

# Potato Association of America - Certification Section Annual General Certification Agency Survey

Date last modified (see item 17 date specific to each agency). Changes from last official update (Jan 2011) shown in **RED**. Most current version posted at: <http://oregonstate.edu/potatoes/PAA-CS Gen Agency Survey-current.htm>

## Questions Summary

<a href="#">1.</a>	<b>Agency Name:</b> What is the Certification Agency in your state?
<a href="#">2.</a>	<b>Management:</b> What are the name and titles of management personnel?
<a href="#">3.</a>	<b>Board:</b> Does your agency have an elected Board of Directors or other form of grower representation?
<a href="#">4.</a>	<b>Directors:</b> If so, who are the current directors?
<a href="#">5.</a>	<b>Statutory Responsibility:</b> What state agency or entity holds statutory responsibility for seed potato certification?
<a href="#">6.</a>	<b>Funding:</b> How is your certification program funded?
<a href="#">7.</a>	<b>Fees:</b> What fees (and how much) must a seed grower pay for participation in your certification program (acreage fees, winter test fees, promotion, tags, research, etc.)?
<a href="#">8.</a>	<b>SPI:</b> What agency is responsible for shipping point inspection?
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<a href="#">11.</a>	<b>Staff:</b> How many field inspectors does your agency employ? What is the average years of experience for your field inspectors, and how are they trained and "certified" for their jobs?
<a href="#">12.</a>	<b>University Affiliation:</b> If your agency is not university sponsored, does your agency have a working relationship to a state university?
<a href="#">13.</a>	<b>Tissue culture Plantlets:</b> (1) Which viruses are tested for?; (2) How often are the plantlets tested?
<a href="#">14.</a>	<b>Sources of material grown in protected environments:</b> Please list the sources of certified minitubers/plantlets &/or diseases tested tissue culture material located within your state or province. (name, contact person, phone & email)
<a href="#">15.</a>	<b>Protected environments:</b> What are the testing requirements for plants grown in protected environments (greenhouse, NFT, etc.)?
<a href="#">16.</a>	<b>Latent Virus Testing:</b> Does your agency test for PVX or PVS in seed lots? If so, which generations are tested?
<a href="#">17.</a>	<b>BRR:</b> What specific test results do you use to make the determination that a seed lot has the bacterial ring rot disease?
<a href="#">18.</a>	<b>PHT-1:</b> Does your agency require a post-harvest test? If so, are all seed lots required to be tested? Explain.
<a href="#">19.</a>	<b>PHT-2:</b> Lot size and testing requirements - please specify size of lots required in PHT and which laboratory tests are required for Foundation level (i.e., for recertification) and certification purposes.
<a href="#">20.</a>	<b>NVMP:</b> Is your agency in compliance with the US - Canada Necrotic Virus management plan (or "PVYn Management Plan" for answers prior to 2004)? How much does it cost per lot to do this testing, and who pays for it?
<a href="#">21.</a>	<b>Update:</b> Last date modified or affirmed

Nevada removed 2/08/05 - see page 10

## 1. What is the Certification Agency in your state?

Alaska	Alaska Seed Growers Inc.
California	California Crop Improvement Association (CCIA)
Canada	Canadian Food Inspection Agency (CFIA)
Colorado	Colorado Potato Certification Service
Idaho	Idaho Crop Improvement Association
Maine	Maine Department of Agriculture, Division of Animal and Plant Health
Michigan	The Michigan Seed Potato Association
Minnesota	Minnesota Department of Agriculture/Potato Inspection
Montana	Montana Seed Potato Certification Program of Montana State University
Nebraska & WY*3	Potato Certification Association of Nebraska
New York	New York The College of Agriculture and Life Sciences (CALS), Cornell University. Certification program administered by the New York Seed Improvement Project (NYSIP), Dept. of Plant Breeding and Genetics, Cornell University.
North Dakota	North Dakota State Seed Department
Oregon	Oregon Seed Certification Service
Washington	Washington State Department of Agriculture- Plant Protection Division
Wisconsin	Wisconsin Seed Potato Certification Program of the University of Wisconsin-Madison

## 2. What are the name and titles of management personnel?

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Alaska	Pat Mulligan - Manager Bill Campbell - Potato Disease Control Specialist
California	Larry R. Teuber - Executive Director; Pablo Guzman - Manager Potato Certification; Timothy Blank - Seed Potato Inspector; Alex Mkandawire- Seed potato inspector
Canada	Director of Horticulture - Cameron Duff National Manager, Potato Section - Greg Wolff Potato Specialists - Samy Pelerin, Trevor Yu, Katharine Church National Manager, PCN Section - Alain Boucher PCN Specialists - Patricia McAllister, Fré
Colorado	Kent Sather - Manager; Rick Haslar - Asst. Manager; Rue Snell - Lab Supervisor; Teresa Rivera - Tissue Culture Specialist; Dr. Rob Davidson - Plant Pathologist
Idaho	Greg Lowry - Executive Vice President Doug Boze - Area Manager Sherry Laug- Lab Manager
Maine	Robert Batteese, Director Vacant -Porter Farm Program Manager Al Todd - Seed Potato Inspector Supervisor
Michigan	Jeff Axford - Executive Director
Minnesota	Michael Horken - Potato Program Supervisor Darrell Anderson - Seed Potato Specialist
Montana	Nina Zidack - Director of Potato Seed Certification Program
Nebraska & WY*3	Steven Marquardt, Manager
New York	Alan Westra - Manager, New York Seed Improvement; Dr. Keith Perry - Director, Cornell Uihlein Farm
North Dakota	Ken Bertsch, Seed Commissioner; Willem Schrage, Director of Potato Programs; Mike Oosterwijk, Supervisor of Potato Programs
Oregon	Dennis Lundeen - Manager and Seed Certification Specialist, Jeff McMorran - Seed Certification Specialist - Potato Certification (Field Production) Terry Burr - Seed Certification Specialist - Potato Certification (Post Harvest Grow-outs and Latent Virus Assays)
Washington	Tom Wessels - Plant Services Program Manager
Wisconsin	Amy Charkowski - Administrative Director Robert Coltman - Program Director

