HISTORY OF SUMMER 2012 USPG CULTIVAR TUBER OFFERING
November 28, 2012

One hundred cultivars were selected from the genebank's sterile in vitro tissue culture base collection (see GENEBANK HOLDINGS link at our website: http://www.ars-grin.gov/nr6/). Samples of all clones had been sent to Agdia, Inc. within the past five years and reported a negative test for all of these pathogens: PLRV, PVA, PVM, PVS, PVX, PVY, PSTVd, and PCR for Cms-sp.

Transfers were made to Murashige and Skoog medium in test tubes in late June.

A polycarbonate-covered greenhouse room (GH6) at USPG was used. Plants previously grown in this house were all either from seedlings or from tubers produced one generation under glass. All vents and doors were fitted with 30 mesh screen. Signs were put on all access doors prohibiting the presence or transit of any other plants in GH6.

Four plantlets of each clone were transferred from test tubes to new commercial grow plugs (QPlugs produced by International Horticulture Technologies in Hollister, CA) in mid July in GH6. In early August, they were transplanted into new soil-less commercial potting mix (Pro-mix BX Mycorrhizae) with Osmocote in 6" clay pots which had been sterilized by baking to 400 ºF for four hours. GH6 plants were fertigated by siphon feed and treated with pesticides via a PulsFog system for control of insects, mites and fungi under a standard IPM program (attached).

In addition to observations at daily watering, thorough weekly inspections were conducted and recorded by site personnel for evidence of disease, pests or stress (see attached log). Pesticide applications were primarily preventative, as no diseases or pests were noted except a slight infestation of thrips while plants were in grow plugs. Treatment quickly eliminated them. On September 12, leaf margin discoloration was noted on four clones and samples of affected tissue were sent to Agdia, Inc for analysis. All samples tested negative for PLRV, PVA, PVM, PVS, PVX and PVY. These symptomatic plants were also examined by UW Madison Department of Plant Pathology professor Patricia McManus. Her judgment was that the symptoms were consistent with a physiological stress response, perhaps due to over-fertilization, pesticide burn, or excess humidity. When fertigation was stopped, these symptoms rapidly disappeared.

On October 1, an on-site professional inspection of the plants was conducted by Mr. Richard Hafner (Senior Plant Disease Specialist from the Wisconsin Seed Potato Certification Program). No visual symptoms of any viral, bacterial or fungal disease in these plants were detected (see attached letter).

All tubers were harvested Oct 31 - Nov 1. Tubers were rinsed with tap water, allowed to air dry, and stored in new paper bags in storage at 43 ºF. No blemishes, rots or defects of any kind were noted on the tubers, except occasional greening of tuber skins that were near the soil surface and exposed to light. Tubers will be inspected again just before shipping.

This history is provided as evidence to support our assumption that receipt of this material in convenient tuber form presents minimal additional risk of transmitting pathogens compared to the default option of receiving this same germplasm as sterile in vitro plantlets. However, in light of the fact that this material has been propagated outside of sterile in vitro culture, we advise that the most appropriate use of these tubers is for destructive evaluation, and *not for propagation*. Further, these tubers were not grown with pesticide applications approved for an edible crop, so these tubers are *not for human consumption*.

[reviewed and approved by NRSP6 TAC Chair and Germplasm and Plant Pathology NPLs]

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October 2, 2012

Dr. John Bamberg
US Potato Genebank/NRSP-6
UW Peninsular Agricultural Research Station
Sturgeon Bay, WI

Dear Dr. Bamberg,

At the request of Max Martin, I have conducted a visual inspection of potato production at the USDA, Potato Introduction Station, in Sturgeon Bay, Wisconsin. I was asked to identify plants that express symptoms that are characteristic of viral disease, or other plant disease symptoms.

I inspected potato plants isolated in a greenhouse separate from other potato production. I observed no symptoms of any viral, bacterial or fungal disease in these plants.

