



The Pigeon Genetics Newsletter

News, Views, and Comments.

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Section # (1) Beginner

Genetics of Brander colouration.

It is obvious that Brander bronze is one of the most interesting colorations present in the fancy pigeons. The colouration is traditionally present in a number of pigeon breeds from Europe such as Danish tumbler, Show tipplers, Dutch highflyer, and Berlin short-faced tumbler. Recently a breed called Chila from India and/or Bangladesh started to pop up on face book with Brander colouration. There is a breed called Krey from Indonesia that seems to have the similar brander colouration that is present in some of the European breeds like Berlin short-faced tumbler and/or German show tippler.

Above photos are all from Mick Bassett, his English Show Tipplers.

The colouration is variable and if we consider different breeds with brander colouration, the German show tipplers which are selectively bred from English show tipplers are generally more refined in depth of colour than the other breeds including English show tipplers (talking about birds which are free from recessive red mutation), however, recessive red is not used in the german show tippler and thus they always have black flights and tail feathers when closed. The Berlin

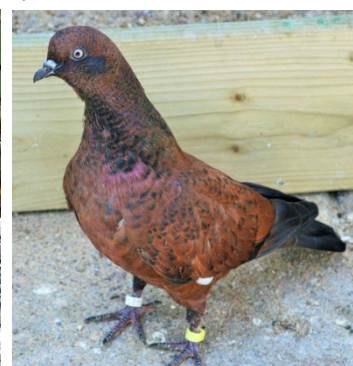
short-faced tumbler is another breed in which recessive red is not used, and in addition to black flights and tail, their muffs are also black. The breeds from the Asian continent also seem to be lacking recessive red. The Indonesian breed “krey” should have rich black flights and tail and the rest of the plumage should be very red (bronze) in colour, feet and beak should be dark as per the standard, however, many of them are poor coloured and seem to have a long way to attain the standard colouration. The Indonesian breeds seems to be very unique and we don’t have a clue about their descendants, thus can't be sure if it is indeed the brander present in European breeds or something else looking similar, without a detailed analysis. However, if we look back in to the History, Dutch and Portuguese have relation with Indonesia since 15th century. So it may be from Krey, the danish tumblers got the brander colouration. Any documentation?



German show tippler



English show tippler



Dutch highflyer(juvenile)



Chila



Krey



Berlin short-face tumbler

The birds in the above six photos are all homozygous brander and free from recessive red mutation.

Photos in the first row are from Mick Bassett and the photos in the second row;

first one from someone from BD, second one posted by John massive and the last one from Andreas Huwa.

The inheritance of Brander bronze is still subject of much controversy. According to Joe Quinn, “mating to wild type produces variable bronze, backcross and F2 generations produce progeny similar to the F1 generation, grading up to parallel type is difficult and requires extensive selection”. Whereas a recent outcross and backcross of Brander bronze by Wim Halsema in order to improve the type and head shape of the brander Danish tumblers, produced F1s with variable bronze expression, some were rich kite-like phenotype and some were somewhat dark, the little bit difference in richness in the F1 generation may be explained by heterozygous recessive red or at least it can be one of the reasons, and he got some decent brander bronze phenotypes when backcrossing F1s with brander Danish, a result different than Joe Quinn experienced at his loft.

Before going to Wim’s breeding results, you can see where his birds came from which he used in the project. Henk Kromkamp from Holland, crossed a solid recessive red cock with a blue bar smokey hen and produced a solid black cock, he then backcrossed the black cock with the blue bar smokey and produced a neat blue check with dark beak, a black hen and a strange brownish red hen. You can see some of those birds in the photos below. Wim used some of these birds to cross in for his Danish brander project.



The blue bar smokey hen and the sibling out of black vs the blue bar smokey (blue check cock, black hen and brownish red hen). We don't have a photo of the black cock.

In the first year of the project;

1) Wim mated the solid black Danish tumbler (bred from solid red cock and smokey blue bar hen) with genotype blue check heterozygous for bar, spread, recessive red to a hen with genotype(homozygous brander, heterozygous recessive red) produced a recessive red and a dark brander sibling.



The sibling in the nest



The dark bander in the adult plumage

2) A brander cock to the black hen gave a perfectly one-colored black sibling and a sibling with some bronze color mainly under the wings and in the flight feathers.

3) The blue checker male to a Brander female gave a young bronze hen, which was also too dark in color.

These results indicate the inheritance is not recessive, similar to Joe Quinn observed at his loft. But the progeny of a perfectly one-colored black sibling out of the 2nd pairing indicates that spread will mask heterozygous brander bronze at least in some cases. According to Joe Quinn, brander bronze is unaffected by spread. We don't have a clue as to whether spread does the same to homozygous brander bronze with or without recessive red. This is something we need to find out, you may send us that if you have any breeding proof on it.



