

**Agricultural Research Center
College of Agriculture and Home Economics
Washington State University**

**Projects Approved by USDA/CSREES for FY 2001-2002
By Department and Research Center**

Departments:

Agricultural Economics

<p>0160 Agricultural Water Management Technologies, Institutions and Policies Affecting Economic Viability and Environmental Quality, H, W-190, Huffaker, R.G.</p> <p>0177 Economic Dimensions of the Washington Horticultural Landscape and Maintenance Industry, S, Carkner, R.W., Moore, P.P.</p> <p>0204 Public Policy and the Washington Economy: An Applied Welfare Analysis, H, Holland, D.W.</p> <p>0218 Empirical Likelihood, Maximum Entropy, Estimation Equations, and Other Computer Intensive Methods for Agricultural Economics, H, Mittelhammer, R.C., Wahl, T.I.</p> <p>0227 Rural Communities and Public Lands in the West: Impacts and Alternatives, H, W-192, Holland, D.W.</p> <p>0265 The Effects of Farmland Prices, H, Barkley, P.W.</p> <p>0269 Dryland Grain Growers' Income Risk Management and Its Environmental Impacts, H, Wang, H.H.</p> <p>0275 Agricultural Production, Processing, Trade, and Environmental Quality, H, Shumway, C.R., Duval, Y.</p> <p>0278 The Prospects and Pitfalls of Financing Cooperatives Through Patron Demand Deposit Accounts, H, Duft, K.D.</p> <p>0299 Fisheries Management and Marketing of Marine and Aquaculture Seafood, H, Matulich, S.C.</p> <p>0301 Private Strategies, Public Policies, and Food System Performance, H, NE-165, McCluskey, J.J.</p>	<p>0303 Economic Aspects of Growing Vinifera Wine Grapes on Rootstocks and Marketing Washington Wine, H, Folwell, R.J.</p> <p>0317 Wine Grape Economic Research, S, Folwell, R.J.</p> <p>0343 Policy and Competitive Changes in Agricultural Transportation in Washington, H, Casavant, K.L.</p> <p>0347 Assessing the Economic Viability of Soil Conserving Farming Systems in Eastern Washington, H, Young, D.L., Huggins, D.*, Kennedy, A.C.*, Saxton, K.*, Young, F.L.*, Roe, D., Stockle, C.O., Wu, Q.J., Bezdicek, D.F., Frazier, B.E., Veseth, R., Pan, W.L., Papendick, R.I.*, Schillinger, W.F.</p> <p>0378 Improving the International Competitiveness of the Washington/Oregon and Michigan Asparagus Industries, SG, Folwell, R.J., Tang, J., Fellman, J.K., Powers, J.R.</p> <p>0383 Public Policy and the Washington Economy: A General Equilibrium Approach to Economic Policy Analysis, H, Holland, D.W.</p> <p>0418 Improving the International Competitiveness of the Washington/Oregon and Michigan Asparagus Industries, SG, Folwell, R.J.</p> <p>0691 Benefits and Costs of Resource Policies Affecting Public and Private Land, H, W-133, Wandschneider, P.R.</p> <p>0806 Fruit and Vegetable Supply-Chain Management, Innovations, and Competitiveness, H, S-222, Schotzko, R.T.</p> <p>0998 Rural Economic Development: Alternatives in the New Competitive Environment, H, NE-162, Holland, D.W.</p>
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* = USDA; Funding sources: S = State, H = Hatch, AH = Animal Health, MS = McIntire-Stennis; CG = Competitive Grant, SG = Special Grant

4301 Reputation and State Commodity Promotion, CG, McCluskey, J.J.

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0229 Grass Seed Cropping Systems for a Sustainable Agriculture, SG, McCracken, V.A., Johnston, W.J.

0287 Grass Seed Cropping Systems for a Sustainable Agriculture, SG, Cavalieri, R.P., Johnston, W.J., Pan, W.L., Hinman, H.R.

0318 Jointed Goatgrass: A Threat to U.S. Wheat Production, SG, Carlson, J.R.

0325 Grass Seed Cropping Systems for a Sustainable Agriculture, SG, Cavalieri, R.P., Johnston, W.J.

0354 Wine Grape Research, S, Cavalieri, R.P., Polzin, L., Martin, R.R.*, Eastwell, K.C.

0356 Jointed Goatgrass: A Threat to U.S. Wheat Production, SG, Cavalieri, R.P.

0358 Grass Seed Cropping Systems for a Sustainable Agriculture, SG, Cavalieri, R.P., Johnston, W.J.

0379 Aquaculture, Washington, SG, Ristow, S.S.

0393 Jointed Goatgrass: A Threat to U.S. Wheat Production, SG, Ristow, S.S.

0394 Grass Seed Cropping Systems for a Sustainable Agriculture, SG, Cavalieri, R.P.

7996 Multistate Research Coordination, Western Region, H, W-106, Cavalieri, R.P., Ristow, S.S.

9916 Administration of Agricultural Research - Washington State, H, Cavalieri, R.P., Zuiches, J.J.

Animal Sciences

0154 Environmental and Economic Impacts of Nutrient Management on Dairy Forage Systems, H, NE-132, Harrison, J.H.

0167 Enhancement of Dietary Energy Use for Maintenance, Growth, and Lactation by Beef Cattle, H, Johnson, K.A.

0181 Genetic Variation in Growth, Carcass Composition, Quality and Fatty Acid Composition of Wagyu Cattle, H, Gaskins, C.T., Reeves, J.J., Johnson, K.A., Busboom, J.R.

0213 Dietary and Genetic Manipulation of the Lipid Composition and Palatability of Red Meat, H, Busboom, J.R.

0237 Equine Muscle Healing and Regeneration, H, Byrne, K.M., Dodson, M.V.

0249 Homeorhetic Regulation and Quantitative Modeling of Metabolism in Lactation and Growth, H, McNamara, J.P.

0289 Immunological Characterization of the T Cell Compartment of Trout Clones for Fish Disease Research, AH, Ristow, S.S., Thorgaard, G.H.

0304 Altering Fermentation of Plant Fiber, H, Nelson, M.L.

0328 Investigation of Direct Fed Microbial (DFM) Products Based on Aspergillus Fermentation Extract, H, Calza, R.E.

0331 Importance of Dietary Carotenoids on Immunity and Cancer in the Canine and Feline, H, Chew, B.P.

0374 Nutrient Management: Feeding for Reduced Excretion of Nitrogen, Phosphorus, Zinc, and Selenium by Ruminants, H, Kincaid, R.L.

