



Food Systems Resilience, and Nutrition Research Impact

Dominic Schofield, MBA

Vickie Squires, PhD

October 22, 2024





Dr. Vicki Squires
Associate Dean – Research, Graduate Support & International Initiatives

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Dr. Carol Henry (PhD)
Professor – College of Pharmacy & Nutrition

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Rehima is one of 46, 000 small holder farmers in Southern Ethiopia

Participant in the CIFSRF “Scaling-up Pulse Innovation project”

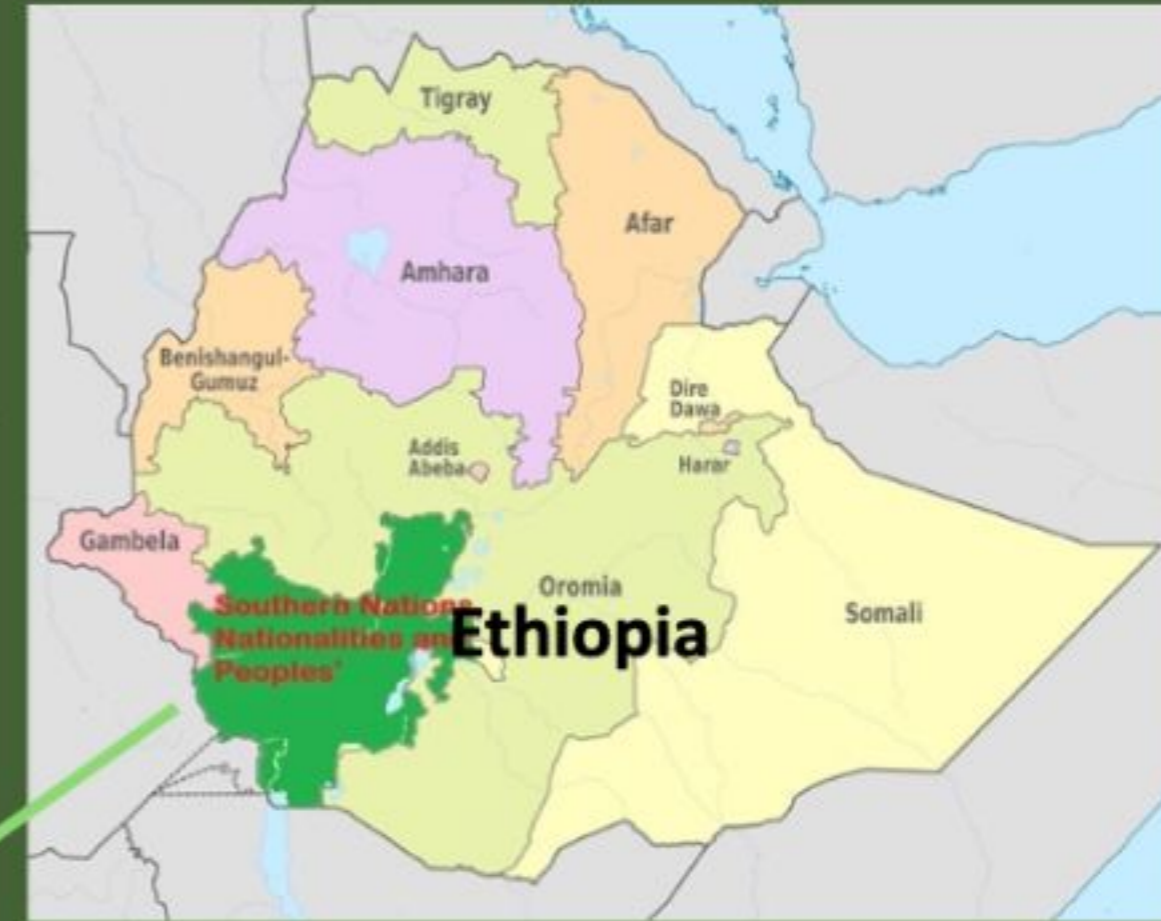
The project employed food-based strategies to address food and nutrition security in Ethiopia.

