

tearfund

The Impact of Conservation Agriculture

in the East-African
Community

August 2023



A collaborative study was conducted through our partners to explore the level of impact Conservation Agriculture has had in rural areas.

- Communate Baptiste au Centre de L’Afrique Diocese of Central Tanganyika
- The Evangelical Fellowship of India Commission on Relief
- Ethiopian Kale Heywet Church Development Commision
- Fadhili Trust
- Tepereza Development Association

Rural regions are characterized by:

- Hilly landscape
- Dense forests
- Desertification
- Limited rainfall and floods
- Poverty, where families struggle to have only one meal a day for six months each year



Impact Assessment:

The effects of Conservation Agriculture (CA) in the Global South Regions.

Research Question:

How has Conservation Agriculture training affected your life?

Hypothesis:

Comprehensive Conservation Agriculture (CA) training programs in rural areas of the Global South create a substantial and transformative impact on the lives of individuals who undergo the training.

Methodology

In July 2023, a cross-sectional survey was carried out, focused on 600 farmers residing in various villages within Tanzania, Kenya, DRC Congo, Ethiopia, and India. The survey addressed the following:

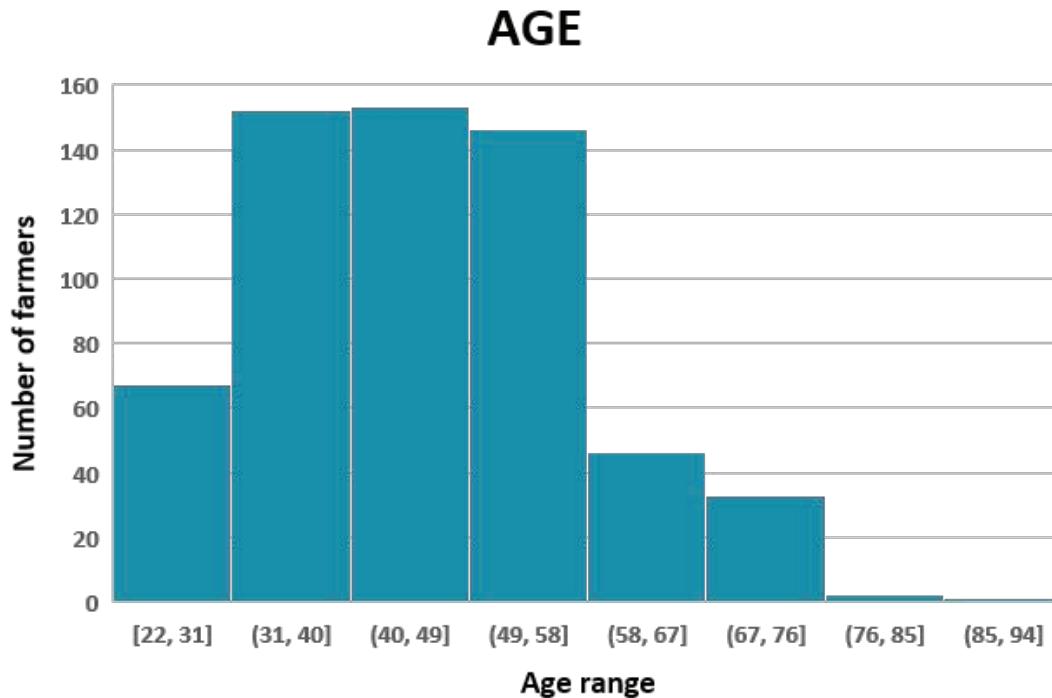
How many years ago did you start your CA training?	What is your grain production in bags of 100 kg before and after CA training?
How many months did your family experience lean season before training and in the past year?	What differences do you have in your spending habits compared to before undergoing CA training?
How did you cope with lean season?	Did you attend Church before the training and has there been a change since then?
Which crops did you grow before and after CA training?	How many neighbors have adopted your CA practices?
What do think about CA vs traditional farming?	How has CA affected your life?

