WERA-027 Technical Meeting Minutes

January 30rth, 2019

**Attendance**

|  |  |  |
| --- | --- | --- |
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**ANNUAL MEETING MINUTES SUMMARY**

Chair Justin Hatch (UI) called the meeting to order at 1:39 PM.

Introductions were given by each person and the attendance form was passed around.

**AGENDA**

A motion to approve the agenda was brought up by Justin Hatch (UI); approved by unanimous vote.

**MINUTES**

Jeff Koym (Texas A&M) wants the minutes to be updated and make sure the reports are submitted by every state.

A motion (Jeff Koym, Texas A&M); second by Dave Holm, CSU) was approved by unanimous vote.

**MEETING**

**State Reports**

**Idaho**

**Summary of accomplishments:**

Over 110,000 Aberdeen-generated seedling tubers and approximately 20,000 seedling tubers obtained from other state breeding program were planted on 28 acres for first field generation selection at Aberdeen, as well as an additional 1,800 second-field year (12-hill) selections. Seven agronomic trials of Aberdeen breeding clones and the National Fry Processing Trial were planted at Aberdeen and Kimberly, as well as disease screening trials for early blight, common scab, and PVY/PLRV. In addition, the Tri-State Specialty Trials were conducted at Parma and Aberdeen.

**Tri-State and Western Regional Trial Results**

In 2018, 11 entries from the Aberdeen program were entered in advanced agronomic and processing trials in the Tri-State and Western Regional to assess their performance relative to industry standards. We had 5 russet clones in the Western Regional Trials, 6 russet clones in the early season Tri-State Variety Trials, and 5 in the late season Tri-State Variety Trials.

**Russet Trial Results:** The highest yielding clones in the Aberdeen Early Tri-State Trial were A07705-4, AOR10204-3, A07098-4, OR12133-10, and A08510-1LB, all of which produced higher total and yields than the standard cultivars, and higher U.S. No. 1 yields than Russet Burbank and Russet Norkotah (Table 1). However, only AOR10204-3, A07098-4 produced higher U.S. No. 1 yields than Ranger Russet. Specific gravities for these clones were comparable to Ranger Russet, Russet Burbank and Russet Norkotah, with the exception of A07705-4 and AOR10204-3, which were relatively low. Merit scores were highest forA07098-4, A07705-4, AOR08540-1, and POR12NCK50-1. Hollow heart incidence was low for all clones.

**Table 1 Yield and quality characteristics of four standard russet potato cultivars and ten breeding lines grown in Early Tri-State Russet Trial at Aberdeen, ID during 2018. 1**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Cultivar/Breeding line** | **Total Yield** | **No. 1 Yield** | **% >10oz** | **Specific Gravity** | **Merit** | **Maturity** | **Hollow Heart (%)** |
| **Ranger Russet** | 395 | 330 | 25 | 1.078 | 3.1 | 3.9 | 0.0 |
| **Russet Burbank** | 352 | 250 | 23 | 1.073 | 1.9 | 3.3 | 0.0 |
| **Russet Norkotah** | 234 | 161 | 12 | 1.075 | 3.1 | 1.0 | 0.0 |
| **Shepody** | 195 | 113 | 16 | 1.068 | 1.8 | 3.5 | 0.0 |
| **A07098-4** | 411 | 333 | 11 | 1.076 | 4.0 | 3.4 | 0.0 |
| **A07547-4adg** | 337 | 305 | 32 | 1.083 | 3.0 | 2.6 | 0.0 |
| **A07705-4** | 407 | 292 | 11 | 1.068 | 3.3 | 4.1 | 0.0 |
| **A08422-4VRsto** | 368 | 356 | 28 | 1.079 | 3.0 | 3.5 | 2.5 |
| **A08510-1LB** | 424 | 322 | 13 | 1.076 | 3.0 | 3.8 | 0.0 |
| **A09022-4** | 309 | 250 | 17 | 1.081 | 2.9 | 3.5 | 0.0 |
| **AOR08540-1** | 383 | 315 | 31 | 1.078 | 3.4 | 3.9 | 0.0 |
| **AOR10204-3** | 467 | 403 | 32 | 1.070 | 2.9 | 3.8 | 0.0 |
| **OR12133-10** | 404 | 326 | 24 | 1.076 | 2.9 | 3.8 | 0.0 |
| **POR12NCK50-1** | 348 | 273 | 21 | 1.075 | 3.5 | 3.9 | 0.0 |

1 Yields are reported in cwt/A. Merit score is based on appearance characteristics and rated on a 1-5 scale, where 5 = exceptionally good. Maturity is rated 1-5, where 5 = very late. Hollow heart (HH) is reported as the percentage of 10 tubers greater than 10 ounce showing the defect. Early harvest is approximately 116 days after planting.

In the Late Tri-State Russet Trial, the top yielding clones were A07705-4, AOR10204-3, A07098-4, OR12133-10, AOR08540-1 and A08510-1LB,all of which produced significantly higher total and US No. 1 yields than the standard cultivars (Table 2). Specific gravities for A07098-4, A08510-1LB, A09022-4, AOR08540-1, OR12133-10, and POR12NCK50-1 were considerably higher than Russet Burbank and Russet Norkotah and were comparable to Ranger Russet. Merit scores were highest for A07098-4, POR12NCK50-1, AOR10204-3 and A07705-4. Fry colors after 3 months of storage at 45oF were generally acceptable (USDA 1 and 2) for all clones except AOR08540-1 and Russet Norkotah. Hollow heart incidence was low for all clones with the exception of AOR08540-1 with 15%.

**Table 2 Yield and quality characteristics of three standard russet potato cultivars and nine breeding lines grown in Late Tri-State Russet Trial at Aberdeen, ID during 2018. 1**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Cultivar/Breeding line** | **Total Yield** | **No. 1 Yield** | **% >10oz** | **Specific Gravity** | **Merit** | **Maturity** | **Hollow Heart (%)** | **Fry Color2** |
| **Ranger Russet** | 435 | 338 | 43 | 1.086 | 2.4 | 2.8 | 0 | 1.2 |
| **Russet Burbank** | 411 | 305 | 32 | 1.077 | 2.1 | 2.3 | 0 | 1.2 |
| **Russet Norkotah** | 267 | 217 | 16 | 1.071 | 3.4 | 1.3 | 2.5 | 2.8 |
| **A07098-4** | 502 | 414 | 30 | 1.083 | 3.8 | 1.9 | 0 | 1.4 |
| **A07547-4adg** | 381 | 328 | 43 | 1.083 | 2.8 | 2.8 | 0 | 0.9 |
| **A07705-4** | 597 | 471 | 27 | 1.079 | 3.3 | 4.0 | 0 | 1.9 |
| **A08510-1LB** | 531 | 457 | 31 | 1.085 | 3.0 | 2.8 | 0 | 1.4 |
| **A09022-4** | 385 | 322 | 31 | 1.086 | 3.1 | 2.3 | 0 | 0.4 |
| **AOR08540-1** | 556 | 433 | 51 | 1.086 | 2.5 | 2.9 | 15 | 2.4 |
| **AOR10204-3** | 595 | 501 | 54 | 1.076 | 3.5 | 2.9 | 0 | 1.8 |
| **OR12133-10** | 536 | 408 | 47 | 1.086 | 3.0 | 2.6 | 0 | 1.1 |
| **POR12NCK50-1** | 416 | 365 | 31 | 1.090 | 4.0 | 2.8 | 0 | 1.0 |

1 Yields are reported in cwt/A. Merit score is based on appearance characteristics and rated on a 1-5 scale, where 5 = exceptionally good. Maturity is rated 1-5, where 5 = very late. Hollow heart (HH) is reported as the percentage of 10 tubers greater than 10 ounce showing the defect. Late harvest is approximately 143 days after planting.

