

Post Harvest Testing Survey

*Prepared by the PAA Certification Section
Updated December, 2015*

1. Which seed lots require a post harvest test?

Agency	Generation	To Recertify	To certify	Exceptions
AK	NA			Alaska does not perform winter grow-out tests. Regulations provide certification inspections of all lots on a farm. Growers enter entire farm acreage knowing only a few of these lots will actually be sold as certified seed, the remainder sold as table stock. A high percentage of lots are less than 0.1 acre. These physical realities and very few finds of PVY and PLRV preclude winter grow-outs from being cost effective. Exported lots will be addressed to meet the import requirements of recipient.
CA	All gen (N-FG4)	Yes	No	
Canada	All gen	No	No	No seed lot requires a PHT. The Canadian system is driven by market demand of its customers, and thus voluntary participation by seed growers. Many lots of G2, G3, & G4 are tested as a result of a sales or market requirement. Generally G1, and PE are not tested as these generations are usually maintained for as seed grower's own seed, but it can voluntarily be tested for sale purposes
CO	All gen	Yes	YES	G1 lots for replant in grower's own operation. Later generation lots with very small acreage (<0.25) for replant in grower's own operation.
ID	All gen	Yes	Yes	
ME	All gen	Yes	Yes	
MI	All gen	Yes	Yes	
MN	All gen	Yes	Yes	G1 lots with very small acreage and are being planted back on the growers farm may be exempt.
MT	All gen (FY1-FY4), N is opt	Yes	Yes	
ND	All gen	Yes	--	
NE / WY	All gen	Yes	--	
NY	All gen except Nuclear.	Yes	Yes	Nuclear Lots from Uihlein Farm winter tested prior to distribution to seed growers. Generally occurs after 2 nd field year.
OR	All gen	Yes	Yes,,,	Lots less than 750 lbs. exempt, FY6 not eligible for recert
WA	All gen	Yes	Yes (for G-1) No for the rest	PHT required for recertification and for the following cases; 1. Lots in which chemical damage is detected, and 2. Field conditions no conducive to a field inspection 3. Lots with more than a trace amount of virus noted during field inspection
WI	All gen	Yes	Yes	Lots <0.25 acres staying on farm of their production are exempt.

2. How many samples for each lot?

Agency	FY1	FY2	FY3	FY4	FY5 +
AK	NA				
CA	All gen. (1 sample = 220 tubers). 1-5 acres=220 tubers; 6-10 acres=440 tubers; 11-20 acres=660; 21-40 acres=880; 41-80 acres=1100 tubers. For lots less than 1 acre = 50 tubers				
Canada	Lab test: 200 tubers OR Field test: 400 tubers. One sample/lot regardless of size.				
CO	25 tubers up to 1% of plant pop. of lot	100 tubers or 1% of plant pop of lot up to 400 tubers	1 st 40 acres = 400 tubers; Exceeding 40 acres = 800 maximum		
ID	All Generations: one acre or more = 400 tubers 0.5 – 0.9 acres = 200 tubers 0.1 – 0.4 acres = 100 tubers less than 0.1 acres = 10% of tubers to a maximum of 100				
ME ¹	400 tubers/ 8 acres NOTE	400 tubers/ 15 acres	Same as FY4&5	Foundation Class: 400 tubers/20 acres Certified Class: 400 tubers/40 acres	
ME	Testing optional if lot not sold that yr	400 tubers/ 8 acres	400 tubers/15 acres		Foundation Class: 400 tubers/15 acres Certified Class: 400 tubers/40 acres
MI	1-40 a= 400 tuber sample; 0.5-0.9 a=200 tuber sample; <0.5 a=100 tuber sample. Smaller samples < 100 tubers at agency discretion for small lots.				
MN	200	400 / lots of 45m acres max. for G1 to Certified (FY1-FY7)			
MT	Contact office	1 sample/1-10 acres	1 sample/40 acres		
ND	<2 a=300 tubers; 2-80 a=600 tubers; >80 a=1200 tubers				
NE / WY	0-1 a=125 tubers; 2-10 a=250 tubers; 11-70 a=500 tubers; 71+ a=1000 tubers				
NY	FY1, 2 (N1, N2): <0.5 acre = 25 tubers, 0.5 - 1.0 acre = 105 tubers, >1.0 acre = 410 tubers. FY3 (N3, G1) and greater: < 1.0 acre = 105 tubers, 1-40 acres = 410 tubers, >40 acres = 810 tubers.				
OR	<11 acres - OR 220 tubers; 11-20 = 400 tubers, 21-40 = 800 tubers; >40 acres = 1,200 tubers				
WA	400 tubers / lot. 4 tubers/ 100 cwt for lots < 1 acre				
WI	400 tuber sample/ 50 A: min of 1 to max of 4 samples. 0.25- 1 ac. 200 tubers, 100 tuber/<0.25 acre				

