

must have it. Its value from the standpoint of economy of production cannot be overestimated. It effects a saving in the food of production, in the food of maintenance, and in the labor of attendance. Within recent years the marketable age of our best cattle has been reduced in some cases by one-half, in response to market demands for more tender and juicy meat. Formerly steers were kept to the age of three and four years; now our best beef steers are ready for market at two, two and one-half, and three years, and the saving in the cost of producing these early-maturing cattle is practically in proportion to the difference in age. And this reduction in the cost of maintenance, production and work of attendance is the source to which we must look for the profit in keeping stock for meat purposes.

Cut Feed vs. Uncut Feed.

If anyone is at all in doubt as to the advisability of cutting hay or straw or pulping roots for fattening cattle, the experiments carried on at the Ontario Agricultural College may throw some light on the subject. Discussing this question, the College report says:

The question is frequently asked: Does it pay to cut hay and roots? In our ordinary feeding, we believe it does, because the cutting of feed enables us to mix the ration straw, chaff and inferior hay in a way that makes these palatable to the cattle. However, in feeding a lot of steers, hay and roots were the only roughage used, and both were of good average quality, so the opportunity was taken to determine, so far as this bunch of cattle was concerned, the relative gains from feeding good hay or roots whole or cut. Half of the long-keep and half of the short-keep steers were fed uncut hay and whole roots. The other half of each group were fed cut hay and pulped roots. The experiment was continued up to March 26th (119 days), when the short-keep steers were disposed of.

In the table below are given the gains made, the food consumed for 100 pounds gain, and the cost of producing 100 pounds gain under each system of feeding:

Group fed.	Average gain. lbs.	Average daily gain. lbs.	Cost of 100 lbs. gain. \$ c.
Cut feed	242.5	2.04	10 82
Uncut feed	257	2.18	11 54

Feed for 100 lbs. gain—

Cut feed—416 lb. meal, 1,112 lb. hay and 2,224 lb. roots.
Uncut feed—397 lb. meal, 1,255 lb. hay and 2,549 lb. roots.

Making no allowance for the cost of cutting hay and pulping roots, 100 lbs. gain were produced at a cost, for food material, of 72 cents less in the case of using cut feed than in the case of using uncut feed.

The steers fed cut feed averaged in weight at the conclusion of the experiment 1,388 pounds, of which 242.5 pounds cost, as stated above, 72 cents per 100 lbs. less to produce. From this it is evident, by a simple calculation, that were steers generally selling at \$5.00 per hundred-weight, these steers could have been sold with as much profit at \$4.87.

It will depend much, however, upon circumstances, other work that could be done, etc., whether this is sufficient margin to pay for cutting hay and pulping roots.

How Often Should Pigs be Fed?

Practices vary in the feeding of cattle, but almost everyone believes in feeding hogs three times a day. If a practice is adopted that deprives his porcine majesty of one of his regular repasts, his protests are by no means mild. The stomach of the hog is not large, or, at any rate, he requires to have it constantly filled. Whether he returns sufficient gains to warrant the most constant attention to this detail of farm practice is not well established. Little of an experimental nature has been done to determine the question, the readiness of the hog for three or more meals a day seeming to be sufficient evidence in favor of the practice of constant care. In experiments conducted at the Guelph College, however, hogs fed three times a day did not make sufficient gains over those fed twice a day to pay for the extra labor of feeding. This was the result of only one experiment, and, perhaps, when carried farther may give a reverse result. It is worth noting in the meantime whether a lighter feed at noon would not give equally good results to the regular full-sized dinner.

I have often heard my friends speak of the "Farmer's Advocate" as being such an excellent paper. I often thought of sending for it, but put it off from one time to another until I could not resist any longer.
Coral, Ont. T. D. COLE, P. M.

Kindly renew my subscription to your valuable paper. I would not do without it for twice the price. Enclosed find postal note for \$1.50.
Chapman, Ont. HARRY FOSTER.

Cross-breeding.

