



Marketing & Communications

In Q2 of 2019, CAHNRS Communications published 71 online articles that highlight accomplishments in academics, research, and Extension. CAHNRS and Extension websites received 1,267,219 total page views (a 16% increase over last quarter) and garnered 726,909 new site visitors (a 31% increase over last quarter). We increased our audience size and engagement on all social media platforms, and our web team continues to provide support and training to faculty and staff.

SOCIAL MEDIA UPDATE

Facebook	67	4,940	104,421	3,454
	Posts	Likes	Reached	Fans (+5.0%)

Top Post: [WSU grizzly bear enrichment video](#)

Twitter	304	299,285	8,221	4,894
	Tweets	Impressions	Engagements	Followers (+1.2%)

OTHER NOTEWORTHY PROJECTS

- Cougs Give
- SNAP-Ed web support
- Voice of the Vine

TOP NEWS STORIES

- [WSU scientists unmask the humble earwig as an apple-protecting predator](#)—By **Seth Truscott** | Published June 3, 2019 in Entomology Today, Science and Technology Research News, Walla Walla Union-Bulletin, Fruit Growers News, University of California Cooperative Extension
- [An electric tongue can handle more spicy foods than you can](#)—By **Scott Weybright** | Published May 6, 2019 in New Food Economy, Food Dive, FoodProcessing, Wonderful Engineering, Food Ingredients, Millennium Post, Outlook India, Wireless Design & Development, The Week
- [Sensor can detect spoiled milk before opening](#)—By **Scott Weybright** | Published April 30, 2019 in Nanowerk, Bioengineer, Science Daily, Perishable News, KWHT, Yahoo India, Business Standard, Devdiscourse, Pullman Radio News

Faculty Highlights

- **John Stark** (Ent.) and **Juming Tang** (BSE) were elected to the [Washington State Academy of Sciences](#).
- **Tom Marsh** and **Jill McCluskey** (SES) were named [2019 Western Agricultural Economics Fellows](#). This award recognizes individuals making an enduring contribution over their career to agricultural, resource, and/or environmental economics in the Western states and the WAEA.
- **Min Du** (AS) received the [Animal Physiology and Endocrinology Award](#) from the American Society of Animal Science.
- **Gregmar Galinato** (SES) received the [Outstanding Journal Article Award](#) for his article, "Tobacco Education Program Spending and Tobacco Use among Adolescents" published in the Journal of Agricultural and Resource Economics.
- **Naidu Rayapati** (IAREC) conducted a hands-on training course "Diagnosis and Management of Virus Diseases in Vegetable Crops" at the Nepal Agricultural Research Council (NARC) in Kathmandu, Nepal from May 27-29. Twenty-one early career scientists from NARC, academic institutions and NGO personnel attended the training.

- **Qin Zhang, Manoj Karkee and Matthew Whiting** (BSE) received the 2019 ASABE Superior Paper Award for their paper, “A Precision Pruning Strategy for Improving Efficiency of Vibratory Mechanical Harvesting of Apples,” published in an ASABE journal.
- **Michael Cleveland**’s article on college drinking and aggression received national and international press, including The Atlantic magazine, “Why It Matters Where College Students Binge-Drink,” and Newsweek, “College guys who like to drink and party are more likely to be sexually aggressive towards women.”
 - Examining the Roles of Heavy Episodic Drinking, Drinking Venues, and Sociosexuality in College Men’s Sexual Aggression. *Journal of Studies on Alcohol and Drugs*, 2019, 80(2), 177-185.
- **Scott Harper** (PP, CPCNW) was interviewed for a piece in Science Magazine, “Something is rapidly killing young apple trees in North American orchards. Scientists are stumped.”
- **Hanwu Lei** (BSE), was featured as part of a USDA-NIFA update for research that is *Making a Difference*, “Plastic water bottles may one day fly people cross-country.”
- **Girish Ganjyal** (SFS) was featured in the latest Cereal Food World journal issue as the *Member Spotlight*.
- **Rich Zack** (Ent.) was named CAHNRS Associate Dean for Academic Programs.
- **Brittany Cooper, Laura Hill, and Louise Parker** (HD) received the 2019 Award of Excellence from the National Prevention Network, for their work in demonstrating the effectiveness of community substance abuse prevention efforts in Washington State.
- **Debbie Handy** (HD) received the 2019 Teacher Educator of the Year Award from the Association for Career and Technical Education – Region 5, (16 Western states & Pacific Islands).
- **Amy Salazar** (HD) was invited to testify in a U.S. Congressional Briefing on Foster Care on June 6.
- **Jane Lanigan** (HD) published an article about the effects of parent messages on young children’s eating. The article was picked up by Reuters and received national and international press.
 - Lanigan, J., Bailey, R., Jackson, A. M. T., & Shea, V. (2019). Child-Centered Nutrition Phrases Plus Repeated Exposure Increase Preschoolers’ Consumption of Healthful Foods, but Not Liking or Willingness to Try. *Journal of Nutrition Education and Behavior*, 51(5), 519-527.
- **Allan Felsot** (Ent.) received the 2019 ESA Distinguished Achievement Award in Teaching.
- **Sindhuja Sankaran** (BSE) was featured in an article in *Filling-Space*, “Artificial intelligence and precision farming: does efficiency mean sustainability?”

