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THE CANADIAN HORTICULTURIST & BEEKEEPER

Vol. 26, No. 4, April, 1918
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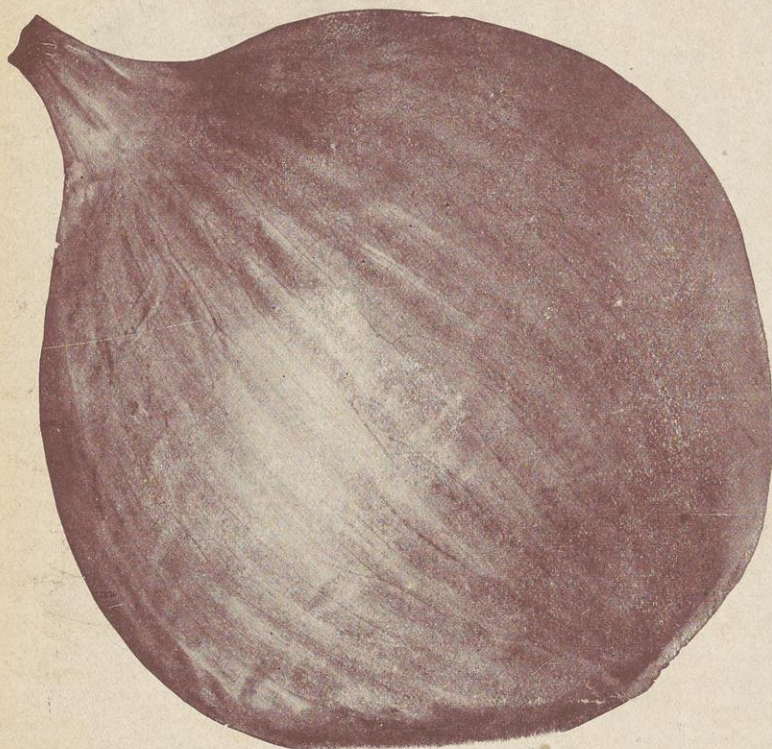
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Every Home Should Have a Vegetable Garden

Nothing is more important than a wise selection of varieties, and

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are tested both for Vitality and Purity. Dependable and largest producers every time. The following will give the desired results:

Beet, Crimson Globe. Per $\frac{1}{4}$ lb. 85c., oz. 25c., pkt. 5c.
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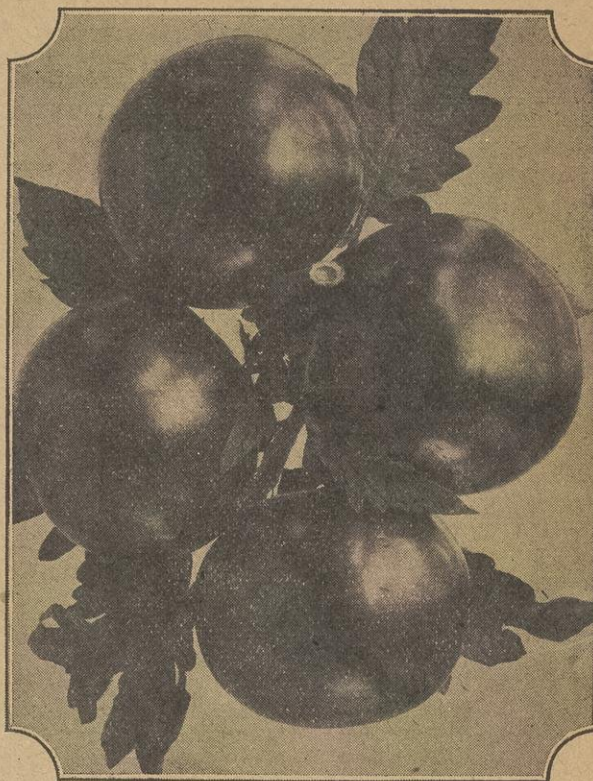
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Then fill in between each way with earlier bearing varieties, such as Wealthy, Wagner, Ontario, etc. Take these early bearers out when they begin to interfere with your permanent orchard. You will have had from ten to fifteen good crops and you have left one of the most profitable assets that can exist on any farm.

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Lack of Food---Threatens the Battle Line



ONTARIO

"The food wanted by mankind does not exist.

"The word 'shortage' is not strong enough.

"The whole world is up against a nasty thing, familiar to the people of India, called 'famine.'"

—Lord Rhondda,
Britain's Food Controller.

One year ago, only the enemy was on rations.

To-day, Great Britain, France and Italy are on rations.

To-day, Germany controls the wheat lands of Rumania, Russia, Poland and Ukrania.

To-day, the shadows of hunger, famine, disease and death hang over the Allies.

Upon the 1918 crop from Canada and the United States depends the fate of the democratic peoples of the world.

If that crop is sufficient, the Allies can be fed.

If that crop is not sufficient, the Allies may have to accept a German peace.

That Battle-Line in France and Flanders Must Not Want

Do you realize what a German peace would mean to Canada?

Germany covets our natural resources—our agricultural and mineral wealth, our forests, our fisheries, everything that is Canada's.

Germany won't be satisfied with European territory, with teeming masses, wrangling factions and depleted natural resources. She wants colonies—big, thinly-populated countries in temperate zones—for her sons and daughters to go to propagate their kind.

The Kaiser would sacrifice millions of Germans to-morrow if he thought that by so doing he could set foot on Canada's shores as Conqueror.

And what's more, the Germans would offer themselves for the sacrifice, so great is their subjection to the military ideal.

The only thing that balks German ambition is that battle line from the North Sea to Switzerland—and the British Navy.

The Only Thing That Sustains Our Men on Land and Sea---Is Food

What are we, each one of us, prepared to do to insure that Food supply?

Germany, by her submarine campaign, has seen that great Armada, the British Mercantile Marine, shrink in volume.

Germany has seen South America, Australia, New Zealand, India and far away outposts of the Empire practically cut off from supplying food to the Motherland because of the lack of ships.

Forty million Allied men and women having been put on war work, food production has dangerously decreased in Europe.

These forty million consume more food than when they were in ordinary occupations, and there are fewer men for farming. Hence an increased demand and decreased supplies.

The harvest of France was one-third less in 1917 than in 1916, and this year must be smaller still, owing to lack of fertilizers, which cannot be supplied through shortage of shipping.

The world's decrease in live stock, as compared to 1913, is approximately 115,000,000 head.

Herbert Hoover Says:

"Our European Allies are dependent upon us for greater quantities of food than we have ever before exported. They are the first line of our defence. Our money, our ships, our life blood, and not least of all, OUR FOOD supply, must be of a common stock.

"In pre-war times, Britain, France, Italy and Belgium yearly imported more than 750,000,000 bushels of grain, plus vast quantities of meats and fats.

"The submarine destruction of shipping has made it necessary to abandon the hope of bringing food from South America, Australasia and India.

"Food must, therefore, be shipped from Canada and the United States—the nearest and safest route.

"Canadian and United States supplies are normally 350,000,000 bushels short of the Allied needs. By greater production and conservation Canada and the United States must combine to increase the export of grain by 150,000,000 bushels.

"The remaining shortage of 200,000,000 bushels must be overcome by greater reduction in consumption in the allied countries. And this is being done by Britain, France and Italy rationing their people.

"From two and a half years of contact with the German Army, I have come out of the horror with the complete conviction that autocracy is a political faith and a system that directly endangers and jeopardizes the future of our race—that threatens our very independence. It has, however, been able to command a complete inspiration of devotion and self-sacrifice in its people to the interest of their nation. The German farmer, in the name of the Fatherland, supports a nation two-thirds as large as the United States and threatens to subject the world from an area one-half the size of Ontario.

"My vision of War is not of an academic problem to be solved by discussion. To me it is a vision of brave, dying men and suffering women and children, for service on whose behalf the greater exertion of the Allies' farmers comes as a direct necessity and a direct plea. The Canadian and the United States citizen who sees war as I see it, needs no inducement and no inspiration but the thought that every spadeful of earth turned, and every animal reared, is lessening human suffering and guaranteeing the liberty of the world."

Lloyd George's Warning

"I fear the disciplined people behind the German Army, the rationed family and the determination of wife and sister and daughter and mother to stand and starve—so that their fighting men may be fed—I fear it more than the Imperial German Army itself."

Britain is now on Food Rations.

France is now on Food Rations.

Italy is on the verge of starvation. Only continuous support from us can enable us to hold out.

Only with a disciplined people behind can we hope to win. The rationed British Nation, blood of our blood, bone of our bone, are proudly paying the price and sharing with France and Italy their limited stock of food. For in this there is mighty pride, a conscious measuring of their glory with the best traditions of ancient Sparta, and of Imperial Rome, for Britons know that upon them rests the burden of saving humanity. The story of their service shall ring and echo forever along the hill tops of history.

The heart of this problem is labour.

Without more farm labour more food cannot be produced.

If you really want to serve your Country in a big, practical way, register now for farm labour, or urge and assist your male employees to do so.

To Send More Food to Our Allies Is Not Charity

It is war. The Allies have a right to demand it. They have a right to resent the offer of only what is "left over." Those who are fighting the common battle for civilization and for our protection have a higher claim than had Lazarus, to only the "crumbs that fall from the rich man's table."

The Canadian people must recognize that "they" have the first claim on our food supplies.

As the shipping situation makes the Allies dependent upon the North American continent for food, it is vitally necessary that Canada should increase her production of food in order to take a larger part in providing for the Allies' requirements. This is especially urgent as the maintenance of a large United States army in the European field will cause a very heavy drain on that country's food resources.

There must be no peace without victory.

For nearly four years Germany has been struggling against the powers of law and order. She has failed so far to make good her escape with her booty by superior strength and skill. And now she is attempting by intrigue, suggestion, device and propaganda to divert the attention of her antagonists from the struggle itself, and thus to gain her ends by relaxing the strength and skill of her antagonists.

What she can gain from these tactics is plain to all the world in the sorrowful experience of Russia.

Germany's most dangerous weapon is not her Zeppelin—that is obsolete. Not her submarine—that can be overcome. Not her machine-like army—that has been repeatedly hurled back by the living armies of freemen. Her most dangerous weapon is her propaganda of peace.

While with her hands she murders and despoils, with her voice she invites to parleys.

When Liberty is in Peril There is Threat of Lasting Disaster in the Very Word "Peace"

Lord Leverhulme, long known in Canada as Sir William Lever, who knows well the German mind, in a recent interview stated:—

"You will never be able to dictate terms to Germany till she is beaten. The argument you mention is founded on the dangerous fallacy that because Germany is sick of this war she is sick of war in general. She isn't. I doubt if her Government is even sick of this war. You've read the speech of that old brigand, Hertling. Is there any sign of repentance in that speech? Is it a chastened speech? Is it the speech of a statesman who wants disarmament and a league of nations? No! Germany is back in her mood of 1914. She believes she is winning the war. She believes she has won now. And if we talk of peace to her she HAS won it. Why, it would be better a thousand times that every man in England should be dead than that Germany should issue from this war with the feeling of a conqueror. You hear people use the phrase, 'to the last man, and the last shilling,' and you think it is only a bit of rhetoric, but to my mind it's the most solemn and absolute truth. I mean when I say it that it would in very truth be a million times better for the people of these islands to be dead, every one of them, rather than live on as the serfs of a triumphant Prussia."

How can any lover of liberty remain insensible to this peril?

Food means Victory and the world made safe for democracy—Lack of food means disaster and subjugation to Germany.

The Citizens of Ontario Must Lead This Mighty Crusade for Greater Food Production

They did it last year and will do it again.

As the greatest food-producing Province, Ontario must maintain her leadership in America. Great are our opportunities—our responsibility is tremendous.

Upon every man and woman, boy and girl, rests a personal obligation to serve. Every pound of food produced, in whatever form, is a contribution to the Cause of Freedom.

Ontario farmers should sow 500,000 acres of spring wheat.

Every Ontario farmer whose land is at all suitable should put an extra five acres into wheat, even at the expense of another crop.

What YOU Can Do To Help

At all costs production must be maintained.

That's why farmers and farmers' sons are being exempted from military service. Working on a farm is equivalent to service in the Second Line Trenches.

To enable the farm to do the work, two factors are essential. The first is Time. Whatever we are to do must be done at once. Nature waits for no man. The second is Labor. Many farmers cannot plant the acres they would because they cannot get the necessary help. Many are afraid to increase their acreage because they fear they would not be able to cultivate and harvest an unusual crop after they had raised it.

The burden is not one to be placed solely upon the farmer. Neither can it be placed upon the townsman. It is a personal obligation upon every man, woman, boy and girl, in every farm, town and city home in the Province of Ontario.

AWAY WITH CRITICISM—Co-OPERATE! Mr. City Man, don't say that the farmer should do so-and-so, and thus allow criticism in this hour of our Nation's peril to cripple your effort.

Mr. Farmer, don't hastily underestimate the value the city man can be to you.

Get Together in the Fight For Liberty

Let us not lament what MIGHT be, but earnestly face what MUST be.

Fifteen thousand boys between the ages of fifteen and nineteen must be organized as "Soldiers of the Soil" to work on Ontario farms this season.

Farmers can get one or more of these boys by applying to their District Representatives or to the Public Employment Bureaux at Toronto, Ottawa, Hamilton or London.

Unmarried men, exempted from military service, are urged to take up farm work. Married men who have had previous experience on a farm are urged to resume farm work for a season. Employers of labor are asked to assist men to take up farm work.

We urge the farmers and the townsmen to get together for greater production in the interests of a free people and democracy.

Let the Organization of Resources Committee, your District Representatives or the Public Employment Bureaux act as your intermediaries.

When we have done our best, the cry for food cannot be wholly met.

For the rest—our Allies are tightening their belts.

Organization of Resources Committee

Parliament Buildings, Toronto, Ont.

CHAIRMAN: His Honor Sir John S. Hendrie, K.C.M.G., C.V.O., Lieutenant-Governor of Ontario. VICE-CHAIRMAN: Honorable Sir William H. Hearst, K.C.M.G., Prime Minister of Ontario; William Proudfoot, Esq., K.C., Leader of the Opposition. SECRETARY: Albert H. Abbott, Esq., Ph.D.

The only thing that balks German ambition is the Battle Line in France and---the British Navy. The only thing that sustains our men on land and sea is Food.



Do Not Experiment With Seeds

THE best crop insurance for your garden every time is good seeds. You may cultivate and fertilize your soil thoroughly, but unless the seed comes up, all your labor is lost. Make sure, then, that you deal with seedsmen who are known to carry only the best varieties of seed of highest germinating power.

Keith's seeds have the reputation of a firm of long-standing—fifty-two years of successful business behind them. You can be sure that you get only the best.

Try Our Special \$1.00 Garden Collection (Sent Postpaid)

1 pkt. Grand Rapids Lettuce.
 1/2 lb. Wax or Butter Beans.
 1 oz. Detroit Dark Red Beet.
 1 pkt. Danish Ballhead Cabbage.
 1/2 oz. Chantenay Carrot.
 1 pkt. Long Green Cucumber.

1/2 oz. Danvers Yellow Globe Onion.
 1 pkt. Hollow Crown Parsnip.
 1/2 lb. Gradus Peas.
 1 pkt. White Tip Radish.
 1 pkt. Hubbard Squash.
 1 pkt. Alacritty Tomato (the New Early Tomato)

GEO. KEITH & SONS

124 King St. E.

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Toronto, Ont.

A Garden of Flowers & Vegetables

Every home should assist in food production this year by planting a vegetable garden. There is no reason, however, why it should not be made beautiful and attractive by the addition of some flowers.

Here are two splendid collections of seeds, one of vegetables just suited for the home garden, and the other of sweet peas—the sweetest flower in the garden.

HOME COLLECTION OF VEGETABLE SEEDS for \$1.00

Consisting of one packet each of the following:

Beans—Sutton's Masterpiece
 Beans—Ferguson's Sure Crop.
 Beets—Ferguson's Imp. Dark.
 Carrot—Ferguson's Early Market Red.
 Corn—Ferguson's Early Malcolm.
 Corn—Golden Bantam.
 Cucumber—Davis' Perfect.
 Lettuce—Ferguson's Peerless.
 Lettuce—May King.

Onion—Ferguson's Red Globe.
 Parsley—Ferguson's Perfection.
 Peas—Gradus.
 Radish—Long White Icicle.
 Radish—Scarlet Globe.
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Fifteen of the finest giant Exhibition sorts in one grand collection, \$1.25, postpaid

New Buttercup.—Fine deep cream, the near-	Robert Sydenham.—Best salmon orange.
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Blanche Ferry Extra Select.—Red and white.	New Miriam Beaver.—1916 novelty and best
Rosabella.—Best rose colored.	light cream pink.
Edward Cowdy.—Best orange-scarlet.	King Manoel.—Largest deep maroon.
Scarlet Emperor.—Large rich scarlet.	R. F. Felton.—Best lavender.
Illuminator.—Beautiful salmon orange.	Royal Purple.—Best purple.
King Edward Spencer.—Best red.	Wedgewood.—Best blue.
King White.—Best white.	

Order your collection now. Both collections are sent prepaid anywhere in Canada.
 Our 1918 Spring Catalogue sent on request.

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MONTREAL, QUE.



The Canadian Horticulturist

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Increase the productiveness of your garden by planting seeds that you know to be thoroughly reliable. You can always depend on SIMMERS' SEEDS. These two collections will interest you:

Beans—Simmers' Giant Wax.
Beet—Blood Turnip.
Carrot—Scarlet Intermediate.
Sweet Corn—Cory.
Cucumber—White Spine.
Cabbage—Winnigstadt.
Celery—White Plume.
Lettuce—Simmers' Nonpareil.
Onion—Large Yellow Danvers.
Parsnip—Improved Hollow Crown.
Parsley—Champion Moss Curled.
Peas—American Wonder.
Radish—Scarlet Olive-shaped.

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CHOICE
VEGETABLE
SEEDS FOR
50c

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Contains 13 Pkts. of Choice Flower Seeds for 50c.

Candytuft—Mixed. Phlox Drummond—Mixed.
Double Pinks—Best Mixed. Poppies—All kinds mixed.
Marigold—Double French. Snapdragon.
Mignonette—Large Flowering. Sunflower—Very double.
Morning Glory—Mixed. Sweet Alyssum.
Nasturtium—Dwarf Mixed. Sweet Peas—Mixed.
Tall Nasturtium—Mixed.

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Bulbs, SEEDS, Plants
TORONTO, ONTARIO

Established 1856.



Beautiful Homes

When you have planned for your vegetable crop, there will still be room and time to do a little more towards beautifying your home.

We can help you with practical advice, and can supply you with clean, well grown, healthy stock.

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RENNIE'S

SEEDS Produce the best

FOOD production—that is the big cry for 1918. Everyone must produce as much as possible—which means every available square yard under cultivation, and the widespread use of Rennie's seeds.

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Vegetable Seeds

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Beans—Rennie's Stringless Green Pod10		.18	.55	2.50
Beet—Rennie's Spinach Beet10	.35	1.00	3.00	
Cabbage—Rennie's Worldbeater10	.75	2.25		
Carrot—Rennie's Market Garden10	.40	1.20	3.50	
Corn—Rennie's Golden Bantam10		.25	.65	
Cucumber—White Wonder10	.30	.90	3.00	
Lettuce—Rennie's Selected Nonpareil05	.30	.90	2.75	
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The Canadian Horticulturist and Beekeeper

(See Pages 87-92)

(See Pages 87-92)

Vol. 26.

TORONTO, APRIL, 1918

No. 4

Strawberry Growing in Prince Edward County*

Howard Leavens, Bloomfield, Ont.

STRAWBERRY growing in Prince Edward County, Ontario, has grown to large proportions in the last five years, due to a large extent to the demand by the canning factories for the fruit at good prices. There are fifteen to twenty factories in the county, and although there are not enough berries grown to supply all the factories, enough factories run on them to take all that are grown. In fact, the Dominion Canners not being able to get enough berries from outside growers have been growing a large acreage on their own farms.

The prices paid by the factories have been good, averaging nine cents during the past three years. Last year ten cents a quart box was paid for the whole crop. Some growers ship their berries, but the high prices paid at home has not warranted very heavy shipping, as at least four cents a box more must be realized in order to pay the extra expense of boxes, crates and express. Also, in shipping berries a great deal more care has to be taken in filling the boxes and sorting the fruit, as the factories will accept fruit that will not ship, when they are getting the whole crop. Also, at the end of the season, as well as after a rain, there is a certain amount of fruit not good enough to ship, and taking this all into consideration at least a margin of four cents is needed to break even with the factory price.

There is considerable land well adapted to growing berries around Picton and Bloomfield, as well as in the western part of the county. This land is mostly loam with some black ground. Usually a heavy coat of manure is applied to the land the previous season to setting the plants, and a hoe crop is grown to clear the land of weeds. Very little fertilizer has been used in the county, most growers depending on manure. Potatoes have been a favorite crop to precede as well as follow the strawberry crop.

The main varieties grown have been the Wilson, Senator Dunlap and Par-

sons Beauty. Possibly seventy-five per cent of the berries grown are the Dunlap. The main objection to the Dunlap is the white tip, which affects the appearance of the fruit in the can. The Parsons Beauty is a deeper red all through and shows up better after being canned, although the Wilson has the best quality of the three varieties.



An apple tree infested with the green apple aphid. Note the curled condition of the foliage.

The season before last a blight affected a large number of patches, and after two or three pickings the plants wilted and died. This blight affected practically all varieties except a few plantings of Wilson berries, and they seemed immune, a full crop being harvested from them. Whether this was due to the variety, or the land, or conditions under which they were handled, I cannot say.

Some growers in setting the plants, especially where a number of acres are set, are using the tomato planter for this work. This machine with three men, will set and water 12,000 to 18,000 plants a day. Those who have used it

claim that it is equal to hand setting, and saves a great deal of time. We have found it pays to set plants as early as possible in the season, so as to give them a good root before too much dry weather sets in. We have not tried setting in the fall, but believe that early spring setting suits our conditions best.

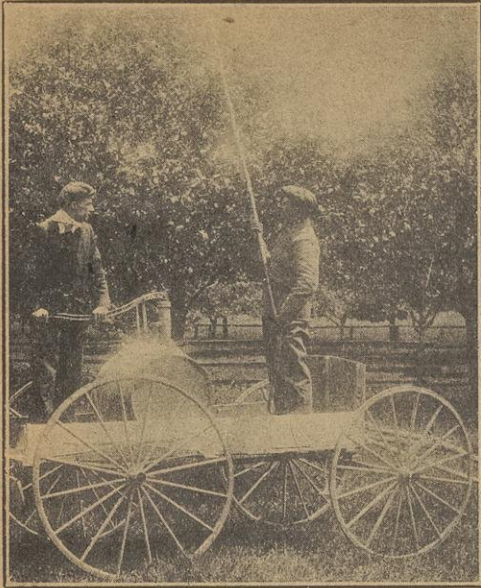
Where the land is fairly clean of weeds two crops are taken off before the patch is ploughed up, although the second crop is not expected to be as heavy as the first. Some plough two furrows through the centre of each old row and cultivate this down after the first crop is harvested. If the season is favorable the new plants will run during the fall, which makes a patch for another year, practically as good as a new set patch. The weather conditions have a good deal to do with this practice and also the condition of the land. Sandy loam can be ploughed at any time, but some of the other soils, especially if there is a clay mixture, have to be plowed after a rain, and this does not always come at the right time.

We find it necessary to cover the plants in the fall with a coating of straw for two reasons: In the spring, if the plants are not covered they are apt to heave out of the soil during the freezing and thawing weather. If there is not straw around the plants at picking time the fruit will be very gritty and dirty, especially after a shower, which spatters the soil on the berries, and makes them unfit for use.

Possible Yields.

The yield of berries varies a good deal according to the care and attention given the plants, and the season. One grower may put 10,500 quarts into the factory from one acre, and another 18,000 quarts from two acres. These parties make a specialty of berry-growing, where some other growers having strawberries more as a side line, have not had as large yields per acre, but possibly have not put on the same expense per acre. There is a good outlet for berries in shipping them by boat from Picton to Kingston, Gananoque, Brockville and some of the smaller places along the boat route, as

* A paper read at the last annual convention of the Ontario Fruit Growers' Association.



Barrel spraying pumps still do good work in many small orchards.

well as direct daily trains to Ottawa and Toronto, although Toronto is not as good a market for us, as the Niagara fruit generally fills that market.

So far there has been sufficient help for picking the crop. This help comes from the villages and town, and also a good many families are moving in about that time preparing for the factory season. Each season, however, help is getting scarcer, and the cost of handling of the crop is greater.

The Outlook for Pears

H. T. Foster, Burlington, Ont.

Although pear-growers may feel discouraged by present conditions of labor, packages, insect pests, and general high cost of production, with perhaps a limited market and at times a prospect of prices not sufficient to cover production expenses and leave a decent profit, my advice to them is to take the best possible care of their orchards. Fertilize and cultivate the ground properly; prune your trees as much as necessary; spray as thoroughly as you know how; pick, pack and sell your fruit as intelligently as you can. If you do, I believe that the results will be satisfactory, for there is always a demand for real good fruit, well packed.

Although our export pear trade has been closed, there is a fairly good local market, as well as the western market.

I believe it would be a mistake for a pear grower, who has his pear trees grown or bearing, to neglect them at this time, or this year, and expect to take them up again when things become more settled. Unfortunately fruit trees and the fruit crop are such that they need attention all the time. When a season of failure comes we have to bear with it, and when a season of success and profit comes, we ought to be

in a position to enjoy the benefits. In other words, "we should have our dish right side up when the shower falls."

The 1918 Prospects.

"The prospect for 1918, I believe, is reasonably good if the trees have come through the winter all right, and I think they have.

It is reasonable to expect that as the 1917 crop was very light, the 1918 crop will be a good average, and as sugar is likely to be more plentiful, the canners and consumers generally will use more pears, and at good prices.

Dusting Comparisons

Prof. L. Caesar, Provincial Entomologist, Guelph, Ont.

Dusting is a wonderfully rapid and easy way of treating an orchard for insects and diseases. It is on very large trees about seven times more rapid than spraying, even with a power outfit. On smaller trees the difference of time is not so great. In my own experiments the cost of the two methods has been on large trees about equal, but most people will find dusting more costly, that is when taking into consideration the materials, time and labor. If other work, as will be the case this year, is pressing, the value of the time gained may more than compensate for any extra cost.

If I were to judge from my own experiments of the last two years I should speak highly of dusting, because it has given me excellent results, just as good on the whole as the liquid lime-sulphur and arsenate of lead. From Nova Scotia, New York and Michigan, I have also received word of some men having had last year very good results; on the other hand there are many reports of failure. It seems to be the general opinion, and it is also my own opinion, that under conditions very favorable for scab development, dust is inferior to the liquid. I believe this is chiefly because it washes off much more easily as a rule. I think, however, that in an ordinary year, in a well pruned orchard not kept dark and also damp by dense windbreaks, the dust will prove satisfactory if well applied.

How to Dust.

