

Grasses and Forage Plants.

Aftermath.

We are confident, both from the experience of years and the deductions of science, that aftermath is not sufficiently valued, and consequently is not carefully secured in this country. Farmers are wont to regard it as light and foggy stuff, and we have heard them speak of it as worthless, comparing it to the foam of beer. We have induced some of these unbelievers in the rowen crop of hay to try some of it in feeding young stock, sheep, and milch cows, and we never knew any one to make a thorough trial who was not convinced of its virtues. Living as we do near a manufacturing village, where we can obtain night-soil and other fertilizers in abundance, we have found it more profitable to sell hay than to feed it to stock, but we seldom meet with a customer who does not prefer the first crop. The villager says: "I have but one cow, and I want to feed her well and give her strong hay." Occasionally, a customer who has once fed the aftermath, and found how much more milk it produces, and what a sleek, healthy look it gives to a cow, inquires for the second crop; but for a dozen years past our uniform practice has been to sell the first crop, except what we needed for horses, and feed out the rowen to cows; and we know no hay that will keep them in so good condition, or that will produce so much milk.

If there is anything to be learned from the instincts of the animals, and we have no doubt there is, we may certainly infer that there is more virtue in the second than in the first crop of hay. We have often tried putting before them the two kinds, and they uniformly choose the aftermath, and if they have been fed for a time on the latter, and a feed of first crop is placed before them, they will smell of it and turn up their noses, plainly intimating, "This is not exactly the thing we like. Can't you give us something better?"

Mr. Flint, Secretary of the Massachusetts Board of Agriculture, in his admirable report on grasses, lays down this principle: "The object of the farmer in securing his hay is to make it most like grass in its perfect condition." The principle will not probably be denied by any observing farmer, and we submit whether the aftermath does not come nearer to grass in its perfect condition than does the great majority of the first crop. When cattle are allowed to graze freely in a large pasture they seldom crop the dry, mature grasses, but uniformly prefer the fresh succulent food, and it is only when half starved that they will graze where the grass is tall and mature.

The nutritive substances in grass are mostly those which are soluble, such as sugar, starch, &c., and these are found to be most abundant when the herbage is young. After the seed has matured, and, indeed, before this time, the herbage is converted into woody fibre, which is about as insoluble as so many old chestnut rails. We would not be understood as affirming that dry, mature hay and straw are worthless. Animals have the power of digesting a greater or less proportion of that part of their food which is insoluble in water. The saliva and the gastric juice have more power of solution than common water, and hence Mr. Snelman's experiments in testing the value of the different grasses at different stages of their growth, by boiling them till everything soluble was extracted, were defective. By evaporating the solutions and weighing the dry matter thus obtained, he considered that he secured all the nutrition, and that the weight of this dry matter represented the values of the grasses; but the vegetable fibrine, casein, and other nutritious substances are insoluble in water, and there must also be more or less insoluble saline matter in the dry, mature herbage.

Granting that there is some nutrition in the herbage of mature hay and straw, and that all the virtue is not concentrated in the seed, as some maintain, still this does not affect the conclusion that young grass is better than old, and that the aftermath is not more soluble for some kinds of stock than the first crop, as the latter is most generally secured. If the first crop is cut before the virtues of the herbage have gone into the seed, and before the stems have turned brown, showing that the sugar, starch, &c., have turned into woody fibre, then the distinction between the first cutting and the aftermath becomes less marked.

But do not cattle eat more rowen than the first crop? asks one doubting Thomas. Certainly they do, and they will also eat more good hay than poor, just as any sensible man makes a more hearty meal from sweet bread than from sour. If we should feed

our cattle on musty corn stalks, they would eat less than when fed on first-class hay, but this does not prove that the stalks are more nutritious than the hay. We love to see cattle eat heartily, and the more they eat the more beef and milk we expect in return. The art of feeding consists in furnishing stock with something which they will relish, and which will cause growth, or fat or milk, as the object of the feeder may be, and if the aftermath will effect one and all these ends, there is no loss in the cattle do eat more of it than of the first crop. Roussignault, who estimated the nutritive value of the vegetable substance employed for fodder according to the proportions of nitrogen they contained, considered seventy-five pounds of aftermath to be equal to 100 pounds of hay made from mixed grasses cut at maturity, as by analysis he found the aftermath to contain 1.54 per cent. of nitrogen, while the hay contained only 1.09 per cent. This theoretical conclusion may not be sustained by practical results, as the amount of nitrogen is not a true criterion for the feeding value of hay, but farmers have very generally concluded from their experience that early cut hay, which is quite similar to aftermath in its composition, will produce more milk and beef than that cut at maturity. Now, if they will give the aftermath a thorough trial, they may come to a conviction of its value as they have to the value of early cut hay.

By cutting the first crop in June or early in July, before the seed has matured and drawn heavily on the soil, the rowen crop starts quickly, and will be ready for cutting in August, so that a third growth will have time to start, and make a protection for the roots as well as give them vitality. The labor of cutting two crops of grass is certainly an objection to the plan of harvesting the aftermath; but with a mowing-machine, treader, and horse-rake, there is less labor in securing two crops than formerly in securing one, and the only question should be, will this labor pay? This can be ascertained by trial, and we would like to see more experiments made in this direction.—ALEXANDER HYDE, in *N. Y. Times*.

How Corn Grows.

