

The Pigeon Genetics Newsletter News, Views, and Comments

(Founded by Dr. Willard .F. Hollander).

Editor R.J. Rodgers Nova Scotia Canada.

Co-Editor: Jith Peter Palakkad India

(Where beginners and Pros work together for the good of genetics)

October 2017 Issue

Topic (Dark Eye)

Hi Bob & Jith-

I have a Portuguese Tumbler hen from 2016 that has a lot of good characteristics pertaining to the standard except for one thing . She was hatched in January of 2016 and until I mated her up in January 2017, she continued to have the dark eyes similar to a young pigeon out of the nest. Anything but the pearl (fisheye/white and false pearl eye is a serious fault in this Breed and can't win in shows.

Somewhere around May and June of this year I noticed that her eye had lightened . I raised five ash-red young from her . They all have the dark eye. They are also decent Ports. I would like to keep one of her young and possibly her but I am not sure about the eye. If I keep them and raise a bunch of young from them, am I headed for trouble ?Have you ever come across this before? The parentage is unknown as I lost the info on her but nothing had dark eyes before that .The eye in the picture looks lighter than in the loft with the naked eye. I have attached three pictures . Two (4702, 4703) are of the mother who is in moult and the third (4678) is from one of this year's young that is six or seven months old.

Stephen Scott ~ NewBrunswick Canada .

If any of our Members have any information on this topic , please drop us a note so we can include it next Issue . First photo top right 4702.



4703



4678



~~~~~

This is not the same as the "Dark Eye" trait known in Breeds such as the Arabian Trumpeter.

# TOPIC ( Undergrizzle / Flash grizzle ) maybe not grizzles .

We are often asked about "Undergrizzle " and " Flash grizzle". Breeders want to know more about these traits and if they are the same gene or alleles of one of the other grizzles etc. There has **not** been a great deal of study done on these traits . Paul Gibson first presented the most comprehensive report on Undergrizzle (Ug) and in that he stated that he did not believe that it was actually a "grizzle" factor at all , but rather a distinct gene mutation unto itself. It is a partial dominant autosomal gene. There is no correlation between Undergrizzle and Pied factor. Undergrizzle is not an allele of Tiger grizzle. Undergrizzle may be part of the trait "Print Grizzle" , which is a Classical Grizzle that is also undergrizzle and often may also be pied factor with a bronze factor. Those also expressing bronze are referred to as Tortoiseshells .

Below a pure Undergrizzle , Breeder Jith Peter



Lynn Krall first reported on "flash grizzle" and Paul tested it to agree with her that it was a recessive trait and he then made the distinction that undergrizzles have tail feathers with a white mid-rib about half way to the tips, but flash grizzles have coloured mid-ribs almost all the way down each feather.

This Indian Fantail by Garry Glissmeyer demonstrates it in a Tail Mark .



Paul was also able to prove a separate genetic distinction between the "Storked-tail ( homozygous Classical Grizzle ) and Flash grizzle tail-marks showing that Storked birds do not have the colour in the cushion as seen on Flash grizzle Tailmarks . Below photo from Mick Basset collection- (G) Storked



