

# SeedBytes

A quarterly newsletter produced for the New Brunswick Seed Potato Industry

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## 2009 NBSPGA Annual Meeting

By Andrew Sullivan—Plant Propagation Centre



The Annual Meeting of the New Brunswick Seed Potato Growers Association (NBSPGA) was held Tuesday, March 24<sup>th</sup>, 2009 in Perth-Andover.

Presentations during the Annual Meeting included:

- **Canada-US Management Plan on Viruses causing Potato Tuber Necrosis** - Alain Boucher, CFIA, provided background on the current management plan. Things will remain the same for the time being with no changes anticipated in the near future.
- **Potato Cyst Nematode and Survey Requirements** - Through delimiting and detection surveys a total of 109,241 soil samples have been tested for PCN presence in Canada since 2006. All sample results were negative. New Brunswick tested 100% of the seed area in 2008. Potato Cyst Nematode can exist in the soil for up to 30 years.
- **Annual Report of the Board of Directors** – Gailen Allan provided an overview on some of the work the NBSPGA Board has done on behalf of NB seed potato growers. Some issues include: Development of a 2008/09 seed potato suggested price list, Crop Insurance Enhancements, monitoring the CFIA-PVY complex survey, lobbying CFIA

regarding unauthorized certification of protected varieties, review of the aphid monitoring system, considering the initiation of a mandatory post-harvest virus test for seed planted in NB. These issues, among many others, were discussed in the President's report.

- **Late Blight Control Chemistries and Practices** - Dr. Steve Johnson, Pathologist with the University Cooperative Extension talked about the benefit of cooperation between Maine and New Brunswick through the IMMPAcT ([www.potatoimpact.com](http://www.potatoimpact.com)) program to lessen late blight spread. Dr. Johnson provided recommendations on when and where to spray to reduce the likelihood of a repeat of the 2008 season which saw increased late blight incidence.
- **NB seed in Cuba, new varieties** – Jacques Lavoie, NBDAA, provided an overview of different potato varieties trialed in Cuba this year. NBDAA has been sending numerous varieties the past few years to determine their suitability to Cuban growing conditions. For further information on the varieties sent and results, contact Jacques at [Jacques.lavoie@gnb.ca](mailto:Jacques.lavoie@gnb.ca) or at (506) 392-5100.

### Inside this issue

Potato Expo 2009.....2  
Late blight in seed.....3  
PGRR.....3  
Volunteer Potatoes-2009..4

### Upcoming Events:

The 93rd Annual Potato Association of America (PAA) meeting will take place in Fredericton, NB from August 9-13, 2009. For more information visit [www.paa2009.org](http://www.paa2009.org)

Dr. Steve Johnson, Crops Specialist with the University of Maine Cooperative Extension, has researched noise-induced hearing loss and its prevalence in the potato farming community. For a copy of his Powerpoint presentation, please visit:

<http://www.umaine.edu/umext/potatoprogram/images/9.40%20Johnson.pdf>

*Electronic versions of all SeedBytes issues can be found online at [www.gnb.ca](http://www.gnb.ca), then click language preference, Departments and Agencies/Agriculture and Aquaculture/ Potatoes/SeedBytes and select the month for the issue.*

The newsletter link has been emailed to all recipients. If you do not have the link, contact Andrew Sullivan at [andrew.sullivan@gnb.ca](mailto:andrew.sullivan@gnb.ca) or 1-866-778-3762.

### \*\*\*REMINDER\*\*\*

The Minimum Classification Requirement for Seed Potatoes Planted in New Brunswick is (or Equivalent to) "**FOUNDATION**"

Therefore, in preparation for your 2009 seed potato order, only purchase seed of "**FOUNDATION**" class or better.

For further information, please contact Brian H. DuPlessis, Manager (506) 392-5100 [brian.duplessis@gnb.ca](mailto:brian.duplessis@gnb.ca)

### Crop Insurance 2009

Crop Insurance has expanded the 2009 potato plan to include coverage for potatoes affected by late blight. The coverage intent is to encourage a producer to kill the infected area so as to help prevent the spread of late blight to surrounding fields. Infected acres that are destroyed early may be eligible for sixty-five percent of the insured production for the damaged acres, pursuant to conditions found in the potato policy. The Crop Insurance application deadline is May 1.

