Dairy Department.

BUTTER IS LEFT IN BUTTERMILK.

T. L. Laders, Olney, Ill.: Experimenting on buttermilk, I had a small quantity churned over, and got half a pound of good, firm butter. Then the question came up, could there be any more left? It was churned again, and in fifteen minutes there was a quarter of a pound more taken from the churn. The experiment was proceeded with, and the result of repeated churnings, with time of churning, will be found below:

BUTTER RESULTS.

First churning of cream, three days gathering, was completed in twenty minutes	2 lb.
Second churning, buttermilk, 15 minutes	½ lb.
Third churning, buttermilk, 15 minutes	¼ lb.
Fourth churning, buttermilk, 15 minutes	¼ lb.
Fifth churning, buttermilk, 15 minutes	1-16 lb.
Sixth churning, buttermilk, 15 minutes	1-16 lb.
Next morning, a second trial of the same, in twenty minutes produced	¼ lb.
Total result	3½ lb.

Please note that the cream only yielded at the first churning one half pound more than the buttermilk gave after the first was removed. Also, please note the large result from letting the buttermilk stand over night. I hope others will feel interest enough in this matter to experiment and send you the plain statements of results; then you say your say, and explain it all.

ANSWER.—There is no part of this country where the science and art of butter-making has received so much attention as in two or three counties west and north of Philadelphia. The farmers there are Quakers, and they love the soil and all the industries that connect them with it. Years ago they discovered that each cow's milk has a different law or habit with regard to churning. For instance, the milk of "Daisy," whose calf is two months old, will give butter in twelve minutes churning. The milk of "Dora," whose calf is four months old, will not yield butter short of twenty minutes churning. Now, if you put the milk or cream of those two cows into the same churn, and go to work, you will get butter in twelve minutes; but it will not be Dora's butter. Her butter is still locked up in the buttermilk and if you keep on churning eight minutes longer the butter will come again; and none of this is from Daisy. It generally happens that the difference is not so great as in these cases; but what housekeeper does not know that sometimes her buttermilk is as yellow as cream, and makes her cake and biscuit rich without lard, if she uses it to wet the flour? Of course there is butter in all such buttermilk. This matter needs some careful experiments; and if farmers and their wives will find out the facts, this paper will gladly print them.—*Ex.*

IDIOSYNCRACIES OF COWS.

We publish in another column an article from the report of the New York Farmer's Club, which must, at least, interest all who are concerned with dairies. For several years past we have been satisfied of facts which strongly corroborate the buttermilk statement made. It is well known that each particle of fatty matter, or butter, is inclosed in a little sack making the globule. The texture of this sack differs in different cows materially. In some cows it is thick and tough, and consequently hard to break. When the cream sours, or it may be termed decomposes, this sack is weakened, and easy to break. Then it follows, when the cream of several cows come together, the stroke of the dasher or paddle is apt to break all nearly alike. But if this decomposing proceeded very far, which is often the case, the loss of butter is considerable, in consequence of some of the globules breaking, and not others. These are sometimes so easily broken that part of the butter is made, when the other is not in the least fractured. In this case the dairyman concludes it was a poor yield, but if the whole had been thoroughly soured, nearly all the butter would have "come," as butter makers say; though in this case the thin sacks, which necessarily break more quickly than the thick ones, probably give out their butter too soon, which some persons of experience say is lost by being suspended in the milk, when it is said "it will not gather." Butter made from sweet cream is better and more manageable than that from sour, for the only advantage derived from souring it is the one just stated above. Now when we consider the great advantage of knowing the character of each cow, and think only one experiment is necessary to decide the fact, the time and labor would be most profitably expended in ascertaining it. Suppose there are twenty cows in the dairy, when they are tested, three or four of this number resemble each other so nearly that their cream might be mixed; but suppose none of them could be mixed, the dairyman would not find it troublesome to keep them separate and churn it separately, for if the dairy was a large one the compensation would appear so great no one would be willing to meet with such a loss to save so small an amount of trouble. As there are many young farmers who might say "there is something behind all this, we should like first to know, on the dairy subject;" we will anticipate them, and say a word on the subject of buying cows to stock the dairy. Young farmers who acknowledge their ignorance in cases of this sort, soon find persons who say they know all about it, and sometimes the purchaser entrusts the whole matter to them, when considerable loss is often the result. Now to all such farmers we say try a book compiled by John Skinner, on the cow. In this book will be found a full and accurate description of Guenon's discovery with cows. From our experience we believe Guenon's statements to be entirely correct, and if any young farmers will study what he has written on the subject, and it will only take a few hours to do this, he will never make a mistake in purchasing cows.

