

## Rather Unusual Colours In Cardigan Corgis

By Ken Linacre

The article published in the CWCA 1980 Yearbook discussed the range of colours and colour patterns usually found in the Cardigan Corgi and the genetics of their inheritance. It produced an extensive correspondence with breeders in this country and overseas. From this it is clear that we have two other colours which occasionally occur in the Cardigan which we probably all consider to be undesirable. These colours are well known and recognised in several other breeds and the genetics of their inheritance in the dog is well established. They are separate and distinct from each other and all other colours and patterns, though they can and do interact with them. They are in no way connected with the 'odd' colours that can arise from the mating of blue merles with other than tris (with red or brindle points) and blue merles. These colours are the liver, and the uniform grey-blue or gun metal blue. Both are caused by the modification of black in the coat: in both cases this is due to a recessive gene, the matching dominant to which allows the black pigment to occur in its normal form.

The genes controlling the liver colour are designated as B and b. The dominant B allows the normal black to develop, b causes its modification to brown or liver. Dogs with Bb are carriers, but in appearance have the normal black hair which the genes in other groups allow (as discussed in the Yearbook article). In dogs with bb, the black colour in the coat is replaced by liver. Also the colour of the nose and eye rims is affected, they are brown, and the eyes are a light, rather yellow colour.

Examples of the inheritance of the liver colour

		Sire		
		BB	Bb	bb
Dam	BB	100% BB	50% BB + 50% Bb	100% Bb
	Bb	50% BB + 50% Bb	25% BB + 50% Bb + 25% bb	50% Bb + 50% bb
	bb	100% Bb	50% Bb + 50% bb	100% bb

BB = normal colour

Bb = shows normal colour (phenotype), but is carrier for liver colour (genotype)

bb = liver colour

I have a photo of a liver and tan Cardigan, with the tan markings placed as in a tri: he has the usual white paws and chest we would expect in a Cardigan, but that apart his markings and colour are as we might find in a Doberman. A brindle carrying bb presumably has liver stripes, and might appear to have a liver body colour, or appear as a red, depending on the amount of brindling that is present. Reds carrying bb are known; it is apparent from the nose and eye colour, and the coat colour is peculiarly clear in appearance, difficult to describe but quite different from a normal red coat. I have information on a puppy which was a uniform liver colour in the nest, but finished as a red, although the liver colour is detectable at the base of the coat hair.



Liver coloured (sable?) puppy

Although the liver colour (either as a full liver or as the nose/ eye colour in a red) occurs infrequently, there is reason to believe that the b gene is relatively common in the breed. It has been with us for a long time; I recently saw for sale a small watercolour, painted in the thirties of head studies of a Corgi and a Sealyham - the Corgi was clearly a Cardigan, but with a brown nose and yellow eyes, and rather hairy ears to boot.



Liver coloured tricolour puppy

The genes controlling the blue-grey colour are designated D and d. The inheritance is similar to that for B and b discussed above. Dogs with dd have the dull blue-grey in the coat where normally there would have been black: the nose and eye rims are a slate, grey colour and again the eyes are light.

We again see this colour in Dobermans, though it is less common than liver and tan, and it occurs in Griffons, where it is considered a disqualifying fault. This colour is not to be confused with the blue we find in the Kerry Blue and Yorkshire Terrier, which results from the fading of the coat with age. Puppies of this colour are born blue. The evidence suggests that the d gene is rather uncommon in our breed.



Blue-grey coloured puppy

Although The Kennel Club's breed standard admits any coat colour, animals of these colours would be unlikely to find acceptance in the ring because of their nose and eye colours. They are however likely to be perfectly healthy, if rather untypical. We should emphasise again that the carriers are quite normal and totally typical. However even when mated to BB or DD dogs, half their offspring are also carriers.

Although the occurrence of liver and blue dogs is infrequent, we perhaps should give them some thought. It is very easy for recessive characteristics to become established and widespread in a breed. If they do, and there is a high incidence of carriers, then one quarter of the offspring of carrier to carrier matings are likely to be affected. It is perhaps worth remembering that fluffy coats are also caused by a recessive gene, which is so widespread in our stock that a litter which does not contain a fluffy is usually an event for note and comment.

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**DNA tests are available for determining whether the dog is carrier of the liver (Bb) or grey dilute colour (Dd).**