

# Bred For Stock

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In a previous article we discussed the value of linebreeding. It is a powerful tool and can be used to great advantage in building a family of outstanding racing pigeons. Sometimes though people take it too far. They become mesmerized by its possibilities and apply it generation after generation without adequately validating the quality of the birds being bred. "Bred for Stock" will often appear on the pedigree in place of a race record. There are, of course, very legitimate situations where breeding for stock is appropriate and where it should be done. As a rule though, this is a very risky practice and should be avoided unless a conscious decision has been made to make an exception for a specific purpose.

To apply our "tool" analogy, using linebreeding (or any breeding strategy) without validation (flying in our case), is very much like using a carpenter's hammer without nails. There are times when it makes sense. One might tap a board to line it up properly with another board before nailing them together. But it is absurd to think of using a hammer without ever using nails. The hammer and the nail are simply means to an end. To think of the hammer as an end in and of itself is pointless.

Before we look at the positive aspects of this practice, let's take a careful look at the risks that are involved.

Remember, one of the key objectives of successful animal breeding is to concentrate the desired genes in the gene pool (the breeding flock). Our objective is to produce birds that have an unusual high ability to produce birds that win races at an unusually high rate. This desired end point involves many gene pairs. What many fanciers fail to realize is that most of the gene combinations we pull from the pool are not the ones we want! While linebreeding and other strategies can increase the concentration of the desirable genes, the desirable combinations are still very likely a minority in the pool. Most of the birds we produce will set our breeding program back in time if they are allowed to permanently contribute to the next generation of breeders.

Remembering this point, let's consider the following scenario. An experienced breeder is starting a new loft. He or she has put all of their efforts and resources into acquiring the best starting pair that can be obtained. Miraculously, the acquired pair is indeed world class. The pair has produced multiple champions who have themselves bred multiple champions. The pair is eight years old. The breeder decides to stock every bird produced during the first year, to protect their investment. Five hens and five cocks are raised. During the second year, the original hen is bred to what the breeder believes is her best handling son and the original cock to his best handling daughter. The remaining eight birds are paired brother to sister. During the second year the six pair produce forty eight youngsters. The breeder retains what are believed to be the best handling nine hens and nine cocks. The breeder now has fifteen pairs and puts the remaining thirty young birds up for auction to help recover the initial investment. During this two year period, several children and grandchildren of the original pair that were bred in earlier years have continued to post incredible race records. There is much interest in the auction and you are considering trying to purchase some.

1. What do think the odds are that a pair purchased at the auction will be a good investment?
2. How would you evaluate the breeder's approach to this point in time?
3. What would be the appropriate course(s) of action for the breeder going forward?
4. What would be the appropriate course(s) of action for you going forward if you were successful in acquiring one pair of the birds at the auction?

At this point, you should take a break and consider the scenario and your answers to the four questions. I won't string you along for two more weeks to hear my answers, but give it some thought before you proceed.

As was the case in the "answers" to the two previous scenarios I raised in the linebreeding article, there is no single correct set of answers to these four questions. I'll respond as I see it, but there is plenty of room here for variations. The point is you should understand the rationale for my answer and then apply these concepts to your own situation and breeding objectives.

The odds that your purchase will be a good investment are not good. Certainly, it is far from a sure thing.(footnote 1)

In a previous article, I made the assertion that among the best breeding pairs in the world, the likelihood of such a pair producing a world class bird was one in ten. These are my own subjective numbers and you can use your own. I am going to use these numbers to build a simple model to gauge the likelihood of our producing a world class bird from an auction purchase in the above scenario. Not every bird that is a great racer is also a great breeder and so we will assume in this discussion that we are referring to world class breeders.

In this model (footnote 2) we would expect that of the ten birds produced in the first year, only one would be world class. Of course, this certainly doesn't mean the other nine are without merit. Nor does it mean that one of these other nine birds couldn't produce a world class bird.

Consider now, the likelihood that one of the sibling matings of the second year produced a world class bird. The odds are now  $(1/10) \times (1/10)$  or 1 in 100. The odds for the parent-offspring matings are somewhat better at (square root of  $1/10$ )  $\times$   $1/10$  or slightly better than 3 in 100. Based on this model, we expect at most 1 bird in the auction that is world class. (footnote 3)

If we were to buy a cock and hen from two parent-offspring matings, our model would predict that we would produce 9 world class birds in every 10,000 bred [ $(3/100) \times (3/100)$ ]; two from the sibling matings would predict 1 in 10,000 [ $(1/100) \times (1/100)$ ].