¹ME: Note: For FY1 & FY2 0.5-1.0 Ac 200 tubers, 0.25-0.5 Ac 50 tubers, < .25 Ac 20 tubers

3. What diseases are checked for in winter test?

Agency	PLRV	PVY	PVA	PVX	Other
AK	NA				
CA	Visual/ELISA	Visual/ELISA	--	--	\$
Canada	Field testing: All visible diseases are rated for a field grown PHT. PVY, PVA, and PVX are categorized as visible MOSAIC virus. PLRV is rated separately. Other diseases may be noted but are not rated. When there is no collaborative agreement by inspectors, a lab test is used to verify findings. Lab testing: ELISA is the standard protocol, and PVY and PLRV are tested routinely, other viruses such as PVA and PVX may be requested. Both systems are equally recognized. Laboratory testing is more routinely performed in Eastern Canada and Field testing is more routinely performed in Western Canada.				+
CO	Visual	Visual/ELISA	Visual/ELISA	Visual/ELISA	#
ID	Visual + ELISA	ELISA			
ME	Visual	Visual	Visual		(*)
MI	Visual	Visual	Visual	Visual	
MN	Visual	Visual	Visual		%
MT	Visual	Visual/ELISA	Visual/ELISA	Visual/ELISA	
ND	Visual	Visual	Visual	--	
NE / WY	Visual	Visual/ELISA	Visual	--	@@
NY	Visual	Visual/ELISA	Visual	Visual	@ Calico ^
OR	Visual	Visual	Visual	Visual	Any *
WA	Visual	Visual/ELISA	Visual	Visual	&
WI	Visual	Visual	Visual	Visual	@

- CO. Visual-haywire, calico, blackleg. ELISA – certain varieties are screened w/ ELISA.

& - WA. PHT based on visual inspection. ELISA may be used for confirmation

^ - NY. Samples are scored for leafroll and mosaic. Certain varieties tested specifically for PVY. Other diseases/problems reported as appropriate.

*- OR. ELISA used to reaffirm +/- visual symptoms

%- MN. Visual readings are for MO and LR. If a MO is neg. for PVY, we'll test it for PVA

+ - Canada. As required by markets, lab testing may be requested in addition to a field test for specific varieties exhibiting poor symptom expression, e.g., Russet Norkotah and Shepody

\$ - CA. Calico

@@- NE. Lots for replanting in NE, all Norkotah & Shepody are ELISA screened for PVY/PVY^N, all positives typed. Other tests as requested.

