

Preparing Grasslands Scientists for Careers in International Agriculture

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Key words: International agriculture career, graduate research, international agriculture, volunteering

Abstract. Livelihoods of a billion poor people depend on grasslands. Dedicated and trained experts are needed to support grasslands' sustainable development under increasing pressures in the future. For some grasslands scientists, a career in international agriculture is the principal focus from the start of their education. For others, interest in international agriculture emerges during their careers. All require international opportunities to ensure that their efforts are focused on important priorities, that they understand the environment they work in, and that their professional networks are up to date. This paper reflects on ways for grassland scientists to be engaged in international agriculture based on the author's 30 years of experience in international agriculture, mostly in agricultural development, but also in research. Approximately two thirds of the career has been spent working from a base in developing countries, mostly in Africa (12 years in West Africa, four in Southern Africa).

Background

Livelihoods of almost a billion people depend on grasslands, which cover 80% of world's agricultural land, and occupy large tracts of land in many of the developing regions, such as Africa and Asia (Jank et al. 2021). This includes some of the lowest income countries in the world and therefore, lives and livelihoods of large numbers of the poorest depend on grasslands. Dedicated and trained experts are needed to support sustainable development of grasslands which are under increasing pressures in the future. Engagement in international agriculture remains compelling for many, from students to late career and retired individuals. International opportunities can also support the expert's professional growth as the expert learns about other systems and gains information useful for educating others, as well as personal growth, through improved understanding of other cultures (Blake 2005).

For some grasslands scientists, a career in international agriculture is the principal focus from the start of their education. For others, interest in international agriculture emerges during their careers. All require international opportunities to ensure that their efforts are focused on important priorities, that they understand the environment they work in, and that their professional networks are up to date.

However, international engagement can be difficult due to financial challenges, limited time available, or lack of knowledge of the right kinds of opportunities that facilitate the professional and cultural experience. This paper explores the ways in which grassland scientists can become engaged in international agriculture throughout their careers.

Ways to Engage in International Agriculture

Engagement in international agriculture can start already during undergraduate studies. International experiences during college have greatly increased in recent decades, with almost a six-fold growth from 1989 to the COVID-19 pandemic (Open Doors 2022). A study of Louisiana State University freshman agriculture students' motivations for studying abroad identified three groups: those who did it to improve their professional and educational ambitions; those who focused on networking, relationship building, and cultural experience; and finally, those who wanted to learn about agriculture, different type of agricultural instruction, and working with different population (Roberts et al. 2020). Another study, also with Louisiana State University students, identified major challenges to study abroad, such as affordability,

limited time due to studies, and limited information. In general, numerous studies have shown that study abroad programs increase employability and career skills, and improve completion, retention, transfer rates to a four-year institutions, language learning, and intercultural understanding, and that they also provide a global context, build enlightened nationalism and increase employability and career skills.¹

Similar positive impacts have been noted regarding international opportunities during graduate studies, for example, during a required international internship in the Master of International Agricultural Degree Program (MIAP) at Oklahoma State University. When students were queried regarding academic, employment, and civic impacts of the program, they considered that impacts in all three had been positive. Longer internships provided more benefits, and longer internship hours resulted in improved employment impacts (Rastegari Henneberry and Radmehr 2020). International Agricultural Research Centers (IARCs), such as International Rice Research Institute (IRRI), have also offered such opportunities, through e.g., collaboration with the University of Minnesota on short-term (6 week-3 month) placements for graduate students in the Applied Plant Sciences Program (Phillips et al. 2008).

Only a minority of graduate students interested in international agriculture are able to conduct a part or all of their field research abroad. Such experiences may be organized through faculty advisors, in which case the student may have already been aware of the opportunity at the time of acceptance to the graduate program. More commonly, such opportunities for research are identified during the student's coursework period, often requiring a great deal of effort. Opportunities for fieldwork abroad are offered by IARCs, including those in the Consultative Group of International Agricultural Research (CGIAR). For many, including the author, who conducted M.Sc. field research with the International Institute for Tropical Agriculture (IITA) and Ph.D. research with the International Maize and Wheat Improvement Center (CIMMYT), such experiences prove to be invaluable learning experiences about the research topic and local farming systems and agricultural research and extension structures. They are also important for students from developing countries who study in industrialized countries, as a way to ensure that their research projects contribute to learning about topics that are relevant to their countries and as a way to contribute to agriculture in their own communities. In a study at the University of Minnesota, most common responses among international graduate students surveyed about ways in which their experiences could have been improved were the need to increase practical experiences and have greater contact with mixed crop-animal systems; an additional important issue mentioned was improving skills to extrapolate research results to their own countries (Cooper and Cashman, 1985).

Equally importantly as technical learning, international field research experiences during graduate studies can provide profound lessons on ways in which an outsider should become integrated in ongoing efforts, communication with local farmers, and challenges in the local farming systems. Author's experiences from such research projects involving significant on-farm engagements have been that they result both professional and personal growth which guides the entire professional career. Such engagements have their costs also, as research abroad generally requires greater time commitment, and may not always expose the student to the cutting-edge education required for competitive positions (Phillips et al. 2008).

Shorter and longer experiences to initiate and continue engagement in international agricultural research can be continued after graduation. In the U.S., the 21 Innovation Labs funded by the United Agency for International Development (USAID) offer opportunities for university staff for such engagement particularly in Africa, and to a lesser extent in Asia and Latin America, usually through a competitive process for research projects where U.S. scientist collaborates with a developing country scientist. Diverse other organizations can also provide opportunities for continued research as do fellowships, such as Fulbright.

¹ See the following for links to studies documenting these: <https://www.nafsa.org/policy-and-advocacy/policy-resources/independent-research-measuring-impact-study-abroad>.

