

Soils and Crops

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

Selecting the Seed Corn.

You can make good money selecting your seed corn in the field. A very successful corn grower told me that he attributed his success as a grower of corn to the fact that he made a practice of carefully selecting his seed each season in the field. He makes a business of seed-selecting, and devotes more time and thought to it than to any other operation in growing the crop.

A little thought will convince any intelligent corn grower that the best seed can be secured only by field selection. In no other way can the grower know the character of the stalk upon which the ear was produced. Seed of strong vitality, that will germinate quickly and make a vigorous early growth, even though the weather is slightly unfavorable, is absolutely necessary if you are to obtain a good stand of corn.

Do not underestimate the value of good seed. Since one bushel of corn will plant from 6 to 12 acres of land which will produce from 300 to 800 bushels of grain, it is apparent that the character of the seed planted is of the greatest importance. You are warranted in spending all the time and trouble necessary to insure the best possible seed.

Good farmers have found that the best way to secure good seed is to select in the field. After your corn is mature, and before the crop is harvested and shocked, go through your field with a sack or basket and select good-looking mature ears that are growing on thrifty-looking stalks.

After your seed is selected, be sure that it is thoroughly dried and properly stored. Corn gathered in the field always contains a large amount of water. If it is not properly dried it may mold or be injured later by freezing. Dry corn will not be injured by cold weather, and corn that matures properly in the field can often be stored without taking extra precautions.

But if the corn matures late and contains considerable moisture when the first frost occurs it will be necessary to dry it by artificial heat in order to obtain seed of the best quality. It is always the safest plan to dry carefully the seed corn each season. If you do not have a regular corn-drying room you can use the kitchen, the attic, or some other warm, well-ventilated place. When the corn is thoroughly dry, it can be transferred to a more convenient place for winter storage.

If for any reason you are unable to select your corn from the standing stalk before harvest, the next best time is when the crop is husked. A box for seed ears can be attached to the side of the wagon. In this way they can be kept separated from the other corn.

Even though you select your seed corn in the field, and store it carefully, do not fail to make a germination test before planting the next spring, if you want the best results. Corn properly selected and stored will probably grow, but it doesn't pay to take chances. The germination test before planting will insure a good stand.

Bordeaux Mixture.

The standard Bordeaux mixture which is commonly used on grapes, potatoes and other plants for the control of fungus diseases, is made of four pounds of copper sulphate, four pounds of stone lime and fifty gallons of water.

In making small quantities the lime should be slaked with hot water and diluted to about twenty gallons. The copper sulphate should be dissolved in hot water and also diluted to twenty gallons. These two dilutions should be poured together into a separate container and enough water added to make up the fifty gallons.

In making larger quantities fifty pounds of copper sulphate may be put in a burlap sack and suspended in twenty-five gallons of water. When this is all dissolved it will make two pounds of copper sulphate to one pound of the solution. Therefore if you wish to make a fifty-gallon batch of Bordeaux, two gallons of the solution will give you enough copper sulphate for that batch. There is one precaution necessary in making this stock solution and that is the copper sulphate should not come in contact with iron, nails, hooks, etc., as its chemical action will ruin them. In handling copper sulphate in this concentrated form use a wooden pail instead of a galvanized one.

Lime may also be made in stock quantities. Fifty pounds or more may be slaked in a tub or other receptacle. Agitate well when slaking to prevent burning and to make lime firm and smooth after it has been slaked. This should be kept covered with water to prevent drying out. To get a fairly accurate measure of the quantity of lime to use, slake four pounds in a pail and mark on the pail the height to which the lime comes. This pail will then be a measure for your lime. It is better to use too much lime than not enough.

The great precaution necessary for making good Bordeaux is to have both the lime and copper sulphate diluted before mixing. If either of them are in concentrated form and mixed, the Bordeaux mixture will be coarse and will settle quickly. Poorly made Bordeaux will curdle somewhat like sour milk. As the Bordeaux is a mechanical mixture and not a chemical one it is very essential that it be kept thoroughly agitated while spraying.

World Agriculture.