Note: For some question, participants were allowed to choose more than one answer.

Demographic Questions and Context

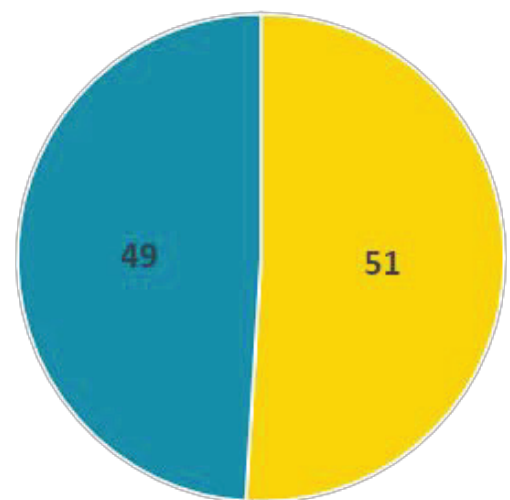


600 farmers surveyed ranged in age from 22 to 91 years old



The gender distribution of farmers.

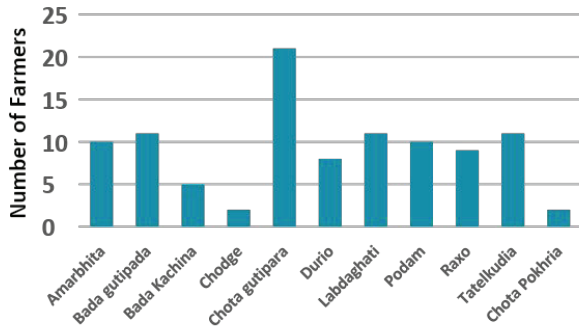
- Within the 600 surveyed farmers, 51% are females and 49% are males.



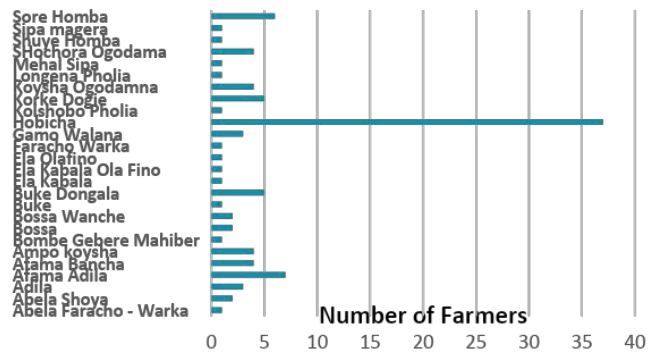
Female Male

Out of approximately 24,000 trained farmers, 600 were surveyed across 88 villages