~~~~~  
Paul later was able to breed birds that were both undergrizzle and flash grizzle.

~~~~~  
The trait "Drizzle" produces a rather similar flight and tail feather anomaly to that of Undergrizzle .



## Topic ( Use of symbols )

The use of symbols is a handy tool to avoid having to type out in long hand the total genome of each bird when you want to let people know what traits should be involved. A symbol is like an abbreviation , or use of several accepted letters to mean a certain trait. For example wild type is generally abbreviated as (B) ., or (+) . Dominant Opal is written as (Od) while recessive opal is given as (o)., small (o) denotes recessive.

When we know all of the genetic traits that make up a certain Phenotype ( what the bird looks like ), we can use the symbols . If there is a trait involved that we do not know or are not certain about we can simply use (?). So let's take a couple of birds and give the symbols to describe their genotype.

The idea is to give as much information as possible that is known about the genetic make-up from both parents based upon Dominant , partial Dominant and recessive traits that are both seen , and known to be carried hidden.

These are quite simple , a Bald head , dilute pure ash-red , T-pattern cock , and a Tiger grizzle baldhead spread blue/black , both Dominant white flighted.



Pi//Bh, d//d , Ba//Ba, C^T//C^T, Wf//Wf.~Bob R.



Pi//Bh , S//+ , G^T//+, C^T//?, Wf//Wf, ~ Bob

Then a Pure ash bar white flight, and a blue Chk, possibly het bar , full complex Ts Swallow Design.



Ba//Ba, Pi//wft, c//c. ~ Bob R.



B//? , C//? Ts1//Ts1,Ts2//Ts2, ts3//ts3,(spangle)  
Pi//Sw. photo : Mick Basset.



## Topic ( Various expressions of Dominant Opal). (Od)

The main effect of Opal (Od) is to diminish the overall intensity of all feathers that are affected by smooth spread. Then the coarse spread areas are lightened even more to often appear as near white but may have various amounts of residual bronze. The extreme variation depends primarily on the other MODIFIERS that may also be inherited. They can be Dirty factor (V) , smoky factor (sy), milky factor (my) , of course dilution (d)., etc. The following are some examples . Bred by Octavian Sarafolean.



These photos demonstrate a variance in overall tone as well as bronzing in the bars and whitening of the inner vanes of the flight feathers and the tail band color.

Basal and quill whitening may resemble (Ug) , undergrizzle in some, and may be .

Dirty Factor seems to account for the overall darker tones in some .

Dirty factor is purported to also darken bronze in some cases but I am not prepared to say that is the case here.

We know that variance is typical , but we have no actual data to say why.

Below are a few more of Octavian's birds plus some other examples.





More examples of Dominant Opal . This is a combination of Dominant Opal , Spread blue , and checker pattern Note how similar it is to some reduced spread blues hiding checker pattern. Photo Australian NPA Facebook Group , MD MeDZ fsl.



Opal Baldhead Canadian Show Rollers by Bob Rodgers.



Dam of the cock in the next photo at the top left of the next page .

~~~~~




Full brother to previous bird, Opal T-Pattern blue ~ Bob R.

Below : Complete TS complex for comparison.~ Levi photo.



Dom. Opal (Od) Black - Ryan Ward Breeder.

The (Od) trait is Dominant but variable. It is possible that using birds that are virtually free of modifiers such as Dirty and Kite bronze may help you a great deal. The overall desired lightening affect "may" be enhanced in Pied birds as opposed to either Self Patterned non-pied, or Solid whole coloured birds, as the white seems to contribute to a lighter basal area to each feather and thus assists the effects of Opal. Toy Stencil prevents the overall lightening effect of Opal but enhances the whitening of the "C" areas. Ts1 would add to the bronze. Non-Opal offspring of the breeding program are retained to be bred back to Opals of the same family. The reason behind this is probably that they would be free from any unwanted factors which would otherwise potentially alter the preferred colouration set by the standard. There would be no other value as the (Od) gene is not carried hidden.

Selection , no doubt plays a key role in fixing good (Od) expressions . We are aware of the normally lethal trait , so mating Opal to Opal is not advised.

