

Grasses and Forage Plants.

Value of Roots.

Mr. Alfred Sibson, Professor of Chemistry, at Cirencester Agricultural College, alleges that the value of roots varies extremely according to the nature of the soil, the season, and the mode of culture. Large roots, especially turnips, generally contain more water than moderate-sized ones; some very large ones examined a few years ago contained as much as 91 per cent of water. A portion of the interior of each of these roots was decayed, although the exterior was quite sound—a circumstance not uncommon with large turnips. The sound portions of such roots, moreover, generally have a woolly structure, in which the more valuable components of food are deficient. On the other hand, small roots generally contain much woolly fibre and, comparatively, much nitrogen; but as the latter occurs partly in the form of incompletely developed albuminous compounds, it fails to exercise the full benefit of flesh-forming material—a result also, perhaps, partly to be attributed to the disproportion of nitrogenous to carbonaceous compounds.

Thus moderate-sized and well-proportioned roots, such as are obtained by careful cultivation and skilful manuring, not only yield, by proper management, the greatest weight per acre, but are also, weight for weight, of much better feeding quality than the foregoing, or those otherwise badly grown. Such roots always contain a considerable proportion of sugar, for the elaboration of which, during the latter stage of growth, a healthy development of the plant through its earlier stages seems to be most necessary. Hence plants which from late sowing or otherwise, are too backward to gain the full advantage of the summer weather, seldom elaborate much of this valuable feeding compound, and are consequently of inferior value as food.

Improvement of Grass Lands.

Thousands of meadows and upland pastures are producing less than half the quantity of hay and feed which the land is capable of, from a deficiency of plants of those kinds which are most productive and suitable for the soil. In some cases, where the pasture is very foul with weeds and moss, it is advisable to pare and burn the old sward, and re-sow the land entirely as above directed. In some other instances it may be desirable to drain and manure the land; but in most cases great improvement can be effected by merely sowing renovating seeds (which should consist of the finest and most nutritive kinds of perennial grasses and clovers), in the following manner:—"Heavy harrows should be drawn over the old turf early in the spring, to loosen the soil for the admission of seeds, which, if sown freely, will occupy the narrow small spaces between the grasses already growing, and supersede the coarse grasses and other weeds. After the seeds are sown the land should be carefully rolled. It is a good practice to sow these seeds at the same time as the top-dressing if any is applied; but this is by no means necessary. The months of February, March, and April, are proper for sowing the seeds; the earlier the better, as the old grass will protect the young from frost. It is also useful to sow in July and August, immediately after carrying the hay. Should the old turf be very full of moss, this is generally an indication that draining would be beneficial. The following is, however, an almost infallible remedy for moss, not only destroying it, but preventing the growth in future. Mix two cart-loads of quick lime with eight cart-loads of good light loam, turning the compost several times, that it may be thoroughly mixed and the lime slaked, and spread this quantity per acre over the pasture, dragging the turf well with iron harrows."

To Seed a Bush.

A correspondent asks us what is the best way to seed a bush. Much of course depends on the quantity of growing timber on the land proposed to be seeded down. If the trees are close enough to produce perpetual shade during the summer months, grass for feeding purposes cannot thrive. Where the trees are far enough apart for the greater portion of the soil to receive sun free from shadow at some one hour

each day, there is no better grass seed to sow than blue-grass, cocks-foot or orchard grass and Dutch or alsike clover. In any case June grass will soon predominate, except when the land is somewhat wet. Where this is the case, orchard grass and blue-grass will overcome it. No woods can be utilized as pasture unless deprived of all brushwood, and enough of the larger timber removed to allow of the sun being felt, and the growth of the grass influenced by it. Air alone will not nourish pasture grass, it must have the sun more or less.

In seeding down bush land, cocks foot and blue-grass are probably the safest to sow, especially if the land has a tendency to wet. The seed should be plentifully sown—and the land should be dragged with the harrow three times, so as to stir the soil as much as possible, to enable the seed to come at once in contact with it. It is well to use an A drag, and incline the teeth backwards at about an angle of forty-five degrees, which will greatly assist the team in passing over green roots.

Sowing Mixed Seeds.

The advantage to be obtained from sowing mixed seed, has lately occupied the attention of agriculturists in Britain. It is alleged that where two or more varieties of grain have been sown together, selecting those that ripen at the same time—a heavier and more certain crop can be obtained. In many cases, the seed sown has been of different kinds, such as "peas and oats, barley and wheat," and in others samples of various varieties of wheat have been mixed together. In this latter case very large yields have been obtained. In this age of improvement in fanning mills, the presence of oats amongst wheat can be overcome; and the experiment of sowing early barley and oats amongst winter killed wheat has often been found successful. Of course, it is necessary so to class the different varieties of grain, that they will ripen together as nearly as possible.

A farmer in Britain sowed for several years a mixed sample of wheat; he states the result in the *Gardener's Chronicle*, as having been found very satisfactory. Sometimes one kind of seed would predominate at harvest and sometimes another. But on an average of several years, the result was in favor of sowing the mixed seed wheats. A farmer in Pickering has made some very valuable experiments with mixed seed. He states that he has found it generally successful. One year he harvested of "barley, oats, and peas," upwards of seventy bushels an acre.

