

that act as excitants or liberators of the locked up, inert stores of potash in the soil, and thus may be considered as indirect potash fertilizers. We shall discuss briefly two of these: gypsum and nitrate of soda.

Gypsum, commonly known in the ground form as land plaster, is a naturally occurring sulphate of lime. Although supplying lime it is of no value for the correction of acidity (sourness) of soils, for which purpose lime or ground lime bone must be employed. But the furnishing of lime does not constitute its chief manurial value. It has the property of acting on the insoluble potassic compounds of the soil, setting free for plant use a part of their potash. This is its most important function, and it is this property that has made it specially beneficial as a top dressing for clover, a crop that particularly responds to potash. The application of land plaster is usually from 300 to 600 pounds per acre, which may be broadcasted on the prepared land and harrowed in.

Large deposits of gypsum occur in New Brunswick, Nova Scotia and Ontario, and as it is readily quarried and is a comparatively soft material, land plaster may be purchased cheaply in many districts at a lower price than ground limestone.

Users of superphosphate (acid phosphate) will have no necessity to apply land plaster, since this phosphatic fertilizer contains sulphate of lime as a necessary constituent.

Nitrate of soda is a well known, highly efficient nitrogenous fertilizer. It has been shown that crops "feeding upon a neutral salt like nitrate of soda, take up more of the nitric acid than of the soda." This soda acts chemically upon the stores of insoluble potash compounds, setting free a certain amount of potash, and thus rendering it unnecessary, in a certain measure, to directly apply a potassic fertilizer. It is this liberation of soda within the soil that is the cause of the deleterious action on the tilth or texture of heavy clay loams when large and frequently repeated applications of nitrate of soda are made, for the soda has the property of dellesculting clays, making them sticky when wet and refractory when dry. We should not advise any special application of nitrate of soda to make up for the lack of a potassic fertilizer, but it is obvious from what has been stated that its use to a certain degree obviates the necessity of such an application, especially on heavy loams.

CONCLUSION.

In concluding this review of the chief means whereby we may increase the soils' productiveness, may I say that we should point out on all occasions to our farmers the various means and agencies provided by the governments—Federal and Provincial—for the assistance of the man on the land by information, by advice and by demonstration. There is no country better provided than Canada in this respect. There is a vast amount of educational literature to be obtained for the asking and inquiries relating to agricultural matters are answered at a number of our educational institutions. Every farmer ought to be in touch with one or other of the Farms and Stations of the Dominion Experiment' Farms System. If there is an Illustration or Demonstration Station in his district, he should visit it, for there he will find tried out in a very practical way the more important problems affecting the farming of the neighbourhood. Information by printed page or letter may be very valuable, but information gained by actual observation, as at an Experimental Farm, Illustration or Demonstration Station, will, in most cases, be more immediately effective. It has been at a number of these institutions that the largest average yields in Canada have been obtained; these heavy and remunerative yields are the direct result of the application of economic means for the increase of soil productiveness. Let us encourage and advise our farmers to avail themselves of their opportunities, and to adopt, as far as may be practicable, those methods which science and practice have alike shown to be rational and profitable.