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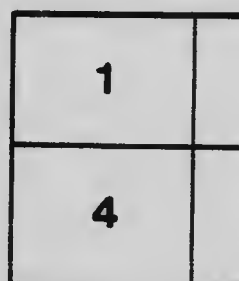
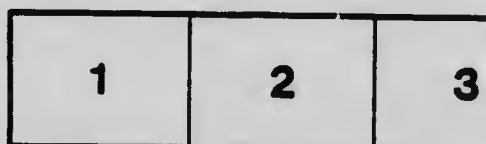
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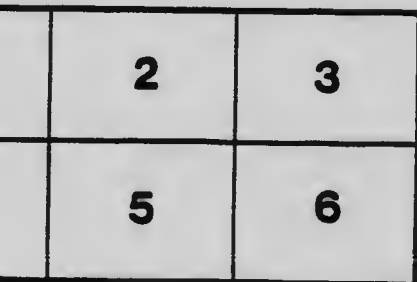
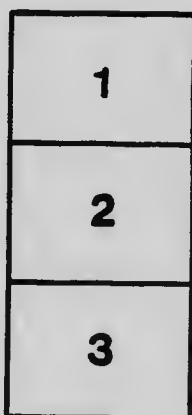
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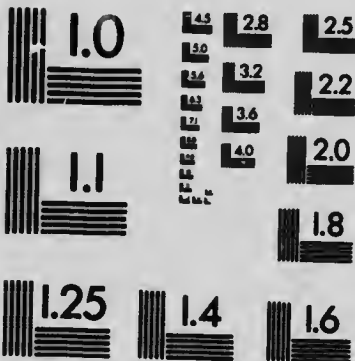
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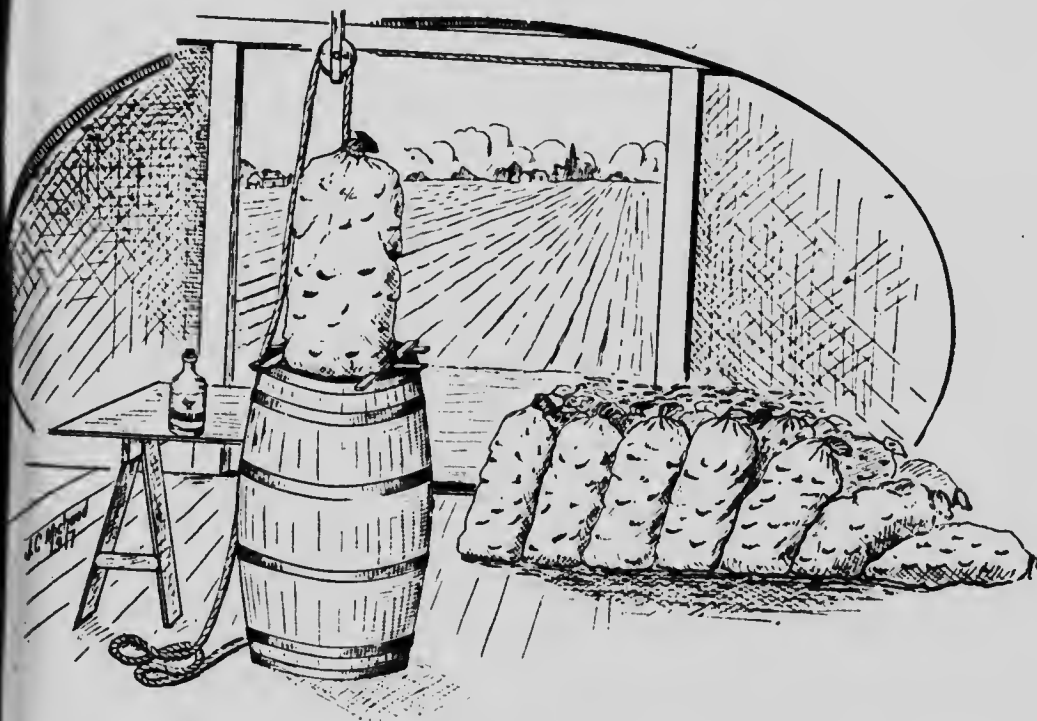
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BULLETIN No 41

Treatment of Potatoes and Seed Wheat

— BY —

GEORGES MAHEUX, B. A., F. E.
Entomological Inspector



Solution of formalin in the barrel; above one bag of potatoes, placed
to drain on crossed planks after the bath.

Treatment of Potatoes and Seed Wheat

I.—POTATOES.

Object of the treatment.

Thanks to the transportation facilities which have multiplied commercial exchanges, the enemies of the potato have increased considerably within the last years. We actually have to face a serious problem: that of fighting energetically these parasites and clearing, at all cost, our fields of the diseases that constantly tend to reduce the yield of your crops. Every farmer wishes a good crop, his desire is that it be abundant and undecayed; now, in many districts of our country, this hope is only a chimera if the horticulturist does not decide himself, without delay, to adopt and practise the very simple treatment, yet excellent, that we are preconizing further on. The latter enables to kill the disease while it is yet in the state of a rather harmless germ and assures interesting results to its user.

Diseases.

