

## Grasses and Forage Plants.

### "Grasses, Meadow and Pasture."

The above was one of the topics discussed at the recent New York State Fair, and from its importance in connection with the dairy interest, now of such magnitude in Herkimer and Oneida counties, was gone into very thoroughly. Hon. X. A. Willard introduced the subject in an address of great practical value. He referred at the outset to the value of the grass crop in the United States, which, inclusive of pasturage, he estimated at a thousand millions of dollars for the present year. In 1869 the cotton crop of the U. S. was valued at \$303,000,000, the wheat crop at \$375,000,000, and the corn crop at \$450,000,000, so that the meadows and pastures do not fall very far short of being worth as much as all three of these important products put together.

Mr. Willard then proceeded to discuss the varieties of grass best adapted to our use, and the manner in which they may be most successfully grown. Though the grass family is a large one, embracing several hundreds of varieties, the ordinary farmer is acquainted only with a very few of them. The grasses are social, and thrive well when different kinds are grown together. A denser and more permanent growth can be thus produced than if only one or two varieties are put in sole possession of the soil. Two lines of policy present themselves, the one for pasture and the other for meadow. For pasture a succession of grasses ripening at various periods is wanted to keep up a constant bite, while in meadows a simultaneous ripening is necessary to make a good quality of hay.

Mr. Willard's remarks about certain evils afflicting my old pastures, are so good, that we copy the report as given in the *Utica Herald*:—

"In the first place, many pastures are habitually overstocked. By this practice the roots of grasses and the whole plants are kept so small that their growth is feeble, and not one-half the feed is afforded that the land would produce if stocked lightly a year or two, and the grass allowed to get a good thrifty start. But this is not the only disadvantage from overstocking. The feeble growth of the grasses allows other plants to creep in, and the ground soon becomes over-run with weeds, which, on account of their not being cropped by stock, grow in great luxuriance, maturing their seed, and thus impoverishing the soil. The curse of American farming to-day is weeds. Whenever they get full possession they become so formidable that the farmer is often disheartened, and gives up their eradication. Many farmers, too, have an erroneous notion in regard to the destruction of weeds on grass lands. The impression often prevails that the only way of getting rid of weeds is to break up and thoroughly cultivate the ground in hoed crops. This is not always convenient or even desirable, for in many cases on dairy farms it cannot be done without breaking up the herd or dairy, while some uneven surfaces cannot be ploughed. There is another way of killing weeds, such as the daisy and that class of plants, by the liberal use of manures and grass seeds. I have eradicated white daisy, in several instances, by simply applying farm-yard manure and gypsum, and strewing the ground with a heavy seeding of clover. Establish your clover upon the soil, and feed it until it is luxuriant, and it destroys the daisy and other weeds by a system of plant-garrotting—strangling it and choking the life out of them. Then some weeds may be killed by frequent cutting, and not allowing them to seed. It is always advisable to pull up or exterminate bad weeds on their first appearance in pastures, and not allow them to spread."

Mr. Willard gave his opinion very decidedly in favor of pastures that had been long in grass, and condemned the practice of frequently breaking up grass lands, which is so much in vogue on this continent. He spoke of pastures that have been in grass for sixty years and more without showing any signs of failure. For dairy and feeding purposes, these old pastures are far better than those more recently seeded down. To obtain a good thick sod is the work of years. Only in case of utter failure to pro-

duce, ought grass lands to be ploughed up and re-seeded. If they begin to fail from over-cropping and neglect, a judicious course of top-dressing and sowing seed will be found preferable to the plough. The application of plaster every alternate year, at the rate of from one to two hundred pounds per acre, was recommended, and Mr. Willard had found great benefit from the use of ashes in connection with plaster, at the rate of two or three barrels per acre.

Mr. Willard thinks that all pasture lands in the dairy region would be greatly helped by the use of bones, as this material is largely taken from the soil in the shape of milk. The phosphates form an important part of the nutriment on which the finer and more nutritious grasses feed, so that the best results may be expected from the application of bone manure to old dairy lands. Dr. Voelcker was quoted as holding similar views as to the benefit of using bone manure on dairy lands.

Mr. Willard urged a more liberal supply of seed than is commonly sown, in putting land down to grass. When he first began seeding meadows to clover and timothy, he used about four quarts of timothy seed; but subsequently found that half a bushel, or even more, gave better results. He once saw a meadow of orchard grass which had yielded for several years at the rate of four tons to the acre, and it had been seeded at the rate of two and a half bushels of seed to the acre. He concluded by recommending orchard grass as one of the best grasses for cultivation, both in pastures and meadows. It springs up very early in the season, and affords a good bite several days earlier than most other grasses.

A well-sustained discussion followed Mr. Willard's address, the most interesting points in which we summarize briefly. Hon. L. T. Hawley asked if Mr. Willard had ever brought to a pasture badly covered with moss. Mr. Willard accomplished it with ashes and lime. He had used from a hundred to a hundred bushels and upward of lime to the acre. It was air-slacked, refuse lime. The soil was Utica slate. Probably this would not do on all soils. The lime was spread in the winter. In the spring it was harrowed well.

