



## Marketing & Communications

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In Q3 of 2019, CAHNRS Communications published 61 online articles that highlight accomplishments in academics, research, and Extension. CAHNRS and Extension websites received 1,263,501 total page views and garnered 689,976 new site visitors. 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

<a href="#">Facebook</a>	60	3,181	76,019	3,754
	Posts	Likes	Reached	Fans (+8.7%)

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

<a href="#">Twitter</a>	289	272,339	6,237	4,991
	Tweets	Impressions	Engagements	Followers (+2%)

### NOTEWORTHY PROJECTS

- Cashup Davis Endowment
- COSMIC CRISP Mother Tree Event
- Irrigated Agriculture Research and Extension Center Centennial (Prosser, WA)
- Puyallup WA Higher Education Appreciation Week

### TOP NEWS STORIES

- [Getting mac and cheese to Mars](#) - By **Scott Weybright** | Published on Sept. 24, 2019. In CBS This Morning, The Times (of London), Yahoo!, KING5, Food & Wine, Science Daily, Geek, Engineering.com, Food Business News KPAX, MSN, Digital Trends, AmazeLab, YouTube, Science20, Daily Motion, 15 Minute News, Israel Times, Phys.Org, Science Codex, News Live TV, myTalk 107.1, KREM TV, KONG
- [Meet Ryan, WSU's elite new wheat for the noodle market](#) - By **Seth Truscott** | Published Aug. 14, 2019. In Spokesman Review, Lewiston Tribune, Twin Falls News- Times, KOZE Radio, U.S. Wheat Associates, Minnesota Association of Wheat Growers
- [Study demonstrates stress reduction benefits from petting dogs, cats](#) - By **Scott Weybright** | Published July 15, 2019. In People, Newsweek, BBC News, Yahoo, Bustle, Country Living, IFLScience, Wealth Advisor, KREM, KXLY

## Faculty Highlights

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- **Gary Chastagner** (Hort., PREC) received a Lifetime Achievement Award from the National Christmas Tree Association.
- **Rick Knowles** (Hort.) was awarded 'Outstanding Paper of the Year' from the Potato Association of America for his paper entitled "Auxin modulates gibberellin-induced effects on growth, yield, and raw product recovery for frozen processing in potato (*Solanum tuberosum* L.)" published in the AMERICAN JOURNAL OF POTATO RESEARCH.
- **Tom Collins** (VE) was elected second Vice President of the American Society for Enology and Viticulture.
- **Per McCord** (Hort.) gave an invited talk at Utah State University, "Strategies and Techniques in Modern *Prunus* Breeding" on 30 September.
- **Stefano Musacchi** (TFREC, Hort.) was elected Chair of the International Society for Horticultural Science Working Group on European and Asian pears.
- **Patricia Pendry** (HD) was named President-elect of the International Society for Anthrozoology.

- **Marcelo Diversi** (HD) won the Best Book Award from the National Communication Association, Ethnography Division, for 'Betweener Autoethnographies: A Path to Social Justice'.
- **Cameron Peace** (Hort.) hosted the session, "RosBREED: Combining Disease Resistance with Horticultural Quality in New Rosaceous Cultivars" at the American Society for Horticultural Science annual conference.
- **Tom Collins** (VE) was named to Wine Business Monthly's 2019 list of wine industry leaders.
- **Brittany Cooper** (HD) was asked to join the editorial board of an international journal, *Implementation Research and Practice*. Dr. Cooper also received an award for Outstanding Oral Presentation at the Society for Implementation Research conference in September.
- **Juming Tang** (BSE) received a Lifetime Achievement Award from the International Association for Engineering and Food.
- **Kathleen Rodgers'** (HD) article, 'Adolescents' Alcohol-Sex Expectancies and Alcohol Advertisements in Magazines: The Role of Wishful Identification, Realism, and Enjoyment of Sexualization,' in the Journal of Health Communication was placed in the top 5% of all research outputs ever tracked by Altmetric (some 13M+ so far) and was mentioned by 4 news outlets as well as trending on Twitter.
- **Gustavo Barbosa-Canovas** (BSE) was elected as an Institute of Food Technologists FED Representative to the International Association for Engineering and Food (IAEF).