My experience would lead me to favor doing the dusting from at least three sides, and if possible from four. One of these sides should be done with the wind. A strong wind is not, however, very desirable, as a rule, for dusting. A good deal of practice and study is necessary to dust thoroughly and rapidly. It is also of very great importance to apply the dust at the right time; the spray calendar should be consulted for this. If the foliage is moist the dust adheres better, but we often cannot wait for this condition.

Whether any dust can be relied upon to control San Jose and Oyster-Shell Scale, I am not prepared to say. I thoroughly controlled San Jose Scale myself last year on forty-eight large apple trees with soluble-sulphur and talc dust, but was fortunate in having the trees just moist enough to dissolve the dust immediately, but yet not wet enough to cause it to run off.

Where San Jose Scale does not occur, and Oyster-Shell is not abundant, I should recommend that the first dusting of apples should be when the leaves are about the size of a 10-cent piece. No poison need be used in this application. Any extra application besides the regular ones just before and just after bloom may be given without poison to save expense. I should prefer this year to buy nearly half the dust without poison. This will reduce the price more than fifty per cent.

Care of the Peach Orchard

J. E. Allis, Medina, N. Y.

The ideal location for a successful peach orchard is a north-western slope. The kind and condition of the soil is not so important as its depth and fertility. I would like a soil not less than 20 feet above the rock, and would prefer a clay subsoil in rather poor condition at time of setting trees. I find by experience that I have better success with a soil that is a little low in fertility when starting a young peach orchard.

After the trees are grown and after it bears its first crop, I think there is little danger in forcing growth. An ideal crop for the first two years is a tomato crop, with the rows placed so that one can cultivate both ways.

During the next three years I would watch my orchard and if I thought it was not making sufficient growth, I would apply a mixed fertilizer of nitrogen and phosphoric acid. From the fifth to the tenth year I would apply barn manure as I considered the orchard required. From the tenth to the twentieth year there is little danger of forcing an orchard too much.

Destroying Potato Beetles

Potato growers in Canada who have extensive acreage, might save money by using the insecticide sodium arsenite, which is so largely used by Maine growers. This can be made at home by boiling one pound white arsenic and one pound sal soda in one gallon of water until dissolved. One-half gallon of this is equal in poisoning value to one pound of Paris Green. It should never be used, however, except in conjunction with Bordeaux mixture. Otherwise it will kill the foliage badly. Where large acreage is grown it would be worth while giving this a trial.

The Fight Against the Green Apple Bug*

W. H. Brittain, Provincial Entomologist, Truro, N.S.

OUR work against the green apple bug during 1917 was simply a continuation of that of previous seasons. While nothing new or startling was brought out our former observations have been confirmed and certain phases emphasized. Owing to certain factors the green apple bug was not as much in evidence in many orchards as during the previous three years, but in many they were still abundant. In the orchards where our work was conducted we could detect no diminution in their numbers, since all the orchards treated were literally swarming with the pests.

Our work was done throughout on a thoroughly commercial scale. Fifteen acres of large bearing orchard were treated. Had we concentrated our efforts in one place, this area could have been much increased.

The most important point brought out by our experiments was the great importance of the spray before blossoming. In fact if this spray has not been given, there is little utility in applying the after-blossom spray at all. At this time the insects have attained half size and over and cannot very well be destroyed by any ordinary spray. It would be necessary to use a stronger dilution than would pay commercially. The leaves are well opened and it is necessary to do extremely slow and careful work and to employ a higher pressure than most outfits are capable of, to obtain any degree of success. Further than this, the likelihood of serious injury to foliage and fruit is much greater than in the case of the pre-blossom spray. Work should be commenced when the Gravenstein blossoms are showing good and pink and just beginning to spread apart, and if possible, the varieties should be treated in the order of their blossoming or as nearly so as possible. It is not possible, for example, to do the best work on Northern Spys when conditions are just right for Gravensteins and vice versa.

In the control of this pest the factors that may tend towards the results of the very best work are endless. One of the most annoying habits that this insect possesses, among many others, is the habit of forcing its way inside the blossoms when they are about half opened. Frequently we have seen a grower make an apparently clean sweep of all the bugs on his trees only to find them clustering in large numbers inside the blossoms. This condition was much aggravated during 1917 by the suddenness with which all varieties burst into

bloom, but it is one that must be carefully watched if success is to be attained. When the blossom petals have spread apart forming a globe-shaped body it is then too late for effective work, as the bugs are sure to seek shelter inside and all work should cease until they have opened out again.

Necessary Factors.

Two things are necessary to consider in this green apple bug work; one is that control sprays such as Blackleaf 40 are expensive, and there does not appear to be any immediate prospect of securing cheaper materials. The other is the fact that the very kind of spraying necessary for the bug, is the kind that is likely to do the most injury if care is not taken. It is a fortunate fact that the combination that we have devised as being most effective against the bug is also the cheapest and safest to use.

Blackleaf 40 works best in combination with soap, which enables it to spread better, and may also be of advantage in liberating the nicotine. Now soap cannot be used with lime sulphur, but it can be used with soluble sulphur, which is a much cheaper compound. We have not been able to get any poison to use safely with soluble sulphur throughout the season, for, while soluble sulphur is harmless enough in itself, it is very unsafe to use with poisons. Since, however, the codling moth is not a problem with us, we found that we could omit the poison without sacrificing anything in the way of pest control in the after-blossom spray. Indeed the mixture of soluble sulphur, soap, and

Blackleaf 40 applied at heavy pressure is death to most biting insects, blowing very large numbers from the trees and killing many by contact. We were much surprised last year to find that we secured a very satisfactory control of canker worms with this mixture—better in fact than was obtained in the rest of the orchard where an arsenical spray was given. We have thus obtained a reasonably cheap combination which does the work better than the more expensive one.

I do not wish to take any of the force from Mr. Sanders' remarks about spray injury, but it is necessary to say at this point that our experience of the last two years confirms his experiments of last year, that soluble sulphur used without a poison when applied to the underside of apple leaves is not injurious to anything like the same extent as lime-sulphur. We must spray the foliage from every angle to destroy the bug, we must use force and we must use lots of material. By using the mixture which I have described you can do so with less fear of injury than with that commonly used. I do not say that you will never get any injury from this combination, but our experience for two years on a large commercial basis indicates that it reduces injury to a minimum. Thus the cheapest and most effective mixture is also the safest. Not many growers would be enthusiastic about getting a good control of the bugs if it meant the sacrifice of their crop from spray injury. The problem would be simple enough if we could apply our contact spray and our fungicide separately, but this doubles the time, as well as the labor cost, and is, therefore, impracticable in the average commercial orchard, hence the great value of being able to use such a mixture as I have described.



The scars on these pears show the effect of the feeding punctures of the green apple bug.

*Extract from an address delivered at the recent annual convention of the Nova Scotia Fruit Growers' Association.

Results From Spraying for Green Apple Bug in 1917. Orchard No. 3.

Year	Total crop for entire Valley Bbls.	Percent-age of previous season's crop	Total crop in Orchard	Gravensteins Bbls.	Non-pareils Bbls.	Russets Bbls.	Per cent. previous year's crop, all varieties	Theoretical crop Bbls.
1910	323,000	.....	2,200	2,200	95	600	.....	.....
1911	1,740,000	538.7	2,200	2,206	55	400	81.4	1,256
1912	993,338	57.1	1,800	123	110	81	72.2	1,179
1913	650,900	65.5	1,300	159	4	75	60.	1,300
1914	650,900	100.	780	90	1	46	71.8	735
1915	613,882	94.3	560	39	3	25	64.3	621
1916	681,470	111.	360	246	75	330	406.9	380
1917	720,000	105.6	1,465					

All those who have this pest to contend with should at least give it a trial.

The soap that we have been using has been a soft fish oil soap. It can be poured into the mixture without having to be first dissolved in water.

The accompanying table shows the

steady decline in the crop production until this year, when the orchard was sprayed in accordance with the treatment outlines. The theoretical crop is the crop that the orchard would have produced had it followed the average for the entire Valley.

Varieties in Berries *

J. L. Farmer, Pulaski, N.Y.

TO the berry grower the variety question is the most important of all. A fruit grower does not obtain maximum results until he finds the exact variety that fits into his niche. It would not do any particular good for me to recommend a list of varieties. I might be prejudiced, and a variety varies greatly under other conditions and in other hands. The successful berry grower must keep testing varieties himself, just feeling, feeling. Too often, most fruit growers get married to one or two varieties and refuse to be shown. Varieties of berry fruits are continually improving and what was good enough for us several years ago, is not good enough now. It is safest to plant several varieties, as no one variety will pay the best of all, every year, in a period of five or ten years. Frosts, drouths or excessive wet, may destroy this year the variety that was your favorite last year.

During my experience as a berry grower, I have often run across varieties that seemed to me to be so perfect that I had the idea that at last I had found it, but before I could shout "Eureka," something would happen. A notable illustration of this was the Early Ozark Strawberry. At one time this variety behaved almost perfectly with us; now for some unknown reason, it is practically a failure on most portions of our farm. A few years ago we, in common with other berry growers, came to the conclusion that pistil-late varieties of strawberries were unnecessary. After going through three years of frosty weather during blossoming time and losing most of our crops of strawberries except the pistil-late varieties, we came to the conclusion that we cannot safely discard the pistil-lates. Potato growers who are wise plant a

few of the bugless variety every year. They know that this variety will produce potatoes when all others fail, so don't drop your pistil-late strawberries.

It takes the public a tiresomely long time to recognize the merits of a new variety. Twenty years ago the first plants of the Plum Farmer raspberry were sent out. Thousands of plants were thrown away during the first ten years for want of buyers. There was little demand for them. To-day it is increasing in popularity, and after over twenty years is grown more than any other. I had much to do in the introduction of the fall bearing strawberries. I spent a lot of time and money in rounding up the supply of plants and advertising them. I knew that they were a good thing and always believed in them, but after a while I lost confidence in my ability to convince others that they were a good thing. Eventually the people awoke to their merits, but it was too late for me, and others reaped most of the benefits of my efforts.

Watch Your Rotation

The principal essentials to a good rotation are as follows: Move exhausting crops, like potatoes and cabbages, to different ground each year; let tap roots follow fibrous rooted vegetables so far as possible; and studiously avoid successively growing plants of the same natural family on a plot. This last rule is by no means the least important. Owing to the fact that the insects and fungi preying on a particular plant also attack other members of the same family, a rigid adherence to this method is an invaluable preventive of the recurrence of plant disease. For example, let us presume that our cabbages have been infected by the fungus-producing "club-root," or by the gall root

weevil. Then in either case the germ of the trouble (the spores of the fungus or pupae of the insect) lie for a time dormant in the soil itself. Now suppose that we have been indiscreet enough to sow turnip seed on the infected ground. The result will be that when the dormant pests awaken into life, they will at once commence an attack on the young plants. If we had sown peas or any other crop not related to cabbage they would have died for lack of suitable food.

Small Sized Peaches

E. F. Palmer, Horticultural Station, Vine-land, Ont.

I have a peach orchard situated on the south shore of Lake Huron. The trees are about 10 years old. The soil is a rich deep clay mixed with sand. These trees made rapid growth for four or five years and produced fruit of large size. Now the fruit is much smaller, and even though severely pruned and carefully thinned, the Crawford's particularly are running largely to No. 2's in size. The orchard is thoroughly cultivated, but we have not applied any fertilizer owing to the natural richness of the soil. Apple trees in the same soil make rapid growth and bear heavy crops year after year without a fertilizer. Can you give me any explanation as to why the peaches should be small?—H. T.

IT is difficult to state the probable cause of the fruit running so much smaller now than formerly, but I will offer two or three suggestions, some of which, from your better knowledge of the orchard may, in your opinion, fit the case.

In the first place, do you think that the hard winter we had about four years ago would begin to affect the trees now they are in full bearing. I was in your orchard early in the spring after that freeze and remember that the trunks of practically all the trees had been so badly "winter-killed" that the bark had spread away from the wood. Of course, I know that the trees leafed out as usual in the spring and apparently recovered altogether from the effects of the freezing. Possibly an examination of the trunks of the trees at this date might throw some light on your problem of small fruit.

In the second place, there is the question of season. The past two seasons, and particularly that of 1916, were unfavorable for peaches as the season was much delayed and fruit ripened so late that it did not attain its proper size. The only thing that saved the size of the fruit this past season was the fact that the trees were, as a whole, lightly laden and therefore reached marketable size in spite of the lateness of maturity. Some varieties that we have here and which had a full crop were small. That brings up the question of thinning. As you know, thinning is generally practiced throughout this district in seasons when there is an abundant set of fruit. It is possible that your small fruit may be due to

* Extract from a paper read at the recent convention of the Western New York Horticultural Society.

overloading. However, I do not expect that this would be the case.

Last, and possibly the most likely explanation, is that of fertilizers. I note you say in your letter that you have "not applied any fertilizer owing to the natural richness of the soil. Apple trees in the same soil make rapid growth and bear heavy crops year after year without a fertilizer." Recent experimental work in the United States has established the fact that the peach is a particularly heavy feeder. In fact, work at Geneva showed that the peach took more food material out of the soil than any other fruit. This heavy feeding, of course, is not entirely due to the large amounts of fruit which come off, but also to the naturally heavy foliage of the peach. Experimental work in the States has further shown that the peach takes out of the soil small amounts of phosphoric acid and large amounts of nitrogen and potash, though up until that time, we had quite generally been led to believe that the peach did not require a nitrogenous fertilizer. In fact it was regarded as detrimental, if anything.

Most soils contain a sufficient amount of potash, though it becomes only slowly available as plant food. However, nitrate of soda in breaking up, sets free or makes available a very considerable quantity of potash, and since the peach feeds mainly upon nitrogen and potash, it seems reasonable to suppose that the addition of nitrogen alone will be all that is necessary, assuming

that the potash and the small phosphoric acid requirements of the peach would not overtax the supply already in the soil. The work of several of the United States stations support the hypothesis that if nitrate of soda is used, the application of potash will be unnecessary. Experimental work in West Virginia demonstrated that out of eight various fertilizers used, nitrate of soda, when used alone, gave the best results of all the incomplete fertilizers.

Dusting vs. Spraying Results in Nova Scotia

W. S. Blair, Supt. Experimental Station, Kentville, N.S.

TESTS were conducted by the Experimental Station, Kentville, N. S. in 1917 to find the relative efficiency of sulphur dust as compared with the regular lime-sulphur spray. Twelve trees were included in each plot. The sulphur dust, composed of 85 per cent. finely ground sulphur and 15 per cent. arsenate of lead, was applied by using a machine which blew it on the trees in the form of dust. The lime-sulphur, made according to the regular formula, one gallon of concentrate lime sulphur to 40 gallons of water, to which two and one-half lbs. of dry arsenate of lead was added to 100 gallons, was sprayed on the trees with the regular power spraying machine. Both applications were made on the same day, and uniform trees of the same varieties were used. Four applications were given, two before and

two after bloom. The results obtained were as follows:

Variety	Per cent. Clean	Per cent. Scab	P.C. Insect injury.
Baldwin			
How treated			
Dust	97.5	1.85	.56
Sprayed	91.03	6.56	2.39
Not treated	79.93	12.24	7.80
Variety			
Gravenstein			
How treated.			
Dust	84.2	12.77	.28
Sprayed	80.02	14.60	.00
Not treated	33.29	63.81	.52

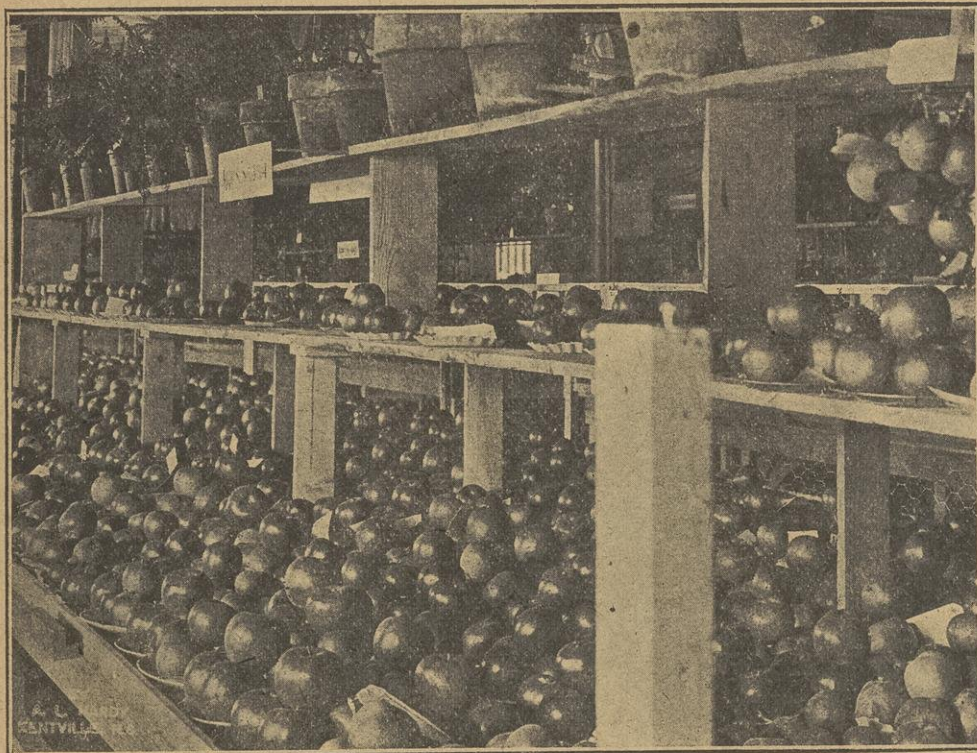
From the foregoing it would appear that under the seasonal conditions of 1917, the dust was equally efficient a fungicide as the lime-sulphur. This, however, may not always hold true and these results should not be considered conclusive. The dust spray gave a better control of canker worm and other insects. The foliage injury was also less where the dust was used, the foliage on these plots being better during the summer than on the sprayed plots. The comparative cost of the two methods is given in the following table:

Assuming 40 trees to the acre, which is a general average, the quantity required for an acre and the time required to do the work, and cost of same for four applications, would be as follows:

	Dust	Spray
Quantity used per acre	280 lbs.	700 gals.
Time required to do one acre	2½ hrs.	11 2-3 hrs.
Cost of material per acre	\$18.62	\$7.70
Cost of application per acre	2.00	9.33
Total cost	\$20.62	\$17.03

The sulphur-arsenate dust cost \$6.65 per 100 pounds. The lime-sulphur arsenate cost .011 cents a gallon. The concentrate lime-sulphur cost 20c a gallon, the dry arsenate of lead 25c a lb. One team and two men were employed and their time was charged at the rate of 80 cents an hour, 50 cents for team and man, and 30 cents for one man.

From the foregoing it will be seen



Spraying is making great headway in Nova Scotia. Note the splendid coloring of this fruit as shown at a Nova Scotia Exhibition.

Comparative Dusting vs. Liquid Spraying Costs

	Dust	Spray
Total amount used on plot of 12 trees	84 lbs.	210 gals.
Amount used per tree, 4 applications	7 "	17.5 "
Amount used per tree for 1 application	1.75 "	4.37 "
Total time required on plot of 12 trees	45 min.	210 min.
Time required per tree, 4 applications	3.75 "	17.5 "
Time required per tree for 1 application .....	.94 "	4.37 "
Total cost of material on plot of 12 trees	\$5.58	\$2.31
Cost of material per tree, 4 applications .....	.46	.19
Cost of material per tree for 1 application .....	.11	.04
Total cost of application on plot of 12 trees .....	.60	2.80
Cost of application per tree, 4 applications .....	.05	.23
Cost of application per tree for 1 application .....	.01	.05

that it costs \$3.59 more to dust one acre than to spray it. The cost of material is very much greater where the dust is used, but this is offset by a much less

cost in application. There is a great advantage from being able to do the work quickly, thus giving time to do other important farm work.

Some Grape Growing Experiences

C. C. Roosa, Buffalo, N.Y.

IN November, 1910, I secured 10 acres of land for a summer cottage on the lake front, near Silver Creek, N. Y. The soil is Dunkirk clay loam, lying upon Genesee or Portage shale, the bed rock being three to ten feet beneath the surface. It slopes very gradually toward the lake shore, which is a perpendicular cliff 35 feet high. The surface drainage is apparently ideal. The plot contains about 4,000 Concord, and 500 Niagara grape vines, set 9 x 9—about eight acres.

The vineyard appealed to me, and I at once wrote the Agricultural College at Cornell University, and was referred to Uncle John Spencer, of cherished memory, for advice about grape growing. In a delightful way Uncle John induced me to attend the annual meeting of the Chautauqua and Lake Erie Fruit Growers' Association, introduced me to the experts from the Fredonia Experiment Laboratory, and to many grape growers. I resolved to learn grape culture, secured literature advised by these men, read it, laid my plans of culture for the coming season, and by spring had a fair idea how to manage production.

During the winter of 1910-11 I began operations by applying two forkfuls of light horse manure to each vine, and trimmed to not more than four canes; gang plowed and horse hoed in May; cultivated with disk and spring-tooth harrow about once in two weeks until August 1st; I then sowed crimson clover for a cover crop. Root worm was bad in nearly one half of the vineyard, especially where the vines were weak, the soil thin, or the drainage poor. I sprayed twice with Bordeaux, lead and molasses. The yield in 20-lb. baskets was 18 tons. The crimson clover made a poor catch and failed.

Fearing the vineyard was seriously affected with root worm, and inasmuch

as it had been neglected and over-cropped for several years, I sent to Chicago in November for three car loads of cattle manure, and applied three forkfuls to each vine.

During the winter of 1911-12, the weather was very open until early in January. Much rain fell, and especially about January 10th. Following several days of warm weather, the ground was saturated with water. Surface water was standing in low places. The weather changed suddenly to below zero, and stayed near or below zero for about six weeks. The saturated soil froze solid. The vines were cut back more than the previous year, many of them to one or two lanes. In the spring it was found that over 600 vines had been winter killed. There were about 400 missing vines in the vineyard when I bought it. This meant a loss of 1,000 vines, or nearly two acres of cropless area in the plot. Early in May, as soon as the soil could be worked, acid phosphate was applied, 200 lbs. per acre, just before plowing and horse hoeing. Nitrate of soda was applied during June to the weakest vines. I sprayed twice with Bordeaux, lead and molasses. The root worm beetles were so thick in parts of the vineyard that the horses were covered with them during the second spraying, about July 10th.

Spraying Results.

At my request, Mr. Hartzell, of the Fredonia vineyard laboratory, made observations previous to the spraying period. We wished to learn whether the beetles were attracted or repelled by certain spray material.

Zones of several rows each were marked. One received no spray, one received Bordeaux and lead, the balance received Bordeaux, lead and molasses. White sheets were spread and fastened

under several large vines, to catch any dead beetles killed by the spray mixture. Careful watch over these sheets for ten days failed to show a single dead beetle. A heavy dashing rain occurred two days after the first spraying. Most of the spray mixture seemed to disappear from the foliage as a result of the storm, and the beetles swarmed in enormous numbers during the period between the two sprayings, and the second spraying, which was immediately followed by several rainy days, caused no apparent decrease. During the incubation period ten vines in each zone were examined scientifically by Mr. Hartzell, the number of egg clusters on each vine, and the number of eggs per cluster were recorded, and the results filed. Failure to kill the beetles by spraying led to an investigation by Mr. Hartzell, of the solubility of the various brands of lead, both with and without molasses, in the spray mixture. It was proven that molasses decreases the adhesiveness of all leads, making them about 95 per cent. soluble. The rains had washed the lead off the vines.

Cultivation was thorough until August 1st, then red clover and cow horn turnip seed were sown. The summer was dry, the clover did not catch well, the fall was wet and the cow horn turnips grew very large, and with a heavy growth of chick weed, the clover was smothered. The turnips grew in spite of the hardness of the soil, but they were all above the surface, with only a little taproot reaching down into the ground. The result was that the turnips froze and disappeared, and the next spring there was no cover crop to plow under. The crop yield was eleven tons of inferior fruit. The vines made but little wood, many were badly weakened by winter freezing, especially the Niagaras, and all were severely cut back, some to the ground, many to the lower wire, and many to only one or two canes.

The season of 1913 was cold and backward. Wood growth was very deficient. In the early spring I planted 1,000 vigorous one-year grape roots, filling every space in the vineyard where a vine was missing, and gave these young vines the most careful attention. Cultivation of the vineyard was thorough until August 1st. Root worm beetles were less troublesome. The vineyard was sprayed twice with Bordeaux and lead only. The only fertilizer applied was 200 lbs. of potash per acre. The yield was only seven tons of inferior fruit. In November I again sent to Chicago for two carloads of cattle manure, and applied two forkfuls to each vine, including the new young vines.

The 1914 Season.

The season of 1914 showed great improvement. It was a good season for wood growth. The vines sprouted and budded well, and fruited heavily. The manure applied during the previous winter was worked into the ground during cultivation. Acid phosphate, 200 lbs. per acre, was applied previous to the spring plowing. After the second disking early in June, burned lime was applied, 1,000 lbs. per acre, to make the soil lighter, and to aid chemical action of the soil ingredients. One great surprise was the fact that the root worm beetles disappeared almost completely, but the vines were sprayed once with Bordeaux and lead to repel migrating beetles that might come from neighboring vineyards. None came. The yield was very satisfactory. The six acres of fruiting vines bore 18 1-4 tons of fine grapes.

In spite of good surface drainage, there were many places that remained wet and soggy for days after rain storms. This hindered cultivation. As a remedy, and to reduce the chances of future winter injury, I put in 3,100 feet of 3-inch drain tile, laid two feet deep. As the vineyard seemed now to be responding well to the treatment it had received, and as the trellises were low and the wires but twenty-four inches apart, I raised all the short posts enough to put the wires thirty inches apart, and then put a third wire in the middle. By this means I aimed to increase the yield by longer canes, and to prevent the blowing down of vines in the summer. I also adopted the plan of pinching off the sprout on each cane just above the top wire, and have had no trouble to speak of in the way of summer tying. The underdrainage, I believe, has since proved the greatest

single factor in improving the yield, in ripening the wood and fruit, and in promoting culture. Since then I have put in 1,200 feet more of 3-inch tile.

The First Profits.

At the close of 1914, after four years of effort to revive a neglected and injured vineyard, and with over 1,000 non-bearing, newly planted vines, the books showed a profit for the first time of 9.2 per cent. on a valuation of \$300 per acre. Prices were too low to yield a profit unless the tonnage per acre could be kept well up. I determ-

ined, therefore, to set strong vines each spring in every vacant space where a vine died during the preceding season. I could see no way of reducing expense, except for fertilizer and spraying. I therefore decided to use nitrate of soda, 200 lbs. per acre, and acid phosphate, 300 lbs. per acre, and omit the spraying for at least two or three years, if the root worm beetles were not threatening in numbers. This, therefore, has been my policy during the last two years, 1915 being the last year I resorted to spraying.

(Continued on page 86.)

Preparation and Application of Dust Mixtures

Rev. Father Leopold, Oka Agricultural Institute, La Trappe, Que.

