Conducted by Professor Henry G. Bell

The object of this department is to place at the service of our farm readers the advice of an acknowledged authority on all subjects pertaining to soils and crops.

Address all questions to Professor Henry G. Bell, in care of The Wilson Publishing Company, Limited, Toronto, and answers will appear in this column in the order in which they are received. As space is limited it is advisable where immediate reply is necessary that a stamped and addressed envelope be enclosed with the question, when the answer will be mailed direct.

J. S. G.:—1. Do you know any short cuts that will help in this time of labor shortage? 2. What is the cause of oats growing heavy, rank straw and lodging before they are ripe? Is there something lacking in the soil? My neighbors tell me my ground is too rich. We used to have a lot of stock on the place, and used a lot of soft wood ashes. Our hay crop is not nearly so heavy as it used to be. I have been working the place for four years. Is there anything to put on the land to make the straw grow stronger, or to retard the growth of it? Last year I did not have half the crop of oats as they did not fill out and they went down. 3. What do you think of rape as a summer pasture for hogs and calves? 4. How does arsenate of lead compare with Paris green in effectiveness in the spraying of potatoes? 5. Would you recommend the sowing of beans on sod land with an application of a fertilizer containing about 1% ammonia and 12% available phosphoric acid?

Answer:—1. Many suggestions can be offered relative to the conservation of labor during the present shortage, but it is difficult to bring suggestions within the range of the average man who has a limited amount of machinery. There are two lines of attack, first using more efficient machinery, second, employing better cultural methods. Without detailing a long discussion of the advantages of the first, the following figures are self-explanatory. Investigations by Cornell, Agricultural Experiment Station, show that cultivating corn a one-horse cultivator covered 4.4 acres a day of 10 hours. A two-horse cultivator covered 6.6 acres. This of course is a saving of at least 50% in man labor when the extra horse can be added. The season for cultivating potatoes is nearly at hand. To a large extent a two-horse cultivator can be used to advantage on the potatoes and will effect the same general saving of labor. In spraying potatoes a man with a hand sprayer can cover from two to three acres a day. A horse sprayer can easily cover 10 to 12 acres, involving no additional man labor. In cutting hay, a mower drawn by two horses has the following cutting capacity, varying with the length of the cutter bar:—

Length of bar.	Area cut per day.
4½ feet	8.3 acres
5 feet	9 acres
6 feet	10.2 acres

