

## Potato Certification Advisory Committee Meeting

January 27, 2015, Kennewick, Washington

### MINUTES

**Voting members present:** Lon E Baley, Jim Carlson, Scott Cheyne, Jeremiah Dung, Scott Fenters Jr., Greg Harris, Reagan Grabner, Rob Lane, Mike Macy, George Rajnus Jr, Phil Rathbun, Sagar Vidyasagar

**Non-voting members present:** Dennis Lundeen, Jeff McMorran (secretary)

**Members absent:** Brian Charlton, Ed Macy (represented by Mike Macy), Nancy Osterbauer, Dan Curry, (represented by Dennis Lundeen), Jay Noller

**Guests present:** Jake Blauer, Terry Burr, Bill Brewer, Mike Kirsch, James Macy, Tim Topliff, Dan Walchli, Darrin Walenta

**I. Welcome and Introductions:** Meeting commenced at 9:00 AM with a welcome by chair George Rajnus. Introductions were made. All present were asked to sign the signup sheet and verify accuracy of contact information. Meeting was recorded and is available upon request.

**II. 2014 Minutes:** The minutes for the 2014 meeting were included in the packets and had been emailed to members in advance. No changes were recommended.

<p>A <b>motion</b>, duly made and seconded (Lane/Grabner) to approve the 2014 minutes without changes or additions, unanimously <b>passed</b>.</p>
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**III. Program Updates:** Dennis Lundeen gave program updates for the OSU Seed Services and Oregon Seed Certification Service/Seed Services. He pretty much followed the reports included in the meeting packets. No representatives from the Oregon Department of Agriculture were present. There was some discussion regarding the MOU-required audit of Commercial potato growers. Bill Brewer mentioned that ODA is require to audit 5% of the commercial grower to assure all seed they plant is certified. There has been a continuing problem in getting the commercial growers to complete this survey because they don't see the benefit to their program. Bill said he would include something in the OPC newsletter to encourage better cooperation among the growers selected for the audit.

**IV. Review Of National Certification Meetings:** Jeff McMorran noted that the PAA/NPC Certification Section meetings were held in Louisville, KY this year with himself, Bill Brewer, Mike Macy, and Scott Cheyne in attendance. Potato Expo was held in Orlando Florida. Highlights (as relayed by Jeff) on the meetings held in Louisville included:

1. New Virus Grant and Revisions to NVMP - This national 8.4 million dollar 3-year grant will focus on studying the stain composition of PVY in the US potato seed crop by sampling WGO trails in Hawaii and Florida. It will also 'mine' certification inspection data from previous years to look for trends relative to mosaic occurrence in summer vs. winter readings by variety. The useful web site Potatovirus.com will also be maintained. Soil-borne 'tuber-necrotizing viruses', Tobacco Rattle and Potato Mop Top, will be a new focus of the study. These viruses will present a whole different set of problems regarding dispersal and control than the aphid-borne PVY. For various reasons OSCS elected not to formally participate the program this time around.

Revisions Necrotic Virus Management Plan - Of prime concern to Oregon growers are the provisions that a Post-Harvest Test will be required for all seed lot moved across state lines (and that all seed moved across state lines must be certified). There is an exception for seed

shipped out-of-state at harvest. The primary reason for this change is the recognition that the summer inspections may miss much of the new PVY strains that have very subtle symptoms in some varieties. The WGO/PHT may be the only way of limiting the amount of virus crossing state borders with any degree of confidence. The revised plan also requires that all 'tolerant varieties' (aka 'latent varieties') be lab tested for PVY in the WGO. The new plan recommends that the same rules/tolerances used for out-of-state shipments be applied to all in-state seed shipments.

2. Novel Virus/Variety Detection via remote sensing - This research, presented by Amy Charkowski of Wisconsin, uses a mobile handheld multi-spectrum remote sensing apparatus to detect disease such as PVY in potato crops. It also has shown potential to identify varieties and allow for on-the-spot differentiation of differing varieties without requiring the time and expense of laboratory analysis.

