

# Bringing innovative solutions in food security to large populations in developing countries

The Canadian International Food Security Research Fund (CIFSRF) works to increase food security in developing countries. Launched in 2009, the Fund supports research in agricultural innovation and fosters collaboration between developing-country researchers and Canadian experts.

Now in its second phase, CIFSRF held a competitive call for proposals to select for scale up the most promising solutions to emerge during its first phase of research funding.

Four international research teams will each receive approximately \$4 million dollars to take their early successes in addressing the food and nutritional needs of vulnerable small-scale farmers to a larger population. This builds on an announcement last month that three other projects, focused on preventing livestock diseases and post-harvest fruit losses, had received new funding to ensure that these results reach many more people.

## Farming indigenous vegetables in West Africa

In Nigeria, more than 1,000 farmers increased their yields and doubled their incomes by using improved farming practices to grow underutilized indigenous vegetables such as fluted pumpkin and African nightshade. In Benin, fertilizer micro-dosing and rainwater harvesting techniques helped more than 10,000 farmers achieve equally beneficial results with other crops, despite degraded soils.

A team of Canadian, Beninese, and Nigerian researchers are now combining these innovations to bring the farming practices to 50,000 farmers. The recommended farming techniques will spread through demonstration trials, outreach efforts, support and training for seed producers and marketers, and by establishing local committees to address issues such as productivity and marketing. Support to indigenous vegetable farming and processing businesses will increase demand and improve the incomes of more than 1 million West African farmers.

**Lead research partners:** University of Saskatchewan and University of Manitoba, Canada; Osun State University and Obafemi Awolowo University, Nigeria; and Université de Parakou, Bénin.

Learn more: [Nigerian women reap benefits from indigenous vegetables](#) and [Fertilizer micro-dosing: a profitable innovation for Sahelian women](#)

## Nutrient-rich chickpeas and beans in Ethiopia

In collaboration with Ethiopian farmers, researchers have improved chickpea and bean varieties and soil management to produce pulses with higher zinc and iron content. In a region where chickpea production was not considered viable, the improved legume's yields have exceeded local varieties by 60-90%. Better nutrition has resulted in higher weight gains in children.

The research team will now fine-tune these innovations and extend them to more than 35,000 farming households in Southwestern Ethiopia, helping to ensure their food and nutritional security. Consumption of the nutritious grains will increase throughout the region by engaging industry players and promoting the use of legumes in household cooking and commercial enterprises.

**Lead research partners:** University of Saskatchewan, Canada and Hawassa University, Ethiopia.

Learn more: [Audio slideshow: Enriching soils, improving nutrition, Bringing benefits of chickpea to more men and women farmers in southern Ethiopia](#), and [From field to fingers: enriching soils and seeds to improve nutrition](#)

## Building a fishing and aquaculture industry in Bolivia

In the northern Bolivian Amazon, research has helped improve household income derived from fish sales. Better hygiene protocols, aquatic resource management, and a meat processing plant brought much-needed protein, healthy fatty acids, and micronutrients to new Bolivian consumers. Per capita fish consumption in Bolivia is one of the lowest in the world.

The research team will now focus on developing two promising initiatives: the sustainable fishing of arapaima (paiche) among indigenous people and small-scale aquaculture, primarily led by women. The project will offer financial support for these activities and recommend improvements to processing, marketing, and government policies. More than 3,000 indigenous families will benefit directly from their work and 10,000 fishers and small-scale aquaculturists will have access to micro-credit, technology, and training. Up to 400,000 consumers will gain access to good quality fish.

**Lead research partners:** University of Victoria and World Fisheries Trust, Canada; and Asociación FAUNAGUA, Centro de Promoción Agropecuaria Campesina, IMG Consulting, and Centro de Investigación y Desarrollo Regional, Bolivia.

Learn more: [Improving governance in fisheries and fish farming in the Bolivian Amazon basin](#)

## Building food-secure homesteads in Cambodia

Research involving 900 households showed that homestead food production—an agricultural practice that integrates aquaculture, animal husbandry, home gardening, and nutrition education—has helped to diversify diets and improve food security. Household members earned higher incomes and enjoyed more nutritious foods, supplementing a rice-based diet lacking in protein and micronutrients.

The research team will now build on its success by extending the homestead practices to some 22,500 families. They will support the households through credit, market development, and education in better food processing practices, sanitation, hygiene, and maternal, infant, and child care and feeding practices.

**Lead research partners:** University of British Columbia, Canada and Helen Keller International, Cambodia.

Learn more: [Audio slideshow: Fortifying diets with fish on farms](#) and [Improving women's lives in Cambodia through fish on farms](#)

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