# Potato Expo 2009

By Robert Watson—Secretary — New Brunswick Seed Potato Growers Association

The 2009 Potato Expo, a combined meeting of the National Potato Council’s Annual Seed, Chip, Fresh and Processing Sector meetings, was held in San Antonio, Texas on January 7-9, 2009. Response to the new meeting format was favourable, with close to 900 conference attendees at the inaugural event.

Breakout sessions were held concurrently for all sectors, with general session presentations provided to all attendees. All presentations from the conference are available online at the following link: <http://www.potato-expo.com/mc/page.do?sitePageId=84178&orgId=napc>

Highlights from the seed sector presentations are as follows:

<p><b>Dr. Rob Davidson—Long Term PVY Management</b></p> <ul style="list-style-type: none"> <li>• tuber necrotic strains are difficult to diagnose</li> <li>• new varieties exhibit mild symptoms</li> <li>• use resistant varieties, not tolerant varieties</li> <li>• most PVY spread is local</li> <li>• virus travels quickly down to the tuber, where the plant is building food reserves</li> </ul>	<p><b>Dr. Stewart Gray—Long Term PVY Management</b></p> <ul style="list-style-type: none"> <li>• using certified seed – national memorandum of understanding (MOU)</li> <li>• post harvest virus test – required for all seed in the United States</li> <li>• virus incidents reported on certificates determined from summer inspections – national MOU for all interstate shipments</li> <li>• Russet Norkotah, late season infection caused by virus traveling fast to tubers and every tuber becomes infected; in Atlantic, low level of infection in tubers, virus does not travel as fast to the tubers</li> </ul>
<p><b>Dr. Xiaohong Wang—Potato Cyst Nematode in New York</b></p> <ul style="list-style-type: none"> <li>• Golden Nematode: <i>Globodera rostochiensis</i>; Pale Cyst Nematode: <i>Globodera pallida</i></li> <li>• in New York, there is a 4-year management plan using rotations and resistant cultivars</li> <li>• infested field management – year 1: grow resistant cultivar; year 2: grow resistant cultivar; survey; if no viable cysts found, start rotations</li> <li>• growing resistant cultivars for 2 years is equivalent to 90 gallons per acre of a soil fumigant</li> </ul>	<p><b>Dr. Eoin Davis—Potato Cyst Nematode (PCN)—Eradication Program</b></p> <ul style="list-style-type: none"> <li>• the PCN program serves to prevent spread, delimit current infestation, eradication, recapture and retain markets</li> <li>• PCN was found under the CAPS program in Blackfoot, Idaho on April 13, 2006</li> <li>• the regulated area is 6 miles x 6 miles</li> <li>• all non-infested land within the regulated area treated similarly</li> <li>• fields fumigated four times in eradication process</li> </ul>
<p><b>Dr. Rick Knowles—Physiological Aging in Seed Potatoes</b></p> <ul style="list-style-type: none"> <li>• tubers remember heat unit accumulation</li> <li>• high temperatures speed physiological aging</li> <li>• calculate daily heat units on seed from kill down through storage life</li> <li>• ~ 500-518 degree days produces 2.2 stems per seed piece</li> <li>• more than 1241 degree days increases stem numbers substantially</li> </ul>	<p><b>Dr. Gerhard Bester—A New Potato Pathogen—Liberibacter</b></p> <ul style="list-style-type: none"> <li>• plants have leaf curling, scorching, purple top appearance</li> <li>• can be seed borne</li> <li>• appeared in 2000 in SW US and is moving northward</li> <li>• caused by a bacteria-like organism – <i>C. Liberibacter psyllaourous</i> which is transmitted by the potato psyllid insect.</li> </ul>

The tradeshow portion of the conference was well-attended. This conference is still the main event where Provincial and State Seed Grower Associations disseminate their seed books to the entire industry. Traffic was robust and many seed books were disseminated from the Potatoes NB booth.

The next Potato Expo will be held in Orlando, Florida from December 2 – 4, 2009.