LAST year I used a duster in our 65 acres of orchard for the first time. In its operation I was assisted by Mr. Romeo Cossette, B.S.A., our assistant professor of pomology. Finely ground sulphur, arsenate of lead in powder form and a filler were the substances used.

The preparation and use of dust mixtures for orchard work is an important matter. Fineness, purity and perfect blending are the essentials in the preparation of efficient dust mixtures. Fineness of material is the most important requirement, as in all other spraying operations a complete, thorough and uniform covering of both leaf and fruit surfaces is absolutely necessary for satisfactory insect and fungus control. It should require no argument to prove that if the fineness of the material is increased four or five times, the spraying and covering power is increased four or five times, but this is something which is easily overlooked un-

less consideration is given the matter.

Fineness of material in the case of dust mixtures is also all important from the point of uniform distribution. In dust application, the distribution is affected by the air, and only the finest material can be expected to carry and float through the air into the trees and coat the foliage. Finally, fineness is essential for both distribution and sticking, for coarse material will not float and carry like fine material, and even should coarse material reach the foliage and fruit, it will readily fall off, while a fine dust, as it is well known, can hardly be brushed off.

Sulphur.

Of the materials entering into dust mixtures, the most care should be taken to secure a superfinely ground, refined sulphur. There are many brands on the market that are entirely satisfactory for other purposes, but which are not sufficiently pure or finely ground for use in dust mixtures. Insist upon having refined sulphur, guaranteed of such fineness that 95 per cent. or more will pass a sieve having 200 meshes to the linear inch, equal to 40,000 holes to the square inch. Excessive fineness means: greater covering power, more complete and uniform distribution, better sticking on the foliage, and better disease and insect control.

The same care should be used in securing dry arsenate of lead as in purchasing sulphur, as this also means even application and greater adhesiveness, when mixed with sulphur.

I used two fillers in the orchard in dusting last season, gypsum and lime. Experiments carried on so far indicate that the best filler to be used for the purpose of reducing the cost of the mixtures is finely ground gypsum of the grade known to the trade as Terra Alba. We used this filler mostly all over in our dustings, with the exception of a block of trees where we used slaked lime thoroughly pulverised. It is im-

*Extract from an address delivered before the recent annual convention of the Province of Quebec Pomological and Fruit Growing Society.



A well kept vineyard and orchard in the commercial fruit districts of the East.



Father Leopold applying the spray in the orchard of the Oka Agricultural Institute at La Trappe, Que. The spray completely hides the tree being sprayed.

portant to get a filler that has about the same specific gravity as the sulphur used.

A Few Suggestions.

The time of application is very important for both the control of scab and codling moth. One of the great advantages of dusting over the liquid spray is the ability to dust in all sorts of weather, even when the ground is soaked with rain and foliage is dripping. I do not intend to mean that one must wait for a rain to begin dusting. No; for we must not forget that if we wish to control or rather prevent scab, we must get the dust or liquid sprays on the foliage before the rain and not after. Fungus spores need moisture to cause germination, so it is necessary that the dust be on the trees to prevent this germination, before the rain falls. This does not mean either that the dust must be put on immediately before the rain, as it must have an opportunity to set before the rain falls.

When dusting with a power machine in a light or moderate wind, the machine should not be driven too close to the row of trees being dusted, as the dust should have time to spread out in a cloud before passing in and through the foliage.

The best time to dust is early in the morning or late in the afternoon, when there is hardly any wind. If one has to dust in the wind, if the wind is in the east, the application should be made by driving east and west.

It is necessary to cover both sides of every tree to do satisfactory work.

Be careful to cover the lower branches as well as the top ones. It will sometimes be necessary to send the outlet

pipe backwards in order to cover the low branches, after the outfit has passed the tree. The best manner to use the outlet pipe to avoid unnecessary loss of dust while covering every point will soon be learned by the man holding the pipe. It is impossible to give a fixed rule, but generally speaking, a steady up and down movement is the best way. Wind and other factors have to be taken into account, and we must adjust ourselves to different circumstances.

Dusting is a tiresome job, and a great strain upon a man if he is giving his whole attention to his work. It would be wise, therefore, to change the man if a whole day's work is to be done.

The outlet pipe is regulated by a hand clutch, and when the trees are far apart, a saving of the material may be made by shutting off the flow of dust, which is done easily. It is rarely necessary to open the flow to its full capacity, generally we maintain it half full, but always have the engine running at full speed. The dust must be forced into the leaf hairs, the calyx of the flowers, and similar parts.

It is advisable to have a good pair of goggles. Those provided with a rim of soft wool felt to exclude dust are the best.

If I was asked if I would recommend dusting generally, I would reply no; but to the owner of a large orchard, I would say that he could invest safely in a large outfit if he has any trouble getting over his orchard in time in wet weather like the one we had last season. For sucking insects, we have not yet found a substitute for the liquid sprays, though some say that in a dusted orchard aphids are less prevalent

and do less harm. Personally, we have not tried any tobacco dust to control sucking insects.

Late Bearing Strawberries

L. J. Farmer, Pulaski, N.Y.

Some years ago the late J. H. Hale introduced a new strawberry which he named 11-59. Someone suggested that he stretch it one minute; he did, and afterwards called it "Midnight." A few years ago, S. R. Divine, of Sullivan County, N.Y., covered several acres of Marshall strawberries in the coldest part of the winter with straw and ice, keeping them back so that the berries ripened and were sold for a good price in August. It is not necessary to stretch your imagination or cover your fields with ice now in order to have real late strawberries; the fall bearing varieties attend to this. If these varieties are denuded of blossoms in early spring, and the blossoms kept out until near July 1st, you can pick plenty of berries in August. You can now ripen strawberries any time from early in June until November by proper manipulation of the blossoms. We had strawberries in August last season from common kinds of plants that were kept in cold storage and set out in the field about five weeks before we picked the fruit from them.

Is Your Soil Acid?

As the soil gradually loses its basic materials, like calcium and magnesium, by cropping and leaching, such lime-loving plants as clover and alfalfa cease to thrive. Cultivation and cropping hasten the removal of the basic materials; this is one reason why some soils become acid and do not grow good clover even when fertilized.

As a means of determining the need of the soil for lime, the litmus paper test when properly made is probably as good as any chemical test. This test consists in placing blue litmus paper, which may be bought at drug stores, in contact with moist soil for half an hour. Tests indicate that soils which turn the blue litmus paper red in this time will be benefited by liming. Land that does not need lime to increase yields will have but slight tendency to change the color of the blue paper.

As a guide to temperature, in the case of plants you know, place box in 10 or 15 degrees higher temperature than that required for the ordinary growth of that plant, so as to insure rapid germination. For example, lettuce requires cool treatment, about 50 degrees, but the seed should be started at 60 or 65 degrees and moved gradually back to 50 degrees after germination.

Tomatoes Under Glass

AT the recent Vegetable Growers' Convention held in Toronto, Mr. J. J. Davis, of London, spoke on some of the problems of the grower of tomatoes under glass. The most important consideration, according to Mr. Davis, is in getting the first two trusses to set fruit. At the time when these are in bloom it is usually too cold to open the doors and allow the wind to pollinize the plants, so this must be done by the grower himself.

Until last year Mr. Davis was in, the habit of doing this work with a bit of rabbit's fur. This, however, was a rather uncertain method, as you were never sure whether the plants had been pollinized until the fruit was formed. Last spring, however, he pollinized by knocking the pollen into a spoon and dipping the stigmas of each bloom into it. This looks like a lot of work, but according to Mr. Davis, it is easier than it sounds, and when these early fruits sell for 25 cents a lb., it certainly pays for the trouble. Mr. Davis found that it was only on certain days that pollen may be obtained, and unless conditions are favorable you might as well leave the blooms alone.

Another problem which Mr. Davis has solved to his own satisfaction during the year is the control of Brown spot of tomatoes under glass. This comes on the under side of the leaf and spreads rapidly by spores. Mr. Davis found that it could be controlled by sulphur fumes, which, however, should not be very strong or the foliage of the tomato will be destroyed also. The method employed by Mr. Davis was that of dropping a little sulphur on to a shovel-

ful of coal carried around by the attendant. It is important not to put much on at a time, but to keep up a

A Few Hints on the Cauliflower

Chas. Syer, Bartonville, Ont.

ONE of the secrets in cauliflower culture is keeping the plant growing straight ahead all the time. It is well to plant the seed originally in rather poor soil and then transplant into richer soil later on. My early cauliflower is of the Snowball variety. This is transplanted first into a hotbed and then into flats to get a good root system. The plants are then placed in the field in rows 30 inches apart and set 18 inches apart in the row. They should be cultivated at least once a week and heads should be tied in as soon as they appear. All my ground is kept very rich, as I make it grow two crops a year. That is, a crop of lettuce or radish is first taken off the ground before the cauliflower is set out, so I use 40 to 50 tons manure per acre in the fall, plowed down, and follow this with 1,000 lbs. fertilizer in the spring.

For my later crops I use the Erford variety. Seed is sown outside on May 15 for a September crop. I make it a practice to sow twice as much as I think I require. By doing this and selling my extra plants, I make them pay for the cost of the seed, which with cauliflower is an important item. With these late plants, it is sometimes necessary to tie up the outer leaves over the

steady little flow. This must not be done when the tomato vines are wet. By this method Mr. Davis, last year, controlled the disease so well that he got full-sized fruits on the top trusses of plants that had been affected.

head in the late fall to keep out the frost.

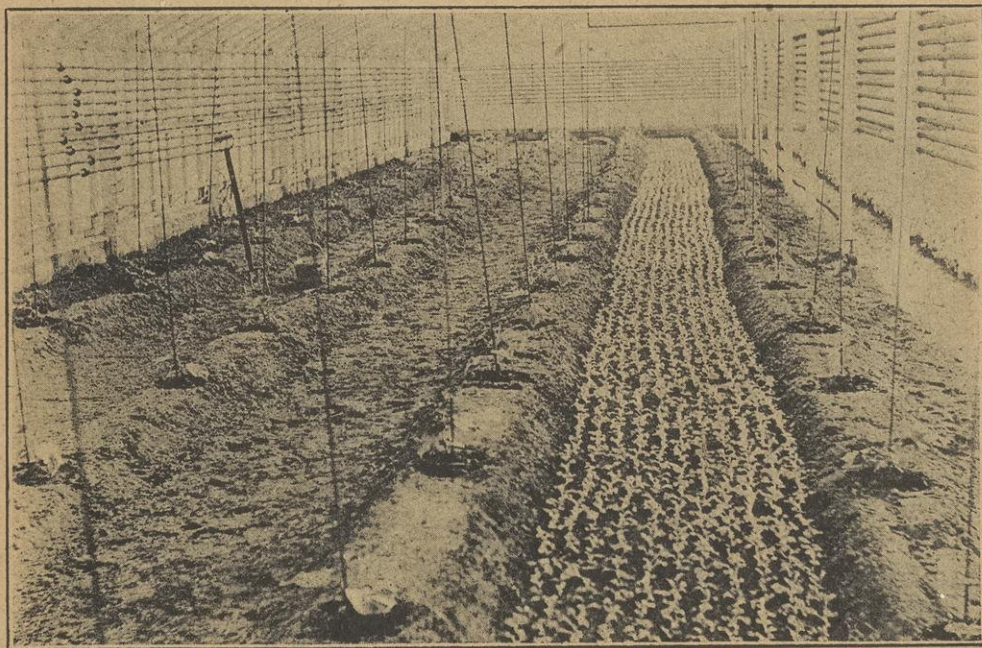
One of the most profitable crops of cauliflower that I grow is sown about the first week in June. These plants are for winter markets. About the last week of October when the heads have reached the size of a 50 cent piece, I take them up and set them in trenches with their roots in the earth. The long leaves are cut off about four inches above the flower. Hot bed frames are placed over the plants with blocks left under the corners of the frames to allow some circulation of air. As the winter comes on, I place boards and manure over the frames, covering them up to one and a half feet to keep out the frost. These plants grow up in the frames and make a profitable crop. You can place 30 to 40 dozen in a 12-foot frame and by the first of February they will be large enough to put on the market. I receive \$2.50 to \$3.50 a dozen for these plants.

Growing Good Melons

"You must raise good melons if you are going to make anything out of melon growing at all," says V. Robinet, a successful melon grower of Tecumseh, Ont. Mr. Robinet plants his melons in April, placing about four seeds in a piece of sod four inches square in the hot bed. After the plants get four leaves, the two weakest plants are pinched out. The plants will not be ready for setting out in the field until about three weeks after planting.

In preparing the field for the plants Mr. Robinet digs holes 12 inches deep at intervals of six or seven feet, arranging these in rows so that cultivation is possible. Weeds cannot be tolerated in the melon patch. They shade the melons and so prevent even ripening. In the bottom of these holes, he places some well rotted manure, then puts in the soil, packs this firmly around the piece of sod containing the plants and usually places a little commercial fertilizer around each hill to give the plants a quick start.

After the melons have reached the size of a hen's egg, the vines are cut off two joints out from the melon. Only four melons are left on a vine with the ordinary varieties, such as the Salmon colored Ossage, Defender and Tip-top. With the Togo and other small varie-



Double cropping in the greenhouse as practised in the Niagara District.

Grape Growing

Continued from Page 83.

In 1916 I tried sowing rape seed as a cover crop, because it was cheap, and other seeds were high, and the chances of getting a good catch on that soil in July, if the weather were dry, discouraged the use of high priced seeds. The rape came to nothing, however, because of a prolonged dry spell during August and September, and it was killed out by worms and drought. No humus, therefore, has been returned to the soil since the application of stable manure in 1911, 1912 and 1913, except the few weeds that have been plowed under. How to obtain humus is one of my problems. Shall it be by stock yard cattle manure about every fourth year, or by cover crops; and if by cover crops, what shall be used?

Lime has been applied twice, 1,000 lbs. of burned lime per acre in 1914, and one ton of pulverized lime stone per acre in 1917. I cannot state any definite result from the use of lime, but as there is little, if any, lime in the soil of that locality, and as it forms soluble calcium salts with the phosphates and other chemicals in the soil, and as it acts on the humus and renders the ground more easily pulverized, I think it should be applied once in three or four years.

Crop Yields.

The crop yields for the past three years have been as follows: 1915, 20 tons; 1916, 19.8 tons; 1917, 21.8 tons. In 1916, the 1,000 new vines began to bear, and last year these vines had nearly reached full bearing. The annual loss by dead vines the past three years has been only 30 to 40 per season. The dead vines are removed each fall, and new vines planted each spring. I have been unable to find the cause of death of many of these dead vines, but I have dug up a number with roots eight to ten feet long, but dead the whole length, with perhaps a little fringe of fine rootlets at the extreme ends of some of the branches, just enough to cause the vine to send out buds in the spring, only to wither and die. The roots appeared to have been destroyed by root worm. A few vines, I believe, died of side-arm disease. To combat this cause I go carefully over the vineyard late in June, and look for the yellow, shriveled, crinkly-leaved canes, and cut the side arms back until the cut end shows no brown discoloration. I disinfect the pruning shears with kerosene oil before making the last cut.

My expense of production the past four years has been as low as I can well

expect to maintain it—about \$390 per year, or \$48.75 per acre, including maintenance expense, labor expense and marketing expense. The maintenance expense includes taxes and insurance, fertilizer, repairs and vine renewal; the labor expense includes trimming vines, cleaning vines, setting stalks, tightening wires, tying vines, plowing, horse hoeing, hand hoeing, harrowing, spraying, and cutting weeds, but the last two years spraying has been omitted, and no stable manure or cover crops have been employed during the four years. Even with this reduced rate of expense I find, if I am to earn 6 per cent. on an investment of \$300 per acre, I must obtain about \$35.50 per ton for a 2-ton-per-acre crop, or \$26.75 per ton for a 2 1-2-ton-per-acre crop. The use of two car loads of manure once in four years would increase these prices about \$2.00 per ton.

During the seven years I find my profits have yielded 5 1-2 per cent. on an investment of \$300 per acre. During the first three years, while trying to get the vineyard on its feet, by the lavish use of stable manure, cover crops and fertilizer, my expense per acre for production averaged \$74.25, and during these three years the books showed a loss of \$740. The last four years, however, have redeemed the situation, showing a substantial gain of income over expenditure. Of course, you will understand that the profit obtained during the years mentioned has been mainly due to the greatly increased prices which have prevailed, coupled with the increase in tonnage per acre.

We may well ask, what has the future in store for the grape industry? What if national prohibition is established, as it practically has been in Canada (and I believe in it)? With the menacing lack of rail transportation such as we experienced last fall, with the increasing cost of production due to higher prices for labor and materials, what awaits the vineyardists of New York State and the lake regions? Surely we can not expect that the industry can carry any but the best vineyards. Those which produce inferior fruit, that can be used neither for grape juice nor the table, in all probability must be pulled out and turned to other use.

Whatever the future holds for us, let us face it manfully, do our best to bring success, then take what comes and thank God; for, as has been well said, "All honor to the man who tries."

Thinning is a matter of selection. Select the best plants and thin out the others, leaving good plants at the proper distance apart.



Tomatoes as grown in the garden of W. M. Grant, Blenheim, Ont.

ties you may leave up to a dozen to the hill. Two or three weeks before melons ripen Mr. Robinet begins to turn them, so that they will ripen evenly on all sides. When melons are well grown they make a good paying crop, selling at 25 to 50 cents each or \$2 a bushel wholesale.

Acid Phosphate First

Acid phosphate has proved the most effective carrier of phosphorus in tests conducted for 22 to 24 years on the farms of the Ohio Experiment Station, proving superior in increasing crop yields to basic slag, steamed bonemeal and dissolved boneblack.

If acid phosphate is considered 100 per cent. effective, basic slag has averaged 92 per cent., steamed bonemeal and dissolved boneblack each 86 per cent. Basic slag has apparently been more effective on unlimed than on limed land, but not enough more to obviate the necessity of liming. These tests have been made on unlimed land, on limed soils and where raw phosphate rock has been used instead of lime.

The conclusion reached is that the grower cannot afford to pay more for a pound of available phosphorus in basic slag than a pound of the same element in available form would cost in acid phosphate, even for use on acid soil. The lime carried by the slag is not sufficient to offset its slight lack of effectiveness as a carrier of phosphorus.

An Experience With Sweet Clover

J. S. McKessock, Sudbury, Ont.

IN the February number of The Bee-keeper, there are a couple of articles about sweet clover and a request for the experience of others with same. The year 1917 was the first experience I had with honey from sweet clover. In the vicinity of Sudbury, where I live, there is no sweet clover, but in 1916 my apiary of ten hives increased to twenty-five by artificial swarming and gathered over 600 lbs. extracted, and about 75 lbs. comb honey, and had sufficient for winter without any artificial feeding.

In the spring of 1917, I shipped twenty of these hives to a farm I have in the County of Grey, about twelve miles from Owen Sound. Between thirty-five and forty acres of this farm had been seeded in the spring of 1916 with sweet clover along with the spring grains. This was pastured close in the fall of 1916, both cattle and horses doing extra well on it. In the spring of 1917, portions of it were badly heaved, so badly that if it had been red clover, its chances of surviving would have been hopeless. On some portions the roots were heaved out about five inches, but notwithstanding this, it all came on fine. I had intended having it all cut a first time for hay, and the second crop for seed, but owing to an extremely wet summer and shortness of help, only a part of it was cut for hay. The

portion that was only cut once was blooming from the end of June until cut the latter part of August, and the rest came on after being cut and commenced blooming early in August, and blossoms were on it till cut early in September.

From the nineteen hives, spring count, (one having lost a queen, was united with another) there was taken over 1,200 lbs. of extracted honey. The apiary had increased to only 25 hives, not because swarming had been prevented, but the swarms were lost. The honey was taken off from late in August up to about September 20th. It was all well capped and very thick. It is light colored, was nearly all granulated by December 1st, and in quality was excelled by no honey I ever tasted.

Sources of Supply.

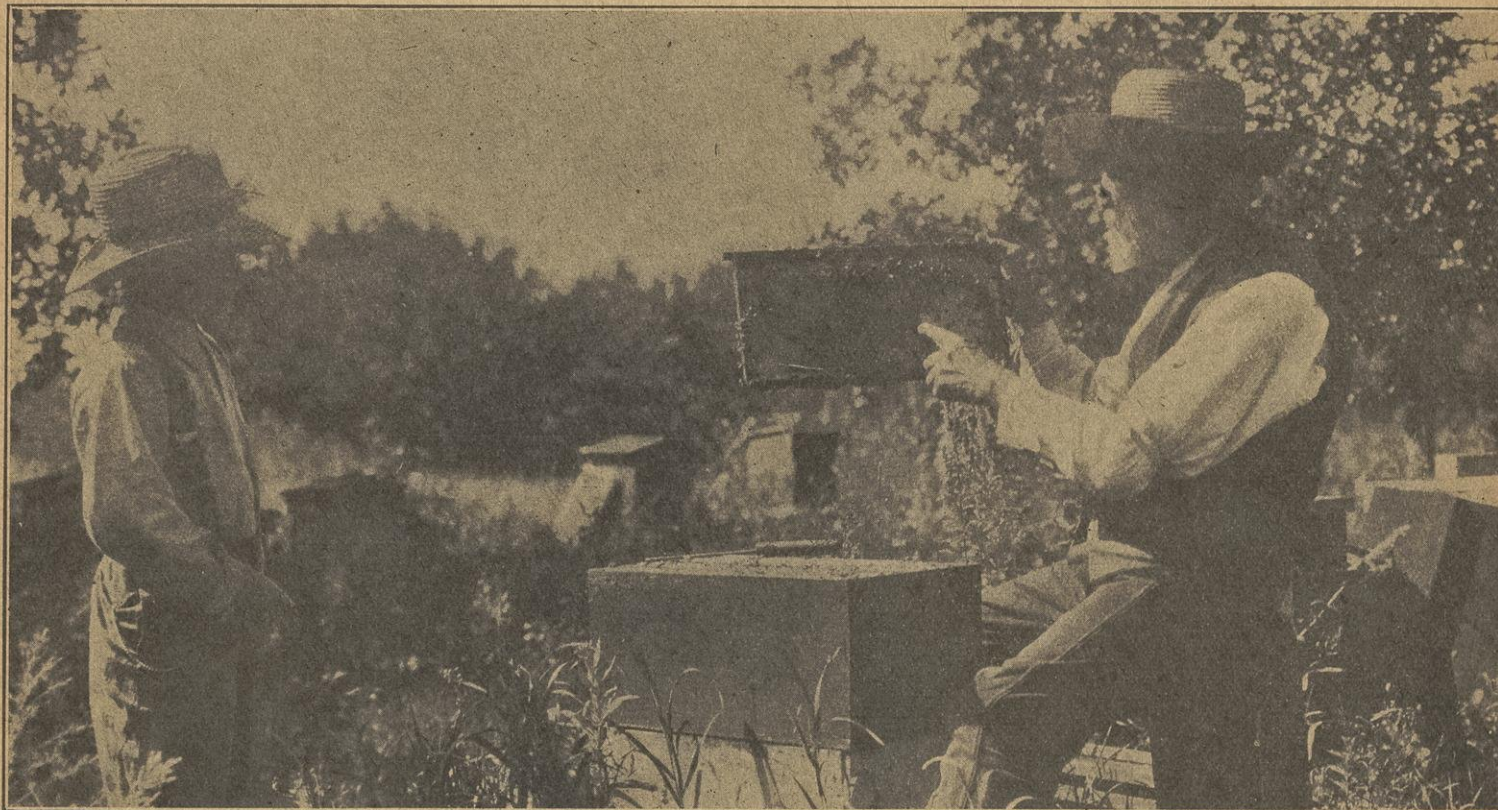
In this vicinity honey is mainly from wild flowers, blueberries, raspberries and clover, mainly alsike. From the four hives which I kept here, and which increased to six, I got no surplus whatever, and will have to feed before spring. Of course, the different localities might account for some difference, but in view of my returns here in 1916, I think sweet clover is entitled to most of the credit. My customers that I supplied in 1915, 1916 and 1917, all state that the 1917 honey was the finest of

any, and the 1915 and 1916 honey would compare favorably with the finest of clover.

My bees in Grey county are wintering outside, and I do not know yet how successfully they may winter on sweet clover honey, which was practically all the kind they gathered last year. It yields late in the season and keeps the bees working late, but if brood is being reared at the same time, it ensures a hivefull of young bees to go into winter quarters, but care should be taken to have them store sufficient in the brood chamber. The weight of my hives last fall indicated that there is danger of the bees neglecting to store in the brood chamber.

Makes Good Pasture.

Until I had tested sweet clover, I had much misgiving as to its suitability for honey, but if last year is a criterion, then I can recommend it, and very highly too. It is also excellent for pasture. Owing to the wet season last summer, it was left too long before cutting the first time, and got too woody, and further, when it was cut it rained so persistently the hay remained out for weeks. On this account, it is poor quality, although eaten readily enough by stock except the coarse stems. I would want another season to test it for hay. It is easy to get a catch with



Let us all do it: Pass on the results of our experience to those who are coming after. A scene in the apiary of Mr. Munro, Swan River District, Manitoba, east of Lake Winnipegosis, on the line of the C.N.R.

sweet clover, and it will grow on poor soils where other clovers would fail to catch. I consider that it yields more

on any kind of soil than other clovers. The soils I have tested it on are gravelly, loam and clay loam.

High Prices Demand Changed Methods*

L. Harris, Vernon, B.C.

WHAT is there in honey that has brought it into prominence as a food so suddenly? There must be something good about it, for the whole world's supply has been cleaned up at the most remunerative prices ever experienced since beekeeping has been looked upon as an industry. People are craving for honey, and there isn't any left to satisfy this craving, and we shall have to wait until the new crop is here.

In the United States, honey has more than doubled in price, with the probability that it will go still higher, and satisfactory prices are likely to be maintained for a long time.

Extract honey in car lots is being held at from 18c to 22c. Comb honey is anything that those who possess it like to ask. Here is the greatest opportunity the British Columbia beekeeper has ever had.

What are we going to do about it? There is so little honey left on the markets anywhere, either in the hands of the producer, or the wholesaler, that estimates are only for what it would or might be if there were any for sale. Are we going to grasp this opportunity of making some easy and clean money by getting prepared for a good crop when it comes?

You know that in some years the honey flow is of such short duration, that if we are not ready, the chance is gone and we are disappointed, so let us have everything necessary for securing a crop in readiness.

There are few other businesses in which stock in trade deteriorates so little as in beekeeping. There is absolutely nothing which cannot be kept for years without spoiling, if ordinary care is taken, so let us not be afraid of having a few extra supplies on hand. If supplies are not already ordered, lose no time, but arrange for them at once.

In view of the satisfactory prices for extracted honey, comb honey production will be almost out of the question, from the beekeeper's viewpoint because to make comb honey as profitable as extracted, at its present price, comb honey would have to sell at prices almost prohibitive, and that would put it in the luxury class, and to indulge in luxuries these days is not exactly in line with present day ideas.

