Soils and Crops

Address communications to Agronomist, 73 Adelaide St. West, Toronto

Green Feed for Every Farm.

Perhaps no other plot on the farm will give such large returns for the amount of time and labor expended as as small area of feed grown for soiling purposes. Green feed is relished during the summer months by cattle, hogs, and poultry (if they are in inclosed yards), but without doubt proves the most profitable when fed to milch cows. Soiling crops are found to assist very materially in maintaining the milk flow during the hot summer months when pastures are short and dry.

Corn; oats, peas and vetches; oats; rape; and sunflowers in the order named, are all valuable for this work.

Corn is one of the best crops for this purpose, and gives a large yield of succulent feed, much relished by both cattle and hogs. Planted before June 10th, it should be ready for cutting about August 10-15, and has reached a height of from 5 to 8 feet, with an average yield of 18 tons per acre. "Longfellow" has been used with some degree of success over a period of years. Unless pastures are extremely bare, one-half acre with fair crop should be sufficient for ten or twelve cows.

Oats, peas and vetches mixed, oats five parts, peas four parts, vetches one part by weight, and sown at the rate of three to three and one-half bushels per acre, will give large amounts of excellent feed. This should be cut and fed while the oats are in the milk or soft dough stage. This will necessitate two or three seedings, if soiling crop is to be fed over any great length of time. Two seedings, or at the most three, ten days apart, should be sufficient, and one acre should supply plenty of feed for fifteen cows.

Oats sown thickly also provide good succulent feed, and should almost equal oats, peas and vetches in yield per acre.

Rape is generally used as a pasture crop. It is particularly desirable for hogs, and when used for such must be seeded in several plots with about ten days intervening between each seeding. If allowed to make good growth before stock is turned in on it, and then pastured, say, for an hour per day, plants will throw up new shoots, and continue to grow even after being partly eaten. Rape may be sown at the rate of three to six pounds per acre, in drills, or on the flat. It has been grown with fair success when seeded broadcast, but this plan is not recommended, as it is generally found necessary to hoe this crop in order to allow it to make its best growth. With successive seedings and careful handling, an acre should supply sufficient feed for at least fifteen cattle.

The Experimental Station at Charlottetown, Prince Edward Island, reports that sunflowers were used as a soiling crop during the latter part of the season of 1921, and were eaten with apparent relish by beef steers. They were refused by hogs, and eaten but sparingly by dairy cows. These sunflowers (Mammoth Russian) were sown on the flat in rows thirty inches apart, and gave a yield of about twenty tons per acre.

A seeding of oats, or oats, peas and vetches, for early cuttings, with corn for use as a soiling crop during the later season is to be recommended. A small area of rape used as pasture during late autumn will be found very valuable.

Leaf Curl and Mosaic of the Cultivated Red Raspberry.

These two separate and distinct infectious diseases of the red raspberry have been studied the past two years at the Dominion Laboratory of Plant Pathology, St. Catharines, Ontario. Previously these diseases have been considered as a single disease known as yellows. Although yellows has been recognized as the most serious disease of red raspberries, and occurs throughout the small fruit areas of North America, no serious study has been given to it previously. There was no clue to the cause and nature of the disease and no control measures were known. The separation of yellows into two distinct diseases was accomplished by a careful study of the symptoms and the development of marked diseased plants.

The two diseases may be recognized by the following symptoms: In leaf curl, the leaves are very dark green and the midrib and the main lateral veins arch downwards, causing a curling of the margin of the leaf. The tissue between the veins arches upward and results in a puckering along the veins. The laterals on the fruiting canes are short and stand upright. The fruit is small and seedy. In mosaic, the leaflets on the new sucker growth in the spring show large bright green blisters, with yellowish green tissue between. In summer and autumn the new leaves are finely speckled with yellow dots. Fruiting canes from diseased roots are dwarfed and the leaves reach only about half size. The fruit is of very poor quality. It lacks the flavor and is very often dry and seedy. The variety Cuthbert suffers severely from both leaf curl and mosaic. The variety Herbert seems to escape with only slight damage from both diseases, while the Marlboro is extremely susceptible to the mosaic.

