Soils and Crops

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Spraying Notes.

With the prospect of the new Fruit Marks Act regulations coming into effect this season the question of finish and quality in fruit is one which more than ever attract the attention of growers. The new regulations which are much more specific in their statement of what constitutes blemishes for the higher grades than the act now in force, make it extremely desirable that the sprays to be used should be carefully selected.

The wholesale use of Bordeaux mixture, accompanied as it generally is by lack of finish and often by an actual russeting of the fruit, should be practised with extreme caution. Russeting may now be responsible for as high a percentage of loss in the highest grade (extra fancy) as a moderate infestation of scab. Whereas Bordeaux is responsible for much russeting of the fruit, it is likewise admitted that lime sulphur is capable of actually improving the finish of the product and is in addition an efficient fungicide.

As the russeting is naturally caused by these sprays given, after the bloom has fallen, the use of Bordeaux previous to that stage may be advocated where deemed advisable. Undoubtedly the old 4-4-40 Bordeaux is the greater sinner in respect to russet injury than the newer recommendations of 3-10-40, 4-8-40, etc., and the later formulae should be used in preference to the older one. Taking into consideration control of scab, finish of fruit and quality; in short, the pack, out, the following recommendations for orchard use would seem to be the most commendable: 1st spray—either Bordeaux or lime sulphur, 2nd spray—either Bordeaux or lime sulphur, 3rd spray—lime sulphur, 4th spray—lime sulphur.

The absolute necessity of applying three or more sprays should be understood. Trees not sprayed, or poorly sprayed, will not only produce poor quality of fruit and less of it, but, on account of foliage injury brought on by fungous diseases as well as insect pests, are in no condition to form a crop of fruit buds for the succeeding year.

In order to determine possible reduction of crop by the use of spray mixtures an actual count of some thousands of bloom was made last season at the Central Experimental Farm and the following results noted:

Where lime sulphur, specific gravity .007, was used 17.4% of the blooms set fruit. Where Bordeaux 3-10-40 formula was used, 17.7% of the blooms set fruit. There was practically no difference in the set of the two plots due to the spray used.

These results do not indicate a loss due to the use of lime sulphur as a spray for orchard use in the Province of Ontario.

Calcium Arsenate for Potatoes.—With the advent of calcium arsenate as an insecticide it should, on account of its cheapness and insecticide properties, displace the use of Paris green on potatoes, which is always liable to be attended by foliage injury. For the control of fungous diseses of potatoes Bordeaux mixture of the 4-4-40 formula is to be highly commended. Lime sulphur should be avoided. As an insecticide, to be combined with the Bordeaux, use one to one and one-half pounds dry arsenate of lime to every forty gallons of the spray mixture. This combination has proved on the Experimental Farms to be a thoroughly efficient control for blight and potato bugs.

The Man, the Cow, the Feed.

Many factors enter into successful dairy farming. Three of them are of vital importance. First, there is the man. It is said that some men attempt to qualify as expert machinists who could not keep a wheel-barrow running properly. Similarly, some men attempt to make dairymen out of themselves when they have no qualifications for handling live stock. They are out of their element. The man who does not like live stock, but who is good at following rules, may get along fairly well with dairy cattle. But this is the exception and not the rule. When we find milk reaching city markets containing up to fifty million bacteria per cubic centimeter and see the great number of undernourished scrubby looking dairy herds that are found in every county in the country, we are almost inclined to believe that the proportion of misplaced workers in the dairy industry must be particularly large.

Any man who does like live stock, however, is willing to intelligently study the problems connected with milk production, can make a surer living out of the dairy cow than from any other line of farming.

Then comes the cow. It is wasted effort to give good care and good feed to cows that just simply haven't it in them to make milk in profitable quantities. The profitable dairy herd is composed of cows from good producing ancestors, either grade or pure-bred, that have been themselves proven producers through one or more lactation periods. Sometimes we are inclined to believe that there are more poor feeders than poor cows, and that many of the so-called 3,000-pound cows would produce 5,000 or 6,000 pounds of milk if only given half a chance. On the other hand, there are cows producing 5,000 and 6,000 pounds of milk that should be producing 8,000 or 9,000 pounds on the feed and care that they receive. The ability to select good cows is the first and most important attribute of a good dairyman.

