

Soils and Crops

This Department is for the use of our farm readers who want the advice of an expert on any question regarding soil, seed, crops, etc. If your question is of sufficient general interest, it will be answered through this column. If stamped and unaddressed envelope is enclosed with your letter, a complete answer will be mailed to you. Address Agronomist, care of Wilson Publishing Co., Ltd., 73 Adelaide St. W., Toronto.

Copperas is Not Copper Sulphate.

A very serious mistake in some cases is being made by the farmer and gardener in buying materials for potato spraying. One of the necessities is blue vitriol. Blue vitriol is copper sulphate. Green vitriol is copperas, or iron sulphate. Copperas costs about 3 to 5c. per lb. Copper sulphate costs in excess of 15c. per pound at the present time. Copperas cannot be substituted for copper sulphate. Its power to kill fungus diseases is very limited. On account of the cheapness of the salt, at times unscrupulous dealers are given to adulterating copper sulphate with copperas. There is a simple test which will determine the presence of the iron salt in the copper. It is as follows: Both copper sulphate and iron sulphate dissolve readily in water. The copper sulphate is blue, the iron sulphate is green in color. In order to make the test for the presence of iron sulphate or green vitriol being found in copper sulphate, dissolve a little of the salt in a glass tumbler, add a crystal of ferricyanide of potassium. This turns the bottom of the liquid to a reddish brown color if the mixture is strong. If it is weak it will not have any particular effect on it. If sulphate of iron is present the mixture will turn a deep blue color and settle to the bottom. Watch your spray materials and see that you use the right thing. Copperas sounds very much like copper sulphate, but it is an entirely different substance.

Now is the time to spray potatoes and tomatoes to prevent the attacks of Late Blight disease. The spores of this disease, which may be found in the soil and in the garden rubbish, send up their shoots and bear their seeding spores during the warm, damp days of late June and early July. The only method of controlling this disease, which causes rot of both potato and tomato, is by spraying with Bordeaux mixture. Bordeaux mixture is made up of 4 lbs. of copper sulphate, 4 lbs. of lime and 40 gallons of water. If you have a small garden patch, make up the mixture in this proportion. There is no necessity of making up such a large quantity. Dissolve the copper sulphate—a pound to a gallon of water and the lime in similar quantity. Do not mix them until you are ready to do the spraying, otherwise chemical action will take place between the lime and copper sulphate and spoil the mixture. Spray the growing vegetables thoroughly at least three to five times during the growing season, starting when the potatoes and tomatoes are up about 3

to 5 inches. The copper sulphate attacks the fungus spores and kills them.

QUESTIONS AND ANSWERS

R. H.—What do you consider the best fertilizer for apple and plum orchards?

Answer:—For apple or plum orchards I would advise from 6 to 10 lbs. per tree of a fertilizer carrying from 3 to 4 per cent. ammonia, 8 to 10 per cent. phosphoric acid and 1 to 2 per cent. potash. When potash becomes obtainable in larger quantities, it would be well to use as high as 5 per cent. potash. This fertilizer should be worked into the soil at about the distance that the branches spread out. The feeding parts of the root are out towards the tips, hence the available plantfood will do more good if worked into the soil in this area rather than close up to the trunk of the tree. Commercial growers are also getting good results from the use of bonemeal, which, however, does not contain any potash. This fertilizer can be applied in the same quantity as advised above.

Farmer:—Will you kindly give full directions for the preparation of soil for fall wheat? I mean to try it for the first time next autumn.

Answer:—For fall wheat the soil should be plowed as soon as the spring growing crop is harvested. If it is early oats, the ground should be plowed immediately after the crop has been taken off. Some farmers have better success in growing winter wheat on summer-fallowed land. If the piece of land being prepared is sod, it should be plowed as soon as possible and disked and harrowed frequently in order to cut down any weed growth and to make the seedbed as mellow as possible. If you have a supply of stock manure to apply to the wheat field, put it on the plowed ground before the last two diskings and harrowings. By diskings and harrowing the field, this manure will be thoroughly worked into the soil. Be sure you get good quality winter wheat seed of a variety that is successfully grown in Ontario. Dawson's Golden Chaff, Imperial Amber, Early Red Clawson, and Abundance, are all good varieties. When seeding the wheat apply 200 to 300 lbs. per acre of fertilizer carrying from 2 to 3 per cent. ammonia, and 8 to 10 per cent. available phosphoric acid. Modern wheat drills have a compartment for sowing the fertilizer at the time the wheat is seeded. This works the plantfood into the soil so that it helps the young growing crop.

