

I never bed my pigs, yet they are always dry, warm and clean. I leave the rear door open, and into the straw stack they snuggle.

Last season I had a litter of ten that were sold at five months and twenty-one days old; they weighed 2,410 pounds at the public scales, an average of 241 pounds each. They were never shut up for a week. I fed them pea and oat chop (half and half), with a little skim milk—enough to keep down their music. During the last two months, they got all the whole peas (steeped) that they would clean up.

The sow is a York-Tamworth mixture, and I mated her with a pedigree Chester White. She always has the straw stack and exercise, and she never fails to raise two litters per year of ten to fourteen each.

I always give the little "porkies," during cold weather, warm water, with some skim milk, on their chop, and, if the weather is too severe for them to go to the pasture, then, while the cattle are feeding in the stanchions, I let them in the cattle pens for a couple of hours each day.

I notice that you are receiving several inquiries in your valuable paper re ailing and sick swine, and you prescribe this remedy and that. Now, I am positive that the straw stack, with exercise, would be an excellent corrective. Certainly, I can guarantee that, if the growing pigs—and the parent stock before—are given warm food, and exercise, and the straw stack, there will be no unthrifty swine, and, also, that the feeder will have no occasion to ask himself, "Do hogs pay?"

Middlesex Co., Ont.

W. A. CLARKE.

[Note.—Good sense, this. We wish more people could be persuaded to adopt common-sense methods in the care and exercise of stock. Then there would be fewer sick pigs. It might not abolish disease, but would greatly reduce it.—Editor.]

Economical Beef Production.

The Nebraska Experiment Station has just issued Bulletin 116, which includes the results of several experiments in cattle-feeding. Part I. deals with foodstuffs as affecting economy of production, while Part II. concerns the individual gaining capacity of animals representing different types.

In two experiments, a comparison was made of wheat bran, linseed meal and cottonseed meal as protein supplements, the greater part of each ration being corn and prairie hay in one experiment, and corn and corn stover in the other. It was found that the linseed and cottonseed meal were very nearly equal in feeding value—a slight difference in favor of linseed meal—and that bran is worth about half as much per ton as either. The profits were largest where alfalfa hay was used as a part of the roughage to furnish the desired amount of protein. In both tests alfalfa proved to be worth \$13 per ton, in comparison with linseed meal at \$30 per ton.

In a third experiment, in which the new-process, cold-pressed cottonseed cake, was substituted for cottonseed meal, the results were favorable for the cottonseed cake—more so than either linseed cake or bran—though the profits were highest with alfalfa, \$6.87 per head with cottonseed cake, and \$8.16 with alfalfa. The quality of the meat produced on the several rations was in favor of the alfalfa, as compared with the commercial protein foods.

In this bulletin are also included the results of three experiments to determine the most profitable proportion of corn to alfalfa. It would seem, from the data secured, that, when corn is worth from 35 cents to 50 cents per bushel, and alfalfa not to exceed \$7 per ton in the stack or mow, considerably less than a full feed of corn—probably 14 to 18 pounds per day for a two-year-old steer—is more profitable than a full feed, which would be about twenty-two pounds per day. If corn is worth from 50 to 60 cents per bushel, and alfalfa \$7 per ton, approximately half a feed of corn—ten to twelve pounds—will produce more profitable gains, if a good quality of alfalfa is fed in liberal quantity; in fact, all that will be consumed. This presupposes a fair quality of steers and a few weeks' extra time to give the desired finish.

In the last two experiments, individual records were kept in groups of six steers each. This was for the purpose of making a study of animal conformation and quality as affecting gains. Complete measurements were taken in each of the steers used in both experiments—fifty-four head in all. In each group of six steers were different types, some low-set and smooth, possessing quality, while others were more rangy in build and rough in appearance. The results of both experiments would indicate that the more rangy and rougher types make practically as large gains per day as the more compact, smoother cattle, but it was found that these lower-set, more compact types took on flesh more rapidly, were fatter, and sold for a higher price per pound at the close of the experiment.