A pulse food systems strategy helped her meet the demands of her five children- nutrition, income for livelihood

Objectives

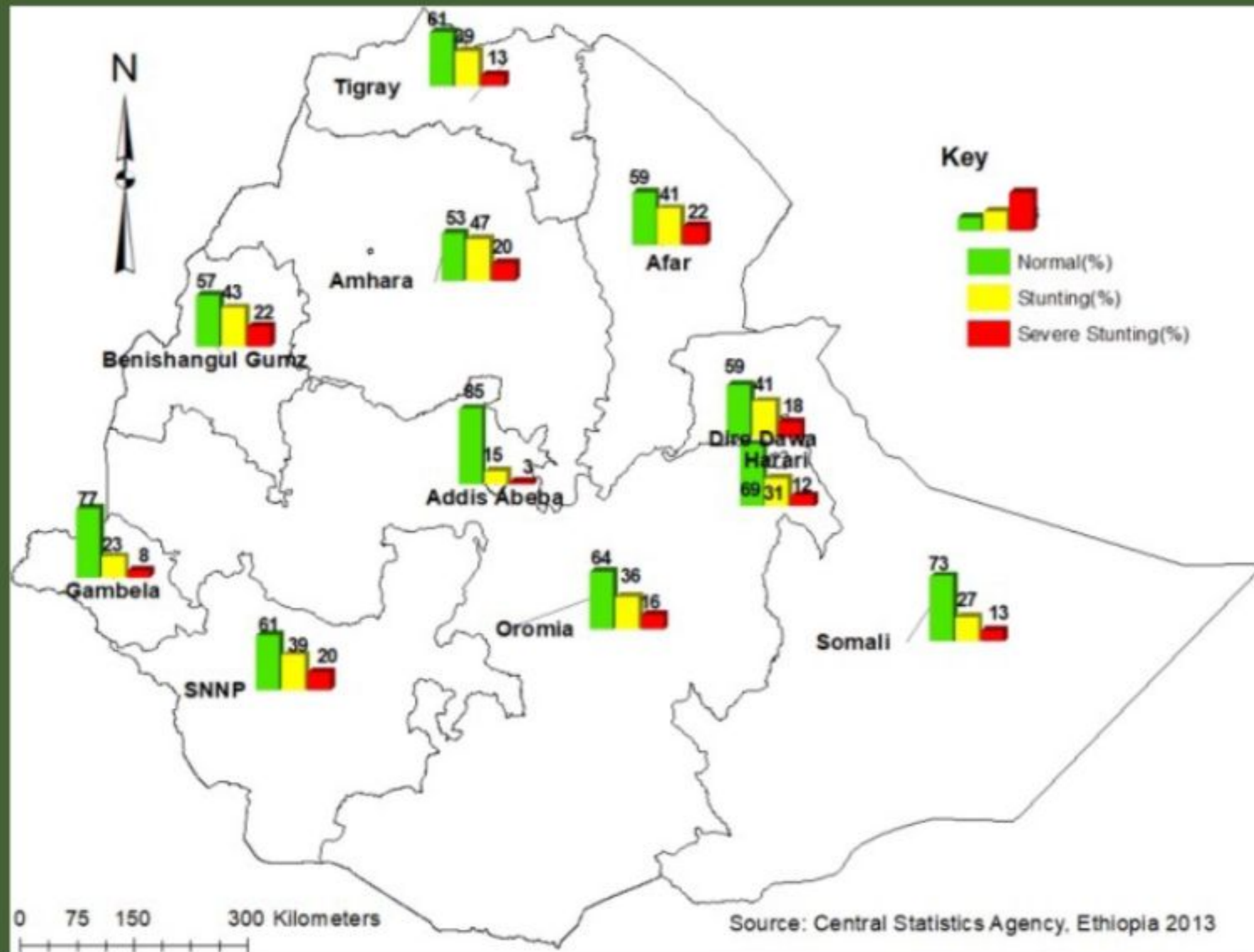
Key Objectives:

- To enable large-scale positive change in food and nutritional security in southern Ethiopia for ~70,000 farm households.
- To build sustainable (self-propagating) systems that would be managed locally and provide novel economic activity and employment.
- To improve women farmers' access and control over resources to enhance their participation, productivity, income and nutritional status.
- To develop a sustainable supply chain with partners, integrating agriculture and nutrition.