²Fry samples stored at 45oF for approximately 2 months. Color determined using USDA color chart 00-4 with lower number lighter fry color.

In the Late Western Regional Trial at Aberdeen, the top yielding clones were A07061-6, A07769-4, A10021-5TE, A08433-4VR, AO02183-2, A071012-4BF and AOR06576-1(Table 3), all of which exceeded the total and U.S. No. 1 yields of the standard cultivars. With the exception of AOR06576-1, specific gravities for each of the top yielding clones were higher than Russet Burbank, with A10021-5TE and A071012-4BF higher than Ranger Russet. The incidence of hollow heart for all clones was relatively low. CO09205-2RU and CO08155-2RU/Y-1RU and AO02183-2 had the highest merit scores. Most of the clones had acceptable fry colors after 3 months of storage at 45oF except for AOR06576-1 and CO09076-3RU.

There also were some very high yielding clones in the Late Western Regional Trial at Kimberly, including A07061-6, A08433-4VR, AO02183-2 and AOR07821-1, all of which produced higher total and U.S. No. 1 yields than the standard cultivars (Table 4). Specific gravities for the four highest yielding clones were all higher than Russet Burbank and Russet Norkotah but were similar to slightly lower than Ranger Russet. Merit scores at Kimberly were highest for A07769-4, A10021-5TE, AOR07821-1, CO08155-2RU/Y, CO08231-1RU, and CO09205-2RU. All clones had acceptably light fry colors after 3 months of storage, except for AOR06576-1.

**Table 3 Yield and quality characteristics of three standard russet potato cultivars and seventeen breeding lines grown in Late Western Regional Russet Trial at Aberdeen, ID during 2018. 1**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Cultivar/Breeding line** | **Total Yield** | **No. 1 Yield** | **% >10oz** | **Specific Gravity** | **Merit** | **Maturity** | **Hollow Heart (%)** | **Fry Color2** |
| **Ranger Russet** | 512 | 419 | 38 | 1.090 | 2.1 | 2.6 | 0.0 | 0.6 |
| **Russet Burbank** | 472 | 299 | 30 | 1.077 | 1.7 | 1.8 | 2.5 | 1.1 |
| **Russet Norkotah** | 273 | 210 | 20 | 1.071 | 3.1 | 1.0 | 0.0 | 1.8 |
| **A07061-6** | 563 | 480 | 34 | 1.081 | 3.1 | 3.1 | 0.0 | 1.0 |
| **A071012-4BF** | 655 | 590 | 53 | 1.099 | 2.8 | 3.4 | 7.5 | 1.0 |
| **A07769-4** | 532 | 475 | 43 | 1.084 | 3.3 | 3.3 | 0.0 | 0.4 |
| **A08433-4VR** | 684 | 598 | 54 | 1.083 | 2.9 | 3.8 | 0.0 | 1.6 |
| **A10021-5TE** | 538 | 471 | 38 | 1.091 | 3.5 | 2.8 | 0.0 | 0.6 |
| **AO02183-2** | 624 | 568 | 40 | 1.087 | 3.8 | 3.6 | 2.5 | 0.4 |
| **AO06191-1** | 379 | 331 | 63 | 1.090 | 2.9 | 2.5 | 2.5 | 0.8 |
| **AOR06576-1** | 602 | 501 | 44 | 1.076 | 2.6 | 3.0 | 0.0 | 2.7 |
| **AOR07781-5** | 438 | 386 | 42 | 1.092 | 2.8 | 1.9 | 7.5 | 0.3 |
| **AOR07821-1** | 526 | 407 | 32 | 1.088 | 2.4 | 3.5 | 0.0 | 1.0 |
| **AOTX05043-1Ru** | 423 | 337 | 16 | 1.089 | 3.3 | 1.8 | 0.0 | 0.5 |
| **CO08155-2RU/Y** | 298 | 193 | 6 | 1.087 | 3.9 | 1.5 | 0.0 | 0.6 |
| **CO08231-1RU** | 470 | 402 | 28 | 1.091 | 4.0 | 2.8 | 0.0 | 0.6 |
| **CO09036-2RU** | 544 | 412 | 13 | 1.086 | 3.5 | 3.6 | 7.5 | 0.5 |
| **CO09076-3RU** | 403 | 308 | 34 | 1.077 | 2.6 | 1.5 | 0.0 | 2.6 |
| **CO09205-2RU** | 434 | 348 | 8 | 1.074 | 3.9 | 1.3 | 0.0 | 0.5 |
| **COTX05095-2Ru/Y** | 378 | 260 | 5 | 1.081 | 2.6 | 2.8 | 0.0 | 0.5 |

1 Yields are reported in cwt/A. Merit score is based on appearance characteristics and rated on a 1-5 scale, where 5 = exceptionally good. Maturity is rated 1-5, where 5 = very late. Hollow heart (HH) is reported as the percentage of 10 tubers greater than 10 ounce showing the defect.

Late harvest is approximately 143 days after planting.

² Fry samples stored at 45oF for approximately 2 months. Color determined using USDA color chart 00-4 with lower number lighter fry color.

**National Fry Processing Trial:** A total of twelve breeding clones and varieties from our program were also entries in the 2018 National Fry Processing Trial (NFPT) which seeks to identify processing varieties having low acrylamide that could be rapidly adopted by the U.S. potato processing industry. Five of twelve entries were entered into the Tier 2 category, with the remaining seven entries entered into Tier 1. Following discussion and final recommendations of the NFPT Steering Committee, those 2018 entries found acceptable for trialing in 2019 will be advanced to Tiers 2 and 3, with an additional new entries identified for Tier 1 evaluations in 2019. In addition, the breeding program is progressing in developing germplasm with genetic resistance to PVY, PVX, and PLRV, PMTV, late blight (foliar and tuber), nematodes, corky ringspot and zebra chip disease—for example several entries in the NFPT in 2018 exhibited extreme resistance to PVY. New varieties will continue to be released in cooperation with the University of Idaho Nuclear Seed Program, private seed growers in the state, and the processing and fresh pack industries.