0380 Detection of the Polymeric Immunoglobulin Receptor, PIGR, in Porcine Oviductal Epithelial Cells, AH, Leid, R.W.

0389 Genetic Aspects of Innate Immunity in Rainbow Trout, S, Ristow, S.S.

0706 Germ Cell and Embryo Development and Manipulation for the Improvement of Livestock, H, W-171, Wright, R.W.

0709 Mastitis Resistance to Enhance Dairy Food Safety, H, NE-112, Fox, L.K., Davis, W.C.

0764 Enhancing the Global Competitiveness of U.S. Red Meat, H, W-177, Busboom, J.R., Wahl, T.I.

0769 Targeting Fat Deposition for Greater Production Efficiency in Ruminants, H, Dodson, M.V.

0862 Metabolic Relationships in Supply of Nutrients for Lactating Cows, H, NC-185, McNamara, J.P.

0913 Molecular Mechanisms Regulating Skeletal Muscle Growth and Differentiation, H, NC-131, Dodson, M.V., Byrne, K.M.

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- 0928** Role of Oxytocin in Control of the Estrous Cycle of Swine, H, Wright, R.W.
- 0957** Reproductive Performance in Domestic Ruminants, H, W-112, Reeves, J.J.
- 6957** Sterilization Vaccine for Cattle, CG, Reeves, J.J., Bertrand, K.P.
- 0990** Technology and Principles for Assessing and Retaining Postharvest Quality of Fruits and Vegetables, H, NE-179, Hyde, G.M., Cavalieri, R.P., Pitts, M.J., Tang, J., Fellman, J.K.
- 3227** Non-Chemical Pest Control in Fruits and Nuts Using Electromagnetic Energy, OG, Tang, J., Hansen, J.D.*, Mitcham, E., Shellie, K.*
- 4222** Integrated Nutrient Management Modeling for Dairy Production Systems Featuring Dynamics and Optimization, CG, Chen, S., Stockle, C.O., Harrison, J.H.
- 4225** Thermal Mortality of Insects and Postharvest Control of Insect Pests in Nuts, CG, Tang, J., Cavalieri, R.P., Swanson, B.G.
- 4378** Microstructures and Properties of High/Low Acyl Mixed Gellan Gels, CG, Tang, J., Swanson, B.G.
- 7990** Measurement and Control of Fruit and Vegetable Impact Sensitivity, CG, Hyde, G.M.
- 0399** Community Economic Development by Merchandising, Producing, and Distributing Textiles and Sewn Products, H, W-194, Salusso, C.J.
- 0271** Preservation of Foods by Oscillating Magnetic Fields, H, Barbosa-Canovas, G.V., Swanson, B.G.
- 0319** Field- and Catchment-Scale Hydrologic Modeling Using GIS and Simulation Models, H, Wu, Q.J.
- 0320** Coupled Heat and Moisture Transfer Finite Element Analysis in Food Products, H, Pitts, M.J.
- 0341** Mechanical Dynamics in Agricultural Production, Harvesting and Postharvest Systems, H, Hyde, G.M., Thornton, R.E., Fellman, J.K., Cavalieri, R.P.
- 0352** A Watershed Scale Study on No-Till Farming System for Reducing Sediment Delivery, H, Chen, S.
- 0357** Use of Simulation Modeling and Other Computer-Based Tools for Decision Support in the Management of Agricultural Systems, H, Stockle, C.O.
- 0371** Application of Electromagnetic Energy at Microwave and Radio Frequencies in Food and Agriculture Processes, H, Tang, J., Pitts, M.J., Swanson, B.G.
- 0412** Development and Application of Harvesting and Processing Technologies for Production of Value Added Fruit and Vegetable Products, H, Clary, C.
- 0467** Improvement of Thermal and Alternative Processes for Food, H, NC-136, Barbosa-Canovas, G.V.,
- 0207** Wine Grape Research, S, Watson, J.W.
- 0401** Rural Telework Project, CG, Christensen, D., Lutzenhiser, L.A.
- 0402** The Germ City Hand Washing Program: Clean Hands, Healthy People, CG, Craig, B.S, Brown, G.
- Center for Precision Agricultural Systems (CPAS)**
- 0333** Precision Agricultural Systems, S, Pierce, F.J., Davis, D.C.
- Center for Sustaining Agriculture and Natural Resources (CSANR)**
- 0414** A Proposed Study to Determine Agricultural Drainage Practices Which Minimize Detrimental Effects on Salmonids, S, Feise, C.
- Cooperative Extension**
- Crop and Soil Sciences**

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- 0110** Alfalfa Growth and Quality: Environmental and Plant Factors, H, Stevens, R.G., Hoffman, T.R., Fransen, S.C.
- 0152** Characterization of Flow and Transport Processes in Soils at Different Scales, H, W-188, Flury, M., Wu, Q.J.
- 0175** Adaptation Studies of Cereal Varieties and Selections, H, Burns, J.W.
- 0182** Impact of No Till on Soil Quality Physical, Chemical, and Microbial Properties, H, Bezdicek, D.F., Albrecht, S., Flury, M., Roe, D.
- 0196** Molecular Markers for Barley Disease Resistance Genes, H, Kleinhofs, A.
- 0203** Nutrient Cycling and Soil Building in Alternative Cropping Systems, H, Pan, W.L., Stevens, R.G., Thornton, R.E., McKean, W.T., Eberlein, C.
- 0232** Breeding and Genetics of Winter Wheat, H, Jones, S.S., Murray, T.D., Carter, B.P., Chen, X.M., Morris, C.F.*, Campbell, K.G.
- 0239** Vegetable Crops Research for the Export Market, H, Williams, M.M., Hiller, L.K., Corsini, D.L.*, Hyde, G.M.
- 0245** STEEP III, SG, Bezdicek, D.F., Schillinger, W.F., Veseth, R.
- 0250** Cropping Systems Research for Low-Precipitation Dryland in Eastern Washington, H, Schillinger, W.F., Cook, R.J., Papendick, R.I.*, Veseth, R., Yenish, J.P.
- 0251** Breeding of Value-Added Barley by Incorporation of Protein-Engineered Beta-Glucanases, S, von Wettstein, D.H., Ullrich, S.E.
- 0256** Soil Conditions, Crop Productivity and Ground Water Quality in Some Western Washington Soils, H, Kuo, S., Harsh, J.B., Bezdicek, D.F., Miltner, E.D.
- 0257** Developing Site Specific Approaches for Crop Nutrient Management in Irrigated Ag Systems, H, Davenport, J.R., Stevens, R.G., Peryea, F.J.
- 0264** PM-10 Particulate Emission Prediction and Control in the Pacific Northwest, SG, Schillinger, W.F.
- 0267** Sorption and Transport in Poraus Media at Different Scales, H, Flury, M.
- 0277** Ecologically Based Weed Management for Dryland Cropping Systems, H, Fuerst, E.P.
- 0281** Alternate Crops and Cropping Systems for Irrigated Central Washington, H, Hang, A.N., Lumpkin, T.A., Schillinger, W.F.
- 0282** Germplasm and Cultivar Development of Hop, H, Kenny, S.T., Grove, G.G., James, D.G.
- 0296** STEEP III, SG, Bezdicek, D.F.
- 0297** Weed Interference in and Herbicide Effects on Western Washington Crops, H, Miller, T.W.
- 0306** PM-10 Particulate Emission Prediction and Control from Ag Land in the PNW Columbia Plateau, SG, Schillinger, W.F., Young, D.L., Claiborn, C.S., Busacca, A.J., Pan, W.L., Lamb, B.K., Veseth, R., Frazier, B.E., Esser, A. D.
- 0308** Characteristics of Calcareous Sands Used for Turfgrass Root Zones, H, Miltner, E.D., Stahnke, G.K., Johnston, W.J.
- 0309** Spectral Reflectance and Spatial Analysis of Plant Stress Indicators in Vitis, H, Davenport, J.R., Perry, E.
- 0316** STEEP: Solutions to Environmental and Economic Problems, SG, Bezdicek, D.F.
- 0323** Remote Sensing for Land Management, H, Frazier, B.E., Lamb, B.K., Busacca, A.J., Johnson, D.A., Pan, W.L.
- 0329** Perennial Ryegrass Seed Production in the Puget Sound Without Burning, S, Johnston, W.J., Miller, T.W.
- 0332** Evaluation and Management of Turfgrass Species and Cultivars, H, Johnston, W.J., Stahnke, G.K., Miltner, E.D., Johnson, R.C.*, Thill, D.C., Miller, T.W.
- 0334** Improving Spring Wheat Varieties for the Pacific Northwest, H, Kidwell, K.K., Jones, S.S., Morris, C.F.*, Ullrich, S.E.
- 0344** Diversity and Sustainability of Plant and Arthropod Communities Within Agroecosystems, H, Quinn, M.A., Bezdicek, D.F., Zack, R.S., Pike, K.S., Gould, J.*

