

ascertained, that hay alone, is not adapted to keeping sheep in the best condition. Still less is it if they are not allowed a constant supply of water. But the intermixture of roots, and particularly mangel wurtzel, is found to produce an excellent effect. A very successful manager of sheep, whenever he feeds any kind of roots or grain to them, first gives them a foddering of straw in order to fill them, as he does not consider the roots digest so well on an empty stomach. In order to be able to proportion the different kinds of roots, grain, &c., according to their nutritive qualities, it is necessary to know in what proportions those qualities exist in them respectively. The following table exhibits the results of the experiments of the distinguished agriculturist De Raumer, on the effects produced by an equal quantity of several substances in increasing the flesh, tallow, and wool of sheep.

The first column of figures is the produced weight of the living animal; the second, produces wool; and the third, produced tallow.

	lbs.	lbs.	lbs.
1000 lbs. potatoes, raw, with salt,	46½	6½	12½
do do without salt,	44	6½	11½
do mangel wurtzel, raw,	38½	5½	6½
do wheat,	155	14	59½
do oats,	146	10	42½
do barley,	136	11½	60
do peas,	131	14½	41
do rye, with salt,	133	14	35
do do without salt,	90	12½	43
do meal, wct,	129	13½	17½
do buckwheat,	120	10	33
do good hay,	58	7½	13
do hay with straw, without other fodder,	31	15½	6½

These results agree nearly with those of Do Dombale, and with those of a number of other agriculturists.

It has also been ascertained by the experiments of some eminent agriculturists, that

1 lb. of oil cake is as nutritious as two pounds of hay.

200 lbs. of good sound straw of peas and vetches are equal to one hundred pounds of hay.

300 lbs. of barley and oat straw are equal to a hundred pounds of hay.

400 lbs. of wheat straw are equal to a hundred pounds of hay.

It will be perceived by the above table, that *wheat* produces the greatest increase in the flesh of the living animal, though but little greater than *oats*; that *peas*, *wheat*, *rye*, and *hay mixed with straw*, produce the greatest increase of wool; and that *barley* and *wheat* causes the greatest increase of tallow. That, as an average, grain generally gives about three times the increase in the flesh, that roots and hay do, when in equal weight; that grain produces about twice as much wool as is caused by an equal weight of roots, and several times the amount of tallow, that is produced either by roots or hay. But as an equal weight of mangel wurtzel may be raised at an expense of less than one tenth of what is required for the production of most kinds of grain, the vastly superior economy of its use as food for sheep, for every thing except fattening, will be at once perceived.

De Raumer found, that sheep ate with avidity eight pounds per head of mangel wurtzel a day, intermixed with straw; during which time they drank one quart of water, and remained in good and healthy condition.

That of raw sliced potatoes, they ate with good appetite at the rate of seven pounds per day, also with straw, and drank three pints of water in twenty-four hours. Also remained healthy.

That they ate two pounds of peas per head daily, drank from two to three quarts of water, and remained fine and healthy. It was necessary to soak the peas to prevent injury to their teeth.

That wheat produced nearly the same results as peas.

That they do not eat rye readily, and it appears not well adapted for their food.

That of oats and barley, they ate about two and a half pounds per head daily, with avidity, did extremely well on it, and drank about three quarts of water in twenty-four hours.

That buckwheat produced excellent effects upon them, which they eat with avidity.

And that of good hay they ate four and a half pounds daily, and drank from two and a half to three quarts of water.

As a large number of fine-wooled sheep have been introduced into the country within a few years, it is absolutely necessary, in order to render them most profitable, that they be well sheltered during winter. In those countries in Europe which are most

famous for the growth of fine wool, strict attention is given to this subject, and sheep are not only sheltered in the night, but whenever the weather demands it during the day. It is said that on this depends in a great degree the fineness and quality of the wool. Sheds, at least, should always be provided for the most hardy breeds of sheep; much more so then, ought they to be for the more tender, fine-wooled varieties. Henry D. Grove, of Hoosick, Rensselaer county, who has been uncommonly successful in raising and wintering fine-wooled sheep, says that shelter against the inclemency of the weather, "is almost as necessary to the health and good condition of sheep, as food itself, and for this reason stables for that purpose are of great benefit. Not only do sheep do much better, but it is also a saving of fodder and manure. The latter is as important as the former; for manure, properly applied, is money to the farmer; and it is well known that sheep manure is of the best kind. These stables ought to be so constructed, as to admit of a great quantity of hay being put over head; and for this reason I would recommend a side hill facing the south, and a dry spot around it, for their location. Each full grown sheep requires six square feet including racks. These ought to be so constructed as to have a manger attached to each, for the purpose of feeding grain and roots, and to catch the hay the sheep draw through the racks. The stables ought to be eight feet high at least, nine feet is preferable, and sufficiently ventilated. It is also necessary to have windows for the purpose of light. The difference between wool grown in a dark and light stable, is really surprising. In a dark one, wool does not get the brightness it has in a light one. Of this fact I have witnessed the most surprising proof. Over head the stable ought to be tight, that no fodder, chaff, &c. may fall into the wool, which reduces its value. The stables ought to be littered with straw from time to time, to keep the wool clean and add to the comfort and health of the animals."

We conclude these observations with the remarks, relative to the importance of water and succulent food to sheep during winter, of J. Barney, Esq. of Philadelphia, whose experience and skill on this subject are well known. To a gentleman who visited him, he showed from fifty ewes, upwards of sixty lambs, all lively and brisk, with a loss of perhaps three or four. The gentleman observed to him that he had his shed covered with dead lambs, and asked wherein the secret of breeding lay. He answered, "you stuff your sheep with dry food." "Yes, as much good clover and hay as they will eat," was the reply. "You give them no water, but suffer them to go out in time of snow and eat as they are disposed to do?" "Yes." "Then there lies the secret. Your sheep fill themselves with hay; they get no water; and they have not a supply of gastric juice to promote the digestion of the hay in the stomach, they cannot raise it to chew the cud; they lose their appetite; are thrown into a fever; and cannot bring forth their young; or they bring forth a feeble, starved lamb, that falls off and dies on the first exposure to the cold and rain.—On the contrary, I take care to provide my sheep with good clear water in summer and winter. I feed them regularly with hay through the winter and give them ruta бага and mangel wurtzel every day. The ewes produce me one hundred and twenty per cent in lambs. You cannot get along without ruta бага and mangel wurtzel."—*Baltimore Farmer.*

Spring Wheat.

Spring wheat, to succeed well, requires a good rich soil—one that is so naturally, or that is made so by manuring. It will frequently do well on land in which clay is so abundant as to be unfit for winter wheat, since being sown in the spring it escapes the freezing out to which winter wheat on clay soils is liable.—Spring wheat should be sown early, as all spring crops put in as soon as the ground is fit for the reception of seed, mature better, and give a heavier grain than late sown ones. It is a good plan, where convenient, to give land intended for spring wheat a ploughing in the fall, as it not only greatly facilitates the preparation in the spring, but destroys the larvae of a multitude of insects that prey on spring plants, by exposing them to the severe frosts of winter. Sheep manure seems to be excellently adapted to spring wheat, and the crop can in many instances be nearly doubled by folding or feeding a flock on such land as is intended for this crop. There are two kinds of spring wheat now in pretty extensive use; one is the common bearded, red chaff and red berry; the other is the Italian or Florence wheat, without beards, and with a white berry, more resembling the white flint than any other. This