Photos: a dark hen produced from one of the above pairings



A decent coloured brander cock bred by Jørgen Madsen.

In the second year;

Wim backcrossed the F1s with pure Branders from Jørgen Madse. From the pairings, most of the youngsters showed too much blue on the breast and too much checkering on the wingshield, however, he got a few with promising colouration.



F2 (B1) produced out of F1 X pure brander; first one with decent coloured brander, second one is a brander with grizzling. The last one is a recessive red with some white feathers, produced from the birds in the page right before.

In the photo below, at left a kite-like dark bronze (hetero brander, hetero recessive red) bred from Danish brander outcross and at right her son (spread stipper hetero brander, hetero recessive red) , sired by a Danish grey stipper. Last year Wim paired the son with dam and got some stipper young that looked like the sire with more or less bronze, kite-like youngster similar to the dam, youngsters with full brander bronze colouration and a recessive red youngster. Unfortunately the last three died because of cold, so no photos.



Dam and son

This bronze is probably the most curious one in that firstly it appears to have Kite bronze as part of its expression as indicated by the test result of Joe Quinn

and Wim Halsema in the F1 generation. I was told that, the brown stipper colouration in the Danish tumblers was created by grey stipper crossed with brander, and the complementary kite used in the Brown stipper Danish breeding is similar to some of the F1 crosses produced by Wim.

According to Bulte's test breeding the brander bronze is recessive and the symbol is k^b , whereas according to Joe's and Wim's breeding results, the dark bronze F1s, shows partial dominant inheritance. The Brander may be a combination of two factors; the kite like dominant factor and a second recessive factor which is indeed necessary to get full expression of Brander. But we have no way to know if they are two different bronze and express together to produce brander bronze or if the second factor which seems to be recessive, enhances the expression of the dominant kite-like factor and that's how the heavily bronzed phenotype is produced. Anyway, until we have solid evidence, I think the symbol given by Joe Quinn is more sensible, that is K^B , indicating the (partial) dominant inheritance. But it would be correct only if the kite-like factor is not identical to the kite present in the almonds, otherwise we have to use k^b just to indicate the second recessive factor. Of course, these things are hard or even impossible to discover by test breeding.

Below we have a breeding result from Mick Bassett's loft. He got six crosses with bronze phenotype from an English show tippler mated to a Muntenia Vargat white tail. Vargat white tail is a breed from Rumania with bronze bar that seems to be either $Ts1$ or similar. Out of six crosses, four were orange eyed and two were pearl eyed. When backcrossed an F1 to English show tippler, he got a decent Brander bronze phenotype. We can't take it as a proof on the inheritance of brander as more than one bronze involved in this case, interesting nevertheless.



Muntenia Vargat white tail



F1 crosses from EST X Vargat whitetail



B1 cross(F1 X EST) with colour similar to show type EST, except the orange eyes

All breeds which known to have brander colouration are Blue based, and most (if not all) of them are T-pattern, that makes sense as bronze expresses best on T-pattern, sooty and dirty are also present in almost all well coloured branders.

In breeds like Dutch highflyers and English show tipplers, heterozygous recessive red is part of the genotype of show type birds; they are almost red with black tail band and black marking on the tip of primaries and secondaries. Danish tumblers can and should be included in this list, and it is said to be the breed from which English show tipplers and Dutch highflyers got the brander colouration, however, the brander variety of Danish tumbler is very rare and the colouration is not well established in this breed when comparing with the other two breeds. There are two sub varieties present in the breeds; the dark brander (kite-like), these are bronzed with black tail and flights when closed, the other one is recessive red and are usually bleached reds in the nest and molt in whites and end up like light mottles. The dark brander (brander without recessive red) and show type (brander plus het recessive red) show dark beak from the nest, and they usually have very dark feet as babies, that is because of strong expression of the dirty factor. Whereas the reds are clean beaked, this is typical of recessive reds. The sub varieties are not showable either in English show tipplers or Dutch highflyers, however, valuable as breeding stock.



English show tippler babies bred by Mick. In the first photo one with clean beak is a recessive red. In the second and third photos a show type and a dark brander respectively, both have dark beak and feet.



The above photos, first two are of an adult English show tippler and the third one is of a Dutch highflyer that seems to be in juvenile. Both are pure brander free from recessive red mutation. In English show tippler, the colour is called Dark brander, whereas the dutch breeders call them kite or "Rook bronze", rook meaning smoke. Photos are from Mick Bassett.



