

# **Rules and Regulations for Certification of Nebraska State Seed Potatoes**

## **PREFACE**

### **NEBRASKA STATE CERTIFICATION OF SEED POTATOES**

#### **Authority to Conduct Certification**

Certification of seed potatoes in Nebraska is conducted by the Potato Certification Association of Nebraska, Alliance, Nebraska. This agency has been designated by the Vice Chancellor of the Institute of Agriculture and Natural Resources, University of Nebraska, to conduct the potato certification program under the State Law, House Roll 67, passed in 1931. The Vice Chancellor (with an Advisory Committee), specifies the Standards for Certification, and approves rules and procedures used by the certifying agency.

#### **EXECUTIVE COUNCIL**

The Executive Council of the Potato Certification Association of Nebraska assumes the responsibility for financing and administering the regulations, and for the proper conduct of Seed Certification of potatoes in Nebraska. Members are elected each year at the Association's Annual meeting.

#### **MEMBERS OF THE SEED CERTIFICATION COMMITTEE**

The Institute of Agriculture and Natural Resources, University of Nebraska - Lincoln, establishes rules, regulations. The committee is composed of department heads of Agronomy and Horticulture, Entomology, and Plant Pathology with the Associate Dean of Agriculture Research serving as chairperson.

## **RULES AND REGULATIONS FOR CERTIFICATION OF SEED POTATOES IN NEBRASKA**

**Effective Crop Year of 2011**

### **I. CERTIFICATION**

A. Certification is a voluntary agreement between the grower and the Potato Certification Association for the purpose of producing and distributing top quality seed tubers in approved and properly tagged containers to potato growers. The standards specified are enforced by the Potato Certification Association of Nebraska, as authorized by State Law (see preface). Certification of a lot is complete only when all requirements have been fulfilled in field, bin and grade inspections, as determined by inspectors.

B. The Potato Certification Association reserves the right of entry on all farms of applicants to inspect any or all potato fields.

C. Inspections performed in certification are based on representative samples taken of plants or tuber lots. Reports made cover findings in said samples, taken on the date noted thereon. Certification does not necessarily imply that additional samples taken at the same or another time would be identical.

## II. SEED SOURCES AND ELIGIBILITY REQUIREMENTS

- A. Growers may enter only Foundation seed stocks rated Generation 4 or a higher seed generation the previous year.
- B. Records in detail, of machines used during planting and harvest of potatoes, by farm units, shall be submitted with applications for field and storage inspections. Growers with a single set of equipment need not comply.
- C. All potatoes on the farm or in the farming operation of each applicant for certification (including contract growers of said applicant) shall be planted with Foundation Class Generation 4 seed or higher.

### D. FOUNDATION SEED FROM OTHER STATES

- 1. Seed potatoes entered for certification in Nebraska from states having a limited generation system will be considered as comparable to our system and will be accepted according to seed classes/generations indicated on the tag and will be rated according to the Certification Section of Potato Association of America's comparative generation chart, and Nebraska's field disease tolerance requirements.
- 2. Seed potatoes received from a state with a non-generation system will be accepted as Generation 3 if so indicated on the tag. If the Nebraska rules and requirements are met, the seed lot will qualify for either Generation 3 or Generation 4 the first year and proceed to the next level the next year.

### E. BREEDING MATERIAL, NUMBERED SEEDLINGS, CLONAL SELECTIONS AND UNUSUAL VARIETIES.

- 1. This material will be considered as Generation 3 and subject to Generation 3 planting and harvest requirements as well as Generation 3 disease requirements. In the case of breeding material and numbered seedlings from outside areas, the first year of introduction to Nebraska shall be considered as a quarantine year and no certification tags will be issued.
- 2. Unless meristemming and tissue culture work is done, the above can remain in the Certification system no longer than a total of ten years. This would be true as long as all disease requirements were met. This allows a period of five years for increase and testing followed by five years within the Certification system. (VII.A3).

F. FOUNDATION CLASS seed must be seed meeting standards for recertification. Below are listed the seven generations of Foundation class seed potatoes and the seed required for the entry of each generation:

Generation Entered	Seed Generation Required
Preuclear (P)	Disease tested: tissue culture, meristem, greenhouse increase only.
Nuclear (N)	Preuclear
Generation 1 (G1)	Nuclear
Generation 2 (G2)	Generation 1
Generation 3 (G3)	Generation 2
Generation 4 (G4)	Generation 3
Generation 5 (G5)	Generation 4

## III. DEFINITIONS OF FOUNDATION CLASS SEED GENERATIONS

**PRENUCLEAR:** Tubers or plants from meristem culture, breeding or selection projects or from tissue culture that have been checked or screened by a qualified person using recognized scientific techniques for Virus X, Y, A, M,

Leaf Roll, Spindle Tuber Viroid, and the bacteria Ring Rot and Black Leg. Grown in a controlled environment prior to field increase.

