

MEADOWS.

In regard to the arrangement of meadows but little need be said. Both pastures and meadows should be large enough, or rather the amount of stock should be small enough to give ample feed at all seasons. One rule we should aim to follow—give stock enough of what they like best. I think we have always overlooked the importance of a variety of feed—at least we are very much behind our English neighbors who have for very many years been noted for their fine pastures and meadows. I find in looking up the subject a little, that in England some 30 or 35 different kinds of grasses are in general use, many of them impart a desirable fragrance to their hay, causing it to be eaten by their cows with a peculiar relish. In this country not more than six or eight are common, and cows are often kept through an entire winter on one kind of hay alone, which should be avoided.

Roots have been too much neglected, perhaps, mainly on account of the amount of labor required in raising them. Most of them are most relished by stock in consequence of their freshness and furnishing a variety, and some of them rank high in nutritive virtues. The total nutritive percentage in 100 pounds, as given by good authority, is, of potatoes, 20; sugar beet, 14; mangold wurtzel, 13; while carrots are only 7, and common white turnips are only 4. Another reason for sowing a variety of grasses is, that individual plants of the same species will not thrive in close proximity to each other, but intermediate plants will soon decay, as all are drawing heavily upon the same elements of the soil. But if different kinds of grasses are sown, the roots will interlock and thrive close to each other, and thus we get a good turf, in which no weeds grow, and we have a clean crop of hay. The prevention of the growth of weeds is quite important, as many of them are eaten by the cows and a bad flavor given to butter and cheese.

WILLOW FOR LIVE FENCE POSTS.

In the year 1863, I bought and set nine thousand white willow cuttings. Many of them were very small, and as the summer was very dry, I lost about half of them. The next spring I cut back and filled up the vacant places, and that summer was very dry and I lost many more. The next spring I filled the gaps without cutting back, but they did not do well, and are yet very small, and I am now filling up with cuttings every spring, as I have time, from two to four inches in diameter and four or more feet long, and they are doing well, considering the dry summers we have had. When I use cuttings for live posts I take those that are four inches or more through, and from six to ten feet long, and set them one and a half feet deep; ram the first six inches hard, then cut a large circle the depth of the spade around the post, leaving the soil well pulverized for the roots, and mulch well. The first cuttings that I put out are now about thirty feet high, and from four to eight inches through, and will make about five thousand posts, and a large amount of fine wood and have my fence left. When I have cut for posts or wood I have had them make fifteen feet growth from the stump the first year, and the second growth is very straight. I bore holes through the posts and put on wires (No. 7 is the best), use five or more wires and strain with common posts. If the posts are four or more inches when set they will be firm enough for a fence in three years. Weave in strips of boards or sticks of wood taken from the wood pile, and you will have a fence which will be much cheaper and better than boards. I am aware that many will say that willow will not make a good fence, but they might as well tell me that I cannot raise a good crop of corn. Another objection to the willow hedge is that it shades too much ground. I get as good grass in the shade of my willows, and have for nine years, as I do anywhere else, and have fifteen feet to turn my farming implements on. From my wood land I get fire wood and nothing more, but with my hedge I get fence posts, good firewood, a good wind break and good shelter for my back. I now have thirty thousand trees from the years' growth down to three years, and all the cuttings I have used, taken from my hedges have done well. If live posts are used for pasture fences they should be ten feet long and the colts cannot reach the top.—*Prairie Farmer.*

CLOVER.

