Superphosphate and Top-Dressing.

A subscriber from Barrie, commenting on an article on this subject which appeared in our last issue, desires information as to the time, manner, quantity, and cost of application. To which we reply: Apply in spring, broadcast; about the end of April for winter wheat, and about a month later for spring wheat, at the rate of from two to three hundred-weights per acre. Occasionally a fall application, near the beginning or middle of October, has been attended with good results, but more frequently with no appreciable effects, because of autumn rains and winter thaws which appeared to leach out the soluble manures, and they were lost. Superphosphate costs about $30 per ton, and is preferred generally for green crops, although its application to wheat has been found highly beneficial. Nitrate of soda is esteemed a better top-dressing for the wheat crop. It is usually mixed with about three times its weight of salt, and applied in the same manner and at the same times as superphosphate. It is however more expensive than superphosphate, and this fact constitutes one of the most formidable barriers to its extensive use. Similar remarks are applicable to guano and ammonia. Perhaps the cheapest top-dressing for wheat is a mixture of plaster, salt, and ashes, in the proportion of say two parts of the first to four of the second and six of the third respectively. A correspondent, writing us in 1857, declared his full confidence in gaining from fifty to one hundred per cent. by the application of this mixture, and that too, after having tested the matter for several years in succession.

The Double-Furrow Plough.

An implement which is at present attracting much attention at Philadelphia is the double furrow plough, an instrument which is not by any means new, but which has of late years been very materially improved. It is claimed for this implement that it not only economizes labor, but performs its work more efficiently than the single plough, for the simple reason that the sole or 'slade' so objectionable in the latter can be entirely dispensed with, the shares and turn-furrows being fixed to a frame which, in turn, is supported on wheels. The dynamometer test applied recently at Hull, England, showed that three horses pulling a double plough were not quite so heavily weighted as two horses drawing a single furrow implement, and since then, a large English manufacturing company has supplied figures, showing the respective draughts to be 168 lbs. per horse for the single, and 134 lbs. for the double plough. The same firm also sent out a number of queries to be answered in connection with the implement. The first of these was: How much work can you do comparatively with the double plough:—to which the reply was in almost every case "double." Out of 107 answers to the question "How many horses do you use?" 77 said "three," and 8 had found two horses equal to the task. Would it not be well for some of our Canadian manufacturers to give this matter their attention? Much of our land is quite as well adapted for the double plough operations as that of England, and if, as is claimed, the implement has reduced the cost of ploughing there from 12s. and 14s down to 6s. and 8s., why should its introduction not prove proportionately advantageous here? And now that so much attention is being given to the breeding of heavy horses, the double-furrow plough should attract more attention, or one of the chief directions in which greater weight in horses is desirable will be lost sight of.

Draining.

Select early fall for the purpose, when harvesting is over and you have some leisure time on your hands, also when any extra assistance may be procured at reasonable wages. The investment will soon repay itself in larger crops of better quality, and a generally healthier tone throughout the land. Like almost everything else, the best method, viz. tile-draining, though dearest at first, is the least expensive in the long run. Place the tiles at a depth of from three to five feet below the surface. Four feet is a very good average. The deeper the drain, within certain limits of course, the greater range of surface will be affected, and consequently the fewer and farther apart the drains to be dug. At the depth mentioned, in ordinary soil, not too muggy or damp, twenty to forty feet may intervene between drains. If tiles are considered too expensive, or if they cannot be procured, stone may be used with great advantage; indeed a little care in construction will render a stone drain quite as durable as our mode of tiles. Observe simply that a clear channel, straight as possible, be left through the drain, and that the stones be very compactly adjusted so as not to slip or give way before top or side pressure; also that the crevices be sufficiently close to exclude the surrounding soil. When neither tiles nor stone can be readily obtained, use wood—anything sooner than nothing. Cedar or hemlock is the best material for this purpose, either of which will well repay itself ere it decays. Inch boards will be found amply sufficient, and the drain may be made either square or v shaped. If the boards receive a slight coating of coal-tar before being covered, they will last considerably longer. Of all three systems of course boards are cheapest and tiles dearest, temporarily speaking, but in the end this order will just be reversed.

The Side-Hill or Swivel Plough.

The plough here illustrated is designed principally for side hills where the furrows require to be all turned the one way. It may also be used to great advantage on level ground, as it not only allows the seeding and harrowing to be finished up to the last furrow each evening, but also saves the time of crossing and re-crossing from one furrow to another every time of turning. The mouldboard and

share are hinged in such a way that they can be changed from one side to the other, making it either a right-hand or left-hand plough at will, the arrangement for changing being so simple and convenient that it can be done by merely swinging the plough by the handles, in four or five seconds, locking itself effectually, when in position on either side. The coulter is also reversible and can be set on either side of the beam, to suit the position of the mouldboard. When the ploughman has reached the end of the furrow he can change the mouldboard and coulter and go back in the same furrow, turning over each furrow slice in the same direction as the previous ones.

Comparative Exhaustion of the Soil by Oats and Barley.

