

contained in 100 lbs., of the more important kinds of cattle food:—

	Grains.
Meadow hay.....	2940
Clover hay.....	2380
Oat straw.....	840
Turnips.....	770
Red clover (fresh).....	630
Beans.....	560
Peas.....	315
Oats.....	210
Potatoes.....	158
Rye straw.....	79
Barley and wheat straw.....	traces.
Barley and wheat grain.....	traces.

It is at once obvious from the examination of this table, that in only a small number of the common kinds of food is there a considerable quantity of salt, and many of the most important substances are altogether devoid of it. It is particularly worthy of notice also that hay, which may be described as the natural food of cattle, contains it in abundance. and hence, when feeding on it, the animals may obtain all that is absolutely necessary for their health, but when they are placed upon some of the mixtures of food now in common use—such, for example, as turnips and straw—the quantity may be too small for their requirements. If to these considerations we add the necessity for salt to supply the hydrochloric acid which is found in the gastric juice, and the other uses which it fulfils in the system, we can entertain but little doubts as to the importance of an adequate supply of it for maintaining in a healthy state the functions of the animal, while it is also manifest that the quantity required for this purpose is mainly dependent on the nature of the food. Proceeding further to inquire into the influence which salt exerts in causing the animal to exhaust more completely the food supplied to it, and to store up a larger quantity, the results obtained by different experiments are very conflicting. The subject has been examined very carefully by Boussingault. He took six young cattle, which he divided into lots of three each, so as to secure as perfect uniformity as possible, and to the one he gave no salt, to the other he gave it in the proportion of 525 grains per head daily. After some time both lots were weighed, when it was found that the lot which had got salt had gained 10.5 lbs. for every 100 lbs. of initial live weight, while those which did not get salt had gained 11 lbs. In this respect the animals were restricted to a fixed quantity of food; but another was made, in which they were daily supplied with more than they could consume, and the residual quantity weighed. In this case it was found that the animals which got salt took 38.4 lbs. of food daily; those which got none, 35.9; or for every 100 lbs. of live weight, the first took 3.2 lbs., the second 3.1 lbs., or rather less. 100 lbs. of food consumed with salt gave an increase of 6.8 lbs. of live weight; and without salt, of 7.2 lbs.

Little difference is, therefore observable between the results of the two cases; but, such as it is, it is unfavorable to salt, a somewhat larger quantity of food being necessary to produce a given increase with salt than without it. Boussingault himself remarks that the difference was so trifling that it might be disregarded; but he says also that there was a marked difference in the general appearance of the animals. Those which got salt had a lively appearance, their eyes bright, and their skin smooth, soft, and shining; while those which got no salt were dull and inactive, and their coats rough and staring; and this difference was so great that it could not escape the observation of the most cursory observer, and there could be no doubt that the former would have brought a higher price in the market. A series of experiments made by a German observer (Farthmann) on sheep lead to an opposite conclusion. He took thirty sheep and divided them into three lots. They all got daily 1 lb. hay, 3 lb. straw, and 3 lb. potatoes; and during the latter part of the experiment, 1½ lb. of beans were added. One lot got no salt, but the other two were supplied with it in different quantities. The result is shown in this table:—

	Average gain in weight per sheep.
No salt,.....	13.1 lb.
½ ounce of salt daily.....	16.9 "
1 " " ".....	17.7 "

Here the difference is marked, but the effect appears to be very irregular, for some of the sheep which got no salt had actually lost weight to the extent of 1 or 2 lb. Some experiments of Sprengel's also tend to show that salt promotes the production of wool: for of two lots of sheep which got 3 lb. of potatoes and 4½ lb. to 5 lb. of rye straw daily, those which got salt yielded 1 lb. 11½ oz. of wool more than the others. It is worthy of notice that in both these experiments the food contained a very small quantity of salt, amounting, in Farthmann's experiment, to about 41 grains, and in Sprengel's to 8½ grains daily, quantities which are probably insufficient to maintain the functions in a state of health.

An interesting series of experiments has recently been made by Lehmann on the quantity of salt consumed by draught horses. The animals on which he experimented were doing their daily work, and fed on the mixture of food, which, by actual analysis, were found to contain daily 290.8 grains of salt. Into the manger of each horse was placed a lump of rock-salt weighing 8 or 10 lb., which it was allowed to lick *ad libitum*. The quantity of salt consumed during the first three days was very large, and amounted in the case of one horse to nearly 10 oz. per day; but it rapidly fell, and at the end of six weeks the consumption did not exceed 200 grains per head, and the animal which began by taking so large a quantity of its own