

LCB File No. R036-01

**PROPOSED REGULATION OF THE STATE
DEPARTMENT OF AGRICULTURE**

(This proposed regulation was previously included in LCB File No. T045-01)

350 Capitol Hill Avenue
Reno, NV 89502
(775) 688- 1180

Authority: NRS 587.077

Section 1. *Definitions.* *As used in NAC 587.____ to 587.____, inclusive, unless the context otherwise requires, the words and terms defined in NAC 587.____ to 587.____, inclusive, have the meanings ascribed to them in those sections.*

Sec. 2. *“Applicant” defined.* *“Applicant” means the grower, growers or other entity that submits an application for certification and is responsible for complying with all certification requirements.*

Sec. 3. *“Bacterial Ring Rot” defined.* *“Bacterial Ring Rot” means the disease caused by the bacterium *Clavibacter michiganense ssp. sepedonicum*.*

Sec. 4. *“Blackleg” defined.* *“Blackleg” means the disease caused by the bacterium *Erwinia carotovora ssp. atroseptica* or *Erwinia carotovora ssp. carotovora**

Sec. 5. *“Certified Seed” defined.* *“Certified seed” means a seed lot that has met all requirements of NAC 587.____ to 587.____, inclusive, for the generation produced.*

Sec. 6. *“Corky Ring Spot” defined.* *“Corky Ring Spot” means the disease caused by *tobacco rattle virus*.*

Sec. 7. *“Department” defined.* *“Department” means the Nevada State department of *Agriculture**

Sec. 8. *“Late Blight” defined.* *“Late blight” means the disease caused by the fungus*

Phytophthora infestans.

Sec. 9. *“Recertification” defined. “Recertification” means the process of certifying a seed lot that was certified the previous year. The seed lot to be recertified must have been produced from a lot of a lower generation than that for which certification is being requested.*

Sec. 10. *“Rhizomania” defined. “Rhizomania” means the viral disease of sugar beets transmitted by a soil inhabiting fungus.*

Sec. 11. *“Roguing” defined. “Roguing” means the removal from the field and destruction of undesirable potato vines and tubers.*

Sec. 12. *“Root-knot Nematode” defined. “Root-knot nematode” means either of the plant parasitic nematodes *Meloidogyne hapla* or *Meloidogyne chitwoodii*.*

Sec. 13. *“Post harvest testing” defined. “Post harvest testing” means the testing of tubers submitted from a seed potato crop after harvest for a grow out and disease reading prior to that seed crop being planted to produce another generation.*

Sec. 14. *“Seed” defined. “Seed” means the vegetatively propagated tubers used for potato production.*

Sec. 15. *“Seed Farm” defined. “Seed farm” means an independent farming operation, managed separately for the production of certified seed potatoes, and includes all of the facilities, equipment and operational personnel.*

Sec. 16. *“Seed Lot” defined. “Seed lot” means a distinct planting unit consisting of an entire field or a defined, marked portion of a field.*

Sec. 17. *“Seedstock” defined. “Seedstock” means seed potatoes intended for use as a planting source.*

Sec. 18. *“Zero Tolerance” defined. “Zero tolerance” means the reporting of none or “0”*

for factors in which a zero tolerance has been established and means none were found during normal inspection procedures. Zero or none does not guarantee that the seed lot is free from the disease.

Sec. 19. Failure by a participant to comply with any of the provisions of NAC 587.____ to 587.____, inclusive may result in any seed lot being disqualified from certification.

Sec. 20. Generation system. The following table shows the classification of generations for the production of certified seed potatoes:

<i>Seed Planted</i>	<i>Class Produced</i>
<i>Nuclear</i>	<i>Generation 1</i>
<i>Generation 1</i>	<i>Generation 2</i>
<i>Generation 2</i>	<i>Generation 3</i>
<i>Generation 3</i>	<i>Generation 4</i>
<i>Generation 4</i>	<i>Generation 5</i>

Sec. 21. Seed farm eligibility requirements. All potato acreage on a farm must be entered and maintained in the certification program. Any portion of the farm withdrawn from certification during the growing season will result in the remaining acreage being ineligible for certification unless approval is obtained from the department.