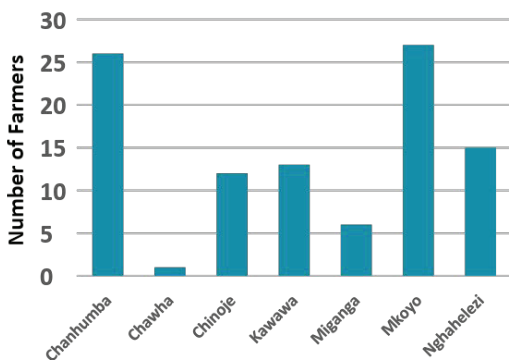
Fadhili Trust - Kenya



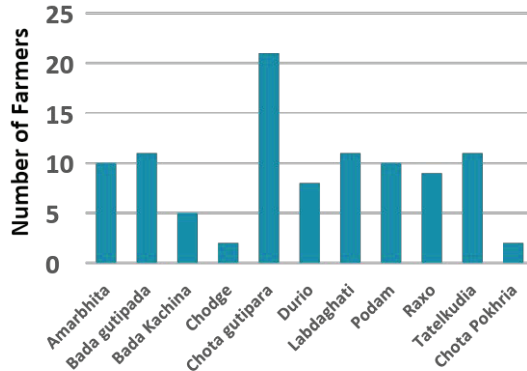
TDA – Ethiopia



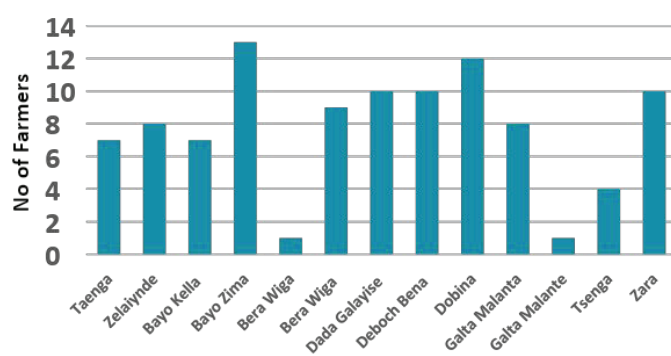
DCT - Tanzania



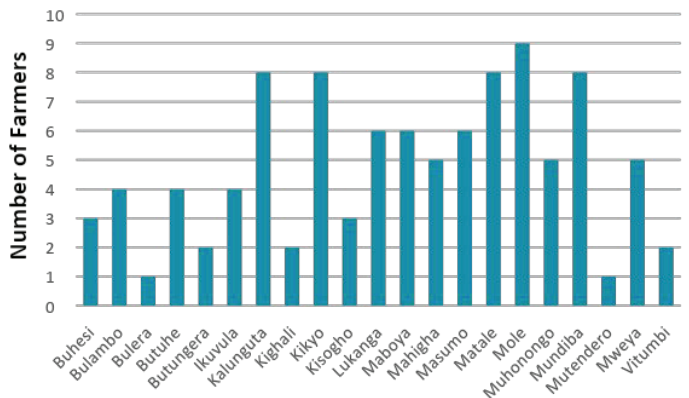
EFICOR - India



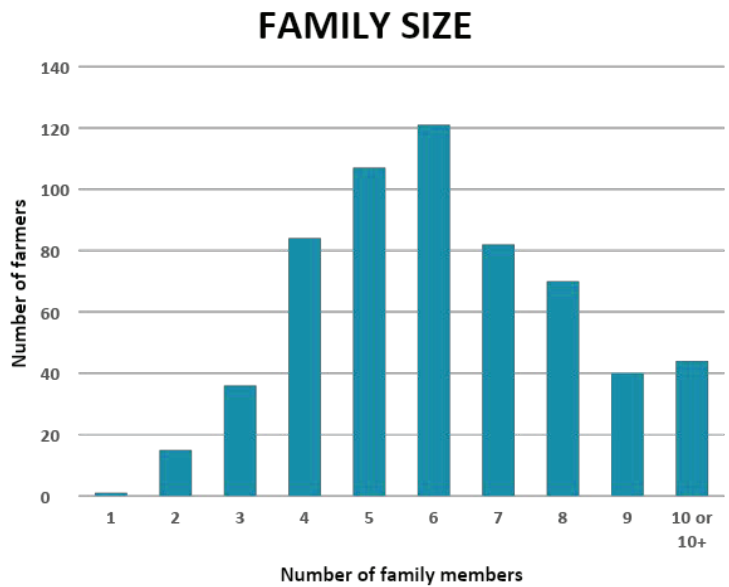
EKHDC - Ethiopia



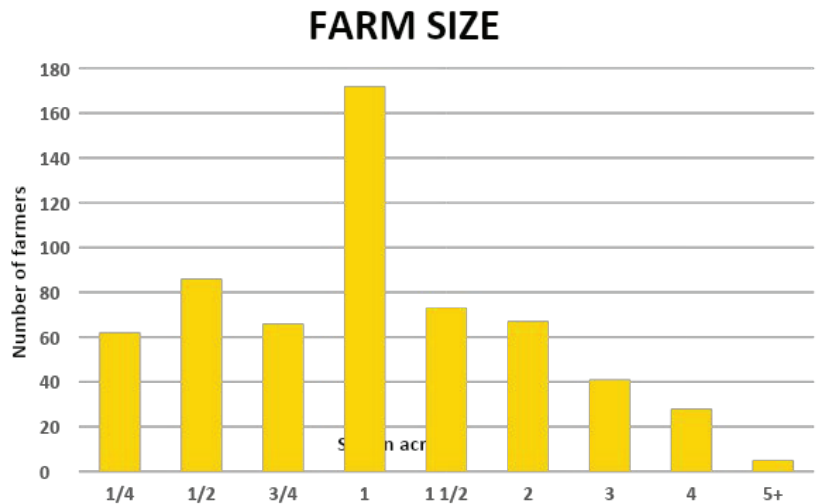
CBCA – DRC Congo