### 3. Does your agency have an elected Board of Directors or other form of grower representation?

Alaska	Annually Elected board
California	There is not a specified Board of Directors for Potato seeds growers but for crops that are certified by CCIA
Canada	The CFIA does not have an elected board of directors for the seed potato certification program, instead, consultation on program changes are done through a group of national seed potato stakeholders.
Colorado	No, the grower association that cooperates with the agency has an elected Board of Directors, by-law, etc.
Idaho	Yes, our agency has an elected Board of Directors
Maine	We discuss certification issues with the Maine Potato Board's Seed Executive Council. The Maine Seed Potato Board oversees the operation at the Porter Seed Farm.
Michigan	Yes, we do have an elected Board of Directors.
Minnesota	The Board of the Minnesota Certified Seed Potato Growers Association.
Montana	Seed Potato Certification Advisory Board
Nebraska & Wyoming*3	We have an Executive Council, they are elected by the growers in our association at the annual meeting. We also have a seed certification committee, made up of University of Nebraska department heads, which oversee our association.
New York	Growers are represented through their membership in the New York Seed Improvement Cooperative, Inc. (NYSIC) and its Potato Certification Committee. NYSIC serves in an advisory capacity to NYSIP.
North Dakota	State Seed Commission (Agency), ND Certified Seed Potato Growers Assn. (Potato Program)
Oregon	Yes, the Potato Certification and Foundation Seed and Plant Material Advisory Committee.
Washington	Yes, the Washington Seed Potato Commission
Wisconsin	Growers are represented through their membership in the Wisconsin Seed Potato Improvement Association (WSPIA) and two of its committees: (a) Advisory Committee [fiscal and seed program management] and (b) Regulatory Committee [rules and regulations].

### 4. If so, who are the current directors?

Alaska	Elected board: Bob Boyd, Andy Andrews, Phil Smith, Warren Smith, Mike Schultz
California	Ray Johnson, Frank Saviez, Tom Hearne, Glenn Powell, Jack De Wit, Charles Schonauer, Kent Bradford, Frank Carl, Chris van Kessel, John Heaton, Mary Wadsworth, Glenn Hawes, John Palmer, Bob Baglietto, Edward H. Eggers, Shannon Muller, Andrea Fox and Jim Hi
Canada	Robert Watson is currently chair of the seed potato subcommittee of the Canadian Horticultural Council

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Colorado	Bob Mattive - President Roger Mix - Vice President Mark Peterson - Sec./Treasurer Directors - <b>Doug Gunnels</b> , Jared Myers, Scott Scidmore, Bruce Heersink, Segundo Diaz, Brian Brownell. Ron Crowther - Commercial Grower Representative
Idaho	Glenn Jacklin - President, Roy Sneddon - Vice President, Clyde Butcher - Treasurer, Greg Lowry - Exec. Vive President, Jerry Inouye, Chad Neibaur, Dirk Parkinson, Doug Gross, Kathy Stewart-Williams, James Johnson - Ex-Officio
Maine	N/A
Michigan	Board of Directors =Ben Sklarczyk (chair),Jeff Cousineau(sec./treasurer), Gerald Krueger, Jeff Sackett, Tom Marker, Dr. Willie Kirk, (Michigan State University),Ben Kudwa (Michigan Potato Industry) Ken Rauscher (Michigan Dept. of Ag.)Jeff Axford (Michigan Seed Potato Assc.)
Minnesota	Brian Halverson-Chairman, Baker Dave Paquin - Treasure, Mentor Lonnie Spokely - Secretary, Nielsville Scott Pieper, Vice Chairman, Williams Jerry Larson, Climax Justin Dagen, Karlstad , Kelly Kolhlman, Staples
Montana	Dan Dyk (chairman) Jake Lake, Sid Scutter, John Venhuizen, Steve Cottom, Roger Starkel, Steve Strich
Nebraska & WY*3	Jim Allen – President, Troy Dagen - Vice President, Joe Thompson – Treasurer
New York	New York Potato Certification Committee is comprised of active seed potato growers plus one commercial grower.
North Dakota	Seed Commission: Bob Christman (Deputy Commissioner of Agriculture) Chairman; Ken Bertsch, Seed Commissioner; Kim Alberty, ND Ag Assn.; Mark Birdsall, ND Crop Improvement Assn; Richard Fugleberg, ND Edible Bean; Seed Growers Assn.; Myron Uttermark, ND Grain Dealers Assn.; Nick Otto ,ND Potato Council; Brad Nilson, Northern Plains Potato Growers Assn.; John Thiele, ND Certified Seed Potato Growers Assn.; Ken Grafton, Director, ND Agriculture Experiment Station
Oregon	Seed Grower - Voting Members Seed Growers: Mike Macy, Jim Carlson, Ed Macy; Phil Rathbun, Rob Lane; Ed Stastny, George Rajnus; Scott Cheyne; Commercial Growers: Lon Baley. Greg Harris; Oregon State University - Phil Hamm , Brian Charlton. Ex-officio Dennis Lundeen (OSCS), Russ Karow (Crop Science Chair), Jim Cramer (Oregon Dept. of Ag.)
Washington	Dale Bedlington, Chairman; Roger Hawley, Dale Bedlington, Gene Crabtree, Leonard Ebe, William Gross, Marlys Bedlington.
Wisconsin	Wisconsin Seed Potato Improvement Association Board of Directors: Brian Bunnell, Pres., Dan Wild, Adam Bula, Josh Mattek, Ron Krueger, Directors.

## 5. What state agency or entity holds statutory responsibility for seed potato certification?

Alaska	Department of Natural Resources Division of Agriculture delegates ASG inc. as certification entity.
California	California Department of Food and Agriculture (CDFA)
Canada	The statutory responsibility for the seed potato certification program rest with the CFIA.
Colorado	Our program is administered by Colorado State University Potato Certification Service (Department of Horticulture and Landscape Architecture) as authorized by the Colorado State Board of Agriculture.
Idaho	University of Idaho, Regents appointed Idaho Crop Improvement Association.
Maine	Maine Department of Agriculture
Michigan	The Michigan Department of Agriculture
Minnesota	Minnesota Commissioner of Agriculture
Montana	Montana State University
Nebraska & WY*3	The University of Nebraska delegated to the Potato Certification Association.
New York	Per New York State Seed law, the New York Commissioner of Agriculture has delegated this responsibility to the College of Agriculture and Life Sciences, Cornell University
North Dakota	North Dakota State Seed Department
Oregon	Oregon State University. The Dean of the College of Agriculture Science administers the Seed Certification program through the Extension Service.
Washington	Washington State Department of Agriculture
Wisconsin	Wisconsin Department of Agriculture, Trade & Consumer Protection has delegated to UW-Madison

## 6. How is your certification program funded?

Alaska	Growers pay inspection fees and membership fee
California	The program is funded by grower fees
Canada	Combination fees for inspection service and by the CFIA.
Colorado	Growers fees pay for entire program (except 10 1/2 months of plant pathologist's salary).
Idaho	Acreage fees fund our certification program.

