POTATO VARIETY MANAGEMENT INSTITUTE

Variety News

Volume 1, Issue 2 Autumn 2007

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- 2007 Tri-State Tour Details
- The Most Promising Colored Pre-Releases from the Tri-State Breeding Program
- ARS - State Partnership Potato Grant Awarded to PVMI

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The Benefits of Colored Potato Varieties

Colored potato varieties have been found to contain a large amount of health promoting compounds that are thought to promote human health through a range of activity. Though not considered essential vitamins or nutrients, these compounds, known as antioxidants have been shown to neutralize cancer causing agents and cell damaging molecules called "free radicals".

"When people think 'potato' they think of starch and carbohydrates," comments Roy Navarre, a plant geneticist with the ARS Vegetable and Forage Crops Research Laboratory in Prosser, Washington. "But potatoes can actually be packed with phenolic compounds, which have a wide range of health-promoting properties, including antioxidant activity."

Roy has been working with Chuck Brown, another ARS plant geneticist at Prosser as well as several others there and at WSU and OSU. So far they have scrutinized over 100 wild and commercially grown potatoes to find 60 different phytochemicals and vitamins. Among them are vitamin C, folic acid, chlorogenic acid, and phenolics such as flavonoids and kukoamines. These last two compounds help to lower blood pressure.

Eventually the genes that are involved in producing these beneficial phytochemicals will be profiled and made available so that potato breeders and distributors could use them to develop new varieties.

Chuck Brown collects pollen to make a future cross.

This research is part of Plant Genetic Resources, Genomics, and Genetic Improvement (#301) and Plant Biological and Molecular Processes (#302), two ARS national programs described on the World Wide Web at www.nps.ars.usda.gov.

Duroy A. Navarre and Charles R. Brown are at the USDA-ARS Vegetable and Forage Crops Research Laboratory, 24106 North Bunn Rd., Prosser, WA 99350; phone (509) 786-9261 [Navarre] (509) 786-9252 [Brown]; fax (509) 786-9277.

Originally in an article by **Jan Suszkiw,** Agricultural Research Service Information Staff. **"Phytochemical Profilers Investigate Potato Benefits"** published in the **September 2007** issue of *Agricultural Research* magazine.

2007 Tri-State Potato Tour Announced

September 13, September 28, October 1-5, October 15-17

Thursday, September 13. Aberdeen, ID. Field selections (12-hill level). 8:30 AM meet at the Aberdeen, Idaho R&E Center (1693 S 2700 W, Aberdeen, ID, 83210). Hosts: Rich Novy (208-397-4181), Jonathan Whitworth (208-397-4181), and Jeff Stark (208-529-8376).

Friday, September 28. Corvallis, OR. Observation of late blight trials and lab and greenhouses tour. 8:30 AM. Meet at Lewis-Brown Fruit Farm (33447 SE Peoria Rd, Corvallis OR, 97333-2521). Hosts: Isabel Vales (541-737-3539, 541-230-4093) and Solomon Yilma (541-737-5838, 541-231-5893).

Monday, October 1. Hermiston, OR. Single hills, Tri-State and Western Regional trials. 8:30 AM meet at Hermiston Ag Research and Extension Center (2121 S 1st St, Hermiston, OR, 97838). Host: Dan Hane (541-567-6337, 541-571-0408).

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Promising Colored Pre-Releases From the Tri-States

The information below may be useful to seed growers, distributors, processors and retailers in considering future varieties with market potential. These varieties can be obtained for field evaluation under an MTA as plantlets or, on a limited basis, as mini-tubers/pre-nuclear seed from the Foundation Seed Programs of the Tri-States Breeding Program. Please contact PVMI for more information.

POR01PG16-1

This long, fingerling shaped, purple skinned tuber has extremely deep purple flesh with little to no internal or external defects. It has a low specific gravity of 1.067 and an overall small tuber size. It consistently tastes good baked, steamed and chipped, through several years of repeated testing . The tubers have been found ideal for baking, boiling and in salads. Chips made from this variety surpassed ***All Blue*** in an Oregon taste test and had no brown discoloration, common to other purple varieties. It is low yielding but much better than ***Purple Peruvian*** or ***La Ratte***, two fingerlings that have gained a name in the restaurant trade.