**Southern nations,
nationalities and
peoples region
(SNNPR)**

The Problem of Childhood Stunting & Undernutrition in Southwest Ethiopia



Levels of Stunting in Ethiopia by Region



Dr. Carol Henry, Project Leader

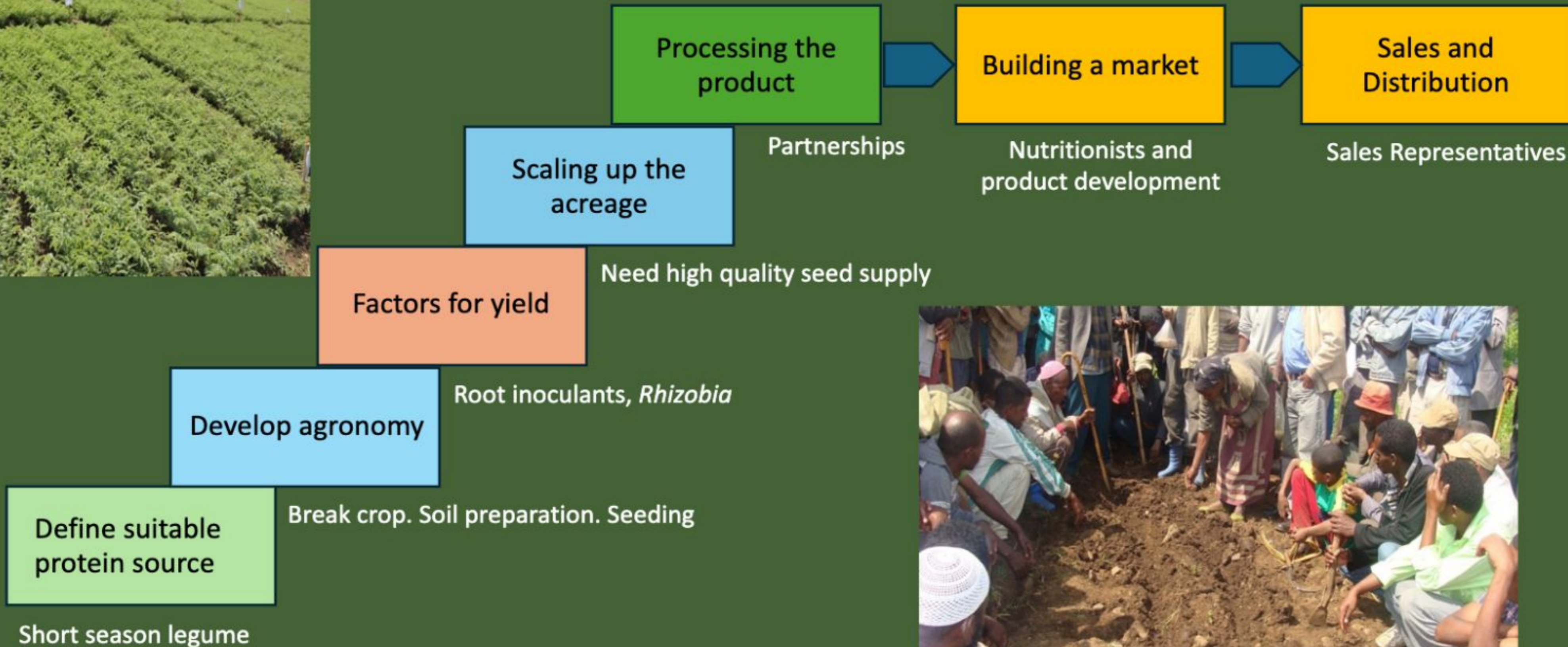


A Network of Partners: “It took a village”

- Farm households southern Ethiopia
 - Children, <5 years, School-aged
 - Adolescents, Youth
 - Male & Female Farmers
- Government extension system
 - Health Extension Workers
 - District Agriculture Agents
 - 1-5 Networks Volunteers
 - Regional Bureaus of Agriculture / Health and women and children
- Research organizations (USask, Hawassa University & Partners), including grad. students
- Private Sector/ NGO (Guts Argo)
- Funding Organizations (GAC, IDRC)

