RECESSIVE BUDGIES: A BEGINNERS INTRODUCTION TO RECESSIVES IN BUDGERIGARS.

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The recessive varieties of Budgerigars are the most attractive, and I would suggest they are probably responsible for introducing more people to the wonderful hobby of budgerigars than any of the other varieties.

Greywings, Clearwings, Fallows and Recessive Pieds (Harlequins) are the most common of the recessive varieties. There are apparently Recessive Greys and Albinos around as well but to date I have not had the opportunity to see them. It should also be noted the colour of Blue in Budgerigars is a recessive colour.

To breed budgerigars you do not need to have a thorough understanding of genetics or the laws of inheritance. However, if you wish to have any control over the outcomes of any given pairing you must endeavour to understand some basic principles of inheritance. The principles of inheritance were founded by Gregor Mendel (1822 - 1884) last century. His conclusions were worked out using the common garden pea for experimentation, his results remaining intact to this present day.

I should say at the outset, genetics, is a very complicated subject, and because of the complexities it is a very hard subject to simplify. I have endeavoured with the following simplification of the inheritance process, regarding recessive characteristics to make the subject less confusing.

The point to start is to understand all living organisms inherit their characteristics from their parents by units of inheritance (Genes). These Genes are arranged in pairs in the new offspring (organism). Half of the genes come from the father and the other half from the mother. Therefore, the new offspring inherits its characteristics via

pairs of genes, one half of each pair of genes is from the father and the other half from the mother.

Now these inherited genes which make up the pairs can individually have a differing effect on the offspring. If the single gene has a overwhelming effect on the offspring, that is the offspring display visually the characteristic being passed on from the parent. This type of gene is said to be a dominant gene. The other basic type of gene is what we call a recessive gene, this type of gene controls the above mentioned varieties. The recessive gene is always over powered or drowned out by a dominant gene, if one is present as one half of the inherited pair of genes. To give an example of this dominating effect in human terms, if two parents with dark hair and red hair respectively have a child, the child will always have dark hair because the trait for dark hair is said to be dominant over red hair, which is a recessive trait (gene).

From the above you should now conclude that for a recessive characteristic to be visually present there must not be a corresponding dominant Gene present. Therefore, the only way for this to happen is if each of the inherited pair of genes are both recessive. For two recessive genes to be present they must be inherited from both of the parents, with no dominant gene being passed on.

All of the current varieties of Budgerigars have evolved from the wild Australian native Budgerigar. This original bird is what we call a Normal variety, Green coloured bird. Both the Normal Variety and Green Colour in budgerigars are said to be a dominant traits. Whereas the blue trait in Budgerigars is recessive as is the varieties mentioned at the beginning.

My explanations will be devoted to the blue budgerigar because I think it will be the easiest to understand. All the recessive varieties mentioned earlier behave exactly the same as the blue gene, just substitute your desired variety for a relevant explanation. Please refer to the following table when particular pairings are mentioned.

Following is an expectation chart for recessive traits using blue as the example.

POSSIBLE MATINGS

PARENTS EXPECTATIONS

1. Green to Blue 100% Green/Blue
2. Blue to Blue 100% Blue
3. Green/Blue to Blue 50% Green/Blue + 50% Blue
4. Green/blue to Green/blue 25% Blue + 25% Green + 50% Green/Blue
5. Green to Green/Blue 50% Green + 50% Green/Blue

In the same way as the dark and red hair behave, if you pair a green budgerigar to a blue budgerigar (pairing 1) the babies will always be green visually. Technically the babies would be said to have Green phenotype. Phenotype means visually appearance.

Now having established that green is dominant to blue in budgerigars we can move on to a slightly more complicated concept. When the blue gene is dominated by the green gene, the blue gene does not vanish, it is still present, but not visible — hidden if you like. So all the babies from our green to blue pairing are capable of breeding blues in the next generation when paired correctly, because they are now carrying the blue gene only it is hidden from view. The term for a bird carrying a hidden gene is the word split, That is, the green bird is said to be split for blue and is written as Green/blue.

When we use birds split for genes we can expect approximately half of their offspring to inherit the gene the parent is split for. The reason for this is the genes passed on are only one half of the pair of genes possessed by the parent. Remember the partner contributes the other half. Each offspring inherits a random half of the parent's genes. If we consider our green bird split for blue, it will have a dominate green gene and a recessive blue gene as a pair. When the genes are passed on to the next generation, only one of these genes will be passed on to each offspring.

Which one of these genes is passed on is at random, one in two chance, like the toss of a coin or a fifty-fifty chance? Therefore if you breed two birds out of a Green/blue parent, one offspring could inherit the green dominate gene and the other could inherit the blue recessive gene. In practice because genes are inherited randomly, you need to breed a very large number of offspring to get the fifty percent ratio quoted.

From the above you should also be able to see if you pair a Green/blue budgerigar to a Blue budgerigar (pairing 3) half of all the babies produced will be visibly blue because approximately half of the babies will inherit a blue gene from each parent. This happens because the green gene is not present in half the babies to suppress or hide the blue gene. The other half of the babies will be visibly green because the green dominate gene is present in these cases. Remember all the green visual birds will carry the blue gene hidden.

If we pair together two Green/blue birds (pairing 4) we can expect to breed twenty five percent of the offspring having the recessive gene on both sides of their genetic make-up (genotype) thus they will appear to be blue. The rest will be visually green because seventy five percent of the offspring will have the green dominant gene as one side of their pair of inherited genes.

When birds are split for various recessive genes you are not aware of, they can produce a few surprises in the nest. Fundamentally it is not possible to visibly identify any recessive genes a bird is carrying without actually breeding with them or knowing exactly how they were bred. I am sure you have seen two parents with dark hair produce a child with red hair. Both dark haired parents must in this case be split for red hair. If you trace the parent's ancestors, you will find a 'red head' back some generations to explain these phenomena. Recessive traits can be carried hidden for many generations. There is no way of predicting this occurrence without knowing any particular parents genotype.

I hope it is obvious to you now, the best way to breed recessives in quantity is to have birds which visibly carry (phenotype) the recessive gene you wish to perpetuate as in pairing 2. Therefore you can guarantee the trait will be passed on to every

offspring, because there are no dominant genes present. However, if you are patient you can over a few years, along with the keeping of accurate records of bird’s backgrounds, get the desired results from a bird that is split for a particular gene.

From the above table you can see pairings 2 and 3 are the most productive as far as producing numbers with the desired recessive trait.

Pairings 4 and 5 present the problem of not knowing which offspring are carrying the recessive traits wanted. In both these cases you would have to test mate these offspring as in pairing number 3 to ascertain which offspring are split for the recessive gene. As a general rule I would avoid using these pairings unless it is absolutely necessary.

It is worth the effort to grasp the above rules of inheritance because they are rudimentary to most breeding outcomes.

To conclude I can only say "Best of luck with those wonderful recessives"!