Grant Funding

CAHNRS Office of Research faculty received **\$10.7M** 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:

- **Michael Kahn** (IBC) led efforts across 4 colleges to renew the NIH Protein Biotechnology Training Program at WSU that will now be in operation for years 31-35. The NIH award will fund 10 trainee positions for \$2.2M.
- **Zhiwu Zhang** (CSS) was awarded a \$500K AFRI from USDA for genomics-enabled satellite phenomics for wheat breeding in the Palouse.
- **Lav Khot** (BSE) was awarded a \$450K CPS grant from USDA for localized, geospatial sensing of canopy and fruit microclimate for real-time management of sunburn in apple.
- **Elizabeth Weybright** (HD) was awarded a \$640K CYFAR (Children Youth and Families At Risk) grant from USDA for adapting strengthening families (SFP 10-14) for legalized marijuana context.
- **Brandon Hopkins** (Ent.) was awarded a \$500K AFRI from USDA for improving health and survivorship of commercially managed honey bee colonies utilizing indoor storage.

Large Grants that Received Yearly Renewals Include:

- **Sindhuja Sankaran** (BSE), High-Throughput Phenotyping Techniques To Advance Variety Selection In Grain Legume, USDA-AFRI, \$187K
- **Stephen Ficklin** (Hort.), CC*Data: National Cyberinfrastructure for Scientific Data Analysis at Scale (SciDAS), NSF, \$256K
- **Norman Lewis** (IBC), RESEARCH-PGR: Deciphering the molecular basis of elite red alder lines and their Frankia alni symbionts, NSF, \$279K
- **Joan Wu** (BSE), Land-Use Changes in Response to Climate Change: A Vulnerability Analysis, USDA-AFRI, \$163K

Publications

CAHNRS faculty published **209** 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 90th percentile in their respective fields, as determined by Thomson Reuters InCites, is provided below with their 5-year impact factor.

