



# Aggie Brew

Issue 5  
December 2001

## **The Robert Mondavi Institute**

On September 19<sup>th</sup> 2001, it was announced that Mr. Robert Mondavi has donated \$35 million to the University. \$10 million is to name the new Performing Arts Center for Robert and Margrit Mondavi, and \$25 million is to create the Robert Mondavi Institute for Wine and Food Research. With matching funds from the State, the Mondavi donation will be used to construct a new building to house the Department of Viticulture and Enology and the Department of Food Science and Technology, including the program in Brewing Science with its new pilot facility. We are working hard to ensure that the brewing program not only benefits through this generous donation but also receives the highest possible profile as part of this exciting development. We are hopeful for the generous involvement of brewing concerns in helping us ensure that this happens. Up to \$20 million is still needed to realize the vision.

## **Who's who in the lab right now**

Presently there are six Masters Students in the lab. John Smythe (sensory perception of beer) is wrapping up his project right now. Bill Stephenson (working on brewhouse oxidation) and Evan Miracle (S compounds and flavor) are in their second year. Alberto Sun (ex North Dakota State), Craig Heisner (ex-Springfield Brewing Company, MO) and Curt Traina (currently brewer at Sudwerk in Davis) started this quarter. Candy Wallin keeps them on the straight and narrow in the lab!

My first four MS students here are now finished. David Lynch (foam nucleation) has left for Japan to teach English while he finds himself. Bob Ward (esterases) and Sarah Bushnell (flavor staling) are continuing in other capacities at Davis. Meanwhile Greg Kapp (foam proteins) is now a full-time employee with Anheuser-Busch, at their Fairfield plant.

## **Gone into the industry**

Greg is not the only recruit from the campus classes into the industry in 2001. Mark Cory is with Anheuser-Busch at Los Angeles. Scott Vaccaro, following his successful

summer with Adnams in UK, has joined the staff of Sierra Nevada. Jean-Pierre Biawa, who was a visiting scientist with me from Cameroon by way of the brewing school in Berlin, has joined Miller Brewing Company. Two students had valuable internships during the summer: Aaron Blanchard at Gordon Biersch and Chris Dennis-Strathmeyer at the Bass Museum brewery. Bill Stephenson is following the path trodden by Greg Kapp and is combining his MS studies with responsibilities on shift at the Anheuser-Busch Fairfield brewery.

## **A new course**

The new course (FST 3) at the Freshman/Junior level will commence in the Fall of 2002. It will introduce (in a responsible way) the younger element to the rich and varied world of brewing. We are anticipating a huge enrolment, which will hopefully auger well for the future.

## **Supporters' Meeting**

On Wednesday June 20<sup>th</sup> a full day's meeting was held for friends and supporters of the brewing program. We were delighted to see representation from many of the companies that have contributed financially and in kind to the activities in Davis. Presentations were made on the work carried out by the students and post-docs at Davis. Topics addressed included cell wall architecture in barley, foam proteins, nucleation, esterases in barley and malt, the training of an expert panel to detect staling and its use in studying parameters influencing aging, brewhouse oxidation, kinetic analysis of lipoxygenase, selective inhibition of enzymes, sulfur flavors, the perception of beer foam, color analysis and the psychophysics of beer sensory perception. Emeritus Professor Michael Lewis described the highly successful Extension Program that provides short courses for experienced and inexperienced brewers alike. Professor Michael O'Mahony fascinated the delegates with his descriptions of the myriad of factors which "trick" our senses. The visitors had an opportunity to tour the brewing facilities and to witness the exciting developments taking place at Davis. The meeting will be repeated in June 2002.

## **AME Successes**

Two from the lab, Greg Kapp and Bob Ward passed the AME qualification of the Institute & Guild of Brewing

– a 100% success rate for the team! This year Evan Miracle and Bill Stephenson have their necks on the block.