In handling hay,

Men	Horses	Waggons	Tons
2	2	1	hauled 10.7
3	4	2	hauled 14.9
5	4	2	hauled 20.1

The time for seeding winter wheat is nearly at hand. West Virginia Experiment Station found that it required 23.1 hours of man labor to plow, disk, harrow, cut, haul and thrash an acre of wheat. Conditions in that territory are somewhat the same as in Ontario, so that these figures of production are fairly representative for Ontario conditions. By fertilizing wheat when seeding, it has been found possible to increase the average yield of wheat 13 bushels per acre in Ohio, 10 bushels per acre in Missouri and 8 bushels per acre in Indiana and Ontario. Of course, this increase is the general average of several experiments. Actual yields in Ontario of 40 to 50 bushels per acre are on record with in the last two years where the wheat fields are given careful preparation, manured and fertilized. Now, it is obvious that if a little less than 24 hours of man labor on an unfertilized wheat field produced less than 20 bushels of wheat per acre on the average, and if by fertilization, the yield of the same fields can be increased so that double the amount of wheat is harvested, labor used on the fields will be employed with an increased efficiency of 100%. Stated in another way, half the land will raise an equal amount of grain if properly fertilized. Applying fertilizers takes very little more labor, since it is distributed at the same time as the wheat is sown. The fertilizer distributing compartment of the modern wheat drill gives this concentrated plantfood uniform and effective distribution. 2. I would assume from your question that you have been applying manure heavily to the land where you are attempting to grow grain. Manure is relatively high in nitrogen, but low in phosphoric acid, the plant ripener. The addition of soft wood ashes has tended to increase a condition in your soil where considerable amount of straw is produced and the grain fails to ripen. Soft wood ashes do not contain very much potash, but carry a relatively large amount of lime. Indications are that your soil is in need of plantfood high in phosphoric acid and carrying a small amount of nitrogen, and medium amount of potash. I would advise you, if sowing winter wheat to fertilize same with about 200 to 300 pounds per acre of fertilizer carrying 1 per cent. ammonia, 10 to 12 per cent. phosphoric acid, and 1 to 2 per cent. potash. There is abundant evidence to show that this application of plantfood materially improves the yield, strengthens the straw and aids the filling out of grain. The fertilizer is best distributed through the fertilizer dropping machinery of the grain drill. 3. Rape, especially the Dwarf Essex variety, has proven a very valuable pasture crop for sheep. It may be sown late in the spring and produce a good pasturage in the early autumn. Craig says in his book that an acre of rape will carry 30 hogs for 2 months. Young cattle would have to be handled with care on it, since rape has a tendency to bloat. 4. Arsenate of lead is competing strongly with Paris green as a poison to be used in the spraying of fruit trees and potatoes. If it is well made it is proving very effective on potatoes. Arsenate of lead comes in two forms. In dust form it contains 1 or 2 per cent. of moisture and in the paste form, in which it contains 35 to 50 per cent. of moisture. Its chemical composition shows it to carry a relatively high amount of poison which should be effective in killing potato beetles if carefully applied. 5. If the sod land can be worked down so it forms a good mellow seed bed, beans should do well upon it. Careful soil preparation shows best results in bean crops perhaps more than it does in any other farm crops. The fertilizer you mention should produce good results provided you have grown clover on the field preceding the bean crop or applied stock manure to it within the last two or three years. In applying the fertilizer be especially careful not to get it right under the beans. Several successful bean growers in applying fertilizers follow the practice of closing up the 3rd, 6th and 9th holes of the fertilizer section of the grain drill, and distributing the fertilizer through the other tubes. When it comes to seeding beans, or if the beans are sown through the grain drill, they are dropped through the spouts that are closed to the fertilizer. This amounts to applying the fertilizer broadcast between the rows, not dropping it immediately under the beans.

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THE SILO AN ECONOMIC NECESSITY

The cheapest and best ration for live stock must contain a reasonable amount of succulent feed. An abundance of suitable pasture is unexcelled, and a substitute for this feed in winter or during a drought in summer is essential for greatest production and profits.

In view of the scarcity and high prices of grains and meals, the silo takes on an increased value. For example:—100 pounds total digestible nutrients in corn silage has a net cost of 54c., in bran $2.31, corn $4.02, oats $4.29, etc., when silage costs $3.00 per ton to raise and store and other feeds are valued at present wholesale market prices. Even in these times of expensive labor, seed, horse labor and machinery, corn may be placed in the silo at the above cost. Surely this is sufficient reason why every live stock farmer should consider the increase in silage production.

The adaptability of the silo to various parts of Canada depends on the location, varieties of crops which may be grown, and, to a lesser extent, on the class of live stock maintained. No farmer with two or three cows should think of building a silo, but for a herd containing ten cows or more, or the equivalent, a silo may advantageously be erected. Silage is feed preeminently suited to the feeding of dairy cattle. It, however, is a very excellent and cheap feed for beef cattle, sheep and horses. In the majority of the best live stock districts in Ontario and Western Quebec silos should be on every stock farm. In the Maritime Provinces, Eastern Quebec and British Columbia, all large stock farms, particularly of dairy cattle, can use a silo to excellent advantage. If any particular district is not suited to corn growing, peas and oats, peas, oats and vetches, clover, alfalfa, etc., may be substituted for that crop. In the Maritime Provinces silos on many farms, particularly on large stock farms, are operated satisfactorily.

Silos For Winter Use: Silage at $3.50 per ton is cheaper cattle feed than mixed hay at $12 per ton. Corn silage is 30% better than shocked corn from field. The same holds equally true of unthreshed oats or oats and peas saved for winter feed. Silage from peas and oats produced milk 20% cheaper than oat sheaves, 30% cheaper than straw and turnips and 40% cheaper than hay. At the same cost per ton, silage is better feed than roots for beef or dairy cattle. Moreover, considering present labor conditions as well as cost of harvesting, keeping qualities and cost of storage, silage, where grown successfully, is more economical than roots. Silage needs no pulping or other preparation for feeding. Silage for winter use is in itself the cheapest feed, and it also makes all other roughages and grains more palatable, wholesome and profitable.

