

POTATO SPRAYING FOR PROFIT

Some Worthwhile Thoughts on Making Spraying Efficient.

BY H. C. MOORE.

Since potato growers of Ontario are interested in putting on the market better quality potatoes at a lower production cost, it is important that they give careful attention this season to the matter of spraying. High quality potatoes and high yields are not secured from plants whose leaves are riddled by insects or infected with blights. Healthy green leaves are absolutely essential in tuber development and starch formation.

CALCIUM ARSENATE FOR BUGS.
Colorado potato beetles, flea beetles, leaf hoppers and plant lice are a few of the more common insects affecting the potato that can be controlled by spraying. Both the Colorado beetle and the flea beetle are leaf-chewing insects and the injury that they do is generally recognized by growers. While the Colorado potato beetle or bug is familiar to every potato grower, the potato flea beetle is not so well known. This tiny black insect which is about the size of a pin head eats small round holes in the leaves. It is particularly serious on early potatoes and is generally most common in fields that are weedy or that are surrounded by weeds.

For these two insects as well as other leaf-chewing insects, Paris green, lead arsenate or calcium arsenate are the poisons most commonly used. Paris green is not as generally used as it was a few years ago; it does not stick to the foliage as well as the other poisons named and it may cause a burning of the leaves, if applied without lime.

Calcium arsenate is now one of the best poisons for potato bugs; it is quite cheap, is quick acting and sticks well to the foliage. It should be used at the rate of three pounds to every 100 gallons of Bordeaux mixture. If lead arsenate is used it should be combined with the Bordeaux mixture at the rate of five pounds to one hundred gallons.

Probably the most serious insect pest affecting the potato is the leaf hopper. This small green insect lives mostly on the undersides of the leaves and sucks the juice from the plant. During August and September, potato fields that have not been protected against this pest show a drying of the plants. The tips and margins of the leaves curl upwards and become black and brittle. This injury to the leaves may cut the yield forty per cent or more. The most effective spray for leaf hoppers is home-made Bordeaux made by dissolving four pounds of copper sulphate in four pounds of stone lime or six pounds of hydrated lime in fifty gallons of water. Detailed directions for making Bordeaux mixture when properly made and applied will keep the plants green throughout the season, and judging from the results of tests and demonstrations, will generally increase the yield forty bushels or more per acre. In years when late blight occurs the use of Bordeaux will save

the potato crop. This fungous disease attacks the leaves causing black water-soaked spots. It spreads rapidly during cool, muggy weather causing losses in some sections of Ontario nearly every year.

Early blight, another fungous disease, controlled by spraying with Bordeaux mixture, attacks the foliage, making small dark spots on the leaves. These spots when closely examined show concentric rings like a target. This disease is common every year and takes quite a heavy toll of the crop by injuring the leaves, thus lessening the yield.

Aside from controlling leaf hoppers, early blight and late blight, Bordeaux mixture increases the effectiveness of whatever poison may be used for insects. It causes the poison to stick well to the leaf and it has been found particularly effective when combined with calcium arsenate or arsenate of lead in controlling flea beetles. Every growing giving serious attention to the potato crop should use Bordeaux mixture in every spray application.

Potato lice or aphids are serious in some seasons; they feed on the underside of the leaves and on the growing tips of the stalks. At their first appearance add one pint of forty per cent nicotine sulphate to one hundred gallons of Bordeaux mixture and spray so that all parts of the plant are covered with the spray. Observations should be made for this insect at frequent intervals and the nicotine spray should be applied before the lice cause the leaves to curl.

HIGH PRESSURE SPRAYERS FOR BEST RESULTS.

The success from spraying depends upon its thoroughness and timeliness. It is necessary that all parts of the plant be covered with a thin film of the spray. To accomplish this a machine that can maintain approximately two hundred pounds pressure should be used; then the spray will be delivered in a fine mist that will envelop the whole plant. Since most insects and fungous diseases begin their attacks on the lower sides of the leaves, the spray boom should be equipped with three nozzles for each row, one directing the spray downward to cover the top of the plant and the other two placed close to the ground on either side of the row and directing the spray toward the undersides of the leaves.

