

STATE OF ALASKA

POTATO SEED CERTIFICATION HANDBOOK

2014

Updated from 2011

Department of Natural Resources

Division of Agriculture

1800 Glenn Highway, Suite 12

Palmer, AK 9964

907-745-7200

TABLE OF CONTENTS

A.	BACKGROUND	3
B.	AUTHORITY AND PURPOSE FOR CERTIFICATION OF POTATO SEED	4
1.	Authority.....	4
2.	Purpose	4
C.	ALASKA DIVISION OF AGRICULTURE RESPONSIBILITIES.....	4-5
1.	The Plant Material Center.....	4
2.	The Inspection Section.....	5
D.	CERTIFICATION RULES & REGULATIONS	5-16
1.	Applications	5-6
2.	Certification Fees.....	6
3.	Seed Stock Eligibility	6-7
4.	Varietal Eligibility	7
5.	Field Management.....	8-9
6.	Sanitation.....	9
7.	Equipment Management	9
8.	Storage.....	10
9.	Inspection	10
a.	Inspection Procedures.....	10
b.	Field Inspection.....	11-12
c.	Storage Inspection	12
d.	Grading Inspection	12
e.	Appeal Procedures	13

10.	Labeling	13
11.	Disease Tolerances.....	14-15
12.	Certified Potato Seed Crop Directory	15
13.	Emergency Clause	15
14.	Disclaimer of Warranty.....	15-16
E.	APPENDICES	17-19
1.	Limited Generation System	17
2.	Definitions.....	18-19

A. BACKGROUND

Effective January 1, 2014, The State of Alaska, Department of Natural Resources (DNR), Division of Agriculture has resumed responsibility for the Alaska Certified Seed Potato Program. The Alaska Seed Growers, Inc. (ASGI) voted to terminate the MOU between DNR and ASGI at their annual meeting held in February of 2013, effective December 31, 2013. The Alaska Division of Agriculture intends on adopting standards through the regulation process. Until the new regulations are adopted, the Alaska Division of Agriculture will follow the version that was adopted in 2011 by the ASGI and DNR. This 2014 handbook has been updated to reflect the changes in responsibility as well as changes needed in order for the Alaska Division of Agriculture to manage the Alaska Certified Seed Potato Program.

B. AUTHORITY AND PURPOSE FOR CERTIFICATION OF POTATO SEED

1. Inasmuch as the Department of Natural Resources for the State of Alaska has the legislative authority to control the movement of seeds and other plant propagative arts into and within the State of Alaska (AS 03.05.010 and 03.05.030); and Inasmuch as the objective of the Division of Agriculture of the Department of Natural Resources is to promote the orderly development of agriculture in this state through various means including the promotion of top quality seed.

2. The purpose of the potato seed certification program shall be to provide for the acquisition, maintenance, and increase of top quality, disease-tested propagating material of varieties requested by growers in Alaska. Participating state agencies are expected to facilitate this process by utilizing the best techniques and procedures available for testing, increasing and distributing parent material. To this same end, participating growers voluntarily agree to observe certification rules and regulations. Adherence to the rules and regulations of certification will contribute to the stability and health of the potato industry.

C. AGENCY RESPONSIBILITIES

The Certification Program is a service of the Department of Natural Resources, Division of Agriculture and is divided into two areas; the Plant Material Center and the Inspection Section.

The Plant Material Center is responsible for:

- Acquiring or producing disease-tested parent material of appropriate potato varieties as needed,
- Conducting rapid seed increase of parent material via nodal cutting or similar procedure,
- Annually producing, harvesting and storing in a controlled environment G-0 tuber crop,
- Establishing procedures for and distribution of G-0 and G-1 seed and
- Maintaining appropriate records.

The Inspection Section is responsible for:

- Making available application forms,
- Assigning lot numbers annually,
- Determining acceptability of applications received and eligibility of seed for which certification is requested,
- Conducting field and storage inspections and furnish results of inspections,
- Collecting certification fees,
- Printing and issuing official certification tag,
- Publishing the directory of certified seed potato growers,
- Conducting grade and shipping inspections when requested and
- Maintaining appropriate records.