**Table 4 Yield and quality characteristics of three standard russet potato cultivars and seventeen breeding lines grown in Late Western Regional Russet Trial at Kimberly, ID during 2018.**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Cultivar/Breeding line** | **Total Yield** | **No. 1 Yield** | **% >10oz** | **Specific Gravity** | **Merit** | **Hollow Heart (%)** | **Fry Color2** |
| **Ranger Russet** | 609 | 480 | 59 | 1.093 | 3.0 | 0.0 | 0.8 |
| **Russet Burbank** | 616 | 326 | 24 | 1.082 | 1.6 | 0.0 | 1.5 |
| **Russet Norkotah** | 385 | 307 | 36 | 1.073 | 2.9 | 0.0 | 2.0 |
| **A07061-6** | 650 | 495 | 37 | 1.084 | 3.1 | 0.0 | 0.7 |
| **A071012-4BF** | 615 | 517 | 55 | 1.100 | 2.4 | 0.0 | 1.1 |
| **A07769-4** | 529 | 436 | 45 | 1.093 | 3.8 | 0.0 | 0.5 |
| **A08433-4VR** | 620 | 495 | 41 | 1.090 | 2.4 | 2.5 | 1.1 |
| **A10021-5TE** | 511 | 442 | 45 | 1.087 | 3.8 | 0.0 | 0.7 |
| **AO02183-2** | 780 | 651 | 44 | 1.092 | 3.4 | 0.0 | 0.4 |
| **AO06191-1** | 493 | 404 | 66 | 1.100 | 3.1 | 0.0 | 0.6 |
| **AOR06576-1** | 552 | 391 | 40 | 1.079 | 2.4 | 0.0 | 2.6 |
| **AOR07781-5** | 507 | 336 | 29 | 1.088 | 2.8 | 2.5 | 0.4 |
| **AOR07821-1** | 624 | 509 | 43 | 1.089 | 3.8 | 0.0 | 1.0 |
| **AOTX05043-1Ru** | 446 | 349 | 16 | 1.092 | 3.6 | 0.0 | 0.6 |
| **CO08155-2RU/Y** | 413 | 277 | 10 | 1.077 | 3.9 | 2.5 | 0.7 |
| **CO08231-1RU** | 598 | 493 | 36 | 1.094 | 3.9 | 2.5 | 0.6 |
| **CO09036-2RU** | 623 | 450 | 25 | 1.093 | 3.5 | 2.5 | 0.5 |
| **CO09076-3RU** | 546 | 380 | 26 | 1.080 | 2.9 | 0.0 | 1.2 |
| **CO09205-2RU** | 512 | 386 | 26 | 1.079 | 4.0 | 2.5 | 0.5 |
| **COTX05095-2Ru/Y** | 443 | 309 | 20 | 1.084 | 3.1 | 0.0 | 0.9 |

1 Yields are reported in cwt/A. Merit score is based on appearance characteristics and rated on a 1-5 scale, where 5 = exceptionally good. Hollow heart (HH) is reported as the percentage of 10 tubers greater than 10 ounce showing the defect.

Late harvest is approximately 159 days after planting.

2 Fry samples stored at 45oF for approximately 2 months. Color determined using USDA color chart 00-4 with lower number lighter fry color.

**Agronomic Research Trials:** Additional studies were conducted in 2018 designed to compare nitrogen use efficiency of 5 advanced selections from the breeding program with that of Russet Burbank. The efficiency of N fertilizer use for these new clones is substantially greater than standard varieties, ranging from 10-25% better than Russet Burbank. Reducing fertilizer applications per unit of yield produced would provide a considerable economic benefit to growers and would also contribute significantly to the sustainability of potato production systems. Additional studies were conducted to determine optimal phosphorus rates, seed management practices, seed piece spacing, and N management guidelines for new and previously released Tri-State varieties. The phosphorus requirements of most of the new varieties were similar to or lower than those for Russet Burbank and Ranger Russet.

**Specialty Trial Results:**

Promising specialty breeding lines from the Pacific Northwest Potato Variety Development Program were evaluated in two locations. These same lines were also evaluated for dormancy length, and chemical composition.

*Field Evaluations -* Seed of two standard potato cultivars and 3 breeding lines were obtained from Brian Charlton (OSU, Klamath Falls). This seed was used in replicated trials at both the Parma and Aberdeen R&E Centers. The seed was cut, organized into a randomized, four-replicate trial, and planted at the Aberdeen and Parma R & E Centers.

Chieftain produced a total yield of 577 cwt/acre at Parma, while A08122-12R and POR14PG22-3 were the only breeding lines above 500 cwt/acre. (Table 5). These same lines were also among the highest yielding selections at Aberdeen (Table 6). Chieftain and Yukon Gold had a high proportion of tubers over 10 oz at Parma. In contrast, none of the varieties or breeding lines produced high yields of over 10 oz tubers at Aberdeen. Tubers above 10 oz are not generally desirable for the specialty market. The premium yield category (2-6oz) was added to capture the perceived optimum size of specialty tubers for fresh market. A08112-7R, A08122-12R and POR14PG22-3 all tended to produce high premium yields at both locations (Tables 5 and 6).

Specific gravity ranged from 1.074 to 1.087 at Parma, and from 1.071 to 1.088 in Aberdeen (Tables 5 and 6). Yukon Gold had the highest specific gravity at both locations. Specific gravity greatly effects cooking quality, and this information should be used with the culinary evaluations reported in the WSU cultivar report to make decisions about appropriate uses for these new potential varieties.

**Table 5 Yield and quality characteristics of two standard specialty potato cultivars and three breeding lines grown in Parma, ID during 2018. 1**

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Cultivar/Breeding line** | **Total Yield** | **No. 1 Yield** | **Premium Yield (2-6oz)** | **Yield** | **Yield** | **Specific Gravity** | **Skin app** | **Maturity** | **Scab** | **Hollow Heart (%)** | **Growth Crack** | **Merit** |
| **0-2 oz** | **>10 oz** |
| **Chieftain** | 577 | 565 | 37 | 9 | 317 | 1.074 | 3.0 | 4.0 | 4.0 | 0.0 | 4.8 | 2.0 |
| **A08112-7R** | 449 | 365 | 221 | 84 | 3 | 1.075 | 4.0 | 2.0 | 4.8 | 0.0 | 5.0 | 3.4 |
| **A08122-12R** | 589 | 543 | 180 | 38 | 44 | 1.076 | 3.0 | 2.3 | 4.0 | 0.0 | 5.0 | 3.6 |
| **Yukon Gold** | 466 | 461 | 30 | 5 | 249 | 1.087 | 3.0 | 3.0 | 2.5 | 0.0 | 4.8 | 2.0 |
| **POR14PG22-3** | 608 | 548 | 248 | 58 | 15 | 1.075 | 2.0 | 3.0 | 4.0 | 0.0 | 5.0 | 3.4 |

1 Yields are reported in cwt/A. Merit score is based on appearance, yield, uniformity and defects and rated on a 1-5 scale, where 5 = exceptionally good. Maturity is rated 1-5, where 5 = very late. Scab, growth cracks (GC), and second growth (Knobs) are rated 1-5, where 5 = none. Hollow heart (HH) is reported as the percentage of 10 tubers showing the defect.