The Dairy

Temperature of the whole milk has a direct effect on the percentage of fat in the cream and the skimmed milk. The temperature of milk being separated should be such that the milk will flow easily, facilitating rapid and thorough separation of the cream and the skimmed milk. It is a wise plan to separate the milk as soon as possible after it comes from the cow. In that case, the temperature is high enough that a thorough separation is effected. If the milk is allowed to cool after being drawn, the temperature needs to be raised to about 85 degrees to 90 degrees to secure the best results when separated.

Many dairymen think that there is an advantage in having the whole

milk at a low temperature, because the cream possesses a higher percentage of fat when the temperature is low. However, in these tests the loss of fat in the skimmed milk was greater. It should be noticed that the weight of fat in the whole milk and in all three pails of cream was approximately the same, but that there was a distinct variation in the weight of the cream, and this is the cash end of the dairy business.

The richness of cream, or the percentage of fat, derived from whole milk by use of a separator may be regulated by either the cream screw or skimmed milk screw.

Horse Sense

In the spring of 1916 I began to keep record of the work done by my horses, says a successful farmer. The record consists of a set of cards 5 x 8 inches, which are divided into thirty-one spaces, one space for each day in the month. I use one card a month for each horse. On the left half of each card I enter the cost of feeding, shoeing, medical attention and other expenses, while on the right half I enter the number of hours of work done by that horse, and also credit the value of the manure it produces, the colt, etc.

The figures for last year were quite a surprise to me. Before starting my record I estimated that \$5.50 per month would be a fair average cost of keeping my horses, but imagine my surprise when I discovered that each horse was costing me \$7.12 per month or \$85.44 a year.

After adding up the number of hours, I found that my horse labor had cost me \$1.35 a day.

One reason for this large cost was that the work had been unevenly distributed among the horses, and some were idle when they could have been working. I also found that the pasture had not been used as much as it might have been. These errors I intend to remedy during the present year. By distributing the work more evenly I can dispense with the extra horses.

Remember life's paradox—you are no nearer heaven because living is higher.

It is time for the cow which does not pay, to go to the block, but it is poor economy to butcher profitable producers.

GOOD HEALTH QUESTION BOX

By Andrew F. Currier, M.D.

Dr. Currier will answer all signed letters pertaining to Health. If your question is of general interest it will be answered through these columns; if not, it will be answered personally if stamped, addressed envelope is enclosed. Dr. Currier will not prescribe for individual cases or make diagnosis. Address Dr. Andrew F. Currier, care of Wilson Publishing Co., 73 Adelaide St. West, Toronto.

Infant Feeding No. 2.

A baby should be fed every three hours from the first to the sixth month of life, omitting food from 10 p.m. to 8 a.m.

After the first month he should be fed only once in four hours. The average quantity for a feeding is three ounces in the first month, four in the second, then increasing one ounce per month until the end of the eighth month.

Cows' milk should be diluted with boiled water, two ounces of water being added for one ounce of milk during the first month, and the quantity of water being then gradually reduced until the tenth month when the milk may be given undiluted.

A teaspoonful of common sugar or milk sugar or maltose may be added to each feeding if it agrees with the child, and it is often desirable to add a pinch of bicarbonate of soda or of table salt.

Instead of using water it is sometimes well to dilute the milk with barley or rice or oatmeal water thoroughly boiled and strained, a tablespoonful of the cereal being boiled an hour or longer in a pint of water.

If the baby's stools contain curds it means the cheese in the milk is not well digested, in which case the milk may be peptonized or predigested with essence of pepsin, letting it stand at ordinary room temperature until it is curdy; it must then be put into the ice box at once to arrest further digestion.

