

foot apart in rows 3 feet apart. The graft or union is set about 3 inches below the surface of the soil. They are usually allowed to grow here for two years and are then set in the orchard.

Ideas Regarding the Treatment of a Farm Orchard.

EDITOR "THE FARMER'S ADVOCATE":

It has been customary for many years for Institute speakers to wax eloquent upon the neglect of farm orchards and to show enormous profits when small orchards have been handled by experts or demonstrators. Still the hard-headed farmer has gone his own way and paid no attention to the frenzied appeals for though he could not probably explain why, he could sense something wrong in all this gratuitous advice. The first note of common sense that I have heard on this subject was sounded by Prof. Crow, at the Experimental Union, in discussion on a very successful demonstration on a small orchard. He said that most farmers neglected their orchards and that what the majority of farmers did was usually the right thing, and that we should go out and find out why the farmers neglected their orchards. He also said that we did not yet know what kind of farming would nick well with orchard work. Until we have some more definite information on this point, I would give the following rules for handling the farmer's small orchard: Don't plow, don't prune, don't spray.

Why not plow? Nine times out of ten, with the pressure of more important work, it is done too late in the season and no regular cultivation is given, which I consider is worse than no cultivation. Also, the successful farmer has the theory of deep plowing so thoroughly instilled in his nature that it is impossible for him to plow an orchard and not root it up like a piece of fresh-cropped land in New Ontario, which is all right for brush but bad for apple trees.

Why not prune? The farmer does not understand it and I doubt if it will pay him to spend the time learning. He had better spend his time studying the production of more milk, better hogs, cattle or sheep. He will hire someone who has a village reputation as a tree butcher. A drive in any district of Canada will show orchards that have been ruined by these so-called professional pruners. It is practically impossible to get a capable tree pruner outside of the orchard districts, and if it were possible the farmer could not distinguish between a real expert and a so-called expert. For this reason the average orchard is much better left unpruned. I would, of course, advise the cutting out of suckers, dead limbs, branches which touch, etc. This is not pruning and anyone can do it.

Why not spray? It will neither pay the farmer with a small orchard to buy spray pump, assemble chemicals and study the matter, which to an orchardist is a simple operation but to the busy stock and grain farmer is a big matter, nor take his teams off the land at a busy time on the farm. If he depends on travelling outfits, two-thirds of the work done is money wasted, owing to the short season for the most important sprays, as it is done either too early or too late.

Now a few lines on how to handle the farmer's small orchard. First, cut out dead wood, suckers and branches that touch, but don't attempt to prune. Next, build a solid fence around the orchard and connect with the barnyard by a lane or paddock, so that stock can be easily turned in or out. Next, give it a light coating of manure and do this every year until too rapid growth ensues, then apply every second or third year as necessary. Turn sheep, young dehorned cattle, or horses in for half a day at a time or often enough to keep the grass reasonably short. If hogs are put in have them well ringed to prevent rooting. After the apples are well formed only sheep or hogs should be allowed in. Spend a few hours picking off wormy, scabby and misshapen fruits which will make excellent sheep and hog feed.

One last don't—don't make a pasture of the orchard, as the tramping of the ground, especially in wet weather, will injure the trees; also, after the stock have finished feeding they should be turned out or they will damage the trees by tearing the bark, rubbing against the trees, and, with cattle and horses, eating the leaves and small twigs.

If an orchard is handled in this way there will be enough pasture obtained to pay rent and expenses, and in an average year there will be a medium crop of fairly clean fruit.

Grey Co., Ont.

G. T. MARSH.

[Note.—We cannot agree with all the statements of our correspondent in this article, but his arguments are so well founded that they deserve space. The size of the orchard must ever be an influencing factor. Very rarely can fruit from an orchard not pruned or sprayed be marketed to advantage, so the surplus is a waste product and the trees become a breeding ground for insects and fungous diseases that will infest the neighborhood.—Editor.]

The silo may not be as well filled as usual, but those who have a field of roots, kept clean, have little to fear, and hay and straw is abundant.

FARM BULLETIN.

Household Conveniences for the Rural Home.