### Grant Funding

CAHNRS Office of Research faculty received **\$17.2M** 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:

- **Mark Lange** (IBC) was awarded a grant from the National Institutes of Health, National Center for Complementary and Integrative Health to develop novel approaches for the production of the anti-cancer drug taxol.
- **Naidu Rayapati** (IAREC) was awarded a grant from the National Science Foundation to enhance educational opportunities for Hispanic and Native American students to build careers in STEM fields.
- **Lisa Devetter** and **Carol Miles** (Hort.) were awarded a planning grant from USDA-Specialty Crop Research Initiative for implementation of new technologies and improved end-of-life management for agricultural plastics.
- **Dorrie Main**, **Lisa DeVetter**, and **Karina Gallardo** (SES) were awarded a grant from USDA-Specialty Crop Research Initiative for leveraging genetic and genomic resources to enable development of blueberry and cranberry cultivars with improved fruit quality attributes.
- **Hanu Pappu**, **Kiwamu Tanaka** (Plant Pathology), and **Stephen Ficklin** (Hort.) were awarded a grant from USDA Plant Biotic Interactions (PBI) program for a systems-level analysis of antagonistic and mutualistic interactions among potato, protists, and virus.
- **Manoj Karkee** (BSE, CPAAS) was awarded a grant from NSF to develop distributed harvesting robots in strawberry fields.
- **Rick Knowles** and **Mark Pavek** (Hort.) were awarded a USDA-Special Research Grant for potato variety development and improvement in the Northwest.
- **Norman Lewis** (IBC) was awarded a grant from the NASA Space Biology Program for dissecting beneficial plant-microbe interactions and their efficacy in the International Space Station spaceflight environment.
- **Maren Friesen** (PP, CSS) was awarded a grant from the Dept. of Energy for connecting nitrogen transformations mediated by the rhizosphere microbiome to perennial cropping system productivity in marginal lands.

- **Lisa DeVetter** (Hort.) was awarded a grant from the USDA Organic Transitions program for management techniques to optimize soil pH and nutrient availability in organic highbush blueberry grown east of the Cascades.
- **Caren Goldberg** and **Jeffrey Manning** (SoE) were awarded a grant from the Dept. of Defense Army Corps of Engineers for integrating spatial ecology with multi-locus environmental DNA to improve detection and estimate population parameters.

#### Large Grants that Received Yearly Renewals Include:

- **Min Du** (AS) and **Mei-Jun Zhu** (SFS), Maternal obesity, AMPK and fetal brown adipogenesis, National Institutes of Health
- **Juming Tang** (BSE) and **Mei-Jun Zhu** (SFS), Enhancing Low-Moisture Food Safety by Improving Development and Implementation of Pasteurization Technologies, National Science Foundation
- **Laura Hill**, **Matthew Bumpus**, and **Brittany Cooper** (HD), Adaptation of "Letting Go and Staying Connected" for Spanish-Speaking Parents of First-Year College Students, National Institutes of Health
- **Mark Lange** (IBC), Unraveling the regulation of terpenoid oil and oleoresin biosynthesis for the development of biocrude feedstocks, Department of Energy
- **Norman Lewis** (IBC), An integrated omics guided approach to lignification and gravitational responses: the final frontier, NASA
- **Helmut Kirchhoff** (IBC), Understanding architectural dynamics in plant photosynthetic membranes, Department of Energy
- **John Peters** (IBC), Novel microbial based enzymatic CO<sub>2</sub> fixation mechanisms, Department of Energy
- **Lindsey Du Toit** (PP), Sweet CAP: Integrated technologies to improve sweet corn production and marketability, USDA-Specialty Crop Research Initiative
- **Scott Harper** (PP, CPCNW), Production of G1 foundation fruit trees, grapevines, and hops to protect U.S. agriculture, USDA-Animal and Plant Health Inspection Service
- **Michelle Moyer** (VE), FRAME: Fungicide Resistance Assessment, Mitigation and Extension Network for Wine, Table and Raisin Grapes, USDA- Specialty Crop Research Initiative
- **Lee Kalcsits** and **Stefano Musacchi** (TFREC, Hort.), Accelerating the Development, Evaluation, and Adoption of New Apple Rootstock Technologies to Improve Apple Grower Profitability and Sustainability, USDA-Specialty Crop Research Initiative

### *Publications*

CAHNRS faculty published **205** 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**