1. *Powdery scab*: the most dangerous of all diseases that are actually to be found in Quebec. The United States consider this scab of such a serious nature that they have taken radical steps against it: so, a special law has been passed forbidding the import of potatoes from countries where this disease is causing its ravages; our province is included in this number.

2. *Common scab* (disease of rich grounds): very common; it even occasionally happens that it is impossible, in certain places, to find seed tubers that are not affected by it.

3. *Little potato* or heat-stroke: usually accompanies the common scab and is to be found as frequently.

4. *Rot of stored potatoes* (dry and wet): diseases which develop on the potatoes during the winter, in cellars; often affect the total supply, thereby rendering the victims useless for plantation.

5. *Black leg*: very common, specially in the Maritime Provinces, where it has caused the loss of 10% of the crop of 1915, or a depredation of \$700,000.

6. *Potato canker*: its presence has not yet been noticed here, although it may be found in some isolated places. The provincial and federal laws place this disease amongst the destructive plagues and have decreed same as "out-law": that is to say that any proprietor of a crop attacked by this disease cannot dispose of same in any way whatever without obtaining a permit to this effect from the Provincial Entomologist, authorizing him to do so. It also obliges

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anyone who discovers the potato canker in his vegetable garden to immediately notify the Minister of Agriculture. Any infraction to this regulation is punishable by a fine, (\$100).

7. *Mildew* (potato disease): very common everywhere this vegetable is grown; the green part is first attacked, afterwards transmitting the infection to the tubers that become improper for consumption; is spread by the use of infected seeds.

8. *Stem rot*: presents itself in the potato, in the shape of a colourless or brown-blackish ring. If a tuber is sown, the interior of which is entirely affected, same will decay before germinating; needless to say that potatoes of this nature are not to be used for seeding purposes.



These are the potato diseases which are transmitted through the use of affected seeds; it is easy to discover the traces of any of them on the tubers at planting time. We have said, in the beginning, that anyone interested has at his disposal an excellent preventive enabling him to limit, if not stop completely, the progress of these parasites; this preventive is the treatment with formalin which should be employed everywhere, whatever may be the quantity of seeds.

Formalin bath.

Preparation: the material essential to the preparation of the formalin bath consists of a barrel, formalin and water. The barrel should contain 30 gallons of water, in which one pound or one pint of formalin is poured. If the barrel at our disposal has not a capacity of 50 gallons, it is preferable to use only half the formula, that is 15 gallons of water and one half pound or one half pint of formalin, otherwise, the bulk of the potatoes immersed in the barrel would cause the solution to overflow. If a large quantity of tubers require to be treated rapidly, it is better to prepare, in advance, three, four or five barrels, as the case may be, so that the work of seeding will not be delayed.

Execution: put the seed potatoes still complete into very neat bags so as not to disturb the solution and to permit of the liquid reaching the potatoes quickly. With the help of a pulley and a rope, plunge the filled bags into the barrel: allow the seeds to be soaked for two complete hours, rise afterwards and place to drain above the barrel taking care to allow the bag to rest on small planks, as shown in the picture on the front page.

When this operation is over, the potatoes will be spread on the grass or on planks. It is important that everything we shall use in manipulating the disinfected seeds be absolutely clean, acting otherwise would compromise the success of the treatment in placing these seeds in contact with objects loaded with germs of diseases. When the potatoes are dry, we can proceed to the cutting of sprouts or sets. In this work it is necessary for each operator to have two or

three knives at his disposal; while he is using one of them, the others are left bathing in a bottle or vase containing a strong solution of formalin and even of pure formalin. If we happen to cut a potato on whose flesh traces of diseases are discovered, we plunge into the formalin solution the blade that is certainly carrying germs of the evil and, in exchange, one of the purified knives is used.

The use of formalin is not dangerous, as it is not a violent poison; its only inconvenience is to irritate the skin; when tasted it is plainly acrid.

Remarks.

We must use for seeding, only tubers that are as healthy as possible.

Whatever may be the quality of the seeds used, we must never neglect to soak them into a formalin solution; they might very well contain germs of diseases which we cannot detect.

This treatment is not in itself the sum of attentions which the farmer must give potatoes; no, when the plants have grown, when they have formed stems and leaves, Bordeaux mixture sprayings must not be neglected. (See bulletin No. 37 for explanations).

The more care you will take to protect your potatoes against diseases, the higher the yield be in quantity and quality; consequently the benefits which you will derive from this culture will be greater and will largely make up for the trouble you will have taken.

Never plant potatoes in a soil that has already yielded a contaminated crop; this would be running to meet a failure.

At last, neglect nothing in order to grow first quality vegetables: it is your own interest and that of your province.

(The Department of Agriculture, Ottawa, is distributing free, bulletins and circulars relating to the diseases of potatoes.)

II—WHEAT.

Diseases.

This valuable cereal is the victim of two serious diseases: the stinking smut and the loose smut.

Treatment.

The treatment of the stinking smut is the same as that of the potato: 30 gallons of water and one pound of formalin or one half pound for 15 gallons; the only difference existing is in the duration of the bath; in the case of the stinking smut, it will only last five minutes. The wheat is allowed to dry and is sown immediately.





