

corn in our climate. On the contrary, we think plowing over five or six inches deep is a disadvantage. The roots of the corn want all the sun-heat they can get, and want their fertilizing material near the surface, too. Where ten loads of such manure as "Quebec" speaks of are applied to the acre, two hundred fifty pounds of fertilizer is enough. When so small a quantity is used it is perhaps better to scatter it in the hill or drill. (1) As the manure furnishes abundant nitrogen, only a mixture of phosphoric acid and potash is needed, say,

Available phosphoric acid 15 per cent.
Available potash 6 per cent.

Regarding the fodder rations named by "Quebec," we agree that where it is so cheap it ought to be used very freely, and for store cattle or cows not in milk it would probably be sufficient. The grain mixture seems to us a good one, and for fattening beasts and cows in milk we would use it as experience might seem to dictate. We are not an expert in cattle-feeding, and would rather have some reader who has experience tell what he knows in this connection.

We never would feed for manure production as an objective point, for we don't think it could be made to pay. (2) Rich food produces rich manure, it is true, but we should disregard this point in feeding, entirely, and look exclusively to the health, growth, milk, wool and other merchantable products of our stock, leaving the manure to be what it would be under the circumstances.

From the experiments of Professor Sanborn (late of the New Hampshire and now of the Missouri Agricultural College), the European feeding table need readjusting to meet American conditions. Professor Sanborn has got the same results with less feed almost always, or better results with the same feed.

A word may be needed as to the composition of fertilizers, to get the desired percentage of each element of plant food as given above. But now that we can buy fertilizer materials in bulk, with a guaranteed composition, it is a question only of very simple mathematics to make any desired mixture with ease. For nitrogen we have sulphate of ammonia, nitrate of soda, dried blood, dried and ground meat, etc., while for potash we have ashes and the potash salts, and for phosphoric acid ground bones, plain superphosphates, etc. By "available" we mean in a condition easy to be taken up by plant roots. All the above forms of nitrogen and potash are available, and for phosphoric acid a plain superphosphate, finely ground steamed bone, or fine raw bone treated by the wet ashes process, answer all requirements.

DR HOSKINS.

(1) Hardly, with corn. The filamentous roots so completely occupy the ground, when the corn is four feet high, that they are sure to find the food. In the case of swedes, &c., all the fertilizers should be in the drill to start the plant out of the reach of the fly. A R J F.

(2) Neither do I.

A R J F

NON-OFFICIAL PART.

TRICKS ON THE TRACKS!

Dangers from which Engineers Save the Public and Themselves.

The Railway Review.

One who is accustomed to railway travelling can scarcely realize how much he is dependent for safety upon the engineer.

Added to the responsibility of their station, engineers are also in constant danger of accidents caused by the tricks of jealous rivals.

This rivalry, it is said, sometimes prompts to the doing of utterly mean tricks. A Nickle Plate engineer after his very first trip was laid off because he had "cut out" all the bearings of his engine. He was reinstated, however, after he proved that some rival had filled his oiling can with emery. Another new engineer was suspended for burning out the flues of his boiler. Through grief at the loss of his

position he died, and then a conscience-stricken rival confessed that he had put oil in the tank so that it foamed and showed water at the top gauge, when in reality there was scarcely a quart in the boiler!

These immense jealousies, together with the terrible anxiety incident to their work, has a terribly straining effect on the nerve, and statistics tell us that, though Locomotive Engineers may look strong and vigorous, they are not at all a hearty class. Ex-Chief Engineer A. S. Hampton, Indiannapolis, Ind., (Div. 143) was one of those apparently hearty men, but he says: "The anxiety, strain and jolting came near finishing me." His sufferings localized in catarrh of the bladder, but he used Warner's safe cure faithfully for twenty weeks, and now exclaims, "I am a well man." T. S. Ingraham, of Cleveland, Ohio, assistant Chief engineer, and other prominent members are also emphatic in its praise.

The Locomotive Engineers' Brotherhood has 17,000 members and 240 divisions. Its headquarters is in Cleveland, Ohio, where Chief Engineer Arthur for twenty years has exercised almost dictatorial sway. It was organized in August, 1863, by the employes of the Michigan Central. It has given nearly two million dollars to the widows and orphans of deceased members.

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