3. Bacterial Ring Rot: Testing requirements and control were discussed (again) in light of recent outbreaks with emphasis on sanitation, separation of commercial and seed operations, and 100% flush-outs when detected. Trace-back capabilities were also emphasized as well as mandatory reporting of all BRR finds in commercial lots (to whom?). In regards to testing of lots, Idaho noted that it now requires PCR testing of all lots coming into the state. Though 4,000 tubers is the recommendation by many prominent plant pathologists, Idaho is only testing (and requiring) seed lots at 400 tubers and commercial lots at 200 tubers due to practical considerations (they just can't handle 4,000 tubers for all the Idaho lots in the lab in a timely manner). Canada also requested that states record the name of the testing lab when recording BRR testing on the North Am. Potato Seed Health Certificates (NAHC). They only accept results from accredited labs thus need to know if the lab conducting the test is approved. Currently USDA maintains a list of 'approved' labs on their web site, but there is no process underway to accredit private labs for such testing.

4. Updates on Potato Wart and PCN: - Extensive presentations on the current status of Potato Wart containment in Canada, and that of Potato Cyst Nematodes in New York and Idaho were made. A PDF or print out of the PowerPoint Presentations made on these subjects is available from OSCS upon request.

5. Importation of Mini-tubers from Scotland (PRA): This topic elicited the liveliest discussion of the meeting. A Pest Risk Assessment (PRA) regarding the request by the United Kingdom to allow greenhouse produced mini-tubers be shipped to growers in the US (bypassing the APHIS Quarantine Testing in Beltsville, MD) was discussed at length. The primary concerns of this proposal were (1) the potential to bring in some exotic disease present in the material but not tested for by the Scottish Agricultural Science Agency (SASA) including new strains of recombinant PVY; (2) A lack of confidence that what was being presented on paper in the proposal was actually the practice taking place, especially in regards to on going third party inspection of production facilities; and (3) Concern that allowing such a proposal to go forward from the UK would 'open the door' to imports from other countries in Europe that have a far less favorable track record in regards to disease detection/management than Scotland. Some proposal to remedy these concerns were (1) to require an on-site inspection by a US representative before the program could proceed; (2) Require that all such imports be limited to greenhouse production (no field production) until a sub-set of the minitubers could be completely tested for pathogens at the APHIS facility in Beltsville. Of prime importance is that the facility in Beltsville conducts specific and non-specific tests for pathogens such tests as indicator plant hosts, electron microscopy, and nutrient broths that help to identify

pathogens one might not be specifically looking for. Currently the PAA/NPC Certification Sections are working on a formal and collective response to the USDA on this proposal that will outline their concerns.

6. Calico and Zebra Chip: These two diseases, their severity, and their relation to Oregon Standards, were discussed and are further discussed in the sections V-H and V-I below. No other state seemed to have any concern over the presence of Calico (i.e. was rarely observed &/or noted in their fields). Bill Brewer explained that the references to Zebra Chip in the Oregon Seed Standards will allow for Oregon to ship fresh market potatoes to Korea (even if the seed stock that planted those lots was not an Oregon lot). Washington and Idaho will not be allowed to do this until their Standards are changed. There was some discussion regarding seed-borne nature of Zebra Chip. At this point, spread by seed does not seem to be a major concern except for export. The causal agent can be found in volunteer plants coming up in commercial fields heavily infested with ZC the previous year, but in general, infected plants produce few tubers. Also, the tubers produced either don't sprout or tend to produce very weak plants in the subsequent fields.

7. PSTV Update (CA find): In 2014 California found a Potato Spindle Tuber Viroid infected ornamental Solonaceous plant. This is of concern because about 10 years ago the Certification Section went to great efforts to show that PSTV had been eradicated from the US potato seed sources. The PSTV find was in a greenhouse-produced plant that had been imported into the US and had never been outside the greenhouse. It was disposed of and testing/disposal of any plants that may have come in contact with this plant have led the CDA to conclude the disease had not spread beyond its initial find.

## **V. PROPOSALS REQUIRING COMMITTEE ACTION**

### **A. (Certified) Line Selection Program Sub-class ("-LSP") - renewal**

Jeff McMorran reviewed the LSP program approved at last year's PCAC meeting as presented in the agenda packet. No objection to continuing the program was voiced so it will be considered a permanent part of the OSCS program.

### **B. Experimental Line Selection Program (EGLSP) - update and renewal**

Jeff McMorran reviewed the EGLSP program approved at last year's PCAC meeting as presented in the agenda packet. No objection to continuing this program was voiced so it will be considered a permanent part of the OSCS program.

