Soils and Crops

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

F. S. K.:—I understand that some farmers who tap their maple trees use covers for the sap buckets. Will you please advise me whether or not covers are worth while and the principal advantages of using them?

Answer:—In seasons of little storm during the sugar-making period, covers may be of little value, but the uncertainty of the weather in March and early April would make it worth while to use covers. Especially in a rainy time when the sap is running are covers advantageous. It is recorded in a bulletin entitled "The Maple Sugar Industry," issued by the Dominion Department of Agriculture, that one farmer with a thousand trees made 600 pounds of sugar, while his neighbor running a plant of equal size poured out all of the sap during the same period because continuous rain had so thinned the sap as to make it impracticable to boil it down. Another case is recorded of 90 pounds of sugar being obtained from 290 pails of sap and storm water which should, if the sap had been pure, have yielded 290 pounds of sugar. Another advantage of the cover is that it prevents bits of bark, moss, leaves, and other debris from blowing into the pails. Covers are made of both tin and wood. They do not lie flat on the pail, but rest against the tree above the spile, thus allowing for an air space between the cover and the top of the bucket. This is important because ungathered sap on a warm day is not so liable to deteriorate from fermentation if air is admitted.

R. L.:—Is there anything that can be done at this season of the year to protect small fruit trees from being girdled by mice?

Answer:—Mice are most likely to give trouble in a young orchard that is in sod. They work about under the snow and when food becomes scarce are liable to gnaw the bark of tender young trees. The trees may be protected by tramping the snow firmly around each tree, or by mounding them up with earth in the autumn.

Winter Care of Sows.

Practical hog raisers recognize that the brood sow's care is more difficult, and this is needed in order to keep the breeder in good condition, which prevents the laying on of an excess of flabby fat. The excessively fat sow is more liable to drop her pigs small, puny and weak.

During the period of gestation let the sow have the run of the barnyard, where she can root in the manure pile or around the straw stack, for scattered grain. The sow will do very well under such conditions if provided with comfortable sleeping quarters free from draughts, dry and plenty of bedding. However, should these conditions be impossible, if a portable pen can be placed in a field with the front of the pen facing the south, and plenty of dry bedding provided, the house well banked on the outside, the construction being such as to prevent draughts, it will be found that the sow will be very comfortable.

The feed trough should be placed thirty or forty yards from the pen to force the sow to come out for food, and in walking backwards and forwards she will get the necessary exercise. Remember that an active, healthy mother produces strong, healthy offsprings.

In feeding the brood sow the aim should be to keep her well nourished, never under or over-fed, but with sufficient feed to supply all the requirements in building bone and good firm flesh. During cold weather an excess of liquids should be avoided because of the extra effort on the part of the animal to heat up this liquid. The meal should be allowed to soak for a considerable time, to become moistened, using slop or dairy by-products.

Such meals as shorts or middlings and ground oats are to be preferred but the use of some of the heavier meals is permissible, such as corn, barley, or pea meal, but the latter should be fed sparingly and in a mixture with the first mentioned meals. Mangels or beets should be available for feeding in connection with the meal ration, these should be given at the mid-day feeding, and should be fed whole. The grain ration is fed morning and evening. Roots add succulence to the diet, keeping the digestive organs cool and in good order. By feeding roots, the amount of liquid required by the sow will be greatly lessened.

If the sow is confined to a pen where the floor is cement or wood, a few sods should be kept on hand to supply mineral matter; these can be thrown into the pen as required. Sulphur, salt and charcoal kept in a separate box will prove beneficial as a regulator and appetizer.

For sows under such conditions, care should be taken to avoid the laying on of excess fat, and where a ration comprised entirely of meal is fed, without care, the sow is liable to derangement of the digestive organs, which sometimes results in the development of an abnormal appetite at farrowing, and is a cause of the sow devouring her young.

Pruning.

