a foal with black points (never a solid BLACK) 100 percent of the time, regardless of the color of the other parent.

## CAN A BAY HORSE PRODUCE A SOLID BLACK HORSE?

A horse that is a solid BLACK or has black points can potentially produce a solid BLACK horse. This includes the BAY. In fact, depending on the parentage, a BAY horse can be homozygous for the BLACK gene. For this to be possible, each parent of the homozygous BAY must have black points. Both a stallion and a mare can be homozygous for the color black. This means that the parent homozygous for the BLACK gene will always produce a foal that is either solid BLACK or has black points no matter what color the other parent is.

## IF A BAY HORSE HAS A DORSAL STRIPE, DOESN'T THAT MAKE IT A DUN?

A BAY with a dorsal stripe is not related to DUN. Remember, a BAY is a non-diluted horse—even the tan BAYS. A dorsal stripe can be inherited from a non-DUN diluted parent. The counter shading on some BAYS may be expressed to a minimal degree, usually localized to the withers and thinner areas along the back. A BAY may also have, to some degree, subtle shading often confused with leg-barring, usually located on the back of the fore legs. These characteristics are not to be confused with the DUN, including the color GRULLO, and have nothing to do with the DUN gene.

## WHAT ARE SOME OTHER ASPECTS WE NEED TO KNOW ABOUT BAY?

It is possible for the BAY to express the ROAN gene. Genetically, this is called a BAY ROAN. This is recognized as a separate coat color with AQHA. (See BAY ROAN)

A BAY may have white hair scattered throughout the body or have white hair concentrated in specific areas. These areas are usually the flanks, between the fore legs, the root of the tail (usually in bands similar to that of a raccoon—hence, 'coon-tail'), and sometimes over the barrel, usually in vertical patterns directly over each rib. It is most often confused with ROAN but is neither the result of the ROAN nor GRAY genes. This distinct pattern of white is sometimes called rabicano (pronounced rab ih CON oh), a word of Spanish origin meaning "brush tail," referring to the bands of white hair at the root of the tail. It is also referred to sometimes as "ticking." One way to determine the difference between the 'classic' BAY ROAN and a BAY with white hair due to the rabicano or ticking trait is to notice the color of hair once the 'roan' areas have been scraped or rubbed off. On a 'classic' ROAN, the ROAN hair does not grow back once scraped off—only the base color will grow back, in this case, the base color of BAY, which is usually SORREL or CHESTNUT. On the rabicano affected horse, the hair that is scraped off will usually grow back solid white, the same that would happen if the horse were a solid BAY.

Some GRAY horses may have started out as BAY. These horses may keep their black points and much of their red coat (or a variation) for an extended period of time. They still retain the color genetic information to produce BAY foals regardless of the color of the other parent. (See GRAY)

# BROWN



## WHAT DOES A BROWN LOOK LIKE?

There is somewhat of a variation within the color BROWN. SEAL BROWN horses are consistently dark or 'seal colored' over the entire body. They may or may not have distinct black points, although almost all BROWNS do. A BROWN horse with brown colored points (not black in appearance, but genetically still black) is often confused with CHESTNUT. (The RED FACTOR test can be performed where such a question occurs. Contact AQHA for more information.) Some horses registered as BROWN may actually be 'smutty' BAYS (See BAY), very 'smutty' BUCKSKINS (See BUCKSKIN), diluted BLACK horses (See BLACK), or BLACK horses with coats that fade anywhere from a brownish red to a brownish tan, oftentimes giving them the appearance of BAYS or dark BUCKSKINS.

## CAN A BROWN HORSE PRODUCE A SOLID BLACK HORSE?

A horse that is a solid BLACK or has black points can potentially produce a solid BLACK horse. This includes the BROWN, which must have at least one parent that is BLACK, BROWN, or a color with black points. In fact, depending on the parentage, a BROWN horse can be homozygous for the BLACK gene. For this to be possible, each parent of the homozygous BROWN must carry the

BLACK gene, usually having black points. Both a stallion and a mare can be homozygous for the color black. This means that the parent homozygous for the BLACK gene will always produce a foal that is either solid black or has black points no matter what color the other parent is.

Sometimes a foal that will be BROWN is born with anything from a silvery, grayish coat to a smoky, tan-colored coat complete with a dorsal stripe. The mane and tail will be black or dark brown. This combination of color and dorsal stripe is very commonly confused with a GRULLO. However, once the foal sheds its first coat, the dorsal stripe will no longer be visible in most cases.

## IF A BROWN HORSE HAS A DORSAL STRIPE, DOESN'T THAT MAKE IT A DUN?

A BROWN with a dorsal stripe is not related to DUN. The dorsal stripe is usually inherited from a non-DUN diluted parent. Some foals that will be mature BROWNS are often born with characteristics which can be confused with DUNS or GRULLOS. They may have distinct dorsal stripes (which they may or may not keep after the first shed) and some shading of darker hair over the withers. These characteristics are not related to the DUN DILUTION gene, even though are often confused with DUNS or GRULLOS, and is considered as a type of camouflaging (much in the way that a fawn has spots on its coat) which was necessary before the horse was domesticated.

## WHAT ARE SOME OTHER ASPECTS WE NEED TO KNOW ABOUT BROWN?

It is possible for the BROWN to express the ROAN gene. Usually this is considered as BLUE ROAN which is recognized as a separate coat color with AQHA. (See BLUE ROAN)

A BROWN may have white hair scattered throughout the body or have white hair concentrated in specific areas. These areas are usually the flanks, between the fore legs, the root of the tail (usually in bands similar to that of a raccoon—hence, 'coon-tail'), and sometimes over the barrel, usually in vertical patterns directly over each rib. It is most often confused with ROAN but is neither the result of the ROAN nor GRAY genes. This distinct pattern of white is sometimes called rabicano (pronounced rab ih CON oh), a word of Spanish origin meaning "brush tail," referring to the bands of white hair at the root of the tail. It is also referred to sometimes as "ticking." One way to determine the difference between the 'classic' BLUE ROAN and a BROWN with white hair due to the rabicano or ticking trait is to notice the color of hair once the 'roan' areas have been scraped or rubbed off. On a 'classic' ROAN, the ROAN hair does not grow back once scraped off—only the base color of the body will grow back. On the rabicano affected horse, the hair that is scraped off will usually grow back solid white, the same that would happen if the horse was a solid BROWN.

Some BROWNS have a PALOMINO or BUCKSKIN parent. In many cases, these BROWNS will also carry the CREAM DILUTION inherited from one of these parents. These BROWNS will then have the color genetics similar to BUCKSKINS and can produce any of the DOUBLE DILUTE foals if bred to a PALOMINO, BUCKSKIN, or parent known to carry the CREAM DILUTION. BROWNS carrying the CREAM DILUTION may develop dappling on the coat if they are left in the sun for lengthy periods of time.

Some GRAY horses may have started out as BROWN. These horses may keep their black points and much of their BROWN coat (or a variation) for an extended period of time. They still retain the color genetic information to produce BROWN foals as well as many other colors, depending on the pedigree, regardless of the color of the other parent. (See GRAY)

# BLACK

## WHAT DOES A BLACK HORSE LOOK LIKE?

BLACK horses fall into one of two categories as far as appearance. Some BLACK horses will appear 'true' black year round, retaining a black mane and tail as well as a black coat that will not sun-fade, regardless of the length of time left in the sun. Some BLACK horses may appear 'true' black if left indoors, but, if left outdoors for a lengthy period of time, the coat will then fade anywhere from a brown to reddish to a color so light it may appear a very dark or 'smutty' buckskin. Some horses which are genetically BLACK may appear as a BROWN horse with brown colored points (not black in appearance, but genetically still black). (The RED FACTOR test can be performed where such a question occurs. Contact AQHA for more information.)

A foal that will be BLACK is not born BLACK. It is usually born with anything from a silvery, grayish coat to a smoky, tannish coat complete with a dorsal stripe. The mane and tail will be black. This combination of color and dorsal stripe is commonly confused with a GRULLO. However, once the foal sheds its first coat, the dorsal stripe will disappear. BLACK horses do not have dorsal stripes. They neither carry nor express the DUN DILUTION gene.



## WHAT ARE THE COLOR GENETICS OF BLACK?

A BLACK horse must have at least one parent that is BLACK, BROWN, or a color with black points. BLACK horses will either carry one copy of the BLACK gene (represented as Ee, meaning that it also carries one copy of the recessive RED gene) or it will carry two copies of the BLACK gene (represented as EE, meaning that it carries the BLACK gene only with no recessive RED gene). Ee BLACK horses may produce a foal with no black points if bred to another Ee BLACK or if bred to a horse with no black points. However, EE BLACK horses will produce a solid BLACK foal or a foal with black points 100 percent of the time, regardless of the color of the other parent. (The RED FACTOR test can be performed where such a question occurs. Contact AQHA for more information.)

Some BLACKS have a PALOMINO or BUCKSKIN parent. In many cases, these BLACKS will also carry the CREAM DILUTION inherited from one of these parents. These BLACKS will then have the color genetics similar to BUCKSKINS and may produce any of the DOUBLE DILUTE foals if bred to a PALOMINO, BUCKSKIN, or parent known to carry the CREAM DILUTION. BLACKS carrying the CREAM DILUTION may be slightly diluted themselves, usually giving them a color more classified as BROWN. However, some diluted BLACKS will also have their points diluted from 'true' black to a brownish appearance, at times being confused with the color CHESTNUT.