@ - WI. Rules don't require distinguishing between visual mosaic causing viruses. Inspectors have been able to identify mosaics that are not due to PVY and have them diagnosed by ELISA (e.g., PVA, PVM)

(*) ME grower may request and pay for lab testing

4. Do you confirm visual readings with ELISA? Do you test all plants with a symptom?

Agency	Response	Comments	Test all symptom plants
AK	NA		
CA	Yes	As needed and mainly “symptomless” varieties.	No – eventually to have verification
Canada	No	Only when inspectors do not agree, or a specific market requests an ELISA lab test	No – see comments
CO	No	Confirm visual w/ ELISA when necessary.	No
ID	N/A	Test all plants by ELISA for PVY; PLRV is visual with ELISA confirmation	N/A
ME	No	Set of Shepody’s are ELISA tested to correlate inspector eyes with visual symptoms	No
MI	Yes	For rejections or downgrades	No
MN	No	Only as needed	No
MT	Yes	All seedlots tested with ELISA	Yes
ND	No	Only as needed	No
NE / WY	Yes	As needed.	No
NY	Yes	Confirm visual w/ ELISA when necessary.	No
OR	Yes when needed	Lab used to test for questionable symptoms and generally at least one conformation sample per lot tested.	No – see comments
WA	No	Lab confirmation is used for plant w/ atypical symptom of when results are disputed	No – see comments
WI	Yes when needed	Confirm visual w/ ELISA when necessary, in particular asymptomatic varieties and visually down-classed or rejected lots.	No –see comments

5. Which varieties do you screen with ELISA for latent viruses? How many plants do you include in the screen? Do you apply ELISA or visual readings to the tolerance?

Agency	Varieties	# of plants screened	ELISA or visual applied to tolerance
AK	NA		
CA	CalWhite/FL varieties/Shepody/Norkotah	5-10% of sample population	
Canada	None, except if market required or a grower chooses a lab test	Based on market requirement	There is no tolerance standard established in the Canadian program. Both readings are included but when ELISA is used to resolve an inspection discrepancy, the ELISA result will be the final.
CO	Norkotah, Gemstar, Mesa, Shepody, Silverton, & other known latent PVY expressers	Questionable visual positives and random visual negatives.	ELISA
ID	All varieties	100% of emerged plants	ELISA
ME	Norkotah	100/400 tuber sample	ELISA for PVY; visual for PLRV- sum of both = total virus
MI	Norkotah, Shepody	All plants	ELISA
MN	Norkotah, Shepody, Alpine Russet	100 / lot	ELISA
MT	All varieties	100% that were germinated	ELISA
ND	Norkotah, Shepody, Silverton, Alpine Russet	300 or more (depends on sample size)	Both
NE / WY	Norkotah, Shepody, Classic	All plants up to the first 400 plants in a lot.	ELISA
NY	Green Mountain, Russet Norkotah	All plants in small samples & 50% of plants in larger samples	ELISA
OR	Shepody, Norkotah., Winema, Cal White, Gem, Shasta, A9014-2. Required only at FY1 & FY2 for PVY (above var.)	Summer involves 25% at FY1, 500 plants/a at FY2; If done in PHT all plants (up to 400 leaves per lot) tested.	They have specified tolerances
WA	All varieties tested for PVY	n/a	Yes
WI	Norkotah, Shepody, Silverton, Nicolet	400 / lot	Visual, tests recorded on North American Seed Potato Health Certificate.

6. Do you have a tolerance for variety mix?

Agency	Response	Comments
AK	NA	G-0 – G3 zero tolerance, G4-G8 0.1%
CA	Yes	G2(FY3) 0.25%; G3(FY4) 0.5%; G4(FY5) 1%; G5(FY6) buyer/seller agreement
Canada	No	Simply noted when observed
CO	No	Grower is notified & remedies are discussed
ID	No	
ME	No	VM is scored and reported, but do not reject for VM (may use results to follow-up in storage and if necessary, reject there)
MI	No	Varietal mix tolerance is applied in summer readings
MN	No	
MT	No	
ND	No	When found checked at farm.
NE / WY	Yes	Same as summer tolerances.
NY	Yes	0.25% for all generations
OR	Yes	0 – 1.0% (depending on class to G4), >1%=G5 Buyer-Seller Agreement
WA	No	
WI	Yes	0.25% for recert.; 2% for cert. Class in PHT. 0.1% for both in field inspections

7. Are your tolerances applied to recertification? (i.e., does it have to meet these tolerances in order to recertify the following year).