Finally, there is the question of feed. The farmer who is a good dairyman and has good cows, will be only an indifferent success unless he operates his farm to produce maximum quantities of nutritious roughage. On the dairy farm, large acreage will be devoted to legumes such as red clover, sweet clover and alfalfa, to the production of succulent crops, such as roots and corn for ensilage with a small acreage comparatively in grains. Where such crops are grown, very little feed will need to be purchased outside of heavy concentrates to supplement the coarse grains produced at home and there will be a maximum of increase, a minimum of outgo, and satisfactory profits.

Put Thistles to Flight.

Five years ago when I purchased my farm there were four acres on it that looked almost worthless. There were potatoes planted on this four acres two seasons before and I was informed only 25 bushels per acre were harvested. The field was lying idle when I made the purchase. All there was growing on it was, as I called it, a little poverty grass, here and there in spots, and a good stand of thistles.

I plowed it thoroughly the first spring and sowed to oats, seeding to clover, producing a good stand of both, but the dry weather shortened the oats crop one-half and also the clover. However, I let the seeding stand, and the thistles made a rapid growth the following season, along with the small amount of clover, so I clipped the field the last week of June, letting the stubble of the thistle dry a few days, then I sharpened a plow point and plowed the piece about four inches deep, being very careful to cut every thistle root at this depth.

Being a new man in the neighborhood I had all kinds of questions asked me why I plowed so shallow, and if that was the way I always done. I only laughed and said, "in a case like this, as this is only an experiment."

The weather was dry and hot for some three or four weeks and I used the spring tooth harrow a couple of times, setting it the depth that the field was plowed.

Being hot and dry by the middle of August the thistles were losing vitality so I set in plowing with the sulky plow turning up about nine inches of soil. The piece plowed very easy owing to the dust mulch retaining the moisture.

I immediately prepared a seed bed for wheat which I sowed the last week in August.

Now, the field being in a run-down condition, it needed some nourishment to produce a crop of wheat. As I had no money to purchase a great amount of fertilizer I decided to make some home-made fertilizer.

I collected all the wood ashes I could get handy, which was about 1½ tons, also some fine manure and sifted it together so I could use it in a fertilizer drill. When ready to use I took a ton of the mixture and put in 100 pounds of acid phosphate.

I opened the fertilizer part wide open and drilled 1½ bushels of good clean seed wheat to the acre. During the winter I hauled the manure direct from the stable to the field covering it thoroughly.

It was a nice sight at harvest time to see what an even stand I had. From this poverty stricken field I threshed four more bushels of wheat to the acre than any of my neighbors, and did not see a half dozen stalks of thistles. I now have a stand of alfalfa on the land.—H.B.F.

Pig-Eating Sows.

Pig-eating sows should be fed about three pounds of salt pork cut in strips, or the pigs may be painted with mucilage containing equal parts of tincture of aloes and asafoetida as soon as the pigs are dry.

A litle wheat bran or linseed oil meal in the sow's ration will prevent costiveness at farrowing time.

Nearly one-third of the population of the world are Christians.

The Making of a Lawn.

A good lawn is one of the first essentials in making a beautiful home. There is nothing that can take the place of a beautiful greensward about any house if it is to be really attractive. Those who are planning to build should include the lawn in the original plan for the home. Draw up a plan of the contour of the ground adjoining the proposed site. The area of this will depend upon the amount of land available. In the country this should be not less than four times the area of the house site. In excavating, remove all the rich surface soil separately. The subsoil from the excavation is then used for filling depressions and grading so that the surface water will always flow away from the house. When the house is completed, and the rubbish incident to building removed, the surface soil is brought back and used to make a seed bed for the lawn grasses.

