

School of Food Science

College of Agricultural, Human, and Natural Resource Sciences

Food Science Faculty Research Interests

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Byung-Kee Baik (Crop & Soil Sciences)

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Chemistry and processing of cereal grains and legumes, and chemistry and functional properties of starch, protein and fibers. Research projects include influence of amylose content of wheat on bread and noodle quality, protein quality of wheat required for making Asian noodles, color and discolorization of barley-based food products, preprocessing of chickpeas, lentils and peas for fortification of wheat-based products, and antioxidant activity and total phenolic content of peas, chickpeas, and lentils.

Stephanie Clark

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Studying the chemical and microbiological factors influencing the flavor, texture, functional properties, and safety of foods made from the milk of cows, goats and sheep. Strives to understand dairy chemistry and/or attempts to utilize dairy ingredients in novel ways. Current research projects examine a defect that is common to Cheddar cheese: calcium lactate crystals. The manufacturing conditions, microbiological and enzymatic factors that cause the appearance defect are being studied. Another project has been designed to examine the effect of high hydrostatic pressure upon flavor-binding and functional properties of whey proteins.

Richard H. Dougherty

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Practical aspects of food processing, food product development, and food business development. Works closely with food processors in Washington in evaluating and solving their technical, marketing and general business problems.

Charles G. Edwards

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Microbiology and chemistry of wines during vinification including nutrient requirements of wine microorganisms, spoilage yeast and bacteria, and malolactic fermentation.

James Harbertson

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Wine Chemistry. Research interests are focused on the phenolic compounds found in grapes and wine and their biochemical and chemical changes during grape ripening, winemaking and aging. Example projects include understanding the variability of tannin found in red wine cultivars and the ultimate relationship between tannin, polymeric pigments and astringency. Works with wineries to solve simple and difficult problems and is located in the wine-grape growing region at the WSU Prosser Irrigated Agriculture Research and Extension Center.

Dong-Hyun Kang

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Food safety, particularly the recovery of injured microorganisms, control of foodborne pathogens, and the application of HACCP plans. Recent research has focused on developing new methods and media to be used in the industry to detect and monitor foodborne pathogens or spoilage microorganisms in food products.

Karen Killinger

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Food microbiology, food safety and consumer food safety specialist. Educational programs for at-risk populations for foodborne illness and hard-to-reach audiences; food safety at food service establishments; the relationship of cooked meat color to internal temperature and antimicrobial drug resistance in foodborne pathogens.

Alan R. McCurdy

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Modification of food lipids, meat microbiology and microbial food safety. Studies have been carried out on chemical and enzymatic hydrogenation, interesterification, esterification and other means to alter the physical properties of lipids.

Joseph R. Powers

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Enzymes and proteins of food products, primarily fruits and vegetables. One current research project focuses on the study of enzymes responsible for off-flavor development in frozen vegetables. Another area of interest is the enzymology of polysaccharide synthesis in plants, specifically starch in potatoes and cell wall components in fruits and vegetables.

Barbara A. Rasco

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Process and product development in fisheries technology and aquaculture, including studies on the chemical and nutritional properties of foods important in the Pacific Northwest; development of spectroscopic analytical and biomarker methods for process control and microbial detection in foods; food safety and food defense; food law including products liability, environmental issues, and regulatory reform.

Kerry Ringer

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Works with wineries to solve simple and difficult problems and is located in the wine-grape growing region at the WSU Prosser Irrigated Agriculture Research and Extension Center.

Carolyn Ross

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Sensory evaluation of foods and wine. Sensory analysis combined with analytical chemistry techniques to identify and describe changes in flavor and odor profiles; evaluation of aroma and flavor compounds and precursors in grapes and wine, examination of aroma and flavor contamination in fruit products, and the changes in these compounds due to viticultural and enological practices; changes in sensory profiles of foods as a result of advanced processing techniques; the interaction of flavors and aromas with packaging material.

Barry G. Swanson, Interim Chair

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Studies of legume protein digestibility and storage quality; research on syntheses of sucrose fatty acid polyester fat substitutes, alternative fat replacers and methods to improve the quality of reduced fat cheeses; fundamental research on microbial inactivation and quality of foods treated with high intensity pulsed electric fields and ultra high hydrostatic pressures. Current research focuses on the implementation of ultra high pressures to improve cheese yield, attenuate adjunct cultures to accelerate aging and improve the flavor of Cheddar cheeses, and improve the hydrophobic functional properties of whey proteins.