Sec. 22. Seedstock eligibility Requirements.

1. All seed stock planted must be identified by a certification tag or other documentation showing the generation of that seed.

2. All seed sources for each planting must be listed on the application form.

3. Seed stock certified by another certification agency must meet equivalent requirements as seed produced in Nevada.

4. Seed lots known to be contaminated with bacterial ring rot will not be eligible for certification.

5. Generation 5 seed stock is not eligible to produce another generation of certified seed.

6. Any variety planted is subject to department approval prior to planting.

Sec. 23. Land eligibility requirements.

1. A field will not be eligible to produce certified seed potatoes if Root-Knot Nematode, Corky Ring Spot or Rhizomania has been proven to exist in the field or in potatoes grown in that field.

2. A field will not be eligible to produce certified seed potatoes if noncertified potatoes or potatoes proven to be Bacterial Ring Rot infected were grown in the field the previous growing season.

3. A field must have been farmed with a crop other than potatoes immediately following the growing season in which non certified potatoes or potatoes which were disqualified for Bacterial Ring Rot.

Sec. 24. Field requirements.

1. Potatoes entered for certification must be planted a least 20 feet from potatoes not entered for certification.

2. Potatoes entered for certification with two or more varieties or seed generations in the same field must be marked at their boundaries by steel posts or large wooden stakes that are tall enough to be visible above the crop.

3. Any condition that prevents adequate inspection of the field (excessive weeds, disease, weather or chemical damage, etc.) will be cause for rejection from certification.

4. Fields should be rogued for diseased and off-type plants during the growing season. The

roguing of plants infected with bacterial ring rot is not permitted. All rogued plants, including seed pieces and new tubers, must be removed from the field and destroyed. Any parts from rogued plants left in the field may be cause for rejection.

Sec. 25. Field inspection.

1. The department shall conduct a minimum of two field inspections during the growing stage of the crop and may inspect a field at any time. Additional inspections may be made at the discretion of the department but will not be made in order to allow growers to rogue fields which will not pass inspection.

2. Growers must notify the department at the time of field pesticide applications providing the date of application and the material used.

3. Fields must meet the tolerances shown below for the generation produced:

Table 1 - Tolerances for the first field inspection (%)

Factor	Generation					
	Nuclear	Gen 1	Gen 2	Gen 3	Gen 4	Gen 5
Potato Leafroll Virus	0	0	0.03	0.05	0.1	0.2
Well Defined Mosaic	0	0	0.1	0.5	0.8	2.0
Total visible viruses1	0	0	0.1	0.5	1.0	2.0
Spindle Tuber Viroid	0	0	0	0	0	0
Blackleg2	0	0.1	0.5	1.0	2.0	3.0
Bacterial Ring Rot	0	0	0	0	0	0
Root Knot Nematode	0	0	0	0	0	0
Other Varieties	0	0	0.02	0.1	0.25	0.5

Table 2 - Tolerances for the second field inspection (%)

<i>Factor</i>	<i>Generation</i>					
	<i>Nuclear</i>	<i>Gen 1</i>	<i>Gen 2</i>	<i>Gen 3</i>	<i>Gen 4</i>	<i>Gen 5</i>
<i>Potato Leafroll Virus</i>	<i>0</i>	<i>0</i>	<i>0.01</i>	<i>0.05</i>	<i>0.1</i>	<i>0.2</i>
<i>Well Defined Mosaic</i>	<i>0</i>	<i>0</i>	<i>0.05</i>	<i>0.25</i>	<i>0.5</i>	<i>1.0</i>
<i>Total visible viruses¹</i>	<i>0</i>	<i>0</i>	<i>0.05</i>	<i>0.25</i>	<i>0.5</i>	<i>1.0</i>
<i>Spindle Tuber Viroid</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>
<i>Blackleg²</i>	<i>0</i>	<i>0.1</i>	<i>0.5</i>	<i>1.0</i>	<i>2.0</i>	<i>3.0</i>
<i>Bacterial Ring Rot</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>
<i>Root Knot Nematode</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>
<i>Other Varieties</i>	<i>0</i>	<i>0</i>	<i>0.01</i>	<i>0.05</i>	<i>0.1</i>	<i>0.2</i>

¹Total is the combined percentage of potato leafroll virus, mosaic, calico, and all other viral, viroid and mycoplasma-like disease (haywire, witches' broom, aster yellows, etc.).

