Breeding Self Blacks

(with some principles which probably apply other varieties as well)

by Bryan Mayoh

The starting point in becoming a good breeder of any variety is to have in your mind's eye a picture of the ideal cavy that you are trying produce. This is the basis on which you will select which sow mate to which boar, in the hope that between them they have, or are carrying, the features you hope to produce in the offspring; and it is the basis on which you select which youngsters to keep and which to part with when you are deciding which cavies will form the next generation of your stud. To the uninitiated Blacks can look alike; and small variations in shape of head and muzzle, boldness of eye, size and setting of ear, distribution of flesh, texture of coat and depth of colour can add up to the very important difference between a champion and an also-ran. Until your eye is 'well in' on all of these points, and until you have the experience to know how young cavies will develop as adults, you cannot be a long-term successful breeder of Blacks. You can, however, be lucky in the short-term and breed one or more flyers early in your career; but over the years luck evens out, and if you are to stay at the top for more than 5 or so years you have to know what you are doing.

No two people approach the task of breeding a line of cavies in the same way. They may differ in terms of their idea of what that ideal cavy looks like; or in which fundamental breeding principles they believe; or what faults they will or will not tolerate; or in their notions as to which boar should be paired with which sow to produce the best result. It is the result of hundreds of such decisions - some big, lots small - made over many years, along with skill and luck in animal husbandry, which determines how successful a breeder you will be in the long term. Then, with Blacks, after you have become a successful breeder, you still have to become equally adept at presenting them to their best advantage on the judging table to make yourself an equally successful exhibitor.

Three fundamental considerations apply when you are building a stud. They are:-

- Use of Inbreeding & Outcrossing (the development of a 'strain')
- Coping with faults
- Selection of future breeding stock

Development of a Strain

Nearly all who have written on the subject during the last 100 years agree that, to produce consistent results when you are breeding small livestock for exhibition, you need to use or develop a 'Strain' - that your stud should consist of animals who have been selected over many generations for certain features of type or colour, and in which the gene pool is restricted, by 'inbreeding' or 'linebreeding' (see below) so that these features crop up consistently in the produce of the stud. When you purchase stock from a breeder who has established a strain you are immediately going along this road. If you purchase unrelated stock from different breeders, with the intention of pairing them, then to reach any degree of consistency you will have to develop your own strain, which can take several generations.

The development of a strain inevitably involves the use of in-breeding or linebreeding at some stage, to try to project the features of an outstanding specimen onto future generations. The two terms are different only in degree -

‘inbreeding’ normally signifies matings of close relatives, e.g. father- daughter, mother-son or, less commonly, brother- sister. ‘Linebreeding’ is a mating of more distantly-related animals, e.g. having a common grandparent or great-grandparents. Both are aimed at a similar effect - at a ‘doubling-up’ of the genes from the common ancestor. Such genes may be dominant (i.e. showing their effect when only one is present in any gene pair) or ‘recessive’ (needing the presence of the gene as both elements of a gene pair in order for the characteristic it represents to be visible). In either case, where a gene would produce a desirable feature ‘doubling-up’ is a good thing - it allows recessive genes to show their effect and dominant genes to be certain of being passed on to all offspring, so that they share the good characteristic of the parent. This is how inbreeding or linebreeding to generate a strain produces the required consistency within a stud.

There are, however, problems as well as benefits with this approach. The first is that the breeder of the strain may have a ‘blind spot’ about a characteristic which you (and more importantly the Standard) regard as being important. This characteristic may well have been ‘selected out’ during the process of inbreeding to build-up the strain, and not be present in any of the members of the family group. The second problem is that inbreeding can ‘double-up’ on bad features as well as good ones. Many of the minor genes which appear to affect health, size, fertility etc. are recessives (if they were dominant it would be easy to select against them - and Nature already would have), so that they show an increasing effect as the degree of inbreeding in a group is increased. So with the consistency of good features that come with the development of a strain there is also the danger of losing size, lack of health, loss of fertility, dead litters. Ring any bells for anyone?

Whether the problem is lack of a desirable feature or loss of vigour within the strain, the obvious solution is outcrossing. But when you outcross you reduce the chances of ‘doubling-up’ the genes you desire, so quality can suffer in the first generation and consistency will be reduced for several; but you should get more vigour and, if you have chosen the outcross wisely, you will now have within your stud - somewhere in your cavies’ genetic make-up - the feature you desire. The inbreeding and the linebreeding then have to begin again, along with your own selection; and if you do your job well you will eventually get back the consistency of breeding characteristics, hopefully including the new feature you sought. Even more hopefully, you will retain some of the better size, health and viability that the original outcross mating should have brought; and a new, better strain will have been born. However, this takes time, skill and ruthless selection over a number of generations. This was the course which the first breeders of Blacks had to follow, and this is the route which Arthur Robinson chose to tread when he fathered the modern Self Black 50 years ago.

