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1	2
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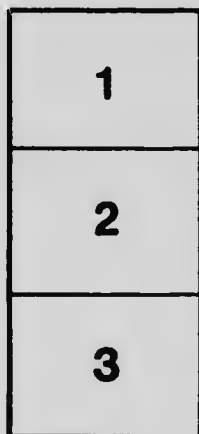
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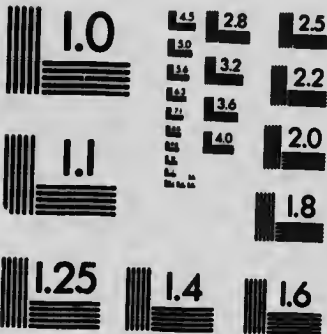
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BARNYARD MANURE

APPLYING

ALL THE MANURE MADE ON THE FARM
AT
THE RIGHT TIME IN THE RIGHT PLACE

LESSENS MAN LABOUR, INCREASES YIELDS PER ACRE, LOWERS COST OF
PRODUCTION PER TON OR BUSHEL.

HAUL THE MANURE TO THE FIELDS

DAY BY DAY

FROM FALL TO SPRING.

DISTRIBUTE BROADCAST IF SNOW NOT TOO DEEP.
WHEN SNOW TOO DEEP FOR SPREADER PUT IN SMALL PILES.

THIS METHOD

MANURE
ECONOMIZES : LABOUR
TIME

DOMINION EXPERIMENTAL FARMS.

SPECIAL CIRCULAR NO. 11.

J. H. GRIDDALE, B. Agr.,
DIRECTOR.

FRANK T. SHUTT, D. Sc.,
DOMINION CHEMIST.

630.4
C212
Exp. Farms
Service
Spec. Circ.



FARM MANURES

THE MOST EFFECTIVE FERTILIZER

FARM manures constitute the cheapest and most effective of all forms of fertilizers, no matter what the character of the land. For increasing soil fertility this by-product of the farm stands unequalled. It may be rightly considered as one of the most valuable assets of the farm. "The more manure the more crops, the more crops the more cattle, the more cattle the more manure." This adage tells an absolutely true story. It furnishes the explanation of the fact that mixed farming is the most rational and economical system of agriculture, the one best suited to keep up the productiveness of the soil and the one under good management most likely to give the greatest profits.

THE WINTER'S MANURE.

The greater part of the manure applied to the land is produced in barn, stable and piggery between autumn and spring. It is the winter's manure that the farmer mainly depends on for the corn and root crops of the rotation. How can this manure be handled that the best possible returns may be obtained from it?

THE GREATER VALUE OF LIQUID MANURE.

First the liquid excrement (urine) must be saved. It is far richer in nitrogen and potash, two most valuable fertilizing constituents, than the solid excrement (dung), as the following data clearly show.

COMPOSITION OF SOLID AND LIQUID EXCRETA.

		Nitrogen.	Phosphoric Acid.	Potash.
		p.c.	p.c.	p.c.
Horse:	Solid.....	.55	.30	.40
	Liquid.....	1.35	trace	1.25
Cow:	Solid.....	.40	.20	.10
	Liquid.....	1.00	trace	1.35
Pig:	Solid.....	.55	.50	.40
	Liquid.....	.40	.10	.45
Sheep:	Solid.....	.75	.50	.45
	Liquid.....	1.35	.05	2.10

Thus it will be seen that, weight for weight, the liquid manure, except in the case of the pig, contains much higher percentages of nitrogen and potash than the solid excrement. Furthermore, these elements are in an immediately available condition for crop use, which greatly enhances their value.

Averaging results we find from 40 to 50 per cent of the total nitrogen excreted by farm animals is in the liquid portion; in the case of the cow the proportion frequently exceeds 50 per cent.

TIGHT FLOORS AND GUTTERS.