## 2009 Seed Preparation Tips for Late Blight Prevention

By Dr. Khalil Al-Mughrabi — Pathology—Potato Development Centre



1. Visually inspect seed potatoes within 24 hours of delivery. Cut a sample of tubers and look for the reddish, brown, dry rot characteristic of late blight tuber rot. A buyer has only 24 hours to request a re-inspection after delivery.
2. Test your seed for late blight before planting. Ask for a test certificate indicating freedom of late blight if buying seed.
3. Grade seed potatoes before planting. It is important that seed is graded after it is cut and any late blight tuber rot removed before planting. Infected tubers can be a source of early field infections.
4. Frequently disinfect seed cutting equipment (quaternary ammonium-based products).
5. Treat seed with a recommended seed piece fungicide (mancozeb-based products) immediately after cutting.
6. Construction of a good deep hill will help restrict spores from washing down through the soil and infecting the tubers.
7. A preventive spray program at 80% emergence is recommended for 2009.
8. Monitor your crop. Scout fields where moisture persists after rains or dews such as low areas and along treed edges. Have a good look at stems and leaves for symptoms of late blight. Stem infections do not die during dry periods and will easily re-activate in humid weather.
9. When late blight is first identified, remove and destroy infected plants. When infected plants are rogued they should be placed in plastic bags, and then taken out of the field. Top kill or rogue an area twice the size of the area with infected plants.
10. Bury cull piles before crop emergence and no later than June 10, 2009. Infected tubers in cull and rock dump piles are major sources of infections. Buried tubers may germinate and grow. Rogue or treat these plants with a herbicide. Slivers and pieces of potato remaining from cutting operations should also be buried.
11. Volunteer potato plants can be source of infection. If there are volunteer potato plants in a field, an effort should be made to remove these plants by roguing or herbicide treatment. In non-seed fields where late blight is found, consider applying a sprout inhibitor to control volunteers the following year.
12. Always report any suspect case of late blight immediately. If late blight is identified, rogues and other workers should wear pants and boots which can be disinfected with a bleach solution (diluted 1:9 with water) between fields or farms. Field equipment should also be washed and disinfected before entering other fields.

For further information contact Dr. Khalil Al-Mughrabi at the Potato Development Centre at (506) 392-5199 or toll free at 1-866-778-3762. E-mail: [khalil.al-mughrabi@gnb.ca](mailto:khalil.al-mughrabi@gnb.ca).

## Potato Gene Resources Repository

By Jane Percy—AAFC Potato Research Centre



The Potato Gene Resources Repository (PGRR) is located in Fredericton, New Brunswick, at Agriculture and Agri-Food Canada's Potato Research Centre. The Repository is part of a national plant germplasm system coordinated by Saskatoon-based Plant Gene Resources of Canada. ([http://pgrc3.agr.gc.ca/index\\_e.html](http://pgrc3.agr.gc.ca/index_e.html)). The national system's 12 sites across Canada support national and international commitments to biodiversity strategies and treaties.

The mandate of the Potato Gene Resources Repository is to preserve genetic diversity

by acquiring, maintaining and evaluating potato clones of importance to Canada. The repository is a natural fit at the Potato Research Centre where the potato breeding team provides culinary quality evaluation, information on disease resistance and testing, and agronomic evaluation.

Dr. Richard Tarn was the repository's curator from its inception in 1993, until his recent retirement in 2008.

The collection includes Canadian-bred varieties, heritage varieties, disease resis-

tant check varieties and breeding and genetic lines.

Many significant older potato clones have also been identified in partnership with Seeds of Diversity, a public, not-for-profit group dedicated to the preservation of Canadian heritage varieties.

These clones have been established *in vitro*, are free of viruses and are maintained as a source of clean stock.

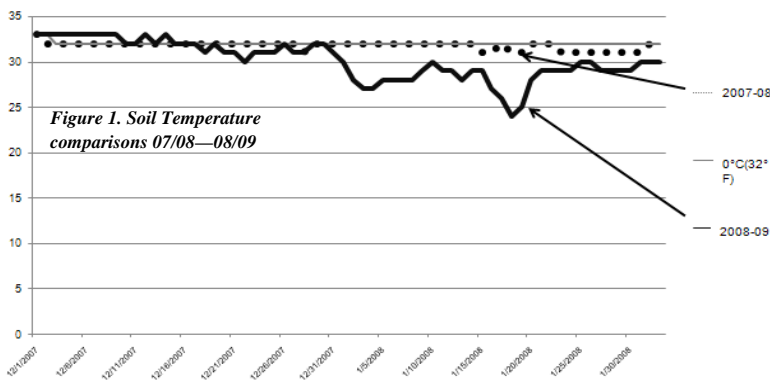
Many of the heritage clones have  
*(continued on page 4)*