However, which kind he will produce is a matter for the beekeeper to decide for himself. To my mind extracted honey at present prices is a much better proposition than comb honey at any price.

Present prices with three cents a pound import duty into Canada should have the effect of lifting the bee industry of British Columbia into a position such as never before enjoyed, though it is hardly to be expected that the advance will remain at this high water mark permanently.

The Swarming Habit.

The greatest drawback to getting large quantities of honey, especially comb honey, is the desire of the bees to divide or swarm out of their hives. There is nothing so annoying as when after we have got them nicely fixed up (as we think) for the honey flow, they swarm out without the least provocation or reason whatever, and our prospects are somewhat spoiled as regards crop.

It is thought by many beekeepers that the natural desire of the bees to swarm is very much against the production of comb honey in quantity. That may be true, but we are not so sure. Maybe there is something about this swarming business that we do not sufficiently appreciate.

It is certain that bees would soon become extinct, if it were not for this natural desire. The life of an individual bee is of very short duration, but collectively, or as a colony, they may live many years, but sooner or later there would come an end to their existence, if left alone by man, and if they were not endowed with this natural provision to perpetuate their race by dividing, to say nothing of their natural enemies, which are more numerous than of any other living creatures, yet having been provided with a most excellent and powerful weapon of defence, they can with the use of this, together with the desire to swarm, hold their own, so that they are not likely to become extinct. Nevertheless it is looked upon as a hindrance to our interests, because it interferes with, and often frustrates our plans.

Since it is impossible (however much we may so desire) to eliminate this trait of swarming, it will be well to make the best of the situation by adopting methods most suitable to the circumstances, and which will harmonize

and come as near to natural conditions, as our knowledge will allow.

It is generally believed by many modern beekeepers that a colony having superseded its queen for any reason, whether from loss of queen by accident, old age, or any other reason, are less likely to swarm in the current year than a colony that is normal, but having a queen of the previous years.

We believe this is true, and our idea is to use methods that will cause the bees to perform the same duties, and to go through the same preparations, as though they were going to supersede or swarm in the natural way, but we want to do it economically, and to better advantage than the bees often do it; that is to say, we want no let up in brood raising at any time, as sometimes is the case in natural supersedure.

Our first aim then in the spring, and as early as the weather conditions will permit the bees to fly early, is to encourage brood raising to its fullest extent by stimulating, either by uncapping some or the sealed stores occasionally, or by feeding frequently small quantities of sugar syrup as the case may need, so that none of the colonies are lacking in food at any time.

There is nothing so important in the production of comb honey as crowding the hive with bees; there also is nothing more difficult in beekeeping than to keep the hives crowded all

(Continued on page 92.)

Sugar Supplies for Bees

The measures now being taken to conserve and regulate the consumption of the country's sugar supplies will cause the far-sighted beekeeper to look to the time when, possibly in the spring or fall, he may have need of supplies of white cane sugar to keep his bees alive with. In this connection, Mr. F. W. Jones, of Bedford, Que., wrote the Food Controller, and received the following reply from Ottawa under date of February 5th:

"Dear Sir: Your letter of the 1st inst., referring to a supply of sugar for the feeding of bees, has been received. You may rest assured that you and all other responsible individuals interested in the bee raising industry will be guaranteed all necessary sugar supplies. Very truly yours, H. B. Thomson, Food Controller."

Be sure to have on hand before the busy season a sufficient supply of spare hives (the 10-frame Langstroth hive is recommended), supers, frames, comb-foundation and honey containers to meet all possible requirement.

* A paper read at a recent meeting of Okanagan Valley, British Columbia, beekeepers, a province in which beekeeping is making considerable strides.

Saving Wax in the Apiary

John Newton, Thamesford, Ont.

WHEN we think of the vast amount of money that has been made during the past from the production of honey, we often wonder how much more might have been made by the saving of the waste wax around the shop and the bee-yard. It is hardly necessary for one to say that wax is a secretion from the glands of the abdomen of the bee, and while its production is largely voluntary, it requires large consumption of honey to produce it. We have various estimates by scientific men, ranging from six to sixteen pounds of honey, to produce one of wax. The large amount of honey consumed in its production, combined with its various uses, makes it one of the valuable by-products of the apiary. It has many uses in the commercial world, where no other material can be substituted, and in our own calling other substitutes have been used but have failed. Nothing takes the place for comb-foundation of the pure beeswax, and at present wax is in good demand on the market, from 38 to 40 cents a pound.

The cappings from extracted honey are perhaps the greatest source of production, as they are nearly pure wax, and when carefully rendered produce the purest and best quality of wax. Old combs that for one reason or another

have become undesirable for further use, and patches of drone comb cut from corners of the regular brood combs, furnish a large amount of wax. Ten Langstroth frames will, when properly rendered, produce from two and a half to three and a half pounds of wax, or equal to 20 or 25 full sheets of medium brood foundation. Chemical analysis would show that there ought to be nearly four pounds. For this reason, there is no economy in using old, crooked or broken combs, and it will generally be found advisable to change one's supply of combs every eight or ten years, discarding one out of every eight or ten every year. The wax received will pay for the rendering and the new foundation, and the beekeeper will be able to produce a better and clearer grade of honey, and in an infected locality will be less subject to disease.

Another source of accumulation is the scrapings from hives and frames, etc. The burr combs and top bars should be cleaned off every spring. When this is done, one is surprised at the amount of wax that is gathered together and thus saved. One would be surprised, also, as he goes in and out among the beekeepers, to see the amount of wax that goes to waste around a bee-yard. It would be impossible to estimate the amount of wax

that goes to waste every year in the Province of Ontario. There are certainly big wages in saving your waste wax from year to year, but do not try to save wax by scrimping in the use of comb foundation, because, for every cent you save in the cost of foundation, you lose ten in the amount of honey secured, and frequently more than that in crooked combs and inferior sections.

Clarifying Wax.

Now for a few hints on melting and clarifying of wax: No bee-yard is complete without some kind of a solar or sun extractor, set in a convenient place in the yard to drop the odds and ends into. If only a few hives of bees are kept, the cappings could be melted nicely in it. Where there are large quantities of cappings, other ways would be quicker, such as capping melters or a steam heating tank, allowing the wax to rise to the top and by dipping off into pails, or melting in large tins with water around it. Never allow the wax to boil, as boiling takes the oily substance from the wax and thus takes the life out of it.

As regards old combs, I think there is only one proper way, and that is the use of a wax press of some description. I would not like to say what press is the best, but I use the Sibbald press, and it does very good work. It is a good thing to break up the old combs and soak them in water, as when the cocoons are filled with water they will not absorb the wax before melting for pressing. In pressing, use lots of hot water, and after the pressure has been applied, relax the pressure and press again and again till all the wax is out. Keep all wooden parts of your press water soaked.

A word as to remelting would be timely. Wax must be gradually melted and never allowed to boil. Cool very slowly to have it clear. The mealy substance often found on the bottom of wax cakes is caused by overheating. If sulphuric acid is used in cleansing, much care must be used. One gill of acid mixed with water first in an earthen vessel would be sufficient to cleanse 100 lbs. wax.

On a warm day soon after the bees have been brought out of the cellar, see that each colony has a laying queen (not producing drones) and sufficient stores to last until the next examination. Combs containing stores may be taken from colonies that have more than they need and given to those that may run short. Queenless colonies should be united to strong ones. In early spring reduce the size of the entrances of the hives. Protecting the apiary from cold winds is important. Bees wintered out-of-doors should be left in their wintering cases until June.



Bees and fruit-growing work together nicely, in the experience of E. Marlow, Grimsby East, Ont. Mr. Marlow has about 80 hives, which he winters outdoors.

The New Idea Extractor or "Centrifugal Help"

G. W. Markle, Brantford

ASSOCIATION with different manufacturing concerns, working on and caring for machinery that has been produced by various firms in the world, has taught me the lesson over and over again that the machines that are most efficient and give the user the least trouble are made by the manufacturer who has his ears open for complaints rather than compliments. A few years ago I found myself being looked to as the mechanical head of the Beekeepers' Supplies Department of the Ham & Nott

ending, to all systems of getting honey from the comb. Beekeepers everywhere, however, without a single exception, who have seen the new idea demonstrated, accept it as the proper way and wonder why it had not been thought of before. For want of a better name we will call it "Centrifugal Help."

Two years ago I began to plan for a machine that would include this new principle as well as a number of other general improvements that seemed to be very much needed, such as a machine that would run

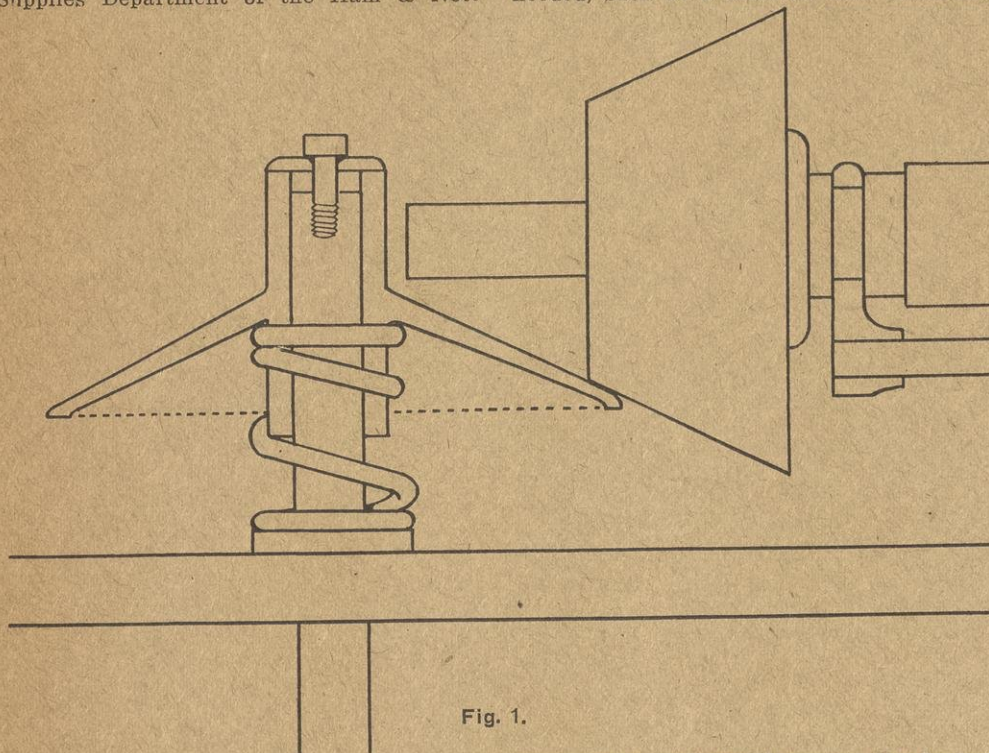


Fig. 1.

Company, and in that capacity began to take the lesson to myself and to listen to and seek for criticism concerning bee fixtures and machinery, and to improve in design and workmanship and finish, with the result that this branch of the company's business has taken its place among the best on the market.

The question of building a proper honey extractor had been to me somewhat of an unsatisfactory problem, for the reason that when the principle of extracting by centrifugal force was adopted it seems to have been taken for granted that that was the "Alpha and Omega," the beginning and the

noiselessly, that would reverse the baskets at the will of the operator without stopping or slacking the speed, a driving attachment giving the machine a change of speeds, and a brake sufficiently powerful to stop quickly.

The first problem, that of mode of motion, is solved by the use of a bevel friction. This, with a heavy coil spring under the driven bevel that slides up and down on the upright shaft, which drives the baskets, is shown on Fig. 1. When the operator starts the machine he does so by means of a lever that slides the drive friction over the driven friction attached to the upright shaft, and if the combs are heavy and need to be run slowly he runs off the small end of the bevel, and as he requires higher speed he forces the bevel driver over the bevel disc and the speed increases in proportion as the larger part of the driver is reached. This idea can be readily understood from the illustration in Fig. 1, and will be acknowledged to be a valuable improvement over the old style flat side friction. In it there is little contact that counts for power, as that part of the edge nearest the centre of the disc must necessarily drag, but with a bevel all contact counts.

Again, as to the interior of the machine, as one approaches it he is astonished at the absence of all bars, crossbars, bands and brake wheels that make up the reel proper of the ordinary reversible honey extractor. In the new extractor all machinery parts are under cover near the bottom of the can, and are composed of a strong cast-iron spider formed with as many arms as baskets. At the end of each arm there is a column

in which a short steel shaft runs upright. These various shafts have on each of them a small sprocket wheel, and these are connected with a small sprocket chain that runs to all the shafts, then to a central sprocket number that can be worked at the will of the operator by a lever at the top of the can. The baskets are made with a solid bottom, in the centre of which is a socket holder for fitting over the top of the upright shafts, to which they are fastened by setscrews. This makes it plain that the baskets are swung on the centre, which is the only way whereby the new "Centrifugal Help" system can be worked out properly, for by the setscrews one can adjust the baskets to run at any angle—the old way, as seen by the six baskets in Fig. 2, or at an angle as seen by the one basket in Fig. 3, which we have proven is the proper position for extracting honey and constitutes the idea of centrifugal help rather than force.

To make it plainer, this one basket is marked off as a comb of honey revolving in a circle. When swung the old way, the cells are straight outward, and the first action of the honey is to sag back against the side of the cells, and as the momentum increases the honey is forced out around the edges of the cells into the swirl of air to the side of the can. This is centrifugal force pure and simple, but when the baskets are set on an angle, as in Fig. 3, the cells are turned in line with the natural way of the honey coming out, and, furthermore, in the revolution a vacuum or suction takes place that helps the honey and the comb to part, hence my reason for calling it "Centrifugal Help."

The reversing of the baskets, as has been stated, is done by lever at the top of the can, and when it is necessary to reverse without checking speed, this lever is pressed down and the baskets turn half-way around and stop until the lever is pressed again. This is done without any slam or noise of any kind, and the baskets have nothing to knock them to pieces as in the old way. The brake attachments are under the bottom of the can and are such a strength as to stop the revolution of the baskets almost instantaneously.

The beekeepers of the Okanagan Valley are planning to form an association which will work in affiliation with the provincial organization. A meeting for this purpose was called by request of the British Columbia Association, and held in Vernon, B.C., during February. The notice calling the meeting stated that honey has become such a valuable item in food production in British Columbia that it will be to the advantage and benefit of beekeepers to promote the new organization.

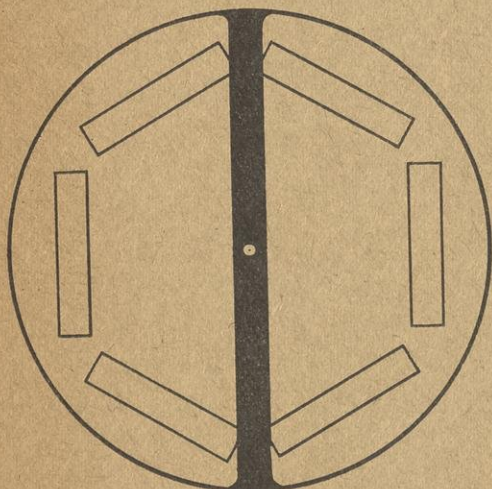


Fig. 2.

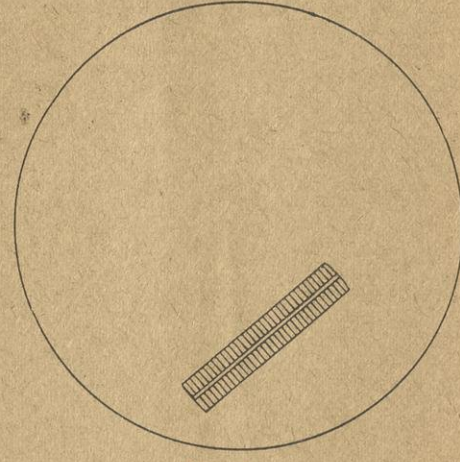


Fig. 3.

Soft Candy for Bees

THE well-informed beekeeper has learned that it is unwise to feed honey in any form, even though it be from his own apiary. There have been many sad and general infections with bee diseases by such unguarded feeding. Thus it has become almost an axiom, "Feed no honey." Consequently, substitutes have been adopted, and among these are sugar syrups and various dilutions and compositions; "hard candy" which is virtually a taffy; and recently, the so-called "Fuller Candy," which is a soft fondant.

For several years Mr. Fuller, of Blackstone, Mass., has been experimenting with this modified English candy, which should not harden beyond usefulness. Beekeepers have found it advantageous to use this as a substitute for honey or syrup.

The soft candy has numerous advantages and possibilities. It is found to be a most satisfactory stimulative feed; a food for bees in transit, either full colonies on combs, in combless packages, or for queens in mailing cages. It is also found satisfactory and advantageous as winter stores. Colonies have been observed to leave natural stores for the candy. This has occurred in colonies out of doors or in the cellar during winter, as well as with colonies which are flying. Some of the advantages of the candy are the ease with which it is handled and supplied; the fact that it may be made up in quantities and stored until needed for use; its failure to excite robbing; the ability to provision colonies with known amounts or weights; and its freedom from bee disease infection. It is furthermore found to be economical, there being no waste by evaporation or spilling, as is the case with liquid feeds. It is proving exceedingly practical in all feeding purposes and methods.

The candy may be made in any degree of hardness or softness, according to the preference of the individual or the needs of the season. As is inferred above, it may be made and stored for months and even years if properly handled. It may be molded in pulp, or wooden pie-plates, shallow tins or specially constructed feeders. Division-board feeders, overhead or super feeders, or boards may be nailed to the side of a frame and the candy poured and molded within the frame, allowing this to be hung in the hive adjacent to the cluster. With the candy may be mixed pollen substitutes, but these are as yet in the experimental stage and their efficiency is uncertain.

The latest formula or recipe for the cream, or soft candy is as follows: 12 pounds granulated sugar, 1½ pounds liquid glucose, 1¼ quarts water (equals 40 ounces, which equals 5 cupfuls), ¼ teaspoonful (about) cream of tartar, added when the temperature reaches about 230°F. Boil to 238°F. The measurements should be accurate.

A wooden paddle, whittled about a foot long, with a 2-inch blade, is superior to a spoon in stirring or beating the candy.

A confectioner's thermometer is an advantage. Those experienced in making maple sugar may dispense with the thermometer, although more accurate results are obtained by using it.

As soon as the sugar has begun to dissolve, prior to boiling, the spoon or paddle used in stirring should be removed from the kettle. The candy should not be stirred while cooking; to do it will cause a coarse grain. Remove from the stove and cool to 125°-130°F., when the specified boiling point has been reached. While cooling, in order to equalize the temperature, the mass may be stirred; or preferably when cooled to the specified degree, it should be stirred

until it commences to grain. Mr. Fuller's directions are to stir vigorously until the mass appears in color and consistency like boiled starch or paste. At once pour into molds or feeders and cool.

Sugar for Spring Feeding

Arrangements have been made with the Canada Food Board to secure sugar for bonafide Ontario Beekeepers who require same for feeding colonies or packages this spring.

Beekeepers who are unable to secure a supply of sugar for feeding bees this spring through the ordinary channels, should write this Department at once, giving detailed information as follows:

Name
Full Address
Concession and Lot No.
No. of Colonies Spring 1918 Count
No. of Packages ordered for delivery this spring
Shipper of Packages
Total Amount of Sugar Required

Upon receipt of full particulars your requirements will be carefully considered and an order issued on your nearest wholesale grocery house to cover your immediate requirements.

WM. A. WEIR,

Assistant Provincial Apiarist,
Parliament Bldgs.,

Conditions for Successful Beekeeping

THE first requisite for successful beekeeping is that the owner of the bees should be interested in them. He will then study their ways and will learn to manage them well. He will learn from bee books and journals as well as by experience, and also more, perhaps, from the friendly advice of a beekeeping neighbor.

Another important condition is an abundance of honey-producing flowers within a mile or two of the apiary. There is hardly a place in the settled parts of Canada where this condition is not fulfilled to some extent. The kinds of plants that produce the bulk of the surplus honey are not many. By far the most important are alsike and white clover, found on almost every farm, and most plentiful, of course, where they are grown for hay, pasture or seed. In southern Alberta and the dry interior of British Columbia, clover yields first place to alfalfa, and in the semi-cleared lands of the north to fireweed (*Epilobium angustifolium*), a promising honey plant which is now the subject of a special investigation by the Bee Division of the Experimental Farms. Among minor sources of surplus honey are buckwheat and basswood in southern Ontario and southwestern Quebec; goldenrod and aster, principally in eastern Canada; wild raspberry, sweet clover, Canada thistle and various weeds. Red clover is an example of a plant containing abundant nectar in which the flowers are too narrow and deep for the bees to collect it.

A third factor of great importance is suitable weather for the development of the honey plant and for the secretion and ingathering of the nectar. In the case of most plants, including white and alsike clovers, a moderately wet spring followed by fine, warm weather when the plants are in full bloom, produces the best results. In such a season it is not unusual to get 150 lbs. of honey per colony in a good clover district. On the other hand, continuous rain or broken weather during the honey flow may prevent the production of any

surplus honey. We cannot forecast the weather in any part of the country, so that the honey crop is as uncertain as any farm crop. In 1915 the highest yield per colony from clover was obtained in Nova Scotia; in Ontario the crop was only moderate, and in the lower mainland of British Columbia a failure. In 1916 Nova Scotia gave less than the average; Quebec, Ontario and Manitoba far above the average, and the lower mainland of British Columbia again a failure. In 1917 Nova Scotia recorded a failure; southern Ontario almost an average; Quebec and Manitoba below the average, and the lower mainland of British Columbia a bountiful crop. The shifting of the good yield from one region to another was due to weather conditions. In the aggregate returns, however, Ontario and Quebec led, the Maritime Provinces came next, and British Columbia third, a comparison of considerable importance to the specialist, but less to the amateur.

The rise in sugar has been reflected in the honey market. In the last two years the demand for honey has been very great; the price has risen three to five cents a pound within the past few months, and white extracted honey at the time of writing is being quoted at 14 to 17 cts. a lb. wholesale.

An Ontario Beekeeper in B.C.

Editor, The Beekeeper: Enclosed you will find \$1.00 to renew my subscription for another year. I am away up here near the snow-peaked mountains. Though we are near the mountains we have a fine winter. This is my first winter here, and I have not experienced any such cold as we had in Ontario. The beekeepers are making preparations to advance their industry and to increase their stock. As a rule, we have some very good bee men here, men that are well versed in the bee industry. The winter seems to be the worst drawback. If they can get through that, they will be successful, and I believe they will get over the wintering problem as time goes on.

The winters are so mild some of the beekeepers leave their bees out in single wood hives. I do not agree with them in this, but it is only a few who are keeping their bees in a hit or miss principle who do it. I never was used to that, and I hope they will get over it. The good bee men here are men of long experience, so far as I can learn, and they will become successful. I cannot agree with Mr. Todd, one of our inspectors, who burns bees' combs and hives to clean up American foul brood. My way of thinking is that beeswax is too precious to be burned. Instead, boil it, singe the hives well, and then turn them upside down on the grass and burn a quarter of a pound of brimstone broken up in small pieces under it. Leave the hive over the fumes of the brimstone until it is all burned out, and I will guarantee there will be no germs left. Then air the hive well and scrape it well, and burn the scrapings.

The little bees are God's insects, and I cannot believe that God ever meant them to be burned with fire, and I don't believe that God ever put a plague on this earth that He would not provide a remedy for, if man would humble himself and ask for knowledge. As for the brood, that can be saved, too, and two colonies made out of the one. Certainly you will get no surplus, or very little, but you save your wax, your bees, your brood, and your hive. I have proved it, but I have not got myself to thank for it. It was one of Morley Pettit's inspectors, Mr. John Schrank, of Port Elgin, Ont., that told me the method.

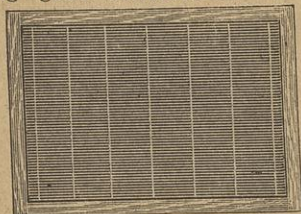
Maple Ridge Apiary,
Port Hammond, B.C.

G. GUYER.

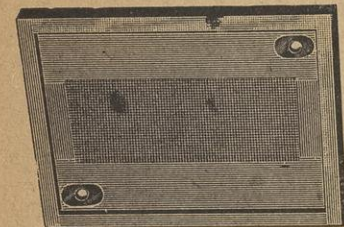
Apiary Appliances

At the last annual convention of the Ontario Beekeepers' Association, Mr. W. J. Craig, of Brantford, gave a talk on apiary appliances. A number of the appliances were on exhibition. Mr. Craig's comments on some of these appliances were as follows:

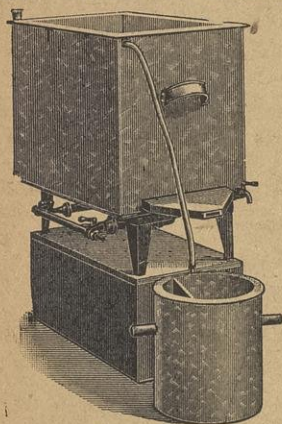
The wire queen excluder of last season has been giving good satisfaction. It is our opinion that the wire will ultimately take the place of the perforated sheets entirely, even though the prices on zinc become normal.



The wood wire bee escape board, too, has been used enough to prove its efficiency and advantages over the plain board or all-wire. The double wire cloth gives not only ventilation but also prevents the bees feeding one another through the openings.

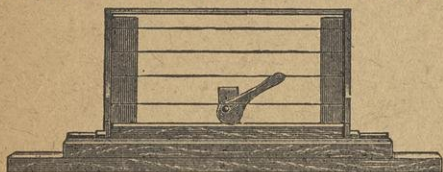


The Armstrong capping melter and dividing can also has been giving excellent satisfaction. Mr. J. L. Byers had an article



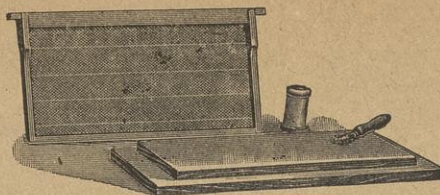
on the subject of rendering cappings in the "Gleanings in Bee Culture." He had reference to this machine. Mr. Byers obtained 700 lbs. saleable honey with 350 lbs. of beeswax.

A nailing device for frames is rather a desirable thing for the beekeeper who has many frames to put together. This simple arrangement can be attached to a table or bench. The frame top bar is held firmly by the lever or eccentric and the side bars



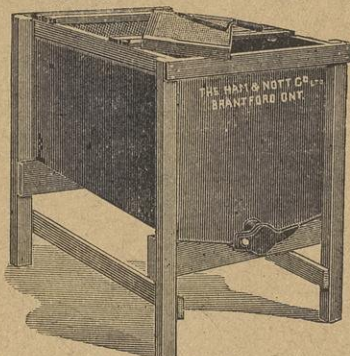
are separated by the upright pieces until nailed. The frame can be conveniently wired when in this position. While each one has his own particular way of nailing his frames, this no doubt will be of interest and will be welcome by those who have no better system.