0350	Weed Control Research in Irrigated Vegetable and Specialty Crops, S, Boydston, R.A. *, Parker, R.		Management Decision Support Systems to Reduced Herbicide Use, H, NC-202, Williams, M.M.
0351	STEEP: Solutions to Environmental and Economic Problems, SG, Bezdicek, D.F.	0410	A Comparative Analysis of the Sustainability of Farming Systems, H, Reganold, J.P., Andrews, P.K., Hinman, H.R.
0353	Soil Quality Changes with No-Till Management Adoption for Wind Erosion Control, S, Kennedy, A.C.*	0413	International Cooperation for Agriculture Research in Central Asia and The Caucasus, SG, Lumpkin, T.A.
0359	Early Generation and Market Specific Quality Evaluation of New Wheat Varieties, H, Carter, B.P.	0422	Ecologically-Based Management of Annual Weeds in Dryland Grain Production Systems of Eastern Washington, H, Gallagher, R.S.
0363	Nutrient Management for Improved Crop Yield and Quality for Dryland Cropping Systems of Eastern WA, H, Schwab, G.J.	0598	Eolian Soils, Global Change, and Washington Agriculture, H, Busacca, A.J., Frazier, B.E., Gaylord, D.L., Meinert, L.D.
0373	Carbon and Nitrogen Cycling and Management in Alternative Cropping Systems, H, Pan, W.L., Frazier, B.E., Kidwell, K.K., Stevens, R.G., Young, F.L.* , McKean, W.	0664	Seed Biology, Technology, and Ecology, H, W-168, Warner, R.L.
0376	Integrated Management of Winter Annual Grass Weeds in Eastern Washington Dryland Crop Systems, H, Yenish, J.P., Huggins, D.* , Burns, J.W., Young, F.L.*	0688	Developing Crops and Cropping Systems for Moisture-Limiting Environments, H, Chevalier, M.M., Ullrich, S.E.
0382	PM10 Particulate Emission Prediction and Control from Agricultural Lands in the Pacific Northwest, SG, Schillinger, W.F.	0689	Environmental Improvement of Western Washington Agricultural Lands Utilizing Forage Grasses and Silage Corn, H, Fransen, S.C., Cogger, C.G.
0384	STEEP: Solutions to Environmental and Economic Problems, SG, Bezdicek, D.F.	0690	Chemistry and Bioavailability of Waste Constituents in Soils, H, W-170, Kuo, S.
0385	Physical Chemical State and Plant Availability of Uranium, Lead, Cadmium, Zinc, and Arsenic in Selected Washington Soils, H, Harsh, J.B., Zamora, B.A., Kuo, S., Pan, W.L., Stevens, R.G., Flury, M.	0703	A Comparative Analysis of the Sustainability of Farming Systems, H, Reganold, J.P., Busacca, A.J., Papendick, R.I.*
0397	Risk Assessment of Increased Soilborne Disease Pressure in Glyphosate Tolerant Wheat Production, NRI, Kidwell, K.K.	0715	Integrated Weed Management in Dryland Cropping Systems in Washington, S, Young, F.L.* , Seefeldt, S.S.
0398	An Integrated Physical and Expression Map for Barley for Triticeae Improvement, NRI, Kleinhofs, A.	0722	Beneficial Use of Organic Amendments in Agricultural and Urban Soils, H, Cogger, C.G., Bary, A.I., Hummel, R.L., Miltner, E.D.
0400	Biology, Ecology, and Integrated Management of Weeds in Potato Rotation Cropping Systems, H, Williams, M.M., Boydston, R.A. *, Pierce, F.J., Davenport, J.R., Walsh, D.B.	0747	Nutrient Management in Washington Tree Fruit Orchards, H, Peryea, F.J.
0406	Characterizing Weed Population Variability for Improve Weed	0805	Weed Research in Irrigated Agronomic, Horticultural, and Specialty Crops in WA, S, Parker, R.
		0900	Soil Survey and Classification, H, Busacca, A.J., Frazier, B.E., Gessler, P., Frazier, B.E., Gessler, P.
		0954	Biogeochemistry and Management of Salts and Potentially Toxic Trace

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- Elements in Arid-Zone Soils, Sediments, and Waters, H, W-184, Peryea, F.J.
- 1006** Breeding and Genetics of Barley, H, Ullrich, S.E., Kleinhofs, A., von Wettstein, D.H., Kidwell, K.K., Burns, J.W., Chen, X.M., Cook, R.J., Baik, B.K.
- 1134** Plant Genetic Resource Conservation and Utilization, H, W-006, Lumpkin, T.A., Coyne, C.J.*, Clement, S.L.*, Hannan, R.M.*, Johnson, R.C.*, Dugan, F.M.*, Cavalieri, R.P., Welsh, M., Bradley, V., Hellier, B.
- 1790** Breeding Dry Pea, Lentil and Chickpea Germplasm for Stress Tolerance, Disease Resistance and Quality, S, Muehlbauer, F.J.*, McPhee, K.E.*
- 1851** Enhancing Winter Wheat for Coldhardiness, S, Skinner, D., Allan, R.E.*
- 3669** Development and Feasibility of Perennial Wheat for Highly Erodable Lands, OG, Jones, S.S., Murray, T.D.
- 3776** Effect of Cropping Systems on Shrub-Steppe Habitat, CG, Quinn, M.A.
- 4277** The Role of Microbially-Mediated Decay in Mortality of Annual Grass Weed Seeds, CG, Fuerst, E.P., Kennedy, A.C.*
- 6197** Molecular Genetics of the Barley Stem Rust Resistance Gene Families, CG, Kleinhofs, A.
- 6703** Sustainability of Three Apple Production Systems, CG, Reganold, J.P., Andrews, P.K.
- 6724** The Benefits and Costs of Using Organic Waste Streams in Small Scale Agriculture, SG, Cogger, C.G., Ostrom, M., Bary, A.I., Carkner, R.W., Bristow, P.R., Miles, C.A., Stone, A.G., Sullivan, D.M., Hemphill, D.
- 8251** Leucocyanidin Reductase and Condensing Enzyme in Proanthocyanidin Synthesis, CG, von Wettstein, D.H.
- 0122** A National Agricultural Program to Clear Pest Control Agents for Minor Uses, H, NRSP-4, Walsh, D.B.
- 0206** Development of Crop Protection Chemicals, S, Walsh, D.B., Eastwell, K.C., James, D.G.
- 0225** Management of Arthropod Pests of Pear, H, Dunley, J.E., Brunner, J.F., Beers, E.H.
- 0243** Biological Diversity Studies of Arthropod Taxa, H, Zack, R.S.
- 0244** Molecular Genetics of Honey Bee Subspecies and Assessment of Populations in Northern America, H, Sheppard, W.S.
- 0270** Biology and Control of Arthropod Pests of Berry Crops, H, Tanigoshi, L.K., Moore, P.P., Antonelli, A.L.
- 0272** Biological Management of Yellow Starthistle in Washington, H, Piper, G.L.
- 0302** Dynamics and Management of Pest and Natural Resource Populations, MS, Berryman, A.A.
- 0315** Biology and Integrated Management of Insect and Mite Pests of Wine Grapes, S, James, D.G., Walsh, D.B.
- 0327** Ecological and Toxicological Approaches to Estimate Effects of Pesticides to Nontarget Organisms, H, Stark, J.D., Banks, J.E., Wennergren, U.
- 0335** Pesticide Information Coordination, S, Daniels, C.H.
- 0337** Biological Control of Aphid Pests, H, Pike, K.S., Miller, T.D., Tanigoshi, L.K., Thomas, P.E.*, Turner, W.J., Stary, P.
- 0339** Development of Integrated Arthropod Management Systems for Irrigated Crops in Central Washington, S, James, D.G., Kenny, S.T., Parker, R., Felsot, A.S.
- 0342** Investigation of Neural-like Properties of a Colorado Potato Beetle Cell Line, H, Sheppard, C.A., Cohen, R.W.
- 0349** Managing Agrochemical Behavior Under Drip Irrigation Systems, H, Felsot, A.S., James, D.G.
- 0366** Developing an IPM Infrastructure for Apple Orchards Under Mating Disruption, H, Jones, V.P., Brunner, J.F., Dunley, J.E., Unruh, T.*
- Entomology**
- 0121** Biological Control in Pest Management Systems of Plants, H, W-185, Piper, G.L.