Steve James

Linhai Zhang

POR01PG22-1

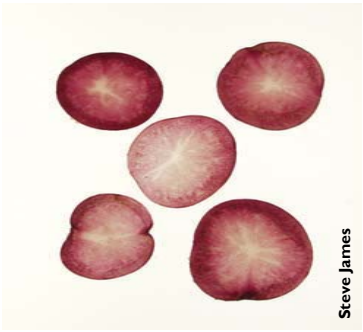
A red skin and red fleshed tuber with fingerling/ banana shape and size. It is sometimes a low yielder, but not always. The red flesh is not the darkest but it is solid and substantial. It has a unique flavor. Last year it ranked the highest for flavor as a potato chip in Philomath. This variety would be good for the fresh market.

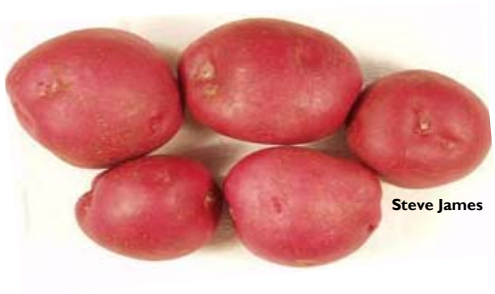
Isabel Vales

Isabel Vales

PA96RR1-193

Out of the Idaho program at Aberdeen, this is a promising red skinned round potato. The tubers are a cross of ***Fontenot*** and **3261-5R** and have red flesh with white centers. The vines are on the small side with purple flowers and have mid to early maturity. This tuber has an average specific gravity of 1.081, and a high antioxidant level. The yields are only fair with a large proportion of the tubers in the 4 – 10 oz range. The tubers have shown some problems with growth cracks, shatter bruise and knobs but not at all locations.


Steve James


Steve James

POR00PG4-1

Bred in Prosser, Washington, from ***Granola*** and **NDOP5847-1,** this deep yellow fleshed potato has a yellow skin with a red swirl. The oblong tubers have low specific gravity (avg 1.072) and are appealing to the eye. The variety produces medium sized vines and is late with a moderate yield of mostly 4 – 10 oz. tubers. In taste tests of fried wedges prepared in Powell Butte, OR in 2006 this variety had the highest visual appeal.


Steve James


Steve James

POR02PG5-1

This dark red skinned variety is high yielding and has a white flesh with mottled burgundy vascular coloring. From ***Achirana*** and **POR00PG2-17** this variety has purple flowers, matures late in the season and has large vines. The high yield contains a large number of number ones and has large tubers. It has an average specific gravity of 1.076 although this is largely a function of management and location. Some shatter bruise, knobs and growth cracks were observed in early trials.


Steve James

In public taste tests on Fried Jojo-type wedges this variety received the highest scores for taste.


Steve James

POR02PG26-5

A cross between **PA99P11-2** and **Pig420** this yellow skinned tuber with red eyes has cream colored flesh with superior taste and high antioxidant scores. Another high yielding variety, this has medium maturity as well as medium vine size. It has purple flowers and produces a large proportion of number 1 tubers in the 4 – 10 oz size. It has a specific gravity of 1.077 and the tubers are round to oblong. Some growth cracks, shatter bruising and knobs were identified in some locations.

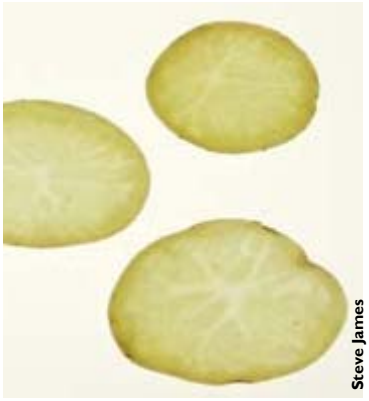

Steve James


Steve James

POR02PG37-2

This variety has been compared to Yukon Gold for its appearance, that is, yellow skin with small red eyes and cream colored flesh. It has a consistent round tuber shape and moderately high yields. It has a smaller tuber size and the highest proportion of US number 1s in the 4 -10 oz size. This variety is a cross between ***Rose Gold*** and **PA99P35-1** and has purple flowers with medium maturity and vine size. Some shatter bruising and knobs were observed at some locations. In public test ratings of salads prepared in Powell Butte in 2006 this variety had the strongest visual appeal and high ratings for taste.


