CIALCA @ 10: Lessons learned from integrated systems research in the Great Lakes Region

The Consortium for Improving Agriculture-based Livelihoods in Central Africa (CIALCA) was created in 2006 by IITA, Bioversity International, and the International Center for Tropical Agriculture, and funded by the Belgian Directorate General for Development Cooperation (DGD). CIALCA operates in Rwanda, Burundi, and DR Congo, with national partners. Initially, its research-for-development (R4D) agenda focused on enhancing crop production technologies in legume- and banana-based systems, while creating an enabling environment for the uptake of these practices.

Successful development, testing, and scaling of technologies
Phase 1 of CIALCA (2006-2008) tested several cropping systems and pest management technologies. CIALCA worked with local stakeholders in the on-farm testing and validating of improved germplasm, pest control, and integrated soil fertility management technologies in banana and legume systems. The project also restarted collaborative activities among the national research organizations from the three countries while providing PhD and MSc training to several of their staff in partnership with local and Belgian universities.

Phase 2 focused more on the scaling of agricultural innovations through communication, training of partners, new options for value addition, and in assisting farming communities with novel business models. More than 1000 trainers from partner organizations were trained on production technologies, such as improved varieties and systems of soil management, and new processing technologies, such as soybean milk. CIALCA was also at the forefront of combating BXW – the bacterial wilt disease that had wiped out the banana production of entire farms and villages.

Moving innovations from the plant to the plot to the farm
From 2009 onwards, CIALCA has been testing mixed banana-coffee systems for climate change mitigation, pest reduction, and diversified farmer income. This led the Rwanda Agricultural Board to start their own trials on banana/coffee intercropping, which the Rwandan Crop Intensification Program (CIP) did not promote. Results favored banana/coffee intercropping, which has since been tolerated by the Rwandan Government in large parts of the country.

CIALCA also introduced novel cassava-legume, maize-legume, and banana-legume systems, increasing the productivity of smallholder farms by improving soil fertility management with new intercrop arrangements.
and practices. Supported by local structures and partners, collective marketing and collective seed production (e.g., banana macropropagation) became important drivers for increased income and collective action. Choice experiments in Burundi showed that farmers had a strong preference for climbing bean varieties that resulted in higher yields and improved soil fertility, although time to maturity and responsiveness to fertilizer were less important. Such choice experiments take farmers’ preferences into account and accelerate the processes of agricultural innovation.

From farming to integrated livelihood systems

By 2011, CIALCA became a key operating platform for the CGIAR Research Program on Integrated Systems for the Humid Tropics (Humidtropics). By building on many years of investment in innovation and partnerships, CIALCA was able to jump-start activities and mobilize multi-stakeholder networks in Burundi, Rwanda, and eastern DR Congo. The integrated systems approach includes understanding livelihood diversity, gender, value chains, nutrition, markets, natural resource improvement, institutional innovation, and the scaling of successful innovations through multi-stakeholder partnerships (Fig. 1).

Major CIALCA impacts

- An impact assessment conducted in 2014 concluded that in South Kivu, DR Congo, and in Rwanda, CIALCA had contributed to lifting an estimated 560,000 people out of poverty. Changes in poverty rates due to CIALCA are between 3%, 10%, and 21% for Burundi, South Kivu (DR Congo), and Rwanda, respectively.

- CIALCA’s strong capacity building in science resulted in the training of over 10 PhDs and 40 MSc students in a region that had lost of much of its science capacity during years of conflict. Many of CIALCA’s former MSc and PhD students are now in key positions in ministries and NARS in the three countries.

- CIALCA has trained over 50 partner organizations and more than 1000 trainers in – among others – seed multiplication technologies and effective pest and disease control, good agricultural practices and intercropping techniques, new crop varieties, postharvest processing, and collective marketing.

- CIALCA has contributed significantly to advancing science related to integrated soil fertility management, climate-smart opportunities for smallholders, and the effectiveness of agricultural extension and other partnership modalities in supporting (specific groups of) farmers.

Figure 1. Key building blocks of CIALCA’s integrated livelihood systems R4D.

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