An imbedding board, to centre the sheet of foundation, holding it close up to the strands of wire for imbedding, is most convenient. How often some of us have tried



to work with something that was too short or too narrow and not thick enough, and we have wasted more time looking for such a thing than such an appliance as this would cost us.

An uncapping box, allowing room for two persons uncapping, and a good capacity so that the cappings will drain off quickly, has



often been asked for. Such an arrangement is here shown and will be of interest to many.

High Prices Demand, etc.

(Continued from page 88.)

through the honey flow, if the bees have the notion that they would like to swarm. What then shall be done, since we want the comb honey but we do not want the bees to swarm? We believe the best way to satisfy the bees, and incidentally the beekeeper, is to gratify their natural desires.

Cause of the Loss.

It is not the actual process of rushing out of the hive, circling around in the air for a time, then clustering on a nearby tree, that satisfies them, but rather the different processes which the working bees have performed in preparing queen cups, setting eggs destined to develop into queens, manufacturing and feeding the royal food to nourish the embryo princesses.

When the bees are allowed to carry out this programme in their own sweet and particular way, they will settle down to work with a will such as colonies held under restraint do not possess. The trouble is that if bees are left to themselves to carry out this programme, without the aid of the beekeeper, too often the season is too far advanced to get best results, therefore we must hasten matters by continuing to stimulate the bee to greater activity in order to get the greatest number of bees possible in the hives before the main honey flow is here.

As soon as the colonies have six or seven frames well filled with brood, a second story should be given above. As soon as the two stories together will yield ten frames well filled with brood, they should be put down into the lower hive, thus completely filling the lower hive with brood from one side to the other; at the same operation find and remove the queen from the lower hive and put her into the upper one, after placing a flyproof wire screen excluder between the two hives, turning the entrance of the upper hive in the opposite direction to the lower one.

Any brood over and above the ten frames can be left in the upper hive, where the bees remaining will take care of it, even if there

are not many bees, because the heat generated in the lower hive will ascend, thus keeping the upper hive warm, where breeding will go on as merrily as ever. The lower hive being isolated from their queen, the bees will very soon commence to construct queen cells (our idea being to get a queen of the current year raised in every hive by the bees themselves, and in as near to the natural way as possible, without any let up in the brood raising, or any cost in purchasing young queens).

To return to the hive, having the ten frames of brood, in eight or nine days from the time they are put down, look over the whole ten frames in the lower hive and remove all queen cells, with the exception of one. It will be necessary to brush the bees off every comb in order to make sure that no cell has been overlooked.

Sometimes queen cells are difficult to locate, being almost buried in level with the surface of the comb, especially along the bottom edges of the comb, and it is only by shaking the bees off that they can be seen. These buried cells look like the point of a very large drone cell, and do not project above the surface very much.

In twenty-one days, or thereabouts, from the time the old queen was put up, the young queen will begin to lay, when the old queen from the upper hive, if a good one, together with a couple of the frames, with some of the brood honey, and adhering bees, can be taken and placed in another hive, given another position (after filling up the hive with frames filled with foundation, or empty combs), where it can remain during the rest of the season, and will probably build up into a good colony.

The old or lower hive having the new queen will now be in the pink of condition for the main honey flow, having a young queen, "all of their own raising," with no desire to swarm, ample empty cells to keep the new queen busy.

The flyproof excluder can now be removed, and the two supers of sections put on; the one next to the hive or brood chamber should be provided with a few baits to get the bees up at once. Put the hive containing the brood and bees left by the old queen on top of the two supers. These hatching bees will further increase the population.

After the bees have all hatched, remove the hive right away, or it can remain as an extracting super.

As soon as the bees have well occupied the two supers, add others underneath. Allow the supers to become nearer completion before adding others, as the season advances, or we may find ourselves with a lot of unfinished sections. If later it be thought necessary to add other supers, they should be given on the top.

As soon as any super is complete, slip a Porter bee-escape underneath, and get them off before the sections become soiled, or the bees thicken the cappings. If the outside rows of sections are not quite as well finished as the centre ones, do not wait for them, as possibly you may have to wait a long time, and the others would lose some of their dainty freshness.

We have noticed that if the supers are crowded with bees, the whole of the sections will be equally well filled and finished. If not, there will be a large proportion of second grades.

Ample but not too much ventilation should be provided, by slipping each alternate super backward and forward, allowing half an inch to each super.

Double up a piece of mosquito wire cloth, the same length as the opening, and push it into the space; this will prevent the bees from outside getting in, and it will not interfere with the ventilation.

Store your honey in a warm and dry place.

A. E. AMES & CO.
Toronto Montreal
New York

IT WOULD BE IMPOSSIBLE

to indicate a more suitable security to serve as a nucleus around which to build up a substantial investment than

CANADA'S VICTORY BONDS

Your orders would be appreciated.

A. E. AMES & CO.
ESTABLISHED 1889

Members Toronto Stock Exchange.

Ontario Growers' Advantages

G. E. McIntosh, Traffic Expert, Dominion Fruit Division, Ottawa.

Ontario apples will have to compete with Nova Scotia apples in the different markets next fall. It is evident that the marketing channels will be the same as the past season; therefore shippers of perishable food-stuffs will be most interested in any legislation or order by the Food Controller that will make marketing reasonably safe, and get the greatest possible service out of all available railway equipment.

In Western Canada, Ontario has a freight rate advantage over Nova Scotia of at least 38 cents a bbl. or from 8 cents to 15 cents per 100 lbs. in Montreal and Ottawa, and proportionate rates covering the territory lying west of these points. Thus the only territory in which Nova Scotia has a freight advantage over Ontario is points in Quebec east of Montreal; the Maritime markets, Newfoundland, and possibly a few border markets of the United States. Nevertheless, if the British embargo remains, and I believe it will, I venture to say Nova Scotia apples will be a strong factor the coming season in many Ontario markets, and possibly even west of the lake.

Keep the new strawberry beds clean of weeds and let the plants produce new runners.

If you were to ask me which box I liked best, the Canadian or the Oregon box, I would say the American box, because, in my opinion, it carries the fruit in better condition.—D. Johnson, Dominion Fruit Commissioner, Ottawa.

Gladiolus "Prince of Wales"

A clear grenadine pink or deep buff with throat markings of a deeper tone. The tips of petals shaded darker—very large flower, eight or ten blooms open at one time. A novelty of great value. This gladiolus is sold by different growers at from 25c to \$2.00 each. Our price is 25c each; 25 bulbs \$5.00.

H. P. VANWAGNER

R. R. NO. 5 - HAMILTON, ONT.
Grower of Best Gladiolus—Paeonies.

DOUGLAS GARDENS

Catalogue for 1918

Contains a complete list of a number of new plants that will interest customers this season.

A fine assortment of Paeonies. Perennial plants of all kinds. Shrubs and roses.

BEDDING PLANTS

Standard Fuchsias from 2 to 3 feet. Carnations of the finest varieties. Heliotrope, Cowslips, Salvia, Salpiglossis, Snapdragons, Pentstemon, Lobelias, Pansies, Ageratum, Verbenas, Asters and Stocks.

ERICK ERICKSON
OAKVILLE - ONTARIO

Ship YOUR Fruit AND Vegetables TO Toronto

Toronto is the best market for Fruit and Vegetables in Canada. It consumes the most, demands the best goods and pays the best prices.

White & Company are well known in Toronto. We are one of the largest and oldest commission houses and so can offer you the best facilities for disposing of your produce on this market. Our wide connection built up from satisfied customers, ensures you quick sales, top prices and prompt returns.

Our customers are largely the better class of green grocers who supply the best families. Thus we want quality, regardless of price.

Write us to put your name on our list for regular market reports and mention that you want shipping stamps.

White & Co., Limited

Front and Church Sts., TORONTO, ONT.

Wholesale Fruit Importers and
Commission Merchants

—REX—

BRAND

Lime and Sulphur Arsenate Calcium
Solution of Lead Arsenate

Crop protection means crop production. Twenty-five per cent of the country's fruit crop is destroyed annually by fungi and insect pests, and the loss is a serious one to the nation.

This is the time to prepare for the coming season's offensive.

REX Brand materials have been given a severe test by fruit growers and orchardists in Canada and the United States, and have accomplished the best results.


If You Want More Fruit and Better Fruit


send us a card for the booklet "What Constitutes Quality and Merit in Spray Materials."

■ We are the Canadian Sales Agents for the "Friend" Manufacturing Co., of Gasport, N.Y., manufacturers of the world famous NuSYSm Spray Outfits, and the NuSYSm Spray Gun, the machines that have revolutionized spraying.



Canada REX Spray Co., Limited
Austin McGlennon, Manager BRIGHTON, ONT.



The
SHERIDAN
NURSERIES
Shrubs & Perennials
34 North St.  The Nurseries
Toronto. Sheridan Ontario.

Niagara District Notes

By F. G. H. Pattison, Winona, Ont.

Peaches have suffered considerably from the severe winter, although there appear to be enough healthy buds left to give a crop. Localities, however, vary considerably. In some places the more tender varieties have been severely affected. Nor have sweet cherries and Japanese plums escaped. In the Grimsby-Winona section, serious injury is reported in many orchards to Governor Wood and Black Tartarian cherry buds. Windsor and Yellow Spanish are not much injured. Burbank plums are also reported to be severely hurt. There is little doubt also that a certain proportion

of trees have been injured and in some cases killed by the unusual severity of the winter.

A report from Beamsville says that pruning is well advanced there. The district around St. Catharines reports grape pruning further behind than usual.

Throughout a large portion of the winter fruit growers who have teams have found profitable employment for them at the new aviation grounds at Beamsville.

During 1917 the Vineland Co-Operative Company sold fruit to the value of \$135,000, making a gross profit of over \$8,000. They also handled the following supplies: Coal, flour and feed, baskets and crates, sulphur, fertilizers, grape twine, basket fasteners, lime, arsenate of lead and bluestone, to the value of \$62,000, on which they made a gross profit of \$5,000. All this was done with a paid-up capital of less than \$6,000. According to manager W. M. Gayman, their chief aim has not been to pile up a big profit, but to sell their supplies as cheaply as possible. To become a member of this association a grower must invest \$200 to \$500 in stock, according to the size of his farm. On this they pay him seven per cent. per annum. They have tried to impress on their member-growers the necessity of grading their fruit well, and report that they have succeeded in most cases. They have a law demanding that members sell all their fruit through the company, and also buy all their supplies.

The matter of the proposed prohibition of the manufacture and sale of native wines was considered at a meeting of fruit growers held in Grimsby, and a resolution was carried unanimously that the Niagara Peninsula Association should be requested to send a delegation of at least 200 to Ottawa to protest against the proposed measure.

On the evening of March 12th, a largely attended meeting of fruit growers was held at Winona. Resolutions were passed: 1. Approving of the proposition of President Kelly, of the Hamilton Board of Trade, regarding releasing men from the factories to work on fruit and general farms. 2. Disapproving of the proposed Daylight Saving Bill, on the grounds that owing to the heavy dews during the summer and fall months, it would cause a waste of time, disarrange the farmers help, and lessen production, instead of increasing it; and supporting 3. The Niagara Peninsula Fruit Growers' Association in sending a strong delegation to Ottawa to protest against the proposed prohibition of the manufacture and sale of native wines.

At the annual meeting of the Dominion Cannerymen held in Hamilton, in March, the president's report stated: "Our stocks of canned goods on hand are unusually light, and we will probably go into next season with little or nothing in the shape of canned good. As to export business, last year we advised you that we were diligently working up our export trade, and this has been of material assistance to us, but owing to transportation and foreign financial conditions, this trade is now practically cut off. Labor, as you know, has advanced considerably, tins have also greatly advanced; in fact, all those materials that enter into the pack, such as fruit and vegetables, range from 50 up to 100 per cent. higher. Therefore, we cannot for the present expect to sell goods at normal prices."

Bedding and Vegetable Plants

Watch for our advertisement in the May issue.

THE MITCHELL NURSERY CO.
MITCHELL - ONTARIO

Butterfly Flowers

These are the airiest and daintiest flowers imaginable, especially adapted to bordering beds of taller flowers and those of a heavy growth. The seeds germinate quickly and come into bloom in a few weeks from sowing. The florescence is such as to make the plant a veritable pyramid of the most delicate and charming bloom.

FREE!

One 15c. package will be sent FREE to each person sending us a postcard with name and address. A copy of our new 80 page catalogue will accompany it, from which you can choose your spring requirements.

DOMINION SEEDS, Limited
LONDON - ONTARIO

Be Sure to say you saw this offer in The Canadian Horticulturist



Butterfly Flower

Bruner Onion Weeder

Onion growers, we send this machine on **FREE TRIAL**, if you are growing half acre or over of onions. Don't fail to investigate about this great labor-saver.

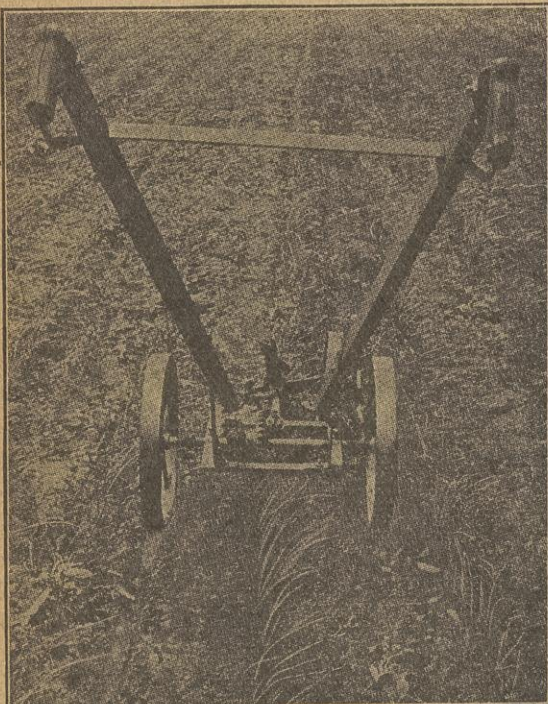
Gets the weeds that are directly in the onion row.

Write for complete information.

R. G. Bruner Mfg. Co.

Box 157

RUTHVEN, ONT.





WHEREVER there is writing to do there is need for a typewriter.

ORDER YOUR TYPEWRITER NOW

THERE is now a shortage of typewriters never before experienced in the history of the business. And it will be still more pronounced.

Prices have not yet advanced. In view of this and because of unavoidable delays in delivery, it is good policy to anticipate your typewriter requirements and order now. Rebuilt Underwoods from \$60; other standard makes from \$30.

United Typewriter Company

LIMITED

Underwood Building

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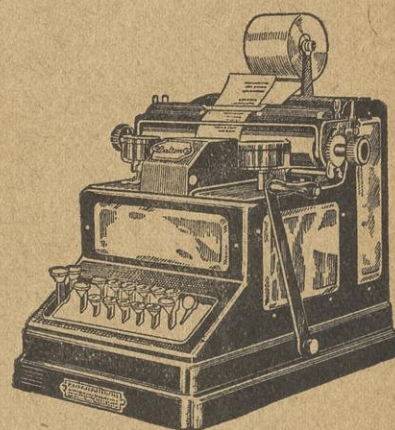
135 Victoria Street

TORONTO

OFFICE OUTFITTERS, PRINTING, EMBOSSING, LITHOGRAPHING, ETC.

SHOULD you have an adding machine, or another adding machine?

The DALTON (for adding and calculating) is startling in its simplicity. It has 10 keys instead of 81. It multiplies, divides, subtracts—fractions as readily as whole numbers. The ten-key keyboard lessens the possibility of error; makes possible the touch method of operation which prevents the fatigue due to constant looking back and forth from copy to keyboard. It is the fastest listing adding machine. Send for booklets.



GRAY CAUCASIANS

Early breeders, great honey gatherers, cap beautifully white, great comb builders, very prolific, gentle, hardy, good winterers. Untested \$1.25, select untested \$1.50, tested \$1.75, select tested \$2.25.

H. W. FULMER

POINT PLEASANT

PA.

PREPAREDNESS PAYS

Order now and avoid spring rush. Bee supplies, books, magazines, 1917 prices withdrawn. Write for prices until new catalogue is issued.

THE ROOT CANADIAN HOUSE

73 Jarvis Street - Toronto, Ont.

Organizing for Production

From one end of Canada to the other, in fact all over the continent, enthusiasts are at work endeavoring to promote increased food production through vacant lot and back-yard gardens. Municipal bodies, horticultural societies, rotary clubs, women's Institutes and many other organizations are busily at work. Because of the experience gained last year better results should be realized this season. In spite of the experience gained, however, the probabilities are that many of those interested will fail to achieve the results they desire because of a failure to carefully plan and

supervise the carrying out of the numerous factors that are essential to success.

In the United States, where vacant lot gardening was practised in a number of cities even for years before the war, the experience gained has shown that the following factors have an important bearing on the successful prosecution of any public campaign for increased production. Our Canadian organizations which are so busily at work will do well to bear them in mind.

First, secure enough money, either by municipal grants, private subscriptions, or in other ways, to insure your being able to carry the campaign to a successful conclusion.

Second, list all available lots and vacant land, and also obtain a list of all who want gardens. It often happens that many who would like to garden are unable to do so owing to lack of land when land may be available near them without their knowledge.

Third, if possible secure the services of an expert to supervise the work from April to July at least. Where funds do not permit of this, divide the municipality into districts and call for volunteers who will undertake to give suggestions and aid to those needing it living in these districts.

Fourth, plan for co-operative ploughing. Much needless expense, worry and time may be saved by a little co-operation in this way.

Fifth, ensure the growing of enough good tomatoes, cabbage and other plants to meet the needs of those wanting them. Too often the plants offered for sale at stores are crowded in boxes, stunted and almost worthless, and are purchased by amateur gardeners because they do not know what good plants really are.

Sixth, plan to secure an abundant supply of manure. The difficulty of obtaining this essential is a serious handicap in many gardens.

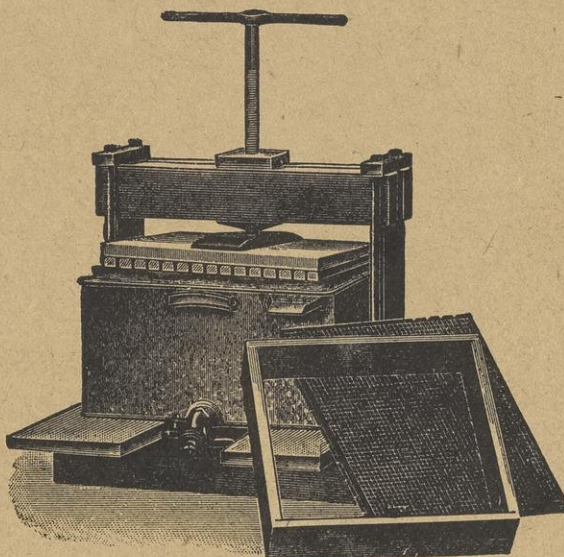
If the foregoing six points are carefully watched and provided for they will go far to insure a successful campaign. The passing of the Daylight Saving Bill by parliament is going to ensure thousands of people being able to spend more time in their gardens this year than ever before and thus will encourage more beginners undertaking gardening this year than otherwise would.

Fruit spurs are easily recognized by their short, scraggy appearance on the branches. Leave them intact.

SAVES HONEY SAVES WAX SAVES MONEY



The Armstrong Cappings Melter.



The Sibbald Wax Press.

Two machines that every up-to-date beekeeper should possess. Beeswax wanted for cash or in exchange, or we will make it into Comb Foundation by Weed Patent Process for you. Early cash order discounts and prompt service NOW.

The Ham & Nott Company, Limited
Brantford - - - Ont.

Notice to Canadian Beekeepers

We are booking orders for combless packages for April, May, June delivery at the following prices :

- 1-lb. package, \$1.80 each, twenty-five or more, \$1.70 each.
- 2-lb. package, \$2.90 each, twenty-five or more, \$2.80 each.
- 3-lb. package, \$3.90 each, twenty-five or more, \$3.80 each.

If queens are wanted add 75c each to above prices. As we will need all of our untested queens for our package trade, therefore we will have nothing to offer before June 1st but tested and breeding queens, which we quote you as follows:

Tested Queens \$1.50 each. Breeding Queens \$3.00 each.

It has been stated by one of our journals that we have been shipping a frame of brood, or a piece of comb, in our packages. We wish to state that this is false.

We guarantee safe arrival to your express office. Our bees are free from all disease and are of the best Italian strain.

References.

Apalachicola State Bank and Bay City Packing Co., of Apalachicola, Fla.

If you send post office money order have same drawn on Apalachicola, Fla.

MARCHANT BROS.

Sumatra, Fla.

Annapolis Valley Notes

Eunice Buchanan, Berwick, N.S.

Apples in March dropped to \$1.00 and \$1.50 a barrel for No. 1 and No. 2's of—Nonpareils, Ben Davis and other fruit now in season. Owing to the deficiency of cars, the fruit did not move as freely as it could have been sold. Other reasons were, the severe weather, and apples accumulated on the packers hands, while many contracts were canceled. At the beginning of the season, inexperienced buyers paid big prices for inferior varieties of apples and forced abnormal prices; now the market has gone to the other extreme.

Up to the time of writing, (March 18th), the weather has continued steadily severe, snow is still falling. When weather permits, pruning it attempted. Special meetings have been held by the Food Controller, urging us to make renewed efforts to produce more food this year.

Use rubber boots when pruning, so as to avoid damage to the trees.

JONES-WEED PROCESS COMB FOUNDATION.

We have at all times a good stock of all grades of Jones-Weed Process comb foundation and we solicit your orders. Customers' wax made up by same process if desired. We try to ship telegraph or telephone orders same day as received.

More Beeswax Wanted—Highest Price Paid

F. W. Jones & Son

Manufacturers of Beekeepers' Supplies
BEDFORD - - QUE.

An Opportunity for You.

Thousands of people in towns and cities all over Canada are starting gardens this year for the first time, because of the world-wide food shortage. This is creating a great demand for reliable information on gardening subjects—just such information as is contained in the floral edition each month of *The Canadian Horticulturist*.

The very low subscription price of *The Canadian Horticulturist*, only 50 cts. a year, 3 years for \$1.00, or 6 months for 25 cts., places it within the reach of even the poorest. Thousands of these people probably have never even heard of *The Canadian Horticulturist*. Were they to be shown a copy many would subscribe for it immediately. This situation offers a splendid opportunity to our subscribers and others to help the cause of increased production by assisting to increase the circulation of *The Canadian Horticulturist*.

We desire to secure circulation representatives in all the leading cities, towns and villages of Canada where increased production is being advocated. Very attractive commissions will be paid for new subscriptions. Sample copies will be sent free on request. Write us for further particulars. Agents wanted also in the fruit districts.

THE CANADIAN HORTICULTURIST
Peterboro', Ont.

Apples in Storage

The following is an approximate estimate by the Dominion Fruit Division of the apples in store at the following points on March 30th, 1918, and on the same date in 1917:—

Place	1918.		1917.	
	bbls.	boxes.	bbls.	boxes.
Nova Scotia ..	34,000	.....	2,500	.....
St. John, N.B. ..	5,300	800	(no figures)	
Quebec, P.Q. ..	2,600	900	2,200	.....
Montreal, P.Q. ..	13,000	9,000	5,200	6,700
Ottawa, Ont. ..	4,500	2,000	(no figures)	
Toronto, Ont. ..	10,300	9,600	800	3,000
Winnipeg, Man. ..	5,300	21,300	700	12,000
Calgary, Alta. ..	.....	6,500	...	4,000
Vancouver, B.C.	23,500	...	11,000	
Victoria, B.C.	6,000	...	6,000	



NORTH CAROLINA BRED ITALIAN QUEENS

of Dr. C. C. Miller strain of pure three band Italian bees. Gentle and great honey gatherers. Ready May 1st. Untested, \$1.00 each; \$10.00 per doz. Tested, \$1.50 ea.; Selected Tested, \$2.00 ea. Safe arrival and satisfaction guaranteed.

L. PARKER,
R.F.D. No. 2, Benson, N.C.

PRACTICAL QUEEN REARING

is the title of the new bee book, cloth bound, 110 pages, finely illustrated, which has just been written by Mr. Frank C. Pellett, former State Apiarist of Iowa and well known bee-keeping writer.

For many years there has been a demand for a book which would give in concise form the many different methods of queen rearing, as the Doolittle, Pratt, Alley, Miller, Dines and others with variations as practised by the large queen breeders.

You have this in this new bee book.

Send for your copy now and learn for yourself how to rear queens from your best colonies to advantage. Variations of plans may be of great value also to queen breeders.

Price postpaid, \$1.00, or with the American Bee Journal, one year only, \$1.75.

(Canadian postage 15 cents extra.)

AMERICAN BEE JOURNAL HAMILTON, ILLINOIS

MOTT'S NORTHERN BRED ITALIAN QUEENS

have proved for the last 11 years to the Canadian friends to be the best of E.F.B. resisters. Hardy, hustlers and gentle.

Sel. tested, \$1.50; Unt., \$1.00; 6, \$5.00; 12, \$9.00.

Plans "How to Introduce Queens and Increase," 25c. Lists free.

E. E. MOTT - Glenwood, Mich.

Our HIVES, FRAMES, SUPERS

and other equipment for Beekeepers' purposes are Standard made and of the best grade. We fear no competition either in workmanship or quality.

Ask for our new illustrated catalogue. We are Canadian Agents for **DADANTS** foundation and carry a large stock for immediate shipment. You cannot buy anything better than **DADANTS**.

The Tillson Company, Limited
Tillsonburg - "Everything for the Bees" - **Ontario**

THE BEEKEEPER'S DIRECTORY

The following beekeepers will be able to supply Bees and Queens in any quantity for the season of 1918. Order Early.

J. P. MOORE,
Morgan, Ky.
Try Moore's Strain Next Year.

W. R. STIRLING,
Ridgetown, Ont.
Breeder of Fine Italian Queens.

E. E. MOTT,
Glenwood, Mich., U.S.A.
My Italians resist well the E. Foul brood,
Northern bred, hard, prolific, gentle.

M. C. BERRY & CO.,
Hayneville, Ala.
Select bred Italian Queens and swarms of
bees in packages.

H. W. FULMER,
Point Pleasant, Pa.
Importer and breeder of Gray Caucasian
Bees and Queens.

THE ROOT CANADIAN HOUSE,
73 Jarvis St., Toronto, Ont.
Full colonies—Nuclei—pound packages.
Queens of Canadian or U. S. A. stock. Three
banded golden Italians.

THE BEEKEEPER
Can sell your Bees, Queens and Supplies
Write for Rates

Items of Interest

A meeting of representatives of the various co-operative associations in the Niagara District was held recently when a resolution was passed favoring the appointment of a committee to arrange for a system of co-operation between the various local co-operative associations for the purpose of promoting the sale of the products of the orchards and vineyards of their members and the purchase of supplies through one central organization.

Many readers of THE CANADIAN HORTICULTURIST will hear with regret of the death of Flight Capt. C. F. Pattison, R.N. A.S., son of Mr. F. G. H. Pattison, of Winona, who has been the regular contributor of the Niagara District Notes to The Canadian Horticulturist. Death was due to an airplane accident in England. Capt. Pattison, who had destroyed five German planes and been shot down twice, was only twenty-one years of age.

