

potatoes are planted, though they themselves should not be sunk too far in the soil, and of a second hilling up to cover effectually the more superficial tubers. Those which are deep seated are seldom diseased except in very unpropitious years.

We may add a peculiar circumstance which has occurred to De Bury in the course of his experiments. On dividing sound potatoes, for the sake of observing the difference which takes place in those parts which have been left in their original condition and those to which he applied the zoospores, he found that after a time a new cuticle, consisting of several layers of thin shaped cells, was produced on the cut surface. This is precisely what takes place in the disease called scab, as will be found in a memoir on the subject in the third volume of the *Journal of the Horticultural Society of London*.—*M. J. B., in Gardeners' Chronicle.*

## The Wheat Crop.

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The quantity of seed per acre is the next point which claims the farmer's attention. This is one of the questions—"thick or thin seeding," that has been of late years the most discussed in agricultural circles, and one about which the greatest difference of opinion still exists. There are some principles connected with this point, which, if admitted, ought to render the solution of it less difficult than it appears to be, by limiting the range of difference to certain conditions. We can readily conceive, and long experience has confirmed it, that under equal circumstances a plant like wheat will increase more in nine or ten months (if sown in October) than in five or six months (if sown in February or March,) and that the produce will be greater in a rich, deep-soiled soil than in a poor, shallow one. The deductions we should make from these facts are very obvious:—1. That the earlier we get our seed into the ground, the more opportunity it has to increase, and the less the quantity required to produce a crop. 2. The better the soil and the deeper it is tilled, the greater the proportion of food, and the greater the range the roots have to procure it in, and consequently the more vigorous and productive each plant will be, and the less necessity is there for multiplying them by thick seeding, in order to secure a sufficient crop. Therefore, as a general rule, we may consider the quantity of seed sown according to the lateness of the time of sowing, and also according to the character and general condition of the soil. For instance, on land where one bushel would be considered sufficient for October sowing, it would be advisable to increase the quantity to  $1\frac{1}{2}$  bushels in November, to 2 bushels in December, and to  $2\frac{1}{2}$  to 3 bushels for

spring sowing, according as the season was advanced. On rich, deep soils, compared with the soils of inferior quality, the same rule should be observed, bearing in mind always that the character of soil, and the period of getting the seed in, have each of them an influence on its powers of produce.

There are three different modes of effecting this, practised in different parts of the country—"broadcast," "drilling," and "dibbling." In the north the first, broadcasting, still is generally practised. In the midland and southern districts drilling universally prevails; while the dibbling process is only to be met here and there, under peculiar circumstances either of soil or labor. The preparation of the soil for each mode of sowing is the same. It should be plowed as deep as possible, carefully cleaned, and the mass, not merely the surface, reduced to the finest tilth so that the rootlets of the young plants may have no obstacles in penetrating the soil, and may have their feeding surfaces increased.

The process of *broadcasting* is a simple one. The seed to be sown is carried by the sower in a bag (sowing sheet) or basket (seed-lip,) of a convenient form, suspended from the neck in such a position that the sower can have access to it either with one or with both hands, according to the manner in which he intends to distribute the seed, whether with one, as is usually done, or with both hands. At starting, he marks off with a "feering pole," on the headland, a distance equal to the breadth he can cover in his cast, so that on his return down the land again he may keep a perfectly straight line, and thus avoid leaving any portion unsown, as is frequently the case with careless sowers. The breadth covered with each cast is from 6 to 8 feet, and from 10 to 12 acres is quite sufficient for a day's work.

The operation is purely that of a skilful and careful manipulation, and a few acres more per day sown are not to be considered for an instant in comparison with the regular and careful distribution of the seed on the surface, which is usually only acquired by long and careful practice.

In *broadcasting*, whether on the harrowed surface or on the plowed ridges, which is frequently done for the purpose of more readily covering the seed, a certain proportion of the seed is always left under conditions unfavorable to germination, either by being left on the surface or by being buried too deep; consequently, it is always customary to allow for this by increasing the quantity sown. This increase should be about one-third to one-half more than that used by the drill; say, for instance, where two bushels of seed are drilled, three bushels should be broadcasted. The use of the broadcast machine ensures a more equal distribution on the surface, but leaves the other imperfections of the method the same. The