

# Harmony Between Agriculture and the Environment

## Plant Breeding Coordinating Committee

### Plant Breeding Improves the Environment, the Economy, and Quality of Life

Developing sustainable societies is the grand challenge of the coming century. More food, feed, fiber, fuel, and forest products necessary to meet basic human needs must be produced from less land, water, and nutrients. A growing population will require expanded landscaping and urban forests to moderate the environment and produce suitable living spaces. Landscaping that requires less water, athletic fields that are durable and require less fertilizer, and parklands with restored native species will all contribute to human well-being. This all must be done sustainably, without degrading these spaces or resources for future generations. By developing the new crops, ornamentals, and forest trees that meet these societal needs **Plant Breeding** is the *scientific* discipline essential to address all of these concerns!



*Wren Dairy - Breeding new and more productive forages allows more milk to be produced on less land. Forages have less greenhouse gas emissions and better soil protection than feed grain.*



### Breeding Plants to Improve Our Environment

1. *Breeding for new uses*
2. *Breeding for local adaptation*
3. *Breeding for optimum cropping systems*
4. *Breeding alternative crops*
5. *Breeding for new agricultural paradigms*
6. *Breeding for ecosystem services*



*Drought Tolerant Corn - Breeding crops that require less inputs while producing greater yields decreases the environmental impact of agriculture.*

### New Partnerships: Private, Public, Non-Profit

Agricultural inputs are responsible for 2% of US energy consumption. Realizing that ‘sustainability’ must improve both environment and economics, diverse groups are now working together towards common goals: improving agriculture, the economy, and the environment.

### Necessity of Public Plant Breeding

Public breeding programs offer a necessary complement to private industry; tackling long-term, high-risk, and small market problems while training a high-tech workforce for employment in the private sector.

### Deliverables

Support for public breeding leads to (1) improved germplasm and cultivars that will directly benefit producers and consumers, (2) scientific advancement leading to more efficient public, private and NGO breeding programs, and (3) graduates that will be hired by industry, academia, government and NGOs in the US and abroad.

### **PLANT BREEDING GROWS GREEN!**

#### Breeding for environmental adaptation

1. *Producing more yield with less inputs*
2. *Adapting plants to changing climates*
3. *Breeding stress tolerance*
4. *Breeding to increase diversity*