choice between the two rations now became uncertain, and the longer I waited the more confusing the situation became. As fast as the second pig could cross to the opposite end the first one followed and rooted him out, and the movements became so fast that I began to feel dizzy watching them. I had visions of Perpetual Motion, the Dancing Dervishes, Mesmeric Motion and even reflected on the swine of ancient times into which the Demons had entered, then returning to more modern times I began to fear that their actions might become automatic and beyond their control, which, of course, would mean disaster to my future bank deposit. So although it was quite clear that the results of my investigation were absolutely nil, I was rather relieved when both ends of the trough were cleaned up and the pigs assumed an attitude of more composure.

However, I have found out that if anyone ever hopes to discover accurately the particular articles of diet that appeal most to the appetite of swine, he will have to conduct his experiments with one individual representative, and even then I have my doubts as to the success of the venture.

Glengarry Co., Ont. J. B. F.

Uses for Whey on the Farm.

Throughout Eastern Ontario and in much of Western Ontario as well as the Maritime Provinces dairying is the industry of the majority of farmers, and the cheese factory is the great consumer of the milk supply. In writing thus we are cognizant of the immense quantities of milk made into butter, condensed into powder products, delivered for urban consumption and the ice-cream trade, and in some cases even shipped out of the country, yet in spite of such an enterprise the factory has stood its ground, and now the tide is turning back to the cheese factory as the one outlet for the great volume of milk produced on our dairy farms. One question arises out of the sale of whole milk, however, and that is, how may the calves and other young live stock be maintained and developed to replace that which must sooner or later be disposed of?

When the whey from the number of contributing farms was pooled at the factory without pasteurization or other precautionary measures being taken, the product did not receive very favorable comment as an article of diet on the farm. The containers were too often putrid, the whey soured too rapidly and was rancid, and on the whole as a ration for calves it was discountenanced. Since sanitary methods have been practiced and the whey regularly returned in cleansed vessels, many dairymen have used it with which to rear their crop of calves. Other grains or feeds must be used in conjunction with it, and whole milk should be used for a time at the beginning, but, using proper precaution with the product, dairymen can rear their calves to six months of age with whey as a base about which to build a ration. The dairyman can well afford to spare some whole milk if by so doing he may rear a good individual which at thirty months of age will take its place in the producing line. The present loss is something of course, but more than the factory price of the milk is realized in the value of the calf. Furthermore, what prospects are there of increasing the producing capacity of the herd if an intelligent scheme of breeding and rearing is not carried out? The live-stock industry of this country depends upon a system of good breeding and rearing on the dairy farms as well as on all others.

Starting when the calves are three weeks old the whey should substitute a part of the whole milk. The whey should then be gradually increased and the whole milk decreased as time goes on, but during the change some oil cake-meal porridge and rolled oats must be added to supply the fat and proteins that, to a certain extent, are missing in the whey. The whey should be contained in vessels that are cleaned daily and exposed to the sunlight, and furthermore the whey should be pasteurized and held in a clean container at the factory.

In many counties whey is used for the production of pork. Where this is carried on very extensively one pig is usually kept for each cow giving milk, and where they are bought by the factory or individuals to feed, pigs weighing 100 pounds are usually purchased. Some times they are purchased while younger, but are not put into the pen with those receiving the regular whey rations until they have reached about 100 pounds in weight. One gallon fed three times a day is usually the ration at the start, and this is increased after a few weeks to two gallons, but never exceeded. Along with the whey, cracked corn, shorts and other grain feeds are fed as the price warrants, and it has been estimated that 1,000 pounds of whey is equal to 100 pounds of grain. In some experiments between seven and eight hundred pounds of whey have equalled 100 pounds of grain in pork production, but this was whey that had a fairly large percentage of fat still contained in it, and different in that respect from the whey which commonly comes back from the factory.

If dairymen who have practiced rearing calves or pigs on this product would relate their experiences through the columns of this paper they would be appreciated by the readers. It is a time to decrease the cost of production, and if good dairy calves can be reared by patrons of cheese factories, one obstacle to that way of disposing of the milk will be overcome. Many dairymen are doing it successfully, others would like to know how.

Two Stock Remedies.

Editor "The Farmer's Advocate":

In all my years of experience as a farmer I have made every-day use of two very common medicines for the stock, and thought I would pass the ideas along, as I have learned that their value is not generally known and they are seldom used by the majority of farmers.

The first is sulphur, keep a box of salt and sulphur mixed, say one hundred pounds salt and ten pounds sulphur. Always use this for the stock instead of plain salt, and they will have good pure blood and seldom if ever be diseased. A good plan is to have a small box of it in a shed or dry place where the stock can have access to it at any time. I have never known sheep to be troubled with ticks or cattle with lice or ring worm, or horses with distemper if they were given plenty of sulphur at all times in their salt.

The other is crude oil for all kinds of cuts and sores; I have used it on many a severe cut on horses and it always healed quickly and the hair came back the natural color. In the spring when working colts I rub it freely below the collar and have never had one galled on the shoulders. It will also remove rough scales from the legs of poultry, and painted well on the hen roosts will keep the house free from lice. In fact I might say I have used it for many purposes and always found it good.

Ont. Co., Ont. A RETIRED FARMER.

FARM.

Are Farm Lands in Eastern Canada Becoming Sour?

