



## Communications

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In Q4 of 2017, CAHNRS Communications Office published **76** Online Articles/Posts that highlight accomplishments in Academic Programs, Research and Extension. A selection is given below:

### TOP NEWS STORIES

- [Molecular scientist named Fellow for advancing science](#) – By **Scott Weybright** | Published November 20, 2017 | Appeared in Spokesman Review, Pacific Northwest National Laboratory LinkedIn, WSU Insider, other outlets
- [CBS Sunday Morning highlights Cosmic Crisp®](#) – By **Seth Truscott** | Published November 28, 2017 | Appeared in Washington Ag Network, WSU Impact, other outlets
- [WSU secures more than \\$1.5 million for specialty crop research](#) – By **Seth Truscott** | Published October 13, 2017 | Appeared in Washington Ag Network, AgInfo.net, Agristats, other outlets

### SOCIAL MEDIA

<a href="#">Facebook</a>	51 Posts	1,485 Likes	76,458 Reached	3,155 Fans (+3.2%)
	Top Post: <a href="#">Profile of Fall Grad Brenna Hayden</a>			
<a href="#">Twitter</a>	399 Tweets	259,481 Impressions	8,087 Engagements	4,580 Followers (+0.7%)

## Faculty Highlights

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- **John Peters** (IBC) was elected a [Fellow of the American Association for the Advancement of Science \(AAAS\)](#)
- **James Moyer** (Associate Dean for Research) was an invited speaker at the ASTM-sponsored meeting, “Safeguarding US and Global Food Security: The National Plant and Animal Germplasm Program,” held in Washington DC on December 19.
- **WSU’s ‘Otto’** was calculated to be the [most-widely planted wheat variety in Washington State](#) in the 2017 harvest (221,975 acres). Otto was released by **Arron Carter** (CSS) in 2011. WSU varieties compete with those from major companies such as Syngenta and WestBred.
- **Lindsey du Toit** (PP) organized and chaired the annual meeting of the W-3008 Multi-state Project on “Integrated Onion Pest and Disease Management,” held in Grand Rapids, MI on December 4<sup>th</sup>. The meeting was attended by 33 onion researchers, extension specialists, breeders, and producers from around the country to discuss research, needs, and advancements in management of onion pests and diseases.
- **Pete Jacoby** (CSS) was awarded the [2017 National Water & Energy Conservation Award](#) from the Irrigation Association.
- **Achour Amiri** (PP) gave an invited talk, “Ozone application to control fungal diseases of stored fruit” at the International workshop on Food Safety and Storage Challenges in Curicó, Chile, September 28<sup>th</sup>.
- **John Stark** (Ent.) was appointed to a National Academy of Science panel entitled “EPA Multi-Sector General Permit for Industrial Stormwater Discharges” to give expert opinion on EPA’s industrial stormwater permit.
- **Hanu Pappu** (PP) delivered a keynote address, “Structural and Functional Insights into Tospovirus-Host Interactions” at the opening, plenary session of VIROCON 2017, the annual meeting of the Indian Virological Society held in Mangalore, India, December 7-10.
- **Marc Kramer’s** (SOE) work on “Huge carbon sink in soil minerals: New avenue for offsetting rising greenhouse gases” was featured on the front page of Geochemical News today.
- **Manoj Karkee** (CPASS, BSE) delivered a keynote address, “Recent innovations in precision and automated agricultural systems,” at Vive Agro 4.0, held in Peru on November 14-16.

## Grant Funding

CAHNRS Office of Research faculty received **\$7M<sup>+</sup>** in extramural support in the form of new/ongoing grants, contracts, agreements and services rendered. A selection of awards (with award total) is given below:

### New Grants Include:

- **Andrei Smertenko** (IBC), “Asymmetry of microtubule dynamics in plant cytokinesis: the role of microtubule-nucleating protein MACET1,” NSF-CAREER, \$966K
- **Jeb Owen** and **Bill Snyder** (Ent.), “An ecological approach to disease risk management on organic poultry farms,” USDA-ORG, \$458K
- Multiple Teams of WSU researchers continue to be successful in the WSDA Specialty Crop Block Grant Program. Awardees for 2017 include:
  - **Pius Ngdewa** (BSE), **Lisa DeVetter** (NWREC, Hort.) and **Haiying Tao** (CSS), “Concentrating and blending of manure nutrients to enhance sustainable production practices”
  - **Sindhuja Sankaran** (CPAAS, BSE) and **Lav Khot** (CPAAS, BSE), “Novel sensing for potato postharvest quality and loss management in bulk storage”
  - **Norman Knowles** (Hort.) and **Mark Pavek** (Hort.), “Evaluation of crop enhancement products and innovative techniques to enhance”
  - **Carol Miles** (Hort.) and **Suzette Galinato** (SES), “Cost Effective Technologies for Cider Apple Orchard Mechanization and Fruit Quality Evaluation”
  - **Chad Kruger** (CSANR), **Chris Benedict** (ANR) and **Mei-jun Zhu** (SFS), “Dairy Manure Compost Applications on Red Raspberries”
  - **Patrick Moore** (Puyallup REC, Hort.), “A Thriving Fresh Market Strawberry Industry through Breeding, Horticulture Systems, Grower Resources and Nursery Expansion”
  - **Gary Chastagnar** (Puyallup REC, Hort.), “Optimizing Postharvest Botrytis Control and Handling of Cut Peonies”
- **Marcy Ostrom** (NWREC) and **Bri Ewing** (NWREC, SFS), “Apple to Glass: Improving Orchard Profitability through Developing Regional Craft Ciders,” USDA-AFRI, \$500K
- **Tianna DuPont** (ANR) and **Mark Mazzola** (USDA, PP), “IPM Methods to Control Replant Disease of Tree Fruit,” USDA-CPPM, \$200K
- **John Stark** (Washington Stormwater Center), “Coho pre-spawn mortality,” WA Ecology, \$500K; “Core stormwater training and permitting education for research,” WA Ecology, \$440K
- **John Browse** (IBC), “Biotechnology of Oilseed Crops: Healthy Oils By Design,” USDA-AFRI, \$498K
- **Doug Walsh** (Ent.), **Tim Waters** (ANR), **Betsy Beers** (Ent.), **Kim Patten** (ANR), **Drew Lyons** (CSS), **Carrie Foss** (Puyallup REC), **Sally O’Neal** (IAREC), **Brandon Hopkins** (Ent.), **Michelle Moyer** (VE) and **Carol Miles** (Hort.), “Washington State Extension Implementation Program (EIP),” USDA-CPPM, \$293K
- **Doug Collins** (ANR), **Lynne Carpenter-Boggs** (CSS), **Bri Ewing** (SFS, NWREC), **Chad Kruger** (CSANR, NWREC, Puyallup REC), **Girish Ganjyal** (SFS), **Laura Lewis** (CSANR, CED), and **Stephanie Smith** (YFP), “Sustainable High-Value Horticulture and Processing Systems in Washington State: Research and Extension Experiences for Undergraduates,” USDA-AFRI ELI Research and Extension Experiences for Undergraduates, \$279K

### Large Grants that Received Yearly Renewals Include:

- **William Pan** (CSS), **Ian Burke** (CSS), **Chad Kruger** (CSANR) and **Claudio Stöckle** (BSE), “Approaches to Climate Change for Inland Pacific Northwest Agriculture,” USDA-AFRI, \$118K

- **Michael Pumphrey** (CSS), **Arron Carter** (CSS) and **Devon See** (PP), “Coordinated Agricultural Project (WheatCAP): Validation, characterization and deployment of QTL for grain yield components in wheat,” USDA-AFRI, \$119K
- **Norman Lewis** (IBC), “PACE: Producing Algae for Coproducts and Energy,” DOE, \$155K
- **Lori Carris** (PP), “Phase II Systematics and identification of Urocystis species causing flag smut,” APHIS, \$116K
- **Hanu Pappu** (PP), **Chris Benedict** (ANR), **Debra Inglis** (PP) and **Mark Pavek** (Hort.), “Biological and Economic Impacts of Emerging Potato Tuber Necrotic Viruses and the Development of Sustainable Management,” USDA-SCRI, \$127K

## *Publications*

CAHNRS faculty published **128** articles in peer-reviewed journals and conference proceeding: these are catalogued in our Weekly Published Research Archive ([available here](#)). A selection of these publications, which appeared in journals that rank in at least the 90<sup>th</sup> percentile in their respective fields, as determined by Thomson Reuters InCites, is provided below with their 5-year impact factor.

