



The Field.

Degeneration of Wheat.

THE marked improvement in the breeds of cattle on this continent affords very striking evidence of what may be done by care in breeding and rearing stock; and the same progress in horticulture, as the result of judicious selection and culture, may also be seen in the quality of various fruits that, year by year, are supplied to the market. But in the case of the most important agricultural product, wheat, there seems a constant tendency to degeneration. The virgin soil of this continent, within certain latitudes, usually produces abundant crops of this staple cereal; but after a time, the yield begins to diminish, both as regards the size and quality of the grain and the quantity per acre, till at length, perhaps, its production ceases to be profitable, and new land is sought for raising this almost essential staff of life. Thus the wheat-growing region seems to shift its locality with the tide of emigration, from east to west.

Another somewhat similar fact also challenges attention—that new varieties of this grain, however excellent and prolific they may be, seldom retain their reputation for any lengthened period. After a time, some of them will cease to be grown altogether, and give place to other favorites; and this by no means as a matter of fashion or caprice, for farmers are usually too practical for such folly, but on account of acknowledged degeneracy in the once good variety.

No doubt the reasons for this result are various, and some of them doubtless obscure; yet so important is this crop and the interests connected with it, that no subject in the range of agriculture is better worthy of careful investigation. We are glad to find that the matter is being taken up by agriculturists in the adjacent Republic, and wheat conventions are to be held in more than one of the States, to compare the experience of farmers in various sections of the country, and discuss the important subject in all its aspects.

There is one point which we feel assured is worthy of more attention than it generally receives, that is, the careful selection and treatment of seeds. On physiological principles, and from the results of actual experiments, it is clear that marked and permanent improvement may be attained in wheat, as in other vegetable products, and notably in breeds of animals, by selecting the best samples, and those only, for propagation; and in this selection every important quality should be regarded—the number of berries on the ear, the size of the grain, the quality of the flour, the prolificacy, earliness, and hardness of the variety. In reference to this subject a very interesting paper was recently read at the first meeting of the Botley Farmers' Club, by Mr. Hallet, of

Brighton, England, on "Pedigree in Cereals." Mr. Hallet has for twenty years closely studied and experimented on the growth of cereals, and comes to the following conclusions:—"1. That no two grains of any cereal will produce plants precisely equal, and that, therefore, in any given quantity of any cereal, whether a dozen grains, a pint, or a quart, there is one grain superior in producing power to any of the others. 2. That this superiority is inheritable. 3. That it may, by the repeated selection year after year of the best descendant grain, be greatly increased, and become practically fixed." He illustrated these statements by a variety of examples, and gave an instance in which he had obtained a winter variety of wheat from what had previously only been raised as a spring crop. Had we space, we should be glad to give the whole of the lecture, as reported in *Bell's Weekly Messenger*; but, though we hope to recur to the subject again, we can now only add the concluding paragraph, which is as follows:—"We come now to enquire what is the practical meaning of pedigree? It is this:—We grow a certain crop (say of wheat) of forty bushels per acre, and we wish for more. How is more to be obtained? Can we grow more ears in number, and if so, by what method? Can we sow more seed per acre? No; for if we do we shall obtain green-meal, not corn. But cannot the number of ears produced per acre be increased? No. If we plant single grains six inches by six inches, nine inches by nine inches, twelve inches by twelve inches every way, if we drill one bushel, or 'broadcast' two bushels per acre, we can only obtain about one million ears per acre. The only means of increase, then, is by increasing the contents of the ears, and this I have effected by my system of selection. Thus I have already doubled the contents of the original ears of the three varieties of red, white, and blue pedigree wheat, and these have just the same tendency to produce large ears as pure bred Durham cattle have to produce like progeny. But in order that this power may be freely and fully exercised, each grain must be planted by itself, with a space around it depending upon the time at which it is sown. That the grains should be planted singly is essential, at whatever distances apart they are deposited, for if you make a series of holes and plant one grain in the first, two in the second, three in the third, and so on, you will obtain a greater produce from the hole planted with only one grain than from any other of the holes. The number of ears possible per acre being fixed, the size of the ears depending upon the space allotted to each grain, and the greater the space each grain has to fill the longer the time required for doing it—we come to the necessity of early planting, when only two or three gallons of seed per acre are used, and when the utmost result possible is expected." Mr. Hallet said that he usually sowed seed about six and a half inches apart, and at the rate of eight gallons to the acre.

Eyer's Ditching Machine.

NOTWITHSTANDING the frozen condition of the ground, this machine was put to trial on Tuesday, Dec. 8th, in Mr. Leslie's nursery, in the presence of a considerable number of spectators, and gave general satisfaction. It continued working for two hours, and in that time dug a drain two hundred yards in length and three feet deep, in a neat and workman-like manner. The construction of the machine is exceedingly ingenious. First of all, there is a frame, like the bottom of a waggon, about ten feet in length, mounted on four wheels of small diameter. To the front of this frame is attached a beam, extending considerably on each side, to which are attached two teams of horses. On the hinder part of the frame the workman stands who regulates the working of the machine, which he does by means of two handles very much like those of a plough. These handles are connected with a wheel, eight inches broad, of great weight, which descends through a hole about three feet from the front of the frame. This wheel is where the working power is situated. Its rim is furnished with a series of spikes so placed that when it turns round—the spikes being forced into the ground by its own weight—they bring up the earth and deposit it in an inclined funnel, through which it passes out to the edge of the chain. The machine digs to a depth of three inches, and by a simple contrivance the heavy wheel is let down so as to dig other three inches, and so on till the proper depth is attained. This Ditching Machine is, we believe, worthy the attention of farmers, though having received information that the trial would not take place, on account of the frost, we had not the opportunity of personal inspection. The above account, however, was furnished by an eye witness.

DIGGING POTATOES.—The *Ohio Farmer* says the most rapid potato digging he ever witnessed was done with a common barn shovel. The shovel was driven into the earth beside and under the hill, and a portion lifted out, and by a quick jerk scattered over the surface, entirely separating soil and vegetables, leaving the potatoes clean. Generally two applications of the shovel finished the work upon a hill.

A NEW CORN HARVESTER.—At the late Illinois State Fair there was exhibited a machine for harvesting corn, and designed to take the ears from the standing stalks in the field. The apparatus is constructed to take two rows at once. The stalks are taken between projecting metal faced fingers, and as the machine advances the butt of the ear is brought in contact with a short sickle, playing at the rear of the fingers cutting it off, while the stalk passes under the machine without being pulled up; the ears are received into a large hopper at the rear of the machine, and discharged when it is full.