### **C. Approved Location for Nuclear and G1 class material (isolations)**

The history and details of this proposal as outlined in the meeting packet were discussed. One question raised was if 300 feet was enough? Answer: Who knows, but that number was chosen because it is what is already mentioned in the Standards for G2 & G3 lots. It is not known just where this number actually came from, or if it has any actual scientific basis in regards to reducing disease spread, but at least it provides some guidance for OSCS in terms of 'acceptable' separation. It was not felt by the group that any special considerations or restrictions should be made for adjacent commercial fields planted with G3 seed, nor should there be an exemption of 'Own-Use-Only' lots from this rule.

**A motion** (Carlson/Lane) to approve the proposed changes in the isolation requirements as appearing in the meeting packet, was unanimously **approved**.

Specifically that Table 4 “Isolation Requirements” be amended to say the isolation requirements for Nuclear-Generation 1 class seed be “**300 feet from fields planted with seed higher than G3 class**”<sup>\*1</sup> With a footnote:<sup>\*1</sup> *i.e. must be isolated from fields using G4 and G5 seed as planting stock.*

#### D. WGO requirement - optional or mandatory?

The background and benefits of having a Winter Grow-Out be required for all lots for final certification, as presented in the meeting packet, was outlined and discussed. There was considerable discussion regarding how to handle the exemption for lots ‘shipped at harvest’ in regards to what the exact interpretation of this meant. Did it include lots stored for a month or two but shipped before a WGO was completed? Should such lots also require a WGO sample be taken but the certification documents simply say ‘pending completion of the WGO’? What would be the value of such a requirement if such lots were already planted in the destination location? What is the point of this requirement if a lot can be certified prior to the completion of the test, or certified just because a WGO sample had been submitted even if, for some reason, the test could not be completed (such as failure to come up in the WGO)? Should OSCS be required to reject lots that for some reason did not come up in the WGO under such a requirement (no)? Should Own-Use-Only lots be exempt (no). Q: How many other states require a WGO for all lots? A: Most, in fact as of 2012, 8 require PHT for certification, 4 do not {see <http://seedcert.oregonstate.edu/sites/default/files/potato/PIE/paapostharvestsurvey-allstates.pdf> for more information}.

Some discussion followed as to whether the currently MOU actually required a WGO for all potatoes shipped out of state, or only those for recertification ( see \*\* at end of this document). There was also concern that mandating WGO for all lots and PVY testing of lots (as discussed below) might be useful for controlling PVY levels and controlling the spread of necrosing strains, but may also drive seed grower out of business due to increased cost. To be successful, it must be the commercial growers (buyers) that ask for these tests and are willing to pay for them in increased seed costs. An opinion was voiced that it should be the market via buyer-seller agreements, not certification rules, that mandate what evaluations and tests are conducted. Greg Harris, giving a commercial buyer’s prospective, said that there is an increasing amount of PVY in commercial lots, including necrosing strains and strains not showing symptoms in conventional varieties, and that this is a problem that needs to be fixed. Some of the new virus strains cannot be cleaned up by simply roguing seed lots so more approaches are needed.

Discussion on what was an acceptable exemption followed. The MOU stipulates... “lots shipped at harvest”. It was felt this was too vague or restrictive. What about lots not shipped from the field but held a month of so, but before a WGO could be completed. The suggestion of a date was made, for example Feb 1 (when all WGO are generally completed) or how about Dec 30 (cutoff date for submitting a WGO sample). No specific date could be agreed upon so the phrase ‘shipped within 90 days of harvest’ was adopted.

After a fair amount of discussion, a **motion** (Carlson/Cheyne, amended M. Macy/Fenters) to require that a WGO be required for all lots, with the exception of lots shipped within 90 days of harvest, **passed** on a 6 to 2 vote.

### E. Required PVY testing of Winter Grow-Out Samples

The background for the proposal was presented as described in the meeting packet. The primary reasons given were: (1) More and more states (including Washington and Idaho) are now requiring ELISA testing of all WGO lots, thus putting Oregon behind the curve on this; (2) With the new PVY strains, detecting PVY visually may not be reliable. Discussion on this point largely centered on the increasing cost and the necessity of such testing. Testing is now offered to all growers at an extra charge. Some growers who ship out-of-state have asked that this testing be done. Jeff explained the difficulties of taking ‘random’ samples of the greenhouse lots for PVY in that often all plants do not emerge at the same time, thus requiring multiple sampling times (but that they would figure out some way to efficiently do sampling if needed). There was a concern raised that commercial lots from Washington do not seem to have had a WGO (based on the NAHC) and thus this rule would make an ‘uneven playing field’. Jeff noted that the proposed revision to the NVMP (and thus MOU) would require all lots crossing state lines to have a WGO. Washington has signed on to the MOU thus, in theory, will have to have all lots in their WGO.

