



## Publications of Agricultural Research Center Scientists By Department and Project Agricultural Research Center

### Agricultural Economics

#### Project:

**0160** Agricultural Water Management Technologies, Institutions and Policies Affecting Economic Viability and Environmental Quality, W-190 Huffaker, R.G.

Gopalakrishnan, C., and R. Huffaker. 2000. Guest Editorial: Water and Agriculture in the American West. *International Journal of Water Resource Development* 16:173-176.

Huffaker, R., M. Frasier, and J. Hamilton. 2000. The Intrastate-Trade-Restriction Defense in Commerce-clause Challenges of State-imposed Restrictions on Water Exports to Neighboring States. *International Journal of Water Resources Development* 16:275-279.

Huffaker, R., N. Whittlesey, and J. Hamilton. 2000. The Role of Prior Appropriation in Allocating Water Resources in the 21st Century. *International Journal of Water Resources Development* 16:265-275.

**0269** Dryland Grain Growers' Income Risk Management and Its Environmental Impacts, Wang, H.H.

Wang, H.H. Zone Based Group Yield Insurance. 2000. *Journal of Agriculture and Research Economics* 25:411-431.

**0275** Agricultural Production, Processing, Trade, and Environmental Quality, Shumway, C.R., Duval, Y.

Duval, Y., R. Pacudan, and D. Norman. 2000. A Holistic Approach to Alternative Energy: Technology Evaluation in Thailand. *International Energy Journal* 22:15-27.

Davis, G.C., N. Lin, and C.R. Shumway. 2000. Aggregation without Separability: Tests of U.S. and Mexican Agricultural Production Data. *American Journal of Agricultural Economics* 82:214-230.

Lim, H., C.R. Shumway, and H.A. Love. 2000. Research Contributions from the Soybean Checkoff Program. *Journal of Agricultural and Resource Economics* 25:128-146.

**1** Raper, K.C., H.A. Love, and C.R. Shumway. 2000. Determining Market Power Exertion between Buyers and Sellers. *Journal of Applied Econometrics* 15:225-252.

Williams, S.P., and C.R. Shumway. 2000. Trade Liberalization and Agricultural Chemical Use: U.S. and Mexico. *American Journal of Agricultural Economics* 82:183-200.

**0299** Fisheries Management and Marketing of Marine and Aquaculture Seafood, Matulich, S.C.

Kruse, G., L.C. Byrne, S.C. Matulich, and J. Zheng. 2000. Analysis of Minimum Size Limit for the Red King Crab Fishery in Bristol Bay, Alaska. *North American Journal of Fisheries Management* 20:307-319.

Matulich, S.C., M. Sever, and F. Inaba. 2000. Cooperative Bargaining to Internalize Open Access Externalities: Implications of the American Fisheries Act. 13 pp Nota di Lorvo 75 Fondazione Eni Enrico Mattei.

**0301** Private Strategies, Public Policies, and Food System Performance, NE-165, McCluskey, J.J.

Loureiro, M.L., and J.J. McCluskey. 2000. Assessing Consumer Response to Protected Geographical Identification Labeling. *Agribusiness* 16:309-320.

McCluskey, J.J. 2000. This Product May Contain GMOs: Labeling Policy for the Genetically Modified Food Market. *CHOICES* (second quarter):39-43.

McCluskey, J.J. 2000. A Game Theoretic Approach to Organic Foods: An Analysis of Asymmetric Information and Policy. *Agricultural and Resource Economics Review* 29:1-9.

**0303** Economic Aspects of Growing Vinifera Wine Grapes on Rootstocks and Marketing Washington Wine, Folwell, R.J.

Folwell, R., B. Gebers, and R. Wample. 2000. Wine Grape Production and Marketing Risks in Washington. *Small Fruits Review* 1:3-17.

**0347** Assessing the Economic Viability of Soil Conserving Farming Systems in Eastern Washington, Young, D.L., Huggins, D.\*, Kennedy, A.C.\*, Saxton, K.\*, Young, F.L.\*, Roe, D., Stockle, C.O., Wu, Q.J., Bezdicsek, D.F., Frazier, B.E., Veseth, R., Pan, W.L., Papendick, R.I.\*, Schillinger, W.F.



## Publications of Agricultural Research Center Scientists By Department and Project Agricultural Research Center

Wang, H.H., D.L. Young, and O.M. Camara. 2000. The Role of Environmental Education in Predicting Adoption of Wind Erosion Control Practices. *Journal of Agricultural and Resource Economics* 25:547-558.

**0806** Fruit and Vegetable Supply-Chain Management, Innovations, and Competitiveness, S-222, Schotzko, R.T.

Schotzko, R.T., and R. Hinson. 2000. Supply-chain Management in Perishables: A Produce Application. *Journal of Food Distribution Research* 31:17-25.

### Animal Science

#### Project:

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

Elias Calles, J.A., C.T. Gaskins, J.R. Busboom, S.K. Duckett, J.D. Cronrath, and J.J. Reeves. 2000. Sire Variation in Fatty Acid Composition of Crossbred Wagyu Steers and Heifers. *Meat Science* 56:23-29.

Elias Calles, J.A., C.T. Gaskins, J.R. Busboom, S.K. Duckett, J.D. Cronrath, J.J. Reeves, and R.W. Wright, Jr. 2000. Differences Among Wagyu Sires for USDA Carcass Traits and Palatability Attributes of Cooked Ribeye Steaks. *Journal of Animal Science* 78:1710-1715.

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

Busboom, J.R., M.L. Nelson, L.E. Jeremiah, S.K. Duckett, J.D. Cronrath, L. Falen, and P. Kuber. 2000. Effects of Graded Levels of Potato By-Products in Barley- and Corn-based Beef Feedlot Diets: II. Palatability. *Journal of Animal Science* 78:1837-1844.

Elias-Calles, J.A., C.T. Gaskins, J.R. Busboom, S.K. Duckett, J. D. Cronrath, and J.J. Reeves. 2000. Sire Variation in Fatty Acid Composition of Crossbred Wagyu Steers and Heifers. *Meat Science* 56:23-29.

Elias-Calles, J.A., C.T. Gaskins, J.R. Busboom, S.K. Duckett, J.D. Cronrath, J.J. Reeves, and R.W. Wright. 2000. Differences Among Wagyu Sires for USDA Carcass Traits and Palatability Attributes of Cooked Ribeye Steaks. *Journal Animal Science* 78:1710-1715.

Nelson, M.L., J.R. Busboom, J.D. Cronrath, L. Falen, and A. Blankenbaker. 2000. Effects of Graded Levels of Potato By-Products in Barley- and Corn-Based Beef Feedlot Diets: I. Feedlot Performance, Carcass Characteristics, Meat Composition and Appearance. *Journal of Animal Science* 78:1829-1836.

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

Burton, N.M., K.M. Byrne, J.L. Vierck, and M.V. Dodson. 2000. Methods for Satellite Cell Culture under a Variety of Conditions. *Methods in Cell Science* 22:51-61.

Burton, N.M., L. Shipley, K. Byrne, J. Vierck, and M.V. Dodson. 2000. Isolation and Culture Characterization of Wapiti (*Cervus elaphus*) Satellite Cells. *Canadian Journal of Animal Science* 80:303-309.

Byrne, K.M., H.W. Kim, B.P. Chew, G.A. Reinhart, and M.G. Hayek. 2000. A Standardized Gating Technique for the Generation of Flow Cytometry Data for Normal Canine and Normal Feline Blood Lymphocytes. *Veterinary Immunology and Immunopathology* 73:167-182.

Byrne, K.M., J. Vierck, and M.V. Dodson. 2000. *In Vitro* Model of Equine Muscle Regeneration. *Equine Veterinary Journal* 32:401-405.

McGuire, T.C., S.T. Leib, S.M. Loning, W. Zhang, K.M. Byrne, and R.H. Mealey. 2000. Equine Infectious Anaemia Virus Proteins Most Frequently Recognized by Cytotoxic T Lymphocytes from Infected Horses. *Journal of General Virology* 81:2735-2739.

Stewart, N.T., K.M. Byrne, H.L. Hosick, J.L. Vierck, and M.V. Dodson. 2000. Traditional and Emerging Methods for Analyzing Cell Activity in Cell Culture. *Methods in Cell Science* 22:67-78.



## Publications of Agricultural Research Center Scientists By Department and Project Agricultural Research Center

Watanabe, K., S. Blank, M.V. Dodson, and K.M. Byrne. 2000. Immunobiology of Equine Muscle Healing. In: *The Elite Show Jumper*. Editor: Arno Linder; Lensing Druck Publications Dortmund, Germany, pp 177-180.

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

Ristow, S.S., S.E. LaPatra, R. Dixon, C.R. Pedrow, W.D. Shewmaker, J.W. Park, and G.H. Thorgaard. 2000. Responses of Cloned Rainbow Trout to an Attenuated Strain of Infectious Hematopoietic Necrosis Virus. *Diseases of Aquatic Organisms* 42:163-172.

Zhang, H., B. Robison, G. Thorgaard, and S. Ristow. 2000. Cloning, Mapping and Genomic Organization of a Fish C-Type Lectin Gene From Homozygous Clones of Rainbow Trout (*Oncorhynchus mykiss*). *Biochimica et Biophysica Acta*, 1494:14-22.

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

Busboom, J.R., M.L. Nelson, L.E. Jeremiah, S.K. Duckett, J.D. Cronrath, L. Falen, and P.S. Kuber. 2000. Effects of Graded Levels of Potato By-Products in Barley- and Corn-Based Beef Feedlot Diets. II: Palatability. *Journal of Animal Science* 78:1837-1844.

Nelson, M.L., J.R. Busboom, J.D. Cronrath, L. Falen, and A. Blankenbaker. 2000. Effects of Graded Levels of Potato By-Products in Barley- and Corn-Based Beef Feedlot Diets. I. Feedlot Performance, Carcass Traits, Meat Composition, and Appearance. *Journal of Animal Science* 78:1829-1836.

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

Eschenlauer S., N. McCain, N. Orodera, J. Wallace, R. Calza, and J. Newbold. 2000. Properties of a Lysozyme from the Rumen Ciliate Protozoan *Entodinium Caudatum*. *Reproduction Nutrition Development* 40:196-197.

McEwan N., D. Gatherer, F. McIntosh, R. Calza, J. Wallace, and J. Newbold. 2000. An Unusual Codon

Usage Pattern in the Ciliate Family Ophryoscolecidae and Its Implications for Determining the Source of Cloned DNA. *Anaerobe* 6:21-28.

McEwan N., S. Eschenlauer, R. Calza, J. Wallace, and J. Newbold. 2000. The 3 Prime End Untranslated Region of Messages in the Rumen Protozoan *Entodinium caudatum*. *Protist* 151:139-146.

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

Baskin, C.R., K.W. Hinchcliff, R.A. DiSilvestro, G.A. Reinhart, M.G. Hayek, B. P. Chew, J. R. Burr, and R. A. Swensen. 2000. Effects of Dietary Antioxidant Supplementation on Oxidative Damage and Resistance to Oxidative Damage During Prolonged Exercise in Sled Dogs. *American Journal of Veterinary Research* 61:886-891.

Byrne, K.M., H.W. Kim, B.P. Chew, G.A. Reinhart, and M.A. Hayek. 2000. A Standardized Gating Technique for the Generation of Flow Cytometry Data for Normal Canine and Normal Feline Blood Lymphocytes. *Veterinary Immunology Immunopathology* 73:167-182.

Chew, B.P., B.C. Weng, H.W. Kim, T.S. Wong, J.S. Park, and A.J. Lepine. 2000.  $\alpha$ -Carotene Uptake and Effects on Steroidogenesis During the Estrous Cycle in Cats. *American Journal of Veterinary Research* 62:1063-1067.