Dr. A. S. Alexander, the well-known authority on breeding, has the following to say on that very timely subject, cross-breeding, in the Livestock Report:

It is quite true that the amalgamation of two distinct breeds may result in progeny superior in some respects or another to the characteristic type or conformation of either pure-bred parent. This is seen in the first cross, but should we continue the experiment improvement would cease and retrogression commence. This would surely take place, and rapidly, were we to use the cross-bred bull for breeding purposes. The reason for this is that the cross-bred animal, while possessing an equal amount of the blood of each parent, possesses no surplus of either blood. There is no established prepotency in such an animal. Two distinct prepotencies have merged into one in his manufacture, and the joint prepotency is a diluted or mixed one, hence weak compared with that of a pure-bred animal. It is as if two streams of water of about equal strength and speed of current were to meet from opposite directions. The one current would oppose that of the other. The result would be a war between the two. The stronger would conquer, but even then the speed of the current would be greatly diminished. So, in breeding, two opposite currents of blood of equal strength are apt to oppose each

pure blood first used. In other words, many successive top-crosses of Shorthorn or Hereford blood have finally obliterated every trace of the prepotency of the native animal, and the resultant progeny has been, to all intents and purposes, pure-bred.

For the reasons stated, cross-breeding among pure breeds is a ruinous process and foolish, unless for the production of non-breeding animals. It is perfectly legitimate in the attempt to secure fattening animals of supreme excellence and quality. We see this in the mating of white Shorthorn bulls with black polled cows. The resultant cross is known as a "blue-gray," and such cattle are celebrated for their fine beefing capabilities and superior feeding form. Nobody that we have heard of has, however, sought to establish a breed of blue-grays possessed of breed prepotency, nor would it probably be possible to achieve such an object in breeding. Again, it is a common practice among sheepmen in Great Britain to cross-breed pure breeds of sheep to provide superior fattening animals. The popular crosses are that between the Cheviot ram and the Border Leicester ewe, or the Cheviot ram and the Black-faced ewe, or vice versa in each instance. The resultant "half-bred" sheep, or "gray-faces," are largely used, but not for breeding purposes, unless to clinch one side of the equation by super-imposing another top-cross of the blood of the sire originally used. Such repeated use of the same blood on the sire's side is not cross-breeding, but grading up, and that is what we are doing all over the country in seeking to improve our farm animals. It is work that should be intelligently done. In horse-breeding, all sorts of blends and alloys have been made by the use of pure-bred sires. Had such attempts been intelligently carried out, we would to-day possess practically pure-bred horses in many districts where pure-bred sires have long been used. As it is, breeders have departed from straight or continued line breeding, and have made successive crosses, with the result that most of our horses are mongrels in breeding and misfits in point of conformation and utility.