A survey of the fruit growing district on the shore of Lake Ontario from the Niagara River to Toronto, showed in 1921 that leaf curl was present on the average to the extent of about five per cent. of the stand. Mosaic is more prevalent and destructive, and on the average twenty per cent. of the stand is diseased. The serious feature about this condition is that once a bush is affected by either of these disases, all the growth coming from the roots, year after year, is diseased. Such roots are a direct loss to the grower because the fruit is largely worthless or of very poor quality. Also they serve as sources of infection for the nearby healthy bushes, and the amount of each disease becomes greater year after year.

Both diseases are transmitted to healthy bushes by the very small plant louse, Aphis rubiphila. They suck their food from the veins of the leaves and when they move from a diseased plant to feed on a healthy one they incidentally inoculate it by injecting the contagious principle. The cause of these diseases has not been determined but is probably in both cases a filterable virus or ultra microscopic organism.

A systematic and thorough eradication of all bushes and roots affected by leaf curl as early in the season as they can be recognized will control the disease. This early eradication removes from the plantation the sources of infection, the diseased canes, with the plant lice which have over-wintered on them before they have begun to move away to healthy plants. Mosaic probably will be controlled by a similar eradication of the diseased bushes in July and August, thus removing the centres of infection on which aphid eggs will over-winter and from which they would spread the contagion in the spring. In both cases the bushes must be immediately removed, roots and all, to a distance from the plantation, to prevent the aphids leaving them and crawling to healthy bushes.

Poultry

It is absolutely essential that poultry have meat of some kind. I prefer meat scrap or rabbit, but last year I had a new experience. Last winter I had a cow so badly injured by an automobile that I killed her. I cut up some of the meat into small pieces and spread it out on planks to dry.

A neighbor came along and said that if I would trim all the loose pieces of meat and hang the hind quarters up it would not spoil. I did so, and to my surprise it kept in good condition. A thick glaze formed over it that kept it fresh and sweet. I would go out and cut off a piece the size I wanted, sprinkle a little lime on the freshly cut place and it kept until I used it all, which was about two months.

I chipped the meat into small pieces and mixed it with corn and oats and threw it out in a deep litter of oak leaves. I allowed about an ounce for each fowl in the flock.

The Pekin ducks are a fine breed for market and the most common breed for that purpose. The young drakes will weigh about eight pounds and the adult drakes nine pounds. The young ducks will weigh seven pounds and the adult ducks eight pounds.

It is not necessary to be near a body of water to raise ducks successfully, although some find that it saves work and feed in raising ducks if they are near water. This saves the pumping and carrying of water and the ducks obtain some feed from the animal and vegetable life in and about the water.

A good ration for breeding ducks consists of equal parts of bran, corn meal and green food to which is added about five per cent. grit or coarse sand and five per cent. beef scrap. This can be given three times a day as a moist crumbly mash.

The drinking dishes for ducks should be deep enough so they can dip their bills down deep and also wash their heads and eyes in the water.

Fifty Years Too Soon.

The scythe is rusting in the tree,
The cradle in the shed;
O would I were a boy again!—
O Youth, where hast thou fled?

The hoary maple still uprears
Its crown of glory there,
Where oft I felt like crying out,
"O farmer, grindstone spare!"

O kinks that gathered in my back,
O aches that came apace,
When scythe and cradle pressed upon
That creaking grindstone's face!

But now what music greets my ears?
The reaper's pleasant sound,
And mower's song—its cheery song,
Pours melody around.

The boy now rides where once I walked,
Nor weary ere the noon—
I wonder if I were not born
Some fifty years too soon?

Thinkers, not tinkers, get the most from their machinery.

Reading makes better farmers—hence the need for more and larger rural libraries.

THE CHILDREN'S HOUR

An Event From Canadian History.

The fairies danced out of the mountain valley. They were coming from their carnival which had been held at sunset, for in the mountains then, there were no mortals, so the fairies could be out at any time. As each dainty being passed through the gate to Elfland she waved her wand, casting a spell on the outside world, and so, disappeared.