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Maine	The program is primarily funded by grower fees but also receives a small General Fund Appropriation.
Michigan	Inspection fees fund our certification program.
Minnesota	We are funded by growers fees.
Montana	We are funded by the Montana's Seed Potato Growers.
Nebraska & WY*3	Growers fees fund our certification program.
New York	Primarily grower fees. A portion of the manager's salary is paid by the College.
North Dakota	Program funded completely by service fees, no state funding utilized in certification program services provided by State Seed Department
Oregon	Strictly from grower fees, no state funds are available. Fees are based on acreage entered.
Washington	This program is funded by grower fees
Wisconsin	Grower fees except salary of Admin. Director who is a UW-Madison faculty member. Her salary is paid by UW-Madison.

**7. What fees (and how much) must a seed grower pay for participation in your certification program (acreage fees, winter test fees, promotion, tags, research, etc.)?**

Alaska	Inspection/lot registration fee: \$30 first acre \$20 each additional acre plus \$5 per seed lot.
California	Field inspection is \$56.00 per acre, minimum of \$56.00 per application. All post-season grow-out tests are \$50.00 per sample
Canada	Growers pay \$50.00 to apply for participation in the program and \$20.00 for each hectare entered for certification. The winter test, Bacterial ring rot tests, virus and viroid test are done on a private basis and growers pay the total cost. Costs for those services may be available by contacting the service providers. There is a charge of \$1.20 per tonne for phytosanitary inspection of potatoes.
Colorado	Acreage: \$22.00 per acre (includes cost of Post Harvest Test) for G1 - G5. \$14.00 for G6. Bulk Certificate: \$0.08 per cwt; Tags: \$0.08 per tag. Disease testing at cost. Shipping point inspection is paid by growers to Federal/State Inspection Service.
Idaho	\$28.10 per acre. No winter test, tagging fee are charged to our growers. A fee of \$2.00 for research is included in the acreage fee. Shipping point inspections are paid for by growers to the Federal/ State FFV Inspection Service.
Maine	Acreage: \$26.00 per acre, Winter test: \$115-\$140/Sample, depending on class. Shipping point Inspection: \$0.10 per cwt; Tags: \$0.03 per tag
Michigan	Fees -Field inspection fee =\$42.00/acre, Winter test fees are based on actual cost approx. \$181.00 /sample, Shipping Point inspection are based on actual cost approx.\$0.20/cwt
Minnesota	Field inspection: \$20.00 per acre, Winter test: \$8.00 per acre, with a minimum charge of \$40.00, Shipping point:\$0.11 per cwt, Certification of origin: \$30.00 and Tags: \$0.025 per tag.
Montana	All growers pay acreage, winter test, promotion, tags, and research fees. Nuclear G-1 is \$50 per acre. G-2, G-3, G-4 is \$41 per acre. Summer PVY & PVX tests: \$0.46/test. Hawaii test:\$190/sample.
Nebraska & Wyoming*3	Field inspection \$20.00 per acre., Winter test is based on cost, growers are billed on a per sample basis. Shipping point \$0.10 per cwt. Storage inspection \$0.05 Tag fee \$0.05, Bulk fee \$0.05.
New York	New York Field Inspection: 1st 50 acres - \$58.25/acre; 2nd 50 acres \$56.25/acre; >100 acres - \$54.25/acre (\$250.00 minimum). Florida Test: 1 sample/8 acres entered covered, additional samples = \$125/sample. Promotion: \$2.75/acre. Tags: \$0.06 ea.
North Dakota	Field inspection, \$26.00 per acre, minimum \$100 fee; Grade inspection, \$0.08 per cwt; Winter test, \$160 per sample; Promotion, determined annually by growers assn., average \$1-2.00 per acre.
Oregon	Field inspection: \$30.00 per acre, Minimum \$60.00 per application. Winter test: \$135 per 400 tuber sample (sliding scare based on acreage up to 3 samples per lot, see question #19), Minimum \$60.00 per application, Latent Virus Testing Fee: Minimum \$60/application all classes; fee noted is sampling fee, lab fee additional (= cost +University overhead) -> Nuclear \$2.45 per 40 plants, G1 \$110 per acre, G2 \$11.00 per acre, G3-5 \$5.00 per acre. No promotion or tag fees. A \$0.05 CWT fee is paid to the Oregon Potato Commission for promotion and research.
Washington	An assessment of \$29 per acre is for all field inspections. There are separate fees for lab and winter tests.
Wisconsin	Field inspection fees \$30 per acre. Winter test fees \$160 per sample. Shipping point inspection funded through approx. \$0.15 per cwt charge paid directly to WDATCP. E-2 (FY2) elite foundation seed produced by Program sold by request to Program growers at base price of \$25.25 per cwt (+/- handling services. E-1 (FY1) elite foundation seed of varieties prone to rapid acquisition of PVY or poor PVY symptom expression (Red LaSoda, Russet Norkotah, Silverton) sold at \$30.25 per cwt base price.

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### 8. What agency is responsible for shipping point inspection?