The lawn should be as permanent as the house, and requires equal care in the making. The autumn is a good time to do the grading and filling. This should be done at intervals, allowing heavy rains to settle the transported soil several times before the final grading, ploughing and thorough tillage of the spring. This will prevent depressions developing afterwards in your lawn and tennis court. Before seeding, a finer condition of tilth is required than for any farm crop. Keep at it until the soil is like a garden or about ready for seeding onions. If the land is not in good heart, a heavy coat of manure should be worked in during preparation, and when necessary, a heavy dressing of fertilizer will greatly help to make the soil as rich as it should be for growing potatoes or roots.

The seeding should be very heavy. The best lawns are made by having a great many fine stalks of grass. The best grass for shade and open lawns is the Kentucky Blue Grass. It is sown at the rate of about 60 pounds or 4 bushels per acre. It weighs 14 pounds to the bushel. The seed merchants sell reliable mixtures; these usually contain a large percentage of Kentucky Blue Grass and White Clover. Timothy and Red Top, when added to the mixture, are satisfactory grasses for making a permanent lawn. To secure a satisfactory seeding, take about one-half of the seed for the area and sow the area one way, carefully by hand, then take the other half and sow across the first seeding. By this means you would avoid any misses and secure an even stand.

To avoid having the lawn bare during the early summer, sow oats at the rate of from 4 to 5 bushels per acre before the last cultivation in preparation for seeding. This will form a dense greensward within three weeks, and though requiring frequent cutting with the lawn-mower, will not only make a beautiful lawn, but will serve as a nurse crop for the grasses until they are well established. Cover your lawn seed with a garden rake and roll from time to time after rain.

The name "Mary" has been given to seventeen daughters among twelve monarchs of England. George III. and Queen Victoria had each three daughters bearing this name, together with others.

THE SUNDAY SCHOOL

APRIL 23

Uzziah's Pride and Punishment, 2 Chron. 26: 3-5, 15-21. Golden Text—Prov. 16: 18.

Time—B.C. 790-749.
Place—Jerusalem.

Lesson Foreword—Joash was succeeded by Amaziah (see 2 Kings 14: 1-20; 2 Chron. ch. 25), and he, in turn, by Uzziah. Uzziah was one of the most brilliant kings of Judah, and his reign was very prosperous.

I. Uzziah's Prosperity, 3-5.

V. 3. **Uzziah;** the name means, "Jehovah is my strength." In 2 Kings 15: 1 he is called by another name, Azariah, which means, "Jehovah is my help." **Sixteen years old.** V. 1 leads us to infer that he was chosen king by popular acclamation rather than by hereditary right; he may have displaced an older brother. **Fifty and two years;** one of the longest as well as one of the most prosperious reigns in the annals of the kingdom of Judah.

V. 4. **That which was right.** The Hebrew word for right seems originally to have meant "straight." Thus Ps. 23: 3 speaks of "paths of righteousness"—straight paths—and Jesus speaks of the narrow way which leads to the straight gate, Matt. 7: 14. **In the sight of the Lord.** Judged by God's standard Uzziah did what was right in his early years.

V. 5. **He sought God.** "To seek God," is a frequent term in the Old Testament. It may mean: (1) to consult God through those who ordinarily reveal his will; (2) to seek him in prayer and worship; (3) to make an effort to obey his will and to practice a righteous life. The direction of Uzziah's life was set towards God. **In the days of Zechariah.** Zechariah, not mentioned elsewhere, was a prophet whose influence over Uzziah in his early years was for good. **Understanding in . . visions.** Revelation frequently came to the prophets through visions. (See Isa. 1: 1; Jer. 1: 11-13; Ezek. ch. 1, Zechariah not only received visions but he was able to interpret them correctly. **As long as he sought . . God.** It might be said that the book of Chronicles was written to prove the truth of this thesis. Each king's reign is passed in review and it is shown that the man who seeks God prospers; the man who forsakes him is punished.

Uzziah is depicted as a man of versatile ability who used his great gifts to the strengthening of his kingdom. (1) He was a successful general conducting victorious campaigns against his enemies and extending the borders of his land, vs. 5-8. (2) He had a shrewd eye for commercial advantages. Seizing Elath, a strategic port on the Red Sea, he opened up trade with the south and east, v. 2 (3) Realizing its importance for the prosperity of the land he took a keen interest in agriculture, and devised a way for irrigating the land, vs. 9-10. (4). He was an efficient organizer, putting the army on a sound basis and strengthening the defences of the realm.