Timeliness of application is all important. After late blight or leaf hoppers have caused serious injury to the vines, but little good can be had from spraying. The time to spray is before the damage is done. Generally the first spray should be applied when the plants are about six inches high. Other applications should follow at intervals of ten days or two weeks throughout the season. In cases, however, where weather conditions are favorable for late blight, it may be necessary to spray oftener.

S.S. LESSON

August 30. Paul and the Philippian Jailor. Acts 16: 16-40. Golden Text—Believe on the Lord Jesus Christ, and thou shalt be saved.—Acts 16: 31.

ANALYSIS.

I. PAUL AND SILAS FLOGGED AND IMPRISONED AT PHILIPPI, 19-24.
II. THE CONVERSION OF THE PHILIPPIAN JAILOR, 25-34.

INTRODUCTION.—After the conversion of Lydia occurred a second and even more remarkable work of grace at Philippi. This was the rescue and conversion of a half-witted girl whom certain unscrupulous men employed to earn money for them by the telling of fortunes. From this life of degradation and sin St. Paul succeeded in delivering her, but so great was the anger of her employers at Paul having interfered with their commercial interests that they dragged him and Silas before the courts and instituted proceedings against them. The present lesson describes the results of these proceedings.

I. PAUL AND SILAS FLOGGED AND IMPRISONED AT PHILIPPI, 19-24.

V. 19. The employers of the girl in their indignation at losing their profits, set law at defiance, and brutally drag the missionaries with their own hands before the courts.

Vs. 20-21. The law courts were organized on the Roman model—since Philippi was a Roman colony—the magistrates being known as "praetors." The accusation brought before them is that Paul and Silas are Jews and disturbers of the peace of the city. While the Jewish religion was permitted under Roman law, any alleged breach of the peace was, of course, an indictable offence, and in this case gave an outlet for the prevailing anti-Semitic feeling. Paul and Silas are accused of introducing practices which are foreign and contrary to the Roman law of the colony. The real offence, of course, was that they had interfered with these men's business.