**Target:
70,000
Ethiopian
Farmers**

Building a Protein Supply Chain



Nutrition entry points along food value-chains

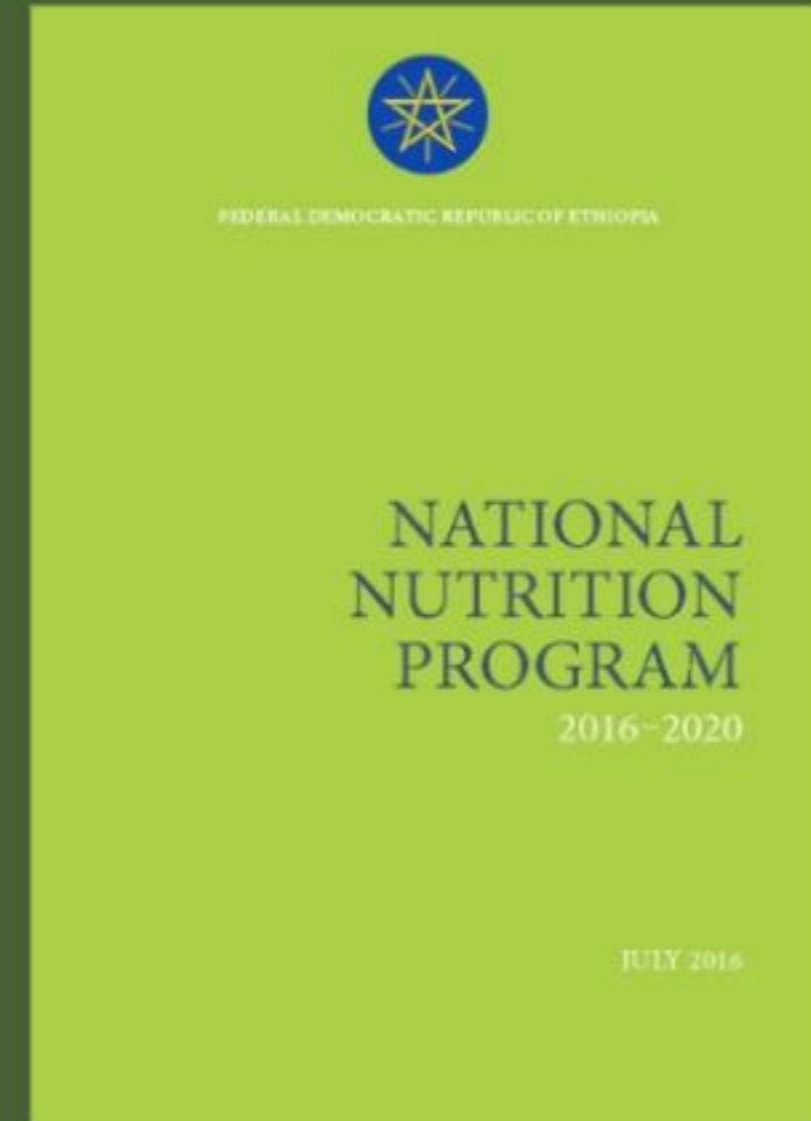
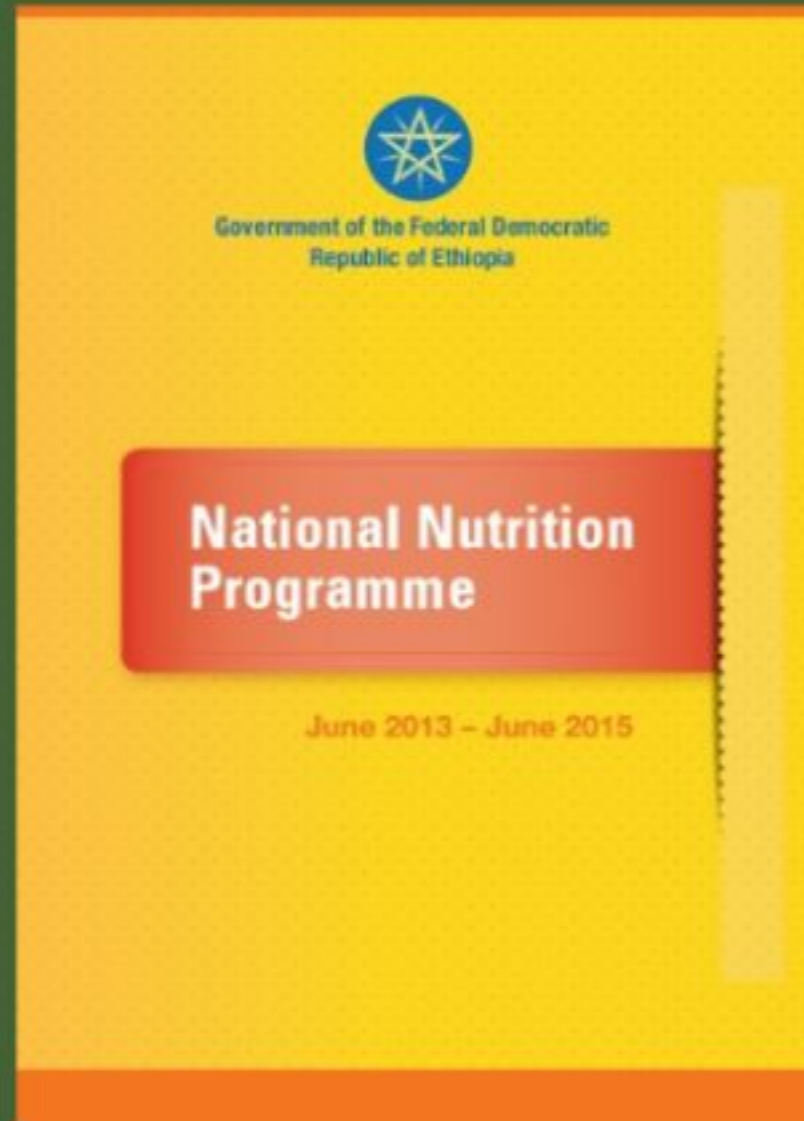