Chew, B.P., J.S. Park, B.C. Weng, T.S. Wong, M.G. Hayek, and G.A. Reinhart. 2000. Dietary  $\beta$ -Carotene is Taken Up by Blood Plasma and Leukocytes in Dogs. *Journal of Nutrition* 130:1788-1791.  
Chew, B.P., J.S. Park, B.C. Weng, T.S. Wong, M.G. Hayek, and G.A. Reinhart. 2000. The Domestic Cat as an Animal Model for Studying Dietary Uptake of  $\alpha$ -Carotene by Blood Plasma and Leukocytes. *Journal of Nutrition* 130:2322-2325.

Chew, B.P., J.S. Park, T.S. Wong, H.W. Kim, B.C. Weng, K.M. Byrne, M.G. Hayek and G.A. Reinhart. 2000. Dietary  $\alpha$ -Carotene Stimulates Cell-Mediated and Humoral Immune Response in Dogs. *Journal of Nutrition* 130:1910-1913.

Kim, H.W., B.P. Chew, T.S. Wong, J.S. Park, B.C. Weng, K.M. Byrne, M.G. Hayek, and G.A. Reinhart. 2000. Modulation of Humoral and Cell-Mediated



## Publications of Agricultural Research Center Scientists By Department and Project Agricultural Research Center

Immune Responses by Dietary Lutein in Cats. *Veterinary Immunology Immunopathology* 73:331-341.

Kim, H.W., B.P. Chew, T.S. Wong, J.S. Park, B.C. Weng, K.M. Byrne, M.G. Hayek, and G.A. Reinhart. 2000. Dietary Lutein Stimulates Immune Response in the Canine. *Veterinary Immunology Immunopathology* 74:315-327.

Weng, B.C., B.P. Chew, T.S. Wong, J.S. Park, H.W. Kim, and A.J. Lepine. 2000.  $\beta$ -Carotene Uptake and Changes in Ovarian Steroids and Uterine Proteins During the Estrous Cycle in the Canine. *Journal of Animal Science* 78:1284-1290.

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

Busboom, J.R., M.L. Nelson, L.E. Jeremiah, S.K. Duckett, J.D. Cronrath, L. Falen, and P. Kuber. 2000. Effects of Graded Levels of Potato By-Products in Barley- and Corn-Based Beef Feedlot Diets: II. Palatability. *Journal of Animal Science* 78:1837-1844.

Elias-Calles, J.A., C.T. Gaskins, J.R. Busboom, S.K. Duckett, J.D. Cronrath, and J.J. Reeves. 2000. Sire Variation in Fatty Acid Composition of Crossbred Wagyu Steers and Heifers. *Meat Science* 56:23-29.

Elias-Calles, J.A., C.T. Gaskins, J.R. Busboom, S.K. Duckett, J.D. Cronrath, J.J. Reeves, and R.W. Wright. 2000. Differences Among Wagyu Sires for USDA Carcass Traits and Palatability Attributes of Cooked Ribeye Steaks. *Journal of Animal Science* 78:1710-1715.

Nelson, M.L., J.R. Busboom, J.D. Cronrath, L. Falen, and A. Blankenbaker. 2000. Effects of Graded Levels of Potato By-Products in Barley- and Corn-Based Beef Feedlot Diets: I. Feedlot Performance, Carcass Characteristics, Meat Composition and Appearance. *Journal of Animal Science* 78:1829-1836.

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

Mir, P.S., J.L. Vierck, Z. Mir, and M.V. Dodson. 2000. Quantification of Lipid in Cultured 3T3-L1 Adipocytes. *Animal Science* 71:521-526.

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

McNamara, J.P., and R.L. Baldwin. 2000. Estimation of Parameters Describing Lipid Metabolism in Lactation: Challenge of Existing Knowledge Described in a Model of Metabolism. *Journal of Dairy Science* 83:128-143.

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

Burton, N.M., K.M. Byrne, J.L. Vierck, and M.V. Dodson. 2000. Methods For Animal Satellite Cell Culture Under a Variety of Conditions. *Methods in Cell Science* 22:51-61.

Burton, N.M., L. Shipley, K. Byrne, J.L. Vierck, and M.V. Dodson. 2000. Isolation and Culture of Wapiti (*Cervidae elaphus*) Satellite Cells. *Canadian Journal of Animal Science* 80:303-309.

Dodson, M.V. 2000. Basic Cell Culture Techniques. *Methods in Cell Science* 22:27-81.

Dodson, M.V. 2000. Are We Making Progress in Defining the Role and Regulation of Myogenic Satellite Cells? *Basic and Applied Myology* 10:201-202.

Dodson, M.V., and W.I. Schaeffer. 2000. Generation of Useful Cell-Culture Data. *Methods in Cell Science* 22:27-28.

Dodson, M.V., A. Zimmerman, and K. Byrne. 2000. Establishment of an International Research Team for the Study of Myogenic Satellite Cells Derived From Fish. *Cell Biology International* 24:849-850.

Reedy, S.E., D. Powell, B. Williams, M.V. Dodson and B.P. Fitzgerald. 2000. Thoughts on the Source of Tissue on Subsequent Cell Culture Success. *Methods in Cell Science* 22:29-32.

Stewart, N.Y., K.M. Byrne, J.L. Vierck, H. Hosick, and M.V. Dodson. 2000. Traditional and Emerging Methods for Analyzing Cell Activity in Cell Culture. *Methods in Cell Science* 22:67-78.

Vierck, J.L., and M.V. Dodson. 2000. Interpretation of Cell Culture Phenomena. *Methods in Cell Science* 22:79-81.



## Publications of Agricultural Research Center Scientists By Department and Project Agricultural Research Center

Vierck, J.L., B.A. O'Reilly, K. Hossner, J. Antonio, K. Byrne, L. Bucci, and M.V. Dodson. 2000. Satellite Cell Regulation Following Myotrauma Caused by Resistance Exercise. *Cell Biology International* 24:263-272.

Vierck, J.L., K.M. Byrne, P. Mir, and M.V. Dodson. 2000. Ten Commandments for Preventing Contamination of Primary Cell Cultures. *Methods in Cell Science* 22:33-41.

Zimmerman, A.M., J.L. Vierck, B.A. O'Reilly, and M.V. Dodson. 2000. Formulation of a Defined Medium to Maintain Cell Health and Viability *In Vitro*. *Methods in Cell Science* 22:43-49.

**0928** Role of Oxytocin in Control of the Estrous Cycle of Swine, Wright, R.W.

Sample, G.L., S.L. Kubotsu, K.G. Carnahan, and M.A. Miranda. 2000. Interestrous Interval of Cyclic Gilts Is Decreased by Systemic but not Intra-Uterine Administration of Exogenous Oxytocin. *Journal of Animal Science* 78:2393-2398.

**0957** Reproductive Performance in Domestic Ruminants, W-112, Reeves, J.J.

Quesnell, M.M., Y. Zhang, D.M. deAvila, K.P. Bertrand, and J.J. Reeves. 2000. Immunization of Male Mice With LHRH Fusion Proteins Reduces Testicular and Accessory Sex Gland Function. *Biology of Reproduction* 63:347-353.

Sosa, J.M., Y. Zhang, D.M. deAvila, K.P. Bertrand, and J.J. Reeves. 2000. Recombinant LHRH Fusion Proteins Suppress Estrus in Heifers. *Journal Animal Science* 78:1310-1312.

Yavas, Y., D.M. deAvila, and J.J. Reeves. 2000. Effectiveness of Norgestomet Implants in Suppressing Ovulation and Estrus in Heifers Varies with Stage of Estrous Cycle When Implanted. *Canadian Journal of Animal Science* 80:728-732.

### Biological Systems Engineering

#### Project:

**0220** A Systems Approach for Farm-Wide Waste Management, Chen, S.

Chen, S., and G. Wang. 2000. Modeling BOD Removal in Constructed Wetlands with Mixing Cell Method Closure. *Journal of Environmental Engineering* 126:784-785

**0223** Application of Microwave Heating in Food and Agriculture Processes, Tang, J., Cavalieri, R.P., Pitts, M.J., Swanson, B.G.

Feng, H., and J. Tang. 2000. Determination of Moisture Diffusivity of Red Delicious Apples by Thermogravimetric Analysis. *Drying Technology-Theme Issue: Material Properties and Techniques for Their Measurement and Estimation. Drying Technology* 18:1183-1199.

Ikediala, J.N., J. Tang, S.R. Drake, and L.G. Neven. 2000. Dielectric Properties of Apples and Codling Moths in Relation to Microwave and RF Heating. *Transactions of the ASAE* 43:1175-1184.

Ikediala, J.N., J. Tang, and T. Wig. 2000. Design and Analysis of a Heating Block System for Studying Thermal Effect on Insect Pests. *Transactions of the ASAE* 43:351-358.

Lau, M.H., J. Tang, and B.G. Swanson. 2000. Kinetics of Textural and Color Changes in Asparagus during Thermal Processing. *Food Engineering* 45:231-236.

Tang J., J.N. Ikediala, S. Wang, J. Hansen, and R.P. Cavalieri. 2000. High-Temperature-Short-Time Thermal Quarantine Methods. *Postharvest Biology and Technology* 21:129-145.

**0271** Preservation of Foods by Oscillating Magnetic Fields, Barbosa-Cánovas, G.V., Swanson, B.G.

Barbosa-Cánovas, G.V., J.J. Fernández-Molina, and B.G. Swanson. 2000. Pasteurización de Alimentos Por Métodos No Térmicos. *CTC, N°6:22-25.*

Barbosa-Cánovas, G.V. 2000. Tecnologías Emergentes. *La Alimentación Latinoamericana. N°234:50-52.*

Barbosa-Cánovas, G.V., J.J. Fernández-Molina, and B.G. Swanson. 2000. Pasteurización de Alimentos Por Métodos No Térmicos. *La Alimentación Latinoamericana N°235:56-59.*



## Publications of Agricultural Research Center Scientists By Department and Project Agricultural Research Center

Barbosa-Cánovas, G.V., D.W. Schaffner, M.D. Pierson, and Q.H. Zhang. 2000. Oscillating Magnetic Fields. *Journal of Food Science Supplement: Kinetics of Microbial Inactivation For Alternative Food Processing Technologies* 86-89.

**0467** Improvement of Thermal and Alternative Processes for Food, NC 136, Barbosa Cánovas, G.V., Powers, J.R., Cavalieri, R.P., Swanson, B.G., Tang, J.

Barbosa-Cánovas, G. V., J.J. Fernández-Molina, and B.G. Swanson. 2000. Pasteurización de Alimentos Por Métodos no Térmicos. *CTC*, 6:22-25.

Barbosa-Cánovas, G.V. 2000. Tecnologías Emergentes. *La Alimentación Latinoamericana* 234:50-52.

Barbosa-Cánovas, G.V., J.J. Fernández-Molina, and B.G. Swanson. 2000. Pasteurización de Alimentos Por Métodos No Térmicos. *La Alimentación Latinoamericana* 235:56-59.

Barbosa-Cánovas, G.V., M.D. Pierson, Q.H. Zhang, and D.W. Schaffner. 2000. High Voltage Arc Discharge. *Journal of Food Science Supplement: Kinetics of Microbial Inactivation For Alternative Food Processing Technologies* 80-81.

Barbosa-Cánovas, G.V., M.D. Pierson, Q.H. Zhang, and D.W. Schaffner. 2000. Pulsed Electric Fields. *Journal of Food Science Supplement: Kinetics of Microbial Inactivation for Alternative Food Processing Technologies* 65-79.