The annual meeting of the Vernon B. C. Fruit Union was held near the close of March. The reports presented showed that during the year the Union had handled 539 cars of fruit and 122 cars of vegetables. On these shipments a profit had been made of \$7,455. An effort will be made this year to greatly increase the tonnage handled. The report from the Feed Department showed a turnover for the year of over \$70,000 and a profit of over \$5,500.

Mr. G. A. Putnam, Director of Women's Institutes for Ontario, has been training a class of 30 young women in farm work. Some of them worked on fruit farms last season, and have offered their services for a period of five or six months this year. They are being taught to groom and hitch a horse to a wagon, plough or harrow, and given instruction in other farm work.

REMOVE THE DUTY.

The following resolution was passed unanimously at the recent annual convention of the Ontario Fruit Growers' Association:

"Whereas, it is of the utmost importance that everything possible should be done to increase production, we urgently ask the Government to remove the duty from all spraying machinery used for the spraying of orchards; as the quantity and quality of the fruit products depends entirely on the care that is given them. With the scarcity of labor we must have efficient machinery to work with. The present duty, added to the increased price of labor and material, makes the cost of spraying machinery a hardship for the average grower."

FOR SALE

GOOD ITALIAN QUEENS

Tested, \$1.00, 6 for \$5.40.

Untested, 75c., 6 for \$4.25.

Begin sending out about April 15th.

G. W. MOON

LITTLE ROCK, 1904 Park Ave., ARK.

For Sale

a few colonies Italian bees with tested queen in 9-frame Model hives at \$12.00 per colony. With breeding queen, \$17.00, May and June delivery.

A few choice breeding queens at \$5.00 and \$10.00 each, spring delivery.

John A. McKinnon

ST. EUGENE - - - ONTARIO
Canadian Queen Breeder.

HONEY CONTAINERS

We have prepared a large stock of all sizes and therefore will be able to give

PROMPT SHIPMENT

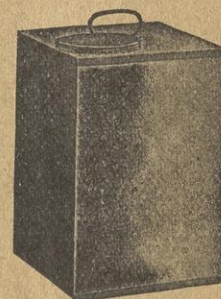
In order to secure delivery and as present conditions make it impossible to guarantee prices we suggest you place your ORDER NOW.

Our Illustrated Circular and Price List has been issued. Did you receive your copy?

MACDONALD MFG. CO., Limited

Spadina Ave. and Richmond St.

TORONTO - - - CANADA



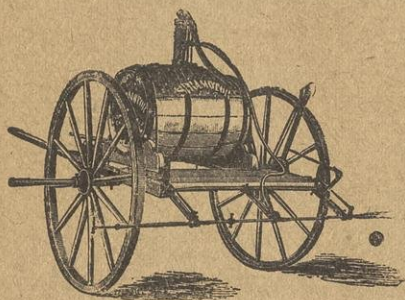
Regulating the Sale of Fruit

D. Johnson, Dominion Fruit Commissioner, Ottawa

WHEN the members of the Food Controller's Fruit and Vegetable Committee met for the first time last September, consideration was given first as

to whether or not a price should be set to the producer in connection with apples and potatoes. After much discussion it was decided that it would not be well to do so, as such action might tend to discourage production.

Then we turned our attention to the dealers. It was found that already a large proportion of the fruit crop of Ontario and British Columbia had been bought, and in some cases again resold. However, it was decided to thoroughly investigate the wholesale dealers' profits. It was represented to us that the wholesaler was making enormous profits, that he was growing rich at the expense of the producer and consumer, and that if his profit were cut to a reasonable margin the producer would receive much better returns, and the consumer much cheaper fruit. Our investigations proved a surprise to us, as we learned that the profits made by these men were very moderate; that, in fact, they were doing a public service in distributing food, for which they were not given any great recompense. We found that the actual net profits of the wholesale trade in Eastern Canada did not average more than from 2 to 2½ per cent. Indeed, I may say that I came to the conclusion, from the information obtained, that I would not care to take the ordinary wholesale fruit business as a gift. The commodities handled are of such a perishable nature, and the business requires such quick action that a possible profit of 2½ per cent. appears to be a very moderate return, especially as it may so very readily be converted into a loss by various trade and weather



A complete, durable outfit for spraying potatoes and all row crops—easily adjusted to suit the width of your rows and the height of the vines. The

Spramotor

It isn't a SPRAMOTOR unless we made it.

is the recognized standard of excellence—simple in design, powerful, durable. Made in many styles and sizes, operated by hand, horse and gasoline power.

Made in Canada—No Duty to Pay.

Write to-day for FREE illustrated treatise on "Crop Diseases."

SPRAMOTOR WORKS!

4012 King Street, London, Canada.

Improved Peerless Plant Boxes

With Round Cornered Rims



The outside rim or band is unscored at the corners thus greatly strengthening the box and eliminating a very large percentage of the breakage hitherto experienced. The Round Corners do not interfere with the arrangement of plants in the box.

OUR MOTTO:

"Every Box a Trade Winner"

Order early from

Canada Wood Products Co.
St. Thomas, Ont.

HONEY CANS

We are prepared to quote on full line of Honey Containers.

When writing for prices state quantity required of each size.

American Can Co.
HAMILTON, ONT.

FEED THE LAND

By using the best Manure and get

GOOD CROPS

For Nurseries, Fruit Growers and Gardeners.

Sure Growth Compost

(A Composition of all Natural Manures)

Makes poor land fertile and keeps fertile land most productive.

Special low prices for Summer Shipments, May 1st to September 1st.

Supplied by

S. W. Marchment

133 Victoria St., TORONTO

Telephones: Main 2841; Residence, Park. 951

Say you saw this ad. In The Canadian Horticulturist.



"IT IS SUCH A SAVING IN LABOR I MUST HAVE A POWER OUTFIT."

In his sixth order to us, Mr. J. C. Harris, of Ingersoll, Ont., says more for the Spramotor than our most enthusiastic advertisement. A man may buy a thing once and be dissatisfied, but when he comes back for additional purchases

there is only one conclusion that we can come to, and that is, that article must be all right. We never claimed more for the

Spramotor
It isn't a SPRAMOTOR unless we made it

received and are constantly receiving from farmers all over Canada, signify that our statements have been met with a service that is making staunch friends for the Spramotor wherever it is used. Over 100 Gold Medals and Special Awards to the credit of the Spramotor, show that these expressions of confidence are merited. Suppose you write now while the matter is fresh in your mind for a copy of our booklet on crop diseases.

Made in Canada. No Duty to Pay.

Spramotor Works, 4011 King Street, London, Canada

than that it would do the work required of it effectively and economically, and in all things give satisfaction. And letters which we have re-

conditions, over which the dealer has no control.

While we came to the conclusion that the legitimate wholesalers were not taking any exorbitant toll from the shippers, we decided that certain regulations to govern the trade would be of value to all concerned. Upon our recommendation, therefore, the Food Controller has passed regulations dealing with the wholesale handlers of fruit products.

Because our committee was not able to get into operation until the early part of last September, the Food Controller's office was not in a position to take an active part either in assisting or controlling the purchase and sale of fruit and vegetables. It is expected, however, that our plans will be well laid for this year, that the margin of profit that dealers will be allowed will be defined, and that the speculative, gambling interest will be prohibited. We do not mean by this that the legitimate wholesaler will not be allowed to have a sufficient quantity of fruit on hand to meet his requirements, but we do mean that one dealer will not be allowed to turn fruit over to another dealer until the price is advanced to perhaps double the original cost when it reaches the retailer, who distributes to the consumer. I venture to state that the Food Controller will be the greatest single factor in the distribution of the fruit crop of 1918.

Manitoba Horticulturists

IN spite of adverse climatic conditions there are many wideawake horticultural enthusiasts in the Province of Manitoba whose efforts are resulting in great benefit to the province along lines of both fruit and floral production. They are organized in the Manitoba Horticultural and Forestry Association, the 21st annual convention of which was held in Winnipeg February 20 to 22. The meetings were well attended and interesting throughout.

In order that horticultural work may be conducted along better lines, it was decided to take steps to have the Horticultural Society Act remodelled along the lines of the Ontario Horticultural Societies Act. A committee was appointed to take steps to secure the necessary legislation. The directors were requested to continue their assistance to the provincial garden show held in Winnipeg, as well as to local exhibitions. A request had been received that the association should select a flower which it would recommend should be adopted as a national floral emblem. The committee on resolutions recommended the sweet pea, but this suggestion was voted down, and a committee appointed to deal with the matter more fully. A summer horticultural meeting will be held during the third week of July.

Among the addresses given were the following: Inside and Outside Culture of Bulbs, and Tuberous Rooted Plants, by Prof. F. W. Broderick; Vegetable Varieties Suitable for Manitoba, F. W. Hatk, Grand Lytle, Man.; Celery Culture, Geo. Barratt, St. James, Man.; Marketing the Vegetable Crop, Marchant Bros., East Kildonan, Man.; War Gardens, by Mr. W. H. Whellams, East Kildonan; Winnipeg's Interest in Vacant Lot and Backyard Gardens, by Geo. Champion, Superintendent of the Winnipeg Parks Board; Roses and Hardy Annuals, A. P. Stephenson, Morden, Man.; Horticulture in New Zealand (illustrated), by Prof. V. W. Jackson; What Women Can Do in Practical Gardening, Mrs. Dumbrill, Charles Wood, Man.; Vegetable Gardening From a Commercial Standpoint, C. O. P. Olts, Melita, Man.; The Farm Garden, J. B. King, Fairfax, Man.; Bush and Small Fruits, Suitable

Kill Aphis

**Before Aphis
Kills Your Profits**

This tiny, sap-sucking insect, scarcely larger than a pin-head, is destroying apple profits all over the country. Feeding with its sharp, mosquito-like bill, it causes dwarfed, deformed, unmarketable fruit. Curls foliage. Weakens trees. Spray with



Black Leaf 40
40% NICOTINE

and control Aphis, Red Bug, Leaf Hopper and other soft-bodied, sucking insects. Aphis is making its appearance in many sections for the first time. Regarded by many growers as the most destructive apple insect. One aphid produces thousands in a few weeks. Spray with Black Leaf 40 and save your profits. Can be used with lime-sulphur, arsenate of lead, bordeaux and other sprays as recommended, or may be used separately, if desired. Mixes perfectly with water. Costs only about 1c per gallon diluted for the trees. Recommended by agricultural colleges and experiment stations. Send for

Free Spray Chart and Leaflets

showing when and how to spray and how to protect fruit trees, vines and vegetables from these profit-killing insect pests.

The Kentucky Tobacco Product Co.

Incorporated

Louisville, Kentucky



for Northern Minnesota, Prof. T. M. McCall, Crookston, Minn.; Some New Plant Introductions, F. L. Skinner, Dropmore, Man. Several of these addresses will be published later in The Canadian Horticulturist.

Visitors to the convention included Mr. W. T. Macoun, Dominion Horticulturist, of Ottawa, who was one of the speakers, and who gave valuable assistance, and Mr. J. Lockie Wilson, Superintendent of Horticultural Societies, Toronto, who described the work being done by horticultural societies in Ontario.

A special committee submitted a report on standards for judging vegetables. This will be published in full in The Canadian Horticulturist.

The following directors were appointed: Geo. Batho, H. W. Watson, W. J. Voughen, A. P. Stephenson, Norman N. Ross, F. L. Skinner, W. J. Harrison, W. C. Scott, F. G. Simpson, Geo. Barratt, Jas. Cocks, Mrs. N. M. Speechly, Henry Downing, and Prof. F. W. Broderick.

GLADIOLI BULBS

Hybrids—Beautiful markings. Nothing will give you greater pleasure than the Gladioli for cut flowers. Grow them in your garden. Per 100, \$2.50.

Aster Seed—Special Aster striped petals in two colors, Lavender and white, pink and white. 2 packages, one of each, 25 cents.

REDLANDS NURSERY

R. R. No. 3 - Sarnia, Ont.

PANSY

"Canadian Beauties"

If you wish to enjoy Pansies of great Perfection in form, coloring and size, we offer you, under the above title a choice product. Every flower is a queen; every plant a picture to behold. It is a blending of every imaginable color and combination of color. Per packet 50c

Delphinium—"Majestic Giants" from a choice collection of named varieties. Packet 25c

WM. McSKIMMING, Pansy Specialist
230 ELIZABETH ST., GUELPH, ONT.

British Columbia

The Provincial Department of Agriculture will continue the holding of classes in apple packing this year on the lines that have proved so successful in former years. Last year the Vernon packing schools, including the Oyama district, passed 120 pupils. This year there will probably be three schools conducted in the Vernon district. Some 50 applications for training have been received recently in that district alone.

Deputy Minister W. E. Scott, of the Department of Agriculture, reports that trees have come through the winter in good condition, and give every indication that the province is likely to have an increased output of fruit this year. A publicity campaign to encourage local consumption as well as foreign orders is being arranged by the Provincial Fruit Growers' Association. Householders will be urged to utilize apples to replace other forms of food more necessary for export purposes.

Last year British Columbia shipped some 70,000 boxes of apples to the Australasia market. An effort will be made to increase the output in this direction as well as to the prairie markets.

Proper storage facilities for handling apples are lacking in the Okanagan, and some of the other fruit districts. Local growers are being urged to improve their storage facilities in order that they may be in a better position to supply the local markets late in the season when the supplies are usually drawn from United States sources.

One of the best booklets we have yet seen on gardening is entitled, "Garden Guide." It is a compilation by J. Harrison Dick, and deals with how to plan, plant and maintain the home grounds, the suburban garden, the city lot, the growing of vegetables and fruit, the care of roses and other flowers, porch plants and window boxes and similar subjects with chapters on garden furniture and accessories. The paper edition costs 50c, and the cloth edition 75c. It contains over 250 pages, and scores of illustrations. Copies may be purchased through The Canadian Horticulturist, or one copy of the paper edition will be given for one new subscription to The Canadian Horticulturist for 50c, or of the cloth edition for a new three year subscription for \$1.

Methods of increasing crop yields for war needs are dealt with in Circular No. 76, of Purdue University, Agricultural Experiment Station, Lafayette, Ind.

PROGRESSIVE

The best of the **Everbearing Strawberries**. Big, ripe berries from August until November. We have fruited this wonderful everbearing strawberry for two years and it has proven beyond all doubt to be the leading everbearing variety. Progressive plants set last of April or first of May, begin bearing fruit first of August and continue until freezing weather. They are very productive, good size, good color and appearance.

Our plants were all covered with straw last fall to protect from winter injury and sprayed several times last summer.

Price \$10.00 per thousand, \$1.50 per hundred. Terms CASH with ORDER. Our price is exceptionally low. Advise ordering quickly.

JAS. E. JOHNSON & BROS.
SIMCOE, ONTARIO

"BIG VALUE" Collection, 50c. Postpaid.



1 Asparagus Fern		
1 Little Gem Calla		
1 Strawberry Geranium		
1 Gladiolus America		
6 Gladiolus, Fine Mixed		
Pkt. Giant Columbine Seed		
Pkt. Grandiflora Sweet Peas		
Garden Collections by express not prepaid.		
10 Iris, 2 each of 5 sorts,	-	\$1.00
4 Peonies White, Pink and Red	-	1.00
10 Orchid Flowered Cannas	-	1.00
100 Gladiolus Bulbs, Mixed	-	1.00
100 Gladiolus America	-	1.75
10 Perennials, selected from Oriental Poppies, Larkspur, Hibiscus, Iris, Campanulas, Calliopis, Sweet William, Gailardias, Foxglove, Achillea, Baby's Breath, Pinks, Geum, Hollyhocks, or others	-	1.00
20 Raspberries, extra fine	-	1.00
100 Strawberries, Gregg	-	1.00

J. H. CALLANDER
565 WELLER ST., PETERBORO, ONT.

Every planting season you stake land, fertilizer, time, work, and the cost of the seed on the good faith of your Seedsmen.

Every season for
Forty-five years

EWING'S SEEDS

have justified
this good faith.

They are clean and fresh—they show a very high percentage of germination—and are true to name and type. They include all the best of the new varieties, as well as the old favorites.

Write early for our new Illustrated Catalogue, and if your dealer hasn't Ewing's Seeds, order from us direct.

The William Ewing Co., Limited
Seed Merchants, McGill St., Montreal.

62



Ewing's "Improved Hanson" Lettuce

A "crisp heading" variety that is very hardy and will stand extremes of weather. Head is large, hard, tender and crisp, with blanching centre; wholly free from bitterness, and remains long in excellent condition.

¼ lb. 90c; oz. 30c; pkt. 5c.
Sent postage paid—cash with order.

We offer a select list
of
Standard and Everbearing Varieties
of

STRAWBERRY PLANTS

Get our list before ordering
ONTARIO NURSERY CO.
WELLINGTON - ONTARIO.

The Fruit & Produce Market

The Commission firms undertook
with consignments of fruit and general
produce. They will be pleased to have
you write them for information, shipping
stamps, etc., if you have fruit or
vegetables for sale.

STRONACH & SONS

33 Church St., Toronto, Ont.

Wholesale Fruit, Produce and Commis-
sion Merchants.

H. J. ASH

44-46 Church St. - Toronto, Ont.
CONSIGNMENTS OF FRUIT & VEGETABLES
SOLICITED

We give personal, consistent and reliable attention
to every consignment. Shipping stamps furnished
on request.

DAWSON-ELLIOTT Co.

32 West Market St., Toronto, Ont.

Wholesale Fruit and Produce. Consig-
nments Solicited.

HERBERT PETERS

88 Front St. E., Toronto, Ont.

Wholesale Fruit and Produce

See advertisement on page x.

A Pruning Campaign in New Brunswick

A. G. Turney, Provincial Horticulturist, Fredericton

ASSISTANCE in the pruning of apple orchards is being given to New Brunswick farmers by the Horticultural Division of the Department of Agriculture during January, February, March, April and May of 1918, to as large an extent as is possible by the availability of competent help and funds. The objects of this assistance are:

(1) To instruct farmers in the proper pruning of their orchards.

(2) To assist them by this help, combined with their own, to prune their entire orchards as a preliminary step to the thorough

spraying and general better care of the trees.

(3) To have as many as possible of the best orchards thoroughly pruned, sprayed and cared for in 1918, with the object of marketing the fruit in an organized way along the lines of the shipments made through the Fruit Growers' Association in 1917.

(4) To avoid gluts in local markets and waste by ensuring that a considerable portion of the crop will be clean, of good size and color, and in general of such quality that it may be marketed successfully in competition with the best from other sources. Should the apple crop of 1918 in New Brunswick yield well, which is the expectation after the light crop of 1917, very low prices may result and much of the product be wasted or not used to the best advantage, unless strong efforts are made to grow a large percentage of No. 1 fruit, and steps taken to provide markets and equalize distribution.

(5) To enable farmers to secure greater net returns from their orchards and thus induce them to give them better care, extend their plantings, and in that way to stimulate and secure a greater development of apple growing in the province.

The conditions under which this assistance is being given are as follows:

Each applicant or orchard owner must participate in the work himself.

Applicants must agree to provide man for man, that is, one man for each man supplied by the Department; for example, if the Department sends one man, then the owner of the orchard must agree to work with that man, hour for hour, until the work is completed. If the Department supplies two men, then the orchard owner and one other man, to be supplied by him, must work with the two men from the Department, and so on.

The applicant must agree to furnish free board for the man or men supplied by the Department, and to pay to the Department twenty cents for each hour of work done by each man. This will be less than half the cost of these men's services to the Department, since their rate of pay is much higher than 20 cents per hour, and they will be paid by the day, whereas weather conditions may materially shorten the actual hours of work.

In arriving at the sum total of the amount due to the Department for the pruning of any orchard, the owner must agree to accept the total hours of work done as given to the Department by its men.

The applicant must agree to spray the orchard so pruned to the best of his ability at least twice in 1918, and if at all possible, three times, according to instructions to be given by the Department.

The Department has had a staff of men engaged in this work since January 1st. Despite the excessive cold and deep snow, excellent progress has been made, although it was freely predicted that very little could be accomplished in the heart of the winter. The depth of snow permitted the pruning of considerable portions of the trees, which if left until the spring would have required the use of ladders and more time. On only three days in a whole month, and then for a few hours, were the men compelled to give up the work because of the severity of the weather. On nearly all days they put in 8½ in 8½ hours of actual work.

It would be impossible to do the large amount of work in the few favorable but



Every Truck Farmer
needs a tillage tool that does fast thorough work with one mule or horse. Experienced growers like the "Acme" Pulverizing Harrow because "the coulters do the work." They cut, slice, pulverize, and turn the soil twice in one operation. Leave the soil level as a floor and "mellow as fresh ashes." There's an "Acme" to fit your farm—1 horse to 4 horse. Send today for new free book, *The "Acme" Way to Crops That Pay.*

BATEMAN WILKINSON CO., Limited
502 Symington Ave. Toronto Ont.
No. 23 61-2 ft. Wide

Size "H,"
1-horse cultivator.
Cuts 4 ft. 4 in. wide.

Business as Usual

THE ST. CATHARINES COLD STG. & FDG. CO. LIMITED

The Old Reliable Headquarters for Spray Materials, Pumps and All Fruit Growers' Supplies

Our supply of Sulphur has arrived, can ship orders same day as received. We sell "Grasselli" Brand Lime-Sulphur Solution and Arsenate of Lead, "Niagara" Soluble Lime-Sulphur, Bluestone, Black Leaf 40, Fertilizers, Baskets, Crates and Berry Boxes, "Friend" and "Gould's" Power Sprayers and the labor-saving "Friend" Spray Gun.

Order NOW From the Firm that Always Has the Goods On Tap

St. Catharines Cold Stg. & Fdg. Co., Ltd.
St. Catharines - Ontario

much busier weeks in the spring than it is possible to do by carrying on the work through the winter. In addition, by pruning through the winter, we are able to make use of labor which is generally not available in the spring. In these times winter pruning versus spring pruning means, in many cases, orchards pruned versus orchards not pruned.

We undertook this work mainly because this is not the time when we can afford to neglect our orchards. The temporary cutting off of pre-war markets, instead of being a reason for neglect, is rather to be considered as a very strong argument in favor of giving our orchards the best of

care—for, in a year of plenty of apples and small markets the high quality fruit has a better chance of being sold to advantage. Moreover, it is not economy to neglect our orchards this year, because of possible or even probable low prices, and thereby lessen their productive power for the next one, two or three years.

Bob Long

Union-Made

Overalls Shirts & Gloves

THE TEST
68 lbs. to the square inch under hydraulic pressure is the test that "Bob Long" overalls have been put to. Their strength is in the tightly woven fabric.



Bob Long says:

"My overalls and shirts are the best, because—they stand the test of the wash-tub—no starch filler or cheap dyes to wash out."

Insist on "Bob Long" brand. Ask your dealer for Big 11—the big grey overalls—the cloth with the test.

31

My Dad wears 'em.

Known from Coast to Coast
R.G. LONG & CO. LIMITED TORONTO, CANADA



FLOWER POTS

Hanging Baskets and Fern Pans

We make the "Standard" Pot, the best Pot in the world—uniform, best of clay, well burned, in every respect superior to all others.

All our pots have rim on shoulder, thus allowing them to be placed together perfectly and preventing breakage in shipping and handling.

Place your Spring Order NOW.

A complete line and large stock of all sizes kept on hand to ensure prompt shipment.

Send for NEW CATALOG and PRICE LIST.

The Foster Pottery Co.

HAMILTON, ONTARIO.
Main Street West.

In our orchard in Lambton county we have been packing all our apples in boxes for the last three or four years, and have used the Canadian box. Some time ago we tried the Oregon box, and now would not think of going back to the Canadian box.—D. Johnson, Dominion Fruit Commissioner, Ottawa.

The Hanover Horticultural Society has adopted as its motto "Beautify Hanover." This motto appears on the head of the stationery of the society.

APPLE BARRELS

We ship them all over Ontario.
Machine-made, Standard size.
Get our prices.

Contracts made with Fruit Associations.

SARNIA BARREL WORKS,
Sarnia, Ontario.

SANDER & SONS ORCHID GROWERS

The Finest Stock in the World
Catalogue on Application

ST. ALBANS - ENGLAND

Bruce's Flowering Bulbs

GLADIOLUS

Unequalled for beauty of bloom. Plant in May and June, bloom in August and September. Easily grown and bulbs good for several seasons.

Bruce's Choice Mixed—A satisfactory mixture, 10 for 50c; 25 for 90c; 100 for \$3.00 postpaid.

Bruce's Superb Mixed—A grand mixture of all varieties, 10 for 80c; 25 for \$1.80; 100 for \$6.50 postpaid.

Separate Varieties—Splendid collection 30 varieties, Whites, Reds, Blues, Yellows, Striped, Bordered and Blended Shades, from 9c up to 50c each postpaid.

Also Dahlias, Lilies, Begonias, Gloxinias, Tuberose, Etc.

FREE: Our valuable 112-page catalogue of Seeds, Plants, Bulbs, Garden Implements, Poultry Supplies, Etc. Write to-day for it.

John A. Bruce & Co., Ltd.

Established 68 Years Hamilton, Ontario



The Railway Situation

G. E. McIntosh, Traffic Expert, Dominion Fruit Division, Ottawa.

Private vs. public ownership of railways is a big question. As I have previously pointed out at meetings of the Ontario Fruit Growers' Association, there is a great deal to be said in favor of both policies. Government operation is not necessarily government ownership. The present might be an opportune time to lay the foundation for a definite railway policy for Canada. The United States has recently taken over the control of its railways, and some of the immediate benefits to shippers have been as follows:

(1) Only companies that require financial assistance have been given such.

(2) Equipment has been pooled and supplied where needed, regardless of competitive conditions.

(3) Freight has been moved via the shortest route, regardless of giving the originating carrier the long haul.

(4) A general advance in rates has not been made except by the government itself, and concerning which the shippers, namely the citizens, the taxpayers, have been recognized to be entitled to be heard. Any profits go to the government and not to the speculator.

(5) Since the government has been interested in making a record for efficiency, rather than to hoard revenues, claims have been more quickly paid.

(6) The public interest has been first served with a possibility of the country's expenses of transportation being greatly reduced.

Apple Situation

A statement by Mr. J. G. Anderson, of the McNaughton Fruit Co., Ltd., Winnipeg, on the apple outlook for 1918, was read at the recent annual meeting of the Ontario Fruit Growers' Association. Owing to three poor crops in succession, which has resulted in a smaller quantity of Ontario apples being produced, as well as an increase in the percentage of fruit of poor quality, Ontario fruit has somewhat lost its grip in the Prairie Provinces, and the Western box apple has strengthened its hold in proportion. It may prove difficult for Ontario apples to regain their hold. Mr. Anderson considered it unfortunate for the trade that the price of Nova Scotia barrelled stock had been forced up to the high level it reached during October and November, as this high price has tended to prevent the fruit going into consumption, with the result that large quantities of it are likely to be wasted. He rather expected to see the price of this fruit decline.