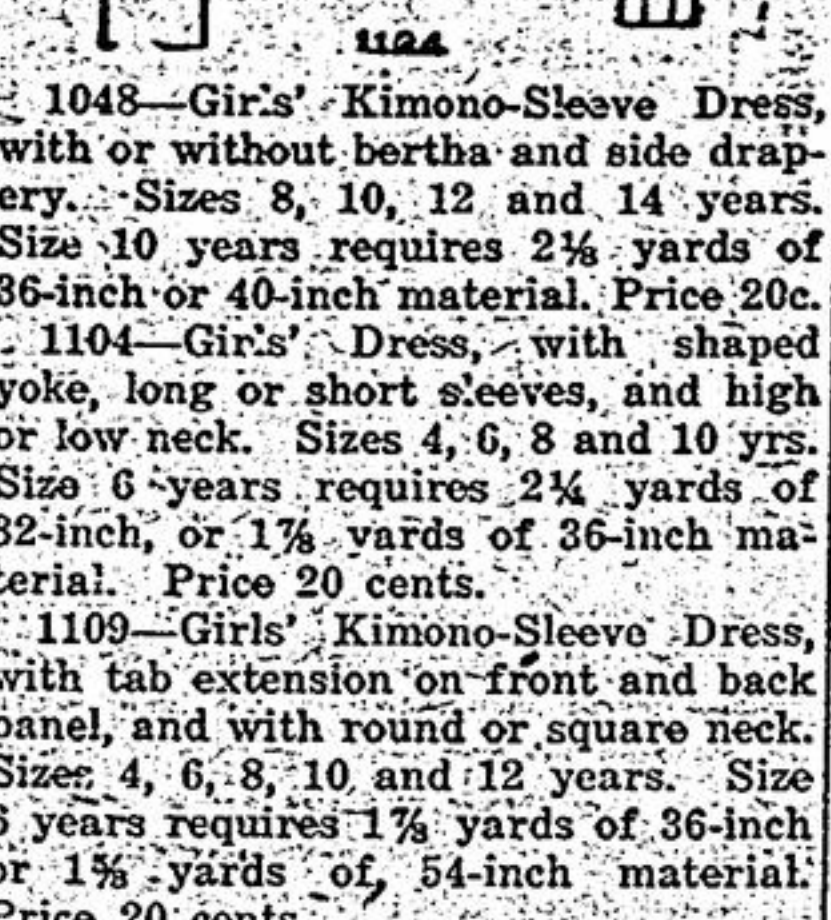
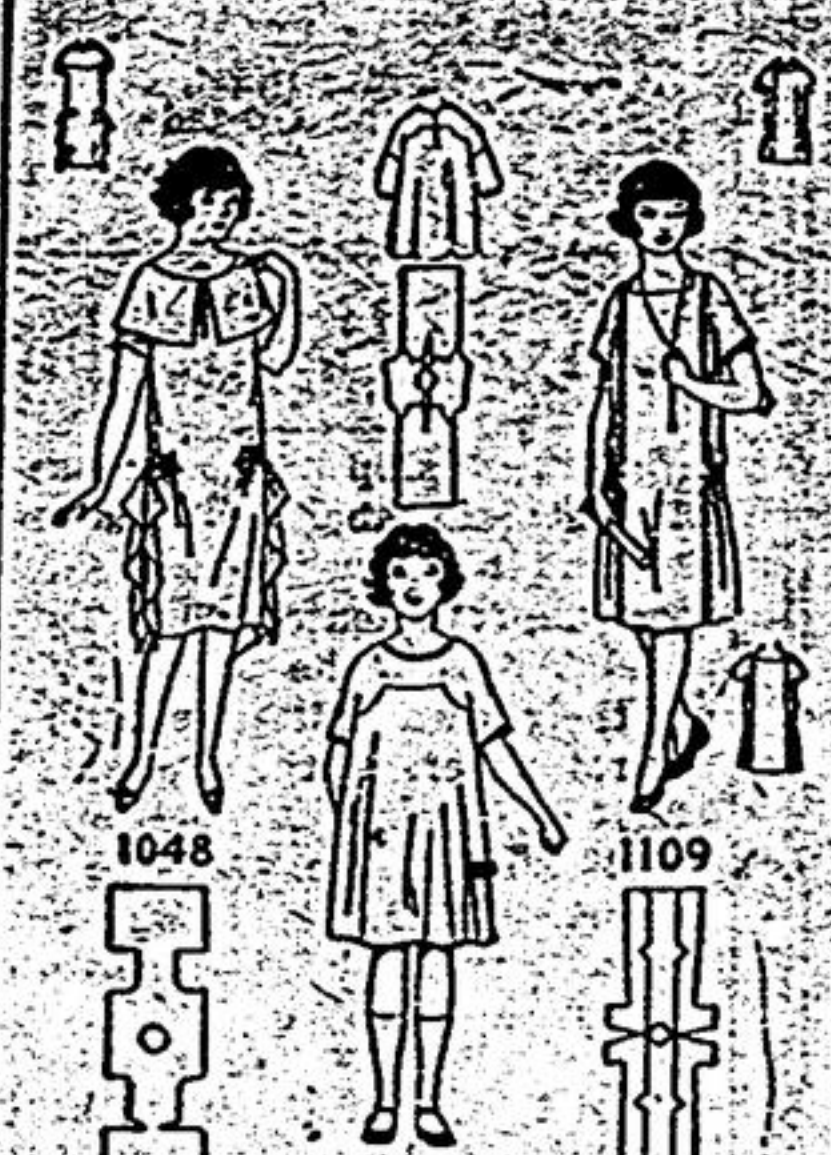
Vs. 22-24. The sentence of the court was quite illegal as against a Roman citizen like Paul. Under the influence of angry anti-Jewish feeling he and Silas are condemned to the terrible punishment of flogging. The sentence is carried out, and Paul and Silas were thereafter shut up in the inner prison. The jailer, who had been specially instructed to keep them carefully under lock and key, took the extra precaution of fastening their feet in the stocks.

