

here too in the province of the breeder may at least a partial remedy be found.

A good Ayrshire cow will give 520 gallons of milk, 480 pounds of cheese, 250 pounds of butter per annum. She herself weighs about 850 pounds, and many instances are known where the annual milk product weighed six times the cow which gave it. Prof. Arnold quotes one which, weighing 1,080 pounds, gave 6,000 to 8,000 pounds of milk annually, that of 1874 being 8,271 pounds. The milk of the Ayrshire, when tested with the microscope, is found well stocked with nitrogenous matter, and the butter globules are numerous but very unequal in size. This is, no doubt, prejudicial to the Ayrshire in butter comparisons, for the butter is not all got except by skilful churning. A pound of butter is usually obtained from 25 pounds or 2½ gallons of milk; but on rich pasture, or when well fed the quantity required will be reduced by a fifth.

—*N. Brit. Agriculturist.*

ASSIMILATION OF FOOD.

At the St. Lawrence Dairymen's Association General Curtis made the point in favor of the Short-horn cow, that she was such a perfect digester of food that she did not eat as much in proportion to size and yield of milk, as the Ayrshire or Jersey. Mr. Rutherford believed this opinion to be quite a mistaken one, and that the Jersey consumed less food proportionally to size and yield of milk, than the best milking Short-horn. Professor Arnold was inclined to think General Curtis' opinion correct. In corroboration of the latter opinion, Mr. E. W. Stewart related two experiments of his own. One was with two merino sheep, together weighing 200 pounds, fed in comparison with a Cotswold sheep weighing a little over 200 pounds. These sheep were fed in separate pens, for thirty days, upon corn and hay. The two merinos ate 5 pounds and 2 quarts of corn per day, while the Cotswold ate only 4 pounds of hay and three pints of corn; and the Cotswold gained a fraction of a pound the most, while eating 25 per cent. less. He also tried a similar experiment with three small common cows, weighing 800 pounds each, and two large cows 1,200 pounds each; so that the weight of each lot was equal. The experiment was made in winter, all the cows being dry. They were all fed on mixed clover and timothy hay, cut five-eighths of an inch long, with 2 quarts of bran mixed with each bushel of cut hay. The food was weighed as given to each lot, and supplied *ad libitum*. During 30 days the three small cows ate on the average, 70 pounds per day, and the large cows 60 pounds per day. At the end of the experiment the three small cows had gained 65 pounds

and the two large cows 62 pounds. Here was a difference in food in favor of the large animal of 16.6 per cent. The cows were all apparently in the same condition at the beginning. It is the general opinion that animals eat in proportion to weight; but this will not apply to cases where the difference in weight is very large. In the case of the two merino sheep that weighed the same as one Cotswold, there is the heat of two systems to be kept up instead of one. The respiratory food is not in proportion to size of animal, as the lungs of the two small sheep, were, combined, larger than the lungs of one large sheep, and would take more food to keep up animal heat. The outside surface of the bodies of two small animals having only the weight of one large animal is much greater, and the radiation of heat from this larger surface will be proportionally greater, and require so much additional food. This appears to be a rational explanation of the facts of these two experiments, and which have been observed, in a general way, by many feeders.—*Toronto Globe.*

RURAL TOPICS.—COST OF GROWING POTATOES.

In speaking of producing a crop, the right word to use is "growing," or "to grow," and not to *raise*, as is generally said, yet "to raise" is not absolutely an improper term, as it is applied to growing crops, but only less proper than "to grow." Let us now see what it generally costs to grow (or to *raise*, if you prefer that word) a crop of potatoes on good fertile land, such as will produce from 100 to 200 bushels to the acre. I will adduce my testimony, and my first witness is a writer in the *Country Gentleman*, who says: "The work should be done mostly by labor-saving implements. The land, to be in good condition, must be free from seeds of weeds, so as to require no hand-hoeing, but to admit of frequent horse cultivation; and it should be deep and friable enough to facilitate easy planting and easy digging. It must of course be well underdrained, either naturally or artificially, especially it inclining to clay; and it should be deep enough to hold moisture in time of drouth. A case was met with a few years ago, showing the value of a deep soil, where a row of potatoes was planted on a covered drain, and the season being dry, it yielded nearly double the amount from parallel rows; the mellowed subsoil in digging the drain making all this difference."

PLANTING, ETC.

There are some potato planters that cut and drop the seed and cover it at one operation; but they are more or less defective, and I think that farmers had

better cut the seed by hand, as is generally customary, and also drop it by hand. The seed may be cut on a rainy day, and a man and two boys (or girls if you please, will drop and cover an acre a day, the drills three feet apart, and the seed from twelve to fifteen inches apart in the drills. The covering to be done with a one-horse plow, about six inches deep when the ground is leveled. This should be done when the potatoes are beginning to appear where the ridges made in covering are evened down—about twenty days after planting. It may be done with a smoothing harrow, with short teeth, without any injury to the potatoes; or turn a common harrow over with the teeth up, and load it with one or two large stones, and then harrow across the rows, and the work will be well done, the land made smooth, all weeds destroyed, and the potatoes just coming up. The entire after cultivation should generally be done with a horse, first perhaps with a cultivator, if the ground is hard, or very weedy, to be followed at the proper time with a horse hoe, and hilling the potatoes just enough to cover the weeds among them; and the digging should be done with a potato digger or a plow. The writer quoted above says: "On light soils, the digging may be performed by any of the cheaper diggers, which are made with prongs projecting in the rear of the plow; the soil being friable, the tubers are thrown to the surface. On heavy or adhesive soils, none of these implements work well, and we use a common plow, running just deep enough to invert the potatoes, picking up all thus brought in sight, and bringing the rest to the surface with a common harrow. By a little practice, this mode makes clean gathering, not half a bushel per acre remaining in the soil. Two men usually harvest sixty bushels a day."

THE COST PER ACRE.

It is not possible to give any detailed cost of growing an acre of potatoes that will apply to all cases, as it costs more in some soils than in others; and some farmers have better implements than others; but the following estimate is not far from being correct in most cases:—

Plowing one acre of land	\$2 00
Harrowing and furrowing	1 00
Planting and covering	2 00
Cultivating three times	2 00
Applying Paris green twice	3 00
Digging and drawing in	5 00
	\$15 00

To this should be added one-half the value of any manure applied to the land, as half of its virtues may be charged to succeeding crops; and if you please, you may add interest on the value of the land. I am sure that any farmer may do all the work for an acre of potatoes, as above stated, for \$15; and, in some cases, the