

hope for a good garden. Now, I take a home-made roller made from a piece of heavy log and pull it over the garden. This levels the surface. I sow onions in drills one foot apart, but always test the drill by running it on a board to get the right thickness of seed. As soon as the plants appear I use the wheel hoe and cultivate very shallow, for onions do not need deep cultivation. Be sure and keep the earth from the bulbs. I pull the earth away with my hands for if the onions get covered they do not grow so well. As soon as they are ready thin them to about two or three inches apart in the row, and never allow the weeds to get ahead of the young plants. Last year I sold one pound of Red Wethersfield and had thirty bushels of onions. Some I sold for two dollars a bushel and the balance for one dollar and twenty-five cents.

Now just a few remarks about the articles contributed by Brenda E. Neville. I think her suggestions on farm gardening are all very good and if they are properly carried out there is no reason why every farm should not have enough vegetables to use the year around. But I think her method of planting would be rather slow if gardening was done on a large scale. For my part I prefer the garden seeder every time and always had good results.

Man.

THOS. WALKER.

### Garden Frequently Neglected

EDITOR FARMER'S ADVOCATE:

I cannot help but be surprised at the negligence of most farmers regarding the kitchen garden. As a rule, they regard work done in the garden as so much lost time and energy. Right here is where the mistake is made. I do not intend to point out the delights of having one's table always plentifully supplied with fresh vegetables, small fruits, pickles, etc., but to indicate with what little time and energy these may be obtained.

For my own garden I choose a good location as close to the house as possible. I had a large patch of scrub and poplar in the middle of which I plowed up a suitable sized garden patch, leaving a fringe of trees and scrub around to prevent winds from doing damage. I have been cropping this piece continuously for 14 years and have an excellent garden each year. Every fall I give it a coat of three or four inches of well rotted manure. I do not plow it until as late in the fall as possible, in fact I wait until I am afraid the ground will freeze up, and then I plow it beam deep. This is to prevent grubs eating up my stuff the following spring. I may say I have never been troubled in the least with grubs, while my neighbors, who plow any old time, lose all or most of their garden stuff and so get discouraged. My produce is always early, often having ripe tomatoes on bushes from August 4 to August 8. I produce all vegetables that will grow here and take frequent prizes for garden stuff at the local fairs.

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To go into details regarding each variety would be too long, but would say that by the aiding of a seeding and other small garden machinery much time and energy is saved. I use a Planet Jr. seeder and attachments and in one hour I can do more and better cultivation with it than any man with a hoe can do in ten hours, and he works for all he is worth. By using machinery a garden gets more cultivation than it otherwise would at the hands of a busy farmer, and this cultivation pays well. I have a good supply of red, white and black currants which are arranged in rows down one side of garden, and my rhubarb in rows down the opposite side, thus not being in the way at plowing and harrowing time.

The article on onions in your issue of May 5 by B. E. Neville makes me think I will give my experience of the best crops of onions I get. I selected a portion of my potato ground for the onion bed. This is well harrowed down after the potatoes are dug. The snow in winter and early spring packs the land good and solid, and in spring I put a board across my harrows, stand on board and drive straight down the piece of land, the teeth marks of the harrows forming the drill rows. The ground in this way is left solid. The seed is then sown in the harrow marks, lightly covered and rolled or pressed. Just enough cultivation is given to keep down weeds, care being taken not to push soil against onion plants, as I believe this has a tendency to produce thick necks and small bottoms. I thin out to about four inches in the row.

TOMATOES.

### Preventing Damage by Frost

Frost occurs when visible moisture is condensed from the atmosphere at a temperature near or below the freezing point of water.

The damage done by frost in the spring of the year is often very great. Early garden crops, strawberries, raspberries, plums, and even the larger fruits are frequently injured.

CONDITIONS FAVORABLE FOR FROST FORMATION

1. Clear skies. 2. Dry air. 3. Nearly still air. All bodies are radiating heat all of the time. The surface of the earth and objects upon it are receiving heat from the sun, when it is shining brightly, faster than they are losing it by radiation; so the surface grows warmer until just after midday. The taking in of this heat is called absorption; and a body is a good absorber of heat that warms up quickly in the sunshine.

Most dark bodies and those that have a rough surface are better absorbers than light colored, smooth ones. Lay two cushions in the sun, one dark and one light, but with the same texture, and see how much hotter the dark colored one gets in a few minutes. This is why the part of cooking utensils that comes in contact with the fire should be dark and rough; this is the reason why light colored clothing should be worn in the summer time.