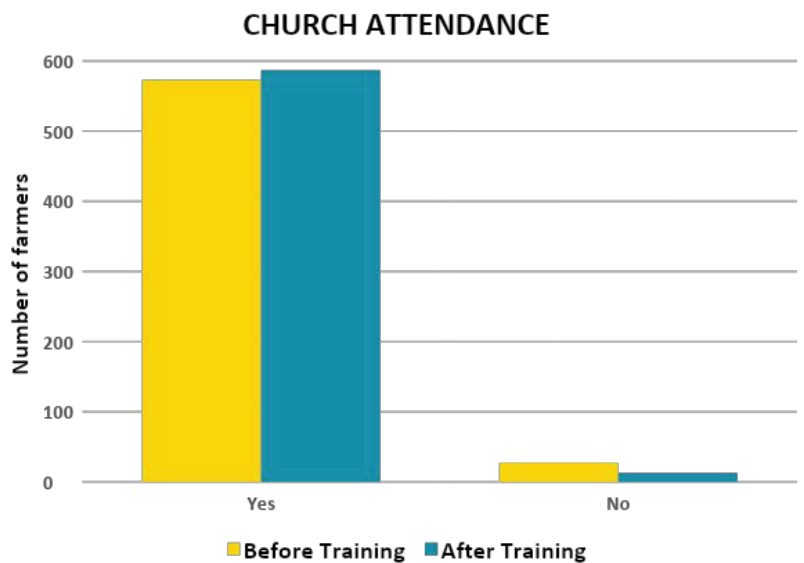
The chart represents the family sizes of the interviewed farmers, with an average of 6 members per family.



Farm sizes of the surveyed farmers averaged 1 acre per family to support an average of 6 people per family.



The strong sense of community and faith with consistent church attendance.



Conservation Agriculture (CA)