- 0372** Mechanisms and Mitigation of Agrochemical Impacts on Human and Environmental Health, H, W-45, Felsot, A.S.
- 0381** Development of Integrated Management Systems for High Value Specialty Crops in Central Washington, H, James, D.G., Kenny, S.T., Eastwell, K.C., Walsh, D.B., Snyder, W.E., Barbour, J.
- 0386** Secondary Pests of Deciduous Pome Fruits, H, Beers, E.H., Brunner, J.F., Dunley, J.E., Jones, V. P.
- 0391** Biology and Management of Mealybugs in Washington Wine Grape Vineyards, S, James, D.G.
- 0392** Biology and Management of Mealybugs in Washington Wine Grape Vineyards, S, Walsh, D.B.
- 0405** Potential of Insect Growth Regulators for Controlling Insect Pests of the Pacific Northwest, H, Brown, J.J.
- 0415** Utilizing Complex Communities of Natural Enemies in Biocontrol, H, Snyder, W.E.
- 0416** Molecular Genetics of Honey Bee Subspecies and Selection and Breeding of New World Populations, H, Sheppard, W.S.
- 0426** Evaluations of Airborne Herbicide Residues on Wine Grape Production, S, Hebert, V., Felsot, A.S.
- 0464** Regulation of Caste Fate in the Polyembryonic Wasp *Copidosoma Folridanum*, S, Corley, L.S.
- 0470** Reducing the Potential for Environmental Contamination by Pesticides and Other Organic Chemicals, H, W-082, Felsot, A.S., Gamerdinger, A.P.
- 0742** Integrated Arthropod Pest and Pollinator Management, H, Mayer, D.F.
- 0801** Secondary Pests of Deciduous Pome Fruits, H, Beers, E.H.
- 1090** Pest Management of Direct Pests of Apple in Washington Tree Fruit Orchards, H, Brunner, J.F., Beers, E.H., Dunley, J.E., Landolt, P.J.*
- 3335** Commodity and Pest Management Profiles in Washington State, SG, Daniels, C.H., Foss, C.R.
- 3464** Regulation of Caste Fate in the Polyembryonic Wasp *Copidosoma Folridanum*, NRI, Corley, L.S.
- 4089** Building a Multi-Tactic Pheromone-Based Pest Management System in Western Orchards, OG, Brunner, J.F., Beers, E.H., Riedl, H., Welter, S.C.
- 4362** The Impact of Generalist Predators in Agriculture and Refuge Habitats, CG, Snyder, W.E.
- 8131** Managing Drip Irrigation to Reduce Chemical Movement in Soil, CG, Felsot, A.S.
- Food Science and Human Nutrition**
- 0103** Dietary and Psychosocial Factors Affecting Self-Management of Type 2 Diabetes Mellitus, H, Armstrong-Shultz, J., Massey, L.K., Evans, M.A., Hicks, B., Crogan, N., Branen, L.J., Weisham, C.
- 0118** Conjugated Linoleic Acid: Dairy Enrichment, Dietary Intakes, Cell Culture, and Cancer Prevention, H, Shultz, T.D., McGuire, M.K., McGuire, M.A.
- 0128** Marketing and Delivery of Quality Cereals and Oilseeds, H, NC-213, Baik, B.K.
- 0205** Factors Affecting the Quality of Washington Wine and Wine Grapes (*Vitis vinifera*), S, Spayd, S.E., Edwards, C.G., Folwell, R.J., Tarara, J.M. *, Keller, M., Fellman, J.K.
- 0208** Enological and Viticultural Practices on Fermentation Microbiology, Chemistry, and Quality of Wines, S, Edwards, C.G., Spayd, S.E., Tarara, J.M. *, Fellman, J.K., Collins, M.D., Milles, D.A.
- 0276** Factors Influencing the Intake of Calcium Rich Food Among Adolescents, H, W-191, Edlefsen, M.S.
- 0286** Effect of Under- or Overconsumption on Serum Leptin and Food Regulation in Lean and Obese Subjects, H, Beerman, K.A.
- 0288** Microbiological and Chemical Factors Affecting the Flavor and Textural Quality of Cheddar Cheese, H, Clark, S., Edwards, C.G.

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- 0305** Develop a Non-Invasive Spectroscopic Method to Predict Safety/Quality of Cured/Smoked Food Products, H, Rasco, B.A.
- 0369** Evaluation of Surface Irrigation Water as Source of Contamination of Fruits and Vegetables with *E. coli* 0157 and *L. monocytogenes*, H, Kang, D.H., Hancock, D.D., Gay, C.C., Knowles, D., Borucki, M.
- 0370** Nutrition in the Treatment of Calcium Kidney Stones, H, Massey, L.K.
- 0395** Reducing Risk with Food Thermometers: Strategies for Behavior Change Integrated Activity, CG, Hillers, V.N., Edlefsen, M.S., Kang, D.H., McCurdy, S.M., Mayes, V.E.
- 0537** Factors Affecting the Quality of Washington Wine and Wine Grapes (*Vitis vinifera*), H, Spayd, S.E., Edwards, C.G., Folwell, R.J., Fellman, J.K., Keller, M., Tarara, J.M. *
- 0560** Genetic Improvement of Beans (*Phaseolus vulgaris* L.) for Yield, Disease Resistance, and Food Value, H, W-150, Swanson, B.G.
- 0719** Milling and Flour Quality Characteristics of Wheat Selections, S, Morris, C.F.*, McCurdy, A.
- 0846** Enological and Viticultural Practices on Fermentation Microbiology, Chemistry, and Quality of Wines, H, Edwards, C.G., Spayd, S.E., Paznokas, J.L., Fellman, J.K., Reynolds, A.G., Mills, D. A., Collins, M.D., Tarara, J.M. *
- 0905** Nutrient Bioavailability - A Key to Human Nutrition, H, W-143, Shultz, T.D.
- 3468** Surface Hydrophobicity and Functionality of Proteins in the Molten Globule State, CG, Powers, J.R., Dunkar, A.K., Swanson, B.G.
- 3505** Engineered Enzyme-Based Time Temperature Indications (TTIS) for Validating Food Pasteurization Processes, NRI, Rasco, B.A., Kang, D.H., Tang, J.
- 4118** Effect of Isomeric Conjugated Linoleic Acid Intake on Milk Fat Content and Growth During Early Postnatal Period, CG, McGuire, M.K., McGuire, M.A.
- 6305** Non-Invasive Method for Predicting Safety and Quality of Foods, CG, Rasco, B.A., Cavinato, A.G., Bledsoe, G.E.
- Horticulture and Landscape Architecture**
- 0038** Breeding Superior Strawberry Cultivars for the Pacific Northwest, H, Moore, P.P., Bristow, P.R., Klauer, S.K., Kempler, C., Finn, C.E., Tanigoshi, L.K.
- 0044** Potato Cultivar Evaluation and Commercial Potato Seed Lot Trial, S, Thornton, R.E., Johnson, D.A., Pelter, G.Q., Haven, D.M., Sorensen, E.J.
- 0156** Multidisciplinary Evaluation of New Apple Cultivars, H, NE-183, Barritt, B.H.
- 0168** Gene Transfer for Potato Variety Development, S, Brown, C.R.*, Mojtahedi, H., Thomas, P.E.*, Corsini, D.L.*, Pavek, J.J.*, Slack, S.A., Smith, O.P.*, Williamson, V., Wrolstad, R.
- 0210** Wine Grape Viticultural Research, S, Keller, M., Spayd, S.E.
- 0215** Freeze Damage and Protection of Horticultural Species, H, W-130, Keller, M.
- 0217** Cultural and Cultivar Studies for Fruit Production in a Maritime Climate, H, Moulton, G.A.
- 0258** Effect of Cultural Practices on Plant Root Health and Establishment of Landscape Plants, H, Hummel, R.L., Carkner, R.W.
- 0260** Developing New Apple Cultivars for Washington State, H, Barritt, B.H., Pusey, L.*, Grove, G.G.
- 0285** Environmental/Cultural Factors on Water Stress Resistance/Growth/Cold Hardiness of Landscape Plants, H, Hummel, R.L.
- 0298** Bioregulation of Vegetative Growth and Fruit Development in Apple and Pear, H, Elfving, D.C., Curry, E.*, Drake, S.R.*, Faubion, D., Granatstein, D.M., Mazzola, M.*, McFerson, J., Smith, T.J.*, Willemsen, K.M.
- 0314** Wine Grape Research in a Cool Maritime Climate, S, Moulton, G.A.
- 0321** Calcium-Mediated Signaling in Plants: Calmodulin and

