

above, and these calves thrive well, and never seem to suffer any inconvenience. Every winter, also, some young cattle are kept in part of a sheep pen, where it is practically as cold as outdoors, except that the animals are sheltered from the wind. These young cattle always thrive better than those which are kept in the warmer stable. In fact, an animal that is gaining rapidly in flesh should not be kept in a very warm stable, for the reason that it will suffer from heat. In fact, a person has only to try the method suggested in order to be convinced that it is better to give young cattle a cold building, where the air is dry and fresh, than to keep them in a warmer stable.

Prof. Day, in conclusion, urged breeders to give their cattle plenty of fresh air, stating that damp, foul air will sap the vitality of the most rugged animal.

Attractive and Useful Buildings.

The illustration on page 43, of Dr. D. McEachran's farm buildings, shows one of Quebec's most modern farmsteads. These buildings are up-to-date in every particular. Nothing is wanting which tends towards animal comfort or the saving of labor. The buildings are all lighted with electricity, and are fitted with large, roomy stalls and loose boxes, with cement floors, and iron fittings of the latest design. Water is on tap in all parts of the stables, and the health of the stock is assured by a thorough system of ventilation.

The barns are specially arranged for Clydesdale breeding, but forty head of steers, besides seven pure-bred Jersey cattle, a number of pigs, and three hundred fowls are being fed at present. The building on the extreme left is the piggery; at the end of the large stable is the power-house; back of this stable is the cattle barn; in the background the large residence, and on the right a large implement shed. The Clydesdales in the foreground, from right to left, are Kintyre, Peggie, Selborne, Mary Park, and the champion Linlithgow Lass. A combination of such stock and buildings, coupled with good management, cannot but produce satisfactory results. There is nothing which adds to the attractiveness of rural life more than good buildings and high-class live stock, and where such modern structures as are here illustrated are provided for the animals, there can be little doubt but that greater strides than ever are possible in the bringing of the various classes and breeds nearer to that perfection which is the desire of every progressive stockman.

THE FARM.

A Study in Rural Economics.

By Prof. J. F. Snell.

IV.—GOOD VS. POOR COWS.

Variations in Receipts per Cow.—From about half of the herds of six or more cows not enough products were sold to pay for the feed they consumed. The value of feed per animal unit was about \$60. By an animal unit is meant one cow or bull or two calves or heifers. The receipts per cow were over \$75 in 28 per cent. of the herds, and in 11 per cent. they were over \$100 per cow.

Receipts per Cow Related to the Value of Cows.—The average value of all cows was \$40 in 1907, and \$41 in 1908. The value per cow depends, of course, to a considerable extent on her producing capacity. The greater the receipts, the greater the value. But the increase in value is not proportional to the increase in the receipts. Thus, the cows yielding receipts of \$51 to \$75 averaged \$40 in value and \$62 in receipts, while the cows yielding over \$100 in receipts had an average value of only \$53, whereas their average receipts were \$121. The average receipts from the latter group are nearly twice as high as those from the former, but the value of the better-yielding cow exceeds that of the poorer by less than one-third.

Cows of poor quality are comparatively high-priced because of their beef value, and they should be turned into beef. Their price is held up by their beef value, rather than by their dairy value.

Relation of Receipts Per Cow to Labor Income.—Of the farmers who kept cows producing \$30 or less receipts apiece, 44% made less than \$1 labor income, and none made over \$1,000. But of those whose cows produced over \$100 receipts each, 52 per cent. made over \$1,000 labor income, and absolutely none fell into the class making less than \$1 labor income.

BREEDS.

The predominating breed of cattle in Tompkins County is the Holstein-Friesian. Of the 116 herds classified, only six were pure-bred, viz., two Holstein, three Jersey, and one Guernsey.