\Most of the entries showed very few external and internal defects. The exceptions were growth cracks in A08122-12R at Aberdeen, and common scab in Yukon Gold at both Parma and Aberdeen (Tables 5 and 6). Merit score is a combined evaluation of yield, tuber size distribution, tuber shape uniformity, and appearance. A08112-7R had the highest merit score in Aberdeen, while AO8122-12R had high scores at Parma (Tables 5 and 6).

Table 6 Yield and quality characteristics of two standard specialty potato cultivars and three breeding lines grown in Aberdeen, ID during 2018. 1

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Cultivar/Breeding line** | **Total Yield** | **No. 1 Yield** | **Premium Yield (2-6oz)** | **Yield 0-2 oz** | **Yield > 10 oz** | **Specific Gravity** | **Skin app** | **Maturity** | **Scab** | **Hollow Heart (%)** | **Growth Crack** | **Merit** |
| **Chieftain** | 379 | 354 | 123 | 10 | 63 | 1.074 | 3.5 | 3.4 | 4.1 | 0.0 | 4.8 | 2.9 |
| **A08112-7R** | 336 | 209 | 207 | 126 | 0 | 1.078 | 3.8 | 3.3 | 4.5 | 0.0 | 5.0 | 4.1 |
| **A08122-12R** | 338 | 271 | 197 | 51 | 15 | 1.071 | 3.3 | 2.8 | 4.8 | 0.0 | 3.8 | 3.0 |
| **Yukon Gold** | 325 | 304 | 112 | 11 | 68 | 1.088 | 3.8 | 2.3 | 2.4 | 0.0 | 4.9 | 3.0 |
| **POR14PG22-3** | 415 | 320 | 288 | 84 | 3 | 1.073 | 4.0 | 3.3 | 4.6 | 0.0 | 5.0 | 2.1 |

1 Yields are reported in cwt/A. Merit score is based on appearance, yield, uniformity and defects and rated on a 1-5 scale, where 5 = exceptionally good. Maturity is rated 1-5, where 5 = very late. Scab, growth cracks (GC), and second growth (Knobs) are rated 1-5, where 5 = none. Hollow heart (HH) is reported as the percentage of 10 tubers showing the defect.

*Biochemical Assessments-* The cultivars and breeding lines showed a range of biochemical characteristics, such as solids, antioxidant levels, glycoalkaloids, and Vitamin C content (Table 7). None of the glycoalkaloid levels were high enough to cause concern, while Yukon Gold was noteworthy for high antioxidant and Vitamin C content.

Table 7. Biochemical characteristics of two standard specialty potato cultivars and three breeding lines grown in Aberdeen, ID during 2018.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Cultivar** | **Solids Oven Dry (%)** | **Antioxidants (ug/g FW) 2** | **Vitamin C (mg/100 g FW)** | **Glycoalkaloids (mg/100 g FW)** |
| **Chieftain** | 18.9 | 190.0 | 25.52 | 4.8 |
| **A08112-7R** | 19.8 | 143.3 | 27.02 | 1.5 |
| **A08122-12R** | 19.0 | 129.3 | 32.89 | 2.1 |
| **Yukon Gold** | 21.7 | 146.8 | 42.30 | 4.7 |
| **POR14PG22-3** | 17.9 | 176.6 | 32.49 | 5.6 |

2 Higher numbers for antioxidant capacity indicate potentially greater health benefits.

*Storage Evaluations-* Skin color and appearance were rated on samples from the Parma trial after approximately 90 days storage at 45oF. Most entries had moderate skin appearance, with lower ratings being associated with russeting, black scurf and enlarged lenticels (Table 8). Dormancy length varied from 80 to 122 days at 45oF, with breeding line A08112-7R notable for relatively long dormancy compared to the other entries.

Table 8 Appearance ratings and dormancy length for two standard specialty potato cultivars and ten breeding lines grown in Parma, ID during 2018.

|  |  |  |
| --- | --- | --- |
| **Cultivar** | **Appearance1** | **Dormancy length** |
|
| **Chieftain** | 1.5 | 94 |
| **A08112-7R** | 3.0 | 122 |
| **A08122-12R** | 2.0 | 80 |
| **Yukon Gold** | 3.0 | 94 |
| **POR14PG22-3** | 2.0 | 80 |

1 Rated on a 1 = very poor to 5 = very good scale.

Appearance ratings were taken on 11/6/2018

*Multi-year summary -* None of the three breeding lines evaluated in 2018 have been in the Tri-state specialty trial for more than one year. Therefore, a historical summary of performance could not be completed. All three entries in these trials showed some merit in terms of yield, tuber size and appearance. We recommend that all three be returned for a second year of evaluation.

**Publications:**

Stark, J.C., R.G. Novy, J.L Whitworth, N.R. Knowles, M.J. Pavek, M. Thornton, C.R. Brown, B.A. Charlton, V. Sathuvalli, T. Brandt, N. Olsen and S. Yilma. 2018. Pomerelle Russet: an early maturing potato variety with high yields of U.S. No.1 tubers suitable for fresh market and mid-storage processing and tolerance to potato mop-top virus. *American Journal of Potato Research* 95:110-122.

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**Oregon- Sagar Sathuvalli**

* ~60,800 single hill seedling tubers were planted at a remote site near KF (78 % Russets, 13% chips and 9% specialty). In addition ~18,000 ‘B’ seedling tubers from Aberdeen, ID were planted as single hills. Picked 713 Russet Selections, 77 Chip selections and 46 specialty selections
* 614 PYT1 (2nd year in field) selections were planted as 4-Hills at HAREC (79% Russets; 16% Chipper and 5% Specialty). All these selections were planted at KF as part of evaluation and Seed Increase . Selected 96 Russets, 25 Chips and 7 Specialty clones
* 197 PYT2 (3rd year in field; 71 % Russets, 17 % Chip and 12 % specialty) selections were planted at three locations and retained 25 Russet, 6 Chip and 10 specialty selections
* State wide (mid generation) trials were conducted on 32 russet selections, 10 chip selections and 6 specialty selections. Retained 8 Russet, 4 chip and none specialty
* Harvested around 55,000 seedling tubers for 2019 single hill planting at KBREC.
* More than 110,000 lbs of breeder seed was harvested at KBREC for use in various breeding trials
* NCPT and SNAC trials were conducted at HAREC and NFPT trials were conducted at Ontario, Oregon
* Castle Russet and Echo Russet were officially released as ‘Tri-state Releases’ in May of 2018. PVP’s were applied. Certified seed is available from Brian Charlton if anyone is interested
* Brian Charlton is appointed as Interim Director of KBREC station
* OSU has New Dean of College of Agricultural Sciences, Dr. Alan Sams. He replaced Dr. Dan Arp
* Stan Li at HAREC and Emily Lopez at KBREC both resigned from their positions.
* Our Dept. Head Jay Noller announced that he will be stepping down from his position in Sep 2019.
* Regarding Genetic Research, OSU is part of PanGenome collaboration (along with Dr. Novy and Kuhl). Thanks to University of Idaho Endowment and PVMI for helping with the cost. OSU volunteered to help with bioinformatics and comparative genomics study
* OSU is working on breeding for soil borne pathogens, we have identified new sources for CRKN resistance and will be working closely with Dr. Max Feldman, USDA-ARS Prosser, WA on introgression efforts

