# Soils and Crops

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### The Times a Day to Milk.

How many times a day a cow should be milked is a vexed question and seemingly will ever remain so. Before the spirit of inquiry and investigation became as rampant as it is to-day a settlement was thought to have been reached at twice a day. Now it appears that some cows can be milked with success as to yield three and even four times daily. Nor does it appear that the question of quantity and quality can be definitely decided by rule or rote. By Record of Performance report No. 12 issued by the Live Stock Branch at Ottawa it would appear that of 61 mature Ayrshires 28 were milked three times daily, a certain number of days, eleven of them below 100, eleven below 200 and over 100, four over 200 and under 300 and two over 300. Of the four-year-old Ayrshires one that was in milk 365 days was milked three times daily, producing 12,608 lbs. of milk, 519 lbs. of fat, a percentage of 4.11 of fat. Another was milked three times a day for 321 days out of 332 in milk, producing 11,529 lbs. of milk, 434 lbs. of fat, a percentage of 3.76. One other was milked thrice daily for 252 days and three for a very limited number of days out of a total of 24. Of 31 three-year-olds only five were milked thrice daily and of these but two over 100 days. Of 63 two-year-olds and under three, three were milked daily for less than a hundred days, five over a hundred, and less than 200 and four over 200. One only exceeded 300 and she was milked three times a day for 346 days out of 365 in milk, yielding 10,560 lbs. of milk, 428 lbs. of fat, a percentage of 4.05. Of 71 mature Holsteins, eleven were milked three times daily, for under 100 days, 15 for 100 or over up to 200, ten for over 200 to 300, three for over 300 up to 365 and eight for every day they were in milk, which in the majority of the cases was for every day in the year. One was milked four times a day for 313 out of 325, another for 266 days out of 365, a third for 129 days out of 350, a fourth for 257 days out of 365, a fifth for 298 days three times and 67 four times out of the 365, a sixth four times daily for 145 out of 332, and two four times daily for every day in the year, one having 30,373 lbs. of milk and 1,024 of fat, a percentage of 5.37 and the other 33,145 lbs. of milk and 944 lbs. of fat, a percentage of 2.79. Of 29 four-year-old Holsteins one was milked four times a day for every day in the year, producing 19,935 lbs. of milk, 747 lbs. of fat, a percentage of 3.74, another four times 191 days and three times for 40 days, another four times for 114 days and three times for 233 days, a third four times for 51 days and three times for 204, and a fifth four times for 163 days out of 346. Fifteen were milked for a certain number of days three times. One three-year-old Holstein was milked four times daily for the whole year, producing 18,371 lbs. of milk, 658 lbs. of fat, a percentage of 3.57, another four times daily for 32 days and three times for 333 days, a third four times daily for 74 days and three times for 149 days out of a total of 223 in milk, a fourth four times for 26 days and three times for 106 days, a fifth four times a day for 40 days and three times daily for 108 days, a sixth four times a day for 330 days and thrice daily for 23 days out of 360 in milk. Nineteen others were milked three times a day for a number of days and two thrice daily for the whole year, one producing 16,215 lbs. of milk, 624 lbs. of fat, a percentage of 3.84, and the other 18,262 lbs. of milk, 588 lbs. of fat, a percentage of 3.22. One two-year-old was milked four times a day every day in the year, producing 21,795 lbs. of milk, 842 lbs. of fat, a percentage of 3.86, another was milked four times daily for 103 days and three times for 252 days out of a total of 255 days, a third was milked four times for 72 days and three times for 274 days out of 346, a fourth and a fifth were each milked four times daily every day, making three two-year-olds so handled. One of the latter produced 12,168 lbs. of milk, 539 lbs. of fat, an average of 4.43, and the other 11,266 lbs. of milk, 448 lbs. of fat, a percentage of 3.98. One two-year-old that was milked three times daily for every day in the year produced 15,707 lbs. of milk and 535 lbs. of fat, a percentage of 3.04. Thirty-seven others of the 70 two-year-old Holsteins entered were milked three times daily for various periods up to 350 days. Thus, it would appear that the number of daily milkings must depend mainly upon custom, type, condition and judgment.