## WHAT ARE SOME OTHER ASPECTS WE NEED TO KNOW ABOUT BLACK?

It is possible for the BLACK to express the ROAN gene. Usually this is considered a BLUE ROAN. This is recognized as a separate coat color with AQHA. (See BLUE ROAN)

A BLACK may have white hair scattered throughout the body or have white hair concentrated in specific areas. These areas are usually the flanks, between the fore legs, the root of the tail (usually in bands similar to that of a raccoon—hence, 'coon-tail'), and sometimes over the barrel, usually in vertical patterns directly over each rib. It is most often confused with ROAN but is neither the result of the ROAN nor GRAY genes. This distinct pattern of white is sometimes called rabicano (pronounced rab ih CON oh), a word of Spanish origin meaning "brush tail," referring to the bands of white hair at the root of the tail. It is also referred to sometimes as "ticking." One way to determine the difference between the 'classic' BLUE ROAN and a BLACK with white hair due to the rabicano or ticking trait is to notice the color of hair once the 'roan' areas have been scraped or rubbed off. On a 'classic' ROAN, the ROAN hair does not grow back once scraped off—only the base color will grow back, in this case, BLACK. On the rabicano affected horse, the hair that is scraped off will usually grow back solid white, the same that would happen if the horse was a solid BLACK.

Whereas the coat of a roan horse will not grow back roan (white) hair on areas where hair has been removed, BLACK horses with non-roan white hair on the body will oftentimes grow back white hair only on areas where hair is removed. In such cases, these areas of white are described under the markings area of the registration certificate.

Some GRAY horses may have started out as BLACK. These horses may keep their BLACK points and much of their BLACK coat for an extended period of time. They still retain the color genetic information to produce BLACK foals as well as many other colors, depending on the pedigree, regardless of the color of the other parent. (See GRAY)

# PALOMINO



CHESTNUT. ONE parent has also passed on the CREAM DILUTION gene to this foal. The RED of the body color is then diluted to any of the coat colors general to PALOMINO.

The CREAM DILUTION is passed on from one of the parents, usually a PALOMINO or BUCKSKIN, but there are exceptions. A parent may be a BROWN or BLACK but may also have the genetics to pass on the CREAM DILUTION depending on his or her parentage. (See BROWN and BLACK)

## HOW DO WE KNOW IT DOES NOT CARRY THE BLACK GENE?

Horses that carry the black gene will either be solid black or have black points. The PALOMINO does not have black on the areas known as points. This is true even if the palomino has one or both parents that are either black or have black points.

## IF WE BREED TWO PALOMINOS, IS THERE A BETTER CHANCE OF GETTING A PALOMINO FOAL?

Breeding two PALOMINOS will not increase the odds of the foal being a PALOMINO. Remember, a PALOMINO only carries ONE copy of the CREAM DILUTION gene. If each parent passes on one copy of the CREAM DILUTION gene, then the resulting foal would have two copies and would no longer be a PALOMINO. The resulting foal would be a CREMELLO. (See CREMELLO)

## IF A PALOMINO HORSE HAS A DORSAL STRIPE AND ZEBRA STRIPES ON THE LEGS, ISN'T IT STILL A PALOMINO?

Sometimes a horse will be identical in color to a PALOMINO—light or gold body color and blonde, white, or flaxen mane and tail—but will also have striping on the legs (called zebra stripes or tiger stripes) and a dorsal stripe. Genetically, this horse carries both the DUN and CREAM DILUTION genes. However, since a PALOMINO never has zebra stripes on the legs and rarely has a dorsal stripe, this horse would be considered as a type of RED DUN. It is true that this type of RED DUN does not have a red coat, but these DUN characteristics are the result of the DUN gene, nevertheless. For registration purposes, the blonde, white, or flaxen mane and tail are described under the markings area as well as the dorsal stripe and zebra stripes on legs as identifying characteristics which visibly emphasize the differences between the true PALOMINO and the RED DUN which resembles the PALOMINO. (See RED DUN)

## WHAT ARE SOME OTHER ASPECTS WE NEED TO KNOW ABOUT PALOMINOS?

It is possible for a PALOMINO to express the ROAN gene. Genetically, this is called a PALOMINO-ROAN. This may happen if one parent carries the roan gene (for example, is BAY ROAN) and is bred to a parent that carries the CREAM DILUTION (for example, is PALOMINO). Since PALOMINOS are already light in shade, the ROAN may not be immediately recognized. At present, AQHA does not have a separate color choice of PALOMINO-ROAN. For registration purposes, the horse is registered as the base color of PALOMINO. AQHA then indicates the ROAN characteristic under the markings area of the registration certificate with the phrase "CARRIES AND EXPRESSES ROAN GENE."

Some GRAY horses may have started out as PALOMINO. These horses still retain the color genetic information to pass on the CREAM DILUTION gene and produce PALOMINO foals regardless of the color of the other parent. Some PALOMINOS that are turning or have turned GRAY may not easily be recognized as such, since the coat is already light in shade. A PALOMINO, no matter how light, usually becomes dark in shade, starting at the lower legs, before showing evidence of turning GRAY. (See GRAY)

## WHAT DOES A PALOMINO LOOK LIKE?

The PALOMINO can appear very pale (almost white), yellow, golden, light tan, or a deep, nearly chestnut color known as "chocolate." The mane and tail will appear almost white, flaxen, or blonde. The skin color is dark gray. The eyes are brown or black. Blue eyes are rare and may be the result of a DOUBLE CREAM DILUTION. (See CREMELLO and CREAM DILUTION)

## WHAT ARE THE COLOR GENETICS OF A PALOMINO?

PALOMINO carries TWO copies of the RED gene and ONE copy of the CREAM DILUTION gene. A true PALOMINO does not carry the BLACK gene regardless of parentage. Except in the case where the ROAN gene may also be present, PALOMINO does not carry any other color genes.

## WHAT IS THE CREAM DILUTION?

The CREAM DILUTION gene is responsible for diluting the body color from RED to the color we call PALOMINO. In simple terms, the foal genetically starts out as a solid RED color, SORREL or

# BUCKSKIN

## WHAT DOES A BUCKSKIN LOOK LIKE?

The BUCKSKIN will appear very light (almost white, known as 'Buttermilk BUCKSKIN'), yellowish, golden, light tan, or a deep tan that is similar to peanut butter. The mane and tail will be black but may have silver hairs mixed in, sometimes to the point that the mane and tail appear almost solid white or very "frosted." (Genetically, these hairs will test as BLACK.) The lower legs are usually black to some degree, usually in the form of stockings or socks but is sometimes contained within the pastern area only. The tips of the ears will be black or dark brown.

Some BUCKSKINS may have darker hair covering their body to some degree. This is due to the 'smutty' or 'sooty' gene and may be minimal (localized on the back and withers and possibly the face) or excessive (spread throughout the entire coat including the face). The common term is 'Sooty' or 'Smutty' BUCKSKIN. The 'smuttiness' may be so extreme that these horses are registered as BROWNS. They are often confused with GRULLOS or DUNS since the 'smutty/sooty' gene often gives the appearance of a dorsal stripe and striping over the withers, although these "stripes" are actually narrow concentrations of darker hair lacking the sharp edges typical of true dorsal stripes. BUCKSKINS do, on some occasion, have a dorsal stripe, but it is not related to the DUN gene.



## WHAT ARE THE COLOR GENETICS OF A BUCKSKIN?

On a BUCKSKIN, the color BLACK is distributed only to the points due to the presence of the agouti (pronounced ah GOO tee) gene, identical to that of BAY. (See BAY and AGOUTI GENE in the index.) The base color is left as some variation of diluted RED after being affected by the CREAM DILUTION gene inherited from one parent. In essence, the BUCKSKIN shares the same color information as BAY but during its embryonic formation is affected by the CREAM DILUTION gene to where the RED base coat is diluted to the familiar coat colors associated with BUCKSKIN. Even if a BUCKSKIN does have a dorsal stripe, it is not due to the DUN DILUTION.

## IF A BUCKSKIN HAS A DORSAL STRIPE, DOESN'T THAT AUTOMATICALLY MAKE IT A DUN?

This question is age-old, and depending on where one lives, DUN and BUCKSKIN are used interchangeably. At one time, AQHA did follow the 'dorsal stripe equals DUN' philosophy. However, current information through genetic research reveals that the dorsal stripe may exist as a characteristic all its own and is not related to the DUN gene. This is the same type of dorsal stripe which may affect BAYS, SORRELS, CHESTNUTS, and any non-DUN diluted horse. Even though the base colors of a DUN and a BUCKSKIN may be identical, they are genetically the result of two separate dilution genes. A BUCKSKIN will never have zebra stripes on the legs. (See DUN)

## WHAT ARE SOME OTHER ASPECTS WE NEED TO KNOW ABOUT BUCKSKIN?

Breeding two BUCKSKINS together yield the same possibility of getting a DOUBLE CREAM DILUTE foal as it does in breeding PALOMINOS. Breeding two BUCKSKINS does not increase the odds of getting a BUCKSKIN foal. In trying to achieve the resulting color of BUCKSKIN in a foal, the most common (but not exclusive) cross is to breed BAY and PALOMINO. Of course, breeding a BAY to a CREMELLO will yield BUCKSKIN 100 percent of the time.