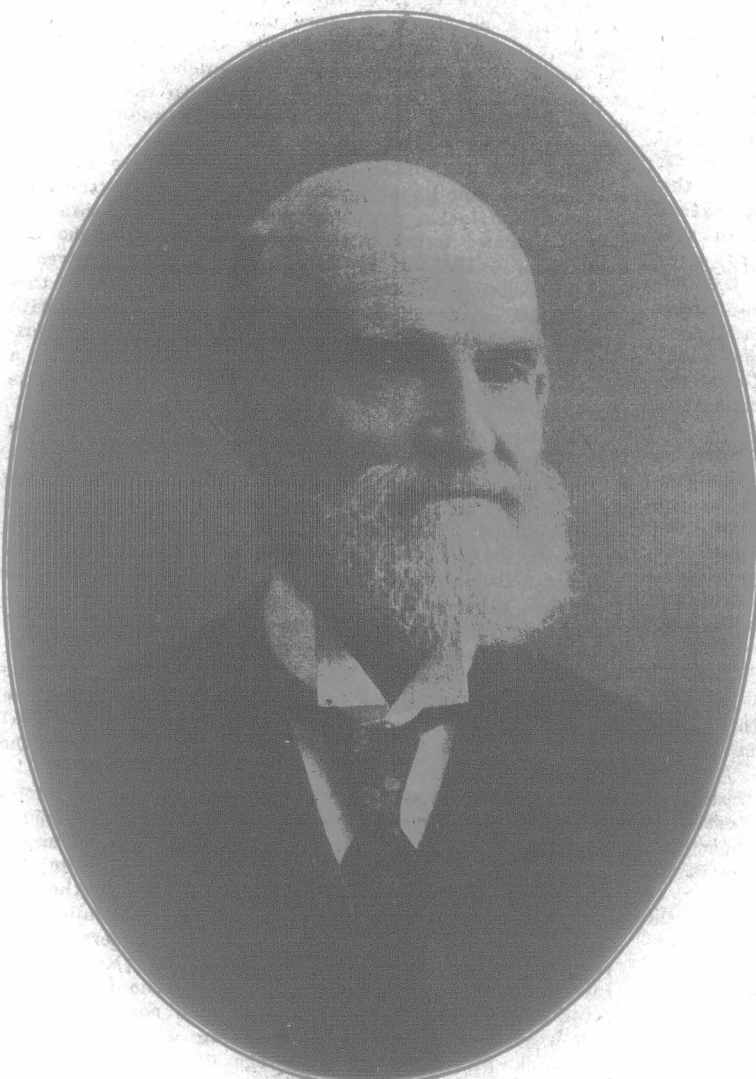
In this connection, there is a form of cross-breeding which, it seems to the writer, should be more commonly followed than is the case at present. We refer to the crossing of cows of the dairy breeds with bulls of the beef breeds. Steers of the dairy breeds make poor fatteners and killers. In many instances the cow is merely bred to continue her in the dairy. In such cases it would be good policy to breed to a beef-bred bull, in order to obtain a better feeding animal. In order to keep up the necessary number of cows in the herd, it would, of course, be necessary to breed now and then to bulls of the dairy breed, or to always breed the best dairy cows to such bulls. As, however, very many dairymen do not raise their own cows, but sell calves at an early age, they might just as well have good calves to sell, instead of dairy calves, which do not prove so profitable to the feeder.

Trade with Japan.

The value of the importations of Canadian flour into Japan for the past eight months amounted to \$81,755.07, as compared with \$5,940.19 for a similar period in 1903. The knowledge has become widespread that Canadian flour makes more and better bread than other flours, but on account of its high price it will have to be pushed hard to the front by those interested. (The Canadian millers), if it is to maintain its progress. The importations of Canadian butter for the first eight months of this year reached \$38,020.93 in value. The consumption of Canadian butter in Japan is capable of indefinite extension, if this country were prepared to supply it and press it upon the market.

The season of 1904 did not develop any new world-beaters on the American race-track, although as a climax to a rattling good season Dan Patch shaved a little off his record, his new one being 1.56. Major Delmar also successfully established new records with high-wheeled sulky, and without the aid of wind-shield. The trotting record now without the shield is 2:01, made by Major Delmar at Memphis, Tenn.

Observant horsemen claim that when a horse has a white hind foot it is more often the left one than the right. Wonder if this is really so?



Mr. John Jackson, Abingdon, Ont.

President, American Southdown Sheep Breeders' Association.

other, or so perfectly blend together that the identity of each is lost, and the strength of each destroyed.

Cross-breeding has been tried with all breeds and kinds of animals. Such breeding was at first necessary, but as second crosses proved unsuitable, prepotency on one side of the equation had to be strengthened by repeated use of one kind of blood, and gradually that one type became predominant. This is well illustrated in the history of the Poland-China breed of swine. Several breeds were crossed in the early efforts to obtain a new breed. By selection, the best animals of such crosses were set aside or retained for breeding purposes, but gradually, one blood being most used, became most prominent, and breed prepotency was established, so that the Poland-China repeats its characteristics with certainty within the confines of its own blood, and stamps them also upon swine of less prepotency if mated therewith. The mating of a pure-bred Shorthorn or Hereford bull with a native cow of any country is true crossing. The native cow, although a scrub, represents a pure breed possessed of strong breed prepotency. At first, the progeny of such a cross may show equal traces of each parent. Such progeny used on the male side for perpetuation of its kind would fail, being a mongrel, and not possessed of a marked prepotency. Improvement starting with such a cross has been continued by repeated use of the