After considerable discussion, a **motion** (Fenters/Lane) to keep the Standards as they are with no requirement for PVY testing in the WGO, unanimously **passed**. NO CHANGE IN STANDARDS NEEDED.

### F. Maximum tolerance for PVY in Winter Grow-Out Samples

The reasons to re-consider the current policy of not having a mosaic % cap on what defines a certified seed lot in Oregon, as presented in the meeting packet, were discussed. Oscar Gutbrod noted that Oregon used to have a 5% limit on tag-eligible seed but this was removed in favor of a simple G5-BSA (Buyer Seller Agreement) when Idaho continued to change its cap depending on the amount of virus in seed lots each year. Q: Could Oregon have a cap but change it as conditions require (similar to Idaho)? A: This would be problematic because of the way our WGO lots are evaluated on an on-going basis. Idaho reads all their lots at one time and can thus decide if an adjustment to the cap should be considered. Oregon reads (and reports on) lots continuously from November through January, thus there is no one time when a decision involving all lot’s readings could be considered except at the end of the season. By then most growers have already received their reports. **No motions** were made to change this aspect of the Standards nor were any motions made regarding tag color of lots with excess mosaic in the WGO (i.e., the BSA lots will still be eligible for blue tag as long as they are US#1 Seed Grade).

### G. WGO Requirement for Incoming lots - how to accept ‘ELISA only’ PHT lots?

The situation used in 2014 in regards to accepting many seed lots into the certification program for re-certification for which the Post-harvest Test as solely based on ELISA was discussed (these were not eligible as ‘special case’ lots). The proposed change was to allow such lots in as long as the lot produced was entered into the WGO program. This solution became somewhat mute with the passage of “D” above (i.e., *now* all lots must be entered into the WGO program anyway). Jeff noted that this puts OSCS in a bit of a quandary as to how to address this issue should it arise again, the Standards require a WGO (not just a ELISA-based PHT) but the proposed solution for lots not meeting this rule is now mute and it really did not seem realistic to simply reject all these lots for re-certification. Q: Has the acceptance of these lots been a problem? A: No, other than they didn’t meet the rules, they looked fine. It was suggested that OSCS continue with policy of initially rejecting the eligibility of lots

that had only lab based PHT (and don't otherwise qualify as a 'special case') and requiring the grower to appeal that rejection.

#### H. Calico - Review/Discussion of Tolerances.

Jeff reviewed the issue related to rejections and downgrades resulting from Calico (AlfMV) as presented in the meeting packets. He indicated that the 'penalty' for finding calico in a lot seem too extreme considering the relative low impact this virus causes on a seed crop and its relative inability of spread from one potato to another in the field (unlike PVY). The proposed options found in the meeting packet, including the 'do nothing' option were discussed. There was some concern expressed that ignoring (or not reporting) the presence of Calico would not be wise because the buyer of seed lots with Calico might assume they were seeing PVY-induced mosaic the following year when it was just seed-borne Calico. There did seem to be a consensus that having the same tolerance for Calico as PVY (under 'total visual viruses') was too strict.

**A motion** (Grabner/Macy) to change Table 5 "Field Tolerances" of the Standards to indicate that the presence of Calico during field inspections would be noted (and % found recorded) but not scored against the seed lot, was unanimously **approved**.

This specifically affect foot note "g" for 'Other visual viruses' which would be amended to include "**Does not include Calico (Alfalfa Mosaic Virus) which is reported as a percent found, but not scored against the lot.**"

#### I. Zebra Chip - Review/Discussion occurrences in the Potato Standards.

Jeff gave a summary of how Zebra Chip came to appear in the current Oregon Standards. He noted that the occurrence in Table 5 "Field Tolerances" was based on discussion at a previous PCAC meeting. The changes made to Table 7 "Winter Grow-Out Tolerances" however, even though based on the same discussion, involved a tolerance change that had not actually been approved by the POAC or Certification Board and needed to be approved or removed at this time. Bill Brewer reviewed the importance of having Zebra Chip, as currently appearing on the Oregon Standards, was in allowing trade to of fresh market potatoes to Korea. Some discussion on the importance of ZC in seed followed (...not much, primarily a trade issue).

With little other discussion, **a motion** (Fenters/Lane) to leave the wording regarding Zebra Chip as they currently appear in the 2014 Potato Standards (including Table 7), was unanimously **approved**. NO CHANGE IN STANDARDS NEEDED.