- Ca²⁺/Calmodulin-Dependent Protein Kinase, H, Poovaiah, B.W.
- 0326** Sunburn of Apple (*Malus domestica*), H, Schrader, L.E., Edwards, G.E., Ku, K.S.
- 0338** The Effects of Exogenous Bioregulators on Regular Cropping of Apples, H, Willemsen, K.M., Fallahi, E., Elfving, D.C., Drake, S.R.*, Van Ee, G.
- 0346** Physiological and Biochemical Markers of Potato Seed-Tuber Age and Their Relevance to Production, H, Knowles, N.R.
- 0375** Alternative Cropping Systems, H, Miles, C.A., Nchimbi-Msolla, S., Temu, A., Chen, C., Klauer, S.F., Bristow, P.R., Lumpkin, T.A., Myers, J., Hemphill, D., Ferguson, A., Mabagala, R.
- 0377** Production Horticultural and Integrated Management Systems of Grapes, S, Tarara, J.M. *, Spayd, S.E., Smithyman, R.P.
- 0424** Strategies for Ecological Pest Management in Cranberries, H, Patten, K.D., Bristow, P.R., Tanigoshi, L.K., Hebert, V.
- 0427** Evaluation of Apple Cultivars for Hard Cider Production, S, Moulton, G.A.
- 0428** Grapes Yield Components and Quality, S, Keller, M.
- 0452** Rootstock and Interstem Effects on Pome and Stone Fruit Trees, H, NC-140, Barritt, B.H.
- 0480** Concord Grape Production for Optimum Yield with Minimum Cost of Production, H, Keller, M., Spayd, S.E.
- 0519** Environmental Factors and Management Practices Influencing Wine Grape Crop Physiology and Cold Hardiness, H, Keller, M., Spayd, S.E., Stevens, R.G.
- 0639** Weed Control in Cranberries, H, Patten, K.D.
- 0640** Breeding Superior Raspberry Cultivars for the Pacific Northwest, H, Moore, P.P., Bristow, P.R., Finn, C.E., Kempler, C., Martin, R.R.*, Tanigoshi, L.K.
- 0695** The Impacts of Plants on People, H, Lohr, V.I.
- 0783** Growth, Development and Physiology of Small Fruit Crops, H, Cameron, J.S., Chen, C., Klauer, S.F.
- 0797** Postharvest Physiology of Fruits, H, NE-103, Fellman, J.K., Kupferman, E.M.
- 0910** Regulating Plant Fertility by Manipulation of Flavonol Levels in Pollen, H, Taylor, L.P.
- 0937** Effects of Environmental Factors on Reproductive Growth and Development of Apple (*Malus domestica*), H, Andrews, P.K.
- 1639** Orchard and Physiological Investigation on Asian Pear, H, Larsen, L., Drake, S.R.*
- 1984** Production and Environmental Inputs Affecting Yield and Quality of Vegetable Crops, H, Hiller, L.K.
- 3279** Integrated Control of Apple Replant Disease and Impact on Microbial Communities, CG, Elfving, D.C., Mazzola, M.*, Granatstein, D.M.
- 4741** Low-Risk Tactics for Cranberry Insect and Disease Management in the Pacific Northwest, SG, Patten, K.D., Bristow, P.R., Booth, S.R.
- 6046** Potato Development and Improvement in the Northwest, SG, Thornton, R.E.
- Human Development**
- 0295** Assessing Leadership for Building Collaborative Partnership and Institutional Change, H, Jimmerson, R.M.
- 0647** Family and Work Linkages, H, W-167, Price, D.Z., Bailey, S.J., Hendrickson, C.M.
- 0794** Food Demand, Nutrition and Consumption Behavior, H, S-278, Price, D.Z., Mittelhammer, R.C., Armstrong-Shultz, J.
- International Marketing Program for Agricultural Commodities and Trade (IMPACT Center)**
- 0171** International Marketing Program for Agricultural Commodities and Trade, S, Wahl, T.I.

* = USDA; Funding sources: S = State, H = Hatch, AH = Animal Health, MS = McIntire-Stennis; CG = Competitive Grant, SG = Special Grant

- 0971** Management System for Sustaining Productivity and Developing Markets for Walla Walla Sweet Onions, S, Dean, B.B.
- 0972** Development of Nutritional Value-Added Exportable Snack-Foods from Pacific NW, S, Baik, B.K.
- 0974** Economic Effects of the North American Free Trade Agreement on the PNW, S, Wahl, T.I.
- 3801** Enhancing Competitiveness of Agricultural and Forest Products, SG, Wahl, T.I.
- 3901** Enhancing Competitiveness of Agricultural and Forest Products, SG, Wahl, T.I.
- 4901** Enhancing Competitiveness of Agricultural Products, SG, Wahl, T.I.
- 5901** Enhancing Competitiveness of Agricultural Products, SG, Wahl, T.I.
- 1791** Structure, Evolution, and Function of Plant Proteinase Inhibitors, H, Ryan, C.A.
- 3153** Role of Wound-Inducible Polygalacturonase of Plant Leaves, CG, Ryan, C.A.
- 3252** Biochemistry of Oilseeds: New Strategies for Improving Oils, CG, Browse, J.A.
- 3589** mRNA Targeting to Subdomains of the Endoplasmic Reticulum: The Role of RNA Binding Proteins, CG, Okita, T.W.
- 3775** Genetics of Symbiotic Effectiveness in Legumes, CG, Kahn, M.L.
- 3967** Defense Reactions in Conifers: Oleoresinosis, CG, Croteau, R.B.
- 4119** Metabolic Engineering of Plants for Enhanced Productivity, CG, Okita, T.W., Edwards, G.E.
- 4589** Metabolic Engineering of Plants for Enhanced Productivity, CG, Okita, T.W., Edwards, G.E.
- 6204** The Molecular Basis of Heartwood Formation: A New Frontier to Exploit Wood Properties, CG, Lewis, N.G., Davin, L.B.
- 6236** Host Responses to Potyviruses, CG, Carrington, J.C.
- 6773** Bacterial Dicarboxylate Transport in Symbiotic Nitrogen Fixation, CG, Kahn, M.L.
- 7795** Genetic and Molecular Approaches to Modifying the Composition of Seed Oils, CG, Browse, J.A.

Information

- 0800** Publication of Research Bulletins, S, Fedale, S.V.

Institute of Biological Chemistry

- 0119** Regulation of Photosynthetic Processes, H, NC-142, Okita, T.W., Edwards, G.E.
- 0197** Control of Photosynthetic Electron Flow in the Steady State, H, Kramer, D.M.
- 0202** Metabolic Compartmentation During (Heart)Wood and Seed Coat Development, MS, Lewis, N.G.
- 0235** Genetic Analysis of Plant Virus Infection, H, Carrington, J.C.
- 0253** Lipid Biosynthesis in Leaves and Seeds, H, Browse, J.A.
- 0262** Sorting of Proteins to Vacuoles in Plant Cells, H, Rogers, J.C.
- 0268** Biochemistry of Plant Terpenoids, H, Croteau, R.B.
- 0590** mRNA Sorting in Plants, H, Okita, T.W.
- 0773** Nutrient Exchange and Metabolism in the Rhizobium-Legume Symbiosis, H, Kahn, M.L.
- 0967** Diterpene Biosynthesis in Taxol Production and Conifer Defense, MS, Croteau, R.B.