In the photos above, first one is of English show tipplers belonging to Mick, and next two are Dutch highflyers. The photo at the middle seems to be taken with

flash, unfortunately we don't know the photographer. The last one photographed by Dick Hamer. I was told by an experienced breeder that the colouration in ESTs and Dutch highflyers are almost similar, however, the black marking on flights and tail are generally more pronounced in Dutch highflyers compared to ESTs, whereas the sheen should be purple and is more pronounced in ESTs, which in Dutch highflyers is less pronounced, additionally a greenish tinge to the purple sheen is allowed in this breed. All birds in the row above are homozygous brander, heterozygous recessive red. In ESTs the colour is called show bronze and the Dutch breeders call them Schornsteinfeger (Chimneysweep).



The photos above are from Mick; first one is a juvenile red Dutch highflyer, second and third are EST, juvenile and adult plumage respectively. As you can see they are usually washy reds in the juvenile and molt into a light mottle-like phenotype. In both ESTs and Dutch highflyers the colour is simply called red.

All three varieties are homozygous branders, it is the variation in the recessive red locus that produces the difference in the colouration. We don't know what is responsible for the variation within a single variety, as for example German show tipplers are generally richer in bronze than dark bronze EST or rook bronze Dutch highflyers or similar varieties present in Danish tumblers, though all these are brander bronze and free from recessive red mutation. It is probably due to the influence of additional factors that are unknown to us.

Equation for Dark brander or kite or rook bronze;

$$\text{Cock} = (B^+//B^+), (CT//CT), (V//V), (so//so), (K^B//K^B), (e^+//e^+)$$

Hen = (B⁺//.), (CT// CT), (V//V), (so//so), (K^B// K^B), (e⁺//e⁺)

Equation for show type self EST or Schornsteinfeger;

Cock= (B⁺//B⁺), (CT// CT), (V//V), (so//so), (K^B// K^B), (e//e⁺)

Hen = (B⁺//.), (CT// CT), (V//V), (so//so), (K^B// K^B), (e//e⁺)

Equation for reds present in the brander bronze breeding;

Cock= (B⁺//B⁺), (CT// CT), (V//V), (so//so), (K^B// K^B), (e//e)

Hen = (B⁺//.), (CT// CT), (V//V), (so//so), (K^B// K^B), (e//e)

There is still some uncertainty that exists about the mode of inheritance of Sooty; we just had to pick a symbol.

As you can see, the difference in the genotype of these three colour varieties is the variation in the recessive red locus, and it is not possible to establish a true breeding strain in those breeds. Thus some complimentary pairings are necessary for the balanced breeding.

| Colour of parents | Colour of offspring | | |
|---|-------------------------------------|---|--|
| | Dark brander(lacking recessive red) | Show type(Branders plus heterozygous recessive red) | Red (branders plus homozygous recessive red) |
| Dark brander vs Dark brander | 100% Dark brander | | |
| Red vs Red | | | 100% Red |
| Dark brander vs red or vice versa | | 100% show type | |
| Dark brander vs show type or vice versa | 50% Dark brander | 50% show type | |
| Red vs Show type or vice versa | | 50% show type | 50% red |
| Show type vs show type | 25% Dark brander | 50% Show type | 25% red |

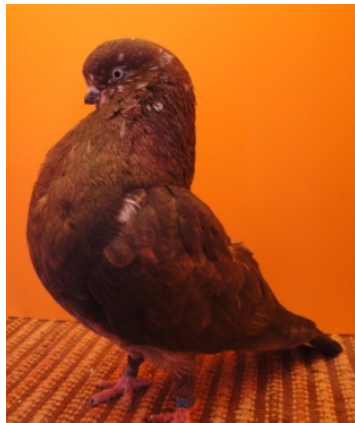
The last four pairings are used as complimentary pairings in breeds in which recessive red factor is involved. Breeds like German show tipplers, Berlin short-faced tumbler, and etc breed true as no recessive red factor is involved in these breeds.



F1(ashred T-pattern, dirty, het brander and probably het reced) from an EST X Macedonian owl (shield maked ashyellow bar) and B1(F1 X Dam)- Photos from Mick. Nestmate to the F1 cock was a hen blue T-pattern with bronze, unfortunately no photo of it.



A dilute or pale brander heterozygous recessive red and a dark brander- ESTs from Mick Bassett. Dilute bronze is usually called sulphur, it may rarely pop up in the breeding pen, but the colouration is not recognized in EST or any other breeds with brander present traditionally.



First an American show bronze tippler by Tom Demunniks. Second one found at

Angel Villalba's album, that he said it is a Portuguese tumbler. Seems to be brander heterozygous recessive red.

Apparently Americans crossed ESTs, English longface-cleanlegged, and Portuguese tumblers for the creation of a American show bronze tipplers. That would explain how the colour came in these breeds.