If you think my 1 in 10 is too harsh, try the model using a 1 in 4 ratio. This ratio predicts only 4 world class birds in the auction. A purchase of two parent-offspring birds would be expected to produce 15 world class birds in every 1,000 that we breed; a purchase of two from the sibling matings would produce less than 4 in every 1,000 bred. The odds are better, but still shockingly small.

Here is the point. The genetic value of birds derived from this super pair will significantly decrease with each generation of random mating, eventually regressing to the average of the population.

The key then is to not randomly select breeders.

Few fanciers, of course, think they are randomly selecting breeders. A number of algorithms are employed across the sport ranging from eye sign theory to handling characteristics to race results to progeny testing. I maintain the most accurate of these is progeny testing based upon contemporary group racing. I'll discuss this approach later in another article. For now, let me generalize by saying I believe race results are more accurate than handling characteristics as a predictor of breeding success. It is for this reason that I said earlier, breeding for stock "... is a very risky practice and should be avoided unless a conscious decision has been made to make an exception for a specific purpose."

The breeder has done exactly what I would have done.

First, he or she realized that good pigeons are rare and it is generally a much better strategy to obtain a few good proven birds rather than large numbers of unproven ones. Of course, this approach is expensive and is not always an option.

If they had been available and the breeder had the resources, it would have been good to have purchased the parents and other relatives of this super pair. Such a move would have improved the likelihood that the breeder was obtaining the key genes.

I would have absolutely stocked every bird raised the first year. None would have been flown. Think of it as making deposits to a genetic savings account. Something could happen at any time to the super pair. Putting aside all of the youngsters from the first year is a way to hedge against that possibility.

Considering the likely cost of the super pair, I think the breeder was smart to hold an auction. This allowed the breeder to recoup much of their investment, enabling future investments should an appropriate opportunity arise.

Going forward is where the real work (and fun) begins for the breeder.

Basically, in stark contrast to the first year where everything was stocked, everything raised in the third year (and beyond) should be tested. The test results are used in two different ways. First, they become the basis for selecting future stock candidates. Second, they are the basis for evaluating the first and second year birds that were "bred for stock". We know they are not all equal and the test results of their progeny are the very best way to make that evaluation.

The strategy for the auction buyer will depend upon their circumstances.

On the one extreme, the successful auction buyer might want to take the same approach as the breeder did. This would both reasonably protect and properly validate the investment. A more direct but riskier approach would be to test fly all offspring of the auction pair and consider for stock candidates only those birds which have flown exceptionally well.

As I hope this example has shown, "Bred for Stock" is a risky proposition. The odds are that you did not stock the best one. There are many situations where it makes sense, but it must be followed with disciplined and objective testing.

Footnotes:

Would I make such a purchase? Probably. It would depend, of course, on where I was with respect to my own breeding program, how I felt this line might help me and how much it would cost relative to what I had available to spend. However, the description of the original pair and the results of some of their offspring and descendants was really quite exceptional. Opportunities to obtain birds of that caliber are rare and when they become available they deserve serious consideration. So, while the ultimate outcome is not likely positive, the possibility of success is also not zero. In my particular breeding program we maintain a number of carefully bred lines, but we are constantly looking for new individuals or families that we can use to take our lines to new levels. Most of the purchases we make along these lines do not pan out and the birds and their offspring are culled. Every so often though, such an acquisition will be successful and our breeding program will benefit in a very positive way. It is rather like a lottery where the ticket costs a dollar and the pay off is a thousand dollars. As long as I win, I will play, but I never expect every ticket (or even every tenth ticket) to be a winner.

The mathematical models ordinarily used for quantitative genetic predictions of this type are much more complex. The overly simplified model used here is offered only for the purposes of making a qualitative point.

The two matings of parent-offspring and four matings of siblings produce an average probability of 0.017  $[(2 \times (3/100)) + (4 \times (1/100))]/10 = 0.17]$ . With 30 birds in the auction, we would expect  $30 \times .017$  or 0.51 birds in the auction to be world class. In other words, between 0 and 1.

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