CERTIFIED SEED POTATOES

REGULATIONS GOVERNING THEIR PRODUCTION

The seed potato certification service was organized by the Dominion Department of Agriculture twenty-five years ago as a result of a survey which showed that potato crops were being seriously reduced by virus diseases. The function of the service was to assist and supervise the production of virus-free seed potatoes that would give good, profitable yields.

The success of the undertaking has been remarkable. Crops from certified seed, of which four million bushels have been produced annually during the past twelve years, average 275 bushels per acre. The average yield from ordinary seed is 140 bushels.

Not more than one-tenth of the total potato acreage is planted with certified seed. The annual export trade of two million bushels shows that a strong demand exists in foreign countries, but domestic sales average only a quarter-million bushels. Certified seed potato growers retain three-quarters of a million bushels for their own seed, bringing the total planting of certified seed in Canada to one million bushels only.

If every potato grower planted certified seed, either the crop could be doubled or the potato acreage reduced to one half. The increased profits that the grower would obtain are even more significant. Assuming that 100 bushels are required to cover the cost of production, the yield on which profit is estimated would be increased from 40 to 175 bushels.

One million bushels of certified seed are sold each year as table potatoes, because of the lack of seed markets, and the first step in improving potato production in Canada must be to arrange for ready supplies of certified seed, at reasonable prices, to table stock growers. This presents problems of storage and transportation that differ in various provinces, and the Agricultural Supplies Board, in outlining the present situation to provincial Departments of Agriculture, urged that these problems be considered as they apply to local conditions. Much constructive work has already been done. Provincial committees have drawn up "improvement" programmes, which include the selection of suitable areas for increased production of certified seed, and the planting of certified seed by table stock growers in other areas.

The production of certified seed is a specialized industry in which only growers in districts where the soil is suitable, and who are able to control

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insect pests and diseases, can hope to succeed. Every grower should, therefore, follow the recommendations of the potato improvement committee of his province.

This pamphlet has been prepared for certified seed potato growers. Other growers, however, may be interested in reading of the efficient methods of production and the thorough supervision that are implied in the term "Canadian Certified Seed Potatoes."

The Meaning of Certification

Seed potato certification is a means of recording seed potatoes that are of good type, from vigorous plants, and, as far as practicable under advanced conditions of farming, free from serious diseases. When potatoes have been inspected in the field and after harvest by an authorized officer of the Dominion Department of Agriculture, and have been found to be vigorous and to conform to the certified seed standards, they may be certified. Official tags are issued for such seed stocks exclusively. Certification is not complete until the potatoes are in containers bearing the official tag on which is stated the field certification number, and the approximate date of final inspection.

Application forms are sent out early in May. Growers who do not receive a form should apply to the Plant Protection Division, Production Service, Department of Agriculture, Ottawa, or to the nearest District Inspector. The forms must be filled in and mailed on or before JUNE 15, to the District Inspector at the address given on the form.

Inspection Procedure

All accepted applications for field inspection will be acknowledged by post card. Applications that cannot be accepted for any reason will be returned, together with a statement giving reasons why inspection cannot be made.

First field inspection will commence about six or seven weeks after the average planting date for the district. Second inspection on fields that have passed the first inspection will follow within four weeks.

After field inspections are completed, growers whose fields have passed will be notified to that effect. The return of a form, which is provided for the purpose, will ensure tuber inspection of the crop. If a field fails to pass inspection, the grower will be notified by letter, and the crop will not be considered further for certification.

Tuber inspection will commence at digging time, or as soon after as possible.

An official tag will be issued to the grower for each container of certified seed, to identify the product and to certify that satisfactory evidence has been given that the contents have been grown by the person whose certificate number it bears; that they have been inspected in the field and after harvest by an officer of the Dominion Department of Agriculture; and that on the date shown on the face of the tag they were found to be sufficiently vigorous and free from serious diseases, pests, and foreign varieties to warrant their being classed as Certified Seed Potatoes.