- **Dorrie Main** (Hort.), "A reference genome for pea provides insight into legume genome evolution," NATURE GENETICS – Impact Factor 25.5 – 99<sup>th</sup> percentile in Genetics & Heredity
- **Xianming Chen** (USDA, PP), "An ancestral NB-LRR with duplicated 3' UTRs confers stripe rust resistance in wheat and barley," NATURE COMMUNICATIONS – Impact Factor 13.8 – 94<sup>th</sup> percentile in Multidisciplinary Sciences
- **Rick Knowles** (Hort.), "Respiratory and low-temperature sweetening responses of fresh-cut potato (*Solanum tuberosum* L.) tubers to low oxygen," POSTHARVEST BIOLOGY AND TECHNOLOGY – Impact Factor 3.9 – 95<sup>th</sup> percentile in Agronomy

- **Gary Grove** (PP), “Incidence of *Podosphaera clandestina* on sweet cherries (*Prunus avium*) and the influence of postharvest handling practices on the survival of conidia on harvested fruit,” POSTHARVEST BIOLOGY AND TECHNOLOGY – Impact Factor 3.9 – 95<sup>th</sup> percentile in Agronomy
- **Raven Weaver** (HD), “Using Contact Theory to Assess Staff Perspectives on Training Initiatives of an Intergenerational Programming Intervention,” GERONTOLOGIST – Impact Factor 4.6 – 93<sup>rd</sup> percentile in Gerontology
- **Shulin Chen** (BSE), “Growth characteristics and photofermentative biohydrogen production potential of purple non sulfur bacteria from sugar cane bagasse,” FUEL – Impact Factor 5.3 – 91<sup>st</sup> percentile in Chemical Engineering
- **David Weller** and **Linda Thomashow** (USDA, PP), “Root-associated microbes in sustainable agriculture: models, metabolites and mechanisms,” PEST MANAGEMENT SCIENCE – Impact Factor 3.5 – 94<sup>th</sup> percentile in Entomology
- **David Gang** (IBC), “The lipidome of Thoroughbred racehorses before and after supramaximal exercise,” EQUINE VETERINARY JOURNAL – Impact Factor 2.3 – 90<sup>th</sup> percentile in Veterinary Science
- **Mark Lange** (IBC), “Gene Networks Underlying Cannabinoid and Terpenoid Accumulation in Cannabis,” PLANT PHYSIOLOGY – Impact Factor 7.0 – 96<sup>th</sup> percentile in Plant Sciences
  - Featured in Forbes Magazine, National Geographic, and Science Daily, and is currently ranked in the 99<sup>th</sup> percentile of science articles in social media (Altmetric).
- **Zhiwu Zhang** (CSS), “Identification of loci controlling adaptation in Chinese soya bean landraces via a combination of conventional and bioclimatic GWAS,” PLANT BIOTECHNOLOGY JOURNAL – Impact Factor 6.8 – 96<sup>th</sup> percentile in Plant Sciences
- **Karen Sanguinet** (CSS), “Extensive changes in gene expression and alternative splicing due to homoeologous exchange in rice segmental allopolyploids,” THEORETICAL AND APPLIED GENETICS – Impact Factor 3.9 – 94<sup>th</sup> percentile in Agronomy
- **Mark Lange** (IBC), “Assessing Chemical Diversity in *Psilotum nudum* (L.) Beauv., a Pantropical Whisk Fern That Has Lost Many of Its Fern-Like Characters,” FRONTIERS IN PLANT SCIENCE – Impact Factor 4.9 – 91<sup>st</sup> percentile in Plant Sciences
- **Min Du** (AS), “Change in interfacial properties of milk fat globules by homogenization and thermal processing plays a key role in their in vitro gastrointestinal digestion,” FOOD HYDROCOLLOIDS – Impact Factor 6.1 – 97<sup>th</sup> percentile in Applied Chemistry
- **Hanwu Lei** (BSE), “Renewable phenol production from lignin with acid pretreatment and ex-situ catalytic pyrolysis,” JOURNAL OF CLEANER PRODUCTION – Impact Factor 7.1 – 93<sup>rd</sup> percentile in Environmental Sciences
- **Jim Harbertson** (VE), “Polyphenol-Protein-Polysaccharide Interactions in the Presence of Carboxymethyl Cellulose (CMC) in Wine-Like Model Systems,” JOURNAL OF AGRICULTURAL AND FOOD CHEMISTRY – Impact Factor 3.9 – 96<sup>th</sup> percentile in Multidisciplinary Agriculture
- **Andrei Smertenko** (IBC) and **Kevin Murphy** (CSS), “Impact of heat and drought stress on peroxisome proliferation in quinoa,” PLANT JOURNAL – Impact Factor 6.6 – 95<sup>th</sup> percentile in Plant Sciences
- **Shulin Chen** (BSE), “Effect of reactive oxygen species on biomass structure in different oxidative processes,” INDUSTRIAL CROPS AND PRODUCTS – Impact Factor 4.4 – 97<sup>th</sup> percentile in Agronomy
- **John Reganold** (CSS) and **Lynne Carpenter-Boggs** (CSS), “Agricultural carbon footprint is farm specific: Case study of two organic farms,” JOURNAL OF CLEANER PRODUCTION – Impact Factor 7.1 – 93<sup>rd</sup> percentile in Environmental Sciences
- **Lav Khot** (BSE) and **Naidu Rayapati** (IAREC), “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 – 92<sup>nd</sup> percentile in Multidisciplinary Agriculture