Mr. W. H. Cole, of Lewis county, had tried to eradicate moss without ploughing and re-seeding. He used plaster and accomplished it. He applied four bushels to the acre. He has now cut two tons from the acre. On a bad piece he had applied five bushels to the acre, and now there is not a rod of moss on the field. The plaster was sowed early in the spring, but Mr. Cole does not know which is the very best time.

There was some discussion about the value of different kinds of plaster, and it was determined that great care should be taken to select and to buy that which was found good.

Mr. Brown of Westmoreland had gained better results with raw than with composted horse manure. Mr. Willard always made it a practice to use horse manure on his pastures and cow manure on his meadows. Stock do not seem to relish grass grown from cow manure. Several members corroborated the statements as to the superiority of old pastures both for milk and beef. In giving his testimony to this effect, Mr. Holbert, of Chenning county, said: "Some fields I have to plough; some fields have never been ploughed. This produces more pasture than any field upon the farm. Ground for seeding should be prepared as carefully as for a grain crop. I have done this and sowed the grass alone, and the result has repaid the labor. As to plaster, I find that some soils are treated more than others. I find better results from plaster on newly seeded lands than old pastures."

J. F. Barton, of Oneida, said: "I find old pastures far better than re-seeded. I have not had them run out. They have been in pasture sixty years, and are

still good. In some cases we have had benefit from plaster; sometimes no benefit. I have not seen any effect of plaster in killing or increasing moss. We have found that repeating plaster on the same land diminishes its effect. Some years it did better than others on the same land. We carry one creature to two acres on our best pastures."

Mr. Dieffendorf, of Montgomery, said: "I believe old pasture lands give the quality but not the quantity. Turn over the old sod and grow a big crop of corn. Next year grow small grains; next again grow a crop of wheat, and then seed it with clover, and you will get three or four tons of hay to the acre. Then seed down. This is for meadows and it will do for pastures. Break up meadows every seven or eight years. I believe in regular rotation. We should grow our own corn and wheat. We have the first year our cornstalks to feed; cows will winter well on it. The next year we have our oat straw; the next our wheat straw. Straw will fill up and make good manure, if not very good feed. Then we have the clover, the best known forage crop, yielding three or four heavy crops."

Mr. D. Batchelor, of Utica, who was unable to be present at the State Fair discussion, writes a capital review of what was advanced to the *Utica Herald*. It is so sound and practical that we quote it almost entire:—

"Prof. Hunt says that 'perennial grasses are the true basis of agriculture in its highest condition.' It has been often said that grass is only another name for beef, mutton, bread and clothing. The Belgians say—No grass, no cattle; no cattle, no manure; no manure, no crops. It was my intention, had I been present at the late discussion, to speak of such grasses as I have repeatedly grown, on a limited scale, to test their enduring qualities, periods of ripening, and also adaptation to meadow for hay and pasture for good early and late grasses. In this work of testing grasses for our climate I have been kindly aided by the observation of others. And here I beg pardon for not only objecting to Mr. Willard, but to many high authorities who recommend perennial rye grass, either in meadow or pasture, in Central New York. I have made repeated attempts to grow it on Hon. Samuel Campbell's grounds and elsewhere year after year, and find that, notwithstanding its vigorous luxuriance, the first season from the seed it will not stand our severe winters—the entire patches disappearing in the spring, root and blade. Pacey's perennial rye grass is a dwarf, and is used in England as a pasture and lawn grass. I find it also only half hardy here. Tons of English perennial rye grass seed are yearly imported into this country for use in meadow mixtures. Would it not be well to try this variety alone in cold latitudes and ascertain its powers of endurance? Till better informed, I pronounce it useless in Oneida county."

Italian rye grass is perfectly hardy anywhere in this state, and is one of the most valuable meadow grasses known either to cut for green soiling or for hay. In vigor it is like orchard grass, but much finer in texture, and is of the 'cut and come again' kind, often producing two crops of hay in one season, and then leaving a rich aftermath.

Meadow fescue I have tested most thoroughly, and find it to be one of the hardiest and most vigorous of the English grasses, and equally adapted to meadow or pasture. I think that it equals timothy in the amount of hay, and like the Italian rye, it comes in late enough to cut with the timothy. Prof. Way says that it far excels any other fescue in the quantity of produce and nutritive value.

Meadow oat grass is one of the desirable, hardy grasses for meadow, as it is vigorous and luxuriant, with a peculiarly sweet and tender foliage, ripening nearly with the timothy, and producing good aftermath.

Fescue grass, and rough stalked meadow grass are perfectly hardy, and of great value in wet lands, but can hardly be recommended in a well-drained meadow.

Sweet vernal grass, though classed by the best authorities as a pasture grass, ought to be encouraged in the meadow for its fragrant odor, especially when made into hay. It has been called a vegetable condiment for cattle. I think that it is much more than that, at any rate cattle devour it with eagerness.

Mr. Willard recommends orchard grass in meadows. If by this he means orchard grass alone, or orchard grass with medium or June clover, so called, that will do; but orchard grass with timothy will not do, as it ripens so early that if left to be cut with the