There are several of the many varieties of clover of great value to agriculturists. Red clover (*T. pratense*) is a biennial plant, having perennial qualities under special modes of cultivation; and is particularly adapted to the argillaceous soils. Small clover, or the rowen crop, is excellent for young stock; but animals should not be permitted to feed on clover lands in early spring, or late in autumn; in the latter case the crop is likely to be winter-killed for want of a mulch like protection, and in the former is not able to regain full vigor during the afterpart of the season, and this is especially true if sheep are the pasturing stock. Land may be seeded down to clover with any of the cereal crops, such as wheat, barley, rye, oats, and in special cases with buckwheat. It is very desirable that the seed should be sown sufficiently early to receive the full benefit of the spring rains. The dung of cattle fed on clover hay is often sufficient to seed land, if distributed evenly throughout the soil, the seed generally passing through the animal organism without having its germinating qualities impaired. The proportion of seed to be sown with timothy or other grass seeds must necessarily vary with the results desired. In order to secure even distribution, it should be sown in calm weather. Standing on one ridge while sowing on another, as is sometimes done, on a windy day, is unfavorable to the best performance of the work, even by the most skilful sower. If the soil be plowed in seven-pace lands or ridges, casting the seed with both hands after the Scotch system, will enable the operator to do his work better and go over twice as much ground in a given space of time. In dry weather, and on very clayey soil, it is well to bush-harrow, to insure full covering, and occasional rolling is very desirable. Every farmer should have plenty of clover of sowing in early spring for his working animals. After each cutting during the season, top-dress heavily with manures. Land becomes "clover sick" only in the absence of a proper succession of crops, and the elements of fertility necessary for the support of the plant. Many farmers have great faith in the power of clover, when ploughed in, to restore fertility to exhausted soils. It does so only by taking carbon from the atmosphere, and causing elements in the soil to assume organic forms, thus rendering them more available as food for other crops, and is therefore, very necessary in a rational system of husbandry; but if a soil be robbed of its fertility by excessive cropping, its equilibrium must be restored by adding deficient elements. Land is often too poor for the seed "to take." In this case it should be summer-fallowed, manured, sowed to winter grain, and to clover in the spring. Prof. Way found in 100 parts of the ash of clover, grown on a silicious sand, phosphoric acid 5.82, lime 35.02, potash 18.44, soda 2.79, sulphuric acid 3.91. As indicated by analytical research, plaster of Paris, which is sulphate of lime, the phosphates, wood ashes, and muck treated with the salt and lime mixture, are excellent top-dressings for clover. The use of plaster, sometimes called gypsum, is often of great value for top-dressing, even in the immediate vicinity of plaster beds. We have seen instances of this fact along the Grand River in Upper Canada, where the gypsum taken from the beds was ground and applied to the soil above them with the greatest advantage. The practice of ploughing in a clover crop preparatory to the growing of wheat is of much importance. There is a great similarity between the composition of the ashes of wheat and clover, especially if the latter be grown on soil replete with the necessary constituents. Analytical research has shown that the composition of clover or any other plant varies with the chemical condition of a soil; this truth has been often enough demonstrated. Clover crops should therefore be grown on soil containing sufficient pabulum, and in an available condition for their support. The growing of clover is equal to deep ploughing, because its long roots travel deeply in search of food for the stems and leaves, which, if ploughed into the land will undergo decomposition, and leave near the surface elements taken from the soil. Its leaves take carbonic acid from the atmosphere, and the ploughing in of the crop augments the carbon of a soil very materially, which changes its color, and gives it greater capacity to absorb solar heat and to retain manures and ammonia, whether resulting from their decomposition, or absorbed for the atmosphere. It is very doubtful whether in all cases clover is the most economical mode of furnishing carbon. If time be worth

