# THE EXPLANATION OF MOTTLED



## THE TWO DIFFERENT 'SHOW' BLACK MOTTLEDS IN EUROPE.

Chabo pullets of the same genotype with a different phenotype Holland: silent mottled, a white feather is a fault. They are hardly mottled at shows because.... whatever, matter of taste. I've heard 'otherwise they are too white later in life'. At age 4, 5 or later they'll look like the one on the right. Germany: loud mottled, a white feather is allowed, they are obviously mottled!!!1!... at their first show. The speed of whitening depends on the individual, some become more white others stay almost the same.

#### Mottled is a colour stop mutation

Mottled is completely independent of the overall melanin production (no greying with age therefore). The gene EDNRB2 with the mutation Arg332His-substitution, is responsible for the mottled phenotype. Chickens have a normal colour without this substitution, they have a functioning endothelin 3 - EDNRB2 signal. The mutation messes up the pigment cell differentation (red or black), proliferation (new pigment cells) and the migration (cell going to the location where pigment is given to the feather pulp) in EDNRB2.

#### How does mo work?

The mutation (what we call mottled) temporarily switches off melanin production at the start of feather growth. The pigment cells are just not there yet and need to be created and then migrate upwards to the ring in the bulb where they give pigment to the feather pulp. When the pigment cells are working properly again, black pigment is visible first, if black is present. This explains the dull black band after the mottle. This is followed by red, if present. In some chickens the expression of mo becomes stronger (louder) in others it remains almost the same after successive moults. See the explanation of this lower, read on...

### On the phenotypical differences of mottled chickens

What also plays a role is the speed of feather growth, think of the difference between cuckoo and barred. Slowergrowing feathers will have a smaller mottle than fast-growing feathers.

Age-related 'whitening', or the longer time that mottled is active, is therefore dependent of more. Not all mottled chickens get extreme mottles or become completely white.

## DEBUNKING Breeder`s latin

Mottled is in NOTHING the greying of hair as a human ages. If this was true, all chickens would become grey with age. Mottled is a gene.

Breeders' Latin = told by 'those who know it all' based on assumptions and constantly repeated so 'true'. Repetition does not make something 'true'. 'True' requires substantiation.

THE SIZE OF THE MOTTLE IS RELATED TO HOW LONG IT TAKES THE BODY TO RESTART PIGMENT CELL MIGRATION AND FUNCTION.

Because mottled is a disruption in pigment production, and an older body takes a bit longer to produce new (pigment) cells (think slower cancer metastasis in older people compared to younger people), starting up pigment in older chickens can take longer. This explains the difference in mottle size on the same chicken as the chicken ages.

So it also depends on the vitality of the chicken how long it takes for new pigment cells to be supplied. This is a totally different mechanism from 'greying with age' of hairs, as we do not start having white hair tips in the first place when a new hair grows.

The higher proportion of white/nocolour in mottled primarily has to do with gene expression. Through selection, mottled can be tuned, louder or quieter which can be seen in the equally young hens below.