

that a light, thin carcass, bred all to milk, will pay best, &c. Very well, suppose we grant this, does it follow that this is the end of the argument? Who is to rear this dairy cow? We all know that but a very small proportion of the cows found in our dairies are bred by the dairymen. In all the large dairies in the cities, as well in this country as in Great Britain, the cows are purchased from the farmers. Mr. Allen, it is true, with a large farm is trying the experiment of breeding his own dairy live stock; but this is an exception to the general practice. It seems therefore plain that dairy cattle, like cattle for other purposes, must be of a sort that the average farmer can afford to rear, and this must be a sort adapted to general uses.

It is idle to argue that it is impossible to breed cattle that will pay at the pail as well as at the shambles. For more than a hundred years, indeed ever since intelligent attention has been bestowed upon the live stock industry in Great Britain as well as in this country, in all localities where the soil is adapted to mixed husbandry, these two properties have been steadily kept in view by intelligent farmers in selecting and rearing their cattle, because it has been found that a breed possessing but one of the properties could not be reared with a profit.

Delaware, O.

T. C. JONES.

PIG-FEEDING.

We give below the more prominent points in professor J. W. Sanborn's bulletin on experiments in pig-feeding made at the Missouri Agricultural College, Columbus, Missouri, of which Professor Sanborn is the moving spirit. His experiments we believe to be entitled to considerable authority and to be exact and reliable. In some of his conclusions our own limited experience is confirmed, in others we have had no experience, but fully rely on their correctness. We well remember how we were laughed at once in an agricultural meeting for asserting that there was a feeding value in corn-cobs, but such we had found to be the case, and a little ridicule did not change that fact. We ask our readers to carefully consider Professor Sanborn's deductions. There's money in them.

It seems that milk—skim-milk—is the most efficient food fed in proportion of organic matter given.

Everything in my experience favors middlings against corn-meal up to fattening: The use of corn-meal for fattening and middlings for young pigs accounts for the above difference in weight of hogs.

I have found middlings in trial on hogs of like weight, side by side, to be better than corn-meal. But in this table it will be seen that the hogs average to weigh 59.4 pounds; more than in the shipstuff-fed lots.

The other four trials with fine ground cob-meal gave a pound of grain for 4.42 pounds of cob-and-corn-meal, showing as good results or better than with clear meal. Close observation of fine ground cob-meal convinces me that it has a very high value and that coarse cob-meal has little value.

The clear cob-meal got by grinding cobs and mixing from eleven to twenty-two pounds of cotton-seed meal, bran or meal with it has shown beyond question a decided nutritive value. Good growth was got, as is noted, on a small amount of food, of which over four-fifths was clear cob-meal.

Fifteen years of work with and for farmers at institute meetings and by correspondence have shown me that the belief is almost universal that the advanced shote, say weighing 150 pounds and upwards to 200 pounds, will make growth cheaper than shotes weighing 150 pounds and downward. This false view is tenaciously held, despite evidence to the contrary.

This trial was made largely to illustrate the folly of our unpardonable and indefensible practice of keeping hogs fifteen to eighteen months to obtain the growth that may well be made in seven to eight months. The growth made in the first pe-

riod would give a shote weighing in seven months 240 pounds, including his birth-weight. This would be got from the feeding, on a basis of two per cent for maintenance, of only 349 pounds more food than necessary to maintain existence. Now if a shote is kept fourteen months, or twice seven months, the maintenance food at two per cent daily would be 504 pounds for the extra seven months uselessly fed, or, in other words, maintenance rations are greater than the food of growth; and those of us—which is about all of us—who feed fourteen months actually throw away more food in unnecessary maintenance than the actual food of growth by 44.4 per cent—144.4 the amount actually needed. Regarding this food as middlings at \$14 a ton, we have a value of \$3.52 thus lost in maintenance, or, for the 3,876,325 hogs of our state, \$13,644,640.

The tables of this bulletin, and especially this one, show the miserable economy of restricted diet. It is only on such diet that we are in need of wintering our shotes for the market: (1) Maintenance-ration is a variable amount, determined by age of animals and surrounding conditions, and ranges above and below two per cent of live weight daily; but under favorable conditions may be materially under two per cent of live weight daily for a 120 pound shote. (2) The food of growth is less than maintenance food, and varies from 1.43 pounds to over two pounds. This fact requires that the days maintenance-food is given should be as short as good feeding will allow. If we double the time needed to grow a shote we use about three-fourths of the food given for maintenance, while on the other hand but little over one-half of the food goes for maintenance. With middlings at \$15 a ton, the best meal feed, by the tables, seven months lost time in marketing costs in maintenance 39.3 per cent of the sale value of the shote. (3) The more food given up to a little over a pound growth per day, the more economical the growth, while excessive growth may not be so economical as the growth just stated. (4) The growth per day increases with age up to at least 150 to 200 pounds. (5) The cheapest growth is made on young animals, gradually increasing with size, until the maturing period sets in, when increase of course is rapid. (6) Skim-milk and meals are the most effective rations fed. Middlings is the best single food; cob-meal, fine ground, is an efficient food and equal to clear corn-meal. (7) For fifty-six pounds of food fourteen pounds of growth was got up to 200 pounds of live weight for average of all the trials. This growth, at four cents a pound, gives fifty-six cents for the weight of food in a bushel of corn; middlings gave 15.3 pounds, or 27.4 pounds for 100 pounds, which, at four cents, gives \$1.09 for the 100 pounds of middlings.

ABOUT MIXED FARMING.

In the *Weekly Witness* of December 19th there appeared a letter "against mixed farming." "A plea for each farmer to take up one branch of the business." It was called forth by a remark of mine in an article on the "Crops of Ontario," to the following effect:—"A sharp lesson has been given to those who have made dairying their exclusive business. In future they will be likely to regard mixed husbandry in a more favorable light." The writer of the letter in question, Mr. Thomas B. Scott, of Vanneck, Ont., says a number of kind and appreciative things at the outset concerning the "Lindenbank papers," for which I am duly grateful, and which I accept as honest praise, not empty flattery. I do not expect an intelligent, reflective man such as Mr. Scott evidently is, always to agree with me, and am rather pleased than otherwise to have a difference of opinion frankly stated.

In the present case I do not think there is much real difference of opinion between us, but the subject is one of suffi-