The Pigeon Genetics Newsletter, News, Views & Comments.

(Founded by Dr. Willard .F. Hollander)

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This year we will revisit many of the **old Topics**, but with **New approaches** that we think will give you a better understanding of what the **TERMS** actually mean, and how the **GENES** function as each mutation changes **wild type** to create new **phenotypes.**

We start the New Year attempting to finally establish a complete understanding about certain colour traits / modifiers of the three base pigments in any given Breed. There has been a great deal of talk about just what a "KITE" is. We have talked about it previously! Any bird that expresses Kite Bronze is indeed a KITE. However we have no need to specifically state that fact in many cases. Almost all recessive reds have at least one bronze in order to enhance their red pigment, but we simply call them

recessive reds. Brander bronze birds if indeed they are specifically a different bronze, are believed to also be Kite bronze, but again we do not emphasize that, and simply say Brander. All Almond phenotypes express a bronze in order to qualify as an Almond. We do not state that they are kites , but we know that the bronze most likely is Kite. The Pattern series in all three base pigments MAY also have Kite Bronze expressing. Some people think that none except the Saturated T-Pattern should be considered to be a Kite. This is false and while T-pattern birds may have Kite bronze expressing , not all saturated T-Pattern birds are Kites.

Below are two blue series barred pattern birds affected by the Stipple gene and referred to as 'Sprinkles'.

Kleurpostduiven Kloosterhaar.

Maida Fudo Cefo Slight bronze is not Kite

Note that wild type blue bar is still the base pigment, only now there are white breaks throughout giving a somewhat 'tigered' phenotype. This is the 'stipple' mutation at the stipple locus. ALL mutations at this locus are considered to be "Stippers".

Here is an ash-Red bar stipper that is also heterozygous for Blue/black, that has the Stipple gene linked to the blue /black base pigment.

Steve Shaw - Ash-Red bar with Stipper linked to blue.

T-Pattern frill Stencil, hetero St., het kite **Shoibal Sabbir**.

Blue bar hetero Stipple , hetero kite, by **Perdo J. Bento** .

T-pattern Blue Hetero Kite no recessive red, Sire & daughter - Bob R.

Some Breeders mistakenly believe that these common Stippers are a different stipple mutation than all of the other "Classical Almonds" and 'Multi-colour' almonds , but they are NOT !

Jijo Thomas - Black Sprinkle .

The Sprinkle starts out quite white and "REVERTS" back to Base pigment as it ages. Below are some examples showing the Reversion. Note there is NO bronze involved so these are not Almonds but they are still "Stippers" at the same stipple locus . Most of the spread factor alleles express a similar effect.

Quido Valent

Walter Woszeinski

Gokhan Demir

Below is an ash-Red Sprinkle , A dilute brown (Khaki) Sprinkle hen, an intense phase Chocolate (Spread factor) sprinkle ., and a Blue stipper het. brown , St linked to the brown..

Jijo Thomas

Fabio Zambon

Mohammad Al Qafi Homo Print Grizzle possibly Pied, and **Himanshu Katyal** - Tiger grizzle. Both are (Sprinkle look alikes) but have nothing to do with the Stipple gene or that locus..

Anee Skeikh blue sprinkle, with a hetero unknown bronze.

The Stipple gene that caused the Blue Pattern Series and spread factor blue black birds to be 'Sprinkles" may be the true original expression of Stipper. The Almond, which is just a man made phenotype, is often mistaken as a "GENE" in itself , which it is not! It is made up of a series of added "COMPONENTS" that also have been enhanced by the addition of a number of "COLOUR MODIFIERS".

These Components are mistakenly called Sub-Varieties of Almond , which of course they are not , but that has been passed on down through generations in error. **We** have also used the term that way in previous Issues.

The **COMPONENTS** of the Almond phenotype are : (1) The Stipple gene, (2) Saturated T-Pattern (preferably blue/black series)., (3) heterozygous (one dose of) recessive red., (4) Homozygous (two doses of Kite bronze). These are NOT sub-Varieties of Almond even when they are produced by an Almond parent or even both parents. They stand alone independent of the Stipple gene and do not carry that gene! They are simply added to create the desired almond phenotypes.

