

HISTORY OF SUMMER 2019 USPG CULTIVAR TUBER INCREASE

November 2019

One hundred and two cultivars were selected from the genebank's sterile *in vitro* tissue culture base collection (see GENE BANK HOLDINGS at our [website link](#)). Samples of all *in vitro* clones planted in this increase have been virus tested or have come through Plant Quarantine within the past ten years and reported a negative test for all of these pathogens: PLRV, PVA, PVM, PVS, PVX, PVY, PSTVd, and PCR for Cms-sp. *In vitro* transfers were made to Murashige and Skoog medium in test tubes in early-July (2nd & 3rd).

A polycarbonate-covered greenhouse room (GH6) at USPG was used for the tuber increase planting. 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) on July 17 in GH6. On August 2, 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 °F for four hours. GH6 plants were treated with pesticides via a PulsFog system for control of insects, mites and fungi under a standard IPM program (spray record attached below).

On August 19, leaf samples were taken from all GH6 plants and sent to Agdia Inc for testing common pathogens: PLRV, PVA, PVM, PVS, PVX, PVY, PSTVd, and PCR for Cms-sp - all results were negative. 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 below). Pesticide applications were primarily preventative, as no diseases or pests were noted.

On September 18, an on-site professional inspection of the plants (see attached letter below) was conducted by Dianna Kessler (Wisconsin Seed Potato Certification Program). All plants were found to be in very good health.

All tubers were harvested on November 19. Tubers were rinsed with tap water, allowed to air dry, and stored in new paper bags in storage at 43°F. 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 again be inspected just before shipping.

One tuber from each clone is being grown to about eight inches of foliage and will be postharvest virus tested before being cleared for shipping. All clones will be tested for PLRV, PVA, PVM, PVS, PVX, PVY, PSTVd, and PCR for Cms-sp.

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*.

University of Wisconsin-Madison

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September 26, 2019

Max Martin
US Potato Genebank/NRSP-6
UW Peninsular Agriculture Research Station
Sturgeon Bay, WI

Dear Max Martin,

At your request I conducted a visual inspection of potato plants under quarantine at the USDA, Potato Introduction Station in Sturgeon Bay, Wisconsin. I was asked to identify plants that express symptoms characteristic of virus disease or identify plants with disease like symptoms.

I inspected plants of accessions (B01-01-B01-25), (B02-01-B02-25), (B03-01-B03-05), (B04-08-B04-23), (B05-01-B05-08), (B03-06-B03-25), (B04-01-B04-07). I observed no symptoms of any viral, bacterial or fungal disease in these plants.

I offer my observation for your consideration. The Wisconsin Seed Potato Certification Program recognizes the value of the IR-1 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,

Dianna Kessler

Plant Disease Specialist

Wisconsin Seed Certification Program

Max Martin

**Greenhouse 6 Pesticide Usage
2019 Application for 2020 Tuber Distribution**

PESTICIDE	RATE	DATE
Talstar P (Bifenthrin)	1oz/10,000ft2	7/26/2019
Quadris (Azoxystrobin)	83ml/10,000ft2	7/26/2019
Azatin (Azadirachtin)	1.5tsp/3 gal water	7/31/2019
NuFilm Spreader Sticker	3 tsp/ 3 gal water	7/31/2019
Pylon (Chlorfenapyr)	1 tsp/ 3 gal water	8/6/2019
Quadris (Azoxystrobin)	83ml/10,000ft2	8/6/2019
NuFilm Spreader Sticker	3 tsp/ 3 gal water	8/6/2019
Pedestal (Novaluron)	1 tsp/ 3 gal water	8/12/2019
Luna Tranquility (Fluopyram and Pyrimethanil)	1.5 oz/ 3 gal water	8/12/2019
Sylgard 309 Silicone Surfactant	3tsp/ 3 gal water	8/12/2019
Spintor 2SC (Spinosad)	4tsp/ 3 gal water	8/20/2019
Pedestal (Novaluron)	1 tsp/ 3 gal water	8/26/2019
Pyganic (Pyrethrins)	1.5 oz/ 3 gal water	8/26/2019
Sylgard 309 Silicone Surfactant	3tsp/ 3 gal water	8/26/2019
Pedestal (Novaluron)	2 tsp/ 3 gal water	9/4/2019
Pyganic (Pyrethrins)	3.0 oz/ 3 gal water	9/4/2019
Sylgard 309 Silicone Surfactant	3tsp/ 3 gal water	9/4/2019
Azatin (Azadirachtin)	1.5tsp/3 gal water	9/11/2019
NutriFog	1,100ml/A	9/11/2019
Acephate 97UP (Acephate)	104g/ 10,000ft2	9/20/2019
NutriFog	1,100ml/A	9/20/2019
Azatin (Azadirachtin)	1.5tsp/3 gal water	10/1/2019
NutriFog	1,100ml/A	10/1/2019
Pylon (Chlorfenapyr)	4.0 oz/ 10,000ft2	10/15/2019
Mural (Azoxystrobin and Benzovindiflupyr)	45g/ 10,000ft2	10/15/2019
NutriFog	1,100ml/A	10/15/2019
Pedestal (Novaluron)	60mL/ 10,000ft2	10/17/2019
Mana Alias (Imidacloprid)	0.55oz /10,000ft2	10/17/2019
NutriFog	1,100ml/A	10/17/2019
Pedestal (Novaluron)	60mL/ 10,000ft2	10/24/2019
Luna Tranquility (Fluopyram and Pyrimethanil)	2.57oz/10,000ft2	10/24/2019
NutriFog	1,100ml/A	10/24/2019
Aria (Flonicamid)	30g/A	10/28/2019
Mural (Azoxystrobin and Benzovindiflupyr)	45g/ 10,000ft2	10/28/2019
NutriFog	1,100ml/A	10/28/2019
Overture (Pyridalyl)	17.4 oz/ A	11/4/2019
NutriFog	1,100ml/A	11/4/2019
Suffoil-X (Mineral Oil)	10.2 oz/ 4 gal water	11/13/2019
Spintor 2SC (Spinosad)	0.9 oz/ 4 gal water	11/13/2019

WEEKLY OBSERVATION LOG for USPG fall 2019 Greenhouse 6 plants for tuber distribution

(Nothing of concern noted for dates not shown)

Date	Observation