

better than anything else, because the pressure is uniform and the material is practically costless. If, however, such materials as stones, gravel, slag, &c., are used, they should be put in some kind of a package, such as old guano bags, old flour or oyster barrels, &c., otherwise the weight is likely to be irregularly distributed.

From statements of expenditure which have been furnished me by several correspondents, it appears that the average cost of making silage is about 5s. per ton, including mowing, carting, chopping, pitting, treading, boarding, and weighting, but not the interest of capital on the silo, and of the weighting material.

Silage is generally removed from the silos by cutting it vertically, as hay is cut out of a stack. By this means only two or three of the covering boards and the superincumbent weights need be removed at a time; and if the thickness of the cut is at all proportional to the needs of the farm, the face will not be exposed to the air long enough for the silage to deteriorate. Some samples can be kept for months in that manner, others go mouldy or putrid very rapidly. One learns in course of time to predict the keeping qualities of silage with a certain amount of accuracy; for instance, the brown aldehyd-smelling silage, reminding one of honey-dew tobacco, will keep good for a long time if it is dry, but rapidly goes mouldy if it is wet. Green silage smelling distinctly of vinegar—what may be termed the pickle stage—does not generally go mouldy, but it turns putrid if very wet, and is not soon submitted to a kind of haymaking process.

For the purposes of the ordinary farmer, I do not know that it is of importance that the silage should keep good for more than a few days; but to the managers of sewage farms, or rather to their employers—the ratepayers of urban districts—the subject is one of immense interest. If sewage grass can be preserved in silos so perfectly that, after having been cut out, it can be sold off the farm for consumption in quantities that will last the purchaser two or three months, keeping good the whole time, it seems to me that a greatly enhanced return from sewage grass will be the result, and the most difficult problem connected with sewage farming will have been solved. From this point of view I beg to commend to your special attention a sample of ensilaged sewage grass which I received from Mr. Garret Taylor last Christmas.

FEEDING VALUE OF SILAGE.—With regard to this, we have heard a variety of statements, some being as wide from others as the poles are asunder. For instance, my very enthusiastic friend Mr. Easdale maintains that the feeding value of grass silage is £2 per ton, that it takes

five times as much grass to make a ton of hay as a ton of ensilage, and that therefore hay ought to have a feeding value of £10 per ton to be equal to silage. He also regards 75 lb. of silage to be equal in feeding value to 25 lb. of hay plus 95 lb. of turnips. On the other hand, Mr. Gibson tells me that “the result of feeding cattle on pitted fodder in my case has been that 2 bush. of ensilaged rye mixed with 1 bush. of swedes produced the same quantity of milk as 1 bush. of ensilaged rye and 2 bush. of swedes, both being used in conjunction with 3 lb. of cotton cake per day.” In other words, Mr. Gibson finds a bushel of ensilaged rye to be equal in feeding value to a bushel of swedes grown in Essex. Mr. Treppin, however, who makes about 3000 ton of silage a year, asserts that the same quantity of grass of the same quality is at least twice as valuable for feeding purposes, if made into silage, as if made into hay; while Mr. Kenyon, who began the practice of ensilage in 1881, but on a much smaller scale, says “that a ton of grass preserved by ensilage will go as far in the maintenance of stock as (at a low estimate) would 25 cwt. of the same material if made into hay.” This latter estimate is practically corroborated by Mr. George Broderick, who informs me that, from experiments he has made, he has “come to the conclusion that a given quantity of grass is worth about 30 per cent. more when made into silage than if made into hay.”

Mr. Young, agent to Lord Londesborough, experimented on four cows tied up in the same house. The experiment began on January 1, and the four cows had each 10 lb. of ground oats, 14 lb. of mangels, and 3 lb. of cotton cake, with, for the first ten days, 18 lb. of hay and 3 lb. of chopped straw. During the second ten days the hay and straw were replaced by 28 lb. of silage, and the other food remaining the same. “In five days,” he says, “nearly one half the milk had gone off, the bowels becoming very constive, and the faeces dark-colored.” Further, “no more cream or butter was obtained from the same quantity of milk than when the cattle were fed on the original food.” Subsequently one-half of the silage was taken off, and 14 lb. of pulped turnips substituted. The result was that “in two days the milk returned to the usual quantity, and the bowels became less constipated.”

The Rev. Mr. Ford, Mr. Swan, Mr. Fryer, and others, have testified to the good influence of silage upon either the quantity or quality of the milk, especially the latter, while Lord Fortescue found a deterioration, except when the silage was mixed with other food.

In the face of these discordant statements it is wise to be cautious; and I

specially wish to draw your attention to the general evidence that silage by itself is not so valuable a feeding material as when used in conjunction with a proportion of other bulky fodder, and a proper allowance of cake or meal, or both. It is the almost universal practice on the Continent to mix the silage with other kinds of bulky food, a very general proportion being one-third of dry food to two-thirds of succulent materials, and the latter being generally composed of silage and beet root pulp.

Mr. Hunting found his silage produce costiveness, but I have been informed that silage more advanced in the fermentative processes produces a certain amount of scouring. Silage, indeed is not a definite chemical compound; and therefore what may be true of one man's experience may conceivably be opposed to that of his next-door neighbor.

A most important question is whether the use of silage for cows and heifers impairs their breeding powers. The experiences of Mr. Bateman with ewes, Mr. Gibson with cows, Mr. Hunting with heifers, and the Vicomte de Chezellae with both cows and ewes, all tend to show that the judicious use of silage as food does not interfere with the animals' breeding powers. And by “judicious use,” I certainly do not mean “exclusive use.” Quoting from my recent report to the Royal Agricultural Society:—

“The construction of a debtor and creditor account as between the loss of feeding material occasioned by the conversion of carbo-hydrates into alcohol and acetic acid on the one hand, and the gain of feeding material by the conversion of indigestible into digestible woody fibre on the other, is a question for the chemical accountant, and no doubt such a balance sheet will be shortly forthcoming. To the farmer, however, the ‘proof of the pudding is in the eating,’ and whatever may be the result of future experiments, it will have been seen that my correspondents are now generally prone to attribute at least as great a feeding value to silage as to hay, and further to credit ensilage with ‘safety,’ and to debit haymaking with ‘risk.’”

“It will be gathered, therefore, that I regard the system of ensilage as a valuable addition to the resources of the English farmer, but not as a complete substitute for the old haymaking process. In the North of England, where autumn rains, and even early winter snows, render it almost impossible that clover aftermath can be made into hay for winter use; the process of ensilage enables it to be preserved almost without considering the state of the weather. On clayland farms, where turnips are notoriously difficult and expensive to grow, but where, nevertheless, some succulent winter food must be