

# News from the Potato Lab



Fall 2017

**Plans Set for 52nd Seed Seminar November 14-16 in Missoula.** The Montana Seed Potato Seminar will be at the Holiday Inn – Downtown Missoula. Montana growers will gather for the annual growers meeting on November 14 at 4PM. On November 15, the morning program will start with updates from our industry and potato organizations. In the afternoon, the Trade Show will be open and we will have sponsored presentations by agribusinesses. The program on November 16 will have invited speakers covering a range of topics including fertility management, PVY management, research and development tax credits, and interpreting postharvest test results. The keynote address will be delivered by Kim Bremmer from Ag Inspirations. The program will wrap up at ~12:30PM on November 16. There will be great drawings including a Traeger grill!

## Susie Siemsen Announces Retirement



Susie instructing lab workers during summer testing

After 25 years serving as Assistant Pathologist and Laboratory Supervisor, and 30 years at MSU, Susie has decided to step down. We at the Potato Lab, and growers throughout the state cannot thank Susie enough for her exceptional leadership

and coordination of all of our testing programs. She is well

respected by students, coworkers, growers and colleagues throughout the entire US seed certification community. We wish Susie the best and are a little jealous of all the fun she will be having during summer!

**Search under way for new Assistant Potato Pathologist and Lab Supervisor** Following the news of Susie's retirement, a vacancy announcement was posted through MSU and to all Seed Potato Certification and Potato Pathology programs in the country. Andy Hogg from the Cereal Genetics program and Nick Schutter have agreed to serve on the selection committee. We have 28 candidates and are starting the screening process. The goal is to have someone identified before the end of the year. When candidates are announced for the final interviews, all growers will be notified and we will provide opportunities for you to meet them. The successful candidate will overlap with Susie for one month at the end of her tenure in the Potato Lab.

## Seed Potato Standards Meeting – Emmeloord, Netherlands

Nina Zidack attended the Extended Bureau meeting of the Specialized Section of the UNECE which was held in Emmeloord, Netherlands at the NAK (Dutch General Inspection Service).



UNECE Seed Potato Standards Committee standing on the Afsluitdijk which separates the North Sea from the freshwater IJsselmeer

This is informally referred to as the rapporteurs meeting which is held alternately with official

meetings at the United Nations in Geneva, Switzerland. The funding for US representation of the seed potato agencies is provided by the Potatoes USA Seed Export Program.

A member of NAK reported on their research into risk based inspection where the inspection frequency is based on risk profiles for individual seed lots and growers. If the lot was classified as low risk, there would be reduced frequency of inspections. If the grower/lot were high risk, there would be a system defined inspection frequency. The goal is increased inspection effectiveness and reducing inspection costs within EU and international rules.

A very informative portion of the meeting was devoted to true potato seed with a presentation by a representative of Naktuinbouw which is the Netherlands Department for Variety Testing. Any

new variety of potatoes must be listed in the Dutch Register of Varieties, and has to meet criteria for distinctness, uniformity and stability. With an approved name, it can be granted plant breeders rights. It must be listed in the National List of Varieties and it must demonstrate value for cultivation and use.



**Nigel Crump from Australia digging potatoes grown from true seed**

This was followed up by a tour of Bejo seeds in Warmenhuizen.

Bejo has obtained

breeder's rights on its first True Potato Seed (TPS) variety. It is described as follows on their website <http://www.bejo.com/magazine/bejo-introduces-its-first-true-potato-seed-variety>. "This new potato hybrid, Oliver F1, can be cultivated directly from botanical seed and, after transplanting, produces table potatoes in one season. Oliver F1 is a slightly floury table potato with an oval shape, a beautiful smooth skin and a very good flavor". Their initial target market is Africa. As they describe on their website: "The advantages of TPS are particularly important for smallholder farmers in Africa, Asia and Central America," says Rien van Bruchem, Crop Manager TPS. "In these developing regions, long distribution times for tuber potatoes can have devastating effects on the quality of the propagation material. In

contrast, the quality of TPS typically holds strong during the distribution process." We were able to view demonstration plots of this new variety at Bejo seed headquarters in Warmenhuizen. As expected, the potatoes are not nearly as uniform as those grown from tubers, but overall they appear to be of acceptable quality.