Development efforts provide also opportunities for grasslands scientists to build international career. Donors such as USAID, European Union, the World Bank, Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ), Food and Agriculture Organization and International Fund for Agricultural Development commit significant funds to development projects implemented by non-governmental organizations or for profit development companies. These positions can be based in the field, as part of ongoing projects, or in the headquarters. There are diverse positions available, including as project director or technical lead; such positions tend to always include a management component. Currently, many developing countries prefer that international development projects hire national staff and therefore, opportunities available for international staff are shrinking. Development efforts have been the author's engagement with international agriculture since after the post-doctoral research. Engagement with development projects often requires flexibility and interest in continuous learning about new fields, given the restricted number of opportunities in one's specific field of expertise. Grassland scientists can also find opportunities in the donor sector. Donors are either publicly funded, such as USAID, DFID, and GIZ, or privately, such as Gates, Ford, and Rockefeller Foundations, and numerous smaller organizations. These positions are available in the field or in the headquarters, and involve roles such as technical lead or program head. As with development projects, there is usually a management component involved, but there is also often flexibility to pursue issues of interest, within the donor's focus.

Importantly, in international work, researchers often find themselves collaborating with development workers and vice versa, which allows for engagement in both areas of work. Research funding for international work frequently emphasizes collaboration with development organizations to ensure that technologies and practices developed would be scaled up and result in development impact. Conversely, on the development side there are opportunities for research, particularly adaptive research to fine tune technologies to local conditions, or assess the performance of technologies and practices diffused.

Although the majority of efforts available in international agriculture are in non-profit sector – whether research or development – private sector also offers international opportunities. In the U.S. commodity groups such as American Soybean Association and World Initiative for Soy in Human Health (WISHH), US Grains Council, and U.S. Soybean Export Council offer opportunities for international involvement. Developing country private sector groups involved in inputs, commodity trading, and processing can also offer opportunities.

Finally, for all grassland scientists volunteering offers opportunities to engage in international agriculture. Peace Corps, an independent agency and program of the United States government established in 1961, provides volunteer opportunities worldwide for those over 18 years old (there is no maximum age), for a minimum of two years, and extendable to three to four years. The majority of the Peace Corps volunteers have a university degree, but a combination of relevant education and work experience is sufficient for some positions. Although a large part of the volunteers are in their 20s, there are many that select to volunteer during mid-career or after retirement. Agriculture is an important focus of the program, with many volunteers working in agricultural extension.

Additionally, volunteering with the USAID-funded Farmer-to-Farmer program can be an important avenue for grassland scientists to increase involvement in international work. An expert volunteer program that has been in place since 1985, it provides opportunities for short-term assignments, generally two to four weeks in duration, for those with keen interest improving food security and incomes in developing countries and in cultural exchange. Although opportunities to volunteer have been available only to U.S. citizens and permanent residents until 2020, the COVID-19 pandemic catalyzed initiation of a new modality, paired assignment, where volunteers from the focal country work in the field, while collaborating with US-based volunteers virtually. Assignments focus on issues from production to marketing to processing, and support work of producer organizations, small and medium businesses,

educational organizations, and others. The author currently works in the Farmer-to-Farmer program and can be contacted for further information about the program and volunteering opportunities.

Personal Considerations

When preparing for career in international agriculture, grassland scientist needs to consider diverse ways of being involved in international agriculture, based on personal factors, preference, and availability of opportunities. One major consideration is whether to work from a developing country or from a base in an industrialized country. Short periods of work in a developing country are usually easy to do, whether through a study abroad programs, student or other field research projects, short-term technical assistance, or volunteering. Being based in a developing country for longer periods may be more difficult due to finances and logistics, particularly with family. In international positions, a major organization – such as international research institute, United Nations, or U.S. government – helps sets the individual up, often with housing, schooling, travel home, and provides international salary and benefits. A lower budget option is to work in the local economy, which can be challenging for many, particularly in the very low-income countries of Africa. The text box below highlights some of the positive and negative aspects of international living, and provides some advice on how to enjoy such work and prepare for it.

Figure 1. Positives and negatives of being based internationally while working in international agriculture, and some advice for those considering it.

<p>Many positives:</p> <ul style="list-style-type: none"> • A positive mission and opportunity for impact • Dedicated colleagues and partners • Opportunity to learn from other cultures • Scale and scope of resources you work with • Diversity of work you are involved with • Technical, programmatic, representational • Opportunity to constantly learn <p>As always, also negatives:</p> <ul style="list-style-type: none"> • Seeming slow pace of development • Project focus – five years is short! • Misuse of funds, need for strong and constant oversight • Dearth of opportunities for two careers • Far from families, friends • Change is constant 	<p>Preparing yourself: Family considerations</p> <ul style="list-style-type: none"> • Make sure your life partner is up for it - although it is an opportunity to grow together, it is not for everyone • International agriculture field opportunities offer many wonderful countries for children to grow up, but “third country kids” is a real thing. • Two careers can be easier day to day due to more affordable house help. • Children with special needs can be harder to cater for in many post countries. <p>To persist and enjoy career in international agriculture:</p> <ul style="list-style-type: none"> • Be flexible, persistent, seize opportunities, especially if you have two-career family • Take countries and experiences as they come, and do not try not to compare! • Be realistic about speed of progress and what can be done.
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Conclusions

As discussed above, it is important for grasslands scientists to understand the diversity of opportunities that are available for international work, whether in research, development or a combination of the two. Although the majority of efforts available in international agriculture are in the non-profit sector the growing private sector in many developing countries also offers opportunities. Volunteering can also be an important way to contribute to development work and to be engaged in international work.

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