

Sourcing breeding stock genetics

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For a commercial pig breeding organisation of any size, choosing the type and source of genetics to use within the commercial operation is the most significant decision to be made. The impact of the right genetics can have a substantial impact on profitability and, conversely, choosing the wrong genetics can be very costly to a business. A structured decision making process should be employed when choosing a source of breeding stock, one that will be outlined here.

Consider your options

Whilst the decision making process largely remains the same whatever size of pig breeding operation you might have, there are more options available as the size of the business increases.

This not only arises from the fact that there are more resources to devote to 'in-house' systems, but also that truly bespoke genetic programmes can only be employed for the larger producers with sow numbers measured in the 1000's rather than the 100's.

The first step in the process is to

Table 1. The major traits of importance.

Dam lines:

- Prolificacy
- Rearing ability
- Durability/longevity in the breeding herd
- Production efficiency
 - Feed conversion ratio (FCR)
 - Growth rate

Sire lines:

- Production efficiency
 - FCR
 - Growth rate
- Carcase quality
 - Back fat
 - Lean percentage
 - Kill out percentage
- Meat quality
 - Water holding capacity
 - Colour
 - Intramuscular fat

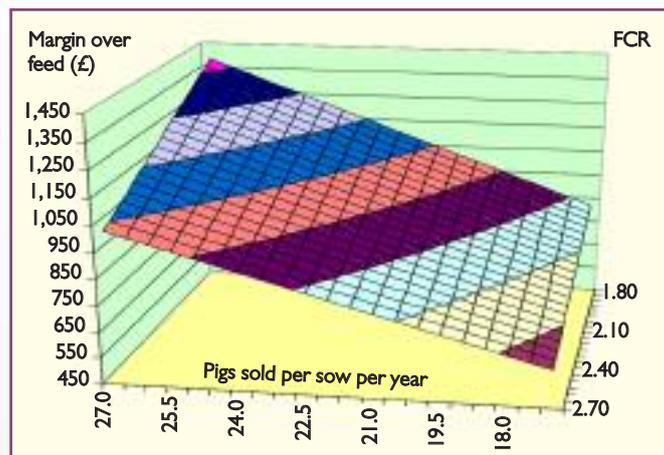


Fig. 1. Value of improvement in prolificacy and feed conversion ratio.

assess your commercial needs. What are the key traits that your breeding stock should display to enable you to be a profitable pig producer?

The relative importance of efficiency factors may differ between producers of different sizes and in different geographic locations, but generally, all pig producers are under similar economic pressures and thus the major traits of importance are those shown in Table 1.

If you are not being paid for meat quality, then is meat quality an important trait to you the producer?

The answer to this question depends on the relationship you have with your customer – the meat processor. If meat quality is a factor on which the processor bases their buying decisions, then meat quality might determine the marketability of your stock and, therefore, has a high economic impact despite not being directly paid for improved meat quality.

Taking the two highest ranking traits listed above for dam and sire line, we can see the value of improving these two traits in Fig. 1.

The value is expressed as margin per sow over feed so, as can be seen from Fig. 1, the relative value of improving FCR increases with increasing sow productivity as there are more offspring expressing FCR.

With the example economic values used to generate this figure,

increasing commercial sow productivity by one pig reared per litter (2.25 pigs/sow/year) is worth ~ £100 per sow per year in increased margin over feed, with an improvement in FCR of 0.2 worth roughly half that figure. This means that realisable increased margin of £150-£170 are achievable by selecting your genetics partner on these traits.

The second step is to assess all potential genetics partners as to how well each one addresses your

needs. To do this you need an understanding as to the soundness of their genetic breeding programme – what are they selecting for, how effectively are they selecting for it, and can they demonstrate improvement.

Assess commercial pigs

An important point is that it is not the performance of the pure lines (which are under development) that counts, but rather the performance of commercial animals that are important for you to assess.

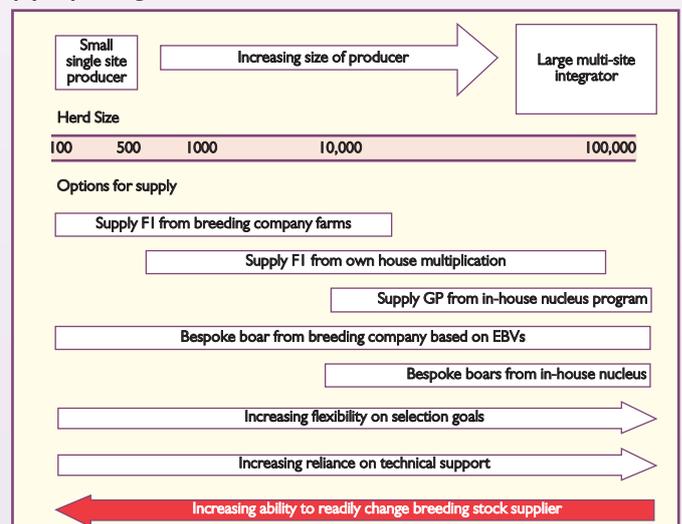
Again this becomes easier for you to implement again due to resources the larger you are, but even a small 100 sow producer can accurately evaluate AI from one breeding company's terminal line compared with another with just a small amount of additional recording.

