

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 a small area of feed grown for soil 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 milk 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 10 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 amount to 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 cutting, during corn for use as a soiling crop during the latter 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 yellowing. Although yellowing 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 yellowing 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 lateral veins 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. 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 Mariboro 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 diseases, 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 rubophila*. 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 overwintered 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 aphids will overwinter 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.

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. of either alfalfa or clover hay. 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.

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.

Those are some of the questions I have used as levers to pry out the facts. I put those questions to Harve. Knowing him to be a studious farmer, and a careful keeper of farm records, I expected to get from him considerable illumination on the subject. But I didn't.

"I don't know. What's more, I don't give a whoop," he said.

"But," I persisted, "you certainly believe that your tractor is making its way as a cash proposition, don't you?" "I don't know whether it is or not. I always managed to get on first rate with horses alone."

"Why do you keep a tractor then, if you are not sure it is making you money?" "Nice August afternoon this, isn't it?" he smiled, cocking his feet up on the railing of the vine-shaded porch, and looking at his watch. "And it is nearly two o'clock. There are thirty acres in that field out there."

While I reflected upon the irrelevancy of Harve's change of subject, he was having a great time with his youngest son, a five-year-old, until the sturdy youngster ran away in delighted merriment.

"Finished plowing that thirty acres of oats stubble out there yesterday," he continued. "Professor Green, of the experiment station says that early plowing for wheat may mean three or four bushels extra an acre."

"What I am getting at is this. If I didn't have a tractor, I wouldn't be taking things easy up here in the shade this afternoon visiting with you. I'd be out there on a plow, 'bout a third done, likely, helping the horses fight flies and so on."

"Know what we're going to do tomorrow? The Mrs. and the two children and I are going to drive to Lake James for a week's outing. Neighbors over here will look after the stock. We'll do the same for them the following week."

"When I depended on horses for all my power, I was busy, it seemed, from one end of the year to the next. Never had time to go anywhere. Didn't have time to play with the youngsters."

"I don't know exactly how well the tractor has paid in money. I do know that it has paid big in fun. We work like the dickens when the ground is right and things can be rushed. With the tractor we have power enough to rush things right. Then we can ease up and live. The tractor means a real vacation, maybe two of them, every year for all of us. Not being on a strain so much, we really keep in better humor with each other. I have studied up more on farming and read more other good books in the last two years than in all the time before on this farm. I actually believe the children think more of me now, because I have more time for them."

"That may or may not be 'economic efficiency' as you call it, but you couldn't dig up enough figures in seventeen counties to convince me that my tractor out there isn't paying its way."

Mending a Rubber Boot.

A rubber boot that has had a hole punched in it by a stub is as good as spoiled; at least I always supposed so until recently. Any boy can mend a rubber boot if he will go at it in the right way. Procure at the drug-store an ounce or two of pure rubber gum. Cut this into small pieces and cork it tightly in a bottle with three times its bulk of benzine. For patches, use pieces cut from useless rubber boots. Stet the place to be mended with benzine, and scrape it well, repeating several times. Treat the other side of the patch in a similar manner. Then apply a good coating of the dissolved rubber to both boot and patch, and let them dry until they do not feel sticky. Next apply the rubber again to both, and press them together by the use of weights or clamps for several hours before using the boot. Numerous articles can be mended in this way at small cost.

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

Smoke

OLD CHUM

The Tobacco of Quality

1/2 LB. TINS—and in pk'gs.

The Tractor—Pleasure Vehicle.

Harve Gemmill is a hard-headed farmer. I would say "level-headed" instead of "hard-headed," perhaps, if Harve Gemmill were his real name.

I've been trying to get a line on the economic efficiency of the average farm tractor. "How much has the tractor added to your earnings?" "How do you know your tractor pays?" "At what work does your tractor yield highest returns?"

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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 Davies, 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 Poulton.

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 hush and crouch 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, 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 Minnehaha lived with her father Pocono, one of the young chiefs of the Metes, and her mother. One day while Minnehaha 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 named the plains and which were one of the most important of the Indians' means of 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 Minnehaha 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.