Silos For Summer Use: Good pasture, if available, is the cheapest summer feed. Where permanent pastures fail, an annually sown pasture of rye or oats and barley may, under present labor conditions, be the cheapest substitute. However, the use of soiling crops or summer silage may be the only available means of providing succulents. As a rule, silage is more profitable and more cheaply harvested and fed during the busy season. Milk produced on corn silage and green cut alfalfa cost in feed 66% per cwt; produced on corn silage and mixed hay may cost 70c per cwt; produced on soiling crop (peas and oats) cost $1.04 per cwt. With all lots, the heavy milkers received some grain. Where suitable pastures are not available the summer silo provides the cheapest feed and greatest profits.

Finally, the farmer with a silo need never fear losing a crop of clover, alfalfa or late-sown grain. Silage making does not depend on the dryness of the weather. The silo is the cheapest storage building on the farm in proportion to the tonnage capacity. The silo allows the carrying of more stock per acre on the farm and is a labor saver, a money maker and a soil enricher.

This is the season of the year to build more and better silos.

Mothers and daughters of all ages are cordially invited to write to this department. Initials only will be published with each question and its answer as a means of identification, but full name and address must be given in each letter. Write on one side of paper only. Answers will be mailed direct if stamped and addressed envelope is enclosed.

Address all correspondence for this department to Mrs. Helen Law, 235 Woodbine Ave., Toronto.

Librarian:—Why not hold an exhibit to arouse interest in your Public Library? I heard recently that a small town library like yours gave an exhibition that resulted in a greatly increased use of its books and magazines. The plan was first advanced by a woman's club, the members of which volunteered to do all the necessary work. They had found in the library many books that were useful in helping them to make various kinds of fancy work. The exhibit as they arranged it contained the articles that they had made, and close beside them the book or magazine that had furnished the idea or the design. But they did not limit the exhibition to books on fancywork or to books merely for women. Books on household economy, gardening, arts and crafts, hygiene and many other practical subjects were shown in such a way that the men and the women and the boys and the girls who visited the show could see at a glance what kind of help or information they could get by using the library.

Housewife:—1. If wall paper is broken or marred in places it may be successfully repaired by cutting from a remnant of new paper figures or groups of figures corresponding to those that need repairing. The outline of the design should be carefully followed in cutting and the whole should be matched and pasted exactly. If the new paper is hung in the sunlight till it is faded a bit the mended place will escape the notice of even a critical observer. Without fading it shows very little. 2. Oatmeal soup might fill the need you speak of. Take two ounces medium or fine oatmeal, 1 onion, 1 carrot, 2 ozs. dripping, 1 quart of stock, ¼ pint of milk and salt and pepper to taste. Wash and prepare the vegetables, grate the carrot and peel and chop the onion finely. Melt the fat in a saucepan, add the oatmeal and fry it for a few minutes while stirring. Then add the vegetables and fry for a few minutes longer. Now pour in the stock with a pinch of salt and bring to the boil. Skim carefully and allow to simmer slowly for about three-quarters of an hour. Lastly, add the milk and reheat, season to taste and serve hot.

Molly:—Seeing that you have some spare time on your hands you might use it to advantage by keeping bees. They are very profitable and can be carried on as a side line without any inconvenience. It is better to start on a somewhat small scale and gradually work up.

Mr. F. W. L. Sladen, Dominion Apiarist, says: "I am more than ever convinced that for a large output of honey this coming summer, one of the best bits of advice to give is to urge those who are employing and know how to employ modern methods to increase their holdings by purchasing or leasing bees from those who, for one reason or another, are neglecting their bees." It would seem that women are particularly adapted for this kind of work.

Ambitious:—If you have any talent whatever for public speaking or for giving demonstrations then by all means start something in your community. Write to the Food Board for copies of their various pamphlets and bulletins. Get yourself well informed on the food question and then talk. A teacher has now a splendid opportunity to bring home to the people in rural communities the facts of the food situation. Encourage the children to suggest ways of saving which will apply to their own homes, and receive reports each week on the savings accomplished. You will soon find the parents, as well as the children, becoming interested.

The Pink Peach Blossom.

Once upon a time, after a long, cold winter, there came a few days of warm southern breezes, and a stir of life and growing was felt in the air. In the old orchard the trees encouraged their buds to swell and grow and on every hand there was planning for the new spring clothes.