As a member of the committee, I have been tasked with leading the development of a survey instrument to assess the testing methods for bacterial pathogens. We will be asking respondents to answer questions regarding sampling and testing protocols for the bacterial pathogens *Ralstonia*, *Clavibacter*, *Pectobacterium* and *Dickeya*. Upon presentation of my rough draft, the group worked collectively to improve the survey and I am incorporating their edits. I hope we will be ready to distribute the survey after the March, 2018 meeting in Geneva.

The highlight of the visit to NAK was learning about their pathogen testing programs and touring their diagnostic labs. The Netherlands has completely replaced all postharvest grow outs with laboratory testing. A postharvest test sample is 200 tubers from which tests for 6 pathogens are conducted. Peels from the heel end of the tuber are analyzed for PVY, PVX, PVA and *Pectobacterium* using Realtime PCR. Cores are also extracted from the heel end and are tested for *Clavibacter* and *Ralstonia*. The mosaic viruses and *Pectobacterium* samples are analyzed using Realtime PCR. *Clavibacter* and *Ralstonia* detection is through immunofluorescence. Realtime assays have been developed for *Clavibacter* and *Ralstonia* but are not yet recognized in the EU directive. A unique twist on their virus testing program is that they combine their subsamples into 50 tubers for just 4 tests/200 tubers. Their results indicate a "most probable infection" in each sample of 200. If a seedlot test 0/4 it can be classified as "PreBasic". If 1 out of 4 of the tests is positive, the most probable infection is 0.6% with a 0.01 to 3.2% confidence interval and the lot can be classified as "Basic". If 2/4 are positive, the most probable infection is 1.4% with a 0.1 to 5.3% confidence interval and will also be classified as "Basic". A 3/4 indicates a probably infection of 2.7% with a 0.4 to 9.6% confidence interval and the lot will be classified as "Certified". A result of 4/4 results in a rejection of that lot.

The highlight of the meeting portion of the trip was being able to report to the committee that the Spanish translation of the "UNECE Guide to Seed Potato Diseases, Pests and Defects" is near

completion by Potatoes USA and that it will be submitted to UN staff for approval of the translation. The group was very excited at the prospect of having the translation available by the time of the World Potato Congress which will be held in Cusco, Peru in May, 2018. The delegate from Australia reported that his country is supporting the development of an “App” which can be used to access contents from the same publication. They also hope to have that available by the World Potato Congress.

### **Late Blight testing for Colorado.**

Colorado requires a late blight tuber test for any seed shipped to the San Luis Valley for certification. If you plan on sending any seed to this area, please send 400 tuber/lot samples to us as soon as possible. The late blight test requires a 3-week incubation, so we need to have the tubers a minimum of 3-4 weeks before your shipping date.

### **Postharvest Test Details**

Pick-up for postharvest test is October 25 for Kalispell, Ronan, Deer Lodge, Dillon and Three Forks, and drop-off in Belgrade on October 26. Our postharvest test plot is scheduled to be planted starting November 20 at Twin Bridge Farms on Oahu. Susie and Dan Siemsen and Nina Zidack will be planting this year. Nina Zidack, Eileen Carpenter and Anna Jespersen will travel to Oahu on December 27 to get picking started on December 28 and begin postharvest readings. If you would like to visit the plots give us a call and we will plan on seeing you there!

### **BRR Sampling**

The MPIA board will be considering mandatory BRR testing for all G2 and G3 starting with the 2018 crop. For the 2017 crop, we are strongly recommending sampling these seedlots. As before, if you contract with ConAgra/Lamb Weston you need to sample 10 tubers/acre of each lot you plan to ship to them. For the additional G2 and G3 seedlots the 10 tubers/acre rate will also be used. The minimum sample size is 400. For Idaho recertification lots, you are required to test 400 tubers/seed lot. All samples should be divided into subunits of 200 cores and placed in plastic bags that are clearly marked with grower name, variety, field number and acreage. If you need coring tools please call the lab at 994-3150.

### **Disinfecting after harvest, by Jessica Rupp,**

**Extension Plant Pathologist** Harvest has been completed and that means clean-up is right around

the corner for potato handling equipment! Effective sanitation requires a thorough cleaning of all surfaces prior to using a disinfectant. Wash all equipment with hot, soapy water and a high-pressure washer. Then, rinse with water only. Any leftover soil particles could neutralize the biocide potential of your disinfectant product! Many products can have some level of inactivation with soil or severely hard water. Affective products include quaternary ammonium compounds, hypochlorites, iodines, phenolics, formaldehydes or copper products. Disinfectants must be in contact with the surface for at least ten minutes to kill bacteria. A foaming agent can be added to help chemicals stay in place. (See chart on back of this page for more information on disinfectants)

### **Reminders from Elaine Nichols:**

Order forms for Plants for 2018 crop year and Microtubers for the 2019 crop year will be mailed out early December.