²This tolerance is based on the presence of a typical, inky black stem originating from the seed tuber.

4. Disease tolerances are based on visual symptoms at the time of field inspection and will only include diseased plants showing visible symptoms. Serological tests such as ELISA may be used to confirm the presence of disease on plant samples taken from the field.

5. The inspection for bacterial ring rot is visual and shall be confirmed by laboratory diagnosis.

6. When Bacterial Ring Rot is found in a seed lot, all potatoes grown by that farming

operation from that seed source shall be disqualified even if grown in different fields or on different seed farms.

8. Seed lots that exceed the generation tolerance for any factor will be downgraded to the next generation for which the seed lot does not exceed the tolerance.

9. Chemical Injury

(a) The department may withhold certification pending the outcome of the post harvest test plot grow out or refuse certification on a field, or portion of a field, treated or contaminated with a chemical that causes seed-borne injury to seed potatoes.

(b) Those portions of a field that do not show enough chemical injury to interfere with field inspections but still may be contaminated to the degree that seed-borne chemical injury may occur in the next crop shall be harvested and stored separately from other potatoes in that seed lot.

(c) The department will collect a separate winter test sample from those potatoes with possible chemical damage.

(d) Certification will be withheld until winter test readings are completed.

10. The presence of any new disease, determined by the department to be detrimental to potatoes in Nevada, may cause a seed lot to be disqualified from certification.

Sec. 26. Storage requirements and inspection.

1. Each lot of seed potatoes must be harvested, transported, graded and stored in a manner will prevent intermixing with other potatoes.

2. All seed potatoes that remain eligible for certification after field inspections will be inspected in storage.

3. All storages shall be available for inspection at all times.

4. Seed lot identity in storage must be maintained by the grower for that seed lot to be eligible for certification.

5. Storages where sprout inhibiting materials were used the previous season are not eligible for storage of seed potatoes eligible for certification.

6. Seed potatoes must be stored only in sanitized storage areas and must not be stored, graded or handled in warehouses in which potatoes that have not been field inspected, or are known to have bacterial ring rot, root-knot nematode or corky ring spot are stored or handled.

7. The grower is responsible for maintaining proper sanitation of all handling equipment and storage areas for the prevention of disease contamination.

8. Washed seed potatoes will not be eligible for certification.

9. New sacks must be used for all certified seed potatoes that are sacked.

Sec. 27. Grade requirements. *All seed lots must meet either of the following grade requirements to qualify for certification:*

1. The current USDA grade requirements for “U.S. No. 1 Seed Potatoes”, or

2. Contract grade, which means potatoes that meet all the requirements of grade and condition established by a buyer-seller agreement except that not more than one percent each of late blight, soft rot, wet breakdown, or dirt or debris will be allowed. No bacterial ring rot or rootknot nematode, based on visible external symptoms, is permitted.

Sec. 28. Post harvest testing. *Each lot of seed must be post harvest tested to qualify as certified seed.*

1. The grower must submit a sample to the department from each lot harvested.

2. Samples shall be taken at the following rate:

Acres in lot

Number of tubers

<i>1 to 5</i>	<i>220</i>
<i>6 to 10</i>	<i>440</i>
<i>11 to 20</i>	<i>660</i>
<i>21 to 40</i>	<i>880</i>
<i>41 to 80</i>	<i>1100</i>
<i>more than 80</i>	<i>additional sample of 330 tubers per 30 acres</i>

3. Samples must contain only single drop tubers (2 ounces or less) randomly selected so as to adequately represent the entire seed lot.

4. Samples must be submitted in bags weighing no more than 50 pounds each.

5. Only seed lots that have passed the equivalent of a second field inspection will be eligible for post harvest testing.

6. Tolerances for post harvest testing (%). Seed lots must meet the minimum tolerances shown in the table below to qualify as certified seed or to be eligible for recertification.