And they all worked hard—so hard that it was almost a week before they noticed the little, tiny peach tree over in the corner.

"Well, well," said the old apple tree as soon as she noticed, "aren't you going to have any new spring dress? Don't you like new frocks?"

"Oh, indeed I do!" exclaimed the peach tree, and she could not help being pleased to have the apple tree notice her so kindly, "but you see, I want a dress of my own, and I don't know how to make one."

"A dress of your own, of course," said the apple tree, not quite understanding. "Now, you set to work and make one just like mine, pink and white and green."

"Yes-s-s," replied the peach tree, "but—"

"Maybe you don't like a pink and white and green dress," suggested the cherry tree; "maybe you'd like one like mine."

"Yes-s-s," answered the peach tree, "but—"

"Well," said the pear tree, "make a white one like mine; they're the prettiest."

"Yes-s-s," replied the peach tree, "but, but, you see—I think all your dresses are just beautiful—but I want a pink one. An all-pink one. Just pink."

"An all-pink dress!" exclaimed the pear tree. "Who ever heard the like!"

"That's a good idea," said the apple tree, who was the oldest and of course knew best what to say. "But since you're so young and haven't tried making dresses before, why don't you, for this year, just draw up all the moisture you can and drink all the sunshine you can and work your best and make just any dress that you can? Then, perhaps, next year you may be able to make the pink frock that you want."

The little peach tree thought that that was good advice. So she set to work her very hardest and worked from morning until night, sending moisture and sunshine and warmth into her branches.

And after a few days of working, that little peach tree over in the corner blossomed out in a brand-new dress—a pink dress, too! The very kind she had wanted most of all.

"Thank you so much," she said blushingly to the apple tree when the old tree praised her beautiful appearance. "It's kind of you to praise my frock. I'm so glad I took your advice. Now every year I'm going to work like this, and maybe all my spring dresses will be pink."

And indeed she has worked, for ever since that year the peach tree's spring dress has been pink.

I think it must somewhere be written that the virtues of mothers shall, occasionally, be visited on their children, as well as the sins of their fathers.—Dickens.

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INTERNATIONAL LESSON JUNE 9.

Lesson X. Jesus Faces Betrayal and Denial—Mark 14. 10-72. Golden Text, Mark 14. 38.

Verse 17. When it was evening he cometh with the twelve—This is in an upper chamber in Jerusalem, introducing the sixth day of the week—Thursday, between 3 and 12 p.m., April 6, A.D. 30 The Paschal lamb was to be slain "at even" (Exod. 12. 6). The custom was not to kill it till after the evening sacrifice was offered. They were now all together for their last passover supper.

18. As they sat (reclined)—Originally the Paschal lamb was to be eaten standing (Exod. 12. 11).

19. They began to be sorrowful—What would have been a meal of good fellowship and blessed communion is now turned to an occasion of fear and suspicion and doubt. How unthinkable that one of his intimate friends who had been his companion should now hand him over to his enemies! As Jews they no doubt recalled the familiar passage in Psalm 41. 9: "Mine own familiar friend, in whom I trusted, who did eat of my bread, hath lifted up his heel against me." Is it I?—Better reading, "Surely it is not I, is it?"

20. He that dippeth with me in the dish—To dip in the dish was a sign of friendship. John's account states that John, at Peter's suggestion, asked directly who was meant and that Jesus replied that it was he to whom he was about to give the sop (John 13. 22, 24-26). This, then, was the sign, the selection of Judas to receive the bread which the Master would dip into the "charoseth."

21. The Son of man goeth—Referring to his death. John frequently used the word "go" with reference to the death of Jesus (John 8, 14. 21). Even as it is written—Jesus' death was not a mere accident in his career, but the fulfillment of the purpose of God. Woe unto that man—Yet, the free action and the responsibility of Judas are not taken away. He was not an irresponsible instrument, though his action is in the line of the fulfillment of God's purposes. Good were it for that man if he had not been born—Apologies have been made for Judas, suggesting that he all the time believed that Jesus would by an exhibition of supernatural power confound his enemies at the hour of betrayal and rise in all the majesty of his Messiahship. But the doom here spoken is definite and dreadful! The doom of a traitor, a plotter of evil, and not words for a heedless disciple.

