The Pigeon Genetics Newsletter, News, Views & Comments.

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" The Dark Side"

Feather Colour, Pigment Darkeners,

"What we know ,

and what we don't know "

Traditionally we feel that we know about four different gene mutations that tend to act as darkening traits in combination with the three base colour pigments.
They are : Dirty factor (V) symbol for the Dutch name Vetkleur meaning Dirty.
Sooty (So) symbol with capitol S and lower case o to denote a dominant trait .
smoky (sy) symbol with lower case (sy) denoting a recessive .,
Spread (S) symbol, capitol letter to indicate a dominant.
Most all of you are perfectly aware of these terms and their symbols , and probably have samples of these traits in your loft now.

Dirty (V) -

We 'suspect' that the gene for Dirty factor 'MAY' have at least one allele. That is to say, that there may be another form of Dirty that we have yet to specifically identify that shares the same locus as (V). We do not know what it actually looks like or anything else about it , but if it does exist , that would explain some of the variations we see that, hither to now, have not been explained in any other way.

Dirty may darken the skin melanin , beaks and feet of all birds affected by it, and may darken feather colours , but does it have any specific effect on phaeomelanin (red pigment). This 'RED' pigment is seen

in Ash-Reds , recessive reds , and all of the bronze expressions. Dirty is said to be responsible for enriching those reds, but does it ?


Photo : **Gary *Keith***.

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Sooty (So) / sooty (so) -

Sooty (So) is another trait attributed as having darkening characteristics. It starts out with practically no expression except perhaps as little as just a slight dark line of pigment in the center mid-rib of most shield feathers. These get darker and spread outward into the feather-vanes either side of the mid-rib as the bird ages. The bird that started out as basically a normal blue bar may end up looking like a dark checker or t-pattern as an old bird. That is what we KNOW... but this is another mutation that may have an allele at the same locus. It has been given a symbol (so) with lower case letters as it is believed to be a recessive. {In this case it IS possible that they, (So) and (so) - may be the same trait} , with breeders just being confused by the wide range of expressions.

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SMOKY (sy) -

The mutation smoky is suspected to be another allele of Dirty, and was reported as such by the staff at the University of Arlington Texas Laboratory Studies of Genetics. Smoky is considered to be another darkener trait that does two different things. It lightens the beak, tarsus and toes (legs &feet), while darkening the feathers of the under-wings, the albescent feathers of the rump and the two outer albescent strips of the tail feathers. It also tends to cause the terminal tail band to be a wider 'light' gray, and both smooth and coarse spread areas to appear blurred and thus wider. This then is not an overall darkener. Below we have some smoky birds to compare :

David Scott.

Amzad Hosen .

Joe Linsangan - Anaheim California.

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Spread (S) -

Spread factor is the one we are all familiar with as we almost always have a 'black' pigeon in our lofts . Spread causes an otherwise blue self pattern series bird to look solid black in colour. brown self pattern series birds will appear as solid chocolate , and the exception is that spread ash birds that one would expect to be a dark brick Dominant Red colour will appear to be a light solid ashy gray colour. In each case the spread factor gene causes the smooth spread pigment granules of the tail band to express throughout all feathers of the entire pigeon. This effect gives rise to the term 'epistatic' which means that the trait masks or covers whatever may have otherwise expressed, with a few exceptions. The epistatic nature of traits such as Spread factor is not always complete and depends upon other factors to support it. The 'darkeners' that we are discussing are said to be the supporting factors.
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Let's take a look at "Brander" bronze. Most if not all branders appear to be Dirty factor. The young have very black feet in the nest. The beaks are also very dark. However the red is usually very dull brick red as opposed to a rich red colour. Recessive red (e) is used to enhance this red colouring. Kite bronze is also suspected to be a close partner of brander. Some suspect that they are one and the same bronze factor. They certainly are not alleles. Even with the help of recessive red , brander does not cover the smooth spread band on tail feathers or the ends of the flights.. Genomes for the photos below may not be 100% correct.

Brander Bronze : Brander almost almost always expresses Homo Dirty factor , and masks Sooty if it is hetero recessive red . Judging by the lack of albescent areas , smoky is involved also .

Photo - by Mick Bassett

Brander/Kite/ Dirty / het.(e)

Ahmed Rubel

Brander/ Kite / Dirty / het.(e) /Undergrizzle.

Nirob Hasan Dipu BFPZ.

Brander /Dirty/ smoky.

MM Rahman PBCBD.

Brander/Kite/ Dirty / Sooty.

Anis Pigeon Loft CP BD. Dirty/ Brander/ Sooty juvenile.