## **Recent Publications**

**Since the last newsletter the following papers and articles have been published or will appear shortly. As a commitment to my supporters these are e-mailed as attachments as soon as they are accepted.**

Kanauchi, M. & Bamforth, C.W. (2002) Enzymic digestion of walls purified from the starchy endosperm of barley, *J. Inst. Brew.*, 108, in press

Bamforth, C.W., Kapp, G.R. & Smythe, J.E. (2001) The measurement of hydrophobic polypeptides in beer using the fluorochrome 1-anilino-8-naphthalenesulfonate, *Food Chemistry, Food Chemistry*, 75, 377-383

Bamforth, C.W. (2001) Oxido-reduction processes and active forms of oxygen in aqueous systems. *Cerevisiae Biotech.*, 26, 149-154

Biawa, J.-P. & Bamforth, C.W. (2001) A two-substrate kinetic analysis of lipoxigenase in malt. *J. Cereal Sci.*, in press

Bamforth, C. (2001) A Brewer's Biochemistry. Part 1: Proteins. *The Brewer International*, 1 (3), 21-25

Bamforth, C. (2001) Dishing up a 'feast for yeast' in the brewhouse. *Brewing & Distilling International*, 32(3) 12-13

Bamforth, C. (2001) Sieve or stew? The sterile filtration of beer. *Brewers Guardian*, 130(4), 15-18

Bamforth, C. (2001) Sexy or not? Recent work on brewing yeast. *Brewing & Distilling International*, 32(5), 10-11

Bamforth, C. (2001) A Brewer's Biochemistry. Part 2: Carbohydrates. *The Brewer International*, 1 (5), 27-30

Bamforth, C. (2001) A Brewer's Biochemistry. Part 3: Lipids. *The Brewer International*, 1 (7), 12-15

Bamforth, C. (2001) Taste buds and nostrils, or sensors and switches? *Brewing & Distilling International*, 32(7), 20-21

Bamforth, C. (2001) The flavour of beer – vicinal diketones. *Brewers Guardian*, 130(8), 24-26

Bamforth, C.W. (2001) The impact of barley on the ability of yeast to produce good beer. *Aspects of Applied Biology*, 63, 221 – 228

Bamforth, C. (2001) A Brewer's Biochemistry. Part 4: Nucleic acids. *The Brewer International*, 1 (9), 41-43

Bamforth, C. (2001) The flavour of beer – esters. *Brewers Guardian*, 130(9), 32-34

Bamforth, C. (2001) Where are we going with beer styles, brewing and packaging? *Brewing & Distilling International*, 32 (9), 20-23

Bamforth, C. (2001) The flavour of beer – sulphur-containing substances. *Brewers Guardian*, 130(10), 20-23

Bamforth, C. (2001) Can brewers learn anything from distillers and wine producers? *Brewing & Distilling International*, 32(11), 14-15

Bamforth, C. (2001) The flavour of beer – malt and hop character. *Brewers Guardian*, 130(11), 16-18

Bamforth, C. (2001) A Brewer's Biochemistry. Part 5: Metabolism. *The Brewer International*, 1

Bamforth, C. (2001) The flavour of beer – mouthfeel and texture. *Brewers Guardian*, in press

Bamforth, C.W. (2002) Nutritional Aspects of Beer – A Review. *Nutrition Research*, in press

## **Web Page**

Have you called into the Web page yet? 10,938 people have, at the last count! It's at <http://foodscience.ucdavis.edu/bamforth/>

## **Contributions**

I am extremely indebted to Anheuser-Busch, Sierra Nevada, Coors, Kirin, Asahi, South African Breweries, Botanicals International, ISP, John I Haas, Heineken, Miller, Cargill, Fosters, Scottish Courage and Rahr Malting for gifts in financial support of the program. We have also been promised a micro-maltings from Conagra.

**CAN YOU HELP? Do you want to be associated with the furtherance of our exciting mission? No check too small, from either Corporation or current account! No (relevant) gift "in kind" rejected!**

## **Keep in touch**

Please keep in touch, whether you are an alumnus or somebody keen to take advantage of the teaching and research programs at UCD. I can be reached at

Charlie Bamforth  
Dept of Food Science & Technology  
University of California  
Davis, CA 95616-8598  
Telephone 530-752-1467; Fax 530-752-4759  
E-mail [cwbamforth@ucdavis.edu](mailto:cwbamforth@ucdavis.edu)