PIG BREEDING IN NEW ZEALAND

by
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This paper should perhaps be called - you can't get blood from a stone, rather than the past, present and future of pig breeding in New Zealand. Factual data relating to present status or past efforts are scarce. Yesterday, in the pig-world except for those who have been in constant association with the industry, represents the shades of antiquity; today is a time of flux and indecision; tomorrow the realm of conjecture.

The history of pig keeping, judged by the present reactions of the farming community to the species, represents a continuous and moderately successful struggle of the monetary over the olfactory sense.

The first pigs were apparently introduced in 1772 by Captain Cook and were successful in establishing themselves and multiplying. References are made by early settlers to the numbers of these wild pigs present when they landed. By 1840 the needs of the then population in both islands could readily be satisfied in regard to pork, which was used as a commodity of barter by the Maoris.

While the above is of historical interest, it is of little practical application as far as our present pig population is concerned, and it is to later importations of the more improved types that we owe our present animals. The New Zealand Year Book records a pig population in 1860 in round figures of 45,000, 1895, 240,000 - an increase of some 500% in 35 years. In the 50 years 1895-1945, a further 250% increase to 600,000. In the course of this time though the trend was generally upward, there were quite large fluctuations. 1938 was the peak year with 800,000. Further, the distribution of numbers has changed. In 1878 the South Island boasted double the number of pigs of the North Island. By 1895 the numbers were approximately equal, and in 1938 the proportions were 6:1 in favour of the North. With the expansion of the dairy industry this change naturally followed and the pig numbers have in general expanded in keeping with the intensification of dairying.

In 1927 about 381,000 animals were slaughtered of which 96% were consumed in New Zealand. In 1938, 1,100,000 were slaughtered of which less than 50% were for home consumption, an increase from a few thousand to about 680,000 carcases exported in eleven years. Briefly, the above is an outline of the general progress that has been made over the years. Increasing numbers, a shift of emphasis from the arable to dairying areas and the development of an export trade mainly in pork.

For the breeding policy that has accompanied this expansion in numbers we must turn to the sows and boars that have been responsible. It is immediately evident that the industry is based predominantly on the cross-bred. From observation I should say that the only thing that has hindered the New Zealand farm pig from being more cross-bred than he is, is the lack of initiative on the part of the breeders in only providing the farmer with a maximum of five breeds with which to make any series of combinations.

In 1924, the ratio of pure-bred sows to cross-bred was 1:1.75 In 1928, it was 1:3. In those 4 years the sow population rose from 55,000 to 82,000 and of the 27,000 increase, 25,000 was accounted for by cross-bred animals. While, academically this may be deplored, an examination of the fluctuations in sow numbers over the years provides a ready and practical explanation. Variations of the following nature are common. In three years sows increased by 6 thousand, (10%) in one year, 14 thousand (20%) the following year, then dropped by 9 thousand. Starting from a population predominantly Cross-bred, any sudden rise in numbers must be derived for the most part from Cross-bred sows.

The pure-breds are not in a position to cope with the sudden demand even if the average farmer were prepared to pay the cost. In a more static population the pure-breeds may have an opportunity of making rapid advances, but for the reasons given above and others to be discussed later this seems unlikely in the near future.

The situation is different in respect to boars, and the use of pure-bred males is both possible and probably advantageous. In 1924, however, half the boars in use were Cross-bred and in 1928 the position was essentially the same. Since then the position may have improved but as far as I know, no figures are available.

The influences of pig clubs might be mentioned here in connection with the spread of pure-bred stock. Approximately 360 pig clubs have been in operation, with an average membership of 15 farmers. This represents 5,400 pure-bred pigs absorbed into the industry if each member bought only one of their club sow's progeny. The pig club movement may, therefore, have materially affected the ratio of pure-bred to Cross-bred stock.

Since cross-breeding eventually involves the use of two animals of pure-breeds, it is natural to turn to a study of the history of this section of the industry, which though unable to provide the quantity demanded by rapid expansion, should be the source of quality. The New Zealand Pig Breeders' Association was formed in 1917, and the first herd-book with its 242 registrations was published in 1918. Prior to this time conditions were apparently somewhat chaotic, and the breeding of some allegedly pure-bred animals a source of polite disbelief. As a result, three or four well-known breeders foregathered at the Feilding Show in 1916 and decided to do something about the matter. The forming of the New Zealand Pig Breeders' Association was the result. The first herd-book is of historical interest in that the sire and dam of each animal for three generations was required for all animals entered for registration. Australian and British importations feature in almost every case. In the Berkshire section, for instance, of the 201 animals shown, less than half-a-dozen could not boast of descent from imported stock at least once in the three generations. I have been informed by one of the gentlemen involved in the formation of the Association that many of the family trees were masterpieces of imagination. If so, they were at least realistic and lost nothing in the telling. Some breeders, notably Lincoln College, who, with Ruakura, was a foundation member, were honest enough to record ancestors simply as a sow, or a boar, when pedigrees were in doubt.

