
Oregon Agricultural College Extension Service

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Seed Potato Certification for 1924

By

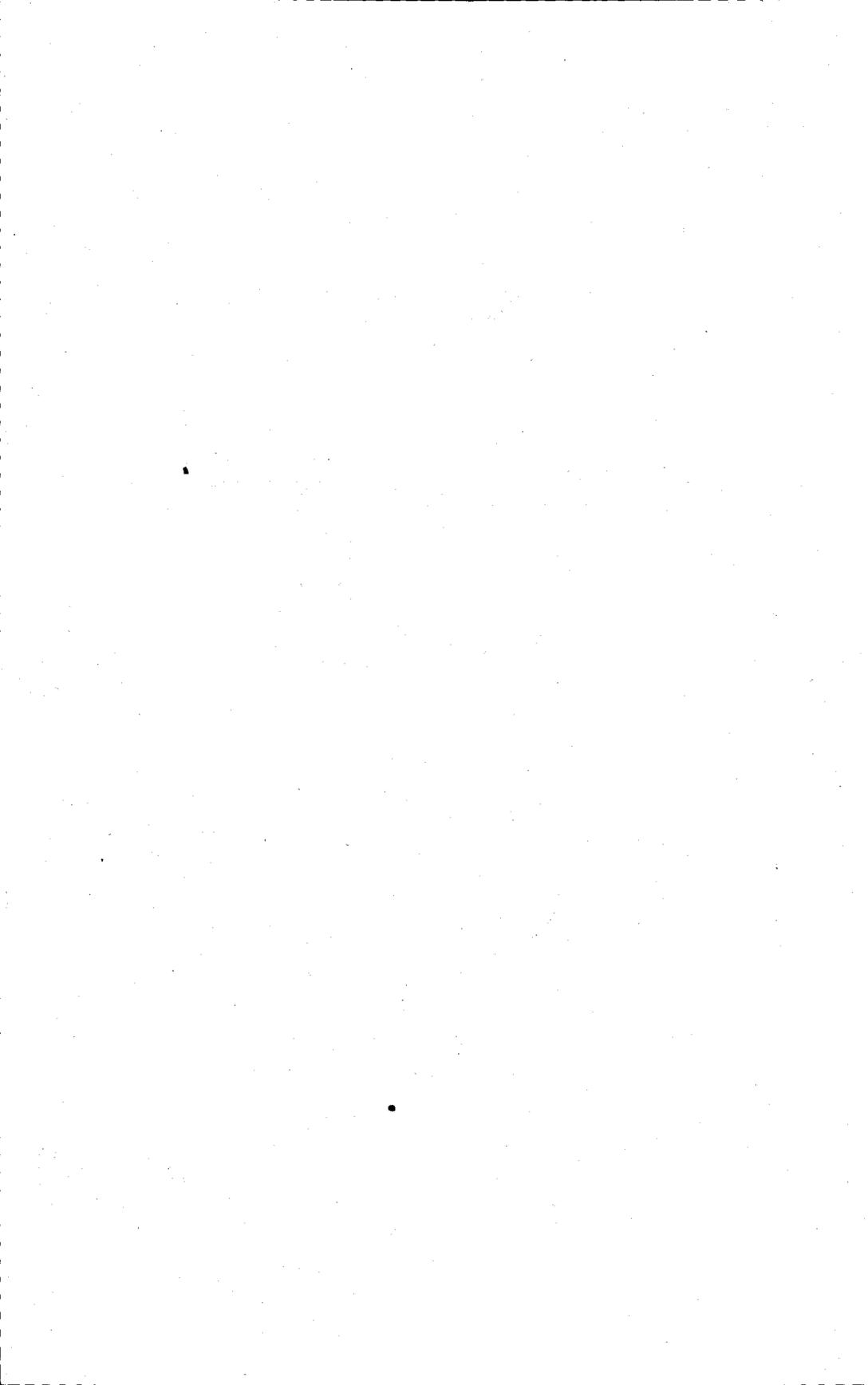
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CORVALLIS, OREGON

The bulletins of the Oregon Agricultural College are free to residents of Oregon who request them.



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Potato seed certification work is carried on by the Extension Service of the Oregon Agricultural College. The purpose of the work is two-fold: (1) to carry on educational work in all phases of potato growing and seed improvement; (2) to provide a reliable source of superior seed for use of Oregon growers and for export purposes. Seed potatoes meeting the requirements for certification commonly sell for from \$10.00 to \$20.00 per ton more than table stock.

Basis of finance. Potato certification is primarily educational work; therefore, all expenses incidental to the purely educational part of the work are borne by the Extension Service. County agents are in charge of the work in their counties and in every way possible assist growers who wish to grow certified seed. In addition, they hold field meetings and potato tours to familiarize all potato growers with the importance of good seed and how to produce it by proper rotation, roguing out diseased plants, hill selecting, and proper cultural methods.

Comparatively few growers produce certified seed. Three trips must be made to the farms of those who do produce it. This cost is considerable, and in view of the fact that these growers usually receive a premium for the seed they sell, there is a reasonable fee to help pay part of these expenses.