Obviously the more "course spread " the greater the Opal effect , since Opal has its biggest effect on the wing shield pattern (C) areas as mentioned above ., as well as the smooth spread tail band. Therefore Checkers and T-Patterns give the most attractive spangled and laced effects .

~~~~~

## Topic (Spread Ash, "laced" )



This is a typical Spread ash hen that is pure for the ash base colouration. She can be either hetero or pure for the spread factor but there is no way to know unless we know her parents. In this case she is hetero for spread as only her sire was spread . Her dam was a barred bird , and the sire's pattern can be guessed as T-pattern. Note that there is a blush of red that probably is kite bronze instead of actual Dominant Red pigment, and shadows create an illusion of a light lacing that in life was not present. Above photo ~ Bob R.

( This should not be called "lavender" as it is incorrectly identified by some.)

When other Modifying factors are in play , we start to see changes in the amount of red affecting the center feather and (Sooty) added to a Barred Pattern creates a phenotype that has been named "**Dapple**". Sooty factor is also thought to be one such gene that enhances lacing. Dirty factor is thought by some to bring about a darker red to any bronze as well as an overall dusky gray tone. This tarnished effect is referred to as "**Strawberry**", but the term "**Laced**" is used when there is a more distinct edging to each feather particularly on the shields..

Here are some examples of **Dappled** and **Strawberry** birds for a pictorial comparison , followed by a distinct spread ash "**laced**" ash red.



"**Dappled**" Ash Red bar by Stephen Walsh Australian NPA Facebook Group. and below a Spread ash "**Strawberry**" from Levi's Breeds.



Spread Ash-red "**Laced**". Mick Basset photo.



## Topic ( How many "grizzle" genes are there in Pigeon genetics?)



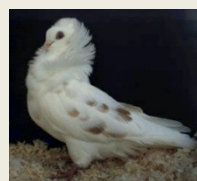
Photo : Omar Blw Danube Pigeons Dino David. (Gorgeous GB Homer).

**Tiger grizzle (G<sup>A</sup>T) "1"** was thought by Hollander to have been the original "grizzle" mutation . It is a Dominant autosomal that has basically two different phenotypes . One for the heterozygous state (impure , one parent grizzle) , and another phenotype for the Homozygous state when both parents contributed the gene. Note : Most shows with colour classes only recognize the hetero form (Mottle) that expresses less white and lacks white in the flights and tail . Examples :

Heterozygous (G<sup>A</sup>T) , Homozygous (G<sup>A</sup>T).

(Mottles)

(Tigers)



Mick Bassett photos. mottles &

Tigers Bob R.,

Tiger grizzle may have a vast array of off shoot phenotypes that through repeated selective breeding , have been developed into specific traits with a Breed related characteristic. There are many examples : **The Timisora Tumbler "2"** is an example below. Only the Hetero is shown.



Michael Spadoni Breeder.

The Timisora ( Ttg) and the Polish Butterfly Tumbler share a very similar Tiger grizzle trait and resulting phenotype . The Polish tend to have more colour on the head and face and more white on the underbody shown below :

**Warsaw Butterfly "3"**,



Red Warsaw Butterfly by Ozay Ozzy Melbourne Club Facebook.

**Danish Tiger grizzle (Dtg) "4"** has a coloured head as opposed to white , Levi's Encyclopedia of Pigeon Breeds.



(Note : Pictures doubled = no homozygous state for show purposes).



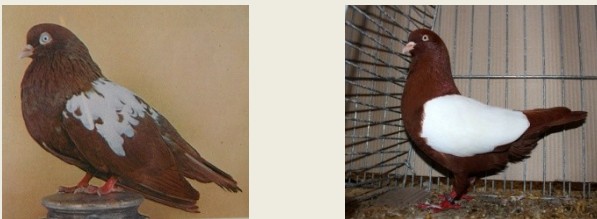
**The black white side "5"** is thought to be a type of Tiger grizzle expression. Often white expresses in the head area and is seen in the fledging youngsters . Plucking is often needed to produce a white sides show specimen.



Photos by Mick Basset.

The red white side however may not involve a grizzle gene but rather an enabler gene when combined with recessive red .

**The recessive red whiteside** may be black , brown or ash base pigment but **not masking spread** . Careful selection and avoidance in mating pure whitesides together helps to ensure against the white travelling beyond the shield area.



Mottle wing hetero Ws//+ , Levi and Photo by Mick Basset. (Ws//Ws ) pure whiteside . ( May not be a type of grizzle trait at all).

~~~~~

Closely akin to whiteside is a suspected allele referred to as the Red Head **Tschinnie "6"**.

The **red Krasnador** Highflier is another unique example of a recessive red that moults to nearly all white with a red underbody. (not shown).

There are a number of sub- forms all based upon recessive red that are born solid red and then progressively show more white. Some appear to "wash out" to mainly white . Axel Sell lists this trait as **"Washing Out"trait"7"** . Details on these can

be found in Axels Book "Pigeon Genetics "Applied Genetics in the Domestic Pigeon.



Recessive red Classical Grizzle (G) similar to the washing out trait. Mick Basset photo.

