They showed that while mineral constituents were removed by corn crops, yet it took a long time to remove them, and some of them were not so nearly exhausted as some people supposed. By means of suitable manures crops could be increased immensely, and they need not fear any failure of the land to provide crops. If there were people ready to give the farmer the prices of the wheat, they would be able to grow it in considerable quantity.

LUCERNE (MEDICAGO SATIVA).

The recent dry weather caused farmers to take note of crops of a drought-resisting nature. Those who are acquainted with lucerne, or alfalfa as it is known in the Argentine, where it is largely cultivated, look upon it as indeed a valuable subject in such a season as the present.

It would be well for those who do not know the plant to become quickly acquainted with its great value as a fodder plant. Against this plant there is, in the mind of many farmers, a great prejudice, occasioned, I think, by ignorance of the immense qualities it possesses. Many persons of my acquaintance, who were for a long time sceptical of its value, are gradually becoming alive to the fact that lucerne has many more properties than they gave it credit for, and are now regretting their obstinacy in rejecting its value for summer food. Lucerne, or, as previously noted, medicago, the latter name was given by Dioscorides to a median grass, of which there are now at least forty species. It belongs to the order of Leguminosæ, or podbearing subjects, and is really a hardy, herbaceous perennial.

M. sativa, or common lucerne, is the only variety of value to the farmer. It is said to have been brought from Asia to Greece. The Romans were well acquainted with its properties as a forage plant, especially for horses. Therefore it cannot be considered in any sense a new plant, as some persons appear to think it is. It is one of those subjects which becomes neglected until its real value is tested by such circumstances as farmers have experienced during the last three months, especially in the Southern and Midland counties.

As previously noted, lucerne is grown extensively in the Argentine, also in India and in the Danube valley. In these places of occasionally long drought its resisting powers in that respect make it invaluable. The whole secret of its value in dry weather is the marvellous manner in which it grows when once established. Its deep rooting nature is the sole cause of its success. I have seen roots 4 feet long, just one straight, taplike root with but few fibres. With a root of this description the plant is practically inured from the most exceptional drought that ever was experienced.

In the Argentine, roots of lucerne have been found growing in stone fissures 25 feet in length. Some farmers would (and do say) that such a deep-rooting plant is a dire robber of the soil. A knowledge of the order to which it belongs (Leguminous or pod-bearing), at once knocks this theory into the proverbial "cocked hat," as it is well known that all pod-bearing, plants are saviours of nitrogen because they obtain their portion of this element from other channels than through the root, viz, through the leaves, (1) like all other pod-bearing plants, such as sainfoin, peas, clover, and vetches. As a robber of future crops, then this plant is quite free from that stigma.

From the year 1886 to ten years later, there was an increase of 12,535 acres in England alone in its cultivation, showing that farmers were greatly realising its value more in accordance with its intrinsic worth.

I have no hesitation in saying that the next ten years will see a further advance in the cultivated area of this plant.

All kinds of stock—horses, cattle, sheep, and pigs—are fond of it in a green state. Some writers say it is valuable as hay, but I cannot recommend it for that purpose. In my opinion it is far too "woody" to be of much value in that capacity. The stems become too stout in growth, partaking too much of twigs when allowed to remain until long enough for a hay crop. In this respect it differs from sainfoin, which is hollow in the structure of its stem.

The solid nature of lucerne growth imparts thus a real stick-like character when made into hay.

It is strictly then as a fodder or green plant that therein lies its virtue. I do not go so far as to say either—as some do—that it is rich in nutrition; all cattle that eat it maintain condition, but I should not like to say they become fat on this alone.

I do not think it thrives so well in damp districts, it seems to love the drier counties, such as

⁽¹⁾ Rather, from the *bacteria* in the nodules on the roots.-En.