

BREEDING FOR COLOR



DILUTE WARMBLOOD STALLIONS *(from top)*

■ **CATAPULT:** 2006 imported Buckskin Swedish Warmblood stallion, approved SWANA. *(photo courtesy Christina Kirwan)*
www.superiorwarmblood.com

■ **BLUE EYED DREAM GF:** 2002 imported cremello German Warmblood stallion, approved AWR, branded ZFDP
(photo courtesy Jean Kaplan Thornton) www.palominowarmbloods.com

■ **LIMIT HURRY:** 2002 imported cremello Czech Warmblood stallion, approved RPSI *(photo courtesy Jeanette Knight)*
www.wolfrunfarm.com

By Gigha Steinman

AS A CHILD, WERE YOU ENAMORED WITH BARBIE'S PALOMINO, TONTO'S PINTO IN THE LONE RANGER, OR ROY ROGERS' PALOMINO TRIGGER? IF YOU DEVELOPED AN INTEREST IN THE ENGLISH RIDING DISCIPLINES, YOU THOUGHT YOU'D HAVE TO FOREGO COLORED HORSES BECAUSE MOST WARMBLOODS AND SPORT HORSES CAME IN PLAIN BROWN WRAPPERS? WELL, NOT ANY MORE!

Colors such as palomino, buckskin, and pinto are common in the stockhorse breeds such as Quarter Horses and Paints, but since most Warmblood and sport horse registries have registration regulations limiting or forbidding the use of Quarter Horse or Paint blood, a person might wonder how a true colored Warmblood or sport horse could even be a possibility.

Luckily for fans of 'colored' horses, there are some dedicated breeders who have worked hard to bring color to our world of sport. Breeders and buyers alike now have a variety of options beyond the common bays, grays and chestnuts, and the idea that you had to sacrifice quality for color is slowly being laid to rest. Understanding some of the basics of color genetics can make it easier to breed for the perfect color.

COLOR – A BACKGROUND

Samber (1976–2009) was arguably the most influential stallion in the history of pinto Warmbloods. He passed the 100-day-test in 1979 and was the first and only pinto stallion to be approved by the KWPN. It is very common to find Samber's name in the pedigrees of pinto Warmbloods today. Not only did Samber have a huge influence on pinto Warmbloods, but his influence extended beyond the Warmblood—he was also the maternal grandsire of Nico, the only pinto Friesian Sporthorse stallion to be approved for breeding in the U.S.

It is hard to know for certain when dilutes began appearing in Thoroughbred bloodlines because the Jockey Club didn't recognize these colors, therefore buckskins were registered as bays and palominos were registered as chestnuts. A Thoroughbred named Milkie (1966–1990) was believed to be the first palomino

stallion to be registered by the Jockey Club, although he was registered as chestnut because the Jockey Club didn't recognize palomino until 2004. Nearly all modern day dilute Thoroughbreds trace back to either Milkie or another palomino Thoroughbred stallion named Glitter Please (1982–2000) who also competed at FEI level dressage.

Dilute Warmbloods don't trace as clearly back to just one or two horses, and there are several currently standing at stud around the world.

COLOR BASICS

Palomino, buckskin, and cremello are commonly referred to as "dilutes." This coloring is connected to the cream dilution gene (represented in color genetics as Cr).

Pinto is commonly referred to as "tobiano," which is represented in color genetics as TO. People sometimes confuse the terms 'pinto' and 'Paint'. The term pinto refers only to the spotted tobiano coloring; it is not a breed. Paint on the other hand is recognized as a breed, developed from the Quarter Horse and is typically pinto colored. A horse may be pinto colored without having any Paint blood, and most pinto Warmbloods and Sport Horses will have little or no Paint blood because it is limited (or forbidden) by the majority of registries.

HETEROZYGOUS VS. HOMOZYGOUS

Cream (Cr) and tobiano (TO) both modify a horse's base color. A palomino is a chestnut horse which has inherited one cream dilution gene, and a buckskin is a bay horse which has inherited one cream dilution gene. A chestnut horse which inherits one tobiano gene will appear as a chestnut and white pinto, a black horse which inherits one tobiano gene will appear as a black and white pinto, etc.

A horse can also have two copies of the same color gene (one inherited from each parent). A horse with two copies of the same color gene is referred to as being homozygous for that color. A horse with two copies of the cream dilution gene will appear as a cremello, perlino, or smokey cream. A pinto with two copies of the tobiano gene will appear basically the same as a pinto with only one copy of the tobiano gene, so genetic testing must be done to determine if a pinto is homozygous or heterozygous. A pinto can only be homozygous if both parents were pintos.

Homozygosity can be an important consideration for someone breeding for a certain color preference, because it guarantees a foal will inherit at least one color gene. A homozygous pinto stallion will guarantee that all offspring will be pinto colored, whereas a heterozygous pinto stallion will only produce pinto offspring 50% of the time. A cremello stallion (homozygous for cream dilution) will guarantee the offspring will inherit the cream dilution gene, resulting in palomino, buckskin, or smoky black offspring (with smoky black being less common) when bred to a non-dilute mare. When bred to a dilute mare the offspring could be cremello, palomino, buckskin, perlino, smoky black, or smoky cream, depending on the base color of the parents.

As black is becoming increasingly popular, more people are also testing their black stallions and broodmares to see if they are homozygous or heterozygous black. A homozygous black horse cannot produce a chestnut foal, and is more likely to produce a black foal.

HOMOZYGOUS PINTO WARMBLOOD STALLIONS *(from top)*

■ **SEMPATICO:** 1999, imported black and white German Warmblood stallion, approved Oldenburg, RPSI, ZFDP *(photo by Lizard Graphics)*
www.silverwoodfarm.com

■ **PALLIDO BLU CF:** 2006 black and white Warmblood stallion, RPSI approved (conditional)
(photo courtesy Crestline Farm) www.crestlinefarm.com

■ **PRECIPITATION:** 2004, black and white Warmblood stallion *(photo by PIC Sweet Talk)*
www.sweettalkstables.com



COLOR TESTING

If someone is considering breeding and is curious about the color possibilities from their own horse, color testing is highly recommended. UC Davis and Animal Genetics Incorporated are two DNA testing facilities with color testing options. Testing will run about \$25–50 per test, with tests available for cream, tobiano, and Black Factor (also referred to as Red Factor and Agouti), as well as a variety of other color tests. Testing is simple and involves submitting a hair sample with roots attached. Knowing the color genetics of the sire and dam can help you more accurately predict the color of the foal, or to choose stallions more likely to give you the color foal you desire.

OTHER BREEDS, OTHER COLORS

There are obviously a myriad of horse colors which haven't been touched on. Some colors are more common in some breeds, and some colors are common in many breeds but rarely (if ever) occur in

Warmblood or Sport Horse breeds. It is also worth noting that not all Warmblood and Sport Horse registries recognize colors like palomino, buckskin, cremello, or pinto. For example, the AHHA (American Holsteiner Horse Association) considers pinto to be “unacceptable markings” for a Holsteiner. The IALHA (International Andalusian and Lusitano Horse Association) recognizes all solid colors, including the dilutes, but also does not recognize pinto. On the other hand, RPSI (Rheinland Pfalz-Saar International) recognizes the dilutes and pintos, and additionally has a special Palomino Stallion Book.

Anyone interested in breeding for a specific color may want to check with their preferred registry to see which colors are acceptable, and which breeds may be used to achieve these colors. Most importantly, a breeder should never sacrifice quality just for a pretty color. Luckily for breeders, there is an ever-increasing list of dilute and pinto colored Warmblood and Sport Horse stallions which are approved for breeding to choose from. 