**NUCLEAR:** Tubers or plants from meristem culture, breeding or selection projects, or tissue culture that are being increased in a disease-free, sanitary manner. Disease testing requirements shall be the same as for Prenuclear class. Tubers shall be planted by the Tuber Unit (with disinfection) or, planted whole, or cut with continuously disinfected blades or knives and planted with a cup planter, first year in the field. (VI A3).

**GENERATION 1:** Must meet the field disease requirements of the Nuclear Generation. Mechanical cutter used. (VII A3)

**GENERATION 2:** Must meet the disease requirements of Generation 1. Mechanical cutter used. (VII A3).

**GENERATION 3:** Certified seed stocks produced from Generation 2 or better generation stocks. Disease reading in field and Southern test plot well under tolerance for that generation. Seed stocks that are considered breeding materials, etc. can remain in this category for a period no longer than 3 years. (II E1). Mechanical cutter used. (VII A3).

**GENERATION 4:** Certified seed stocks produced from Generation 3 the previous year with disease readings, in the field and winter test plot, no higher than Generation 4 tolerance.

**GENERATION 5:** Seed lots eligible for sale as certified, but re-entry as certified not permitted.

**IV. CERTIFIED CLASS:** The certified class must meet the minimum field tolerances described in section VII.A. The classification serves as a quality standard for commercial planting purposes only and must meet all the requirements of these rules. The certified class designation may be applied to any generation under the criteria set forth by these rules

#### **V. APPLICATION - ACREAGE REPORTS - STORAGE REPORTS**

A. Applications for Certification and Acreage reports for Certified Seed Potatoes shall be submitted by June 15 or 30 days after planting of an individual lot. Late applications received after July 1 shall be accompanied by a cash penalty of \$10.00 per acre unless notified that planting is not completed. No applications accepted after July 15. No inspections will be performed on individual lots until appropriate paperwork has been submitted.

B. Post Harvest samples are due no later than October 15.

C. Reports giving location of potatoes in storage (bin charts) shall be due no later than November 1. Late applications received in the office after November 15 shall be accompanied by a cash penalty of 2 cents per cwt. (gross). No applications will be accepted after January 1.

D. All lots under 5,000 cwt., if entered for bin inspection, shall be required to have 100% Bin Inspection.

E. If an additional 5,000 cwt. is required before the first deadline for Bin Inspections, that amount can only be added to in increments of 5,000 or the balance of the entire lot be included in any second inspection.

#### **VI. FEES FOR ALL INSPECTIONS**

Payment of fees for Certification services shall be due the tenth of the month following services and Certification services will cease 45 days from the date of billing if no payment is received. Fees shall be reviewed annually at the beginning of each season, and changed as appropriate after consultation with growers. Growers will be notified of changes in advance of the season.

Fees are subject to change A schedule may be obtained at the PCAN office.

## VII. FIELD INSPECTION STANDARDS

Different varieties, different seed sources, or different classes of seed shall be well marked and identified. Identification means that seed growers should submit cutting and planting sequence with their acreage application as well as detailed planting maps, which includes the number of rows within a lot. Fields must be clearly staked for small lots.

### A. FIELD INSPECTIONS

1. Only a sample of each field is inspected. Procedure consists of walking across all rows. A minimum of 100 plants per acre on large fields and a minimum of 500 plants or all plants on smaller fields will be counted by inspectors during first and second inspections. Percentages are computed on a visual determination of the number of diseased or mixture plants recorded within the total number of plants counted. Recognized scientific laboratory techniques may be used for confirmation of a visual finding, or in addition to, visual inspection.
2. First field inspections are made as soon as plants are of proper size. Subsequent inspections are made to detect diseases not apparent until plants are older. Two or more field inspections are made of each field.
3. Fields shall not have disease readings or variety mixtures in excess of the following diseases:

Disease	Class: Generation:	Foundation							Certified 0 thru 5
		Prenuclear	Nuclear	1	2	3	4	5	
Leaf Roll		0	0.1	0.2	0.3	0.4	0.5	0.6	1.0
Mosaic		0	0.1	0.2	0.3	0.4	0.5	0.6	2.0
Total Serious Virus		0	0.2	0.4	0.6	0.6	0.6	0.6	3.0
Variety Mixture		0	0.1	0.2	0.3	0.4	0.5	0.5	0.5
Blights (Early and Late)		-	-	-	-	-	-	-	-
Visible Black Leg		0	0.5	0.5	0.5	0.5	1.0	3.0	3.0
Columbia Root Knot Nematode		0	0	0	0	0	0	0	0
Bacterial Ring Rot		No tolerance allowed in any class or generation of seed							