II. Uzziah's Presumption, 15-18.

V. 15. **Engines, etc.** This engine, whatever its nature, was apparently set on the walls of Jerusalem and was capable of beating back an invading army. **He was marvellously helped, etc.** This searches Uzziah's downfall to its roots. Prosperity proved his undoing.

V. 16. **His heart was lifted up.** He became proud, arrogant and self-sufficient. **Into the temple to burn incense.** The burning of incense was a sacred rite and none but a priest was qualified to perform it (see Ex. 30: 1-10; Num. 16: 40). Uzziah's inflated vanity prompted him to usurp a function which did not properly belong to him.

V. 17. The priests attempted to stop such sacrilege. **Fourscore priests.** The services of the temple required a large staff of priests. **Valiant men.** It would require all their valor to withstand so proud and powerful a king.

V. 18. **Burn incense.** Incense was formed by burning certain aromatic substances. It was offered morning and evening on the golden altar; its sweet odor was supposed to be particularly pleasing to God. It was sometimes referred to as a symbol of prayer. (See Ps. 141: 2; Rev. 8: 3.)

V. 19. **Uzziah was wroth.** The priests were quite within their rights in restraining him. His anger was unreasonable. **Censer.** Before the exile the censer was simply a pan or shovel in which the incense was mixed with live coals; after the exile the incense was burned on the golden altar and the censer was used to carry coals from the great altar to the altar of incense. **The leprosy . . rose up.** The unqualified man who meddled with sacred duties was frequently stricken on the spot.

V. 20. **They thrust him out. The** presence of a leper, a person who was considered ceremonially unclean, would defile the temple. "He entered as a priest and he left as a leper."

V. 21. **Dwelt in a several house.** Leprosy was the most feared because it was the most loathsome disease of the ancient East. To prevent contagion, the leper was required to live an isolated life. Uzziah may have been allowed to remain in his palace but he would always be in quarantine. **Jotham his son, etc.** Since Uzziah was forced to retire from his kingly duties, Jotham exercised the regency until Uzziah's death.

Application.

Dangers of Prosperity—"I have been a minister for nearly half a century," a man said recently, "and in that time I have known a good many men utterly spoiled by prosperity. I have come to believe that few men can become prosperious and remain humble." It was after a number of great victories that Napoleon grew arrogant and said "Take the word 'impossible' out of the dictionary, nothing is impossible to the man who has will power." Evidently the dangers of prosperity are very sinister.

The Humility of Bishop Brooks—When Phillips Brooks was made a bishop, he, with characteristic humility, was overwhelmed with a sense of his responsibility and spent many anxious days in prayer. Then he sent for a very dear friend and said to him, "If you ever think that this position is making any difference in me; if you ever see any sign of pride; I want you to tell me at once." That really great man was afraid lest, like Uzziah, his heart might be lifted up to his destruction.

Leads to Egotism—During the last few years a great many "success" books have been written which generally contain accounts of how boys, starting with little or nothing, have achieved distinction in various fields. Thousands of magazine articles have been written along the same line. A keen observer of men wrote recently, "So-called selfmade men are the most objectionable men I know. They become so egotistic that they attribute their success entirely to extraordinary ability which is very rarely true."

Poultry

Chestunt hard coal makes the most satisfactory fuel for the coal-burning brooder stove as it seldom goes out if the fire is given the proper attention and there is no difficulty in making the fire last all night. Coke makes a hot fire while it burns and can be used in brooder stoves but the stove may need attention during the night to be sure that the fire will last until morning.

Soft coal can be used in brooder stoves with grates constructed for that purpose. However, it is not usually considered as satisfactory as the hard coal. It pays to have a box in each colony house that will hold nearly a week's supply of coal. This saves carrying fuel in bad weather and reduces the time necessary to care for brooder fires.

If you use oil-burning brooders it pay to buy the best grade of kerosene or the grade commonly sold by the oil companies for incubator use. This first-grade oil gives the most heat for the money and there is less soot and odor.