much, it is not, because an immediate application in most cases may be made of muck treated with the salt and lime mixture, black mould from the woods, peat, river deposits, etc. Clover fields are sometimes infested by vegetable parasites of well developed structure, producing seed. The small broom (*orobanche minor*) is one of these. Its flowers are of a pale brownish color. Microscopic examinations show that when it infests clover there is an organic connection between the plants. This parasite is interesting to the agriculturist, not for its utility, but for its mischief. The dodder (*cuscu*) is another of these depredators, belonging to the family of the *convolvulaceae*, having small flowers resembling those of the convolvulus. It bears perfect seed which is shed upon the soil, and there germinates, pervading the ground by a wire-like process, doomed to a lingering death unless it finds a clover plant. In the commencement of its growth it gets its nourishment from the soil, but afterwards from the juices of the plant which it infests. The dodder will find the object of its destruction if within reach, and its papillae or peg-like processes, although delicate in structure, will sink into the stalk and feed upon the juices of the clover plant. The crimson clover (*T. incarnatum*) is now grown for soiling and hay, and is a beautiful Italian plant, sometimes cultivated as a border flower. Much attention is given at present to its cultivation in Scotland. Fulton's experiments in growing crimson clover attracted special attention from the members of the Highland Agricultural Society. A large crop was grown from seed sown by Mr. Fulton on land from which a crop of early potatoes had just been taken. Three months after it was sown, on Oct. 17, the yield was 2½ tons per imperial acre. He arrived at the following conclusions:—It is highly valuable as a secondary crop after early potatoes; it is an excellent crop to precede turnips; it will withstand severe weather if well established before frost; it produces an excellent crop of forage, much relished by all the live stock of the farm. If the land is not very clean, it will not answer so well as vetches, but it is of easy cultivation. Coming early to the scythe as a summer crop, 10 or 12 weeks after sowing, it may be produced very early in the season if wanted for stock. White clover (*T. repens*) is an excellent plant on all pasture lands, of great value in sheep husbandry, adapted to almost every kind of soil—loamy, rocky, sandy, or clayey—and its network of roots is all through the soil.—*American Cyclopaedia.*

POTATOES MIXING IN THE HILL.

It must not be supposed that because some vegetables originate from what is technically called a "sport," that this method of creation is not as natural and permanent as that of reproduction by seed. We are so accustomed to this latter mode of origination in new varieties that we are liable to imagine its nature's only mode; but the history of many things shows that good permanent varieties originate in this way sometimes. We have heard, for instance, of potatoes mixing in the hill. Some one plants a piece of white potatoes. He knows they were all white, yet on digging he finds a tuber, or set of tubers, all red. Therefore he fancies that bees have brought the pollen of the red variety from some distance to the white flower, and that in this way the pollen of the red became infused with the white, and that this infusion of pollen affected the sap so as to infuse the whole plant, even down to the tubers, and this is what is called "mixing in the hill."

It is clear from one circumstance that mixing cannot occur in that way, for if our observations are correct, as we believe they are, bees do not exhibit much partiality for the potato blossom. The chance, therefore, that pollen is carried backward and forward, and thus mixed by them, is small. But there is no occasion for inventing any such roundabout explanation. The sweet potato "mixes" in just the same way as the other potato. That is to say, the plant will occasionally produce a red tuber from a white stock, or a white one from a red stock, and yet the sweet potato in this part of the world produces no flower at all. It is believed that all the varieties of the sweet potato under culture were raised in this way, that is, that a tuber was found varying from the rest, and this one saved or "selected," originated a new variety or race.

The fact is there is an innate power in plants to change sometimes, without the invention of seed or the seed organs, and there would therefore seem to be no reason why varieties may not sometimes originate in this

way, and be permanent as if raised by what seems to us to be the more natural mode of seed.

In regard to the sweet potato, which never seem to flower with us, it takes this privilege in the South and thus produces seed. No attempt seems to have been made to raise these seeds until recently, when someone near New Orleans has taken the matter in hand, and report has it that he has raised many new and improved sorts, which are superior in some respects to the old ones. Now that attempts are found to succeed in this line of business, there will probably be no end to the new varieties of sweet potatoes.—*German Town Telegraph.*

CORN IN HILLS AND DRILLS.