It is possible for a BUCKSKIN to express the ROAN gene. Genetically, this is called a BUCKSKIN-ROAN. This may happen if one parent carries the roan gene (for example, is BAY ROAN) and is bred to a parent that carries the CREAM DILUTION (for example, is PALOMINO). Since BUCKSKINS are already light in color, the ROAN may not be immediately recognized. At present, AQHA does not have a separate color choice of BUCKSKIN-ROAN. For registration purposes, the horse is registered as the base color of BUCKSKIN. AQHA then indicates the ROAN characteristic under the markings area of the registration certificate with the phrase "CARRIES AND EXPRESSES ROAN GENE."

Some GRAY horses may have started out as BUCKSKIN. These horses still retain the color genetic information to pass on the CREAM DILUTION gene and produce BUCKSKIN or PALOMINO foals regardless of the color of the other parent. Some BUCKSKINS that are turning or have turned GRAY may not easily be recognized as such, since the coat is already light in shade. A BUCKSKIN usually shows lighter hairs in the face (sometimes called 'silvering'), specifically around the eyes and muzzle. Any true white face markings the foal was born with will blend into the face as the gray progresses. There may be graying in the black of lower legs. The tip of the tail will turn a pale, gold to silver color, eventually becoming lighter from the bottom up as the horse ages. The rest of the coat may have gray hairs scattered throughout (again, this may not be easily noticed), but the coat may also be unaffected for years. (See GRAY)

# CREMELLO



## WHAT DOES A CREMELLO LOOK LIKE?

The CREMELLO will appear almost white with the mane and tail being the same as the body color. On some DOUBLE CREAM DILUTED horses, the mane and tail may appear a bit darker and have a bit of a light copper or orange hue, with the lower legs having similar coloration. This would very likely be considered a PERLINO which is genetically different from the CREMELLO. (See PERLINO) The skin color appears very light, almost pinkish, and does not have the darker grayish pigmentation one finds on the skin color of the other horse colors. It is possible for the CREMELLO to have 'true white' markings on the face and legs. The eyes are always pale blue.

## WHAT ARE THE COLOR GENETICS OF A CREMELLO?

CREMELLO carries TWO copies of the CREAM DILUTION gene and TWO copies of the RED gene. A CREMELLO is a DOUBLE CREAM DILUTED SORREL or CHESTNUT. Like PALOMINO, CREMELLO "starts out" genetically as a SORREL or CHESTNUT. ONE copy of the CREAM DILUTION passed on from one parent gives us the PALOMINO. TWO copies of the CREAM DILUTION gives us the CREMELLO. A CREMELLO does not carry the BLACK gene regardless of parentage.

The CREMELLO foal receives one copy of the CREAM DILUTION from each parent, usually a PALOMINO or BUCKSKIN, and even a CREMELLO or PERLINO (see PERLINO), but there are exceptions. For example, a parent may be a BROWN or BLACK but may also have the genetics to pass on the CREAM DILUTION depending on his or her parentage. (See BROWN and BLACK)

## IF TWO CREMELLOS ARE BRED TOGETHER, WILL THE RESULTING FOAL BE A "LETHAL WHITE?"

Breeding two CREMELLOS has nothing to do with lethal white, which has not been associated in any of the Quarter Horse colors—it is primarily associated with specific genes associated with white markings found in Paint horses. Crossing two CREMELLOS will yield CREMELLO 100 percent of the time.

## WHAT COLOR COMBINATIONS CAN I EXPECT TO GET IF I BREED A CREMELLO TO ANY OTHER COLOR?

CREMELLO crossed with SORREL or CHESTNUT will yield PALOMINO 100 percent of the time—guaranteed. CREMELLO crossed with BAY should yield BUCKSKIN in the event that the BAY passes on the BLACK gene in the form of black points. Without BLACK being passed on, the ONLY other color that can be produced is PALOMINO.

CREMELLO crossed with any other color will yield a CREAM DILUTED foal 100 percent of the time. This does not mean the foal will be DOUBLE CREAM DILUTED, since a CREMELLO can only pass on one copy of the CREAM DILUTION. Being CREMELLO just means that it is guaranteed to pass on the CREAM DILUTION. For example, crossing CREMELLO to BAY, SORREL, or CHESTNUT could never yield a BAY, SORREL, or CHESTNUT—any base coat color that would be RED in appearance.

# PERLINO

## WHAT DOES A PERLINO LOOK LIKE?

The PERLINO will appear almost white with the mane and tail appearing a bit darker and have a bit of a light copper or orange hue, with the lower legs having similar coloration. The mane and tail of the PERLINO will genetically test BLACK. The skin color appears very light, almost pinkish, and does not have the darker grayish pigmentation one finds on the skin color of the other horse colors. It is possible for the PERLINO to have 'true white' markings on the face and legs. The eyes are always pale blue.

## WHAT ARE THE COLOR GENETICS OF A PERLINO?

PERLINO carries TWO copies of the CREAM DILUTION gene and at least ONE copy of the BLACK gene. A PERLINO is a DOUBLE CREAM DILUTED BAY. Like a BUCKSKIN, PERLINO "starts out" genetically as a BAY. ONE copy of the CREAM DILUTION passed on from one parent gives us the BUCKSKIN. TWO copies of the CREAM DILUTION gives us the PERLINO.

The PERLINO foal receives one copy of the CREAM DILUTION from each parent, usually a PALOMINO or BUCKSKIN, and even a CREMELLO or PERLINO (see PERLINO), but there are exceptions. For example, a parent may be a BROWN or BLACK but may also have the genetics to pass on the CREAM DILUTION depending on his or her parentage. In addition to receiving TWO copies of the CREAM DILUTION gene, the PERLINO must also have received at least ONE copy of the BLACK gene. (See BROWN and BLACK)



## IF TWO PERLINOS ARE BRED TOGETHER, WILL THE RESULTING FOAL BE A "LETHAL WHITE?"

PERLINOS can be treated just as the CREMELLO in this sense. Breeding two PERLINOS has nothing to do with lethal white, which has not been associated in any of the Quarter Horse colors—it is primarily associated with specific genes associated with white markings found in Paint horses. Crossing two PERLINOS or a PERLINO with a CREMELLO will yield either a PERLINO or a CREMELLO 100 percent of the time.

## WHAT COLOR COMBINATIONS CAN I EXPECT TO GET IF I BREED A PERLINO TO ANY OTHER COLOR?

PERLINO crossed with SORREL or CHESTNUT will usually yield PALOMINO or BUCKSKIN. The only exception would be a BLACK (possibly BROWN). Remember, PERLINO carries the BLACK gene. PERLINO crossed with BAY should yield BUCKSKIN at least 75 percent of the time. In the event that neither parent passed on the black gene, the ONLY other color that can be produced is PALOMINO.

PERLINO crossed with any other color will yield a CREAM DILUTED foal 100 percent of the time. This does not mean the foal will be DOUBLE CREAM DILUTED, since a PERLINO can only pass on one copy of the CREAM DILUTION. Being PERLINO just means that it is guaranteed to pass on the CREAM DILUTION. For example, crossing PERLINO to BAY, SORREL, or CHESTNUT could never yield a BAY, SORREL, or CHESTNUT—any base coat color that would be RED in appearance, regardless of the foal having black points or not.

# RED DUN



## WHAT DOES A RED DUN LOOK LIKE?

RED DUN has a broad range of color combinations but will never have black points. The body color of the RED DUN ranges from pale red to gold or light tan, or any variation in between, all of which are diluted forms of RED. Like SORREL and CHESTNUT, the mane and tail color of the RED DUN will also have a wide range. This includes blonde or cream (sometimes appearing almost white), flaxen, light gold, pale red, sorrel red, or chestnut. You may notice that a RED DUN with a golden body and a blonde mane and tail has the same color description as PALOMINO. However, it is also the presence of the DUN gene which sets them apart. Unlike a PALOMINO, a RED DUN has some or all of the DUN characteristics—a dorsal stripe, zebra stripes on the legs, striping over the withers, sometimes darker tips on the ears, and sometimes darker coloration on the lower legs. On the other hand, a tan or light gold-colored RED DUN with chestnut colored points may have a similar appearance to (and may be confused with) the color recognized as DUN. It is important to note that a red dorsal stripe does not denote the color of the horse as RED DUN; DUNS and RED DUNS may have red dorsal stripes.

## WHAT ARE THE COLOR GENETICS OF RED DUN?

The base color of RED DUN is identical to that of SORREL and CHESTNUT. It is the inheritance of the DUN gene from at least one parent that gives it the diluted appearance as well as the DUN characteristics. (The DUN DILUTION gene is not to be confused with the recognized color DUN, which includes having black points.) The RED DUN never has black points.

Sometimes a horse will be identical in color to a PALOMINO but will also have striping on the legs (called zebra stripes or tiger stripes) and a dorsal stripe. Since a PALOMINO does not have zebra stripes on the legs and rarely has a dorsal stripe, these markings would be the result of the DUN gene and would then be one example of RED DUN. (See PALOMINO) A RED DUN that has the same coloration as PALOMINO will also carry the CREAM DILUTION, which means this variation of RED DUN carries both the DUN and CREAM DILUTIONS.

