Soils and Crops

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Deadly Germs Breed in Filth.

We want every reader of this colum to recognize the danger of filth-germ infection and adopt measures for the protection of animals. Similar precautions should be taken to prevent infection of wounds on man, for many a death occurs from blood-poisoning and tetanus (lockjaw) that might readily be prevented by prompt cleansing and disinfection of the wounded part.

A mischievous germ known as "Bacillus necrophorus" is present in all places contaminated by hog manure. This germ is the cause of canker of the mouth in little pigs; bullnose or snuffles, which distorts the bones of the snouts of swine and causes difficult, loud breathing in those animals, an intestinal disease akin to hog cholera and known by veterinarians as necrotic stomatitis, and the skin disease termed necrotic dermatitis of hogs.

This bacillus also causes the worst form of foot-rot in sheep and cattle; causes the tails of pigs and calves to drop off; makes black, scabby sores on the lips and legs of sheep; infects the hoof-heads of horses, causing the most severe form of boils or furunculosis. Then, too, it may invade little abrasions or lacerations of the teats of the cow, sow or ewe, and induce a serious condition that is difficult to cure, or even ruin the parts invaded.

To prevent diseases due to these germs, stock barns must be kept clean, sunny and perfectly ventilated, for all germs hate cleanliness, sunshine and oxygen; indeed, germs are killed quickly by the direct rays of the sun and by free action of the oxygen of fresh air; cheap remedies, surely. Dirty teats cause mouth canker in new-born pigs. Navels may also become invaded by germs and pus abscesses result. Feed must come from clean troughs and other utensils. Hogs fed ear-corn from dirt-covered yards contract necrotic enteritis, and getting the infected filth upon their bodies develop necrotic dermatitis, which causes sores and makes patches of skin slough off. The old filthy hog-wallow is a fertile source of such diseases.

Sheep wound their lips and muzzles eating dry or frozen corn-stover, then the Bacillus necrophorus gets in its work and causes sores.

All feeding-floors, pens and yards used by livestock on farms should, where possible, be made of concrete, so that they can be kept clean.

Test Every Egg Before Setting.

If there is one rule above all others to be followed in hatching, it is this: Test every egg before setting. Set only the eggs that are clear when held in front of the tester. Thirty-six hours after the eggs are put under the hens, test out all infertile eggs which look fresh.

It is not hard to tell which eggs are fertile and which are infertile. A yolk will show in the fertile egg, but it will look somewhat separated and to one side, and will resemble a half-moon in shape, though not distinctly. If you can see a yolk when you roll the egg in front of the tester lens, that egg is fertile and will probably hatch.

In a thin, white-shelled egg, such as a Leghorn egg, you can sometimes see a yolk in a fresh egg, but there will be a change after the eggs have been under the hen or in the incubator for a few days. If a thermometer is laid on the eggs in the incubator, the fertile eggs will have a higher temperature than the infertile ones. It takes more heat for infertile eggs, and if enough heat is applied to bring them up to the required temperature, the fertile eggs will be overheated. Hence the importance of testing out infertiles (which are cold eggs) at an early date. An infertile egg is not hurt by three days of incubation, but a fertile egg is spoiled for food purposes at this stage.

Set two or three hens at the same time you start the incubator, and as the infertiles are tested out of the trays, replace them with fertile eggs from under the hens. Trays should always be kept full of eggs.

In ten days test again, taking out all spoiled eggs, dead or weak germs, and replacing again with good eggs from under the hens. If in ten days the germ does not move freely in the shell of a warm egg, it is too weak to be saved, and will never live to hatch. Full trays of strong, live eggs will hatch strong chicks that, barring an accident, will live. It is a waste of time to care for an incubator one-half or one-third full of good eggs for three weeks (the rest being unhatchable). In the end there will be trays full of spoiled eggs, chicks dead in the shell, just pipped or half out; those that hatch may seem all right, but begin dying in two or three days with bowel trouble, for which the incubator is not to blame. The trouble comes from spoiled eggs left in the incubator. These eggs throw off a poisonous gas, destroying and weakening good eggs. There are often half-developed chicks which die in the shell. If not tested out, a single egg will poison an entire hatch.

