

# The Meaning Of 'Brown Or Fawn With A Dark Eel Stripe And Black On The Legs' In The English Goat

Raymond Werner, September 2002

## Abstract

The English goat became extinct in domestication in the early 1950's. Twenty years later, however, Simm and Geoff Fowler of Ferrocrete Farm, Lancashire, devised a long-term project to back-breed the English goat by crossing pedigree, nondescript and feral goats that had at least one characteristic of the original breed. The type description of the original English breed was taken to be that of Holmes Pegler, as it appeared in his *The Book of the Goat* (1886). This description is somewhat vague in terms of colour patterns, and the purpose of this study is to consider what Pegler actually meant when he described the breed as being '*most often light or dark fawn, with a darker line along the back and black on the legs*'. The conclusion reached is that Pegler was most likely referring to Wild Patterning. Pegler's description has been adopted by the English Goat Breeders' Association (EGBA), which developed out of the English goat Movement inspired by Simm and Geoff Fowler, along with attempts to re-breed the English goat in Dulverton, Somerset, at roughly the same time. The following article was written at a time when some aspects of the inheritance of colour patterns were not clear to the present writer, although the main conclusions have since been confirmed.

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It has been stated that the EGBA English goat is usually shades of brown or fawn, with characteristic dark eel stripe along the back and dark markings on the legs. This is hardly surprising as the model for the Second English Goat Revival was Pegler's description of the English goat as it appeared in the second edition of his *The Book of the Goat*. This reads "*most often light or dark fawn, with a darker line along the back and black on the legs*".

But what, genetically, was the colour and patterning described by Pegler? The vital clue in answering this question is the presence of an eel stripe in conjunction with black on the legs. Five colour patterns, all in the agouti series, have a dark eel stripe and black on the legs. These are wild patterning or Bezoar, badger-face, grey and tan, light blue and blue. The last three are, of course, grey and not fawn, which leaves wild patterning and badger-face as possibilities.

The next issue is what did Pegler mean by light or dark fawn, and could the modern EGBA goat be either brown or fawn with the characteristic markings?

Colour in goats may be either phaeomelanin (described in goats as reddish-brown or yellowish-tan, which is, genetically, tan) or eumelanin (genetically black, chocolate or brown). The dictionary definition of tan is a yellowish-brown, and of fawn a light yellowish-brown, which fits very neatly with the fact that fawn is a shade on the tan continuum. Other colours that are in reality shades of tan are cream, beige (a pale sandy fawn), sandy (light yellowish-brown) and dun, which in horses is sandy or a sandy-grey. Red is, in fact, an extreme of tan, and white

is closely related to it, many heterozygous goats with the dominant white associated with the Saanen being a sandy (tan) roan. Red appears to be due to one or more pairs of recessive modifiers, which causes the yellow to turn red, and it is thought that the various shades of tan, varying from cream to a rich red, are due to modifiers (polygenes) at a different locus.

Brown, on the other hand, is most commonly associated with the colour of the Toggenburg, which is described as being dark drab or mouse, both meaning a dull light brown. The key here is dull or lacking in brightness, which contrasts markedly with the bright colouring of tan in its various forms. There is a dark and a light brown in goats, both dominant. Brown is found on the brown locus, and when present it overrides the wild (agouti) allele to replace all regions that would otherwise be black with brown. That is why we have the British Alpine (black) and Toggenburg (brown), both of which are colour variants of the Swiss patterning found in the agouti series. You will therefore discern that the interesting feature of brown in relation to eel-stripping is that it can replace the black eumelanin on any of the agouti locus patterns as well as both the dominant black allele at the extension locus and recessive black at the agouti locus. In other words, goat genetics tells us that it is not possible to have a black eel stripe on a brown goat. At best, the potential for a black eel stripe will end up being brown. This is logical, as both the non-grey colour patterns with an eel stripe- wild patterning and badger-face- are in fact phaeomelanin, and therefore tan.