D. CERTIFICATION RULES AND REGULATIONS

I. APPLICATIONS:

- a. By applying for certification, potato seed growers are granting access by state inspectors or their designees to certifiable fields and seed storage facilities. The farmer assumes no liability by granting such access.
- b. Application forms are available from the Alaska Division of Agriculture. Information and assistance relating to completion of application forms will be provided by the Alaska Division of Agriculture upon request.
- c. Completed applications must be returned to the Alaska Division of Agriculture on or before June 15. Fees are due at the time of application. Make checks payable to State of Alaska. Applicants not meeting the June 15 deadline, will be assessed a nonrefundable penalty of \$50.00. Fees are due at the time of application. Make checks payable to State of Alaska.
- d. The Alaska Division of Agriculture reserves the right to accept or reject certification applications. Applications may be rejected for the following reasons:

- 1) Unacceptable lots. (See 3. Seed stock Eligibility and 4. Varietal eligibility).
- 2) Nonpayment of fees. Fees are due at the time of application.
- 3) Incomplete or imprecise farm maps. Farm maps showing the location and dimensions of seed lot (including variety name and generation) must accompany applications.
- 4) Incomplete or improperly completed applications.

2. CERTIFICATION FEES:

- a. Fees are due at the time of application. Make checks payable to the State of Alaska.
- b. Fees are computed as follows: \$30 for the first acre or part thereof; plus \$5 per lot; plus \$20 per acre on total remaining acres. A maximum of \$400 will be charged to any one farm.
- c. With respect to fees, "EXPERIMENTAL" varieties will be assessed at the same rate.
- d. Fifteen dollars' worth of tags (calculated at \$.10 per tag) will be supplied without additional charge, for each certified acre. Additional tags will be paid for by the grower at the rate of \$.10 per tag.
- e. Fees will be refunded in full for any lot withdrawn prior to the first inspection.
- f. Ten dollars per acre will be refunded for lots withdrawn after the first inspection but prior to the second inspection.
- g. No refunds after the second inspection.

3. SEED STOCK ELIGIBILITY:

- a. All seed stocks entered for certification must meet the eligibility standards contained in these regulations.
- b. Alaska grown seed stocks are eligible for entry into the certification system if they meet the limited generation system requirements and have passed the previous year's field, bin and grading inspections.
- c. Out-of-state grown certified seed stocks are eligible for entry into the Alaska certification system if they meet the limited generation

requirements and have passed field and bin inspections with tolerance limits for disease and defects equal to or better than those found in this publication.

Please Note: Alaska is currently believed to be free from several diseases and pests common in other potato growing areas. The importation of seed potatoes carries the potential of introducing serious problems and is discouraged.

4. VARIETAL ELIGIBILITY:

- a. A variety is eligible for certification if the following information is available:
 - 1) Evidence of performance, including yield data, disease resistance or other factors supporting the identity of the variety.
 - 2) A statement of origin.
 - 3) A description of morphological characteristics.
 - 4) Written permission for use, if exclusive rights to the variety are possessed by some firm or individual other than the applicant.
- b. Experimental varieties:
 - 1) Seed lots of varieties or lines not eligible for certification by the criteria listed in a. 1-3 above may be accorded inspection under the standards and criteria enumerated in this publication, and similar fees paid. If the seed meets Alaska Potato Seed Certification standards, compliance may be indicated by tagging the seed with official tags, but bearing the designation "EXPERIMENTAL VARIETY".
 - 2) Special consideration will be given to seed with no or limited description. The visual inspection of such seed carries risk. The symptom expression of potentially diseased plants is unknown. A description of the varieties will be developed as information is collected.

5. FIELD MANAGEMENT:

a. Failure to comply with field management criteria will result in downgrading or disqualification, whichever is appropriate.

b. Isolation:

1) In the field, there shall be a physical separation of at least 50 feet between plots of certified seed grown for sale and potatoes not entered for certification.

2) There should be a physical separation of at least 10 feet between lots of certified seed grown for sale.

3) There should be a physical separation of at least 10 feet between plots of certified seed potatoes grown for home use and plots of potatoes not entered for certification.

c. Field history requirements:

Last Year Spuds	To grow for 2014	
2008	5 years out	G1
2009	4 years out	G2
2010	3 years out	G3
2011/2012	2 years out	G4 - G8
2011/2012	1 year out	G4 - G8
2013	0 years out	Not Eligible

d. Roguing:

It is recommended that roguing begin as early, and be done as often, as circumstances dictate. Rogued plants are to be removed from the field in total (vines, seed pieces and newly formed tubers) and be buried or destroyed. Any lot that has been rogued in excess of 5% will be disqualified from certification, except that roguing in excess of 5% for varietal mix may be allowed with prior approval from the inspector.