#### J. BRR Testing Protocol - Update of current testing requirements

The current "*OSCS Protocol for BRR Indexing and Confirmation of Diagnosis*" was handed out along with a more recent document supplied by Robert Cating at HAREC entitled "*Protocol for the detection of BRR (Clavibacter michiganensis subsp. sepedonicus) from potato tubers*". Jeff pointed out the reason for concern with the original 'official' document on file was that it: (1) Included IFAS as an acceptable method of testing for BRR; and (2) It did not include any mention of the use of PCR. Most labs, including ICIA, no longer use IFAS and PCR is quickly becoming the norm for BRR testing. He noted that the document supplied by HAREC would not act as an acceptable replacement for the original document because it was primarily concerned with how to detect BRR in a seed lot (i.e. 4,000 tubers testing) not in a single sample taken from a field for conformation of BRR symptoms. The

HAREC document is useful for an update of the BRR Protocol on file in regards to its definition of what defines a positive PCR test (see page 4 “V. Interpretation of Results”). An update of the original document at this time is critical to avoid potential lawsuits if, for example, the lab used PCR to confirm a tuber has BRR while the ‘official’ protocol on file requires that IFAS is used.

In order to update the current protocol in a expedient manner, Jeff suggested the following motion for changes in the original document be made:

To modify the document “OSCS Protocol for BRR Indexing and Confirmation of Diagnosis” with the approval of a committee made of Phil Hamm, Robert Cating, Jeremiah Dung and Jeff McMorran such that:

- (1) All references to IFAS being an acceptable test for BRR be removed;
- (2) Replace the phrase “ELISA” with “ELISA or PCR” wherever this document refers to an acceptable test;
- (3) Use the definition of what constitutes an positive PCR result as found in the HAREC document wherever such a definition is needed in the OSCS protocol (i.e. Part I-e page 4), and include the HAREC document in the Appendix.

Jeremiah suggested that Kenneth Frost, the new Extension Pathologist at HAREC, be added to this group. Jeremiah also asked if additional wordsmithing on the original document could be made. A: At this point OSCS would like to stick to the minimal changes noted above to expedite the update of this document. However additional changes and updates to the older document will be welcome and a more fully revised document (as needed) could be presented to the 2016 POAC for approval.

**A motion** (Grabner/Harris) to accept the wording of the text box above, with the addition of Kenneth Frost to the committee, was unanimously **approved**.

Jeff McMorran will prepare a draft of the protocol with the changes noted above, circulate it among the committee for approval, and then send the revised protocol out the entire POAC via eMail attachment.

## VI. OSCS ISSUES & UPDATES FOR GENERAL DISCUSSION

Item 1 – Review of Appeals Granted in 2014 – Two appeals were made and approved in 2014.

- (a) **Oregon Variety Development Project** in Klamath for not meeting isolation requirements of an EXC-3 lot (they were adjacent to uncertified production). The appeal was granted based on the limited source of this material and is pending meeting tolerances in the WGO.
- (b) **Shasta Seed** in Klamath Falls for lack of skip rows. The appeal was granted based on phenotypic variance of adjacent rows and the ‘Own-use-only’ status of the lots.

Item 2 – Winter Grow-Out Report - Terry Burr present the WGO report using two graphs included in the meeting packet. The first showed the number of WGO samples vs. % Mosaic for the years 2011 through 2014. Overall the number of lot showing no mosaic was decreasing while the number of lots with >2% mosaic virus was increasing. The other graph

showed the number of WGO lots entered from 2001 through 2014. There has been a steady increase in the number of lots in the last 5 years, going from 86 in 2009 to 160 in 2014 (an almost 86% increase). Because of this increase, OSCS is negotiating to get GH 20 back. This year we had to delay planting when we ran out of room and had to 'plant back' in 1.25 houses.

Related to the WGO reports, Jeff asked if growers would OK with OSCS simply sending growers a summary of readings as lots are completed via eMail and not sending out the Final Reports and NACH for the lots until the entire group is done (rather than a few at a time). This seemed acceptable as long as a grower could request individual lot reports before completion if needed (yes). Also, Jeff pointed out that on the 2015 potato applications growers will have the options of receiving their reports by mail (paper copies) or by eMail as a PDF attachment.