Natural Resource Sciences

- 0113** Effects of Enhanced UV-B Radiation and CO₂ Levels on Ecophysiology of Tree Species, MS, Bassman, J.H.
- 0221** Biological Impacts and Efficacy of Microfloc Alum Injection for Lake Restoration, H, Moore, B.C.
- 0226** Nutritional Ecology of Large Mammals, H, Robbins, C.T.
- 0238** Evaluation of Selected Pacific Northwest Eriogonum Species for Revegetation of Mine Spoils, H, Zamora, B.A.
- 0247** Palouse Prairie Restoration, H, Sayler, R.D., Hardesty, L.H., Lambert, S.M.*

* = USDA; Funding sources: S = State, H = Hatch, AH = Animal Health, MS = McIntire-Stennis; CG = Competitive Grant, SG = Special Grant

- 0291** Grazing Influences on Seral Forest Ecosystem Processes, MS, Hardesty, L.H., Buckhouse, J.C., Kennedy, A.C.*
- 0307** Physiological and Genetic Control of Hybrid Poplar Nutrition, MS, Johnson, J.D.
- 0312** Contribution of an Expanded Special Forest Products Industry to Community and Economic Development, MS, Blatner, K.A.
- 0324** Development of User Software for Natural Resource Instrumentation, Methodology and Analysis, MS, Chapman, R.C.
- 0345** Design of Concepts and Application Protocols for Range Management Science, H, Scarnecchia, D.L.
- 0396** Natural Resource/Forest Based Communities in the New Millennium: Internal Responses to Exogenous Forces, MS, Carroll, M.S.
- 0411** Effects of Irrigation Agriculture and White-Tailed Deer on Cougar Predation of Mule Deer: A Test of the Apparent Competition Hypothesis, H, Wielgus, R.
- 0417** The Effects of Nutrition and Habitat Quality on Declining Wildlife Populations, H, Shipley, L.
- 0982** Natural Resource Based Communities in the Era of Globalization, MS, Carroll, M.S.
- 0252** Diseases of Blueberry and Cranberry: Their Etiology, Epidemiology, and Control, H, Bristow, P.R., Patten, K.D., Martin, R.R.*, Oudemans, P.V.
- 0274** Development and Implementation of Direct-Seed Cereal Based Cropping Systems for the Inland Northwest, H, Cook, R.J.
- 0290** Characterization and Control: Plant Viruses and Virus-Like Agents that Infect Perennial Fruit Crops, H, Eastwell, K.C., Howell, W.E., Crosslin, J.M., Gritsenko, M.
- 0292** Fungal and Viral Diseases of Hop and Their Control, H, Eastwell, K.C., James, D.G., Kenny, S.T., Grove, G.G., Walsh, D.B., Crosslin, J.M.
- 0300** Population Biology of Plant Pathogenic Fungi, H, Peever, T.L.
- 0336** Integrated Disease Control Programs for Economically Important Vegetable Crops in Western Washington, H, Inglis, D.A., Brown, C.R.*, Coyne, C.J.*, Havens, D., Corsini, D., Powelson, M.J., Johnson, D.A., Miles, C.A.
- 0365** Integrated Disease Management of Small-Seeded Vegetable Seed Crops in Washington State, H, duToit, L.J., Ingles, D.I., Pelter, G.Q., Havens, D., Koike, S.T., Crowe, F.
- 0367** Epidemiology and Management of Fungal and Bacterial Diseases of Tree Fruits, H, Xiao, C.L., Grove, G.G.
- 0387** Management of Diseases on Field and Greenhouse-Grown Ornamental Bulb Crops, H, Chastagner, G.A.
- 0388** Management of Diseases on Christmas Trees and the Identification of Christmas Trees with Superior Postharvest Characteristics, H, Chastagner, G.A.
- 0390** Biology and Management of Mealybugs in Washington Wine Grape Vineyards, S, Eastwell, K.C.
- 0409** Eradication, Containment and/or Management of Plum Pox Disease (Sharka), H, NE-1006, Eastwell, K.C.
- 0423** Epidemiology and Management of Powdery Mildew of Wine Grape, S, Grove, G.G.
- 0496** Basal Rot Control During Hot Water Treatment of Daffodil Bulbs, H, Chastagner, G.A.

Plant Growth Facility

- 9954** Growth Chamber Facility, S, Dreesmann, D.

Plant Pathology

- 0185** Genetic Variability in the Cyst and Root-Knot Nematodes, H, W-186, Riga, E.
- 0212** Epidemiology and Control of Powdery Mildew of Grape, S, Grove, G.G., Gubler, W.D., Watson, J.W.
- 0231** The Molecular Genetics of Bean Common Mosaic and Related Potyviruses Infecting Phaseolus Vulgaris L., H, Wyatt, S.D.
- 0248** Controlling Bacterial Pathogens of Grapevines, S, Eastwell, K.C., Sholberg, P., Crosslin, J.M., Gritsenko, M.

- 0565 Fungi of the Pacific Northwest, H, Rogers, J.D.
- 0572 Teleomorph-Anamorph Connections in Lignicolous Pyrenomycetes, MS, Rogers, J.D.
- 0650 Management of the Columbia Root-Knot Nematode on Potato, H, Santo, G.S., Brown, C.R.*
- 0669 Improving Resistance to Eyespot in Winter Wheat, H, Murray, T.D., Jones, S.S.
- 0670 Disease Resistance and Cultural Practices for Control of Cephalosporium Stripe in Wheat, H, Murray, T.D., Jones, S.S.
- 0678 Disease Warning Systems for Potato and Mint, H, Johnson, D.A., Alldredge, J.R.
- 0795 Etiology, Epidemiology, and Control of Fungal Diseases of Tree Fruits, H, Grove, G.G., Mazzola, M.*
- 0823 Control of Cereal Rusts of Wheat and Barley, S, Chen, X.M.
- 0837 Systematics and Biology of Phytopathogenic Fungi with Emphasis on Tilletiales, H, Carris, L.M.
- 0876 Molecular Biology of Plant Pathogenic Bacteria and New Approaches in Disease Control, H, Gross, D.C.
- 0947 Metabolites of Biocontrol Agents that Suppress Root Pathogens of Wheat and Barley, S, Weller, D.M.*, Peever, T.L.
- 1262 Develop and Distribute Deciduous Fruit Tree Clones That are Free of Known Graft-Transmissible Pathogens, H, NRSP-5, Eastwell, K.C., Howell, W.E., Cavalieri, R.P.
- 1767 Mycobiotic, Revisionary, and Monographic Studies in Xylariaceae, H, Rogers, J.D.
- 1844 Regulation of Disease Resistance Genes in Transgenic Potatoes and Other Plants, H, Hadwiger, L.A.
- 5263 Cherry Leafroll Virus Control and Management in Sweet Cherry Orchards, SG, Eastwell, K.C., Howell, W.E.
- 0127 Local Dimensions of the Globalization of Food and Agricultural Marketing Systems, H, Jussaume, R.A.
- 0141 Public Concern for the Environment: International Comparisons, H, Dunlap, R.E.
- 0230 Commodities, Consumers, and Communities: Local Food Systems in a Globalizing Environment, H, NE-185, Jussaume, R.A., Ostrom, M.
- 0280 Green Buildings, Technology Markets and Environmental Sustainability, H, Lutzenhiser, L.A.
- 0403 Systems Analyses of the Relationships of Agriculture and Food Systems to Community Health, H, NC-1001, Jussaume, R.
- 0932 Self-Conceptions and Marital Interaction: Process of Commitment and Estrangement in New Marriages, H, Gecas, V.
- 0942 Improvement of Rural and Agricultural Sample Survey Methods, H, W-183, Dillman, D.A., McCracken, V.A.
- 0981 Social and Economic Change and Diversity in Nonmetro Washington, H, Kirschner, A.K.
- 3230 Enhancing the Viability of Local Agri-Food Systems, CG, Jussaume, R.A., Schotzko, R.T.
- 4179 Understanding, Evaluating, and Improving Direct Marketing Systems for Small Farms, OG, Ostrom, M., Holland, D.W., Foltz, J.C., Lev, L.C., DePhelps, C.R., Zenz, L.K.
- Statistics**
- 0254 Analysis of Resource Selection Using Generalized Linear Mixed Models, H, Alldredge, J.R.
- 0340 Interactive Computer Programs for Statistics Education, H, Evans, M.A.
- Veterinary Medicine**
- 0136 Control of Animal Parasites in Sustainable Agricultural Systems, H, W-102, Jasmer, D.P.
- 0261 Enteric Diseases of Swine and Cattle: Prevention, Control and Food Safety, H, NC-62, Besser, T.E., Gay, C.C., Hancock, D.D., Gay, J.M.
- Rural Sociology**

* = USDA; Funding sources: S = State, H = Hatch, AH = Animal Health, MS = McIntire-Stennis; CG = Competitive Grant, SG = Special Grant

0858 Investigation of Food Animal Disease Problems in the State of Washington, H, Gay, C.C., Fox, L.K., Hancock, D.D., Gay, J.M., Cobbold, R.