To detect a dead chick, look for the red veins running from the germ to the different parts of the egg; if only a black blotch is seen, without red blood veins, it indicates a dead chick. In an egg subjected to ten days or two weeks incubation, a dead chick looks just like what it is—a big, black, lifeless body in the shell, when seen through the lens in the tester.

If the unhatchable eggs are tested out carefully with a tester which reports correctly, and the temperature kept between 103 and 104 deg., very few chicks will die in the shell at pipping time, and there will be no bowel trouble among the flock. That impure eggs left in the incubator will poison the good eggs, I have learned by actual experience, and almost all incubator people will bear me out in this assertion. With a good egg-tester the chick can be seen to move around in the shell, like a fish in water, after seven or eight days of incubation, provided the germs are strong enough to be saved. If the egg is warm and the germ does not move freely, reject it; the egg will never hatch.

Were these directions carried out, two incubators would be sold where one is sold to-day, as the only objections to the incubator would be removed, these objections being: Chicks die in the shell at pipping time, and of bowel trouble after hatching, which often takes the entire flock.

A little practice and experimenting will enable one to test out all infertile eggs in thirty-six hours after the egg reaches the temperature of 103 deg. Have a good egg-tester, with a magnifying lens attachment, which can be used in daylight. A pasteboard box with holes in it and a coal-oil lamp, which must be used in a dark, hot room, are only an excuse, as this tester does only part of the work necessary to a successful hatch.

People will never know what the modern incubator can do until they attend more carefully to this important feature of testing the eggs, in a reliable way. They will never be successful in hatching and raising strong incubator chicks, unless more stress is put on keeping the trays full of good eggs, during incubation. A poor hatch means poor chickens, which, if grown to maturity, will be unprofitable.

Hogs

There are many ways of destroying the lice which are sure to be present wherever hogs are, unless some effective measure is adopted to prevent. We used to think that if we could once eliminate them entirely we would be free from them ever after but the job of eliminating is still going on. I sometimes thing they may be a blessing in disguise, for in the process of destroying or preventing them, the hog's body and his bed gets a renovating that, in the absence of such an instigator, might be neglected. It matters little the method one uses, just so he gets the lice. I have tried the dipping tank, and found it effective but almost impossible to get the hogs through it after the first experience. I have seen dozens of patent hog oilers in operation, and where one of them has been giving service the other eleven have been dry. Some people fix a rubbing post and wrap it with gunny sacks which are saturated from time to time with dip or oil. I find an ordinary watering pot with the holes in the nozzle enlarged with a small nail, and a can of good coal tar dip handy to the water supply about the easiest and surest method. One can do a thorough job in a good-sized herd of hogs in less time and with less effort than it would take to put one willful pig into the dip tank, or clean up and reload one patent hog oiler. I like to go over the shoats while at the trough, or in a close pen. The big heavy hogs will flog down to rub themselves when the dip begins to bite and give one a good opportunity to do a thorough job.

Maple Sugar and Syrup Profits

A Properly Handled "Sugar Bush" Will Pay Good Dividends.

BY E. A. WILLIAMS.

The making of maple sugar and syrup has become but a memory to too many farmers where wood lots have given place to cultivated fields and pastures. Upon hundreds of farms are found the best kind of a sugar bush, yet the farmer is not equipped to collect nature's liquid sunshine and convert it into one of the most delicious market products for which there is an unanswerable demand at profitable prices. This, too, in view of the fact that one season's good run would pay for the outfit, leaving a dozen years' clear profit for the future.

On many farms the sugar bush is simply the woodlot that has been preserved to supply fuel for the household, to afford a bit of beauty and shelter in the midst of a wind-swept country and to provide an annual crop of sugar and syrup to be used as a delicacy or sold to regular customers at a high price. Such bushes usually contain trees of several varieties, but the maples are the last to be taken.

It is not from these small mixed groves that the great marketable supply is secured, but rather from the more rugged areas where the plow and the harvester are not so easily operated. The groves as found in the principal sugar sections are chiefly maple trees, the other kinds having been removed for fuel or for the saw. This is the condition that obtains in many sections.

Big Leaf Surface Necessary.

