

INTERIM REPORT ON RED WHITESIDE

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Abstract: Historically it has been assumed and promulgated that the red whiteside expression is caused by grizzle. In the case of the red whiteside LFCL Tumbler this is not the case. Rather, it appears to be the result of the homozygous expression of a dominant gene which is weakly linked to the recessive red locus.

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Back in the mid 1970's the red whiteside Frillback was developed. During its announcement I was a couple years into a project to transfer this expression onto my red Fantails so I was interested in any input as to the genetics involved in this trait. The main question I had concerning the Frillback creation was whether the grizzle of the Frillback interfered with the whiteside expression. The breeder's response was that grizzle, in fact, was responsible for the whiteside expression. Well, this did not set right with my way of thinking. I raise Flying Tiplers and my gene pool includes a high concentration of recessive red and grizzle, so in many instances they are manifested on the same bird. Never had it resulted in a whiteside Tippler in my loft. Depending on the pattern under the recessive red, bar or checker, I get a smooth red grizzle or a red mottle and always more than the wing shield was affected with grizzle or white.

So my next move was to contact one of the well known amateur geneticists among the LFCL Tumbler fanciers. Here again, I was told that whiteside was caused by grizzle. When asked how he knew that and/or who had proven such I was told that grizzle was the causitive agent, no he had not checked it out genetically, but that was it and if I did not believe him I was welcome to check it out myself.

I shared my thoughts with Dr. Hollander who responded with the same doubts that grizzle was responsible for the red whiteside as found in the LFCL Tumbler. With that type of moral support I was more than willing to pick up the gauntlet and tackle the project of analyzing genetically the red whiteside phenenomen.

It took a year or two to get set up for the task. I started with two red whiteside LFCL Tumblers from two separate lofts with care taken to assure they were of dissimilar strains. These were crossed onto blue bar Racing Homers which resulted totally in "T" pattern blue check F₁ offspring. If grizzle was responsible for the whiteside I should have obtained it in the first generation, due to its dominance. It was no where to be seen, but then grizzle can be at least partially masked by "T" pattern checker, on occasions. So five pair of these F₁'s were mated resulting in 160 F₂'s to date (three breeding seasons) and still no grizzle. Grizzle is not responsible for production of the red whiteside Tumblers as represented by the two strains analyzed.

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Since it is not grizzle, what causes the typical expression of the recessive red whiteside? The final verdict is not yet in, but the 160 F_2 's give a good indication of what is happening. Table 1 gives a breakdown of the F_2 's by gross phenotype. There is very good realization of the expected percentages. One quarter of the F_2 's are recessive reds as is predicted in the pairing of two heterozygous parents. A fourth of the non-recessive reds are blue bars with the balance being "T" pattern checkers. These two qualities show that an adequate number of F_2 's have been produced to approximate statistically expected phenotypic ratios.

When the recessive reds are classified as to the amount of white present in their adult plumage there are two interesting discoveries, Table 2. First, virtually all the reds exhibit some wing shield white and second, there is almost an absence of red selfs. Since the F_2 reds almost unanimously have some white on the shields it is logical to consider the whiteside factor as dominant. It appears to have variable penetrance, as can be seen by the photos of the F_2 reds (Exhibit 1)*.

Due to the lack of numerous red selfs among the F_2 's there is an implication of linkage between the whiteside factor and the recessive red gene. If there were no linkage the expected ratio would provide for an equal number of red selfs and red whitesides. Although there appears to be a linkage between the two this linkage must be rather weak. Otherwise there would be as few mottles and rosewings (which I consider to be heterozygous whitesides) as there are red selfs. Obviously this is not the case.

From what I have done so far I believe the red whiteside of the Tumblers analyzed to be caused by a single dominant gene weakly linked to the recessive red gene. This whiteside gene (Ws) has variable penetrance in the heterozygous state and results in the typical whiteside appearance when homozygous. The initial whiteside Tumblers were homozygous for "T" pattern checker. Based upon the number of resultant whitesides in the F_2 generation I doubt that basic underlying pattern affects the homozygous whiteside expression, although it could possibly come into play in the variations seen in the heterozygous condition.

Future plans call for further generation of F_2 's as well as a number of matings to confirm heterozygosity of mottles and rosewings, disclose pattern under F_2 whitesides and confirm absence of whiteside in the F_2 red selfs. As my space and individual breeding facilities are somewhat limited the timing of these results is at this moment unknown. Rest assured, once the jury comes in with the verdict, it will be shared.

*Note - photos in Exhibit 1 are of unplucked birds in adult plumage.