So where does this lead us in our quest for answers?

Firstly , I believe that many of the reports we read are from breeders who are making assumptions that are not fact. They are attributing certain factors as being the cause of one effect or another when in fact they are not. I do not think that Dirty factor plays a role in enhancing the rich red tone of Phaeomelanin of any sort. If anything , it dulls and darkens it to a plum tone. More study is required.

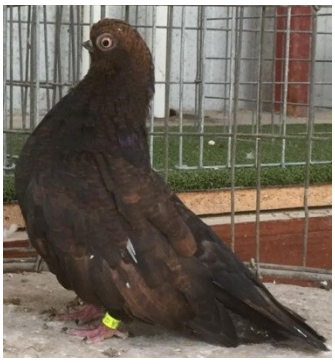
One situation where this may be clear is in the use of Saturated T-Pattern (Black kites) in the breeding of Classical Almond Phenotypes. These Saturated T-Pattern birds as we have stated in earlier Issues , have never been stripped down to show exactly what genes are responsible for making this saturation so much blacker than a normal saturated T-Pattern. Some people have stated that they have recreated this phenotype using homo Dirty, smoky and Sooty. Getting the wing shield saturated to the point that it appears solid black is one thing , but it is quite another thing to get the entire bird solid black , underbody included, without the use of spread factor of smooth spread.

Here are two Saturated T-Pattern blue series birds that lack the (unknown) traits that make the pseudo solid black phenotype. These are Kites as could be seen in the extended flights. They obviously are not smoky as we can clearly see albescence. Both are likely at least hetero Dirty factor.

Tom DeMunnik

Rob Grogan

below 'Black' Kites/Brander? (1) Walter Wozeinski, (2) Rob Grogan, (3) Michael Spadoni.



Note the expressions of bronze on these birds.

Hein Van Grouw wrote : Hi Bob,

A brief response to the letter of Tony Brancato regarding hybrids between Triangular Spotted Pigeons and domesticated pigeons. It must have been *Columba guinea* Tony had used for his crossing, and not as the editor suggested *Columba rupestris*. The latter is Hill pigeon, aka Eastern Rock Dove, and does not have any spots. This species is closely related to *Columba livia* and they hybridise easily with each other and the chicks grow up without trouble. {Ed. note., yes that was my error, I had recalled an ad by a breeder who was selling checkered birds with red eye ceres that he listed as C. rupestris, and it remained in my mind as correct .}

Charles Otis Whitman (1842-1910), professor of Zoology at the university of Chicago, had crossed Triangular Spotted Pigeons with Domesticated pigeons and described the hybrids (Posthumous works of Charles Otis Whitman (ed. O. Riddle)).
However, reliable reports of these hybrids reaching adulthood are rare and although the two species easily pair up and fertilized eggs are not a problem, their offspring hardly ever get older than a few weeks and die far before they are adult. I don't think there is a "death gene" involved as Tony suggested (the example of the Japanese Bantams is not applicable here; the dominant mutation for short limbs (Creeper) in chickens is a simple lethal in homozygous form, (just as Stipper in pigeons, for example).

The reason why the hybrid offspring does not survive may have something to do with the composition of crop milk I suspect. Hybrids between Wood pigeon *Columba palumbus* and domesticated pigeons are also very rare due to the difficulty to rear them to adulthood. Almost all hybrid squabs die, seemingly healthy, within two weeks of age. Only a very low percentage do grow up and then can live a long time. Reason why I think the crop milk may be (part of) the reason is as I've tried several times to rear pure Wood Pigeons under domesticated pigeons (Racing Homers). The Wood Pigeon eggs hatched under the Homers on the right day and the chicks never survived for longer than two weeks. Most of them died within a week. Other people I know who have tried had the same experience. However, under Ringneck Doves *Streptopelia risoria* Wood pigeons do grow up well. They can only rear one at the time though and after two weeks you have to hand rear them as by then they are too large for the foster parent, or you give them to larger foster parents. Young Wood Pigeons from about a week and a half, or older, grow up well under Domesticated Pigeons.
So, it seems that during the period they are fed with pigeon milk only they are missing something, and that may be the cause of them dying. It may be that the composition of the milk from both species is different. And even for hybrids who get the milk of both parent species, one of them, or both, may not be good enough and causing them to succumb. Although the Ringneck Dove is also domesticated, it seems that their crop milk is still more like that of 'wild pigeons'. At least Wood Pigeon babies do thrive well on it.

I'm interested to hear the thoughts and experiences of others.

Best wishes.
Hein .

