FARM MANURE HAS A VALUE, IT IS PART OF YOUR CAPITAL

CHEMISTRY DEPT., O.A.C.

The care given to the farm manure is very important. The greater part of the nitrogen and potash are found in the urine, consequently, if the liquid is lost or the manure leached with water and the leachings allowed to drain away, serious loss of nitrogen and potash will occur. Again, the nitrogen of the urine is largely in the form of urea, a compound that is speedily changed by fermentation into ammonium carbonate. This compound is readily broken up with liberation of ammonia, which being volatile may be lost. This loss of nitrogen occurs while the manure is still in the stable and the best way to diminish the loss is by the liberal use of a bedding that will absorb all the liquid.

DECOMPOSITION IS RAPID.

Farmyard manure readily undergoes decomposition; the nature of the product formed depends on the amount of air admitted or excluded. If the manure is thrown loosely into a heap it becomes very hot and rapidly wastes. The organic matter in this case is virtually burned, or is "fire-fanged" as it is commonly spoken of, and the ammonia is one of the products lost. If, on the other hand, the manure is consolidated and kept thoroughly moist so that air is excluded, the mass ferments with but little rise in temperature, and some nitrogen gas is volatilized. The loss of organic material will be far less with this kind of fermentation than in the previous one, but in both cases nitrogen is given off from the manure. Experience proves that there is less waste of manurial constituents when the manure is preserved in a box stall or pen.

Undoubtedly, especially on heavy lands, the best returns from the manure can be got when it is put on the land and at once plowed in. The losses that are inevitable when the manure is stored would be prevented and a greater amount of organic matter added to the soil. Naturally, this is not always possible, but when the manure must be kept it should be made without delay into a solid heap or mass and must not be allowed to become too dry. The practice is sometimes followed of drawing manure to the field during the winter months as fast as it is made. Provided the land is not too hilly or too clayey, this will give good results. It is evident, however, that this method does not prevent losses, but is recommended to economize labor. When the manure is drawn to a field and put in a big heap care should be taken to make the heap as firm as possible.

From what has been said it is evident that there will be heavy losses of plant food during the storage of manure. Lyon and Buckman in their book on Nature and Properties of Soils say, "Considering the losses which the food sustains during digestion and the waste of the manure in handling and storage, it cannot be expected that more than 25 per cent. of the organic matter, 30 per cent. of the nitrogen, 50 per cent. of the phosphoric acid, and 80 per cent. of the potash of the original crop will reach the land in the manure."

It is evident, considering all the factors affecting the composition of manure as it reaches the field that it is impossible to give an accurate statement of the amount of plant-food in stable manure. The nitrogen will vary between .45 and .65 per cent., or even higher if produced by highly fed animals. The amount of potash will vary from .4 to .8 per cent., and the phosphoric acid from .2 to .4 per cent. Thus one ton of farm yard manure may contain from 9 to 13 or 14 pounds of nitrogen, 8 to 16 pounds of potash, and 4 to 8 pounds of phosphoric acid. An approximate figure that can be easily remembered is that one ton of manure contains 10 pounds of nitrogen, five pounds of phosphoric acid and 10 pounds of potash.

NECESSARY TO EFFICIENT FARMING.

Experience shows that no manure can quite take the place of the farmyard manure. It is what may be spoken of as the natural return to the soil of the constituents taken from it. All other substances are in a sense supplements, materials added to make good some special deficiency in the soil, or to supply some plant food constituent particularly required by the crop to be grown. Hence, the care and treatment of the farmyard manure is fundamental in all good agriculture.

If you are interested in Soils and Fertilizers the Dept. of Agriculture will be glad to send you Bulletin 322, as prepared by the Chemistry Dept. of the O.A.C.

Vegetable Growing in the Far North.

The reports of the experimentalists in charge of the Dominion sub-stations in the far north, just published at Ottawa, are of special interest as showing the possibilities of agriculture in that region. Three varieties of radish sown at Fort Vermilion, Alta., on April 30 were ready for use early in June. Long White Icicle sown June 6 were ready June 18. They were excellent quality and remained in use until late autumn. Cauliflower is usually a good crop. It is sown under glass about April 24, is transplanted a month later and ready for use in another month.