### DISCOVERY

- **Markus Lange** (IBC), “Bioenergetics of Monoterpenoid Essential Oil Biosynthesis in Nonphotosynthetic Glandular Trichomes” PLANT PHYSIOLOGY – Impact Factor 7.4 – 95<sup>th</sup> percentile in Plant Sciences
- **Andrei Smertenko** (IBC), “Plant Cytokinesis: Terminology for Structures and Processes,” TRENDS IN CELL BIOLOGY – Impact Factor 13.3 – 95<sup>th</sup> percentile in Cell Biology
- **Zhiwu Zhang** (CSS), “Systematic bias of correlation coefficient may explain negative accuracy of genomic prediction,” BRIEFINGS IN BIOINFORMATICS – Impact Factor 6.7 – 96<sup>th</sup> percentile in Mathematical & Computational Biology
- **Charles Robbins** (SoE), “Phenological synchronization disrupts trophic interactions between Kodiak brown bears and salmon,” PNAS USA – Impact Factor 10.4 – 95<sup>th</sup> percentile in Multidisciplinary Sciences
- **Zhang, Zhiwu** and **Kulvinder Gill** (CSS), “Genome-Wide Association Study Reveals Novel Genes Associated with Culm Cellulose Content in Bread Wheat (*Triticum aestivum*, L.),” FRONTIERS IN PLANT SCIENCE – Impact Factor 4.7 – 91<sup>st</sup> percentile in Plant Sciences
- **Cynthia Gleason** and **Joe Poovaiah**, “W342F Mutation in CCaMK Enhances Its Affinity to Calmodulin But Compromises Its Role in Supporting Root Nodule Symbiosis in *Medicago truncatula*,” FRONTIERS IN PLANT SCIENCE – Impact Factor 4.7 – 91<sup>st</sup> percentile in Plant Sciences
- **Michael Pumphrey** (CSS) and **Xianming Chen** (USDA, PP), “Genome-wide association mapping reveals a rich genetic architecture of stripe rust resistance loci in emmer wheat (*Triticum turgidum* ssp *dicoccum*),” THEORETICAL AND APPLIED GENETICS – Impact Factor 4.2 – 97<sup>th</sup> percentile in Agronomy
- **Dan Rodgers** (AS), “Sexually dimorphic skeletal muscle and cardiac dysfunction in a mouse model of limb girdle muscular dystrophy 2i,” JOURNAL OF APPLIED PHYSIOLOGY – Impact Factor 3.5 – 91<sup>st</sup> percentile in Sport Sciences
- **Lisa Shipley** (SoE), “Seasonal variation in behavioral thermoregulation and predator avoidance in a small mammal,” BEHAVIORAL ECOLOGY – Impact Factor 3.2 – 99<sup>th</sup> percentile in Zoology
- **Mei-Jun Zhu** (SFS), **Dan Rodgers** and **Min Du** (AS), “Moderate alcohol intake induces thermogenic brown/beige adipocyte formation via elevating retinoic acid signaling,” FASEB JOURNAL – Impact Factor 5.4 – 92<sup>nd</sup> percentile in Biology

### TRANSLATIONAL

- **David Crowder** and **Bill Snyder** (Ent.), “A global synthesis of the effects of diversified farming systems on arthropod diversity within fields and across agricultural landscapes,” GLOBAL CHANGE BIOLOGY – Impact Factor 9.5 – 98<sup>th</sup> percentile in Environmental Sciences

