

done, or supplied the class of pig which could easily be profitably converted into breakfast bacon and mild-cured hams, which were in great demand all over the world. The Danes and Canadians had sent to this country agents of experience and judgment to discover what were the requirements of the English market, and what kind of pigs commanded the highest price. Having secured this knowledge, Canadian and Danish breeders took every possible means to furnish the raw material, with the result that bacon shipped from those countries was well-nigh equal to that produced at home. Yet, had such practical steps been taken by the pig breeders of this country to meet the home market, although that market—the best in the world—was at their doors?

The type of pig now sought after was known to most breeders. The London porker, to which he had referred, should be compact, of fair length, light in the head and shoulders, deep in the rib, wide in the loin, and long and deep in the quarters; it should also be fine in the bone, skin and hair, and weigh, when dressed, about 60 pounds. This weight should be arrived at by the time the pig was at most five months old, but if in four months, so much the better, as the proportion of bone and fat would be less and the meat more tender. The main part of the foregoing description would also apply to the bacon-curers' or country butchers' pigs, except that the live weight should be about 220 pounds, so that a carcass of say 160 pounds was the result. The length of flank and thickness of flank were of even more importance than in the case of the porker pig. This weight could be obtained in about seven months by keeping well-bred pigs. He compared the class of pig he recommended with that of half a century ago, which he could well recollect. In those days the sows were long, flat-sided, coarse-boned, lop-eared brutes, who had to pick up a living as best they might, and when cured by the old-fashioned methods were often almost indigestible. And, despite the fact that these animals cost little or nothing to keep until it became necessary to fatten them, when that time arrived the fattening process cost more per pound of pork than was the case with the improved type of pig that was required to-day. There was no doubt that the most successful pig-keeper was the man who bred his animals from strong, healthy, well-selected parents, and maintained them in a progressive state from birth until they were turned out fat at about four or seven months old. Working along these lines it would be found that not only would a smaller quantity of food be needed for each pound of increase, but that the pork from the pigs would realize a higher price per pound on the market. Experiments had proved that the cost of manufacturing each pound of pork increased with the age of the pig, and the principal reason for this was so obvious that it was not necessary to state it.

Comparison of Breeds as to Economy of Gain.

Because pigs of some breeds show a tendency to lay on fat rather than produce muscle or lean meat, many farmers suppose that they fatten or mature rapidly, and lay on flesh more cheaply. Such is not the case. Many experiments conducted here and elsewhere show very little difference in economy of gains with animals of the different breeds, says Prof. Grisdale, Agriculturist of the C. E. Farm, Ottawa.

As a result of the series of tests, the following conclusions were arrived at:

1. The breeding of the swine which gave the largest increase per pound of feed consumed was different in each of the four tests, viz.:

Test I.—Cross-breeds, Berkshire sire and Poland-China dam; grades, Improved Large Yorkshire and Berkshire grade dam.

Test II.—Cross-breeds, Improved Large Yorkshire sire and Essex dam.

Test III.—Grades, Tamworth sire and Berkshire grade dam.

Test IV.—Cross-breeds, Improved Large Yorkshire sire and Berkshire dam.

2. The breeding of the swine which gave the least increase per pound of feed consumed was:

Test I.—Pure-breeds, Improved Large Yorkshire.

Test II.—Pure-breeds, Improved Large Yorkshire.

Test III.—Cross-breeds, Essex sire and Improved Large Yorkshire dam.

Test IV.—Cross-breeds, Berkshire sire and Tamworth dam.

3. There was no constant or appreciable superiority in the breeds and breeding tested in respect to the quantity of feed consumed per pound of increase in live weight.

4. The difference in the thriftiness or power to increase in live weight per pound of feed consumed, was greater between different breeds, or the same litter than between breeds or breeding as such in different litters.

5. On the whole, for fattening purposes, cross-bred swine and grades gave better results than pure-breeds.

In comparison with the above, Mr. Grisdale quotes Prof. Day's experiments as follows:

The table given below shows the average amount of meal required for 100 pounds gain, live weight, in the five experiments. In the making up of this table only the meal has been considered. Such foods as dairy by-products and green feed, which were fed sometimes, were the same for all breeds, and have been omitted to simplify the comparison.

The following shows the average amount of meal consumed for 100 pounds gain, live weight, in five experiments:

Berkshire	364.45
Yorkshire	369.51
Tamworth	380.47
Duroc-Jersey	334.23
Chester White	387.89
Poland-China	391.42

Before any conclusions are drawn from the table given above, a second table will be presented for consideration in connection with it.

Table showing the standing of the breeds for each year, each column being ranked in order of economy of gain for each year of the experiment:

1896.	1897.	1898.	1899.	1900.
Berkshire Tamworth Poland-China Duroc-Jersey Chester White Yorkshire	Berkshire Tamworth Poland-China Chester White Yorkshire Duroc-Jersey	Yorkshire Berkshire Duroc-Jersey Tamworth Chester White Poland-China	Berkshire Tamworth Yorkshire Chester White Duroc-Jersey Poland-China	Berkshire Yorkshire Duroc-Jersey Chester White Tamworth Poland-China

In considering these tables we must bear in mind that averages are frequently misleading. For example, in a certain experiment one breed may suffer from some unfavorable circumstance which is in no way related to or influenced by the breeding of the animals; yet this circumstance may seriously affect the average standing of the breed in question.

