

cattle, sheep, hogs, or any meats, or any or all of them, in the Province or elsewhere, such as would infringe upon the provisions of the Criminal Code of Canada; that stock-yards are not conducted in a systematic manner, and we would therefore recommend that all stock-yards be managed by the railway companies; that the cattle should be bought and sold without shrink; that the brand-inspection system now in vogue is worthless, and we therefore recommend that all brand inspectors be dispensed with, and that the shipper of stock be asked to furnish the transportation company with an affidavit as to the number of animals in his shipment, together with the sex and brand, and that the owner or his agent furnish an affidavit of a similar nature, unless it can be proven that the shipper had authority from the owner of the animals to do so; that the present hide-inspection law be more rigidly enforced.

CONCLUSION.

We regret to have to state that there were many questions in connection with the meat trade which should have been investigated at points further east and in the whole country. A knowledge of the conditions in Montreal, the difficulty of securing space, the marking and sorting of cattle, a knowledge of conditions on the ocean voyage, treatment of stock in the Old Country, killing and marketing, comparison of our stock with that sent from other countries, and various other problems, are all matters which would have aided us very materially in arriving at a finding.

As it is, we believe we have been obliged to stop at the place where investigation was the most necessary. Had we been able to trace the Alberta steer from the range right to the consumer in the Old Country, and at the same time investigate in thorough detail the chilled-meat system, and familiarize ourselves with various questions, the details of which we are largely ignorant, we would have been able to arrive at a finding sufficiently superior to the one now completed as to much more than justify the additional expenditure.

All of which is respectfully submitted.

(Signed)

ALEX. MIDDLETON, Chairman.
ALEX. M. CAMPBELL, Chairman.

STANDARD RATIIONS AND SOME PRACTICABLE RATIIONS.

With the composition and feeding peculiarities of feeds known, the preparation of a ration for any given purpose or any particular class of stock is a fairly simple matter.

As previously mentioned, what are known as standard rations for different classes of live stock have been arrived at by chemical analysis, the study of actual rations fed and examination into the requirements of the animal body under question. These standard rations as enunciated give the amount of dry matter necessary per diem, the amount of digestible protein, and the amount of digestible carbohydrates and fat that should be contained therein, and the proportion that should exist between the protein and carbohydrates; or, in other words, the nutritive ratio that the ration should show.

The standards known as the Wolf-Lehmann are the ones most commonly used, and are as follows, in part:

PER DAY AND 1,000 LBS. LIVE WEIGHT OF ANIMAL.

Class.	Dry Matter.	Digestible Carbo-hydrates		Total.	Nutritive Ratio.
		Pro- tein.	and Fat.		
Horse, heavily worked	23.0	2.3	14.3	16.6	1:6.2
Steers, preliminary feeding..	27.0	2.5	16.1	18.6	1:6.4
Steers, main feeding	26.0	3.0	16.4	19.4	1:5.5
Milch cows, full milk	24.0	2.5	13.4	15.9	1:5.4
Sheep, maintenance	22.0	1.5	12.0	13.5	1:8.0
Swine, fattening	36.0	5.0	27.5	32.5	1:5.5
Milch cows in full milk, Wisconsin Standard	24.5	2.2	14.9	17.1	1:6.8

Very seldom, indeed, does the ration fed by the average farmer closely approach the standard indicated above. Generally speaking, it falls short in the protein part. Sometimes, also, in the total digestible content. Some feeders, on the other hand, surpass the requirements of the standard. In either case, some part of the food is wasted. An improperly-balanced ration does not permit of all the digestible nutrients therein being advantageously utilized, even if digested. Not infrequently, however, badly-balanced rations, although theoretically wasteful, are really more economical than a properly-balanced ration would be for a given farmer. Most roughage on the farm, with the exception of legume hay, is quite wide in nutritive ratio. To attempt to balance up this roughage by means of expensive protein-rich meals would very often

mean a loss if maintenance rations were being fed. For cows in milk, however, or for fattening stock, the ration must approach the standard fairly closely if satisfactory results are desired.

A few rations as fed on the Experimental Farm here, with the content thereof as to dry matter, protein and carbohydrates, are discussed below.

FOR HORSES.

Beginning with work horses, it may be said, roughly speaking, that the regular ration is about as follows for a 1,600-pound horse at heavy work:—

Hay, mostly timothy	18 lbs.
Oats, whole	12 lbs.
Bran	6 lbs.

This shows 31.62 lbs. dry matter; 2.34 lbs. digestible protein, and 17.90 lbs. digestible carbohydrates and fat, with a nutritive ratio of 1:7.6. This falls short of the standard, but has proven very satisfactory here.

Where work has been fairly heavy, but not exhaustingly so, it has been found possible to decrease the oat part of the ration and increase the bran to the extent of feeding 2-3 of the concentrate as bran and 1-3 oats. Where very heavy work was being done, such a heavy bran ration has proven too laxative.

Clover hay, if well made, is superior to timothy, but must be fed more sparingly. The substitution of oat straw for 1-3 the hay will improve the ration in some respects, and usually cheapen it.

A good ration for idle or half-idle horses is as follows (1,600-lb. horse):



Allison.

Pure-bred Shorthorn steer; calved Sept. 2nd, 1905. First and grand champion, Ontario Winter Fair, 1907. Exhibited by John Brown & Sons, Galt, Ont.

