

air, and reduces the temperature, while it excludes and prevents the supply of wholesome nutriment from reaching and entering the pores of the root-fibres.

That, altho' carbonate of lime increases their retentiveness, its presence in great quantity does not necessarily increase their adhesiveness so rapidly as alumina, — altho' it will nevertheless operate beneficially in sands, from the minute division of its particles, in communicating desirable compactness and retentiveness,—particularly when aided by the judicious application of organic manures.

That an excess of silica produces poverty of vegetation ; but tho' present in large quantity in soils combined with carbonate of lime and organic manures, they become of very considerable agricultural value.

We shall begin then with the cereal grasses, as holding the most important place, and affording the elements of food and nourishment to so great a proportion of the inhabitants of all countries ; and, unless we have some purpose for deviating occasionally, shall consider them in the order of their relative value. They are the never failing attendants, and may be regarded as the principal promoters of civilisation over the world. And first in order stands,

WHEAT (TRITICUM) OF THE ORDER GRAMINEÆ.

The several varieties of this Genus are most remarkable for the nutritive qualities of their seeds.—These contain a large supply of farinaceous matter, combined with gluten, and the excess of this last substance or principle, contrasted with the other cerealia, is the distinguishing characteristic of the superior varieties of the genus triticum. Wherever this cereal grass is found, it is, from universal observation and by universal consent, in all latitudes, acknowledged to be the tenant of what is familiarly denominated in each several locality a fertile soil. The conditions and requirements of fertility already detailed in this paper are absolutely essential to the perfection of the several varieties of this invaluable gift of bountiful nature. When the fertility of the soil is capable of supporting them, the superior varieties of triticum are always distinguished by a strong and robust vegetation ; and, unless this obtain to an extraordinary degree, it may be carried far, in a favorable climate, without affecting unfavorably the quality or weight of its seminal product.—On the contrary, under favorable circumstances as to climate, a luxuriant crop is generally found the most productive in quality and quantity.—Luxuriance of growth in a favorable climate and soil may be indulged, then, in wheat more safely than in any of the other cereal grains perhaps, particularly when treated as a biennial,—as its habits of growth are comparatively more upright, and its culms of a more firm and stronger growth than the other cerealia, and this is of essential importance in harvesting ; altho it must be admitted that this firmness of texture, and the consequent advantages, as in harvesting, decrease with the rank luxuriance and succulence of the straw. It may be cultivated in most situations except in the highest latitudes ; but its produce under the 46th degree of north latitude is very inferior and precarious indeed. It succeeds better in a moderately dry mild, and warm climate, than in a moist and cold one. In warm climates, too, its