The tag is issued only on the express condition that the person to whom it is issued, and whose certificate number it bears, undertakes to grade the potatoes for which it is to be used so that they shall be practically free from rotted or other seriously injured, foreign, or off-type tubers, and that not more than the allowed tolerance shall be above or below the sizes specified; and on the further condition that the said person assumes entire responsibility for the bona fide contents of any package to which the tag is attached by him. Any person responsible for the improper use of the tag is liable to prosecution.

Seed potato tags are issued in various colours, principally as an aid to the seed trade in keeping the varieties from becoming mixed during loading and discharging cargoes and in warehouses and storage. The tags for certified seed of the Green Mountain variety are green; for Irish Cobblers, yellow; for all other varieties, buff; and for " Small " size certified seed of all varieties the tag colour is blue. The " Certified Foundation Seed " tag for all varieties is white with the printing in red.

One of these tags must be attached to each and every container of certified seed potatoes, and no other type of label carries any official recognition of seed potatoes whatsoever. Purchasers are warned that if they accept delivery of potatoes in containers that do not bear the official tag, they are not receiving Canadian certified seed. The official tags shows the certificate number of the field from which the potatoes were taken, and upon application to the Plant Protection Division, Department of Agriculture, Ottawa, or to the District Inspector, a copy of the field readings will be sent.

An authorized inspector may examine tagged seed potatoes at any time and may put under detention all potatoes found to be below standard. The potatoes must be graded to comply with the official standard or the tags removed before they can be released from detention.

Regulations Governing Certification

Individual applications for inspection of less than one acre will not be accepted. Organized potato clubs, however, may make special application for group inspection for members having seed plots of less than one acre each.

Applications received from scattered and outlying districts will be accepted only if there is sufficient acreage entered from the district to warrant the cost of making the necessary inspections.

Growers who purchase seed for planting fields that are to be entered for seed certification must purchase fully certified seed; that is to say, seed for which official seed potato certification tags have been issued. Each container in which certified seed is shipped will have attached to it an official tag on which is stamped the certificate number of the seed in the container. All official tags must be kept to be shown to the inspector when he calls to inspect the field, and the certificate number of the seed and the name and address of the grower or dealer from whom it was purchased must be stated on the "application for field inspection" form.

Fields planted with untagged seed, even though such seed was grown in fields that passed inspections the previous year, will not be inspected.

Growers who plant their own seed will be required to satisfy the inspector that the seed was selected from crops that were produced in fields which passed all inspections in the previous year and that were free from bacterial ring rot. If their seed shows any sign of deterioration, growers should discard it and purchase the best foundation seed available.

New varieties for which certified seed tags cannot be obtained must pass field inspections for two successive years and be licensed for sale in Canada under the Seeds Act before they can be certified.

To avoid transmission of disease by insects, potatoes intended for certification should be planted at least two hundred feet away from other potatoes. Potatoes growing adjacent to others that contain more disease than the standard allows will not be certified. Disregard of this ruling has led to the rejection of many fields every year.

Fields intended for certification must be planted early. Those which, upon first inspection, show insufficient growth and vigour, or a poor stand of plants, will not be given a second inspection or further consideration for certification unless exceptional circumstances warrant it.

Fields that have required excessive roguing for diseases during the season are not considered satisfactory for certification.

Fields must be kept well cultivated. Where weeds obstruct a clear view of the plants, a proper inspection for disease is impossible, and the field will be rejected.

The plants must be kept well sprayed for blights and for insects where these pests occur. Fields in which many plants are defoliated, or show severe leaf injury, will be rejected.

Seed potatoes must be dug and handled with care to prevent bruising. The keeping quality of damaged potatoes may be impaired, and such tubers will not be certified.

Seed potatoes must be kept from danger of freezing. Tubers exposed to extreme low temperatures for a time sufficient to incur danger of frost injury, are not acceptable for certification.

When harvesting potatoes in fields infected with late blight, the grower must remove all tubers visibly infected and hold the remainder at least two weeks, when a tuber inspection will be made. If the crop is then within the tuber inspection standards for late blight rot, it may be graded for immediate shipment. If the disease has developed beyond the standard, the potatoes cannot be shipped immediately for seed, but must be held until December 1st for final inspection. Any individual lot of potatoes that is seriously breaking down to late blight rot should not be held for seed purposes, but should be disposed of for table purposes without delay.