\*ANY DISEASE OR CONDITION SERIOUSLY INTERFERING WITH DISEASE DETECTION, SUCH AS EXCESSIVE BLACK LEG AND WILTS, WEEDS, YELLOWING DUE TO SOIL CONDITIONS, SEVERE BLIGHT, EXCESSIVE INSECTS, HAIL INJURY, OR CHEMICAL INJURY, MAY DISQUALIFY ANY FIELD OR SEED LOT THEREIN. IN ADDITION, FIELDS MAY BE REJECTED IF ANY SERIOUS DISEASE CONDITION EXISTS IN OTHER POTATO FIELDS NOT ENTERED WITHIN THE FARMING OPERATION. IN THE CASE OF CHEMICAL INJURY, THAT PORTION OF THE FIELD AFFECTED WILL BE REJECTED. IF THE CHEMICAL OR ITS AFFECT ARE UNKNOWN, THE SEED LOT WILL BE PROBATED UNTIL THE CHEMICAL AND ITS EFFECT ON THE SEED CAN BE DETERMINED.

No tolerance is allowed for Federal or State Quarantine diseases or pests.

1. "Other visible virus disease" includes Calico, Witches' Broom and Yellow Dwarf.
2. Latent viruses may include any Virus identified by means of laboratory tests. Lots entered and found to be within the tolerance may be tagged with tags marked "Virus-Tested". Virus X or S content is not a cause for rejection or loss of seed class/generation. Prenuclear and Nuclear classes are required to undergo complete disease testing for Viroids, Viruses and Bacteria by the most current and practical method available. If a grower wants to resample a rejected lot, the sample

will be based on 1000 tubers or leaves collected by the grower and a certification official. Cost of the resampling and testing is to be paid by the grower. For sampling procedure see VII C.

3. If variety mixture or disease exceeds the tolerance at time of inspection, the field may be rogued to remove such plants, after which the field will be re-checked for compliance. A reinspection fee will be charged. Any seed lot exceeding double the field tolerance for viruses of G5 (1.2%), shall be rejected and roguing will not be allowed.

4. Early or Late Blight shall be cause for rejection only if present to the extent that satisfactory inspection cannot be made for other diseases.

5. The wording NO TOLERANCE in our rules should not be construed as an expressed or implied guarantee or warranty that Nebraska Certified Seed Potatoes have complete freedom from this disease. It simply means we have no tolerance for this disease in our Certification rules. Whenever Bacterial Ring Rot is detected by visual methods during field, bin or grade inspection, and confirmed by laboratory tests, the potatoes involved are rejected from certification.

6. Any certified field cut or planted immediately after a field found to be Bacterial Ring Rot contaminated shall be withdrawn from certification. All certified lots cut and planted after a Bacterial Ring Rot contaminated lot shall not be eligible for recertification.

## **B. ROGUING**

Growers should start roguing as soon as plants are large enough to detect diseases. All diseased and weak hills should be entirely removed and destroyed, including seed pieces and new tubers. Certified inspectors will give all possible assistance in training growers to rogue.

## **C. TESTING PROCEDURES (Serological)**

Growers will assist inspectors in the collection of leaflets for testing.

**NUCLEAR - One leaflet at random from single plants with a minimum of 10, 15, 25 or 50 leaves dependent upon lot size.**

**GENERATION 1 - 5 - One leaflet at random from single plants with a minimum: 0 - 5 acres : 50 leaves; 5 - 10 acres : 100 leaves; 10 - 20 acres : 200 leaves; 20+ acres : 400 leaves.**

## **VIII. DISEASE TOLERANCES FOR TUBER OR BIN INSPECTIONS**

Tuber or bin inspection on ungraded potatoes shall be made as soon as possible after harvest.

A. A sample of each seed lot is made in storage following harvest. Procedures followed include first an examination of the seed lot with a portable light to see that good separation has been made and no unusual amount of decay is showing. Samples of bin run potatoes are then taken at random from various locations. Stem ends of tubers are clipped and graded for defects and diseased tubers are weighed. Disease content, mixture and the estimated percent of Blue Tag Grade is then recorded on the basis of this sample. The seed lot is rejected if the percentage of diseases or mixtures of like type exceed tolerance.

B. Seed lots from Nuclear and G1 will be visibly examined unless otherwise requested by the seed grower. G1 lots will be inspected if they exceed 250 hundredweight.

If a lot meets all disease tolerances specified, it is considered as Certified subject to grading before final sale. A lot of potatoes failing to meet disease tolerance or any other special requirements is rejected for certification, except for factors that can be removed. Such a lot may be probated. After removal of the disqualified factor, the lot is eligible for re-inspection and final certification.