## HOW DID THIS HORSE GET THE DUN DILUTION?

At least one of the foal's parents contributes one copy of the DUN DILUTION gene. This parent will most likely be a DUN, RED DUN or GRULLO. There are a few exceptions. Some pedigrees may show a parent or ancestor as being registered BLUE ROAN but is actually GRULLO-ROAN or as being registered RED ROAN but is actually DUN-ROAN or RED DUN-ROAN. The colors may appear to 'hide' the DUN DILUTION or appear to skip generations, oftentimes leading to the erroneous assumption that DUNS can be 'crop outs.' The same holds true if a parent started out as a DUN, RED DUN, or GRULLO but turned gray (in the event of a gray parent), whereby the color was amended to reflect this on the certificate of registration. Some pedigrees may show a horse registered as BUCKSKIN but may, in fact, have been a DUN. In any event, DUN is a dominant gene, which means at least one parent must always be a type of DUN, whether registered as a ROAN type or has turned GRAY. But being dominant does not necessarily mean dominating in that, merely breeding a DUN DILUTION horse to a horse of any other color will guarantee a DUN DILUTE horse.

Sometimes, a RED DUN horse is the result of two DUN DILUTION parents. This includes any combinations of crosses between DUNS, RED DUNS, GRULLOS, or horses registered a color (erroneously or not) that is carrying the DUN gene. If each parent passes on one copy of the DUN gene, the result is a horse that is homozygous for the DUN DILUTION. This means that this horse will pass on the DUN gene to its offspring 100 percent of the time, regardless of the color of the other parent.

## CAN A RED DUN ALSO BE A ROAN?

It is possible for a RED DUN to express the ROAN gene. Genetically, this is called a RED DUN-ROAN. This may happen if one parent carries the roan gene and is bred to a parent that carries the DUN DILUTION. Since RED DUNS may be light in shade, the ROAN may not be immediately recognized. At present, AQHA does not have a separate color choice of RED DUN-ROAN. For registration purposes, the horse is registered as the base color of RED DUN. AQHA then indicates the ROAN characteristic under the markings area of the registration certificate with the phrase "CARRIES AND EXPRESSES ROAN GENE."

Some GRAY horses may have started out as RED DUN. These horses still retain the color genetic information to pass on the DUN DILUTION gene and produce RED DUN foals regardless of the color of the other parent. Some RED DUNS that are turning or have turned GRAY may not easily be recognized as such, since the coat may be light in shade. (See GRAY)

### WHAT DOES A DUN LOOK LIKE?

A DUN is similar in color to a BUCKSKIN, but genetically, this is where it stops. Like BUCKSKIN, the body will appear yellow, golden, light tan, or a deep tan that is similar to peanut butter. The mane and tail will be black, and the lower legs are black to some degree, usually in the form of socks or stockings but is sometimes contained within the pastern area only. The tips of the ears will be black or dark brown. The presence of the black points means that at least one parent must also carry the BLACK gene. Unlike a BUCKSKIN, a DUN has some or all of the DUN characteristics—a dorsal stripe, zebra stripes on the legs, and striping over the withers. DUN characteristics have also been observed behind the ears and on the neck. DUN, therefore, is a 'package deal.' It must have the DUN characteristics as well as the body color being diluted to any of the colors mentioned above or some variation of them. Oftentimes, an owner will describe the color of the mane and tail of a horse as 'dun.' However, if the horse is a DUN, the obvious color of the mane and tail should be listed as black. DUN as a color choice is a combination of colors and characteristics on the coat—not a color itself.



Some DUNS may have darker hair covering their body to some degree. This is due to the 'smutty' or 'sooty' gene and may affect the face and back. The 'smuttiness' affecting the face will often give the horse 'masking' to some degree that is often confused with the very dark to black head of the GRULLO. (See GRULLO)

### WHAT ARE THE COLOR GENETICS OF DUN?

A DUN is the effect of the DUN gene on a BAY base color. Sometimes DUN and GRULLO are confused with one another. Genetically, there are differences between them. (GRULLO is the effect of the DUN gene on a BLACK base color.) It is the inheritance of the DUN gene from at least one parent that gives both the diluted appearance as well as the DUN characteristics.

Sometimes a horse will carry the CREAM DILUTION in addition to the DUN DILUTION, which means this variation of DUN may produce both DUN and CREAM DILUTION (PALOMINO and BUCKSKIN) offspring. This DUN may not appear any differently than a DUN which does not carry the CREAM DILUTION. It is commonly the result of one parent being CREAM DILUTED and the other being DUN DILUTED. However, one parent may carry both dilutions due to specific ancestors in a specific bloodline. (The stallion, HOLLYWOOD GOLD, is a prime example. He was registered as DUN but was clearly a RED DUN with the gold body coloration of a PALOMINO with a flaxen mane and tail. However, he also had a distinct dorsal stripe and distinct zebra stripes on the legs that were almost chestnut in color, thus exhibiting both CREAM and DUN DILUTIONS.) These DUNS must be treated in the same way as one would a BUCKSKIN when considering the potential color of the offspring; a DOUBLE DILUTE foal may result if this variation of DUN is bred to another parent which carries the CREAM DILUTION.

### HOW DID THIS HORSE GET THE DUN DILUTION?

At least one of the foal's parents contributes one copy of the DUN DILUTION gene. This parent will most likely be a DUN, RED DUN or GRULLO. There are a few exceptions. For example, some pedigrees may show a parent or ancestor as being registered BLUE ROAN but is actually GRULLO-ROAN or as being registered RED ROAN but is actually DUN-ROAN or RED DUN-ROAN. The colors may appear to 'hide' the DUN DILUTION or appear to skip generations, oftentimes leading to the erroneous assumption that DUNS can be 'crop outs.' The same holds true if a parent started out as a DUN, RED DUN, or GRULLO but turned gray (in the event of a gray parent), whereby the color was amended to reflect this on the certificate of registration. Some pedigrees may show a horse registered as BUCKSKIN but may, in fact, have been a DUN. In any event, DUN is a dominant gene, which means at least one parent must always be a type of DUN, whether registered as a ROAN type or has turned GRAY. But being dominant does not necessarily mean dominating in that, merely breeding a DUN DILUTION horse to a horse of any other color will guarantee a DUN DILUTE horse.

Sometimes, a DUN horse is the result of two DUN DILUTION parents. This includes any combination of crosses between DUNS, RED DUNS, GRULLOS, or horses registered a color (erroneously or not) that is carrying the DUN gene as well as at least one parent that expresses the BLACK gene. If each parent passes on one copy of the DUN gene, the result is a horse that is homozygous for the DUN DILUTION. This means that this horse will pass on the DUN gene to its offspring 100 percent of the time, regardless of the color of the other parent.

### WHAT ARE SOME OTHER ASPECTS WE NEED TO KNOW ABOUT DUNS?

It is possible for a DUN to express the ROAN gene. Genetically, this is called a DUN-ROAN. This may happen if one parent carries the roan gene and is bred to a parent that carries the DUN DILUTION as well as the BLACK gene. Since DUNS may be light in shade, the ROAN may not immediately be recognized. At present, AQHA does not have a separate color choice of DUN-ROAN. For registration purposes, the horse is registered as the base color of DUN. AQHA then indicates the ROAN characteristic under the markings area of the registration certificate with the phrase "CARRIES AND EXPRESSES ROAN GENE."

Some GRAY horses may have started out as DUN. These horses still retain the color genetic information to pass on the DUN DILUTION gene and produce DUN DILUTION foals regardless of the color of the other parent. Some DUNS that are turning or have turned GRAY may not easily be recognized as such, since the coat is already light in shade. A DUN usually shows lighter hairs in the face (sometimes called 'silvering'), specifically around the eyes and muzzle. Any true white face markings the horse was born with will blend into the face as the gray progresses. There may be graying in the black of lower legs. The tip of the tail will turn a pale, gold to silver color, eventually becoming lighter from the bottom up as the horse ages. The rest of the coat may have gray hairs scattered throughout (again, this may not be easily noticed), but the coat may also be unaffected for years, even retaining the DUN characteristics as it GRAYS. (See GRAY)

# GRULLO



## WHAT DOES A GRULLO LOOK LIKE?

The body of the GRULLO (pronounced GREW yo or GREW ya) will typically appear gray, silvery, smoky, or some lighter or darker version of these colors. Each of the hairs on the body is silvery or smoky—it is not a mixture of white and black or dark brown. AQHA oftentimes uses the term ‘mouse-colored.’ One may note that a wild mouse is smoky-gray in color. Some GRULLOS may have a ‘warmer’ hue to their coat whereby the coat has a ‘tannish’ hue, somewhat similar to that of the DUN. Some terms in independent texts on horse colors will give exotic sounding names to some of the variations of the GRULLO, such as ‘olive grullo’ or ‘lilac grullo.’ In any event, the basic characteristics are the same; the body color as described above, black points with black DUN characteristics—dorsal stripe, zebra stripes on the legs, stripes over the withers—and a black or very dark brown head. And it is this solid black or dark brown head that is one of the distinguishing characteristics one finds on the GRULLO. The head on the DUN is typically the same or similar to the rest of the body color.

The GRULLO is not a common color in the Quarter Horse, yet it is often confused with other coat colors. Some DUNS may have darker hair covering their body to some degree. This is due to the ‘smutty’ or ‘sooty’ gene and may affect the face and back. The ‘smuttiness’ affecting the face will often give the DUN ‘masking’ to some degree that is often confused with the very dark brown to black head

of the GRULLO. A foal that will shed off to BLACK or one of the variations of BROWN will be born with the silvery body color and black points that is often mistaken for GRULLO, complete with a dorsal stripe and, oftentimes, zebra stripes on the legs and striping over the withers.

