

At the spaces above mentioned, they should be fully three feet deep. The fall should not be less than one inch to the rod. Much care should be taken to have a sufficient descent to ensure a regular flow. A well-constructed tile drain may be expected to continue in good working order for half a century, and it is unquestionably the best investment of labour and capital a farmer can make for the improvement of his estate.

Mr. Alderman Mechi on Hay-making.

"I lay it down as a principle that good hay should be green. If the cut grass were immediately desiccated or dried artificially it would be green. It is the long exposure to the sun's rays that takes away its colour, and gives evidence of improper making. I lay it down as another sound theory that grass immediately after cutting should be either flying in the air by means of the machine, or be on the cock. As fast as the grass is cut it is immediately sent flying into the air; and we keep on at this all day until the approaching fall of dew, before which time it must be put on the cock, for the dew is almost as bad as rain. A lady's dress or veil in the summer evening will give evidence of this. Grass after cutting should never be allowed to lie on the swath or rake row, or lie spread over the ground. The damp from the earth prevents its making, whereas on the cock it heats slightly and makes much quicker than even when exposed to the sun on the ground.

"I will give an instance of this. Two-thirds of a field of grass were put into large cocks, the other third left on the rake row. It was on a Saturday, the weather being brilliant from Saturday to Monday. On Monday we carted, and it was found that the cocked grass was much forwarder than the rake rowed, which had in consequence to remain out longer.

"It is easy to understand this, for in dry weather you will always find damp under any covering you put over the soil. I commend this question of flying in the air, or putting on the cock, to our Scotch, Irish, and Lake country friends, whose mountains give them frequent rain-fall, or a fine moist turnup atmosphere.

"It is easy to understand that scattering the separated blades of grass high and rapidly through the air is, in fact, like blowing a gale of wind through them, and the grass is thus quickly deprived of its moisture without losing its colour and quality by long exposure to the sun's rays. If dried artificially it would get heat without sunshine, which is just the north country and Irish condition. I would impress upon our machine-makers to increase the rapidity of motion of their circular rakes, so as to give an ample throw or spread without causing the horse to walk fast or trot. This is especially necessary with heavy crops, which I hope all my practical friends grow, and which I know they will be sure to have when they use town sewage for irrigation. A friend of mine who drives four-in-hand had such an immense crop of hay in his park that he worked his treading machine and his horses at full gallop, and thus got a splendid hay crop. The horses were ridden *en postillon*. In getting heavy crops of Italian rye-grass into hay, it is absolutely necessary to have rapid motion; and I need hardly say that this grass will bear cutting and carting earlier than meadow grass.

"Our mutual friend, Mr. Dickenson, got up a capital and extensive crop of hay during the miserably wet season of 1860 by the means I have suggested. If it rained, which was almost constantly, the hay was on the cock; an hour or two dry, the cocks were opened—several machines constantly going when the slightest opportunity presented itself.

"As to sticking, those who have a covering can choose their own time. I observe that all keen hay-makers take care to have the carts heavily laden some time before unloading, for the hot sun and middle of the stack, so that it should thus get a preliminary heating, as it is likely to have the greatest pressure and the most difficult escape of heat. I consider the drying in the air and the heating in the field-cock the two important matters—and I need hardly say if you have not a rick-cover it should be thatched immediately it is finished. It is easy to understand that hay when cocked in large cocks only occupies probably one tenth or less of the space of the field; therefore if one inch rainfall takes place, it only gets one-tenth of the rain that it would have if spread over the field. The larger the cocks the less the injury from rain, but the cocks must be opened on every favourable occasion. We only want to get the moisture out of our grass, preserving its colour and qualities. There is no place where they understand making hay so well as near London. The size of their ricks, the care with which they are pulled, or plucked, so as to have a solid outside, and the neatness of thatching and cutting out, deserve imitation as well as admiration."

Grain Cutting.

As recently remarked concerning the hay-field, so of the harvest-field, many farmers are too tardy in getting into it. The mistake is made of waiting until the grain is ripe, whereas experiments have repeatedly proved that to do this is to incur much risk and loss. The proper time to cut grain crops is when the berry is just out of the milk, or as soon as it is hard enough to bear moderate pressure of the thumb nail without breaking. This is usually about ten days before maturity. If harvesting be delayed until the kernels are ripe, there is loss in the weight of the grain, and much waste by its shelling out upon the ground. Fields have sometimes borne a good crop with no other seeding than that received from what had been scattered during the previous harvest.

A recent number of an agricultural journal gives an account of an experiment made some years ago with a crop of 50 acres of wheat. The bulk of it was cut as here recommended, and weighed 62½ lbs. to the bushel. The remainder gathered when fully ripe, gave only 58 lbs. per bushel. On the whole amount of 1,200 bushels, there was a gain of 5,400 lbs. or about 90 bushels in bulk, and the quality of flour was superior. If to this be added, the waste and loss from shelling out, it will be seen, that ordinarily, far more than enough may be saved by early cutting, than will pay the entire harvest expenses.

Hoeing.

THE following judicious remarks by the Editor of the *New England Farmer*, are particularly opportune just now. They relate not only to hoeing in general, but to what is exceedingly apt to be neglected, the late hoeing of corn and other crops:—

Silent assent seems to be given to an old rule, that the crops must be hoed three times—whether they are weedy or not—and no more, though the ground be covered with weeds. Three times is enough, and the soil ought to know better than to throw up weeds after such a scarification—say some—we cannot afford to hoe any more. And so the crops are left to try their powers with the weeds, and generally come out second best.