Cabbage and Brussels sprouts were treated the same way about the same time and were harvested in September. Tomatoes sown in hot beds April 27 and transplanted June 1 were harvested between August 5 and 18. Earliest of All yielded 105 pounds large in size and of good quality. Bonny Best, Danish Expert, and Earliana were also of good quality. Garden peas sown May 5 were available July 4. Twelve varieties of beans sown May 6 were generally ready a few days after the middle of July. All are reported good and tender only one variety being somewhat stringy. Eleven varieties of broad beans sown May 6 and harvested from July 1 to 5 were ready for table use August 4 and all of good quality. Onions suffered from the root maggot but the returns of four varieties were good and of two other varieties fair. Sown May 1 to 4, they were generally ready for use around the middle of June. Celery, rhubarb, pumpkins, cucumbers and potatoes all did well. Three varieties of table corn sown July 7 were ready from August 12 to 14 and ran from 34 to 42 inches in height. Howes Alberta Flint was the most prolific.

How a Herd of Ayrshire Improved.

An illustration of what can be accomplished in building up a dairy herd is provided in the experience of the Experimental Station at Ste. Anne de la Pocatiere, Que. In 1921 the average production of the milk herd was 9,492 lbs. of milk, containing 250.22 lbs. of fat. In 1925 it had increased to 9,754 lbs. of milk, containing almost 500 lbs. of fat.

The increasing average production is due, for the most part, to the observance of fundamental principles of management, which are good feeding for the twelve months of the year; regularity in the hours of milking and feeding; the keeping of milk, fat and feed records; gradual elimination of the poor cows and the replacement of the latter either through the rearing of heifers from record sires and dams or through purchase at an opportune time.

Mr. Ste. Marie the Superintendent of the Station states in his report that the logical way to get rid of scrub cows is to weigh and test their produce, keep records and turn them out.

Rape, Kale and Cabbage for Pasture.

Rape, kale and some varieties of cabbage make excellent pasture for sheep, swine and cattle, being particularly valuable for young cattle and fattening steers. Grown in poultry runs, they make a satisfactory free-range food for most kinds of poultry. They occupy a permanent place in the regular farm rotation in many European countries. They are, however, not yet utilized in Canada to the extent that their value warrants and in order to bring them to the attention of farmers the Dominion Experimental Farms Branch has recently issued a pamphlet entitled "Fleshy Annual Pastures" giving information concerning these crops in the hope of bringing about their more general use.

These fleshy annual pastures thrive under a great variety of climate and soil conditions, and they yield surprisingly well even where the summer rainfall is light. New land may be used to advantage for growing them, and on muck soils they are frequently more profitable than any other forage crop. The pamphlet, which may be obtained from the Publications Branch, Dept. of Agriculture, Ottawa, gives general information on the cultivation of these crops and the uses to which they may be put.

Homemade Goodies for Recess Nibbling.

Sunday afternoons and one evening every week through the winter we parch corn at our house for the children to take to school for recess. Drippings are heated in an iron pot and in this the field corn is parched and salted. The children would no more think of starting off to school without this treat than going without their books or lunch pail. From the articles they bring home "in trade" from other pupils who covet their corn it evidently appeals to all youngsters alike.

Dried sweet corn and crab apples dried with the peeling on are two other things I prepare each fall in goodly quantities for recess. Even the big boy of the household always takes a pocketful to "nibble at" when he goes on a trip from home.

These three delicacies have come down in my family through three generations. They originated before we knew about calories and "an apple a day," but the general health of my four makes me feel that such knick-knacks" fit right in with the scientific thought of to-day. I know these things are far more healthful than the candy and cakes consumed by other children at the play periods, for which my youngsters have but little appetite.—Mrs. B. E.

Lime can be supplied, where oyster-shell is scarce, by feeding cut clover hay as a green-feed substitute, scalded and mixed in the mash. A piece of lime about the size of a walnut can be kept in the drinking-vessel. Green bone, cut up so the fowls can eat it, furnishes considerable lime.

Baby Beef.

In these days, with the market demand for light or handyweight cattle from which the high-class small cuts are obtained, the production of baby beef is important and real high quality baby beeves usually sell at or near the top of the market. A few years back an effort was made to put this class of cattle on the market at around fourteen or fifteen months of age, some going forward even younger than that. Butchers and abattoir men now claim that the beef does not attain its best flavor until the animal is seventeen or eighteen months of age. It is a well-known fact that there is a stage in the animal's life between the veal weight and the beef weight during which it does not make very satisfactory meat, being rather tough and stringy and lacking flavor, so that it is important that cattle finished for baby beef carry not only the best possible beef type and finish but that they have reached the right age to insure good flavor.