- **Girish Ganjyal** and **Denise Smith** (SFS), “Enhanced functionality of pea-rice protein isolate blends through direct steam injection processing,” FOOD CHEMISTRY – Impact Factor 4.5 – 96<sup>th</sup> percentile in Food, Science & Technology
- **Mei-Jun Zhu** (SFS), “A portable smart -phone device for rapid and sensitive detection of E-coli O157:H7 in Yoghurt and Egg,” BIOSENSORS & BIOELECTRONICS – Impact Factor 6.9 – 98<sup>th</sup> percentile in Analytical Chemistry
- **Lynne Carpenter-Boggs** (CSS) and **Claudio Stöckle** (BSE), “Development of a web application for estimating carbon footprints of organic farms,” COMPUTERS AND ELECTRONICS IN AGRICULTURE – Impact Factor 2.5 – 90<sup>th</sup> percentile in Multidisciplinary Agriculture
- **Mei-Jun Zhu** (SFS), “Nanozyme-Mediated Dual Immunoassay Integrated with Smartphone for Use in Simultaneous Detection of Pathogens,” ACS APPLIED MATERIALS & INTERFACES – Impact Factor 7.8 – 92<sup>nd</sup> percentile in Material Science
- **Brenton Sharratt** (USDA, CSS), **William Schillinger** (CSS) and **Timothy Paulitz** (CSS), “Biosolids and conservation tillage: Impacts on soil fungal communities in dryland wheat-fallow cropping systems,” SOIL BIOLOGY & BIOCHEMISTRY – Impact Factor 5.4 – 96<sup>th</sup> percentile in Soil Sciences
- **Richard Shumway** and **Jonathan Yoder** (SES), “Lifecycle economic analysis of biofuels: Accounting for economic substitution in policy assessment,” ENERGY ECONOMICS – Impact Factor 4.4 – 93<sup>rd</sup> percentile in Economics
- **Sindhuja Sankaran** and **Lav Khot** (CPAAS, BSE), “FAIMS based volatile fingerprinting for real-time postharvest storage infections detection in stored potatoes and onions,” POSTHARVEST BIOLOGY AND TECHNOLOGY – Impact Factor 3.6 – 90<sup>th</sup> percentile in Agronomy
- **Xianming Chen** (USDA, PP), “Validation and characterization of a QTL for adult plant resistance to stripe rust on wheat chromosome arm 6BS (Yr78),” THEORETICAL AND APPLIED GENETICS – Impact Factor 4.2 – 97<sup>th</sup> percentile in Agronomy
- **Hanwu Lei** (BSE), “Ex-situ catalytic upgrading of vapors from microwave-assisted pyrolysis of low-density polyethylene with MgO,” ENERGY CONVERSION AND MANAGMENT – Impact Factor 5.5 – 97<sup>th</sup> percentile in Thermodynamics

## REVIEWS/BOOKS

- **Andrei Smertenko** (IBC), “Can Peroxisomes Inform Cellular Response to Drought?” TRENDS IN PLANT SCIENCE – Impact Factor 13.4 – 99<sup>th</sup> percentile in Plant Sciences – Invited Opinion Piece
- **Jia Yan** (SES), “The effects of mergers on airline performance and social welfare,” AIRLINE EFFICIENCY – Book Chapter
- **John Peters** (IBC), “Structural Characterization of Poised States in the Oxygen Sensitive Hydrogenases and Nitrogenases,” FE-S CLUSTER ENZYMES, PT A – Book Chapter
- **Qin Zhang** (CPASS, BSE), “Automation in Tree Fruit Production, Principles and Practice,” CABI – Book Chapter

## Research & Extension Events

- The Extrusion Processing Short Course was held November 15-16 at the Pullman campus. This event is a part of a university–industry partnership that provides regional stakeholders with information on the processing technology used in the food industry snack foods, cereals, and pet foods, among other topics. Contact: **Girish Ganjyal** and **Carolyn Ross** (SFS)
- Six weed management extension talks were held from October through December in Grandview, Kennewick, Lynden, Mt. Vernon, and Yakima WA. Attendees included tree fruit growers, grape growers, and members of the Washington small fruit industry. An online survey to assess WA Wine Grape growers’ current weed management practices and weed control needs was also developed and deployed. Contact **Lynn Sosnoskie** (TFREC, CSS)