The season when pruning operations may be commenced is here, and orchardists should now be considering the best scheme to adopt in their particular case. Except in extreme cases, pruning should be moderate and should consist more of thinning out here and there with as little heading in as possible. In young orchards newly set out, it may be necessary to adopt a system of heading back to give out lateral growth, which will be able to produce fruit spurs in later years. In bearing orchards light annual pruning should be given, so that at no time will it be necessary to materially alter the balance between the root and top by a severe heading back or excessive cutting out. In old bearing orchards, which have been somewhat neglected, a considerable amount of top should probably be removed to encourage new wood growth, so that a new fruiting surface may be established. As before mentioned, however, light annual prunings are to be recommended, for recent work has demonstrated that unpruned trees have yields slightly better, up to a certain age, than trees pruned, but that trees pruned lightly have yielded almost as well, while those severely headed back were not only later in coming into bearing and poor yielders afterwards, but were also less vigorous than the lightly pruned and unpruned lots.

Where light heading back practiced for the first three years was adopted, the comparison between trees pruned and unpruned showed little difference in favor of the unpruned, but those trees which had been pruned were of decidedly better shape and in better condition for future work than the ones where pruning had been neglected. These results have simply justified the practice of pruning during the first few years of a tree's life with the express purpose of obtaining a desirable amount of growth placed where we want it. In the case of some trees this will require considerable cutting out and some cutting back for the first three or four years. In other cases it will require very little wood removal, but in all cases the trees should be attended to annually.

The vigor of the tree is in inverse ratio to the amount of severe heading back practiced. This does not mean, however, that no pruning is to be advocated, for a certain amount is necessary in any case to maintain the proper shape of a tree, and some pruning should be given to eliminate the possibility of having to give drastic treatment at a later date to rectify long neglect. The lesson is, however, that only sufficient pruning to maintain the shape and general vigor of the tree is to be recommended.

Indiscriminate heading back delays fruitfulness and reduces vigor. Light annual prunings will not materially impair or delay fruitfulness and will eliminate future trouble. A little enlargement on this latter statement is perhaps necessary to make clear the point. We are all aware of the advantage to be gained by heading a tree properly. A tree with its head starting from one point on the trunk is weak and doomed to an early death. To correct this, pruning is necessary. Again, we all know that in pruning one should try to cut out all crotches which are acute-angled, as limbs thus crotched are sure to split open; the limb that comes closest to forming a right angle with the main trunk is the strongest. This is also attained by pruning, so here are two reasons why pruning or training is necessary in the life of the young tree.

Consider for a moment the relation between pruning and nutrition; the roots of a tree function by gathering from the soil plant foods in solution, which is transmitted to the different parts of the tree for elaboration by the leaves. The plant food gathered may roughly be divided into two classes: nitrates, as supplied, for example, by nitrate of soda and carbohydrates. These latter are the elaborated forms produced by the leaves from the solutions obtained by the roots, and are stored close to the point of manufacture. In order that the leaves can manufacture these carbohydrates sunlight is necessary, so that if a tree becomes too thick in the head, thus shutting out sun from the centre of lower portions of the tree, those parts, shut off from the sunlight will not be able to manufacture carbohydrates and will, as a consequence, become unfruitful; another reason why some pruning is essential, is to maintain the vigor of all the parts of the tree by admitting the necessary sunlight.

What is the purpose of our lives?

What are we doing to make this a better world?

Are our differences in beliefs and doctrines retarding our religious life?

Are we at fault for what our children are to-day?

We do not do justice to good seed when we put it into poor ground, nor to good ground when we put in poor seed.

Canadian Cheese Faces Strong Competition.

In a study of the marketing of Canadian dairy products the Dairy and Cold Storage Commissioner, Mr. J. A. Ruddick, discovered that Canadian cheese is slipping backward on the export market. Canada has held the field in the export trade in cheese almost to herself, but New Zealand is found to be gaining the ascendancy in the markets of Great Britain.