Of course, the best quality of baby beef is made from well-bred cattle that have been allowed to nurse their dams. Mose feeders believe that whole milk is necessary in the production of baby beef, and, undoubtedly the highest quality product is obtained from cattle which nurse until at least nine or ten months old. Experiments at the O. A.C. have proven that under average onditions with good grade cows reasonable profits may be made from the raising of baby beef where the calves suck the cows. In addition to the whole milk, as soon as the calves will eat it, good alfalfa hay, pulped roots, silage and, while the calf is young, whole or rolled oats to which a little oilcake has been added, and latter during the finishing period a mixture of barley and oats or corn and oats are amongst the best feeds to be used. In all steer feeding it is well to remember that around a pound of good alfalfa hay per 100 pounds live weight and an average of one-half pound of grain per 100 pounds live weight during the feeding period generally brings good results. Usually the feeder starts with a smaller proportion of grain than that mentioned, gradually increases until the middle of the period when the animal gets the rate mentioned, while at the end of the period he may be getting nearly a pound of grain per 100 pounds live weight per day. In the handling of baby beeves, it is well not to let them out on grass unless it be in paddocks and only at night. All young cattle, particularly calves, that are being pushed for rapid gains, do better kept in partially darkened box stalls during the day throughout the summer. It is wise, however, to let such cattle have some outdoor exercise both winter and summer. An hour in the open yard on fine days in winter and spending the nights in the paddocks during summer makes for greater vigor and bigger returns.

Garage Hog Troughs.

We make most of our hog troughs from steel oil barrels which we purchase from the local garages and oil stations at a very reasonable price.

We cut the barrels around the circumference with a cold chisel about ten inches from the top. Then both cut edges are turned and hammered down, making a rolled edge. Thus we have a barrel which can be used for mixing slop feed and for the trough.

They are a lot stronger and more durable than most anything one can buy ready-made; a great deal cheaper when figured on the purchasing price, and quite as serviceable too.—J. F. N.

Most of the people who live to be centenarians are light in weight.

Independence Comes With a Garden.

There are few people who realize the value of a garden, because those that have them have never had to buy the things that come from them. A prominent banker recently said, "I did not realize the true worth of my garden until I lost it in the drouth last spring. I am sure that a good garden will reduce my living expenses 75 per cent."

Farmers think they are too busy to have a garden. The result is that not more than 40 per cent of the rural people have gardens and they are planted only in the spring.

A good garden is something anybody can have regardless of conditions. Vegetables build strong muscles and bones in growing children. They fill their little bodies with blood that is rich in iron and other things needed for the growing child. The brain will be well developed and energy will be plentiful. A few dollars a year in good seed, a few hours a week in honest labor will feed the family while the garden is growing and will provide a surplus for canning and storage during the winter.

Corn for Husking.

In 1916 a co-operative experiment was started in the testing of varieties of corn recommended by the Ontario Corn Growers Association, for Ontario conditions. The tests averaged 59 per year over the period of nine years. The yields were as follows: Golden Glow, 63.8 bushels; White Cap Yellow Dent, 59.5 bushels per acre; Bailey, 58.7 bushels; Wisconsin No. 7, 58.5 bushels; Salzer's North Dakota, 55.3 bushels; Longfellow, 53.0 bushels; and Comptons Early, 51.4 bushels per acre. The four highest yielders were dent corn, and the three lowest were flint. In addition to the seven varieties mentioned, the Gold Nugget variety of flint corn has been used in the co-operative experiments for a number of years. In yield of grain per acre this variety ranked second in 1923 and sixth in 1922.

Feed the Birds.

Thousands of birds die each winter and spring of starvation and exposure. Yet all of these birds are insect destroyers and therefore of inestimable value to the farmer, the orchardist and gardener. They deserve to be fed and should be protected by every possible means. Granted that they do steal some fruit and grain, but their beneficent services, as a rule, exceed their depredations. Let everyone help to prevent the ruthless destruction of birds and see that they are fed and protected in winter during times of storm and stress. They will richly repay our ministrations.

A dollar an acre is all it costs an Iowa farmer for fertilizer. His fertilizer is sweet clover, and on ground where sweet clover has been grown he increases his corn yield by as much as 25 per cent. One of his fields yielded 75 bushels of corn to the acre last year. He does not let sweet clover run into two full seasons, but plows it under green either in the first fall or the following spring. Every spring he buys quite a bit of clover seed and seeds it in small grain.—Y. B.

The test of civilization is the estimate of woman. Among savages she is a slave. In the dark ages of Christendom she is a toy and a sentimental goddess. With increasing moral light, and larger liberty, and more universal justice, she begins to develop as an equal human being.—Curtis.

WINTER SPORTS FOR BOYS AND GIRLS

SKIING SONG.