At the last general meeting of the International Institute of Agriculture held in Rome and attended by Mr. T. K. Doherty, Chief of the Institute for Canada, many important matters were dealt with. Proposals for greater speed in the collection and circulation of crop reports introduced by the Canadian delegate at a previous meeting were adopted. These reports are to be cabled before the 10th of each month, a summary made and cabled to the governments represented two days later. The establishment of a special bureau in each country to carry on correspondence, the same as exists in Canada, was represented. Some changes were made in the classification of live stock for annual report and census purposes. A table of the classification adopted by the Institute is given in the Agricultural Gazette. The permanent committee was asked to report on expenditures incurred by the different governments in the interests of agriculture. The Institute was requested to publish the result of inquiries into the methods adopted during and immediately following the war for the increase of agricultural production. It was decided to recommend to affiliated governments the appointment of agricultural attaches to their embassies. On the suggestion of the French delegate a permanent committee on agricultural meteorology is to be appointed. A proposal for the creation of International Research Institute of Plant Pathology was adopted. A proposal was made that the governments should establish scholarships enabling students to visit the Institute at Rome for purposes of study. It was decided that a consultative committee of specialist from each country should be established for the better co-operation of the bureaus and to meet in annual conference. When adequate funds are available a Year Book of Economic and Social Institutions and a dictionary of technical words are to be published. There was a consensus of opinion strongly opposed to the fixing of an eight-hour day for agricultural labor and even to the consideration of that subject by delegates who represented town labor. A desire was generally expressed that most cordial relations should be maintained between the Institute and the League of Nations.

World Agriculture.

When the pasture gets short a broken rail in the fence along the corn field creates a big temptation for the herd to sample the corn or roots.

British Bacon Market Goes Back to Old Requirements.

The British bacon market has reverted to the rigid limits of weight for Wiltshire sides. During the war the demand for bacon and the price were generally so keen that the limits were relaxed, so that for a time a Wiltshire side weighing anywhere between 45 pounds and 100 pounds was accepted. As a consequence there was not the same discrimination made by packers' buyers between the price paid for select hogs. The extraordinary demand, however, is over. The fat, lard-type hog is at a distinct discount in Canada. So with the light-weight hog; it should be finished on the farm.

For some time past the British Ministry's limits for Wiltshire were 45 pounds to 90 pounds. The market is returning to normal and the weights are now 45 pounds to 75 pounds. Packers have long since recognized that the return to normal was inevitable and warned farmers and breeders against going in for any but the well-known bacon hog. They repeat that it is all-important for the future of the bacon industry that farmers breeding types and breeds of hogs unsuitable to produce select Wiltshires should at once get rid of them and stock only hogs which will yield prime Wiltshires that the British trade demands as well as the products required in our domestic market. "Out-weights" below 45 pounds or above 75 pounds are heavily penalized in the export trade. The hog to give best results should average about 185 pounds live weight. At present packers are compelled to make a difference of from \$1 to \$2 a hundredweight in what they pay for light weights and, from \$2 to \$3.50 for heavy weights, as against hogs of selected weights.

Grading Dairy Produce.

All the grading of dairy produce being done in Canada, at the present time is more or less voluntary and has no authority of law behind it. There seems to be some misapprehension regarding the Act recently passed at Ottawa to regulate the grading of dairy produce. Objection to the measure appears to be based, in the first place, on the supposition that the grading will entail additional expense to the producer and, in the second, that all butter and cheese for export would have to be graded at Montreal. The reasoning is unfounded. The producer will be subject to no additional expense and there is nothing in the Act calling for the grading to be done at Montreal. The Act empowers the Governor-in-Council to make regulations for grading, and assurance is given that before such regulations are adopted a draft thereof will be submitted to interested parties. When the preliminaries have been agreed upon the grading will be entrusted to well qualified and disinterested persons who will be governed by official standards and definitions. Grading, which is another term for standardization, will be the means of enhancing the reputation and value of Canadian dairy products.

Make sure that there is a constant supply of water and salt before the livestock.

THE CHILDREN'S HOUR

Once upon a time the king of the forest lost his best tooth. A tooth is a very important possession of a king, and old Leo dared not roar or smile in the presence of his subjects, because once they missed that sharp tooth they would plot for his downfall.

The old lion thought and thought, and at last resolved to consult Abner Elephant, one of his most trusted friends, and get his advice. The house of Mr. and Mrs. Elephant, with whom Uncle Abner lived, was in the deepest part of the jungle, and the whole family was thrown into a flutter by the unexpected visit from the king.

Oliver Elephant, Uncle Abner's little nephew, was sent straight to bed because the king explained that he had come upon a very secret mission. The king looked anxiously all around to be sure no one was listening. Then in an agitated whisper he told them of the loss of his sharp tooth. He could remember nothing about it, he said, but waking up in the morning and finding it gone.