Item 3 – On Line Shipping Certificates – The option of completing Shipping Certificates 'on-line' was mentioned. This option can save time by allowing a grower to reduce the time copying over redundant information on each certificate. It also assures that the information on the certificate is correct in regards to variety name, class, and status of the lot. There was some concern expressed during the year that on-line certificates really did not work for some operations due to the way trucks are loaded and then weighed remotely. Q: Would growers be forced to use this system in the future? A: No, booklets would continue to be printed as long as there was a need. Growers who consistently did not complete the booklets correctly would lose the privilege and be forced to either use the on line certificates or request tags.

Item 4 – G1 Inspection Protocol - A sheet that summarized the revised minimal counts protocol for field inspection of large Nuclear and G1 fields was handed out. It was noted that this change was mentioned during 2014 POAC but at the time was to be applied only to G1 lots. Due to the amount of very large Nuclear lots in 2014 the early generation inspection protocol was again revised to include Nuclear (FY1) lots as described in the handout. He mentioned that without this change in the inspection protocol would have been essentially impossible to complete this year's inspections in a timely or cost effective manner. Inspection of the lots as described more than adequately predicted the acceptability of the lots for the class indicated, while saving time and decreasing the amount of damage to the crop by foot traffic. Jeff pointed out that the Standards only note what the tolerance for each generation are, not the manner of inspection, thus this change does not need PCAC approval but was being presented here in case there were any objections the change. None was voiced.

Item 5 – Nevada Inspections/cooperation – The scope and reasons for OSCS involvement with inspection and certification of the Quinn River Seed Farm inside Nevada was explained. The farm is only about 15 miles south of the Oregon border. This grower is charged an extra fee for the service due to the distances involved in getting there (and being in Nevada). Certification at this location must be approved each year by the certification agency in Nevada (Nevada Dept. of Agriculture) who works cooperatively with OSCS on this effort. Both agencies inspect the fields, NDA conducts the Harvest Inspections (after training from OSCS), and OSCS manages the Winter Grow-Outs. OSCS plans to continue this effort until Nevada Dept. of Ag. is capable of handling it on its own.



Item 6 – Latent Virus List - Additions, Relevancy – Jeff pointed out that the “Latent Virus List” that appears in the Standards is used to determine testing requirements of early generation seed and to set differing tolerances of mosaic in G5 seed (see Table 5). He noted that the table is somewhat out-of-date, not including many of the varieties that appear on the national list maintained by the PAA (see link below). It was also his opinion that the list is becoming less and less relevant as the strains of PVY continue to change and the virus reaction in varieties to PVY is not as predictable as it was then the predominate strain was PVY<sub>o</sub>. Due to time constraints this topic was not discussed further but will be brought up again next year with possible proposals for changing, or even abandoning, this list. (for PAA list see: <http://seedcert.oregonstate.edu/sites/default/files/potato/paalatentvarieties.pdf>)

Item 7 – Possible Fee increase – No fee increase this year.

Item 8 – Review of Role of OSCS in ‘OUO’ Seed lots – There was not time for any lengthy discussion of this topic this year. Beyond meeting the basic requirements of the ‘Certified Seed Only’ law in Oregon, the value of having OSCS involved with lots the grower does not intend to sell is sometimes questioned. If the grower is taking most the risk if their lots are diseased or contain off-types why does OSCS need to be involved? Previous PCAC discussions have emphasized that growers in the area where such OUO lots are grown are also at increased risk if any seed lot had excessive levels of virus or certain bacterial diseases, and thus all growers were benefited by ‘outside’ monitoring of the health of these lots.

VII. Other Business - none

VIII. Election of new Vice Chair – Rob Lane

IX. Adjourn

**These minutes will also available at: <http://seedcert.oregonstate.edu/potatoes>**

**\*\* - The MOU states:**

**ARTICLE 4 – UNIFORM REQUIREMENTS FOR SEED POTATO CERTIFICATION**

The cooperating parties agree that seed potatoes may be certified by the cooperator or its designee, under the SNHP if:

1. They are produced from a) tissue culture potatoes that are free of regulated pests or b) from other entry level materials such as line selected hill units or parent plants used in stem cuttings that are free of regulated pests;
2. They are produced under a limited generation system;
3. They have undergone at least two field inspections to ensure compliance with tolerances set forth in Annex 2 of this MOU;
4. **They are subjected to post-harvest testing for recertification;**
5. They are produced and stored in a cooperating state under the SNHP; and
6. Interstate shipments and exports departing from the state are inspected by the Cooperator’s designated officials at the shipping point to verify lot identity and ensure compliance with all applicable phytosanitary requirements.