There's an inch of crust on a foot of snow;
Put on your skis, come on—let's go!
You may be fine in a football line
Or any old sport you're trying,
But come on out with your skis, old scout,
Let's see if you're good at flying!
You can try your skill on a half-mile hill
With a ten-foot drop at the bottom;
If you take that dip with your skis—ka-zip!
You're there if you still have got 'em!
Oh many's the bump as you learn to jump
And many's the drift you'll stick in;
But do your stuff—though the sport is rough,
It's one that you'll find a kick in.
It's a bully test of the pep and zest
Of a Regular Human Being;
Are you there with nerve and with vim and verve?
Well, you'll need all you've got, for skiing!
There's an inch of crust on a foot of snow;
Put on your skis, come on—let's GO!

A SNOW TOTEM POLE.

Of course you fellows have seen the totem poles of Indians—symbols of families and clans—or pictures of the poles, at least. And some of you who are Boy Scouts have attempted to make totem pole models. A well designed, brightly colored pole is a novelty worth having on one's home grounds, but it is no small job to make one.

A snow totem pole, on the other hand, isn't so difficult.

A tree in the front yard, clearly visible from the road, is the place for the model.

To start a totem pole, plaster the tree trunk with snow from the ground as high as you wish to have the pole. Then roll a number of snowballs of assorted sizes, from twelve to eighteen inches, and cement them into the snow foundation, with enough snow below them to support the weight.

With several balls or blocks in place, decide on what figures they are to be, and start the modeling. A garden trowel, a stick and a knife are good modeling tools. The blocks will have to be cut away in places, hollowed out or flattened, and built up in other places with sticks and tree branches for re-enforcments.

By introducing odds and ends, there is no limit to possibilities. Chunks of coal, tin cans, orange skins, harness rings and many things at hand can be pressed into the snow to form eyes and ears. An elephant's trunk is easily shaped around a branch embedded in the snow block.

And when all the carving has been done, you can obtain quite startling effects by adding color. Probably you would not think such a thing possible, but it can be done successfully with calciminee. Of course colors cause snow to melt to a certain extent, but you need not apply them until after the totem pole has had a good chance to freeze solid.

TEN-CENT LIFE INSURANCE.

Buy two awls, such as you can find in any hardware store. Connect them by a strong string. Place one in a pocket on one side and the other in a pocket on the other side, so that there will be one within easy reach of each hand.

If you fall through the ice, take an awl in each hand. Stick the points into the ice and pull yourself up, as an animal does by using its claws. By placing one hand ahead of the other you may be able to "walk" yourself onto firm ice. If the ice continues to break as you place your weight upon it, use the awls as ice picks and break a path toward solid ice or toward the shore.

Those who have broken through the ice into water too weep to stand in know how the hands slip on the edges of the ice when an attempt is made to crawl out, and how the wet clothing, the weight of the skates and the current drag one down.

In Norway, where the device made of the two awls and the piece of string is said to have been invented, they call it the ten-cent life insurance policy. A boy was asked, after crawling out of the water with this device, how he came to fall in. He replied, "I didn't come to fall in, but I came prepared to crawl out if I did fall in."

WHY THE CAKE FELL

Practical Suggestions for Careless Cooks.

BY P. E. PRIOR.

"I used the cake recipe you gave me, but my cake isn't like yours. Yours was so light and moist, but mine was dense and dry."

How often we hear complaints of this nature from those who are given recipes which, though perfectly calculated, have failed to give satisfaction.

I wonder how often we vary the ingredients listed in a recipe, "just a little" to save ourselves time and trouble on baking day. Only an expert cook should try to do this and even then it is not always safe.

All standard recipes call for a level measurement. If you round your teaspoon with baking powder or soda you have really almost two teaspoonfuls and this change may ruin your product.

A well-packed cup of flour equals almost two cups of sifted flour. A cup simply dipped in the flour bin but not packed well equals a cup and a half of the sifted kind. And modern recipes call for sifted flour! So if you would have your cooking a success, use level measurements and sift your flour at least once for measuring.

TOOLS ARE IMPORTANT.

What kind of utensils do you use with which to measure? Do you use teacups, coffee cups, or measuring cups? Try this test: Fill a teacup with water and then pour the water into a measuring cup. You will find the latter is only about three-quarters filled. Do the same thing with a coffee cup. You have enough water to fill the measuring cup and more!

If the recipe you are using calls for one-half cup of milk and you have used a teacup to measure the milk, how do you know when you have exactly half a cup? A cup that appears to be half full would probably not be, since the bottom is smaller than the top.