Within the Self Black today there is one dominant strain, that was founded by Arthur Robinson and developed ever since by Graham Phillips and those who have used his stock. This strain has such strong characteristics, in glamour of expression, boldness of eye and overall quality, that one would be foolish to start afresh in building a strain with no Phillips blood. Finding a genuine outcross to the strain, perhaps to introduce more size or to counter some of the breeding problems which have been experienced with Self Blacks, is a hard-enough challenge. If you can find stock with a lesser number of Phillips ancestors, and this stock has some of the better characteristics of the Phillips strain, then this might be a good potential basis for developing a new strain of Blacks - but one evolved from the strain which has been increasingly dominant in the second half of the Black’s history.

The alternative, a far safer one but with all the potential problems of inbreeding/linebreeding referred to above, is to obtain pure stock of the Phillips strain and use these as the basis of your stud. Since several breeders have developed their own variants of this strain for several years, it is likely that between them they will have all the ingredients of the perfect Self Black; and crossing stock obtained from such diverse sources will reduce the closeness of inbreeding significantly without having the wild unpredictability of a totally outcrossed mating.

In articles in recent ESCC year books I have described in detail how my own best pigs have been bred. In my early years with Blacks the principles I followed involved close inbreeding and linebreeding to a small number of pigs obtained from Graham Phillips. Later, I began to exchange the odd pig with Graham - the imports certainly helped my stud maintain its quality; and, because typically I select for a slightly different type of cavy (I will accept a longer head as a trade-off for a bigger body and bigger ears: Graham is fanatical on bold eyes and good muzzle), the reverse transfer produced some cavies with the best characteristics of both studs for him. Later still, I obtained some descendants of cavies I had passed onto such good breeders as K & S Charlton and D Barry. Again, a different basis for selection had been made, along with the slight use of outcross blood; and once more this 'drop of fresh blood' was close enough to my own stock's genetic make-up to cross successfully with it but not so close that it did not bring benefits in size and substance.

Over a long-term as a breeder there is a real conflict between the need for consistency and the danger that the inbreeding which brings consistency also brings unwelcome bedfellows. How much or how little inbreeding to use; whether and when to try an out-cross; should this be a complete outcross or a partial one to a different variation of the same basic strain?: these are key questions facing any long-term breeder of small livestock, and not just of the Self Black cavy.

Coping with Faults

Many years ago a great breeder of racehorses, John E. Madden, came up with a simple formula describing how to breed good ones: 'Mate the best to the best and hope for the best.' Genetics can be perverse - good animals mated together can often produce bad ones; very occasionally bad ones paired can produce good ones - but in the long run matings of the 'best to the best' are a lot more likely to produce 'the best' than any other mating. The truth of this adage has been statistically demonstrated with racehorses where (although there are many exceptions with which Mr. D. Redhead is doubtless waiting to regale me the next time I see him) the best race mares are far more likely to produce good offspring than their genetically-similar and similarly-mated sisters. Similarly it is true with Self Black cavies, where my own records, kept over a number of years, show that matings involving the very best animals are several times more likely to produce outstanding offspring than matings involving slightly less-good pigs.

The trouble with this very simple maxim is that none of us have studs consisting only of 'the best'; and even cavies that we would consider very good still have some faults, often significant ones. We have to make compromises, deciding which faults are tolerable on a cavy which has some other feature we need, and this is particularly true when we are trying to start up a stud. You will, if you look back over many of these wise words written in the past about starting with a breed see that you should seek out a boar of good size and substance; sound colour; broad muzzle, big head, bold eyes and large, well-drooped ears. The trouble, however, is that these wise words don't extend to telling you where to find this boar and how

to persuade the owner to part with him if he has not either fallen on very hard times or become a madman.

The basic compromise is to look for all the good points in your initial stock, or in any pair you put together; but don't expect them all in one cavy. Balance the faults of one with good points in the other - do not pair up cavies with the same fault if you can help it, and certainly not at all if their parents had the fault too. Perhaps you have, or are offered a boar who is typey but too small or lacking substance. If so, make sure that he is paired to a sow who is big and strong, even if she is plain. Perhaps some of your stock have smallish ears, albeit with glamorous heads - they should be paired to pigs with large, well-drooped ears, even if these have longer heads or less full muzzles. As long as the good points are somewhere within your initial stock, particularly if they are points well-established within the strain from which you obtain that stock, they should all come out sooner or later on one or more pigs. When they do, you have one of 'the best'; and can move to the much simpler approach of 'best to best' matings. Even when you have established a good stud of your own you will never have the luxury of only keeping cavies without faults : this 'trade off' and 'matching' process will always be necessary - it's just that the trade-offs and matches should get easier as the number of faults you need tolerate in an individual animal get less.