II. THE CONVERSION OF THE PHILIPPIAN JAILOR, 25-34.

V. 25. It was a queer place in which to raise the voice of psalmody and prayer, but that night Paul and Silas were praying and singing hymns. What a wonderful thing the religion which enables broken and outraged men to give thanks to God in a prison-cell! Well might St. Paul afterwards write to the Philippian Christians, and say: "Rejoice in the Lord always, and again I say, rejoice!" No wonder the other prisoners were listening as Paul and Silas sang. They had never before heard the voice of joy and gladness in a prison.

Vs. 26-28. That night there occurred an earthquake at Philippi—not a very uncommon thing in that part of the world. Locks, bolts, and bars in the prison flew open, and the prisoners rubbed their eyes to discover themselves free to escape. But imagine the consternation of the awakened jailer. He feels it is all over with him, for the prisoners are gone. A hardened and desperate man, and accustomed to acts of violence, he draws his sword, and is only saved from suicide by the appearance of Paul who, perceiving the man's intention, shouts, "Do thyself no harm; for we are all here."

Vs. 29-30. This was too much for the jailer. God had been working mightily on his soul, all that night. He had doubtless heard the prisoners singing. He wondered what they had to sing about in a place like that. He had no religion himself, no motive for fortitude or courage under conditions of suffering. Then had come the



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earthquake, and he had started up to find the jail open, and as he thought, the prisoners gone. Death stared him in the face for the moment; he wished to strike himself dead, until the voice of Paul the Christian arrested him, and he stood transfixed. All this provoked a great emotional crisis in his nature. Fearing for his soul, trembling at the thought of his sins, he called for lights, and springing in, fell at the feet of Paul and Silas, crying, "Sirs, what must I do to be saved?" He had seen enough of these men to know that if any could help him at this moment, it was these men whom he had found so calm and serene in the midst of suffering and danger. He knew that they were men of God.

Vs. 31, 32. The missionaries answer that faith, the surrender of the soul to Jesus as Lord, will save him. But not content merely to utter these words, Paul and Silas start preaching and explaining God's gift in Christ to the jailer and his household.

Vs. 33, 34. Nor is the preaching vain. The jailer, shaken to the very foundations of his being, and seeing the stern judgment of heaven upon him, accepts the assurance of divine salvation in Christ, and is baptized with his whole family.

The tongue of the graffe is nearly a foot and a half long.

Apple-aphis and pear-aphis turn up their toes when the trees are dusted with calcium cyanid. Moisture in the air liberates hydrocyanic acid gas, a most effective insecticide. This calcium cyanid has about as many uses as any one thing could have. Kills fleas, garden insects, moles, rats, woodchucks, etc.

SOME HINTS FOR BOY SCOUT CAMPERS

BY E. L. COOMBS.

Country churches, churchyards and war memorials may offer a practical good turn opening for Scout handymen, carpenters and gardeners in particular. A good turn last summer that was much appreciated by a neighboring community was the tidying up and beautifying of the surroundings of a War Memorial by Scouts from the Ottawa district camp.

Clean local bathing-places of sunken logs, submerged rocks (if not too large), weeds, etc. Place signs to warn of deep holes, and of submerged rocks or other objects which may be struck by divers. Arrange dressing shelters. Construct a model latrine.

Drain or bridge undesirable marshy spots. A good marsh bridge may be made of logs placed parallel and filled in with gravel.

Permanently bridge small streams where paths cross.

IN A FARM NEIGHBORHOOD.

Repair fences and gates. Every summer short-handed farmers are trying unsuccessfully during the busy field-work season to find an opportunity for repairing fences or gates broken by cattle.

For similar reasons, farmers frequently are unable to run into town to secure mower teeth or other machinery parts. If the camp has a means of daily or frequent communication with town, a standing offer to take care of such emergency needs during the period of the camp would be greatly appreciated.

A short-handed farmer may not

have found time to draw in the previous winters' cut of firewood. An hour or so's wood-bus would easily take care of this. The Scoutmaster driving the team, the boys handling the wood.

Clean out a pasture "spring pit" where cattle drink, or construct a pit. One form is made of a barrel cut in two around the middle, and sunk over the spring; being so located that the cattle can reach it without difficulty. A whole barrel should not be used; cattle have caught their heads in such pits and drowned.