Why Pulses (chickpeas, beans)?



- High protein, high fiber
- Nitrogen fixation
- Short season crop
- Fits in rotations with Teff, Corn, Soya
- Popular during fasting days (180 per year)
- Climate resilience

Why Pulse Intervention?



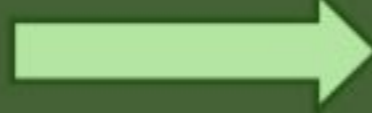

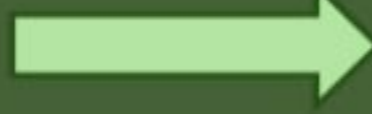



In 2016 new goals were added:

Strengthen implementation of nutrition-sensitive interventions across sectors

“increase year-round availability, access to and consumption of ... pulses”

[bio-fortified pulses] [local production of CF] [Nutrition Communication] [gender-sensitive]

Technology Transfer and Outcomes

| | | |
|------------------------------------------|---------------------------------------------------------------------------------------|----------------------------------------------------------------------------|
| Elite seed lines provided |  | Farmer cooperative now produces (and breeds) certified seed |
| Agronomy training |  | Fourfold increases in yield reported |
| Facilitating mechanization |  | Scale-up accelerated |
| Screening technology for N-fixation |  | Increased yield, more nitrogen for follow-on crop New inoculant company |
| Seed processing and extrusion technology |  | Increased scale, novel products, growing GUTS Agro PLC |
| Advanced nutritional science |  | Measurable effects on stunting in children (5 year results) |

Women's participation in chickpea trading activities:

- Increases household income
- Improves purchasing power
- Empowers women and helps to support entire family

There are success stories of women farmers:

- Took up and successfully applied the nutrition trainings
- Prepared nutritious and children-friendly pulse food
- Diversified and improved food preparation methods



Photo: women farmers in retailing pulse crops



Photo: Food prepared and processed at household level by women in Butajira

From Processing to Distribution

Processing the product



Building a market



Sales and distribution



- Nigatu Regassa, PhD: Pulses Crops to Enhance Diet Diversity, Household Food Security, Nutrition, and Empowerment of Women and Youth
- Esayas Bekele, PhD: Evaluation of Pulse Value-Chains from Producers to Consumers in Selected East African Countries: A Scoping Review
- Machiweyi Kunzekweguta, PhD: The Role of Agricultural Co-operatives in Enhancing Food Security in Africa