- Unmanned Aerial Systems in Agriculture Two-Day Workshop UAS Field Day – November 8-9. The workshop provided hands-on training for: Assembly, configuration and calibration of small-sized UAS; Optical sensor basics and its integration with UAS for quality data acquisition; Planning and execution of UAS flight missions; and Tutoring participants to appear for ‘FAA Part107 Small Unmanned Aircraft Knowledge Test’ to have ‘*REMOTE PILOT small UAS*’ certification/license. Contact: Lav Khot (BSE, CPAAS)
- Pacific Northwest Vegetable Extension Group (PNW VEG) Vegetable Quarantine Workshop in Hermiston, OR on Nov. 28<sup>th</sup>. The workshop was attended by 27 vegetable researchers and extension specialists from WSU, OSU and UI, as well as guests from the WSDA, Idaho State Department of Agriculture, Oregon Department of Agriculture, and USDA APHIS Plant Protection & Quarantine program. The information shared at the workshop will be used to develop extension materials for vegetable specialists related to procedures, resources, contacts, and etiquette for working with quarantine-related pests, diseases, and weeds in the tri-state PNW region. Contact: **Debra Inglis** (PP) and **Lindsey du Toit** (PP)
- Two hands-on Pruning Demonstration of WA38 COSMIC CRISP™ Workshops were held December 13-14 at Sunrise Research Orchard and Roza Research Farm. The events were attended by 170+ apple growers. The new release will be the largest ever worldwide introduction of an apple cultivar, and should bring significant royalty revenue to WSU and the apple breeding program, based at the WSU TFREC. Contact: **Stefano Musacchi** (TFREC, Hort.) and **Karen Lewis** (ANR)
- Cider and Perry Production course held at the WSU Mount Vernon NWREC from October 9-13, 2017. This event gave participants an overview of cider chemistry, microbiology, sensory evaluation, production practices, regulations, business, laboratory techniques, blending strategies, and more. WSU Cider Extension is holding two Cider and Perry Production five-day courses in Spring 2018 in Mt Vernon (WA) and Caldwell (ID). Contact: **Bri Ewing** (SFS, NWREC)
- WSU’s Next Generation Tree Fruit Network organized six field days and intensive study circles for 139 participants on topics including marketing, labor, production systems, harvest efficiencies and organics. Of the 50 participants surveyed, 67% planned to apply what they learned, adopting new practices including: renovating to new varieties in a 10-15 year sequence; look into a sequential or shared H2A contract; work on H2A housing; conducting better soil analysis with long term soil health goals in mind; and/or use auto-irrigation. Contact: **Tianna DuPont**

## *WSU Extension Highlights*

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### EVENTS

- The 7<sup>th</sup> annual Chairman’s Circle Luncheon of the WSU/UW Ruckelshaus Center was held on October 16<sup>th</sup>. Over 500 supporters attended to hear an invited address from 66<sup>th</sup> US Secretary of State Condoleezza Rice and the Center’s founder and Advisory Board Chair, Bill Ruckelshaus, on the “Future of Democracy.”
  - In November, The Center reported to the Washington State Legislature on ways to improve simplicity, consistency, and equity in the passes and fees required to recreate on state and federal public lands, while maintaining the fiscal health of the land management agencies.
  - Former US Secretary of the Interior and REI CEO Sally Jewell is among the new members added to the Center’s Advisory Board at its fall meeting.
- WSU Women in Agriculture Conference held November 18<sup>th</sup>. More than 600 women farmers from Washington, Oregon, Idaho, Montana and Alaska gathered in 33 locations to take part in the conference. In its fifteenth year, this annual event connects women in ag to hear keynote speakers and includes on-site networking and activities. The 2017 conference theme was “We Can Do It” and focused on building leadership among women in the industry. Keynote speakers included Alexis Taylor, director of the Oregon Department of Agriculture and Anne Schwartz, owner of Blue Heron Farm in Skagit County. Contact **Margaret Viebrock** (WSU Extension County Director and conference manager)



- **Don Llewellyn's** (ANR) Animal Science Extension team was selected from a national pool to host the 2018 Stockmanship & Stewardship Regional Event. This effort is supported in partnership with the National Cattlemen's Beef Association, Boehringer Ingelheim Animal Health, and the Beef Quality Assurance program.