Alaska	If and when requested by growers, State personnel perform inspections.
California	Federal/State Inspection Service is responsible for shipping point inspection.
Canada	The CFIA is responsible for the shipping point inspections.
Colorado	Federal/State Inspection Service are responsible for shipping point inspections.
Idaho	Federal/State Inspection Service are responsible for shipping point inspection.
Maine	Maine Department of Agriculture, Division of Animal and Plant Health oversees the shipping point inspections
Michigan	The Michigan Seed Potato Assc. or the Michigan Dept. of Ag.
Minnesota	Minnesota Department of Agriculture/Potato Inspection are responsible for shipping point inspection.
Montana	Montana State Department of Agriculture
Nebraska & Wyoming*3	Potato Certification is cooperation with Nebraska Department of Agriculture and Federal and State Inspection program.
New York	New York Federal/State Inspection Service (NYSDAM, Food Safety and Inspection) is responsible for shipping point inspection.
North Dakota	North Dakota State Seed Department is responsible for Federal/State shipping point inspections.
Oregon	Oregon State Department of Agriculture
Washington	Washington State Department of Agriculture.
Wisconsin	Federal/State Inspection Service is responsible for shipping point inspection.

### 9. What is your agency's procedure for changing regulation or fees?

Alaska	Changes are submitted, reviewed by members, and voted on at the annual meeting. Changes approved by DNR
California	All changes to Certification standards or fees are ratified by California Crop Improvement Board of Directors
Canada	Consultation takes place with the seed potato stakeholders and regulatory changes with respect to the standards. Fees must be approved by Parliament to become effective.
Colorado	Recommendations are made through the growers' association. Their board acts on the recommendation and if approved, changes are made to rules or fee structure. Colorado State University has final approval authority.
Idaho	All rule changes are ratified by Idaho Crop Improvement Board of Directors and the University of Idaho Foundation Seed Stocks Committee.
Maine	Regulation and fees changes must follow the process prescribed by the State of Maine to promulgate a rule change. This includes proposing the rule (or fee) change, holding a public hearing, accepting written comments, and addressing all comments in the adoption of the rule.
Michigan	Fees may be changed by the board of directors of M.S.P.A. Regulation changes are a function of the State of Michigan.
Minnesota	Regulation changes pass through the State's Reviser's Office.
Montana	The Seed Potato Advisory Board make recommendations to the President of the Montana State University for final decision.
Nebraska & WY*3	Voted on at annual meeting by membership. Final approval by Certification committee of University of Nebraska, Lincoln
New York	(1) Fees: Established annually, approval must be voted on by growers at The Annual Meeting (2) Regulations: Must go through NYS Department of Agriculture & Markets; this requires legal review, open posting and hearing, economic impact appraisal, and statement of support (usually 2-3 years process).
North Dakota	Fee changes are made with the approval of the Seed Commission and the Grower's Association.
Oregon	<b>Regulations:</b> An Advisory Committee with final approval by the Certification Board; <b>Fees:</b> Open hearing process (by law), OSCS must be self-supporting, thus fees are adjusted to maintain the project.
Washington	Regulations and fees are changed by following the state rule making process which requires public hearings and accepting testimony from growers. The process is initiated by the program manager and takes from 3-4 months.
Wisconsin	Certification regulations are contained in State of Wisconsin Administrative Code Chapter 156. Changes require state-wide open hearings and generally take several years to implement.

### 10. What is your state's average acreage of seed potatoes?

Alaska	120
California	760 acres in 2009
Canada	2009 hectares (accepted): NL 60, PE 6,833, NS 163, NB 5,448, QC 2,710, ON 278, MB 2,691, SK 1,584, AB 3,718, BC 467 TOTAL 23,952 hectares.

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Colorado	14,000 - 15,500 acres
Idaho	31,000 to 35,000 acres
Maine	Acreage increased from 10,815 in 2009 to 11,115 in 2010.
Michigan	2,500 acres
Minnesota	8,000 to 10,000 acres
Montana	10,000 acres
Nebraska & WY*3	5,000 to 7,000 acres
New York	2000-05 average is 950 acres.
North Dakota	over 16000 acres average in the past five-year period
Oregon	2,500 - 3,000 acres passing inspection.
Washington	2,400
Wisconsin	8,000 to 9,000 acres

### 11. How many field inspectors does your agency employ? What is the average years of experience for your field inspectors, and how are they trained and "certified" for their jobs?

Alaska	One inspector 25 years experience, known diseased garden for id training purposes each year.
California	CCIA has one full time certification inspectors with nine years experiences in potatoes. Two new inspectors two years experience (Timothy Blank and Alex Mkandawire)
Canada	The CFIA has between 70-80 inspectors doing seed potato field inspection. Average years of experience is not something that is tracked, but the majority of CFIA field inspectors have more than 10 years of experience. They are trained through attendance to the national training course, regional workshops and working with experienced inspectors for at least one season. They are evaluated during the training process to determine if progress is being made and when each individual is ready to perform inspections independently.
Colorado	Five inspectors with an average of 10 years of experience. Manager and Assistant Manager with an average 24 years of experience. New inspectors train on site for 2 years plus attend the Canadian rouging school.
Idaho	16 inspectors with an average of 8 years experience. They participate in classroom and field plot instruction yearly. Less experienced inspectors work with more experienced inspectors.
Maine	Five full time and 2 seasonal field inspectors, with approximately 30 years average experience. Most inspectors move to seed inspection from the federal/state inspection service, where they receive shipping point inspector experience. Some personnel are hired by the seed program to assist the seed inspectors with the field readings, so they train with the seed inspector. When openings in the seed program occur, these individuals have some experience and are usually hired for the job. We then send all new inspectors to the Canadian Seed inspectors training program. New inspectors are also supervised more closely by the Seed Potato Inspector Supervisor.
Michigan	The average experience is 15 years.
Minnesota	Number of inspectors: Field inspection: 4 full time with an average of 15 years of experience. We require a minimal 3 years field inspection training with an experienced inspector. Ridgetown course in Canada is also required.
Montana	We have 8 inspectors with an average of 9 years of experience. All inspectors participate in the WA seed potato trials ratings and field day in Othello, WA prior to the field season. 1 season under supervision of seasoned inspectors required. Three inspectors with 1-2 year experience will attend the Canadian Seed inspectors training program in 2011.
Nebraska & Wyoming*3	We have 3 inspectors one with 40 years experience one with 25 years and
New York	(1) NYSIP Manager; others contracted through NYSDAM (2) 10+ years (3) (a) Orientation with Manager, (b) Literature provided to establish baseline of information, (c) Work with "experienced" inspector until "approved" by the inspector for summer winter inspections, and (d) once "approved", sent to Canadian Inspector School. We also use attendance at industry and professional meetings as a training tool.
North Dakota	1 Field Supervisor, 30 years experience; 4 field inspectors with an average of 20 years experience. All field inspection staff receive on the job training for 2-3 year period prior to assuming FT positions.
Oregon	<b>Inspectors:</b> 5 full time* field inspectors with, average of 8 years of experience, ranging from 3-18 years. All have a BS or higher university degree in Agriculture. We also utilize and 3 part-time field inspectors who primarily assist with harvest inspections. <b>Training:</b> attending seminars on disease control in potatoes and related crops; evaluation of seed source plots; and Roguing School, inspections WS.
Washington	We have three inspectors working in seed potatoes (5-40%) with an average of 5 years experience, under a supervisor with 32 years experience.. All inspectors participate in the seed potato trials in Othello prior to beginning field inspections. We also send new inspectors to Ridgetown, Ontario for training.