Learn whether there are any "shut-ins" in the district, and if so whether they would appreciate a Scout serenade some evening. If you have a portable radio receiving set, take that along.

Repair or improve the efficiency of neighboring farmers' radio sets.

If you have a real radio electrician in the troop, send the word around.

Invite your neighbors to a Scout Field Day near the conclusion of your camp. Put on games and display work. If the visitors include boys, have them participate in some of the games. If not too many, the visiting boys might be attached as guests to different patrols for the afternoon.

At the discussion of the field day program by the Court of Honor hold up the objective of giving the neighbors, particularly the boys, a jolly afternoon of real Scout fun. Yourself take the visitors about the camp, and explain the various features.

ADD THESE TO YOUR PRESERVE CLOSET

BY MARY HAMILTON TALBOTT.

If you have been a bit lax about canning there is still time for you to make a lot of good things for your food storage closet.

Tomatoes are so adaptable for serving at all of the daily meals that most housewives can't get enough of them. Recently it has been discovered that they have an added value because of their rich store of vitamins, which are so necessary for good health. The juice of the tomato is now given to young children as freely as orange juice.

In the canning of tomatoes, however, a longer period of processing than has been used heretofore is advisable. Scald and peel, pack in jars, then cover with hot tomato juice, add a teaspoonful of salt to each quart and process forty-five minutes in a water bath at 212 degrees Fahrenheit. Allow five minutes less for pint jars, and ten minutes less for No. 2 or No. 3 tins.

If tins are used, cool quickly after sealing by plunging into cold water. Canning, however, is not the only way to use this very desirable vegetable. It is delicious converted into conserve, butter and jelly.

To make the conserve, add to one quart of cooked tomatoes four cupfuls of sugar, one cupful of raisins, steamed before adding to mixture, one lemon put through the grinder, and half a cupful of any kind of chopped nut meats. Cook until thick. My grandmother's recipe for tomato butter is to allow to each two quarts of stewed ripe tomatoes, peeled before cooking, four cupfuls of light brown sugar and two teaspoonfuls each of cloves and cinnamon. Cook slowly until very thick, like apple butter. The seeds may be sifted off if desired.

If you want a jelly which is especially healthful for children, take equal parts of tomato and apple juice, two-thirds as much sugar as the two combined, and the juice of one lemon to each quart of juice. Boil the juice six minutes before adding the sugar, then cook until it gives the jelly test of sheeting from a spoon.

If the frost catches you with a good many green tomatoes on the vines, do not let them go to waste; they make splendid mock-mince filling for pies. Chop fine enough of the sliced tomatoes to make four quarts, add two quarts of chopped tart apples, half a pound each of seeded raisins and currants, four tablespoonfuls of chopped citron, a quarter teaspoonful each of allspice and cloves, four teaspoonfuls of cinnamon, five cupfuls of brown sugar and two cupfuls each of vinegar and water. Cook slowly until the mixture is thick, then seal.

DRY SOME OF THE FRUITS.

A very tasty preserve can be made from green tomatoes. If large tomatoes are used cut them in halves, then quarter the halves, and to each pound allow three-quarters of a pound of sugar and one thinly sliced lemon. Put the sugar in just enough water to dissolve, add the other ingredients and simmer gently until the tomatoes are almost transparent and the syrup thick. Very small tomatoes may be preserved whole.

Don't get so enthusiastic over canning that you waste time, energy and fuel over canning late beets, carrots, mature Lima beans, pumpkins and squash. The root crops may be stored in moss or sand, whereas squash and pumpkins should be kept in a dry room with a uniform temperature of 50 degrees. Lima beans and okra dry satisfactorily. And, too, peaches, plums, apricots, quinces and apples, if dried, are a wonderful asset in winter for they can be converted into so many delicious and healthful dishes. And drying them is so easy.

No matter what drying method is used, apples, pears and quinces should be pared, cored and sliced into cold salt water, using an eighth of a teaspoonful of salt to a gallon of water. After two minutes in this solution, steam them ten minutes before drying. Peaches should be peeled and stoned, and plums and apricots just stoned. The vegetables are washed and dried.