During his visit to England last summer the Dairy Commissioner discovered that greater attention was being given by the British consumer to the texture of the cheese purchased. A mild-flavored, meaty cheese is what is now called for. New Zealand has not been slow to observe this tendency and has worked for it.

Before New Zealand came into the market in a large way, Canada was the chief source of supply for imported Cheddar cheese. Since the Canadian cheese was produced in six months, it was necessary for a considerable proportion of it to be conserved in order to meet requirements for the remainder of the year. New Zealand coming into the market during the season of non-production in Canada, was able to command immediate attention. New Zealand has so increased her output of cheese that she now supplies about the same amount as Canada and New Zealand shipments are on the increase.

Under the stimulus of the war prices New Zealand developed her cheese industry at a rapid rate and has kept it up ever since. It was found that the popularity of the cheese from the two countries was about fairly evenly divided as between Canadian and New Zealand. The prices that have been obtained during the past two years have been about equal, varying only according to the season. New Zealand has been quoter higher early in the season with Canadian taking the lead in November and December. Three main forces have been at work according to the Dairy Commissioner, in pushing New Zealand cheese on the British market: first, cheese grading; second, the operation of large factories; and third, the development of a texture that suits the British taste better than that of the Canadian.

Feeding for Egg Production.

In feeding poultry for egg production, and more particularly in winter, the question is not only what to feed, but also how to feed, for the best possible ration, if fed unintelligently, will fail to give satisfactory results.

When the chemical composition of an egg, and the omnivorous nature of the fowl are taken into consideration, it is obvious that elements from the three natural kingdoms, vegetable, animal and mineral, must enter into any well balanced poultry ration. The first of these furnishes by far the greater part of the nourishment, either in the shape of whole or ground grain, or as green feed. The two others, however, play an important role, and should on no account be overlooked in feeding to obtain eggs.

In addition to the specific experiments on feeding conducted by the Experimental Farms throughout the Dominion the various egg laying contests have provided most valuable data on this subject.

Experience has proven that one of the best mixtures of grain for scratch feed is that composed of equal parts by weight of wheat and cracked corn, with half a part of oats. If wheat is not available at a reasonable price, a mixture of cracked corn and oats in equal parts, plus half parts of barley and buckwheat will prove quite satisfactory.

In addition to this scratch grain, a dry mash, which may well consist of equal parts by weight of corn flour, bran, middlings, finely ground oats and half a part of fine beef scrap, should be kept constantly before the birds in hoppers, as also should oyster shells and grit. In the event of beef scrap not being obtainable at a fair price, it may be replaced in the winter by raw or cooked meat, such as horse flesh (provided that the animal was healthy), or this part of the ration may be eliminated entirely provided that milk is always available.

An ample provision of fresh water is an absolute necessity (even when milk is given). In very severe weather the water may be replaced by snow, provided that it is given in a receptacle large enough to prevent the litter from getting soiled, and that an ample supply is kept available. The birds must also get a sufficient quantity of green feed, either in the form of sprouted oats, mangels, beets, Jerusalem artichokes, cabbages, or dry and steamed clover or alfalfa. As a general rule sprouted oats give the most satisfactory results, though their preparation entails a little additional work.

This question is often asked: "How much feed should be given to a flock of fifty birds in order to get a satisfactory egg yield?" but it is one that each breeder must answer for himself as a result of his own observations when feeding.

The following method of feeding has given excellent results and is one that can be recommended. In addition to the dry mash, etc., kept constantly before the birds, give a light feed (about ½ a handful per bird) of scratch grain, in a deep litter, as soon as it gets light in the morning. If sprouted oats are fed, they may be given in the forenoon in the proportion of one square inch per bird, or if a wet mash is given at noon, they can be mixed in with it. The wet mash may consist of the same ingredients as the dry mash, but moistened with either milk, water or table scraps. The birds should not be given more of this than they can clean up in fifteen minutes. The other green feed previously mentioned is best fed either suspended from a wire about six inches above the level of the birds' heads or placed on nails driven into the wall at about the same height. About an hour before roosting time a good feed of scratch grain should be given, and the feeder can best judge of the quantity necessary by examining the hen's crops immediately after they have gone to roost. If the crops are well filled and there is no surplus of grain in the litter, the amount fed is sufficient. If on the other hand their crops are not filled the quantity should be increased, but decreased in the event of much grain being left on the floor.