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Wisconsin Two full-time inspectors with 20 years of experience and two seasonal inspectors with 10 - 15 years experience. All have been to Canadian Inspector's school. Literature and ongoing interaction with UW-Madison pest and disease experts are invaluable.

### 12. If your agency is not university sponsored, does your agency have a working relationship to a state university?

Alaska	NO
California	Yes.
Canada	We do collaborate with the research branch of the federal Department of Agriculture and Agri-Food Canada, and use some University facilities for training purposes. Working relationships with provincial departments of agriculture as well as agricultural colleges and universities are common.
Colorado	NA - It is university sponsored.
Idaho	University of Idaho designated Idaho Crop Improvement Association to administer and conduct the seed certification program and as such maintains a working relationship with the University. UI has an Ex-Officio member on our Board of Directors. UI Foundation Seed Stocks Committee reviews our proposed rule changes
Maine	Yes, We cooperate with the University of Maine in disease issues, the breeding program and new varieties, etc. University of Maine technician Ann Currier also conducts pathogen testing on behalf of the certification program in the state's seed potato certification lab.
Michigan	Yes, There is a cooperative agreement between the M.S.P.A., Michigan State University and Michigan Department of Agriculture.
Minnesota	The variety bank is at the University of Minnesota, Crookston.
Montana	University Sponsored
Nebraska & Wyoming*3	Yes, The University Certification Committee comprised of Department Heads in Entomology, Plant Pathology, Horticulture and Agronomy oversee the Association and provide input and ideas for the program.
New York	University sponsored.
North Dakota	The State Seed Department has many cooperative projects jointly with NDSU. The State Seed Department is an agency of government of the state of North Dakota, but is situated on the campus of North Dakota State University in Fargo.
Oregon	All fulltime inspectors are OSU faculty in the Department of Crop and Soil Science.
Washington	Yes
Wisconsin	University sponsored

### 13 Tissue culture Plantlets: (1) Which viruses are tested for?; (2) How often are the plantlets tested?

Alaska	X,S,Y,A,M,LR,PotLV,PMTV when initiated from new stocks
California	PVA, PVM, PLRV, PVS, PVX, PVY, PSTV, Bacteria: Cms and Erw. (each TC batch)
Canada	Tested annually: A sample of at least two plantlets per variety or clone being initiated must be tested in a laboratory approved by the CFIA and found not to be infected with any of the following organisms: Viruses: PVA, PVS, PVM, PVY, PVX, PLRV, Potato Latent Virus (PotLV) also known as Red LaSoda Virus (RLSV), and Potato Mop-Top virus (PMTV); Viroid: PSTVd (Potato spindle tuber viroid); Bacteria: Clavibacter michiganensis subsp. sepedonicus (C. m. sepedonicus), the causal pathogen of bacterial ring rot (BRR).
Colorado	X,S,Y,A,M,LR,PotLV,PMTV when initiated from new stocks. PVX, S, Y, M, Cms & Erw. Once per year.
Idaho	Viruses tested are PVY, PVA, PVX, PVM (old and new), PVS, PLRV. PSTV is tested one time only at entry level. 2) All lines are tested when they are originally entered into the germplasm bank. Those that go out for greenhouse production are tested once a year.
Maine	PV-A, M, S, X, Y, PLRV, PSTVd - Annually, and when new cultures are made or received
Michigan	All mother plants tested for plrv,pmtv,pva,pvm,pvs,pvx,pvy,pstv,rv each crop
Minnesota	PVX,PVS,PVA,PVM,PVY,PSTV,PLRV. C.michiganensis,E carotovora. Tested Yearly. Each initial explant or tuber must also have been tested for any other organisms for which testing is required by the phytosanitary requirements in another state or Canadian province.
Montana	Tissue culture plantlets are tested every year prior to mass increase for: PVX, PVY, PVY-n, AMV, PLRV, PVA, PVM, PVS, TRV, PSTVd, PMTV, Cms, Patro.
Nebraska & WY*3	Viruses by ELISA: PVX, PVS, PVY, PVA, PVM, PLRV, PMTV, TRV, PotLV

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New York	Before introduction onto Uihlein Farm, all tissue culture plantlets tested In Ithaca for: Viruses by ELISA: PVX, PVS, PVY, PVA, PVM, PLRV, PMTV, TRV, PotLV; Bacteria by ELISA: Cms, Eca; Broth & Richardson's for other bacteria and fungi; PSTV nucleic acid hybridization assay New Introduction testing at Uihlein Farm & at reinitiating; historically reinitiation was annual, then every 3rd year; in the future, reinitiation (and testing) of plantlets will be done on an as needed basis. Viruses by ELISA: PVX, PVS, PVY, PVA, PVM, PLRV ; Bacteria by ELISA: Cms, Eca Broth & Richardson's for other bacteria and fungi; PSTV nucleic acid hybridization assay (RNA extraction done at farm, tested in Ithaca. All lots of tissue culture plantlets shipped from the Uihlein Farm are tested for the following: Viruses by ELISA: PVX, PVS, PVY, PVA, PVM, PLRV
North Dakota	Viruses by ELISA: PVX, PVS, PVY, PVA, PVM, PLRV, PMTV, TRV, PotLV; Bacteria by ELISA: Cms, Eca; Broth & Richardson's for other bacteria and fungi; PSTV nucleic acid hybridization assay
Oregon	PVX, PVS, PVA, PVM, PVY, PLRV, PMTV, C.michiganensis, Pectobacterium (E carotovora). Tested yearly. PSTV tested initially only. All mother plants screened for bacterial and fungi on Richards medium &/or nutritional broth (yearly).
Washington	PVA, PVM, PVS, PVX, PVY, PLRV, PSTVd, PMTV, Ecc, Eca, Cms
Wisconsin	(1) PLRV, PVS, PVX, PVY, PVA, PVM, Potato Latent Virus, TRV, Tomato Spotted Wilt Virus, Alfalfa Mosaic Virus, PMTV, PSTV; (2) At introduction to TC bank and at least every 5 years thereafter when TC bank is reinitiated