There is a tradition among farmers that oats exhaust the soil much more than barley. If the degree of exhaustion of the soil by different crops be in proportion to the amount of valuable minerals extracted therefrom, it is seen by the following statement of Prof. Caldwell, of Cornell University, in the *N. Y. Tribune*, in answer to a question, that barley is more exhausting than oats: In the following table the quantities of nitrogen, potash, magnesia and phosphoric acid in 1000 lbs. of each of the two kinds of grain are given as follows:—

	Nitrogen.	Potash.	Magnesia.	Phos. Acid.
Barley,	19.	6.1	2.1	9.0
Oats,	20.	5.5	2.1	7.5

Our correspondent gets 40 bushels of barley and 60 bushels of oats per acre, and he estimates that the weights of the two crops are equal in that case; and, supposing the straw to be returned to the soil in both cases in the manure made on the farm, the crop of barley would be somewhat more exhaustive than the oats with respect to those ingredients of plant-food that are given in the table. As for the silicate, of which both crops contain a large proportion, the supply in the soil is so abundant that the question of its exhaustion need not be taken into account. The draft on the supply of lime is also far within the supply, for the quantity required by either crop is much smaller than the quantity of magnesia, and the stock in the soil is usually abundantly large. It is supposed by some that oats will flourish in a soil where the other cereals cannot find nourishment enough for a remunerative growth. Perhaps this is the reason why some sow oats only on their poorest land, where barley or wheat would not yield a paying crop. And yet farmers of long experience say that oats are much harder on the soil than barley, and I am inclined to trust their long-time observation before the analyses of science. *Boston Cultivator.*

Application of Manures.

We do not have to farm it many years in the New-England States, without coming to the conclusion that our account of profit and loss is closely connected with the cost and the amount of the manures that we apply to our soil. Now most of our farmers fall into an error when they reckon up their account of the profit side of the book, for they do not give credit enough to the value of the manure that is left in the soil, and are not very apt to reckon any but the income of the first crop; when in fact they would come nearer the mark, should they add as much more for the next crop.

But how to apply our manures to the best of advantage? is a very hard question to answer; in fact I think that it cannot be answered in a satisfactory manner. For our wisest and our most judicious farmers testify, that after years of practice they feel as though they were groping in the dark. Plaster on some soils may be worth twenty dollars per ton, and would pay well to use it at that price, while on other kinds of soil it would be worth nothing at all, for it would produce no effect upon the growth of our crops on that kinds of soil. Or it might be beneficial on some particular crop, while on another crop it would have no effect. The same might be said of most of our commercial fertilizers, and also of most of the manures that we apply to our farm crops. Who then does not see that the subject of application of manures is the most important study for the farmer; and his success in farming will greatly depend on the knowledge that he has upon this subject. Then how shall we go to work to become masters of this study? or to study it as it should be, understandingly. "Science and practice" must work together; these two must be combined, we think, in order to accomplish it. And we farmers (or most of us) who are not very well versed in the science, shall have to rely mainly upon practice, until we shall become better educated. For if we could know how to feed our crops with the same exactitude that we feed our domestic animals, we should be on the right track, but until then we shall remain as it were in the dark. However, we know that if we apply more in the way of plant food than ours crops remove from the soil, we shall not be troubled with exhausted lands and bad farming. I have not scarred the subject, but my sheet is full.—*Germantown Telegraph.*

The Middle of the Stack.

Experienced stackers do not need to be reminded of the importance of keeping the middle or the centre of the stack quite full as soon as the top of the bilge is of the proper height. If the middle of the stack is kept much higher than the outside, before the stack is high enough to begin to draw in the butts of the sheaves, the sheaves will be liable to slip out.

In giving the proper pitch to the bundles, so that they will shed off the rain, the butts of each bundle must be thrust with considerable force down into the bundles underneath. If possible, the pitcher on the stack should have the teams drive up on both sides of the stack, or else the part of the stack where the pitcher stands will settle the least and the stack will lean.

If, when you come to thresh your grain, which should not be done until the sweating process is fully gone through with, you find that the bundles lie so slanting that you can hardly stand to pitch them to the machine, you will then know that your grain was properly stacked. It is particularly important that the straw on the outside courses of the stack should always be so inclined downward that they will conduct the rain outward, from straw to straw, until the water will all flow off the bilge of the stack.—*Rural World.*

A Good Gate.

There are many ways to make a good gate. I send you a description of one I made which has been in use ten years or more, and is yet sound and strong. Anybody can build it with a little help from the blacksmith. The main post to which the gate is hung, is 8 inches square and firmly set in the ground. The other post may be lighter. Oak or red cedar is good enough. For a door yard gate the posts may be smaller, and the gate not so long as those used in the field where loads of hay are to pass through; 10½ or 11 feet for field and 9½ to 10 feet for carriage way roads is wide enough. For the frame cut the end pieces 3 or 4 inches square and 4 feet long of almost any kind of sound wood; pine is good enough. The bars are 2½ by 4 inches, framed into end pieces, with an inch mortice and tenon, and pinned with half inch pins. The pickets are 1 by 3 inches for a field gate, or 1 by 2 inches for smaller gates, and securely nailed on the bars. The hooks used in hanging the gate should be ¾ inch square, passing through