**MAXIMUM DISEASE ALLOWED**

<b>DISEASE</b>	<b>GENERATION N - 3</b>	<b>GENERATION 4 &amp; 5</b>
Bacterial Ring Rot	NO TOLERANCE	NO TOLERANCE
Stem End Discoloration (1)	2.5%	5.0%
Variety Mixture (2)	0.1%	0.5%
Other Diseases (3)	0.1%	0.5%

- (1) Stem End Discoloration is considered as a grading factor, and is scored if causing damage.
- (2) Variety mix as a grade factor, if removable at grading, is allowed.
- (3) Scab, Rhizoctonia, Early Blight and Late Blight are considered as grade defects, to be removed when grading potatoes.

ANY DISEASE OR OTHER CONDITION SERIOUSLY AFFECTING SEED QUALITY, NOT MENTIONED HEREIN, MAY BE CAUSE FOR REJECTING A LOT ENTERED FOR CERTIFICATION.

**IX. STORAGE AND HANDLING REGULATIONS**

- A. Storages shall be approved by the Certification Association in advance of their use.
- B. Potatoes eligible for bin inspection and tagging as Certified potatoes cannot be stored, graded, or handled in storages containing unidentified potatoes, (which were not field inspected for certification), or lots rejected for the presence of Bacterial Ring Rot.
- C. Separation of seed lots should be accomplished by a physical barrier that will prevent the mixture of variety or classes prior to grading. If such separation is not present, it will be the discretion of the inspector to reject all or a portion of the lots involved.
- D. See Appendix.

**X. TRANSFER BEFORE FINAL INSPECTIONS**

Inspection and final certification shall apply to one lot (field) of potatoes only so long as title to such lot is retained by the original applicant, unless a transfer of title and a contract agreeing to properly complete provisions for certification is filed with the Certification office.

The selling of potatoes field run (graded), where continuation of certification is contemplated, shall not be done without notifying the Certification Office.

**XI. POST HARVEST TESTS AND SPECIAL INSPECTIONS**

A. Purpose: To detect the amount of current season spread of serious virus diseases and certain diseases masked under Nebraska conditions. Samples from certified fields are planted for a post harvest test where such diseases are more easily seen. In the event of climatic conditions that make a post harvest test impossible, recertification will be based on summer field reading and/or lab tests.

B. Method: Samples for testing shall be supplied by the grower for all seed lots to be recertified in Nebraska. The only exception shall be Nuclear lots too small to sample (lots of 2,000 pounds or less). Minimum sample size for lots shall be: 0 to 1 acre : 125; 1 to 10 acres : 250; 10 to 70 acres : 500 tubers; 70+ acres : 1000 tubers. Tuber size shall be 1 7/8" to 2". Tubers shall be selected at random from the field, harvester, conveyors, or storage bins, sewn in new sacks, with as follows: Grower Name, Variety, Field Number, and Number of Tubers tagged thereon, and delivered to the certification offices by October 15. These samples are planted in November. Disease readings are made as soon as possible thereafter. Nebraska potato growers may submit other lots for disease evaluation for a fee.

C. Disease Tolerance: Lots with serious virus diseases or mixtures in the test samples which exceed field tolerances for Certified Seed (see VII-A), shall not be recommended for further certification. Lots of double field tolerance for G5 will not be eligible for recertification. If a seed lot exceeds its virus or variety mix tolerance for its generation level, but does not exceed double the field tolerance, it is not recommended for recertification. A seed grower has the option of retesting a seed lot at a commercial lab.

## **XII. SACKS AND TAGS**

All certified potatoes shall be packed in new sacks, disinfected crates, or clean bulk carriers. Sacks may be printed with the official Nebraska State Certified Seed Potato Brand, or a recognized brand of a grower or shipper. Specifying U.S. #1 grade or the use of certified brand sacks on potatoes that fail to meet grade requirements or that are not properly tagged, is unlawful and subject to penalty.

A. TO WHOM ISSUED: Tags for certified potatoes will be issued only to applicant, or his agent, except as provided in Section X. All unused tags should be returned for refund. No mutilation of tags, by writing or marking over, or otherwise altering original information printed thereon, will be permitted. Tags marked (Virus Tested) may be attached to seed lots which meet requirements. (See section VII A 2)

B. RESPONSIBILITY FOR TAGGING: The responsibility for proper tagging is placed on the person to whom the tags have been issued. Each tag must be affixed to container of certified potatoes. No potatoes are recognized as officially certified unless properly tagged or inspected during bulk shipment. Illegal use of tags will be prosecuted.

C. TAG LABELING: Tags shall be imprinted showing the variety, the grower, and the year. Size will be imprinted on tags only if requested by the grower. All lots packed size 'B' shall so be labeled and shall range between 1 1/4" and 2 1/8". The minimum size permitted is 1 1/2", the maximum is 12 ounces for Blue Tag unless shipped as meeting U.S. #1 Seed Potato Grade. All varieties packed to Yellow Grade may be 14 ounces.

