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of the noted bulls Roan Gauntlet and Cumberland the former the sire of Field Marshall, who, in turn, was the sire of the champion Mario. Mimulus produced only one heifer calf, which was sold to go to the States, her other produce being all bulls, of which six are recorded.

It was in 1874 that Mr. Arthur Johnston, of Greenwood, Ont., in connection with Mr. David Birrell, made his first importation, including the roan yearling heifer Alexandrina 6th, from the herd of Mr. W. S. Marr, of Uppermill. In 1884 Mr. Johnston brought out from Mr. Duthie's herd the Highland Society prize-winning bull, Eclipse, by Earl of March, and in the same year he landed a large and excellent importation, which included the white Sittyton heifer, Allspice, an own sister to Field Marshall, four Lancaster heifers, two Clarets, a Nonpareil, and two Rosebuds, from Kinellar, and eight young bulls, seven of which were of Mr. Campbell's breeding. Mr. Johnston made many later importations, and showed his rare good judgment in the purchase, from the Luther Adams' importation of 1887, of the noted roan, Cruickshank-bred Victoria bull Indian Chief, the sire of more successful show bulls than any other in the history of the breed in Canada, with the possible exception of Barmpton Hero.

### Cost of Raising Pigs.

The cost of raising pigs, said Prof. G. E. Day, of the Ontario Agricultural College, at one of the sessions of the Ontario Winter Fair, is one which has attracted a good deal of attention of late, and has been discussed at considerable length in certain agricultural papers. As it is a very important question, an attempt will be made to add a little to the sum of knowledge regarding the problem, by presenting and discussing a few figures from our experimental work.

**Size of Litter.**—The cost of producing young pigs depends largely upon the number in the litter, a small litter costing more per pig than a larger litter. In these calculations we wish to be on the safe side, and hence we are estimating only six pigs in a litter, or a total of only twelve pigs per sow per year. This, we think, is a moderate estimate.

**Valuation of a Sow.**—A young grade sow about eight months old can be bought at a very reasonable price, and after the farmer is through with her he can sell her for quite as much as he originally paid for her, provided she makes a reasonable growth, and is well cared for. For this reason, we are omitting the value of the sow from the calculation. We are assuming that the young sow has not been bred at the time of purchase.

**Risk.**—This is a factor which is very difficult to deal with, and because there are no means of arriving at a satisfactory basis for an estimate, and because the estimated number of pigs in a litter is rather below what may be reasonably expected, we are leaving the element of risk out of the calculation.

**Cost of Maintenance of Sow.**—This is a matter upon which there may be some controversy. We have figures representing the actual cost of feeding sows while suckling pigs, but the cost of maintaining sows between litters is rather difficult to arrive at, owing to the fact that pasture plays an important part in the maintenance, and many foods can be used that have very little market value. We think, however, we are making a liberal estimate when we place the cost of maintenance of a sow which is not suckling pigs at seventy-five cents per month. Thus, if the sow raises two litters a year, and nurses each litter six weeks, it would leave about nine and a quarter months of maintenance between litters, which at seventy-five cents per month, would amount to \$6.94.

**Cost of Maintaining Sow and Young Pigs.**—For this calculation we shall use five sows under experiment at the College. An accurate record was kept of what the sows and little pigs consumed before the pigs were weaned. The meal consumed by the sows was composed of bran, middlings and oats, and is valued at \$20.00 per ton. The sows nursed their pigs forty-three days on an average, and the cost of the food consumed was as follows: Sow and litter No. 1, \$3.20; No. 2, \$3.18; No. 3, \$3.87; No. 4, \$3.79; No. 5, \$3.04. Total cost of five sows and their litters for forty-three days, \$16.99, or an average of practically \$3.40 per sow.