It pays to use a good grade of fuel in spite of the cost, as the expense can be divided among two or three hundred chicks, making the fuel cost per chick very small. And if the fires go out the injury to a brood may be so great that no amount of fuel economy can make up for it.

Caring for the Roadside.

The last two years and the next few years will constitute an era of road building. When properly completed these roads should have a nicely graveled roadbed with a well-shaped roadside.

The law of each province should see to it that these roadsides are seeded to some suitable grass seed with a nurse crop to keep the weeds from getting the start of the grass. Whereas we have no such laws it would be a wise thing for each farmer living along a new road to do this himself.

In passing along the highways we have noticed that this is oftener neglected than cared for, consequently these neglected roadsides are growing up to ragweeds, docks, thistles, etc. Perhaps in a few years the June grass will get a good start and crowd these weeds out and make a decent looking roadside, but at that think of the work without pay that we have been doing keeping these weeds down and of the weed seed that has been distributed about, also think of the poor advertising this carelessness has given our farm.

Seven years ago last fall such a road was built along the farm that now belongs to the writer of this article. The next spring the then owner of the farm disced and dragged his side of the road into a very finely pulverized condition and sowed it to alfalfa, sowing with it a small amount of oats for a nurse crop. When the alfalfa had a good start the oats was mowed down. The owner cut one cutting of alfalfa later on in that season.

The writer purchased the farm and moved into it that winter and for the past five years has cut three cuttings of alfalfa a year along his side of the road while on the opposite side of the road there has been a continued fight against the weeds without any suitable reward for labor expended.

There is no other grass that makes as beautiful a roadside as the alfalfa when it is in blossom or about a week after it has been cut when the next crop is just getting started.

The writer feels that if he had not secured the three-fourths to a ton a year extra of hay above what he otherwise would have had, that the looks of the roadsides along his farm compared to a great many stretches of roadsides in his county would have been big pay for all the seed and time expended in making the roadside beautiful.—M. G.

British princes and princesses may not marry before the age of twenty-five without the King's consent; if over twenty-five, they may marry by giving notice twelve months beforehand to the Privy Council, unless Parliament decides against the proposed match.

Making Drains Permanent

There is no farm improvement to which the adage, "A chain is no stronger than its weakest link," is more applicable than to a system of tile-drainage. The links in this chain are four in number. They are in sequence:

1. Planning the system.
2. Selection of tile to be used.
3. Construction of the system.
4. Maintenance.

No drainage system will function long unless proper consideration is given to each. A failure in any system of drainage can always be traced to a weakness in one or more of these links. In planning a drainage system it not infrequently happens that soil and subsoil conditions are not carefully studied when the depth and frequency of drains are being determined. As a result tile may be laid so deep, as has been done in several cases of which the writer has personal knowledge, that water cannot get down to them because of an impervious layer of sub-soil, above them. The result is little or no drainage. More frequently, however, tile are not placed deep enough, with the result that little or no drainage is obtained over a considerable area between drains.

No tile-drain is stronger than its weakest tile. A farmer in the eastern part of Ontario was obliged, last spring, to replace two carloads of soft clay tile which had broken down completely within a period of a few years after being installed. Numerous instances could be given of concrete tile having deteriorated to such an extent that nothing but a gray, gravelly residue indicated where they had been. It is poor economy to consider cost before quality when purchasing tile. The cheapest tile may be the most expensive in the end, and likewise the costliest tile, the least expensive. No one would think of building a good barn on a foundation made of material whose strength is questionable, and yet many farmers don't hesitate to use tile that shows signs of being weak, in an equally expensive drainage system.

The efficiency of a drainage system is frequently impaired or entirely destroyed because proper precautions were not taken during its construction. Often the tile are not laid to a true grade. Carelessness in grading results in humps and dips in the drains and a consequent reduction in their water-carrying capacity. If these faults are pronounced enough the tile will eventually become filled with silt. Allowing the walls of the trenches to cave in before covering or priming the tile often raises them above the required grade, and may cause gaps of an inch or more between adjoining tile through which soil can enter readily. Faultily constructed and poorly protected outlets are among the other sources of trouble that might be mentioned. The only way to insure against improper construction is to have the work done by a reliable, experienced contractor who places quality of work above quantity. A tile-drainage system should be a permanent improvement. Economy demands that every reasonable precaution be taken in its construction.

