

# LINKING AGRICULTURE TO NUTRITION IN AFRICA: THE ROLE OF BEANS

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# ABSTRACT

Despite the clear potential for improvements in agriculture to enhance maternal and child nutrition outcomes the evidence for this is scarce. Recent reviews on agricultural interventions for improving nutrition reveal that more and better-designed research is needed to generate evidence of impact and information on what kinds of agricultural investments will have positive benefits for nutrition and health.

CIAT responds to this challenge by generating research that creates a shared understanding of the nexus between agriculture, food systems, nutrition, and resilience; generating evidence on what works, when, and how in linking agriculture interventions to nutrition outcomes and high quality diets; and catalyzing policy dialogue advocating for better diets.

CIAT has led biofortification efforts, through supporting breeding for enhanced iron and zinc in beans. There is documented evidence by HarvestPlus in Rwanda that eating beans biofortified with iron can reduce iron deficiency in women of reproductive age. CIAT continues to promote utilization of biofortified bean varieties while also promoting food diversification using the food basket approach. In Malawi for example, CIAT promotes nutrition education and behaviour change communication to influence caregivers' preferences towards more nutrient-rich foods, better intra-household allocation of food to benefit vulnerable groups, and other nutrition practices related to child feeding, caregiving, sanitation and hygiene.

Moreover, policymakers urgently need to recognize that poor diets are compromising economic productivity and well-being. Agricultural programs and investments are needed to support an enabling policy environment to contribute to improved nutrition. CIAT strives to lead the policy dialogue in its focal countries such as Madagascar towards national policies, action plans, and development activities that explicitly support nutrition through a multi-sectoral approach.

CIAT also focuses on promoting increased, responsible private sector engagement in targeted communities; encouraging processing and consumption of nutritious and safe foods; and harnessing the expertise of the private sector to shape healthy consumption patterns in its focal countries for example Kenya.

The results we seek in Africa are aimed at ensuring that consumers have better access to more nutritious food; that there are improved national systems to plan, manage, and evaluate nutrition-sensitive agricultural programs; and that we generate evidence of the links between agricultural interventions and improved nutrition.

## KEYWORDS

Agriculture, nutrition, biofortification, policy, private-sector

## REFERENCES

Laura E Murray-Kolb, Michael J Wenger, Samuel P Scott, Stephanie E Rhoten, Mercy G Lung'aho, and Jere D Haas. Consumption of Iron-Biofortified Beans Positively Affects Cognitive Performance in 18- to 27-Year-Old Rwandan Female College Students in an 18-Week Randomized Controlled Efficacy Trial. *J. Nutr.* jn255356; first published online September 27, 2017. doi:10.3945/jn.117.255356

Jere D Haas, Sarah V Luna, Mercy G Lung'aho, Michael J Wenger, Laura E Murray-Kolb, Stephen Beebe, Jean-Bosco Gahutu, and Ines M Egli. Consuming Iron Biofortified Beans Increases Iron Status in Rwandan Women after 128 Days in a Randomized Controlled Feeding Trial. *J. Nutr.* jn224741; first published online June 29, 2016. doi:10.3945/jn.115.224741

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## Who we are: About us

The International Center for Tropical Agriculture (CIAT)

## CIAT AROUND THE WORLD

We work in 53 countries from 21 offices



Headquarters: Cali, Colombia  
Regional Office for Africa: Nairobi, Kenya

Our vision, a sustainable food future

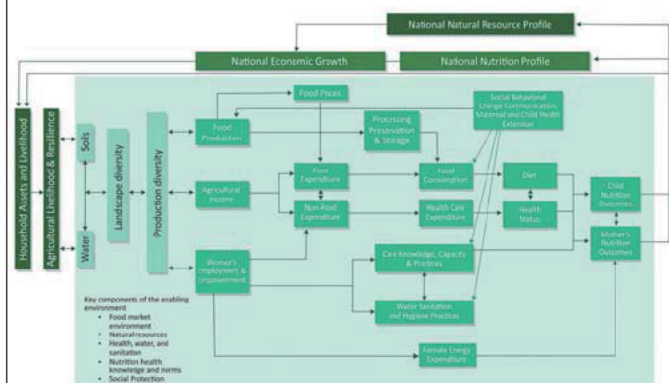


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## What we do in Africa

### Linking Agriculture to Nutrition Outcomes

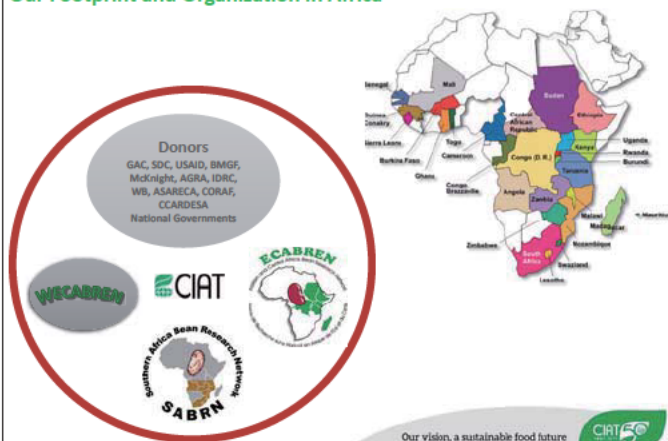
Food production, Agricultural incomes, and Women empowerment pathways