Potatoes eligible for certification must be kept separate and distinct from all other potatoes. The identity of each lot must be established to the satisfaction of the inspector before tags are issued.

Seed stocks improperly stored, as indicated by excessive sprouting or shrivelling, will not be certified.

Certified seed must be practically free from dirt or other foreign matter.

All containers used for shipping seed potatoes must be new and clean.

Standards for Certified Seed Potatoes

FIELD STANDARD

	1st Inspection Per Cent	2nd Inspection Per Cent
Blackleg	2	1
Leaf roll, witches broom	2	1
Mosaic	2	1
Spindle tuber, giant hill	2	1
Yellow dwarf	0·5	0·5
Purple top	2	1
Wilts (fusarium or verticillium)	2	1
Foreign	1	0·1
Total virus diseases	3	2
Total—all diseases	5	3

No tolerance allowed for bacterial ring rot.

TUBER STANDARD

Tags shall be issued by an inspector only on the express understanding that the contents of each individual container conform to the following standard:—

	Per Cent
Wet rots	0·1
Late blight and dry rot	1
Common scab-rhizoctonia-silver scurf—	
Slight	10
Moderate	5
Necrosis, wilts, and internal discolorations, other than due to variety	4

Provided that the total does not exceed 5 per cent (except in the case of slight scab or rhizoctonia): and that not more than 2 per cent of the tubers are malformed, spindly, or badly damaged by sunburn, cuts, cracks, bruises, insects, etc.

No tolerance is allowed for foreign tubers, powdery scab, bacterial ring rot, or tubers damaged by frost.

SIZE OF TUBERS

Not more than 5 per cent by weight of the tubers shall be below 3 ounces (2¼ inches diameter) or above 12 ounces in the "Certified Seed" Grade. Shipments of this grade shall include a large percentage of 5 to 9 ounce tubers, unless other sizes are specified by the purchaser.

In the Certified Seed "Small" grade not more than 3 per cent by weight of the tubers shall be below 1½ ounces or above 3 ounces. Notwithstanding the sizes specified, viz., 1½ to 3 ounces for the "Small" seed grade, the official tag may be authorized for other small sizes for foreign trade specified by special contract, but the 3 per cent tolerance shall be maintained. The "Small" grade is suitable only for commercial table stock production.

CERTIFIED FOUNDATION SEED POTATOES

Every year some fields are recorded as free or practically free from virus diseases, and there are instances where disease-free seed has been maintained on the same farms for many years. Seed of such high quality should obviously serve as a source of foundation seed for Canadian commercial certified seed producers, to replace all seed showing signs of deterioration. In order to aid in the identification and distribution of seed that meets the high standards set for foundation seed, it is accorded special recognition by the issuance of an official tag that designates it as Certified Foundation Seed.

Growers in some commercial seed-growing areas find that the roguing necessary to maintain their seed stocks to certification standards increases each year, and eventually the seed contains the maximum of disease allowed by the standards and is unprofitable to plant. Such marginal seed is suitable for table-potato production, but should not be planted for certification. Certified seed producers should always secure foundation seed for planting, or should have a well-isolated seed plot planted with foundation seed by tuber units, to improve the quality of their own seed stock. This will materially assist in making certified seed growing less hazardous and at the same time improve productivity and decrease cost. By planting foundation seed the necessity of roguing the commercial field is largely avoided, for the chief value of such seed is the almost complete absence of weak, unproductive plants, virus diseases, and varietal mixtures.

Recommendations to Foundation Seed Growers

The seed planted must be selected from the very best foundation seed available and should be of uniform correct type. The seed should be treated before cutting and all tubers showing any form of internal discoloration discarded. The sets should be planted by tuber units, and as early as possible so that the plants will be well advanced before disease-spreading insects become abundant. The plot should be located in an isolated area well away from all other potatoes to lessen the danger of aphid infestation, and in an open space on fairly high and somewhat sloping ground to allow good air movements and air drainage around the plants. Growers should rogue their plots early in the season and then at regular intervals.

