15.00 carbohydrates and fat, or, expressing the same idea in other words, it shows a nutritive ratio of 1.99 : 15.00, or, as more commonly expressed, N. R., 1 : 7.5.

"STANDARD" RATIONS.

Now, chemical analysis and practical feeding experiments have led to the conclusion that probably the best or "standard ration" for milk production should show a nutritive ratio of about 1 : 5.7. It is evident, therefore, that our ration falls considerably short in protein. To balance it up, some food rich in protein must be added. A glance at the table will show oil meal, cotton-seed meal or pea meal as being of such character. The addition of 2 pounds of oil cake would make our ration show 2.58 pounds protein and 15.99 pounds carbohydrates and fat, or a nutritive ratio of 1 : 6.2. This is not yet as "narrow" as the "standard," but is what may be considered a ration with a good nutritive ratio, or, as commonly expressed, a fairly well-balanced ration. Experience in America has shown that rations of wider nutritive ratio than the European standard calls for are usually cheaper and quite as effective.

The standards most commonly accepted—the Wolff-Lehmann—are as follows, for the dairy cow in milk and the fattening steer. Dairy cow weighing 1,000 pounds, and yielding at least 22 pounds of milk per day: Dry matter, 29.6 lbs.; protein, 2.5 lbs.; carbohydrates and fat, 14.25, showing a nutritive ratio, 1 : 5.7. Steer, rapid fattening of 1,000-lb. steer: Dry matter, 30.0 lbs.; carbohydrates and fat, 16.25 lbs; N. R., (nutritive ratio), 1 : 6.5.

Where animals are not expected to gain in flesh, nor produce milk in considerable quantities, nor do hard work, as in the case of oxen or horses, such narrow rations are not required. This means, of course, lowering the cost of feeding, for the ration of a narrow nutritive ratio is, under ordinary conditions, usually expensive.

The table which follows shows the dry matter, the protein, the carbohydrates and fat combined, the total digestible constituents and the nutrive ratio of most of our more common feeding stuffs. This table should greatly facilitate the arriving at some idea as to the probable value of a ration for the purpose in mind:

NAME.	Total Dry Matter in Each Lb.	Protein.	Carbohydrates + (Fat x 2.25).	Total.	Nutritive Ratio.
Hay, Straw, etc.—					
Timothy Hay	.87	.028	.465	.493	1:16.6
Red Clover	.85	.068	.396	.464	1: 5.8
Alfalfa	.92	.110	.423	.533	1: 3.8
Oat Straw	.91	.012	.404	.416	1:33.6
Wheat Straw	.90	.004	.372	.376	1:93.
Pea-vine Straw	.86	.043	.341	.384	1: 7.9
Corn Fodder	.58	.025	.373	.398	1:14.9
Corn Stover	.60	.017	.340	.357	1:19.9
Grain—					
Oats	.89	.092	.568	.660	1: 6.2
Barley	.89	.087	.692	.779	1: 7.9
Wheat	.90	.102	.730	.832	1: 7.2
Peas	.90	.168	.534	.702	1: 3.2
Corn	.89	.079	.764	.843	1: 9.7
Rye	.88	.099	.700	.799	1: 7.1
Buckwheat	.87	.077	.533	.610	1: 6.9
Flaxseed	.91	.206	.823	.469	1: 4.0
Mill Products—					
Wheat Bran	.88	.122	.453	.575	1: 3.7
Middlings (Wheat)	.88	.128	.607	.735	1: 4.7
Buckwheat Bran	.90	.074	.347	.421	1: 4.7
Buckwheat Middlings	.87	.220	.456	.676	1: 2.1
By-products—					
Malt Sprouts	.90	.186	.409	.595	1: 2.2
Brewers' Grains (wet)	.24	.039	.125	.164	1: 3.2
Brewers' Grains (dry)	.92	.157	.478	.635	1: 3.
Gluten Meal (high-class)	.92	.258	.656	.914	1: 2.5
Linseed Meal (old process)	.91	.293	.485	.778	1: 1.7
Linseed Meal (new process)	.90	.282	.464	.746	1: 1.6
Cotton-seed Meal	.92	.372	.444	.816	1: 1.2
Skim Milk	.094	.029	.059	.088	1: 2.
Buttermilk	.10	.039	.065	.104	1: 1.7
Whey	.066	.008	.054	.062	1: 6.7
Roots and Ensilage—					
Mangels	.09	.011	.056	.067	1: 5.1
Turnips	.09	.010	.078	.088	1: 1.8
Carrots	.11	.008	.082	.090	1:10.3
Sugar Beets	.13	.011	.104	.115	1: 9.4
Ensilage (Corn)	.21	.009	.129	.138	1:14.3
Potatoes	.21	.009	.165	.174	1:18.3
Soiling Fodder—					
Fodder Corn	.20	.010	.125	.135	1:12.5
Peas and Oats	.16	.018	.076	.094	1: 4.2
Peas and Barley	.16	.017	.077	.094	1: 4.5
Red Clover	.29	.029	.164	.193	1: 5.6
Alfalfa	.28	.039	.138	.177	1: 3.5

