ROTHAMSTED RESEARCH

Rothamsted Conferences XIX

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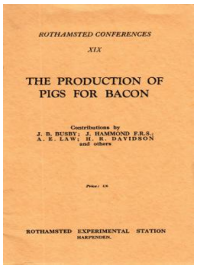

Carcase Quality and Breeding for It

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J. Hammond (1936) *Carcase Quality and Breeding for It ;* Rothamsted Conferences Xix, pp 10 - 14 **- DOI: https://doi.org/10.23637/ERADOC-1-206**

CARCASE QUALITY AND BREEDING FOR IT

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BEFORE considering the various points of carcase quality in bacon pigs it is advisable to say a few words on breeding. A breeder would do well first to find out what are the weak spots in his pigs from the grading reports of factories, from the reports of the local Pig Recording Society, or from the score cards of the carcase tests carried out by various Societies and Shows. Find out what are the most important faults first and then get a boar which is particularly good in this respect ; where such a boar is to be found can be determined by the same means.

A warning should be given here, however, to make sure that, before condemning the breeding stock, the feeding and management are right (such as getting quick growth in the young stock, making good gains for food fed, i.e., putting on lean meat rather than fat, and feeding sufficient proteins and accessory food factors), for, if these are not, then no matter how well-bred the pigs are they will have no chance of showing what they can do, and buying good stock will not help to put things right.

Now let us consider the various points which go to make up good carcase quality. These are mainly a matter of body proportions and composition, on which unfortunately very little research work has been done in this country since Lawes and Gilbert's fundamental experiments.

The body proportions and composition do not remain constant but change as the pig grows up. In the pork type of pig they change quickly so that they are right (i.e., with small proportion of head and bone and high proportion of loin and lean meat, with just the right amount of fat—½ inch over the loin) for the London trade at 70 lb. carcase weight (=95 lb. live weight), but in the bacon type these same proportions are not attained until 150 lb. carcase weight (=200 lb. live weight). That is, *the proportions required by the consumer are the same for both pork and bacon pigs, but the weight at which the two types arrive at these proportions differs,* the one being early maturing and the other late maturing. The differences between pork pigs and bacon pigs are mentioned because so many of our farmers, who have hitherto been catering for the local pork market, are now beginning to take up the production of bacon pigs and they should realize the difference between the two types. The pork (and lard) type tends to be small and blocky while the bacon type is larger and more rangy. Within any one breed, however, the type

https://doi.org/10.23637/ERADOC-1-206

can be changed by selection, as has been done with the Poland-China in the United States, although for commercial purposes this result can be achieved quicker by crossing with an appropriate breed.

Before considering the carcase itself, there are two factors which are of economic importance in the production of the bacon pig: (1) *The carcase percentage*, or loss from live to carcase weight. This naturally varies with the amount of food in the stomach and with the weight of the pig, ranging from 72 per cent. of carcase to live at 95 lb. live weight, to 80 per cent. at 200 lb. and 82 per cent. at 250 lb. for the average pig. A high degree of fatness increases the carcase percentage, and so for bacon pigs the highest percentage is not always the best and there is an optimum carcase percentage; this is, for a pig of 200-220 lb. live weight, about 73 per cent. calculated on unstarved farm weight and 78 per cent. on starved weight before slaughter.

(2) *The bacon percentage*, or loss from carcase weight to bacon weight. As there is less loss of weight during curing in the fatter than in the leaner carcasses, the lighter carcasses (which are usually the leaner) lose less than the heavier; for example, the average loss varies from 28 per cent. in carcasses of 105 lb. to 21 per cent. in carcasses of 215 lb. Given carcasses of equal weights and degrees of fatness, however, the loss from carcase weight to bacon weight shows a difference of 3 per cent. or more between different breeds and individuals due to the coarseness of bone and weight of head which have to be removed before the carcase is made into bacon.

The various points required in the carcase are as follows, in approximately this order of importance:

(a) *Thin back fat*—the back fat forms a good measure of the fatness of the carcase generally and nowadays the public do not require very fat meat. The fat is always thickest over the shoulder and for requirements to-day the fat here should measure 1½ inches or less. As in the young pig the shoulders are well developed and the loin poorly developed (see below) as compared with a mature animal, so the fat is much thicker at the shoulders than at the loin in a young pig, and the difference in ratio between these two parts gradually narrows as the pig grows up. Thus a back fat gradually tapering from the shoulder to loin is a sign of a carcase which has not yet attained its full maturity and fatness; such carcasses are required for bacon production. Since the pork types are small, short, blocky, and early maturing they usually carry more back fat at 200 lb. live weight than do the larger, longer and later maturing bacon types; by lengthening the pig the chances of getting too thick back fat are reduced (see below). On the same feed gilts usually grade better than hog pigs as regards back fat measurements.

(b) *A thick streak (over 1½ inches) with thickness of lean meat.* A thick streak can be obtained in two ways (1) by fattening to a high degree, and (2) by developing the thickness of the muscle or lean meat. It is the latter which is required by the public and hence

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under the Pig Marketing Scheme a pig only gets into grade A when both the streak is thick and the back fat is thin. It is this development of the thickness of lean meat without getting too much fat in our pigs which is the main problem in pig production to-day.