Hungarian Grass.

As the Hungarian grass question seems to be quite prominent at this time, I will give you the benefit of my experience with it last season, seeing that my hay crop was going to be very short, owing to the drought, I thought the cheapest way to buy hay was to sow the Hungarian, so after a great deal of trouble I finally succeeded in getting into fine condition three acres of bottom land (old pasture) on which I sowed one-half ton of Orohillo guano, and on the 6th of July sowed and harrowed in lightly one and a quarter bushels of seed to the acre; immediately after sowing had a light shower, and from that time to the time of cutting had little or no rain, and about August 28th, when the grass was in full blossom cut it with my mower; have since weighed it and found the yield to have been a little over four tons to the three acres. I have been feeding it for about two weeks to the horses, and have noticed that it is eaten by them much more greedily than timothy. It is such a quick growing crop that it is very exhausting to the soil. I would not cultivate it unless I manured very heavily. I am so well satisfied with it that I intend to sow 16 acres this spring and shall expect two tons to the acre. The time to sow is about the middle of May; sow broadcast and harrow in very lightly. The soil must be completely pulverized, and I believe one and a half bushels to the acre will give a finer and nicer hay than one and a quarter bushels—but if it should be cultivated for the seed, then one bushel to the acre is sufficient. My soil is a heavy red clay with clay subsoil.—*FRANCIS BIRD in Maryland Farmer.*

To Plough Down Grass.

To do this effectually is one of the apparent impossibilities of modern farming. Every farmer knows it from experience. Notwithstanding the utmost pains and care in ploughing, the grass, especially if long, will bristle up in heards and tufts here, there and everywhere, injuring alike the appearance of the field and its capacity for growth; for this grass, instead of being visibly present to draw nourishment for itself and impede the growth of something else much more profitable, should be buried beneath the surface to manure the soil and assist in the growth of its betters. Well, do you wish to remedy this great difficulty? If so, use the chain and ball to your plough. No matter what kind of plough you have, try them. A piece of ordinary trace chain will do very well. Fasten one end of it to your coulter, and to the other end attach a round iron ball of from two to three lbs. weight—leaving the chain long enough to permit the ball to reach back to about the middle of your mouldboard, and there let it drag along, on the off side of course.

This is not a new idea, in fact it is a very old one, but, like good wine, age only improves it. Just try it once, and we have no fear of your verdict. It may not do the work to absolute perfection, but it will perform it at least fifty per cent. better than you can without it.

Millet.

Millet seems to succeed everywhere with any reasonably fair treatment. It can be sown early in the spring, and will produce a succession of crops, by continued sowings, up to the middle of July in this latitude. Scarcely more than six weeks are required for its growth, and the crop should be cut, if for hay, when the tops of the seeds begin to ripen; if saved for seed, it may stand until the seeds become brown.

Millet requires a good soil, well prepared and as rich as may be made. Deep ploughing is effective in the cultivation of this crop against drought, and it is with almost all others. There is nothing better as a manural application than a mixture of bone dust and Peruvian guano, or a good super-phosphate. Barn-yard manure, when used, should be well rotted. Four or five pecks of seed are sufficient to an acre when hay is the object; when sown for the seed, which when ground is nutritious and fattening, rather more seed should be sown.

There are a number of varieties of millet, but our remarks above apply to that commonly in use, known botanically as *Panicum miliaceum*. Of its great value there can be no doubt, and we hope all of our readers who can do so will sow at least a small patch of it, if only as an experiment to test its adaptability to their situation. We only add that the hay it makes is excellent in quality, much relished by cattle and horses, and frequently reaches three to four tons to the acre in quantity.—*American Farmer*

Care and Manure of Lawns.

We are aware that it is a long old-time practice to dress the lawn in autumn with coarse manure, and so make the whole foreground of a gentleman's place the apparent receptacle of his stable yard for the winter; but, thanks to our American ideas of propriety, and our knowledge of assimilation of plant food, we now measurably ignore the dogmas of old country gardeners and use specifics, i. e., just now we apply salt at the rate of four bushels to eight bushels per acre, bone meal in same quantity, and plaster one-fourth. The sooner these manural agents, all except the plaster, are now applied, the better, unless it be upon a lay of land so sloping that the coming rains, with melting of snow and ice, will cause the commingling or detrition of the manures to wash away with the falling water. In such locations we should not apply our specifics as above named until the snow and ice are gone, but then we would make no delay. The application of the plaster, i. e., its sowing, should be just after the grass has made an inch or more of growth.—*F. R. Elliott.*

MEADOWS AND PERMANENT PASTURES, that are moss bound and need renovating, can be much improved by going over them with a heavy harrow two or three times each way, and then putting upon them a mixture of 10 bushels of ashes, 300 lbs. of bone dust, 2 bushels of salt and 1 of plaster to the acre, and then sowing the following combination of grass seeds, about in the proportions given, to each acre: 10 lbs. of timothy, 1/2 a bushel each Ky. blue grass, orchard grass, perennial rye grass and red-top, and 1 quart of sweet scented vernal grass. Harrow again, and roll. This dose of fertilizer and the quantity of seed named will cost a good round sum, but the results will justify the outlay.—*American Farmer.*