6. SANITATION:

Seed growers are advised and encouraged to carefully clean and disinfect storage areas, storage containers, all machinery, equipment, and tools used in their seed-growing operation.

7. EQUIPMENT MANAGEMENT:

- a. Equipment used for production (planting, harvesting, grading, etc.) of certified seed grown for sale may not be used for the production of potatoes not submitted for certification. Used equipment purchased for the purpose of seed production must be thoroughly cleaned and disinfected, prior to its first use for seed production
- b. Equipment used for planting, harvesting, grading, or handling of certified seed lots grown for home use (home use indicates certified seed is to be utilized on the same farm upon which it was produced) may be used for non-certified potatoes, providing the equipment is thoroughly cleaned and disinfected prior to use on certified seed lots. Cleaning and disinfection in this case will be the responsibility of the grower. Seed lots designated as "home use" cannot be returned to "seed for sale".
- c. Planting, harvesting, grading and handling equipment used for more than one lot of seed shall be thoroughly cleaned and disinfected between lots.
- d. Exchange or sharing of equipment among growers is discouraged.

8. STORAGE:

- a. Certified seed potatoes grown for sale may be neither kept nor graded in a storage containing potatoes not entered for certification. If two or more storages are combined in one structure, they must have separate entries and must be separated by a permanent solid wall with no connecting passage ways (ventilation, heating, cooling, etc.).
- b. Certified seed potatoes grown for home use may be kept in storage with non-certified potatoes, provided a tight wall (a barrier that will prevent the passage of potato tubers, tuber parts, and adherent debris) separates certified from non-certified potatoes.
- c. Different lots may be stored in the same storage; however, they must be separated from one another by tight walls.
- d. All stored lots shall be clearly labeled by variety and lot number.
- e. Any evidence of contamination or co-mingling of lots is cause for rejection.

9. INSPECTIONS:

- a. Inspection Procedures
 - 1) Whenever possible, inspector shall inform seed grower at least one day prior to field inspections.
 - 2) Field inspectors will utilize either disposable footwear, or footwear that will be disinfected before and after each inspection.
 - 3) Inspector shall contact growers and arrange for pre-grading storage inspection. Inspectors will sterilize footwear, and any tools or utensils used, before and after storage inspection.
 - 4) Seed growers shall contact inspectors and arrange for grading inspections. Inspectors will sterilize footwear, and any tools or utensils used, before and after the grading inspection.

b. Field Inspection

- 1) At minimum of two field inspections shall be made each growing season. Additional inspections may be made if necessary. Whenever possible, inspectors will inform growers at least one day prior to field inspections.
- 2) Inspections shall be performed by walking through the fields in a predetermined, prescribed manner, and visually examining the plants.
- 3) Disease percentages shall be derived from actual plant counts in the field, as follows:
 - a) First and second inspections - at least 100 plants per lot and 100 plants per acre shall be counted.
 - b) Additional inspections may consist of a visual survey if plant counts are not deemed necessary.
- 4) All disease diagnosis shall consist of a visual examination and/or lab test as deemed necessary. In the case of Bacterial Ring Rot caused by *Clavibacter sepedonicum*, a visual diagnosis must be confirmed by a gram stain, serology or other appropriate test.
- 5) Inspecting officials may refuse to inspect a field for any of the following reasons:
 - a) Recent application of hazardous chemicals that may present a health hazard to the inspector.
 - b) Extensive chemical damage which seriously injures or impairs growth of the plants and causes unsatisfactory conditions for inspection.
 - c) Excessive amounts of weeds.
 - d) Any other condition which precludes or unreasonably limits inspection.
- 6) Confirmed identification of Bacterial Ring Rot on any seed farm is grounds for rejection of all certified seed lots grown on that farm. The diagnosis of Bacterial Ring Rot shall disqualify the farm upon

which it is found from certified seed production until proof that adequate steps have been taken to assure that:

- a) All potatoes on that farm have been disposed of through sale or discard.
- b) All equipment and other surfaces that come in contact with potatoes have been thoroughly disinfected; and
- c) Seed potatoes eligible for certification have been obtained by the grower.