No longer need country folk envy their city friends the many home conveniences, such as running water, bathroom, sewage disposal, electric lighting, etc. The inventive mind has made all these things as applicable to the farm home as to the city dwelling. The city with its elaborate water and sewage disposal system traversing every street cannot give any more efficient service than it is possible to obtain in any rural home. The plant to furnish city conveniences in the country is not difficult to install, nor is it as expensive as is commonly believed. There are few farm houses so situated as to make the installation of running water and a sewage-disposal system impossible; why is it then that the women folk on the farm are obliged to carry water from the farm well, situated very often several rods from the house, or why is health endangered by the open closet located from fifty to one hundred feet from the dwelling? It does not take much persuasion to have water piped to the stable to save the stock from being exposed to inclement weather while getting a drink, but when the question of piping water to the house is broached it is not favorably considered by some men. "We cannot afford it" is the common excuse for not putting sanitary equipment in farm homes. This may be true in some cases. However, not enough consideration is given to lightening the work and giving more comfort in the

outlay will furnish sanitary surroundings and comfort? It will be money well invested, and once the conveniences are installed you will wonder why you did not put them in your home years ago.

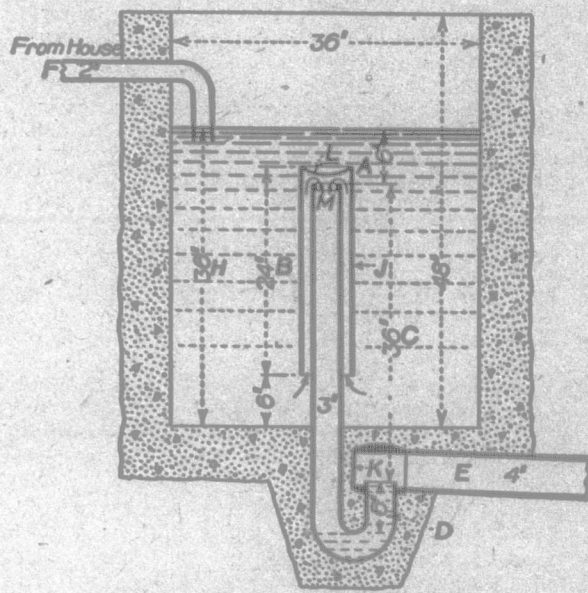
There are different styles of septic tanks which give entire satisfaction. At first it was thought essential to have an automatic valve installed to prevent the continuous flow of water through the discharge tile, but recently it has been found that a siphon which works intermittently is as effective and is less expensive. For the ordinary household a cement tank six feet long, four feet deep and four feet wide is plenty large enough. Some recommend a much smaller tank. Where the valve is used a portion of this tank could be partitioned off. It is claimed that for every occupant of the dwelling there should be at least three cubic feet of space in each compartment, and for each cubic foot of space in one compartment there should be thirteen feet of four-inch field tile laid at a depth of from twelve to fifteen inches, according to the nature of the soil. However, it does no harm to have a larger tank and to put in more tile. In the first tank solids are liquified by the work of bacteria and the material flows to the second tank through a pipe which starts near the bottom and empties within a short distance from the top. When it rises to a certain height in the second compartment the valve, if there is one, is opened which allows the liquid to escape with considerable force through the tile. If a siphon is used in place of a valve, water does not flow until it reaches a certain height so that the principle of the two systems is similar. The quantity of water going into the tile at once tends to keep them clean, where a gradual stream would tend to clog them. It does not require an expert to build this tank or lay the tile.

Four-inch concrete walls, mixed in the proportion of one to seven or eight would be strong enough for the tank, and it can be built close to the house. On account of having the discharge tile near the surface, the tank cannot be sunk far in the ground. However, it can be banked around with earth which will prevent the frost from doing any damage. A cement or wooden top could be put on and the entire tank covered. A couple of cubic yards of gravel and a barrel and a half of cement would be sufficient material to construct the tank. If the tank is located near a surface well sewer pipe should be used and the joints cemented to carry the material some distance from the house before it is emptied. The tile should not be laid too deep, nor too close together, as the soil is supposed to absorb the effluent. For this reason the tile should not be laid on too steep a grade in order to avoid the collecting of material at the lowest point. They should be laid practically on the level through the garden or nearby field; in fact, we know of tile laid through an orchard which are giving satisfaction. However, there is a slight danger of the roots of the trees clogging the tile. This system will not work in water-logged soil, as under these conditions there would be no possible chance for the tile to empty. Where the water level comes close to the surface it is advisable to underdrain the portion over which the discharge tile from the septic tank are to be placed. If the drainage system is laid six or eight inches below the septic tank tile, satisfaction would be secured. Bacteria in the soil further works on the sewage, rendering it entirely harmless.

