

before folding with sheep. Doubtless this machine will command increased attention on the part of agriculturists, now that its advantages are being widely promulgated; and we consider it to be very suitable for export to the colonies and various foreign parts where particular attention is directed to the cultivation of the soil. Mr. Hunter also exhibited another excellent implement—a Turnip-singler—constructed with great ingenuity. This machine has special merits on account of its qualities as a labor-saving appliance, and it is invaluable on heavy soils where the labour by hand or hoe is excessive. In recognition of the worth of this invention Mr. Hunter has been awarded medals by the Highland Society, the East Lothian Society, and other agricultural associations. There were also exhibited by this firm Turnip-thinning Machines, Ploughs, Grabbers, and Harrows of all descriptions."

Windsor, N. S., June 5, 1880.

DEAR SIR,—An Act was introduced, and read, I believe, for the first time, at the last Session of the Dominion Parliament, entitled, "An Act to prevent fraud in the manufacture and sale of agricultural fertilizers;" its object being to compel all fertilizers to be analyzed. Such an Act as this is much needed. The use of these fertilizers is largely increasing among our farmers, but at present they have no protection against worthless articles. I hope this Act will not be lost sight of. Complete commercial fertilizers have been found to pay.

Yours truly,
FARMER.

BEET CULTURE IN GERMANY.

Editors Country Gentleman.—During an absence of over a year and a half from the United States, spent partly on two large farms in North Germany, and at present here at the University of Göttingen, I have taken great interest in the progress of American farming, and especially in the growth of the beet sugar industry, and I would willingly add my mite to give your subscribers (of whom I am one) an idea of how the sugar beet is cultivated in the neighborhood of Hildesheim, where it probably receives the most attention. I only offer here the results of a year spent in practical farming as overseer (*verwalter*) on a large *gut* (estate), and trust they may prove of some value to a few of your many subscribers.

The soil preferred is a black alluvial one, well drained, although rotation often demands the cultivation of the sugar beet on clay and gravelly soils. A very important factor is a good working and thorough pulverization of the soil. The preparation, if possible, begins in the fall. The land is plowed to a depth of

7 to 14 inches. Some advocate deep, others shallow ploughing; and personally I consider a depth of 8 to 10 inches sufficient. The subsoil turned up is then allowed to be acted upon by heat and moisture through winter and early spring. About May 10 a heavy prong-toothed harrow serves to loosen up the soil, which is then worked with a lighter harrow, and rolled, alternately, until very well pulverized (often three times with each). After the last rolling it is again loosened up (but only the very surface) with a very light harrow, when the land is ready for the drill machine. Immediately after the drilling the land is again lightly rolled. This finishes the description of the preparation of the land, with the exception of the manure. The German farmer always, if possible, precedes sugar beets with a grain crop, to which he applies a good quantity (eight or ten two-horse loads per acre) of stable manure. The direct application of manure to beets, as well as of Chili sulphate, is not allowed by the beet sugar factories. To the beets directly the farmer applies about 150 pounds per acre of phosphate of potash just before the spring working of the soil, which thus becomes thoroughly mixed with the land. Of course the quantity of fertilizer must depend upon the general fertility; but, as a rule, the above-mentioned quantity is applied.

An ordinary grain drill serves for putting the seed into the ground. Care should be taken not to sow too deep; only just so that it is covered. The quantity per acre is 25 to 40 pounds; some preferring more plants with the consequent better chance of retaining good ones. The seed is drilled in rows ten inches apart. Two weeks generally brings the young plants above the surface, and from that time until the beet leaves are large enough to shade the ground, it is a continual fight against weeds. A special hoeing machine is kept at work while the plants are not too large, clearing the weeds from between and close to the rows. In order to really assist the young beet plants, hand hoeing is necessary, and for this purpose the German farmer hires a troop of girls. These are obtained from the Harz mountain region, Eiksfield, here near Göttingen, from the Polish province or from any other place where the poverty is great and the girls are willing to work, receiving generally 1 mark, (25 cents) a day, with room, bedding, and two meals and coffee. When the plants are about 2 or 3 inches high, the hoe is passed through the rows so as to leave little clusters of plants about 10 inches apart. When these have had time to grow a little more to show out the healthiest, these clusters are thinned down to one plant. During this time the hoe is kept busy as well as the hoeing machine (drawn by one ox) fighting the weeds. About

the beginning of July the beet leaves throw enough shade to kill the weeds, and now the hoeing machine comes on again, and with a special attachment throws the earth up against the beets (the bulb proper) ridging the field and finishing the cultivation. From this time the beets are left alone, and no care is needed until harvest time.

Towards the month of September the beets are ripe and ready for taking out of the ground, the leaves then being partly turned yellow. The beet sugar factories begin at this time, and many deliver their beets immediately upon harvesting. The digging up and entire gathering of the beet crop is very interesting. The work is generally divided; some digging up the beets with a narrow (6 inches broad) spade, and laying them in rows, tops all one way, while others follow separating beets and leaves with a single cut, leaving the tops of the beets, with the green and comparatively sugarless part connected with the leaves. The beets are now either loaded immediately, to be brought to the factory, or are built up into a regular long heap and covered with earth; if for delivery before heavy frost, 6 inches deep, and if for keeping during the winter, 2 feet more of earth are added when it becomes colder. The tops are usually fed to milch cows and increase the yield of milk considerably.

YIELD AND PROFIT OF THE CROP.

A good yield is 250 hundred weights to an acre. A very good yield is 300 cwt. The factory pays generally, in October 1 mark (nearly 25 cents) per cwt.; in November 11 groschen (a trifle over 27 cents); in December 12 groschen (about 30 cents), and in January generally a trifle less, as by that time the beets have already lost on the sugar percentage.

The factories now, as a rule, receive no beets with less than 10 per cent. sugar, so that the German farmer is necessitated to a very careful and good cultivation to escape the alternative of getting his beets back to feed his cattle. In the factory the beets are cut up in long, thin strips, and the sugar is extracted by means of heat, moisture and pressure. These cut up beets are, after a good pressing out, returned to the farmers at about 12 cents per cwt, and are then packed into silos and fed through the winter, generally after the common feeding beets have all been fed out. Here the sugar beet is found a very profitable crop. There are some large domains which have their own factory, and work up the beets they raise. The crop rotation on such a domain is, every third year beets, with grain and potatoes, beans, peas, etc., in the other two years.

It is certain that in Germany agriculture has risen greatly since the more