

# The Pigeon Genetics Newsletter, News, Views & Comments. The Pigeon Genetics Newsletter, News, Views & Comments.

(Founded by Dr. Willard .F. Hollander)

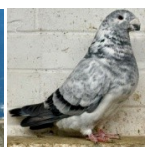
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This Month's Topic : " **Grizzle , Sizzle, Schmizzle**" ~ another look at this modifying locus.

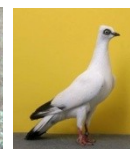
Classical Grizzle (G).



Print Grizzle .



Tiger grizzle (G^T).



{The three alleles above are presented with the Heterozygous and Homozygous state, young and adults}

Breeders: Josef Franz, Hans Hergert., Kamal Pigeon Loft., Irfan Ahmed., Andy Hess., Khalifa Lalit Khan Pigeons., Bob R. , Marlo Reishus., Shoibal Sabbir., Ranjith Balam., and two by Himanshu Katyal,

Why do we have such a tough time deciding what 'grizzle' gene is affecting some of our Breeds ? I think the main reason is that the alleles at the Grizzle locus have been crossed together so much that we often have specimens that are carrying an allele and thus showing some of its effects along with the phenotype of the dominant gene. This is further complicated by the fact that there are several "grizzle - like" genes that can also be involved. The two main ones are Undergrizzle (Ug) , and Flash . They both whiten the flights and tail feathers in a similar way as classical Grizzle (G). So, we have to look carefully for other telltale signs in the phenotypes to determine exactly what we have in hand.



This nice Classical Grizzle Indian Fantail has more whitening in the tail feathers than it normally would with just heterozygous (G)., so we have to assume that another trait such as Undergrizzle is also expressing. Photo : **Harvey Addengast**.

Let's take "TIGER grizzle (G<sup>Δ</sup>T)" first : Photo - Khalifa Lalit Khan Pigeons.



If Tiger plus wild type, G<sup>Δ</sup>T//+ X +//+ are mated, 50% of offspring will be heterozygous Tiger grizzle and all of these will be blue bar wild type base in the nest but will also have the outer edges of the feathers on their heads, necks, and wing shields laced variably in white. The back half of the birds will be normal including the flight and tail feathers. After the first moult, any of the laced feathers will grow in pure white to create a "MOTTLE" effect. This may increase after the second moult but unlikely any more after that. Normally the easiest way to determine if a bird is a Tiger grizzle is to check to see if there is even one single feather that has both colour and white together on it, if so it is not a Tiger grizzle bird. Below are some ideal examples of typical Tiger grizzle going thru moult changes.



Above photos : Tery Lovelace.,

Riyaz Pathan,

Jony Shaik,

**Note: (1) youngsters, (2) dark check pattern, (3) may have a pied gene.**

Tiger is a Dominant autosomal gene so in the homozygous state the second dose of the gene whitens the offspring even more, so that a true "TIGER" phenotype emerges. However the flight and tail feathers

usually remain completely coloured. (If the bird has a pied gene then white feathers will show up in areas typical for that specific pied gene and that may include flight and/or tail feathers as well as underbody feathers).

Here are some examples: It is almost impossible to find photos of true Tiger grizzle "blue barred" birds as very few people breed them. The black mottle is far more attractive, so spread factor is almost always used with Tiger grizzle. The following are all Blue Barred pattern.



**Peter Isztin** - Giant Homer.

**Hagenn Marc**

**Martin Majid**

Those examples immediately above are based on wild type, so there are no influences of colour modifiers or Pattern alleles to wild type. We will get into that as we go on here.

Patterns refer to the variation particularly on the shield that changes how we see the colour expressions on the wing shields, barless, Barred, Checkered, and the many variations extending those patterns to dark checker, T-checker, and saturated T-Pattern. There are even light and medium checker versions. All of these change the effect of the grizzle gene. Usually the darker the bird the less effect of a grizzle gene. This applies to the dark check patterns and spread factor. However that effect is more noticeable on Classical grizzles than it is on the Mottled and Tigered expressions on Print and Tiger grizzles.

**The next photos all appear as if they may be "Tiger grizzles" and most breeders would say they are Tigers, however there are a few differences to be considered. You will notice that all have rather solid coloured underbodies, and coloured throat 'chuck' markings. These traits are different than the typical heterozygous Tiger grizzles talked about earlier and they are also different than the somewhat similar Print Grizzles pictured with them below. One factor that may be involved with some is a Pied gene. Another may be a variation of the Tiger gene as seen in the Timisora Tumbler and Butterfly Tumbler. Both are Tiger grizzle but with slight variation differences through selection.**

**So let's have a look at such specimens:** Tests of DNA may be required to determine if these phenotypes reveal a combination of both Tiger and Print. I have seen Classical Grizzles with the same solid underbody and throat chuck, so they may have been Classical (G) plus Print Grizzle. These are things that we need breeders to take careful note of as they breed the various grizzle traits. YOU could be the one to finally crack the case of which gene is which and exactly how they affect wild type. I realize that it costs a great deal more now to do these tests but if you are breeding please keep notes.