Steve James


Steve James

POR01PG20-12


Steve James

A red skinned and very red fleshed variety, it is a medium maturing selection from Prosser, Washington. The tubers are oblong and larger than fingerlings and yield can be quite good in certain fields. It resulted from a cross of **PA97B35-2** and **PA97B29-3**. This variety can produce a high proportion of marketable tubers with medium specific gravity. It's strengths are its potential good yield and good red flesh color, its weaknesses are a poor overall tuber shape and occasionally the skin can appear inferior, but if washed and brushed it looks like red jewels. There have never been off tastes associated with this variety and it was rated best tasting of salads prepared at Powell Butte in October 2006.

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Up and Coming Events

Dec 6 4th Annual NPC Potato Industry Outlook Summit, Branson, MO.
Contact: NPC 202.682.9456
www,nationalpotatocouncil.com

Dec 6 - 8 26th Annual National Potato Seed Seminar, Branson, MO.
Contact: Hollee Alexander
202.682.9456

Jan 22 - 24 U of I Potato Conference,
Pocatello, ID.
Contact: Jill Randall
208.529.8376

Jan 31 - Feb 1 Oregon Potato Conference,
Portland, OR.
Contact: 503.731.3300

Feb 5 - 7 Washington State Potato Conference,
Moses Lake, WA
Contact: 509.766.7123
www.potatoconference.com

2007 Tri-State Potato Tour

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Tuesday, October 2. Powell Butte, OR. Field selections (single hills and other). 8:30 AM meet at Powell Butte unit (8215 S.W. 126, Powell Butte, OR, 97756) of the Central Oregon Ag Research Center. Host: Steve James (541-475-7107).

Thursday, October 4. Aberdeen, ID. Field selections. Meet at Aberdeen R&E Center (1693 S 2700 W, Aberdeen, ID, 83210) at 8:30 AM. Hosts: Rich Novy (208-397-4181), Jonathan Whitworth (208-397-4181), and Jeff Stark (208-529-8376).

Friday, October 5. Additional Aberdeen selections.

Monday October 15 and Tuesday October 16. Klamath, OR. Colored and specialty selections – meet at Klamath Experiment Station (6941 Washburn Way, K. Falls) at 8:00 AM. Host: Brian Charlton (541-883-4590).

Wednesday October 17. Powell Butte, OR. Field selections (18 hill level). 8:30 AM meet at Powell Butte unit (8215 S.W. 126, Powell Butte, OR, 97756) of Central Oregon Ag. Research Center. Host: Steve James (541-475-7107).

PVMI Granted ARS - State Partnership Potato Program Funding

In a proposal submitted in December 2006 PVMI requested funding to develop a secure, internet based facility to act as a database and shared library for the movement and evaluation of pre-released potato lines under material transfer agreements (**MTA**). MTAs are agreements signed by researchers or by private parties for the purpose of allowing field evaluation of cultivar performance. Although the practice of field evaluation by growers of pre-released potato lines has gone on informally for years, with the advent of PVP it is now necessary to have a formal agreement in place for this to occur. MTAs have traditionally been held in paper files at the Universities. Recently the PVP office has stated that follow-up evaluation reports are required for every MTA issued. This has meant that better tracking and enforcement of reporting is needed.


Steve Love

PVMI proposed to take advantage of new Microsoft© interactive software and service provision to create a limited access, confidential shared website to help researchers, experiment stations, and propagation labs keep track of MTAs and the required follow-up evaluation reports. This system is in the early stages of being set up.

PVMI was granted $14,237 to employ the services required to build the new SharePoint© site. Specifically, PVMI will work with members of the Tri-State potato breeding community to define the requirements and access needs while maintaining confidentiality of the site.

The new system will help with the tracking and fulfillment of this requirement while reducing the paperwork for the researchers and the universities. The system should help safeguard all pre-released clones with complete data on which clones are being tested, by whom and where. It will be used to collect and maintain follow-up evaluation reports.