<i>Factor</i>	<i>Recertification</i>	<i>Certification</i>
<i>Potato Leafroll Virus</i>	<i>0.8</i>	<i>2.0</i>
<i>Well defined mosaic</i>	<i>2.0</i>	<i>10.0</i>
<i>Seed borne chemical injury</i>	<i>Not applicable</i>	<i>5.0</i>

Sec. 29. Certification tags. The department will issue a certification tag for each container of certified seed potatoes meeting all of the requirements for certification in NAC 587.____ to NAC 587.____, inclusive.

1. Blue tags will be issued for seed potatoes meeting the USDA grade for U.S. No. 1 Seed Potatoes.

2. Yellow tags will be issued for seed potatoes meeting the contract grade agreed upon by the grower and buyer.

Sec. 30. Application.

1. Applicants must submit to the department an application for each separate planting of seed potatoes on a form obtained from the department.

2. Each application must include all information requested for the planting and all seed lots used for the planting, including documentation that verifies the eligibility of the sock for the class of to be produced.

3. Applications must be received by the department by May 15 of the year of production and must be accompanied by the certification fees.

4. Each application must include a map showing the location of the farm, field and each different planting stock lot used within the field.

Sec. 31. Fees.

1. The department will charge \$25 per acre for the certification of seed potatoes with a minimum charge of \$40 per application.

2. A participant must pay any fees set forth in this section no later than May 15 of the year in which the seed potatoes are planted or within 5 days after planting if planted after May 15.

3. Checks must be payable to the Nevada State Department of Agriculture.

4. The department will refund fees paid for any field withdrawn from certification, in writing, prior to the first field inspection.

Sec. 32. Seed potatoes: Adoption of United States standards.

1. The United States standards for the grade of seed potatoes set forth in 7 C.F.R. §§ 51.3000 to 51.3006, inclusive, as these sections existed on March 6, 1987, are adopted by reference as the standards for the “U.S. No.1 Seed Potatoes” grade for certified seed potatoes in Nevada.

2. These standards may be acquired from the department at no cost.

Sec. 33. NAC 587.360 to 587.405, inclusive, is hereby repealed.

~~[NAC 587.360—Seed potatoes: Certification standards, generally.~~

~~—1.—The general seed certification standards of the department and the specific standards contained in this section constitute the standards for certification of seed potatoes.~~

~~—2.—To be eligible for certification by the department, any foundation or certified class of seed potatoes must conform to the current grade standards of the United States Department of Agriculture for seed potatoes.~~

~~—[Dep’t of Agriculture Reg., 87.26, eff. 6-1-78]~~

~~—NAC 587.365—Seed potatoes: Applications to grow.~~

~~—1.—An application to grow certified seed and the appropriate fees must be submitted by June 1 on a form supplied by the department.~~

~~—2.—The grower must submit with his application an affidavit showing the amount, grade, quality and locality where the seed was grown.~~

~~—3.—The application must be complete and must be accompanied by a map showing the location of the field where the seed is to be planted.~~

~~—[Dep’t of Agriculture Reg., 87.26, eff. 6-1-78]~~

~~—NAC 587.370—Seed potatoes: Fees and refunds.~~

~~1. The application fee and all field inspection fees must accompany the application. The department will charge and collect the following fees:~~

- ~~(a) For submitting an application \$5.00~~
- ~~(b) For the first field inspection 2.00 per acre~~
- ~~(c) For the second field inspection 2.00 per acre~~
- ~~(d) For the issuance of tags and seals 0.05 per tag and seal~~

~~The fees for the first and second field inspections include the cost of winter test plots.~~

~~2. Fees for seed inspection will be charged according to a fee schedule, adopted by the department pursuant to subsection 2 of NRS 587.360.~~

~~3. Fees collected for the first and second field inspections will be refunded if the application is withdrawn before inspectors arrive in the area for the first field inspection.~~

~~4. Fees collected for the second field inspection will be refunded if the field is declared ineligible after the first field inspection or if the application is withdrawn before the inspectors arrive in the area for the second field inspection.~~