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Dark	Dark	Dark	Dark	Dark	
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Dark	Dark	Dark	Dark	Dark	
\$3.00	\$2.00	\$2.00	\$1.00	\$2.00-\$1.00	
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THE READING HABIT

The hope of the future of Canadian agriculture lies, in a very large measure, in the fact that our farmers as a class are readers of articles, bulletins and reports dealing with matters pertaining to the science and practice of farming. Furthermore, we venture to say they are for the most part readers with open minds, anxious to learn and, as far as circumstances permit, to put into practice that which appeals to them as sound teaching. These statements may appear to some as decidedly optimistic but that they are not extravagant nor wide of the mark is the opinion of one who for more than thirty years has had an excellent opportunity of learning at first hand, the thought and aspirations of the Canadian farmer.

If statistics could be obtained, it would most probably be found that as regards the volume of its agricultural literature in active circulation, Canada, considering her farming population, stands ahead of all countries. And there would not be this large output if there were not a demand for it. If such be the case we may conclude that apart from economic considerations, our prospect for progress, for more efficient and more profitable farming are good.

The purpose of these few paragraphs is to stimulate and encourage the reading habit and particularly the reading by the young men and young women on the farm of matters pertaining to the chemistry of agriculture. The facts that chemistry reveal bear directly on foundation problems, such as the maintenance and increase of soil fertility, the economic production of larger yields of farm crops, the nutritive value of forage plants and feeding stuffs, the nature and use of manures and fertilizers, etc., etc. There is scarcely a question in connection with soils, crops and stocks that chemistry does not throw some light upon. The more one reads the more one is impressed with the fact that chemistry offers most valuable information on practically every phase of farming and that this information may be made use of in a very direct way by the man on the land to his profit and advantage.

Our plan, therefore, is for more reading—careful, thoughtful reading. Acquire the habit of devoting fifteen minutes a day to the bulletins and reports of our agricultural institutions and the more educational articles and papers in the agricultural press. This material, in which this Dominion abounds, can be readily understood by any intelligent person; it does not call for a scientific education to unravel its meaning. Much of it can be obtained for the asking. Its perusal will make farm work more interesting and, if put into practice, more lucrative. Acquire the habit and you will never regret it.

Maple Sugar.

The maple sugar season is upon us and now is the time for producers to consider and study how to get the best results from their trees. This can be done advantageously and quickly by sending to the Publications Branch of the Dominion Department of Agriculture at Ottawa for Pamphlet No. 8 which describes the best methods to follow, not only for producing but for marketing, and for making the best use of the by-products. Maple syrup and sugar has become year by year more valuable and more popularly appreciated. Yet its production in recent years has not increased but on the contrary has decreased, as is proven by the fact that while the yield from 1881 to 1891 averaged yearly 22,500,000 pounds, from 1891 to 1901 the yearly average of production fell to 21,200,000 pounds, and in later years has fallen to 20,000,000 lbs.

As in every other form of industry, progress has been made in the methods of tapping the trees and in the conversion of the maple sap into sugar and syrup. In former days an axe was used to notch the tree, and the sap was caught in wooden troughs and conveyed in buckets to a central point to be boiled, which was done in large iron kettles suspended from poles. Now an ax is used for tapping; c-o-p-e-r buckets have taken the place of the birch bark "cans" or hewn sap troughs, and the kettle has given way to the evaporating pan with corrugated bottom and separate compartments. Not alone, says the pamphlet referred to, for the conservation of the life of the tree, but also for cleanliness in sugar making, the wooden spout has almost entirely disappeared, the tendency now being towards the use of metal in every article of equipment with which the sap, syrup or sugar comes in contact. Nor is that all—the ingenious inventor has provided facilities for taking advantage of the law of gravitation in handling the fluid, which in a well-equipped plant flows of its own accord from the collecting tank to the storage vat, thence to the evaporator and, when boiled to a proper consistency, to the receiving c.u.n.

"To business that we love we rise betime, And go to't with delight."—Shakespeare.

The noblest character would soon degenerate if it should lose the love of excellence.

When varnishing stairs that are in use, varnish every other step one day and the rest the following day.