

tribute any undesirable qualities to the products, beef or milk; besides, they possess the further advantage in that, in many cases, the cost of the ration is reduced by their use. Their intelligent purchase and economical use, however, requires that the purchaser shall possess a definite knowledge of their composition; that is, he should know, first, not only how much protein and fat the genuine products, cottonseed meal, linseed meal, gluten meal, gluten feed, bran and middlings contain, but also whether there is reasonable uniformity or wide variation in respect to these compounds in the composition of the products of the same kind or name; secondly, whether any of them are liable to be reduced in value by the addition of cheaper substances.

VARYING ANALYSES OF FEEDING STUFFS.

We have endeavored to collect some definite data regarding the character and composition of these by-products. For this purpose, we gathered a large number of samples and analyzed them, the results of which were published in Bulletin No. 138. Since this bulletin was published, we have analyzed many more samples, and the results show that a large number of the various products offered for sale are of good quality, but that those of the same kind from different manufacturers vary quite widely in composition. Further, we have found that in some cases there is a tendency to mix residues of one grain with another, and sell them under a trade-name, or to add low-grade by-products to those with which the farmer is familiar, as, for example, oat hulls to wheat bran. With these facts before us, it is evident that the purchaser cannot form a correct idea of the composition or value of a food from the name given it, and that steps should be taken to have these concentrated feeds sold in such a manner that the percentage composition, rather than name, will be the guide to their value.

LEGISLATION NEEDED.

Laws have been passed in many of the States of the American Union making it compulsory for the seller of these mill by-products to print on the bag the guaranteed minimum percentage of protein and fat, and the maximum percentage of crude fibre, and also the grains from which the feed was made. In this way the farmer knows exactly what he is buying, and if he is familiar with the composition of his own feedstuffs and the requirements of the animals he is feeding, he can purchase his supply of concentrates intelligently, and with every assurance that he is getting full value for his money. It will pay farmers in good hard cash to make a thorough study of the whole subject of cattle-feeding, and to make themselves familiar with the nature of the various feedstuffs now on the market, in order that they may not only feed more economically, but that they may intelligently assist in the procuring of laws similar to those now in operation in the United States, which would make it possible for one to purchase feeds with a guarantee as to the amount they contain of the essential food constituents.

Q. What is the difference in value between old and new process oil-cake meal?

A. In the old process the oil is removed by means of pressure. By the new process, the fat is more thoroughly extracted by means of solvents.

Q. What about cottonseed meal?

A. Cottonseed is one of our richest and most concentrated meals, but is not a safe feed for calves or pigs.

Q. How much linseed (oil cake) meal would it be advisable to feed to a cow?

A. I would never recommend more than two pounds of linseed meal per head per day, and would start at much less than that.

Q. Would it pay to feed linseed along with alfalfa hay?

A. If one has a good quality of alfalfa hay, it is doubtful whether it would pay to purchase the more concentrated feeds, such as linseed or cottonseed, unless in moderate quantities. For dairymen, especially, no better roughage can be given than alfalfa.

Q. What should be fed with good silage and clover hay?

A. With such a ration, there would be less need of bran as a laxative, though I know of good results from the feeding of bran and oats along with such roughage.

Q. Will you explain how we can calculate a ration, so as to know when we are feeding our cows a balanced ration?

A. Having a table showing the digestible constituents in the various foods entering into the composition of the ration, multiply the pounds of fat by 24, add it to the number of pounds of soluble carbohydrates, and into the sum of these divide the number of pounds of protein. The result should be, approximately, 5, indicating a nutritive ratio of 1:5. It may vary a little one way or the other, but should approximate this proportion. Prof. Harcourt cited an experience on the home farm, years ago, when they had an abundance of potatoes, which could only be disposed of by feeding to the cows. Along with

a liberal supply of potatoes, they fed concentrates quite rich in starch, but deficient in protein, with the result that the milk flow immediately dropped. Not only was the supply of protein inadequate to furnish the needs of the cows for milk-making purposes, but the excessive proportion of starchy elements lessened the digestibility of the ration.