Since 1918 membership and nominations have risen and fallen in keeping with the times, the 1944 registrations numbering 1,800 as against the initial 240. The total number of breeders appearing in the books is 1,800. Their average length membership 4.7 years.

During the course of the 27 years the Association has been in existence the demand in regard to type of carcase for commercial purposes has changed radically. There has been a definite reduction in fat cover and increase in length. The industry generally has adapted itself to this change of emphasis and made fairly successful efforts to satisfy this demand. In view of these changes, a study of the standards of excellence as set out for the various breeds is of interest. Naturally the distinguishing colours of the breeds have remained the same. The Berkshire, while in 1918 a straight back was desirable, in 1941, the year of revision of standards, a slightly curved back was preferred. Shoulders, hams, flank, legs, and feet are all described in the same words as in 1918. The Large White breeders apparently are dissatisfied with the tails of their animals and devote a line to ensure that it should be set high, stout and long, but not coarse, with a tassel of fine hair. The ears of all breeds must still be fringed with fine hair.

Despite these somehwat frivolous remarks, the fact remains that the industry has answered the call for drastic change and improvement in carcase quality, and there is no doubt but that the pedigree breeder has been responsible for much of the improvement. However, successful pig production is based not on carcase quality alone but on the production of the sow, which includes prolificacy, milking ability and mothering ability, the growth rate of the litter and lastly the suitability and quality of the litter on the hooks. These factors are fundamental in any approach to pig improvement and every country that has made any material progress with its pig industry has tackled these problems in one way or another. New Zealand has also instituted a scheme.

In 1928 with a grant of £2,500 from the Council of Scientific and Industrial Research, a start was made at Massey and Lincoln, and in the Waikato under the direction of the Herd Recording Association of which Mr. Hume was then in charge. Investigation officers were appointed and nearly 500 litters were recorded.

In 1929 the Waikato Pig Club was formed and similar work carried on, but in 1930 recording was dropped.

In 1931, Mr. Croucher became Investigation Officer for the Manawatu and the work was continued through 1932 and 1933. In 1934 the Waikato Club went into recess through lack of funds. In 1936 pedigree sow recording was instituted and in 1938 carcase evaluation work was added. Pedigree sow recording has continued up to the present with varying support, but carcase evaluation was stopped in 1940, on account of war-time transport difficulties. 2,200 carcases were evaluated in the 3 years of the scheme's operation.

The tables presented show the yearly averages obtained both for the early unofficial recording operations and for the later official pedigree sow work, in regard to average number weaned per litter, and average litter weight at three and eight weeks. The number of sows concerned in the averages is also included.

TABLE I

Record of No. sows recorded, No. born, No. weaned and Litter Weight at 3 & 8 weeks for unofficial recording from 1928 to 1935 inclusive and official recording from 1937 - 1945.

Year	No. Litters	Total No. Born per Litter	No. Weaned per Litter	Litter Weight @ 3 wks	Litter Weight @ 8 wks.
1928	492	9.6	7.5	77 lb.	218 lb.
1933	117	9.6	8.1	102 "	308 "
1934	118	9.2	7.7	97 "	290 "
1935	200	9.9	7.8	102 "	289 "
1937	328	9.7	7.3	87 "	266 "
1938	271 x	9.5	7.2	81 "	244 "
1939	463	9.0	7.1	82 "	260 "
1940	362	9.5	7.4	84 "	277 "
1941	186	9.6	7.7	89 "	284 "
Sept. 1941 to Dec.1943	126	9.9	7.9	100 "	303 "
1944	20	11.6	7.8	76 "	270 "
1945	23	10.5	8.1	104 "	332 "

x Only 68 detailed records available

Initially, it was ruled that where any sow was recorded officially, all the females in the herd must be treated likewise. This rule was relaxed almost from the start. Over the years, little if any improvement is discernible, the last two years being concerned with so few animals and are hardly acceptable as an indication of general performance. In general, as the number of cases increased, average performance decreased.

One factor is worthy of note and that is the effect of the Pig Club movement upon recording (360 Pig Clubs). The National Pig Industry Council was set up in 1937 and part of its policy was the encouragement of Pig Clubs in the various districts. The aim was to encourage farmers to form Clubs, purchase pure-bred stock and distribute the progeny. Most if not all these litters were weighed and recorded. From 1938 to 1944 inclusive about 55% of the litters recorded were from Pig-Club sows. This is an entirely unsatisfactory state of affairs and it left the Clubs in an unfortunate position. Selection and purchase of pedigree sows for Clubs owing to the general shortage of factual information on performance was a hit and miss affair. The recording of performance once the purchase was made allowed assessment of value but was no guarantee against future failures. Where matings were unsatisfactory, others had to be tried in an attempt to strike a lucky genetical combination. Club funds dictated this policy, and meant that clubs became, in many cases, experimental maters rather than disseminators of proven stock. The position did not improve much as time went on, as breeders failed to take advantage of the scheme.