The minimum you should do is seek some commercial 'references' from their customers to see what potential performance you could expect from a supplier's stock.

The third and most difficult step is to identify the best method for you to access your chosen partners genetics.

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Fig. 2. Diagrammatic representation of options for breeding stock supply depending on herd size.



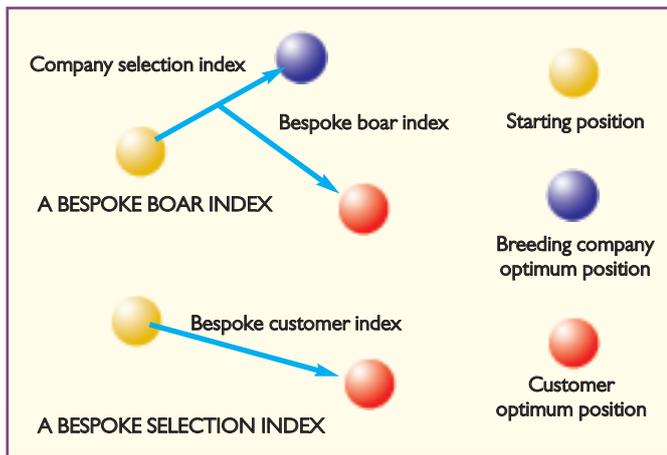


Fig. 3. Representation of bespoke boar selection versus bespoke index selection within a nucleus programme.

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As can be seen from Fig. 2, this will depend on your size of operation and the degree to which you want to be involved in any breeding programme, for example, a producer with 5000 sows might want to be supplied with F1 parent gilts from a breeding company farm, or they might opt to receive grand parent (GP) stock from a breeding company farm and breed F1 parent females themselves.

By doing the latter, they reduce the number of purchased females coming into their herds and, therefore, the disease risk.

However, they are then reliant on their ability to manage an in-house multiplication system, something that does not suit all producers.

Nucleus programme

The next step up in terms of customer involvement is to operate an in house nucleus programme where

there is no live animal movement into a customer's farm.

A population of animals is bred pure and is under selection to provide improved genetics to replace the GP herd animals and terminal sire boars.

This will be operated under a contractual breeders licence agreement (BLA) with technical support provided by the breeding company.

As all genetics come from in-house selection, there is then the possibility of tailoring selection indexes to the local requirements of the customer. Whilst this may at first seem like the 'bespoke indexing' offered by breeding companies, it is not. Bespoke boar indexing from breeding company herds will select the optimum boar for a customer out of those available.

A bespoke index on a customer's nucleus population will ensure that all genetics are selected towards an optimum position (see Fig. 3).

This is done by means of novel indexes which are implemented on

the customer's nucleus populations. Examples of different indexes can be seen in Fig. 4.

Whilst this may ensure that a larger producer maintains optimum progress towards their selection objectives, there are drawbacks to this approach compared to the F1 supply approach.

These include an increased reliance upon the technical capabilities of the breeding company to provide selection programmes, monitoring and support for the in-house nucleus.

This means that there is a long term relationship with in-house breeding programmes which requires a contractual relationship.

The nature of the relationship therefore means that it is not possible to easily or quickly switch genetic suppliers should an improved source of genetics be found. The next step is to maintain a close relationship with your genetics partner in order that you can feed

back information on your own breeding operation so that any issues you may have can be addressed.

If you are not maximising the potential of the breeding stock then this is costing you potential profit and should be addressed in collaboration with your supplier.

Assess your needs

Finally, you should repeat the assessment of your own needs which may now have changed, but also which supplier can best meet those needs to ensure that you made the correct decision in the first place.

It should always be remembered that it is far more cost effective to replace your breeding stock with that from another supplier if that supplier can demonstrate a commercial benefit, rather than try and improve the breeding stock of your current supplier. ■

Fig. 4. Example of different index weightings on traits – breeding companies can work together with BLA holders to develop selection indexes which satisfy the demands of the BLA target market.