### Green Manure for Orchards.

The two principal functions of green manuring are the use of cover crops in the orchard and as a blanket for the land during winter. The plants best suited for this purpose are unquestioningly the legume crops.

For fruit trees of all kinds the most important fertilizing element is nitrogen. Through their nodule forming bacteria the leguminous plants draw into the ground and make quickly available for the trees, large quantities of the free nitrogen of the air.

And not only do the legumes increase the amount of nitrogen in the soil; they are as good humus formers as can be planted. It should also be noted that practically all legumes are deep-rooted plants and hence bring up mineral food from the sub-soil. While the soy-bean, the field bean, the field pea, the crimson clover, and the lupines, all give good results in the orchard, the best of all legumes for this purpose is the red clover.

The value of green manure has long been recognized by Canadian fruit-growers. Nevertheless, there is quite generally throughout Canada a dearth of cover crops. Fortunately there is at hand an immediate and economical remedy for this situation.

Within recent years there have been countless experiments by various experiment stations and practical fruit growers as to the best method of increasing the growth of legumes. Almost without exception these experiments have demonstrated that the best legume food known to man is agricultural gypsum. Indeed, its systematic use has time and again increased leguminous growth as much as five hundred per cent. and even more.

Soils in which legumes are grown are nearly always deficient in sulphur. Legumes, of course, must have sulphur, tremendous quantities of it. Unless they get it in easily available form they simply starve to death.

Agricultural gypsum, which is an untreated, ground, natural rock fertilizer, furnishes sulphur in an immediately available and neutral form—in exactly the form that sulphur is supplied to nature.

### Seed Certification of Potatoes.

The measure of success attainable in the growing of seed potatoes depends not only upon the practice of best cultural methods, although this is a most important consideration, but also upon the amount of attention paid to the several diseases to which potatoes, both plants and tubers, are subject.

To assist in this later phase of the work, a number of inspectors specially trained in the identification of potato diseases and in the application of control measures recommended, are again visiting the fields of all growers who have made application for such assistance this season. The accomplishment of several purposes is the object of this assistance being rendered, chief among which may be mentioned: (1) the grower is definitely advised by the inspector with regard to the condition of his crop and of the nature of any disease found to be present; (2) the grower is assisted in the eradication of all diseased, weak or otherwise undesirable plants from his fields, if he so desires; (3) growers of crops which, after critical examinations have been made of the plants during the growing season and of the tubers after harvest, are found to measure up to the standards set for No. 1 seed potatoes are put in touch with prospective purchasers; (4) direct information is obtained with regard to conditions prevailing in the potato fields throughout the country year by year; (5) records, which are available for the information of any one interested, are maintained of the history and behavior of all seed inspected.

In furtherance of this work, and in the event of the grower, whose crops have been found up to the standard, desiring to sell his stock or certified seed, a final examination is made by an inspector at the point of shipping, upon application by the grower. Provided the stock has been graded so that a shipment of potatoes for seed purposes contains no tubers under two ounces or above twelve ounces in weight, a sufficient number of tags to cover the number of bags or other containers necessary for the shipping of the amount of potatoes inspected is issued by the inspector and placed by him upon the shipment. These tags certify that the contents of the bags or other containers to which they are attached have been grown by the person whose name appears on the tags; that they have been inspected by an officer of the Department of Agriculture and found to be sufficiently vigorous and free from serious diseases, other pests and foreign varieties, to warrant them being classed as No. 1 (or No. 2) grade seed potatoes.

An enhanced price to the grower over that paid for ordinary stock, satisfaction to the purchaser, the general distribution of a high grade of seed potatoes throughout many parts of the country, and the acquirement of a considerable seed trade with the United States, have been the results noted during the several years the work described has been in progress.

By any one desirous of growing seed potatoes with a view to certification, the following points should be particularly borne in mind: (1) plant only clean seed (particularly certified seed); (2) do not mix the varieties; (3) practice seed treatment; (4) keep the Colorado beetle and other insects under control; (5) use Bordeaux mixture. Strict attention to these points will provide reasonable assurance that the resulting crops will figure well in the inspection and certification records, and, other conditions being equal, the grower who enters such crops in any of the field crop competitions will secure a high percentage of points at the hands of the judges.

