

The Pigeon Genetics Newsletter, News, Views & Comments.
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This Month our topic is "SOOTY FACTOR" , a good reason to take a second look !

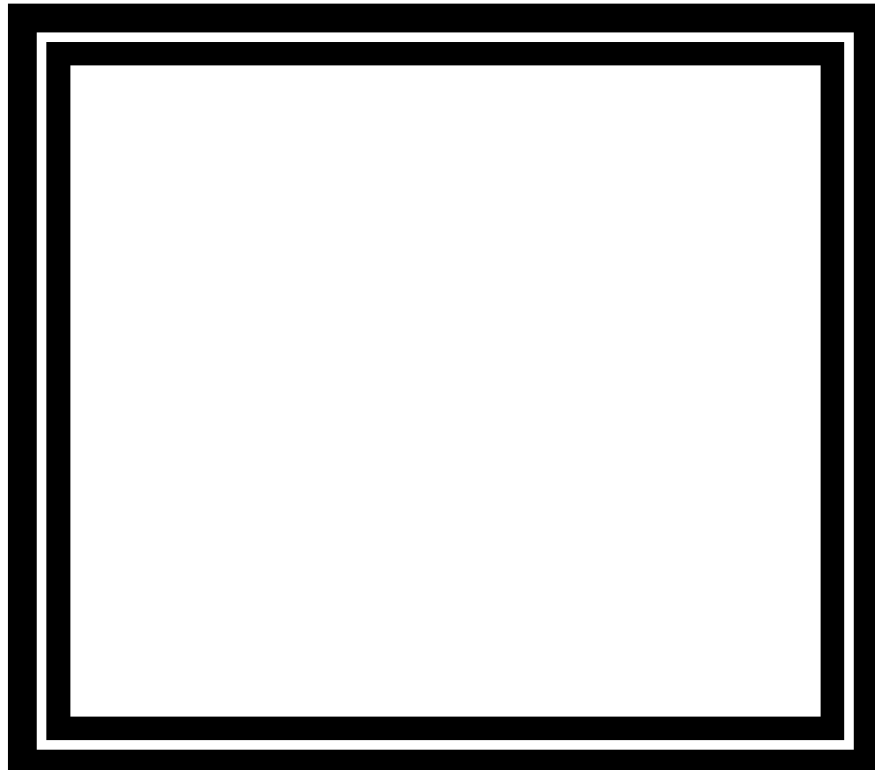


Photo - Ryan Ward, Nova Scotia Canada.

This issue we will examine some Sooty specimens to demonstrate just why we think this is smooth spread and give you a clear understanding based upon our observations. Needless to say this will have to be eventually examined at the molecular level under a microscope in a Lab to confirm.

We decided to deal with this trait that offers us a challenge as we do not know the full story yet about just what causes this mutation's phenotypes. The trait is commonly known as "SOOTY" factor with the symbol (So) to denote dominance to wild type. The gene is an autosomal. It sometimes is confused with Checker pattern , smoky factor, and perhaps with its close cousin recessive sooty (so), yes there seems to be two distinct types. It is not yet clear if it IS indeed a separate gene or just a phenotypical variation of the dominant trait that sometimes does not express well enough to allow us to recognize that it is indeed present until the birds moult in their new feathers.



Photos compliments of - (Adam Archer Pigeons) Australia.

The common thought all along has been that this is the same pigment as the pattern series which is **coarse spread** , but as we have pointed out in earlier writings , we believe that there is sufficient 'visual' evidence to suggest that it is not coarse spread pigment. We believe that it is **smooth spread** pigment granules that are deposited at the rachis of each shield feather and radiate outward becoming more pronounced with age. There is a possibility that it could be an entirely different form of spread pigment , but that seems less plausible .

Below a bird Adam got , the Breeder said it had a Sooty blue bar sire and blue bar dam. It appears to actually be a T-pattern smoky that is also homo Dirty , blue pied showing the progression of closing in the Pattern . Sooty does not progress this quickly over the first moult , so I suspect only T-pattern . Note that the new findings on the allelism of smoky & Dirty would mean this bird cannot be both in the homozygous state, but it appears to be. Photos by Adam Archer (Australia).



Below some lighter expressions from Adam Archer- Australia. and Shoibal Sabbir - Bangladesh.



Below two light pattern birds : (1) light checker by **Mahabub Alam Rifat** - India, (2) third bar by **Mitul's Loft** - Comilla Bangladesh. These patterns are sometimes confused with Sooty factor.



Below - by Adam Archer : labeled as Indigo Sooty.



Below non-Sooty for comparison: (1) smoky Encyclopedia of Birds , the Net ., (2) Indigo dun bar **Vicki Colpits** New Brunswick Canada .