"If you can find it for me I shall give you the freedom of the forest and a royal talisman to protect you from every beast in the jungle," said the king.

Uncle Abner did what he could to comfort his royal majesty, and promised to search diligently for the missing tooth. So the king returned to his castle greatly encouraged.

Now I know Oliver Elephant was supposed to be asleep. But what little boy, elephant or human, is going to sleep with a king sitting in the parlor? Oliver, I am sorry to say, put his big ears to the floor and heard the whole story. He resolved himself to find the king's tooth and win the freedom of the jungle.

Next day instead of going to school Oliver went off under a tree and sat down to think.

Of course, one thing was sure. It was impossible for Oliver to go to the king's palace without disclosing his purpose. But he went to the end of the gate and looked reflectively into the monarch's private drinking pool, which was just outside. No one was in sight, and the water was so clear and tempting that Oliver resolved to have a swim. A big sign stood on the edge of the pool stating clearly: "King's pool. All trespassing forbidden under penalty of fine and imprisonment."

But Oliver decided to take one plunge and come right out. Down, down, down, he dived, then gave a gurgle of pain. Something had stuck in his trunk. He rose to the surface and clambered cripplingly out on the bank.

Then he gave a squeal of surprise. For there stuck in his trunk was—what do you suppose? The king's tooth! He clapped it into his pocket and was about to start off when two of the palace guards seized him and hustled him into the king's presence.

The king was holding court—talking out of one side of his mouth so his missing tooth would not be seen. But when he heard that Oliver had dared to swim in his drinking pool he gave a roar of anger. Then, clapping his paw over his mouth and gazing

Laying Out Land for Fall Tractor Plowing

In laying out a field for fall plowing with a tractor, one should do away with all unnecessary traveling, as it is simply a waste of fuel and time and wears out the tractor without giving returns. A field should be marked off therefore and plowed systematically.

One of the best ways to plow a rectangular field is by use of the continuous furrow. If this plan is followed, the first thing to do is to set stakes along the centre line of the field. This line of stakes should extend ten or fifteen feet closer to the ends of the field than it is to the sides, which will allow for narrowing the furrows in turning at the ends.

The first tractor furrow should follow the stakes which have been set up. When the tractor reaches the end of the stakes, the plows should be lifted, the outfit swung to the right, and then back to the left in a complete circle. At each turn the ends should be rounded as much as possible so that after a few rounds have been plowed the outfit may be swung around the ends without lifting the plows. Thereafter a continuous furrow may be plowed. If properly laid out and plowed, the whole field will be turned except a small spot in each corner.

Curve plowing, however, is rather hard on the tractor gears, and a different method is usually recommended. This method is the back plowing or dead-furrow plowing. By this method, nearly all the plowing is done on a straight line and the outfit is turned with the plows out of the ground.

To plow by this latter method, leave about forty-five feet all around the field on which to turn the tractor. With one bottom only in the ground, plow around the field to mark this distance. Then at one side of the field, set a line of stakes, sixty feet from the furrow marked off forty-five feet from the fence, and parallel with that furrow. Sixty feet from the first line of stakes, set up another line, and 120 feet from the second line of stakes, set up another. The operator now has three lines of stakes to plow by—

the first, sixty feet from the single furrow plowed as a guide line; the second sixty feet from the first; and the third, 120 feet from the second.

Begin plowing at the right of the first line of stakes and throw the dirt toward them. When the length of the field has been traversed and the marking furrow reached, lift the plows, turn to the left and go to the third line of stakes. Let the plows into the ground at the marking furrow and throw the dirt toward this third line of stakes. When the opposite end of the field is reached, the tractor is again turned to the left and with the plows out of the ground driven back to the beginning. This round of plowing is continued till the land between the first and second line of stakes, and half the land between the second and third lines of stakes, is plowed.

When that has been plowed, the outfit is turned to the left and the dirt thrown toward the second line of stakes. As the opposite side of the field is reached, the tractor is turned to the right, idled to the first line of stakes and then the dirt thrown toward them. These two lands are plowed in the same way as the first two—and then the plowing of the whole field continued in a similar way. After the centre of the field is plowed the forty-five-foot border should be plowed by the endless furrow method.