Classifying pure-bred and grade herds together, 67 herds belonged to the Holstein group, 30 to

the Jersey, and 10 to the Durham group. The Durhams are described as a type of Shorthorn, descended from early importations, and quite different from the modern beef Shorthorns. About two-thirds of all the cows were in the Holstein group. As the subjoined table shows, the cows of the Holstein group had decidedly the advantage over those of the other two groups, both in their value, in the value of their products, and in labor income to their owners. The production of market milk appears to be the most profitable line of dairying in that district, and the Holsteins naturally excelled in this respect. This is, of course, one of the cases where it would not be safe to apply the results of this survey to other localities.

Relation of Breed to Receipts per Cow and Profits.—116 farms with six or more cows, operated by owners:

Breed.	Receipts per cow.				
	Value per cow.	From milk and butter.	From stock.	Total.	Labor income.
Holstein group.....	\$49	\$76	\$11	\$87	\$798
Jersey group.....	41	53	9	62	481
Durham group.....	39	59	15	74	469

Pure-bred vs. Scrub Bulls.—The results obtained in this comparison are in line with universal experience. The pure-bred bull gives the best result. Yet so common is blind ignorance of this outstanding fact, that only 29 per cent. of the bulls kept on the farms having six or more cows were found to be pure-bred. In other words, there were more than two scrub bulls to every one of pure-bred. Among the Holsteins conditions were better, the pure-bred bulls being just in the majority.

Of the farmers who had mostly Holstein-grade cows, 34 had pure-bred Holstein bulls, and 31 had grade Holstein bulls. The average receipts per cow were \$89 for the herds with pure-bred bulls, and \$63 per cow for herds with grade bulls. The farmers who kept the pure-bred bulls had an average labor income of \$1,012; those who kept grade bulls averaged \$396.

The differences in labor income are due in part to the fact that the men with pure-bred bulls kept larger herds and had larger farms. But that the differences are largely due to the superior quality of the herds headed by pure-bred bulls, is evident from the receipts per cow, which were:

1. For milk and butter, \$79 in the herds with pure-bred bulls, as against \$55 in other herds, and
2. For cattle sold, \$10 in the former, and \$8 in the latter class of herds.

V.—EDUCATION VS. SELF-MAKING.

The results of this survey bear striking testimony to the value of education to the farmer. Of the owners, those who went only to district school made an average labor income of \$318. The average labor income of High School men was \$622. Of the more than High School men it was \$847. The differences are emphatic. The labor income of the High School farmers is \$304 greater than that of the district school men. This would be 5 per cent. interest on \$6,080. In other words, the High School education of a farmer is equivalent, financially, on the average, to \$6,000 worth of 5-per-cent. bonds.

The average labor income of the tenants who had only district school education was \$407. The High School tenants made an average labor income of \$473.

Of course, there were instances of educated farmers earning low labor incomes, but these were not so plentiful as among the farmers with the poorer education. Forty-three per cent. of the owners with High School education made labor incomes of \$400 or less; but of the farmers with only district school education, sixty-four per cent. were in this comparatively unsuccessful group. On the other hand, the proportion of better-educated men making over \$1,000 labor income, was vastly greater than among the more poorly educated.

Only 5 per cent. of the district school men made over \$1,000, but 20 per cent. of the High School men made this much.

Education Related to Profits, with Capital Equal.—The objection might be raised that these farmers with higher education made more money, not because of their education, but because they possibly had a better start in business; that many of them probably inherited farms and other property. This is probably not true, but a comparison has been made which would overcome such an objection.

Farmers of the different education groups, with the same capital, are compared. Two groups are used, district school, and more than district school. In every capital division the farmers with more than district school education made a greater average labor income than those with only district school education. The farmers with the better education use their capital more ef-

fectively; that is, if given an equal start at the beginning of a year, the farmers with more than a district school education are ahead at the end of the year. On the average, the High School farmers have made \$211 more than the district school farmers with the same capital.

EDUCATION RELATED TO PROFITS, WITH EQUAL CAPITAL—500 OWNERS.