A key element of the trade-off between tolerable faults and desirable factors is to decide what faults you can take a risk with and which are too dangerous to risk. This is an area in which different breeders have very different ideas: what I may find acceptable you may find unforgivable. Within Blacks there are plenty of potential faults to worry about.

Arthur Robinson once told me that he would not tolerate small size, for he believed in a considerable degree of inbreeding and this was the warning sign that undesirable features were becoming concentrated - so out went small or weedy specimens. Graham Phillips is unforgiving of small eyes, but he has frequently used pigs whose ears I would fault - one of his greatest boars, whom he called 'Northern Dancer', had a rather smallish and high-set left ear. Conversely, one of my best boars, 'Bonzo Doodah' looked very small in eye as a youngster and would have not have been kept by Graham; but the eyes grew bolder in his adulthood and he threw offspring which were fine on this point.

One thing all Black breeders have to accept is that red hairs will crop up regularly - some have even expressed the belief that selecting against red-haired pigs will cause undercolour to worsen within the stud. These clumps or patches of red hairs can be a major nuisance on an otherwise excellent show pig; but if the breeder is trying not to keep too many animals he will often sell red-haired stock of a type which otherwise would never leave his shed. My records indicate that red-haired pigs are only slightly more likely to produce red-haired offspring than do animals of good colour; so using animals with red hairs in the breeding pen is almost certainly one of the best 'trade-offs' you can make. White hairs are probably equally a good bet, as very often these appear to be caused by fighting or skin damage and have no hereditary component at all.

One possible approach in regard to dealing with faults is to classify them in terms of how bad an effect they have on the individual cavy, and whether they have a strong genetic component which is likely to provide problems in future generations if you use the pig for breeding. Very bad faults would cause the cavy to be eliminated from the breeding pool. Minor faults would be dealt with by an appropriate choice of mate having no sign (or parental background) of the same fault. An 'in-between' category could be dealt with by either approach, dependant on how badly you needed to use the cavy; but care should also be taken if you are

taking a risk that you keep the offspring only if they are of very good quality (on the principle that you don't take risks if you don't have to) and avoid inbreeding to animals with faults or their offspring. Remember, however, that boars can have many more offspring than sows and therefore are more likely to be the subject of inbreeding; so be much less tolerant of faults in boars than in sows.

My personal approach to faults, in terms of their seriousness and how to deal with them, is:

Lack of size/substance/health	Counter in mating. Avoid inbreeding to animal. Outcross needed if occurs regularly.
Plain or flat head **Narrow muzzle**	Use animal only if a sow and only if very well-bred.
Eyes lack boldness	Counter in mating
Fatty eye **(not common in Blacks)**	Do not use animal. If already bred from when fault appears, keep only very best off-spring & avoid inbreeding.
Red in Eye	Treatable problem, probably not a genetic fault, so don't worry about it.
Ears Folded	Counter in Mating.
Small Ears	Counter in Mating. Keep only best off-spring.
Wrongly-set ears	Avoid inbreeding.
Hems in ears **(not common in Blacks)**	Do not use animal.
Excessive red hairs **- brindling or patch** **Excessive white hairs**	May not be genetic fault; but minimise risk by countering in mating. Keep only best offspring.
Poor undercolour	Counter in Mating. Keep only best off-spring. Avoid inbreeding.
Quiffs in coat (rare)	Do not use animal.
Swirls in coat (behind front legs particularly) **Coat flicks (around eyes)**	Counter in Mating. Keep only best off-spring. Avoid inbreeding.
Wooley coat (never so far encountered in Blacks)	Do not use animal.
Crooked legs	Cull animal.

The above can only be, however, a very crude guide; and one of your major tests as a breeder will be how well you make the 'trade-offs' and how careful you are with the offspring of the 'risky' matings. The less often you have to make compromises the safer you will be in the long-run; and it is obviously wise only to use pigs with one very significant failing if they are clearly superior in most of the other respects that matter. There is no point using pigs with two or three significant failings - one is plenty enough to worry about.

Compromise you must though, for you will never have so many pigs with scarcely a fault that you can afford to discard all of the ones who have any weaknesses. Speaking from my own experience, if I had attempted to eliminate all animals with serious failings, amongst the pigs I would never have bred would have been:-

Felema Fancifemme	BIS at London Championship Show and the ESCC ASS; whose father failed undercolour but had glamour and whose mother was plain but had sound undercolour.
Pandora Pearldrop	An outstanding (big) adult, BIS at Bradford Ch. Show and the ESCC ASS, whose father and mother were both glamorous pigs who never made up into substantial adults (I don't always practice what I preach, but Nature can sometimes take care of the cock-up).
Burlequin Belfemme	Winner of 12 BIS including ESCC ASS, and NCC Triple Champion, whose grandmother had a red face.
Bowbelle Blackbear	Winner of NCC ASS and ESCC ASS, whose mother closely resembled Red Rum in facial expression.