Every one who reflects at all on what he sees, must have wondered why it is that some kinds of vegetation will grow so much larger than others in the same season, though every circumstance that has any relation to cultivation evidently is just the same. The corn-plant, for instance, grows tremendously as compared with the wheat, or some grasses; and the total weight per acre is perhaps greater than in the case of any other farm crop that grows.

Of course there are constitutional peculiarities which in a measure regulates this, and which "no feller can find out," but he never so great a philosopher. The young calf will grow tremendously more than the young mouse, though each may have as much light or heat or food as it may need. But we note that some person in Germany has been looking into these matters, and he has come to the conclusion that though these matters are in the main constitutional, there are still certain reasons for this, and in the plants one of the leading of these agencies is a capacity for evaporation.

It seems, according to two views, that plants take up their food with their liquid through the roots; and that as the moisture evaporates through the leaves, it leaves the solid matter essential in plant structure behind. The more evaporation, therefore, the more solid matters are left to make organized matter out of. He finds the corn-plant one of tremendous evaporating power, and thus we may account in some measure for the rapidity with which it builds itself up.

A very singular point in the essay to which we refer is the belief of the writer, that heat has nothing whatever to do with drying the moisture out of a healthy plant. The idea he has is like this: If we take an apple and cut and dry it, the moisture escapes. The apple dries. But the same apple on the tree and growing would not be affected in that way by heat. Our drying apple would send out its moisture more rapidly when the thermometer near it was seventy than when it was but fifty degrees, but on the tree there would be no perceptible difference. The same evaporation would go on. There is, he says, a vital power in this case which throws off the moisture, and one with which external heat has very little to do.

The great evaporator, he says, in healthy plants is sun light, and it is because of this great evaporating power that plants grow so well in the sun. It makes the moisture leave the plant, and with the new moisture more food enters. We do not know what our practical men will say about this new light, but it is worthy of being noted among the new thoughts of the day.—*German Town Telegraph*.

Oat Hay.

One of our farming friends, who resides near Philadelphia and has a large milk trade, tells us that for the past four years he has cut oats for hay and has found so much good to result from the practice, that he is thinking of making it a complete substitute for hay for regular cow-feed, as far as other circumstances will allow. He cuts the oats just while the grain is forming and while the whole plant is yet green; and takes rather more pains in the drying, as the oat is rather more likely to mould than the ordinary grass. He claims that he can get a heavier crop of at least as good feed from the same space of ground in a shorter time in this way than he can from any ordinary hay-field.

This may be so, yet there seems to be some objections. In this part of the country at least, if March be wet, or the season late, oats cannot be got in till the middle of April, and it is one of those things which requires to be in very early in order to do certainly well. Again, the oat is more fastidious in regard to soil than grass is. It often happens that land which seems favorable to a good crop of oats so far as the grain is concerned, makes very little straw; and a field of oats not much over a foot high would not be very profitable as a "forage crop." Then again animal labor must be spent on an oat crop, while on a good stand of timothy, the same sowing will do always for two, and sometimes for three years. This saving of labor alone seems to us to be a strong item which ought not to be overlooked.

Yet it seems quite likely that this oat hay idea might very often be taken advantage of to good purpose, and so, as the correspondents often modestly say, we offer it for whatever it is worth.—*German Town Telegraph*.

RED-TOP.—The *Prairie Farmer* says of this plant:—In most respects it is a most excellent grass. If grown on a proper soil it produces a very large crop, and is well relished by cattle when eaten in the pasture or fed as hay. The foliage is large as compared with the stalks, and, therefore, it is generally eaten quite clean. It forms a firm sod, and is not liable to run out. No grass will bear second cutting or full pasturage better than this. The writer of this has a plot of it on his farm that has been mown consecutively for twenty years, and though the ground has not been manured, it last year yielded over two tons of hay to the acre. It requires a moist, clayey soil, and does not do well on dry, gravelly soil. Springy hill-sides and the land lying below them are the best situations for this grass.

LUCERNE.—We have heard of instances where good success has followed from sowing lucerne in the month of August. It has the advantage of gaining a year, as when it is sown in spring we do not think you can reasonably expect much of a crop that season, but if sown in August on a mellow soil that has been summer fallowed so as to be clean and free from weeds, it has time to get well and strongly rooted before the hard frosts come to cut it off. The liability to be winter-killed will depend very much on the character of the winter. If it were on a soil and in exposure where the surface is very apt to "heave" the risk would be considerable. If the ground was fortunately well covered with snow, and protected, it would go through and be likely to do splendidly the next year. The risks of this crop when it is quite young and tender are very great. When it is once firmly established it is as hardy as any other forage plant. The quantity of seed required is about twenty pounds to the acre. Less would do if we could be sure that it was perfectly good.—*Mass. Ploughman*.

TESTING SEEDS.—Now that spring and the planting season are approaching, it is often important to test the vitality of seeds before sowing them. We have heard the following simple and easy method described: Fill a box, pan or flower pot partly with rich, mellow earth, make the upper surface perfectly smooth, and on this surface draw straight cross lines, and drop a seed at each intersection, so that they may be easily counted. Then take a wide hoop or frame, and make a bottom to it with cloth stretched across, so as to resemble a sieve. Place this upon the seed, and fill it with enough fine mould to form a sufficient covering for the seed, which should generally be four or five times the diameter of the seed for the depth. Keep the soil sufficiently moist and in a warm place. The sieve can be lifted easily and the seeds examined without disturbing them. In this way corn, wheat, clover seed, turnip seed and many other kinds can be easily tested, which may be of considerable importance where the age or freshness of the seed is not certainly known.—*Country Gentleman*.