Paul Gibson lists **Grizzle whites "8"** , These grizzle Whites usually start from a few white feathers in the squeaker stage then increase over several moults to near all white (GW)

~~~~~



Above is a feral hen in my study flock that underwent a change to mottle wing , she had a dark tail band and appears to be dilute unimproved recessive red. No grizzle involved.



Levi Photo.

"Agate" ( recessive red that is bred from a Stipper/ Almond , T-pattern, Kite Bronze, recessive red combination). No spread or grizzle is involved .



Vicki Colpits Breeder.

It is thought that **Classical Grizzle "9"** mutated from Tiger grizzle as a partial Dominant allele. An Allele is an alternate choice at that same locus (spot) on the chromosome. You can get one or the other , but not a combination . A Co-dominant would be a visible mix of the two , so these traits are not co-dominants as some state. They are alleles and as such have completely different phenotypes and genetic make-up. Undergrizzle can cause the Tiger to express in a similar manner as Classical (G), so mistakes in identification are often made .

There seems to be both a dark and a light / slight version of the Classical Grizzle trait , so symbols of (G) and (G<sup>^</sup>Lt)or (GS) have been assigned . Classical Grizzles also have different hetero (impure expressions ) referred to as salt & pepper , than the Homozygous (pure expressions) referred to as Stork or storked.. Examples :

Hetero Spread (G) "pepper head", Spread factor suppresses Classical Grizzle and usually the only white flecking is seen on the head region as pictured above , top right .



Mick Basset photo.

Heterozygous (G) Bar , Homozygous (G) Bar

"Salt & Pepper " & " storked",



Pr. by Gulf Farm.



(G<sup>^</sup>S) "10" Barry Croes



Mick Basset photo.



Photo Anwarul Kab ir.

**The Frillback Pigeon "11"** is usually also a Classical Grizzle , but may have a slight difference in that there does not appear to be a "stork "marked version in the specimens that are pure for the Grizzle trait, although some breeders have produced such young..





Ranjith Balram photo .

**Print Grizzle "12"** is thought to be a variation of Classical Grizzle that involves several other modifiers to create a different phenotype but requires considerable more study. **Undergrizzle "13"** seems to play a key role as well as "Tippler bronze", and most often a pied factor. Print grizzle is most often found in flocks of Tiplers and other Highflyer Breeds around the world. Repeated selective breeding and in-breeding have created some specific FIXED phenotypes, that while still recognized as Print Grizzles, deviate from the original standard phenotype. Examples :



pure form Print - Zia Rehman Pigeons.

Below a T=pattern and Barred blue series Print Grizzle lacking any bronze and an ash-red T-pattern Print. , photos by Shoibal Sabbir.



Undergrizzle tends to give way to pigment reversion with age, while Tippler bronze is thought by some to whiten. The lack of any evident bronze in many Print Grizzle specimens may explain their dark colouration.



Above are variations in markings by Ahona Pigeon Farm Jhenidah and Sarblove Karm Sarbjeet Singh .

Pseudo (Tail mark, and Breast Pigeon traits) .



Portuguese Tumbler  
Light Print  
blue/Tippler bronze  
,Cameron Graham,  
Canada

Cameron Graham from 2012 CPFA Calendar.



Photos by Mick Basset.Black & Brander Tiger Mottles.

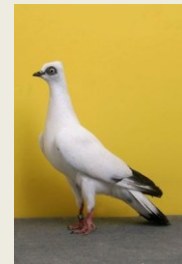
Undergrizzle and pied may also be involved, to create a phenotype referred to as "Tortoiseshell". Breeders tend not to make any differential between the bronze Tiger and the Print Grizzle with bronze, and refer to them both as "Torts". This may be the same trait combination known as a "Savoyard", "14" in the Portuguese Tumbler and the French Highflier of that name. An almost identical phenotype to the bronze Tiger can result from a Classical Grizzle T-pattern that is brander or Tippler bronze. Here we may see "mixed" colour feathers as opposed to separate white and coloured, but when classical Grizzle is applied to either T-pattern or spread, a mottled head, neck and shield is often expressed. The difference will be seen mainly in the flights and tail. Print Grizzles will show the grizzling in the flights and tail feathers, whereas Tigers will not. An exception would be if Undergrizzle or **flash grizzle**, "15" were also involved in the Tiger phenotype but T-Pattern resists Classical Grizzle (G) even in the flights and tail, thus they may resemble Tiger grizzles.



This photo by : Stephen Walsh, permission Michael Spadoni Shelbourne Pigeon Society Inc. Est. 1913, facebook Group..



Tortoiseshell by Anwarul Kabir. Bangladesh.



Levi photo "STORK" the Breed, and Marlo Reishus "STORKED" the pure state of Classical Grizzle. (G). Australian NPA FB Group.

The four small photos at the Frontispiece of page one are as follows: (1) Opal Spread blue - Ryan Ward, (2) Multiple Albescent tail feathers New trait - Bob Rodgers, (3) Homozygous Undergrizzle Blue T-pattern - Jith Peter, and (4) Spread blue/black frill stencil - Shoibal Sabbir.

(More on Undergrizzle next Issue ).

That is it from the Pigeon Loft for another Month, when we will visit and revisit more of your Genetic activities. Special thanks to those who contributed topics and photos for this Issue. ~ Bob & Jith.



Classic Grizzle T-Pattern blue (Tortoiseshell) Portuguese Tumbler from CPFA Calendar 2012 by Jerry Wennerchuk.

So in summary, there are in all, approximately 15 different types of the "grizzle" trait, as well as a number of similar or look-alike traits.