Frost in Orchards

(By M. B. Davis, B. S. A., Assistant to the Dominion Horticulturist)

late Spring frosts is one that has Poses, such as a frost of 5 or 6 had the attention of nearly every degrees, 100 heaters per acre should grower of fruits and vegetables be ample, as this number of heatwhich are subject to its ravages. ers has been found sufficient to

only one seems worthy of consider- rounding air 8 degrees on a very ation and that is the method of bad night, and should therefore raising the temperature, of the sur- raise it 10 degrees an the average rounding air by the use of orchard frosty night of 5 or 6 degrees beheaters or fire pots.

TYPE OF HEATER USED Although there are many types of heaters on the market, only one was heaters on the market, only one was number of heaters, even though it drops of the gasoline in the heat-tember 28, the heaters were lighted. the inability of several manufactur- was not necessary to light them all. ers. He is immediately followed by On this night the frost came very ers to supply their heater at short METHOD OF DISTRIBUTING THE a man with a lighted torch who apearly and the thermometer had fallnotice. The type used is known as the "Competition" heater and is one The method of distributing the pot. In this manner the task of any person in the vicinity of the of the simplest forms on the mar- heaters throughout the area to be lighting is carried out very quickly. however, at 8.35 and at this time ket. It has the great advantage of heated, will depend on the quarter One thing to remember is, do not the temperature was 30 degrees F. being able to be stored in a com- from which the wind is blowing. apply the gasoline until just before on the ground and 32 degrees F. paratively small space and further- Generally on our frosty nights the ready to light, for it is so volatile fourteen inches above the ground. It designed for use with ground crops. outside of the area to be heated. It The theory was, that by radiating is not a very large task to shift the heat toward the ground it would the pots just before lighting to suit quire to be refilled while a frost is the greenhouse were placed, some inbe easier to raise the ground temp- the night in question but it is very in duration will depend upon the side and some outside the heated in practice as practically no effect important to have the larger num- length of the frost period. The heaterature, but this did not work out ber of pots well to the windward of ers hold six imperial quarts and the heated area were not injured at in rractice as practically no effect the area requiring heating.

trolling radiation.

The fuel used in these heaters is As the oil used in these heaters is but if a long spouted can is used grees in temperature in one half what is known as fuel oil and can very crude and unrefined it has a there need be no danger. It is not hour due to the effect of the heaters. be procured from any of the leading very high flashing point or in other advisable, however, to apply oil from oil companies of Canada. It has a words will not ignite readily. Hence an ordinary bucket, for in this operspecific gravity of about .85 and a it is necessary to employ some oth- his face too close to the heater and flashing point of 275. In tank car er means of lighting the pots than thus may receive burns from the

The number of heaters required per acre will depend upon the degree of The question of protection against frost to combat. For ordinary pur-Of the various methods devised raise the temperature of the surupon the wind. If 10 degrees of frost or over are anticipated it

was felt at a greater distance than The pots should be filled and plac- hours. Ordinarily this is ample to been outside were entirely killed by three or four feet from the heater. ed in the field some time before carry a crop through the worst night frost. As before stated, the heat-Furthermore, when used on straw- frost is expected so that everything we would expect in Spring, as at ers were lighted at 8.35 p. m. when berries the heat in the vicinity of will be in readiness at a moment's that time of year frosts only last the ground temperature was 30 dethe heater was so great on the notice. As a good strong cover is becomes necessary to refill, it can be ground that the plants were invaria- supplied with each heater there will safely carried out without extingbly burned so that from the data on be no danger of rain getting in to uishing the flame. The oil is of such an hour after lighting, the temperahand it would appear that the reflec- | dilute the oil, if the heaters are kept non-combustible nature that it will ture inside the heated area had risen tor is not a practical means of con- covered while not in use.