It was found, in these experiments, that the depth of body and size of middle girth is an important factor in making daily gains. A difference in gains of not less than six-tenths of a pound per day was found in all groups, the steers

of a given group being fed in the same manner. With hardly an exception, it was found that the best and most economical gainers were large and roomy in the region of the paunch. The greater number of the best gainers were also large in heart-girth, although there were a number of exceptions to this. The bulletin is fully illustrated to show the conformation of each steer as to depth, length, width, etc. That there is a great variation in the capacity of cattle to make gains in the feed-lot, is made evident in these experiments. It is hoped that, by following up this work, some conclusions may be drawn as to the relation of external conformation to gaining capacity, in order that there may be more definite knowledge as to what types will most economically convert into beef the foodstuffs grown upon our farms.—[Prof. H. R. Smith, University of Nebraska.]

Profit from a Small Flock.

Editor "The Farmer's Advocate":

I always keep a flock of five ewes. Their cost per year is trifling. In the summer they run in the pasture field with the cows. In winter I keep them in a loose, boarded pen, and feed them on wheat chaff and pea straw, with one feed of hay per day. They get no grain unless they begin to get thin, but generally they are too fat. The ewes last year averaged eight pounds of wool. The five ewes raised eight lambs last year, which averaged 130 pounds in December.

A ewe can be kept till five years old with little or no loss in value on account of age, and can be sold to advantage, if in good order, to any butcher.

The breed of sheep I keep are a cross of Shropshire and Leicester. They average 225 pounds apiece now.

There is a common idea that sheep do not need water, but I find that sheep need a lot of it, if the best results are to be obtained.

COST OF KEEPING SHEEP.

The cost of five ewes last year would have been \$10 apiece; that is, \$50 for the five. The feed for summer is little or nothing. Feed in winter is not much, and might amount to about \$10. There is no labor in keeping, except in feeding. Total cost, \$60. Income: Wool of 5 ewes, 8 pounds apiece, at 22c., \$8.80; 8 lambs, 130 pounds apiece, 5½c. live weight, \$57.64; total income, \$66.44. I could now receive \$60 for the five ewes.

NORMAN MASSON.

Northumberland Co., Ont.

THE FARM.

Resources of Nova Scotia.

Following are a few points from the addresses delivered at the Nova Scotia Farmers' Convention, in Windsor, N. S., by Principal M. Cumming, of the Nova Scotia Agricultural College:

Nova Scotia is rich in resources, the most important of which are agriculture, mining, fishing, lumbering and manufacturing.

The speaker dealt with the increase of business in each of the lines of industry. The manufactures, for instance, have in the past ten years more than doubled. In minerals, the production of coal has shown the principal increase. In round numbers, the output of coal in 1900 was three million tons, while in 1908 this had increased to six million tons. The other minerals have shown, also, some increase, gold and iron being the most important. In fishing, the increase in catch has not been great, but the improvements in appliances are evident. We have reason to be proud of our forest policy. The first forest survey made in the Dominion was made two years ago by Prof. Fernow, while an efficient system of fire-rangings has done much towards preserving our forest areas from fire.

Nova Scotia, as an agricultural country, suffers to a certain extent, comparatively, not from want of fertile soil or suitable climate, but from the fact that she has so many resources that the attention of her sons is divided, and in many cases the income of her farmers is helped out by lumbering, fishing, etc., so that more or less carelessness prevails, to the detriment of concentrated effort in farming.

Another unfortunate circumstance, and one which militates against the reputation of the Province as a farming country and the introduction of settlers, is the fact that the principal railway of the Province passes, for the most part, through an unimproved part, showing from the train very little farm land. Nova Scotia would look very different to travellers if the lines ran through the improved districts. But we have demonstrated that, in the raising of farm produce we can compare very favorably with any other part of Canada.

Taking the Dominion crop report, we find that, though in yield of oats, wheat and barley, we are slightly behind the average for all Canada, we lead in yield of potatoes, turnips and hay. For this very reason that we excel in the production of feed for cattle, so are we particularly fitted for

an increase in live stock. There is no reason why we cannot keep on our lands, with proper cultivation, three times as many milch cows, which, by careful selection, should yield twice as much milk as the present average.