Here are photos by - Bob Rodgers. showing sire and son of the Sooty trait :



The trait is most easily recognized on a barred or even barless bird where there are little or no coarse spread factor patterns involved other than the bars. The clumped pigmented shield areas are covered with very slight dark spots that may range from just a hair line dark feather shaft to rather large coloured spot in the center most portion of each shield feather usually extending toward the feather tip and often in a diamond - like shape. Spread factor and good recessive red colouring will mask Sooty more completely than they will mask coarse spread patterns.



recessive sooty (so) Lahore - Jith Peter - India.



Sooty Blue Barless - **Nsr Pigeon Loft** ,
Bangladesh.

Note on the barless Lahore, that even though the coarse spread bar pattern is absent , the Sooty marks still are expressing, but in other traits where de-pigmentation of the coarse spread takes place the Sooty may only express as a lacing at the ends of the pattern feathers.

Something interesting is the fact that normally on a patterned bird, the eumelanin does not allow us to see a bronze trait UNLESS the base eumelanin pigment is de-pigmented by some other modifier thus exposing the bronze.

This is the characteristic that first alerted us to question what type of pigment granules we were observing on a Sooty factor bird that never expressed any 'bronze' trait. Other modifiers ;however, do express over Sooty that do not always express on coarse spread, such as frill stencil.

Lal Band Ghagra X Racer f2 - Saffron (Saf) Sooty (So) barred . Jith Peter - India. Sooty marks matching black Tail band not Red Bars, notice you can see some bronzing basally in shield feathers also.



A similar looking trait but with milky factor by - **Khan Pigeons** Bangladesh.



Ash-RED phaeomelamin specimens present us with some rather stark contradictions to our idea of Sooty being concentrated Smooth Spread.

(1) We know that the tail band and flights of the ash-Red always appear as some shade of ASH, rather than brick-red of the pattern "C" series. The smooth spread of the tail band in particular, is often even lighter ash than the clumped smooth spread found on the wing shields etc., which is different from that which we see in the eumelanin, so what can we learn from this conundrum?

(2) We know that ash-Red phaeomelanin is rod shaped as opposed to spherical eumelanin.

(3) We know that it must therefore be deposited into the feather structure differently than eumelanin, and the structure of shield feathers is different than the feathers of the Tail and flights..

(4) We know that the light reflects differently from this pigment and thus we normally see an ash tone as opposed to brick-red.

(5) We also know that Ash is always much darker at the quills than it is throughout the rest of the feather vanes.

(6) We know that Sooty always darkens / expands with age. We suspect that ash red pigment is deposited differently in shield feathers affected by Sooty. We therefore believe that these facts combined together may explain how the Sooty marks on an Ash-Red bird can be RED as opposed to the whitened Smooth spread of the tail band, yet still actually be smooth spread and not coarse spread pigment. It may be that the red/phaeomelanin of bronze does **work with** the red / phaeomelanin of ash when Sooty expresses in the shield areas only, to redden the Sooty marks.

(7) One last possible characteristic may have to do with the actual SIZE of the pigment granules. Smooth spread pigment is actually the larger of the two spread pigments. Coarse spread is smaller / finer in texture. Their names seem to contradict that, as they are named for the manner in which they are laid down or deposited in the feather structures. Smooth spread is evenly deposited, fitting smoothly together. Coarse spread is rather coarsely piled one atop the other in its distribution.

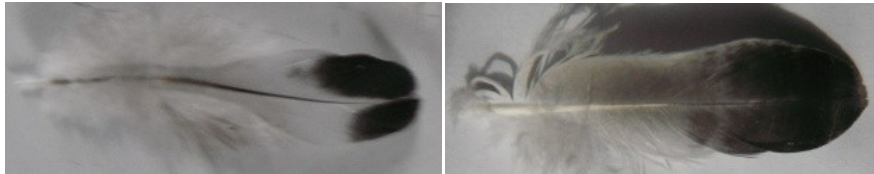


Dappled Ash-Reds: (1) ASRacer **Stephen Walsh** - Australia, (2) Photo **Layne Gardner** - USA.

The common names given to Sooty marked barred birds are: Sooty Blue bar, Dappled Ash-Red bar., Sooty brown bar., Sooty silver bar., Sooty cream bar., and Sooty Khaki bar. Spread factor Sooty

Ash-Reds may express varying amounts of a red lacing or a blemished appearance and are called 'Strawberry'. This again demonstrates that a bronze may play a role in the Red Sooty marks.

Sooty added to checker pattern fills in the lighter center of each feather that normally has only the pattern dark edges to each shield feather so that the entire feather is then coloured. These then usually resemble a dark checker pattern but lack the Tic or "T" at the tip. Below is a check pattern feather of coarse spread on either side, Sooty would fill in the light 'V' between them but when feathers are overlapping other dark feathers they would show a whitish lacing.



Check

Sooty check.



Photo - **Md Lahore** - India , Sooty brown Bar.