## WHAT ARE THE COLOR GENETICS OF GRULLO?

A GRULLO is the affect of the DUN gene on a BLACK base color, meaning that it shares the same color genetics as the BLACK horse and, to some degree, DUN horse. Sometimes DUN and GRULLO are confused with one another. Genetically, there are differences between them. The color known as DUN is the affect of the DUN gene on a BAY base color meaning a DUN and a BAY carry the agouti gene. The GRULLO does not carry the agouti gene, just as a BLACK does not. It is the inheritance of the DUN gene from at least one parent that gives both the diluted appearance as well as the DUN characteristics.

Some GRULLOS will carry the CREAM DILUTION in addition to the DUN DILUTION, which means this GRULLO may produce both DUN and CREAM DILUTION (PALOMINO and BUCKSKIN) offspring. It is commonly the result of one parent being CREAM DILUTED and the other being DUN DILUTED. However, one parent may carry both dilutions due to specific ancestors in a specific bloodline. (See DUN for the HOLLYWOOD GOLD example.) And since GRULLO has a base color of BLACK, the CREAM DILUTION may ‘hide’ behind the GRULLO in exactly the same way it would the BLACK. (See BLACK) One would not be able to tell if a GRULLO carried the CREAM DILUTION by its appearance alone. These GRULLOS must be treated in the same way as one would a BUCKSKIN or a DUN carrying the CREAM DILUTION when considering the potential color of the offspring; a DOUBLE DILUTE foal may result if the GRULLO carrying the CREAM DILUTION is bred to another parent which carries the CREAM DILUTION, also.

## HOW DID THIS HORSE GET THE DUN DILUTION?

At least one of the foal’s parents contributes one copy of the DUN DILUTION gene. This parent will most likely be a DUN, RED DUN or GRULLO. There are a few exceptions. For example, some pedigrees may show a parent or ancestor as being registered BLUE ROAN but is actually GRULLO-ROAN or as being registered RED ROAN but is actually DUN-ROAN or RED DUN-ROAN. The colors may appear to ‘hide’ the DUN DILUTION or appear to skip generations, oftentimes leading to the erroneous assumption that GRULLOS can be ‘crop outs.’ The same holds true if a parent started out as a DUN, RED DUN, or GRULLO but turned gray (in the event of a gray parent), whereby the color was amended to reflect this on the certificate of registration. In any event, DUN is a dominant gene, which means at least one parent must always be a type of DUN, whether registered as a ROAN type or has turned GRAY. But being dominant does not necessarily mean dominating in that, merely breeding a DUN DILUTION horse to a BLACK horse will guarantee a GRULLO or DUN DILUTE horse.

Sometimes, a GRULLO horse is the result of two DUN DILUTION parents, at least one of which would also carry the BLACK gene. This includes any combinations of crosses between DUNS, RED DUNS, GRULLOS, or horses registered a color (erroneously or not) that is carrying the DUN gene as well—for example, a horse registered BLUE ROAN but is actually a GRULLO carrying and expressing the ROAN gene. If each parent passes on one copy of the DUN gene, the result is a horse that is homozygous for the DUN DILUTION. This means that this horse—in this case GRULLO—will pass on the DUN gene to its offspring 100 percent of the time, regardless of the color of the other parent. And just as a BLACK horse can be homozygous for BLACK if each parent passes on one copy of the BLACK gene, the same holds true for GRULLOS. This means that the BLACK gene will be passed on 100 percent of the time to the offspring, which means that no foals will ever have points that are red or a variation—the points will always be black or a very dark brown.

## WHAT ARE SOME OTHER ASPECTS WE NEED TO KNOW ABOUT GRULLOS?

It is possible for a GRULLO to express the ROAN gene. Genetically, this is called a GRULLO-ROAN. This may happen if one parent carries the roan gene and is bred to a parent that carries the DUN DILUTION as well as the BLACK gene. Since the base color of the GRULLO may be light in shade, the ROAN may not be immediately recognized. At present, AQHA does not have a separate color choice of GRULLO-ROAN. For registration purposes, the horse is registered as the base color of GRULLO. AQHA then indicates the ROAN characteristic under the markings area of the registration certificate with the phrase “CARRIES AND EXPRESSES ROAN GENE.”

Some GRAY horses may have started out as GRULLO. These horses still retain the color genetic information to pass on the DUN DILUTION gene and produce DUN DILUTION foals regardless of the color of the other parent. Some GRULLOS that are turning or have turned GRAY may not easily be recognized as such, since the coat is already light in shade. A GRULLO usually shows lighter hairs in the face (sometimes called ‘silvering’), specifically around the eyes and muzzle. Any true white face markings the horse was born with will blend into the face as the gray progresses. There may be graying in the black of lower legs. The tip of the tail will turn a pale, gold to silver color, eventually becoming lighter from the bottom up as the horse ages. The rest of the coat may have gray hairs scattered throughout (again, this may not be easily noticed), but the coat may also be unaffected for years, even retaining the DUN characteristics as it GRAYS. (See GRAY)

# RED ROAN

## WHAT ARE THE COLOR GENETICS OF RED ROAN?

For all practical purposes, the color genetics of a RED ROAN are identical to SORREL and CHESTNUT. The only exception is the expression of the ROAN GENE which is inherited from at least one parent. The ROAN GENE exists alone and is not associated with any base color. This means that any of the base colors and their variations may also be a roan if inherited from a roan parent. More accurately, a RED ROAN might be considered a SORREL-ROAN or a CHESTNUT-ROAN.

On some pedigrees, older horses may have been registered in the past as RED ROAN but may actually have been RED DUN-ROAN. Since AQHA does not have a specific category for RED DUN-ROAN, the color choice of RED ROAN would have been made out of necessity. For registration purposes, AQHA suggests RED DUN as the better color choice. AQHA then indicates the ROAN characteristic under the markings area of the registration certificate with the phrase "CARRIES AND EXPRESSES ROAN GENE."

Some horses registered as RED ROAN in the past would be registered as BAY ROAN today. Since a SORREL-ROAN or CHESTNUT-ROAN is genetically different from a BAY ROAN, BAY ROAN is now a color choice separate from RED ROAN. Remember, BAY carries the black gene, whereas, SORREL and CHESTNUT do not.



## WHAT DOES A RED ROAN LOOK LIKE?

The RED ROAN has a base color identical to either the SORREL or CHESTNUT, including variations in the color of the mane and tail. With the ROAN GENE added, the coat will also have white hair mixed in with the base coat, leaving the lower legs, the mane and tail, and the head typically unaffected. In extreme cases, however, a ROAN may have a concentration of hair above the eyes (but not located directly at the eyes nor immediately around them) appearing as though the horse had white eyebrows. The concentration may also be found at the polls or base of the ears—but nowhere else on the ears. Concentrations may be found on the jaws as an extension of the white hair already concentrated on the neck. In its least expression, the RED ROAN may have ROAN hair localized over the back and croup area, giving the horse the appearance of being slightly dusted with snow. These are sometimes called 'minimally expressed' ROANS. (See SORREL and CHESTNUT)

A SORREL or CHESTNUT may have white hair scattered throughout the body or have white hair concentrated in specific areas. These areas are usually the flanks, between the fore legs, the root of the tail (usually in bands similar to that of a raccoon—hence, 'coon-tail'), and sometimes over the barrel, usually in vertical patterns directly over each rib. It is most often confused with ROAN but is neither the result of the ROAN nor GRAY genes. This distinct pattern of white is sometimes called rabicano (pronounced rab ih CON oh), a word of Spanish origin meaning "brush tail," referring to the bands of white hair at the root of the tail. It is also referred to sometimes as "ticking." One way to determine the difference between the 'classic' RED ROAN and a SORREL or CHESTNUT with white hair due to the rabicano or ticking trait is to notice the color of hair once the 'roan' areas have been scraped or rubbed off. On a 'classic' ROAN, the ROAN hair does not grow back once scraped off—only the base color will grow back, in this case, SORREL or CHESTNUT. On the rabicano affected horse, the hair that is scraped off will usually grow back solid white, the same that would happen if the horse was a solid SORREL or CHESTNUT.

## HOW DO I KNOW IF MY HORSE IS A RED ROAN OR A GRAY?

Some foals in the early stages of turning GRAY are often confused with ROAN. The foal turning GRAY will have gray hair immediately surrounding the eyes and muzzle and throughout the backs of the ears as well as white hair being scattered throughout the body. The GRAY hair may be slight or extreme and in the earliest stages of turning GRAY. Although it is considered an 'immature GRAY,' genetically, the foal is still considered a GRAY and must be registered as such. This is true even if a GRAY horse started out as RED ROAN. The RED ROAN horse that has turned GRAY may keep its red points for an extended period of time, still retaining the color genetic information to produce SORREL, CHESTNUT, RED ROAN, or GRAY foals. (See GRAY)

# BAY ROAN



## WHAT ARE THE COLOR GENETICS OF A BAY ROAN?

Quite simply, a BAY ROAN is the ROAN GENE affecting a BAY horse. Other than this, the color genetics of BAY ROAN are identical to that of a BAY. As with any ROAN, the ROAN gene must be inherited from at least one parent known to carry the ROAN gene, and as with any BAY, the black points must be inherited from at least one parent that is BLACK or has black points. (See BAY)

In the past, some horses registered as RED ROAN were actually BAY ROAN, since the color of the mane and tail were not taken into consideration at that time. However, since a BAY ROAN carries the BLACK gene but the SORREL and CHESTNUT do not, BAY ROAN is now a color choice separate from RED ROAN.