D. POTATOES ARE NOT CERTIFIED UNLESS TAGGED AND INSPECTED: If untagged, bulk shall be inspected and shall have an Official Bulk Certificate attached to unloading doors or attached to inspection copies mailed to purchaser.

## **XIII. SHIPPING POINT INSPECTION**

It is the growers' responsibility to meet Nebraska State Potato Certification requirements and also qualify for the grade specified on the tag in order for them to sell and ship Nebraska Certified Seed.

If certified potatoes are cut directly from bins without prior grading, they shall be eligible for Green Tag only, if they meet disease tolerances.

It is the full responsibility of each grower and/or shipper to clean trucks or cars prior to loading, and make sure certified seed potatoes have passed final grade inspection prior to shipment.

Final grade inspection shall be the responsibility of the Potato Certification Association of Nebraska. Inspections will be performed by qualified inspectors of the Association; or the responsibility for grade inspection may be assigned to a Federal-State Agency on an annual basis (providing an agreement in writing is signed between the Potato Certification Association and the co-operating agency prior to the shipping season). Procedures followed during shipping point inspection are those of all Federal-State inspection services with representative samples taken of graded seed to determine whether or not the seed lot is within grading tolerance.

## **XIV. GRADES FOR NEBRASKA CERTIFIED SEED POTATOES**

### **BLUE TAG GRADE**

The Nebraska Blue Tag Grade shall be the same as the U.S. #1 Seed Potato Grade.

sec.

§51.3000 General.

§51.3001 Grade.

§51.3002 Tolerances.

§51.3003 Application of tolerances.

§51.3004 Samples for grade and size determination.

§51.3005 Definitions.

§51.3006 Classifications of defects.

**§ 51.3000 General.**

Compliance with the provisions of these standards shall not excuse failure to comply with provisions of applicable Federal or State Laws.

**§ 51.3001 Grade.**

"U.S. No. 1 Seed Potatoes" consist of unwashed potatoes identified as certified seed by the state of origin by blue tags fixed to the containers or official State or Federal State certificates accompanying bulk loads, which identify the variety, size, class, crop year, and grower or shipper of the potatoes, and the State certification agency. These potatoes must meet the following requirements:

(a) Fairly well shaped.

(b) Free from:

- (1) Freezing injury;
- (2) Blackheart;
- (3) Late Blight Tuber Rot;
- (4) Nematode or Tuber Moth injury;
- (5) Bacterial Ring Rot;
- (6) Soft rot or wet breakdown; and,
- (7) Fresh cuts or fresh broken-off second growth.

(c) Free from serious damage caused by:

- (1) Hollow Heart; and,
- (2) Vascular ring discoloration.

(d) Free from damage by soil and any other cause (See § 51.3005-06).

(e) Size:

- (1) Minimum diameter, unless otherwise specified, shall not be less than 1-1/2 inches (38.1 mm) in diameter;
- (2) Maximum size, unless otherwise specified, shall not exceed 3-1/4 inches (82.6 mm) in diameter or 12 ounces (340.20 g) in weight.

(f) Tolerance. (See § 51.3002)

**§ 51.3002 Tolerances.**

In order to allow for variations incident to proper grading and handling in the foregoing grade, the following tolerances, by weight, are provided as specified.

(a) For defects:

- (1) 10 percent for potatoes in any lot which are seriously damaged by hollow heart;
- (2) 10 percent for potatoes in any lot which are seriously damaged by soil;
- (3) 5 percent for potatoes in any lot which are seriously damaged by vascular ring discoloration;
- (4) 11 percent for potatoes which fail to meet the remaining requirements of the grade including therein not more than 6 percent for external defects and not more than 5 percent for internal defects: Provided, that included in these tolerances not more than the following defects listed:

Bacterial Ring Rot -- 0.00 percent

Serious damage by dry rot or moist type Fusarium Tuber Rot -- 2.00 percent

Late Blight Tuber Rot -- 1.00 percent  
Nematode or Tuber Moth injury -- 0.00 percent  
Varietal mixture -- 0.25 percent  
Frozen, soft rot or wet breakdown -- 0.50 percent

Provided, that en route and at destination, an additional 0.50 percent, or a total of 1 percent, shall be allowed for potatoes which are frozen or affected by soft rot or breakdown.

(b) For off-size:

- (1) For undersize: 5 percent for potatoes in any lot which fail to meet the required or specified minimum size.
- (2) For oversize: 10 percent for potatoes in any lot which fail to meet the required or specified maximum size.

**§ 51.3003 Application of tolerances.**

Individual samples (See § 51.3004) shall not have more than double the tolerances specified, except that at least one defective and one off-size potato may be permitted in any one sample: Provided, that en route of at destination, one-tenth of the samples may contain three times the tolerance permitted for potatoes which are frozen or affected by soft rot or wet breakdown; and provided further, that the averages for the entire lot are within the tolerances specified for the grade.