The quality and condition of the plants inspected was good with some evidence of phyto-toxic effects likely brought on by early excess fertilizer application. The plants in the other greenhouse showed exceptional growth and equally good condition.

The greenhouse appeared to be very neat and orderly. There was no evidence of insect infestation at the time of inspection at 12:30 PM yesterday.

I offer my observations for your consideration. The Wisconsin Seed Potato Certification Program recognizes the value of the NRSP-6 Program and looks forward to our continued support in providing this service. If I can be of further assistance, please feel free to contact me.

Sincerely,

Richard Hafner
Plant Disease Specialist Sr.
Wisconsin Seed Potato Certification Program

Cc
Alex Crockford
Max Martin
Amy Charkowski

SPRAY PROGRAM for USPG Greenhouse 6 plants for tuber distribution

Product:	Amount	Rate	Application
Menace (Bifenthrin)	0.75 oz	0.5 oz/ 3 gal water	July 30, 2012 @ 3:15 pm
Pylon (Chlorfenapyr)	0.5 oz	13 oz/ Acre	July 30, 2012 @ 3:15 pm
NutriFog (Fog Carrier Solution)	40 mL	1,100mL/ Acre	July 30, 2012 @ 3:15 pm
Menace (Bifenthrin)	0.75 oz	10 oz/ 10,000 ft2	August 2, 2012 @ 8:30 pm
Pylon (Chlorfenapyr)	0.25 oz	3.2 oz/ 10,000 ft2	August 2, 2012 @ 8:30 pm
Quadris (Azoxystrobin)	0.21 oz	2.75 oz/ 10,000 ft2	August 2, 2012 @8:30 pm
NutriFog (Fog Carrier Solution)	19 mL	1,100mL/ Acre	August 2, 2012 @ 8:30 pm
Spintor 2SC (Spinosad)	0.1 oz	6oz/A	August 9, 2012 @5:45 pm
Previcur Flex (Propamocarb)	0.28 oz	16 oz/A	August 9, 2012 @5:45 pm
NutriFog (Fog Carrier Solution)	19 mL	1,100mL/ Acre	August 9, 2012 @5:45 pm
Spintor 2SC (Spinosad)	0.1 oz	6oz/A	August 16, 2012 @ 5:30 pm
Quadris (Azoxystrobin)	0.21 oz	2.75 oz/ 10,000 ft2	August 16, 2012 @ 5:30 pm
NutriFog (Fog Carrier Solution)	19 mL	1,100mL/ Acre	August 16, 2012 @ 5:30 pm
Azatin (Azadirachtin)	0.36 oz	42 oz/ Acre	August 23, 2012 @ 5:15 pm
Previcur Flex (Propamocarb)	0.28 oz	16 oz/A	August 23, 2012 @ 5:15 pm
NutriFog (Fog Carrier Solution)	19 mL	1,100mL/ Acre	August 23, 2012 @ 5:15 pm
Acephate 97UP (Acephate)	8 grams	104 grams / 10,000ft2	August 30, 2012 @ 7:30 pm
Asana XL (Esfenvalerate)	0.1 oz	1.8 oz/ 10,000 ft2	August 30, 2012 @ 7:30 pm
Quadris (Azoxystrobin)	0.21 oz	2.75 oz/ 10,000 ft2	August 30, 2012 @ 7:30 pm
NutriFog (Fog Carrier Solution)	19 mL	1,100mL/ Acre	August 30, 2012 @ 7:30 pm
Acephate 97UP (Acephate)	8 grams	104 grams / 10,000ft2	September 6, 2012 @ 8:00pm
Previcur Flex (Propamocarb)	0.3 oz	16 oz/A	September 6, 2012 @ 8:00pm
NutriFog (Fog Carrier Solution)	19 mL	1,100mL/ Acre	September 6, 2012 @ 8:00pm