Capital	District School.		More than District School.	
	No. of farmers	Labor income	No. of farmers	Labor income
\$ 2,000 or less.....	31	\$ 187	3	\$ 286
2,001—\$ 4,000.....	146	241	36	275
4,001— 6,000.....	122	398	49	466
6,001— 8,000.....	50	395	40	709
8,001— 10,000.....	28	618	13	796
10,001— 15,000.....	18	525	25	1,091
Over 15,000	3	1,054	9	1,272
		\$ 488		\$ 699

"It should be noted that only three or four of these farmers received any agricultural instruction whatever in the schools or colleges. We must conclude, that these striking differences in profits are due, not to the teaching of the applied subjects, but rather to the extra mental training. If the same training had been received in the study of the subjects pertinent to the industry, how much greater would the differences have been?"

Cost of Cement Silo.

Editor "The Farmer's Advocate":

Having noticed, from time to time, articles on cement-silo construction, will give an account, with cost, of silo erected on my brother's farm.

This silo is 14 feet by 32 feet 6 inches, has a base width of 18 inches, tapering to 10 inches at 3 feet, or top of ground, to 6 inches at top. This silo has a continuous opening, with the exception of 7½ feet at top and 5 feet at bottom; ½-inch iron bars cross this opening and extend into the wall, and are fastened to reinforcing wires. Many silos were built in this manner the last few years, and all are satisfactory. It would appear to weaken structure, but all have stood, and, as concrete is supposed to strengthen with age, no doubt these will be all right. A mixture of 1 to 10 Portland cement and gravel was used, and 8 loads stones were used as fillers.

The silo was twice swept with cement outside, after any large holes were filled with cement. As no mason could be secured at the time, the silo was plastered by ourselves.

The roof is very steep, allowing for more space and convenience in filling; 26 gauge galvanized plain sheeting was used on roof; 1½-inch galvanized nails, with lead washers, were used, nailed direct to rafters. The circles are two 1-inch boards; the plates are bolted to silo; for rafters, 2 x 4-inch scantling were used, 17 inches apart at the bottom, tapering to 2 inches at top, and fastened to top circle. A ventilator is used, with 15-inch flue, and gives the silo a very neat appearance.

By way of comparison, the writer has a stave silo, 15 x 30 feet, without roof. This silo has been filled fifteen times, and is practically as good as when erected. It is pine, and set on stone wall. It had never given any trouble until last year, when about 6 feet shifted off wall and fell inwards. This was at once replaced, and an extra wall of concrete built inside, and 3 inches higher than bottom of staves. It is hoped this will keep it to its place. The silage keeps about the same in each silo, perhaps some more spoiling on top in cement. The cause of this, no doubt, is due to the rains wetting top of corn and excluding the air better; the same results could, no doubt, be obtained by drawing up water in roofed silo and wetting corn. Silage freezes more in cement, but this may be due to location.

I consider, with cost of lumber and durability of the concrete, the latter will make more economical silo.

Now, as to cost, we will only consider actual outlay, as other work was done at a slack time of the year:

35 barrels Portland cement, at \$1.70.....	\$ 59.50
8 ½-inch iron rods across opening, at 25c..	4.50
Work in building, including moulds, etc.....	82.50
60 lbs. No. 6 reinforcing wire, at \$3.50...	2.10
10 8 x ½-inch bolts at top, at 5c.....	.50
40 loads of gravel, at 10c.....	4.00
150 ft. lumber for chute, at \$19 per M.....	2.85
60 ft. 2-inch plank for opening, \$19 per M.	1.15
For roof:	
Circle for plate, and 30-in. circle at top...	4.50
326 feet 2 x 4 in. x 14 ft. for rafters, etc., at \$19 per M.	6.19
Metal roofing (plain gal.)	16.46
Ventilator, 15-inch flue (no screen)	2.50
Total cost	\$186.75

Ontario Co., Ont.

F. H. WESTNEY.