Wood Materials and Engineering Lab

0284 Nondestructive Evaluation of Wood-Based Composites, MS, Bender, D.A., Pollock, D.G., Wolcott, M.P.

Research and Extension Centers:

Food and Environmental Quality Laboratory (FEQL)

Associated with the department of Entomology:

0349 Managing Agrochemical Behavior Under Drip Irrigation Systems, H, Felsot, A.S., James, D.G.
0372 Mechanisms and Mitigation of Agrochemical Impacts on Human and Environmental Health, H, W-45, Felsot, A.S.
0470 Reducing the Potential for Environmental Contamination by Pesticides and Other Organic Chemicals, H, W-082, Felsot, A.S., Gamedinger, A.P.
8131 Managing Drip Irrigation to Reduce Chemical Movement in Soil, CG, Felsot, A.S.
0335 Pesticide Information Coordination, S, Daniels, C.H.
3335 Commodity and Pest Management Profiles in Washington State, SG, Daniels, C.H., Foss, C.R.

Irrigated Agriculture Research and Extension Center (Prosser)

Associated with the Department of Crop and Soil Sciences:

0110 Alfalfa Growth and Quality: Environmental and Plant Factors, H, Stevens, R.G., Hoffman, T.R., Fransen, S.C.
0239 Vegetable Crops Research for the Export Market, H, Williams, M.M., Hiller, L.K., Corsini, D.L.*, Hyde, G.M.

0257 Developing Site Specific Approaches for Crop Nutrient Management in Irrigated Ag Systems, H, Davenport, J.R., Stevens, R.G., Peryea, F.J.

0281 Alternate Crops and Cropping Systems for Irrigated Central Washington, H, Hang, A.N., Lumpkin, T.A., Schillinger, W.F.
0282 Germplasm and Cultivar Development of Hop, H, Kenny, S.T., Grove, G.G., James, D.G.

0309 Spectral Reflectance and Spatial Analysis of Plant Stress Indicators in Vitis, H, Davenport, J.R., Perry, E.

0350 Weed Control Research in Irrigated Vegetable and Specialty Crops, S, Boydston, R.A. *, Parker, R.

0400 Biology, Ecology, and Integrated Management of Weeds in Potato Rotation Cropping Systems, H, Williams, M.M., Boydston, R.A. *, Pierce, F.J., Davenport, J.R., Walsh, D.B.

0406 Characterizing Weed Population Variability for Improve Weed Management Decision Support Systems to Reduced Herbicide Use, H, NC-202, Williams, M.M.

0689 Environmental Improvement of Western Washington Agricultural Lands Utilizing Forage Grasses and Silage Corn, H, Fransen, S.C., Cogger, C.G.

0805 Weed Research in Irrigated Agronomic, Horticultural, and Specialty Crops in WA, S, Parker, R.

Associated with the Department of Entomology:

0122 A National Agricultural Program to Clear Pest Control Agents for Minor Uses, H, NRSP-4, Walsh, D.B.

0206 Development of Crop Protection Chemicals, S, Walsh, D.B., Eastwell, K.C., James, D.G.

0315 Biology and Integrated Management of Insect and Mite Pests of Wine Grapes, S, James, D.G., Walsh, D.B.

0337 Biological Control of Aphid Pests, H, Pike, K.S., Miller, T.D., Tanigoshi, L.K., Thomas, P.E.*, Turner, W.J., Stary, P.

0339 Development of Integrated Arthropod Management Systems for

- 0381 Irrigated Crops in Central Washington, S, James, D.G., Kenny, S.T., Parker, R., Felsot, A.S. Development of Integrated Management Systems for High Value Specialty Crops in Central Washington, H, James, D.G., Kenny, S.T., Eastwell, K.C., Walsh, D.B., Snyder, W.E., Barbour, J.
- 0391 Biology and Management of Mealybugs in Washington Wine Grape Vineyards, S, James, D.G.
- 0392 Biology and Management of Mealybugs in Washington Wine Grape Vineyards, S, Walsh, D.B.
- 0742 Integrated Arthropod Pest and Pollinator Management, H, Mayer, D.F.
- Associated with the Department of Food Science and Human Nutrition:*
- 0205 Factors Affecting the Quality of Washington Wine and Wine Grapes (*Vitis vinifera*), S, Spayd, S.E., Edwards, C.G., Folwell, R.J., Tarara, J.M. *, Keller, M., Fellman, J.K.
- 0537 Factors Affecting the Quality of Washington Wine and Wine Grapes (*Vitis vinifera*), H, Spayd, S.E., Edwards, C.G., Folwell, R.J., Fellman, J.K., Keller, M., Tarara, J.M. *
- Associated with the Department of Horticulture and Landscape Architecture:*
- 0168 Gene Transfer for Potato Variety Development, S, Brown, C.R. *, Mojtahedi, H., Thomas, P.E. *, Corsini, D.L. *, Pavek, J.J. *, Slack, S.A., Smith, O.P. *, Williamson, V., Wrolstad, R.
- 0210 Wine Grape Viticultural Research, S, Keller, M., Spayd, S.E.
- 0377 Production Horticultural and Integrated Management Systems of Grapes, S, Tarara, J.M. *, Spayd, S.E., Smithyman, R.P.
- 0428 Grapes Yield Components and Quality, S, Keller, M.
- 0480 Concord Grape Production for Optimum Yield with Minimum Cost of Production, H, Keller, M., Spayd, S.E.
- 0519 Environmental Factors and Management Practices Influencing Wine Grape Crop Physiology and Cold Hardiness, H, Keller, M., Spayd, S.E., Stevens, R.G.
- Associated with the Department of Plant Pathology:*
- 0185 Genetic Variability in the Cyst and Root-Knot Nematodes, H, W-186, Riga, E.
- 0212 Epidemiology and Control of Powdery Mildew of Grape, S, Grove, G.G., Gubler, W.D., Watson, J.W.
- 0248 Controlling Bacterial Pathogens of Grapevines, S, Eastwell, K.C., Sholberg, P., Crosslin, J.M., Gritsenko, M.
- 0290 Characterization and Control: Plant Viruses and Virus-Like Agents that Infect Perennial Fruit Crops, H, Eastwell, K.C., Howell, W.E., Crosslin, J.M., Gritsenko, M.
- 0292 Fungal and Viral Diseases of Hop and Their Control, H, Eastwell, K.C., James, D.G., Kenny, S.T., Grove, G.G., Walsh, D.B., Crosslin, J.M.
- 0390 Biology and Management of Mealybugs in Washington Wine Grape Vineyards, S, Eastwell, K.C.
- 0409 Eradication, Containment and/or Management of Plum Pox Disease (Sharka), H, NE-1006, Eastwell, K.C.
- 0423 Epidemiology and Management of Powdery Mildew of Wine Grape, S, Grove, G.G.
- 0650 Management of the Columbia Root-Knot Nematode on Potato, H, Santo, G.S., Brown, C.R. *
- 0795 Etiology, Epidemiology, and Control of Fungal Diseases of Tree Fruits, H, Grove, G.G., Mazzola, M. *
- 1262 Develop and Distribute Deciduous Fruit Tree Clones That are Free of Known Graft-Transmissible Pathogens, H, NRSP-5, Eastwell, K.C., Howell, W.E., Cavalieri, R.P.
- 5263 Cherry Leafroll Virus Control and Management in Sweet Cherry Orchards, SG, Eastwell, K.C., Howell, W.E.