**Cost of Raising Young Pigs until Six Weeks Old.**—Two of the five pigs mentioned in the previous paragraph raised very small litters, and the five litters totalled only thirty-two young pigs,

which, however, is a slightly higher average than the number of pigs to a litter upon which we decided to base our calculations, namely, six. We shall count the cost of pig, however, on the basis of six pigs per litter, which makes the cost a little higher than it really was. Assuming, therefore, that a sow will produce twelve pigs during the year (two litters), that the original cost of a young grade sow is offset by her value when through breeding, and neglecting the element of risk, we have the following items of cost entering into the raising of young pigs until six weeks old:

|                                            |       |              |
|--------------------------------------------|-------|--------------|
| 2 service fees, at \$1.00 each             | ..... | \$ 2 00      |
| 9½ months' maintenance of sow, at 75c.     |       |              |
| per month                                  |       | 6 94         |
| 2 six weeks' periods of nursing, at \$3.40 |       | 6 80         |
| Total cost of 12 pigs                      |       | .....\$15 74 |
| Average cost of 1 pig                      |       | ..... 1 31   |

**Cost of Finishing for Market.**—Unfortunately, none of the young pigs mentioned above are yet ready for market, so that we shall refer to thirty pigs which were used in an experiment with blood meal, tankage and skim milk. These pigs were all purchased, and we have always found that pigs of our own raising give more satisfactory results than those we buy. Moreover, the nature of the experiment was such as to make the cost rather higher on the average, though we have omitted one group which was fed exclusively upon meal as a check group. We think, therefore, that, by using these pigs in our calculation, we are making use of a rather extreme case of cost. If we assume that we raised these pigs, and the cost until six weeks old was \$1.31 each; that meal is worth twenty dollars per ton, tankage thirty-three dollars per ton, blood meal fifty-five dollars per ton, tankage thirty-three dollars per ton, and skim milk fifteen cents per cwt., the financial statement for these thirty pigs would be as follows:

|                                      |       |            |
|--------------------------------------|-------|------------|
| 30 pigs, 6 weeks old, at \$1.31 each | ..... | \$ 39 30   |
| Cost of food after weaning           | ..... | 201 57     |
| Total cost                           | ..... | \$240 87   |
| Total weight of hogs                 | ..... | 5,332 lbs. |
| Total cost per 100 lbs., nearly      | ..... | \$ 4 52    |

On selling these hogs, therefore, whatever was received above \$4.52 per cwt., plus the manure, would represent the farmer's interest on capital and recompense for labor. If, however, these pigs were bought at \$2.50 each, the cost would be nearly \$5.20 per cwt. These figures show a striking advantage in favor of the farmer who breeds his own pigs.

As previously intimated, we think the figure above represent an extreme case, and below we offer some more encouraging figures.

**Another Instance of Cost.**—This case deals with fifteen pure-bred Yorkshires, which were upon experiment, and were sold at our public sale. When we closed the experiment, on account of the sale, they weighed a small fraction over 149 pounds each. The cost of feeding these hogs therefore, can be accurately estimated only until they reached the weight specified above. The cost of raising the pigs while on the sow was not ascertained, so that we shall use the figures obtained from the average of five litters, namely, \$1.31 per pig. The account against these pigs stands as follows:

|                                 |       |            |
|---------------------------------|-------|------------|
| 15 pigs, 6 weeks old, at \$1.31 | ..... | \$19 65    |
| Cost of food after weaning      | ..... | 66 68      |
| Total cost                      | ..... | \$86 33    |
| Weight of 15 pigs               | ..... | 2,238 lbs. |
| Cost per 100 lbs.               | ..... | \$ 3 86    |

Of course, these pigs were not up to market weights, and the cost increases as the pig gains in weight. If we assume that it would cost five cents per pound to put another forty pounds on each of these pigs, the total cost would become \$116.13, and there total weight would be 2,838 pounds, representing a cost of nearly \$4.10 per one hundred pounds. This is certainly a much better showing than the one previously presented and shows the possibilities of healthy, growing pigs. It may be that this group of Yorkshires represent an extreme case of cheap production, in which case the normal cost per cwt., would be somewhere between \$4.10 and \$4.52.