Mohammad Al Quafi spread factor., The next photo was posted by three different Breeders :  
Norbert Christi., Hans Burgsalier., and Miroslav Radovanovic. (Spread factor)



**Rajendra Kumar Kumar**



**Johir Johir.,**



**Kyle Sampson**



**Prasad Pamadath**



**Hagenn Marc.,**



**Rajendra Kumar Kumar.,**



**(Print) Sam Shah.,**



**(Timisora) - Michael Spadoni.**



**(Butterfly) - المحب طيور**

{ Editor Bob R.-- I may not be totally correct with some of the captions for photos as I have pointed out , it is not easy to tell the genetics just from photos. I do think that everything herein is correct!}

Below -Typical Heterozygous ( one gene dose ) - two Tiger grizzles (G<sup>A</sup>T)., Print Grizzle Dark pattern.,



Jose Luiz de Oliveira.,



Burhan Kardesler



Pedro JP Bento

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**Now let's take a closer look at the mutation "Classical Grizzle (G) :** This is a partial dominant gene and in the heterozygous state is called a "salt & pepper" phenotype. The reason is that the birds right from newly feathered out youngsters to adults of all ages will present as if they have salt sprinkled all over the wild type base. Only the condensed smooth spread of the tail band and flight feather ends, etc. are not affected by the gene so that they remain dark coloured. In the homozygous state , the double dose of the Grizzle gene whitens everything except some condensed smooth spread on the entire bird so that a stork marking look-a-like is produced and is referred to as "Storked". Below are examples of both:



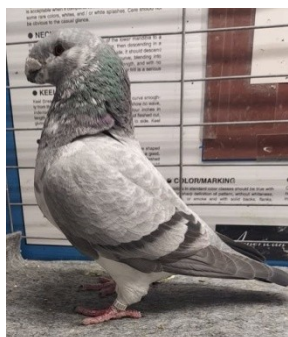
Breeder: **Peter Isztin.**



**T-Pattern & Barred Classical (G) - Golam Rabby BD** and **Storked Classical (G) Bob R.**

The Classical Grizzle birds seldom if ever have any bronze in their phenotypes. There may be a genetic reason for that. Kite does not print on Condensed Smooth spread and is rarely put into Classical (G) breeding programs. Brander is rarely if ever combined with Classical (G).

**Heterozygous (G)**



**Stanley Stammer**

**Homozygous (G)**



**Barry Croes**

**Homozygous (G)**



**Bob Rodgers**

Brander Bronze has hidden whitening genes and we get a variety of opinions on just what each causes in the overall phenotypes of that particular bronze trait. The Breeds that are flown in the middle east are often Brander bronze but of course have different names. The Print Grizzle is also very often the most commonly seen of the grizzle locus alleles. It is no surprise that the two frequently are bred together. Kite bronze is said to be almost always partnered with Brander, in fact it would be rather difficult to separate the two. Some breeders say that when the young grizzles are born showing **Kite bronze** in the nest, it moults out and is replaced by more white. **Brander** however, apparently does not.

**Next, we have the controversial "PRINT" Grizzle :** For many years it has been considered to be just a Classical Grizzle pigeon that also had pied factors and a bronze gene. That appears to be partially correct but the allele Classical Grizzle in my experience is NOT involved. If you combine any pied gene or genes plus a bronze gene such as Kite with Classical (G), you do not get a Print Grizzle. Also the homozygous state of the Print Grizzle presents in the nest as a white bird with much darker flights and tail feathers than a pure Classical Grizzle stork youngster. Let's take a closer look to see what I mean:



Beautiful Pair of Heterozygous 'Print Grizzles' by : **Shahairar Sifat Mohammad.**



Hetero Print - **Amit Gautam Khan Pigeons.**



Homo Print - **Sameer Ali Khan Pigeons.**



Repon Pigeon Loft -het Print.



Safiquil Islam Rubel - homo print.



Photo Mick Bassett-homo print.

One key point to note is that in both the hetero and Homo state, there is naturally more colour left in the flights and tails of a Print Grizzle than there is to be seen in either a hetero or homo Classical Grizzle. Usually the head and neck are also much darker and it is less likely that pure white feathers will show in these areas such as they do in the Classics. A dark chuck is also common in Prints.