On examining a large number of pigs cut through at the loin (last rib) one is struck by the great differences between them as regards the thickness of the eye muscle and the amount of fat over it. In some the muscle is shrunken and the space which it should occupy is filled in with fat ; experiments are required to find out why this is so. A probable explanation is, in my opinion, that in such pigs the growth has been slow or checked at the time the muscle should have developed, just as calves which are allowed to lose their baby flesh fail to produce the best beef. In the young pig bone growth reaches its maximum first, then muscle, while later fat makes its maximum growth. This forms one of the reasons for weighing the young pigs (under Pig Recording Society schemes) at 8 weeks old, for it is at just after this time that the lean meat is developing and pigs which grow well then will grade better than those whose growth is checked at this stage. This rapid growth in the young pig is, in addition to the feed factors involved, a breed character both as regards the young pig itself and also with respect to the milking qualities of the sow, for young pigs will not make rapid growth unless the dam has a plentiful supply of milk.

(c) *Firmness of fat.*—Soft oily fat is objectionable to the consumer and as firm a fat as can be produced is required. It is however mainly influenced by feed rather than breed, except in so far as slow-growing pigs tend to have rather softer fat than fast growing ones.

(d) *Absence of "Seedy Cut."* Seedy cut, which consists of black pigment specks in the mammary gland, is quite harmless to eat but is disliked by the trade as it makes the bacon appear to be mouldy, and so the whole belly (of about 8 lb. per pig) has to be removed before it is cured. The mammary glands are formed as a down-growth from the skin, so black-skinned pigs are liable to have this defect. Since white is dominant (i.e., the first cross is mainly white, with a few black spots or patches only) to black in inheritance, those having mainly black pigs would do well to cross their sows with a white boar for bacon production. The black and white breeds would also do well to extend the white areas in their breed, especially on the underline ; this can be done by selection within the breed.

(e) *Good gammons.* What is meant by a good ham can be seen by looking at the changes which appear as the pig grows up ; at birth the ham is nearly all bone and poorly fleshed, while as it grows up the bone becomes proportionally smaller and the meat is "let down" to the hocks. A good ham is one in which these age changes are well developed. Width of the buttock just below the tail is a character which very much requires to be improved in our pigs, as it adds much to the appearance of the gammon when the side is hung up.

(f) *Length for Weight.* Apart from the fact that a pig which is

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long for its weight will tend to be less fat than one which is short for its weight, length is required in order to give a large proportion of back cuts as compared with belly cuts, for the former are higher priced than the latter. A thick streak (or belly) is required (so as to form a good rasher) but not a long one ; this translated into terms of the carcase and live pig means one which is not too deep at the time of slaughter and one which has a clear cut straight underline ; such a pig will appear to be long for its weight. One requires a pig with well sprung ribs rather than a deep flat-sided one. As has been stated before, the depth of the pig increases in proportion to its length as the pig grows up and this increase in depth is associated with increase in fat content of the carcase. One requires to breed the type of pig which at bacon weight (200 lb. live) has only just begun to deepen, but which has not gone so far as the pork type does at this weight ; if the pig has not just begun to deepen, however, it is liable to be deficient in thickness of streak, for thickness of streak is partly a question of maturity. It is the proportions of the body at the weight at which the pig is to be killed, and not the adult proportions, that matters, i.e., the breeding sow may be deep in proportion to length provided her offspring are not too deep in proportion to length at 200 lb. live weight.

(g) *Light Shoulders.* The shoulder is a low-priced part of the carcase as compared with the loin and consequently should be reduced as far as possible. There is a natural tendency in pigs, following their wild boar ancestor, to become heavy in the shoulders and light in the loin and this fault will tend to creep in unless continual selection is made against it.

(h) *Fine Skin.* A coarse skinned pig grows a thick rind which detracts from the bacon when it comes to be sold.

As in most of these commercial characters (1) the inheritance is of the type known as multiple factor or blending, that is, crosses give intermediates which do not split out sharply into the two parent types again on crossing, (2) the qualities of the individual pig are so affected by the kind of nutrition it receives and (3) many of the qualities cannot be determined until the pig is slaughtered, the only means of ensuring a sound breeding policy is that of *the progeny test.* This consists of testing the offspring of the breeding stock for carcase qualities and using the parents of those which test out best to be the source of the next generation of breeding stock. Needless to say when such good breeding boars and sows are found they should be kept and used for as long as possible for producing breeding stock. It is important, when these progeny tests are being made, that the nutrition should be suited to develop the characters that are required, otherwise little progress will be made by selection, for the quality selected for will be limited by the nutrition and not by the breed qualities of the animal.

In conclusion, a few words about the debated question of pure versus cross-breeding. Pure breeding is the only real means by which

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our pigs can be improved permanently, by the methods outlined above, and by which the required characters may be developed to a higher pitch than they have ever attained before. Since, in the process of this pure breeding and selection many animals will be found which do not come up to the standard in one or other respect, these can be made best use of commercially by crossing with another breed which supplies those particular qualities in which the first breed was deficient. Needless to say two bad individuals of different breeds crossed will not produce good pigs, especially when both have the same defects : good qualities can only be brought in by pure breeds, and the type of crossbred animal produced must be dependent on the qualities developed in the pure breeds. No pure breed is absolutely perfect yet, and it is for pure breeds to discover all their weak spots and put them right ; in so far as they do this they will reduce the need for cross-breeding.

https://doi.org/10.23637/ERADOC-1-206