THE HOG PROBLEM AGAIN.

It is seldom that the farmer allows himself to be carried away by a panic. His customary hard common sense and conservative methods usually protect him from this evil; but when we hear of young pigs being sold at fifty cents each at weaning time, or slaughtered to stop their demands for food, it would seem as though something closely approaching a panic must be abroad in the land.

PANIC AGGRAVATES EVIL.

There probably never was a panic which did not aggravate the evil which set it in motion, and the demoralizing effects of the present panic among farmers must be apparent to every eye. Doubtless there are some farmers who are forced to sell their pigs through sheer necessity, but such unfortunate cases are not sufficiently numerous to account for all the young pigs and breeding sows which are being dumped upon a doubly-glutted market at present. The farmer with feed in his bins has need to do some careful calculating before deciding to throw away his pigs. Selling stock on a poor market in order to sell grain upon a high market, is not always a profitable enterprise, and the number of dollars coming into the treasury during the year may be considerably less under this method than had the grain been marketed in the form of meat. Farm animals, and especially hogs, consume and turn into valuable meat many products which otherwise would have been wasted; and though the farmer may not always realize the highest market prices for the grain fed to his hogs, the otherwise unsalable products for which the hogs have provided a market will generally, under a careful system of feeding, much more than make up the deficiency.

WHERE IS THE PROFIT?

What does the farmer gain by sacrificing his hogs and selling his grain? In the first place, he obtains prevailing market prices for his grain, which might or might not have been obtained had the grain been fed to hogs. Secondly, he saves the labor of feeding the hogs. Thirdly, he has less risk, and less capital invested. Against this, he has incurred a heavy loss by disposing of his stock on a glutted market. He still has the labor of cleaning the grain and teaming it to market. He has lost the sale of a number of products which the hogs could profitably utilize. He has sold a lot of valuable fertility, the absence of which will lessen his next crop, and hence increase the cost of production. He has placed himself in a position where he cannot take advantage of the high prices for finished hogs which seem certain to prevail when the present excitement has burned itself out. And, after all, he is not absolutely certain that he got any more for his grain than if he had fed it to his hogs. This last point calls for further consideration.

SOME IMPORTANT FIGURES.

During the past two years, the Ontario Agricultural College has collected some very valuable data regarding the prices realized for feeds consumed by hogs. Part of the hogs were fed at the College, and part were fed by farmers in different parts of the Province. The experiments deal with the food consumed by 297 hogs, aggregating 56,718 pounds when sold, or an average weight of 190.9 pounds each. A variety of foods was used, comprising barley, peas, oats, middlings, bran, corn, skim milk, roots, and miscellaneous foods which were valued by the feeders at certain sums and duly charged against the pigs. The young pigs, at weaning time, are valued at $1.50 each, which is considerably above the cost of raising pigs from birth to weaning, including maintenance of sow, etc., as shown by experiments conducted at the College. Deducting from the selling price the cost of the pigs, at $1.50 each, and the charges for miscellaneous foods, we find as follows:

If the pigs were sold at 4½ cents per pound, live weight, they would return $20.45 per ton for all meal consumed, including middlings and bran, 20 cents per hundredweight for skim milk, and 10 cents per bushel for roots.

At 5 cents per pound, live weight, they would return $23.87 per ton for meal, 20 cents per hundredweight for skim milk, and 10 cents per bushel for roots.

At 5½ cents per pound, live weight, they would return $27.29 per ton for meal, 20 cents per hundredweight for skim milk, and 10 cents per bushel for roots.