All growers who have not yet availed themselves of the service of an inspector, which are furnished free of charge, are invited to communicate with the Dominion Botanist.

## Horse Sense

The following rules are worthy of careful study by every person who owns or works horses. A good plan is to tack the rules up in the stable where they can be referred to frequently.

1. Load lightly, and drive slowly.
2. Stop in the shade if possible.
3. A sponge on top of the head, or even a cloth, is good if kept wet. If dry it is worse than nothing.
4. Water your horse as often as possible. So long as a horse is working, water in small quantities will not hurt him. But let him drink only a few swallows if he is going to stand still.
5. When he comes in after work, sponge off the harness marks and sweat, his eyes, his nose and mouth, and the dock. Wash his feet but not his legs.
6. If the thermomenter is seventy-five degrees or higher, wipe him all over with a damp sponge, using vinegar water if possible. Do not wash the horse at night.
7. Saturday night, give a bran mash, lukewarm; and add a tablespoonful of saltpetre.
8. Watch your horse. If he stops sweating suddenly, or if he breathes short and quick, or if his ears droop, or if he stands with his legs braced sideways, he is in danger of a heat or sun stroke and needs attention at once.
9. If the horse is overcome by heat, get him into the shade, remove harness and bridle, wash out his mouth, sponge him all over, shower his legs, and give him two ounces of aromatic spirits of ammonia, or two ounces of sweet spirits of nitre, in a pint of water; or give him a pint of coffee warm. Cool his head at once, using cold water, or, if necessary, chopped ice, wrapped in a cloth.
10. If the horse is off his feed, try him with two quarts of oats mixed with bran, and a little water; and add a little salt or sugar. Or give him oatmeal gruel or barley water to drink.
11. Clean your horse at night, so that he can rest well, and clean him thoroughly. The salt dandruff drying on his skin makes him uncomfortable, and often produces sores under the harness.
12. Do not fail to water him at night after he has eaten his hay. If you don't he will be thirsty all night.
13. If it is so hot that the horse sweats in the stable at night, tie him outside, with bedding under him. Unless he cools off during the night, he cannot well stand the next day's heat.

If sheep raisers only realized the benefits and satisfaction from dipping their sheep, no compulsory law would be required to make them enthusiastic and persistent in the practice of dipping.

Good pasture cannot be expected after two or three years of hay, for by that time the clovers are all killed out and even the hardy grasses are becoming thin, hence a light growth of grass is all that can be looked for.

### Experimental and Research Work in Grain and Field Crops.

Experimental and research work, promoted by, and under the guidance of, the Dominion Department of Agriculture, has made great strides in Canada during recent years. It is estimated, for instance, that the discovery of Marquis wheat by the Cereal Division of the Experimental Farms branch has enriched the wheat growers of the three Prairie Provinces by $20,000,000 annually, and that the introduction of Preston, Stanley and Huron wheats into the other provinces has brought about a gain of at least half a million dollars yearly. But wheat is not the only grain that has profited immensely through the work carried on at the Experimental Farms. By the introduction of Daubeney, Victory, and in particular Banner oats, a gain has been made of over $9,000,000 annually, while other new grains, such as barley, flax and peas, have proven responsible for an increase in value of $3,000,000 annually. All of these must and will develop in still greater profit to the country. Experiments in plant breeding work with garden and field crops have led to the discovery of many new varieties, such as the Melba apple, Early Malcolm corn, Alacrity tomato, etc. Hardy varieties of tree fruits have been proven of good growth in the Prairie Provinces, while some valuable discoveries have been made in forage crops, notably a perennial red clover. Immensely valuable research work has been done by the Division of Chemistry, and by the Division of Botany, and by the Health of Animals, Entomological and Seed Branches. Canada has been shown to be the healthiest of all countries in live stock, a fact which must be attributed in large measure to the excellent system of supervision and control adopted and followed by the Health of Animals Branch. By its precautionary measures and other activities it is conservatively calculated the Division of Botany has saved the country $32,000,000 annually, largely by its crusade against smut and its control of late blight and rot of potatoes and other diseases to which plant life is subject. Research work in its laboratories by the Seed Branch has resulted in approximately 100,000 tons of screenings being made of maximum value to the live stock feeder and this is but one of the profitable results that have been achieved. Turning to the Entomological branch, when it is stated that to field crops alone a justifiable estimate is that the depredations of insects cause a loss each year of $125,000,000, some idea of the colossal work involved can be formed. In field husbandry, by the greater use of crop rotations and the ascertaining of the most profitable rotations for each district, it is estimated that Ontario is benefitted annually to the extent of $32,000,000, while by summer fallowing, a system urgently encouraged by the Experimental Farms branch, the Prairie Provinces are thought to gain $90,000,000 annually. These few facts will illustrate the advance that is being made in the development of Canadian agriculture.