The **modifiers** are : Basically unknown -- It is suspected that (1) Dirty factor is added to enhance both the (Black pigment) of the Saturated T-Pattern , and the Phaeomelanin (red pigments). Other modifiers such as dilution, as in the case of the so-called 'Golden Dun' may be present , but is of no benefit to the Almond phenotype in either the hetero or homo state. Those 'Golden Duns' are actually dilute Saturated T-Pattern birds with Kite bronze. They may cause too much lightening of the so-called ground.

Mick Bassett Photo smoky checker

Walter Woszeinski Breeder, dark checker

Mick Bassett Photo. Light T-pattern.

Plv Lofts Classic Almond T-Pattern.

We mentioned one dose of recessive red .. There are two expressions of recessive red used in creating Classical Almonds . One is solid red that does not mask Spread factor , the other is a Mottle wing recessive red which is called an Agate. Some refer to the solid coloured birds as whole colour Agates. I do not believe that that is genetically correct as I do not believe that the whole coloured ones have the gene that causes the *Rose wing, * Mottle wing , * Whiteside trait as seen in Rob Grogan's birds below.

Agates - **Rob Grogan**. Recessive red plus an unknown whitening factor thought by some to be an **enabler gene** that may be the same as that found in Whiteside recessive reds and yellows.

It also may be associated with the Print Grizzle factor. **Print Grizzle combined with Saturated T-Pattern causes a Mottle wing phenotype in any colour factor , not just recessive reds.** Photo -**Rob Grogan**.

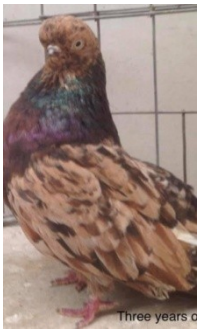
I am of the belief that over the many years of Almond breeding , there have been several grizzle traits crossed into the genomes of show stock. While both Classical Grizzles and Tiger grizzles would almost certainly have been used , **Print Grizzles** are most likely to still be found in the various families. Print Grizzle is common in the 'flying ' breeds of Highfliers , Tipplers and Tumblers and thus it follows that that blood would have carried on into the genomes of modern day Show varieties. Very little has been done to study this modifier and the possible combinations that cause some to be more white than others or to present as tortoiseshells when either Brander or Kite is involved. The KEY to mottling however , seems to lie in the darker pigments such as T-Pattern and Spread factor. These masked by recessive red also may be the cause of some mottle wing Reds.

There are genetic traits that are NOT considered as desirable by some, in Almond breeding , they are : (1) any grizzle trait, (2)Spread factor, and (3) Undergrizzle. Early breeders found that the addition of these had some benefits ... the grizzles to help "break up " patches of residual base pigment, and Spread to help clear up the bronzing residue left on the black flecks. Needless to say , such matings would tend toward many more undesirable phenotypes such as white on the shields and heads of some Almonds , and the production of Sprinkles when not wanted , plus sprinkles expressing hetero Kite and recessive red.

Another area of much contention lately has been the revival of people promoting the idea of making Almond X Almond matings . This usually but not always results in some homozygous Stipple males which can have a wide range of problems from simply dying in the egg, or shortly after hatching , to staggering or head weaving due to vision problems , feed blindness, being unable to focus on grain in order to pick it up, to severe eye infections and even deafness . Those that do survive to fledging will have very poor feather structure whereby the barbs and barbules do not interlock properly. This condition sometimes will improve along with reversion to wild type. Almost all of these males will have much shorter lives than normal. It is against the law in a couple of Countries to make pairings that can result in such cases. The actual cause is unknown. If homozygosity alone caused it then ALL offspring would have problems, but a few do not and may correct with reversion.

The above bird bred by **Rob Grogan** has the double dose of the (St) Stipple gene.

However the bird below is what you should strive to produce : Note the Key features . Overall almond colouration of an even tone and texture. Blue/black flecking that should be rich and clearly defined. White stipple break ONLY visible in the Tail feathers (specifically the sub-terminal tail band) , and in the flights. This is a young bird so should reah its maximum show expression by age five years. There has been a great deal of talk about reverting too early. I seriously question the logic behind that as we rarely keep showing ANY pigeon on into its later years. In fact we place good ones in the breeding pens after a couple of major wins , and then let their offspring take on the stresses of showing.



Reversion from Young bird to three years then ten years - by **Rob Grogan**. It would be extremely rare for anyone to show the same bird for ten years , so this bird would have a good show life.