Pulses crops to enhance diet diversity, household food security, nutrition, and empowerment of women and youth

Regassa, Henry, Noseworthy, Tyler

- **Purpose:**
- **Key Findings:**
 - Women play a significant role in agriculture, especially post-harvest activities
 - Responsible for up to 70% of pulse production in some regions.
 - Rural Ethiopian women contribute up to 60% of the labour required for post-harvest activities (Abera et al., 2019).
 - In Rwanda, women are key contributors to pulse production and consumption
 - Gender gaps remain despite involvement
 - Access to land, markets, finance, education, social and cultural barriers
- **Implications:**
 - Findings highlight the potential to enhance gender empowerment and
 - Emphasize the need for equity practices to amplify women's voices,
 - Significantly improve food and nutrition security, and
 - Create sustainable livelihoods.

Evaluation of Pulse Value-Chains from Producers to Consumers in Selected East African Countries: A Scoping Review

Bekele, Noseworthy, Tyler, Henry

Purpose:

- Review pulse-related R&D over 20 years in Ethiopia, Rwanda, Tanzania and Uganda with a focus on production, farming and seed systems, marketing, storage, post-harvest practices and associated losses, and processing

Key Findings:

- Increasing trend in pulse production in the four countries
- Yield gap between farmers' yields and potential yields was large due to many production constraints
- Substantial post-harvest losses due to use of traditional storage practices

Recommendations:

- Investments in R&D and extension required across the entire pulse value chain
- Prioritize: 1) agronomy and cultivar development to increase yields, 2) harvest and storage practices to reduce losses, 3) marketing infrastructure

The Role of Agricultural co-operatives in enhancing food security in Africa

Kunzekweguta, Pigeon, Micheels, Henry and Noseworthy

- The scoping reviews aimed at gathering evidence on:
 - The extent to which co-operatives improve food security
 - Understand how current literature measures the impact of co-operatives on food security
- The goal was to identify gaps, suggest areas for future research, and facilitate evidence-based interventions

Co-operatives are viewed as having the potential to solve the problems faced by smallholder farmers