As stated at the outset, in feeding for egg production, method is equally as important as material, and regularity is the key to success.—W. W. Lee, Poultry Husbandman.

The Dominion Educational Butter Contest.

Ontario shows up hardly as well as might be expected in the Dominion Educational Butter Scoring Contest of 1922. In the average score for flavor and in standing for workmanship based on the scores for texture, incorporation of moisture, color, salting and packing she stood last of all the provinces. The order of the other provinces being British Columbia first, Quebec second, Alberta third, New Brunswick fourth, Manitoba fifth, Saskatchewan sixth, Prince Edward Island seventh, and Nova Scotia eighth. The difference in points of all the provinces was comparatively slight, running in a total of 55 from 54.92 for the highest to 54.48 for the lowest. The most satisfactory feature of the contest is that a decided improvement is reported in texture, moisture, and in salting. Relative to the last mentioned, Mr. Geo. H. Barr, the officer of the Branch in charge of the contest, writes, "The Canadian Markets are gradually coming to require a mildly salted butter, and butter for export must contain less salt than most creameries are using at present, one to one and a half per cent. in the butter being quite enough for the British market."

Good judgment is one of the essentials of good farming.

THE SUNDAY SCHOOL LESSON

MARCH 11, 1923

Jesus in Gethsemane, Luke 22. Golden Text—Christ also hath once suffered for sins, the just for the unjust, that he might bring us to God.—1 Peter 3: 13.

Lesson Setting—The opening part of the twenty-second chapter, finds Jesus and his disciples in the upper room. Here Jesus institutes the Lord's Supper after the observance of the Passover. And now the dread event symbolized in the Supper is drawing nigh. Judas has departed on his mission of betrayal. The great crisis of Jesus' soul has come, and he seeks communion with his heavenly Father. The approaching ordeal is far more than one of physical and mental suffering. "It is impossible for us to understand the experience of the eternal Son of God at that supreme crisis when he was carrying up our sins in his body to the tree; and where understanding fails, it becomes us to refrain our lips and be silent."

I. The Agonizing Master, 39-44.

Vs. 39, 40. He came out . . to the Mount of Olives. Matthew says, "Unto a place called Gethsemane." The word Gethsemane means "oil-press." It was an enclosed plot of ground, belonging to some friend, to which Jesus had often resorted. Matthew also tells us that his soul was exceeding sorrowful even unto death. His disciples also followed him. The less intimate disciples stood in the background while he took with him as his immediate companions, Peter, James and John, who were with his also on the Mount of Transfiguration. Pray that ye enter not into temptation. They also have an ordeal to pass through and it is Jesus' desire that they find strength through prayer to God, for their trial.

V. 41. He was withdrawn from them. He must even withdraw himself from the companionship of the three. They cannot enter into the meaning of his agony. Kneeled down. Matthew adds that he fell down on his face, the attitude of utter stress of soul. Hebrews 5: 7 makes mention of his strong crying and tears.

Vs. 42, 43. Father, if thou be willing. In all his prayer he recognizes the will of God as the supreme thing. It is not a prayer to bend the will of God to his will. It is a prayer that the will of God, if possible, may be carried out in some other way. But the work of redemption must still be carried out, even if a Messiahship without a cross, and redemption without sacrifice, are impossible. Remove this cup. Jesus speaks of his suffering as a cup of bitterness. The temptation in the wilderness was a test of how Jesus would begin and carry on his Messiahship. The experience in the Garden is a test as to how he will complete his Messiahship. Is a life of service to be completed by a sacrificial death? Not my will, but thine; again the note of loving and trustful submission to the will of God. "The longing, natural to humanity, to escape pain and sorrow, yields at once to the superior claim of the Divine will." Jesus believes utterly in the lovingness and wisdom of the divine will. It is more than the will of God. It is the will of his Father.