The "foundation" rating will not be granted for seed from any plot from which more than one per cent of the plants have been removed, or where insects or other pests have been sufficiently in evidence to warrant suspicion that diseases may have been introduced or spread during the growing season.

Standards for Certified Foundation Seed Potatoes

FIELD STANDARD

Not more than a total of 0·5 per cent of all diseases shall be allowed at the first inspection and not more than a total of 0·1 per cent of all diseases at the second inspection. No tolerance allowed for bacterial wilt and rot.

TUBER STANDARD

The tuber standard shall be the same as for ordinary certified seed.

SIZE OF TUBERS

The size of tubers shall be the same as for ordinary certified seed. No foundation seed tags shall be issued for "Small Size" potatoes below three ounces in weight. Small potatoes from foundation seed fields, however, may be disposed of in the Certified Seed—"Small" grade.

Certified Foundation Seed tags may be issued for seed from any field found to be within the standards set for foundation seed, provided that: (1) the field was planted by tuber units, except that tuber-unit planting shall not be required if the seed used came from stock that had been within foundation seed standards for five successive years, (2) table stock potatoes had not been grown during the season on the same farm, and (3) no adverse conditions that would probably cause serious deterioration were evident at the time of inspection.

Growers to whom foundation seed tags are issued should bear in mind that this service is rendered principally to make foundation seed available to Canadian certified seed growers. The welfare of the seed potato industry demands that sufficient foundation seed be kept for planting in Canada, and that only the surplus should be exported.

SEED SELECTION

Certified seed potatoes are not necessarily free from all diseases, for the production of disease-free potatoes is hardly possible under field conditions; but they are produced in well-kept fields of vigorous plants of which only a small percentage show signs of disease. Any certified seed can be planted with confidence for the production of potatoes for table use, but for the reproduction of certified seed special care should be taken to secure foundation seed from a field in which not more than a trace of disease was seen, or from a foundation seed plot.

There are many methods by which seed can be improved by selection, three of which are recommended to seed potato growers: tuber-indexing, tuber-unit plots, and hill-unit or hill-to-row plots.

Tuber-Indexing.—Medium to large good-type tubers are selected and numbered. An eye is removed from each tuber and is given the same number as that of the tuber from which it is taken (parent tuber). The eyes are then planted in a greenhouse during the winter season, and the plants from them critically examined as soon as they are large enough to show disease symptoms. If the plants show disease, the parent tubers are discarded. If, however, the plants appear healthy, the parent tubers are kept for planting by tuber units in a specially selected seed plot.

This practice serves as an excellent guide to the selection of foundation stock to be planted in the tuber-unit plots, but many seed potato growers

have not the necessary greenhouse space available. The other two methods, however, can readily be practised by all practical seed potato growers.

Tuber-unit Seed Plots.—This is a good method of controlling leaf roll, mosaic, spindle tuber, and other virus diseases at very little expense. Good type tubers are selected from seed stock that has been practically disease-free for several years. The tuber is cut into one and a half-ounce sets, which are planted about one foot apart. These sets make Tuber-Unit Number One. A double space is left, and the sets from a second tuber are planted to make Tuber-Unit Number Two. Another double space is left, and the planting carried out in this way until the plot is finished. The plot should be selected as far as possible from other potatoes. The soil should be good potato soil, well prepared, and the sets planted three to four inches deep in rows about three feet apart. Two bushels of seed potatoes, planted in tuber units, will furnish seed for approximately one acre.

The plot must be planted early in order that diseased plants can be removed before aphids appear. It should be well cultivated and thoroughly sprayed, special attention being given to the control of insects. Before each spraying the plot should be carefully inspected for diseases or mixtures. If any unit has one or more diseased plants, the whole unit must be immediately removed, care being taken to dig out the old set and any new tubers that have been produced. This roguing of diseased plants must be started when the plants are a few inches high, and must be repeated throughout the season. The crop should then be practically disease-free and suitable for seed production the following year. The best tubers from the plot should be retained for planting a tuber-unit plot the following year.

