

Dryland Crops Program: Tackling the 50:20 challenge

In 2024, CIMMYT's Dryland Crops Program (DCP) laid the foundations to advance its vision and address the 50:20 challenge. This is possible through the efforts of over 200 scientists from partner institutions, working collaboratively to deliver impact.

Motivation

- 50 %** Households in the drylands of Africa with moderate or severe food insecurity
- 20 %** Current adoption of improved varieties by farmers in the drylands of Africa

DCP VISION: Effective NARES and regional crop improvement networks sustainably develop new crop varieties and technologies that benefit farmers and consumers by proven and innovative impact pathways.

Research to Impact

Effective Regional Crop Improvement Networks

- Sorghum, pearl millet, groundnut, pigeonpea, finger millet, and chickpea breeding activities were coordinated across the Africa Dryland Crops Improvement Network (ADCIN).
- The pearl millet team used the Desired Gain Index, marking a significant advancement.
- Coordinated breeding activities:
 - Shared breeding pipelines for 6 dryland crops
 - Nearly 100% adoption of parental and F1 Quality Control (QC) using molecular markers.
 - Molecular markers are ready to develop high oleic acid and late leaf spot-resistant groundnut and Striga-tolerant sorghum varieties.
 - Rapid Generation Advancement (RGA) strategies were adopted broadly to expedite breeding processes.



Researchers and stakeholders conduct a field evaluation of groundnut breeding lines.

Capacity Development for Continuous Improvement and Sustainability

- 49 research technicians from 11 organizations and 9 African countries, covering data management, cultivar development, and trial implementation.
- "Trait Champs," partner scientists leading trait-focused research, significantly enhanced trait discovery and pre-breeding efficiency.
- Disease screening facilities and protocols for:
 - Pearl millet: Downy mildew
 - Sorghum: Anthracnose, Striga, midge, and stem borer
- ADCIN steering committees allocated resources to enhance breeding infrastructure and phenotyping capacities across partner countries.



Festus Muthoka, a pigeon pea farmer in Machakos County, Kenya shows one of his pigeon pea crops on his farm.

Proven and Innovative Impact Pathways

- Surveys of 2,800 households in Kenya and Uganda highlighted low adoption of improved varieties, minimal input use, and budget constraints.
- In Tanzania, a survey of 204 seed dealers revealed:
 - 68% were Quality Declared Seed (QDS) producers.
 - 22% agrodealers.
 - 10% seed companies.
- Dominance of QDS producers for dryland crops:
 - Groundnut: 94%
 - Pigeon pea: 67%
 - Sorghum: 66%

- **51% of QDS producers, 35% of seed company representatives, and 43% of agrodealers** are women.
- Youth (ages 25-34) accounted for **25% of seed businesses**.
- Farmer-managed seed systems (FMSS) provide **95-97%** of dryland crop seeds.



Participants engage in a participatory prioritization exercise during a stakeholder workshop, using visual tools.

Strategic partnerships

- Youth and Women Quality Centers (YWQC) benefitted **5,000 farmers** in Tanzania. YWQCs facilitated market linkages for **600 farmers** and **10 value chain actors**.
- In Kenya, training **34 champions** led to outreach impacting **769,275 community members** through radio and directly training **4,124 farmers**.
- The Community Managed Seed Supply Model in Tanzania, supported by CIMMYT and the Syngenta Foundation, benefitted **42,225 farmers: 184 seed producers and 49% women**, produced **60 metric tons** of groundnut and sorghum seed.
- First-ever Business-to-Business (B2B) meetings held:
 - Burkina Faso: **300 participants** across the value chain.
 - Ghana: **494 participants** (179 men, 315 women).
- Key takeaways:
 - Strengthen public-private partnerships.
 - Scale up EGS and awareness of new varieties.
 - Lower seed/input costs.
 - Institutionalize B2B platforms.

- Integrated seed enterprises and localized small and medium-size enterprises (SMEs) are essential to strengthen seed systems for sorghum, millet, and groundnut in sub-Saharan Africa.
- A coordinated, modular framework is proposed to: address fragmented seed system interventions and provide a scalable, sustainable, and investment-ready approach.
- The framework aims to:
 - Enhance farmer access to improved varieties.
 - Reduce seed recycling.
 - Strengthen SME seed businesses.
 - Improve local market functionality.



A researcher evaluates sorghum in the field.

Our Values

- **Excellence:** Co-design and co-implement approaches that use cutting-edge technologies and build capabilities to work individually and in teams.
- **Teamwork:** Shared prioritizing, planning, work responsibilities, and budgets; shared innovation, validation and scaling. Risk management and synergies through teamwork.
- **Integrity:** Without it, there is no trust, and without trust there is no teamwork to produce excellent products. happen.

**50:20 is our motivation;
E-T-I is our path towards 0:100**



Technicians at the research facility in Kiboko, Kenya, conduct seed sowing in seedling trays under controlled greenhouse conditions.

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our 2023
achievements