### 14 Sources of material grown in protected environments: Please list the sources of certified minitubers/plantlets &/or diseases tested tissue culture material located within your state or province. (name, contact person, phone & email)

Alaska	<b>Alaska Plant Materials Center</b> , Bill Campbell 907 745 8724, william.campbell@alaska.gov
California	
Canada	<b>Spud Unit- NLARS</b> . New Liskeard, Ontario; 705-647-8525 ext 222; bhughes@uoguelph.ca
Colorado	See the 2009 Crop Directory, page 9 and 10 at www.colostate.edu/Depts/PCS/
Idaho	(1) <b>University of Idaho</b> , Tetonia R&E Center 208-456-2879; (2) <b>University of Idaho</b> , Moscow 208-885-6663; (3) <b>Ashton Hi-Tech Seed Co.</b> , 208-652-3560; (4) <b>Parkinson Foundation Seed Farm</b> , 208-876-4450
Maine	(1) <b>Maine Seed Potato Board</b> , Don Flannery, 207-769-5061, flannery@mainepotatoes.com; (2) <b>Seed Pro, Inc.</b> , Daniel Corey, 207-532-0096, dcorey@pwless.net
Michigan	
Minnesota	1 (1) <b>Valley Tissue Culture Inc.</b> Sandi Aarestad 218-456-2161 sandi@potatoseed.com; (2) <b>Scott Schmidt</b> 218-789-7676; (3) <b>Kent Mason</b> 218-783-3431
Montana	Private & MSU Nuclear class production exist but cannot be sent out of state
Nebraska & WY	
New York	
North Dakota	<b>North Dakota State Seed Dept.</b> , Deb Baer 701-231-5425 dbaer@ndseed.ndsu.edu
Oregon	Oregon now uses the Idaho Foundation Program for original TC seed sources (as of 2011). We no longer maintain a Foundation Seed Program in Oregon. There are no private lab sources in Oregon.
Washington	(1) <b>Pure Potato</b> (360) 354-2196; (2) <b>Ebe Farms</b> (360) 366-5699
Wisconsin	

### 15 Protected environments: What are the testing requirements for plants grown in protected environments (greenhouse, NFT, etc.)?

Alaska	10% minimum 10 plants
California	<i>Foliage. PVA, PVM, PLRV, PVS, PVX, PVY, PSTV, Bacteria: Cms and Erw. (1st minituber lot). Currently, we do not have greenhouse production/certification in the state</i>
Canada	Same requirements as tissue cultured plantlets.
Colorado	Foliage: PVX, S & Y; 10 min. per lot or 1% of population. 5 lvs/well. Mini-tubers: Erwinia -10 min. per lot or 0.5% of population. Cms - 10 min. per lot to 1%, 100 cores/test max. Will perform additional testing as requested by owner or for export requirements.
Idaho	2% of greenhouse plants are sampled and tested for PVX, PVY, PVA, PVS and PLRV. Mini tubers from these plants (1%) are tested for Bacterial Ring Rot and Erwinia spp.
Maine	1% of the plants tested for PV-Y, PLRV
Michigan	Two visual & lab tested for plrv,pmtv,pva,pvm,pvs,pvx,pvy,pstv,trv,ralstonia,brr
Minnesota	1% of each lot or 10 plants or tubers from each lot must be tested during the growing season to verify that the crop is free from; PVX,PVY PLRV, C.michiganensis, and E. carotovora.

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Montana	Propagation sources must be disease free material. All invitro mother plant materials must be tested for all listed above in No. 17 and by the electron microscope. Plantlet populations or mini-tubers produced in a greenhouse shall be randomly tested for all diseases of concern. Minimum of 1.5% of plants shall be sent to MSU prior to planting.
Nebraska & WY*3	
New York	All Greenhouse Crops: Viruses: PVX, PVS, PVY, PVA, PVM, PLRV
North Dakota	1% of each lot or 10 plants or tubers from each lot must be tested during the growing season to verify that the crop is free from; PVX,PVY PLRV, C.michiganensis, and E. carotovora.
Oregon	1% of plants (minimum 20/lot) tested for PVX, PVY, PLRV. PVS* (leaf material), and C.michiganensis, Pectobacterium (E carotovora, stem bases or harvested tubers). * PVS testing required for monitoring purposes only (does not down-grade lot).
Washington	1% of plants (20 min.) must be tested and found free of PVX, PVY, PVS, PLRV, Ecc, Eca, Cms
Wisconsin	Visual inspections of all protected environment crops is required during the production cycle. Lab testing for PVY is done on leaf tissue in greenhouse crops grown from tissue culture plantlets to comply with the Necrotic Virus Mgt Plan. Beyond this, lab testing is conducted in principle to evaluate any certified product before it is moved to another operation. Minitubers are not tested at the UW Lelah Starks Elite Foundation Seed Farm, unless they are being shipped to growers, because our production system is vertically integrated and all E-1 lots produced from greenhouse crops are postharvest tested. If minitubers or transplants are being sold off of an operation, those propagules are tested for PVY, PVX, PVS, PLRV and Cms at a level representing 1% of the plants that produced them in the greenhouse.