Experiments by the French Army Veterinary Service show that dried seaweed makes an excellent substitute for oats in a horse's menu.

# The Children's Hour

The world has little use for the boy or girl who does not, in his heart of hearts, want to win out in the things that count for most. A shoe string is a pretty poor sort of thing to depend upon, but it is a steel cable compared to a young man or woman who has no big dream of success in some line or other.

Ask a hundred men of the present day what, in their opinion, is the greatest need of the times, and ninety-nine of them will tell you, "We need men—good men, and women, women that can and will do everything they undertake, right." The one-hundredth man no doubt would say, "We need men with lots of money. Men of means can do everything." With these men, "money makes the mare go." But while the mare is going, the money is usually going, too, and pretty fast; for the man who depends solely on his money to win him success will not win any success that is worth winning.

What, then, is success that is success? Shall we leave the money entirely out of the question? Is it not a help in life? It surely is. The man who would say otherwise would not be speaking the truth. We need money. Primarily, our efforts in this world are directed toward the acquirement of money or something that can be turned into money. As the social world goes, money is a power. But it is not the highest good in life. Back of the money must be the determination to use what we get wisely and for the best good of ourselves, of those who are dear to us and of mankind.

Now, it is success to become a good farmer. A boy told me the other day that many thought he was a fool for quitting school and going to work on a farm. "But," he added, "I am learning every day. I will get to be as good an all-round farmer right here on the farm, so that I know as much about how to do farm work as I would if I went to school. I can't go to an agricultural school now, but I can learn as I earn."

That was a fine declaration of principles and it will, if put into practice, bring success as a farmer.

It is success to be an interested, up-to-date member of a good cattle club, or a sheep club or a poultry club or any kind of a club that is working for the betterment of any of the farm creatures. A boy or girl may put the very best there is in him or her into his work in any of these lines. All that is done to develop the finer qualities of the cows or the hogs or the sheep has a tremendous value in working out for the young person thus engaged a character worth more than all the money that could be stacked up under the blue dome of heaven. Character counts, for character teaches the right use of the material things we gain.

So this is the chief thought. Remember it, if everything else is forgotten. Success is manhood and womanhood—genuine manhood, genuine womanhood. All the rest we get out of the farm, or anywhere else, is contributory to success or detrimental to it according as we put it into service in the building of real manhood.

Now, there are a few stepping stones to success such as we have been talking about. In the first place, the right kind of thinking. You never can think low and reach up high.

And then, good books and papers have their influence—and it is a mighty influence, too—in working out true success. The book or the paper that makes one think things and do them is a big boost up the hill of conquest. Show me the books and the papers a boy or a girl reads and I will forecast his future for him.

Best of all, keep your heart true and honest toward Father and Mother. Love them. Think with them in all right ways. Be to them a support and a tower of strength. They are worthy of it and you cannot afford to leave any spot or place unguarded in your love for them and the old home. Love home, love those in it, love the community, love the nation. Defend them all with might and main! Do this and you are bound to succeed!