Clover Hay	10 lbs.
Oat Straw	15 lbs.
Bran	6 lbs. or less.
Oats	3 lbs. or less.

The addition of a few roots, as carrots or sugar beets, will improve the rations described, and probably render them even more wholesome.

BEEF CATTLE.

If the standard rations fail to make good in one class of stock more than another, it is in the early feeding period for beef cattle. Probably no class of stock so well exemplifies the importance of the "filling-up process" as does the steer on first going into winter quarters. That this be done with a ration coming anywhere near the standard ration requirements does not seem to be at all necessary. To illustrate, one of the best first-month rations for a 1,000-lb. steer that I have ever seen fed was made up as follows:

Corn Ensilage	40 lbs.
Turnips	40 lbs.
Clover Hay	5 lbs.

This shows 16.25 lbs. dry matter, 1.0 lb. protein, and 10.26 lbs. carbohydrates and fat, with a nutritive ratio of 1:10.3. In not one single respect does this ration come up to the Wolf-Lehmann standard for preliminary steer feeding, yet it has proven quite as effective as and very much cheaper than the standard ration, showing that composition is not the sole important point, and probably not even the most important. As another example of a good starting ration for a 1,000-lb. steer, and one that has proven satisfactory, observe the following:

Turnips	100 lbs.
Oat Straw, ad lib., say	15 lbs.

Showing a composition as follows:—22.6 lbs. dry matter, 1.18 lbs. protein, and 13.86 lbs. carbohydrates and fat, with a nutritive ratio of 1:11.7.

Both the above rations owe their success to the

possession of a quality, the importance of which cannot be too highly emphasized—SUCCULENCE.

The addition of a suitable meal mixture to either of the above (or to similar rations), in moderate quantities, will insure cheap and rapid fattening.

Suitable meal mixtures might be made up as follows: (a) equal parts bran, oats, barley and peas; (b) bran and gluten meal, equal parts; (c) corn and bran, equal parts; (d) peas, oats and barley, equal parts; (e) bran and corn, equal parts; (f) bran, corn and oil-cake meal, equal parts; or, probably best of all for a six-months feeding period, a progressive ration made up and fed as follows, per day, per 1,000-lb. steer:

First two weeks, no meal; second two weeks, 1½ lbs. bran; third two weeks, 1½ lbs. bran, 1 lb. (d) or (e) or (f); fourth two weeks, 3 lbs. of one of the above described meal mixtures; fifth two weeks, 4 lbs.; sixth two weeks, 5 lbs.; seventh two weeks, 7 lbs.; eighth two weeks, 8 lbs.; ninth two weeks, 8 lbs. mixture, 1 lb. oil-cake meal; tenth two weeks, 9 lbs. mixture, 1 lb. oil-cake meal; eleventh and twelfth two-week periods, 2 to 3 lbs. oil-cake meal and all the meal mixture they will stand.

The roughage will, of course, have to be reduced as the meal increases.

DAIRY COWS.

So far as roughage is concerned, the remarks which apply to steers are equally applicable to dairy cattle. Where cows are in full milk, it is essential, however, that a ration fairly rich in protein be fed; although, generally speaking, the ration made rich in protein by the use of expensive

protein-rich feeds is not economical. It is safe to say that in bran, oats, peas, barley, corn and oil meal, at normal prices, we have the best meal feeds that can be found for milk production. A meal mixture made up of equal parts by weight of bran, oats, peas and barley is, to the writer's certain knowledge, very hard to improve upon. When peas are too expensive, the substitution of oil meal or gluten, or even of bran, will prove satisfactory.

The qualities indispensable in the dairy-cow ration are succulence, bulkiness, palatability, wholesomeness, and, lastly, quality. By quality is meant protein richness.

The roughage feeds suitable are corn, clover, alfalfa, or mixed ensilage, roots, oat and pea hay, clover hay, alfalfa hay, straw in moderate quantities.

A good ration is as follows for 1,000-lb. cow giving 40 lbs. milk:

Corn Ensilage	30 lbs.
Mangels	20 lbs.
Clover Hay	6 lbs.
Meal (say oats, peas, barley and bran)	9 lbs.

The quantity of milk should serve as a guide to the quantity of meal. One pound meal for each 4 lbs. milk produced is considered to be a safe guide. A lighter meal allowance would, with most cows, be more profitable.

J. H. GRISDALE.

Central Experimental Farm, Ottawa.

LIKES TO KEEP IN TOUCH WITH CANADIAN AGRICULTURE.

Editor "The Farmer's Advocate":

Enclosed find check for renewal of your good paper. We appreciate hearing from you people, as we consider you better feeders, and you are more careful with your stock. Our great fault here is that we undertake too much. I operate twenty-one hundred acres, practically all under cultivation. Last year we raised twenty-five hundred hogs. And, by the way, I would like to know why you people do not raise the Poland-China. There must be some reason for it. Wishing you an increased circulation for the year 1908.

HENRY FUNK.

Missouri, U. S.

[Note.—The swine industry of Canada has been developed with a view to supplying the British market with fancy Wiltshire bacon, for the production of which our packers require a hog of between 160 and 200 lbs. in weight, with a moderately long, smooth side, and but a very moderate proportion of fat in the carcass. For the production of such pork the Yorkshire, Tamworth, Berkshire and Chester White (of the special type developed by Canadian breeders), with the various crosses of these breeds, fill the bill best.—Editor.]