Agency	Response	Tolerances for recert.
AK	NA	Although PHT is not routinely performed, any problem found during any inspection will be applied to lot designation at appropriate generation level.
CA	Yes	If lot exceeds tolerances, downgraded until level permissible for recert. If above max., then out of system. Table of tolerances – see Appendix 2
Canada	No	None – Not mandatory requirement in Canada
CO	Yes	LR 1.5%; Total MO 3%; Other virus 0.5%.
ID	Yes	Recertification tolerances applied during winter test: 0.8% LR; 2.0% Mosaic
ME	Yes	Tolerances the same for cert. and recert. Foundation Class must meet 0.5% total virus w/ no PSTV or BRR. Cert. Class must meet 5.0% w/ no PSTV or BRR
MI	Yes	We have 0.5% winter test tolerance for foundation. 0.25% for summer
MN	Yes/No	Virus tolerance in the winter test is 0.5%.
MT	Yes	0.5%
ND	Yes	0.5% virus
NE / WY	Yes	Visual – Lots double the field tolerance, not eligible for recert
NY	Yes	Tolerances are the same for recertification and certification. Foundation = max. 0.5% total virus, Certified class = max. 5.0% total virus.
OR	Yes	There is a specific set of tolerances (by class) for the winter growout. Lots not meeting the tolerances can be downgraded but not totally rejected (i.e. max. downgrade is to G5 class (FY6). Table of tolerances – see Appendix 1.(http://seedcert.oregonstate.edu/potatoes)
WA	Yes	All percents: LR - N 0; G1 0.25; G2 0.5; G3 0.75; G4 1.0; G5 2.0 MO (well defined) – N 0; G1 0.25; G2 0.5; G3 1.0; G4 1.5; G5 2.0 Total Virus – N 0; G1 0.5; G2 0.75; G3 1.0; G4 1.5; G5 3.0
WI	Yes	0.5% PLRV or 0.5% Mosaics; 0.5% total virus if both present

8. Are your tolerances applied to certification (whether it gets a tag or not)?

Agency	Response	Tolerance for cert.
AK	NA	
CA	Yes	See Appendix 2
Canada	No	None
CO	Yes	5% Visual Mosaic
ID	No	No tagging tolerance
ME	Yes	See #7
MI	Yes	1.0% summer; 5.0% winter
MN	No	
MT	No	
ND	NO	Established by Seed Commissioner
NE / WY	Yes	
NY	Yes	Tolerances are the same for recertification and certification. Foundation = max. 0.5% total virus, Certified class = max. 5.0% total virus.
OR	No	Downgrading possible, but not rejection. Table of tolerances – see Appendix 1.
WA	No	Acceptance of lots that don't meet the PH tolerances must be based on buyer/seller agreement
WI	Yes	5% PLRV; 5% mosaic; 5% total virus.

9. Are your % disease readings based on the number of plants that emerge?

Agency	Response	Comments
AK	NA	
CA	Yes	
Canada	Yes	Disease readings percentage calculations are based on the number of plants positive per number emerged at a growth stage where symptoms are anticipated to be visually expressed
CO	Yes	
ID	Yes	Low (<50%) emergence requires lab retest
ME	Yes	Less than 50% emergence of sample – revert back to summer field readings
MI	Yes	
MN	Yes	
MT	Yes	ELISA results are based on number of plants emerged
ND	Yes	When significant number do not emerge
NE / WY	Yes	
NY	Yes	Shown on PHC as # emerged / # planted (e.g. 350/410)
OR	Yes	
WA	Yes	
WI	Yes	

10. Are your % disease readings based on the number of tubers planted?

Agency	Response	Comments
AK	NA	
CA	No	
Canada	No	400 tubers are the standard planted, but not used in calculation
CO	No	
ID	No	
ME	No	See # 9
MI	No	
MN	No	
MT	Yes	Visual readings
ND	NO	Minimum emergence required to be considered a legitimate test
NE / WY	No	
NY	No	
OR	No	Minimum emergence required to be considered a legitimate test
WA	No	
WI	No	

11. What dormancy breaking treatment to you use? What you also use a heat treatment? How long (days)? What is your average emergence per lot or sample?