# THE SUNDAY SCHOOL

## JULY 24.

### Saul Proclaims Jesus as the Christ, Acts 9: 19-30. Golden Text—St. Matt. 16: 16.

**Connecting Links**—There is no doubt that Paul's early training in a pious Jewish home; his university education and training in the school of Gamaliel, his knowledge of the Old Testament Scriptures, and of the Greek and Hebrew languages—all combined to qualify him in a unique way for his great task. He was now called to be a preacher of the gospel. He could find the foreshadowings of that gospel and the preparation for Christ's coming in the Jewish writings which he knew so well. He could speak to people of all classes and nationalities in the universally spoken Greek language, or to the Jews in the synagogues in their own Aramaic, or in the Hebrew of their sacred books. He knew the point of view and the methods of the Rabbinical schools, and could meet and reason with the Jewish doctors on their own ground. Much learning had not made him mad, but had given him an advantage and a power such as few men have possessed. But above all else, in Paul's preparation and equipment was his vision of the risen Christ, and his consciousness of the constant presence, working in him and through him, of the Spirit of God, which was to him identical with the spirit and the mind of Christ.

From the day of his meeting with Christ on the road to Damascus Paul believed himself called to preach the gospel. Ananias, who came to him at Damascus, had said to him, "The God of our fathers hath chosen thee that thou shouldest know his will, and see that just One, and shouldest hear the voice of his mouth. For thou shalt be his witness unto all men of what thou hast seen and heard" (Acts 22: 14, 15). Paul declared also that, in the vision, Christ had said to him, "I have appeared unto thee for this purpose, to make thee a minister and a witness both of these things which thou hast seen, and of those things in the which I will appear unto thee." (Acts 26: 16). This, therefore, became the supreme business of his life, and his one consuming passion, to preach Jesus whom he had persecuted.

19-20. **He preached Christ**, declaring in the synagogues to the assembled congregations that Jesus was the Christ, that is that He was the long-expected Saviour and King, whose coming had been proclaimed by prophets for seven hundred or more years. He gave Him the title Son of God, recognizing Him thus as divinely sent and authorized to win His Kingdom and to work out the redemption of His people.

21-22. **All that heard him were amazed.** They knew his fame as persecutor, knew why he had come to Damascus, and were amazed that this dreaded and powerful enemy, who had letters in his pocket authorizing him to arrest and imprison them, had become their friend and advocate. Paul went on preaching, gaining strength, and making converts, until the Jews of Damascus were aroused against him.

23-25. **The Jews took counsel** to kill him as they had killed his Master. That, they supposed, was the most effective way to silence him. But they did not yet see that a crucified Christ and a martyred Paul might still be stronger than all their enemies. The incident of his escape in a basket lowered from the city wall is mentioned again by Paul in 2 Corinthians 11: 32-33.

In telling of these days in another epistle (Gal. 1: 13-18), Paul says that he went away into Arabia. Whether it was before his preaching in the synagogues, or after, that he went, we do not know. At least it was three years after his leaving Jerusalem that he returned to that city.

26-29. When Saul was come to **Jerusalem.** The years in Damascus and Arabia had been years of preparation. In the quiet of some Arabian town, or possibly in some monastery of the Jewish sect of the Essenes, to which he would have received a cordial and kindly welcome, he studied his problem and sought to solve it in the light of Holy Scripture. Now he is ready to begin the chief business of his life, and he desires to begin it in Jerusalem.

**The disciples**, that is, the Christian people of Jerusalem, were afraid of him. They had reason to be. They doubted his sincerity. But Barnabas, a good man, liberal and kindly of spirit, took him and vouched for him, introducing him to the apostles, and telling of his conversion and his preaching in Damascus. See what is said of Barnabas in 4: 36, 37, and 11: 22-24.

Paul claims, however, in answer to some of those Jewish Christians who found much fault with him in later years, that he received no authority from the apostles in Jerusalem and did not ask for any. His commission and authority he held himself to have received from Jesus Christ, when He met Him on the way (see Gal. 1: 1, 15-19). He, therefore, felt that he had the same right to speak and teach as James and Peter and the other apostles, being not one whit behind the chiefest of them, and he declares that this right was freely accorded him by the leaders of the Church in Jerusalem. (Gal. 2: 1-9).