## 16 Does your agency test for PVX or PVS in seed lots? If so, which generations are tested?

Alaska	Yes. Mother plantlets and greenhouse (G0) production are tested for PVX & PVS
California	Yes, PVX testing is mandatory for Pre-nuclear, Nuclear, and G1. (Optional for G2, G3, G4, G5). We do not test but require seed lots entering the state to be tested
Canada	Yes, it is mandatory for all seed lots of the Nuclear Stock class to be tested and not found to be infected with PVX and PVS.
Colorado	In-vitro mother plantlets, nuclear plantlets, greenhouse foliage, and G1 (first year) field foliage are tested for both PVX and PVS. G2 field foliage is also tested for PVX.
Idaho	PVX test is required for all seed lots of Nuclear, G1,G2 classification (first 3 field years).
Maine	In-vitro and pre-nuclear (lab and greenhouse) material is required to be tested.
Michigan	At pre-nuclear level (lab and greenhouse) is required to be tested.
Minnesota	First field generation is tested for PVX. All prenuclear is tested for PVX and PVS.
Montana	We test for PVX in generation 2, and all generations in the Post Harvest Test. We don't test for PVS in the field.
Nebraska & WY*3	PVX and PVS tests are required in nuclear.. After that it is at the growers request.
New York	Testing at prenuclear and nuclear class seed classes only. These classes are grown at the Cornell-Uihlein Seed Potato Farm.
North Dakota	Yes. All Pre-nuclear stock is tested for PVX and PVS at all stages prior to field planting. Field samples are submitted on a voluntary basis and tested for PVX and PVS.
Oregon	As of 2006 PVX testing only required for <i>in-vitro</i> and Greenhouse minitubers. PVS is tested in <i>in-vitro</i> and monitored in PreNuclear Greenhouse production (minitubers/transplants), but is not required to be tested at PN class or beyond. Varieties latent for PVY must be tested through G1 unless for 'own use only'.
Washington	PVX testing is required for <i>in-vitro</i> through G1. PVS is tested for in <i>in-vitro</i> and PreNuclear plants.
Wisconsin	In-vitro and pre-nuclear (lab and greenhouse) material is tested.

## 17 What specific test results do you use to make the determination that a seed lot has the bacterial ring rot disease?

Alaska	Gram stain plus either latex or IFAS or ELISA. Sample sent to cooperating lab for confirmation
California	1) Visual assessment of plant or tuber. 2) Gram stain test. 3) Serological test (ELISA). Samples sent to an accredited lab for confirmation
Canada	The test used to detect the presence of the pathogen causing Bacterial ring Rot in CFIA approved laboratories are ELISA and IMF. Each find must be confirmed by the CFIA Charlottetown Laboratory (formerly named the CFIA Centre of Expertise for Potato Diseases).
Colorado	Three independent lines of evidence: Plant or tuber symptoms present - required. Gram stain needs to show positive - required. Antiserum test (+) - Latex, ELISA or IFAS - required. If still questionable - then eggplant bioassay to confirm. Sample sent to accredited lab for further confirmation.

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Idaho	Latex Agglutination, Gram Stain, Double Diffusion, IFAS done for follow up if necessary
Maine	ELISA and PCR or IFAS. If a positive is found on a latent tuber, a bioassay with eggplant or potato plantlets is required for final confirmation.
Michigan	Follow Canadian protocol - Other methods may be used for confirmation of test results or for visual finds depending on lab used.
Minnesota	Gram-stain, ELISA and IMF.
Montana	Visual examination, gram stain, ELISA, PCR, confirmation by independent laboratory.
Nebraska & Wyoming*3	Visual examination, Gram stain, ELISA and IFAS.
New York	1) visual assessment of samples 2) gram stain test 3) Serological Test (latex agglutination or ELISA) 1-3 must agree for positive determination.
North Dakota	Visual examination, Gram stain, ELISA and IFS and/or PCR
Oregon	In-vitro - IFAS - No fluorescent cells, ELISA - 4 times standard deviation. Pre-Nuclear (Greenhouse) - 1 percent of plants tested by IFAS or ELISA, IFAS + = average > 1 cell in 20 fields, ELISA + = 4 times standard deviation. Field plants/tubers with typical symptoms tested by gram stain, IFAS, and Latex agglutination: Gram stain += >50 gram + bacteria per 20 fields, IFAS + = average of >50 florescent cells per 20 fields, LAT + = flocculation in 3 sub-samples. Published protocol on file, which is used to determine acceptance/rejection of seed lots.
Washington	See Idaho
Wisconsin	1) Visual assessment of samples 2) Serological Test (ELISA) and PCR assays (Mills primers) are done concurrently 3) Eggplant bioassay. Bioassay must be positive for positive determination.

### 18 Does your agency require a post-harvest test? If so, are all seed lots required to be tested? Explain.

Alaska	No post harvest test is required because PLRV and PVY are rarely encountered
California	Post - harvest test is not required for commercial sales, but is required for recertification.
Canada	Post harvest virus testing is not mandatory for certification. Mandatory testing for Bacterial Ring Rot at a minimum of two seed lots per farm unit, and all seed lots shipped as Elite II, Elite III, Elite IV, and Foundation have to be tested prior to shipment. Note: Some provinces may have a mandatory post harvest test for PVY and PLRV as part of a provincial program.
Colorado	Yes, Post - harvest test is required, except for G1 lots planted back within the farming operation.
Idaho	All lots are required to be winter tested
Maine	Yes, but seed lots comprising of less than 1 acre do not have to be tested, provided the lot is not to be sold the year the test requirement is waived. Also, first year material does not have to be tested again provided that the lot is not to be sold that year.
Michigan	All seed lots are required to be winter tested.
Minnesota	All seed lots are required to be winter tested
Montana	All seed lots from generation 1-4 are required to be tested in Post Harvest trials in Oahu, HI.
Nebraska & Wyoming*3	A post-harvest test is required for recertification
New York	All lots are required to be winter tested.
North Dakota	All seed lots planted for recertification have a post-harvest test requirement. Seed lots are visually inspected in Florida, and many are virus-tested in the laboratory as a part of the post-harvest test process.
Oregon	Post-harvest test required for recertification purpose only, though most lots are tested.
Washington	Post harvest testing is required for recertification and lots in which the inspector feels that an adequate visual inspection could not be completed.
Wisconsin	All seed lots, both for certification and for re-certification, are required to be winter tested.

### 19 Post Harvest Test lot size and testing requirements: Please specify size of lots required in PHT and which laboratory tests are required for Foundation level (i.e., for recertification) and certification purposes.