c. Storage Inspection

- 1) Inspectors shall contact growers to schedule storage inspections.
- 2) Two storage inspections will be conducted annually.
 - a) Pre-harvest inspection is to insure sanitation of storage.
 - b) Post-harvest, pre-grading inspection is to insure proper storage practices are being followed (see E 8, Storage). Improper or inadequate binning shall be grounds for rejection of certification.

d. Grading Inspection

- 1) All certified seed is subject to inspection at the time of grading.
- 2) All certified seed potatoes, except contract grade, grown and certified in Alaska shall meet the requirements of U.S. No. 1 Seed Potatoes at point of origin. Contract Grade shall consist of potatoes that meet all the requirements of grade and condition established by a buyer-seller agreement. A copy of the U.S. No. 1 Seed Potato Standards may be obtained at the Alaska Division of Agriculture.
- 3) Seed potatoes shall not be washed.
- 4) Bulk containers shall be thoroughly cleansed and sterilized prior to use. Other containers (sacks, boxes, etc.) shall be new.
- 5) Confirmed identification of Bacterial Ring Rot during grading inspections, is grounds for rejection of all lots grown on that farm.

- e. Appeal Procedure
 - 1) Growers disagreeing with an inspection decision at any point may appeal that decision.
 - 2) The grower must file a letter of appeal within 5 business days of receiving the decision. A signed letter of appeal must be forwarded to the Director of the Division of Agriculture. Email letters of appeal are acceptable as long as the sender is clearly identifiable. A final decision by the Director will be determined 10 business days after receipt of the appeal.
 - 3) If a person is aggrieved by a decision of the Director and is otherwise eligible to seek the commissioner's review of the decision, the person may appeal to the commissioner.

10. LABELING:

- a. All sacked lots shall be labeled with the grower's name, address, net weight, state or origin and variety.
- b. All sacks or master containers shall have attached a certification tag issued by the Alaska Division of Agriculture. Master containers shall not exceed 105 lbs. gross weight.
- c. Bulk bins shall have the label and a certification tag attached to shipping certificate for lot or load.
- d. A label and certification tag shall accompany each bulk load and invoice.
- e. Grade certificates may be issued by the Alaska Division of Agriculture at point of origin when requested.
- f. Tags will not be issued to "home use" seed growers, as home use seed is not produced for sale. See Section 13, Emergency Clause, for exception.

11. DISEASE TOLERANCES (PERCENTAGES) AT FINAL FIELD INSPECTION: Potato Wart, Golden Nematode or Root-knot Nematode are not known to occur in Alaska.

	G-1	G-2	G-3	G-4	G-5, 6, 7 & 8
Spindle Tuber (PSTV)	0				
Bacterial Ring Rot (BRR)	0				
Leafroll (PLRV)	0	0.1	0.1	0.1	0.1
Rugose Mosaic (PVY)	0	0.1	0.1	0.1	0.1
Mild Mosaic (Visible PVX)	0.0	0.1	0.2	0.2	0.2
Blackleg	0.0	1.0	1.0	2.0	2.0
Rhizoctonia	0.5	1.0	1.0	1.0	2.0
Varietal Mixture	0.0	0.0	0.0	0.1	0.1
Latent PVX * Alaska Standard	0.5	1.0	3.0	6.0	6.0
Required for U.S. Export Standards G1 and G2	0	0.4			
Minimum Plant Sample	250 lvs or 1%	250/10A	NA	NA	NA

* At grower request, plants will be sampled and tested for PVX. Only lots testing within tolerance will be designated "PVX Tested".

The detection of any insect, nematode, disease or disorder not common to potatoes in Alaska or which is of phytosanitary concern is cause for rejection or down-grading.

12. CERTIFIED POTATO SEED CROP DIRECTORY:

A directory of certified potato seed growers will be published and made available annually, by the Alaska Division of Agriculture. The directory will list growers, varieties and acreages and will include a report of disease levels (Blackleg, Rhizoctonia and total viruses) in each grower's fields. Only seed lots meeting minimum certification requirements, up to that point, will be listed. However, final certification status will not be assigned until bin and grade inspections are complete.

13. EMERGENCY CLAUSE:

In the event that supplies of For sale seed fall short of demand, a certified seed potato emergency may be declared by the Director of the Alaska Division of Agriculture, in which case, producers of home use seed may request permission to sell seed potatoes. In order to qualify as a seller of home use seed, a home use seed grower must have passed all field, bin, and grading inspections, and must have conformed to the home use production and storage recommendations in this document. Qualifying seed will be labeled Generation 6 (G-6).

