Gender-sensitive Practices Key to Ensuring Food Security through Conservation Agriculture

African Population and Health Research Center

Conservation agriculture (CA) is a climate-smart farming method practiced widely in Australia, Mexico, Southeast Asia and the US. Conservation agriculture has been demonstrated to increase farm productivity and improve soil quality. This has clear environmental benefits, as well as benefits in terms of increased food security and increased incomes for farmers.

In Sub-Saharan Africa (SSA) CA is practiced less than in other parts of the world. Early research in a limited number of African countries, namely, Ethiopia, Kenya, Zambia and Zimbabwe suggests that one of the barriers to the adoption of CA in Sub-Saharan Africa are the traditional gender roles in farming. While women, it seems, are willing to practice CA more widely, they are held back by many factors including insecure land tenure and the lack of access to farming inputs and tools.

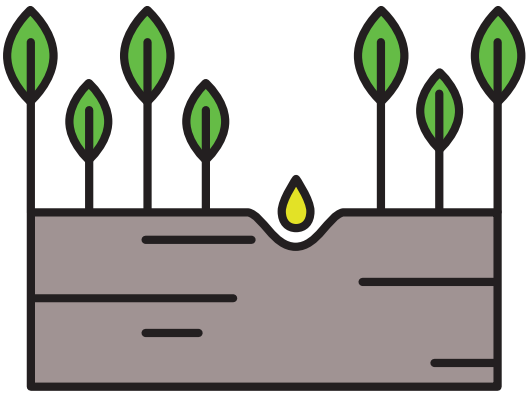
The research on the link between CA and gender, while still limited, has allowed lessons to be learned about the nature of these gender inequalities and their impact on the adoption and practice of CA. The research has also informed suggestions for gender-sensitive strategies aimed at enhancing women's participation in CA.

Research Unit:
Population Dynamics and Sexual Reproductive Health and Rights

2 The Three Principles of Conservation Agriculture (FAO)

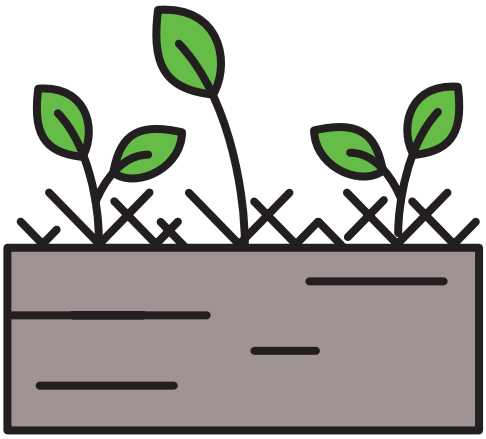
Minimum Tillage or Soil Disturbance

This involves direct planting of annual and perennial crops without disturbing the soil since the last harvest. This protects the soil against wind and water erosion, improves infiltration and conserves soil moisture. Minimum tillage improves soil organic matter and increases the yield per unit of manure or fertilizer used.



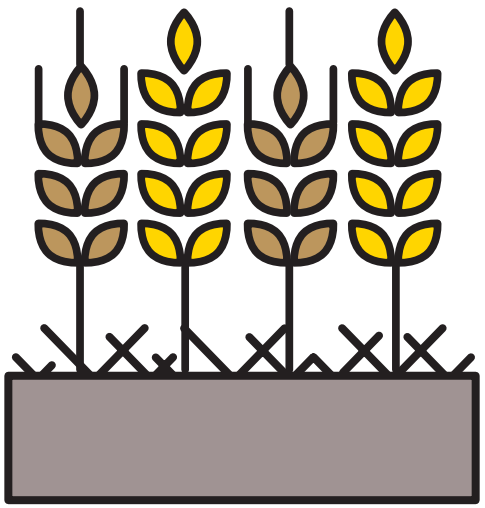
Permanent Soil Cover Using Crop Residue and Live Mulches

Protects the soil from erosion by rain, reduces evaporation and suppresses weed growth.



Crop Rotation and Intercropping

Alternating different crops in the same field in a particular sequence. The recommended sequence is cereals (maize and wheat), followed by legumes (beans). Rotation helps utilize soil nutrients more efficiently. Legumes fix nitrogen into the soil for the benefit of successive crops. Crop rotation is a natural cost-neutral way to reduce the incidence of pests and disease.