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TABLE 1

F₂ Generation Whiteside Tumbler X Blue Bar Homer

Phenotype	Pair#	1	2	3	4	5	Totals
	Strain	TxF	TxT	TxF	FxF	TxF	
Recessive Red		9	5	8	4	14	40
Blue Bar		7	9	1	5	10	32
Blue Check		17	19	23	19	10	88
Total		33	33	32	28	34	160

TABLE 2

Phenotype of Adult Plumage F₂ Recessive Reds*

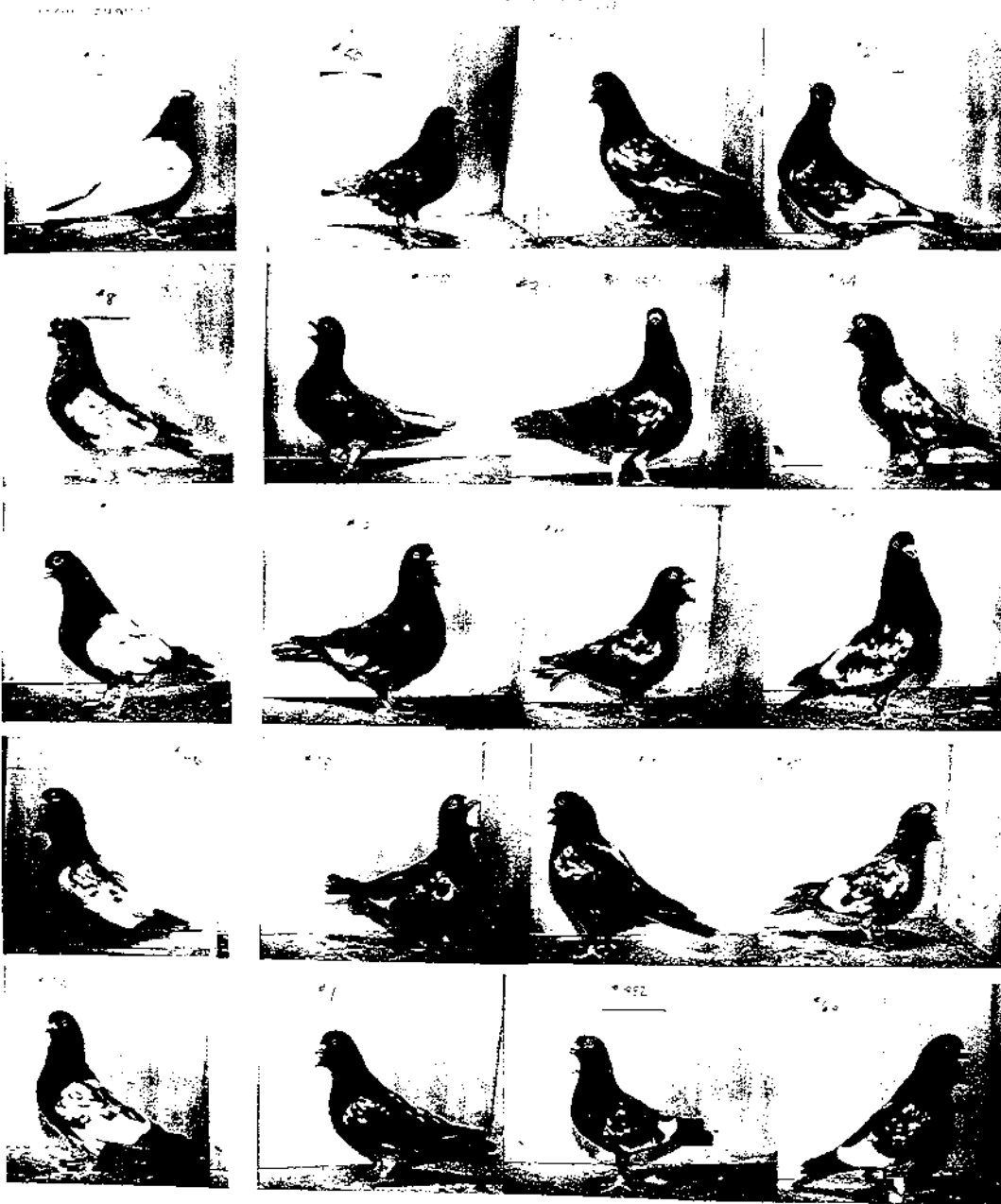
Rosewings/Mottles	Whitesides	Red Selves
13	6	2**

* Tabulation as of October, 1981, many 1981 youngsters not moulted enough to classify and not included.

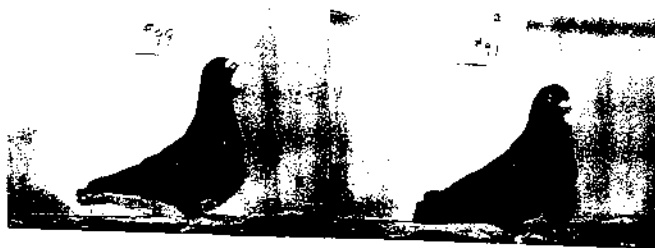
** One of the "selves" questionable as has white on the lead edge of wing butts, since photo in Exhibit 1 he has gone through second moult and now would fit into Rosewing/Mottle classification.

F₂ GENERATION
Red Whiteside Project

Heterozygous



Red Sells



#91 Possibly heterozygous