Thousands of dollar's worth of plant food lie beneath old barns and stables in the Dominion due to leaky floors and gutters. The **first** step towards saving the liquid manure is to see that the floor upon which the animal rests and the gutter **behind are sound and liquid-tight.** A concrete floor and gutter solves the problem in the most complete and satisfactory way but if this is not practicable at present, put the plank flooring and gutter in the best possible state of repair. Litter cannot perform its function of absorbing the liquid if the floor and gutter are faulty.

USE SUFFICIENT LITTER.

The **second** step is to use sufficient litter or bedding material to take up all free liquid.

Straw is the bedding material almost universally used on the farm. It will absorb from two to three times its weight of liquid. If the supply is scanty—and the past season has been a poor one for straw in many districts—it will pay to cut all the straw used as litter, for finely cut it will absorb about three times as much liquid as uncut.

Dry Sawdust and Fine Shavings can be recommended as clean and satisfactory bedding materials. Their absorptive capacity according to fineness and dryness is from two to four times that of ordinary straw.

Peat Moss, commonly known as moss-litter (sphagnum) makes admirable bedding; it is soft and absorbent. It will absorb about ten times its own weight of liquid and possesses the further advantage of being able to retain any ammonia which may arise from the fermentation of the manure in the stall or outside.

Muck and Peat when air-dried make excellent absorbents. They are being used as such to good effect on many Canadian farms. Deposits of these materials are of no uncommon occurrence in many parts of the Dominion and their value in this connection is fairly well known. Digging and piling are all that is necessary. Their use generally is supplemental to the bedding proper, being found more especially valuable in the gutter behind the cattle, and in and about the farm buildings where there may be liquid manure or drainage to absorb. This employment of muck can be strongly advised since thereby not only may a saving of much liquid plant food be effected at little cost but the bulk and value of the resulting manure very considerably increased by the organic matter and nitrogen of this naturally-occurring fertilizer. **If there is a black muck or**

peat deposit on your farm or available in your neighbourhood don't neglect to use it in this way.

THE APPLICATION OF MANURE.

In so far as it may be practicable the manure should be drawn daily, fresh and direct, from the barn and stable to the land. For this purpose, as long as the condition of the soil permits and there is little or no snow, use the manure-spreader (into which the manure from the carrier has been directly dumped) and distribute at once. This practice means not only a great economy in labour, but the prevention of losses in plant food and humus-forming materials that inevitably follow the accumulation of manure in the yard or piling in the field. It means also an equable and uniform distribution on the land—a matter of no small importance.

When the snow lies deep upon the ground, still draw out the manure to the fields—daily if possible—but instead of spreading pile in small heaps of 200 to 400 pounds each. Fifty heaps of 400 pounds or one hundred heaps of 200 pounds each to the acre would mean an application of 10 tons.

With the advance of spring and the disappearance of the snow the piles of manure, now possibly elevated a foot or more on a foundation of snow, are turned over and, when free from frost, scattered.

The advice given in this circular as to the winter application of manure is based on the results of experimental work conducted chiefly at the Central Experimental Farm, Ottawa. These experiments proved:

1. That manure left in a loose pile in the yard suffered very considerable losses, chiefly through the leaching away of soluble nitrogen and potash compounds, but partly through fermentation (heating) and consequent destruction of organic matter with its nitrogen. In the course of a few weeks these losses may amount to one third or more of the initial value of the manure.

2. That manure in large heaps or piles—whether in yard or field—heated rapidly, even in the coldest weather. In the course of three months—January to March—manure so piled lost, chiefly through excessive fermentation, 60 per cent of its original organic matter and nearly 30 per cent of its nitrogen.

3. That heaps of 400 pounds each, put out on the fields fresh from the barn and stable (mixed manure) showed no sign of heating throughout the experiment, January to March. For the greater part of the period these small heaps were frozen through and careful analysis made immediately before scattering them in the spring showed that while frozen there had been absolutely no loss, either in plant food constituents or organic matter.



