

Familiar Talks on Agricultural Principles.

MANURE MAKING.

So much has been said in the course of these Talks about the necessity of supplying the soil with plant-food, that we shall take it for granted our readers are convinced that they must, if they would farm profitably and well, provide themselves with a stock of manure. How to do this in sufficient quantity, becomes a question of much interest and of some difficulty. It can only be accomplished by keeping a due proportion of live animals, and by practicing a judicious rotation of crops. Even by these means, the utmost economy and good management will be required, in order to manufacture sufficient manure to supply the wants of the land. But economy and good management are almost unknown qualities as it respects the provision and preparation of manure. An English writer on practical agriculture, says, "our dung-heaps are the opprobrium of British Farming." He justifies this remark by adverting to fact, that while a farmstead contains hovels and sheds for sheltering everything else of value there are none for the muck-heap, and also by showing that no care or pains are taken in the location or due admixture of the materials of the dunghill. If so grave a charge will lie against British farming, assuredly there is far more ground on which to base it in reference to this country.

If the dung of animals were fit for application to land as soon as dropped, and there were always land ready to receive it, there would be little or no need for muck-heaps and dunghills, but although the dung of animals that chew the cud might be safely used forthwith, since it is more thoroughly decomposed than that of others, yet it is obvious that it is only at certain periods manure can be applied to the soil. From the fact that horses do not chew the cud there may often be observed in their droppings particles of hay, straw &c. together with grain seeds in so whole a state as to be quite capable of speedy vegetation. On various accounts, therefore, dung must be stored for a time, and if this is rightly done, its quality will be improved by age, and it will be rendered conveniently available for use when required.

The value of farm-yard dung can hardly be over estimated. While artificial manures are useful for special crops, and for the supply of particular elements of fertility in which a soil may be deficient, it is the peculiar excellence of farm yard dung that it furnishes all the elements of fertility and contains all the material of plant-food. It is always rich in ammonia, phosphates, and potash, which as we have seen are prime elements in fruitful soils. Not only is it of benefit in the way of adding to the richness of the soil, but it acts mechanically upon it loosening clay land and binding land of lighter texture. Moreover by its gradual fermentation it has an effect on the temperature of the soil, while as it decomposes, it exerts various important chemical influences. Such being the natural advantages of good farm yard dung, as compared with any and every other kind of manure, it is the worst policy imaginable to neglect the best means of collecting it, preparing it, and storing it for use.

The idea of roofing in the manure-heap has a look of the ridiculous about it in the view of many. They are incredulous as to its utility and cannot see why it is not just as well to leave dung to be exposed to sun, wind, and rain. A little reflection will suffice to remove their impressions, and to show the wisdom and economy of sheltering the manure pile. In an enumeration of the losses sustained by farmers, Mr. Alderman Mechi cites "the money wasted in the washing, drying, and mangle of their dung heaps," and having justly remarked that to take dung out of the yard after it has been well washed by the rain, then make a heap of it, to be again well washed and dried, and then again to move and cart it out to the

land, is a great waste of time and consequently of money. The manure-house need not be a costly affair, very little more expense than that of the roof boards is necessary. A sort of pit or cellar should be dug, and this covered in will suffice for all practical purposes. The increased value of the dung thus housed will more than pay the cost in a single season. Lord Kinnaird made some experiments with the following results, in regard to the comparative value of covered and uncovered manure. He found that two parts of the same field, dressed with equal quantities, the one manure prepared under cover of a roof, and trodden down by cattle, the other manure from the open fold-yard, gave in

	Covered.	Uncovered.
1851	11 1/2 tons	7 1/2 tons of potatoes
1852	54 bushels	42 bushels of wheat.
1852	215 stone.	156 stone of straw.

Not only is the dung-heap injured in quality by being left wholly unprotected, but it is diminished in quantity to an extent almost beyond belief. From a series of experiments made by Koerte, the loss of weight sustained by the exposure of one hundred loads of manure to the action of sun, wind, and rain was found to be as follows. One hundred loads

In 81 days was reduced to 73.3 loads ; loss 26.7 loads		
" 24 " " " 64.4 " " 35.6 "		
" 34 " " " 62.5 " " 37.5 "		
" 493 " " " 47.2 " " 52.8 "		

If for any reason it is deemed advisable not to dig a pit or cellar, the ground where the manure-heaps is located should be scooped or hollowed out, a few inches lower than the general surface, and it would pay to pave or concrete it to prevent the juices from sinking into the ground. To keep the rain from running into it, a ring of clay or soils may be made around it. If the moisture is superabundant, it should be led off by a small gutter, and conducted to some lower level, where mould, weeds rubbish and any material capable of absorbing and retaining the fertilizing juices has been placed in readiness to take it up. In forming a dung-heap, especially under cover, care should be taken to spread moist and dry material in alternate layers, as by the latter extracting dampness from the former, the whole mass becomes alike moist. The formation of compost-heaps is a mode of preparing and saving manure that cannot be too strongly recommended. To a quantity of farm-yard dung, may be added all manner of vegetable refuse, weeds, leaves, turnip-tops, road-scrappings, turf, peat-muck—in short anything that will decompose. The mass should be lifted and mixed from time to time, and, when dry, watered if possible with liquid manure. A dressing of salt and slacked lime will improve the quality of the compost heap

In some such way as above pointed out, every farmer should provide himself with an adequate supply of "A. No. 1" manure.