This is important for if you let it stand until it is bitter the baby will refuse to take it.

When the first few teeth have come through, a little clear soup, free from fat may be given and the baby may also have a small piece of toast.

You may also give him whey or milk or weak gelatine water. If he should have diarrhoea give him half a teaspoonful or a teaspoonful of castor oil, thoroughly mixed with an equal quantity or twice the quantity of wintergreen, cinnamon, or peppermint

water, lessening the number of feedings or even stopping them altogether for a day.

Also you may wash out the rectum carefully with half a pint of warm starch water, following it up with an injection of half a pint of warm water containing half a teaspoonful of salt.

Be sure and inject very slowly and do not give the baby pain. When a baby's food agrees with him he will increase in weight after the first month and if he weighed seven pounds at birth, he should have gained five pounds when three months old, three and a half pounds more when six months old, three pounds more at nine months, and two and a half more at twelve months.

A well-developed child will therefore weigh about twenty-one pounds at the end of his first year of life.

These are only a few hints, but I have tried to make them plain and free from the complications and mathematics with which many papers on the subject of infant feeding are obscured.

QUESTIONS AND ANSWERS.

L. I. B.—1. What is the cause of obstruction of the bowels? Is it due to external injury, and if so what are its symptoms?

2.—Does this occur usually in the aged or may it happen at any period of life? 3.—Can it be caused by rupture?

Answer:—1.—It may be caused in a great many different ways, by the formation of adhesions in the abdomen, drawing the loops in the intestines together, by telescoping of one portion of the intestine to another, by constipation and in various other ways. I suppose it may be possible by external injury, but I cannot for the moment, see exactly how this could be done.

2.—It may occur in any period of life, from infancy to old age.

3.—It is not infrequently associated with rupture.



INTERNATIONAL LESSON JULY 11

Lesson II. Reading God's Word—Acts 8: 26-39; Psa. 19: 7-11. Golden Text, John 8: 32. Acts 8: 26-39.

Verse 26. An angel of the Lord spake unto Philip—Philip was in the midst of a great revival in Samaria when the divine messenger summoned him to another field of labor. How the message was communicated, whether in a vision such as Paul had when he was called to Macedonia, or by a personal appearance, we are not told.

Go toward the south unto Gaza.—The way that goeth down from Jerusalem unto Gaza, which Philip was to take, is the same road used by the traveller to-day and has changed in no essential particular save that it is worn deeper by the feet of countless caravans. Gaza (that is, "the strong") was an ancient fortified city of the Philistines on the Mediterranean. It has endured many sieges and captures in the course of its history, the last being by the British forces under General Allenby, on their way to the capture of Jerusalem, which occurred last December. The same is desert—that is, an uninhabited district.

27. He arose and went—He might have questioned the wisdom of taking him from the promising work in which he was engaged to send him on an uncertain errand, but there is no discus-

sion; he simply obeys the order, trusting to the divine wisdom. Behold, a man of Ethiopia—He was reading a book of great authority under Candace.—The Spirit sends Philip forth on this lonely road to find one certain man. Had come to Jerusalem to worship—He was thus a Jewish proselyte. He had been to one of the feasts no doubt. This is indicated from how wide a region the Jewish proselytes came.

28. Was returning sitting in his chariot reading the prophet Isaiah—He was reading aloud from the roll. Perhaps the eunuch had heard in Jerusalem of Jesus and his fate and had turned to Isaiah and to this very section concerning the suffering Servant.

30. Philip ran to him Understoodest thou what thou readest?—All details of the meeting other than this question are omitted. It is hardly in keeping with Oriental courtesy that the evangelist would break in so bluntly upon the meditation of a complete stranger.

31. How can I, except some one shall guide me?—The response indicates the humility and sincerity of the man. It also reveals the presence in the text of real difficulties in the interpretation of which help is necessary.

32. He was led as a sheep to the slaughter—We have here the wonderful passage in Isaiah 53, concerning the suffering Servant of Jehovah.

