

A friend of mine forwarded me this in an email and I thought it was very interesting

Five Fun Facts about the Color Chestnut Agouti By Ellyn Eddy

The study of coat color genetics has taken the rabbit world by a storm. Breeders remain extremely interested in this important subject. Not only do you need to know color genetics to be able to choose your breeding pairs wisely, but the study is fascinating in itself. Here five fun facts that you might not have heard before about an important rabbit color.

Fact 1. The color we call "chestnut agouti" is the original rabbit color. It shows the "normal" gene in every category. As you may notice, wild rabbits appear chestnut agouti.

Fact 2. Every other color results from a mutation of one of the genes that makes chestnut agouti. A mutation happens when some genetic information is lost in the process of transferring a gene from a parent to its offspring. As a result, almost all other colors are less dominant than chestnut agouti. If you breed a pure chestnut agouti to almost any other color, the resulting babies will be 100% chestnut agouti.

Fact 3. Chestnut agouti shows a beautiful blend of pigments. If you look at a chestnut, you'll see a brilliant blend of black and red pigments. The top of the rabbit looks brindled with the two colors, and if you blow into the coat, you'll see black and red/orange form concentric rings on the hair shaft. All recessive mutations of the chestnut genes limit this pattern, either by reducing the color intensity (so the black hairs would become blue or chocolate) or by preventing the two pigments from interacting properly. (For example, a solid black rabbit has the potential to produce red pigments, but it doesn't because the self pattern gene isn't giving the red pigment a place to show up.)

Fact 4. Chestnut shows the normal dominant gene in every main category. So a pure chestnut - one that didn't carry any other colors - would have the genotype **AA BB CC DD EE**. A rabbit that had the most recessive gene in every category - the genotype **aa bb cc dd ee** - would be albino. Another highly recessive color is lilac tortoise - the genotype **aa bb CC dd ee**.

Fact 5. There are a couple mutations that produce a color pattern that's actually more dominant than **AA BB CC DD EE**. These are in the "E" series, and the names of them are Steel and Dominant Black. The steel gene will cause the black pigment to over-produce, so it covers up some of the orange pigment in a chestnut, and only lets the light tips of the hairs show. You can see that illustrated in the picture below.