The production of sap of a sugar-making quality depends on a large leaf area. From this it follows that the number of trees per acre must be consistent with the greatest crown development of each tree in the grove. A maple tree, which is a forest species, growing under this condition will produce a good length of trunk and this is necessary to a productive yield because the elaborated sugar is stored in the trunk of the tree for use during the next season; thus the trunk becomes a storage tank. The typical tree for sugar making is a tree with ample root system to supply an abundant amount of crude sap; a broad, spreading top with big leaf surface to elaborate the sap and a big, long body in which the sap may be stored.

A sugar grove requires some attention to keep it in good condition. Apart from the maintaining of roadways to facilitate collecting the sap, thinning out may be necessary from time to time. In a usual mixture the trees of species other than maple may be gradually removed and the reproduction of the aple encouraged. In making such a thinning, the work should be done gradually, the trees which crowd the best maples being taken out first, a few trees from a place at a time so as not to expose the largest maples to danger from wind storms. If the maples themselves stand too thickly those with small crowns or unsoundness should be removed. The promising saplings should be given every opportunity for growth.

More Valuable as Sap Producer.

Unfortunately the stripping of even our rocky lands of their trees has gone to an unprofitable degree. A maple tree that will cut two cords of wood is worth on the stump for that purpose about $6 at the present price of wood. The annual interest on this sum is thirty cents. The tree left to grow into considerable value for itself will yield an average of three pounds of sugar worth anywhere from forty cents to $1, according to the intelligence of the maker. To clear off the maple timber from stony land unsuitable for farming purposes is like killing the goose that lays the golden egg.

Sap as it comes from the maple tree is a very dilute solution containing from ninety-five to ninety-eight per cent. of water and about three per cent. of sugar and small quantities of mineral constituents. The making of maple syrup or sugar consists primarily of "boiling out" the water and skimming off the foreign matter. To make a good sugar or syrup it is necessary, therefore, to have an equipment which will allow for the least possible contamination of the product in all stages of manufacture. Not only must thorough cleanliness be observed but transformation of the new sap to the finished product must be direct and as speedy as possible.

The sugar house of a modern plant is not only for making and putting up the products but also for storing buckets, pails, spouts and other equipment from one season to the next. One farmer with a one-thousand-tree bush has a very satisfactory house. This is forty-two feet long by thirty feet wide. The walls are built of house siding and painted; the floor is of cement and the ceiling of shingles wood. It has a lean-to twelve feet wide on the east side for protecting the storage tank. It is built on sloping ground so that the gathering tank empties by gravitation into the storage tank and from there into the evaporator.

It has been a long stride from the iron kettle, used in sugar making by our grandfathers, to the modern evaporator that is necessary for the making of a high-priced product. The modern evaporator is designed for rapid evaporation and economy of fuel. There are several makes in use but all are similar in principle. When purchasing an evaporator it is important to provide for expansion of the plant and the taking care of heavy runs of sap. An experienced maker believes in providing ten square feet of boiling surface for every one hundred trees tapped.

Cover Your Buckets.

At the beginning of the season all the sugar utensils should be cleaned even though they were well washed, dried and stacked away at the close of the season previous for the dust which collected during the year would damage the first run. Having distributed the buckets and spouts, the tapping is started. The sap is forced out by internal pressure, and a very small opening will relieve that pressure, causing the sap to flow as rapidly as from the larger opening. The three-eighths, seven-sixteenths and half-inch bits are used. The hole is bored in slightly upward about one and one-half inches in the medium-sized tree, and two inches in the large tree. The point of tapping should be about thirty inches above the ground where the bark has a healthy look.

We still find farmers who do not think that it pays to cover their sap buckets. But one neighborhood had such a good illustration of the value of covers recently, that nearly all the sugar makers there now have them. A heavy rain storm came on and a man with a thousand trees tapped, buckets covered, was able to make six hundred pounds of sugar, while across the line fence, the next farmer, without covers, passed through his bush and emptied the sappy water out.