If Sooty is present, and then certain modifiers that de-pigment are added , we start to see the main reasons for our contention that Sooty is condensed smooth spread, but there are unexplained variations such as ash-Red and variable frill stencil expressions.

You will recall that I mentioned last issue that Robert Mangile asked me how did my point compare with an example he gave of a bird that was expressing small whitened spots over the shield of a Toy Stencil blue bar. This bird was clearly not a spangle (checkered pattern) Toy stencil. However I asked him if he had ever seen the same effect in the hetero state. (Red spots over the blue wing).

I think everyone will realize that there has never been such a bird posted on Facebook or anywhere else, but that does not mean it may not exist out there somewhere. The bird seemed to be expressing 'frill stencil ' as opposed to Toy stencil , but it did not have flight and tail band frill stencil de-pigmentation , so certainly looked like a contradiction to our premise.

There are a number of modifiers that de-pigment the coarse spread areas and leave behind either a whitened effect or a bronze expression, and also whiten the tail band slightly, such as Indigos , Dominant Opals rubellas etc. Sooty on these birds in the blue and brown series will follow the normal tail band colour despite the fact that the above modifiers tend to bleach out the tail band. We think that the Sooty marks are probably still affected basally but do not express the bleaching so that just the darkened ends are visible. Below are some examples :

OPAL : Now we can look at some traits that DO de-pigment condensed smooth spread such as Dominant Opal . Dominant Opal does not completely de-pigment the flights and tail band , and we think the same applies to the Sooty marks. They are still somewhat visible but mainly as dark feather shafts and tips. The de-pigmented base of the sooty marks tend to be hidden and /or blend in with the clumped smooth spread de-pigmented areas. Sometimes a slight bronze will express basally, but not on the Sooty .



Photo : Ryan Ward , Nova Scotia Canada.

BRANDER : Let's look at some other examples. Bronze never expresses on the condensed smooth spread areas of the flight tips and tail bands. However it does express on coarse spread pattern pigment. That also initially led us to our view that there was something to look at here. Even Brander bronze will allow us to see Sooty factor marks on the shields along with the usual smooth spread flight and tail band areas if hetero recessive red is not present to help mask the Sooty..



Photo - **Pigeons Farm** - Khulna Bangladesh.

TOY STENCIL : does not express on anything except coarse spread and thus we never see it in either of its bronze forms on the condensed smooth spread areas . The finch marks are probably linked to the frosted neck feathers and require more study.. Photos: (1) **Mohd G. Kibria** Chittagong India. (2)Unknown note black bar edging & (3) **Mick Bassett** - Germany.



FRILL STENCIL will indeed express (albeit in a wide variety of expressions) , on condensed smooth spread flight ends and the tail band as well as on Sooty marks. It 'may' have to have Toy stencil full complex in order to affect Sooty. It also seems to affect all feathers basally more and more depending upon both Toy Stencil and other modifiers . Photo by **Imran Haider** - Pakistan.



RUBELLA : We have seen (last issue) how rubella blue checker reveals any bronze that is expressed with coarse spread. It also de-pigments the condensed smooth spread of the Tail band , and the clumped smooth spread of the inner vanes of the flights. When Sooty is involved the center most portion of each shield feather will be at least partially de-pigmented . Below is an ash-Red bar bird that is expressing Sooty that "MAY" also be Rubella as its sire carried the trait. Breeder **Porumbei Colorati** - Bucharest Romania , was not certain. The bird appears to be smoky , but he did not know of any carried smoky in the genome.



CLASSICAL & PRINT GRIZZLE: The homozygous Classical Grizzle factor also tends to give way to Sooty marks in the juvenile . This is the same effect that happens to the flights and tail bands . Here we can see this effect in a blue series bird with a bronze trait also.

(Photo (1) - (Charles Kendrix) U.S.A.

A hetero (G) Sooty (2) Kumir A. Anna Justovi- BD.



Here you can see that 'grizzle' depigments most all of the base blue/black while leaving the Sooty marks and tail band intact along with traces of bronze.

Below is another Grizzle that is not Sooty and we see that ONLY the bronze pigment has been left.



Photo by **Lumir A. Anna Justovi** - Bangladesh .

Baby Sooty factor pigeons in the Intense phase tend to be very hairy with thick long down hair.



Photo - Bob R. NS Canada .



Sooty blue Pied youngster - **Ryan Ward** Nova Scotia Canada.

We look forward to your thoughts on the Topic and what we postulate may be happening genetically to give us the Sooty phenotypes. In closing for this Month we bring you another rather unique Phenotype to ponder : Post by "Pigeon" shared by Robert Wayne on my "Unnamed Unique Genetic Pigeon Traits " Facebook.



Adam Archer commented that it was a Chinese Breed possibly by the name of 'Yubei'

That is it until the First of June when we hopefully will be set FREE ! All the Best !