The homemade open-rack drier with wire-mesh shelves can be hung over a coal or wood stove and a low even heat maintained. It takes about three and a half hours for the food on the lowest tray to dry and seven hours for the top tray. As the product on the lowest shelf dries, that on the top shelf can be brought down to lessen the time of drying it. For oven drying a temperature of 110 to 150 degrees should be maintained, and the door of the oven left open. It takes from four to six hours to dry by this method.

If a gas stove is used light only the pilot burner and close the oven door; it takes longer this way but the results justify it from ten to twelve hours as a rule are necessary. If you can manage a net or cheesecloth covered frame for drying it is better than a metal tray, as the moisture condenses on the latter and retards the drying.

An electric fan will shorten the drying process considerably by placing the product in front of it. For several hours before heat drying, sun drying is, of course, the least expensive method to use, but you must keep your weather eye open, for if fruits or vegetables get wet they cannot be redried with success. A well brushed window screen with a piece of cheese-

cloth over it makes an excellent frame.

A good test for the dryness of foods is to put a portion in a dry glass jar, add a crisp cracker and leave inclosed over night. If in the morning the cracker is soft or has lost its crispness, dry the product an hour or two longer. Used candy or cracker boxes are good containers for the storage of dried foods. Wrap in wax paper and, after placing on the lid, paste paper around the edge to exclude the air.

A housewife who is famed for her brilliant preserves says the reason they are so sparkling is because they are cooked rapidly over a hot fire, for slow cooking makes them dull and unattractive.

She said to me: "I make a syrup of one quart of water and a little less than two cupfuls of sugar, cook only one layer of fruit at a time and see always that each piece is completely covered, for parts which are above the syrup shrivel and dry out. As each layer of fruit is cooked I lay it on a plate, and when all is cooked I pour the syrup over it and let it stand all night; this helps to plump it."

"In the morning I pack it into cold, sterile jars, pour off all the surplus syrup and boil the latter until thick. This is then poured into the jars, and I see that every crevice is filled. When cold I cover with hot paraffin. This method I use for peaches, pums and berries. Hard fruits need cooking in water to soften them before putting them into the syrup."

The fireless cooker is admirable for preserving pears, quinces, watermelon rind and citron. Prepare them in the usual way, put into the cooker kettle, add water and boil hard for a minute or two, then put into the cooker over night. Add sugar in the morning.

Three-quarters of a pound to a pound of fruit, or if a rich preserve is desired, a pound for a pound. Bring to a boil and return to the cooker for four hours, when the product is ready to pack into jars.

An unusual peach conserve is made by cooking together until soft four pounds of peaches, pared and cut into small pieces, one grated orange, one grated lemon and one grated pineapple. Measure and add a pound of sugar for each pint of pulp. Add half a pound of blanched and chopped almonds, together with a few peach kernels. Cook slowly until thick and stir to prevent burning.

A few jars of pickled peaches should be in every preserve closet. The peaches should be nearly ripe and very firm. Do not stone them, and let them stand for two days in a strong solution of salt and water. Drain and spread them out until quite dry, then fill into jars leaving a quarter of the space for the liquid. To make this, add to each quart of vinegar a tablespoonful of mustard, mixed smooth, half a cupful of brown sugar, a teaspoonful each of powdered ginger and allspice and six cloves.

When boiling hot, pour over the fruit. Catchups may be included among the condiments of which it is impossible to have too great a variety, for with them the housewife may give piquancy and change to the daily meals. Barberry catchup is made by cooking and straining three quarts of barberries; then cook together four quarts of cranberries, one cupful of raisins, one large quince and four small onions in a quart of water, strain and mix with the barberry juice. Add three-quarters of a cupful of salt, two cupfuls of sugar, half a cupful of vinegar, two teaspoonfuls of ground cloves and one of ground allspice, two tablespoonfuls each of black pepper and celery seed, one tablespoonful of ground mustard, one teaspoonful each of cinnamon, ginger and nutmeg. Let boil one minute; if too thick add either vinegar or water.

To make grape catchup heat ten pounds of the fruit in a kettle with just enough water to prevent scorching, until they will go through a colander. Boil a pint of vinegar and two pounds of sugar for a quarter of an hour and mix with the strained grapes, then add an ounce each of cloves, cinnamon and mace. Cook twenty-five minutes. If too thick add a little vinegar and sugar. Cork tightly.