The accompanying illustration shows a tank three feet wide and four feet deep, with an intermittent siphon in place of a valve. The operation of this siphon is as follows: Fill the U tube with water to the level of the short length, then let the tank fill up in the regular way. After the water level rises above the open bottom of J any further rise will compress the air in J and in the long length of the U tube. This force will drive the water down to the level shown in the sketch; then, when the water level gets to a height so that A equals D, or slightly greater, the compressed air in the long tube will force the water out of the shorter tube and siphonic action will begin with a rush which will empty the tank. Some have installed the system with the discharge pipe starting near the bottom of the tank and extending to the top, where it is turned downward and connects directly with the tile. This permits of a gradual escape of the effluent, but there is danger of the tile clogging. The valve or intermittent siphon allows the tank to fill and then empty with a rush, thus flushing the tile.

The sink, bathtub and commode should all be connected with the septic tank where bacteria will do its work, thus creating more sanitary surroundings. The convenience of the urban dwelling, so far as water supply and sewage disposal are concerned, can be installed in the farm home. The expense is not prohibitive. In the majority of rural homes running water, bathroom and closet can be put in without any changing of partitions. A small bedroom can be turned into a bathroom, or else a part of a large room partitioned off. Some prefer to have the piping concealed in the partitions, but to do this in a house already constructed would necessitate added expense and possibly cause damage to the walls. If the pipes are placed in a corner, a board extending from ceiling to floor and papered or painted to match the rest of the room will serve to conceal the piping without undue labor or expense.

No doubt there are many things needed about the barn or farm to lighten the work now that labor is scarce. However, the women folk should receive first consideration. Domestic help was never so hard to get as now. Many men seem to forget that conveniences in the house are as essential, or more so, to the general welfare of the family as some of those purchased to facilitate outdoor work. Sanitation and comfort in the home should be provided.



Intermittent Siphon System.

house. Too many men invest only in equipment in which they see a monetary return and pay little attention to things which are of vital importance to their wife and growing family. Perhaps this is due to the fact that for many years conveniences as mentioned were only available in towns or cities. The farm home was isolated from the large water and sewage systems; now it is possible at small expense to have individual plants on practically every farm. A bounteous harvest has been garnered this year so surely the desire of the women folk to have things a little handier in the house can be granted this fall.

Where the water is pumped by windmill or gasoline engine it is a simple matter to have it forced to a tank in the house so that instead of tramping through snow every time a pail of water is wanted a supply could be secured by turning a tap. The expense would depend largely on the distance of the well from the house. If the supply tank be located in the attic it would furnish pressure for a flush box and commode when the sewage system was installed. By having a twenty-five or thirty-gallon tank connected by inch piping with the cook stove or furnace, hot water could be secured in the bathroom, basin, kitchen sink, or any room in the house, so long as the fire was on. A tank of this size heats in a short time and will not become cold even if the fire does go out at night. We know of farmers who had the piping cut the desired lengths by the plumber and then made all connections themselves, thus eliminating a large item of expense. By having two tanks and a little more piping, both hard and soft water can be put on tap. The soft water tank may be filled direct from the roof, to save pumping.

The pneumatic pressure tank placed in the cellar is an improvement on the elevated tank. Water is pumped into a metal tank against air pressure which forces the water to all parts of the house. This system, while more expensive than the other, has several things to commend it.

At its best the outdoor closet is unsanitary and is responsible for more sickness than is generally believed. Towns and cities have banned it at great expense, but it still exists on the majority of farms, although the indoor lavatory is as possible in the country as in the city, and at no greater expense.

The pneumatic pressure tank, or tank in the attic, will furnish water for flushing the commode, and a septic tank which can be built by any handy man for a few dollars will dispose of all sewage. Why then subject yourself and family to unnecessary hardship this coming winter and for years to come, when a small