Volunteer potato plants, potatoes growing from un-harvested tubers, were problematic in rotation crops during the 2008 growing season. These plants can be a competitive weed with most crops and act as a reservoir for diseases and insects. In general, winter conditions in New Brunswick are severe enough to control most volunteers (soil temperature below -2°C or 28°F) but winter survival is related to tuber health, temperature, snow cover and burial depth. Soil temperature in mid January 2009 was cold enough to freeze tubers, i.e. below -2°C or 28°F for about 5 days (Fig. 1). January 2008 was not as cold. When tubers survive the winter, volunteer potatoes are difficult to control the following growing season and no one measure will guarantee success. An integrated approach, including harvest methods, cultural control, tillage methods, pre-crop control and in-crop herbicides, is needed for proper volunteer management.

Tips for Volunteer Potato Control

- Minimize the number of tubers left in the field following harvest. If a large number of tubers remain in the field in the fall, be prepared to deal with volunteers the following season.
• Avoid deep fall tillage that buries tubers – leave tubers near the soil surface to be exposed to winter conditions.
• Delay planting the rotation crop to maximize volunteer emergence, then apply glyphosate or remove early volunteer growth by tillage.
• Select a competitive crop (i.e. barley) to follow potatoes, or a crop with a high potential for volunteer potato control (i.e. corn, Round-up Ready crops). Increase crop competitiveness with adequate fertility and higher seeding rates.
• Apply an appropriate in-crop herbicide treatment. Field corn has the most extensive herbicide choices, including mesotrione, atrazine and dicamba. Mesotrione, applied post-emergence, is the most effective herbicide for volunteer control in corn. Most common cereal herbicides will suppress volunteer potato plants. DAA research demonstrated dicamba mixes to be the best choice but only expect 50% control.
• Feeding from Colorado potato beetle, in combination with early herbicide treatment, may be enough to limit the impact of volunteer potatoes in cereal crops.
• Apply glyphosate pre-harvest if many volunteers are present, as pre-harvest glyphosate can limit daughter tuber production and viability.



whimsical names such as Marc Warsaw’s Quebec, Corne de Mouton, and Ruby Pulsiver’s Bluenoser.

To date, the repository includes 151 clones. Of these, 141 are maintained in vitro and 10 as field-grown tubers. The in vitro clones are grown in controlled environment cabinets on a modified Murashige and Skoog medium.

To address the need for remote location back-up of clones over the medium and long term, the repository has instituted a program of microtuber production. Microtubers are initiated on in vitro plants, then harvested and shipped for storage to the Plant Gene Resources of Canada site in Saskatoon.

Repository accessions are available free of charge for research, breeding, evaluation and demonstration purposes. While extensively tested for freedom from disease, the in vitro plants and tubers distributed by the Potato Gene Resources Repository are produced outside of the Canadian Seed Certification System.

A molecular characterisation study of the genetic diversity of Repository clones and other significant potatoes was recently published in the American Journal of Potato Research 86: 38-48, 2009. Contact Dr. Yong-Bi Fu at Fuy@agr.gc.ca .

Information about Repository clones is available on GRIN-CA, a searchable database accessible from the Plant Gene Resources of Canada website. An annual newsletter announces new accessions and may be requested by contacting jane.percy@agr.gc.ca.

Publication 1300 A—2009 is online!

Publication 1300 A, better known as the New Brunswick Potato Crop, Weed and Pest Control Guide, is available on our website. This publication is updated annually with comprehensive information on all crop protection products related to the potato crop. For more information, you can obtain a copy of the guide at: http://www.gnb.ca/0029/30/Publication.pdf

SeedBytes is produced through a collaborative effort by Potato Development Centre staff.

Special thanks to Dr. Loretta Mikitzel for ongoing editing of this newsletter.

If you have ideas for future issues, please forward them to any Potato Development Centre staff member.

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