At the Michigan Agricultural College, in 1868, two plots of land were set apart, substantially equal in character of soil, each measuring forty-eight rods in width. The ground was ploughed May 5th, and manure was spread evenly and worked in by cultivator and harrow. Yellow Dent corn was planted May 21st, in rows four feet apart; one of the plots being planted in hills and the other in drills. The plots were cultivated and hoed June 15th, and again July 7th; the plants being thinned so as to leave the same number of stalks on each plot, including the equal distribution of the plants throughout the subdivision of the plots. As near as possible each of the two plots received the same amount of cultivation. The stalks were cut at the bottom September 17th, and stacked in good order; three weeks afterward the corn was husked and weighed. The stalks then again carefully stacked, and were hauled and weighed in good condition, October 12th. The corn on the portion planted in hills was better in quality than on that planted in drills. But the drilled portion produced 74 1-6 bushels of shelled corn, and three tons of stalks to the acre, against 65½ bushels of shelled corn, and 2½ tons of stalks per acre produced by the portion in hills.—*Rural World.*

CROPS.

I shall not weary your patience by any details upon the subject of crops, only say that soil, location, and market value of grain and similar questions must decide particular crops to be raised. One thought might be mentioned. Aim to raise such crops as have a value both as cattle feed and in the market, with ready sale; we thus have the choice of two channels for disposing of our grain.

The influence of particular kinds of grasses, grain, and roots upon the question of quantity and quality of milk, and upon the flavor of butter and cheese, are subjects upon which constant experiments are being made, and by a little study and research we may avail ourselves of the results of those experiments.

There is one thought which seems to commend itself with peculiar force to the dairyman: What is worth having is worth taking care of, and what is worth doing at all is worth doing well.—*Prairie Farmer.*

POTATOES FOR SEED.

The following are the ideas of an old farmer in Maine on seed potatoes, as given in the *Lewiston Journal*:—We use too ripe seed when we propagate from tubers that have lain in the ground till dead ripe. Plants that are propagated by tubers require different treatment from those propagated by seeds. Our corns and grains that we use for seed we like to have stand a little longer than the main crop, and become perfectly matured. On the same principle our corn is selected from the ripest, best developed ears and kernals. But potatoes for seed should be dug and placed in a cool dark cellar, just as soon as a majority of them will slightly crack open in boiling. This is almost invariably while the tops are yet green and growing fast. The tubers are then in their most vigorous state. Disconnect them from the parent stock at that time and they retain their vigor. Instead of deteriorating, as most of us know the older sorts have, their vitality is increased, and they yield better, with less tendency to rot. As long ago as 1845, and subsequently, observations led him to make some experiments to test the theory, and he finds it the proper course to pursue. Is it not often said that the late planted potatoes are better for seed than those planted early? The lateness of their planting, presumably, prevents perfect ripening, hence the principle of the above reasoning would be in force.

DEEP PLOW.

EDITOR HOMER:—I have been reading your early part of the issue, and find a certain field in the field being sown was a wet was wet by the in the present course brought in regard to the one said that the corn was on the remarked that if you would keep, "and I be it was three-fold foggy, say t men of large a ted this theory it up by their satisfaction, an to convince oth lage for corn a Is it old foggy to be true?

In the spring corn with two putting the pl hard work en to draw it, tur daylight before was at the sam ing as most r not to hurt the fields (his and same time. A was up, the re farther westw interest in the two fields wer was alike in be son a marked d growth of the that the season the West, esp the fall when men who help there were two deep plowing we called it, a much out of t The following to wheat of the way, and as n The grain of t the same mac plowing aver that of the sh els to the acre difference in wheat in any e in the plo

Hardwicke's ses the potato evil is now w disorganization caused by a fu festans. This upper surface quite impervio originates in threads pass d reach the tub then rapidly r in an offensive growth of the will spread fr tract, giving t having been a causo of the d be found in the resembling in a human su ation or moist vented, and with moisture and leaves, th tissues. It is of aphid upon fected plant, to this minute tion of the evi of most of the primarily cau perfectly heal simply find an and agreeable be done to ar that the infec first intimatio destruction o Potatoes esca the neighbor is due possibl acid or other