Impact Evaluation

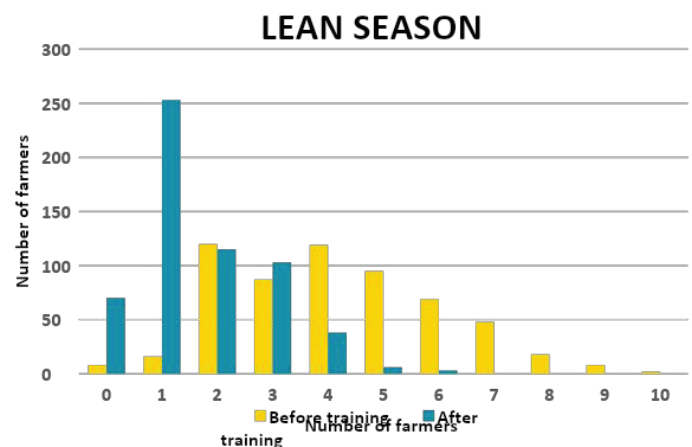


Farmers had been trained on average for 3 years



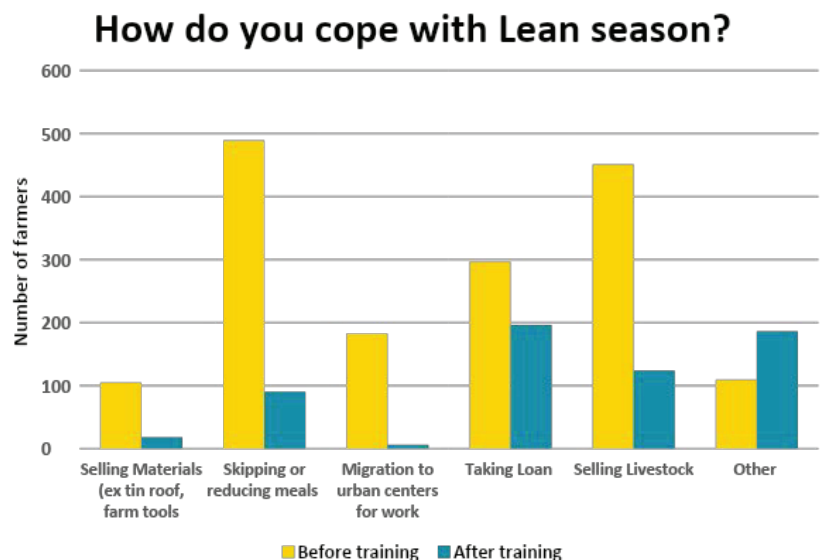
The duration, in months, of the lean season experienced by farmers' families both before (yellow) and after (blue) undergoing CA training.

- Prior to the training, the duration of lean season was ranged from 0 to 10 months, with an average of 4 months.
- Following the training, lean season was reduced to an average of 1 month.



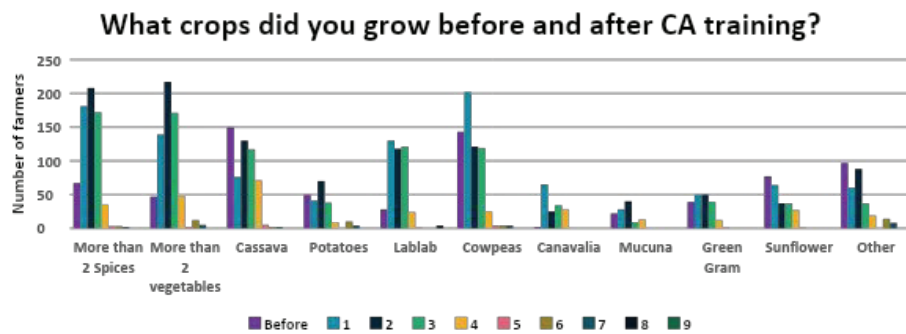
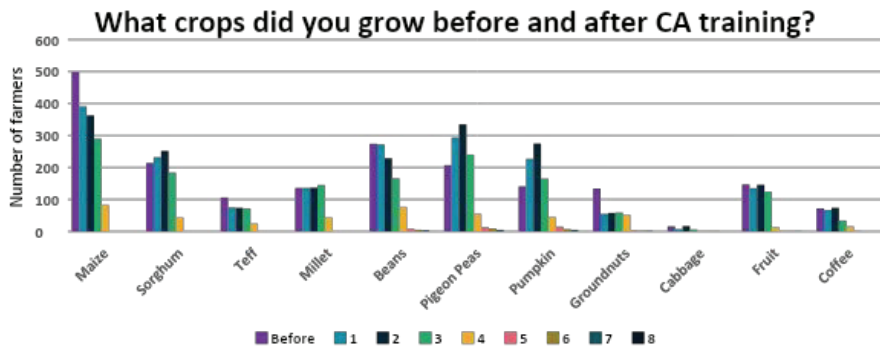
The strategies utilized by farmers and their families to navigate the lean season both before (yellow) and after (blue) the CA training.

- Prior to the training, majority of farmers coped by selling livestock and skipping or reduced meals.
- After the implementation of Conservation Agriculture (CA), the number decreased significantly in all areas.



Crops grown before CA training are represented by purple bar and other colors represent each year after training.