Publications:

Schmitz Carley, C.A., J.J. Coombs, M.E. Clough, W.S. De Jong, D.S. Douches, K.G. Haynes, C.R. Higgins, D.G. Holm, J. C. Miller, F.M. Navarro, R.G. Novy, J.P. Palta, D.L. Parish, G.A. Porter, V.R. Sathuvalli, A.L. Thompson, L. Zotarelli, G.C. Yecho, J.B. Endelman. (2018) Genetic covariance of environments in the potato national chip processing trail. Crop Science. doi: 10.2135/cropsci2018.05.0314

Navarre, D.A., C. Brown and V. Sathuvalli. (2018) Potato vitamins, minerals and phytonutrients from a plant biology perspective Am. J. Potato Res. doi: 10.1007/s12230-018-09703-6

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Greaebner, R.C., C.R. Brown, R.E. Ingham, C.H. Hagerty, H. Mojtahedi, R. Quick, L.L. Hamlin, N. Wade, J.B. Bamberg and V. Sathuvalli. (2018) Identification of sources of resistance to Meloidogyne chitwoodi from wild potato species. Am. J. Potato Res. doi: 10.1007/s12230-018-9674-9

Shock, C.C., C.R. Brown, V. Sathuvalli, B.A. Charlton, S. Yilma, D.C. Hane, R. Quick, K.A. Rykbost, S.R. James, A.R. Mosley, E.B.G. Feibert, J.L. Whitworth, R.G. Novy, J.C. Startk, M.J. Pavek, N.R. Knowles, R.A. Navarre, J.C. Miller, Jr. D.G. Holm, S.S. Jayanty, J. Debons, M.I. Vales, X. Wang, and L.L. Hamlin. (2018) TerraRossa; a mid-season specialty potato with red flesh and skin and resistance to golden cyst nematode. Am. J. Potato Res. doi: 10.1007/s12230-018-9667-8

Sathuvalli, V., A.M. Treadwell, D. Kalta, S. Jayanty, L.N. Tobey (2018) Nutritional benefits and acceptability of roasted colored potatoes among school-aged children. J Food Sci Nut 4:030.

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Endelman, J.B., CA Schmitz Carley, P.C. Bethke, J.J. Coombs, M.E. Clough, W.L. da silva, W.S. De Jong, D.S. Douches, C.M. Frederick, K.G. Haynes, D.G. Holm, J.C. Miller Jr, P.R. Munoz, F.M. Navarro, R.G. Novy, J.P. Palta., K.T. Rak, V.R. Sathuvalli, A.L. Thompson, G.C. Yencho (2018) Genetic variance partitioning and genome-wide prediction with allele dosage information in autotetraploid potato. Genetics DOI: 10.1534/genetics.118.300685

**Washington- Mark Pavek and Rick Knowles**

**Outcomes**

160,000 Number of acres impacted by WSU research and extension programs that enhanced

productivity, efficiency, or sustainability of crop production enterprises.

Results are disseminated to stakeholders through field days and a multitude of reports given during the annual meetings of the WA/OR Potato industry and the ID potato industry. Stakeholders and personnel from the potato industry also attend the annual meetings of the Tri-State and Western Regional potato variety development committees where they receive summaries of the results from five western states through this project.

**Impacts**

Recent Accomplishments: The effect of the Tri-State Potato Variety Development Program on the Northwest potato industry has been substantial. Ranger Russet, Umatilla Russet, Clearwater Russet, Alturas, and Bannock Russet are examples of russet cultivars released from the Tri-State program that have greatly benefited the United States and Northwest potato industry, being the 3rd, 4th, 6th, 7th, and 12th most widely grown cultivars in the United States in 2018, respectively, with Tri-State varieties representing 31%, or 266,400 acres, of the fall crop nationally. (NASS, Crop Production, November 2018).

Ranger Russet, Umatilla Russet, and Clearwater Russet were the 3rd, 4th, and 5th most widely grown cultivars in the PNW (ID, OR, WA) in 2018, respectively, and accounted for 25% of the PNW planted acreage. Varieties recently released by the Tri-State program are now produced on more than 160,900 acres in the Pacific Northwest with value to growers estimated at approximately $810 million. In the past 16 years, the US farm-gate value of Tri-State varieties has increased by approximately $240 million.

Evaluated the effects of P nutrition on grower return and retention of process quality (Ranger Russet, Russet Burbank, Umatilla Russet, Alturas, Mountain Gem Russet, and Castle Russet).

Determined the effects of water stress imposed at critical periods of tuber development on productivity, water use efficiency, crop value, postharvest physiology and retention of process quality (Alturas, Clearwater Russet, Russet Burbank, Ranger Russet, Targhee Russet, and Umatilla Russet).

Identified unique water use patterns of six potato varieties when grown in the Columbia Basin of Washington State (Alturas, Clearwater Russet, Russet Burbank, Ranger Russet, Targhee Russet, and Umatilla Russet).

On average, the potato project engages three to six graduate students, three postdoctoral, five technical, and numerous undergraduate students in the project annually.

Screened five cultivars/clones (Clearwater Russet, Payette Russet, Russet Burbank, Ranger Russet, and Russet Norkotah) for tolerance of a growth regulator Maleic Hydrazide (MH30) designed to reduce in-storage sprouting and improve tuber quality.

Screened 36 potato clones/cultivars for adaptability to the Columbia Basin of WA by evaluating yield, quality, tuber size profile, economic return, and post-harvest processing.

**Colorado – Dave Holm**

The Colorado Potato Breeding and Selection Program intercrossed 100 parental clones in 2018 in two separate crossing blocks. The emphasis of the first crossing block was russet and specialty (fingerlings) cultivar development, and disease resistance (PCN, common scab, late blight, and Verticillium wilt). The second crossing block emphasized russet and yellow cultivar development, and disease resistance (corky ringspot, Verticillium wilt, common scab, late blight, PVY, and Fusarium). Seed from 212 combinations was obtained.

A subset of crosses from 2016 and 2017 were planted in the greenhouse in 2018 to produce seedling tubers. Approximately 61,000 first-size seedling tubers representing 267 families were produced. These seedlings will undergo initial field selection in 2019. These seedlings represent crosses segregating primarily for russets, chippers, specialty types, and disease resistance, primarily PVY. Second through fourth size seedling tubers will be distributed to Idaho (USDA-ARS), North Dakota, Maine, Oregon, Texas, Minnesota, and Alberta, Canada (Agriculture Canada).