DISCOVERY

- **Ian Burke** (CSS), “Considering weed management as a social dilemma bridges individual and collective interests,” NATURE PLANTS – Impact Factor 13.3 – 99th percentile in Plant Sciences
- **Michael Pumphrey** (CSS), “Durum wheat genome highlights past domestication signatures and future improvement targets,” NATURE GENETICS – Impact Factor 31.2 – 99th percentile in Genetics & Heredity
- **Maren Friesen** (CSS/PP), “Unfair trade underground revealed by integrating data with Nash bargaining models,” NEW PHYTOLOGIST – Impact Factor 7.8 – 97th percentile in Plant Sciences
- **Mei-Jun Zhu** (SFS), “Survival of *Listeria monocytogenes* on blueberries post-sanitizer treatments and subsequent cold storages,” FOOD CONTROL – Impact Factor 3.9 – 91st percentile in Food Science & Technology
- **Barbara Rasco** (SFS) and **Shyam Sablani** (BSE), “Colorimetric detection of volatile organic compounds for shelf-life monitoring of milk,” FOOD CONTROL – Impact Factor 3.9 – 91st percentile in Food Science & Technology
- **John Browse** (IBC), “Identification, characterization and field testing of *Brassica napus* mutants producing high-oleic oils,” PLANT JOURNAL – Impact Factor 6.1 – 95th percentile in Plant Sciences
- **Bin Yang** (BSE), “Discovery of potential pathways for biological conversion of poplar wood into lipids by co-fermentation of *Rhodococci* strains,” BIOTECHNOLOGY FOR BIOFUELS – Impact Factor 6.7 – 90th percentile in Biotechnology & Applied Microbiology
- **Boon Chew** (SFS), “Structural Characterization of Cranberry Arabinoxylglucan Oligosaccharides,” JOURNAL OF NATURAL PRODUCTS – Impact Factor 3.3 – 91st percentile in Plant Sciences
- **Norman Lewis** (IBC), “Isolation of Tryptanthrin and Reassessment of Evidence for Its Isobaric Isostere Wrightiadione in Plants of the *Wrightia* Genus,” JOURNAL OF NATURAL PRODUCTS – Impact Factor 3.3 – 91st percentile in Plant Sciences
- **Xianming Chen** and **Deven See** (PP/USDA), “QTL analysis of durable stripe rust resistance in the North American winter wheat cultivar Skiles,” THEORETICAL AND APPLIED GENETICS – Impact Factor 4.1 – 95th percentile in Agronomy
- **Zhiwu Zhang** (CSS), “BLINK: a package for the next level of genome-wide association studies with both individuals and markers in the millions,” GIGASCIENCE – Impact Factor 10.7 – 90th percentile in Multidisciplinary Sciences
- **Scot Hulbert** and **Hanu Pappu** (PP), “A novel fungal effector from *Puccinia graminis* suppressing RNA silencing and plant defense responses,” NEW PHYTOLOGIST – Impact Factor 7.8 – 97th percentile in Plant Sciences

- **Daniel Thornton** (SoE), “Transboundary mammals in the Americas: Asymmetries in protection challenge climate change resilience,” DIVERSITY AND DISTRIBUTIONS – Impact Factor 4.8 – 90th percentile in Biodiversity Conservation
- **Cameron Peace** (Hort.), “Prunus genetics and applications after de novo genome sequencing: achievements and prospects,” HORTICULTURE RESEARCH – Impact Factor 3.9 – 96th percentile in Horticulture
- **Doug Walsh** and **Laura Lavine** (Ent.), “Multiple acaricide resistance and underlying mechanisms in Tetranychus urticae on hops,” JOURNAL OF PEST SCIENCE – Impact Factor 3.7 – 98th percentile in Entomology
- **Thomas Okita** (IBC), Re-programming of gene expression in the CS8 rice line over-expressing ADPglucose pyrophosphorylase induces a suppressor of starch biosynthesis,” PLANT JOURNAL – Impact Factor 6.1 – 95th percentile in Plant Sciences
- **Jill McCluskey** (SES), “Willingness to pay for a second-generation bioethanol: A case study of Korea,” ENERGY POLICY – Impact Factor 5.0 – 96th percentile in Economics
- **Juming Tang** (BSE) and **Mei-Jun Zhu** (SFS), “Evaluation of Enterococcus faecium NRRL B-2354 as a surrogate for Salmonella during cocoa powder thermal processing,” FOOD MICROBIOLOGY – Impact Factor 4.4 – 93rd percentile in Food Science & Technology
- **Minto Michael** (SFS), “Evaluation of thermal inactivation parameters of Salmonella in whole wheat multigrain bread,” FOOD MICROBIOLOGY – Impact Factor 4.4 – 93rd percentile in Food Science & Technology
- **Victor Valencia** (SoE), “Cenozoic basin evolution of the Central Patagonian Andes: Evidence from geochronology, stratigraphy, and geochemistry,” GEOSCIENCE FRONTIERS – Impact Factor 4.3 – 91st percentile in Multidisciplinary Geosciences
- **Stephanie Hampton** (SoE), “Global Opportunities to Increase Agricultural Independence Through Phosphorus Recycling,” EARTH’S FUTURE – Impact Factor 6.8 – 97th percentile in Multidisciplinary Geosciences
- **Jeffrey Vervoort** (SoE), “Origins of the terrestrial Hf-Nd mantle array: Evidence from a combined geodynamical-geochemical approach,” EARTH AND PLANETARY SCIENCE LETTERS – Impact Factor 5.1 – 91st percentile in Geochemistry & Geophysics
- **Naidu Rayapati** (PP), “Visible-near infrared spectroradiometry-based detection of grapevine leafroll-associated virus 3 in a red-fruited wine grape cultivar,” COMPUTERS AND ELECTRONICS IN AGRICULTURE – Impact Factor 3.5 – 90th percentile in Multidisciplinary Agriculture