Gene Hochlan sent the articles below on a Morning Dove mutation:

Subject: Ochre Mourning Dove History

In the mid 1960's a hunter in Texas shot an unusually colored Mourning Dove but only wounded it. He was familiar with a dove fancier in Fort Worth and contacted him about this bird who promptly picked it up. The fancier's name was **Dr. Oscar W. Haffke** (General Practitioner) and he nursed the dove back to health. This Mourning Dove was orange in color and had white wing spots and thus a radical departure from normal. He eventually found a male Mourning Dove that accepted the orange female as a mate. They produced several clutches of young and they were of two colors; wild type and smutty, near normal color with gray instead of black wing spots. All wild type young were females and the off colored ones were males. Unfortunately the good doctor was completely unfamiliar with Columbidae color genetics but he did keep track of the colors and sexes of the young birds from the original pair. As time went by the "intermediate" colored males, when mated to normal colored females, produced more of the orange colored birds but he did not notice that these were all females. When intermediate colored males mated to orange females and also produced brighter and lighter orange males he did not make a distinction.

Dr. Haffke hoarded this orange Mourning Dove mutation for over twenty years. A well known dove fancier, **Gerry Landry** of Louisiana, got wind of these doves and contacted him about sharing them but he would part with none of them. Gerry and I were acquainted and he shared this information with me. I phoned Dr. Haffke and we had a lengthy, pleasant chat about doves and the fact that he was originally from Omaha, Nebraska which is right across the Missouri River from Council Bluffs, Iowa where I lived. A couple of weeks went by and even though I did not ask for any of his mutation doves he sent me five in a small dog carrier through the USPS. This was before such birds could even be shipped through the postal service but they let them through anyway.
I was breeding from over twenty pairs of domestic Ringneck Doves, all in individual cages, so I fostered all of the Mourning Dove eggs under the Ringnecks and thus produced many, many birds. With **Dr. Haffke's** permission I named the mutation color Ochre and after three years I was sure of the inheritance involved and wrote up a mating chart. To breed the Mourning Doves I had both an Iowa State and U.S. Federal Permit. Shared these doves with a number of fanciers around the country but only a few remain and I have no knowledge about who has any left. Ochre inheritance can best be compared to Faded in pigeons.
Gene .

Genetics of the OCHRE Mourning Dove

In talking with **Gene Hochlan** and other breeders about this color, the terms or names widely used by most fanciers having this mutation are: ***Ochre*** (male & female) as referring to the pure OCHRE (red) color; the name ***Intermediate*** is used to describe the male (never females) which are important from a breeding standpoint of OCHRE. Gene did quite extensive genetic research on the OCHRE MOURNING DOVE and is most responsible for allowing fanciers around the US to obtain this beautiful color mutation.

The following is taken directly from Gene's handwritten letter: Even though the INTERMEDIATE Ochre cocks do not look as spectacular as do the HOMOZYGOUS Ochre cocks or even the Ochre hens they are just as valid and important from a breeding standpoint. Don't look at them as a cross between OCHRE and WILD TYPE

as though the two colors represented two different kinds of doves. The enclosed mating chart will show that an INTERMEDIATE (HETEROZYGOUS) cock has more value or genetic penetrance than does an OCHRE hen when the two are mated to WILD TYPE. See matings #4 & #5.

Note: When I say that a certain mating will produce ½ of this and ½ of that it is true – but remember that MOTHER NATURE does not work that neatly and it could take several years for HER to give you a precise 50/50 average – but eventually SHE will do it.

"OCHRE" COLOR MUTATION MOURNING DOVE

GENETIC INHERITANCE (SEX-LINKED DOMINANT)

March 3, 1987

Ochre Color Mating Chart

I. HOMOZYGOUS (Pure) OCHRE Cock X OCHRE Hen

All sons will be HOMOZYGOUS or PURE OCHRE

All daughters will be OCHRE

HOMOZYGOUS (Pure) OCHRE Cock X WILD TYPE Hen

All sons will be HETEROZYGOUS or INTERMEDIATE OCHRE

All daughters will be OCHRE

INTERMEDIATE (Heterozygous) OCHRE Cock X OCHRE Hen

½ of their sons will be HOMOZYGOUS or Pure OCHRE

½ of their sons will be HETEROZYGOUS or INTERMEDIATE OCHRE

½ of their daughters will be OCHRE

½ of their daughters will be WILD TYPE

IV. INTERMEDIATE (Heterozygous) OCHRE Cock X WILD TYPE Hen

½ of their sons will be HETEROZYGOUS or INTERMEDIATE OCHRE

½ of their sons will be WILD TYPE

½ of their daughters will be OCHRE

½ of their daughters will be WILD TYPE

WILD TYPE Cock X OCHRE Hen

All sons will be HETEROZYGOUS or INTERMEDIATE OCHRE

All daughters will be WILD TYPE

NOTE: ALL WILD TYPE youngsters from these mating are just as Normal wild type as the ones you see in your backyard. If you DON'T SEE OCHRE; you DON'T HAVE OCHRE. Only cocks can be INTERMEDIATE (Heterozygous) OCHRE, never hens. Hens are either OCHRE or WILD TYPE.

