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PERSEVERE AND SUCCEED

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EDITORIAL.

The Making and Application of Farm-yard Manure.

One principal advantage claimed for stock-farming or dairying over grain-farming is that the land is less impoverished, because of the annual return to the soil of the great bulk of the crops produced. Whether it be in pasture or as winter feeding on coarse fodder, grains, roots, etc., it may be taken as correct that the excreta contains nearly the same fertilizing matter as the food originally did. It is important, however, to observe that with regard to the total amount of solid excreta and urine voided, the latter contains, as a rule, more nitrogen and potash than the former, while the lime, phosphoric acid and magnesia are almost entirely found in the solid portion. It is, therefore, apparent that if we are to reap one of the chief benefits of stock-farming—that of keeping up the fertility of the soil—it is necessary to prevent as completely as possible the loss of manurial constituents before its return to the soil. There is no doubt whatever that very serious losses occur on many farms, especially large farms rather carelessly conducted in a sort of a wholesale way. As not only is there danger of the liquid portions leaking away where they will do no good, but because of the easy decomposition of both liquids and solids, great losses may easily occur without our even suspecting that a waste is taking place. We grant it is true that volatile gases do return to earth along with rain and snow, but it is poor consolation when the ammonia from our manure pile is falling on surrounding hills and wood lots belonging to someone else. In order to prevent such losses it is necessary to make provision against the leaking away of liquid as well as the volatilization of gases due to fermentation in the manure pile.

The modern concrete stable floor having a gutter to catch the liquid, where it is absorbed by litter, is a great step forward in the better care of farm manure, but if the cleanings of the stables is to be allowed to heat in a loose pile, the loss will be little less than if the liquid manure found its way to a running stream or is otherwise rendered irrecoverable. There is little doubt but that the best manure with least loss is made in box stalls liberally littered and kept solidly tramped, as then all the liquid is absorbed and well mixed with the other portions, and little or no fermentation goes on. Ordinarily this is not practicable with all stock, but with sheep, young horses, calves, and dehorned cattle running loose, it can be done with little or no loss of fertilizing material. There need, however, be practically no more waste of manure with tied stock than with loose, if certain precautions are taken. As already stated, a tight floor and liberal use of absorbents are necessary, and of the latter a daily slight sprinkling of gypsum will fix valuable gases that might otherwise escape.

Some years ago the covered manure shed was justly popular as a place for the manure to undergo the preparation then considered necessary for application to the soil, but the day of such a shed and also of the manure pile is passing, since it is becoming generally recognized by good farmers, not too fixed or conservative in their opinions, that the maximum benefit is secured when the manure is applied to the land in the fresh state, allowing all the fermentation to go on in the soil. On many farms, where the fields are not too hilly, this is done each day when the ground is firm enough to drive on and not too deeply covered with snow. Usually in such cases the doors to the stable and passages behind the cows are wide enough to be driven through with a sled or boat, and the manure hauled directly to the field and spread. At times of the year when circumstances render this impracticable, the manure should in no case be left in a loose pile—the best condition for fermentation—but it should be evenly and thinly spread and thoroughly tramped each day until it can be hauled to the field and spread.

Probably one of the chief objections raised to applying fresh manure is that practically all the weed seeds in the crop are returned to the soil in a vital condition, ready to germinate as soon as they come in contact with growing conditions. There is undoubtedly some force in the objection, but not enough, we think, to warrant sufficient fermentation of the manure to destroy the vitality of the seeds contained in it. The true policy is to grow clean crops, and there will be no weed seeds to germinate. Some soils will be a bit slower working in spring, and if manure is strawy the plowing will be less smoothly done. Just here reference may be made to an experiment conducted at the Central Experimental Farm, Ottawa, to ascertain the great loss that occurs in manure by reason of fermentation in the pile. Seven years' experiments in applying fresh and rotted manure to various grain crops showed that fresh manure yielded astonishingly better results than the rotted manure. In this connection, on March 7th, 1894, 8,000 pounds of fresh horse and cattle manure were placed in a shed on a tight board floor. It was turned and weighed once a month, and the pile carefully watched to see that proper conditions of moisture were preserved. In one month the weight was reduced to 5,530 pounds, in two months to 4,278 pounds, in three months to 3,947, and in four months the weight was reduced to 3,480 pounds. At this time the manure was in what had usually been considered first-class condition, having that pasty character which would admit of its being cut with a spade and mixed readily with the soil. The turning and weighing was continued until Dec, 7th, when the former 8,000 pounds of fresh manure had lost more than two-thirds of its original weight, as it then weighed 2,600 pounds.