At 6 cents per pound, live weight, they would return $30.71 per ton for meal, 20 cents per hundredweight for skim milk, and 10 cents per bushel for roots.

At 6½ cents per pound, live weight, they would return $34.13 per ton for meal, 30 cents per cwt. for milk, and 10 cents per bushel for roots.

Considering that middlings and bran enter quite largely into the mixture, and taking into consideration the prices received for hogs during the year, we must admit that this is a remarkably good showing in values received for feed. We must also remember that the grain was fed as it came from the threshing machine, and the price obtained for uncleaned grain by feeding it to these pigs should certainly leave a comfortable margin of profit to the farmer.

LET US CONSIDER.

The points touched upon would bear amplification, but perhaps enough has been said to set someone thinking. Let it be understood, however, that there is no attempt to dictate to the farmer. Every farmer must be his own judge as to what is the best course for him to pursue, and the farmer who finds himself compelled to sacrifice his stock is deserving of sympathy. But let those with feed on hand take very careful counsel with themselves, and thoroughly consider all the features of the situation before deciding upon a line of action. Let our action be governed by sane deliberation, and let us do all in our power to stem the disastrous tide of panic which appears to threaten.

GEO. E. DAY.
Ontario Agricultural College.

LEAVES FROM A FARMER'S NOTEBOOK.

Editor "The Farmer's Advocate":

How to feed economically, and still keep stock up to the standard condition, is a problem that farmers everywhere are trying to solve. The abundance of feed in recent years has encouraged prodigality, and the present shortage in foodstuffs presents a somewhat apprehensive aspect where the necessity for strict curtailment is more than ordinarily recognized. That this scarcity is greatly overestimated is becoming more and more apparent as the season advances. In my own district we are not anticipating anything of a serious nature. With some crops we have had a partial failure, in others we are up to the average. To insure a sufficiency of fodder, the utilizing of straw will be quite prominent this winter in our feeding operations. Strawstacks, for the most part, are conspicuous by their absence, straw being too valuable an asset on any farm where live stock is kept to be longer despised as a cattle food. It has, so far as possible, been stored under cover, instead of being allowed to rot down, as heretofore.

USE OIL MEAL WITH STRAW AND COARSE FODDERS.

Now is a good time to get busy figuring out a system of winter feeding. In constructing a ration suitable to the needs of stock, straw and other coarse fodders may be largely used in the place of more expensive hay or clover. Fed in conjunction with a little oil cake, they are made palatable and nutritious, and animals receiving nothing else will come out in the spring in as good condition as cattle getting the best of hay. This plan is very extensively followed by Old Country farmers in the management of breeding cows and young heifers. Where silage or roots are to be had, it is preferable to run the straw through a cutting-box and mix with the succulent material, allowing the mixture to stand for several hours before feeding. If grain is to form part of the ration, it should be stirred into the mixture, so that it may go into the first stomach, be brought up again, and masticated, thus enabling the animal to get the full benefit of it. The foregoing principles reduced to practice will effect a considerable saving, and aid in obtaining the largest profit.

VALUE OF MILK RECORDS WHEN WEEDING THE HERD.

Dairymen who have been keeping individual records of their herds are this year afforded a striking illustration of their utility. If by force of circumstances they are forced to reduce the number of their cows, they will have some definite information as to which ones it would be wise to dispose of. Some are wailing long and loud over a very real discrepancy between stock and food supply, while stable room is being given a lot of boarder animals that will eat their heads off many times over before spring. It will be money in pocket to knock these on the head, as the hides and tallow are their only cash equivalent. If present conditions should result in a general weeding out of our dairy cattle, any temporary depression would ultimately be regarded as a blessing in disguise.

RETAIN SOME OF THE BROOD SOWS.

The bacon-hog outlook does not seem to be of the brightest. An unusual number of brood sows are being rushed to market, which, if continued, will result in no small curtailment of production. Many farmers are inclined to get panicky over the present situation, a fact they will soon regret should they allow any undue excitement to influence their serious judgment. All branches of farming have their ups and downs, which doubtless has something to do with the farmer having his "ins" and "outs." Unfortunately, when the ups occur the farmer is frequently out, and vice versa. Now would be a good time to profit by past experiences, and hold on to at least part of the breeding sows. A reasonable number of