TRANSLATIONAL

- **James Amonette** (CSANR/PNNL), “Biochar application as a tool to decrease soil nitrogen losses (NH₃ volatilization, N₂O emissions, and N leaching) from croplands: Options and mitigation strength in a global perspective,” GLOBAL CHANGE BIOLOGY – Impact Factor 9.9 – 97th percentile in Ecology
- **Shaojin Wang** (BSE), “Influence of radio frequency treatment on in-shell walnut quality and Staphylococcus aureus ATCC,” FOOD CONTROL – Impact Factor 3.9 – 91st percentile in Food Science & Technology
- **Deepti Singh** (SoE), “Sensitivity of grain yields to historical climate variability in India,” ENVIRONMENTAL RESEARCH LETTERS – Impact Factor 6.5 – 92nd percentile in Environmental Sciences
- **Juming Tang** and **Shyam Sabliani** (BSE), “Effect of changes in salt content and food thickness on electromagnetic heating of rice, mashed potatoes and peas in 915 MHz single mode microwave cavity,” FOOD RESEARCH INTERNATIONAL – Impact Factor 4.2 – 90th percentile in Food Science & Technology
- **Mei-Jun Zhu** (SFS) and **Juming Tang** (BSE), “Thermal resistance of Listeria monocytogenes in natural unsweetened cocoa powder under different water activity,” FOOD CONTROL – Impact Factor 3.9 – 91st percentile in Food Science & Technology

- **Shyam Sablani, Gustavo Barbosa-Canovas and Juming Tang** (BSE), “Use of protective culture to control the growth of *Listeria monocytogenes* and *Salmonella typhimurium* in ready-to-eat cook-chill products,” FOOD CONTROL – Impact Factor 3.9 – 91st percentile in Food Science & Technology
- **Jeffrey Vervoort** (SoE), “Integrated garnet and zircon-titanite geochronology constrains the evolution of ultra-high-pressure terranes: An example from the Sulu orogen” – JOURNAL OF METAMORPHIC GEOLOGY – Impact Factor 4.6 – 97th percentile in Geology

REVIEWS/BOOKS

- **Stephen Ficklin, Kate Evans, Cameron Peace, Lisa DeVetter, James McFerson, and Dorrie Main** (Hort.), “15 years of GDR: New data and functionality in the Genome Database for Rosaceae,” NUCLEIC ACIDS RESEARCH – Impact Factor 10.2 – 97th percentile in Biochemistry & Molecular Biology
- **Cameron Peace and Dorrie Main** (Hort.), “Apple whole genome sequences: recent advances and new prospects,” HORTICULTURE RESEARCH – Impact Factor 3.9 – 96th percentile in Horticulture
- **Scot Hulbert** (PP), “Host-Induced Gene Silencing (HIGS) for Elucidating Puccinia Gene Function in Wheat,” PLANT PATHOGENIC FUNGI AND OOMYCETES: METHODS AND PROTOCOLS – Book Chapter
- **Andrei Smertenko** (IBC), “Phosphoinositides Break Microtubule Dynamics Symmetry in the Phragmoplast,” TRENDS IN CELL BIOLOGY – Impact Factor 15.2 – 96th percentile in Cell Biology
- **Stefano Musacchi** (Wenatchee TFREC, Hort), “Optimizing production of quality nursery plants for fruit tree cultivation” ACHIEVING SUSTAINABLE CULTIVATION OF TEMPERATE ZONE TREE FRUITS AND BERRIES, VOL. 1.a d – Book chapter