Colorado grew 94,442 first-year seedlings in the field representing 482 families in 2018, with 520 selected for subsequent planting, evaluation, and increase in future years. A portion of these seedlings were obtained from the USDA-ARS (Aberdeen, Idaho), Agriculture Canada, Texas A&M University, Oregon State, and the University of Maine. Another 739 clones were in 12-hill, preliminary, and intermediate stages of selection. At harvest, 221 were saved for further increase and evaluation in 2019. Seventy-three advanced selections were saved and will be increased in 2019 pending further evaluation. Another 232 selections and cultivars were maintained for germplasm development, breeding, and other experimental purposes including seed increases/maintenance.

Field trials conducted in 2018 included: Preliminary Trial, Intermediate Yield Trial, Intermediate Yield Chip Trial, Intermediate Specialty Yield Trial, Advanced Yield Trial, Advanced Fingerling Yield Trial, Southwestern Regional Russet Trial, Southwest Regional Red Trial, Southwest Regional Chip Trial, Southwest Regional Specialty Trial, Western Regional Russet Trial, Western Regional Red Trial, Western Regional Specialty Trial, Western Regional Chipping Trial, and the San Luis Valley Chipping Trial. All trials are grown under “low input” conditions, primarily for reduced nitrogen and fungicide.

A total of 190 samples are in the process of being evaluated for two or more of the following postharvest characteristics: blackspot susceptibility, storage weight loss, dormancy, enzymatic browning, specific gravity, french fry color, french fry texture, chip color, and red color retention. Several advanced selections were evaluated in the Southwest Regional Trials, Western Regional Trials, or by potato growers in 2018 representing russets, specialties, and chipping selections. Advanced Colorado selections evaluated in the Southwest Regional Trials and Western Regional Trials were seven russets (CO08155-2RU/Y, CO08231-1RU, CO09036-2RU, CO09076-3RU, CO09205-2RU, CO10087-4RU, and CO10091-1RU and), eight yellows and specialties (AC10376-1W/Y, CO08037-2P/P, CO09079-5PW/Y, CO09128-3W/Y, CO09128-5W/Y, CO09218-4W/Y, CO10064-1W/Y, CO10097-2W/Y, CO10098-4W/Y, and CO10098-5W/Y) , and three chip selections (AC01144-1W, CO10073-7W, and CO10076-4W). Status of these selections will be determined at upcoming meetings with regional collaborators and growers.

A certificate of Plant Variety Protection ( PVP Number 201600314) was issued for ‘Crimson King' (CO97222-1R/R) on March 21, 2018. This new cultivar has been marketed for production of colored potato chips.

An application for Plant Variety Protection (PVP Number 201800158) was submitted for ‘Winterset' (CO02321-4W) on February 17, 2018. This cultivar was developed for processing into potato chips.

Four potato selection disclosures were filed with CSU Ventures: Tech ID: 19-047 "CO97087-2RU”, Tech ID: 19-048 ‘CO98067-7RU’, Tech ID: 19-051 ‘CO00277-2R’, Tech ID: 19-052 ‘AC05175-3P/Y’. PVP applications will be prepared for these selections in 2019.

Three advanced selections were recommended for naming and release at the Advanced Selection Evaluation Meeting on December 18, 2018: CO05037-3W/Y, CO05068-1RU, and AC05175-3P/Y.

**Publications**

Bali, S., Patel, G., Novy, R., Vining, K., Brown, C., Holm, D., Porter, G., Endelman, J., Thompson, A., Sathuvalli, V. 2018. Evaluation of genetic diversity among Russet potato clones and varieties from breeding programs across the United States. PloS ONE 13(8):e0201415.https://doi.org/10.1371/journal.pone.0201415.

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Chapparro, J. M., Holm, D. G., Broeckling, C. D., Prenni, J. E., Heuberger, A. L. 2018. Metabolomics and ionomics of potato tuber reveals an influence of cultivar and market class on human nutrients and bioactive compounds. Frontiers in Nutrition (5) 36. DOI: 10.3389/fnut.2018.00036

Endelman, J. B., Carley, C. A. S., Bethke, P. C., Coombs, J. J., Clough, M. E., Washington, L. De Silva, De Jong, W. S., Douches, D. S., Frederick, C. M., Haynes, K. G., Holm, D. G., Miller, J. C., Muñoz, P. R., Navarro, F. M., Novy, R. G., Palta, J. P., Porter, G. A., Rak, K. T., Sathuvalli, V. R., Thompson, A. L., and Yencho, G. C. 2018. Genetic variance partitioning and genome-wide prediction with allele dosage information in autotetraploid potato genetics. Genetics 209:77-87.

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Kalita, D., Holm, D. G., LaBarbera, D. V., Petrash, J. M, Jayanty, S. S. 2018. Inhibition of a-glucosidase, a-amylase, and aldose reductase by potato polyphenolic compounds. PLoS ONE 13(1): e0191025. https://doi.org/10.1371/journal.pone.0191025.

Miller, J. C. Jr., Scheuring, D. C., Koym, J. W., Holm, D. G., Pavek, J. J., Novy, R. G., Whitworth, J. L., Stark, J. C., Charlton, B. A., Yilma, S., Knowles, N. R., Pavek, M., Nunez, J. J., Wilson, R., Brown, C. R., Shock, C. C., Long, C. M. 2018. Reveille Russet: An early, widely adapted, high-count-carton russet for the fresh market. Am. J. Potato Res. 95:79–86.

Shock, C. C, Brown, C. R., Sathuvalli, V., Charlton, B. A., Yilma, S., Hane, D. C., Quick, R., Rykbost, K. A., James, S. R., Mosley, A. R., Feibert, E. B. G., Whitworth, J. L., Novy, R. G., Stark, J. C., Pavek, M. J., Knowles, N. R. Navvare, D. A., Miller, J. C. Jr., Holm, D. G., Jayanty, S. S., Debons, J., Vales, M. I., Wang, X., Hamlin, L. L. 2018. TerraRossa: A mid-season specialty potato with red flesh and skin and resistance to common scab and golden cyst nematode. Am. J. Potato Res. 95:597-605.

**Impact Statements**

Colorado cultivars and clonal selections accounted for 36% of the 7,858 acres of Colorado certified seed accepted for certification in 2018. Advanced Colorado selections accounted for another 2% of the seed acreage.

Colorado State University releases accounted for 37% of the estimated 51,900 acres planted to fall potatoes in Colorado in 2017. Primary Colorado cultivars planted were Canela Russet (10.4%), Russet Norkotah-S8 (10.4%), Russet Norkotah-S3 (7.5%), Centennial Russet (4.3%), and Rio Grande Russet (4.2%).