Barbosa-Cánovas, G.V., D.W. Schaffner, M.D. Pierson, and Q.H. Zhang. 2000. Oscillating Magnetic Fields. *Journal of Food Science Supplement: Kinetics of Microbial Inactivation for Alternative Food Processing Technologies* 86-89.

Barbosa-Cánovas, G.V., D.W. Schaffner, M.D. Pierson, and Q.H. Zhang. 2000. Pulsed Light Technology. *Journal of Food Science Supplement: Kinetics of Microbial Inactivation for Alternative Food Processing Technologies* 82-85.

Dutreux, N., S. Notermans, T. Wijtzes, M. Góngora-Nieto, G.V. Barbosa-Cánovas, and B. Swanson. 2000. Effects of Combined Exposure of *Micrococcus Luteus* to Nisin and Pulsed Electric Fields. *International Journal of Food Microbiology* 60:147-152.

Dutreux, N., S. Notermans, T. Wijtzes, M. Góngora-Nieto, G.V. Barbosa-Cánovas, and B. Swanson. 2000. Pulsed Electric Fields Inactivation of Attached and Free-Living *Escherchia Coli* and *Listeria Innocua* Under Several Conditions. *International Journal of Food Microbiology* 54:91-98.

Giner, J., V. Gimeno, A. Espachs, P. `Élez, G.V. Barbosa-Cánovas, and O. Martín. 2000. Inhibition Of Tomato (*Licopersicon Esculentum Mill.*) Pectin Methylesterase by Pulsed Electric Fields. *Innovative Food Science and Emerging Technologies* 1:57-67.

Palou, E., C. Hernández-Salgado, A. López-Malo, G.V. Barbosa-Cánovas, B.G. Swanson, and J. Welti-Chanes. 2000. High Hydrostatic Pressure-Processed Guacamole. *Innovative Food Science and Emerging Technologies* 1:69-75.

Sepúlveda-Ahumada, D., E. Ortega-Rivas, and G.V. Barbosa-Cánovas. 2000. Quality Aspects of Cheddar Cheese Obtained with Milk Pasteurized by Pulsed Electric Fields. *Trans IchemE* 78 (C):65-71.

Zárate-Rodríguez, E., E. Ortega-Rivas, and G. V. Barbosa-Cánovas. 2000. Quality Changes in Apple Juice as Related to Nonthermal Processing. *Journal of Food Quality* 23:337-349.

**0992** Assessment of Farm Level Contribution to Nitrogen Pollution in the Central Columbia Plateau, Stockle, C.O.

Tubiello, F.N., M. Donatelli, C. Rosenzweig, and C.O. Stockle. 2000. Effects of Climate Change and Elevated CO<sub>2</sub> on Cropping Systems: Model Predictions at Two Italian Locations. *European Journal of Agronomy* 13:179-189.

**4222** Integrated Nutrient Management Modeling for Dairy Production Systems Featuring Dynamics and Optimization, Chen, S., Stockle, C.O., Harrison, J.H.

Chen, S., and G. Wang. 2000. Modeling BOD Removal in Constructed Wetlands with Mixing Cell Method Closure. *Journal of Environmental Engineering* 126:784-785.

**4225** Thermal Mortality of Insects and Postharvest Control of Insect Pests in Nuts, Tang, J., Cavalieri, R.P., Swanson, B.G.



## Publications of Agricultural Research Center Scientists By Department and Project Agricultural Research Center

Ikediala, J.N., J. Tang, and S.R. Drake, and L.G. Neven. 2000. Dielectric Properties of Apples and Codling Moths in Relation to Microwave and RF Heating. *Transactions of the ASAE* 43:1175-1184.

Lau, M.H., J. Tang, and A. Paulson. 2000. Texture Profile and Turbidity of Gellan/gelatin Mixed Gels. *Food Research International* 33:665-671.

Lau, M.H., J. Tang, and B.G. Swanson. 2000. Kinetics of Textural and Color Changes in Asparagus during Thermal Processing. *Food Engineering* 45:231-236.

Mao, R., J. Tang, and B.G. Swanson. 2000. Relaxation Time Spectrum of Hydrogels by CONTIN Analysis. *Food Science* 65:374-381.

Tang, J., J.N. Ikediala, S. Wang, J.D. Hansen, and R.P. Cavaliere. 2000. High-Temperature-Short-Time Thermal Quarantine Methods. *Postharvest Biology and Technology* 21:129-145

Tang, J., R. Mao, M.A. Tung, and B.G. Swanson. 2000. Gelling Temperature, and Gel Clarity and Texture of Gellan Systems Containing Sucrose or Fructose. *Carbohydrate Polymers* 44:197-209.

**7223** Physical and Micro-Structural Properties of Gellan Gels in Food Applications, Tang, J., Swanson, B.G.

Lau, M.H., J. Tang, and A. Paulson. 2000. Texture Profile and Turbidity of Gellan/gelatin Mixed Gels. *Food Research International* 33:665-671.

Mao, R., J. Tang, and B.G. Swanson. 2000. Relaxation Time Spectrum of Hydrogels by CONTIN Analysis. Featured as Concise Reviews and Hypothesis in *Food Science*. *Food Science* 65:374-381.

Mao, R., J. Tang, and B.G. Swanson. 2000. Texture Properties of High and Low Acyl Mixed Gellan Gels. *Carbohydrate Polymers* 41:331-338.

Tang, J., R. Mao, M.A. Tung, and B.G. Swanson. 2000. Gelling Temperature, and Gel Clarity and Texture of Gellan Systems Containing Sucrose or Fructose. *Carbohydrate Polymers* 44:197-209.

**7990** Measurement and Control of Fruit and Vegetable Impact Sensitivity, Hyde, G.M.

Baritelle, A.L., and G.M. Hyde. 2000. Strain Rate and Size Effects on Pear Tissue Failure. *Transactions of the ASAE* 43:95-98.

Baritelle, A.L., G.M. Hyde, R.E. Thornton, and R.W. Bajema. 2000. A Classification System for Impact Related Defects in Potato Tubers. *American Journal of Potato Research* 77:143-148.

Baritelle, A.L., G.M. Hyde, and R.E. Thornton. 2000. Influence of Early-Season Nitrogen Application Pattern on the Impact Sensitivity in Russet Burbank Potato Tubers. *Postharvest Biology and Technology* 19:273-277.

### Crop and Soil Sciences

#### **Project:**

**0152** Characterization of Flow and Transport Processes in Soils at Different Scales, W-188, Flury, M., Wu, Q.J.

German-Heins, J., and M. Flury. 2000. Sorption of Brilliant Blue FCF in Soils as Affected by pH and Ionic Strength, *Geoderma* 97:87-101.

Guo, L., W.A. Jury, R.J. Wagenet, and M. Flury. 2000. Dependence of Pesticide Degradation on Sorption: Nonequilibrium Model and Application to Soil Reactors *Journal of Contaminant Hydrology* 43:45-62.

Wang, Z., J.Q. Wu, L. Wu, C.J. Ritsema, L.W. Dekker, and J. Feyen, 2000. Effects of Soil Water Repellency on Infiltration Rate and Flow Instability, *Journal of Hydrology* 231-232, 265-276.

Wang, Z., L. Wu, and J.Q. Wu. 2000. Water-Entry Value as an Indicator of Soil Water Repellency and Wettability. *Journal of Hydrology* 231-232, 76-83.

**0182** Impact of No-Till on Soil Quality Physical, Chemical, and Microbial Properties, Bezdicsek, D.F., Albrecht, S., Flury, M., Roe, D.

Karlen, D.L., M.J. Rosek, J.C. Gardner, D.L. Allan, M.J. Alms, D.F. Bezdicsek, M. Flock, D.R. Huggins, B.S. Miller, and M.L. Staben. 2000. Conservation Reserve Program Effects on Soil Quality Indicators. *Journal of Soil and Water Conservation* 54:439-444.



## Publications of Agricultural Research Center Scientists By Department and Project Agricultural Research Center

**0196** Molecular Markers for Barley Disease Resistance Genes, Kleinhofs, A.

Kandemir, N., D.A. Kudrna, S.E. Ullrich, and A. Kleinhofs. 2000. Molecular Marker Assisted Genetic Analysis of Head Shattering in Six-Rowed Barley. *Theoretical and Applied Genetics* 101:203-210.

Kandemir, N., B.L. Jones, D.M. Wesenberg, S.E. Ullrich, and A. Kleinhofs. 2000. Marker-Assisted Analysis of Three Grain Yield QTL in Barley (*Hordeum vulgare* L.) using Near Isogenic Lines. *Molecular Breeding* 6:157-167.

Toojinda, T., L.H. Broers, X.M. Chen, P.M. Hayes, A. Kleinhofs, J. Korte, D. Kudrna, H. Leung, R.F. Line, W. Powell, L. Ramsay, H. Vivar, and R. Waugh. 2000. Mapping Quantitative and Qualitative Disease Resistance Genes in Doubled Haploid Populations of Barley (*Hordeum vulgare*). *Theoretical and Applied Genetics* 101:580-589.

**0232** Breeding and Genetics of Winter Wheat, Jones, S.S., Murray, T.D., Cook, R.J., Line, R.F., Morris, C.F.\*

Yildirim, A., S.S. Jones, T.D. Murray, and R.F. Line. 2000. Evaluation of *Dasypyrum Villosum* Populations for Resistance to Eyespot and Stripe Rust Diseases of Wheat. *Plant Disease* 84:40-44.

Warner, R.L., D.A. Kudrna, S.C. Spaeth, and S.S. Jones. 2000. Dormancy in White-Seeded Mutants of Chinese Spring Wheat. *Seed Research* 10:51-60.

Yildirim, A., S.S. Jones, T.D. Murray, and R.F. Line. 2000. Evaluation of *Dasypyrum Villosum* Populations for Resistance to Cereal Eyespot and Stripe Rust Pathogens. *Plant Disease* 84:40-44.

**0245** STEEP III, Bezdicek, D.F., Schillinger, W.F., Veseth, R.

Schillinger, W.F., and F.L. Young. 2000. Soil Water Use and Growth of Russian Thistle after Wheat Harvest. *Agronomy Journal* 92:167-172.

**0250** Cropping Systems Research for Low-Precipitation Dryland in Eastern Washington, Schillinger, W.F., Cook, R.J., Papendick, R.I.\*, Veseth, R., Yenish, J.P.

Schillinger, W.F., and F.L. Young. 2000. Soil Water Use and Growth of Russian Thistle after Wheat Harvest. *Agronomy Journal* 92:167-172.

**0251** Breeding of Value-Added Barley by Incorporation of Protein Engineered Beta-Glucanases, von Wettstein, D.H., Ullrich, S.E.

Horvath H., J. Huang, O.T. Wong, E. Kohl, T. Okita, C.G. Kannangara, and D. von Wettstein. 2000. The Production of Recombinant Proteins in Transgenic Barley Grains. *Proceedings of the National Academy of Science USA* 97:1914-1919.

**0264** PM-10 Particulate Emission Prediction and Control in the Pacific Northwest, Schillinger, W.F.

Schillinger, W.F., and F.L. Young. 2000. Soil Water Use and Growth of Russian Thistle after Wheat Harvest. *Agronomy Journal* 92:167-172.

**0306** PM-10 Particulate Emission Prediction and Control from Ag Land in the PNW Columbia Plateau, Schillinger, W.F., Busacca, A.J., Pan, W.L., Frazier, B.E., Young, F.L.\*, Saxton, K.\*, Veseth, R., Young, D.L.