ERS WHILE IN USE

lots it may be purchased at six cents by merely applying a lighted match hot sputtering oil. Allowance should

PATRIOTISM and PRODUCTION

The Empire's Call to Farmers

"Approximately twenty million men have been mobilized in Europe. A large pro-

portion of these have been withdrawn from the farms of the countries at war. Even in

neutral countries large numbers of food producers have been called from the land to be ready for emergencies. It is difficult for us to realize what will be the effect on food pro-

duction through the withdrawal of several million men from all the great agricultural

countries of Europe. These millions cease to be producers, they have become consumers,

HON. MARTIN BURRELL, Minister of Agriculture.

products needed at this time. At these con-

studied agricultural conditions and produc-

tion throughout the world, and the best

urges you to attend as many of these Con-

ferences as possible, also to watch for other

means of increasing agricul-

tural production in Canada,

will give valuable information

and suggestions to the farm-

ers, live-stock men, dairymen,

poultrymen, vegetable

growers, and other producers

of this country. The Canad-

ian Department of Agriculture

ferences agricultural specialists, who have

Fire Pots as a Protection Against per gallon or less, F. O. B. Otta- to a torch. If gasoline, which is a always be made for wa, and in barrel lots at 11 cents very combustible product, is applied NUMBER OF HEATERS PER ACRE ers, and a lighted match torch is filling as much as possible. With the to the surface of the liquid the heatthen applied, the gasoline will ig- oil distributed in barrels at different nite and burn and by the time it has points, two men can, with a ten burned out it will have raised the quart long spouted can, care for temperature of the oil to its flash- on the worst night and keep them ing point and ignition will take properly filled. place. In experimenting at the station it has been found that only a | The fire or flame in the heaters few drops of gasoline are necessary may readily be extinguished by sim-

for this purpose, two quarts are ample for one acre or 100 heaters. In minutes but will soon be extinguishlighting up the method employed is ed after the cover is placed in posisomewhat as follows:-First, have tion. all the covers removed from the SOME RESULTS FROM USING low freezing, a great deal depending heaters, which will take only a few minutes. After the covers have been As no frosts were experienced in removed one man starts with a bot- the late Spring it was decided to would be better to increase the tle of gasoline and drops a few test out these orchard heaters in plies the torch to the surface of the en to 32 degrees before there was

more there is no mechanical device wind comes from between the north that the small amount used will might be added, that thermometers to get out of order. The heater in and west, so in this case there should readily evaporate from the compara- of the heated area. These thermoquestime consists of an ordinary pail be more heaters on the north and tively large surface. The torches used meters were placed one on the of (some iron with perforations west sides than on the other sides. may be made out of any stick with ground and the other fourteen incharound the top to allow a draught It will be readily understood why bagging wrapped around and tied es above the ground, four thermoof air; there is also a perforated rim this is done, as the wind could blow with wire, then soaked in gasoline, eas. These had all been previously which fits into the heater to assist the heat over the rest of the area. or kerosene. Another point worthy tested and corrected. The thermoin this draught. The heaters are If on the other hand the wind was of mention is that kerosene or coal meters inside the heated area were supplied with a cover to be used du- from the east and the larger num- oil will not take the place of the placed as far from any of the heatring bad weather. The reflector was ber of heaters were on the west side gasoline in lighting up, as kerosene Readings both inside and out were attached for the purpose of radiat- of the area the heat would be driv- will not light quickly and is conseing the heat downwards, and was en from the western side to a point quently of no use for that purpose. out the night, and the results are

> will burn anywhere from six to nine all, while those plants which had about four hours. If, however, it grees F. and the temperature fourthe operator when povced into a degrees F. fourteen inches above the LIGHTING AND CARE OF HEAT- burning heater. At first there will be ground, while the temperature outa sputtering, due to the cold oil side was 28 degrees F. on the coming in contact with the hot pot, ground. This shows a rise of 4 de-

throughout the area to be heated so from two to three hundred heaters.

EXTINGUISHING.

FIRE POTS.