- Traditionally, farmers in these regions concentrate on a range of grains.
- After CA training, farmers experienced increased yield and diversity of crops, which improved family nutrition and market sales and diversity of crops.

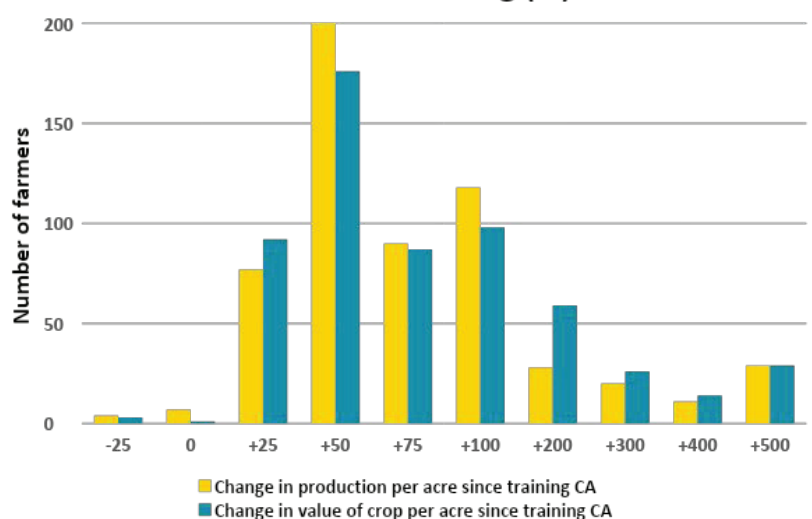


From the surveyed participants:

- 82% experienced an increase in yield of double or more.

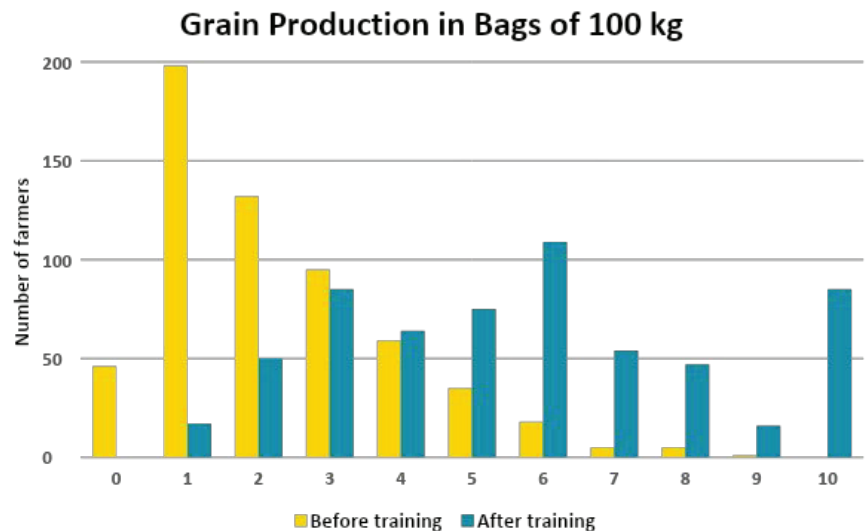
This data highlights the fact that families had more food available and additional crops to sell in market.

Increased yield after CA training from traditional farming (%)



The number of 100 kg bags of grain production before and after the CA training.

