

## **CAFÉ Workshop: February 6, 2016**

### **Blue and Gold Group**

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### **The Safety and Nutritional Integrity of Food**

Food safety is a critical issue confronting consumers today. The safety of our food supply can be degraded all along the supply chain, as a result of conditions and agricultural practices in the field during cultivation, at harvest, during shipping, at food processing facilities, at wholesale and retail facilities, and in the home. Microbial, especially bacterial, contaminants are of chief concern, with approximately 48M cases of foodborne disease in the U.S. annually, resulting in 128,000 hospitalizations and 3,000 deaths (CDC, 2016). The World Health Organization estimates that foodborne diseases resulted in 420,000 deaths globally in 2010 (WHO, 2015). Pesticides, antibiotics, metals and other substances can also in some cases contaminate foods. In addition to the safety of our food, the nutritional value and nutritional integrity of our foods is also an important issue. For example, fruits and vegetables are routinely harvested prior to their readiness for consumption, and then processed, packaged and shipped to stores where they can remain for a considerable period of time. The nutritional content (e.g., vitamin C content) can degrade over time. The goal of this project is to quantify the microbial and nutritional profiles of commonly consumed fruits and vegetables along the supply chain and in simulated conditions in homes to identify changes in safety and nutritional value over time and at critical control points in the food production system.

### **Food is Medicine**

Our interactions with food, through visual, olfactory, tactile and gustatory systems, elicit complex biochemical reactions that in turn drive voluntary and involuntary dietary decisions that can affect our health and well-being. For example, excess intake of sugar is linked to type 2 diabetes and a number of resulting complications, including hypertension, neuropathy, ketoacidosis and nephropathy (American Diabetes Association, 2016). The total cost of diagnosed diabetes in the US is estimated at \$245B in 2012, with \$176B in direct medical costs and \$69B in reduced productivity. Understanding our biochemical and physiological relationships with food and reducing adverse health outcomes from poor dietary decisions is thus important both from a quality-of-life perspective and also a fiscal one. Interactions with food can also be a positive one, and participation in its cultivation can offer important therapeutic, psychological and sociological benefits. The goal of this project is to better understand the

basic biochemical and neurological responses to food, as well as the potential for therapeutic benefits and mental health gains associated with participatory food systems.

### **Educational Opportunities in Food and Agriculture**

In addition to the research concepts described above, discussions also considered potential training opportunities in food and agriculture. Ideas included academic credit for R'Garden-based instruction and projects, role of Master Gardeners, collaboration or development of joint degree programs with CSU-Pomona on food production and food safety, and a professional M.S. degree that includes agriculture and business courses.