Need for seed improvement. Oregon uses annually from 400,000 to 500,000 bushels of seed potatoes. Of this amount, usually not more than 15,000 bushels are of sufficient quality to pass as certified seed. Probably not more than 50,000 bushels are good enough to be classed as standard seed.

Every year many growers buy seed which is represented to them as good seed only to find that it produces more diseased plants than it does healthy ones. Many people are using diseased seed, not aware that their yields are reduced on that account to the point where there is little or no profit in the crop, except in occasional years of very high prices. It is impossible to make money from potatoes when poor seed is used year after year.

Seed inspection work. Following a widespread demand for seed inspection, this work was started by the Extension Service in 1919. In 1920, 280 acres were entered for inspection by 80 growers. Last year (1923), 223 growers entered 1367 acres.

The standards for certified seed are very high, and few people succeed in meeting them. A new classification has therefore been established called "Oregon Standard Seed."

This will be seed of much better quality than the average of that on the market but not as good as certified seed.

RULES AND REGULATIONS

(1) **Entrance requirements.** Any grower, responsible company, or bonafide association of Oregon having seed potatoes of a desirable variety may enter fields for inspection.

(2) **Minimum and maximum acreages.** There shall be no acreage limitations for entrance requirements. Growers having less than an acre may enter if other conditions are met.

(3) **County limitation.** Before certification work will be conducted in a county, applications must be presented covering a total of not less than ten growers or not less than twenty acres. This county limitation is necessary because of the high expense of visiting one or two individual growers in a county.

(4) **Application.** Fields may be entered for inspection by turning in an application blank. These blanks may be secured from the county agent in each county and are turned in through his office. Counties without agents may secure blanks from the Extension Service, Oregon Agricultural College, Corvallis, Oregon, the signed blanks being returned directly to the Extension Service.

(5) **Fees.** A fee of six cents a sack is charged for all potatoes passing as either certified or standard seed. This will include the cost of printing the tags which will be furnished by the Extension Service.

(6) **Boys' and Girls' Club members.** Members of boys' and girls' clubs when growing less than one acre of potatoes under regular project supervision, will be exempted from all fees except the cost of tags. If more than one acre is grown the regular fee will be charged.

(7) **Tags.** All certified and standard seed potatoes should be labeled with their respective tags bearing the name of the inspecting agency, the grower's name, postoffice address, the year the crop was grown, and the variety of the potatoes. Tags are printed and furnished by the Extension Service in quantities agreed upon by the grower and the inspector. When potatoes have been grown for a seed company or are to be marketed through an association and have met the respective requirements of certified or standard seed potatoes they may be so certified and labeled in the name of the company or association when agreed upon by persons interested.

(8) **Field inspections.** Growers are urged to join the inspector at the time fields are being examined. Weak, diseased, and off-type vines are pointed out. The grower is instructed to dig these plants and remove them from the field at once. Many potato diseases spread from plant to plant, and unless roguing is done promptly, the disease may spread extensively in the field. Failure on the part of the grower to rogue in the manner, and at the time directed will result in the rejection of the field for certification.

(9) **Sorting for bin inspection.** The grower must sort the potatoes before bin inspection. All potatoes of other varieties and any that are rotten, cut, stabbed, bruised, or otherwise mechanically injured, those

that are pointed at the end, bottlenecked, rough, or otherwise not symmetrical, and those weighing less than two ounces and more than twelve ounces must be sorted out before they can be certified. In addition to this sorting which is required in connection with the inspection for certified or standard seed the grower must see that the grades are in accord with the state laws for grading and marketing potatoes.

(10) **Method of inspection.** Usually potatoes are inspected twice in the field and once in the bin. The first field inspection, made about blossoming time, indicates to the inspector the presence of varietal mixture and disease that appears early in the season. The grower at this time is expected to provide the inspector with information as to planting, handling of soil, and other items desired.

If a field is inspected and rejected it is eliminated so far as certified or standard seed is concerned. By special request such fields are sometimes again visited to give growers information about roguing or hill selecting.

The second field inspection is made shortly before the vines ripen. Late developing diseases are then noted.

The bin inspection is made preferably not less than one month after harvest to determine upon the presence of disease and insect pests, trueness to varietal type, and accuracy of sorting to meet certification requirements.

WHAT THE GROWER SHOULD DO TO CERTIFY

Land. He should use new ground or land that has not been in potatoes for at least four years. Preferably, on old land, the potatoes should follow a legume or grass meadow crop. It is useless to attempt certification on land that has recently been in potatoes.

Seed. Preferably certified seed should be used. Very shallow eyed seed should be avoided as well as that which is markedly off type. Spindling tubers or those with pointed ends are often the result of diseased plants. Exceptionally rough potatoes are not considered to be good seed. The practice of planting only small potatoes is very objectionable as some of the virus diseases tend to produce nothing but small potatoes and this practice will inevitably lead to a higher percentage of these diseases in the growing crop. It is impossible to produce certified seed from seed which is badly diseased. Those wishing to build up good strains of potatoes will save time and money by starting with the best seed they can find.