From this lesson, together with a knowledge that for seven years fresh manure gave larger returns pound for pound than rotted manure, the unduly expensive method of killing weeds by allowing the manure to heat in a pile is at once apparent. It would seem a much better policy to combat weeds by a wise rotation of crops together with the thorough cultivation that should go with all good farming.

Summing up the matter of saving and applying manure from farm stock, we take it that the maximum returns are recovered in crops when the mixed manure from all the classes of stock kept on the farm is preserved without liquid portions running away, and applied to the soil before any fermentation has taken place. The subject we have here endeavored to cover is of great importance to not only the present, but, perhaps, more particularly the future of agriculture. We would, therefore, be glad to hear from those of our readers who believe their system of saving and applying manure is such as to give them maximum returns in yields from their farms.

The Breeders' Association Meetings.

The annual meetings of the various breeders' associations, announced in our "Gossip" columns in this issue to be held in Toronto, Feb. 6th to 8th, will no doubt be of unusual interest owing to the active trade in both beef and dairy cattle and in horses. There is a considerable element of inspiration in meeting with other breeders and comparing notes. Useful information is often gained and acquaintances made which leads to business transactions. It generally pays a breeder, even if only such in a small way, to attend these gatherings if within moderate distance from the place of meeting.

The Spraying of Fruit Trees and Bushes.

The practice of spraying fruit trees and plants in order to combat disease and ravages of insects is not of recent origin. While, however, it has grown tremendously in popularity during late years, there are still many owners of orchards and other fruit plantations that do not appropriate or concede its advantages, or who do not think it will pay to take the necessary time and trouble. Among fruit-growers, as with other classes of men, there are many "doubting Thomases," who have no faith in "these new fads," and of course never give them an earnest trial; while there are others that after one or two half-hearted or imperfect attempts at spraying, are ready to pronounce the thing a failure. Having learned from personal experience and from the testimony of many intelligent fruit-growers, that exceedingly profitable results can be secured from spraying judiciously, and hearing of several unsatisfactory results from spraying, we determined to get at the facts of the matter by appealing to a number of fruit-growers with regard to their experience in spraying. The replies from a number received, some of which are published elsewhere in this issue, are more than gratifying to the advocates of spraying. Our effort was to obtain a plain statement of facts, based on actual experience in treating the various classes of fruit trees and bushes, as to the best mixtures, methods of preparation, methods and times of application, the beneficial results in health of the trees, condition of the fruit as to fungous and insect ravages, touching the general appearance and size of fruit from sprayed trees as compared with unsprayed, and also to learn, if possible, the cause or causes of any unsatisfactory results where spraying was attempted.

While the letters speak well for themselves, a few of the outstanding advantages referred to may be given editorial prominence. Mr. Fisk, who has had ten years' experience in spraying, wisely enjoins those who have met seeming partial failures not to become discouraged, but to persevere, which will bring its due reward. His experience in 1899 in securing a good harvest to dispose of, while his adjoining neighbors had practically no fruit, says more for spraying than a whole treatise on the subject. Mr. Govenlock, in his frank and pointed letter, states that he has been able to produce apples and pears free from scab, and reduced wormy fruit in a very large degree. It will be noticed that in spraying for tent caterpillars a stronger dose of Paris green is necessary than for other insects. It is essential for certain pests that applications be made at *the right time*. Mr. Hamilton tells us that he has, by spraying, reduced the proportion of culls from 2-5 to 1-10 of his entire apple crop. He also emphasizes the importance of keeping the trees well pruned and supplying other conditions favorable to the vigorous condition of the plantation. The letters we publish in this issue, and those that will appear later, should prove a very valuable service to our fruit industry on the farm, which, unfortunately, is not up by half to what it could be made if the means so easily in command were more generally brought into service. We invite a general discussion of this important subject, upon which there is still much to learn. It should not be forgotten, either, that spraying is not the only condition of success in fruit-growing, but it is likely that the orchardist who is careful in this particular will not be neglectful of other precautions.

Specially interesting and instructive articles will be found in this issue on the subjects of orchard culture and the spraying of fruit trees for the destruction of insect pests and fungous growths, also on dairying, barn building, the breeding and feeding of dairy cattle, the cultivation of forage and fodder crops for stock, the care and application of manure, and the construction of cement concrete walls and floors. There are single articles among these that are well worth the annual subscription price of the paper.