~~5. No refund will be made after the second field inspection.~~

~~[Dep't of Agriculture Reg., 87.26, eff. 6-1-78]~~

~~**NAC 587.375 Seed potatoes: Foundation seed and certified seed; eligibility and planting.**~~

~~1. Seed stock for the production of foundation seed must be seed stock produced by or under the supervision of a state agricultural experiment station or seed stock that shows special merit and is approved by the department. Foundation seed stock which has been tested in winter test plots and shows not more than 0.3 percent leaf roll, 1.0 percent mosaic or a combined total of 1.5 percent virus disease is eligible planting stock.~~

~~—2.— Fields which are intended for the production of foundation seed stock must be planted in tuber units. Four plant units should be used whenever possible. When different numbered tuber units are used, they must be grouped under a uniform system. Single drop units will not be accepted.~~

~~—3.— Seed stock for the production of certified seed potatoes must be the foundation seed class. To be eligible, out-of-state seed stock must be foundation seed stock from the representative state in which it is grown or seed stock approved by the department. Seed stock showing more than 0.2 percent leaf roll or more than 1.0 percent total virus disease in the field at the time of final inspection or more than 0.4 percent leaf roll or 1.5 percent total virus disease in winter test plots is not eligible as planting stock for certified seed.~~

~~—[Dep't of Agriculture Reg., 87.26, eff. 6-1-78]~~

~~**NAC 587.380 — Seed potatoes: Soil requirements; field isolation.**~~

~~—1.— To be approved by the department as suitable for the production of foundation or certified seed potatoes, the soil must be free of volunteer potato plants and must not have a previous history of bacterial ring rot, Eumartii wilt (*Fusarium sp.*), potato rot nematode or rootknot nematode.~~

~~—2.— A field planted for the production of foundation seed potatoes must be isolated from any other potato field by at least 300 feet.~~

~~—3.— A field planted for the production of certified seed potatoes must be isolated from any other potato field by at least 100 feet but this distance may be reduced if:~~

~~—(a) The other potato field is planted with seed stock of the same or higher class and of the same variety; and~~

~~—(b) Adequate protective measures are taken to prevent spread of insect-borne diseases.~~

~~—4.—When two or more seed stocks of the same variety are planted in the same field, they must be separated by one or more empty rows.~~

~~—[Dep't of Agriculture Reg., 87.26, eff. 6-1-78]~~

~~—NAC 587.385—Seed potatoes: Field inspections; disease tolerances.~~

~~—1.—The department may inspect a field at any time.~~

~~—2.—The department will make two inspections of each field. The department may make additional inspections, but not for the purpose of allowing the grower to rogue fields which will not pass.~~

~~—3.—The grower shall rogue and remove from the field diseased plants, seed pieces and all tubers of sufficient size to be classed as single drop seed or larger.~~

~~—4.—Disease tolerances in a field are:~~

	FOUNDATION		CERTIFIED	
Factor	First Inspection	Second Inspection	First Inspection	Second Inspection
Leaf roll	0.5 percent	0.2 percent	0.5 percent	0.2 percent
Mosaic	1.0 percent	0.5 percent	2.0 percent	1.0 percent
Spindle tuber	1.0 percent	0.5 percent	2.0 percent	1.0 percent
Total all virus	1.0 percent	0.5 percent	2.0 percent	1.0 percent
Blackleg	1.0 percent	0.5 percent	2.0 percent	1.0 percent
Wilt	0.5 percent	0.5 percent	1.0 percent	1.0 percent

Factor	FOUNDATION		CERTIFIED	
	First Inspection	Second Inspection	First Inspection	Second Inspection
Eumartii wilt	0.0 percent	0.0 percent	0.0 percent	0.0 percent
Ring rot	0.0 percent	0.0 percent	0.0 percent	0.0 percent
Total other disease	1.0 percent	0.5 percent	2.0 percent	1.0 percent
Varietal mixture	0.25 percent	0.0 percent	1.0 percent	0.5 percent

For purposes of this section, wilt disease includes *Verticillium* and species of *Fusarium* other than *F. eumartii*:

~~—5.— A condition of weed growth, insect infestation, late blight, rhizoctonia, poor stand, weak plants, drought, wind, hail, frost or other environmental condition or disease which interferes with proper inspection or growth may constitute a cause for rejection of a field.~~