A part of the object of hoeing, certainly, is to eradicate the weeds, but there is a principle involved in it far beyond the surface work. Still, the weeding is very important in the following results:

1. It removes the weeds, and prevents their taking properties from the soil that the plants need.
2. It prevents their seeding and extending their kind through an indefinite number of years.
3. The succeeding labour upon the crop will only be about half as much after the weeds are taken away.

There may be other advantages derived in taking away weeds, but these three are sufficient to move every judicious farmer to exterminate them as fast as they appear.

There are other, however, important reasons why crops should be hoed once or twice more than they usually are. In hoeing, we mean to include what generally precedes it, working the soil to some depth either with the plough or cultivator. These operations give some valuable results.

1. If the soil is too wet, they loosen it and let in the sun and air to dry it and make it more light and porous.

2. If too dry, loosening the soil admits the moist air, and renders it capable of receiving and retaining any drop of dew that falls upon it. When a slight rainfall comes, being light and open, it catches and holds every drop that falls, while on a hard surface it rapidly flows off.

3. Every drop of water that goes into the soil, carries a certain amount of heat with it. This is left in the soil, warms the tender roots and gives them a rapid growth.

4. Rain water is charged with ammonia and other properties, which the plant greatly needs. When the surface is in a suitable condition to receive what falls and pass it along down the subsoil, every rain is equal to a slight manuring of the plant, so that the farmer who hoes and cultivates thoroughly finds his crops dressed from the bounties of the skies, while neglected fields, of hard surfaces, find few blessings in the shower.

Two rules should always be observed in regard to hoeing, viz:—

1. Hoe whenever there are weeds, whether in June or October.

2. Hoe whenever the surface is compact and dry, whether in June or September.

Management of Mowing Machines.

THE farmer who possesses a good mowing machine, a pair of good horses, and understands how to drive and keep it in order, may almost set the elements at defiance. But there are many who purchase machines, who do not possess either the ability or the inclination to keep them in order, and to such, they are a hindrance rather than a help. A word to those who belong to this large class:—

First, then, it is your interest to understand the nature and wants of the mower, because, without this familiarity, it will soon become worse than useless. We know of machines in good repair, and almost as effective as when new, which we sold seven years ago. On the other hand, we have seen the best machines, in careless hands, rendered nearly useless in a single season. The cause of these strikingly different results is readily explained. In the case of the first machines, their purchasers were men, who, before using, made themselves familiar with all their details. They ascertained where the friction was greatest and how to relieve it,—they comprehended the importance of sharp knives, and consequently understood fully the value of a good grindstone—a first-rate whet-stone, a suitable file, surplus blades to replace damaged ones, and abundance of rivets to replace worn out or broken ones. They knew the virtue of abundance of oil at the proper points—the removal of gummed grease from the journals, and rust from the parts which were brought in contact with the ground. Every nut was properly drawn every day, and suitable wrenches were always at hand for this important purpose. When the season was over, they did not permit the machine to lie in one of the fence corners of the field in which it was last used, until the succeeding summer; but carefully cleaned and housed it at once—applied a coat of paint to the wood work in leisure hours, removed the knives and oiled them, to prevent rusting, and scraped away the accumulation of gummed grease on the journals. These attentions were the cause and the long and effective use of the machine, the result. Take their opposites, and you have an explanation of the rapid destruction of the second machines.

In addition to the above, much depends upon the driver. There are those who do everything by main strength. They start, or attempt to start a mowing machine in heavy grass, as they would start in a horse race—with a blow and a shout for the horses. The sudden jerk, and the increased resistance consequent upon the knives being brought thus suddenly in contact with a heavy body of grass, causes a strain upon the frame, which not unfrequently deranges the whole machine, and unfits it for further use, until the damage is repaired. This sudden starting in heavy grass is especially to be condemned, where, as is now almost invariably the case, the frames are made of iron. The starting of a mowing machine should be gradual. Far better spend a minute in backing, so as to get the knives fairly into play, than follow the unwise plan alluded to. Nearly all of the machines in use may be backed as readily and easily as a cart, and if the horses could speak, they would tell their foolish driver, how much easier backing would be to them.

A word more and we have done. Buy only a well approved machine. Almost any of those in general use may be purchased with safety. In fitting up your tool box, (which, by the way, should always accompany the machine,) buy none but the very best tools. A tip-top monkey wrench—a good Washita whet-stone—a steel polled riveting hammer, a file of the first quality, and above all, oil of the best kind and enough of it. In the end, the best things are always the cheapest, and those necessary to the management of the mowing machine, are not exceptions to this well established rule.—*Culturist*.

CHEAP FIELD FENCE.—A good and sufficient field fence can be made with fifteen inches in width of boards, fifty rods of fence to the thousand feet of boards. Set the posts, and nail the first board nine inches from the ground; then make the spaces five, six, seven and ten inches: five boards three inches each is fifteen inches; now turn a furrow six inches deep toward the fence on each side. This brings the earth within three inches of the bottom board and adds six inches to the height of the fence, measuring from the bottom of the furrow, and the ditch or bank makes it very unhandy for animals to get at the fence. This makes a fence four feet ten inches high. I have built several hundred yards of such fence. The first was built five years ago. It has proved perfectly safe and sufficient against cattle that were unruly. It is not racked by the wind, like a fence of wider boards. Fourteen-foot boards, with one post in the middle, takes a less number of posts, and makes as good fence as twelve. I have used white oak boards at about twelve dollars per thousand, and swamp oak split posts at four cents each.—*Cor. Genesee Farmer*.