

NOVA

SCOTIA



Published under direction of the Board of Agriculture of Nova Scotia.

VOL. II.

HALIFAX, N. S., MAY, 1875.

No. 113.

Ten copies of this Journal are sent, Postage Prepaid, to the Secretary of every Agricultural Society in the Province, in payment of which a reduced charge of \$4 is deducted annually from each Society's Grant. Societies requiring their Copies addressed separately to individual Members will be charged \$5. Any greater number of Copies to one address may be obtained at the reduced rate of \$40 per hundred. The Annual Subscription for a single Copy is Fifty Cents, payable strictly in advance. The subscription year commences with the March number.

HALIFAX, 1ST MAY, 1875.

In compliance with the request of a Correspondent, whose communication was published in the April number, we shall now give a brief explanation of the nature and mode of the action of Gypsum or Plaster, so far as these are known.

It is necessary to premise that Manures act beneficially in various ways, according to their chemical and physical characters. (1) some directly supply food to the plant, (2) some act upon the soil so as to render available the plant food which already exists in an insoluble and unavailable form; (3) some act in exactly the opposite way, by fixing and preventing the waste of volatile or soluble matter that would, in their absence, evaporate into the air and be washed away in drainage; (4) some have the capacity of absorbing moisture from the air, and thus aid the plant by supplying water in periods of drought. Now, if the reader will turn up any Treatise on Agricultural Chemistry that may be within his reach, he will probably find that the beneficial effects of

Gypsum are attributed to one or two or all three of the first three modes of action, and, if the Treatise happens to be an American one, the fourth will possibly be referred to as the proper explanation. The fact is that Gypsum will act beneficially on crops in different ways under different circumstances, and what we wish to explain here is its probable action on the fields of Nova Scotia farms. Let us do so, for convenience, under the heads enumerated:—

1. Can this substance act beneficially by supplying food directly to the plant? Yes, under certain circumstances, which are these:—In soils from which sulphur compounds are absent, it will supply sulphur, but, as a rule, we have more sulphur compounds already in our soils than can possibly be beneficial to the crops grown. In soils that are deficient in lime, it will also supply that ingredient, so necessary for potatoes and other green crops, beans, &c. It may be stated, as a rule, that in all districts in Nova Scotia where limestone rock does not crop out, the surface soil is deficient in lime, and that even soils overlying limestone are liable to be deficient in it, (the explanation need not be entered upon here). Gypsum may therefore be expected to act beneficially on potatoes, &c., by yielding lime to their tissues. Where plaster is used, lime itself is unnecessary.

2. It is believed by some chemists that although the action may be slow, yet the lime and sulphuric acid of which the gypsum consists may act effectively in decomposing the silicates, of which clay and loamy soils largely consist, and thus set free silica, potash, alumina, &c., in forms available for absorption by the plant. In this way, then, plaster may

act upon loamy and clayey soils, and increase their fertility.

3. It is known that gypsum, by virtue of the sulphuric acid which it contains, has the power of fixing ammonia, one of the most valuable of fertilizers; it probably acts in the same way upon urea and similar organic compounds known or presumed to be sources of nitrogen to plants: hence the use of gypsum on stable floors and as an ingredient in compost heaps. It prevents volatilization; if the mode of its action is still matter of doubt with some, the fact is none the less certain on that account.

4. Gypsum, in the state of "soft plaster" and unburnt or unboiled, is sparingly soluble in water, and absorbs moisture from the air even in the driest weather. For this reason, if not for others, it is extensively used in the Southern and Western States, Ontario, and other countries having hot, arid, intra-continental climates. It is applied to the surface of the soil, thinly scattered over the field during the growing season, when excessive heat and drought are coming on, and the effects are generally observed by farmers as very marked. As the gypsum is on the surface, and the effects are noticed without any rains to wash it down to the roots, the only explanation that appears reasonable is that it prevents evaporation, absorbs moisture from the air, and thus supplies the crop with water at a time when the excessive heat causes it to grow with great rapidity.

We have now furnished our Correspondent, and other readers, with materials from which a judgment may be formed as to the probably efficacy of gypsum. We should not hesitate to apply it to potatoes particularly, either sprinkling it