Whether or not the heaters re- meters, young tomato plants from those plants which had been inside not explode or cause any harm to to 32 degrees F., on the ground, 34

> Whether or not it is an economical method will depend to a very large extent on the margin of profit of the crop in question, although it must be borne in mind that a frost may mean the difference betwe'n absolute failure and success and even if the cost of saving the crop eats up the profit, the loss may not be as as great as it otherwise would be, had it been allowed to be totally destroyed by frost. The following estimate of plant

and operating expenses seem fair:-Cost of 100 heaters at 31 cents, including duty and freight,

One frost alarm thermometer 30.00 \$61.00 Total for plant

Operating expenses per acre:-

Placing and filling 100 heaters \$1.25 Tending to 100 heaters, 5 hours 2 men at 20 cents per 2.00 hour each

Fuel (maximum consumption, Gasoline for lighting 12.50 see below)

Cost per acre

Note:-The amount of fuel used may vary from four quarts per 41 hours to four quarts per 7 hours, or in cost from \$1.60 to \$2.50 per acre per hour, depending on the night in question. The frost alarm will also serve for any number of acres, so the cost of plant per acre would gradually be reduced.

A FROST ALARM SYSTEM Many nights during early Spring threaten frosts which do not actualarrive or if they do, only come local areas, and it is very difficult for any person to foretell whether a frost will actually come or not, so that the only way to be on the safe side would be for the grower to sit up and keep watch. As this is a very arduous task it is quite essential that a frost fighting equipment be supplemented by the addition of a frost alarm. The frost alarm thermometers are very accurate and reliable and are very simple in construction. The working is very simple; the thermometer is placed cn a post a distance of about 6 or 8 inches from the ground and the battery box and bell are placed in the caretaker's bedroom. The thermometer should be placed in a cold part of the farm where frosts generally strike, and it should not be

more than 900 feet from the battery to the thermometer. The alarm thermometer is a specially made instrument with a fine platinum wire fused into the bore of the tube connecting with the mercury column at 32 degrees F., or at any other one permanent point desired. A second wire, touching the mercury at a point below the other, completes a circuit which is broken the instant the mercury drops below the designated danger point,the permanent point referred to in the foregoing. A non-sparking special relay battery attachment causes loose? a bell to ring at practically any distance from the thermometer itself, the moment the circuit is broken. Until the alarm rings, the danger is not imminent and all unnecessary expense may be spared .- The Agricultural Gazette, Jan. 1915.

Minard's Liniment cures Colds, &c.

is fully equipped to do all kinds of

Commercial and Society Printing

WE have recently added a large quantity of new and popular series of type faces to our plant and are in a better position than ever to do Job Printing in the latest ideas and with neatness and dispatch.

WE PRINT

Letterheads Envelopes Billheads **Statements**

Circulars Catalogues Shipping Tags

Menus, Programs Wedding Invitations

Visiting Cards "At Home" Cards

We keep an unusually large quantity of Paper Stock, of all kinds, on hand in our stock room, and are, therefore, ready to fill your orders at short notice.

Look over your printed forms today and see if you are in need of any printing and send us your order.

We guarantee good workmanship and our prices are right. Remember the money you send away for printing never comes back; that you leave with us does.

Monitor Publishing Co., Ltd Printers and Publishers

BRIDGETOWN

NOVA SCOTIA

prepare for a larger surplus this year and next year. ATTEND YOUR

-worse still, they have become destroyers of food."

Britain must have food-food this year,

and food next year. Britain is looking to

Canada to supply most of that food. We

are sending our surplus now, but we must

arranged for a series of Conferences

throughout the Dominion with the object

Patriotism and Production must go hand in hand Because of this need of the Empire for more food, and the call to Canada in that

need, the Canadian Department of Agriculture has

CONFERENCE

information on the subject that will be given of giving suggestions as to the best ways of in other announcements in this newspaper. increasing production of the particular Put Energy into Production of Staple Foods

The Government does not ask farmers to work harder, so much as it urges them to make their work more productive, and to produce those staple foods that the Empire most needs and that can be most easily stored and transported.

Europe, and particularly Britain, will need the following staple foods from Canada more than ever before:-Wheat, oats, corn, beans, peas.

Beef, mutton, bacon and ham. Cheese and butter.