Schillinger, W.F., and F.L. Young. 2000. Soil Water Use and Growth of Russian Thistle after Wheat Harvest. *Agronomy Journal* 92:167-172.

**0332** Evaluation and Management of Turfgrass Species and Cultivars, Johnston, W.J., Stahnke, G.K., Miltner, E.D., Johnson, R.C.\*, Thill, D.C., Miller, T.W.

Johnston, W.J., C.T. Golob, C.M. Kleene, W.L. Pan, and E.D. Miltner. 2000. Nitrogen Leaching Research at the Coeur d'Alene Resort Golf Course Floating Green Indicates Minimal Environmental Impact. *Turf Management in the Pacific Northwest* 3:3-4.

**0334** Improving Spring Wheat Varieties for the Pacific Northwest, Kidwell, K.K., Jones, S.S., Morris, C.F.\*, Ullrich, S.E.

Mikhaylenko, G.G., Z. Czuchajowska, B.K. Baik, and K.K. Kidwell. 2000. Environmental Influences on Milling Performance, Flour Composition, Flour Rheology and End-Product Quality of Spring Wheat. *Cereal Chemistry* 77:507-511.



## Publications of Agricultural Research Center Scientists By Department and Project Agricultural Research Center

- 0598** Loess and Global Change, Busacca, A.J., Frazier, B.E., Kennedy, A.C.\*  
Meinert, L.D., and A.J. Busacca. 2000. Geology and Wine 3: Terroirs of the Walla Walla Valley Appellation, Southeastern Washington State, USA. *Geoscience Canada* 27:149-171.
- 0664** Seed Biology, Technology, and Ecology, W-168, Warner, R.L.  
Warner, R.L., D.A. Kudrna, S.C. Spaeth, and S.S. Jones. 2000. Dormancy in White-Grain Mutants of Chinese Spring Wheat (*Triticum aestivum* L). *Seed Science Research* 10:51-60.
- 0703** A Comparative Analysis of the Sustainability of Farming Systems, Reganold, J.P., Busacca, A.J., Papendick, R.I.\*  
Carpenter-Boggs, L., A.C. Kennedy, and J.P. Reganold. 2000. Organic and Biodynamic Management: Effects on Soil Biology. *Soil Science Society of America Journal*. 64:1651-1659.  
Carpenter-Boggs, L., J.P. Reganold, and A.C. Kennedy. 2000. Biodynamic preparations: Short-term Effects on Crops, Soils, and Weed Populations. *American Journal of Alternative Agriculture* 15:110-118.  
Carpenter-Boggs, L., J.P. Reganold, and A.C. Kennedy. 2000. Effects of Biodynamic Preparations on Compost Development. *Biological Agriculture and Horticulture* 17:313-328.
- 1006** Breeding and Genetics of Barley, Kleinhofs, A., Ullrich, S.E.  
Marquez-Cedillo, L.A., P.M. Hayes, B.L. Jones, A. Kleinhofs, W.G. Legge, B.G. Rossnagel, K. Sato, S.E. Ullrich, D.M. Wesenberg, and the NABGMP. 2000. QTL Analysis of Malting Quality in Barley Based on the Doubled Haploid Progeny of Two Elite North American Varieties Representing Different Germplasm Groups. *Theoretical Applied Genetics* 101:173-184.  
Kandemir, N., B.L. Jones, D.M. Wesenberg, S.E. Ullrich, and A. Kleinhofs. 2000. Marker Assisted Analysis of Three Grain Yield QTL in Barley (*Hordeum vulgare* L.) using Near Isogenic Lines. *Molecular Breeding* 6:157-167.
- Kandemir, N., D.A. Kudrna, S.E. Ullrich, and A. Kleinhofs. 2000. Molecular Marker Assisted Genetic Analysis of Head Shattering in Six-Rowed Barley. *Theoretical Applied Genetics* 101:203-210.
- 3251** Fusarium Resistant Germplasm by Altered Gene Expression in the Barley Seedcoat, von Wettstein, D.H., Kleinhofs, A.  
Wu, S., A. Druka, H. Horvath, A. Kleinhofs, C.G. Kannangara, and D. von Wettstein. 2000. Functional Characterization of Seed Coat Specific Members of the Barley Germin Gene Family. *Plant Physiology and Biochemistry* 38:685-698.
- 4703** Sustainability of Three Apple Production Systems: Conventional, Organic and Integrated, Reganold, J.P., Andrews, P.K.  
Glover, J.D., J.P. Reganold, and P.K. Andrews. 2000. Systematic Method for Rating Soil Quality of Conventional, Organic, and Integrated Apple Orchards in Washington State. *Agriculture, Ecosystems and Environment* 80:29-45.  
Glover, J.G., P.K. Andrews, and J.P. Reganold. 2000. Applying a Soil Quality Index to Conventional, Integrated, and Organic Apple Production Systems. *Acta Horticulturae* 525:217-228.  
Glover, J.G., J.P. Reganold, and P.K. Andrews. 2000. Systematic Method for Rating Soil Quality of Conventional, Organic, and Integrated Apple Orchards in Washington State. *Agriculture, Ecosystems and Environment* 80:29-45.
- 6106** Dissecting a Complex Barley Chromosome Region Containing Malting Quality QT, Ullrich, S.E., Kleinhofs, A.  
Zale, J.M., J.A. Clancy, S.E. Ullrich, B.L. Jones, P.M. Hayes, and the North American Barley Genome Mapping Project. 2000. Summary of Barley Malting Quality QTLs Mapped in Various Populations. *Barley Genetic Newsletter* 30:44-54. On-line at [http://wheat.pw.usda.gov/ggpages/bgn/30/SEU1txt\\_andfigs\\_color.htm](http://wheat.pw.usda.gov/ggpages/bgn/30/SEU1txt_andfigs_color.htm).
- 6197** Molecular Genetics of the Barley Stem Rust Resistance Gene Families, Kleinhofs, A.



## Publications of Agricultural Research Center Scientists By Department and Project Agricultural Research Center

Druka, A., D. Kudrna, F. Han, A. Kilian, B. Steffenson, D. Frisch, J. Tomkins, R. Wing, and A. Kleinhofs. 2000. Physical Mapping of the Barley Stem Rust Resistance Gene *rpg4*. *Molecular and General Genetics* 264:283-290.

Yu, Y., J.P. Tomkins, R. Waugh, D.A. Frisch, D. Kudrna, A. Kleinhofs, R.S. Brueggeman, G.J. Muehlbauer, R.P. Wise, and R.A. Wing. 2000. A Bacterial Artificial Chromosome Library for Barley (*Hordeum vulgare* L.) and the Identification of Clones Containing Putative Resistance Genes. *Theoretical and Applied Genetics* 101:1093-1099.

### Entomology

#### Project:

**0121** Biological Control in Pest Management Systems of Plants, W-185, Piper, G.L.

Norambuena, H., and G.L. Piper. 2000. Impact of *Apion Ulicis* Forster on *Ulex Europaeus* L. Seed Dispersal. *Biological Control* 17:267-71.

**0243** Biological Diversity Studies of Arthropod Taxa, Zack, R.S.

Shepard, J.H., and R.S. Zack. A Remarkable and Disjunct Range Extension for the Genus *Yermoia* McDunnough (*Lepidoptera: Geometridae*). *Pan-Pacific Entomologist* 76:121-122.

**0244** Molecular Genetics of Honey Bee Subspecies & Assessment of Populations in Northern America, Sheppard, W.S.

Collins, A.M., W.S. Sheppard, and H. Shimanuki. 2000. A Scientific Note on the Identification of Honey Bee Semen using a Mitochondrial DNA Marker. *Apidologie* 31:595-596.

Sheppard, W.S., and D.R. Smith. 2000. Identification of African-Derived Honey Bees in the Americas: A Survey of Methods. *Annals of the Entomological Society of America* 93:159-176.

**0302** Dynamics and Management of Pest and Natural Resource Populations, Berryman, A.A.

Hawkins, B.A., and A.A. Berryman. 2000. Site-Dependent Regulation of Population Size: Comment. *Ecology* 81:1166-1168.

Krekling, T., V.R. Franceschi, A.A. Berryman, and E. Christiansen. 2000. The Structure and Development of Polyphenolic Parenchyma Cells in Norway Spruce Stem Phloem. *Flora* 195:354-369.

Turchin, P., and A.A. Berryman. 2000. Detecting Cycles and Delayed Density Dependence: A Comment on Hunter and Price (1998). *Ecological Entomology* 25:119-121.

**0405** Potential of Insect Growth Regulators for Controlling Insect Pests of the Pacific Northwest, Brown, J.J.

Epstein, D.L., R.S. Zack, J.F. Brunner, L. Gut, and J.J. Brown. 2000. Effects of Broad-Spectrum Insecticides on Epigeal Arthropod Biodiversity in Pacific Northwest Apple Orchards. *Environmental Entomology* 29:340-348.

### Field Disease Investigative Unit

#### Project:

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

Besser T.E., M. Goldoft, L.C. Pritchett, R. Khakhria, D.D. Hancock, D.H. Rice, J.M. Gay, W. Johnson, and C.C. Gay. 2000. Multiresistant *Salmonella* Typhimurium DT104 Infections of Humans and Domestic Animals in the Pacific Northwest of the United States. *Epidemiology and Infection* 124:193-200.

### Food Science and Human Nutrition

#### Project:

**0103** Dietary and Psychosocial Factors Affecting Self Management of Type 2 Diabetes Mellitus, Armstrong Shultz, J., Massey, L.K., Evans, M.A., Hicks, B., Crogan, N., Branen, L.J., Weisham, C.



## Publications of Agricultural Research Center Scientists By Department and Project Agricultural Research Center

Croghan, N.L., J.A. Shultz, L.K. Massey, C.E. Adams, and L.E. Kirkhorn. 2000. Nursing Assistants' Perceptions of Barriers to Nutrition Care for Residents in Long-Term Care Facilities. *Journal for Nurses in Staff Development* 16:216-221.

Croghan, N.L., and J.A. Shultz. 2000. Comparing Nutrition Knowledge Exam Scores with Reported Nutrition Topics of Interest Among Nursing Home Nurses. *Journal for Nurses in Staff Development* 16:277-281.

Croghan, N.L., J.A. Shultz, L.K. Massey, C.E. Adams, and L.E. Kirkhorn. 2000. Nutrition Knowledge of Nurses in Long-Term Care Facilities. *Journal of Continuing Education in Nursing* 32:171-176.

Hirano K., C. Heiss, K. Olson, K. Beerman, and C.J. Brahler. 2000. A Comparison of Calculated and Measured Resting Energy Expenditure in Obese Women. *Topics in Clinical Nutrition* 16:70-79.

McGuire M., K. Beerman, and M. McGuire. 2000. Plasma and Human Milk Leptin Concentrations and Anthropometric Measurements in Lactating Women. *Nutrition Research* 20:1697-1706.

**0118** Conjugated Linoleic Acid: Dairy Enrichment, Dietary Intakes, Cell Culture, and Cancer Prevention, Shultz, T.D., McGuire, M.K., McGuire, M.A.

Park, Y.S., K.G.D. Allen, and T.D. Shultz. 2000. Modulation of MCF-7 Breast Cancer Cell Signal Transduction by Linoleic Acid and Conjugated Linoleic Acid in Culture. *Anticancer Research* 20:669-676.

**0208** Enological and Viticultural Practices on Fermentation Microbiology, Chemistry, and Quality of Wines, Edwards, C.G., Spayd, S.E., Tarara, J.M. \*, Fellman, J.K., Collins, M.D., Milles, D.A.

