ever, that this product, if not too strawy, can be applied without danger to light lands, and many excellent farmers carry out this practice without any inconvenience.

The only point therefore which remains in favor of fermented manure is the possibility which it affords to put to the disposition of plants, at a given moment, the plant food which they need-especially the nitrates so necessary to the young growing plant. But how far should this fermentation be carried to secure the best results? According to the latest theory brought out upon the fermentation of manure-a subject hitherto very incompletely understood-the condition when manure is at its best to be incorporated to the soil is when half rotted, and this is the theory, interesting at any rate, upon which this assertion is based :

The fermentation of manure is caused by minute beings called "bacteria." In a manure heap three kinds of those bacteria are found : The first live in the superficial layers, in the presence of air, and they help to convert the nitrogen of the manure into a soluble form, "nitrates." These soluble nitrates drain through the manure pile, but they meet, in the centre, another class of bacteria living in the absence of air, which attack the nitrates and disengage the nitrogen, which being free, Another class of bacteria evaporates. causes the decomposition of the organic matter of the manure. Now, if the fermentation is allowed to go on rapidly until the mass is well rotted, the greater part of the nitrogen is lost through the work of these " denitrifying bacteris." But by tight packing, the formation of these nitrates can to a large extent be prevented, to start only when the manure is put in the soil, in contact with the air, where the nitrates formed are immediately absorbed by the roots of the plants.

It is obvious, however, that in a poorly drained land, where air cannot penetrate, the denitrifying bacteria find a place as suitable for their operations as in the midst of the manure pile, and all the care that has been given to the preparation of the manure will be of no avail if the land is not in the proper condition.

But it should not be forgotten that the soil, in good physical condition, "is the safest storehouse for manure": It would be far better, if possible, to apply fresh manure to the soil several months before seeding than to keep it fermenting in heaps until shortly before seeding. Losses cannot be avoided in the latter case, even with the best of care, while few losses can occur in the soil.

C. M.

ENSILAGE.

Having lately been brought in contact with a man who absolutely ridiculed the ensilage idea, naturally because he had failed in ensilage making; it struck me, that even though the subject has been pretty well thrashed out, yet an account of some methods, which have proved successful might be of service to readers of this Journal.

My friend, like many more who have failed, had thought it sufficient to put green stuff together in a haphazard sort of way, without considering that before any herbage can be properly converted into ensilage, it is necessary for certain chemical changes to take place. When the system of preserving green fodder in silos was first taken up, the common idea was that the raw material should be preserved as nearly as possible in its natural state. The first practice was to cart the grass as soon as it was cut, and to place it in the silo as wet as possible; in fact, at one time, the pouring of water into the silo was advocated. The mass thus hurried up was immediately weighted with as much as 300 lbs. or 400 lbs. to the square foot. The result was, that very little fermentation took place, and the ensilage (if such it could be called) was sour with a most abominable smell. Although cattle could be found which would eat the ensilage, the results of this method was not satisfactory. Next came the discovery of the sweet