Alaska	
California	
Canada	

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Colorado	Colorado does not require any further serological lab tests for recertification beyond the normal visual PHT readings. Colorado State Dept of Ag does have a Late Blight quarantine in effect for all seed lots entering the San Luis Valley growing area of Colorado. Other areas in Colorado are exempt. This does require a 400 tuber sample incubation and observation on the originating state/province prior to shipping. Plan ahead. This is a 21 day incubation and the seed should not be shipped until the incubation/observation is complete.
Idaho	In Idaho, all seed lots either for re-certification or for use in commercial plantings must be ELISA tested for mosaic (PVY,PVA) and either ELISA tested or visually inspected for PLRV. A 400 tuber sample is required for all lots from fields one acre or larger. Fields 0.1 - 0.4 acres require a 100 tuber sample and fields 0.5 - 0.9 acres require a 200 tuber sample. This applies to nuclear through G 5 class seed.
Maine	Maine requires PVY and PLRV tests for latent varieties, and testing is required for both foundation and certified class seed. A 400-plant/tuber sample is required per lot.
Michigan	
Minnesota	
Montana	In Montana, all seedlots are ELISA tested in the winter grow-out for PVA, PVX and PVY. A 400 tuber sample is required for all lots between 1 and 40 acres, each additional 40 acres adds another 400 tuber sample. We have a minimum 100 tuber sample size for lots less than an acre.
Nebraska & Wyoming*3	Grow-out is required (500 tubers/70 acres). 400 tubers/80 acres has been accepted in recent practice. ELISA testing is required/accepted as an exception/exemption. Our seed law says that seed entering the state has to meet our standards: seed produced out of state is not excused from requirements our own growers adhere to. Tests always done are PVY and PLRV. PVA and PVM are sometimes required, depending on origination.
New York	
North Dakota	80 acres and over:1200 tubers, 2 acres to 80 acres:600 tubers for each field, 2 acres and under:300 tubers for each field, Minimum (small plots):100 tubers for each field
Oregon	PHT lot size: 1-10 acres sliding scale (220 tubers + 20 tubers/acre), 11-20=400 tubers, 21-40=800, >40=1200; Lab testing used only for conformational purposes except on a few early generation lots intended for sale.
Washington	400 tubers from lots 1/2 acre or more. Lots less than 1/2 acre are sampled at a rate of 4 tuber/100 cwt with a minimum of 50 tubers.

Wisconsin



**20 Is your agency in compliance with the US - Canada Necrotic Virus management plan (or "PVYn Management Plan" for answers prior to 2004)? How much does it cost per lot to do this testing, and who pays for it?**

Alaska	
California	Yes. We are in compliance. Application fees pay for testing.
Canada	Yes, all Canadian provinces are in compliance with the Canada/US PVYn management plan. The cost of the testing is covered by the inspection fees and the CFIA.
Colorado	Yes, Growers cover this through disease testing fees. Cost per lot - only test PVY(+) - so can be zero or up to \$10 per lot. We have many G2 lots. Average total cost per year for PVY testing is \$8,000 - \$10,000. PVYn testing adds another \$1,000 - \$3,000.
Idaho	The agency is in compliance with the management plan.
Maine	Yes we are in compliance. The grower pays the fee. The cost is \$120 per lot.
Michigan	Yes, cost is budgeted into inspection fees @ approximately \$100.00 per lot.
Minnesota	The agency is in compliance with the management plan. The application fees pay for the testing.
Montana	Is this relevant anymore? It is my understanding that most states quit PVYn testing when they had all the problems with the antibodies.
Nebraska & Wyoming*3	Yes. Growers pay for costs.
New York	New York NY is in compliance. Testing costs are borne by grower through seed price (Uihlein Farm) or direct billing (seed from other sources).
North Dakota	Agency is in compliance, costs are borne by grower
Oregon	Yes. Cost have been paid by the Oregon Potato Commission.

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Washington	yes. Costs are paid by the growers
Wisconsin	Yes we are in compliance. The grower pays the fee. The cost is \$250 per lot.

<b>21</b>	<b>Proprietary Varieties</b> (definition): In regards to certification practices, does your state/province treat 'proprietary varieties' any differently than 'public' / 'open' varieties (i.e. those without restrictions on production). If so, how does your state/province define 'proprietary' in regards to meeting certification requirements?
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Alaska	
California	We assume that the applicant (grower or seed company) who is submitting an application has the permission to grow and obtain certification for the variety. If it is a new variety (has not been included in our database or certified before), the applicant or variety's owner must submit a variety description. That document should indicate if the variety is public, proprietary and if it has or has not not a PVP title. See note below for more info.
Canada	The Canadian Food Inspection Agency (CFIA) does not differentiate between registered, unregistered and proprietary varieties when subject to seed potato certification standards. The CFIA views all varieties in the same way, therefore, all applications for seed certification are assessed against the same requirements contained in the Seeds Regulations. There are no provisions within Canada's Seeds Act and Seeds Regulations to refuse the certification of a seed potato crop or lot of a "Proprietary Variety" provided all applicable requirements are met. The permissions required to grow protected/privately owned varieties is a commercial matter.
Colorado	
Idaho	In the Idaho program, proprietary varieties are not treated any differently than public varieties. Ownership of a variety and the legal right to grow it is not a factor in determining a seed lot's eligibility for entry into our program.
Maine	
Michigan	
Minnesota	
Montana	
Nebraska & WY*3	Not in rules but we give growers a verbal reminder of the obligation.
New York	
North Dakota	
Oregon	Grower must be approved by variety owner/agent to have certified; Proprietary = PVP certificate issued or pending.
Washington	We treat all varieties the same
Wisconsin	

<b>22</b>	<b>*1 - Last date modified or affirmed</b>
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Alaska	Dec-09
California	Dec-10
Canada	Dec-10
Colorado	Dec-10
Idaho	Nov-09
Maine	Oct-10
Michigan	Dec-09
Minnesota	Dec-09
Montana	Oct-10
Nebraska & WY*3	Nov-10
New York	Dec-07
North Dakota	Oct-10
Oregon	Jan-11
Washington	Oct-10
Wisconsin	Sep-10

Nebraska program. Therefore, wherever it says Nebraska, it should instead say Nebraska/Wyoming, covering both States. Alternatively,