It must be remembered that these figures are not regarded as conclusive, but are offered merely as a contribution towards present knowledge of the subject. Before the close of another year we hope to have considerably more data, which may modify the calculations contained herein.

### Getting at the Facts in Hog Feeding.

EDITOR FARMER'S ADVOCATE:

In your valuable paper there have been a few statements regarding the swine industry to which I would like to call attention.

Mr. Robert L. Holdsworth stated that unless the packers will pay a better price for bacon hogs, the Berkshire, Chester, Poland-China, and other easily and cheaply fed hogs will be the only ones raised. Another correspondent who signs himself "Producer," makes a very sweeping charge against the Tamworths, and implies that Berkshires and Chester Whites are more economical producers than either Yorkshires or Tamworths.

At different times there has been a great deal more along a similar line in various agricultural papers, and I would like to call attention to the results of eight experiments where Berkshires, Yorkshires, Tamworths, Duroc-Jerseys, Poland-Chinas and Chester Whites were fed side by side under the same conditions. Five of these experiments were conducted at Guelph, and three of them at the Iowa State Experiment Station. When we come to analyze these results, we find the standing of the breeds in the eight different experiments, so far as cheapness of gain is concerned, to be as follows:

**BERKSHIRES.**—Four times stood first, once second, twice third, and once sixth, in the list.

**YORKSHIRES.**—Twice stood first, three time second, once third, once fifth, and once sixth, in the lists.

**DUROC-JERSEYS.**—Twice stood first, twice third, twice fourth, once fifth, and once sixth, in the list.

**TAMWORTHS.**—Three times stood second, once third, twice fourth, once fifth, and once sixth in the list.

**POLAND-CHINAS.**—Once stood second, twice third, once fourth, once fifth, and three times sixth, in the list.

**CHESTER WHITES.**—Four times stood fourth, three times fifth, and once sixth, in the list.

I am quite free to confess that I cannot arrange the breeds in order of their ability to make cheap use of food from the results given here. Possibly some reader can do so for us. The Berkshires so far as these experiments go, have, I should say, the best standing, and next to them come the Yorkshires, and probably the Durocs and Tamworths, in order named. But what about Poland-Chinas and Chester Whites? Are we to believe that these two breeds, which are so widely and favorably known in the United States are inferior to the Yorkshires and Tamworths in point of being able to utilize food to advantage? I do not think that any sane man will make this claim. If, then, we do not consent to the proposition as laid down, is it fair to say that the Berkshires are superior to either Yorkshires or Tamworths, on the same kind of evidence? Since all the breeds go up and down more or less in the different experiments, is it not only a reasonable conclusion that there were other reasons entering into the experiment than merely the breed of the animals, and that, after all, there is nothing in breed so far as economy of production is concerned. These experiments were conducted as accurately as it is possible to conduct live stock experiments. All food was carefully weighed, and an accurate record kept of food consumed and gains made by the hogs, and as a result we have the figures submitted above. Against these we have the assertion of a great many farmers that the bacon type of hog is more expensive to produce than the fat type, and yet we have no figures submitted by men who make this claim to show that their claim is a just one. In any experiment comparing breeds, some breed has to come out ahead, but it does not follow that its standing was the result of the breed to which it belonged, but rather to the individuality of the animals representing the breed in that particular experiment. All breed tests which have been conducted go to show the same thing, and before reckless charges are made against the bacon type of hog, men should be very careful to have accurate figures upon which to base their charges.

I would like also to say a word regarding the position taken by Mr. S. A. Freeman. The blood meal and tankage fed in these experiments were supplied by Swift & Co., of Chicago, and I am sorry Mr. Freeman takes an unnecessary fling at the Davies Co., who do not manufacture either blood meal or tankage for swine. The fact that these hogs were fed blood meal and tankage is, in my opinion, rather against cheapness of gain. However, they were the only ones in this year's work which could be used for the comparison we wished to make, and therefore I quoted their