A graduated measuring cup that holds exactly one-half pint of liquid would do away with any lack of accuracy. The most useful kind to buy is that which is divided into thirds and fourths. These may be bought in tin, aluminum or glass.

Measuring spoons can be purchased in sets of three—a measure for one-half, one-fourth and one teaspoon. Then, if you have a standard tablespoon—not a dessert spoon, which is one-third smaller than a tablespoon—and if you know that three teaspoons equal one tablespoon, sixteen tablespoons equal one cup and two cups equal one pint, you have a set of measures that will guard you against cooking failures due to inaccurate measures.

WEIGH INGREDIENTS.

For cooking in large quantities, it is better to weigh ingredients rather than to trust to measures of volumes. Reliable scales can be bought from any dealer in kitchen goods. Scales should always be in balance. Each kind is regulated in its own way which the housewife should have her dealer show her at the time of purchase.

"But," I hear you say, "I know many old cooks, excellent cooks at that, who never used any of these standardized articles for measuring."

Of course! Only they do really measure very carefully, in spite of the fact that they tell you that they use "about one-half cup of milk." They have measured the "about one-half cup" so long in whatever utensil they use that they are sure of the amount. They have developed a sense of measures which they know they can trust—and sometimes that sense fails!

Standardized measuring equipment eliminates the uncertainty of the result of your recipe. Measure carefully and your chances of success will be by far the greater.

Buried cities which are being uncovered in India prove that there was a mighty empire in that country 2,500 year ago. These cities had been built on top of one another.

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Important Operations in Indoor and Outdoor Gardens

By Henry J. Moore, C.M.H.

1. If hot beds are to be of any use to raise plants for setting out early or crops for use, it is now time that the frames were put in order and the manure obtained. Generally about the last half of the month is the proper time to make the bed, but as the manure must be turned three or four times it must be obtained earlier.

2. If the manure necessary for your garden and lawns has not been procured, obtain it at once so that it may be spread before the frost leaves the ground. Avoid the displeasure of having the lawn and other areas cut up later in the spring.

3. Melons and Cucumbers for forcing in the greenhouse should now be started from seeds. Sow a few seeds to each pot and later thin out, leaving only the strongest. By early April the plants should be ready to plant in prepared mounds in the greenhouse benches. The Cucumbers, if growing conditions are right, should be ready to cut in seven weeks and the melons three or four weeks later.

4. Take the cuttings which have been produced by the Dahlia tubers started last month and insert them in the propagating bench in the greenhouse, or if in the window in pots of sand and cover them in the latter case with glass scalers.

5. There are many valuable bedding plants which should be started during late March. Seeds of the following should now be sown indoors: Balsam, Coleus, Pinks or Dianthus, Marigold, Mignonette, Pentstemon, Snapdragon, also Petunia and Verbena, if not sown last month. These when later pricked off (transplanted) into flats and finally planted out will flower considerably earlier than annuals sown directly outdoors.

6. If at all possible in early localities light soil areas in sunny sheltered positions should toward the end of the month be dug over to receive during April, early Peas and Potatoes. For the very early crops a southern slope is best. Positions for such crops should in all cases be well drained.

7. Upon the hot bed may now be sown Carrots for early use. Radishes and Lettuce. In a compartment of the hot bed may also be sown annuals of many kinds. It is safe to sow the seeds of all crops when the heat of the bed declines to 82 degrees F.

8. The pruning of Apples, Pears, Peaches, Plums, Quinces, Grapes, Currants and Gooseberries should now receive your attention. The dead growths should be removed from Raspberries and the living ones be thinned out, leaving the strong ones, spaced about six inches apart. These should then be shortened to a height of about four feet from the ground.

9. The posts which support your Grape vines and the wires may need respectively to be replaced or be repaired. See to this now. Then train at once the vines to the wires. Next month or during early May the new growth will preclude the possibility of this being done.

10. Early Sweet Peas may be produced by sowing the seeds in the greenhouse or on the hot bed in pots and later planting them out, soil and roots intact, where to flower. Eight or nine seeds will suffice for each five inch pot or other container of about this size.

11. The so-called Ten Week Stock should now be sown in pots or pans in porous, well sifted soil. These plants do not require a temperature higher than 55 degrees or so to favor sturdy development. Start the plants now either in the window, greenhouse or hot bed and later you will enjoy an early display of this very beautiful flower.

12. Seeds of the Tuberous Begonia, if sown now will produce plants to flower in pots during autumn in the window or green house. Old tubers should at this time also be started into growth in boxes of light porous soil for later potting or for planting in shady positions outdoors.