30. **To Tarsus.** It is very much to Paul's credit that he desired to stay in Jerusalem and to face whatever hostility or danger to his life there might be. He wished to preach Christ where he had persecuted His followers. He was willing himself to suffer where he had made others suffer, and so in some measure to atone for the wrong which he had done. He tells (22: 17-21) of a trance, or dream-vision, which came to him in the temple in Jerusalem, while he was praying, in which the Lord appeared to him and commanded him to leave Jerusalem. He pleaded that he might be permitted to stay, saying, "Lord, they know that I imprisoned and beat in every synagogue them that believed on Thee. And when the blood of Thy martyr Stephen was shed, I also was standing by and consenting unto his death, and kept the raiment of them that slew him." But the command was peremptory, "Depart, for I will send thee far hence to the Gentiles."

Added to the effect of this vision was the persuasion of Paul's friends. They brought him down to Caesarea (the seaport) and sent him forth to Tarsus.

Back in his own home city and province, and in the neighboring province of Syria, Paul continued his work (Gal. 1: 21-24) until some years later, when Barnabas sought him to be his helper and co-worker in the church at Antioch (Acts 11: 25).

### Application.

As soon as Paul saw the hollowness of Pharisaism he became an active Christian. There is what someone has called "The peril of the empty heart." If our fields are not sown with good seed, then very speedily nature sends along the nettles and weeds. A house left standing without occupants will rot and mould and fall to pieces much faster than if it were occupied. And in the spiritual life the danger is not less. It is not enough that a man should cease to drink and smoke and swear. Such a man may well rejoice that he is delivered from such things, but unless he is actively employed in Christian service the evil spirits will soon return from the wilderness.

### Selling the Homestead For a Mess of Paint.

Journeying across our beautiful Canadian countryside, have you seen, as I have seen, huge signboards painted with an advertisement, its crude coloring blotting out the lovely tints of nature? Or a barn with the command to buy "Somebody's pink pills"?

I can remember when it began, this desecration of the country, and we were told to take (but never did) various bitters and pills and to use certain corn cures and ointments.

We never bought, nor did our people buy, any of these infallible remedies. In fact, I never heard of any one who did buy. We thought them only cheap ways of painting the barns and the fences; we did not think of them as advertisemnts at all. But now, barn after barn, stable after stable, fence after fence, are found with these unsightly signs plastered on them.

What do the road users think? What do intelligent people think who cross the continent in the trains or by road? They know these painted barns and fences mark the standard of life of the people they belong to. They know that the man who permits his farm buildings to be used as a sign, his fence as a slogan, will sell (has sold) all this is beautiful and artistic he has about his place for a coat of paint. How utterly artless the country has become! Else we would take more pride in our homes, the appearance of our farms, the roads leading to them and our countryside.

I see but one way, besides appealing to their pride, to reach the farmers who sell their homesteads for a mess of paint. If they have no pride, no love for their homes, they are hopeless. They have been thoughtless in the matter and I hope with this to make them sit up and think!

If a man has not the pride to keep himself and his home decent, he must be made to do so. He must not be allowed to insult the country and the decent people in it. He must be taught there is a better way, a more beautiful way to live, even if we have to pass laws preventing his defiling his own and disgusting every one else. He even lowers the financial value of his farm.

His answer is "I can do what I like with my own." No, he can't! He can not drive his horse or his car on the wrong side of the raod. He can not dam up a creek running through his property and deprive his neighbor of water. And there are hundreds of other important things he can not do with his own property.

He must be taught, or compelled to learn, that he can not defile and deface his buildings and his land to make millions for bill-stickers and save a pittance for himself in paint. It is as great a crime to steal beauty as it is to steal cash. He must be taught he has a stake in the upkeep of the country. He must, first by education and then by justice, be made to see that he is degrading the country and desecrating it by ruining his part of it, the part he controls, and that it is as important to preserve the beauty of the country as its dignity and usefulness.

None is poor but the mean in mind, the timorous, the weak, the unbelieving. None is wealthy but the affluent in soul, who is satisfied and floweth over.—Tupper.

Give us, O give us, the man who sings at his work! He will do more in the same time, he will do it better, he will persevere longer. Wondrous is the strength of cheerfulness, altogether past calculation its powers of endurance. Efforts, to be permanently useful, must be uniformly joyous, a spirit all sunshine, graceful from very gladness, beautiful because bright.