A brander tiger Danish tumbler from Wim Halsema and a Danish tumbler with nice brander colouration (homozygous brander, heterozygous recessive red) photographed by Poul Erik Helweg.



A brander mottle and a black mottle German show tippler- Photos Mick B.



Three photos of American show bronze mottled from Peter Monti.

Tigered brander in Danish tumbler is because of a grizzle mutation and the tigered variety in this breed comes with other combination as well like black tigher, red tiger etc. And the mottle in the German show tipplers and American show bronze tipplers may also be caused by grizzle. But in some strains the brander tends to show grizzing and we don't know what is exactly responsible for this phenomenon. You might have noticed that one of the B1s with decent brander bronze expression that Wim produced , had some grizzling on the neck, breast and underbody, even though both of its parents had no sign of any grizzle present.



A couple of mottle ESTs (homozygous brander, heterozygous recessive red) bred by Mick. These birds are not grizzles and the mottling is caused by something we are not certain about. According to Mick, most of the ESTs shown were mottle and selfs were rare, but mostly self birds are shown now a days. Mottle brander ESTs should have coloured flights and tail and the mottling mainly only on shield. Show type mottles can be paired together, but if continued for more than one generation, it can result in production of young with white on flights. Mottled dark bronze seldom happens. ESTs must be handled with care, damaged feathers pulled can come back as white, It may be the same in the case of Brander in other breeds as well. Dutch highflyers are always selected for self and this mottling is not present or rare in Dutch brander breeding. The mottling effect may be somehow related to Brander, however, it seems not to be necessary for the brander colouration.

In Uzbek tumbler, a colouration called “Tschin” or “Red Necked” comes with red and yellow colouration is basically recessive red. They are usually self with washy red or yellow in the nest and moult in white feathers over one to three years. They are similar to reds in the brander breeding. According to the standard, neck and breast should be coloured, and the Head and the rest of the body is mostly white. However, according to experienced breeders the phenotype is variable, and cock birds are generally better marked than hens.



Red belly

Yellow belly

The yellow belly with a young cock.

All were self washy coloured in the juvenile- photos from Mick Bassett.

It may be interesting for you to see something I produced in my loft. The photos are of a recessive red out of a couple of blue T pattern with bronze (kite or similar) carrying recessive red, left to right juvenile and adult plumage respectively. The sire had some bronze showing mainly on the base of flights and the dam was a rich bronze, she was an F1 of Lahore-homer. Neither of the parents posses any kind of grizzle mutations. You can see the red youngster is similar to the washy reds from brander breeding and Tschin Uzbek.



Juvenile plumage

Adult plumage

Bronze present in brown and yellow stipper is not identical to kite present in English show tippler, but similar. The dark flecks are generally less in brown stipper danish than Almond ESFTs and Almond ESFT cocks get darker as they get older and usually look similar to kite, whereas some brown stipper look similar to dark brander as they get older.



Brown stipper



Old brown stipper cock



Yellow stipper

Above photos first one from Poul Erik Helweg, second one from an old newsletter and the last one from Wim Halsema.

Below we have some photos of Indian fantails bred by different breeders from Kerala, India. I have seen dark brander-like phenotypes as pictured with a few Indian fantail breeders from Kerala. Most of these birds came from imports of American bred Indian fantails. So there is a possibility for these to be Brander bronze.



A Bronze (brander or similar) tiger in juvenile and middle of the juvenile plumage respectively, bred by Anees sheik, from Kerala.



An Indian fantail bred by Adorn Raj from Kerala(looks brander het recessive red)



Belongs to Lijo Louis, from Kerala (seems to be Brander het recessive red)

These birds look somewhat like show type brander, however, they barely show black marking on the tips of flights. I can remember a similar bronze phenotype with black tail bar in Gold gimpel breeding. Gimpel occasionally produces strange bronze with similar tailband and it doesn't change much with the moult, breeders usually cull them. In the case of these fantails, Brander bronze is the probable candidate, unfortunately we don't have any background info on them, except that Adorn Raj paired his bird with a recessive red and they produced one like the bird pictured and some reds and yellows.

We have had some enquires on advice about transferring brander bronze in to other breeds. Best selection as recipient would be blue saturated T-check with strong dirty and sooty. Go for line breeding (brother-sister mating) after the first outcross and each backcross . Make sure you are bringing full brander after each step, until you have the colouration in the breed, otherwise you may lose some essential factors.



Some juvenile branders showing sooty expression. Sooty usually express after the juvenile molt, however, sometimes show in the juvenile. I have had some silver lahores showing sooty expression in the juvenile plumage, same as the above youngsters. First photo is of ESTs by Mick and second one is of a Chila from face book.