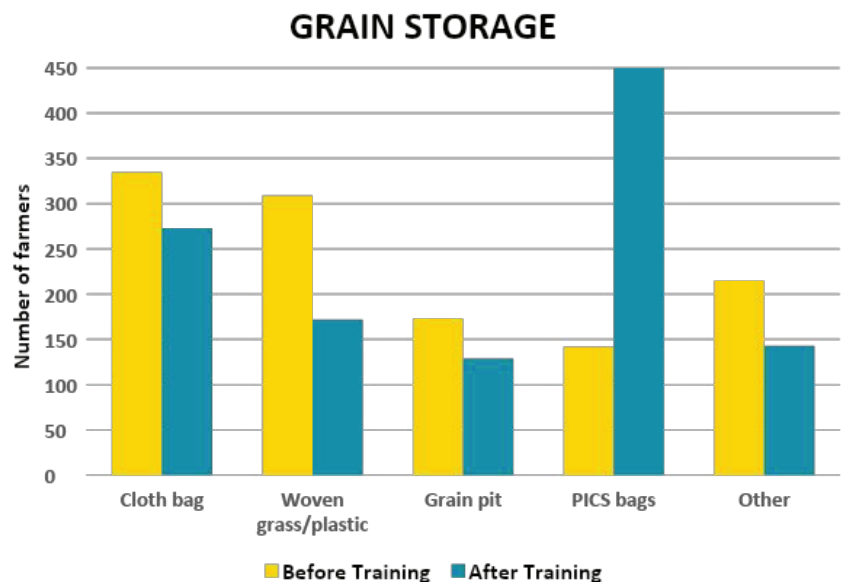
- Prior to training, the median number of bags of grain produced was 1 bag.
- Following the training, a significant change occurred: **2 out of 3 farmers managed to produce at least 5 bags of grain, and the average increased to 5.6 bags.**



CA training introduced PICS (Purdue Improved Crop Storage) bags

- They are composed of 3 layers
- They minimize crop losses caused by pests such as mice, moths, and weevils reducing the loss from 30% to 1%
- This innovation facilitates the long-term storage and sale of grains

Following training, 75% adopted PICS bags, reducing the use of cloth bags, and other types of storage.



Community Influence and Family Transformation



Copy Farmers: Neighbors Training Neighbors

Signifies

- strong community acceptance
- and mindset change

The data indicates that 88% CA farmers in this sample has mentored at least 1 neighboring farmer, with 32% having mentored 3-5 neighbors.

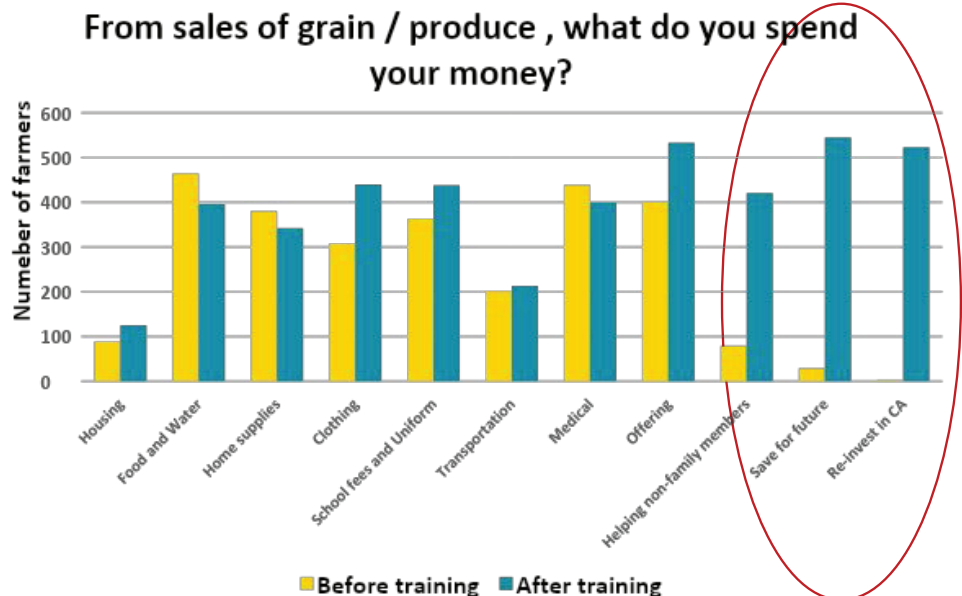


With increased farm production, there is more grain for both family nutrition and selling in the market.