Agency	Dormancy break	Heat trt	Duration	Avg. emergence	Comments
AK	NA				
CA	GA ₃	Yes – 70-75 F	10-14 days	Ranges from 75/220 to 175/220	
Canada	Bromo Ethane (west) Rindite (east)	Yes – 74 F	Min. 3 days: generally shipped/ held to planting at approx. same temp.	Tends to be varietal and area grown dependent, but an anticipated average is 320/400. Previous to 2002, used GAA with poor to medium success (variable results) Average was 200/400. GAA is much more temperature dependent.	
CO	Rindite + GA ₃	Yes – 75 F prior to trt	14 days minimum	315-340 out of 400	Rindite + GA ₃ – used on more dormant varieties. Double Rindite Canela Russet.
ID	Rindite	Yes – 75 F	1 week	270/400 Burbank other varieties ~300-340/400 tubers	
ME	Rindite	Yes – 65 F prior to trt, 75 F during trt	1 week prior to Rindite, 3-4 days during Rindite	360-375 out of 400 on many varieties	Extra GA ₃ in FL prior to planting for some cultivars
MI	Rindite	Yes – trt done by WI			
MN	Bromo ethane	Yes – 65 F	48 – 60 hours	Average 375	Depends on variety, we keep ½ of some varieties such as Sangre in EGF to cut and trt w/ GA and ELISA test the grow-out under lights
MT	Rindite or Bromoethane (availability)	Yes – 72 F	10 –14 days	~90% in Hawaii	
ND	Bromo ethane	Yes – 75 F	2 days	NA	
NE / WY	Bromoethane /GA ₃	Yes – 75-80F	7+ days, more if time allows	--	
NY	Rindite	Yes – 75 F prior to trt. 78 F during trt	3-7 days 3 days	80-100% stand, depending upon variety	Extra GA ₃ trt is done in FL prior to planting for some cultivars
OR	GA ₃	Yes – 80-85 F	2-3 weeks	95%	Testing in greenhouse
WA	--	Yes – 75 F	30 days	395 out of 400	Testing in greenhouse
WI	Rindite	Yes – 70-75 F prior to trt, 75-78 F during trt	4-6 days prior to Rindite, 3 days during Rindite	95+%	

12. Using your dormancy breaking treatment, which varieties are difficult to break dormancy?

Agency	Dormancy trt	Varieties which prove difficult to dormancy break
AK	NA	
CA	--	--
Canada	Bromoethane (west) Rindite (east)	Sangre, Nooksack, Penta, Pike
CO	Rindite	Sangre, Russet Nugget, Alpha, Canela Russet & some numbered lines
ID	Rindite	Russet Burbank, Norkotah
ME	Rindite	Amey, Andover, Eva, FL 1625, 1833, 1867, Gem Russet, Kanona, Kennebec, Norwis, Onaway, Pike, Superior
MI	Rindite	Pike, all FL varieties, Kennebec
MN	Bromoethane	Sangre needs double dipping in GA: Penta, Kanona, Pike, Dakota Pearl
MT	Rindite	Gem, Sangre, Alpine Russet
ND	Bromoethane	Sangre, Durango, Pike, FL varieties
NE / WY	Bromoethane /GA ₃	Some FL varieties
NY	Rindite	Allegany, Amey, Elba, Eramosa, Eva, Hampton, Norwis, NY 118, NY 121, NY E11-45, Pike all do better with GA after Rindite. Even w/ GA, Allegany emerge is ~30%.
OR	GA ₃	Gem, Russet Norkotah slower than rest.
WA	--	Pike, All Blue, Cal Red
WI	Rindite	Most FL varieties, Bannock, Canela, Kennebec, Pike

13. Standardizing generations. Last vote was in favor, but not a consensus. What are your agency's plans to add field generation to the tag? What are your concerns if you are not adding this to the tag?