In this place they had surely spent their charm. The wild cataract leapt on its endless way, dashing here over the rocks, dashing there under an over-hanging boulder, and now rushing on as if being pursued by some evil spirit. The bewitched waters played with the shadows cast by the tall trees. The enchanted pines rose slenderly to meet the blue, cloudless sky. They nodded and bowed to each other. Sometimes a tall evergreen would lean over and whisper a secret to another. Then all would lull and croon as a young mother lullabies her first-born to sleep. The soft summer breeze played in and out between the trees. Far off one could see the majestic, snow-capped Rockies, now all flushed with the red and golden sunset. To this enchanted place came that giant red race, as the aborigines of North America who, rather than accept civilization, journeyed to the West. Now beside those sweet-smelling forest streams, instead of the fairies, Indian lovers would come. In between the whispering pines the Indian girls would wander. The savage, blood-thirsty chiefs, instead of looking for a white man to scalp, would climb the great mountains where even one false step would dash him into eternity.

Here Minehaha lived with her father Pocono, one of the young chiefs of the Metes, and her mother. One day while Minehaha was bringing wood into the wigwam her attention was drawn toward men whom she knew were not Indians. Pocono went over to them and much was his concern when he found that they had been sent by the Government to survey the land. Then more white men came. These white men killed the buffalo, which roamed the plains and which were one of the most important of the Indians' means of a living. Deputations were sent far off to Ottawa, but the Indian representatives had no influence. Then they began quietly to prepare for a struggle for their lands. The so-called rebellion began in 1885 under the chiefs Big Bear and Poundmaker. Louis Riel returned from that land, the United States, which was so mysterious to these Indians of the North country. He led his braves valiantly and well. Of the engagements, we only need speak of the one in which Pocono was killed, that at Frog Lake, where there was a terrible massacre. No more did Minehaha make portages to the Rockies with her father, but she still has vivid memories of one of the noblest Indians who fought in the Rebellion.—Margaret Luke.

THE SUNDAY SCHOOL

APRIL 2.

Asa Relies on God, 2 Chron. 14: 1-12. Golden Text — 2 Chron. 14: 11 (Rev. Ver.)

Time—B.C. 914-874.

Place—The Kingdom of Judah.

Lesson Foreword—Asa, the hero of to-day's lesson, was the grandson of Rehoboam, and therefore the third king of Judah. Both King and Chronicles credit him with being a reforming ruler, who tried to cleanse the religion of his day of the heathen elements which were creeping into it. (See 1 Kings 15: 9-15.)

I. Asa's Religious Policy, 1-5.

V. 1. **Abijah;** was the son of Rehoboam and the father of Asa. The book of Kings accused him of walking in the sins of his father (1 Kings 15: 3), but the book of Chronicles took a more charitable view of his reign, 2 Chron. ch. 13. **Slept with his fathers.** The meaning may be denoted that he was buried in the same tomb as his fathers.

V. 2. The Chronicler passes judgment on the reign of each king. According to his standard of judgment if a king conformed to the temple religion he was a good king. In his mind the ideal community was one that was dominated by the temple.

V. 3. **Altars of Strange Gods;** dedicated to the worship of foreign gods. Solomon, owing to the influence of his foreign wives, had been lax in allowing the introduction of foreign gods (see 1 Kings 11: 1-8). **High places.** The Israelites had appropriated from the Canaanites the custom of building sanctuaries on the hilltops; at first this was considered quite legal, but later the conscience of Israel was awakened against it. Jerusalem was the only legitimate place for worshipping God (see Deut. 12: 2-8). **Images;** another religious object which was borrowed from the Canaanites. They were stone pillars set up to denote a sacred place and formed part of the usual equipment of a high place. Their use was forbidden, Deut. 16: 22. **Groves;** were the trees or poles which, like the stone pillars, were used to mark off a high place. As these were also Canaanite objects they were forbidden, Deut. 16: 21.

V. 4. After ridding the land of its idolatry Asa exhorted the people to unswerving allegiance to Jehovah. **Seek the Lord;** a common phrase in the Old Testament. Its meaning seems to be "to consult God as to His will," or "to strive earnestly to lead a religious life."

V. 5. **The kingdom was quiet.** These ten years of peace (v. 1) enabled Asa to carry out his reforms and to strengthen his defences.

II. Asa's Defensive Policy, 6-8.

V. 6. Asa was compelled to fortify his cities because of the prolonged hostilities between the kingdoms of Israel and Judah. Baasha, king of Israel, had fortified his frontier, 1 Kings 15: 16-22.