Hill-unit or Hill-to-the-Row Seed Plots.—Outstanding hills of potatoes from the best units of the tuber-unit plot are selected, and the tubers from the individual hills are put into separate bags. The tubers from each hill lot so selected are planted in consecutive tuber-units in one continuous row, the beginning and end of each completed hill-unit being marked with stakes. Seed stocks can be rapidly improved by this method, which combines tuber-unit planting and hill selection. There will be noticeable differences between the lots, either in size of plants, in yield, or in freedom from disease, and the crop from the best lot will usually suffice to produce a carlot of improved seed within three years.

Factors Essential to Successful Seed Potato Production

Soil.—Potato growers should practise crop rotation in order to maintain a proper balance amongst the mineral elements of the soil and to restrain the development of injurious fungous and insect pests.

The largest crops are produced in good shaly or gravelly loam. Sandy loam usually produces better quality and cleaner, brighter potatoes than the heavier soils, but good quality tubers can be produced on heavier soils if sufficient organic matter is maintained in the soil.

The humus content of the soil should be maintained by ploughing in well-rotted manure or green crops, preferably clovers, where possible. A clover sod ploughed deep and well worked will give excellent results. A good, deep, mellow seed-bed is essential for the production of good-type and high-quality potatoes.

Thorough seed-bed preparation kills weeds and many disease germs and aerates the soil. No amount of after tillage can compensate for neglect in preparation.

Potatoes should not be planted in old pasture or hay lands. White grubs, wireworms and other insects which inhabit such lands may cause serious damage to the crop.

The physical and mechanical conditions of the soil are as important as fertility, but potatoes need good rich soil for their best development. Fertilize freely.

Fresh stable manure, lime, wood ashes and sawdust should not be applied to land immediately preceding the planting of potatoes, because their alkaline nature promotes the development of common scab. Clean potatoes are mostly produced on slightly acid soils.

Potatoes should not be planted in fields known to produce powdery scab.

Drainage is a very important requisite; it should be present naturally or supplied artificially.

Seed.—Use large blocky seed pieces from good-type potatoes. The size of the seed piece should average not less than 1½ ounces each. To plant an acre with 1½ ounce sets, in rows 36 inches apart and 12-inch spacing between plants, requires 22·7 bushels of seed. On land well supplied with organic matter, an abundant supply of available plant food and moisture, this quantity of seed will usually prove a profitable investment.

In locations where loss occurs due to the rotting of cut seed pieces, such as for instance in early commercial plantings in cold damp soils, it may be preferable to plant small whole certified seed as the unbroken skin of the tuber provides some protection.

It is a good practice to sprout dormant potatoes before planting by spreading them out in the light in a warm sheltered location for a week or two. Tubers that show no signs of life and those that have thin spindly sprouts should be discarded. Firm, sound tubers that have just begun to sprout make far better seed than those that have been stored under too warm conditions and are soft, spongy or shrunken and that have sprouted considerably.

Seed potatoes should not be exposed to the sun too long when planting; many poor stands of plants have resulted from over-exposure and too much drying of the sets.

The seed plot should be well isolated from all other potatoes to guard against possible transmission of virus diseases.

It is best not to grow more than one or, at most, two varieties or strains of the same variety on one farm, and these should be grown in separate fields if at all possible.

Culture.—Use a good planter; it costs more to care for a poor stand than it does for a good one.

Practice good cultural methods; control weeds, diseases, and insects. Straight, evenly spaced rows are an aid to good cultivation. After the first cultivation, do not cultivate too close to the rows or too deep, or root pruning will result and may materially reduce the crop.

Germinating tubers will not push up out of the ground if the soil has been deeply worked and good cultural practices followed. Fall ploughing for potatoes ensures the decay of the sod and manure; it should be practised wherever possible, since it leaves the land warmer and in better condition at planting time.

Remove all diseased and weak plants as soon as they can be detected. Rogue early and often, taking out all suspicious-looking plants and all mixtures. All plants lifted should be put into sacks and carried out of the field to avoid shaking disease-carrying insects from them on to other plants. The old set and any new tubers must also be removed. Do not leave diseased plants in the field to contaminate the healthy ones. Carry them off and destroy them.