"OCHRE" COLOR MUTATION DESCRIPTION

HOMOZYGOUS (Pure) OCHRE Cocks:

Color is yellow-orange (earth-tone) with the normally black wing spots bleached to PURE WHITE. Primary and secondary flight feathers are bleached to SILVERY WHITE as are the tail feathers except for the center 3 or 4.

OCHRE Hens:

Color is yellow-orange (earth-tone), usually a shade darker then the homozygous (pure) Ochre cocks, with the normally black wing spots bleached to LIGHT GRAY. Primary and secondary flight feathers are bleached to SILVERY GRAY as are the tail feathers except for the center 3 or 4.

HETEROZYGOUS (Intermediate) OCHRE Cocks:

The color of these cocks is extremely interesting because they are exactly intermediate between OCHRE and WILD TYPE. They are very easy to differentiate from OCHRE hens and Homozygous (pure) OCHRE cocks and, of course, from WILD TYPE.

NOTE: Homozygous OCHRE cocks and OCHRE hens look almost identical in the juvenile plumage but can be readily sexed as adults once you know what to look for.

Photo from an old TFH Book by **Dr. Jean Delacour**. The Wild type Mourning Dove common in the U.S.A and Canada.

Gene sent the original slides of this Mutation to **Dr. Willard .F. Hollander** , and he in turn sent them to the Oklahoma Pigeon Museum. I contacted them to ask if they could send a copy to us here at PGNV&C and the lady told me she would have considerable searching to do but would do her best to find the slides . If I get something I can use , I will place it in a future Issue.

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Issam Maatougui wrote :

Hi Bob, I got it as a Gift, I have a new roller with an interesting color l, wanted to confirm with you if this is Indigo please.

My reply : There is no way I can confirm this is Indigo . The photo is similar to Indigo checker , but it could be due to a number of other traits . What were the parents?

Issam states: I was able only the see the father which is identical to this one, I guess I need to cross it to a black to confirm if it's Indigo, right?

I reply here: Mating it to a spread blue /Black would give a percentage of Andalusians IF this is in fact an Indigo yes.

Indigo blue checker **Ryan Harvey** .

Recessive opal blue checker **Octavian Sarafolean**.

A rubella blue checker (allele of reduced), Racer bred and presented by **Ly Steven** of Wisconsin U.S.A. This bird is being trained to race up to at least 300 miles to match a cousin who placed in such a distance.

Another example of how a bronzing of the coarse spread 'C' areas of a blue checker can resemble other traits such as Indigo. There are slight differences among these of course, and additional modifiers can also play a role in making them more or less similar.

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That is about it for the month of June 2021 , half way through another year with most of the World being held hostage by a microscopic virus that has and continues to kill an unbelievable number of people worldwide. At time of writing , India alone has reported 300,000 deaths attributed directly to this people virus.   Ironically we could be completely FREE of this scourge IF we all would work together to stop spreading it. Masks DO help stop all viruses that are spread from person to person. They can ONLY do that if they are worn over the mouth and nose , NOT under one's nose or chin! Staying at home and avoiding contact with a wide exposure to the public at large is a major factor to stemming the spread. Governments should have shut down Country to Country air travel right from the start.

So here we are, and we must deal with it the best way we know how . It seems that it is not the only major NEW change expected in our sheltered lives. On or before the 25th. of this Month of June., the U.S.A. Government promises to reveal details about what until now was treated like a big joke related to 'little green men' ! The topic will be UFO's or UAP's , unidentified flying Objects or Aerial phenomena . They NOW admit that they are real , and that they have no explanation for their size, frequency, extreme high speeds, extreme manoeuvrability, or where they come from and why they are here. They appear to target American high security military sites and various no fly zones. There appears to be no conventional mode of compulsion and no means of communication. While Russia and China are considered as a possiblility , the actual videos available taken by Air force pilots suggests something NOT of this World!

June 25th. may finally offer us some answers , and hopefully not just more areas of doubt.

Take care pigeon Friends , see you again in July!
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