A study of the last table reveals the fact that there is little or no constancy in the standing of any one breed, except the Berkshires, which certainly make a remarkably good showing. It may be possible that the Berkshires were able to digest and assimilate a larger percentage of their food than were the other breeds, but we believe that at least a large share of their success was due to another cause. All the pigs used in these experiments were purchased at ages varying from six to ten weeks, and it was noted that the Berkshires seemed to adapt themselves to the new conditions and change of food more readily than any of the other breeds, and thus scored an advantage at the commencement of the experiment, which they generally held until the close. We are inclined, therefore, to attribute their high standing to their ability to adapt themselves to changed conditions rather than to their power to digest and assimilate a larger percentage of their food.

Prolificacy of Ewes and the Breeds of Sheep.

By Prof. C. S. Plumb.

The value of breeding stock is materially affected by the character of its reproductive capacity. Some breeds of farm animals are notoriously more fecund and prolific than are others. The female that will not produce, other things being equal, is not worth as much in the stockyards as the castrated male, while if an active breeder, she may have a very great relative value.

Sheep are, perhaps, no more or less fecund than are other classes of stock, but they vary in much greater degree in reproductive capacity of prolificacy than horses or cattle. Under ordinary conditions the ewe gives birth to one lamb, frequently she has twins, occasionally triplets, and very rarely more.

Twins are, as a rule, desirable, to provide for ewes that have lost single lambs, for each ewe that is put to the ram should wean a lamb. Twin lambs will usually not thrive individually if nursing the same dam, as will the single lamb on one ewe. Nevertheless, most breeders desire ewes that will drop twin lambs. This is expressed by the old English couplet, given by Youatt:

"Ewes, yearly by twinning, rich masters do make,
The lambs of such twinners for breeders do take."

Livestock literature shows numerous examples of prolific ewes, some of which may be briefly referred to here as illustrating the capacity of animals of this class to reproduce.

The Gentleman's Magazine for March, 1750, states that, "Last week a ewe belonging to Mr. Katter yeamed five lambs; she also brought five lambs last year, and four the year before; i. e., fourteen lambs in three years, and not a weak or infertile one in the whole number."

The Agricultural Magazine for April, 1804, contains the following: "Mr. Meadows, of Salcey Forest, Northamptonshire, has a ewe which brought him three lambs in 1802, four in 1803, four in 1804, and four in 1805, being fifteen lambs in four years." Among the newspaper clippings [American Sheep Breeder, 1903] in my file, I find the following remarkable example of a prolific ewe, the property of Mr. A. F. Filley, Fairbury, Illinois: "More than a dozen years ago a son of Mr. Jas. Harrington, who is Mr. Filley's neighbor, was presented with a Cotswold ewe which within the next eleven years presented him with thirty lambs, in the following order: Five pair of twins, four broods of triplets, and two broods of quartettes. The males of this remarkable ewe's issue were disposed of and the females kept until the ewe flock numbered 80 head, all of which were dispersed by sale except 13 of the best ewes, which at the next lambing gave their owners 13 pairs of twins, every one of which was raised to maturity. Mr. Filley challenges American and English shepherds to produce the record of a ewe equalling this ewe in fecundity."

The above furnish interesting testimony of reproductive capacity of individual ewes, without emphasis being laid to breed inheritance of fecundity. It is, however, well known that some breeds are more prolific than others. The Dorset, an old English breed, for many years has been classed as very prolific. It is customary for most breeds of sheep to produce lambs but once a year, but the Dorset and Tunis, especially, are well known to breed to lamb twice a year if desired. Early in the last century this feature of the Dorset was a public comment, and at that time it did not meet with approval. However, since the early lamb has become a factor in our markets, the value of the Dorset and Tunis to lamb twice a year has become apparent.

RECORD OF PROLIFICACY OF SHROPSHIRE EWES AS SHOWN IN THE AMERICAN SHROPSHIRE ASSOCIATION FLOCKBOOKS.

Volume.	Year.	Singles.		Twins.		Triplets.		Total.
		Number.	Per cent.	Number.	Per cent.	Number.	Per cent.	
V.....	1890.....	1925	64.1	1044	38.8	81	1.1	3000
VII.....	1892.....	2820	56.4	2120	42.5	60	1.1	5000
VIII.....	1893.....	2902	58.0	2016	40.3	82	1.6	5000
X.....	1895.....	3030	60.6	1890	37.6	90	1.8	5000
XIII.....	1899.....	2982	59.2	1993	39.7	52	1.0	5037
Total.....		13659	59.2	9053	39.2	315	1.3	23037

Among other numerous breeds of sheep, some are more prolific than others. During the past ten years much more attention has been directed to the Shropshire than to any other English breed in the United States, and Shropshires are now the most common of any of our middle-wool breeds; in fact they far outnumber other pure-breeds of this class. The Shropshire has a number of desirable qualities, one of which is that it is generally conceded to be a prolific sort. We