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## Where we work in Africa: PABRA Partnerships

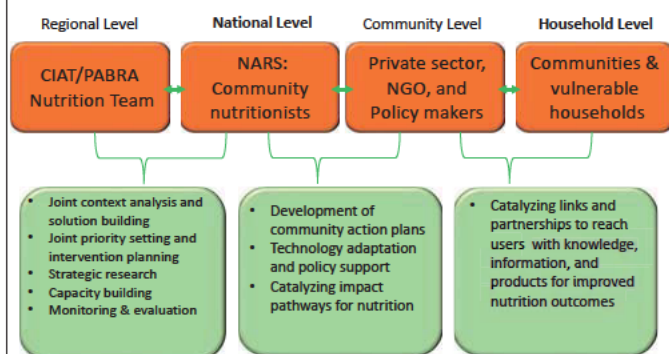
### Our Footprint and Organization in Africa



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## Partnerships for nutrition

### Our model for impact



Our vision, a sustainable food future



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## How CIAT impacts communities and households in Africa

### Generating evidence of what works – Rwanda



Rwanda: Beans to the rescue  
Climbing beans; Biofortified beans  
Evidence

#### Summary

**Problem:** Anemia among women of reproductive age

**Intervention:** Biofortified beans – Efficacy study

**Outcome:** Improved iron status and improved brain function

**Impact:** Biofortification as a strategy incorporated into national agriculture/nutrition action plans

#### Partnerships:

NARS: Rwanda Agricultural Board

Private sector: Health Development Initiative

Research and Policy support: CIAT/ PABRA; HarvestPlus

Our vision, a sustainable food future



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## How CIAT impacts communities and households in Africa

## Generating evidence of what works – Rwanda

The Journal of Nutrition. First published ahead of print June 29, 2016 as doi: 10.3945/jn.115.224141.

The Journal of Nutrition  
Community and International Nutrition



### Consuming Iron Biofortified Beans Increases Iron Status in Rwandan Women after 128 Days in a Randomized Controlled Feeding Trial<sup>1-3</sup>

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The Journal of Nutrition  
Community and International Nutrition



### Consumption of Iron-Biofortified Beans Positively Affects Cognitive Performance in 18- to 27-Year-Old Rwandan Female College Students in an 18-Week Randomized Controlled Efficacy Trial

Laura E. Murray-Kelsh,<sup>1</sup> Michael J. Winger,<sup>2,3</sup> Samuel P. Scott,<sup>4</sup> Stephanie E. Rhoads,<sup>5</sup> Mercy G. Lang'ade,<sup>6</sup> and Jore D. Haas<sup>1</sup>

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## How CIAT impacts communities and households in Africa

## Influencing nutrition policy in Madagascar



### Madagascar: Beans to the rescue School feeding program Policy

<http://scalingupnutrition.org/news/ministries-work-together-in-madagascar-to-revive-their-school-feeding-programme/>

#### Summary

**Problem:** Malnutrition due to monotonous diets based on rice

**Intervention:** Fortified composite bean-based porridge introduced in 2 school feeding programs in Antananarivo

**Outcome:** Increased school attendance and weight gain in vulnerable children

**Impact:** In 2015 Madagascar passed a policy to revive their national school feeding programme that had been abandoned since 2009

#### Partnerships:

NARS: FOFIFA and ONN

Private sector: PROFIT S.A.R.L

Research and Policy support: CIAT/ PABRA

Our vision, a sustainable food future



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## How CIAT impacts communities and households in Africa

## Nutrition advocacy among vulnerable communities in Malawi



### Malawi: NUA 45 beans to the rescue Community nutrition program Nutrition advocacy and education

#### Summary

**Problem:** Hunger and malnutrition among resource poor farming households

**Intervention:** Introduced biofortified bean varieties in 4 communities in Kasungu (North) and Mzimba (South)

**Outcome:** Food security, production of diverse foods, consumption of diverse foods and increased income from sale of surplus biofortified beans

#### Partnerships:

NARS: DARS

NGOs: Catholic Relief Services (CRS) and Mzuzu

CADECOM

Research and Policy support: CIAT/ PABRA

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## Celebrating five decades of innovation



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