- **Caren Goldberg** (SoE) and **Alexander Fremier** (SoE), “Stream Transport and Retention of Environmental DNA Pulse Releases in Relation to Hydrogeomorphic Scaling Factors,” ENVIRONMENTAL SCIENCE & TECHNOLOGY – Impact Factor 7.9 – 95<sup>th</sup> percentile in Environmental Sciences
- **Jean-Sabin McEwen** (CE, BSE), “Improving the electrochemical oxidation of formic acid by tuning the electronic properties of Pd-based bimetallic nanoparticles,” APPLIED CATALYSIS B-ENVIRONMENTAL – Impact Factor 12.2 – 99<sup>th</sup> percentile in Environmental Engineering
- **Hanu Pappu** (PP) and **Michael Neff** (CSS), “Putative Auxin and Light Responsive Promoter Elements From the Tomato spotted wilt tospovirus Genome, When Expressed as cDNA, Are Functional in Arabidopsis,” FRONTIERS IN PLANT SCIENCE – Impact Factor 4.9 – 91<sup>st</sup> percentile in Plant Sciences
- **Stephen Ficklin** (Hort.) and **Dorrie Main** (Hort.), “Cyberinfrastructure to Improve Forest Health and Productivity: The Role of Tree Databases in Connecting Genomes, Phenomes, and the Environment,” FRONTIERS IN PLANT SCIENCE – Impact Factor 4.9 – 91<sup>st</sup> percentile in Plant Sciences
- **Junming Tang** (BSE), “Improved design of aluminum test cell to study the thermal resistance of Salmonella enterica and Enterococcus faecium in low-water activity foods,” FOOD CONTROL – Impact Factor 3.0 – 92<sup>nd</sup> percentile in Food Science & Technology
- **Shulin Chen** (BSE), “Multilevel heuristic LED regime for stimulating lipid and bioproducts biosynthesis in Haematococcus pluvialis under mixotrophic conditions,” BIORESOURCE TECHNOLOGY – Impact Factor 6.6 – 96<sup>th</sup> percentile in Agricultural Engineering
- **Amber Adams-Progar** (AS), “A retrospective cohort study comparing dairy calf treatment decisions by farm personnel with veterinary observations of clinical signs,” JOURNAL OF DAIRY SCIENCE – Impact Factor 3.2 – 94<sup>th</sup> percentile in Dairy Science
- **Deepti Singh** (SoE), “Implications of a Varying Observational Network for Accurately Estimating Recent Climate Trends,” GEOPHYSICAL RESEARCH LETTERS – Impact Factor 4.9 – 93<sup>rd</sup> percentile in Geosciences
- **John Reganold** (CSS), “Organic farming promotes biotic resistance to foodborne human pathogens,” JOURNAL OF APPLIED ECOLOGY – Impact Factor 6.5 – 92<sup>nd</sup> percentile in Ecology

