

Grand Challenge #4: Food Security: How Will We Help Feed the Hungry?

Food security is the condition in which all people, at all times, have physical, social and economic access to sufficient safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life. Over the coming decades, a changing climate, growing global population, rising food prices, and environmental stressors will have significant yet highly uncertain impacts on food security.

The U.S. is the most agriculturally productive country in the world. Paradoxically, however, it has higher food insecurity rates than many other developed countries. A 2015 USDA Economic Research Service report¹ found that 12.7 percent of U.S. households (15.8 million households) were food insecure that year. The ERS report noted that while all these numbers declined from 2014 to 2015, they are still above the 2007 pre-recessionary levels. Food-insecure households had difficulty at some time during the year providing enough food for all their members due to a lack of resources. This includes the 7.8 percent of U.S. households that have children (3.0 million households). These households were unable at times during the year to provide adequate, nutritious food for their children. The prevalence of food insecurity varied considerably from state to state. The estimated prevalence of food insecurity in 2013-15 ranged from 8.5 percent in North Dakota to 20.8 percent in Mississippi. Fifty percent of counties with the highest rates of food insecurity (those in the top ten percent) are in rural areas.

The causes of food insecurity are varied and include lack of income and assets (e.g., unemployment or underemployment); access and distribution (i.e., food deserts); family stability and, the mental/physical health of caregivers. Its effects are insidious and widespread, including homelessness, poor health outcomes, and poor educational and developmental outcomes for children. In older Americans, food insecurity is a strong predictor of health problems such as heart disease, cancer, stroke, pulmonary disease or diabetes.²

The land-grant system is uniquely positioned to respond to the challenge of food insecurity, domestically and globally. Land-grants have conducted global research in food and agriculture that is specific to environmental and social contexts for over 100 years. Food systems are multidimensional, involving plant and animal biology, engineering, nutrition, economics, policy, behavioral health, and other fields. Land-grants are unique in that they bring together experts in all of these disciplines. They have unmatched capacity for mainstreaming new knowledge through the education of students and, by Extension, to families and communities. Transforming food systems implies large scale, coordinated efforts in multiple dimensions that transcend private interest groups, state and national boundaries, and scientific disciplines.^{3 4} Land-grant universities offer an exceptional capacity to address the challenge.

How will the land-grant system respond to this challenge?

¹Coleman-Jensen, Alisha, M. P. Rabbitt, C. A. Gregory, and A. Singh. 2016. Household Food Security in the United States in 2015. USDA Economic Research Service.

² Alley, Dawn E. et al. 2009. "Material Resources and Population Health: Disadvantages in Health Care, Housing, and Food among Adults Over 50 Years of Age." *American Journal of Public Health*, 99(S3):S693–S701.

³ Winter-Nelson, Alex. March 31, 2016. "The Critical Roles of Land Grant Universities in Supporting Resilient Food Systems for Food Security." Chicago Council on Global Affairs.

⁴ APLU. nd. "The Challenge of Change: Harnessing University Discovery, Engagement, and Learning to Achieve Food and Nutrition Security."