Keep Up the Milk Flow.

August is a hard month on dairy cows, flies, dry pasture and hot days. Influences may be overcome by providing green food, alfalfa and corn, a grain ration, and giving protection from flies and the hot sun. Only the industrious cows do well in August, others' idleness will not eat the dry feed during this trying month. The dairyman with a second silo filled during a year of plenty and reserved for a season like this, has the laugh on the other fellow this time. Silage and alfalfa reserves are necessary to profitable dairy farming. Better plan to put up a second silo this year; that you may have nutritious, succulent feed at hand for the cows in future. Dry years come frequently, and good silage will keep until needed. Bulletin 287 on silos and silage may help you.

The present territory of Sweden is about half the size of California.

Bees are always more at home on cloudy days than on warm, bright days. It's funny, but whenever we meet a bee it must be on a cloudy day.

An Orchard Inventory.

If the orchard is a going concern, a real business enterprise, we ought to go over it at least once a year and check up on it just as carefully as the merchant does his stock of goods.

In fact, in some ways this is more important with the orchard than with a store, for the merchant merely learns what stock he has on hand, while the orchardist can discover many of his past mistakes, and can decide what future policies are desirable in order to improve the output.

This inventory ought to be taken with pencil and paper in hand to make records and every tree should be examined in every part.

For the next two or three months this record can be made more effectively than at any other time in the year because the trees have completed its work for the year, the foliage and wood growth can be examined and the crop of fruit is on the trees where it can be examined.

If one is to take such an inventory some sort of outline is desirable in order that he may not overlook any of the points that should be noted. To organize this score card effectively we may arrange it under three general heads—first growth, second, pest control; third, pruning. And the answer to any reasonable question that we may want to ask under any of these heads will be right before us on the trees.

First, has the growth been what it should? One would look for the answer to this question in the size and color of the leaves, in the length of this season's growth on the branches and in the size and color of the fruit. If the tree isn't making from eight to eighteen inches on the terminals and if the leaves are not good size and good color, and if the fruit is undersized, then we need to improve our fertilizing and cultivation.

On the other hand if the fruit is oversized and undercolored, as will occasionally happen, then we may conclude that we are overdoing the matter of cultivation and nitrogenous fertilizers. This matter of growth, more than any of the other items, should be an individual matter with each tree, for in this particular the trees are most likely to vary. Occasionally, when trees show particularly poor growth, with very small and yellowish leaves, one is justified

in suspecting some root trouble and should endeavor to find out just what it is. Frequently this leads into our second general heading, pest control, and we find that it is due to girdling by mice, to borers or to some type of collar rot. But whatever the cause it usually calls for drastic treatment.

Another important point to check up on in this matter of pest control is scab. Did you control it? If not was this due to failure to reach the tops of the trees or to omitting some particular application or to poor spraying generally? Usually one hesitates to admit the latter though it may be the real reason.

The trees should be scrutinized for cankers, San Jose scale, oyster shell, and many other troubles and the necessary corrective treatment arranged for.

In the matter of pruning we can tell better at this season than perhaps at any other whether we have pruned enough or too much and resolve on remedying the defect another year.

And lastly we may look for trees that need mending or bracing, for vacancies that should be filled and we may consider whether the fillers ought to be removed and whether some change in cover crops is desirable. One certainly comes out of such a canvass with a vastly better knowledge of the orchard and a clearer plan for the future.

Stunts for August.

Sow alfalfa. Sow cover crop in the orchard.

Take the family to the National Fair.

Plow ground for fall wheat—the sooner the better.

Put harvesting machinery under cover. Don't leave canvases on the binder—take 'em off and roll 'em up.

Treat beans with carbon bisulphid when putting them away, to prevent woolly eating them.

Plant iris and peonies now. They may be planted as late as September, but the first week in August is O.K. Divisions of old peony clumps should have at least two eyes, and should be covered with dirt two or three inches deep. Peonies should not stay more than eight or ten years in one place, and iris three or four years.