The **Components** for this bird were : (1) the stipple gene , (2) Saturated T-Pattern, (3) homozygous Kite, (4) heterozygous recessive red Agate. Usually one mates a very good coloured Almond to a saturated T-Pattern Kite . Those two birds would encompose #1, #2, #3 collectively, and #4 . Sometimes a Sub-Variety called Deroy would be used with a Saturated T-Pattern to bring the desired traits together.


OR the sub-variety Deroy

The **Modifiers** we can only guess vaguely about as NO ONE actually knows what they are for Classical Almonds. We suspect homo Dirty is present but we can check that by in nest foot colour. We suspect an Enabler gene is carried that only expresses in some recessive reds. We suspect that a blackening gene similar to or directly from the Gimpel Archangel is responsible for the very BLACK colouring of the Saturated T-Pattern that must be used to breed good Classical Almonds.

You may read where people claim that Brander bronze is a Component of Classical Almonds. Brander causes a rather brown looking ground , more like a burnt almond tone which is not considered as desirable because it lacks the rich almond shell tone and the contrasting rich black flecks.

Superb Classical Almond phenotype - **Jose Luiz de Oliveira.(photo possibly enhanced).**

We are inundated with dozens of photos on Facebook of "How Not to Breed Almonds! " The reasons are numerous. Perhaps the main one is that there is no set consensus as to what constitutes a GOOD Almond phenotype as many Breeds do not have the correct COMPONENTS available so that Breeders can create the desired 'ESFT Classical Almond' effect. That means that many Sub-Varieties of an Almond pigeon are produced and many of these have been confused with other alleles at the Stipple locus or vise versa. You no doubt have heard the saying , "All Almonds are Stippers , but not all Stippers are Almonds". That means that alleles such as Sandy and Hickory that have doses of Kite and / or recessive red , may resemble Almond phenotypes , they ARE stippers at the Stipple locus , but they are clearly alleles/ alternate mutation versions, and not actually Almonds.

The best examples of this are alleles such as the Sandy Mutation , and the Hickory Mutation. While it is not likely that some of these Alleles even exist nowadays , perhaps some still do. It is believed that 'mutation' at the stipple locus is much more frequently occurring than previously thought , and that reverse mutations may also happen from time to time which further causes some identification problems.

Some of the so-called homozygous Almonds may even be crosses among some of these alleles and would explain why they appear not to have any of the normal afflictions associated with pure Almond males. The Study by the U of U revealed that quite a number of the specimens that were presented as 'Almonds' were 'off the chart' so to speak , when it came to how they fit based on their Copy Number Variant readings. Some appeared not to be stippers at all.

Sub-Varieties of Almonds were once considered to be any of the **Components** used to make an Almond as I said earlier. However that makes no sense and is just another old belief that has been repeated for many many years without anyone giving thought to what they were saying. A Sub-Variety must actually be some sort of an Almond, not an unrelated component of the phenotype that has nothing to do with the Stipple gene otherwise. That narrows it down to basically only one desirable phenotype. The Deroy, which is a recessive red (double dose) plus the Stipple gene Almond. The bird would be masking Saturated T-pattern. The overall colour tone would be a light reddish bronze with some darker red/bronze flecks. These flecks are actually the Black flecks that are masked by recessive red. The dilution gene , either hetero or homo tends to cause the bird to look almost yellow. The introduction of 'pale' factor would probably prove quite useful in establishing a better colour tone.

Photo by **James Ellison** previous Issue.

Photo by Scott Sharp showing the correct extension of the Almond /bronzing into the tail while the white stipple BREAK fills the sub-terminal tail band. The terminal band is also expressing the bronze.

Another nice expression of deep bronzing with clean black flecking and white stipple break in the flights and tail. The light and dark variation on the shield indicates that the base pattern was not the Saturated T-pattern component as it is not available in the Roller Breed. This would likely be straight Blue T-Pattern.

We hope this review of the terms and descriptions as to how they play a role in creating a 'Classical Almond' from a stipple gene on any base pattern has been helpful.

Sprinkles without bronze and / or recessive red are single colour stippers that express white stipple BREAK throughout their feathering.

Almonds are in effect Sprinkles with added Components and additional modifiers to only allow the white break in the flights and tail on smooth spread where Kite bronze does not ever express.

That is it from the Pigeon Loft for the first Issue of the New Year. Hope you are all keeping safe and well!