Lessons Learned

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Income and Decision-making

Early research in Kenya, Tanzania and Zambia found that farmers, mostly women, who practiced CA were able to prepare the land early, plant early and reap a plentiful harvest. Their incomes increased and they had enough food to see them through periods of food scarcity.

The research also suggests that CA can promote greater decision-making power for women, even in contexts where men control land. In fact, in almost half of households practicing CA in parts of Zimbabwe, women took over roles traditionally reserved for men, such as deciding when and what to plant, where, when to apply fertilizer and when to harvest. However, in other contexts, male-headed households were more likely to adopt CA because they had greater access than women to financing and farming inputs. The research is still inconclusive on this.

Income and Access

Once a farm becomes profitable, due to CA, women risk losing it to the men in their families who may take over it to run it as a commercial farm and benefit from the increased income. Faced with this, women farmers will readily avoid CA in order to maintain control of their land.

Women have less access than men, to farm inputs such as seeds, fertilizer and farm equipment. This is because there are little or no financing opportunities for women to buy farming inputs. Women also have less access than men to support from government extension officers. This is especially the case in Ethiopia.

Household Diets

CA principles do not allow farmers to grow culturally-relevant and acceptable foods, such as groundnuts and tubers, to supplement household diets. The use of herbicides to kill weeds, a key principle of CA, means the death of healthy, edible weeds, such as *amaranthus*, which is traditionally part of rural diets. This forces women, the guarantors of household food security, to find, sometimes even buy, alternatives. These are very strong disincentives for women to adopt CA.

Gendered Labor Demands

Where CA is practiced, the no-tilling requirement calls for digging planting basins by hand, instead of using traditional ploughing methods. This causes men to disengage from this activity, leaving women to dig planting basins in the dry season when the weather is hot and the soil hard. In some contexts, such as in Zambia, women use heavy hoes weighing 4-5 Kg. This is back-breaking work that reduces women's ability to perform other domestic duties. Women are constantly in danger of abandoning CA by returning to easier and more traditional methods of preparing the ground for planting, such as using animal-drawn ploughs. Effectively, CA causes women's workloads to increase disproportionately to that of men.

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CA, Gender and Health

CA can have negative long-term effects on both men and women's health. The heavy hoes used cause back strain and pain, especially among women. The herbicides used in place of weeding contaminate soil and surface water, causing poor health in people and livestock. In men, the herbicides can cause low sperm count, breast and prostate cancers. In women, the exposure can result in breast cancer, spontaneous abortions and other reproductive health complications.

CA and Environment

CA requires farmland to be covered in mulch and crop residue. Where there are competing priorities for firewood or crop residue, for cooking or for feeding farm animals, women take these away from their fields, so that the soil-restoring and protective function of CA is lost. Further, women may resort to environmentally-damaging practices such as deforestation to meet domestic needs.

CA also calls for crop rotation or intercropping to restore the soil's nitrogen content. Smallholder farmers in Sub-Saharan Africa prefer intercropping of cereals and legumes. However, in several African contexts, legumes are considered women's subsistence crop, while cereals are considered a cash crop "owned" by men. This puts women at risk of being forced to cede their crop to men. Where women face this risk, or the risk of food insecurity due to intercropping, they avoid CA altogether. In this way, the soil-restoring function of CA is again lost due to gender dynamics.

Mitigating Measures

These lessons learned so far have been used to develop the following gender-sensitive measures to promote women's participation in CA.

- Channelling farming inputs through women to give women equal access to production resources.
- Targeting both men and women with CA interventions to promote the willingness to experiment with CA.
- Forming women's agricultural groups where women help each other on their farms.
- Designing training workshops for men, as key owners of land and decision-makers about farming, to help them understand the needs of women in conservation agriculture.

Conclusion

Expanded research is needed on the link between the CA and gender in Sub-Saharan Africa. More research is also needed to determine whether or not the mitigating measures identified above are sustainable. Deeper knowledge will help design effective mitigating measures, enhance the participation of women in CA, and contribute to the increased practice of CA in Sub-Saharan Africa.