## WHAT DOES A BAY ROAN LOOK LIKE?

A BAY ROAN has a base color identical to BAY. With the ROAN gene added, white hair is mixed in with the base coat, leaving the lower legs, the mane and tail, and the head typically unaffected. In extreme cases, however, a ROAN may have a concentration of hair above the eyes (but not located

directly at the eyes nor immediately around them) appearing as though the horse had white eyebrows. The concentration may also be found at the polls or base of the ears—but nowhere else on the ears. Concentrations may be found on the jaws as well but only as an extension of the white hair already concentrated on the neck. In its least expression, the BAY ROAN may have ROAN hair localized over the back and croup area, giving the horse the appearance of being slightly dusted with snow. These are sometimes called 'minimally expressed' ROANS.

A BAY may have white hair scattered throughout the body or have white hair concentrated in specific areas. These areas are usually the flanks, between the fore legs, the root of the tail (usually in bands similar to that of a raccoon—hence, 'coon-tail'), and sometimes over the barrel, usually in vertical patterns directly over each rib. It is most often confused with ROAN but is neither the result of the ROAN nor GRAY genes. This distinct pattern of white is sometimes called rabicano (pronounced rab ih CON oh), a word of Spanish origin meaning "brush tail," referring to the bands of white hair at the root of the tail. It is also referred to sometimes as "ticking." One way to determine the difference between the 'classic' BAY ROAN and a BAY with white hair due to the rabicano or ticking trait is to notice the color of hair once the 'roan' areas have been scraped or rubbed off. On a 'classic' ROAN, the ROAN hair does not grow back once scraped off—only the base color will grow back, in this case, the base color of BAY which is usually SORREL or CHESTNUT. On the rabicano affected horse, the hair that is scraped off will usually grow back solid white, the same that would happen if the horse was a solid BAY.

## HOW DO I KNOW IF MY HORSE IS A BAY ROAN OR A GRAY?

Some foals in the early stages of turning GRAY are often confused with ROAN. The foal turning gray will have gray hair immediately surrounding the eyes and muzzle and throughout the backs of the ears as well as white hair being scattered throughout the body. The GRAY hair may be slight or extreme and in the earliest stages of turning GRAY. Although it is considered an 'immature GRAY,' genetically, the foal is still considered a GRAY and must be registered as such, even if the GRAY horse started out as BAY ROAN. The BAY ROAN that has turned GRAY may keep its black points for an extended period of time but will still produce GRAY foals as well. They still retain the color genetic information to produce BAY and BAY ROAN foals, and in most cases, they may also produce SORREL, CHESTNUT, BROWN or BLACK foals, or any of these colors plus the inclusion of the ROAN gene which includes RED ROAN and BLUE ROAN. (See GRAY)

# BLUE ROAN

## WHAT ARE THE COLOR GENETICS OF BLUE ROAN?

It is, in effect, the ROAN gene affecting a BLACK horse. The color genetics of BLUE ROAN are identical to that of BLACK and, to some extent, BROWN. (See BLACK and BROWN)

In the past, some horses registered as BLUE ROAN may actually have been GRULLO ROAN, since both BLUE ROAN and GRULLO ROAN have a black mane and tail, black on the lower legs, and a darker head that is usually black. Since there is no separate color choice for GRULLO ROAN, the color BLUE ROAN has often been chosen instead. Sometimes the DUN characteristics may not have been taken into consideration. (See GRULLO)

Just as some BLACKS and BROWNS have a PALOMINO or BUCKSKIN parent and may also carry the CREAM DILUTION inherited from one of these parents, the same is true with some BLUE ROANS. These BLUE ROANS will then have the color genetics similar to BUCKSKINS and may produce any of the DOUBLE DILUTE foals if bred to a PALOMINO, BUCKSKIN, or parent known to carry the CREAM DILUTION.



## WHAT DOES A BLUE ROAN LOOK LIKE?

A BLUE ROAN has a base color identical to BLACK and sometimes BROWN. On a BLACK horse with the ROAN gene added, white hair is mixed in with the base coat, leaving the lower legs, the mane and tail, and the head typically unaffected. In extreme cases, however, a ROAN may have a concentration of hair above the eyes (but not located directly at the eyes nor immediately around them) appearing as though the horse had white eyebrows. The concentration may also be found at the polls or base of the ears (but nowhere else on the ears). Concentrations may be found on the jaws as an extension of the white hair already concentrated on the neck. In its least expression, the BLUE ROAN may have ROAN hair localized over the back and croup area, giving the horse the appearance of being slightly dusted with snow. These are sometimes called 'minimally expressed' ROANS.

In the case where the ROAN gene affects a BROWN horse, the overall appearance of the horse is still due to white hairs being mixed with very dark brown and black hair over the body coat. Also, the overall color of the head of the horse remains dark brown or a mixture of black and brown hair. There are some horses registered as BLUE ROAN where the head may have red or tan mixed in with the darker hair. However, the mane, tail, and lower legs will be true black. ROAN on a BROWN horse (genetically a BLUE ROAN) has often been confused with ROAN on a CHESTNUT horse (genetically a RED ROAN). The RED FACTOR test can be performed where such a question occurs. Contact AQHA for more information.

A BLACK or BROWN may have white hair scattered throughout the body or have white hair concentrated in specific areas. These areas are usually the flanks, between the fore legs, the root of the tail (usually in bands similar to that of a raccoon—hence, 'coon-tail'), and sometimes over the barrel, usually in vertical patterns directly over each rib. It is most often confused with ROAN but is neither the result of the ROAN nor GRAY genes. This distinct pattern of white is sometimes called rabicano (pronounced rab ih CON oh), a word of Spanish origin meaning "brush tail," referring to the bands of white hair at the root of the tail. It is also referred to sometimes as "ticking." One way to determine the difference between the 'classic' BLUE ROAN and a BLACK or BROWN with white hair due to the rabicano or ticking trait is to notice the color of hair once the 'roan' areas have been scraped or rubbed off. On a 'classic' ROAN, the ROAN hair does not grow back once scraped off—only the base color will grow back, in this case, black or brown. On the rabicano affected horse, the hair that is scraped off will usually grow back solid white, the same that would happen if the horse was a solid BLACK or BROWN.

## HOW DO I KNOW IF MY HORSE IS A BLUE ROAN OR A GRAY?

Some foals in the early stages of turning GRAY are often confused with ROAN. The foal turning gray will have gray hair immediately surrounding the eyes and muzzle and throughout the backs of the ears as well as white hair being scattered throughout the body. The GRAY hair may be slight or extreme and in the earliest stages of turning GRAY. Although it is considered an 'immature GRAY,' genetically, the foal is still considered a GRAY and must be registered as such. A GRAY horse may have started out as a BLUE ROAN and may keep its black points for an extended period of time. This BLUE ROAN which has turned GRAY will still retain the color genetic information to produce BLACK foals and, in most cases, SORREL, CHESTNUT, BAY, or BROWN foals. If the CREAM DILUTION is present, PALOMINO and BUCKSKIN foals may also be produced or any of these colors plus the inclusion of the ROAN gene. (See GRAY)

# GRAY

## WHAT ARE THE COLOR GENETICS OF GRAY?

Surprisingly, GRAY will have the same color genetics of every color covered thus far, including the ROANS. GRAY color genetics depend on the color of the horse before it turned GRAY.

It is important to note that a GRAY foal or horse must always have at least one parent that is GRAY. GRAY will not “crop out” from two non-GRAY parents, regardless of whether or not GRAY is in the pedigree. GRAY does not skip generations.

## WHAT DOES A GRAY LOOK LIKE?

The appearance of the GRAY depends on the stage of graying and/or the age of the horse. The horse may be an immature gray at any age, meaning that the horse is retaining much or some of its original coat color but is showing clear signs of turning GRAY. Among others, these signs of graying are most often found around the eyes and muzzle but may also be throughout the face as well as over the entire area of the ears. It is interesting to note that any horse with black points (BLACKS, BROWNS, BAYS, BUCKSKINS, DUNS, GRULLOS, and their ROAN variations) will also show early signs of the

graying effect at the end (bottom) of the tail. This will usually appear anywhere from silver to a light brassy color, and as the horse ages, more of the tail will lighten, increasing from the bottom up. The lower legs, which would normally be solid black, will begin to show an increase of GRAY hairs scattered throughout. Some horses showing the early signs of turning gray will also have gray or ‘roan-looking’ patches of various sizes throughout the body. They may be as small as silver dollars or as large as an adult hand.

Any of the solid colors covered thus far may have white hair scattered throughout the body or have white hair concentrated in specific areas. These areas are usually the flanks, between the fore legs, the root (top) of the tail (usually in bands similar to that of a raccoon—hence, ‘coon-tail’), and sometimes over the barrel, usually in vertical patterns directly over each rib. It is most often confused with ROAN but is neither the result of the ROAN nor GRAY genes. This distinct pattern of white is sometimes called rabicano (pronounced rab ih CON oh), a word of Spanish origin meaning “brush tail,” referring to the bands of white hair at the root of the tail. It is also referred to sometimes as “ticking.” One way to determine the difference between the ‘classic’ ROAN and another color with white hair due to the rabicano or ticking trait is to notice the color of hair once the ‘roan’ areas have been scraped or rubbed off. On a ‘classic’ ROAN, the ROAN hair does not grow back once scraped off—only the base color of the body will grow back. On the rabicano affected horse, the hair that is scraped off will usually grow back solid white, the same that would happen if the horse was solid colored.

