

CONSERVATION AGRICULTURE: a best bet for Kenyan farmers

Key facts



45 maize varieties that are high yielding and more stress tolerant than previously grown varieties have been tested and scaled out to farmers.



The construction of furrows and ridges to conserve moisture during dry periods has increased from less than 1% to 58%.



11 innovation platforms have been formed to improve agricultural information exchange and catalyze rural transformation.



42 improved legume varieties and 12 new fodder varieties have been tested through the project.



Credit: CIMMYT/Peter Lowe

Technology package:

The Sustainable Intensification of Maize-Legume Cropping Systems for Food Security in Eastern and Southern Africa (SIMLESA) project has tested and promoted:

- The increased use of improved maize and legume varieties.
- Conservation agriculture (CA)-based practices including:
 - zero tillage to reduce soil degradation, labor drudgery and field costs;
 - increased soil residue retention to increase soil nutrient content;
 - intercropping, crop rotation and residue retention to enhance crop diversification and soil fertility.
- The construction of furrows and ridges to conserve moisture during dry periods.
- Appropriate agronomic practices to enhance productivity.

Project sites:

- Low potential areas with erratic rainfall and higher temperatures:
 - Bungoma, Siaya, Tharaka and Lower Meru
- High potential areas with reliable rainfall and lower temperatures:
 - Kakamega, Embu and Upper Meru



Farmer challenges:

- Shortage of improved seed.
- Lateness of government subsidized fertilizers intended to reduce high input costs.
- Poor market organization and low output prices – especially during harvest.
- Climate-related risks.



Credit: CIMMYT/Peter Lowe

SIMLESA approaches

- On-farm research activities undertaken across agro-ecologies to test the suitability of CA-based practices.
- Establishment of agriculture innovation platforms (AIPs) to increase agricultural information exchange and collaborative action among value chain stakeholders.
- Participatory seed variety selection (PVS) trials held with farmers and local research institutions to identify suitable maize and legume varieties for out-scaling.



Credit: James Karuga

Achievements

- As of December 2016, 63,891 farmers (34,641 women and 29,229 men) had adopted SIMLESA technologies – exceeding the project's target by 23%.
- At all SIMLESA sites across eastern and western Kenya, over 75% of participants retained crop residue on the soil surface.
- Adoption of the improved maize and legume varieties increased from less than 1% in 2010 to over 60% in 2013.
- In eastern Kenya, yields for maize and beans have increased from 1.6 and 0.6 t/ha to 4.5 and 2.5 t/ha, respectively, due to adoption of CA practices and improved varieties.
- Soil pH increased from 4.8 at the start of the project (in 2010) to 5.5 in 2014, due to farmers adopting non-acidifying fertilizers for maize and legumes, and soil carbon restoration through retention of crop residues (mulches) on the soil surface.
- Adoption of CA-based farming practices increased soil organic carbon and total soil nitrogen from 0.2-0.4% in 2010 to 1.9-2.1% in 2016, respectively, indicating improved soil fertility.
- High soil bulk density is an indicator of low porosity and soil compaction, and can cause restrictions to root growth. Over the course of the project, soil bulk density has decreased from 1.5 kg m⁻³ to 1.2 kg m⁻³.
- A total of 11 AIPs have been formed to support CA experimentation, technology evaluation and scaling out of proven practices.
- More than 40 partners, including farmers, seed companies and governmental organizations have been members of the AIPs since 2013.

Scaling out

- ✓ Through the TV program *Shamba Shape Up*, SIMLESA messages reached 5 million households.
- ✓ The National Council of Churches of Kenya out-scaled the CA-based techniques to 30,000 farmers.
- ✓ Egerton University has scaled out CA-based principles in five districts infested with *Striga* weed, reaching about 30,000 farmers.
- ✓ Fresco seed company provided maize seed varieties to 30,000 households.

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References

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