If you are considering new varieties for the 2018 crop, please have the plants sent to the lab as soon as possible. To have the plants ready for planting, disease testing and increasing takes 3-4 months.

### **Dates to Remember:**

#### **October 25 – Post Harvest Test Pickup**

**Kalispell, Ronan, Deer Lodge,**

**Dillon, Twin Bridges and Three Forks**

#### **October 26 – Post Harvest Test Drop-off**

**Manhattan area in Belgrade**

#### **November 14– Meetings at Holiday Inn,**

**Downtown Missoula,**

**10AM - Research Committee**

**11AM - MT Potato Advisory Committee**

**2PM - MPIA Board**

**4PM - Montana Seed Potato Growers**

#### **November 15**

**8AM – Seed Industry Session**

**10:30AM – Workshop – Economics of Potato Diseases**

**1PM – Trade Show and Sponsored Talks**

**4:30 PM - Reception**

#### **November 16**

**8AM – General Session**

#### **November 28**

**Summer Testing Fees Due**

## 2017 Disinfectants for Potato Handling and Storage Equipment

Type	Active ingredient	Products	Comments
<b>Chlorine generating products</b>			
Note: Chlorine has significant human inhalation problems-follow safety precautions!			
<b>Bleach</b>	Sodium hypochlorite	Many products available. Rate will depend on product. Concentrations will vary from 3.25- 12%	Strong oxidizer (corrosive), rapidly inactivated by soil or organic matter, no residual activity. Water pH must be 4-8.
<b>Calcium hypochlorite</b>	Calcium hypochlorite	Many products available. Rate will depend on product label.	Strong oxidizer (corrosive), rapidly inactivated by soil or organic matter, no residual activity. Water pH must be 4-8. Can be applied directly to potatoes.
<b>Chlorine dioxide</b>	Chlorine dioxide	Oxine Sanitizer, SNI <sub>PER</sub> , EnviroCON, Clorodisys, CDG Solution 3000, and Purogene	Less corrosive than bleach, no residual activity, water pH not as critical.
<b>Non-chlorine generating products</b>			
<b>Quaternary Ammonium products</b>	Quaternary Ammonium, benzalkonium chloride, n-alkyl dimethyl benzyl ammonium chloride, N,N,-didecyl-N,N-dimethyl ammonium chloride, etc.	De-Bac, Virex, Roccal-D, AFBC, Breakthru, Micro Q64, Micro Q128, Pro-San, and many others.	Only slightly corrosive, relatively safe for humans when diluted, some residual activity, much less affected by organic matter or soil. Water pH not critical.
<b>Hydrogen peroxide/ Peroxyacetic acid products</b>	Hydrogen dioxide (hydrogen peroxide)	StorOx, Oxidate, Jet Oxide, Jet Ag, SaniDate 12.0	Can be applied directly to potatoes, no residual. Low corrosiveness. With use of heat JetAg can be used as fumigant in air system.
<b>Iodine, Iodophores</b>	Iodine, povidone iodine	Code Blue Iodine disinfectant and many others. Look for iodine in label name	Corrosive, will stain treated areas, some residual activity. Less affected by organic matter or water pH than bleach.
<b>Phenol-glutaraldehyde</b>	Phenol- glutaraldehyde	Sporocidin, Hospiseptic Disinfectant Wex-cide, Birex, etc- look for Phenol in name	Warning: oral poison!
<b>Formaldehyde</b>	Formaldehyde	Many products available.	Potential human carcinogen! Follow OSHA directions regarding exposure
<b>Copper quinolinolate</b>	Copper 8 quinolinolate	Many products available. Purchase as generic chemical. ISK Biotech PQ-57, PQ-80	Good residual activity. May cause some staining.
<p>The first step in disinfecting surfaces contaminated with potato residues and potential pathogens is to remove soil and potato residues by washing with soapy water and scrubbing to remove heavy deposits of potato residue. This is an important step since many disinfectants are inactivated by soil or organic matter and bacteria can live in the heavier residues and are protected from disinfectants. The second step is to disinfect with a labeled disinfectant. It is important to keep all surfaces wet with the disinfectant solution for 10-15 minutes and to use the highest labeled rate of the disinfectant chemical.</p>			