AGRICULTURAL.

WHEAT.

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[We recommend to the attention of the practical farmer the following article, from "*The Complete Farmer.*" The culture of *winter wheat*, if introduced into Nova Scotia, would lessen materially the hurry which now necessarily attends the Spring work.]

We believe that wheat would flourish better if it were buried deeper than it generally is in broad-cast sowing. Our opinion is founded on the following facts, relating to the physiology of the wheat plant. 'A grain of wheat, when put into the ground at the depth of three inches, undergoes the following transformation: as soon as the farinaceous matter which envelops the frame of the young plant, contained within it, is softened into a milky state, a germ is pushed out, and at the bottom of that germ small roots soon follow. The roots are gathering strength, whilst the germ, by the aid of the milky fluid, is shooting upwards; and when the milk is exhausted, the roots are in activity, and are collecting nourishment for the plant from the soil itself. This is analogous to the weaning of the young of animals, which are not abandoned by the mother till they can provide for themselves. But the care of nature does not end here; when the germ is fairly got above the surface, and become a plant, *a set of upper roots* are thrown out, close to the surface of the ground, which search all the superficial parts of the soil with the same activity as the under roots search the lower parts; and part of the germ which separates the two sets of roots is now became a channel, through which the lower roots supply the plants with the nourishment they have collected. What an admirable contrivance to secure the prosperity of the plant! Two distinct sets of roots serve, in the first place, to fix the plant firmly in the ground, and to collect nourishment from every quarter. The upper roots are appositely situated to receive all the nourishment that comes naturally from the atmosphere, or artificially as manure, to the surface; and serve the farther purpose of being the base of new stems, which are tillered up, and so greatly increase the productiveness of the plant. The excellence of the drill system in grain may be probably perceived in this explanation; for in broad-cast sowing the seeds lie very near to the surface, and in this situation it is not only more exposed to accidents arising from birds, insects, and the weather, but the two sets of roots are necessarily crowded together, so as almost to become indistinct; the plant is less firm, and has fewer purveyors collecting food for it.'

Dr. Deane observed, that 'wheat that is sowed in autumn, a clover ley excepted, should, instead of harrowing, be covered with a shallow furrow, and the surface left rough. It will be less in danger of being killed by the frost in winter, and less injured by drying winds in the following spring. The furrows should be left without harrowing; for the more uneven the ground is the more the soil will be pulverized and mellowed by the frost.' But if the crop which succeeds the wheat crop should require a smooth bottom, the land, after sowing, must be harrowed, and should be rolled. Some husbandmen advise, when wheat is sown on a clover ley, to plough in the clover with a deep furrow, then plough in the seed wheat with a shallow furrow; and if the next crop in the rotation requires a level bottom, it will be necessary to harrow and roll the field as smooth as possible, after having ploughed in the seed.

The greatest care should be exercised with regard to the kind, quality, and preparation of seed wheat. There are many varieties of wheat, but winter wheat, in the United States, is generally distinguished by only two appellations, red wheat and white wheat, of which the latter is held in highest estimation.

In preparing your seed wheat, the first thing to be attended to is to clear it perfectly from every injurious foreign substance. 'One error here may mar our whole system, and render our skill productive of as much evil as good. On poor and worn out land the evil of sowing a mixture of impure seed with grain or grass seed would be great; but where the ground is in high order the crop is more injured; the noxious plants take firmer hold, and are more difficult to be eradicated.' Indeed, it would be better for a farmer to pick over his seed wheat by single handfuls, and make a riddle of his fingers, than to sow cockle, darnel, tares, wild turnip seeds, and other vegetable nuisances, which are as intrusive as unwelcome, as tenacious of life as they are unworthy of existence. The first preparation therefore should be to screen, winnow, and riddle the grain till perfectly freed from these and other improper ingredients. When this is thoroughly accomplished, washing and steeping, for the purpose of preventing smut, should meet attention. The first step in the processes to be instituted against smut, as recommended by Sir John Sinclair, is 'to run the grain *very gently* through a riddle, when not only the smut balls, but the imperfect grains, and the seeds of weeds, will float, and may be skimmed off at pleasure.' The same author enumerates as modes by which smut may be prevented, 1. The use of pure cold water and lime. 2. Boiling water and lime. 3. Water impregnated with salt. 4. Urine pickle. 5. Lye of wood ashes. 6. A solution of arsenic. 7. A solution of blue vitriol. It seems that almost any acrid, corrosive, or poisonous application will secure a clean crop, if properly used for that purpose.

Mr Arthur Young sowed fourteen beds with the same wheat seed, which was black with smut. The first bed was sown with this wheat without washing, and had three hundred and seventy-seven smutty kernels' A bed sowed with seed washed in clean water produced three hundred and twenty-five smutty kernals; washed in lime water, forty-three do.; washed in lye of wood ashes, thirty-one do.; steeped in lime water four hours, two do.; steeped in lye four hours, three do.; steeped in arsenic four hours, one do. Again that which was steeped in lye, as before mentioned, twelve hours, had none; and that which was steeped in the same kind of lye twenty-four hours had none; that also which was steeped twenty-four hours in lime water had none; that steeped in arsenic twenty-four hours had five.

The only successful course is to prepare the seed about ten days before sowing-time. This is done by selecting clean and plump seed, passing it through water in a tub, about half a bushel at a time, and washing it and skimming off the matter that floats; then empty it into a basket to drain, then lay it on a clean floor and rake in two quarts of slacked lime and one quart of plaster to the bushel, and if too dry sprinkle on water, and continue to stir it until all is covered with the lime and plaster. In this way you may proceed until you have prepared your whole seed. Let it remain in a heap one day, then spread it and move it daily, until it becomes perfectly dry; it is then fit to sow, and you may sow it if the land should happen to be quite wet.'

We shall now speak of the liability of wheat to become winter-killed. The auther of Letters of Agricola states, as an objection to the cultivation of wheat in Nova Scotia, 'its liability to be thrown out in the spring, and thus subjecting the farmer to serious inconveniences, and often disappointment of a crop. Grasses are not exempt from the same hazard; and the hopes of the year are thus blasted by a cause which, in many cases, will admit the remedy, in all, of allevintion. I am not sure but sowing the wheat seed under furrow, at least four or five inches deep, in September, in order that it may extend its roots and take a firm hold of the soil before the approach of winter, and rolling it in the spring with the box heavily loaded, would obviate the evils of our climate, and enable us to cultivate that grain according to the improved modes of England. It ought to be recollected that even there, about sixty years ago, winter wheat was not of general cultivation, and the heaving of the soil was accounted a powerful obstacle to its success. In Scotland, too, during the same period, spring wheat almost universally prevailed; and her northern and bleak position was thought to be incapable of any change to the better, and utterly unfriendly to autumnal semination. The zeal and industry of British farmers, combined with their skill, have baffled all these gloomy predictions, and taught us at once to copy the example of our sires, and not despair in the race of improvement.

A method, according to the same author, made use of in Norfolk, England, to guard wheat against the changes and inclemency of winter and spring, is to adopt the following rotation: 'After a turnip, they sow burley the second year with clover seeds; the third year they cut hay, and plough down the ley, and sow their winter wheat on the matted sod. The roots of the grass bind the soil, and prevent it from heaving, which is much akin to the same effect produced by the tangled and bound surface of our new and cleared lands.' This fact may suggest another inducement to sow wheat next in rotation after clover, as has been recommended. [To be continued.