Canadian Department of Agriculture, Ottawa, Canada Poultry and eggs. Vegetables, such as potatoes, onions, and turnips.

The larger the yield of these staple food products, the greater the service to the Empire. Germany in the last ten years has doubled the average yield of the majority of her field crops largely through better seed, thorough cultivation and use of fertilizer. And while the Empire's armies are busy putting down German Militarism, let us at home appropriate the best of Germany's agricultural methods for the Empire's

The Government urges farmers, stockmen, dairymen and other producers to make a wider use of the Free Bulletins issued by the Canadian Department of Agriculture. Clip out, fill in and mail the coupon below and get a list of these bulletins. Then select the bulletins that will be of value to you. Mail your coupon right now. Do not put a stamp on the envelope. Your coupon will be "On His Majesty's Service."

200	e eres	B 22	DEEE N		2000	5 SEE SEE	53 5	NEW ASSE	
	Publica	tions	Branch		adian Ottaw	Department a.	of	Agriculture	,
	Diagra	hear	list of	Dubli	antion	Aveilable	-	Distribution	

P.O. Address....

County......Prov.....

FIRE!

If your home should burn tonight, how much would you Doing Business in Nova Scotia -LET THE-

Northern Insurance Co. Protect you

> FRED E. BATH Local Agent

HALIFAX Fire Insurance Co.

since 1809-105 YEARS

The oldest Company of its kind in Canada. Noted for equitable dealings No connections with the "Tariff". Reasonable rates. Best of security. DR. S. N. MILLER

Agent at Middleto

Professional Cards

OWEN & OWEN J.M. Owen K.C. Daniel Owen L.L.B. BARRISTERS AT LAW

Annapolis Royal Office Over Bank of Nova Scotia Office in Middleton open Thursdage. Office in Bear River open Saturdays. Money to loan o' Real Estate Security

CHAS. R. CHIPMAN, LL. B. BARRISTER SOLICITOR COMMISSIONER ETC.

Shafner Building, - Bridgetown

AGENT FOR CALEDONIAN IN-SURANCE CO.. Insure your buildings in the largest and strongest company. MONEY TO LOAN

Telephone 52.

Roscoe & Roscoe

Money to Loan on first-class real estate security

W. E. ROSCOE K. C., D. C L. BARRY W. ROSCOE, LL.B

Barristers, Solicitors, Notaries and Insurance Agents

BRIDGETOWN, N. S. Offices in Royal Bank Building

C. F. Armstrong PROVINCIAL LAND SURVEYOR

Transit Work, Levelling, Draughting, MIDDLETON, -- N. S.

DR. C. B. SIMS Veterinary Surgeon and Dentist

-Graduate of-Nova Scotia Agricultural College Ontario Veterinary College University of Toronto

PARADISE, N.'S

G. B. WISWELL, M. D. C.M. Successor to Dr. O. R. Peters

Physician, Surgeon ANNAPOLIS ROYAL, N. S. Office and Residence, West Building,

George St. Dr. F. S. Anderson DENTAL SURGEON Graduate of the University Maryland

Office: Queen Street, Bridgetown. Hours: 8 to 5. W. E. REED Funeral Director and Embalmer

Latest styles in Caskets, etc. All orders will receive prompt attention. Hearse sent to all parts of the country. Office and showrooms in two-storey building in rear of furniture warerooms. Phone 76-4

Arthur M. Foster LAND SURVEYOR

BRIDGETOWN, NOVA SCOTIA Leslie R. Fairn

ARCHITECT

Aylesford N. S.

UNDERTAKING We do undertaking in all it Hearse sent to any part of the County,

J. H. HICKS & SONS Queen St. Bridgetown, Telephone \$ H. B. HICKS: Manager

G. E. BANKS PLUMBING

Furnace and Stove Repairs Bridgetown, N. S. TELEPHONE, NO 3-2

Full Staff of Trained Teachers. The Best Courses of Instuction.

Individual Attention given each Our Best Advertisement - The Successs of our Graduates.

Students can enter at any time Catalogues to any address



S. KERR Principal