## TRANSLATIONAL

- **Shulin Chen** (BSE), “Facilitated methanogenesis involved in anaerobic digestion of dairy manure by soil,” JOURNAL OF CLEANER PRODUCTION – Impact Factor 7.1 – 93<sup>rd</sup> percentile in Environmental Sciences
- **Bin Yang** (BSE), “Chemical compositions and properties of lignin-based jet fuel range hydrocarbons,” FUEL – Impact Factor 5.2 – 91<sup>st</sup> percentile in Chemical Engineering
- **Xianming Chen** (USDA, PP), “MARPLE, a point-of-care, strain-level disease diagnostics and surveillance tool for complex fungal pathogens,” BMC BIOLOGY – Impact Factor 7.5 – 95<sup>th</sup> percentile in Biology
- **Caren Goldberg** (SoE), “A self-preserving, partially biodegradable eDNA filter,” METHODS IN ECOLOGY AND EVOLUTION – Impact Factor 9.5 – 95<sup>th</sup> percentile in Ecology
- **Girish Ganjyal** (SFS), “Reduction of ochratoxin A in oats and rice by twin-screw extrusion processing with baking soda,” FOOD CONTROL – Impact Factor 3.0 – 92<sup>nd</sup> percentile in Food Science & Technology
- **Troy Peters** (BSE), “Evaluating water application efficiency of low and mid elevation spray application under changing weather conditions,” AGRICULTURAL WATER MANAGEMENT – Impact Factor 3.8 – 90<sup>th</sup> percentile in Agronomy
- **Karen Sanguinet** (CSS) and **Pete Jacoby** (CSS), “Performance of direct root-zone deficit irrigation on Vitis vinifera L. cv. Cabernet Sauvignon production and water use efficiency in semi-arid southcentral Washington,” AGRICULTURAL WATER MANAGEMENT – Impact Factor 3.8 – 90<sup>th</sup> percentile in Agronomy



- **Markus Keller** (VE), “Interactive effects of high temperature and water deficit on Malbec grapevines,” AUSTRALIAN JOURNAL OF GRAPE AND WINE RESEARCH – Impact Factor 2.6 – 90<sup>th</sup> percentile in Horticulture

## REVIEWS/BOOKS

- **Stephanie Smith** (YFP) and **Girish Ganjyal** (SFS), “Food Safety Interventions to Control *Listeria monocytogenes* in the Fresh Apple Packing Industry,” COMPREHENSIVE REVIEWS IN FOOD SCIENCE AND FOOD SAFETY – Impact Factor 10.5 – 99<sup>th</sup> percentile in Food Science & Technology
- **Helmut Kirchhoff** (IBC), “Chloroplast ultrastructure in plants,” NEW PHYTOLOGIST – Impact Factor 8.3 – 97<sup>th</sup> percentile in Plant Sciences
- **Sanja Roje** (IBC), **Hanwu Lei** (BSE), **Helmut Kirchhoff** (IBC), and **Shulin Chen** (BSE), “Exploiting mixotrophy for improving productivities of biomass and co-products of microalgae,” RENEWABLE & SUSTAINABLE ENERGY REVIEWS – Impact Factor 11.2 – 94<sup>th</sup> percentile in Energy & Fuels
- **Shaojin Wang** (BSE), “Recent developments in applications of radio frequency heating for improving safety and quality of food grains and their products: A review,” CRITICAL REVIEWS IN FOOD SCIENCE AND NUTRITION – Impact Factor 6.3 – 97<sup>th</sup> percentile in Food Science & Technology
- **Shaojin Wang** (BSE), “3D food printing: main components selection by considering rheological properties,” CRITICAL REVIEWS IN FOOD SCIENCE AND NUTRITION – Impact Factor 7.0 – 97<sup>th</sup> percentile in Food Science & Technology
- **Sachin Rustgi** (CSS), “Adverse Reactions to Wheat or Wheat Components,” COMPREHENSIVE REVIEWS IN FOOD SCIENCE AND FOOD SAFETY – Impact Factor 10.5 – 99<sup>th</sup> percentile in Food Science & Technology
- **Tarah Sullivan** (CSS), “Metal bioavailability and the soil microbiome,” ADVANCES IN AGRONOMY, VOL 155, Book Chapter
- **Jeffrey Vervoort** (SoE), “Geochronology and Radiogenic Isotopes,” ENCYCLOPEDIA OF GEOCHEMISTRY: A COMPREHENSIVE REFERENCE SOURCE ON THE CHEMISTRY OF THE EARTH, Book Chapter
- **Stephen Ficklin** (Hort.) and **Dorrie Main** (Hort.), “Association Mapping for Forest Trees with CartograTree,” APPLICATION OF SEMANTIC TECHNOLOGY IN BIODIVERSITY SCIENCE, Book Chapter