Seed treatment. All seed should be given the corrosive sublimate treatment described in Oregon Agricultural College Experiment Station Circulars 24 and 25.

Blossom-end seed pieces best. When in doubt about the presence of wilt, blossom-end pieces, which often have less of that disease, should be planted by themselves.

Remove sick or diseased plants. When any plant in the field appears diseased, dwarfed, or otherwise unhealthy, it should be immediately dug out and removed from the field *regardless of whether an inspector has been there or not.*

Wilted plants. Any plant showing evidence of wilt should be dug out of the field. In plain cases of wilt, the plants on each side of the diseased plant should also be dug. This disease spreads through the soil and is almost sure to infect the two neighboring plants, especially if they are closer than two feet.

Sort at digging time. At the time of digging, all tubers that are rotting, damaged, cut, off-type, misshapen, non-symmetrical, or otherwise unsound, and those weighing less than two ounces or more than twelve ounces should be rigidly sorted out.

STANDARDS FOR OREGON CERTIFIED SEED

All potatoes certified by the Extension Service shall, in the judgment of the Inspector or the Potato Certification Board, conform to the following standards:

(1) **Varietal purity.** Seed stock containing a mixture with other varieties shall not be eligible for certification unless the hills representing such mixture are dug out or are staked at blossoming time, or some other time when they may be easily distinguished and removed by the grower prior to the harvesting of the crop. The presence of five percent of mixture at the time of any field inspection will disqualify for certification.

(2) **Variety classification.** Potatoes shall be named by their group name, with the exception of certain well marked varieties.

(3) **Type, condition, and appearance.** All potatoes must conform to variety type and shall be reasonably uniform, symmetrical, and free from cuts, stabs, bruises, and similar blemishes.

(4) **Size.** Two ounces shall be the minimum and twelve ounces the maximum size. Small potatoes frequently carry a high percentage of disease and excessively large potatoes are not liked for seed by buyers. The Certification Board believes that any further distinction in size should be a matter of agreement between the buyer and seller.

(5) **Cultural conditions.** Fields shall not be accepted for certification if they are so weedy or the vines so injured by insects, over-irrigation, or other factors that satisfactory inspection is made difficult. Extremely poor soil conditions, uneven or weak stands, and similar factors may disqualify.

(6) **Planting near other potatoes.** Fields of potatoes grown within 200 feet of other lots of unrogued potatoes containing serious infection with mosaic or other virus diseases will be disqualified.

Freedom from disease and insect pests. The amounts of disease indicated below under A and B will disqualify seed stock for certification.

A. VINE DISEASES—FIELD INSPECTION

1. Five percent of weak hills or of plants showing curly dwarf, leaf roll, mosaic, spindle sprout, spindle tuber, streak or other virus diseases, either singly or in combination.
2. Five percent of the plants affected by blackleg, wilt or other diseases or abnormal conditions resulting in the premature ripening or death of the plants or the internal discoloration of the stem.
3. Ten percent of the plants affected by a combination of any of the above-mentioned diseases.
4. A majority of the plants showing a serious infection of late blight.
5. An amount of heavy Rhizoctonia infection sufficient in the judgment of the inspector to be considered serious.

In order that fields having less than the above-stated amounts of disease may be eligible for the next inspection, the grower must remove all weak or diseased plants except those attacked by late blight.

Every year many growers fail to have their potatoes pass the bin inspection through failure to rogue after the second field inspection.

Growers should not wait for the arrival of the inspector before roguing their fields. This should be done early in the season and as often as time will permit.

The most successful growers of certified seed rogue their fields four to eight times during the season.

B. TUBER DISEASES—BIN INSPECTION

1. More than 11 percent vascular or internal discoloration, except that due to frost necrosis.
2. Wart, eel worms, and larvae of the potato tuber moth in any amount.
3. Serious infection with Rhizoctonia (Black scurf) and common scab. A small amount of light infection with these diseases will not disqualify.
4. All bin rots shall be removed and the potatoes shall be practically free from late blight.

RULES FOR OREGON STANDARD SEED

The same rules for growing, roguing, etc., apply to standard seed as to certified seed. It is not necessary for the grower to enter a field especially for certified or standard seed. It is entered for inspection and the inspector will classify it as certified or standard, or will reject it as seed of not sufficient merit to fall within either of these classes.

Except as mentioned below, the same rules shall govern standard as have been given for certified seed.

Disease limits for Oregon standard seed. Fields falling within this class shall be vigorous and shall show uniformity in growth and stand. At any field inspection there shall be not to exceed fifteen percent of mild mosaic, and not to exceed twenty percent of all virus diseases of which not over five percent may consist of the more extreme forms of virus diseases as mosaic, curly dwarf, leaf roll, or spindle tuber, either singly or in combination.

Not to exceed eight percent of the plants shall be affected by blackleg, wilt, or other diseases or abnormal conditions resulting in the premature ripening or death of the plant or the internal discoloration of the stem.

More than sixteen percent of stem end discoloration at the time of the bin inspection shall disqualify.