Four of the top 20 russet cultivars grown for seed in the U.S. [Silverton Russet (#7), Canela Russet (#11), Centennial Russet (#12), Rio Grande Russet (#18)] in 2018 were developed by the Colorado program. Twenty-nine percent of the Russet Norkotah acreage (including line selections) was attributed to Colorado Russet Norkotah Selections 3 and 8. For reds, Sangre and Colorado Rose ranked #7 and #11 respectively. For chips, Chipeta ranked #10. For colored-fleshed specialties, Purple Majesty and Mountain Rose ranked #1 and #2 respectively.

**Other Items**

Katrina Zavislan finished her Master of Agriculture program in 2018 with a professional paper on “Using Participatory Plant Breeding Strategies to Obtain Gardener Feedback in a Potato Breeding Program”.

The Colorado Potato Breeding and Selection Program held an Open House on December 4, 2018 and an Advanced Selection Evaluation Meeting on December 18, 2018.

**Texas – Isabel Vales**

73,286 first year seedlings, resulting from 403 different full-sib families, were grown for selection on the Barrett Farm (29,718) near Springlake and on the CSS Farm (51,778) near Dalhart. Some 580 original selections were made (0.8% selection rate). Out of 359 second-year clones, 59 were selected (16%).

We received seedling tubers from the Idaho (10,582), Colorado (19,943), and North Dakota (10,819) breeding programs.

We grew 85,087 tuberlings in the greenhouses at College Station and Lubbock from true seed. 31,942 were planted in Texas and we sent second and third-size tuberlings to Idaho (6,765), Colorado (26,339), North Dakota (12,326) and Minnesota (3,000). We also sent 5,000 true potato seed to Minnesota.

Our crossing block 2017-18 was very successful. We had 76 parents with a 33% success rate which produced 343 families. Approximately 93,777 true seed were produced.

Trials were conducted at Springlake (summer crop– planted March 20-25 and harvested July 2, 4, and August 6 ) and Dalhart (fall crop– planted May 13-16 and harvested September 10, 17 and 24) - 767 advanced selections/new cultivars were evaluated in 35 separate trials. This involved planting/harvesting over a six-month period.

Southwestern and Western Regional Trials were conducted at both Springlake (Red/Specialty) and Dalhart (Chip, Russet and Red/Specialty).

The Texas program entered two selections (ATTX05175S-1R/Y and COTX04193S-2R/Y) in the Western Regional Red/ Specialty Trial, two selections in the Western Regional Russet Trial (AOTX05043-1Ru and COTX05095-2Ru/Y) and one selection in the Western Regional Chip Trial (NDTX081648CB-13W). The program also entered one selection in the Southwest Regional Red/ Specialty Trial (ATX02263-1R/Y).

The Texas Program had 12 entries (AORTX09037-5W/Y, AORTX09144-2W, COTX12235-2W, COTX12428-1W, NDTX12203AB-1W, NDTX1244-3W/Y, NDTX1246-3W, TX14695-2W ZC, TX13580-1W, TX12483-6W, NDTX1246-5W/Y, and NDTX14362AB-1W) in the Potatoes USA Fast-Track National Chip Processing Trial.

The Texas Potato Field Day was held on July 12, 2018 on the Barrett Farm near Springlake, and included some 70 attendees, ranging from Canada to Mexico.

Zebra Chip evaluations were conducted based on artificial infestation under field and greenhouse conditions. Results showed promising tolerance in diploids, advanced clones with crop wild introgressions, and wild relatives.

Emphasis on virus testing and clean-up continued.

Our lab is equipped for basic molecular biology work which has started. We continue purchasing the necessary equipment and supplies.

We have a master student (Sam Vigue – graduated in December), two PhD Students (Jeewan Pandey and Sanjeev Gautam) and three undergraduate students.

The Texas Russet Norkotah strains continue to be the prevalent varieties planted in Texas. Potato yields in Texas remain among the highest in the nation (440-465 cwt/a) in the summer crop producing states.

The Texas Russet Norkotah selections (TXNS112, TXNS278, and TXNS296) collectively ranked third (in acreage) among the varieties accepted for seed certification in 2017. Russet Burbank and the Frito-Lay varieties ranked above these three selections. Certified seed acreage of the Texas Russet Norkotah strain selections continued to increase in 2018.

Reveille Russet, released in 2015, is gaining rapid acceptance (16 licensees in 7 States), with demand far exceeding seed supply. The release was published in The American Journal of Potato Research in 2018.

Vanguard Russet was submitted for PVP (201800428) in 2018.

**Publications**

***Peer-review***

Levy, J., C. Tamborindeguy, G. Athrey, D.C. Scheuring, J.W. Koym, and J.C. Miller, Jr. 2018. Transcriptome of Russet Norkotah and its clonal selection, TXNS278. BMC Genomics (2018) 11:16. DOI 10.1186/s13104-018-3254-4.

Schmitz Carley, C.A., J.J. Coombs, M.E. Clough, W.S. De Jong, D.S. Douches, K.G. Haynes, C.R. Higgins, D.G. Holm, J.C. Miller, Jr., F.M. Navarro, R.G. Novy, J.P. Palta, D.L. Parish, G.A. Porter, V.R. Sathuvalli, A.L. Thompson, L. Zotarelli, G.C. Yencho, J.B. Endelman. 2018. Genetic covariance of environments in the Potato National Chip Processing Trial. Crop Science. 59:107-114

Harrison, K., C. Tamborindeguy, D.C. Scheuring, A. Mendoza Herrera, A. Silva, I.E. Badillo-Vargas, J.C. Miller, Jr., J.G. Levy. 2018. Differences in Zebra Chip severity between ‘*Candidatus Liberibacter* solanacearum’ haplotypes in Texas. American Journal of Potato Research 95. (accepted).

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Shock, C.C., C.R. Brown, V. Sathuvalli, B.A. Charlton, S. Yilma, D.C. Hane, R. Quick, K. Rykbost, S. James, A. Mosley,E. Feibert, J.L. Whitworth, R.G. Novy, J.C. Stark, M.J. Pavek, N.R. Knowles, R.A. Navarre, J.C. Miller, Jr. , D.G. Holm, J. Debons, M.I. Vales, X. Wang, L, Hamlin. 2018. TerraRossa: A mid-season specialty potato with red flesh and skin and resistance to common scab and golden cyst nematode. Amer. J. Potato Res. 95:597-605.

***MS Thesis***

Samuel Vigue (MS). Identification of zebra chip tolerant diploid and tetraploid potato genotypes with good processing quality. October 16th, 2018. Texas A&M. Dept. of Horticultural Sciences. College Station, TX.

***Reports***

Miller, C., I. Vales, J. Koym, and D. Scheuring. 2018. Texas Potato Breeding Report, 2017. Texas A&M AgriLife Research, College Station and Lubbock. 302p.

Miller, J.C., Jr., I. Vales, J.W. Koym, and D.C. Scheuring. 2018. Southwest Regional Potato Variety Trial Report 2017. Texas A&M AgriLife Research, College Station and Lubbock. 23p.