## Research & Extension Events

- WSU Tree Fruit Research Field Day, Sunrise Research Station, August 7. This event brought together 120+ growers, researchers and industry representatives. Highlights included a 4<sup>th</sup> leaf top-grafted WA 38 block with **Stefano Musacchi** (Hort.), and evaporative cooling and netting for sunburn mitigation with **Lee Kalcsits** (Hort.). **Betsy Beers** (Ent.) showcased sterile codling moth drone releases and **Louis Nottingham** (Ent.) pear IPM. Rootstock breeding with **Soon Li Teh**, and prevention of replant disease with **Tianna DuPont** (ANR) were demonstrated.
- WA 38 Maturity Field Days, September 19-October 2. Seven events were held where growers could to learn about several research projects under evaluation; root growth windows, nutrient management, green spot, sunburn protectants and netting; starch analysis and how to use the Cosmic Crisp starch scale. Invited researchers included: **Ines Hanrahan** (TFRC) and **Bernardita Sallato** (ANR). (Organized by **Karen Lewis**, ANR)
- Hops Evaluation at IAREC, September 1-14. **Doug Walsh** (Ent.) hosted an international group of brewers to sample experimental hops under development in the joint WSU-USDA Agriculture Research Service hop germplasm repository (570+ female hop genotypes, 230+ male hop genotypes). Brewers came from Sierra Nevada (Chico, CA), Bell’s Brewery (Kalamazoo, MI), Goose Island (Chicago, IL), 10 Barrel (Bend, OR), Ellysian Brewing Company, (Seattle, WA), Golden Road Brewing (Los Angeles, CA), Karbach Brewing Company (Houston, TX), Four Peaks Brewery (Tempe, AZ), Camden Town Brewery (London, UK) Columbia Brewery (Creston, British Columbia) and Anheuser Busch (St. Louis, MO).

- WSU's Ag Tech Day, August 22. Experts from WSU, the Washington State Department of Labor & Industries, Microsoft FarmBeats and ASI Robots shared updates on cutting-edge agricultural advances with growers, agricultural industry professionals, and crop consultants. The event explored the theme of automation in specialty crop production, and included field demonstrations and discussions of digital agriculture solutions, automation in farm operations, robotics in specialty crops, intelligent orchard sprayers, a survey of autonomy on the farm, and regulations on the use of autonomous vehicles in Washington farming.

## *WSU Extension Highlights*

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### FACULTY HIGHLIGHTS

- **Kevin Zobrist** (ANR) was appointed as the representative for the Association of Natural Resources Extension Professionals on the Journal of Extension editorial board.
- **Linda Chalker-Scott** (ANR) received the Distinguished Service Award for Washington State at the 2019 National Association of County Agricultural Agents.
- **Bernardita Sallato** (ANR) gave two invited presentations at the Sweet Cherry Symposium hosted by Shanghai Jiaotong University (Ti'an, China): "Nutrient Management for Sweet Cherries" and "Sweet Cherry Production in Chile."
- **Kevin Zobrist** (ANR) was interviewed in an article on National Public Radio, "Dead tree after dead tree. The case of Washington's dying foliage."
- **Brian Brandt** (YFP) received the "Pierce County Executive's Standing Ovation Award for 4-H Youth Development programming with court-involved youth.
- **Linda McLean** (YFP) gave presentations at the Northwest Intertribal Agriculture Council Youth Food Sovereignty Summit, "Successful Extension & 4-H Programming on Colville Reservation & FRTEP Extension office Overview," in Omak (WA); and "Successful Extension Programming on Colville Reservation," in Pendleton (OR).
- **Catalina Aragon** (YFP) gave an invited presentation, "Measure What You Teach: How EFNEP Rooted Its New Impact Assessment in Research," at the Society of Nutrition Education and Behavior (Orlando, FL.).