V. 7. In this verse a short description of a fortified city is given. It had walls of hewn stones, surmounted with watch-towers for observing the enemy, gates leading through the walls, and bars to fasten the gates on the inside.

V. 8. Besides building fortified cities, Asa increased his standing army. This was raised from the two tribes,—**Judah and Benjamin.** The tribe of Benjamin lay between the kingdom of Israel and the kingdom of Judah, and while it seems to have thrown in its lot with the kingdom of Israel at the disruption (I Kings 12: 20), later it gravitated towards the kingdom of Judah. **Targets;** a large shield which was carried for defence by the heavy-armed infantry. **Spears;** were favorite weapons of defence amongst ancient nations; they consisted as a rule of a wooden staff with a sharp head of flint or metal. **Shield;** a smaller shield than the target and the chief defensive weapon of the light-armed infantry. **Bows;** were made of reed wood or horn and fitted with a string composed of gut or hide. They were the offensive weapons of the light-armed infantry.

III. Asa at War, 9-12.

V. 9. **The Ethiopian.** Ethiopia was a province to the south of Egypt and its natives were known as the "dusky-faced ones" because of their dark color. **A thousand thousand.** Roughly, the Ethiopian infantry was estimated at about a million. **Three hundred chariots.** Egypt is generally regarded as the original home of the chariot. Hence an Egyptian army would be well equipped with chariots.

V. 10. The Ethiopian army came up the sea coast through the Philistine plain and sought to penetrate Judah by coming up one of the valleys in the hill country between the Philistine plain and Judah. At the head of the valley of Zephathah stood the little village of Mareshah and there the battle was fought.

V. 11. It is noteworthy that Asa did not place his reliance upon his large army but upon God. His prayer for help shows his absolute confidence in God.

V. 12. **The Lord smote the Ethiopians.** Credit for the victory is given not to Asa and his army, but to God alone. Probably a panic seized the Ethiopians, and made the victory over them easy.

Application.

1. **Idolatry,** vs. 3-5. Asa's first public service was an attempt to purify worship from idolatry. He took away the altars of the strange gods, cut down the groves and broke down the images. The tendency to idolatry is strong in human nature and frequently recurs. Christ emphasized the necessity of spiritual worship.

2. **Peace and Prosperity,** vs. 6, 7. In the ten years at the beginning of Asa's reign when the land had rest from war there was opportunity to repair the devastation of past conflict and to inaugurate constructive policies. In the Washington conference upon the limitation of armaments much emphasis has been laid upon the possibility of using materials to better advantage in constructing houses, hospitals, schools and machinery instead of battleships and guns. The wealth consumed in the destructiveness of war, if used constructively, would banish poverty and insure prosperity.

3. **Preparedness,** vs. 8, 9. As protection against surrounding tribes Asa kept a large standing army, well trained men of valor. He worked for peace but he knew the necessity of being prepared for war. Preparedness is usually associated with military defence but the wisdom of preparation is seen in every department of life. The athlete must be trained for the contest. The teacher must be prepared through study. Dean Brown of Yale University decribes the preparation of Christ for his public ministry. "He had used thirty of those thirty-three years in quiet preparations for the great tasks which were to come. No wonder the three years of which we know so much were mighty when we think of the thirty years of preparation standing behind them. Ten years of training and discipline for one of public action! Ten days of study and devotion for one day of healing redemptive effort! Ten hours of silence and prayer before God for one hour of speech in the ears of men."

4. **Power from Prayer.** Asa had position, prosperity and preparation but with all this he turned to God in prayer for power. A great scholar wrote these intimate words on prayer: "When things are too much for me, and I am down on my luck, and everything is dark, I go alone by myself, and I bury my head in my hands. I think hard that God must know it all, and will see how matters really are, and understand me; and in just that way alone, by understanding me, will help me. And so I try to get myself together, and that for me is prayer."

Smoke
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The Age of Cattle.