Plowing hilly lands requires rare judgment. Where there is a valley in which there is no stream, the plowing may be started in this valley as though it were a rectangular field, the dirt thrown down hill from both sides and the ends idled across if it is thought advisable. Or where there is just a round knoll, it may be plowed with the endless furrow method, throwing the dirt down hill and finishing the plowing on top of the hill. The hill shaped like a horse's hoof may be plowed in the shape of a horseshoe and the space between the "calks" idled across. That is, one part of the hill may be so you can curve around it, but the other has to be mounted. In all cases try not to plow up hill if you can help it; plow with the hill.

THE SUNDAY SCHOOL

AUGUST 21.

Paul Prepares for World Conquest. Acts 15: 1-16: 5. Golden Text—Acts 15: 11.

Connecting Links—The one great fact which this first adventure of the apostles of Christ into the great world outside of Palestine and Syria proved was that Gentiles as well as Jews were ready for the gospel, and that wherever they had gone men of all races had listened eagerly to their message, had believed and entered into the household of faith. This meant surely, if Christianity were to be triumphant, that the world of the future would not be a Jewish world only, and that the long expected salvation would embrace both Gentile and Jew.

It meant the yielding of those national hopes and ambitions which the Jews held so tenaciously, in order to find a larger hope and a more splendid ambition in the prospect of a united world, the old barriers broken down, and peace, brotherhood, and goodwill taking the place of enmity, strife, and hatred. It is no wonder that the telling of their story in the morning and finding it gone.

neighbors and fellow Christians (vs. 20, 21). Letters were written and sent by two trusted men to the Christians of Antioch, in which the work of Paul and Barnabas was commended. A great victory had been won for Christian faith and freedom.

15: 36-16: 5. Let us go again. The victory was won, and the way was open for the apostles of the Gentiles to continue their work. They could go everywhere now, with the full consent and accord of the great leaders and founders of the Church, and open the door wide to their Gentile converts. In Christ there was to be no more Jew nor Gentile—all were to be one in faith, whatever difference of practice or custom, or law there might be. The way was open for a triumphant progress of the gospel to all the nations.

The thought of Paul turned now to the young and struggling Christian communities in Galatia, and he proposed to Barnabas that they should go and visit them. Perhaps his thought reached out beyond them, too, to the road that ran westward to the Aegean Sea, to Ephesus and Smyrna, and the other Greek cities, and the islands and coast beyond.

The contention, which arose about John Mark, could not be settled. He was nearly related to Barnabas, who was naturally ready to forgive him for having left them on the first journey. But Paul would not take him again. Long afterward we know that he was reconciled to Mark, and that Mark was with him in his Roman prison (Col. 4: 10 and 2 Tim. 4: 11). The friends parted, and Paul took with him Silas (or Sivanus), one of the two messengers who had been sent with the letters of the Jerusalem council to Antioch (15: 22). This time he went overland, travelling northward and westward from Antioch.

Timotheus, or Timothy, was a native of Lystra, a young man who had been led to faith in Jesus Christ upon Paul's first visit to that city. Of his mother and grandmother Paul speaks in a letter written many years later (2 Tim. 1: 5). The company of three went on, visiting and encouraging the churches.

Application.

In last week's lesson we saw how Paul and Barnabas were horrified when men thought they were gods. "We also are men of like passions with you," they protested. To-day's lesson teaches how true those words were. Apostles, leaders though they were, they were very human, and perhaps it is a good thing for us that we have this account of the sharp difference of opinion which took place about the "good old times," and the wonderful people who lived long ago. They disparage everything modern and praise everything which happened in the past. If such people would just take their New Testaments and read over the Acts of the Apostles or some of the epistles which had to be written to correct grave abuses they would not have so much to say about the past.

Alexander Maclaren used to say that one of the surest proofs of the truth of the Bible was its perfect candour. We all know what it is to read a book of fiction in which the hero conducts himself so that there is never a flaw to be found either in his conversation or his conduct. The heroes of the Bible are not set forth in that light. If Moses loses his temper and strikes a rock we are told about it. If Elijah becomes depressed and cowardly we have an account of it. If Job loses his patience and David his purity we have a full recital of the events down to the most sickening details. And so here in the New Testament we read of the inconsistencies as well as the magnificent heroisms of Peter and Paul and Barnabas, and many other servants of God.