Agency	Current actions	Comments
AK	Uses gen. # on tags & other lot identification	G1-G8 matches FY and is part of the lot number
CA	Adopted in 2006	
Canada	It currently is a provided for as a regulatory option	It currently is a provided for as a regulatory option, but <u>not as listed</u> in your Table: Pre-Elite = G1, Elite 1 = G2, etc. Our understanding of the resolution was the first generation in the field is G1, etc. The first generation planted in the field is: Nuclear/PE for most state and Canadian systems.
CO	Adopted in 2003	
ID	Not listed on tag yet	Further action to be decided when consensus is reached
ME	Started using it June 2013	FY1 to FY6 is included in our regulations. FY designation can be added to the tag if requested.
ME	Started using it Jan. 2002	Will not add this to rules until rules are revised for some other reason
MI	1 st field yr is Field Year 1 or FY1	FY is used for FY1 to FY6. Very few tags are used. Bulk loads have a bulk certificate issued at inspection which identifies field generation
MN	Not part of the rules	Seed growers know what they are planting and other never asked for it.
MT	--	No, we will not add field gen. to the tag. We feel field gen. is not relevant to actual disease infection. We would like to see that disease reading and field gen. be defined.
ND	--	No interest from industry to change Health Cert is exact, more useful.
NE / WY	Not in rules.	Health Cert is exact, more useful.
NY	--	Rule changes to adopt FY system proposed.
OR	Certified class (only) listed on tag	Will likely follow lead of neighboring states, but must be approved by Advisory Committee of Certification Board. Adding actual field year could become difficult for down-graded lots. If added would most likely list max. number of field years possible.
WA	Rules require tag to list gen.	Could change our gen. Scheme to reflect field gen. & growers probably willing as long as neighboring states did the same
WI	1st field yr is Field Year 1 or FY1	FY is used for foundation classes FY1 to FY6. If virus levels in summer or winter readings exceed respective tolerances for foundation class, classification falls to "certified" regardless of FY; if exceed certified tolerances, are not certified. FY is printed on tags by request.

14. Does your state/province have a certified seed law? Does this law include a “year out” clause?

	<u>Seed Law</u>	<u>“Year Out”</u>
Alaska	No	N/A
California	Yes	No
Colorado	Yes	Yes
Idaho	Yes	Yes
Maine	Yes	No
Michigan	No	N/A
Minnesota	Yes	No
Montana	Yes	No
Nebraska	Yes	No
Pennsylvania	?	?
North Dakota	Yes	Yes
NY	No	N/A
Oregon	Yes	No
UT	No	N/A
WA	Yes	No
WI	No	N/A
Canada	?	?

? = No response.

Post Harvest Testing Survey II

Prepared by the PAA Certification Section
Updated December, 2014

15. Aside from a standard grow-out of a post-harvest sample, what additional tests does your state/province require for seed entering your state/province for re-certification."

Agency	Additional tests required to certify		Exceptions
Alaska			.
California			
Canada			
Colorado	Late Blight testing		
Idaho			
Maine			
Michigan	None		Must meet our standards
Minnesota			
Montana			
North Dakota			
Nebraska / Wyoming	Root Knot Nematode	(Dept of Ag)	Soil test req'd when produced in county known to be present.
New York			
Oregon	None		
Washington			Readings must meet our tolerances
Wisconsin	None		Readings must meet our tolerances: both summer field (mosaic, PLRV, PSTV, BRR, mixture) and post harvest (mosaic, PLRV, PSTV, mixture)

