

the great yields I had read of, I thought I should surely have half a bushel from each hill. As the stalks kept long green I was in no hurry to take them up, but one day while at home I determined to dig these fine potatoes—well, I dug the two grand hills of potatoes, and instead of a bushel I got from them a few very small potatoes, no larger than a bean, and could hold them all in the hollow of the hand; so annoyed was I at this disappointment that I pitched them over to a pig on the road, since then, when about to try some new variety, I have not unfrequently been reminded of this experiment with *Rohan potatoes*.

In Canada West in 1861, the average yield of potatoes per acre was 111½, and in Canada East at the same time it was 107½ bushel per acre. The total acres in both Provinces by the census of that year was 255,975 acres, yielding 2,809,361 bushels. I have not yet seen the returns by the census of 1871.

The average yield of potatoes in the whole United States by the returns of 1860 was 116 bushels per acre. The different States yielding from 62½ bushels per acre (the lowest) to 175 bushels per acre (the highest), giving a total of 111,148,867 bushels of potatoes for that year.

The quantity of potatoes grown in some European countries is very great. From some returns published a year or two ago, we learn that Prussia grew about four and a quarter millions acres of potatoes—France over three millions acres,—the United Kingdom over a million and a half acres, and other countries in smaller quantities.

W. R.—*Cobourg*

### Gypsum in Agriculture

Gypsum is a mineral found in rock masses in various parts of this and foreign countries. It is known to the chemist as Hydrous Sulphate of Lime. It is composed of about 28 parts of lime, 40 of sulphuric acid, and 18 of water. Transparent varieties are known as Selenite, massive transparent varieties as Alabaster. When pure it is quite soft and free from grit, so that it may be cut with a knife without dulling it. This native rock blasted or split from the quarry, crushed into small pieces and ground to a fine powder, is known as land plaster. If the rock is heated in a proper vessel, nearly all the water will escape, the mass changing to a pasty condition. This substance, when the water escapes from it, is known as calcined plaster, or as plaster of Paris. When water is added to it, it is immediately absorbed, and the whole becomes a compact mass. This is the material that is used for the hard finish of rooms, for stuccoes, for making black-board crayons, for fastening together parts of a lamp, and for various other purposes in the arts. This material is, however, of no use in agriculture,

as by the moisture obtained from the soil, or from rains, it would become a compact and nearly insoluble mass.

Gypsum, in the form of the pulverized rock, or the residuum in salt boiling, was employed as a fertilizer, to some extent, in Southern Europe at an early time. About a hundred years ago it began to be largely used in France as a fertilizer for Lucerne, and on Franklin's return from the French Embassy he brought some to this country. On a hillside near one of the roads that lead to Philadelphia, he sowed some in the form of letters, on a field of clover, according to some, on Lucerne, according to others, and its effect was so marked that the difference in the growth of the plants that grow on the plastered land could be seen at a long distance. For some years there was an extensive trade in French plaster, notwithstanding the fact that there was an abundance of it in several of the States that were then settled. Even now there is a prejudice in favour of gypsum obtained in distinct localities, even though an analysis shows that other specimens are identical in composition.

The exact way in which gypsum acts to render soils more fertile, has been a matter of considerable controversy. Sir Humphrey Davy regarded it as simply an essential constituent to certain plants, and fortified his position by showing that it exists undecomposed in the ashes of these plants. Liebig held that its use was to fix the ammonia of the air. According to this theory, a double decomposition is effected between the carbonate of ammonia and the sulphate of lime,—sulphate of ammonia and carbonate of lime being the results. Hedwig is inclined to the opinion that gypsum acts in the food of plants in some such manner as saliva acts on the food of animals. Others hold that one of the most important uses of gypsum is to retain moisture and give it off in times of drought. There are arguments in favour of all of these theories, and it is not improbable that under different conditions of soil and dryness, the method of its operation may be different.

Gypsum is not to be regarded as farm-yard manure, as useful for all kinds of crops grown on every kind of soil; experience has shown that it exerts little influence on certain soils, particularly those that are unusually moist. Soils in certain locations have shown little improvement by its use, though they resemble other soils in different sections that have been greatly benefited by its application. This may be explained by supposing that they already contain as much as is necessary for plant growth. In relation to the crops that are most benefited by the use of the plaster it may be stated that it is now pretty well settled that it promotes the growth of foliage and that it protracts the period of growth. Few claim that any of the cereal grains are benefited by the application of plaster, though some hold that the stalks are much less liable to lodge, and that the

straw is more valuable when fed to stock. Beans, peas, and all leguminous plants are benefited by its application, as are all varieties of turnips. In relation to corn the testimony is somewhat conflicting, though the weight of it would go to show a marked increase of the crop on sandy soils when the plaster is applied directly to the hill; mixed with ashes and applied to potatoes on the hill, either when the seed is planted, or as a top dressing when the plants are first breaking ground, it has, in many sandy soils, produced very marked results.

The most astonishing results, however, have been noticed in the case of the different varieties of clover. Not only has the yield been in many cases doubled, but it has been found that the plants, either green or dry, are better relished by all kinds of stock. It has also been conclusively shown that clover will remain much longer in the soils that have been treated with plaster. Now, when we consider that clover is one of our most valuable forage plants, as well as the crop that is chiefly used for turning under, especially as a means for preparing soils for a crop of wheat, it is plain that we cannot attach too high an importance to this mineral fertilizer. It is not claimed that plaster exerts much influence on wild grasses, but in relation to its use on pastures that contain cultivated grasses, Mr. Flint says:—"In one instance within my knowledge, a large pasture which had become worn and somewhat unproductive, received a generous top dressing of plaster. The grass started sooner, and continued throughout the season to look far better than the adjoining pastures of precisely the same soil. So far as could be ascertained, the increase of grass over the adjoining pastures was about seventy-five per cent. Nor was this all: The pasture came in the next season with the greatest luxuriance, and its look of beautiful green was the wonder of the whole neighbourhood."

The ordinary and, perhaps, the most approved method of applying plaster to clover, is to sow it broadcast, at the rate of from one hundred to two hundred pounds to the acre. Most prefer to sow it in the morning when the air is still, and at that time of the spring when the young plants have put forth their first leaves. Many in seeding down fields to clover with spring grain, mix the plaster with the clover seed at the time it is sown. It would seem to be a good idea to sow half the amount required for an acre at that time, and to sow an equal amount after the grain is cut. It is better to scatter a small amount of plaster annually on fields, than to add a large dose at one time, as in the case of applying lime. On pastures it should be applied when the ground is moderately dry and after vegetation has taken a good start in the spring. There are machines especially designed for sowing plaster and ashes that may be obtained at most of our agricultural implement stores.—*Prairie Farmer*.