Fruit and Vegetables Solicited

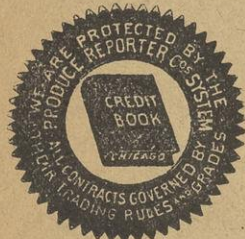
We Get You Best Prices

OUR facilities enable us to realize top prices at all times for your fruit, vegetables or general produce. Aside from our large connection on the Toronto Market, we have established branch warehouses with competent men in charge at Sudbury, North Bay, Cobalt, Cochrane and Porcupine. In time of congestion on the Toronto market we have a ready outlet through these branches. We never have to sacrifice your interests.

Branch Warehouses:
Sudbury, North Bay,
Cobalt, Cochrane and
Porcupine.

H. PETERS
88 Front St. East, Toronto

References: The Canadian Bank of Commerce (Market Branch) and Commercial Agencies.



**We Solicit Your
Consignment**

**Send for
Shipping Stamp**



Forty-nine bushels to the acre

Grown in Ontario

The splendid wheat yield pictured here was grown in Western Ontario last summer on well prepared soil enriched with 300 pounds of fertilizer.



Greater Crop Yields

Greater crop yields in Canada are of world-wide importance. European yields on old soils far exceed Canadian yields on new soils—except when improved methods produce crops like that pictured here.

ANNOUNCEMENT: The Canadian Fertilizer Association have established a Bureau which will encourage and assist Canadian farmers to achieve greater results in soil tillage, fertility maintenance and crop production. This Soil and Crop Improvement Bureau, under the direction of Henry G. Bell (a native of Ontario and a graduate of Ontario Agricultural College, later Professor of Agronomy University of Maine), co-operates with all organizations working for the improvement of Canadian Farming. Farmers are urged to take full advantage of this valuable information service which is free to all.

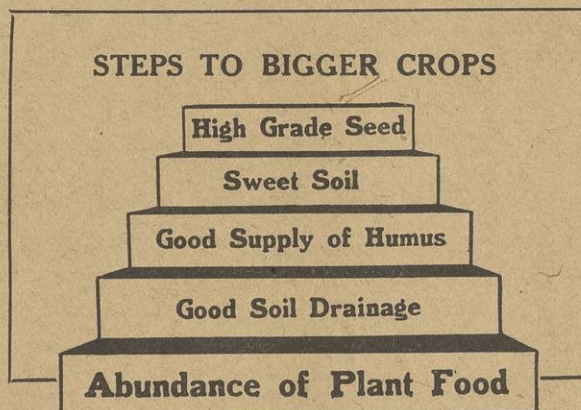
Fertilizer

If the labor problem limits areas under crop you can increase yields 50 to 75 per cent. by careful soil preparation, seed selection and judicious use of fertilizers, and thus use the labor to best effect.

Fertilizers carry exactly the same plant food constituents as are carried by manure, but in more concentrated form.

Dr. C. A. Zavitz reported in 1917 the following results. Complete fertilizer used with winter wheat gave an increase of 5.2 bushels per acre at a cost of 82 cents per bushel (pre-war prices) when applied in the autumn; and an increase of 8.3 bushels per acre at a cost of 51 cents per bushel when applied in the spring.

STEPS TO BIGGER CROPS



What to Do Now

Top-dress fall wheat with fertilizers. It is your last opportunity to increase 1918 fall wheat yields.

Prepare to fertilize spring crops.

Use fertilizers this spring and profit by high crop prices.

Send Postal Card for Bulletin
"How to Increase Ontario Crop Yields"

Manure

Manure spread thin yearly (4 or 5 tons per acre) pays better than manure applied in equal quantity at one application every four or five years.

8 tons manure (protected from rain and snow) strengthened by 320 lbs., acid phosphate to the acre increased wheat yields at Ohio Experimental Station 5.38 bushels per acre.

Similar fertilization increased corn yields 11.54 bushels per acre.

If you do not have enough manure to apply this quantity per acre, use complete fertilizers rather than acid phosphate.

**Soil and Crop Improvement Bureau
of the Canadian Fertilizer Association
1111 Temple Building, Toronto**



HUBS and HORSES

The world is short of horses.
To get the most out of your
team use

MICA AXLE GREASE

"Use half as much as any other"

The mica flakes fill the pores
and crevices in the axle and
the grease keeps them there.
Mica Grease means fresher
horses at the end of the
day and longer life for your
harness and wagons.

EUREKA HARNESS OIL

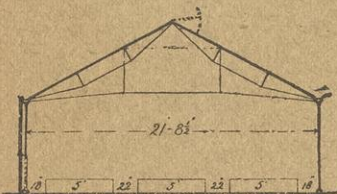
"Lengthens leather life"

Overcomes leather's worst
enemies—water and dirt. It
makes harness pliable and
waterproof, prevents break-
ing of stitches and imparts
that rich black lustre to all
dark dressed leather.

Sold in standard sized packages by live
dealers everywhere.

IMPERIAL OIL LIMITED

BRANCHES IN
ALL CITIES



STYLE A

We are now in receipt of our stock of
Improved Malleable Iron Sash Bar Brackets
for our Style C. Construction.
Brackets and other fittings for Style "A"
will be sold at a discount until stock is suf-
ficiently reduced.

Now is the time for a bargain.

KING CONSTRUCTION CO.
40 Dovercourt Rd. Toronto,

POULTRY YARD

Incubator Suggestions

F. C. Elford, Dominion Poultryman.

EVERY person who can hatch good
strong chicks this spring should do so.
In all probability the number of hens
that are suitable breeders is less than usual,
and in a few cases those who have good
females are not so fortunate in regard to
males. Therefore, the more reason why
those who have good breeders should hatch
as many chicks as can be accommodated.

The best time to hatch depends upon
local conditions. Chicks that come before
the cold weather is gone, require good warm
appliances and the best of care. If these
are available hatch early for broilers are
scarce and early cockerels will doubtless
bring a good price per pound while early
pullets are the birds that lay when eggs are
dear.

If suitable equipment is not at hand, it
would be unwise to have chicks hatched
during cold weather, and yet care must be
taken not to have them too late, as late
chicks are usually not much good. Better
make suitable equipment or even run the
risk of hatching in cold weather than have
late chicks.

In the American breeds the pullets should
be hatched about seven months before they
are expected to lay. The lighter breeds may
be hatched a few weeks later. Therefore,
to have eggs in the late fall and early winter
such breeds as the Rocks, Wyandottes, etc.,
should be hatched in April or before the
15th of May, while the lighter breeds such
as Leghorns, that mature more quickly,
might do if hatched by the end of May.

As a rule, throughout the western part
of Canada, the chicks should be hatched
just as early as the weather will permit, for
in the hot, dry sections, the growing stock
does not mature as well as it does in the
more humid and cooler districts. This also
applies to parts of British Columbia, while
at the coast it is not so important.

The best means of hatching depends on
local conditions. Where good natural facili-
ties are at hand and the natural method has
been satisfactory and where not more than
100 chicks are required, the natural means
may give best results. Where more and
earlier chicks are wanted and especially if
uniformity of age and size is desired, then
the artificial means should be resorted to.
Even in natural incubation much better re-
sults can be obtained if system is used than
where hit and miss methods are practised.

Protect Setting Hens.

In setting hens, always give them a room
or compartment by themselves. Make it
impossible for other hens to get into the
nests or to interfere with the hens that are
sitting. It is a good plan to make nests
that can be opened and closed at will and
in order to save your own time and the time
of the hen, set several hens at once. Test
the eggs under the hen on the seventh or
eighth day taking out the infertile eggs and
doubling up the hens on the eggs that are
left. Again when the hatching occurs a
further doubling up process can be resorted

to and the chicks from three broody hens
given to two mothers or, if the hatch is
small, one hen may mother the chicks from
two hens.

In artificial incubation there are several
points that must be considered. 1. An in-
cubator is only a machine and will not sup-
ply brains. These have to be furnished by
the operator. 2. As a rule, a cheap machine
that is cheap in construction is dear at any
price. A machine well made, with good in-
sulation in the walls, costs money to build
and is worth more than the cheap, flimsy
machine. 3. The incubator requires a cer-
tain amount of attention and if the operator
is not disposed to give this attention, it
would be better not to buy an incubator. 4. As a rule, the manufacturer's instructions
should be followed, at least until they have
been proven to be faulty. 5. The very best
of incubators will not produce good chicks
from poor eggs. Therefore, the best of care
must be exercised to see that the breeding
stock is healthy, the fertility good and that
suitable care is given the eggs from the
time they are laid until they are hatched.

Give the machine a thorough cleaning and
disinfecting before using. (See that all re-
pairs are made. Make sure that the ther-
mometer and the thermostat are accurate.
Have a new wick in the lamp and every two
years at least get a new burner.

Run the incubator several days to make
sure it is all right before putting in the
eggs. See that the eggs are normal in
shape, size and texture of shell. After
the second day turn the eggs morning and
night and cool once a day until the nine-
teenth day, when the machine should be
closed. Keep the chicks in the egg tray
rather than allow them to drop to the nur-
sery tray, and remove to good, warm brood-
ers when well dried off.

Destroy the Vermin

Cornell (Lawry) powder, made with gaso-
line, crude carbolic acid and plaster of
Paris, is effective in controlling body lice on
poultry. The insecticide is made by mix-
ing three parts of gasoline and one part of
crude carbolic acid with as much plaster of
Paris as the liquids will moisten. Allow the
powder to dry before it is used. If kept in
an air-tight container, it retains its strength
for a long time. It must be kept away from
fire.

Infested fowls should be thoroughly
dusted, especially about the vent, in the
fluff, and under the wings. About a pound
of the mixture is needed to dust 10 mature
fowls. Gloves should be worn during the
dusting process as the powder may injure
the skin.

This powder is not as effective in com-
bating head lice on poultry, and is not re-
commended for mites and fleas. The body
lice are small, wingless, chewing insects
commonly found among feathers. They eat
bits of feathers, scales of the skin and dried
blood resulting from wounds, but do not
puncture the skin and suck blood as the
mites do. They may, by constantly biting
at the skin, cause severe irritation.

Items of Interest

The National Service Girls, who will work in the Niagara District this summer, held a meeting recently and decided to adopt a uniform which will consist of a large cow-breakfast hat, a grey flannel smock, belted at the waist, grey riding breeches, canvas leggings and stout boots. Each girl will wear on her arm the National Service Badge, and after two months' service will receive the National Service Button. The proposed costume is not compulsory, although it is likely to be generally worn. The girls have decided to work ten hours a day, two of which may be at housework, if the farmer so desires. This work will not include scrubbing or washing. None of the heavy work on the farm, such as pitching hay, will be attempted.

The Ottawa branch of the Ontario Vegetable Growers' Association has prepared its programme of activities for the approaching season. It includes a visit to the Experimental Farm in August, and the Aylmer Fair in September. A local field crop competition will be conducted for celery plants, cauliflowers, tomato plants, late cabbage, seeded onions, transplanted onions and melons.

The Utah Agriculture College Experiment Station, Logan, Utah, has issued one of the best bulletins yet printed on Orchard Heating. It is bulletin No. 161, and is by Frank L. West and N. E. Edlefsan.

The Tree Family

A Great Family to get acquainted with! You may have a few cousins on your front street or your fruit farm, but there is no known way of meeting the main branches of the clan unless you read

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Just 52 pages, finest book paper, plenty of pictures, and everything short and interesting. Easily read, and hard to forget!

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Send for a sample copy, or send in your name now for 14 issues, and pin a dollar bill thereto. We'll be responsible for safe delivery. Canadian Forestry Association (founded 1900), 206 Booth Building, Ottawa, Ont.

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Thousands of farmers are responding to the call. Here, right at the door of Southern Ontario, a home awaits you.

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Parliament Bldgs., TORONTO, CAN.

HON. G. HOWARD FERGUSON,
Minister of Lands, Forests and Mines.

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stands every test. Made by the open hearth process, all the impurities are burned out of the metal, thus removing one of the greatest causes of rust. The wire is also galvanized so thoroughly that it will not flake, chip or peel off. Every intersection of the wires in our farm and poultry fence is locked together with our Peerless lock. While these locks



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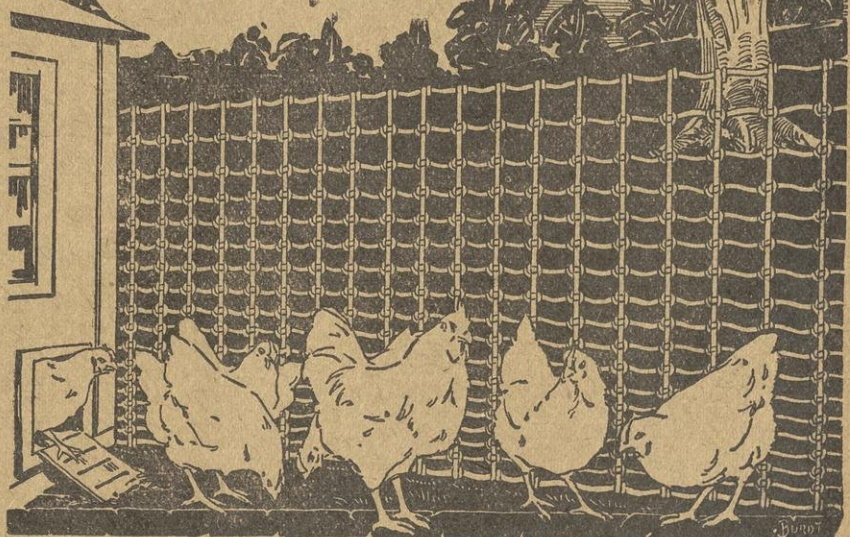
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Ontario Growers Favor New Standards

As reported in the March issue of The Canadian Horticulturist a lengthy discussion took place at the recent annual convention of the Ontario Fruit Growers' Association of the proposed new standards for fruit packages which have since been approved at the meeting of fruit growers and others interested from all parts of Canada held in Ottawa. The Ontario growers approved of the proposed changes. The discussion was opened by Mr. P. J. Carey, of the Dominion Fruit Division.

"We have," said Mr. Carey, "in the 11-qt. basket a package that is too shallow to hold three tiers of large peaches. That has been the trouble with it all along, and that is why we have used the deep 11-qt., and also the 9-qt. basket, which holds two tiers. The deep 11-qt. holds three tiers of large size peaches. The deep 11-qt. has some virtues, but it is not satisfactory for loading on cars, and it does not bundle. The 9-qt. is not satisfactory, because it does not hold as much as the 11-qt., and is often sold at the same price. The standard of the present 11-qt. basket is 5 3/4 inches deep, and the deep 11-qt. is 6 1/4 inches deep.

"The new basket that we propose to adopt," continued Mr. Carey, "is 6 inches deep and holds a trifle less than 11 quarts. That is much better than holding a little more. It does not matter how much it holds as long as all the baskets are the same size. The corners of the basket are square, and by the block being made the same size at the top as at the bottom, the baskets can be packed close together when not filled. It also makes the baskets stronger. In packing peaches we can pack them diagonally so that the cheek of one peach does not rest on the cheek of another. Small peaches can be placed in without tiering, as it does not matter so much how they are packed. The fruit inspector is not likely to find fault with the way the smaller peaches are packed."

In the discussion it was brought out by Mr. J. R. Hastings, the chairman of the special basket committee, that the flare of the 6-qt. basket is to be reduced to a minimum so that it will nest and bundle properly. The new baskets are likely to cost a little more, as the material used around the corners will be a little better. After full discussion it was moved that the 9 and 11-qt. baskets, as proposed by Mr. Carey, be approved by the Association as the only standard baskets to be used. The motion was carried.

The Standard Box.

Mr. Carey said he believed that he was

about the last man to be led to believe that the American box was the best. As this box is widely used in the United States and is supported by the apple growers of British Columbia, he had become convinced that it should be adopted for the whole of Canada, both for the export and interprovincial trade. It is the same length as the Canadian pear box, which has an advantage, as the tops of all boxes will be interchangeable.

"Another advantage of the American box," said Mr. Carey, "is that we will get rid of the end pack entirely. Where we get a flat or conical apple with the present box, five tiers often come too high. With the American box this will not be the case. The greatest advantage, however, that we will derive by adopting the American box is that it will not only be the standard for Canada, but for the whole of North America. I have tested this box during the past few weeks in every possible way, and believe that it will be satisfactory. I have examined thousands of these boxes in the west, and they have always come through in good condition."

After quite a little discussion, a motion moved by Elmer Lick, of Oshawa, favoring the adoption of the American box, was carried.

Standard Apple Barrel.

In opening the discussion on the proposal to adopt the American standard size barrel, which has a 28 1/2-inch stave, is 26 1/4" between the heads, 17 1/2" in diameter at the end, and has a circumference of 64" at the bulge, Mr. Carey pointed out that the fruit growers of Ontario have found out of late years that the buyers were taking advantage of the fact that they were using an unnecessarily large barrel. The result is that they have begun to use smaller barrels, until now many different sizes of barrels are in use. Recently he had seen one in Montreal that measured only 27 1/4" on the outside, which was, of course, a violation of the law. Nova Scotia growers realize the advantage of having a standard size, and at their recent convention approved of the enactment of legislation that would establish the American standard as the Canadian standard also. Such action would give a uniform barrel for all of North America.

The proposal to make the American barrel the standard met with general approval, and without much discussion a resolution to that effect was carried.

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1. The Boys in the Trenches and the Reserves must have
BEEF, BACON, WHEAT AND SUGAR.
We must use the perishable Foods therefore,
A BACKYARD GARDEN FOR EVERY HOME.
2. It is the intention of the Government to forbid the sale of any Canned Goods from the time the Fresh Vegetables start until Aug. 15. So if we don't grow them we won't have them.
3. The care of the garden is an invaluable aid to health, since it takes one out into the warm sunshine. Digging in the earth is one of the most invigorating of exercises, especially for those who suffer from tired minds and overworked nerves.
4. No greater opportunity affords itself for teaching the real meaning of life to children than the backyard garden.
5. It is in the garden that children first learn industry and method, and it may be the means of directing the energies of an active child into a healthy and normal channel.
6. It has been said, and with a great deal of truth, that the homes from which men and women of sterling qualities come, are the homes which have gardens full of growing things.

Have you used or have you seen the lighter garden tools—the triangle hoe, the 3 tined cultivator, the adjustable rake? They make the work easy.

Remember that no child should be expected or allowed to use the heavy tools that their parents are using. Serious injury for life may result.

Don't be in too great a hurry to get your seeds into the ground. Don't forget that the germinating temperature of all seeds is between 75 and 80 degrees. Work the soil over and over again to warm it up.

Never mind if your neighbor is a week ahead of you. In the end by frequent cultivation you may have better results.

Did you notice last year that it was better to have long rows running north and south, if possible, than several small plots. They are more easily cultivated and less room wasted.

It is much better to sow small quantities often than large quantities seldom.

Secure reliable varieties of Seeds.

Full information on the subject of vegetable growing may be had. Now is the time to receive.

Horticultural Societies, Women's Institutes, School Boards, Town Councils, Church Organizations, Y.M.C.A's, etc., should co-operate with one another in organizing the work.

Lecturers will be furnished to address a meeting of school children in the afternoon and a public meeting in the evening wherever possible, but it is hoped that local talent will be used to a great extent.

Applications for Speakers and Literature—"A Vegetable Garden for Every Home," should be addressed to the Department of Agriculture, Toronto, Ont.

Members of the Women's Institute can secure Seeds by applying to the Secretary of the Branch.

Many citizens of urban municipalities will find it impossible to assist directly in the production of food for export. There are few however who cannot spare an hour or two each day from their regular work and this can be of the greatest value if devoted to the production of vegetables.

Those who have land and cannot cultivate it can assist by turning it over to those who have none.

There is nothing more patriotic, more profitable, more healthy, more pleasant than cultivating a back yard garden.

ONTARIO DEPARTMENT OF AGRICULTURE, TORONTO

SIR WM. H. HEARST,
Minister of Agriculture.

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Potato Spraying Demonstrations in P.E.I.

During the early summer of 1917, several makes of potato-spraying machines were secured for experiments at the Charlottetown Experimental Station. A contest was arranged, and the dates on which the several sprayings would be applied were advertised in the local papers. A number of interested men attended practically every demonstration. On the 28th of August, 1,300 people visited the Station, and the majority went to the potato field to see the work of the different machines. Late blight occurred in many parts of the province early in the season, and the check plots that were not sprayed at this Station showed very plainly that a bad attack of the disease was present.

The contest was carried on in duplicate with Green Mountain potatoes. Four applications were made to each plot. The total cost of applying the bluestone and lime includes the cost of both man and horse labor. Unsprayed check rows were left at intervals throughout the field for purposes of comparison. Long before potato digging time, anyone could pick out these by their dead, disease-infected tops. The following results were obtained:

(1) A four-row, horse-power machine with one nozzle spraying down from the top and one on either side of the row, applied 80 gallons of 4:4:40 Bordeaux to the acre, at a cost of \$1.65 application without poison. The plots yielded at the rate of 194 bushels of marketable potatoes, or 52 bushels more marketable potatoes than the corresponding unsprayed check, giving a net gain over the total cost of spraying, of \$32.40 an acre.

(2) A four-row horse-power machine with one nozzle spraying down on the foliage of each row, applied 35 gallons of the same Bordeaux per acre, at a cost of 80c an application. These plots yielded at the rate of 166 bushels of marketable potatoes, or 24 bushels more of saleable potatoes than the corresponding check, giving a net gain over the cost of spraying of \$14.80 an acre.

(3) A four-row hand-machine with one nozzle spraying down, and one nozzle spraying through from the side, applied 40 gallons of the same Bordeaux at a cost of \$1.00 an application, per acre. These plots yielded at the rate of 171 bushels of marketable potatoes, or 52 bushels more saleable potatoes than the corresponding check, giving a net gain, after deducting the total cost of spraying, of \$35.00 an acre.

(4) A four-row hand-machine with one nozzle spraying down on each row, applied 26 gallons of the same Bordeaux at a cost of 70c an application. These plots yielded at the rate of 138 bushels of marketable potatoes, or 19 bushels more saleable potatoes than the corresponding check, giving a net gain after deducting the total cost of spraying, of \$11.45 an acre. Marketable potatoes were valued at 75c a bushel. The contest clearly demonstrated the advantage of thorough spraying, and the necessity of spraying the 1918 crop.

The Purdue University Agricultural Experiment Station, Lafayette, Indiana, has recently issued a number of valuable bulletins and circulars, including the following: Circular No. 67, dealing with the Planting and Care of the Young Apple Orchard; No. 69, entitled Peach Growing in Indiana; No. 70, Apple Diseases in Indiana with Spray Schedule; Bulletin No. 200, which deals with Strawberry Varieties and Cultural Hints; Bulletin 281, entitled Varieties of Blackberries and Raspberries, with Notes on Their Care, and Bulletin No. 207, which deals with Gooseberries and Currants.



Fresh Strawberries all Season

Send card to-day for McConnell's 40-page Free Plant catalogue. Tells you about the great Everbearing Strawberries and Raspberries; also standard varieties of Strawberries, Raspberries, Currants, Gooseberries, Grapes, Asparagus, Seed Potatoes, Fruit Trees, Shrubs, Ornamentals, Roses, Etc.

H. L. McCONNELL & SON

Port Burwell, Ontario

The Transportation Situation

G. E. McIntosh, Traffic Expert. Dominion Fruit Division, Ottawa

THE car situation, as it applies to the marketing of fruit and vegetables, is interesting. The total refrigerator car possessions of all railways operating in Canada are 4,740. To this should probably be added 475 potato cars, fitted out by the C.P.R. and C.G.R., and we have 5,215 cars suitable, but not always available, for the

transportation of fruit and vegetables, except for that portion which moves by express and before refrigerator protection is needed.

It is estimated that the distribution of the 1916 Canadian apple crop alone added \$1,313,187 to the freight receipts of the railways. If this is correct, and the 5,215 suit-

able cars were used entirely for such traffic, each car would have an earning capacity of \$251. I do not say such was possible, but the point I wish to make clear is that there was apparently that much business offered to the railways, and if the number of suitable cars in their possession did not handle the traffic, then they were not fulfilling the terms of the Railway Act, under which they are supposed to supply the shipper with safe and secure cars to transport freight delivered by him to them.

The successful transportation of fruit is a



IMPERIAL SERVICE

If you are in doubt about the proper lubricant, *ask the Imperial Oil man*. He will give you courteous attention and sound advice on your lubrication problems. That is part of Imperial Service.

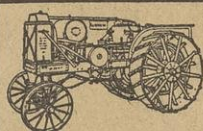
LOOK TO US FOR LUBRICATION ADVICE

TRACTORS, automobiles, stationary engines, threshing machines and binders, present different problems in lubrication. When you burn kerosene in place of gasoline, you change your lubricating requirements. Tight and loose bearings—cylinders and axles—require different lubricants. There is no one best lubricant for all purposes.

But there is a scientifically correct and extremely efficient lubricant for each type of engine and fuel. There is an oil for every lubricating condition. At Imperial Oil stations in all parts of Canada, you can find the oil that will make you forget lubrication troubles and give you the full power and usefulness of your machine.

Each Imperial lubricating oil is sold in steel barrels and steel half-barrels—most convenient and economical. There's no waste. You use every drop you pay for. And it's uniform and clean.

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For Gasoline Engines, Tractor, Auto or Stationary

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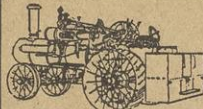
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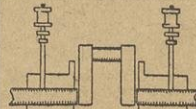
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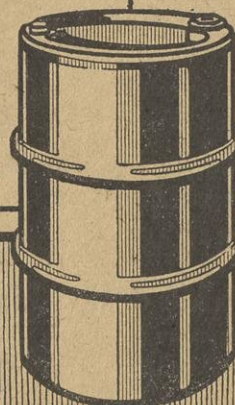
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The Fruit Crops of Canada are essential not only to our own armies but also those of the Allies. Save the fruit crops by killing the armies of the bug invaders with

ACCO SPRAY

Acco Spray is the king of bug exterminators. Acco costs less than Paris Green or Arsenic poisoning and does the work more thoroughly. Where Acco is bugs cannot live.

The thrift habit is more important this year than ever before on account of war wastage. Food must be produced and the crops we have, saved. Do your duty by safeguarding the yield of your orchard with Acco Spray.

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complex problem even under normal conditions, but there is no disputing the fact that the railways have had extraordinary conditions to meet in keeping up a supply of equipment during the war period, and particularly the past year. I am convinced, after my experience of the past few months, in our endeavor to market with a reasonable degree of safety the apple crop of Nova Scotia and the surplus potato crops of Prince Edward Island and New Brunswick, that everything possible was done by the different railways through united cooperation to move with a preference such commodities.