Proper maintenance and care are essential to the continued operation of a drainage system. It is hard to conceive of any neglect that is more costly than that of failing to periodically inspect and clean out catch-basins, and to keep the outlet open and well protected against the entrance of rats, skunks, and woodchucks, who look upon them as homes built especially for their benefit. A case in which a skunk worked its way into a drain so far that it could neither go ahead nor back, was recently brought to our attention. This drain was completely clogged. Considerable labor and drainage to crops might have been avoided, had the outlet been given the proper attention.

Any farmer who contemplates installing a tile drainage system can insure its economy and efficiency by having the plan made by an experienced drainage engineer; by using none but tile of known strength and durability; by employing the most advanced methods of construction; and by giving it the attention it should have, after completion. Here, as elsewhere, "an ounce of prevention is worth a pound of cure."

THE OUTDOOR FLOWER-GARDEN

If a new piece of ground is to be opened, as soon as the frost is out locate a stake at each of the four corners and begin the removal of the sod. Be very careful to shake the sods out thoroughly over the plot. The roots hold a considerable quantity of rich earth, and to take this away from the plot is like taking the cream away from milk.

After removing the sod, loosen the soil to the depth of several inches with a garden fork. This does not mean that the soil is to be turned under. The fork should be inserted as far as it will go, and the handle depressed as one would do if the soil were to be lifted. This done, remove the fork and insert in a new place. Go over the whole plot this way. This will open up the soil to a depth of several inches, allowing both air and water to enter freely.

A top-dressing is next in order. This should be one or two inches in depth, and is preferably of cow manure, which may be used either "green" or well rotted. If cow manure is not available, horse manure may be used, but it must be well rotted. Sheep or hen manure may also be used, but these are highly nitrogenous and should be applied very sparingly. It is better to apply these in the fall. The top-dressing may be left on until the soil becomes warm enough for planting, when it should be turned under to the depth of two or three inches.

The ideal time to prepare a new plot is in the fall. The preparation is as outlined above, the coat of dressing being applied early enough so that one or two good rains may wash a portion of it into the soil before the ground finally closes up. The following spring the top-dressing may be used under the beds instead of being turned in, as the fall and spring rains will have washed a valuable part of it into the soil.

Garden plots already in use should be cleared of debris after the plants have been killed by fall frosts. The soil is then loosened and a top-dressing applied as for a new piece. If this work is delayed until spring, the old plant tops should be removed as soon as uncovered by the snow. The dressing should then be put on while the ground is still frozen. Spring rains will carry a portion of it into the soil as it thaws, though the amount will be less than when a fall application is made. As soon as the frost is out, spade the plot over and turn the top-dressing under two or three inches.

There is Safety in Diversity.

There is no get-rich-quick crop. A young farmer should consider this fact seriously. Any one-crop system is a speculation and few men gain by such risks always. It is the careful business man that avoids speculation, who succeeds at last.

The same principle is true in farming. The farmer who raises enough corn and hay for his stock; keeps cows for milk and butter; raises his own meat and work stock; grows potatoes and truck crops; helps his wife and children with the chickens, ducks and turkeys; keeps a few hives of bees and a small orchard; plants peas and pumpkins in a corn field, and raises turnips, cabbage and beans before he turns his attention to a money crop, may live and be able to buy school books, school shoes, clothing and Christmas toys, and pay his taxes.

Cattle and hogs pay better profits than grain crops. Fat cattle are always in demand at some cash value, and hogs multiply faster than other farm animals if you use serum to protect them against hog cholera. Cattle and hogs are not perishable like vegetation, and they are always salable, and you may keep them until you realize a fair price.

Stock on a farm furnish manure and save fertilizer bills. Plenty of animals and clover on a farm, with corn, grain, hay and vegetables to fatten them, and manure saved and used will fertilize the soil, grow better crops and increase the value of the land.