Bulk in Green Food Necessary

Green food cannot be given to the poultry in the form of tablets dissolved in water. The value of the green food consists in its bulky nature and such material is needed to mix with the more concentrated feed. Just as human beings need vegetables such as celery, beets and onions, the hens do better if they have mangels, cabbages and clover to go with their grain ration and beef scrap. Certain chemical elements of the green food might be in the tablets but the bulk is not there.

Twenty or thirty minutes of drying is usually enough to make Bordeaux stick to the trees, even in the rainiest weather. Don't let the prospect of rain delay spraying. Only actual rain should stop it.

Feeding mares in foal: I give feeds rich in mineral matter. Oats, bran, clover and alfalfa, are to be preferred. A grain ration may consist of five parts ground oats, four parts wheat bran, and one part linseed-meal, with bright clover or alfalfa hay for roughage. I find the above formula a good one and believe it will bring good results when fed in the way just mentioned.—M. B.

THE CHILDREN'S HOUR

Honesty Wins.

At School of the Woods a great competition was in full swing. The head teacher, Miss Browne, had, one month previous, received a letter from Sir Stephen Langton stating that the best composition written on "A Bird's Life" would be rewarded with $500 and a gold medal. Of all the girls, Roseleen Monarch was the most excited, for composition was her hobby. Immediately the girls set to work with great energy.

The rules were few, but strict. Each girl must not get help from another. Each competitor must every night keep her composition in her desk, securely locked.

Roseleen at once hunted up books on the subject. Her intimate friend, Lenore Gray, found it hard to keep from dropping hints of what her essay contained.

Roseleen's and Lenore's only enemy in the school was a sneaky, shy girl about one year old than the two. She was Rose Green, who hated Roseleen for her riches, pretty clothes, and because she was the school's favorite. Lenore was disliked by Rose because she was Roseleen's bosom friend.

It was the day before "Competition Day." Roseleen went to her desk in the schoolroom, locked up her composition and went away after exchanging a few words with Miss Browne, who was busily piling books inside of the schoolroom cupboard.

A few minutes after she left, the lean face of Rose peeped in the door. She glanced hastily around and, as Miss Browne was inside the roomy cupboard, completely hidden, gave a sigh of relief. Immediately she went to Roseleen's desk, unlocked it with a duplicate key, took out the precious essay, and soon had copied it all out in an old work book. Miss Browne had seen it all and she gave a gasp of amazement. At first she decided to tell her assistant and get advice, but on second thought she knew it would be wise to keep the news to herself until after Rose's competition had been read next day.

Next day dawned bright and clear. Only a few lazy, fluffy clouds hung over the surface of the sapphire sky. At half past two the compositions were to be read before an assembled crowd. Soon after two o'clock Roseleen, wearing a dainty, simple muslin dress, went arm in arm with Lenore down to the auditorium. Then Miss Browne rang the bell and the first girl called read her essay. All this time, Rose, in the waiting room, was copying down and adding to her notes as the other girls read. When Roseleen read the applause was great. She went blushingly down the aisle to where Lenore was sitting. Then she whispered to Lenore: "Oh, I hope I get the money. Jinnie, the gardener's daughter, is almost blind and the $500 will just cover the cost for on operation.

Then came Rose's turn and the applause was deafening. She cast a triumphant glance at Roseleen, who smiled back in congratulation. Of course the people expected Rose to get the prize, but just then Miss Browne in a clear voice called order. She told of what she had seen and the audience murmured against the sneak.

The prize was then given to Roseleen and the cheers, circled, echoed and re-echoed through the room for her.

Meanwhile Rose was hastily taken from the school by an angry and indignant mother and was seen no more at School of the Woods.

Two weeks later Jinnie was taken to a specialist, the operation performed, and she recovered her sight, much to the joy of Roseleen.

"Oh, I'm glad I won the prize. If I hadn't Jinnie would still be blind," said Roseleen a month later.—Written by Florence Dare, aged 14.

Red cedars and apple orchards are poor bedfellows. Cut out red cedar windbreaks around apple orchards, unless you want rusty apples.

You can use lime and fertilizer in the most approved way, plow at the proper time, cultivate till the shovels shine like silver, yet your harvest will be thorns and thistles if you overlook the one single factor—good seed.