Edwards, C.G., M.D. Collins, P.A. Lawson, and A.V. Rodriguez. 2000. *Lactobacillus nagelii* sp. nov. An Organism Isolated from a Partially-Fermented Wine. *International Journal of Systemic and Evolutionary Microbiology* 50:699-702.

Holley\*, S.L., C.G. Edwards, J.H. Thorngate, J.K. Fellman, D.S. Mattinson, E.J. Sorensen, and R.H. Dougherty. 2000. Chemical Characterization of Different Lines of *Daucus carota* L. Roots. *Journal of Food Quality* 23: 487-502.

**0286** Effect of Under- or Overconsumption on Serum Leptin and Food Regulation in Lean and Obese Subjects, Beerman, K.A.

McGuire, M., K. Beerman, and M. McGuire. 2000. Plasma and Human Milk Leptin Concentrations and Anthropometric Measurements in Lactating Women. *Nutrition Research* 20:1697-1706.

Hirano, K., C. Heiss, K. Olson, K. Beerman, and C.J. Brahler. 2000. A Comparison of Calculated and Measure Resting Energy Expenditure in Obese Women. *Topics in Clinical Nutrition* 16:70-79.

**0560** Genetic Improvement of Beans (*Phaseolus vulgaris* L.) for Yield, Disease Resistance, and Food Value, W-150, Swanson, B.G.

Hsieh, H.M., B.G. Swanson, and T.A. Lumpkin. 2000. Abrasion, Grinding, Cooking and the Composition and Physical Characteristics of Azuki Koshi An. *Journal of Food Processing and Preservation* 24:87-106.

**0846** Enological & Viticultural Practices on Fermentation Microbiology, Chemistry, and Quality of Wines, Edwards, C.G., Spayd, S.E., Paznokas, J.L., Fellman, J.K., Reynolds, A.G., Mills, D.A., Collins, M.D., Tarara, J.M.\*

Edwards, C.G., M.D. Collins, P.A. Lawson, and A.V. Rodriguez. 2000. *Lactobacillus nagelii* sp. nov., An Organism Isolated from a Partially-Fermented Wine. *International Journal of Systemic and Evolutionary Microbiology* 50:699-702.

Holley\*, S.L., C.G. Edwards, J.H. Thorngate, J.K. Fellman, D.S. Mattinson, E.J. Sorensen, and R.H. Dougherty. 2000. Chemical Characterization of Different Lines of *Daucus carota* L. Roots. *Journal of Food Quality* 23:487-502.

### Horticulture and Landscape Architecture Project:

**0321** Calcium Mediated Signaling in Plants: Calmodulin and Cat+/Calmodulin Dependent Protein Kinase, Poovaiah, B.W.



## Publications of Agricultural Research Center Scientists By Department and Project Agricultural Research Center

Sathyanarayanan, P.V., C.R. Cremo, and B.W. Poovaiah. 2000. Plant Chimeric Ca<sup>2+</sup>/Calmodulin-Dependent Protein Kinase: Role of the Neural Visinin-Like Domain in Regulating Autophosphorylation and Calmodulin Affinity. *Journal of Biological Chemistry* 39:30417-30422.

Yang, T., and B.W. Poovaiah. 2000. An Early Ethylene Up-Regulated Gene Encoding a Calmodulin-Binding Protein Involved in Plant Senescence and Death. *Journal of Biological Chemistry* 275:38467-38473.

Yang, T., and B.W. Poovaiah. 2000. Molecular and Biochemical Evidence for the Involvement of Calcium/Calmodulin in Auxin Action. *Journal of Biological Chemistry* 275:3137-3143.

Yang, T., and B.W. Poovaiah. 2000. Arabidopsis Chloroplast Chaperonin 10 is a Calmodulin-Binding Protein. *Biochemical and Biophysical Research Communications* 275:601-607.

**0695** The Impacts of Plants on People, Lohr, V.I.

Lohr, V.I., and C.H. Pearson-Mims. 2000. Physical Discomfort May Be Reduced in the Presence of Interior Plants. *HortTechnology* 10:53-58.

Lohr, V.I., and P.D. Relf. 2000. An Overview of the Current State of Human Issues in Horticulture in the United States. *HortTechnology* 10:27-33.

Shoemaker, C.A., P.D. Relf, and V.I. Lohr. 2000. Social Science Methodologies for Studying Individuals' Responses in Human Issues in Horticulture Research. *HortTechnology* 10:87-93.

**0797** Postharvest Physiology of Fruits, NE-103, Fellman, J.K., Kupferman, E.M.

Fellman, J.K., T.W. Miller, D.S. Mattinson, and J.P. Mattheis. 2000. Factors that Influence Biosynthesis of Volatile Flavor Compounds in Apple Fruits. *Hortscience* 35:1026-1033.

Mattheis, J., and J.K. Fellman. 2000. Impacts of Modified Atmosphere Packaging and Controlled Atmospheres on Aroma, Flavor, and Quality of Horticultural Commodities. *HortTechnology* 10:507-510.

Wyllie, S.G., and J.K. Fellman. 2000. Formation of Branched-Chain Esters in Bananas (*Musa sapientum* L.). *Journal of Agricultural and Food Chemistry* 48:3493-3496.

**0910** Regulating Plant Fertility by Manipulation of Flavonol Levels in Pollen, Taylor, L.P.

Tanaka, H., M.M. Stohlmeyer, T.J. Wandless, and L.P. Taylor. 2000. Synthesis of Flavonol Derivatives as Probes of Biological Processes. *Tetrahedron Letters* 41:9735-9740.

Guyon, V., J.D. Astwood, E. Garner, K. Dunker, and L.P. Taylor. 2000. Isolation and Characterization of cDNAs Expressed in the Early Stages of Flavonol-Induced Pollen Germination in Petunia. *Plant Physiology* 123:699-710.

**0937** Effects of Environmental Factors on Reproductive Growth and Development of Apple (*Malus domestica*), Andrews, P.K.

Glover, J.G., P.K. Andrews, and J.P. Reganold. 2000. Applying a Soil Quality Index to Conventional, Integrated, and Organic Apple Production Systems. *Acta Horticulturae* 525:217-228.

Glover, J.G., J.P. Reganold, and P.K. Andrews. 2000. Systematic Method for Rating Soil Quality of Conventional, Organic, and Integrated Apple Orchards in Washington State. *Agriculture, Ecosystems and Environment* 80:29-45.

### Impact Center

#### Project:

**0171** International Marketing Program for Agricultural Commodities and Trade, Wahl, T.I.

Gilbert, J., R. Scollay, and T.I. Wahl. The APEC Food System: Implications for Agricultural and Rural Development Policy. *Developing Economies* 38:308-29, 2000.

**0972** Development of Nutritional Value Added Exportable Snack-Foods From Pacific NW, Baik, B.K.



## Publications of Agricultural Research Center Scientists By Department and Project Agricultural Research Center

Mikhaylenko, G.G., Z. Czuchajowska, B.K. Baik, and K.K. Kidwell. 2000. Environmental Influences on Flour Composition, Dough Rheology, and Baking Quality of Spring Wheat. *Cereal Chemistry* 77:507-511.

**3801** Enhancing Competitiveness of Agricultural and Forest Products, Wahl, T.I.

Gilbert, J., R. Scollay, and T.I. Wahl. 2000. The APEC Food System: Implications for Agricultural and Rural Development Policy. *Developing Economies* 38:308-29.

Han, T., T.I. Wahl, and R.C. Mittelhammer. 2000. The Effect of Self-Sufficiency on Fruit and Vegetable Consumption of China's Rural Households. *Review of Agricultural Economics* 23:176-184.

**3901** Enhancing Competitiveness of Agricultural and Forest Products, Wahl, T.I.  
Gilbert, J., R. Scollay, and T.I. Wahl. 2000. The APEC Food System: Implications for Agricultural and Rural Development Policy. *Developing Economies* 38:308-329.

### Institute of Biological Chemistry

#### Project:

**0119** Regulation of Photosynthetic Processes, NC-142, Okita, T.W., Edwards, G.E.

Kavakli, I.H., C.J. Slattery, H. Ito, and T.W. Okita. 2000. The Conversion of Carbon and Nitrogen into Starch and Storage Proteins in Developing Storage Organs: An Overview. *Australian Journal of Plant Physiology* 27:561-570.

**0197** Control of Photosynthetic Electron Flow in the Steady State, Kramer, D.M.

Ivanov, B.N., C.A. Sacksteder, D.M. Kramer, and G. Edwards. 2000. Light Induced Ascorbate Dependent Electron Transport and Membrane Energization in Chloroplasts of Bundle Sheath Cells of the C4 Plant Maize. *Archives of Biochemistry and Biophysics* 384:2-10.

Rao, B.K.S., A.M. Tyryshkin, A.G. Roberts, M.K. Bowman, and D. Kramer. 2000. Inhibitory Copper Binding Site on the Spinach Cytochrome b6f

Complex: Implications for Qo Site Catalysis. *Biochemistry* 39:3285-3296.

Sacksteder, C.A., A. Kanazawa, M.E. Jacoby, and D.M. Kramer. 2000. Proton to Electron Stoichiometry of Steady-State Photosynthesis in Living Plants: A Proton-Pumping Q-Cycle is Continuously Engaged. *Proceedings of the National Academy of Science USA* 97:14283-14288.

**0202** Metabolic Compartmentation During (Heart)Wood and Seed Coat Development, Lewis, N.G.

Bernards, M.A., L.M. Susag, D.L. Bedgar, A.M. Anterola, and N.G. Lewis. 2000. Induced Phenylpropanoid Metabolism during Suberization and Lignification: A Comparative Analysis. *Journal of Plant Physiology* 157:401-407.

Croteau, R., T.M. Kutchan, and N.G. Lewis. 2000. Secondary Metabolites. In: *Biochemistry and Molecular Biology of Plants*. Buchanan, B.B., Gruissem, W., and Jones, R.L., eds. American Society of Plant Physiologists 24:1250-1317.

Lewis, N.G., and L.B. Davin. 2000. Le Couplage des Composés Phénoliques in Planta : les Proteins Dirigents, les Sites Dirigents et des Idées au-Delà du Hasard. 1ere Partie. Phenolic Coupling in Planta: Dirigent Proteins, Dirigent Sites and Notions Beyond Randomness, Part 1, Polyphénols Actualités 20:18-26.

Xia, Z.Q., M.A. Costa, J. Proctor, L.B. Davin, and N.G. Lewis. 2000. Dirigent-mediated Podophyllotoxin Biosynthesis in *Linum flavum* and *Podophyllum peltatum*. *Phytochemistry* 55:537-549.

**0235** Genetic Analysis of Plant Virus Infection, Carrington, J.C.

Chisholm, S.T., S.K. Mahajan, S.A. Whitham, M.L. Yamamoto, and J.C. Carrington. 2000. Cloning of the Arabidopsis RMT1 Gene, Which Controls Restriction of Long-Distance Movement of Tobacco Etch Virus. *Proceedings of the National Academy of Science USA* 97:489-494.

Schaad, M.C., and J.C. Carrington. 2000. Strain-Specific Interaction of Tobacco Etch virus NIa Protein with Translation Initiation Factor eIF4E in the Yeast Two-Hybrid System. *Virology* 273:300-306.



## Publications of Agricultural Research Center Scientists By Department and Project Agricultural Research Center

Whitham, S.A., R.J. Anderberg, S.T. Chisholm, and J.C. Carrington. 2000. Arabidopsis RTM2 Gene is Necessary for Specific Restriction of Tobacco Etch Virus and Encodes an Unusual Small Heat Shock-Like Protein. *Plant Cell* 12:569-582.