### PUBLICATIONS

- **Amber Adams-Progar** (AS), "Dairy Cattle Handling Extension Programs: Training Workers and Cattle," JOURNAL OF EXTENSION, AUG 2019
- **Robert Cooper** (HD), **Scott VanderWey** (YFP), and **Kevin Wright** (YFP), "Promoting Program Evaluation Fidelity When Data Collectors Lack Research Design and Implementation Expertise," JOURNAL OF EXTENSION, AUG 2019
- **Carol Miles** (Hort.), "Growing wasabi in the Pacific Northwest," WASHINGTON STATE UNIVERSITY EXTENSION PNW 605, 16p.
- **Linda Chalker-Scott** (ANR), "Using cereal straw bales in home gardens," WSU FACT SHEET FS329E; "Cornmeal and corn gluten meal applications in gardens and landscapes," WSU FACT SHEET FS326E; "Are black walnut trees harmful to other plants?" WSU FACT SHEET FS325E; "The efficacy and environmental consequences of kelp-based garden products," WSU FACT SHEET FS3309E

GRANT FUNDING – CAHNRS Extension faculty received **\$13.1M** in extramural support in the form of new/ongoing grants, contracts, agreements and services rendered. A selection of awards is given below:

- **Lee Anne Riddle** (SNAP-Ed Director) was awarded multiple grants from the USDA and Department of Social Health Services to manage the Washington State Extension SNAP-Ed program.

- **Faith Critzer** (SFS) and **Stephanie Smith** (YFP) were awarded a grant from the Washington State Department of Agriculture to lead Workshops and Extension for Washington State Tree Fruit Growers to comply with the Food Safety Modernization Act.
- **Elizabeth Weybright** (HD) was awarded a grant from the National 4-H Council and Wal-Mart Foundation for 09/Youth Advocates for Health (YA4-H!) Healthy Habits.
- **Steve Norberg** (ANR) was awarded a grant from USDA Alfalfa Seed and Forage Research program to determine genetic factors that influence protein quality and yield in alfalfa.
- **Shannon Neibergs** (ANR) was awarded funding from the USDA Agricultural Risk Management Education Competitive Grants Program to operate the Western Extension Risk Management Education Center.
- **Donald McMoran** (ANR) was awarded a grant from USDA Agriculture and Food Research Initiative to operate the Western Regional Agricultural Stress Assistance Program.
- **Donald McMoran** (ANR) was awarded a grant from USDA Agricultural Risk Management Education Competitive Grants Program to operate the Washington State AgrAbility Project
- **Todd Currier** (WSU Energy Program) was awarded a grant from the WA Department of Commerce to operate the Community Energy Efficiency Program.
- **Sheila Riggs** (WSU Energy Program) was awarded a grant from the WA Department of Transportation to operate the Alternative Fuels Education & Technical Assist Program.
- **Vincent Schueler** (WSU Energy Program) was awarded a grant from the Department of Commerce to provide evaluation, assessment, data collection and analysis, workforce planning and technical services to the Housing Improvement and Preservation Unit of Commerce's Community Services and Housing Division.
- **David Van Holde** (WSU Energy Program) was awarded a grant from the Dept. of Energy to operate the Northwest Combined Heat and Power Technical Assistance Partnership.

### *Extension Events, Community Outreach*

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- **Michelle Moyer** (VE) and **Gwen Hoheisel** (ANR) hosted a 'Phylloxera Awareness' workshop in Walla Walla in response to growing concerns of the pest to regional wine growers.
- **Jennifer Andreas** (ANR) completed the Columbia Basin Flowering Rush Management Plan to offer a comprehensive and cohesive plan for regional management efforts by agencies and municipalities.
- The **WSU Extension Forestry Program** hosted the Puget Sound Forest Owners Field Day in Arlington that was attended by 130+ landowners, two Snohomish County Council Members, and Congresswoman Suzan DelBene.
- **Gwen Hoheisel** (ANR) in collaboration with sprayer manufacturers, distributors, and industry conducted a two-day pilot course for optimizing spray technologies, funded by the WA grape industry. 80 growers and regulators attended.
- **Gwen Hoheisel** (ANR), **Scott Harper** (CPCNW, PP), **Matt Whiting** (Hort.), **Troy Peters** (BSE) and **Per McCord** (Hort.) developed and delivered the WSU-Prosser Cherry Field Day. 40 growers attended to learn about current tree fruit research being develop at our Rosa experimental station in Prosser.
- As part of the City of Puyallup's Higher Education Appreciation celebrations, the city hosted 'WSU Appreciation Week', which included faculty lectures; social media engagement; the Mayor's proclamation accepted by Dean Wright at the City Council Meeting; and over 150 people attending a tailgate to view the WSU v. Utah game.