## WHAT IF MY HORSE STILL LOOKS DUN OR BUCKSKIN OR ROAN, OR WHAT IF IT DOESN'T LOOK COMPLETELY GRAY?

It cannot be stressed enough that a GRAY horse will start out as ANY color other than GRAY. This includes the ROANS, the DUN DILUTION horses (DUNS, RED DUNS, GRULLOS), and the CREAM DILUTION horses (BUCKSKINS and PALOMINOS). This means that, for example, a BLUE ROAN horse turning GRAY may retain black over much of the head for a while but will still show evident signs of graying in the areas already stated; a DUN DILUTION horse may retain any of the DUN markings—dorsal stripe, zebra stripes on the legs, stripes over the withers, or any marking or coloration associated with DUN—and still be in the process of turning gray; a CREAM DILUTION horse may retain lighter hair in the coat with the mane and tail being seemingly unaffected. In essence, the DILUTION horses may still appear their original color for an extended period of time—tan or gold body color, dark or black points on DUNS, BUCKSKINS, GRULLOS, etc.—but will be considered GRAY due to the areas—however subtle—that indicate the signs of graying.

Sometimes a foal is pending registration with AQHA and has a coat that is ‘obviously’ turning GRAY. This foal may have a parent that is registered its original color but has turned GRAY or is turning GRAY and yet still retains some of the characteristics as described above, i.e., a dorsal stripe if the parent is a DUN, or darker points if the parent is BLUE ROAN or BUCKSKIN—to give only two examples. This parent will need to have the color corrected to GRAY before the pending registration can be completed. (In the case of the DUNS-turned-GRAY, the dorsal stripe, zebra stripes on the legs, or the striping over the withers can be described under the markings area of the certificate if those characteristics are still visible on that horse.) Sometimes AQHA will request a foal’s pedigree be corrected for several generations in the event the ancestry shows the need for those ancestors to the corrected to GRAY.



**AGOUTI GENE** - This gene affects the color BLACK only. It is an extension gene associated with the BLACK gene but is not a color gene itself. When present, it tells the color BLACK what to do, basically. The AGOUTI gene operates somewhat like a light switch. When it is 'switched on' or present, the color BLACK is pushed to the points only. This is responsible for how BLACK becomes distributed on BAYS, DUNS, and BUCKSKINS—horses with black points. When the AGOUTI gene is 'switched off' or not present, BLACK covers the entire coat, allowing the resulting Quarter Horse colors known as BLACK, BROWN, GRULLO, BLUE ROAN—all of which have solid BLACK as a base coat. This includes their variations which include the ROAN gene and possibly the GRAY gene (if a GRAY parent is present and the resulting foal has turned GRAY also).

**CREAM DILUTION GENE** - This gene is responsible for the colors BUCKSKIN and PALOMINO. It is an extension gene associated with RED. ONE copy of this gene from ONE of the parents will dilute RED to tan or yellow or near-white or anything in between without affecting the eye color, skin color, or points. An exception (to some extent) is one copy of the CREAM DILUTION gene affecting a foal or horse that is the base color of solid BLACK. This resulting color may appear as a dark BROWN with dark BROWN points. Genetically, however, this color is solid BLACK but with the ability to produce CREAM DILUTED foals regardless of the color of the other parent. This means that a diluted BLACK could potentially produce a DOUBLE CREAM DILUTED foal if bred to a CREAM DILUTED parent.

A CREAM DILUTED parent may not always pass on the CREAM DILUTION gene. Statistically, this parent will pass on this gene only 50 percent of the time. Two CREAM DILUTION genes (one copy from each parent) on a RED base coat (SORREL or CHESTNUT) will result in a CREMELLO foal. However, another aspect of the CREAM DILUTION gene is that it can also affect the color BLACK if a foal with a base color of BAY or BLACK. Two copies of the CREAM DILUTION gene on a BAY base color will yield the color PERLINO. Two copies of the CREAM DILUTION gene on a BLACK base color will yield the color SMOKY CREAM. Both the PERLINO and SMOKY CREAM may appear almost identical to the CREMELLO in color. However, genetically, the CREMELLO does not carry the BLACK gene. PERLINO and SMOKY CREAM both carry the BLACK gene and may still produce solid BLACK foals or foals with BLACK points.

In all three cases of CREMELLO, PERLINO, and SMOKY CREAM, the foals will be DOUBLE CREAM DILUTED or homozygous for the CREAM DILUTION. This means that the CREAM dilution will be passed on to the offspring 100 percent of the time, resulting in a PALOMINO, BUCKSKIN, or diluted BLACK.

**POINTS** - This refers to specific 'outer' areas of the horse concerning color, usually BLACK in color, but may be dark red, chestnut, or brown. These areas are the mane and tail, the lower legs (from the coronets up), and the tips of the ears.

**DUN DILUTION GENE** - This gene is responsible for the colors RED DUN, DUN and GRULLO. Whereas a single copy of the CREAM DILUTION affects the RED gene only, the DUN DILUTION affects both RED and BLACK. A foal or horse with a single copy of the DUN DILUTION looks the same as a foal or horse with two copies of this gene – eye color, hair color and skin color is unaffected.

A horse with one copy is called heterozygous for DUN, and a horse with two copies is called homozygous for DUN. A homozygous DUN will produce a DUN foal of some type 100 percent of the time. Some homozygous DUNS and GRULLOS also are homozygous for the BLACK gene. This means that these horses will produce DUNS or GRULLOS 100 percent of the time but never a RED DUN.

**CHAMPAGNE DILUTION GENE** - This gene may affect any base color and may affect the CREAM DILUTION and DUN DILUTION as well, further modifying the appearance of the horse by affecting the eye color and skin color. In CHAMPAGNE DILUTION horses, the foal begins with a darker colored coat and sheds off lighter, just the opposite of what the coat will usually do in other colors. The foal's eyes will first be an icy blue, and as the foal ages, the eye color will change into a greenish hue and finally into an amber or honey-colored hue. The skin can vary as well, usually appearing a pale rosy hue or a pale orange-like hue with flecks of dark gray scattered throughout, literally from the nose to the tail.

It is interesting to note that CHAMPAGNE is not a color even though there are a few "color" names being used by those who are familiar with the dilution. (The CHAMPAGNE gene affecting a SORREL base, for example, is currently referred to as GOLD CHAMPAGNE.) Conversely, names once allocated for a specific CHAMPAGNE "color" have been re-evaluated. For example, CHAMPAGNE on a CREAM DILUTION base was formerly called IVORY CHAMPAGNE but has since fallen out of use because of the inconsistent range of outcomes. (CHAMPAGNE on a BUCKSKIN base would be different than CHAMPAGNE on a PALOMINO base, for example, because of the presence or lack of the BLACK gene.) Even so, there are currently no universal names for all the color combinations that include the CHAMPAGNE DILUTION effect. What would one call CHAMPAGNE on a RED DUN base, or CHAMPAGNE on a horse that is both RED DUN and PALOMINO? What would one call CHAMPAGNE on a horse that is PERLINO and DUN? The list would become very long. With this in mind, AQHA does not recognize the few names that are being used, and until there is a universally applied recognition of these variations of the CHAMPAGNE DILUTION, AQHA will register the CHAMPAGNE DILUTION foals in accordance with the colors already recognized by the Association. For example, CHAMPAGNE on a SORREL base will be treated the same as CREAM on a SORREL base, which is referred to as a PALOMINO. The CHAMPAGNE DILUTION will be recognized on the certificate of registration with the statement under the markings area "CARRIES CHAMPAGNE DILUTION."

# INDEX

## **OTHER GENERAL INFORMATION**

If you plan to buy an unregistered foal or horse, it is best to ask a variety of questions first. Do you know if the color of the foal is accurate based on the parentage? If you have seen the parents and know their colors firsthand, do their colors and markings match those as listed on their certificates of registration? Oftentimes a buyer purchases a foal that is turning gray. The owner may not be aware that the gray parent is still listed as the original color before turning gray. This must be corrected before the foal can be registered. Or perhaps a gray foal has neither parent registered as gray, or perhaps neither parent is gray in actuality. In this case, the parentage is wrong and must be corrected if possible. In some instances, a foal cannot be registered if a questionable parentage cannot be resolved.

The conditions mentioned above hold true when buying a Quarter Horse that is already registered. Make sure the 'papers match the horse.' Does the color on the papers match the color of the horse in front of you? Do the markings on the certificate match those of the horse? Familiarize yourself with coat colors so that you know when a horse is registered a correct color. If the horse does not match the papers, a color correction would be necessary. This should be the responsibility of the current owner. There may be unseen problems with a horse for which the buyer would be responsible once the horse is transferred. There have been instances where an already-registered horse had the registration cancelled and 'papers pulled' because the horse in question could not genetically be from the parents as they were listed. If you are unsure, you are always free to contact AQHA to verify the color of a horse based on parentage.

## **WHAT IF MY FOAL IS BORN WITH A DORSAL STRIPE OR ZEBRA STRIPES ON THE LEGS OR STRIPES OVER THE WITHERS?**

Some foals are born with a dorsal stripe or markings on the legs which may initially be mistaken for those as dun. However, without a dun parent or parent known to produce dun foals (such as a gray that started out as a type of dun), we know the foal would not be a dun. Usually when the foals shed their first coat, the 'dun markings' are no longer visible. Sometimes these markings may actually be due to the 'smutty' or 'sooty' gene. Oftentimes these foals have darker areas on the back and withers which are mistaken for a true dorsal stripe and stripes over the withers.