There are various indications of a good cow, such as thin neck, wide nostrils, tapering horns, &c., &c., but these established evidences are always found when Guenon's marks are present. As the marks of this distinguished cow-man are all indicated in the growth of the hair between the hind legs, on the udder, &c, the superficial reader will at first deem the whole thing a superstition; but after studying the marks and learning the whole history of the matter, the most skeptical are constrained to believe.

The Field.

MOISTURE IN THE SOIL.

The moisture in our cultivated soils is derived either from rain or from the insensible aqueous vapor always present in the atmosphere to a greater extent in the summer than in the winter. It has been found by careful experiment also, that this moisture at various depths, is influenced to a great extent by the kind of manure applied to the land, and especially by the quality of the soils themselves. Where soils were dressed with a variety of different manures in separate plots, in the experiments instituted a year or two ago, by the Messrs. Laws and Gilbert, it was found that the plot manured by farm yard manure contained the greatest amount of moisture. Indeed farm yard manure was found to absorb and retain a larger amount than those that are not, and if these earths are mixed with organic manures or decomposing substances of any kind, and pulverized, they absorb and retain a greater quantity of moisture than they otherwise would, that is, their absorbing power is considerably increased.

This well known property of the earth and the power we have of increasing the absorbtive power of our soils, should be kept in mind by the enterprising farmer. It is one of the principal reasons why deep ploughing, subsoiling, fallowing, &c., are so fertilizing in their effects, and why frequent stirring of the soil is beneficial to plants even in the dryest seasons.

It is easy to ascertain the absorbtive power of the soil by exposing a given weight of it, in a well dried condition, to the atmosphere, for a time, and then weighing it again, when its weight will be found to be increased by the exact amount of moisture it has taken up. Clay is found to possess this absorbtive power to a greater extent than most other kinds of soil, coal possessing almost half as much under the same circumstances, lime and gypsum and chalk coming next in their order. Fine siliceous sand possesses scarcely any absorbing power at all, when free by itself, but if any organic manure is mixed with it, or if it is dressed with a light coating of clay, or even peat or muck, its power of taking up and holding moisture is greatly increased. Those, therefore, who maintain that there is no virtue in an application of muck or peat mud to our light soils, are clearly wrong. Even if the muck has no fertilizing power in itself it unquestionably increases the ability to absorb and retain moisture either from rains or the imperceptible vapour in the atmosphere, and this of itself is of great importance in our long and dry seasons.

This property of soils was recognized by Davy more than half a century ago, for he says—"The soils that are the most efficient in supplying the plant with water by atmospheric absorbtion, are those in which there is a due mixture of sand, finely divided clay, and carbonate of lime, (or chalk,) with some animal or vegetable matter, and which are so loose and light as to be freely permeable to the atmosphere. With respect to this quality, carbonate of lime and animal and vegetable matter are of great use in soils. They give absorbent power to the soil without giving it tenacity. Sand, on the contrary, which also destroys tenacity, gives little absorbing power. I have always found this power greatest in the most fertile soils, so that it affords one method of judging of the productiveness of land."

It is no less true that various fertilizers possess this absorbent power in various degrees. In the experiments by which the following facts were ascertained, the animal manure was used without any mixture of straw. One hundred parts of horse dung, dried in a temperature of 100 deg., absorbed by exposure to a moist atmosphere, at a temperature of 62, in three hours, 145 parts. Under the same circumstances 1,000 parts of cow dung gained 130 parts; 1,000 parts of pig dung gained 120 parts; 1,000 parts of sheep dung gained 81 parts, and 1,000 parts of pigeon dung gained 50 parts.

It is apparent that moisture in the soil is of the first importance, since its productiveness depends very largely upon it. Moisture is a necessity of plant growth. Probably about 300 parts of water pass torough a plant in the form of sap and exhalatfon from the leaves, for one part of substance fixed, and the extent of growth of plant is represented by this one part fixed and added to its organism. The extent of moisture required by a rapidly growing crop of grass, or any other cultivated crop, is something enormous. In every ton of hay we gather it is estimated that from 200 to 300 tons of water must have been exhaled during the period of growth. An inch of rain fall represents about 101 tons of water per acre.

It is evident that the farmers can, to some extent, at least, modify the absorbtive power of his soils by this mode of treatment. He can do it by a judicious mixture of soils. If his land is light, porous, sandy, a mixture of clay acts like manure upon it. Such a mixture may be even better than the addition of peat muck, but the addition of any substance that will increase the power of absorbing and retaining moisture, is beneficial. It is evident, too, that the value of a mixture is not measured merely by its intrinsic fertilizing properties. If it improves or increases the absorbtive power of the soil it is a useful addition to it.

The atmosphere is always charged with moisture. In the dryest time, in summer, it is filled with moisture, which it receives in the form of exhalations from the earth and plants or otherwise. Any stirring of the surface of the earth, therefore, by which the air is more freely admitted into it, is beneficial, by deposition and absorbtion is the insensible moisture which the air so admitted contains. Of course the deeper and more completely the soil is stirred and lightened up the more moisture it will absorb. This nature helps the farmer who helps himself, and our efforts at cultivation are, in some sense of co-operation with nature to obtain results beneficial to themselves.—*Mass. Ploughman.*

ASHES AS MANURE.