The Nova Scotia apple crop during the past season was additional rail traffic, made necessary because of the British embargo, and fortunately for the growers of that province, Ontario was not a competitor, because of a light crop. This being the case, efforts could be, and were, centred on supplying Nova Scotia and British Columbia car requirements. Another year the situation may be different, but the railways will be better prepared. Last season there was an uncertainty about the permanency of the embargo, and everything was confusing. It is now pretty generally acknowledged that the British embargo will remain for the duration of the war, and consequently traffic arrangements will be made to meet the condition. It is one of the many ever-changing conditions in the present everyday life, which compels the organization of a system of transportation to meet emergencies, and while perishable shipments will no doubt in the future, as during the past year, have first place in so far as freight movement is concerned, it is going to require the united cooperation of railway officials, Board of Railway Commissioners, Canadian Railway War Service Commission and Food Controller, to make possible the movement of such products from one producing centre to the consuming markets of another part of the country, if it so happens that the fruit producing provinces each have a fair crop.

Nearly 2,000 carloads of Nova Scotia apples, exclusive of shipments to local points, have been moved. Of this number, approximately 800 carloads came to Ontario and were distributed in 71 different centres; 450 carloads were marketed in Quebec, and 350 carloads reached the markets west of the Great Lakes, the balance being distributed in other Canadian and United States markets. There is estimated to be 100,000 barrels yet to be moved from the province which have been held over by the owners. The shippers of Nova Scotia responded to an appeal from the Fruit Branch to conserve cars by loading as heavily as sale contracts would permit, the result being that on the movement of the 2,000 cars no less than 470 cars were released or put into service. A few shipments were below 30,000 lbs., but the average greatly exceeded this. One car went forward by mistake with 50 barrels, while the largest contained 338 barrels, or 49,650 lbs. This method of saving cars is most effective. The car shortage the past few months was largely attributable to consignees holding cars on track under load for various reasons, not so much by the large dealers as by the smaller ones, who appeared to be using the cars for warehouse purposes. Such practice, under present conditions, is little short of a crime. The seriousness of the situation was laid before the Food Controller, resulting in the matter being dealt with by an order-in-council, making regulations that will tend to prevent it in the future.

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MAKE YOUR BACK GARDEN PAY BY USING GUNN'S SHUR-GAIN FERTILIZER

Put up in
100 lb., 50 lb. and 25 lb. Sacks

Write for Particulars

GUNNS Limited, West Toronto

It is recognized by our public men and leaders that the food situation is graver than at any time since the beginning of the war. If Great Britain and our Allies are to be kept supplied with food the utmost efforts must be made to secure a larger production. Thus the food supply becomes a vital factor in the final decision.

Too much emphasis cannot be placed on the value of vacant lot and back yard gardens. Every citizen who can possibly produce food will render a great service, no matter how small his contribution may be. If every home had its war garden this year, what an enormous amount of food would be produced collectively. In Port Arthur last year the Garden Club produced \$26,527 worth of vegetables. One plot, 50 x 100 ft., grew \$203.36 worth of food.

Financial gain is not the only profit, for gardening inculcates lessons of industry and thrift. The pleasure, too, of eating vegetables grown in your own garden is something to be remembered.

CULTIVATION—When preparing your garden be sure to cultivate it well. Well cultivated ground is essential to success. It must also be carried on throughout the summer to keep down weeds and conserve the moisture in the ground.

GOOD SEED—Above all things, secure good seed—with the best germinating qualities. Labor and soil count for little when poor seed is used.

FERTILIZER—For best results most soils, particularly vacant lots and back yards need at least some fertilizer. A quantity of commercial fertilizer will go far toward ensuring a satisfactory crop.

INSECTICIDES—Do not let the insect pests and blight take the cream off your crop. By spraying your vegetables at the proper time you will secure healthy, growing plants.

Any of the leading seed, fertilizer and insecticide firms are always only too pleased to supply special information regarding any crop.

Your valuable time and your valuable labor will bring the best results only when you sow reliable seeds.

KEITH'S SEEDS *Are Proven Reliable*

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Over half a century of public confidence.

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GLADIOLI That will be Leaders This Season

AMERICA (Blush Pink)
AUGUSTA (White Striped Pink)
BLUE KING (Baron Hulot)
SCARLET
FAUST (Carmine)
HALLEY (Salmon Pink)
KLONDYKE (Yellow)
MRS. FRANCES KING (Scarlet)
PINK BEAUTY
RENNIE'S SUPERB GENERAL MIXTURE
RENNIE'S GOLD MEDAL MIXTURE
PANAMA (Salmon Pink)
PEACE (White)
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I will deliver to you car Fertilizer, twenty tons bulk, and sell it to you for the plant food it contains. Nitrogen, thirty cents lb.; Potash, thirty cents; Phos. acid, five cents; Lime, twenty-five cents hundred pounds. Green Ground Bones for sale for your fowl.

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10 Giant Cactus Dahlias, \$1.00.
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25 Mixed Dahlias (by express), \$1.00.
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For Potato Bugs And Blight use

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—a new combination which bids fair to replace the old Lime Sulphur-Arsenate of Lead and Bordeaux-Leadmixtures, in both orchard and garden.

It is more powerful and much less expensive. 1 gallon and 4½ lbs. makes 150 gallons of spray.

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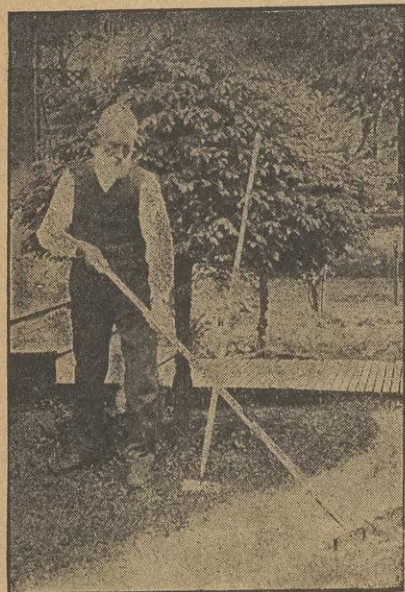
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THE HANDY HAND SCUFFLER

The Ideal Garden Weeder



The Hand Scuffler in Use.

THE handy hand scuffler is an ideal implement for garden weeding, and mulching. It is made of the best saw steel, and has four cutting edges, on both sides and ends. Lying flat on the ground, a slight pressure either in pushing or pulling only is required. It can be used endwise to chop tough roots. It is especially adapted for cleaning around bushes and plants.

Made in two sizes. The blade on the large scuffler is 9 inches by 3¼ inches; in the small one 6 inches by 2¾ inches. The handle is about five or six feet in length.

PRICE—Direct to subscribers 50c. for the small and 75c. for the large size, express collect.

SPECIAL OFFER

One hand scuffler (as above)—(1) With one new yearly subscription to The Canadian Horticulturist (Fruit and Floral editions only) for 75c. express collect.

(2) With one new and one renewal subscription to The Canadian Horticulturist (Fruit and Floral editions only) for \$1.00.

The Horticultural Publishing Co., Limited
Peterboro, Ontario

The National Service Girls

Lack of space prevented our giving in the March issue of The Canadian Horticulturist a full report of the interesting discussion that took place at the recent annual convention of the Ontario Fruit Growers' Association of the terms and conditions under which the National Service Girls should be employed this season.

Dr. Riddell, Director of the Provincial Department of Labor, opened the discussion by pointing out that if labor is to be secured by fruit growers and farmers this year, it is absolutely necessary that wages be offered that will attract labor. A woman who can do two-thirds of a man's work should receive two-thirds of a man's wages. It had been suggested that the Government might pay the difference between what the farmer could pay and what the city man or woman could earn in the city. Were the Government to attempt to do this, it would result in all farm help demanding the same consideration. Of the girls sent out last year, 31% were in their teens and 57% in their twenties.

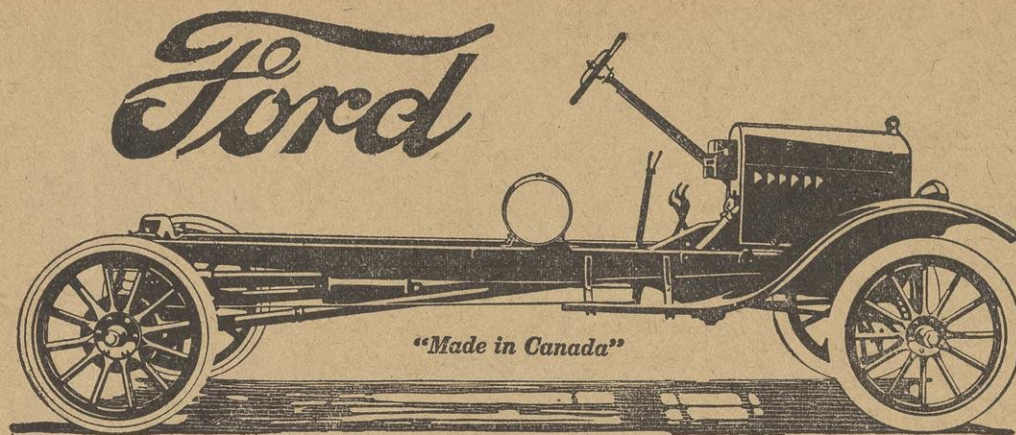
President F. J. A. Sheppard pointed out that many fruit growers, after they have met their expenses, do not themselves earn 15c an hour. Some had given up fruit farming and gone to the city, where they could earn more. The price of grain has advanced 100%, but the price of fruit has not advanced. This made it difficult for fruit growers to pay as much as they would like to.

A number of the growers spoke enthusiastically of the splendid work the girls did last year. These included D. J. Gibson, of Newcastle; E. L. Jemmett, of Beamsville; R. J. Lowery, Queenston; Mr. Terry, of Clarkson, and others.

Miss Harvey, of the Trades and Labor Branch, made it clear that the girls did not want to ask for anything unreasonable. They did not expect to receive as much wages as men, but felt they were entitled to receive as much as high school boys when they did as much work. Some girls last season had sprayed, operated horse cultivators, and done other classes of men's work.

As the sticking point in the discussion centred around the payment of a minimum wage, it was finally moved that the minimum be \$6 a week for small fruits and \$9 a week for the larger varieties. This was put to the meeting and carried.

As a means of protecting the interests both of the girls and of the growers, the Provincial Department of Trade and Labor will appoint district secretaries in each district. When growers find that any of their girls are not earning the minimum rate as agreed upon, they will be able to report this fact to the district secretary, who will have power to send the girls home, should such action finally prove advisable. On the other hand, when girls have any reason to complain of their treatment by the growers, they will be able to refer the fact to the district secretary, who, if he finds the situation to be as stated, will have power to take the girls away and see that no more are sent to such grower or growers. Miss Harvey, who represented the girls and the Provincial Department of Labor in the negotiations, states that the foregoing terms will be satisfactory to the girls and to the Department, and that she believes it will be possible for her to recruit some 5,000 girls for this work this season. The girls are planning to wear a neat, simple, inexpensive uniform this year.



A Truck for the Farmer

FARM equipment which will effect a time and labor-saving, and therefore a money-saving, must be carefully considered by every good farmer now-a-days.

The farm wagon, which for years was the most useful of all farm equipment, is now being replaced on the best farms by a sturdy, dependable motor truck. The truck will haul any farm product—fruit, grain, vegetables, stock, fertilizer, or wood—around the farm, or to the town or city many miles distant, in half the time, and at a much lower cost.

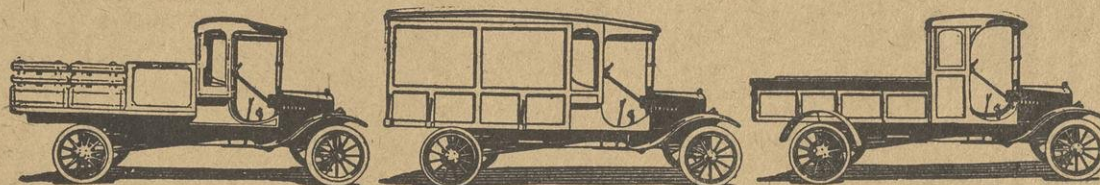
The Ford One-Ton truck is a rapid, economical and very serviceable means of transport. One of these on your farm will save you weeks of time in a single season and will enable you to pass through a crisis of labor shortage with less difficulty.

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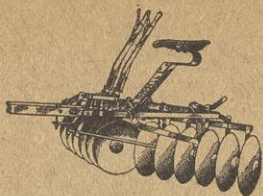
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Three of the many body styles that may be mounted on the Ford truck chassis

BISSELL Reversible Vineyard and Farm Disk



Designed especially for vineyard work, but also a perfect field Harrow. Conforms to an uneven surface in both Out-Throw and In-Throw forms. Will give better results than plowing the vineyard. Send for free booklet describing how the use of these Harrows has increased the yield of grapes immensely.

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Control complete. Prevents drought losses. Reduces labor bills. Increases profit. Special Portable Line for \$15.75. Send for new Bulletin.
The Skinner Irrigation Co.
217 Water Street Troy, Ohio.

Effect of Food Control on Apple Situation

D. Johnson, Dominion Fruit Commissioner, Ottawa

I EXPECT we will have a moderate crop of apples in Canada this year. I am not looking for a big crop. Labor conditions are such that farmers are devoting their energies to other lines of agriculture, which are not so speculative as that of fruit pro-

duction. Orchards which a few years ago were receiving every attention, are now neglected and deserted, and the owners maintain that the labor situation is too acute, and the profits from an orchard too speculative for them to take a chance, and they are, therefore, giving their attention to the other parts of the farm, and if they are able to make anything at all from the orchard, they are just that much ahead. This spirit has prevailed since the war broke out. Every spring the statement has gone out that there will be no market for fruit, and yet the price of fruit has steadily advanced until this year it has reached such a height that it has practically stopped consumption.

The Food Controller's policy is the substitution of fruit and vegetables for the more concentrated foods such as meat and flour, and I believe that before next season's crop is harvested, the people will be educated to consider it a national duty to consume fruit and vegetables in preference to the exportable staples. If prices are moderate the consumption will be enormous. Canada could have consumed two or three times as many apples last year as we did. We have imported, against a duty of 90c per barrel, 376,414 barrels of apples from the United States from the 1st of April, 1917, until the 31st of January. This as against 224,290 barrels for the same period last year. This fruit should all have been produced at home. The average householder in our cities and also in our country towns, is not using apples; the people are simply doing without them, not because they do not want them, but because the price has been prohibitive owing to shortage of supply. In 1918 the fruit growers must not expect the high prices that prevailed this year, but I believe that those who give their orchards the proper care, and pack their fruit in strict accordance with the requirements of the Inspection and Sale Act, have good reason to look for a fair return for the time and money invested.

The question has been asked me from time to time as to whether or not a fruit grower is justified, in view of the fact that the British market is closed, in giving the usual care and attention to his orchard. It has been suggested on many occasions that it would be better for the fruit grower to devote his time to the production of field crops, and allow his orchard to produce what it will. I do not feel inclined to advise the public in regard to this, but it may possibly be of interest to you to know what I have determined to do on my own farm up in Lambton County. It is this, to give even better care to the orchard than in the years past, to spray as thoroughly as possible in order that a good crop of fruit may be produced, and to put up a high quality pack, wrapped, in boxes, feeling sure that the best fruit and the best packs will demand the best prices. We shall also put forth our best efforts upon our farm to raise more grain and stock, but not to the extent of neglecting the orchard, which is our first concern, for we are commercial fruit growers. If, however, I were a general farmer and had an orchard upon my farm, I would give my farm first consideration, cultivate and produce as much grain and other crops as possible, and if I then had any time to spare I would give it to my orchard. We cannot deny that under present conditions orcharding is more speculative than general farming.

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A Residential School for Girls.
Young Children also received.

Preparation for the University. Art Department, including drawing, painting, wood carving and art needlework. Toronto Conservatory Degree of A.T.C.M. may be taken at the School. Fine, healthful situation. Tennis, basketball, skating, snowshoeing, and other outdoor games.

For terms and particulars apply to the Sister in Charge, or to the Sisters, of St. John the Divine, Major Street, Toronto.

Annual Festival of Tulips St. Thomas, May 10-11-12, 1918

Visit the Flower City of Ontario on these dates. See the finest collection of Early Tulips in Canada. Over 200 varieties of Tulips, Hyacinths, Daffodils and other spring flowers on display in the J. H. Gould Building on May 10th and 11th. Tulip Sunday, May 12th.

The following prizes are for competition among Ontario Horticultural Societies (St. Thomas barred):

The St. Thomas Tulip Cup, value \$50.00, for best display of 25 varieties of Tulips of 5 blooms each.

Silver Medal for best bouquet of 5 blooms of any one variety.

Cut Glass Vase for best bouquet of 25 blooms, mixed varieties.

For further information write the

St. Thomas Horticultural Society

FRANK E. BENNETT,
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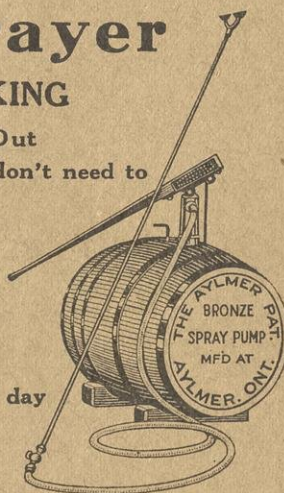
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The War Will be Won, by the Gifford Gun

The War on the Insects of America is on. The Gifford Gun is in Command.

ARE YOU "GOING OVER THE TOP?"



Sodus, N.Y., March 19, 1918.

THE GIFFORD MANUFACTURING CO.,

BARKER, N.Y.

GENTLEMEN:—Replying to your inquiry as to the result of the test of the leading Spray Guns, held at Sodus, last Saturday.

The Gifford Spray Gun did much better work than any of the other guns.

The test was made under comparatively low pressure. This fact ought to be appreciated by owners of low-powered spraying outfits. All Spray Guns give good results under high pressure, but I was in doubt about the results under low pressure.

I shall take pleasure in recommending the Gifford Gun to all fruit growers.

Very truly,

B. J. CASE.

Exclusive Features of the Gifford Spray Gun

FIRST—Adapted to All Spray Outfits. The scientific construction of the twirler enables the user to obtain the required results with the least amount of pressure and spraying material.

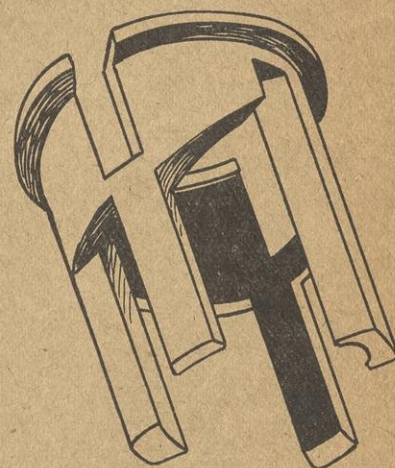
SECOND—Cuts Cost of Labor. One man can do the work of four, thus saving the price of the gun many times in one season.

THIRD—Saves Spraying Material. By producing the finest spray, even to the tree tops, no material is wasted.

FOURTH—Sold on a money back guarantee.

"It Shoots 'Em All." Not Safe for Insects to "Camouflage"

TWIRLER—The Business End of Our Gun 



PRICE \$15.00 POSTPAID

Write, wire or phone for yours to-day.

AGENTS WANTED

Ask for booklet and terms.

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EXCLUSIVE CANADIAN AGENT OF

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Manufacturers of Spray Guns, Nozzles, Suction Hose Strainers, Fruit Sizing Machines.

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Advertisements in this department inserted at the rate of 15 cents a line, each line averaging seven words. Part lines count as whole lines, minimum of two lines accepted. Strictly cash in advance.

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BEES WANTED.—Pure bred Italian Bees wanted in 10-frame Langstroth Hives for spring delivery. Must be free from disease. The Root Canadian House, 73 Jarvis Street, Toronto, Canada.

SALE.—Italian bees, strong colonies in 10 and 8 and 10-frame Langstroth hives, \$1.00, \$12.00 and \$14.00, respectively. Miss Gerrie, Ingersoll, Ontario.

COLONIES OF BEES FOR SALE.—No foul brood. Have been on the job for 30 years. Euglass Bros., Bright, Oxford Co., Ontario.

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GOLDEN AND THREE-BANDED ITALIAN; also Carniolan Queens—tested, \$1.00 each; Untested, 75c each. For larger lots and bees in packages, nuclei, etc., write for prices. C. B. Bankston & Co., Buffalo, Texas, Leon Co.

BEES WANTED.—To buy on shares or salary. State particulars. A. R. Vannatter, Ballinafad, Ontario.

FOR SALE.—Ginseng roots and seeds, or exchange for bees. P. Wilson, 283 Evelyn Avenue, Toronto, Ont.

WANTED.—Immediately, ten to twenty strong colonies Italian bees in ten frame Langstroth hives. State lowest price. John Boulton, Mooretown, Ont.

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BEEKEEPERS.—Please write for our Catalog. Write to-day for special prices on honey pails. Morgan's Supply House, London.

SWARMING CONTROLLED.—No additional fixtures needed; unnecessary to clip queens; done solely by manipulation. Successfully used for eight years. For particulars address, Trimble & Thompson, Wapello, Iowa.

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Improved Early Ohio.—The earliest heavy yielding potato in the market to-day. It is the standard early potato. Bus., \$3.50; bag (90 lbs.), prepaid, \$4.90.

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Green Mountain.—Its cropping qualities are phenomenal, and we believe it to be one of the heaviest yielding potatoes grown. Its productiveness is largely attributable to the uniform size of the potatoes, but its crowning merit is its superb cooking quality. Bus., \$3.30; bag (90 lbs.), prepaid, \$4.50.

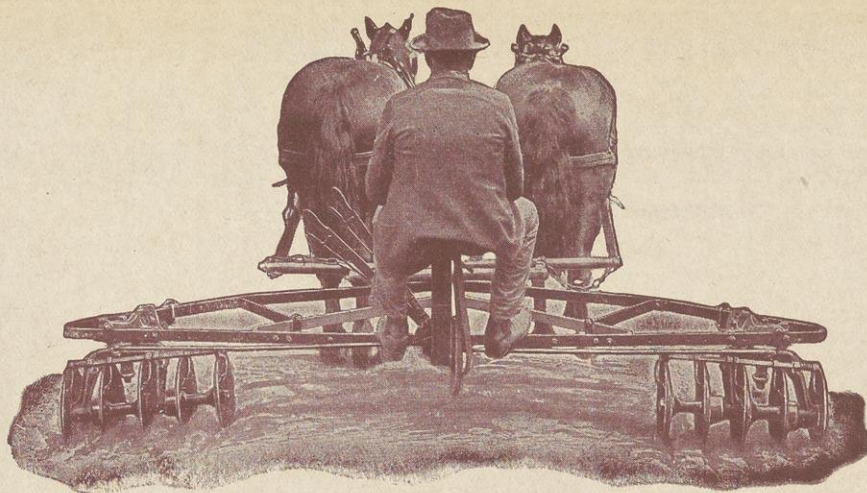
Gold Coin.—The eyes are small and there is but little waste in paring. The flesh is fine-grained, and cooks to a dry, floury whiteness. Bus., \$3.30; bag (90 lbs.), prepaid, \$4.50.

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THE FRUIT GROWER requires suitable implements if he is to be successful. The manufacturer with a knowledge of the requirements is in the best position to supply the demand.

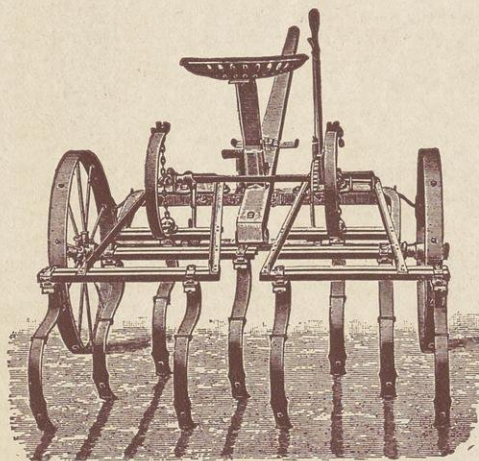
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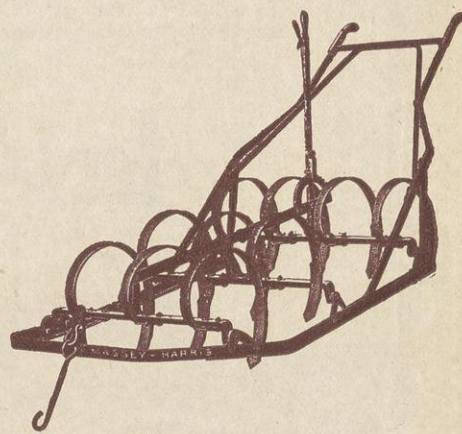
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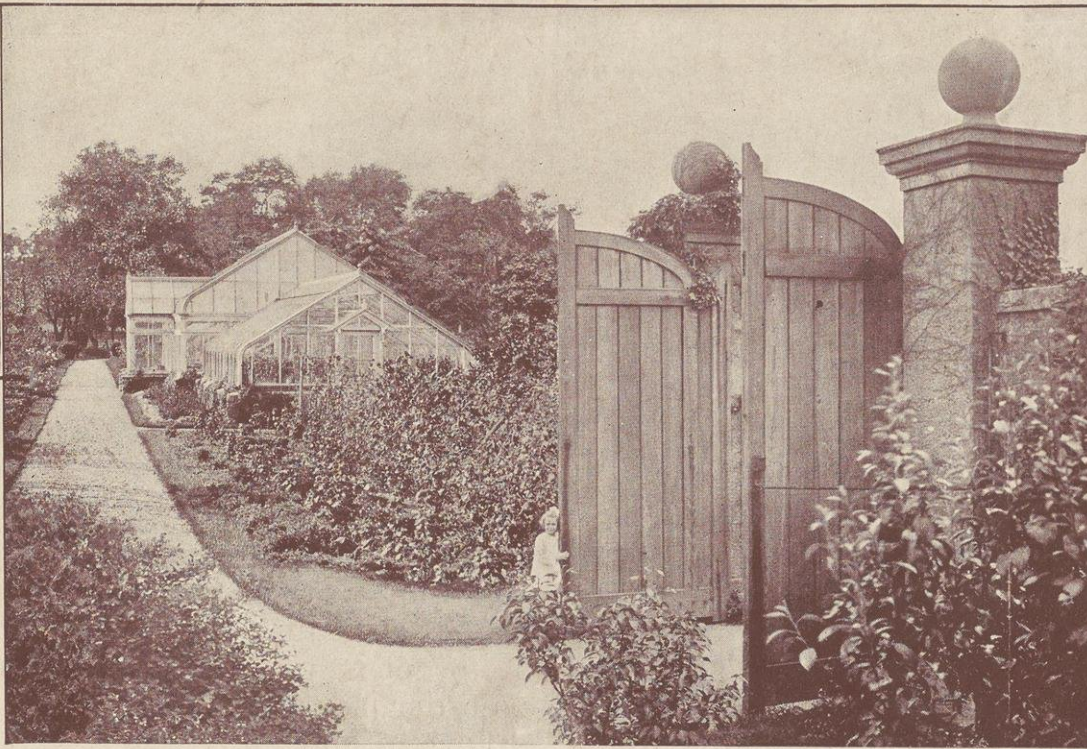
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