Alkali.

This term is constantly used by farmers in speaking of manures. It is well to understand its derivation and precise meaning. It is of Arabic origin. Dr. Dana says that *Kali* is the Arabic word for bitter, and *al* is like our word *super*; we say fine and superfine; so *kali* is bitter; *alkali*, superlatively bitter, or, truly, *alkali* means the "dregs of bitterness."

Alkali is a general term which includes all those substances which have an action like the ley of wood ashes. If this ley is boiled down, it forms potash. What is chiefly understood by the term *alkalies*, means potash, soda and ammonia. *Potash* is the alkali of land plants; *soda* is the alkali of sea plants; and *ammonia* is the alkali of animal substances.

Potash and soda are fixed; that is not easily raised in vapour by fire. Ammonia always exists as vapor unless fixed by something else.

Lime, fresh slacked, has the alkaline qualities of potash, but weaker,—so has calcined magnesia, but in a less degree than lime. Here are two substances, earthy in their look, having alkaline properties. They are called, therefore, *alkaline earths*. When the tongue is touched with a bit of quick lime, it has a not, burning, bitter taste. These are called alkaline properties. Besides these, they have the power of combining with and taking the sour out of all sour liquids and acids; that is, the acid and the alkali neutralize each other. Were it not for this, there would probably be no such thing as vegetable growth.—*N. England Farmer.*

Bromus Schraderii.

This new forage grass seems to have attracted considerable attention of late among several of the leading botanists and agriculturists of Europe. In the July number, 1865, of the *Journal of Agriculture* (Scottish) there is an elaborate article on this grass, illustrated by drawing. We are not aware that it is known in Canada, or the neighbouring States. As the range of our cultivated grasses is exceedingly limited, the introduction of any thing new, suited to our wants and climate would prove a valuable acquisition. A few words, therefore, in relation to this new candidate for favour, will be acceptable to our readers.

Bromus Schraderii, so named from the German botanist, Schrader, who first described it with accuracy, several years ago, appears to be a native of the American temperate zone, west of the Rocky mountains, but its range in latitude is probably not very extensive. Of its first introduction to Europe there seems to be no very reliable information, Lawson, the great seedsman of Edinburgh, procured some seed from the Botanic Garden of Berlin, twenty years ago, and it soon attracted notice by its rapidity of growth, succulency, and seemingly highly important feeding qualities. He afterwards presented packets of the seed, for purposes of trial, to Vilmoren of Paris, and to various settlers proceeding to the Australian Colonies; the results, both in France and Australia, proved favorable on the whole, as far as they could be ascertained. From that time to within the last two or three years but little was heard of the progress of this grass.

In 1861, M. Alphonse Lavallee submitted an elaborate memoir of the history and properties of the *Bromus Schraderii*. On good new soil, the first cutting yielded at the rate of 50 tons of green grass per imperial acre; and the aggregate of three successive cuttings during the same season, reached a somewhat larger amount. Other instances are adduced, almost as great, but it should be remembered that this very tall succulent grass, yields, when made into hay, only about one-fourth of its weight in a green state. It is also often impracticable to make the later cuttings into hay that will keep, even in a country like France, where the autumn is long and commonly dry and warm. The seed is about the size of light oats, but weighing only from 16 to 20 lbs. a bushel. It is stated that on good soil, with favorable weather, 150 bushels of seed may be obtained, and sometimes more, from two cuttings, per imperial acre.

The nutritious properties of the *B. Schraderii* are of a very high order, but being a broad leaved, strong strawed, corn-like grass, it presents a coarse appearance, both in grass and hay; this, however, is more apparent than real, as it is actually succulent as well as tender; and hence it is greedily devoured by horses, cattle, and sheep, whether it be in a green or dried state, all of which animals thrive and fatten upon it in a remarkable manner. According to the French report, pigs eat it with avidity even when made into hay, in which form cattle and horses are said to prefer it to fresh cut rye-grass. For milch cows it has been found to be highly suitable in increasing the quantity and quality of their milk, as well as improving the butter and cheese made therefrom.

B. Schraderii, cut green and dried, was found by analysis to contain:—

Water.....	16.284.
Fatty matter.....	3.333.
Ashes.....	14.540.
Cellular tissue.....	19.313.
Nitrogenous matter (containing Nitrogen, 4.44).....	23.981.
Starchy matter.....	21.000.
Loss.....	1.549.
	100.000.

The grass when cut perfectly ripe and dried, differed when analysed but little from the above, except that it contained a less amount of fatty matter, and nearly half less of nitrogenous compounds, and more cellular tissue. The ashes contained chlorine, lime, potash, and phosphoric acid.

The *B. Schraderii* is by no means a permanent grass, the plants enduring generally not more than two or three years; but it is easily perpetuated for any length of time by division and transplanting, and will, in some situations, sufficiently renew itself with-