22. As they were eating, he took bread, and when he had blessed it—Here we have the institution of the Lord's Supper. Opinion is divided as to when this occurred, but it is clear that it was in connection with the passover meal. The blessing was a prayer of thanksgiving and setting apart. Gave to them—Distributing to them as they were reclining. This is my body—Symbolizes my body. It is a violation of the principle of the interpretation of long usage to suppose that this was to be taken as the actual body. "I am the door," "I am the vine" are other instances of the metaphorical use of language precisely similar.

23. He took a cup—Several cups were taken during the paschal meal. Some suppose it was the fourth cup, since Luke and Paul state that it was "after the supper." (Luke 22. 20; 1 Cor. 11. 25.)

24. This is my blood—By "this" is meant the wine in the cup which he gave to the twelve, and this wine is a symbolical representation of his blood. Of the covenant—Paul gives it, "This cup is the new covenant of my blood." (1 Cor. 11. 25.) The old covenant was of the law at Sinai. Moses (Exod. 24. 8) says: "Behold the blood of the covenant, which Jehovah hath made with you concerning all these words." Jesus institutes a new and better covenant than the one at Sinai, which was to be ratified by the blood of a better sacrifice.

25. I shall no more drink of the fruit of the vine—This is preceded by the solemn words, "Verily I say unto you." These were really farewell words. It was the last occasion on which Jesus would take part in the passover celebration. But, there is coming a time when all things are to be made new, then there will be a passover of a newer and better kind and a fellowship of a higher order. This will be in the consummation of the kingdom of God. It is in Paul's account that we have the definite institution of the memorial supper and its destination to be observed till Christ comes (1 Cor. 11. 24-26), and the special injunction, "This do in remembrance of me."

26. When they had sung a hymn—Some suppose this to have been Psalm 136, which is a psalm of praise to Jehovah for his goodness to Israel. Others are of the opinion that the "hymn" was the beautiful series of psalms 118-127. Unto the mount of Olives—They had usually retired to Bethany this week, as evening drew near. But this time they were not to reach Bethany—for the culmination of the great tragedy was imminent. Judas had carried out his diabolical plan. Jesus goes no more into quiet retreat among his friends, but now becomes the victim of the raging chief priests and scribes.

It is necessary to give growing chicks green food of some kind in order to obtain the maximum growth which is so essential in chick raising.

For the poultry raiser who has plenty of land free range will supply the necessary green food more economically than it can be secured in any other way. Where the range is limited or when the poultryman desires to hatch chicks very early it becomes necessary to supply in some other form the required amount of green food. This may involve some expense, nevertheless the careful manager will provide some sort of green food for his growing chicks.

The green food which the poultryman will feed to his early hatched chicks will depend somewhat upon the amount of time, equipment and number of chicks he has.

Among the many green foods which are good for the growing chicks may be mentioned swiss chard, rape, lettuce, cabbage, kale, mangels, sprouted oats, alfalfa, clover and beet pulp. The last three mentioned can be purchased in dry form and then can be soaked and used as a succulent food.

Which one of the others to use will depend upon the conditions. For the man who raises 500 chicks or more time and equipment necessary for raising lettuce, kale, or sprouted oats is too great and there fore it cannot be done economically. Of all the green or succulent food for chicks perhaps mangels are the best because they can be raised the year before and stored and when wanted can be cut up or sliced in two and hung up on nails around the house, thus giving the chicks a chance to exercise in obtaining their succulent food by constantly picking at the mangels. While the chicks are very young mangels may be used to advantage by cutting them up in very small pieces; thus they can learn to like them and will eat more of them later on.

For late hatched chicks green food can be supplied by giving them free range in pastures or in lots that have been sown to clover, oats, rye or wheat.

No one can plow, harrow, and cultivate his ground in the same manner any two successive years with the expectation of growing a maximum crop. Nature never gives a person the same soil and weather conditions in any two years.

Care and patience will cure the kicking cow if the proper methods are employed. One method is to pass a rope or strap with a loop in one end of it around the body of the cow and draw it tight. The cow will usually jump at first, but when she finds she cannot get out of the rope she will stand still. If this method causes the cow to give bloody milk, place the rope or strap behind the udder, and draw it tight as before.

Another method is to hobble the cow by passing the rope around each leg behind the udder, and tying just above the hocks. This method is a dangerous one, however, for the person tying the rope. After these methods have been repeated a few times the cow will stand quietly to be milked.