14. DISCLAIMER OF WARRANTY:

Certified seed potatoes have been subjected to field and bin inspections pursuant to the Rules and Regulations prepared by the Alaska Seed Growers, Inc. and the Alaska Division of Agriculture. The seller, the inspector and the Alaska Seed Growers, Inc. make NO WARRANTY OF ANY KIND, EXPRESSED OR IMPLIED, INCLUDING MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, QUALITY, OR ABSENCE OF DISEASE CONCERNING SAID SEED POTATOES. The certification tag pertaining to any certified seed potatoes indicates only that, at the time of inspection, the potatoes met the requirements for certification as set forth in said Rules and Regulations. BY ACCEPTANCE OF THE SEED POTATOES, BUYER EXPRESSLY AGREES THAT ITS EXCLUSIVE REMEDY FOR ANY BREACH OF DUTY OWED IN REGARD TO CERTIFICATION SHALL BE LIMITED SOLELY AND EXCLUSIVELY

TO A RETURN OF THE PURCHASE PRICE PAID BY BUYER FOR SAID SEED.

This disclaimer of warranty and limitation of liability and remedy may not be altered or amended except by an instrument in writing and then only as to those specifically and expressly agreeing to the terms of said instrument. By acceptance of the seed potatoes, buyer agrees that the disclaimer and limitations described herein are express conditions of sale, and that they constitute the entire agreement between parties regarding warranty, liability or remedy.

E. APPENDICES

Appendix 1

Limited Generation System*

MOTHER PLANTS	Plants subjected to purification procedures, and examined for the presence of detectable, pathogenic microorganisms (viruses, bacteria, fungi), if no pathogens are detected, individual plants are qualified as mother plants.
GREENHOUSE	(G-0)
GENERATION 1	(G-1), First year field grown
GENERATION 2	(G-2)
GENERATION 3	(G-3)
GENERATION 4	(G-4)
GENERATION 5	(G-5)
GENERATION 6	(G-6)
GENERATION 7	(G-7)
GENERATION 8	(G-8)

*Generation number indicates the number of field harvests (generations) that have passed after the greenhouse production, although the number may be increased if disease tolerances exceed those listed for a generation. Each generation can be produced only from a lower numbered generation. G-8 is not eligible for recertification.

Appendix 2

DEFINITIONS

1. Bacterial Ring Rot - A disease caused by *Clavibacter sepedonicum*.
2. Blackleg - A disease caused by a complex of two organisms: (*Pectobacterium carotovorum*) *Erwinia carotovora* var. *atroseptica* and/or *Erwinia carotovora* var. *carotovora*.
3. Disease tolerance - A specific level of a particular disease permitted to exist in certified seed stocks. This level is sufficiently low as to reasonably preclude a significant effect on seed quality (see "zero tolerance").
4. Farm - A potato enterprise that includes all land, equipment, storage facilities and labor that are used in a common effort to produce potatoes.
5. Home use - Production of certified seed solely for the purpose of planting a commercial crop on the same farm on which the seed was produced. Tags are not issued for seed produced under "home use" guidelines. "Home use" seed is not eligible for "for sale" production in later generations.
6. Lot - The system of identifying particular sources within the certification program. A seed source is assigned a number (lot number) upon its entry into the certification program. This seed lot will carry the same source lot number throughout its life in the limited-generation system. The lot number system guarantees a recording of the history of the seed sources within the certification program, and permits a tracing of problems back to their sources.
7. Master container - A package containing two or more individual packages of the same commodity in the same quantity.
8. Roguing - The removal and destruction of diseased or undesirable plants (including seed pieces, foliage, and tubers) from a certified potato seed field.
9. Storage - A space or place for storing certified potato seed.
10. Tight wall - A barrier that will prevent the passage of potato tubers, tuber parts, or adherent debris.
11. Tuber unit - A method of planting whereby each seed piece from one tuber is

planted consecutively and separated from seed pieces from other tubers by a distance that is clearly apparent.

12. Zero tolerance - In the case of all diseases or conditions warranting a 0.0% tolerance, it indicates that the disease or condition was not observed during the inspection process. The 0.0% tolerance is not intended, nor may it be construed to mean that the lot inspected is free from the designated disease or condition.