Sufficient and proper spraying with Bordeaux mixture to prevent blights, and with arsenicals to control leaf chewing insects, is a necessity where these

pests occur. Spray early and often and thoroughly; half spraying will not pay. Do not wait until blight appears before applying Bordeaux mixture. Do not neglect the late spray.

Dig and handle the crop carefully to prevent injury to the tubers. When digging, it is advisable to elevate a certain amount of soil in addition to the tubers, to act as a buffer for the potatoes and protect them from the moving parts of the machine. As a general rule, the digger should be operated slowly; there will be much less cutting and bruising of the tubers if this is done. An uninjured tuber seldom rots, the unbroken skin of the potato being the best protection.

Special care should be taken when digging potatoes not to leave the potatoes exposed to the sun longer than is necessary, especially during the heat of the day, or a serious breakdown may later develop in them from sunscald.

STORAGE FACTORS

The practical problem in the storage of seed potatoes is to prolong the life of the tubers and prevent heavy shrinkage and impairment of seed value. Seed tubers must be kept under ideal conditions for their full storage period; otherwise a loss in yield the following season is bound to result. The crop held represents capital, labour, and investment, and it should be carefully protected from all losses due to unsatisfactory storage conditions.

The successful storage of seed potatoes is dependent upon several factors, chief of which are freedom of the tubers from diseases and mechanical injury; size of the pile; temperature; humidity; aeration; and protection from frost. It is important to start with sound, healthy tubers that are dry and practically free of soil. All skinned and wounded areas should be allowed to cork over before the average storage temperature gets below 48 to 50 degrees F.

A good storage house must be frost proof and well insulated to afford protection against cold and heat. In northern districts, provision should be made for heating during very severe weather. All storage bins should be equipped with false floors with boards one inch apart and six inches above the main floor. The bins should be double-walled to permit air circulation around and over the tubers. Not more than six hundred bushels should be stored in any one bin. In the case of large bins, ventilators one foot square and long enough to reach from the bottom to the top of the pile should be provided; these can be made cheaply from wooden slats. No potatoes should be further than five or six feet from a good supply of air. Potatoes in deep piles should be carefully watched for signs of sweating as the temperature rises in spring.

The storage cellar should be kept clean. Losses are frequently caused by rots that result from putting potatoes in dirty and unsanitary bins. The storage should be so constructed as to make it easy to clean out all refuse. Before putting in new tubers, the floor, walls, and all bins should be thoroughly disinfected by whitewashing or by a copper sulphate solution, one pound to ten gallons of water. Unless this is done the fungi and bacteria which cause tuber rots may affect the stored potatoes.

Temperature.—For long-period storage, seed potatoes require a storage temperature of 38 to 40 degrees F., but it is not necessary to hold them at this temperature when first dug. Somewhat higher temperatures during October and November are not harmful for healthy tubers, and injuries will cork over much more quickly at 50° F. From December on, 38° to 40° F. is the correct storage temperature, and sound seed potatoes so stored will safely keep for six or seven months without sprouting or loss from rots and moulds.

Respiration.—There are two periods during storage when respiration may become of practical importance. One of these is immediately after digging and the other a period of several days following a sudden rise in the storage temperature. To prevent sweating, special attention should be given to the

ventilation of potatoes handled in large bulk immediately after digging, and also after sudden rises in temperature following a period of steady cool storage. The lower the storage temperature, the higher the initial rate of respiration at a sudden higher temperature. Avoid sudden rises and falls in storage temperature.

Ventilation.—All possible air circulation to take off excess moisture should be provided in the early fall by keeping ventilators and doors open until such time as there is danger of freezing. On warm days doors should be closed, and opened only at night when the air is cooler. The amount of ventilation required is that which will keep the potatoes dry. When there is danger of freezing at night, the doors should be opened only during the day. When the steady cold weather sets in, all ventilators and doors should be closed and sufficiently protected to prevent freezing. Respiration of potatoes is very low during the steady cold weather, and further aeration is usually unnecessary until warmer spring weather sets in.

