

IAS White Paper
National Institute for Food and Agriculture
Strategic Planning

Introduction: In this white paper we provide rationale and a roadmap to integrate global dimensions in support of the domestic program goals of USDA and the National Institute of Food and Agriculture's (NIFA) Agriculture and Food Research Initiative (AFRI). This paper has been produced by an executive subcommittee of the International Agriculture Section (IAS), Board on Agricultural Assembly of APLU.

We address Goal #3 of the USDA Strategic Plan FY2010 – 2015, in particular Objective 3.1 Ensuring U.S. agriculture resources contribute to enhanced global food security; Objective 3.2 Enhance America's ability to develop and trade agricultural products derived from new technologies; and Objective 3.3 Support sustainable agricultural production in food-insecure nations. Furthermore, concepts and activities proposed here further support Goal 4 of NIFA's recent strategic document dealing with how to catalyze America's global preeminence in agricultural sciences.

Purpose: NIFA will need to strengthen U.S. connectivity with the global community to better serve the domestic needs of the U.S. agriculture sector. Strong ties with the global agricultural community are critical to keeping U.S. agriculture strong. Global connectivity will increase the reach of programs that it supports, enabling them to better address pressing domestic and global challenges such as food security, energy sufficiency, and climate change. Solutions to these challenges can best be achieved through technology and innovation flows within global science and education networks.

To catalyze America's global agricultural preeminence, USDA will need to provide additional international opportunities within AFRI competitive grants programs. USDA will be more effective in strengthening and expanding the US agricultural system if it provides international research, education and outreach opportunities that more purposively link select U.S. stakeholders and their constituencies to global agricultural networks and challenges.

Rationale: The world has witnessed substantial gains in agricultural productivity over the past half century. Continued population growth, changes in dietary patterns, declining supplies of fresh water, advancing climate change, and increasing soil degradation have placed a tremendous demand on the productivity of American agriculture and the global agriculture system to deliver adequate food for the world. However, rates of increase in production over the last two decades have not kept pace with the rapid growth in demand creating recent price spikes that have been associated with civil unrest in a number of countries¹. America has a preeminent capacity in agricultural research and technology development but to maintain that leadership it must increase its capacity to connect with resources beyond its borders. Simply put, our ability to address our own problems and meet U.S. agricultural needs requires global connectivity.

Agricultural demand is expected to increase by more than 60 percent over the next 40 years.

¹ Barrett, C.B. (2013) Food Security and Sociopolitical Stability. Oxford Press.

A recent article in USDA's Amber Waves clearly projects that new demand for agricultural products will emanate from low- and middle-income countries where the majority of the 2 billion people who will be added to the world by 2050 will reside.² However, if one examines the yield gap (the difference between actual and potential yields) much of that increased demand will have to be met by increasing the production in those same countries.³ In the short to medium term these countries will not be able to meet these demands by themselves and because of their growing economies⁴ they are buying a steadily increasing share of our agricultural exports. If USDA is to meet its mission of supporting and solidifying U.S. agriculture's preeminent role in the world and address global food security, it will need to continue to look beyond our borders. Its programs will need to facilitate, maintain and strengthen U.S. ties with countries in Africa, Asia, Eastern Europe and Latin America. In part these relationships imply identifying and meeting market demands for U.S. products. They also imply working with counterparts in these nations to increase their capacity to meet the increasing demands of their respective food systems to ensure their future national wellbeing and stability.

Increases in agricultural productivity will be required to meet the future global challenge of feeding over nine billion people by 2050. Advances in agricultural productivity are largely based on slow but continuous accumulation of knowledge resulting largely from scientific research. Much of this research includes collaboration with partners in other nations. Progress in agriculture has always been an inherently international affair, a fact that IAS believes necessitates USDA and other federal agencies to engage more actively in supporting international research, education and outreach. Today's scientists stand on the shoulders of those who went before them and whose work was often international in scope. Dr. Norman Borlaug is just one example of a U.S. scientist engaged in international work whose discoveries also provided tremendous benefits to U.S. agriculture. It is this accumulation of research results over the long run and across borders of countries and disciplines that accounts for the differences in agricultural productivity observed around the world, but particularly in the United States. This reality underscores why sustained, long-term funding for international research collaborations are vital to USDA's strategic plan and NIFA's goal to "catalyze America's global preeminence in agricultural sciences."

To achieve this, the collaborative global partnerships that we advocate will help enrich USDA's research agenda by helping to engage proactively the interactions of our system with global agricultural science networks. An outcome of increased global collaboration will result in benefits for American producers, greater global stability in food prices both domestically and abroad, potentially less political unrest associated with food price spikes and greater food security for developing countries.

Congressional Authorization: IAS is pleased that Congress has maintained support for international agriculture by including reauthorizations of the International Science and Education grant program in both the House and Senate Farm Bills, H.R. 1947 and S. 954 respectively.

² Ronald Trostle and Ralph Seeley, USDA, Amber Waves, "Developing Countries Dominate World Demand for Agricultural Products", August 5, 2013

³ Lobell, D.B., Cassman, K.G. and C.B Field (2009) Crop Yield Gaps: Their importance, magnitudes and causes. Annual Review of Environment and Resources 34:179-204.

