

# Increasing economic returns for smallholder farmers

## Growing change together with Farm Africa

Farm Africa is an international NGO working with smallholder farmers across eastern Africa to reduce poverty and improve food security through sustainable agriculture. In Kenya, the organisation supports farmers to adopt climate-smart and regenerative farming practices that restore degraded soils, increase productivity and improve rural livelihoods. One of the organisation's flagship initiatives is the Strengthening Regenerative Agriculture in Kenya (STRAK) project, which promotes sustainable farming practices such as agroforestry, intercropping, crop rotation, mulching and the use of organic manure.

**Farm Africa partnered with Downforce Technologies to measure, monitor and verify changes in soil carbon across large landscapes.** The primary objective was: To generate verifiable data on soil carbon sequestration to strengthen evidence of the impact of regenerative agriculture and demonstrate measurable environmental and economic returns for farmers.

## The STRAK project

The STRAK project is funded by the IKEA Foundation through AGRA. Farm Africa has supported more than 50,000 farmers in Embu and Tharaka Nithi Counties to adopt regenerative agriculture practices that restore soil health while increasing farm productivity.

## Challenge: A credible evidence base

Without credible monitoring systems, it was difficult to demonstrate the true environmental and economic value of regenerative agriculture interventions across smallholder farms. Farm Africa therefore required a reliable and scalable way to measure soil health improvements and quantify Soil Organic Carbon (SOC) levels across thousands of farms. Such data would allow the organisation to:

- validate the impact of regenerative agriculture
- strengthen programme evaluation
- support participation in emerging carbon markets
- drive long-term fundraising for Farm Africa

“

*The results clearly demonstrate that regenerative agriculture is not just an environmental intervention, it is an economic one*

**Mary Nyale,**  
Country Director,  
Farm Africa Kenya



# Scaling regenerative agriculture across *smallholder farms in Kenya*

“

*My training on the practice of regenerative agriculture has enabled me to practice intercropping combined with mulching. This has significantly increased my yields. I now harvest three bags of maize rather than one, from the same piece of land*

## **Stanley Riungu**

Smallholder farmer  
STRAK project, Tharaka Nithi



## **Solution: Scalable SOC measurement**

Downforce Technologies integrated ground-based data and satellite observations to measure and report annual SOC levels from 2017 to the present day. By combining scientifically robust data with contextual understanding, Downforce analysed soil carbon dynamics across farms participating in the STRAK programme. Measuring SOC levels at scale, without the need for costly and time-intensive field sampling, Downforce:

- analysed changes in SOC across regenerative agriculture sites
- generated landscape-level insights on soil health improvements
- provided credible data to support carbon accounting and climate reporting

This data provides Farm Africa and its partners with a powerful evidence base demonstrating that regenerative agriculture improves soil health while capturing atmospheric carbon.

## **Result: Improved economic benefits**

More than 50,000 farmers have experienced improved productivity through the STRAK project. This has been achieved by the adoption of regenerative agricultural practices that restore soil health, which boosts yields, improves water retention while building climate resilience. SOC levels per hectare on project farms remained consistently higher across the monitoring period, demonstrating the positive impact of regenerative practices such as agroforestry, mulching and improved soil management. Farmers implementing these practices reported increased:

- £ **Crop yields** – increased by up to 81 per cent per acre, supporting income generation
- ☀ **Soil water retention** – improved by 92 percent, helping farms better withstand drought and irregular rainfall
- 📦 **Soil biodiversity** – increased beneficial nematode populations by 200 percent, sustaining long-term agricultural productivity

By combining farmer-led regenerative practices with advanced SOC measurement, this model provides a scalable pathway to restore degraded soils, improve smallholder farmer incomes, generate verified carbon sequestration and scale climate-smart agriculture across Africa. Data-driven soil monitoring can unlock the full potential of regenerative agriculture.