GROWING ROSES AND SWEET PEAS

Sweet peas can be started as soon as the ground thaws. If a little freezing and a few frosts overtake this operation, they will do no particular harm, as this seed is quite hardy and seems to do best in cool weather. Choose a location where the sun shines for the best part of the day; avoid locations in the shade of buildings. A good plan is to run the rows north and south, so that the sun can shine on both sides of the vines.

Do not feel discouraged if the seedlings fail to poke their heads above ground for a couple of weeks. Frequently they take a month, if the weather is cold, but meantime they are developing good, strong roots. This means earlier flowers, better flowers and a longer blooming season, for when the roots are deep the plants are better able to withstand the heat and drought of summer.

Sweet peas do best in soil that is inclined to be heavy. The ground must be turned over pretty deep, at least twelve inches. Work in a supply of manure in the bottom of the trench. Plant the seed about an inch apart, covering them with two inches of soil. Later it may be necessary to thin the plants so that they stand about two inches apart. The supports or trellis should be erected shortly after the plants appear above ground, for the tendrils soon reach out for something to cling to, and growth is thereby encouraged.

Avoid Formation of Seed Pods.

The Spencer type of sweet peas are the most popular; these come in the early flowering or long-season varieties, and the regular summer flowering. It is a good plan to plant both sorts. They come in many colors and shades, and if properly cultivated there should be long stems, with three to four blossoms to the stem. All flowers should be picked from the vines as they fade, to avoid the formation of seed pods, or the flowering season will be shortened.

Cultivation is necessary, of course. Keep the ground close to the plants well stirred, using a hoe about once a week, until the blossoms appear. It is a waste of seed and labor to start sweet peas later than April; the vines will not flourish in hot weather; they are cool-weather plants.

Roses are somewhat particular as to soil conditions. They do best in rather heavy loam which is inclined to be clayey, but it must be well drained. Lighter soils can be improved by manuring. Strictly speaking, the rose bed is excavated, not dug, for the soil should be moved to a depth of two feet. Put the most fertile of the top soil to one side, then take out the remainder, which, if very poor, should be mixed with plenty of manure and replaced. If possible, obtain some loam from another source and dump it into the bottom along with the manure. The upper part of the bed should consist of the top soil which was removed and kept separate.

If sod was removed to make way for the bed, it should be broken up into small bits and mixed with the top soil. In finishing off the bed, it should be left several inches higher than the existing ground level, to allow for settling.

Care of Roots in Planting.

In setting out dormant rose bushes the work should be done as early as possible. If they are shriveled or affected by frost, bury the plants branches and all, under moist soil for a couple of days. This will restore the shriveled branches and thaw out the frost. Avoid exposing the roots to the air when planting. Keep the plants in a bucket of water, removing them as they are required. Make a hole large enough to receive the roots without crowding; place broken pieces of pottery in the bottom for drainage; distribute the roots in all directions when planting, and be sure to have the soil come in close contact with the roots when filling in the hole.

Rose beds should be located away from the influence of large trees. Five feet is a good width for the bed, which allows three rows of plants, spaced from eighteen to twenty-four inches apart in the rows. The question of varieties is a matter of choice. Climbing roses should find favor along fences, walls and arbors, any place where the effect of a bower is wanted; hybrid perpetuals are the hardiest of the bush roses, which come in many colors; then there are the hybrid teas and the tea roses, which latter can be counted on to bloom the entire season.

Most sinners are cynics, and most cynics are sinners.

The man who is bothered with his horses gnawing the mangers should go to the drugstore and get some horse rosin. Put some in the feed box and pound it to pieces with a hammer. A few feeds will cure the horse.

Paste this in your hat and save it till spraying time: Granulated sugar will keep Bordeaux mixture from going bad. Add one-eighth ounce of granulated sugar, dissolved in water, for each pound of bluestone used. This will keep the spray mixture from spoiling when the sprayer breaks, or rains stop spraying. For a 200-gallon tank of 6-6-50, three ounces (seven heaping teaspoonfuls) of sugar are needed. For small amounts of Bordeaux, dissolve a well rounded (not heaping) teaspoonful of sugar in one quart of water, then use a half-pint of the solution for each pound of bluestone.