As has been pointed out the combination of the three factors, sow production, growth rate of litter, and carcase quality, are essential for economical production. The introduction of the carcase evaluation scheme was aimed at tying these up. At the outset the idea was to evaluate recorded litters, since the whole story could be obtained in such cases. Unfortunately this provision was dropped and the general result was one set of figures for sow production, another for carcase quality.

Mention must be made here of the institution of bacon and pork competitions. These have been conducted now for several years, by Pig Clubs and by commercial firms. The aim has been mostly instructional and as such have been exceedingly successful. Used properly they are of great value to the breeder whether he be the ordinary farmer, or the stud-breeder. Again too few of the stud men have availed themselves of the opportunity and in a catalogue of entries of a recent sale of pedigree pigs, only one breeder could quote carcase scores to support the claims he made of the superiority of his stock. Similarly, no breeder could or did quote litter records, or even litter numbers. On the other hand, show records were given in great detail.

The above is the industry situation past and present. As was said of the Earl of Shaftesbury so might one refer to the attempts at breed improvement - Everything by fits and starts and nothing very long. As far as our knowledge of the worth of our breeding stock is concerned, we know very little more than we did sixteen years ago. The main advantage derived from early recording was to emphasise the need for improvement in management and to isolate the more important weaknesses in this respect. We have been able to decide what the possibilities are in pig production on the average farm but we have not sufficient data to praise or condemn breeds or strains within any of the breeds.

What, then, of the future? Perhaps Dr. Filmer had read the writing on the wall when he outlined his views on production dried milk as against production of pig-meat. As I have remarked, the future of the industry is the realm of conjecture. To presuppose any future, must involve an assumption of increased efficiency.

It is generally accepted that the greatest stimulus to pig production in the past has been a reduced price for other farm commodities. When butterfat prices are high the farmer evidently regards the pig, if a necessary evil, as less necessary and more evil, and reduces the work entailed in its keeping to a minimum.

There seems little doubt that our future lies in the production of both pork and bacon, with the emphasis on pork. Our bacon production will probably be little above that required for home consumption. Such a programme makes management problems much easier and fits in well with our seasonal dairying habits.

Future breeding policy, however, presents a very different problem. As others have stated on many occasions, no advance in carcase quality work can have any great support until a scheme of strict grading for quality and paying for it is instituted. The time is well past for such a scheme and if tackled, the practical difficulties associated with it could be overcome.

Sow production and growth rate problems are more difficult since they require the active co-operation of both farmer and breeder. While the ordinary farmer is not sufficiently interested to record litters as a measure of the quality of his management and his stock, he will not demand similar information of the breeder. While the breeder can sell breeding stock without records, he will naturally avoid the trouble and expense of recording. On the other hand, until the studs can demonstrate the superiority of their stock the sow population will amost certainly remain at its present ratio of pure to cross-bred animals. This being something of a vicious circle it must be broken somewhere, and any progress should be initiated by the breeders themselves. Whether they realise or acknowledge the fact, they have a responsibility to the industry in general and there are several ways of inducing them to realise this fact. Unofficial litter recording should be reinstated not only for its intrinsic value to the farmer, but also to create the realisation of its importance in the breeders potential customers. Further, unless the breeder can by similar records demonstrate the superiority of his wares, then his customers are likely to exhibit polite disinterest in his salesmanship. Though the early district councils had ambitions of setting up testing stations after the pattern of the Danes, the idea died a natural death. I would hesitate at this stage to advocate such a step. The use of a litter recording scheme tied up with a carcase evaluation scheme would fill our requirements at the moment. As an incentive, I would suggest that the Danish system of refusing registrations to any sow which did not reach a set standard in relation to her own performance and that of her progeny be made effective and that all records good, bad and indifferent be published as widely as possible.

The schemes instituted in the past if applied thoroughly and extensively would suffice to ensure at least initial improvement and progress. Anything more complex must await the development of a realisation and appreciation of the importance of factual performance data in providing the only basis for qualitative improvement.

DISCUSSION ON MR. SMITH'S PAPER:

THE PRESIDENT; One point that has impressed me greatly this morning in connection with Mr. Stewart's and Mr. Smith's papers is that breeders generally do not seem to be attempting to bring about that improvement which is so urgently required to enable people to live by the proceeds of their stock. I would add that when this work was started in 1928, in the Waikato and at Lincoln and Massey, Dr. Marsden came along and presented me on a plate, as it were, with the problem of establishing a Pig Recording Club in the Waikato, and I may say that I entered into that job with very great enthusiasm - and not a great deal of knowledge behind me in regard to pigs - and I must confess that it has been a disappointment that the work has not gone further than it has. There is plenty of scope for improvement. With the problems and difficulties ahead of us in the post-war years, we will be compelled to do something more towards improving our pigs, dairy cattle and our sheep.

MR. WHITTLESTON: I have seen pigs wandering about dairy farms, and my impression is that the pig is regarded more or less as a moving septic tank by the average farmer. What is the average number of pigs kept on the average farm in New Zealand? Do you have a lot of pigs on some farms, with most farms having just two or three, or is it reasonably distributed? If pigs