Alfalfa in Scotland.

Careful experiments, conducted since 1904 by the West of Scotland Agricultural Society, have demonstrated that this crop can be successfully grown in the land of the heather, being reported to do best on a deep, rather light soil, so as to allow the roots to penetrate freely. Soils rich in lime are preferred. As a green fodder for cows, it is highly prized.

Further experiment was commenced in 1905, and continued during the succeeding four years, with a view to determine the effect of a bacterial culture for leguminous crops. The field under alfalfa was divided into three plots, the first being left untreated; the second was treated with alfalfa culture, the culture being mixed with a quantity of dry sand, and distributed uniformly over the surface; and to the third was applied nitrate of soda at the rate of 1 cwt. per acre. This dressing of nitrate of soda was repeated in successive years, but the other two plots received no further treatment beyond a dressing of mineral manures given to all three plots in 1907 and 1909, to guard against the failure of effect, through lack of mineral constituents, of the nitrogen provided by the bacterial culture and the nitrate of soda.

The average yields per acre per annum from the three plots were 7 tons 12 cwt. from the untreated plot; 9 tons 17½ cwt. from the plot to which the culture was applied; and 9 tons 8 cwt. from the plot treated with nitrate of soda. This gave an average annual increase of 2 tons 5½ cwt. in the case of the second plot, and 1 ton 16 cwt. in the case of the third plot, over the untreated plot, the value of these increases, at 20s. per ton, being £2 5s. 6d. and £1 16s. The cost of treatment per annum with the culture was 3d., and that for the nitrate of soda was 10s. 6d. The profit per acre per annum from the treatment with the bacterial culture was, therefore, £2 9s. 3d., and from the dressing of nitrate of soda, £1 5s. 6d. With regard to the untreated plot, there was a largely-increased yield in 1906 over that of 1905, and this is to be attributed to the fact that the alfalfa plants were increasing their hold on the soil without any special assistance from manures. The yield remained stationary in the two succeeding years, but in 1909 there was a remarkable yield of 12 tons 10½ cwt. per acre of green forage, which may have been due to the specially favorable season, as both the other plots also gave much heavier yields. The application in the spring of that year of the mineral manures (superphosphate and muriate of potash) may also have had a favorable influence; while another factor which may be taken into account is the natural increase of bacteria suitable to the alfalfa crop. It was evident throughout the experiment that the bacteria did not spread from the inoculated plot to the other plots.

Crop Results at Macdonald College

In "The Farmer's Advocate" of Nov. 24th, 1910, some exceedingly interesting and valuable results were given from the work in crops at Macdonald College. During a recent itinerary, a representative of this paper had opportunity to spend a couple of hours again at the College, and, despite the attractions of the other departments, made his way to the crops department. Perhaps the convenience to the depot, and the bitterness of the weather—oh, yes, they have some cold weather there—partly explains the choice of direction.

January is a good time to visit experimenters to obtain results; June is a good time to see the beauties of a college; July and August a good time to see the matured or maturing crops; but in January the workers have the crops and the results all threshed out, winnowed and systematized; one gets the result of years concentrated into homeopathic dosage.

The results of 1910 in themselves are scarcely normal—perhaps no year ever is; the crops were unusually large, consequently averages over from three to five years are of much more value, and are here used.

For five years, all six-rowed barleys averaged 57.47 bushels to the acre; Mensury averaged 59.50; Mandscheuri, 55.56. All two-rowed varieties averaged 47.17 bushels to the acre, and the hullless for three years averaged 41.18 bushels. But remember that hullless weighs 60 pounds to the bushel. Converting bushels into pounds, we have 2,968 for the six-rowed, 2,357 for the two-rowed, and 2,475 for the hullless.

All the milling spring wheats for the last five years averaged 29.25 bushels to the acre. Pringle's Champion still leads, with 32.44 bushels, while Red Fife and Russian follow close in that order.

The Roumanian Macaroni wheat yielded 34.08 bushels, and Wild Goose 31.43.

One lot of Dawson's Golden Chaff fall wheat