Selection of future breeding stock

There are two big issues in terms of how you select the stock that you will use in future breeding plans. The first is whether you know enough about what you are doing to pick the right ones to keep and the right ones to discard. The second is whether you accept that you must risk your show stock, or lose some of their showing life, by using them in the breeding pen; or whether you keep your best stock (especially the sows) for showing and try to produce future generations from their relatives, the next-best.

In terms of selecting what to keep there is no substitute for getting to know, with experience, how the youngsters of the strain you use will develop as they grow older. Many fanciers believe that a good guide is to assess them when they are born; and certainly one can be very hopeful if you have a baby of good substance, broad head, bold eyes, big ears and no obvious red hairs. Though many such cavies often go through an 'adolescent' plain phase within a few weeks, at 3 or 4 months they may well regain their youthful promise and you may have the elusive flyer.

However, things can change for good or ill. Red hairs not evident at birth can be visible as brindling when the cavy grows. Ears held folded in young stock can, as they grow, droop and seem perfect as adults. Glamour may develop in facial

expression; or the head may grow longer and the muzzle fail to develop, rendering a show career a forgotten possibility. Single babies particularly can flatter to deceive, their extra size at birth giving them a temporary advantage. Conversely, a cavy too plain to show as a youngster may, after 1or 2 litters, develop excellent size, solid shoulders and fill out in muzzle to give a real chance of his or her overtaking flashier, more glamorous contemporaries who failed to grow on.

Even after 20-odd years, I still get surprises; and I no longer make the quick judgements I once tried to. Instead, I assess the stock over a period of weeks or months, weeding out as one fails to develop in some important respect; being disappointed in the way some turn out, but pleasantly surprised when an adult who had been considered a breeding pig reveals, after a rest from breeding, that she may be a champion. And these, remember, are the results from a strain I know well. I am increasingly clear that it is impossible to predict how Blacks of different origins will progress -sometimes I have seen other peoples pigs which look, as youngsters, that they could be outstanding; but very often I have made forecasts of their potential, based on how my own pigs would have developed from that stage, and have been surprised at how ordinary they ultimately turned out.

As to the issue of whether to breed from your show stock or not, I have devised a simple questionnaire to help you decide this for yourself:-

- Do you believe that you can buck the laws of genetics, so that matching less good pigs together will indeed work for you consistently?
- Do you have a stud of several hundred Self Blacks, so that you can have a realistic hope that lightning has a chance of striking twice?
- Do you number amongst the list of people who would do anything to please you one of the top Self Black breeders (or can you afford to wave fortunes at them), so that if your stud becomes played out they will set you up again?
- Do you intend to die or quit Self Blacks within 5/10 years; or if not are you happy going to shows just to have a nice chat & talk about the pigs that beat you?

If the answer to any of these questions is 'Yes', then you can happily follow the policy of keeping your best pigs as show specimens and using their inferior relatives in the breeding pen. I referred earlier to statistics in thoroughbred racehorses which showed that outstanding racemares make the best broodmares, far exceeding the efforts of their less-talented sisters; and indicated that my own results in Self Blacks showed a similar pattern - the best show sows make the best breeding sows. Whether you want to rely on statistics, the laws of genetics or just common-sense, it adds up to an obvious conclusion: the best cavies are the best cavies because they carry (genetic) factors which make them the best cavies. These factors are more likely to be passed on by those cavies than by their near relatives who are less good. If a feature is due to a dominant gene it can only be passed on by a cavy showing the feature; if the feature is due to a recessive gene then a cavy with two recessives (thereby showing the feature externally) is going to pass one of these on to all of its offspring, whereas a 'carrier' of the good point will only pass it onto half of its progeny.

So for a higher percentage of winning offspring and a much higher chance of long-term success, there is really no choice but to accept the risks and short-term sacrifices of putting your show stock into the breeding pen. For boars the two careers can be combined - many boars will be perfectly fit to show if they are run with one or two sows; but for the sow you will lose around 6 months of show life for each litter. On the up-side, though, some sows grow better after a couple of

litters and can make better adults as a result; and most are too small to show as adults between 8 and 12 months of age anyway, so this is a clear window of opportunity in which you can hope to ensure that the best characteristics of your very best pigs are passed onto future generations. Competition in Self Blacks is intense - you don't get to be the King of the Jungle without a struggle - so you cannot afford to squander the precious genetic make-up of the relatively small number of really outstanding pigs you will be lucky enough to produce.