34. Of whom speaketh the prophet?—The eunuch touched precisely the point of difficulty. Who is this suffering One who has borne our griefs?

35. Philip beginning from this scripture, preached unto him Jesus—We are not told how Philip himself interpreted the passage, but we may infer that he assured the eunuch that he assured the eunuch.

If you have to pound meat to make

In the Fields



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tender, pound a little flour into it—this saves the juice.

much that in Jesus the wonderful Scripture had its most perfect fulfillment.

36. They came unto a certain water to be baptized?—Along this road are found no rivers, only "wadies," utterly dry in the hot season but rushing rivulets in the rainy season. The Ethiopian fully accepts the great truth of the Messiah preached to him by Philip and enters joyfully into the relation of a disciple of the Christ, accepting baptism at the hand of the evangelist.

37. The King James Version here inserts a verse found in some ancient manuscripts but lacking in others. Psa. 19: 7-11.

This beautiful Psalm is clearly divisible into two distinct portions. The first has for its subject "The Glories of the Heavens," verses 1-6. The second has for its subject "The Glories of the Law of God," verses 7-14. It recalls a saying of the philosopher Kant, that there were two things which filled him with awe, the starry heavens above and the moral law within.

From verses 7 to 9 inclusive there are six names for the Scripture: "the law of Jehovah," "the testimony of Jehovah," "the precepts of Jehovah," "the commandment of Jehovah," "the fear of Jehovah," and "the ordinances of Jehovah."

Then follow six characteristics of the law in these same verses—"perfect," "sure," "right," "pure," "clean," and "true." The results of the law in the life are then given: "restoring the soul," "making wise the simple," "rejoicing the heart," "enlightening the eyes," "enduring forever," "righteousness." In verses 10 and 11 the law is finer than gold, sweeter than honey, and there is great reward in keeping it.

"The Glories of the Law" are considered at much greater lengths in fine acrostic Psalm, 119, where verses are grouped under successive letters of the Hebrew alphabet, where in each one of the 176 verses there is some allusion to the law of God.

"The Word of God in its effects upon human life and character" might well be the summing up of this remarkable Psalm. That these results follow in the life of all those who "fear God and keep his commandments" is the experience of the Psalmist.

Controlling Cutworms.

Cutworms, which are often prevalent at this time of the year, can be fairly well controlled by making a poison mash of twenty-five pounds of bran to two pounds of Paris green. The bran and Paris green should be thoroughly mixed while dry and then slightly moistened so that the Paris green will adhere to the bran. This should be sprinkled around the plant toward evening so that it will be moist when the cutworms come out to do their damage.

The winding of the plants with paper is of little use, as the paper feeds the worms as good a foothold as the trees.

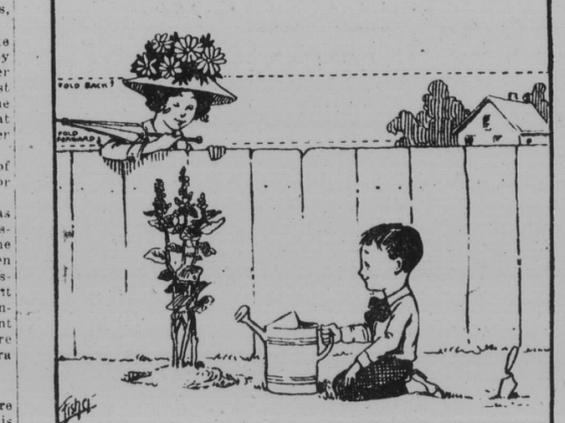
For trees a band of cotton wrapped in an umbrella shape is a barrier to the cutworms in getting to the tops of the trees.

The digging of the ground around the plants will often reveal the cutworms, as they spend their daytime just under the ground near the plant that they have damaged. They can be destroyed by dipping in kerosene or by crushing them.

Excellent vegetable broths can be made without any meat at all.

FUNNY FOLD-UPS

CUT OUT AND FOLD ON DOTTED LINES



Willie planted hollyhocks. There's nothing strange in that; But when they bloomed, the flowers were just Like those on sister's hat.

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