

## Keynote Symposium

### KS-1

Agricultural Research and the Next Green Revolution: The Need for Increased Productivity to Ensure Food Security and Improved Nutrition. G. A. BUCHANAN. University of Georgia, NESPAL, PO Box 748, Tifton, GA 31793. Email: galeb@uga.edu

Nobel Laureate Norman Borlaug played a key role in, and is often referred to as the “Father of the Green Revolution.” His success in breeding higher yielding varieties of wheat and other grains coupled with improved cultural practices including enhanced fertilization and irrigation greatly enhanced agricultural productivity. The British publication, “The Economists,” credits Dr. Borlaug with saving more lives from hunger than any other person who ever lived. In a special 30th anniversary lecture at the Norwegian Nobel Institute, Oslo, September 8, 2000, Dr. Borlaug stated, “Mushrooming populations, changing demographics and inadequate poverty intervention programs have eaten up many of the gains of the Green Revolution.” In his last writing – the preface to the Council for Agricultural Science

and Technology (CAST) Issue Paper No. 45 – Dr. Borlaug called for a second Green Revolution and even though there is a great need, there are multiple factors that severely hamper the reality of another Green Revolution. Clearly, the only path to the next Green Revolution is through focused and dedicated agricultural research that leads to more efficient use of available resources. Challenges for agricultural research range from removing or minimizing minor impediments to production for individual crops and livestock to grand challenges that could usher in the next green revolution. Addressing such challenges as improving the quality of soil, converting or enabling C<sub>3</sub> plants to utilize the C<sub>4</sub> photosynthetic pathway, nitrogen fixation in non-legumes, capturing animal waste and many other approaches could foster the next green revolution. Improving the quality and nutritional composition of agricultural crops would strengthen the likelihood for a next green revolution. Providing for the nutritional requirements of the people along with their energy and other needs will require unprecedented agricultural output. Unfortunately, there is not a sufficient commitment of resources to support the research needed to generate the information, knowledge and technology to make this a reality.