Wood ashes constitute a most valuable manure on almost every soil. Their chemical constituents consist of salice, alumina, oxide of iron, oxide of manganese, potash, soda, and phosphate. These constituents are essential to the growth of plants; but potash is the most important of all. It is always needed to decompose the various organic substances which exist in the soil—a change is perequisite to their becoming food for plants. Potash also renders inorganic substances soluble, thus converting inert minerals into useful plant food. Sandy soils are the most benefitted by the application of ashes, and they are more particularly useful for the following crops: potatoes, carrots, corn, beans, peas, clover and grass generally. A compost can be made of hen manure, soil and ashes, which is almost as valuable as the most expensive guano. This compost may be made by thoroughly mixing three parts of pulverized soil, one part of hen manure and two parts unleached wood ashes. Mix well moisten, and allow to stand from four to eight weeks. Apply dry—a handful to each hill, as with guano, and the result will pay your trouble fourfold.

CORN FODDER.

The opinion we have always held upon the question of value of green corn fodder for milch cows has been, that when raised from broadcast sowing it is nearly worthless, but when sown in hills or in drills, and cultivated, with access of air and sunlight, it is of high value.

During the present season we have made some experiments to test the correctness of these views. Stalks were collected from a field where the seed was sown broadcast, and also stalks growing in drill upon the same field, and they were dried in a drying closet to expel the moisture. Both specimens were planted at the same time (the 6th of May), and it was found that the plants from the broadcast sowing contained 92 per cent. of water, those from drills 83 per cent. of water. Thus it was shown that the difference of solid matter in the two was relatively as 8 to 17 per cent. The solid matter was composed of starch, gum, sugar, and woody fibre. There was almost an entire absence of sugar and gum in the stalks from the broadcast sowing, while the stalks that had grown under the influence of light and air held these nutrient principles in considerable quantities.

The stalks were collected at the period of growth just before the ear begins to form, a period when most farmers commence to cut the fodder for their cows. Our experiments upon corn fodder have afforded us important information upon other points. We find that the stalks cut before they reach a certain stage of growth are deficient in nutrient matter, and therefore it is a waste to feed them too early.

The corn plant, like all other vegetable structures, has but one object or aim in its growth, and that is to produce seed. It is engaged during its whole life in storing up large quantities of starch, which is to be used when the pressing occasion arrives, or the seed vessels mature, to form by some subtle mysterious changes the rich nutrient principles which are found in seeds. As soon as this struggle is over, the corn plant, like all animals, dies a natural death. It is not necessary for the frost to strike it; it dies from simple exhaustion.

The proper time to cut and feed corn stalks is during the four or five weeks which succeed inflorescence, or in other words, they should not be cut until the flower is fairly developed and the ear commences to form; and any corn that is so planted that the ear cannot form and mature is practically worthless as fodder.

Farmers may learn from these facts that corn designed to be cut for fodder, should be planted at two or three periods during the season; some fields quite early, others somewhat later, and still others as late as is safe. In this way when the hot, dry month of July and August are reached, and the pastures falter, a supply of fodder is secured, at a proper stage of growth to afford the largest amount of nutriment.—*Boston Journal of Chemistry.*

THE LOMBARD AND THE CURCULIO.

H. Gregg, Downey, Iowa, writing in the *Pomologist and Gardener*, says: "I will give you a bit of my experience with the lombard plums and the curculio. Some four or five years ago I took a feather and put some kerosene on all the plumbs on one small limb; those were all the plumbs saved on the tree that year, the rest were all stung as usual and dropped off. Last season (1870) I rolled up woollen cloths and saturated them with kerosene and hung them on the top of the trees, and my plumbs were all perfect—ripening up a very full crop last season. This season I have tried a different method with equal success. I took strips of cotton cloth and wrapped around the trunks of the trees some 18 or 20 inches from the ground, and then saturated the cloth with kerosene, and repeated the application once in ten or fifteen days during the curculio season. I neglected to put the cloth on the trees until after the cucullo had commenced operations this season, consequently some few plumbs were stung and fell off; but I do not think one plumb was injured after the kerosene was applied. The trees are so loaded with plums (August 12) that I have had to prop and tie up almost every limb. They are just beginning to ripen and look splendid.

Now, others may not have the success with kerosene that I have. If that has saved my plumbs, and I think it has, it is worth a trial by every one who would save their plumbs at a trifling outlay.

I profess little or no knowledge of the habits of the different insects, but I manage to raise almost every variety of fruit in a small way that is adapted to Iowa climate.