**§ 51.3004 Samples for grade and size determination.**

Individual samples shall consist of at least 20 pounds (9.06 kg). The number of such individual samples drawn for grade and size determination will vary with the size of the lot.

**§ 51.3005 Definitions.**

- (a) "Fairly well shaped" means that the potato is not materially pointed, dumbbell-shaped or otherwise materially deformed.
- (b) "Nematode or Tuber Moth injury" means the presence of, or any evidence of, Nematode or Tuber Moth.
- (c) Soil:

- (1) "Fairly clean" means that at least 90 percent of the potatoes in the lot have no more than 10 percent of the surface covered with caked soil.
- (2) "Damaged by soil" means that cake soil covers more than 25 percent of a potato's surface.
- (3) "Loose soil" - A lot of seed potatoes is not considered damaged by the presence of loose soil, clods, rocks, vines, and foreign material, but such will be considered a tare factor if the following allowances are exceeded:  
8 ounces (226.80 g) in a 100 pound (45.3 kg) container.  
4 ounces (113.40 g) in a 50 pound (22.65 kg) container.  
2 ounces (56.70 g) in a 25 pound (11.33 kg) container.  
1 percent in a bulk load.

- (d) "Shriveling" - Damage by shriveling means that the individual potato is more than moderately shriveled, spongy or flabby.
- (e) "Freezing injury" means that the potato is frozen or shows evidence of having been frozen.
- (f) "Soft rot or wet breakdown" means any soft, mushy or leaky condition of the tissue.
- (g) "Zero Tolerance" (0.00) means none found during the normal inspecting procedures. Certification of any lot is not a guarantee that the lot inspected is free of a zero tolerance disease or injury.
- (h) "Damage" means any defect of any combination of defects which materially detracts from the internal or external appearance of the potato, or any external or internal defect which cannot be removed without a loss of more than 5 percent of the total weight of the potato (See § 51.3006).
- (i) "Serious damage" means any defect or any combination of defects which seriously detracts from the internal or external appearance of the potato, or any internal or external defect which cannot be removed without a loss of more than 10 percent of the total weight of the potato (See § 51.3006).
- (j) "External defects" are defects which can be detected by examining the surface of the potato. Cutting may be required to determine the extent of the injury (See § 51.3006, Table I).
- (k) "Internal defects" are defects which cannot be detected without cutting the potato (See § 51.3006, Table II).
- (l) "Permanent defects" are defects which are not subject to change during storage or shipment.
- (m) "Condition defects" are defects which may develop or change during storage or shipment.

§ 51.3006 Classification of defects.

(a) Brown discoloration following skinning, dried stems, flattened depressed areas (showing no underlying flesh discoloration). greening, skin checks and sunburn do not affect seed quality and shall not be scored against the grade.

(b) Table I -- External Defects.  
*x-indicates method of scoring unless otherwise noted.*

Defect	Damage	
	When materially detracting from the appearance of the potato or	When removal causes a loss of more than 5 percent of the total weight of the potato
Air Cracks		X
Bruises		X
Cuts and broken-off second growth (healed)	X	X
Elephant hide (scaling)	X	
Enlarged, discolored or sunken lenticels	X	
Folded ends	X	
Second growth	X	
Shriveling	When more than moderately shriveled, spongy, or flabby.	
Sprouts	When more than 20 percent of the potatoes in any lot have any sprout more than 1 inch (25.4 mm) in length.	
Surface cracking	X	X
Flea Beetle injury	X	X
Grub damage	X	X
Rodent and/or bird damage	X	X
Wireworm or grass damage	Any hole more than ¾ inch (19.1 mm) long or when the aggregate length of all holes is more than 1 ¼ inches (31.8 mm) <sup>1</sup>	
Dry rots		X
Rhizoctonia	X	
Scab, pitted	X	X
Scab, russet	When affecting more than 1/3 of the surface	
Scab, Surface	When affecting more than 5 percent of the surface.	
Silver Scurf	When affecting more than 25 percent of the surface.	
Growth cracks	When seriously detracting from the appearance.	
Pressure bruises and sunken areas- with underlying flesh discolored.		When removal causes a loss of more than 10 percent of the total weight.

<sup>1</sup> Definitions of damage and serious damage are based on potatoes that are 2-½ inches (63.5 mm) in diameter of 6 ounces (170.10 g) in weight. Correspondingly lesser or greater areas are permitted on smaller or larger potatoes.