~~— [Dep’t of Agriculture Reg., 87.26, eff. 6-1-78]~~

~~— **NAC 587.390 — Seed potatoes: Storage.**~~

~~—1.— Eligible seed potatoes must be stored in suitable bins, cellars or warehouses approved by the department. The identity of each lot of seed must be maintained at all times and made known to the department.~~

~~—2.— The grower shall arrange with the department for inspection and approval of storage facilities before their use. The grower shall have a satisfactory plan, approved by the department, for handling each seed lot to maintain its identity from harvest through storage.~~

~~—3.— Eligible seed lots must be stored in separate cellars or subdivisions thereof, apart from commercial potatoes and potatoes not entered for certification and inspected by the department. Potatoes from a field which has been entered for certification and has failed to pass field inspections may be stored in the same cellar with eligible lots if the potatoes are free of bacterial ring rot, nematode or tuberworm and do not exceed the field tolerance for blackleg. Eligible lots must be binned separately with a partition constructed so that potatoes cannot pass through or over the partition.~~

~~—[Dep't of Agriculture Reg., 87.26, eff. 6-1-78]~~

~~—NAC 587.395— Seed potatoes: Bin inspections.~~

~~—1.— When a sufficient time has elapsed after harvest for the appearance of storage diseases, the department will conduct a tuber or bin inspection.~~

~~—2.— Disease tolerances for storage diseases are:~~

~~— Late blight ————— 1 percent by weight~~

~~— Stem end discoloration ————— 4 percent by weight~~

~~For purposes of this section, “stem end discoloration” means discoloration at the stem end of the potato which extends into the flesh of the potato a distance of more than one-half the length of the potato.~~

~~—3.— Except as provided in subsection 4, the department will not certify any potatoes that show by inspection of vine or tuber the presence of any of the following diseases or pests:~~

~~—Black wart (*Synchytrium*)~~

~~—Powdery scab (*Spongospora*)~~

~~—Violet rhizoetonia (*Rhizoetonia crocosum*)~~

~~—Bacterial ring rot (*Corynebacterium sepedonicum*)~~

~~—Nematode, potato rot or root rot~~

~~—Tuberworm~~

~~—Eumartii wilt~~

~~—4.— The discovery of any of the diseases in subsection 3 during grading is cause for rejection of the remaining ungraded portion of the seed lot. The portion of the seed lot already graded and meeting all other certification requirements must be deemed certified.~~

~~—[Dep't of Agriculture Reg., 87.26, eff. 6-1-78]~~

~~—NAC 587.400— Seed potatoes: Winter test plots.~~

~~—1.— Before eligibility for final certification is determined, the department will winter test, in a greenhouse or field plots, samples of all lots of seed potatoes which have met field standards for the foundation or certified class of seed.~~

~~—2.— The minimum sample size must be 440 single drop tubers for fields up to 40 acres. One additional sample of 220 single drop tubers must be drawn for each 40 acres or portion thereof of field size above the original 40 acres. "Single drop tubers" means tubers 1.5 to 3.0 ounces in weight.~~

~~3. Disease tolerances in test plots are:~~

	FOUNDATION	CERTIFIED
Leaf roll	0.4 percent	0.8 percent
Mosaic	1.0 percent	2.0 percent
Total all virus	1.5 percent	2.0 percent
Total other disease	1.5 percent	3.0 percent
Varietal mixture	0.0 percent	1.0 percent

~~[Dep't of Agriculture Reg., 87.26, eff. 6-1-78]~~

~~**NAC 587.405 Seed potatoes: Bags, tags and seals; bulk shipments.**~~

~~1. Potatoes which have met the field and storage requirements for certification must be packed in new sacks to be eligible for tagging and sealing.~~

~~2. Certified seed may be transported in bulk when the containers are approved by the department.~~

~~3. Bulk shipments may be made only under a seed-moving permit issued by the department.~~

~~4. Bulk lots must be in clean containers which are tagged and sealed in a manner approved by the department.~~

~~[Dep't of Agriculture Reg., 87.26, eff. 6-1-78]~~