16. And indicate if your state does not accept seed from other states for re-certification purposes.

<u>State</u>	<u>Accept?</u>	<u>Comment</u>
Alaska	?	
California	?	
Colorado	Yes	Must meet CO Cert standards, CO Seed Act standards, and have shipping point
Colorado	?	
Idaho	?	
Maine	?	
Michigan	Yes	If meeting our standards
Minnesota	?	
Montana	?	
Nebraska/Wyoming	Yes	If Meeting our standards, and have shipping point inspection
Pennsylvania	?	
North Dakota	?	
NY	?	
Oregon	Yes	Winter Grow-out, meets tolerance by class for disease/OT
UT	?	
WA	Yes	Must meet all of our tolerances
WI	Y	Must meet all of our tolerances, plus have an official shipping point inspection
Canada	?	
? = No response.		

Appendix 1

From the Oregon Seed Potato Standards

C. Minimum sample size {for winter growouts} will be:

1. Winter test samples must be submitted in bags weighing no more than approximately 50 pounds.
2. Small seed lots: 4 tubers per hundred weight, with a minimum of 50 tubers. (need not exceed 220 tubers)
3. Larger lots: The minimum tuber requirements for the WGO for lots over 0.5 acres **are 220 tubers + 20 tubers per acre**, with fractions of acres rounded to the nearest whole number.

WINTER TEST TOLERANCES

Factor ^l	<u>Nuclear</u>	<u>Gen 1</u>	<u>Gen 2</u>	<u>Gen 3</u>	<u>Gen 4</u>	<u>Gen 5</u>
Leafroll	0	0.25	0.30	0.75	1.0	BSA ^d
Mosaic						
- Other varieties	0	0.25	0.50	1.00	2.00	
- Latent PVY Varieties ^e	0	0	0.25	0.50	1.00	5.00 BSA ^d
Other visible virus ^a	0	0.25	0.75	2.00	2.00	BSA ^d
Total visible viruses						
- Other varieties	0	0.50	0.75	2.00	2.00	BSA ^d
- Latent PVY Varieties ^e	0	0	0.50	0.75	2.00	5.00 BSA ^d
Variety mixtures	0	0	0.25	0.50	1.00	BSA ^d

^l There is a zero tolerance for **Spindle tuber viroid, Bacterial Ring Rot, and Root-Knot Nematode** at all classes.

^a Includes phytoplasma-like organism

^b Protocol on file specifying what constitutes a confirmation of diagnosis for BRR.

^d Acceptance of the seed lot will be based on buyer/seller agreement.

^e See definition on page 10, include (but may not be limited to) CalWhite, Gem Russet, GemStar Russet, Shepody, all Russet Norkotah, and Winema.

^f Only lots at or below 2% mosaic are eligible for recertification.

Note: Starting in 2009 chemical damage observed in the Winter Teest is reported on final reports only if linked to field symptoms.

<http://seedcert.oregonstate.edu/potatoes>)

Appendix 2

California Post Season Test Disease Tolerance

Factor	Nuclear	G1	G2	G3	G4	G5
Leafroll	0	0.5	0.5	0.5	1.0	****
Mosaic – other var.	0	0.5	0.5	1.0	2.0	****
Mosaic – Russet Norkotah and Cal White	0	0.5	0.75	1.0	5.0	****
Spindle tuber viroid	0	0	0	0	0	0
Other visible virus	0	0.5	0.5	1.0	2.0	****
Total visible virus – other var.	0	0.5	0.5	1.0	2.0	****
Total visible virus – R-Norkotah and Cal White	0	0.5	0.75	2.0	5.0	****
Ring Rot and Root-Knot Nematodes	0	0	0	0	0	0
Chemical injury: Severe	***	0.5	0.5	0.5	1.0	****
Chemical injury: Mild	***	0.5	1.0	3.0	3.0	****
Varietal Mixtures	0	0	0.25	0.5	1.0	****
*** Does not apply						
**** Acceptance of the seed lot will be based on buyer/seller agreement						