We asked farmers about spending, and the blue bar indicates decreased expenditure in all areas.

However, on the far right, we see key transformational indicators, increased number of

- helping of non-family members
- saving for the future
- re-investing in their farms



How has having groups changed your village?

‘There is improved soil fertility. I got knowledge and skills in CA farming , multiple harvests from a single farm , provides food security, and was able to start and expand my business.’

‘I got knowledge and skills in CA farming, and I am training and sharing my experience with other farmers.’

‘As a women, CA reduced the labor required for farming, specifically for plowing and weeding’

‘I have enough food for home consumption. CA provides food security, improved soil fertility, increased yields/ production, money to cater for education and other expenses and got knowledge and skills in CA farming.’

‘I bought my own land plot.’

‘All non-CA crops were lost due to drought... The food crops harvested and used to feed my family comes from CA plots.’

‘All non-CA crops were lost due to drought... The food crops harvested and used to feed my family comes from CA plots.’

‘My life is better than before!’

‘Now, there is a new mindset on farming, certainty of harvest with minimal rain, low toxins intake due to introduction of biopesticides, improved knowledge on overall farming.’

‘CA has changed my life; I am harvesting more crops than from the traditional farming. My living standard has changed.’

‘CA changed my family’s work culture and created unity. There is love and cooperation in my family. CA thought me and my family how to save soil fertility, be productive, and save through bulking.’

‘Conservation Agriculture has helped appreciate and plant drought tolerant crop varieties such as sorghum, millet, cassava etc. Use of bio-pesticides has cut down the cost of pesticides beside many benefits of minimizing chemical consumption.’

Analysis Conclusion

In summary, the visual representation of data provides support for the initial hypothesis. The comprehensive Conservation Agriculture training programs implemented in rural areas of the Global South have yielded significant and transformative effects on the individuals who underwent the training.

This observation not only validates the hypothesis but also shed light on the post-training progress and changes experienced by farmers.

Moreover, the outcomes of this study offer opportunities to explore wider contexts, address additional questions, and consider implications such as mechanism of CA training that drive these changes in this community, monetary income and assets before and after training, shifts in school attendance for farmers' children, and implications for overall community development and welfare.

Limitations and Biases

- This study represents one of several cross-sectional studies conducted across Tearfund partnering countries. While the studies utilized a consistent sample size of 100 farmers, it's crucial to recognize that the population of CA trained farmers vary across the partnering countries. The selection of the sample size was influenced by the study's time frame rather than a predefined formula based on CA farmer population in the given community.
- The selection of farmers may not have followed a random process, as the study involved conducting in-person interviews within rural areas. Considering the study's time frame, the convenience of reaching available farmers could have influenced the selection process.
- This study demonstrates the positive effects of Conservation Agriculture (CA) within the Southeastern Kenyan community. While the presented results remain consistent, it's essential to acknowledge certain limitations associated with practicing CA that have not been addressed in this study.
- Interviewers (Partners) may also have a motivation to present favorable outcomes to TFCA.



Acknowledgements

We extend sincere appreciation to the participants, interviewers, and our partners for their invaluable contributions, which supplied the crucial data for the analysis of the hypothesis. This data has yielded significant insights and validated observed impact.

Names of Interviewers:

DCT/DST: Kaleb Chomola, Noely Selya, Pendi Stanley, Samweli Elinuru

EKHCDC: Hizkiyas Yenete, Solomon Yirdaw, Teshome Tadese, Noah Tilla, Eyasu Endriyas

TDA: Admasu Aysa, Biniam Kastro, Daniel Kumalo, Hariso Halacho, Hizkel Toru, Temesgen Damitie, Yohannes Eyob, Zerihun Mathewos,

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EFICOR: Micheal Malto, Ruban Pahadia,

CBCA: Asifiwe Christien, Freddy Kyavuta, Katembo Delphin, Kihita Michee, Kitambala Souriante, Sikulimola Jackson, Syaghuswa Wilson, Tsongo Grevy

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