Research & Extension Events

- ‘Viticulture Intern Bootcamp’ at WSU’s IAREC (Prosser, WA) on May 30. Michelle Moyer (PP) hosted the. The inaugural Viticulture Intern Bootcamp was attended by over 25 interns from viticulture and related businesses in the private sector. This training opportunity will become an annual workshop at the request of the participating companies. Contact: **Michelle Moyer** (PP)
- Lind Field Day, Lind Dryland Research Station (Lind, WA) on June 13. Held for the 103rd year, WSU's Lind Field Day brought together more than 220 growers, industry partners, WSU and USDA scientists, as well as Washington State. Sen. Mark Schoesler and Washington Grain Commission President Gary Bailey. Farmers from Washington's dryland growing regions learned about promising and pest-resistant spring and winter wheat varieties; new winter food-grade peas; the impact of biosolids on wheat agronomy and soil microbes; soil health; and industry and college updates. Contact: **Bill Schillinger** (Director, Lind Station)
- WSU Potato Field Day, (Othello, WA) on June 27. More than 250 growers, industry representatives, and scientists gathered for the annual WSU Potato Field Day. Scientists shared new knowledge in the fight against challenges like potato virus Y, black dot, and lygus bug; shared the latest in seed size studies aimed at helping growers maximize efficiency in planting; looked at a new app being developed by WSU scientists that helps grow and sort spuds for ideal French-fry dimensions; and much more. WSU research supporting Washington’s \$4.6 billion potato industry happens in partnership with the Washington State Potato Commission, Washington State Potato Foundation, Washington Agricultural Experiment Station, USDA, and the Tri-State Potato Variety Development Program. Contact **Mark Pavek** (Hort.)

WSU Extension Highlights

FACULTY HIGHLIGHTS

- **Don Llewellyn** (ANR) has been selected to serve a three-year term as the Editor of the Journal of the National Association of County Agricultural Agents (NACAA).

- **Elizabeth Weybright** (HD), **Joy Lile** (YFP, 4-H), and **Pam Watson** (YFP, 4-H) were the national winners of the 2019 Susan Barkman Award for Research and Evaluation, presented by the National Association of Extension 4-H Agents, for their work in adolescent health assessment.
- **Michelle Moyer** (PP) presented at the 21st GiESCO International Meeting (Group of international Experts for Cooperation on Vitivinicultural Systems) held June 23-28, 2019 in Thessaloniki, Greece.

PUBLICATIONS

- **José Garcia-Pabón** (CED), “Collaborating Across State Lines to Leverage Cultural Competency Expertise,” JOURNAL OF EXTENSION, June 2019
- **Scott VanderWey** (YFP, 4-H), “Creating Group Norms by Using Full Value Commitments in Experiential Education Programming,” JOURNAL OF EXTENSION, June 2019
- **Jihyeong Son** (AMDT), “Assessing the Social Media Use and Needs of Small Rural Retailers: Implications for Extension Program Support,” JOURNAL OF EXTENSION, April 2019

GRANT FUNDING – CAHNRS Extension faculty received **\$4.6M** 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:

- **Brad Gaolach** (Metro Center) was awarded a \$50K SUSRN-Advancing Conference grant from NSF-CBET, “The Next Urban Giants: Building Resilience and Equity into Growing Megapolitan Regions by Greening the Urban Human-Natural System.
- **Anand Jayakaran** (WSC) was awarded a \$191K grant from WA Ecology to study the effects of mulch on stormwater treatment and maintenance effort in bioretention systems.
- **Daniel Fagerlie** (CED) was awarded an \$85K grant from USDA-APHIS to support the Tribal Collaborative Response to Invasive Species Project (TCRISP).
- **Donald McMoran** (ANR) was awarded a \$400K grant from WS DOH for the Skagit County Pasture Management Outreach & Technical Assistance Program.
- Nearly \$3M in Extension support agreements were executed between WSU and counties within Washington State.