⁴ For example, Sub-Saharan Africa has one of the highest GDP growth rates of any region of the world in the last 5 years, the fastest growing middle class and will add 1 billion people in thenext40 years.

IAS urges USDA to use its existing authorization for international work within the Agriculture and Food Research Initiative (7 USC 450 (i)(b) subsection (2)(F) and the National Agricultural Research, Extension, and Teaching Policy Act (7 USC 3292b Section 1459A) to fund our proposal. The language provides wide latitude for USDA to fund agricultural research, extension, and teaching activities that promotes U.S. international competitiveness. Neither new authorization language nor directive appropriations are required for USDA to fund international activity.

I. Adding Value to U.S. Agriculture: The Integration of Domestic and Global Agriculture and Natural Resources.

Whole-Government approach to food security.

The challenges facing agriculture today are complex usually requiring advances that balance production and environment, quality and quantity, and large scale versus small. They are multidisciplinary problems solved by crossing boundaries be they spatial or governmental. IAS believes that the most sustainable way of generating new agricultural innovation that will have the most positive effect on productivity, nutrition, health and general wellbeing of Americans is to promote and foster the coordinated, broad engagement of an array of USG agencies to bring their respective strengths to bear of the agriculture sector; in short we advocate for the “whole-of-government” approach. We see positive, long-term outcomes from USDA, USAID, other federal agencies and U.S. universities working together to develop a common approach to achieve a vibrant domestic agriculture and a food secure world.

A. *A US university CGIAR partnership.* Building opportunities for U.S. faculty and graduate students to engage with the Consultative Group for International Agriculture Research (CGIAR) is an activity that can have direct benefits to US agriculture. US universities and the CGIAR have very complementary strengths. The CGIAR is solely focused on and is strongly networked in developing countries. The US universities bring a vast array and depth of science and technological capacity. Jointly, when funding has been strategically placed to encourage their collaboration, significant agricultural advancements have emerged.⁵ Together they provide a way to effectively and efficiently engage US science in a global arena. In doing so the benefits are both global and domestic as international solutions broaden the options for US agriculture and our science supports agricultural advances in developing countries. Currently the financial support to make these relationships robust and long-term is extremely limited. We suggest that NIFA and USAID consider joint funding of such partnerships. USAID already provides significant funds to the CGIAR that could, in conjunction with USDA resources, support such partnerships with a domestic-foreign split along agency lines.

B. *USDA/USAID Fund for Agricultural Development.* IAS proposes a whole of government approach modeled on the PEER program (Partnerships for Enhanced Engagement in Research Science)⁶ between USAID and NSF which provides funding for developing country work by US scientists already funded by NSF. The activities could span the whole range of the research,

⁵ One could argue that much of the success and spread of the “Green Revolution” was due such a partnership.

⁶ http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=504726

education and extension dimensions of USDA and its university partners. Developing an MOU between USDA and USAID to fund a broad range of international agriculture activities, competitively bid, where USDA covered domestic costs and USAID the foreign, would provide a powerful mechanism where complementary strengths would advance both the domestic responsibilities of USDA and international goals of USAID

C. Creation of a special grants program to address global issues of direct concern and consequence to U.S. stakeholders. This program might predefine global priority issues, such as climate change, water, natural resource management, and bio-energy, international governance and legal frameworks whose solutions challenge national, cultural and disciplinary boundaries and will require international collaborations. These research initiatives could be addressed most effectively by a whole of government approach engaging the USDA with appropriate other USG entities.

II. Preparing the Next Generation of U.S. Agriculture Leaders: Enhancing U.S. Global Competitiveness through Human and Institution Capacity Development

Agricultural higher education must be linked to global knowledge and innovation to fully develop student talent and prepare them for the global environment. It must facilitate faculty engagement in global intellectual networks and add value to society through the vast collective capacity of thinking and working together across borders and boundaries.

A. Globalizing Competitive Grants

Competitive grants that specify how international activities will contribute and to and support advances in U.S. agriculture were a part of the former International Science and Education grants. These proved to be very attractive to university partners in the past. Programs that result in linking US universities, agencies, and businesses with global partners can help produce U.S. students and faculty who are able to understand and compete in a global economy. Such a grants program should be added to AFRI.

B. 4-H/Extension – developing a global vision and portfolio.

Many universities had robust international extension programs and 4-H programs with strong international programming. With declining state funding, many of these programs have been discontinued. IAS believes that collaborative programs with state government and extension will better position American farmers in a global marketplace. We would like to see USDA/NIFA supporting programming for the international agriculture offices and extension offices to compete for funds that enable the development of these state level programs.

One example of how this might be achieved would be to connect the 4-H Global Citizens Program with international research and study abroad programs of Land Grant Universities, providing opportunities for 4-H members to be a part of U.S. Land Grant University global initiatives.

III. Develop opportunities to develop and disseminate information about markets, trade and business opportunities

Creation of a special grants program designed specifically to increase the capacity of U.S. agribusinesses to compete in global markets. This program should encompass opportunities to do so through providing global learning opportunities to university teachers and students to learn about cultural and consumer preferences, ways of doing business, and agricultural practices and policies.

This program might aptly be called, “Capacity Building for Global Market Competition.” It might support activities designed to promote workforce development for global market participation; increased sales of U.S. products in global markets; and increased access to innovations, research and development in other nations.