Editor "The Farmer's Advocate":

The soil we cultivate with the hope that we may garner grains, roots, corn and hay, in such quantities as will repay us, first, for the labor expended upon it, and second, the monies paid out for taxes, insurance, repairs, etc., etc., and further will provide a more or less substantial surplus, which should at least equal the amount that would accrue had a sum of money equal to the total value of farm and equipment been invested in a safe industrial undertaking. This soil, from which we expect to receive such returns, was once rock, was once portions of the rocks and rocky material of which the world originally consisted. These rocks, in their composition, possess an infinite variety, but luckily for the farmer certain of their constituents are very valuable plant food, and when their physical condition becomes right, are available for use by the crops. These rocks have, in years gone by, been broken down by the action of heat, cold, frost, rain, floods and ice, the latter both floating as well as glacial, and the same action in a lesser degree still continues. The broken up and the ground down particles have been washed away, have been further reduced in size by attrition, through being rubbed against each other, and have then been deposited, in most cases, only to be again disturbed, washed away, reduced in size by further attrition and then redeposited. These processes may have and usually have occurred several times before the final deposit, which you are now farming, came to be in the position you find it. Soil is simply decayed, broken down, and disintegrated rock, combined with decayed vegetable matter, known as humus.

As the quality of rock varies, so of a necessity must the quality of the soil, irrespective of the (always present) variation of the soil contents of humus or decayed vegetable matter. Soil may vary within wide limits, and such variations are to be found upon nearly every farm and sometimes within the fences of a field. The variation found in the herds of milch cows of this province is known to be very great, but is not greater than the variation to be found in the soil.

A soil consisting of silica (white sand or disintegrated quartz) mixed with humus or decayed vegetable matter, will carry plant life, until the contained humus is reduced to a certain minimum. It is because of the stored-up humus, generally present in freshly-broken-up virgin soils, that such soils for a few years produce such large crops. When the humus, accumulated by nature, has been eaten up, the farmer, if he desires a continuance of these large crops, has to supply the plant food.

Luckily certain rocks possess certain mineral fertilizer elements, necessary to plant life, viz., potash and phosphorus. Unfortunately neither are usually present in a form that enables them to be readily available for use. They become available, gradually, through the solvent action of rain and air, aided very materially by the attrition caused by ploughing, harrowing and cultivating the soil. These operations being simply a continuation of nature's processes.

When the soil is sour and especially when it is water-logged and sour, the process of making available these valuable fertilizing constituents is retarded.

Besides the potash and phosphorus, plants require nitrogen. It must be remembered that plants require, according to their kind, certain definite quantities of each of the three elements (potash, phosphorus and nitrogen), and that if one be in short supply, that short supply governs the yield. The over supply of one or of both the other elements does not make up for nor alter the effect resultant from the short supply.

The least costly method of supplying the soil with nitrogen, is the growing of leguminous crops. The roots of these plants accumulate nitrogen taken by the plants from the air, and, upon decay, yield up the nitrogen, so accumulated, to the soil. Leguminous crops will not flourish, nitrogen will not be accumulated by them, in soil that is acid.

The method usually employed by the farmer to replace in the soil the humus used up by previous crops is to enrich the soil with farm-yard manure. Farm-yard manure contains the three named elements but ever in varying proportions, according to the kind of cattle kept, the quality and amount of food fed, and to the care exercised in housing and handling the manure. Under the best conditions the fertilizer contents are a most uncertain quantity, though the quality of the contents may be of the best. The continued use of farm-yard manure creates acidity in the soil, as also does the decay of any vegetable matter, and unless there be present in the soil a certain amount of available lime, the soil will become gradually sour.

The use of certain of the artificial manures, in the manufacture of which sulphur acid is used, also increases the tendency to sourness. As this sourness prevents the farm from securing, in the least expensive manner, the greater part of the required supply of nitrogen, it is evident that it is very important that the farmer should arrange to keep the lime in the soil he is cultivating in a full supply. Lime may be supplied at a comparatively small cost, therefore, there is every reason why the supply should be kept ample. Lime is not a true fertilizer and will not take the place of fertilizers, whether farm-yard manure or mineral fertilizers. The application of lime will, however, make it possible for the farmer to secure a part of his required supplies of nitrogen, by the growing of clovers, and it will also make immediately available certain mineral fertilizer elements lying dormant in the soil.

The progressive farmer, who aims at raising as large crops as may be possible from his lands, supplements the manure produced in his own stables with manure, the produce of other stables, or by the application of mineral or chemical artificial fertilizers.

In most virgin soils, excepting swamp and similar unusual lands, lime is found, but year by year as the land is cultivated and especially when it is heavily manured, the store of lime becomes depleted, even when the soil is underlain with limestone and the sourness results. The better the cultivation and the more manure applied, the sooner is the condition of sourness arrived at.

To ascertain whether land has become sour it is only necessary to use certain simple tests, particulars of which can be obtained by application to the Department of Agriculture at Ottawa.

In England the necessity of keeping up the lime contents of the soil has long been recognized. In that country much gas lime, (a by-product of the gas works thickly located over the country) is used. This is an air-slacked calcined limestone used for the purification of illuminating gas, by the absorption from the gas of its sulphur contents. This lime is obtained at a very low cost.

Calcined limestone or quick lime is also much used. Quick lime is hard to handle, dangerous to store, and requires to be used with great care.

In Canada limestone siftings, that is the siftings or so called limestone dust, taken from the fine end of the screen working with a stone crusher, which usually is crushing limestone for the making of or the repair of roads, have been tried. The result was unsatisfactory, and is largely responsible for my investigations in this connection.