When bodies on the surface of the earth are losing heat by radiation faster than they are gaining it by absorption, they are growing colder. Thus, at night the heat absorbed during the day is lost by radiation and the surface of the ground and the objects upon it become colder than the air. Good absorbers of heat are also good radiators, so that dark colored soil will sometimes be from 6 degrees to 14 degrees colder than a nearby light colored soil. The temperature over a dark colored lawn has been found to be 1½ degrees lower than over a light colored lawn.

Grass and growing crops lose heat rapidly at night by radiation and can gain little from the ground by conduction. Hence the temperature in grass six inches high has been found to be 10 degrees lower than over bare ground, and in clover two and one-half inches high 4 degrees lower.

Frost is usually seen upon a board walk or roof of a low shed first, because these objects lose heat rapidly by radiation and gain little from the earth by conduction.

When the surface of the earth and the leaves of standing crops lose heat by radiation, the air directly in contact with them gives up some of its heat by conduction, but this cooling extends up only a little way because the air is a poor conductor of heat. Hence the coldest air in a clear still night is near the surface of the ground. The coldest air will always be in the lowest places at such times, because this cooled air, being heavier than warm air, will slowly slide down into the valleys and hollows.

In protecting tender plants from frost, then, one has simply to keep in mind the conditions which favor frost damage and try to overcome these conditions.

#### METHODS OF PROTECTION AGAINST FROST

1. Diminishing the radiation of heat.
2. Raising the dew point of the air.
3. Adding heat to the air.
4. Mixing the air so as to prevent its forming in layers.
5. Draining the cold air away from the secession that needs protection.
6. The location of tender plants on the side of a slope and not in the low places.

Any covering will prevent the radiation of heat. Glass screens are used in greenhouses and cold frames. Cloth screens are stretched over large fields in France. Laths are fastened to telephone wire and are drawn over orchards in California and Florida. Along the lower delta of the Mississippi the owners of valuable orange groves actually house in acres of the groves.

Strawberries are very successfully protected by turning the mulch up over the plants, and cabbages by throwing a handful of hay over them. When it is cloudy, very little heat is lost by radiation; therefore, crops have been successfully protected by covering them with a smoke or smudge.

If a damp material is burned, the smoke and cloud of moisture diminishes the radiation of heat, the moisture raises the dew point of the air, the fire adds heat to the air, and the air is mixed, so that the colder air cannot lie still near the earth.

A damp smudge may be made by burning numerous small piles of damp straw and stable manure. This material may be packed into old grain sacks and distributed through the orchards or garden in rows about 100 feet apart and about fifty feet apart in the rows. When it is found that the temperature is getting down near the freezing point, a small amount of oil should be poured on to every third or fourth sack and then set on fire. The sacks will burn with a smoldering fire for several hours.

An even better plan is to build a smudge fire upon some low wagon or sled, so that it can be drawn about through the orchard where needed. The simplest plan is to stretch wire netting from the four stakes of the body, pile on damp straw or strawy manure, and then build a fire underneath. Set a barrel of water on the sled so that the straw can be kept wet.

As the sled is drawn along the vapor and smoke settles to the rear and falls close to the ground in a long white trail. One man can protect about ten acres in this way, and the expense of the sled need not be over ten dollars. In one case in California four of such sleds and 500 sacks of manure saved 300 acres of oranges during a six nights' freeze. The estimated cost was less than 1 per cent. of the value of the crop saved.

In some cases it has been found practicable to add dry heat to the air by burning coal in wire baskets. From twenty to forty of these baskets, costing from seven to ten cents each, are scattered over each acre, filled with coal and burned as needed. It has been found possible to raise the temperature of the air from three to five degrees throughout an orchard in this way and thus save damage by frost. The coal can be merely piled up in many small piles. We would advise trying the different plans in a small way to see which is most economical and effective for each particular place or interest.—J. WARREN SMITH, Director U. S. Weather Bureau.

## FIELD NOTES

### Bird's Hill Plowing Match

The Bird's Hill Plowing Match held June 11th, on the farm of Capt. J. M. Smith was, as before, a very successful event. The competition was held under the auspices of the Bird's Hill Farmers' Institute and from many a standpoint it was a pronounced success. The quality of the work performed was of a high order. Professor Peters of the Agricultural College having no easy task in making the awards.

Considerable interest was shown in the work done by the various competitors although the attendance was not speakably large. The ladies' aid of the Presbyterian Church catered to the hungry needs of all present.

The directors and officials of the local farmers' institute strove to make the competition a success and much credit is due them. W. Gorham, the secretary, was a live wire in promoting the success of the day.

Twenty-one contestants totalled the number of the competitors in the various classes.

J. A. Henderson carried off the honors of the day with a score of 92½ points, winning the sweepstake's cup and championship prize. At this is the third time he has won the cup it now becomes his personal property. In the junior competition the T. Eaton cup and watch was the coveted cup and trophy.