**Nadim Bappy B Pankhi.**



**Rabiul Islam**



**MD Hossain - Sooty & non-Sooty Bar homo Print.,**



**Kabtar Baz Daud Khel - Sooty homo print.,**



**Wasim Raza homo Print with tail & chuck .**



**Zia Rahman - homo Print selected for white.**

When a bronze is added to Classical Grizzle, I am not aware of it creating a tortoiseshell phenotype with or without Pied factor(s). However if a bronze is added to a Print Grizzle it does in fact create a tortoiseshell phenotype. Here are some examples:



This bicolour with white of the grizzle gene and /or a pied trait creates the "Tortoiseshell" phenotype.

It is also commonly seen in English Short Face Tumblers using either Kite and/or Brander bronze.

**Fahad Al Sajib**



**Kamal Hossain**



**Kamal Hossain**



**AZ Unique Lofts.**



**Bobin Vai Loft - Brander Print. Kite Print Tort - Anwarul Kabir. Brander Print Tort - Eddie Carlson.**

**The last one looks like Tiger but check closely at the secondaries for slight grizzling on colour.**

**The very dark flights and Tail to me eliminates Classical Grizzle (G).**



The birds in this photo are grizzles , but they seem to be an interesting blend of the three alleles. We know that that is not genetically possible as there would have to be one dominant gene expressing with possibly one other recessive to it *expressing* partially. We hear a great deal about CO-Dominants. I have some difficulty with the way this term is applied. Theoretically it means that the two genes that are visible share an equal dominance, with one not having more influence than the other. These two birds would have to be seen 'in hand' as well as a look at their ancestors to be certain. **(Sadam Sadam Muhammad Hasan )**

Most of us know the traits Undergrizzle (Ug) and Flash. Flash to my knowledge has no official symbol, it is a recessive - tested by **Lynn Krall** U.S.A.

Neither of these traits are alleles at the grizzle locus ( **Dr. P. Gibson**). There seems to also be several additional gene mutations that resemble what we know as Undergrizzle. Let's have a look: The first three are a bird bred by **Jith Peter** of Kerala India and are typical of a normal heterozygous Undergrizzle young bird with a pied factor. Birds with pied factor already have a somewhat whiter basal depigmentation and this is enhanced by hetero or homo (Ug).



When **Jith** and I worked on the Lal Band Ghagra genome , we discovered another trait was carried that closely resembles the Undergrizzle gene but is seen mainly in the Flights and is much more extensive in the flights in the heterozygous state than is normal, so that it is very noticeable even with closed wings.



Normal Ghagra Male



Normal Lal Band female.



Lal female hetero grizzle flight & tail.

Undergrizzle birds darken considerably after the first moult so that the whitening becomes minimal.





A normal recessive red bred by **Jith Peter** that shows what some may think is undergrizzle (Ug)., but it is just the natural basal whitening of the red phaeomelanin pigment in the feathers. This bird happens to also have the "moult to white" gene, so it changed dramatically to a pied marked red & white bird.

**Flash** is another whitening gene that effects the feathers basally. It is a recessive and is most noticeable in the Tail feathers . Shown here in this young Indian Fantail bred by **Garry Glissmeyer**.



**Garry Glissmeyer**

It differs from Undergrizzle in that it expresses the colour further down the rachis ( quill ) as well as the ends and outer edges of the tail feathers whereas Undergrizzle will have the white extend well up the feather quill and only partly down the outside edges of each feather. The two can appear on the same bird as they are not alleles.



When introducing a grizzle factor you must consider that it will affect the whole bird, but you will see its grizzle effects ONLY on the coloured portions of the feathers. That is why early breeders thought that a grizzle would help by causing more 'white Break' in Sprinkles and Almonds. Here are a few examples: **(1)** Normal Ts & Frill Stencil spread blue/Black - **Ayoub Bouhaja**. **(2)** Grizzle Frill Stencil Spread Blue/Black - **Jens Stinner, Youngster** , **(3) & (4)** adults also with grizzle - **Jens Stinner**..



This issue I looked through all of my Facebook Groups and some of those that I had been asked to join, to find photos that best demonstrated the information that we are presenting for educational purposes keeping in mind that this Newsletter is totally non-profit. I did not seek approval for the use of most of the photos as that is extremely time consuming and difficult to do as many people either stop their chat or email addresses etc., and are no longer available or active in pigeons. We sincerely hope everyone will be pleased to see their birds as they are presented. We certainly appreciate the help! If anyone does not approve of me using their birds , then please drop us a note to say so and we will abide by your wishes in the future.

That's it from the Pigeon Loft , see you all March 1 with - {"*Tipler-Tossing pigeons of Bangladesh and their Racing Seasons*" by **Sabbir Hossain** (Shoibal)}