Extension Events, Community Outreach

- **Tobin Northfield** (Wenatchee TFREC, Ento) was appointed to lead a cherry disease taskforce that includes members of industry, state government, and academics from WSU and OSU. Cherry diseases are causing significant and increasing losses to the Pacific Northwest industry.
- **Trevor Lane** (CED) and **Anthony Gromko** (CED) presented at the annual conference for the Association of Washington Cities on June 27, 2019 in Spokane as part of their outreach and grant support with improving rural access to capital. As the Local Investment Network (LIN) grows in rural communities, attendees such as mayors, council members, and legislators are discovering how to create new opportunities for entrepreneurs through a local champion and minimal technical or support funding.
- The **2019 National Urban Extension Conference** (NUEC) was hosted by WSU’s Metropolitan Center for Applied Research and Extension (Metro Center). NUEC brought together more than 380 land grant university professionals and partners from 36 states for a 4-day conference. The conference highlighted strong urban programming and Extension’s opportunity to support the university-level mission of our land grant universities. The conference featured 129 presentations (including 42 posters), ten mobile learning workshops across Seattle, and keynote speakers including CAHNRS Dean André-Denis Girard Wright and WSU Board of Regents Chair, former Deputy Secretary of Housing and Urban Development and King County Executive, Ron Sims.

- The Metro Center is wrapping up its two-year review of the State of Washington’s growth planning framework, and provided the final report (a “**Road Map to Washington’s Future**”) to the Legislature on June 30. It will be followed by legislative briefings, open houses, and workshops in the summer and fall. The Center is also continuing its work on residential options for those with developmental disabilities, and coast resilience. And it is launching new efforts on criminal sentencing reform, educational data, and targeted assistance to chronic offenders.

Student News

- **Julianne Kellogg** was selected as a 2019 AIARD Future Leader Fellow.
- **Melanie Kirby**, received WSU’s first Fulbright-Nat Geo Storyteller Award for her research on bees. The award will take Melanie on a nine-month journey to Spain this Fall.
- **Megan Asche** has been chosen to be the Editor for the *American Entomologist* for “Through the Loupe.”
- **Xin Zhang** was the first author on a publication that was selected to receive the 2019 ASABE Superior Paper Award, “A Precision Pruning Strategy for Improving Efficiency of Vibratory Mechanical Harvesting of Apples” published in an ASABE journal.
- **Tatum Hardy** received the Crimson Award in the Applied Sciences category at SURCA. Tatum’s poster was titled “Development of Foods with Modified Textures for Infants and Children with Feeding Difficulties”.
- **Jim Hepler** received 1st place, PhD 10-minute paper competition (oral presentation) and **Adrian Marshall** received 1st place, PhD poster competition at the Pacific Branch, Entomological Society of America, 31 Mar - 3 Apr 2019, San Diego, CA
- **Lederson Ganan** and **David Enicks** received Travel Awards for the American Phytopathological Society Pacific Division Meeting, 25-27 Jun, Ft. Collins, CO.
- **Tara Cook** won the graduate competition of strawberry Swiss-style yogurt (stirred yogurt) at the Collegiate Dairy Product Evaluation Competition.
- **Kunle Adesanya** was selected to be on the 2019 ESA Science Policy Tour focused on resistance management.
- **Alexa McDaniel** was awarded a WSU Wine Spectator Scholarship, and an American Society for Enology and Viticulture Scholarship.
- 2019 Student Achievement Awards for the Puget Sound Section of the Institute of Food Technologists (PSIFT) were presented on May 7, 2019. These include:
 - Sensory and Consumer Sciences: **Courtney Schlossareck** 1st place, **Sasha Barnett** 2nd place, **Victoria Minette** 3rd place
 - Scholastic Achievement Awards: **Ga Young Shin**, **Yuqiao Jin**, **Ewa Pietrysiak**, and **Pavitra Krishna Kumar**
 - Outstanding Student Awards: **Lauren Rooney**, **Karin Thorsen**, **Chandrashekar Sonar**, **YoonKi Hong**, and **Juhi Patel**
 - Travel Awards: **Sumeyye Inanoglu**, **Ashutos Parhi**, **Yonas Gezahegn**, **Ren Yang**, and **Jie Xu**

Facilities, Infrastructure & Programmatic

- CAHNRS executive leadership travelled to Washington DC to meet with legislators and agency personnel to discuss the possibility to having a new USDA building for plant sciences constructed on the Pullman campus as part of the Research & Education Complex.
- The WSU Board of Regents approved the purchase of the Monsanto/Bayer facility for the WSU Honey Bee & Pollinator Research, Extension & Education Program.