

of the various food constituents. If, for example, it be found that a given animal needs 1.50 pounds of albuminoids, 9.5 pounds of nitrogen-free extract and fiber, and 0.4 pounds of fat per day, it would manifestly be wasteful to mix its food in such a way that it would get 2 pounds of albuminoids per day. A food so proportioned as to meet exactly the requirements of the animal is called a ration. It is evident that the ration will vary according to the size of the animal, according to whether it is at rest or work, according to whether it is young and growing or is full grown, fattening or not fattening, milking or not milking, wool-producing or not wool producing. The observant stock-feeder has been quick to note these different requirements.

A goodly number of scientific experiments have been made with a view to fixing Feeding Standards.

Thus it has been found that for 1,000 pounds of live weight animals need the following quantity of food and proportions of the different nutrients per day :

NUMBER OF POUNDS OF DRY MATTER, AND OF EACH NUTRIENT NEEDED  
PER DAY BY EACH 1,000 POUNDS OF LIVE WEIGHT :

	Pounds of total organic substance (dry).	Pounds of Albuminoids.	Pounds of Nitrogen-free extract.	Pounds of fat.	Pounds of total nutritive substance.	Nutritive ratio.
Horse at light work.....	21.00	1.50	9.50	0.40	11.40	1 to 7.0
Horse at heavy work.....	25.50	2.80	13.40	0.80	17.00	1 " 5.5
Oxen at rest in stall.....	17.50	0.70	8.00	0.15	8.85	1 " 12.0
Oxen at heavy work.....	26.00	2.40	13.20	0.50	16.10	1 " 6.0
Oxen fattening, 1st period.....	27.00	2.50	15.00	0.50	18.00	1 " 6.5
" " 2d ".....	26.00	3.00	14.80	0.70	18.50	1 " 5.5
" " 3d ".....	25.00	2.70	14.80	0.60	18.10	1 " 6.0
Milk cows.....	24.00	2.5	12.5	0.40	15.40	1 " 5.4

This list might be indefinitely extended, but it is sufficient to show that the teachings of science agree with the everyday experience, that the food of an animal must be adjusted to the kind of life the animal leads. Thus an ox at hard work requires not only *more* food than when at rest, but also a differently compounded food. Whereas 17½ pounds per day of a food containing 1 pound of digestible albuminoids to 12 pounds of digestible heat-producers are sufficient when at rest, at hard work 26 pounds of a food in which the proportion of albuminoids is twice as great (1 to 6) is necessary.

A glance over table No. 1 (see end of Bulletin) will show that cottonseed meal, cow peas, wheat bran and cow pea vines are to be classed in the order named among the feeding stuffs especially rich in albuminoids; oats, clover hay, Indian corn among the moderately rich. Indian corn, it will be noted, is much less concentrated than oats, contains, that is, much more starch and much less albuminoids. A feeding stuff rich in albuminoids should be fed in connection with coarse fodders, such as are rich in fiber, starch, etc.; cottonseed meal.