In the class for boys sixteen years and under, seven contestants strove for honors. P. Hoddinott won first scoring 82 points. R. George second score 78½; J. Black, third, score 77½; R. Waugh, fourth, score 69½ points.

Boys twenty years and under brought out four plowmen; F. Henderson, 88½; A. Hamelin, score 78½; F. Bannister, score 67½.

In the class for men twenty-one and over there were three entries: W. Knipe, 81½; J. Williams, 79½; J. Michie, 79½.

For the gang competition A. H. Studham was the only entry, he earning a score of 90½ points.

Six plowmen rivalled for honors in the open championship class. J. A. Henderson was awarded first with the score of 92½; H. Bushel, 2nd, score 87; E. Garven, third, 84½; J. E. Franks, 78½.

During the afternoon the good roads committee held a conference and many prominent men interested in the work held forth. Representation were there from Winnipeg and several adjoining municipalities.

The most important decision of the meeting was that the provincial government be asked to appoint a good roads' commissioner to have superintendence of the work of improving the rural roads and the carrying on of a campaign of education such as was conducted with such signal success by Mr. Campbell when he was good roads commissioner for Ontario.

It was the census of opinion that proper gravelling of the leading roads was the best method of improvement besides being a cheap and efficient one. Others advocated the use of the split log drag in road work, and doing the work at a time when it would count for most. Every speaker appeared to be enthused with the importance of improving the rural high-ways believing the situation demanded combined and immediate action.

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An exhibition in sheep shearing will be one of the features of the Calgary Provincial Exhibition this year. A number of expert shearers from the south will compete. One hundred sheep will be sheared on the grounds.

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The great mistake made by too many who attempt to pasture swine on alfalfa is in overstocking. There is a tendency or temptation to keep in a pasture more stock than it can comfortably support, with the result that the alfalfa plants are gnawed, trampled and rooted out, while the animals fail to prosper as they would under more rational treatment.

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As to the amount of pasturage or the number of hogs alfalfa will carry per acre without injury to the crop, the estimates given by farmers vary considerably, depending on the kind of soil, the fertility of the land, and the size of the hogs pastured. The following, however, is a safe estimate as given by conservative men who have had much experience. River valley and creek bottom land well set in alfalfa will carry from fifteen to twenty head per acre of 50 to 125-pound hogs. Upland of fair average fertility will support from eight to ten head of the same kind of hogs. There are fields that have supported twenty-five head per acre through the season for a number of years and are still in good condition, and there are other fields that will not furnish pasture for more than five head per acre; but these are extremes. When a field is only used for pasture it is better to divide it into several lots and move the hogs from one to the other as occasion requires.

—From COBURN'S "Swine in America."

## Events

Disastrous floods have been between Revelstoke and several miles of railway for trains for days.

Forest fires are reported in Central New Brunswick for some weeks and loss will be hundreds of thousands of men are engaged.

A rush north to the Rouge is expected now. Gold has been remarkably rich in the nearest point in civilization.

For the first time a steamer arrived in White Forks. The steamer came of the North Dakota class with the possibilities of commerce.

Seventeen quarter Indian Reserve were almost phenomenal prices obtained was \$8.75 an average of \$17.70 per acre covered with heavy scrub.

Many of the large line refused to take wheat preferring to take wheat cut from Canadian line trade developed within passenger boats out of wheat at the cost of loss of the Canadian lines to is resulting in a good slice American ports but it is owners will long continue of handling.

## BRITISH

An international ball Indianapolis last week, contest.

As things are developing as if President Taft is going to measure as revised, it is believed, is that Republican party is lower tariff, there must revision.

## Things to

Provincial Plowing Match, Oakville Plowing Match, Winnipeg Horse Show, Edmonton Exhibition, Provincial Exhibition, Portage Exhibition, Winnipeg Industrial Exhibition, Brandon Exhibition, Highland Society's Show, 20-23. Provincial Exhibition, Neepawa Exhibition, Central Saskatchewan August 3-6.

## Prospects G

EDITOR FARMER'S ADVOCATE:

I would like to draw your attention to a few things. When anyone is engaged in cultivating crops, he should be as careful of his crops as he lives as such a method gives from Winnipeg, part—Southern Alberta we can work in manure the manure dries out the crop. This is a good the manure on to the thawing out now and then while the horses are fed well and that pulverizes the weeds, then start in June, harrow later on. If a good heavy rain comes and cause evaporation or as soon as the ground field worked like this will kind of grain or potatoes.

The land is in good shape moisture and prospects to hear from other farmers farming as the advocate have a few things to say. The ordinary farmer has