**0253** Lipid Biosynthesis in Leaves and Seeds, Browse, J.A.

Routaboul, J.M., S. Fischer, and J. Browse. 2000. Trienoic Fatty Acids are Required to Maintain Chloroplast Function at Low Temperatures. *Plant Physiology* 12:1129-1135.

**0262** Sorting of Proteins to Vacuoles in Plant Cells, Rogers, J.C.

Cao, X., S.W. Rogers, J. Butler, L. Beevers, and J.C. Rogers. 2000. Structural Requirements for Ligand Binding by a Probable Plant Vacuolar Sorting Receptor. *Plant Cell* 12:493-506.

Jiang, L., Phillips, T.C., Rogers, S.W., and J.C. Rogers. 2000. Biogenesis of the Protein Storage Vacuole Crystalloid. *Journal of Cell Biology* 150:755-769.

**0268** Biochemistry of Plant Terpenoids, Croteau, R.B.

Gershenson, J., M. McConkey, and R. Croteau. 2000. Regulation of Monoterpene Accumulation in Leaves of Peppermint (*Mentha x piperita* L.). *Plant Physiology* 122:205-213.

Haudenschild, C., M. Schalk, F. Karp, and R. Croteau. 2000. Functional Expression of Regiospecific Cytochrome P450 Limonene Hydroxylases from Mint (*Mentha spp.*) in *Escherichia coli* and *Saccharomyces cerevisiae*. *Archives of Biochemistry and Biophysics* 379:127-136.

Lange, B.M., M.R. Wildung, E.J. Stauber, C. Sanchez, D. Pouchnik, and R. Croteau. 2000. Probing Essential Oil Biosynthesis and Secretion by Functional Evaluation of Expressed Sequence Tags from Mint Glandular Trichomes. *Proceedings of the National Academy of Science USA* 97:2934-2939.

McConkey, M., J. Gershenson, and R. Croteau. 2000. Developmental Regulation of Monoterpene Biosynthesis in the Glandular Trichomes of Peppermint (*Mentha x piperita* L.). *Plant Physiology* 122:215-223.

Schalk, M., and R. Croteau. 2000. A Single Amino Acid Substitution (Phe363Ile) Converts the Regiochemistry of the Spearmint (-)-Limonene Hydroxylase from a C6- to a C3-Hydroxylase. *Proceedings of the National Academy of Science USA* 97:11948-11953.

Turner, G.W., J. Gershenson, and R. Croteau. 2000. Distribution of Peltate Glandular Trichomes on Developing Leaves of Peppermint (*Mentha x piperita* L.). *Plant Physiology* 124:655-663.

Turner, G.W., J. Gershenson, and R.B. Croteau. 2000. Development of Peltate Glandular Trichomes of Peppermint (*Mentha x piperita* L.). *Plant Physiology* 124:665-679.

**0590** mRNA Sorting in Plants, Okita, T.W.

Choi, S.B., C. Wang, D.G. Muench, K. Ozawa, V.R. Franceschi, and T.W. Okita. 2000. Messenger RNA Targeting of Rice Seed Storage Proteins to Specific ER Subdomains. *Nature* 407:765-767.

Kavakli, I.H., C.J. Slattery, H. Ito, and T.W. Okita. 2000. The Conversion of Carbon and Nitrogen into Starch and Storage Proteins in Developing Storage Organs: An Overview. *Australian Journal of Plant Physiology* 27:561-570.

Muench, D.G., S.D.X. Chuong, V.R. Franceschi, and T.W. Okita. 2000. Developing Prolamine Protein Bodies Are Associated with the Cortical Cytoskeleton in Rice Endosperm Cells. *Planta* 211: 227-238.

Sami-Subbu, R., D.G. Muench, and T.W. Okita. 2000. A Cytoskeleton Associated RNA-binding Protein Binds to the Untranslated Regions of Prolamine mRNA and to Poly(A). *Plant Science* 152:115-122.

**0773** Nutrient Exchange and Metabolism in the Rhizobium Legume Symbiosis, Kahn, M.L.

Crawford, N., M.L. Kahn, T. Leustek, and S.R. Long. 2000. Chapter 16: Nitrogen and Sulfur. In: *Biochemistry and Molecular Biology of Plants*. Buchanan, B.B. et al. eds. American Society of Plant Physiologists, Rockville, MD. pp. 786-849.

Yurgel, S., M.W. Mortimer, K.N. Rogers, and M.L. Kahn. 2000. New Substrates for the Dicarboxylate Transport System of *Sinorhizobium meliloti*. *Journal of Bacteriology* 182:4216-4221.



## Publications of Agricultural Research Center Scientists By Department and Project Agricultural Research Center

- 0967** Diterpene Biosynthesis in Taxol Production and Conifer Defense, Croteau, R.B.
- Walker, K., and R. Croteau. 2000. Molecular Cloning of a 10-Deacetylbaocatin III-10-O-Acetyl Transferase cDNA from Taxus and Functional Expression in *Escherichia coli*. Proceedings of the National Academy Science USA 97:583-587.
- Walker, K., A. Schoendorf, and R. Croteau. 2000. Molecular Cloning of a Taxa-4(20),11(12)-dien-5alpha-ol-O-Acetyl Transferase cDNA from Taxus and Functional Expression in *Escherichia coli*. Archives of Biochemistry and Biophysics 374:371-380.
- Williams, D.C., M.R. Wildung, A.Q. Jin, D. Dalal, J.S. Oliver, R.M. Coates, and R. Croteau. 2000. Heterologous Expression and Characterization of a "Pseudomature" Form of Taxadiene Synthase Involved in Paclitaxel (Taxol) Biosynthesis, and Evaluation of a Potential Intermediate and Inhibitors of the Multistep Diterpene Cyclization Reaction. Archives of Biochemistry and Biophysics 379:137-146.
- 1791** Structure, Evolution, and Function of Plant Proteinase Inhibitors, Ryan, C.A.
- Moura, D.S., D.R. Bergey, and C.A. Ryan. 2000. Characterization and Localization of a Wound-Inducible Type I Serine-Carboxypeptidase from Leaves of Tomato Plants. (*Lycopersicon esculentum Mill*). Planta 212: 222-230.
- Ryan, C.A. 2000. The Systemin Signaling Pathway: Differential Activation of Plant Defensive Genes. Biochimica et Biophysica Acta 1477:112-121.
- Ryan, C.A., and G. Pearce. 2000. Polypeptide Hormones in Plants. Plant Physiology 125:65-68.
- Stratmann, J., J. Scheer, and C.A. Ryan. 2000. Suramin Inhibits Initiation of Defense Signaling by Systemin, Chitosan and a beta-Glucan Elicitor in Suspension-Cultured *Lycopersicon peruvianum* Cells. Proceedings of the National Academy of Science USA 97:8862-8867.
- 3153** Role of Wound Inducible Polygalacturonase of Plant Leaves, Ryan, C.A.
- Ryan, C.A. 2000. The Systemin Signaling Pathway: Differential Activation of Plant Defensive Genes. Biochimica et Biophysica Acta 1477:112-121.
- 3967** Defense Reactions in Conifers: Oleoresinosis, Croteau, R.B.
- Ravn, M.M., R.M. Coates, J.E. Flory, R.J. Peters, and R. Croteau. 2000. Stereochemistry of the Cyclization-Rearrangement of (+)-Copalyl Diphosphate to (-)-Abietadiene Catalyzed by Recombinant Abietadiene Synthase from *Abies grandis*. Organic Letters 2:573-576.
- 4119** Metabolic Engineering of Plants for Enhanced Productivity, Okita, T.W., Edwards, G.E.
- Kavakli, I.H., C.J. Slattery, H. Ito, and T.W. Okita. 2000. The Conversion of Carbon and Nitrogen into Starch and Storage Proteins in Developing Storage Organs: An Overview. Australian J. Plant Physiology 27:561-570.
- Slattery, C.J., H. Kavakli, and T.W. Okita. 2000. Engineering Starch for Increased Quantity and Quality. Trends in Plant Science 5:291-298.
- 6204** The Molecular Basis of Heartwood Formation: A New Frontier to Exploit Wood Properties, Lewis, N.G., Davin, L.B.
- Davin, L.B., and N.G. Lewis. 2000. Dirigent Proteins and Dirigent Sites Explain the Mystery of Specificity of Radical Precursor Coupling in Lignan and Lignin Biosynthesis. Plant Physiology 123:453-461.
- Nascimento, I.R., L.M.X. Lopes, L.B. Davin, and N.G. Lewis. 2000. Stereoselective Synthesis of 8,9-Licarinediols. Tetrahedron 56:9181-9193.
- 6236** Host Responses to Potyviruses, Carrington, J.C.
- Carrington, J.C. 2000. RNA Silencing: Moving Targets. Nature 408:150-151.



## Publications of Agricultural Research Center Scientists By Department and Project Agricultural Research Center

Llave, C., K.D. Kasschau, and J.C. Carrington. 2000. Virus-Encoded Suppressor of Posttranscriptional Gene Silencing Targets a Maintenance Step in the Silencing Pathway. *Proceedings of the National Academy of Science USA* 97:13401-13406.

**6773** Bacterial Dicarboxylate Transport in Symbiotic Nitrogen Fixation, Kahn, M.L.

Yurgel, S., M.W. Mortimer, K.N. Rogers, and M.L. Kahn. 2000. New Substrates for the Dicarboxylate Transport System of *Sinorhizobium meliloti*. *Journal of Bacteriology* 182:4216-4221.

**7795** Genetic and Molecular Approaches to Modifying the Composition of Seed Oils, Browse, J.A.

Peyou-Ndi, M., and J. Browse. 2000. Identification and Characterization of an Animal delta12 Fatty Acid Desaturase Gene by Heterologous Expression in *Saccharomyces cerevisiae*. *Archives of Biochemistry and Biophysics* 376:399-408.

Watts, J.L., and J. Browse. 2000. A Palmitoyl-Co-A-Specific Delta9 Fatty Acid Desaturase from *Caenorhabditis Elegans*. *Biochemical and Biophysical Research Communication* 272:263-269.

**8892** Regulation of Avocado Resistance to Postharvest Pathogens by Modulation of Antifungal Compounds, Browse, J.A.

Domergue, E., G.L. Helms, D. Prusky, and J. Browse. 2000. Antifungal Compounds from Idioblast Cells of Avocado Fruits. *Phytochemistry* 54:183-189.

### Irrigated Agriculture Research and Extension Center

#### **Project:**

**0185** Genetic Variability in the Cyst and Root Knot Nematodes, W-186, Santo, G.S.

Brown, C.R., H. Mojtahedi, G.S. Santo, P. Hamm, J.J. Pavek, D. Corsini, S. Love, J.M. Crosslin, and P.E. Thomas. 2000. Potato Germplasm Resistant to Corky Ringspot Disease. *American Journal of Potato Research* 77:23-27.

**0205** Biochemical Composition of Grapes and Wine as Influenced by Viticultural and Ecological Factors, Spayd, S.E., Edwards, C.G., Folwell, R.J.

Tarara, J.M., J.C. Ferguson, and S.E. Spayd. 2000. A Chamber-Free Method of Heating and Cooling Grape Clusters in the Vineyard. *American Journal of Enology and Viticulture* 51:182-188.

Tarara, J.M., J.C. Ferguson, and S.E. Spayd. 2000. In Situ Heating and Cooling of Grape Clusters in the Vineyard for Studies in Berry Physiology. *American Journal of Enology and Viticulture* 51:310-311.

**0248** Controlling Bacterial Pathogens of Grape Vines, Eastwell, K.C., Sholberg, P., Crosslin, J.M., Gritsenko, M.

Eastwell, K.C. 2000. Vine Disorders Indirectly Caused by Low Temperature Injury - Crown Gall Disease. *American Journal of Enology and Viticulture* 51:111-114.