Floramite (Bifenzate)	0.14 oz	1.84 oz/ 10,000ft2	September 13, 2012 @ 6:00pm
Mana Alias 4F (Imidacloprid)	0.03 oz	0.6 oz /10,000ft2	September 13, 2012 @ 6:00pm
Quadris (Azoxystrobin)	0.12 oz	2.75 oz/ 10,000 ft2	September 13, 2012 @ 6:00pm
NutriFog (Fog Carrier Solution)	19 mL	1,100mL/ Acre	September 13, 2012 @ 6:00pm
Shuttle O (Acequinocyl)	0.22 oz	2.9 oz/10,000ft2	September 20, 2012 @ 7:00pm
Previcur Flex (Propamocarb)	0.3 oz	3.7 oz/ 10,000ft2	September 20, 2012 @ 7:00pm
Menace (Bifenthrin)	0.75 oz	10 oz/ 10,000ft2	September 20, 2012 @ 7:00pm
NutriFog (Fog Carrier Solution)	19 mL	1,100mL/ Acre	September 20, 2012 @ 7:00pm
Savey DF (Hexythiazox)	3 grams	1.380z/10,000ft2	September 26, 2012 @ 6:30pm
Mana Alias 4F (Imidacloprid)	0.04 oz	0.55 oz /10,000ft2	September 26, 2012 @ 6:30pm
Quadris (Azoxystrobin)	0.12 oz	2.75 oz/ 10,000 ft2	September 26, 2012 @ 6:30pm
NutriFog (Fog Carrier Solution)	19 mL	1,100mL/ Acre	September 26, 2012 @ 6:30pm
Floramite (Bifenzate)	0.14 oz	1.84 oz/ 10,000ft2	October 5, 2012 @ 7:15 pm
Previcur Flex (Propamocarb)	0.3 oz	3.7 oz/ 10,000ft2	October 5, 2012 @ 7:15 pm
Mana Alias 4F (Imidacloprid)	0.04 oz	0.55 oz /10,000ft2	October 5, 2012 @ 7:15 pm
NutriFog (Fog Carrier Solution)	19 mL	1,100mL/ Acre	October 5, 2012 @ 7:15 pm
Kontos (Spirotetramat)	0.14 oz	1.8 oz /10,000ft2	October 13, 2012 @ 11:00 am
Spintor 2SC (Spinosad)	0.10 oz	6oz/A	October 13, 2012 @ 11:00 am
Koverall (Mancozeb)	12 g	1.5#/A	October 13, 2012 @ 11:00 am
NutriFog (Fog Carrier Solution)	19 mL	1,100mL/ Acre	October 13, 2012 @ 11:00 am
Pylon (Chlorfenapyr)	0.24 oz	3.2 oz/ 10,000 ft2	October 19, 2012 @ 5:00 pm
Previcur Flex (Propamocarb)	0.28 oz	3.7 oz/ 10,000ft2	October 19, 2012 @ 5:00 pm
NutriFog (Fog Carrier Solution)	19 mL	1,100mL/ Acre	October 19, 2012 @ 5:00 pm
Sanmite (Pyridaben)	3 grams	6 oz/A	October 25, 2012 @ 6:30 pm
Quadris (Azoxystrobin)	0.21 oz	2.75 oz/ 10,000 ft2	October 25, 2012 @ 6:30 pm
NutriFog (Fog Carrier Solution)	19 mL	1,100mL/ Acre	October 25, 2012 @ 6:30 pm

WEEKLY OBSERVATION LOG for USPG Greenhouse 6 plants for tuber distribution 2012
(nothing of concern noted for dates not shown)

Date	Observation
July 30	Apparent chemical burn on seedlings from residual cleaning solution in fogger. Thrips observed on some seedlings.
August 9	Thrips observed prior to the Aug2 *Menace* application have now been eliminated.
September 12	Discoloration and necrosis on leaf margins on 4 clones, and raised lesions on 4 clones.
September 26	No further discoloration on leaf margins or raised lesions (as seen Sept 12) on new growth
October 19	Occasional fungus gnats observed.