## **WHAT IF, AFTER ALL THIS COLOR EXPLANATION, I STILL DON'T KNOW WHAT COLOR MY FOAL OR HORSE IS?**

Letting the foal shed its first coat is best when determining accurate color. Newborn foals and foals that have not yet shed almost always have coat colors that cannot be readily determined. We often have customers who send in applications considered 'late' or past the date seven months from the time the foal was born because they could not determine the color. The best policy is to send the application to AQHA anyway, leaving the color choice blank, and either choosing the color later or sending photographs after the foal has shed. If the application is sent before the seven-month deadline, the cost of registration is 'locked in' and will not go up even if the time it takes to determine the color of the foal goes past the seven months.

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## **BIBLIOGRAPHY**

Horse Genetics. Bowling, Ann T. CABI Publishing, New York, NY, 1996

Equine Color Genetics. Sponenberg, D. Phillip. Iowa State University Press, 1996

## **OTHER RESOURCES**

Various privately maintained Web sites found on the Internet which deal with the coat colors of horses, including the American Quarter Horse.

# COLOR *e* MARKINGS

## REFERENCE CHART

Following are examples of markings and 17 colors recognized by the American Quarter Horse Association. Notice that there may be extreme variations within a color category.



MARKINGS: Star, strip and snip. Left fore half pastern white. Right hind stocking. Left hind pastern white. (Note: This horse's flaxen tail is often found with the sorrel color.)

**Sorrel:** Body color reddish or copper-red; mane and tail usually same color as body, but may be flaxen; may have dorsal stripe.



MARKINGS: Blaze. White on lower lip and chin. Socks on fore feet. Left hind stocking.



MARKINGS: Star. Left hind half pastern white. Right hind sock.

**Black:** Body color true black without light areas; mane and tail black.



MARKINGS: Blaze. Socks on all feet.

**Bay:** Body color ranging from tan, through red, to reddish-brown; mane and tail black; black on lower legs; may have dorsal stripe.



MARKINGS: Left hind coronet white.



NO MARKINGS

**Brown:** Body color brown or black with light areas around muzzle, eyes, flank and inside upper legs; mane, tail and points black.



MARKINGS: Right fore pastern white



MARKINGS: Star and strip. (Note: Roaning is primarily on body while head and legs have remained dark.)

**Bay Roan:** More or less uniform mixture of white with red hairs on a large portion of the body; darker on head, usually red but can have a few black hairs in mixture; black mane and tail and black on lower legs.



NO MARKINGS. (Note: Head and lower legs have remained dark while roaning is primarily on body.)

**Red Roan:** More or less uniform mixture of white with red hairs on the body, but red on head and lower legs; red or flaxen mane and/or tail.



NO MARKINGS

**Red Dun:** A form of dun with body color yellowish or flesh colored, mane and tail are red or reddish, flaxen, white or mixed; has red or reddish dorsal stripe and usually red or reddish zebra stripes on legs and transverse stripe over withers.



MARKINGS: Star and strip. Left hind sock.



NO MARKINGS

**Palomino:** Body color a golden yellow; mane and tail white. Palominos typically do not have dorsal stripes.



MARKINGS: Left fore half pastern white. (An intermediate stage of the graying effect. This commonly would be called a dappled gray.)

**Gray:** Mixture of white with any other colored hairs; often born solid colored or almost solid colored and gets lighter with age as more white hairs appear; may have dorsal stripe.



NO MARKINGS: (A relatively young horse with the graying effect most predominant on its head - note that on roan horses head and lower legs remain dark though body is roaned.)



NO MARKINGS: (An advanced stage of the graying effect, often called flea bitten gray.)



MARKINGS: Right hind stocking. Dark spots on right hind coronet. (Note that in this horse, the gray characteristic is superimposed over a basic sorrel or chestnut color, making this a gray horse. It is a common characteristic of gray horses to have patches of concentrated white hair which are not objectionable providing there is dark skin underlying the patches.)



MARKINGS: Fore pasterns white. Right hind sock.

**Buckskin:** Body color yellowish or gold; mane and tail black; usually black on lower legs. Buckskins typically do not have dorsal stripes.



NO MARKINGS

**Cremello:** Body color white or light cream; mane and tail white; pink or pinkish skin over entire body; blue eyes.



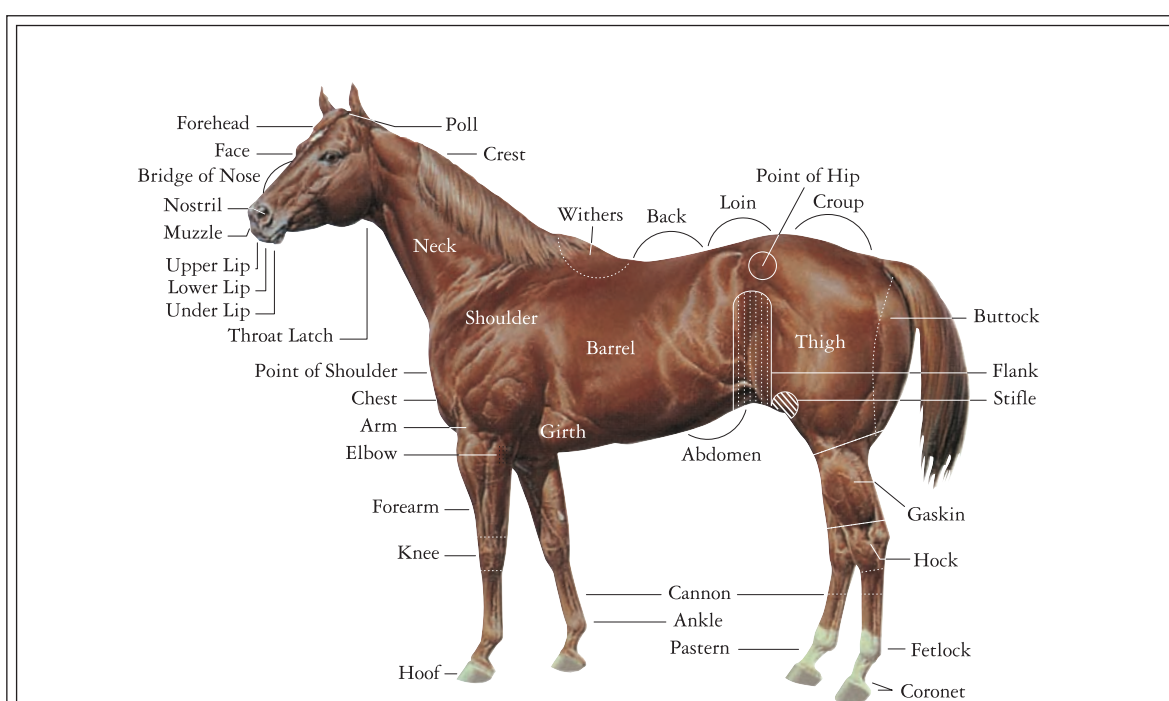
NO MARKINGS

**Perlino:** Body color white or light cream; mane and tail usually have a darker tint - pale copper or orange; pink or pinkish skin over entire body; blue eyes.



NO MARKINGS

**White:** Body color white; skin is pink; eyes are usually dark; small black spots may be found in the skin, but usually are not accompanied by colored hair. Some white horses may be variegated, meaning they have patches of colored hair, usually intermixed with white.



### RECOGNIZED COLORS

- These examples feature the 17 colors recognized by AQHA. Notice that there may be an extreme variation within a color category.
- The duns vary considerably because the dun characteristics (dorsal stripes, transverse stripes, tiger stripes on legs and yellow dilution of body hairs) may be superimposed over the basic color (red, black or brown). The horse's color will basically remain the same throughout his life, although there may be some seasonal variations.
- Often there is confusion between dun and buckskin horses. Both are yellow in body color and both may have black manes, tails and legs. A buckskin typically does not have a dorsal stripe and never has transverse stripes or tiger stripes.
- There can also be confusion between roan horses and horses with roan-like markings such as white hair scattered throughout the body, roan concentrations on the flanks, sides and between the fore legs, as well as white hair or white bands at the base of the tail commonly known as "coon tail." These horses should not be registered as roan but rather listing their base color (bay, sorrel, chestnut, etc.) with the white hair described on the certificate.
- The gray color factor can be superimposed over any basic body color. Therefore, not all gray horses will have a blue cast; some will have a tendency to be red, while others will have a tendency to look yellow. The common characteristics of gray horses are white hairs scattered over the head and body (often more prominent on the head in young horses). Each gray horse will vary in color throughout his lifetime, growing lighter with age. A horse may be dark brown or dark red at birth and have only a few white hairs on his head. With age, he will become a medium gray and finally a light gray which may appear to be white in an aged horse.
- A "throw back" is a horse which has a characteristic that neither of his parents had. Genetics have shown, however, that a throw back occurs only between those characteristics which are recessive. Therefore, a gray horse cannot be a throw back. Gray is a dominant characteristic, consequently a gray horse must have at least one gray parent. Another dominant characteristic is the black mane and tail along with black legs. Consequently, a horse with these characteristics (bay, brown, buckskin, black, etc.) will have at least one parent with a black mane, tail and lower legs. Only in very rare, specific instances would this not be true. A given stallion and mare may produce foals of several different colors (including some not indicated by either parent), but there are certain colors which two parents should not produce. Therefore, AQHA has a computerized program which evaluates the colors of the sire and dam to determine if the foal genetically can be the color listed on the registration application. Colors which are exceptions to the rules of genetics are then investigated to determine accurate color, and in most cases, it is determined that the wrong color was indicated for the foal, or the parents were registered with incorrect color. Either error must be corrected.

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