(c) Table II - Internal Defects

Defects	Damage	
	When materially detracting from the appearance of the potato	When removal causes a loss of more than 5 percent of the total weight of the potato.
Ingrown Sprouts		X
Internal discoloration occurring interior to the vascular ring (such as, Internal Brown Spot, Mahogany Browning and Heat Necrosis).	When more than the equivalent of three scattered light brown spots 1/8 inch (3.2 mm) in diameter <sup>1</sup> .	
All other internal discoloration excluding discoloration confined to the vascular ring.		X

<sup>1</sup> Definitions of damage and serious damage are based on potatoes that are 2-½ inches in diameter or 6 ounces (170.10 g) in weight. Correspondingly lesser or greater areas are permitted on smaller or larger potatoes.

Defects	Serious Damage	
	When seriously detracting from the appearance of the potato or	When removal causes a loss of more than 10 percent of the total weight of the potato.
Internal Discoloration confined to the vascular ring.		X
Hollow Heart or Hollow Heart with discoloration.	When affected area exceeds that of a circle ¾ inch (19.1 mm) in diameter. <sup>1</sup>	

<sup>1</sup> Definitions of damage and serious damage are based on potatoes that are 2½ inches in diameter or 6 ounces (170.10 g) in weight. Correspondingly lesser or greater areas are permitted on smaller or larger potatoes.

**Authority:** Secs. 203, 205 60 Stat. 1087, as amended, 1090 as amended, (7 U.S.C. 1622-1624).

### YELLOW TAG GRADE

The Yellow Tag Grade shall consist of potatoes with the requirement that they shall be graded FROM BIN RUN STOCKS. (A high percentage of Blue Tag Grade will be therein depending on the quality of the stock).

#### TOLERANCES FOR YELLOW TAG GRADE

In order to allow for variations incident to proper grading and handling in the foregoing grade, the following tolerances, by weight, are provided as specified:

FOR DEFECTS (1) 15% of potatoes in any lot which are seriously damaged by hollow heart or dirt and (2) a total of 10% for all potatoes which fail to meet the remaining requirements for the grade including therein not more than 6% for internal defects and not more than 6% for external defects, (See Tables III and IV), provided that included in these tolerances not more than the following percentages shall be allowed for defects listed:

- Bacterial Ring Rot -- No Tolerance
- Fusarium Tuber Rot (Dry Rot) -- 2.00 Percent
- Late Blight Tuber Rot -- 2.00 Percent
- Golden Nematode or Tuber Moth injury -- 0.00 Percent
- Varietal Mixture -- 0.25 Percent
- Frozen, Soft Rot, or Wet Breakdown -- 1.00 Percent

Provided: That an additional 1.00 Percent or a total of 2.00 percent shall be allowed en route or at destination, for potatoes which are frozen or affected by soft rot or wet breakdown.

For undersize, 5% for potatoes in any lot which fail to meet the required or minimum size, for oversize, 10% for potatoes in any lot which fail to meet the required or specified size.

### SAMPLES FOR GRADE AND SIZE DETERMINATION

Individual samples shall consist of at least twenty pounds. The number of such individual samples drawn for grade and size determination will vary with the size of the lot.

### APPLICATION OF TOLERANCES

Individual samples shall have not more than double the tolerances specified except that at least one defective and one off-size potato may be permitted in any sample; Provided: That en route or at destination, one-tenth of the samples may contain three times the tolerance permitted for potatoes which are frozen or affected by soft rot or wet breakdown; and provided further: That the averages for the entire lot are within the tolerances specified for the grade.

NOTE: THERE SHALL BE NO RESTRICTIONS FOR WIRE WORMS OR FLEA BEETLE DAMAGE.

### TOLERANCES FOR YELLOW TAG GRADE

(d) Table III - External Defects

DEFECT	Serious Damage	
	When seriously detracting from the appearance of potato or	When removal causes a loss of more than 10 percent of the total weight of the potato
Causes 10 percent		
Air Cracks	X	
Bruises	X	X
Dirt	X	
External Discoloration	X	
Rhizoctonia	X	
Scab, Pitted	X	X
Scab, Surface - When more than 25% of surface affected		-
Second Growth	X	-
Growth Cracks	X	-
Scab, Russet	X	-
<sup>1</sup> Sprouts - When more than 40% of the potatoes in any lot have any sprouts more than 1" in length -		-
Shriveling - When more than severely shriveled, spongy or flabby		-

<sup>1</sup>Sprouts - with the exception that after April 1st, sprouts will not be a grade defect on Yellow Tag Grade.

(E) Table IV - Internal Defects

Defect	Serious Damage
Hollow Heart	When seriously detracting from the internal appearance.
Internal discoloration occurring entirely within vascular ring	When more than the equivalent of six scattered light brown spots 1/8" in diameter in a potato 2 1/2" in diameter or 6 ounces in weight or correspondingly lesser or the greater number of spots in smaller or larger potatoes.
Internal discoloration outside of or not entirely confined within the vascular ring	When removal causes a loss of more than 1% of the total weight.