Utkhede, R., J. Nie, H. Xu, K. Eastwell, and P. Wiersma. 2000. Transformation of Biocontrol Agent Enterobacter Agglomerans with Salicylate Utilizing Gene and Its Monitoring in Orchard Soil. *Journal of Horticultural Science and Biotechnology* 75:50-54.

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

Davenport, J.R., and D.E. Schiffhauer. 2000. Cultivar Influences Cranberry Response to Surface Sanding. *HortScience* 35:53-54.

Davenport, J.R., and M.J. Hattendorf. 2000. Using Site-Specific Approaches to Advance Potato Management in Irrigated Systems. *HortTechnology* 10:452-457.

**0281** Alternate Crops and Cropping Systems for Irrigated Central Washington, Hang, A.N., Lumpkin, T.A., Schillinger, W.F.

Hang, A.N., M.J. Silbernagel, P.N. Miklas, and G.L. Hosfield. 2000. Registration of LeBaron Small Red Dry Bean. *Crop Science* 40:853-854.



## Publications of Agricultural Research Center Scientists By Department and Project Agricultural Research Center

- 0282** Germplasm and Cultivar Development of Hop, Kenny, S.T., Grove, G.G., James, D.G. Kenny, S., L. Barber, P. Hill, T. Pruneda, R. Smith, A. Tinginys, and J. Murphey. 2000. Headspace Solid-Phase Microextraction for Determination of Hop Essential Oils. *Journal of the American Society of Brewing Chemists* 58:180-183.
- 0290** Characterization and Control: Plant Viruses and Virus-Like Agents that Infect Perennial Fruit Crops, Eastwell, K.C., Howell, W.E., Crosslin, J.M., Gritsenko, M.
- Pelchat, M., D. Levesque, J. Ouellet, S. Laurendeau, S. Levesque, J. Lehoux, D.A. Thompson, K.C. Eastwell, L.J. Skrzeczkowski, and J.P. Perreault. 2000. Sequencing of Peach Latent Mosaic Viroid Variants from Nine North American Peach Cultivars Shows that This RNA Folds into a Complex Secondary Structure. *Virology* 271:37-45.
- 0337** Biological Control of Aphid Pests, Pike, K.S., Miller, T.D., Tanigoshi, L.K., Thomas, P.E.\*, Turner, W.J., Stary, P.
- Pike, K.S., P. Stary, T. Miller, G. Graf, D. Allison, L. Boydston, and R. Miller. 2000. Aphid Parasitoids (*Hymenoptera: Braconidae, Aphidiinae*) of Northwest USA. *Proceedings of the Entomological Society of Washington* 102:688-740.
- Pike, K.S., R.H. Miller, and P. Stary. 2000. Aphid Fauna (*Hemiptera: Aphididae*) and Associated Flora of Guam. *Micronesica* 33:181-209.
- 0537** Factors Affecting the Quality of Washington Wine and Wine Grapes (*Vitis vinifera*), Spayd, S.E., Edwards, C.G., Folwell, R.J.
- Spayd, S.E., J. Tarara, D. Mee, J. Ferguson, and J. Myers. 2000. Interaction of Aspect and Sunlight Exposure on *Vitis vinifera* cv. Merlot Berry Composition. *American Journal of Enology and Viticulture* 51:289-290.
- Tarara, J.M., J.C. Ferguson, and S.E. Spayd. 2000. A Chamber-Free Method of Heating and Cooling Grape Clusters in the Vineyard. *American Journal of Enology and Viticulture* 51:182-188.
- Tarara, J.M., J.C. Ferguson, and S.E. Spayd. 2000. In Situ Heating and Cooling of Grape Clusters in the Vineyard for Studies in Berry Physiology. *American Journal of Enology and Viticulture* 51:310-311.
- 0689** Environmental Improvement of Western Washington Agricultural Lands Utilizing Forage Grasses & Silage Corn, Fransen, S.C., Cogger, C.G.
- Sullivan, D.M., C.G. Cogger, A.I. Bary, and S.C. Fransen. 2000. Timing of Dairy Manure Applications to Perennial Grass on Well Drained and Poorly Drained Soils. *Journal of Soil and Water Conservation* 55:147-152.
- 0742** Integrated Arthropod Pest and Pollinator Management, Mayer, D.F.
- Mayer, D.F., E.R. Miliczky, B.F. Finnigan, and C.A. Johansen. 2000. The Bee Fauna (*Hymenoptera:Apoidea*) of Southeastern Washington. *Journal of Entomological Society of British Columbia* 97:6-12.
- Mayer, D.F., L.E. Long, T.J. Smith, J. Olsen, H. Riedl, R.R. Heath, T.C. Leskey, and R.J. Prokopy. 2000. Attraction of Adult Ragoletis Indifferens (*Diptera:Tephritidae*) to Unbaited and Odor-Baited Red Spheres and Yellow Rectangles. *Journal of Economic Entomology* 93:347-351.
- 0795** Etiology, Epidemiology & Control of Fungal Diseases of Tree Fruit, Grove, G.G., Mazzola, M.\*
- Olmstead, J.W., G.A. Lang, and G.G. Grove. 2000. A Leaf Disk Assay for Screening Sweet Cherry Genotypes for Susceptibility to Powdery Mildew. *HortScience* 35:274-277.
- 1262** Develop & Distribute Deciduous Fruit Tree Clones That Are Free from Known Graft-Transmissible Pathogens, NRSP-5, Eastwell, K.C., Howell, W.E., Cavalieri, R.P.
- Pelchat, M., D. Levesque, J. Ouellet, S. Laurendeau, S. Levesque, J. Lehoux, D.A. Thompson, K.C. Eastwell, L.J. Skrzeczkowski, and J.P. Perreault. 2000. Sequencing of Peach Latent Mosaic Viroid Variants from Nine North American Peach Cultivars Shows that this RNA Folds into a Complex Secondary Structure. *Virology* 271:37-45.



## Publications of Agricultural Research Center Scientists By Department and Project Agricultural Research Center

### Natural Resource Sciences

#### Project:

**0226** Nutritional Ecology of Large Mammals,  
Robbins, C.T.

Hilderbrand, G.V., C.C. Schwartz, C.T. Robbins, and T.A. Hanley. 2000. Effect of Hibernation and Reproductive Status on Body Mass and Condition of Coastal Brown Bears. *Journal of Wildlife Management* 64:178-183.

Rode, K.D., and C.T. Robbins. 2000. Why Bears Consume Mixed Diets During Fruit Abundance. *Canadian Journal of Zoology* 78:1640-1645.

Rominger, E.M., C.T. Robbins, M.A. Evans, and D.J. Pierce. 2000. Autumn Foraging Dynamics of Woodland Caribou in Experimentally Manipulated Habitats, Northeastern Washington, USA. *Journal of Wildlife Management* 64:160-167.

**0982** Natural Resource-Based Communities in the Era of Globalization, Carroll, M.S.

Blatner, K.A., C. Bonongwe, and M.S. Carroll. 2000. An Assessment of Factors Influencing Agroforestry Adoption in Central and Northern Malawi. *Journal of Sustainable Forestry* 11:41-69.

Carroll, M.S., S.E. Daniels, and J. Kusel. 2000. Employment and Displacement Among Northwestern Forest Products Workers. *Society and Natural Resources* 13:151-156.

Carroll, M.S., K.A. Blatner, F. Alt, and A.J. Findley. 2000. Adaptation Strategies of Displaced Woods Workers: Results of a Longitudinal Panel Study. *Society and Natural Resources* 13:95-113.

### Plant Pathology

#### Project:

**0274** Development & Implementation of Direct-Seed Cereal Based Cropping Systems for the Inland Northwest, Cook, R.J.

Cook, R.J. 2000. Advances in Plant Health Management in the Twentieth Century. *Annual Review of Phytopathology* 38:95-116.

Cook, R.J. 2000. Biological Control in Sustainable Agriculture. *Informatore Fitopatologico* 3:45-48.

Cook, R.J., B.H. Ownley, H. Zhang, and D. Vakoch. 2000. Influence of Paired-Row Spacing and Fertilizer Placement on Yield and Root Diseases of Direct-Seeded Wheat. *Crop Science* 40:1079-1087.

Keen, N.T., B. Staskawicz, J. Mekalanos, F. Ausubel, and R.J. Cook. 2000. Pathogens and Hosts: The Dance is the Same, the Couples are Different. *Proceedings of the National Academy Sciences USA* 97:8752-8753.

**0300** Population Biology of Plant Pathogenic Fungi, Peever, T.L.

Masunaka, A., A. Tanaka, T. Tsuge, T.L. Peever, L.W. Timmer, M. Yamamoto, H. Yamamoto, and K. Akimitsu. 2000. Distribution and Characterization of AKT Homologs in the Tangerine Pathotype of *Alternaria Alternata*. *Phytopathology* 90:762-768.

Peever, T.L., L. Olsen, A. Ibáñez, and L.W. Timmer. 2000. Genetic Differentiation and Host Specificity among Populations of *Alternaria spp.* Causing Brown Spot of Grapefruit and Tangerine x Grapefruit Hybrids in Florida. *Phytopathology* 90:407-414.

Peever, T.L., Y.C. Liu, P. Cortesi, and M.G. Milgroom. 2000. Variation in Tolerance and Virulence in the Chestnut Blight Fungus-Hypovirus Interaction. *Applied and Environmental Microbiology* 66:4863-4869.

Pimentel, G., L.M. Carris, and T.L. Peever. 2000. Characterization of Interspecific Hybrids between *Tilletia Controversa* and *T. Bromi*. *Mycologia*. 92:411-420.

Pimentel, G., T.L. Peever, and L.M. Carris. 2000. Genetic Variation among Natural Populations of *Tilletia Controversa* and *T. Bromi*. *Phytopathology* 90:376-383.

Timmer, L.W., P.D. Roberts, H.M. Darhower, P.M. Bushong, E.W. Stover, T.L. Peever, and A.M. Ibáñez. 2000. Epidemiology and Control of Citrus Greasy Spot in Different Citrus-Growing Areas in Florida. *Plant Disease* 84:1294-1298.



## Publications of Agricultural Research Center Scientists By Department and Project Agricultural Research Center

Timmer, L.W., H.M. Darhower, S.E. Zitko, T.L. Peever, A.M. Ibáñez, and P.M. Bushong. 2000. Environmental Factors Affecting the Severity of Alternaria Brown Spot of Citrus and Their Potential Use in Timing Fungicide Applications. *Plant Disease* 84:638-643.

**0669** Improving Resistance to Eyespot in Winter Wheat, Murray, T.D., Jones, S.S.

Yildirim, A., S.S. Jones, T.D. Murray, and R.F. Line. 2000. Evaluation of *Dasyscyrum Villosum* Populations for Resistance to Cereal Eyespot and Stripe Rust Pathogens. *Plant Disease* 84:40-44.

**0678** Disease Warning Systems for Potato and Mint, Johnson, D.A., Alldredge, J.R.

Johnson, D.A., and T.F. Cummings. 2000. Evaluation of Mint Mutants, Hybrids, and Fertile Clones for Resistance to *Verticillium Dahliae*. *Plant Disease* 84:235-238.

Johnson, D.A., T.F. Cummings, and B. Geary. 2000. Post Infection Activity of Selected Late Blight Fungicides. *Plant Disease* 84:1116-1120.

Johnson, D.A., T.F. Cummings, and P.B. Hamm. 2000. Cost of Fungicides used to Manage Potato Late Blight in the Columbia Basin: 1996 to 1998. *Plant Disease* 84:399-402.