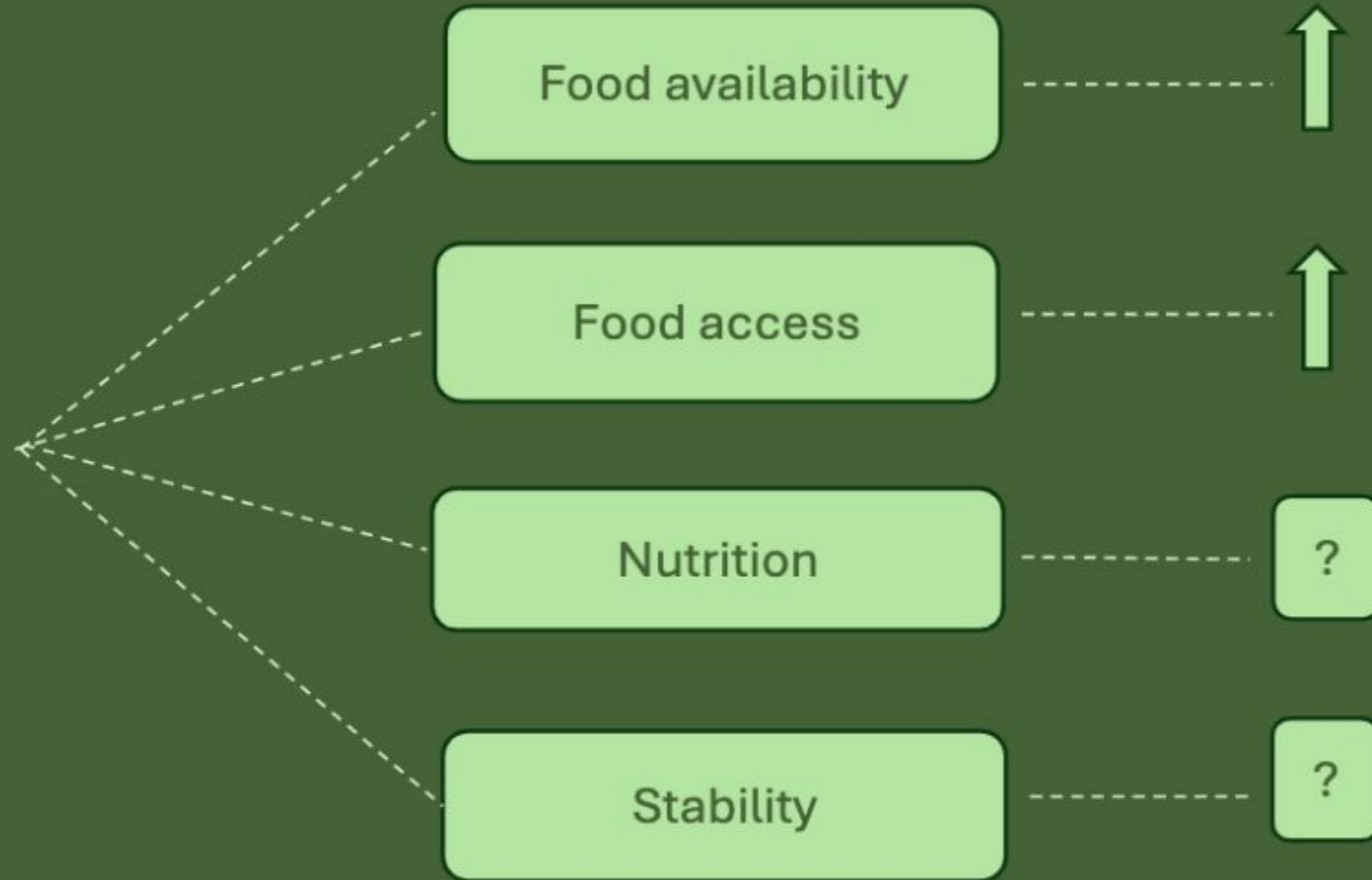
- Co-ops can address both economic and social challenges
- Evidence suggest that co-ops can help address market failure (input & output), reduce transaction costs, enhance information dissemination and boost incomes.
- Co-ops are usually formed to meet the common goals of its members. Therefore, it is assumed that they minimize exploitation of farmers

The precise connection between co-operatives and food security remains unclear

- The discussion is usually disaggregated into different component (incomes, productivity and credit access)
- Impact on women empowerment?
- Impact on crop diversification?



Co-operatives and Food Security



- Origin/formation of co-op
 - Farmer initiatives vs external influence
 - Co-ops formulated through a top-down approach usually less effective and less sustainable (Abate et al., 2014; Gezahegn et al., 2021; Gebru et al., 2022)
- Inclusiveness of co-ops
 - Women are usually excluded especially when formation is conditional on ownership of productive assets, also social norms constrain mobility of women, making it difficult to attend meetings
- Economic vs. social issues
 - Women sometimes lose control of products when they become profitable

- In general, co-operatives have a positive impact on food security but there is need to gather more evidence i.e., show explicit connections.
- Improving inclusiveness: (a) Address restrictive social norms (b) Promoting policies that encourage participation of vulnerable groups (e.g. women)
- Strengthening co-op autonomy: Government and NGO support necessary, but there should be a clear framework to ensure that farmers remain in total control