Miller, J.C., Jr., I. Vales, J.W. Koym, and D.C. Scheuring. 2018. Western Regional Red/Specialty Variety Trial Report 2017. Texas A&M AgriLife Research, College Station and Lubbock. 27p.

***Abstracts and posters***

Samuel Vigue, Cecilia Tamborindeguy, Douglas C. Scheuring, Angel Chappell, Jeffrey W. Koym, J. Creighton Miller Jr., M. Isabel Vales. Identification of Tolerance/Resistance to the Zebra Chip Disease in Diploid and Tetraploid Potato Clones.The Potato Association of America. 2018 Annual Conference. Boise, ID. July 22-26, 2018.

Angel Chappell, Jeffrey W. Koym, Douglas C. Scheuring, J. Creighton Miller, Jr., and M. Isabel Vales. Incorporation of mannitol in tissue culture media to reduce in vitro potato plant growth for long-term storage. in vitro Biology Meeting. St. Louis, MI, June 2-6, 2018.

Vigue, S., C. Tamborindeguy, J.R.C. Miller, D. Scheuring, A. Chappell and M.I. Vales. Screening diverse potato germplasm for resistance/tolerance to Zebra Chip disease under greenhouse conditions. Southern Region American Society for Horticultural Science. 2018 Annual meeting. Jacksonville, FL, February 2-4, 2018.

Pandey, J., D. Scheuring, J. W. Koym, A. Chappell, J. C. Miller and M. I. Vales. Chipping performance and resistance to cold induced sweetening in advanced potato chipping clones during cold storage. Plant Breeding Symposium. Texas A&M, February 22, 2018.

Samuel Vigue, M. Isabel Vales, Cecilia Tamborindeguy, J.R. Creighton Miller, Douglas Scheuring, Angel Chappell. Screening diverse potato germplasm for resistance/tolerance to Zebra Chip disease under greenhouse conditions. Plant Breeding Symposium. Texas A&M, February 22, 2018.

***Popular Press***

AgriLife Today. The Texas A&M potato breeding trials offer reds to russets, babies to bakers. 07/17/2018 By: Kay Ledbetter. Article and video. [www.today.agrilife.org/2018/07/17/texas-am-potato-breeding-trials-offer-reds-to-russets- babies-to-bakers/](http://www.today.agrilife.org/2018/07/17/texas-am-potato-breeding-trials-offer-reds-to-russets-%20babies-to-bakers/)

***Website***

<http://potato.tamu.edu/>

**Oral Presentations**

Invited talk: Vales, M.I., D. Scheuring, J. Koym, A. Chappell and C. Miller. The Texas A&M Potato Breeding Program: Status and Perspectives. The Dallas Center. March 9th, 2018.

Invited talk: The Texas A&M Potato Breeding Program: Overview. NCCC215 Potato Breeding & Genetics Technical Committee. Chicago, IL. December 10th, 2018.

Invited talk: Pandey, J., M.I. Vales, D. Scheuring, J. Koym, A. Chappell and C. Miller. Implementation of marker-assisted selection in The Texas A&M Potato Breeding Program. College Station, TX. March 23, 2018.

**Impact**

The Texas A&M Potato Program developed/co-developed 17 Potato varieties since its inception.

The Texas Russet Norkotah selections (TXNS112, TXNS278, and TXNS296) collectively ranked third (in acreage) among the varieties accepted for seed certification in 2017. Russet Burbank and the Frito-Lay varieties ranked above these three selections. Certified seed of Russet Norkotah Texas clonal selections were planted in 7,500 acres in the USA in 2017 representing 7% of the national seed production (15% increase in relation to the previous year), Certified seed acreage of the Texas Russet Norkotah strain selections continued to increase in 2018.

The Texas Russet Norkotah strains continue to be the prevalent varieties planted in Texas. Potato yields in Texas remain among the highest in the nation (440-465 cwt/a) in the summer crop producing states.

There are 53 licensees of TAMU Potato varieties (2018). From those, 37 have licenses for Russet Norkotah clonal selections in 13 states. Reveille Russet (PVP 2015, published in the American Journal of Potato Research in 2018) is being stablished, with demand far exceeding seed supply. There are currently 16 licensees in seven states.

Vanguard Russet was submitted for PVP (201800428) in 2018.

**California – NA** not present

* Pending

**Administrative Report –**

December is the deadline to submit WERA Renewal (Paco). Jeff Stark volunteered to complete.

**No break taken – 1:59 pm**

**Regional Early/Late Russet Results**

Field Results discussed by: **Rich Novy**

Clones to graduate:

AO06191-1

Clones to return:

A07061-6

A071012-4BF

A07769-4

A08433-4VR

A10021-5TE

AO02183-2

AOR07781-5

CO09076-3RU

CO09205-2RU

COTX05095-2Ru/Y

Clones to drop:

CO09036-2RU

CO08231-1RU

CO08155-2RU/Y

AOTX05043-1Ru

AOR07821-1

AOR06576-1

A06030-23

New Entry Clones:

A08422-4VRsto

CO10087-4RU

CO10091-1RU

OR12133-10

POR12NCK50-1

Post-Harvest discussed by: Rick Knowles (WSU)

**Regional Specialty Results**

Field discussed by; Jeff Koym (Texas A&M)

Clones to Graduate:

None

Clones to Return:

ATTX05175S-1R/Y

ATX06264s-4R/Y

COTX04193S-2R/Y

CO09128-5W/Y

CO09218-4W/Y

Clones to Drop:

POR11PG62-3

CO09128-3W/Y

CO08037-2P/P

CO09079-5PW/Y

New Entry Clones:

A08112-7R

CO10097-2W/Y

CO10064-1W/Y

CO10098-5W/Y

POR14PG22-3

Post-harvest not conducted by Rick Knowles

**Regional Chipping Trial**

Field Discussed by Dave Holmes

Clones to Graduate:

AOR09034-3

NDA081453CAB-2C

Clones to Return:

None

Clones to be Dropped:

AC01144-1W

New Entry Clones:

CO10073-7W

CO10076-4W

* White knot is in the grading criteria when it comes to making chips. Should be something to look at when selecting new varieties?

**2020 Meeting Date/Location**

* Colorado next location for WERA 29 meeting

**Discussion of 2020 officers**

**Election of Chair**

* Vice chair Francisco Gonzalez (WSU) move up to chair for the year 2020.

**Election of Vice Chair**

* Alejandro Cruz (WSU) moves from secretary to Vise Chair

**Election of Secretary**

* Isabel Vales (Texas A&M) elected to secretary position by Rich Novy, seconded by Dave Holm (CSU); the vote was unanimous

**Seed Supplies and Shipping Lists – Brian Charlton**

* Brian Charlton reviewed the shipping lists and OSU responsibilities for shipping to trial sites
  + Seed request should be submitted by February 8, 2019

**Justin Hatch moved to adjourn the meeting and Chelsey Lowder seconded at 3:43 pm. Vote was unanimous.**