Buying cows for production and breeding purposes is an important item in the annual business of the average farmer. Age is a factor which enters into the determination of animals being bargained for. But it is harder to tell the age of a cow than it is of a horse. The cow's horns and teeth furnish means of age determination. On the horns, count the "annual rings" and add two. In the mouth, one pair of permanent teeth, upper and lower, indicates eighteen months of age; two pairs, twenty-seven months; three pairs, thirty-six months, and four pairs, forty-five months. It will be noted that each pair of permanent teeth comes nine months after the other.

Live community clubs bring their members inspiration and encouragement.

Horse Sense

I keep eight brood mares—purebred Belgians—and, after more than thirty years' experience, I find that as much stress should be placed on their feed as on the general care of those animals. One makes a mistake by pampering them either by feeding or stabling. I allow my animals free access to a large, dry yard with free access to warm box stalls. This insures proper exercise without overtaxing their strength. Feed should be largely given to sustain strength, and assist in building up the unborn colt. I give the mares plenty of bright, clean, shredded corn-stover, and once a day I feed each animal about ten pounds of alfalfa hay, being careful to shake it out well to get rid of the dust. Three times a day I give each mare a quart of ground corn and oats, and once a day I throw in a small handful of flaxseed-meal. Once a week I give each a generous feed of raw carrots, cut fine. The principal feed, however, is the shredded corn-stover. By this feeding I insure bone and muscle feed for both the mother and colt, and at the same time avoid constipation.

I avoid pampering the mares, as such treatment renders them more liable to be too weak to meet the ordeal of foaling and raising the foal. I can not lay too much emphasis on the free feeding of carrots. Carrots, in conjunction with the oilmeal, furnish the best of nourishment and absolutely preclude constipation, the bane of pregnant mares.

When aluminum pans are burned, a clothespin makes a good scraper.

Parents as Educators

The Wind—By Alice Wingate Frary.

The wind's activities hold the small child's attention,—the clouds, the flying flag, windmills and pinwheels, clothes swaying on the line, the blowing of children's hair and the tails of the fowls, the swaying trees and grass, while the weathervane,

"Turning, pointing, ever showing
How the merry wind is blowing."

asks repeatedly, "Where? How?"

There are a number of verses easily memorized which will make the wind seem a friendly element; "The Weathervane" by Laura E. Richards, "I Saw You Toss the Kites on High" by Stevenson, and Christina Rossetti's

"Who hath seen the wind?
Neither you nor I,
But when the trees bow down their heads
The wind is passing by."

As the child makes these verses his own, listens to stories such as "Jan" (in Mother Stories by Maud Lindsay) and "Aeolus and the Bag of Winds," and learns what the different winds bring, he is being awakened to a finer appreciation of a force that can be so gentle and yet so mighty.

Was there ever a child that did not ask, "Where does the wind come from?" It is part of the high office of parenthood to deepen the child's inherent sense of reverence before the elements, to prevent if possible its deterioration into empty wonder or morbid fear. It is well to cultivate the feeling of awe, teaching the careless child that the piling up of thunder clouds and the bowing of wind-swept trees are to be appreciated, by this same appreciation leading the timid one out of his fear.

The wind signifies the spirit. No mother who desires a well-rounded development for her child will fail to recognize his need of inner strength, his misconceptions that need straightening. While the kingdom of heaven is the inheritance of child-like hearts, children have need of guidance, and they guide us too, when we are clear-sighted enough to respond, but our emphasis upon values which are unseen helps to raise our children's standards. Froebel's Mother Play of the Weathervane brings to the child its tale of the wind's work and play; to the mother it brings a reminder of the inner forces that must be strengthened, the inner light that may illumine puzzling situations. Two books which are helpful in this respect are "The Notebook of an Adopted Mother" by Eleanor Davids, and "The Spiritual Care of a Child" by Anna Robertson Lindsay, the latter with its vigorous reassurance of a truth all too easily ignored.

"Only God can bring up a child. Nothing will bridge the abyss of the actual and the ideal except faith, hope, love, work, and the immediate help of Divinity."

The Weathervane—Songs and Music of Froebel's Mother Play by Susan E. Blow.

The Wind—A Child's Garden of Verses by Robert Louis Stevenson.

Jan—Mother Stories by Maud Lindsay.

Aeolus, the Keeper of the Winds, Mythland, Vol. 1, by Helen Beckwith.

Odysseus and the Bag of Winds—"In the Child's World" by Emily Poulsson.

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