Miller, J.S., and D.A. Johnson. 2000. Competitive Fitness of *Phytophthora Infestans* Isolates under Semiarid Field Conditions. *Phytopathology* 90:220-227.

Omer, M.A., D.A. Johnson, and R.C. Rowe. 2000. Recovery of *Verticillium Dahliae* from North American Certified Seed Potatoes and Characterization of Strains by Vegetative Compatibility and Aggressiveness. *American Journal of Potato Research* 77:325-331.

**0837** Systematics and Biology of Phytopathogenic Fungi with Emphasis on Tilletiales, Cards, L.M.

Pimentel, G., L.M. Carris, and T.L. Peever. 2000. Characterization of Interspecific Hybrids between *Tilletia Controversa* and *T. bromi*. *Mycologia* 92:411-420.

Pimentel, G., T.L. Peever, and L.M. Carris. 2000. Genetic Variation Among Natural Populations of *Tilletia Controversa* and *T. bromi*. *Phytopathology* 90:376-383.

**1767** Mycobiotic, Revisionary, and Monographic Studies in Xylariaceae, Rogers, J.D.

Rogers, J.D., F. San Martin, Y.M. Ju, and K. Hansen. 2000. *Biscogniauxia Viscosicentra* sp. nov. and the Anamorph of *Camillea Cyclops*. *Nova Hedwigia* 71:431-437.

Whalley, M.A., Y.M. Ju, J.D. Rogers, and A.J.S. Whalley. 2000. New Xylariaceous Fungi from Malaysia. *Mycotaxon* 74:135-140.

### Puyallup Research Extension Center Project:

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

Timmermans, T.J., L.M., Johnson, J.H. Harrison, and D. Davidson. 2000. Estimation of the Flow of Microbial Nitrogen to the Duodenum Using Milk Uric Acid and Allantoin. *Journal of Dairy Science* 83:1286-1299.

**0252** Diseases of Blueberry and Cranberry: Their Etiology, Epidemiology, and Control, Bristow, P.R., Patten, K.D., Martin, R.R. \*, Oudemans, P.V.

Bristow, P.R., and R.R. Martin. 2000. Transmission, Field Spread, Cultivar Reaction, and Impact on Yield in Highbush Blueberry Infected with Blueberry Shock Virus. *Phytopathology* 90:474-479.

Soil Conditions, Crop Productivity and Groundwater Quality in Some Western Washington Soils, Kuo, S., Harsh, J.B., Bezdicek, D.F.

Kuo, S., and E.J. Jellum. 2000. Long-Term Winter Cover Cropping Effects on Corn (*zea mays* L.) Production and Soil Nitrogen Availability. *Biology and Fertility Soils* 31:470-477.



## Publications of Agricultural Research Center Scientists By Department and Project Agricultural Research Center

**0285** Environmental /Cultural Factors on Water Stress Resistance/Growth/Cold Hardiness of Landscape Plants, Hummel, R.L.

Hummel, R.L., S. Kuo, D. Winters, and E.J. Jellum. 2000. Fishwaste Compost Medium Improves Growth and Quality of Container-Grown Marigolds and Geraniums without Leaching. *Journal of Environmental Horticulture* 18:93-98.

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

Wennergren, U., and J.D. Stark. 2000. Modeling Long-Term Effects of Pesticides on Populations: Beyond just Counting Dead Animals. *Ecological Applications* 10:295-302.

**0690** Chemistry and Bioavailability of Waste Constituents in Soils, W-170, Kuo, S.

Hummel, R.L., S. Kuo, D. Winters, and E.J. Jellum. 2000. Fishwaste Compost Medium Improves Growth and Quality of Container-Grown Marigolds and Geraniums without Leaching. *Journal of Environmental Horticulture* 18:93-98.

Kuo, S., P.R. Bristow, E.J. Jellum, and M. Okiro. 2000. Nitrogen Mineralization of Lime-Stabilized Fishwaste in Acid Soils and Its Effects on Plant Growth. *Journal of Environmental Quality* 29:380-387.

**0722** Beneficial Use of Organic Amendments in Agricultural and Urban Soils, Cogger, C.G., Bary, A.I., Hummel, R.L., Miltner, E.D.

Sullivan, D.M., C.G. Cogger, A.I. Bary, and S.C. Fransen. 2000. Timing of Dairy Manure Applications to Perennial Grass on Well Drained and Poorly Drained Soils. *Journal of Soil and Water Conservation* 55:147-152.

### Rural Sociology

#### Project:

**0141** Public Concern for the Environment: International Comparisons, Dunlap, R.E.

Dunlap, R.E. 2000. Americans Have Positive Image of the Environmental Movement. *Gallup Poll Monthly* 415:19-25.

Dunlap, R.E., K.D. Van Liere, A.G. Mertig, and R.E. Jones. 2000. Measuring Endorsement of the New Ecological Paradigm: A Revised NEP Scale. *Journal of Social Issues* 56:425-442.

McCright, A.M., and R.E. Dunlap. 2000. Challenging Global Warming as a Social Problem: An Analysis of the Conservative Movement's Counter-Claims. *Social Problems* 47:499-522.

Saad, L., and R.E. Dunlap. 2000. Americans Are Environmentally Friendly, but Issue Not Seen as Urgent Problem. *Gallup Poll Monthly* 415:12-18.

**0280** Green Buildings, Technology Markets and Environmental Sustainability, Lutzenhiser, L.A.

Blumstein, C., S. Goldstone, and L. Lutzenhiser. 2000. A Theory-Based Approach to Market Transformation. *Energy Policy* 28:137-144.

**0942** Improvement of Rural and Agricultural Sample Survey Methods, W-183, Dillman, D.A., McCracken, V.A.

Dillman, D.A. 2000. The Role of Behavioral Survey Methodologists in National Statistical Agencies. *International Statistical Review* 68:199-220.

**0981** Social and Economic Change in Nonmetro Washington, Cook, A.K.

P. M. Starzyk. 2000. Variation in the Rate of Smoking for Teen Mothers. *American Journal of Health Behavior* 24:379-386.

### Statistics

#### Project:

**0254** Analysis of Categorical Resource Selection, Alldredge, J.R.

Dasgupta, N., and J.R. Alldredge. 2000. A Chi-Square Goodness-of-Fit Analysis of Dependent Resource Selection Data. *Biometrics* 56:402-408.



## Publications of Agricultural Research Center Scientists By Department and Project Agricultural Research Center

### Tree Fruit Research and Extension Center

#### Project:

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

Dunley, J.E., and S.C. Welter. 2000. Correlated Insecticide Cross-Resistance in Organophosphate Resistant Codling Moth. *Journal of Economic Entomology* 93:955-962.

Reding, M.R., E.H. Beers, J.F. Brunner, and J.E. Dunley. Influence of Timing and Prey Availability on Fruit Damage to Apple by *Campylopus verbasci* (Hemiptera: Miridae). *Journal of Economic Entomology* 94:33-38.

**0338** The Effects of Exogenous Bioregulators on Regular Cropping of Apples, Fallahi, E., Elfving, D.C., Drake, S.R.\*, Van Ee, G., Willemsen, K. M.

Elfving, D.C. 2000. Apogee: New Bioregulator for Pears Proceedings of the Annual Washington State Horticulture Association 95:139-143.

**0452** Rootstock and Interstem Effects on Pome and Stone Fruit Trees, NC-140, Barritt, B.H.

Marini, R.P., J.L. Anderson, B.H. Barritt, G.R. Brown, J. Cline, W.P. Cowgill, Jr., P.A. Domoto, D.C. Ferree, J. Garner, G.M. Greene, C. Hampson, P. Hirst, M.M. Kushad, E. Mielke, C.A. Mullins, M. Parker, R.L. Perry, J.P. Privé, G.L. Reighard, T. Robinson, C.R. Rom, T. Roper, J.R. Schupp, E. Stover, and R. Unrath. 2000. Performance of Gala Apple on Four Semi-Dwarf Rootstocks: A Five-Year Summary of the 1994 NC-140 Semi-Dwarf Rootstock Trial. *Journal of American Pomological Society* 54:84-91.

Marini, R.P., J.L. Anderson, W.R. Autio, B.H. Barritt, J.A. Cline, W.P. Cowgill, Jr., R.M. Crassweller, P.A. Domoto, D.C. Ferree, J. Garner, A. Gaus, G.M. Greene, C. Hampson, P. Hirst, M.M. Kushad, E. Mielke, C.A. Mullins, M. Parker, R.L. Perry, J.P. Privé, G.L. Reighard, T. Robinson, C.R. Rom, T.R. Roper, J.R. Schupp, E. Stover, and R. Unrath. 2000. Performance of Gala Apple on 18 Dwarf Rootstocks: Five-Year Summary of the 1994 NC-140 Dwarf Rootstock Trial. *Journal of American Pomological Society* 54:92-107.

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

Peryea, F.J. 2000. Midsummer Copper Sprays Have No Effect on Delicious Apple Fruit Color Grade or Typiness. *Journal of Plant Nutrition* 23:507-515.

Peryea, F.J. 2000. Recommended Prebloom Copper Spray Has No Effect on Delicious Apple Tree Copper Status or Fruit Typiness. *Journal of Plant Nutrition* 23:517-528.

Peryea, F.J., and J.M. Lageschulte. 2000. Boron Fertilizer Product and Concentration Influence Spray Water pH. *Hort Technology* 10:350-353.

**0801** Secondary Pests of Deciduous Pome Fruits, Beers, E.H.

Reding, M.R., E.H. Beers, J.F. Brunner, and J.E. Dunley. 2000. Influence of Timing and Prey Availability on Fruit Damage to Apple by *Campylopus verbasci* (Hemiptera: Miridae). *Journal of Economic Entomology* 94:33-38.

**1090** Pest Management of Direct Pests of Apple in Washington Tree Fruit Orchards, Brunner, J.F., Beers, E.H., Dunley, J.E., Landolt, P.J.\*

Epstein, D.L., R.S. Zack, J.F. Brunner, L. Gut, and J.J. Brown. 2000. Effects of Broad-Spectrum Insecticides on Epigeal Arthropod Biodiversity in Pacific Northwest Apple Orchards. *Environmental Entomology* 29:340-348.

### Vancouver Research and Extension Unit Project:

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

Booth, S.R., L.K. Tanigoshi, and K. Dewes. 2000. Potential of a Dried Mycelium Formulation of an Indigenous Strain of *Metarhizium Anisoploiae* against Subterranean Pests of Cranberry. *Biocontrol Science and Technology* 10:659-668.



## Publications of Agricultural Research Center Scientists By Department and Project Agricultural Research Center

### Patents

#### Biological Systems Engineering

**Project:**

**0467** Improvement of Thermal and Alternative Processes for Food, NC-136, Barbosa-Cánovas, G.V., Powers, J.R., Cavalieri, R.P., Swanson, B.G., Tang, J.

Qin, B.L., G.V. Barbosa-Cánovas, B.G. Swanson, P.D. Pedrow, R. Olsen and Q. Zhang. 2000. Continuous Flow Electrical Treatment of Flowable Food Products. Part III. US Patent No. 6,019,031.

#### Horticulture and Landscape

#### Architecture

**Project:**

**0321** Calcium Mediated Signaling in Plants: Calmodulin and Cat+/Calmodulin - Dependent Protein Kinase, Poovaiah, B.W.

Poovaiah, B.W., Z. Liu, D. Takezawa, and S. Patil. 2000. Compositions and Methods for Production of Male Sterile Plants. Patent issued No. 6,077,991.

*\*Faculty of USDA-ARS*