Q. What about ground flaxseed?

A. Ground flaxseed is very rich, and should be fed with care. It contains a rather lower percentage of protein than oil-cake meal, but a great deal of oil or fat.

Q. How do the values of gluten meal and linseed (oil cake) meal compare?

A. If one could be sure the gluten meal were true to name, he could afford to pay as much as for the oil cake, but it is hard to be sure of it. They had analyzed samples of gluten meal, so-called, at the College, ranging from 15 to 34 per cent. protein, with an average test of only 24.96 per cent. On the other hand, they had analyzed 17 samples of gluten feed, average 25.65 per cent. protein. The inference was that a good deal of gluten feed is wrongly labelled gluten meal.

Q. Could a miller be sure just what he was selling in the way of these by-products?

A. A miller would know what he was selling, because he would know how he had made it, though he would not know the precise composition, unless an analysis were made.

Q. Do not gluten meals make the butter oily? We have found it so.

A. Possibly, as the gluten meals are derived from corn, and the oils of corn are soft.

Q. If a man had a sample of linseed or gluten meal analyzed, would he be fairly sure of getting a similar composition from the same mill thereafter?

A. If the sample were fairly representative of the run of the mill, yes.

Prof. Harcourt announced that the Department of Chemistry at the O. A. C. were willing to undertake the analysis of a limited number of samples of feeds sent in to them just now. Replies need not be expected by return mail, but the work would be performed with all reasonable despatch.

Scotch Feeding Practice.

Editor "The Farmer's Advocate":

The time has again come to renew my subscription for your breezy and up-to-date paper. That was a very useful discussion you started on "Economizing the Meal Ration." It brought out some very good papers, which I hope will prove useful to your readers, even when grain and other feedstuffs are not so dear. If young, growing stock are fed too much starchy food, it is not only a waste of money, but it puts the system in that condition that they actually take longer to feed off afterwards. It is different with oil cake. Any one is quite safe to feed it at any time, summer or winter, from the time the calf is weaned until it is finished for the butcher, with nothing but beneficial results. It will pay, too, with judgment. Never feed cottonseed to any animal under about two years. The system some of the best feeders here follow with the cattle they feed off about April or May, at two and a half years old, or thereabouts, is: Once they are fairly shut in for the winter they get a pound of linseed cake and a pound of cotton-seed cake once a day, with plenty of turnips and straw. Along about the middle of January they begin to give some meal, gradually increasing the feed and giving it at two feeds. For a tonic they give a pound a day of molasses. But a great deal must always be left to the judgment of the individual.

A SUBSCRIBER IN SCOTLAND.

Ventilation of Manitoba Stable.

Editor "The Farmer's Advocate":

In regard to the ventilation of stables, my stable has joists running from side to side, which hold up the upper floor; and, by enclosing two of the joists, by nailing boards underneath, leaving a space about a foot wide in the center, and cutting a hole in each side of the barn, I have a good cheap ventilator, and one that gives better satisfaction than any I have seen, because one has full control of it, by having a slide door in the center, and also little doors on the outside. One can put as many of these in as the size of the barn requires. The cost of construction is very small.

I believe in a good roomy barn, with high ceiling, and lots of room between the stock. I like to have a stable so that the walls are dry and don't cover over with frost in cold weather. And when the stock get a run out every day for an hour or two, and the stable doors are open for a little while every day, I don't think there is much danger from lack of ventilation. I found, when we had ventilators running up through the roof, they would fill with frost in cold weather, and then, when it warmed up a little, they would melt out and make things sloppy, while the ventilator I described doesn't do that. In my barn, 30 feet wide and 50 feet long, potatoes have lain

on the floor in one of the stalls every winter for the last five years, and they never have frozen, and we have a good healthy stable.

