THE CANADA FARMER

VOL. X. No. VII. (NEW SERIES.) | TORONTO, CANADA, APRIL 15 1873. | $1.50 PER ANNUM. SINGLE COPIES 8 CTS

The Field.

Top-Dressing for Wheat.

R. H., KENILWORTH, writes us .— I would like to know through your CANADA FARMER what would be the best and cheapest top-manure for fall or spring wheat on heavy, loamy soil. I mean artificial manure, also the best time to apply it."

There are several kinds of artificial manure well adapted to increase the growth of spring or fall wheat when applied in the spring.

SUPER-PHOSPHATE is manufactured in Toronto and can be purchased for about $40 a ton, but is usually applied in preference to green crops rather than to wheat. It has, however, been often tried and found very beneficial, about 200 lbs. an acre would be considered a good dressing. The only drawback is the cost, when all is charged to the wheat crop; but if grass-seeds are sown with the wheat, the benefit would probably be felt quite as much in the grass crop the following year as the wheat. In reality, therefore, only one-half the expense ought to be charged to the wheat.

NITRATE OF SODA is the best top-dressing for wheat in the spring, but no benefit will be perceptible in the following year's crops. If applied in the fall, but little improvement will be seen the following year, the autumn growth will be somewhat increased, but all benefit seems lost by "autumn rains," "winter thaws," and "spring freshets." The application of nitrate of soda was carefully tested some years since on fall wheat. The nitrate was sown on the wheat, about the beginning or middle of October, stakes were carefully driven in to mark the exact line, and by sowing the nitrate north and south, like a checker board, there were left regular space and interval and close beside these, others, with one cast on them; whilst a little further on where the lines crossed each other, a double portion was used. By using this plan there was also every second line left without any nitrate, and these spaces were sown with salt. But in the spring no benefit could be perceived from the application in any case, over those checkers that had *nothing* applied to them, nor did any improvement appear during the summer or at harvest. These experiments were most carefully conducted. The land was clay loam, and not rich, and perhaps could not be called poor. It seemed as if the winter snow leached out all these soluble manures and they were lost. These experiments were repeated on poor sandy soil in the spring and with excellent results, but the record was not preserved.

These causes of failure could not possibly apply to the use of the manure in the spring. they should be sown in quantities of about 100 lbs. of nitrate of soda and 300 lbs of salt. They should be mixed well together, and sow broadcast about the end of April for *winter* wheat, and about the middle of May for *spring* The plants would then be prepared to assimilate this food before any leaching would be likely to materially affect the loss Nitrate of soda is, worth retail, in Montreal and New York, about six cents per lb We allude to the agricultural quality, not to the ordinary quality quoted in the prices current.

GUANO would perhaps be the best artificial manure to use, but it is very expensive, very liable to adulteration, and can only be purchased in Canada at retail prices.

AMMONIA has similar objections attending its use. Probably the best and cheapest application for top-dressing wheat in the spring is "plaster," "salt," and "ashes" About two bushels of plaster, four of salt, and six of ashes, would not cost much, and we have no hesitation in saying, it would pay one hundred per cent profit in its application Some years since we caused some very carefully conducted experiments to be made with this mixture, and with plaster alone, as applied to top-dressing wheat in the spring, and the benefits were very great.

But to succeed well with fall wheat, the wheat must be sown so early as to be sure to escape the rust. The mixture causes so rank a growth that rust will often destroy (in late sown wheat) more than the plaster, salt and ashes will produce Some objection also exists to forcing the growth of wheat in low, wet places, where it will naturally be rank But where these difficulties do not exist, and especially where clover is sowed with the wheat, great benefit is almost certain to ensue both to the wheat and clover following.

On the Cultivation of Deep Rooted Plants.

A thorough understanding of this subject is most important to the farmer Deep rooted plants seem to have the peculiar faculty of increasing the fertility of land, and as such are of vital consequence to the cultivator of the soil—clover, turnips, beets, carrots, parsnips, and other deep rooted plants, by their foliage extract from the air large quantities of nitrogen, and by their roots bring up from the subsoil certain mineral elements, which, without their aid, would continue to slumber far beneath the surface, and either be beyond the reach of grain and ordinary grass crops, or at all events remain in a state unadapted to their use. In addition to this, all the deep rooted plants seem to have a peculiar facility in combining and embodying together the several elements of the earth and the air, and thereby their destruction and decay, either in the soil—in the case of clover roots and other plants of that class—or in the manure gained by the destruction and consumption of turnips, carrots, beets and other matters of a similar nature; they restore these combined elements of earth and air to the soil in such a shape that grain crops can easily and profitably assimilate the elements thus supplied, and give, as a consequence, far larger and more productive yields than would otherwise be the case.

All these deep rooted plants seem to have two faculties, one by the side and fibrous roots to obtain the benefit of such fertilizing matters as the cultivated soil affords, and which we may suppose goes with the assistance of the leaves and foliage to form the flesh of the roots and plants, the other by their deep tap-roots to abstract from the lower soil such matters as cannot be obtained from the ordinary cultivated surface alone.

The tap-root of all these plants extends far below the plough-gauge of ordinary cultivation. They force themselves into even the hardest subsoils, but do so more easily, as well as more profitably to the farmer, when growing into subsoils which have been loosened by subsoiling It is quite clear that these tap-roots find something in the subsoil that they want, or they would not penetrate and seek for it. It is not for moisture alone that this penetration takes place, they want, and they get something there in addition to the moisture, which is more important to the growth of the plant and to the profit of the farmer.

Late researches by the growers of the sugar beet have shown that the amount of sugar is far greater in the lower than in the upper portion of the roots, and as the potash and other mineral matters of the root are so absolutely mixed up with the sugar as to be inseparable in the first operations of obtaining the juice, it is not unreasonable to suppose that the mineral matters exist in just as much greater degree in the lower portion of the roots as does the sugar. There may be a scarcity of sugar in the upper portions, but that does not prove that the lower portions do not contain their due quota of salts.

The tap-root of the beet, and also of the turnip, the carrot, parsnip, and all other roots of that class, extend into the soil for at least 18 inches, and it is not too much to suppose that they extend even farther The office of this tap-root would seem, therefore, to be to bring from the lower soil those elements for which the roots are cultivated, whilst the upper and bulbous portion, assisted by the side roots forms a magazine and store-house, which contains and preserves the constituents of the plants for the purposes of perfecting the future seed. Even the most unobservant must have remarked that the lower end of a carrot is far sweeter and more delicately flavored than the upper—the latter seems to contain the peculiar juices and flavor of the plant, whilst the former (the lower portion) contains the sugar and richness of the root. All these elements are stored in the bulb of the root, and remain unchanged until they are required to form the future seed shoots and seed vessels of the plant by which seeds it is in the future to be propagated.

Professor Voelcker has shown by analysis, that land does not get the *full* benefit of the *mineral* elements of the clover root until the autumn of the