## AWARDS/HONORS

- **Lynn Sosnoski** (TFREC, CSS) was appointed a member-at-large on the board of the Western Society of Weed Science to lead the development of a committee to address diversity in the society.
- **Lynn Mills** (V&E, IAREC) received the Walter J. Clore Award at the annual meeting of the Washington State Grape Society. The award recognizes exceptional contributions to the wine industry. Lynn has worked at WSU Extension in various capacities since 1983. She has supported viticulture research for the majority of her career and has had significant contributions in the areas of irrigation management, cold-hardiness and pruning.
- **Daniel Fagerlie** (ANR) and **Carol Mack** (ANR) received continued funding for the Tribes in Northwest Invasive Species Project (TINWISP) from USDA-APHIS. This program works to protect agriculture and natural resources on Tribally owned or Tribally managed lands and adjacent areas and includes education on managing established invasives to reduce impacts along with reducing the risk of emerging invasives in the Northwest.
- The 2017 Annual Session of the National Extension Association of Family and Consumer Sciences was held October 16-19 in Omaha, Nebraska. Awardees from WSU include:
  - **Kayla Wells** (YFP) – 1<sup>st</sup> Place, Human Development/Family Relationships
  - **Kayla Wells** – 2<sup>nd</sup> Place, Dean Don Felker Financial Management
  - **Kayla Wells** – 2<sup>nd</sup> Place, Educational Publication
- The 2017 Annual Session of the National Association of Extension 4-H Agents was held November 11-16 in Indianapolis, Indiana. Awardees from WSU include:
  - **Brian Brandt** (YFP) – 1<sup>st</sup> Place, Individual Educational Piece
  - **Dianna Ullery** (YFP) and **Alison White** (YFP) – Achievement in Service Award
  - **Tracie Hanson** (YFP) and **Mike Jensen** (YFP) – Distinguished Service Award
  - **Doreen Hauser-Lindstrom** (YFP) – Meritorious Service Award
- **Bri Ewing** (SFS) and **Ed Scheenstra** (Hort.) were featured in a television video clip discussing the WSU Mount Vernon Cider Program as part of the WA Grown television series (View [here](#)).

## *Trainee News – Undergraduate/Graduate/Post-Doctoral*

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- **Lydia Tymon** was awarded a 2017 USDA NIFA AFRI ELI Post-Doctoral Fellowship. Mentor: **Debra Inglis**, PP.
- **Adrian Marshall** (Ent.) won the 10-min. oral presentation competition in the national Entomology Society of America meeting in Denver in November
- **Alix Whitener** (TFREC, Ent.) won the Student Activity Award at the national Entomology Society of America meeting in Denver in November.
- **Jose Orenday-Ortiz**, **Itria Ibba**, and **Jessica Murray** (SFS students) placed 2<sup>nd</sup> at the American Association of Cereal Chemists International competition with their product, Tahili Baklava.
- **Iver Hull** (MS Student, SOE) presented his research on Measuring Forest Habitat with Deer at the Washington Cooperative Fish and Wildlife Research units' 50<sup>th</sup> Annual Symposium on October 24. Iver was chosen by a panel of judges to receive the Gil Pauley award, which supports travel to a scientific meeting.
- In celebration of Veterans Day, Good Fruit Grower magazine released a feature story on the WSU V&E Program, which has seen an increase in veteran enrollment that is almost triple the WSU average (7.0% vs. 2.5% in the Tri-Cities and Pullman campuses).

## *Facilities, Infrastructure & Programmatic*

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- Brelsford Visitor Center Homecoming Wine Tasting October 20. A special Blended Learning tasting was held at the WSU Visitor Center on Friday of Homecoming Weekend. V&E Pullman students presented samples of the wines to nearly 100 visitors. We hope to make the homecoming tasting an annual event and are planning additional tasting events at the Visitor Center in the future.
- WSU Wenatchee Research & Extension Center featured in Tech Zone. The TFREC was featured in a story regarding the new North Central Washington Innovation Partnership Zone in the Wenatchee World newspaper on October 8. The article described efforts to expand tech businesses, research facilities and startups in the greater Wenatchee area (view [here](#)).
- The SFS External Advisory Board meeting was held on October 26 and provided a platform for faculty, staff and students to network and build effective internal and external relationships with industry professionals apart of the board. The Grand Opening of the Creamery and 'Cheese Cutting' Ceremony was held October 27 with the EAB members in attendance.