When Paul, with his little company of missionaries, reached Pisidian Antioch, he found himself on the great Roman road which ran east and west through Asia Minor, along which came heavily laden caravans, and Roman legionaries, and many a traveller and scholar seeking to know more of the world of their time. With these he must sometimes have conversed, and we can imagine his gaze turned westward to the rich cities of the Lycus valley, to Ephesus the great seaport, meeting place of east and west, to the ships which sailed over the sea to Greece and Italy and far-off Spain, and to Athens and Corinth and Rome. Already he must have entertained the hope of some day carrying his victorious gospel along that westward road, and of winning the Roman empire for Christ.

15: 1-35. Certain men which came down from Judea. These were Jewish converts who held that all who believed in Jesus should conform to the Jewish laws. For them faith in them was not enough for salvation. They were willing to admit the Gentiles, if the Gentiles would submit themselves to the Jewish customs, and in particular to circumcision.

Paul and Barnabas had staunch friends and supporters in the Antioch church, but these trouble-makers from Jerusalem must also have had a following. There was grave danger that the little Christian community would be rent and torn by division. It was decided, therefore, that Paul and Barnabas should go to Jerusalem to consult the apostles and elders about this question. At first informally, and then to a formal gathering of the leaders of the church, they told their story. Their antagonists were there also to present their case. In Jerusalem practically everybody kept the Jewish laws, so that the feeling must have been largely against the two brave missionaries. At a critical moment Peter came to their aid by telling the story of his visit to the Roman Cornelius, and how Cornelius and those with him had been baptized and had received the Holy Spirit.

The decision of the Council was spoken by James, who was a brother of Jesus and the acknowledged head of the Jerusalem church. He recalled the fact that the ancient prophets had foretold not only the restoration of the Jewish kingdom, the tabernacle of David, but also that the Gentiles should, with the residue of men, seek after the Lord. The council enjoined only that Gentile Christians should, for the sake of peace and unity, abstain from certain things which were peculiarly offensive to their Jewish

Gluten Flour—Its Uses and Characteristics.

around anxiously, he ordered Oliver to be turned out of the jungle.

"If it wasn't for your Uncle Abner I'd have you made into chowder," he shouted sideways. Oliver was terribly frightened, but begged to speak to the monarch alone, saying he had a message from his uncle.

The king looked at him sharply, then waved his subjects out. "Your majesty," said Oliver, regaining his courage, "walking on the edge of your pool this morning I was attracted by something white shining on the bottom. Looking closer I saw that it was—" (the king began to tremble with nervousness).

"What?" he asked weakly. "Your majesty's peerless tooth!" said Oliver, producing it from his pocket with a great flourish. "At great risk to myself I recovered it and am here to claim the reward." The king was so delighted to get his tooth again that he forgot to ask Oliver how he had heard of his loss. Pulling a small gold ring from his robe he tied it on a piece of red string around Oliver's neck, and after that none of the jungle animals dared so much as growl at the little jungle boy, for he possessed the king's talisman of protection. As for the king, he had his tooth soldered in and, although he could not chew on that side, his subjects never discovered it and, as far as I know, he is still monarch of the jungle.

When you are discouraged and think that there is no use trying, then get busy.

With a short crop of hay over a large portion of Ontario, it is important that the straw be saved in as good condition as possible. Silage and straw make a very good ration for cattle.

Nearly all of the so-called gluten flours offered to the public are not made from gluten. Such is the frank statement made by Dr. C. E. Saunders, the Dominion Cerealist, in a bulletin entitled "Wheat, Flour and Bread," recently issued by the Experimental Farms Branch at Ottawa. The name used, says Dr. Saunders, is entirely misleading, as these flours often contain a high percentage of starch and are quite unsuitable for diabetic patients. As a rule the gluten flours offered for sale are practically identical with the whole wheat and Graham flours. Genuine gluten flour, which is made by washing the starch out of wheat flour and then drying and grinding, is extremely expensive. Gluten bread has no resemblance to ordinary bread and as a substitute for such is an impossibility. Rather less than 50 per cent. of genuine gluten flour can be mixed with ordinary flour, and bread of medium quality be made. Gluten flour can also be used in the production of pancakes, biscuits and other products provided it be mixed with ordinary flour, fine shorts or ground nuts, together with eggs, milk, baking powder, etc. There is, however, no possibility of producing any form of palatable bread, biscuits or cake with a very large proportion of pure gluten flour. Dr. Saunders suggests that physicians would be well advised to take cognizance of these facts and not to expect their patients to purchase what is unobtainable or to eat what is inedible. The bulletin, it might be remarked, goes thoroughly into its subject, treating it in all its phases.

Are you using more horse-power per man-power this year?