**Northwestern Research and Extension
Unit (Mt. Vernon)**

*Associated with the Department of Crop and Soil
Sciences:*

0297 Weed Interference in and Herbicide
Effects on Western Washington
Crops, H, Miller, T.W.

*Associated with the Department of Horticulture
and Landscape Architecture:*

0217 Cultural and Cultivar Studies for Fruit
Production in a Maritime Climate, H,
Moulton, G.A.

0314 Wine Grape Research in a Cool
Maritime Climate, S, Moulton, G.A.

0427 Evaluation of Apple Cultivars for Hard
Cider Production, S, Moulton, G.A.

*Associated with the Department of Plant
Pathology:*

0336 Integrated Disease Control Programs
for Economically Important Vegetable
Crops in Western Washington, H,
Inglis, D.A., Brown, C.R.*, Coyne,
C.J.*, Havens, D., Corsini, D.,
Powelson, M.J., Johnson, D.A., Miles,
C.A.

0365 Integrated Disease Management of
Small-Seeded Vegetable Seed Crops
in Washington State, H, duToit, L.J.,
Ingles, D.I., Pelter, G.Q., Havens, D.,
Koike, S.T., Crowe, F.

**Southwestern Research and Extension Unit
(Vancouver)**

Associated with the Department of Entomology:

0270 Biology and Control of Arthropod
Pests of Berry Crops, H, Tanigoshi,
L.K., Moore, P.P., Antonelli, A.L.

*Associated with the Department of Horticulture
and Landscape Architecture:*

0375 Alternative Cropping Systems, H,
Miles, C.A., Nchimbi-Msolla, S.,
Temu, A., Chen, C., Klauer, S.F.,
Bristow, P.R., Lumpkin, T.A., Myers,

J., Hemphill, D., Ferguson, A.,
Mabagala, R.

0783 Growth, Development and
Physiology of Small Fruit Crops, H,
Cameron, J.S., Chen, C., Klauer, S.F.

**Tree Fruit Research and Extension Center
(Wenatchee)**

*Associated with the Department of Crop and Soil
Sciences:*

0747 Nutrient Management in Washington
Tree Fruit Orchards, H, Peryea, F.J.

0954 Biogeochemistry and Management of
Salts and Potentially Toxic Trace
Elements in Arid-Zone Soils,
Sediments, and Waters, H, W-184,
Peryea, F.J.

Associated with the Department of Entomology:

0225 Management of Arthropod Pests of
Pear, H, Dunley, J.E., Brunner, J.F.,
Beers, E.H.

0366 Developing an IPM Infrastructure for
Apple Orchards Under Mating
Disruption, H, Jones, V.P., Brunner,
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0260 Developing New Apple Cultivars for
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- 0298** Bioregulation of Vegetative Growth and Fruit Development in Apple and Pear, H, Elfving, D.C., Curry, E.*, Drake, S.R.*, Faubion, D., Granatstein, D.M., Mazzola, M.*, McFerson, J., Smith, T.J.*, Willemsen, K.M.
- 0326** Sunburn of Apple (*Malus domestica*), H, Schrader, L.E., Edwards, G.E., Ku, K.S.
- 0338** The Effects of Exogenous Bioregulators on Regular Cropping of Apples, H, Willemsen, K.M., Fallahi, E., Elfving, D.C., Drake, S.R.*, Van Ee, G.
- 0452** Rootstock and Interstem Effects on Pome and Stone Fruit Trees, H, NC-140, Barritt, B.H.
- 3279** Integrated Control of Apple Replant Disease and Impact on Microbial Communities, CG, Elfving, D.C., Mazzola, M.*, Granatstein, D.M.

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- 0367** Epidemiology and Management of Fungal and Bacterial Diseases of Tree Fruits, H, Xiao, C.L., Grove, G.G.

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- 0177** Economic Dimensions of the Washington Horticultural Landscape and Maintenance Industry, S, Carkner, R.W., Moore, P.P.

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- 0154** Environmental and Economic Impacts of Nutrient Management on Dairy Forage Systems, H, NE-132, Harrison, J.H.

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- 0256** Soil Conditions, Crop Productivity and Ground Water Quality in Some Western Washington Soils, H, Kuo, S., Harsh, J.B., Bezdicsek, D.F., Miltner, E.D.
- 0308** Characteristics of Calcareous Sands Used for Turfgrass Root Zones, H, Miltner, E.D., Stahnke, G.K., Johnston, W.J.
- 0690** Chemistry and Bioavailability of Waste Constituents in Soils, H, W-170, Kuo, S.
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- 6724** The Benefits and Costs of Using Organic Waste Streams in Small Scale Agriculture, SG, Cogger, C.G., Ostrom, M., Bary, A.I., Carkner, R.W., Bristow, P.R., Miles, C.A., Stone, A.G., Sullivan, D.M., Hemphill, D.

Associated with the Department of Entomology:

- 0327** Ecological and Toxicological Approaches to Estimate Effects of Pesticides to Nontarget Organisms, H, Stark, J.D., Banks, J.E., Wennergren, U.

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- 0038** Breeding Superior Strawberry Cultivars for the Pacific Northwest, H, Moore, P.P., Bristow, P.R., Klauer, S.K., Kempler, C., Finn, C.E., Tanigoshi, L.K.
- 0215** Freeze Damage and Protection of Horticultural Species, H, W-130, Keller, M.
- 0258** Effect of Cultural Practices on Plant Root Health and Establishment of Landscape Plants, H, Hummel, R.L., Carkner, R.W.
- 0285** Environmental/Cultural Factors on Water Stress Resistance/Growth/Cold Hardiness of Landscape Plants, H, Hummel, R.L.
- 0424** Strategies for Ecological Pest Management in Cranberries, H, Patten, K.D., Bristow, P.R., Tanigoshi, L.K., Hebert, V.

- 0639** Weed Control in Cranberries, H, Patten, K.D.
- 0640** Breeding Superior Raspberry Cultivars for the Pacific Northwest, H, Moore, P.P., Bristow, P.R., Finn, C.E., Kempler, C., Martin, R.R.*, Tanigoshi, L.K.
- 4741** Low-Risk Tactics for Cranberry Insect and Disease Management in the Pacific Northwest, SG, Patten, K.D., Bristow, P.R., Booth, S.R.
- Associated with the Department of Natural Resource Sciences:*
- 0307** Physiological and Genetic Control of Hybrid Poplar Nutrition, MS, Johnson, J.D.
- Associated with the Department of Plant Pathology:*
- 0252** Diseases of Blueberry and Cranberry: Their Etiology, Epidemiology, and
- Control, H, Bristow, P.R., Patten, K.D., Martin, R.R.*, Oudemans, P.V.
- 0387** Management of Diseases on Field and Greenhouse-Grown Ornamental Bulb Crops, H, Chastagner, G.A.
- 0388** Management of Diseases on Christmas Trees and the Identification of Christmas Trees with Superior Postharvest Characteristics, H, Chastagner, G.A.
- 0496** Basal Rot Control During Hot Water Treatment of Daffodil Bulbs, H, Chastagner, G.A.
- Associated with the Department of Rural Sociology:*
- 4179** Understanding, Evaluating, and Improving Direct Marketing Systems for Small Farms, OG, Ostrom, M., Holland, D.W., Foltz, J.C., Lev, L.C., DePhelps, C.R., Zenz, L.K.