## *Student News*

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- **Alex Batson** (PhD student, PP) was selected for a fellowship from the Foundation for Food and Agriculture Research. Batson is one of only 17 fellows from around the country in this year's class.
- Multiple doctoral students from CAHNRS received Pre-doctoral Fellowships from USDA's Education and Workforce Development program: **Margaret McCoy** (VE), **Matthew Marcec** (Hort.), **Abigail Cohen** (Ent.), **Benjamin Lee** (Ent.), **Olivia Smith** (Ent.), and **Jim Hepler** (Ent.).
- **Erica Casagrande Biasuz** (PhD student, Hort.) won 2<sup>nd</sup> place at the American Society for Horticultural Sciences Annual Meeting Poster Competition for her poster, "Associating Rootstock-Based Variation in Whole Plant Physiological Traits with Leaf Carbon and Oxygen Isotope Composition in *Malus x Domestica borkh.*"
- **Sarah Kostick** (PhD student, Hort.) was chosen for an oral presentation at the National Association of Plant Breeders annual meeting 'Identifying fire blight resistance/susceptibility loci in apple for breeding use'.
- **Kaitlin Miller Hadaway** (MS student, Plant Pathology) won the Best Poster Award at the IEEE Women in Engineering Leadership Summit.
- **Arunbha Mitra** (PhD student, PP) won the Student Poster Award from the scientific journal PHYTOBIOMES at the American Phytopathological Society annual meeting.
- **Colton Thurgood** (PhD student, Hort.) won 2<sup>nd</sup> place at the Potato Association of America Frank L. Haynes Graduate Student Research Competition for his work and presentation on "Assessment of Non-traditional Soil and Foliar Additives for Enhanced Potato Yield and Economic Return."
- **Huan Zhang** (PhD student, Hort.) won 1<sup>st</sup> place in the American Society for Horticultural Sciences annual meeting Scholar's Ignite 3-minute talk competition for his presentation on plastic mulch use in raspberry cultivation.
- **Katherine East** (Postdoctoral Fellow, Hort.) won 2<sup>nd</sup> place at a "3-Minute Science Pitch" competition during the American Phytopathological Society annual meeting.
- **Noel Perez** (Undergraduate, VE) received the 2019-2020 Wine Spectator Student of the Year Award, including a \$15,000 scholarship based on his academic performance, where he maintains a 4.0 GPA while working full time at Palencia winery in Benton City.

## *Facilities, Infrastructure & Programmatic*

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- Multiple Material Transfer Agreements were executed to support the newly re-launched stone fruit breeding program, including: 2 with Willow Drive Nursery (propagation agreements), 1 with North American Plants (propagation agreement), and 1 with Orchard View Farms (trialing agreement) (Contact: **Per McCord**, Hort.)
- The VE program and CAHNRS Alumni & Development hosted multiple events to raise funds and bring community awareness to WSU resources and expertise, including: Winemakers Dinner, Private Barrel Auction, and Picnic and Barrel Auction. The Auction of Washington Wines Private Barrel Auction was the most successful yet securing nearly \$350K for viticulture and enology research.
- Funding from USDA's Foreign Agriculture Service is supporting a pilot 12-week fellowship program at WSU. This first-of-its-kind offering is in collaboration with the Consultative Group on International Agricultural Research (CGIAR) and modeled after the USDA's Borlaug International Agricultural Science and Technology Fellowship Program. It brings early and mid-career researchers from five CGIAR centers around the globe to WSU, promoting agricultural productivity, food security, and economic growth through collaborative research. 4 scientists are currently in residence at CAHNRS working with **Arron Carter** (CSS), **Kim Campbell** (CSS, USDA), **Tim Paulitz** (PP, USDA), **Hanu Pappu** (PP), **Phil Miklas** (USDA), and **Sindhuja Sankaran** (BSE).

## *Alumni & Development*

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### DEVELOPMENT HIGHLIGHTS

- CAHNRS and WSU Extension raised over \$35M for research, teaching and extension projects, surpassing their FY19 fundraising goal by \$7M.
- A \$5M commitment was announced from Gordon Davis and family to establish WSU's first endowed deanship, the Cashup Davis Family Endowed Dean of CAHNRS.
- \$2.2M was secured toward establishing a new Endowed Chair in Soil Health and Potato Cropping Systems.
- Through fundraising efforts, CAHNRS was able to take advantage of the opportunity to purchase a world class research facility for the future Honey Bee and Pollinator Research and Education program in Othello, WA.
- CAHNRS awarded over \$860K in scholarships to 435 students for the 2019/20 academic year.