Provencher, Man.

WM. SHIELDS.

Causes of Loss in Flocks.

The loss of thousands of lambs and hundreds of ewes during the lambing season of 1908 in the State, led Virginia Agricultural and Experiment Station to investigate the causes of this great mortality. Lack of shelter during the severe weather of January and February was known to be a common defect in sheep-raising, but it was considered that many other causes were responsible for a large percentage of the loss.

The report appears in Bulletin 178, and contains the following summary, by W. J. Quick and A. P. Spencer, who conducted the investigation:

1. There are in Virginia 355,366 sheep of all ages, with an assessed value of \$1,007,915.

2. During the severe weather of January and February, 1908, the loss of lambs was exceptionally severe. In seventy-three flocks visited, 961 lambs were lost, out of 5,252 dropped, or 19 per cent. In sixty-five flocks reported by letter, 1,478 lambs were lost, out of 8,068 dropped, or 18 per cent.

3. Figuring on this basis for the State as a whole, 70,147 lambs, valued at \$350,375, were lost in Virginia during the lambing season of 1908.

4. The estimated loss from natural and unpreventable causes was 14,029 lambs, valued at \$70,145. The estimated loss from preventable causes was 56,118 lambs, valued at \$280,590.

5. Averaging the reports by letter and the reports by personal inspection, we find that the losses were due to the following causes: (a) Cold and exposure, 40 per cent.; (b) lack of milk, 31 per cent.; (c) weakness, 9 per cent.; (d) disease and accident, 3 per cent.; (e) worrying by dogs, 1 per cent.; (f) natural causes, 16 per cent.

6. Many Virginia shepherds should provide better shelter. A shed protected on the north, east and west, with an open southern exposure, is best. Allow twelve square feet floor-space per sheep.

7. Attention to the feed of the ewe for a month previous to lambing will insure an abundance of milk. Give feeds rich in protein, and supply succulence.

8. Maintain strong vitality in the flock, and hence ability to resist severe weather, by selecting strong, pure-bred rams, and keeping over only the strongest young breeding ewes.

With a Bull in a Ten-acre Field.

Editor "The Farmer's Advocate":

It is seldom a year passes without it being necessary to record an accident or fatality by cross or vicious bulls, and it is just possible that the experience of a young man who had an encounter with one may be of use to others who may be called upon to defend themselves against the attack of a ferocious bull, with no weapon of defence except that which nature gave them. The incident related occurred in September last.

The bull, a full-grown Ayrshire (full of vigor), had been turned into pasture for use, with a chain sufficiently long and heavy to keep him safe; but the chain got broken close by the ring, which let him free. The encounter took place in the middle of a ten-acre field, the young man having nothing with which to defend himself except an athletic and powerful physique. The bull, perfectly savage from the first, came with a rush. It was easy to side-step the first two or three times when he came past, but when he found he had been deceived he closed in, and began to spar for position, then tossing, thrusting and lunging. The young man managed to evade the attack, but was eventually thrown from his feet. Again and again the mad brute attempted to pin him to the ground with his horns, but each time he managed to roll quickly to the side, while the bull buried his horns in the turf. It was while he had missed one of these thrusts, and was lying on the ground, with the bull on his knees boring into the turf, that the young man grabbed him by the nose, ring and all, sprang to his feet, and as quickly caught his off-side fore foot and rolled him over. The fight was now over, but he was still alone in the middle of a ten-acre field, and if allowed up he might renew the attack. A few yards away he saw a stone about the right size. After a time, allowing him up and giving him a good warning with the boulder, took him home and put him into the stable. When the encounter was over the young man was stripped to the waist, as though he had been in a prize-fight, with only a few bruises.

The foregoing account is quite true in every detail. Although I did not see the encounter, I know the young man very well, and have often seen the bull, which is a big, powerful specimen of the breed.

SUBSCRIBER.

Montreal, P. Q.