Wild patterning is a tan goat with striped legs and a dark eel stripe, shoulder stripe and demarcation line between the body colour and white belly. Badger face is a tan goat with dark eel stripe, shoulders, lower jaw, underside to the neck, belly, underside to the tail and lower legs. Both colour patterns have distinctive head patterning. As Pegler mentioned black on the legs rather than black legs, the likely colour patterning he was referring to was wild patterning. This is supported by the fact that Daisy, the pure English milch goat that appeared on a colour plate as the front piece to his work, was a very good example of wild patterning. Although her body colour appears to be a dull brown, the plate does not do her bright tan colouring justice, as Pegler elsewhere describes her as being a peculiar mixture of orange and lemon, taken to mean a tan agouti.

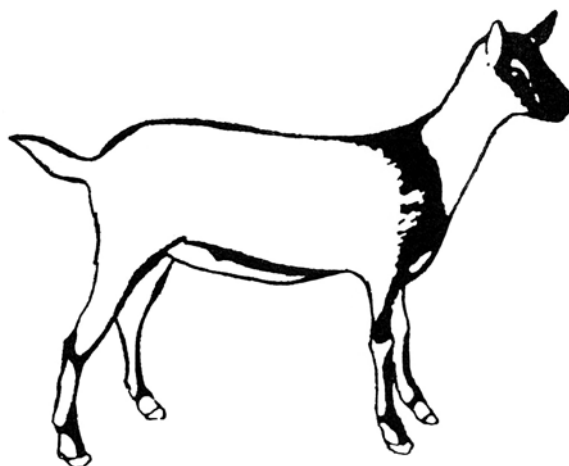
Assuming that wild patterning is the desired type for the breed, what kind of breeding programme is needed to fix the wild colour pattern? Research is somewhat contradictory, and there is even a difference of opinion as to whether the colour patterns in the agouti series, with the exception of red (top dominant) and uniform black (bottom recessive) are simple recessives/dominants or co dominant, although the present writer favours co-dominance from research carried out to date. Overall, however, it is likely that a white or uniformly red goat could have the allele for wild patterning, although it is not clear whether wild patterning is then dominant to all other colour patterns in the agouti series (grey and tan, grey, badger-face and light-badger face, light blue, blue, black and tan, red cheek and lateral stripes), or recessive to any grey with an eel stripe and dominant to the other colour patterns. It is assumed at this time, however, that grey would overlay tan. Both plain brown and the plain black of the Extension locus could carry the wild allele, although the black of the agouti locus cannot. This means that uniform black is no clue as to whether the goat carries the wild patterning allele. The general principle would therefore be to at least avoid black and badger face, and possibly also black goats with various patterns such as black and tan, if hoping for a wild patterning kid, whilst not ruling out the possibility of wild patterning in uniform tan (white to red).

Perhaps the most interesting finding, however, is that the general confusion over brown, fawn and tan may easily be clarified by whether or not the animal has a dark eel stripe and black on the legs. If it does, it cannot be brown and must be tan. Distinguishing black, brown, chocolate and tan has been notoriously difficult in the past, and due to black fading to greyish or washed out chocolate, chocolate likewise varying in intensity, brown varying in shade and tan likewise varying in its intensity due to modifiers. A perusal of photographs of EGBA goats would suggest that tan wild patterning is the norm with the occasional badger-face, and that brown, such as it exists and mainly in earlier animals, is due to British Toggenburg influence.

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### **Colour Pattern Chart:**

#### **Brown or fawn with a dark eel stripe and black on the legs**



### **Bezoar or Wild Patterning**

The coat is tan, the trim being the exact patterning of the Wild Goat. Black areas are: facial shading; rims to the ears; back and shoulder stripes; bottom edge of the neck. Males are darker, and the females may lack the chest and shoulder striping. White trim amounts to: face stripes from above the eyes to the nose; belly; perineum; insides to the legs. Leg stripes are a prominent feature. In this colour pattern, the body may dilute to white.