**NOTE: THERE WILL BE NO RESTRICTIONS FOR SERIOUS DAMAGE BY WIRE WORMS OR FLEA BEETLES.**

### DEFINITIONS

**One Variety** - means that the potatoes in a lot show the same varietal characteristics.

**Fairly Well Shaped** - means that the potato is not materially pointed, dumbbell- shaped or otherwise materially deformed.

**Golden Nematode Injury or Tuber Moth Injury** - means that the presence of any Golden Nematode or Tuber Moth can be detected or that there is visible evidence of Golden Nematode or Tuber Moth activity.

**Damage** - means that any defect (except sunburn and greening) or any combination of defects which materially detracts from the quality of the potato for seed purposes, or the internal or external appearance of the potato or any external defects which cannot be removed without a loss of more than 5% of the total weight of the potato.

**Serious Damage** - means any defect, or any combination of defects, which seriously detracts from the quality for seed purposes, or the internal or external appearance of the potato, or any external defects which cannot be removed without a loss of more than 10% of the total weight of the potato.

**Dirt** - means any potato which is badly caked with dirt or badly stained is seriously damaged by dirt. This is defined as having caked dirt on more than 1/2 of the surface or an equivalent of dirt in excessively thick chunks on a lesser area.

**Freezing** - means that the potato is frozen or shows evidence of having been frozen.

**Soft Rot or Wet Breakdown** - means that any soft mushy or leaky condition of the tissue.

**External Defects** - are defects which can be detected externally. However, cutting may be required to determine the extent of the injury.

**Tuber Unit** - a planting method of consecutively dropping two or more seed pieces cut from one tuber, in a row.

**Roguing** - means the removal and destruction of all diseased or undesirable plants or tuber units, and potatoes produced thereon.

### GREEN TAG GRADE

This grade is intended to be a Buyer / Seller agreement with no size or grade restrictions. Visual inspection will be performed for Ring Rot only.

### DISCLAIMER STATEMENT

When potatoes are certified by this Association, it is an exercise of the best judgment of the Association and/or its properly approved agents only. The judgment is sometimes subject to error. Because of that fact, neither the Association nor its agents, nor the Institute of Agriculture and Natural Resources, University of Nebraska, assumes any responsibility for, nor shall the Association or its agents, or the Institute of Agriculture and Natural Resources, become liable to any person if and when the Certification proves to be in error.

### NEBRASKA STATE SEED TAG WARRANTY

"These potatoes are certified in accordance with standards and rules currently in force, having passed all inspections required hereunder.

Since the use, crop yields or quality of certified seed potatoes is beyond the control of the producer or seller, no warranty of any kind, expressed or implied, including merchantability, which extends beyond the description above is made concerning the performance or quality of these seed potatoes. By acceptance of these seed potatoes, the buyer expressly agrees that the buyer's exclusive remedy for breach of any warranty shall be limited in all events to a return of the purchase price of the seed."

## APPENDIX

### RECOMMENDATIONS FOR HANDLING CERTIFIED SEED STOCKS WHEN GRADING AND SHIPPING

#### A. MOVING SEED

A written notification shall be filed with the office if Certified stocks are moved in bulk from one storage to another.

#### B. CENTRAL GRADING WAREHOUSE RECOMMENDATIONS

All central grading warehouses for certified potatoes shall be approved each year prior to the shipping season. In addition they shall be subject to condemnation at any time if the following regulations are neglected:

1. Cleaning of walls, floors, and grading equipment shall be on a regular annual schedule. (Scrubbing and painting of machinery recommended).
2. Complete cleaning of debris and stray potatoes from equipment and floors shall be supervised between seed lots.
3. A responsible person who can identify mixtures and other quality problems, shall supervise both the loading from the original storage and the unloading at the grading warehouse.
4. Sort-outs, used bags, debris, and clutter shall not remain in the grading area.
5. Employees moving from non-identified table potatoes to the certified grading warehouse shall be provided with disinfected gloves, a shoe disinfecting pan and clean clothing (if possible) prior to handling certified seed potatoes.
6. Storages from which certified potatoes are being moved, shall be cleaned up (removal of loose potatoes, old bags, boards, and debris) before another seed lot is loaded out.
7. Washing of certified seed sort-outs in the same warehouse should be done in a separate grading area or preferably, another warehouse.
8. Graded certified seed stacked for loading should be carefully piled on pallets or tiers with a large identifying tag on each.
9. The identity of certified seed lots (lot number) shall be available to State and Federal inspectors for inclusion on inspection certificate, grading records, etc.
10. Inspectors are unable to be available at all times to control quality and to prevent mixing of varieties. **Quality control is the responsibility of the grower and shipper.**