Panel Discussion

Dominic Schofield, Moderator

Panelists



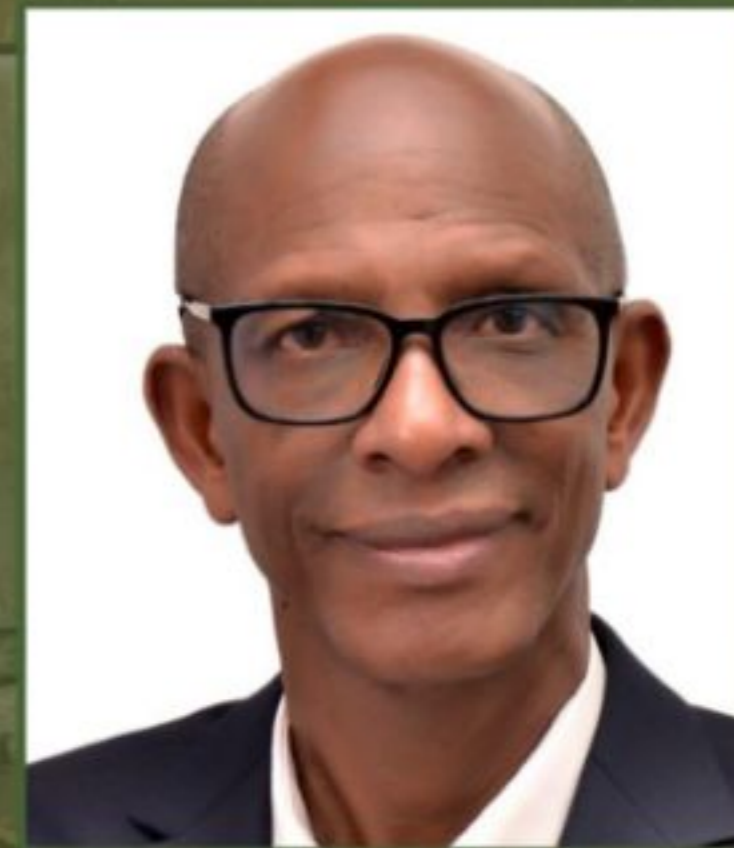
Nikita Eriksen-Hamel



Dionne Pohler



Karl M. Rich



Jean Claude Rubyogo



Moderator -
Dominic Schofield

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Panel Discussion

Q&A

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Wrap UP

Carol J. Henry, PhD

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With Thanks

Panelist & Moderators:

- Dr. Dionne Pohler
- Dr. Karl Rich
- Jean Claude Rubyogo
- Dr. Nikita Eriksen-Hamel
- Dominic Schofield (moderator)

Planning Team: Drs. Carol Henry, Bob Tyler, Marc-Andre Pigeon, Matthew Nosworthy, Eric Michaels and Dominic Schofield

Communications and Marketing:

Jason Belhumeur and Stan Yu, College of Pharmacy and Nutrition and Canadian Centre for the Study of Co-operatives, respectively, USask

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Baljit Singh, PhD, Vice-President of Research, University of Saskatchewan

Jane Alcorn, PhD, Dean of the College of Pharmacy & Nutrition, University of Saskatchewan

Steve Web, PhD, CEO, Global Institute for Food Security, University of Saskatchewan

Frank Schneider, Deputy Director, Environment and Food Systems Unit, Global Affairs Canada

Our Audience

Project Team

University of Saskatchewan

Dr. Carol Henry
Dr. Bruce Coulman
Dr. Bob Tyler
Dr. Gord Zello
Dr. Susan Whiting
Dr. Sina Adl
Prof. Bill Brown
Dr. Steve Shirliffe
Dr. Patience Elabor-Idemudia

Partners:

Dr. Tilahun Amede (ICRISAT)
Mrs. Yeshi Chichi (Gender consultant)
Mr. Yared Sertse (Business model consultant)

Project Manager

Ms. Shawna Bieber
Mr. Tussa Dedefo (Research Assistant)

Scientific Impact Advisory Committee (SIAC)

Dr. Seme Debela, Former DG, Ethiopian Institute of Agricultural Research
Dr. Cherinet Abuye, Save the Children, Ethiopia
Dr. Susan Horton, Professor and CIGI Chair in Global Health Economics, University of Waterloo, Canada
Dr. Maurice Moloney, CEO, Global Institute for Food Security, University of Saskatchewan, Canada
Dr. Shimelis Admassu Emire, Deputy Director

Hawassa University

Dr. Sheleme Beyene
Dr. Addisalem Mesfin
Dr. Berhanu Abate
Dr. Walelign Worku
Dr. Tewodros Tefera
Dr. Kebede Abegaz
Prof. Bill Brown
Dr. Steve Shirliffe
Dr. Patience Elabor-Idemudia

Mr. Tekle Bahiru (BoANR)
Mr. Girmay Ayana (EPHI)
Mr. Muluken Getahun (SARI)

Mr. Awol Zeberga (Coordinator)
Mr. Mengistu Fereja (Research Assistant)



THANK YOU