Humidity.—The humidity of the storage will probably vary considerably during the winter, but these changes do not appear harmful to the potato. Such variations as occur in ordinary winter weather may be disregarded. Conditions, however, which cause drying out of the potatoes should be avoided. Dirt floors are preferable owing to their effect upon the humidity of the storage. A relative humidity around 85 per cent is considered the best, but it may vary between 65 per cent and 95 per cent without apparent injury. Humidities lower than 65 per cent should be avoided. Controlling the humidity content of the air during storage is apparently of minor importance in most farm storages.

Temperature, humidity, and aeration are inter-related. The amount of moisture given off by the tubers depends upon their temperature. As the temperature increases, the respiration and transpiration increase and the oxygen requirements are greater. Ventilation supplies air, the necessary oxygen, and regulates the temperature and the humidity.

CERTIFIED SEED POTATO EYES

Certified seed potato eyes can be shipped by mail or air mail into outlying districts not readily accessible by freight or express. When planted under favourable conditions they give profitable crops from which good potato stock for the following year's planting can be selected.

To safeguard the interests of the purchasers, the following regulations have been established to govern the distribution of seed potato eyes:—

Stock from which potato eyes are cut.—Potatoes from which eyes are cut must be from stock that passed field and tuber inspections, according to the standards set by the Dominion Certified Seed Potato Service. The identity of the stock used must be established to the satisfaction of an inspector.

Eye sets of uniform size and of attractive appearance can be cut from tubers with a potato baller.

Size of potato eye sets.—The weight of 35 eye sets must not be below one pound in weight when packed.

Treatment of potato eyes.—Potato eyes that are to be stored for any length of time should be first kept for one week at 75° F. to facilitate cork formation, and then stored at a temperature of around 40° F. until they are shipped. If the eyes are to be shipped soon after being cut, they must be treated, immediately after cutting, to prevent drying out. This can be done by dusting them thoroughly with finely ground limestone or magnesium limestone, or by waxing the cut surfaces.

Condition of potato eyes when shipped.—Certified seed potato eyes must be free from any damage caused by bacteria, fungi, or insect pests readily recognizable at time of shipment. Every package must be examined by the shipper on the day of shipment. The shipper shall be responsible for the removal of all defective or diseased sets.

Containers.—The eyes must be shipped in a waxed cardboard carton, or in a cardboard carton wrapped with heavy waxed kraft paper, as a further precaution against drying out of the eyes. To each container must be affixed a label giving the following information:—

(*a*) Certification number,

(*b*) Variety,

(*c*) Date of packing,

(*d*) Name and address of shipper.

Planting instructions must be included in each package.

Inspection.—Inspections will be made at any time during the shipping season and the shipper will be required to destroy or recondition, at the discretion of the inspector, any stock that is found to be unsatisfactory. In view of the small size of the sets a very critical examination will be given to ensure, as far as possible, that they are suitable for planting.

List of Inspectors

Ottawa—Chief Inspector, Plant Protection Division, Production Service, Dominion Department of Agriculture, Ottawa.

Prince Edward Island—District Inspector, Dominion Laboratory of Plant Pathology, Charlottetown, P.E.I.

Nova Scotia—District Inspector, Dominion Laboratory of Plant Pathology, Kentville, N.S.

New Brunswick—District Inspector, Seed Potato Certification, Customs Building, Fredericton, N.B.

Province of Quebec—District Inspector, Seed Potato Certification, Post Office Building, Ste. Anne de la Pocatière, P.Q.

Ontario (Except for Thunder Bay, Rainy River and Kenora districts)—District Inspector, Seed Potato Certification, % Horticultural Department, Ontario Agricultural College, Guelph, Ont.

Manitoba and Thunder Bay, Rainy River and Kenora districts, Ont.—District Inspector, Plant Inspection Office, 722 Dominion Public Building, Winnipeg, Manitoba.

Saskatchewan and Alberta—District Inspector, Seed Potato Certification, 423 Post Office Building, Edmonton, Alberta.

British Columbia—District Inspector, Seed Potato Certification, Plant Inspection Office, 514 Federal Building, Vancouver, B.C.

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Plant Protection Division.

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