V. 44. Being in an agony he prayed more earnestly. His clinging to God increased with the increasing agony. His sweat was as it were great drops of blood. This does not mean the sweat was of blood, but rather that it was so profuse that it dropped from him as drops of blood drop from a wound. But it is not the less striking physical manifestation of his mental and spiritual agony, and the reality of his temptation. Holiness is not a defence from temptation. It is a defence amid temptation.

II. The Sleeping Disciples, 45-48, 54.

Vs. 45, 46. When he rose up from prayer. It was a victorious rising. From this point onward we see Jesus possessed by a great calmness of spirit. It was not an unanswered prayer because he received strength to drink it. Was come to his disciples. In Matthew and Mark we learn that Jesus came back to the three disciples three times in the course of his agony, as if he were seeking the reinforcement of human sympathy in his struggle. Found them sleeping. Each time he came he found them asleep, though Jesus had asked them to watch. The first time Jesus singles out Peter for reproach, "Couldest not thou watch one hour?" At the same time he says, "the spirit truly is ready but the flesh is weak." Jesus knows that their sleeping does not indicate callousness or indifference to Jesus, but rather frailty of will and purpose. In his own present experience Jesus knew how there was a real conflict between body and spirit. In his case the spirit has triumphed over the flesh, but the struggle enabled him to sympathize with those in whom the flesh had triumphed.

Vs. 47, 48. While he yet spake . . a multitude; composed of the chief priests, elders, soldiers and the gathering mob. And he that was called Judas. He was the leader and had undertaken to deliver Jesus into their hands for thirty pieces of silver. One of the twelve; a tragic phrase. It was one of those who had been with Jesus that betrayed him. Drew near unto Jesus to kiss him. This was the customary greeting of the disciple for his master. In this case, it was a prearranged identification of Jesus. The whole conduct of Judas is deliberate and calculated. In the case of Peter's denial of the Master, the temptation finds Peter off his guard, but the betrayal of Jesus by Judas was not sudden, but premeditated. Betrayest thou the Son of man with a kiss. Matthew tells that Jesus used the word "friend" in addressing Judas. Might not remorse of Judas begin here?

V. 54. They took him and led him. Jesus offers no resistance. He rebuked the violence done to the servant of the high priest. Peter followed afar off. Peter had begun to fail already. He had said he was ready to go with Jesus to prison and death.

Application.

One is conscious of a certain reverent hesitancy in applying our Lord's unique sorrow and experience in Gethsemane to ourselves or to others. It stands so apart from us, and is so associated in our thought with his great redeeming pity and sacrifice consummated on Calvary that we can scarcely bring ourselves to think of it as having the value of example and inspiration in our experiences of life; and yet, we are definitely encouraged by the scriptures to think of him in this way. "Looking unto Jesus, the author and finisher of our faith; who for the joy that was set before him endured the cross, despising the shame, and is set down at the right hand of the throne of God. For consider him that endured such contradiction of sinners against himself, lest ye be wearied and faint in your minds." Heb. 12: 2, 3. "Though he were a Son, yet learned he obedience by the things which he suffered," and we may learn of him.

There are so many people to-day who have bitter cups to drink, so many men and women who must go forward on some via dolorosa to some great suffering and sorrow, sometimes sacrificial and vicarious. There are cups that may not be taken from the lips until they are drained. It is a glorious truth that countless thousands have been inspired to say, "Thy will be done," because Christ trusted himself to the Father. Though dark the path and sad the lot, though in lonely grief, though pining sickness waste away the life in premature decay, Jesus has taught us to say, "Thy will be done," whatever the experiences of our life may be.

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