Conservation Agriculture in Farmer Field Schools: Building Farmers’ Capacity to Adapt

A Difficult Farming Environment
The coastal area of Mozambique is a challenging environment for smallholder farming. The soils are mostly sandy with low fertility. To make matters worse, the area is frequently affected by erratic rainfall, periods of drought, floods, or cyclones. However, farming is still the main source of food and agriculture for most rural families, so there is great need to help farmers learn to improve the situation.

Conservation Agriculture
This is why CARE Mozambique has been working with local partners AENA, Mahlahle and the Ministry of Agriculture to improve farming practices and productivity in Nampula and Inhambane. Conservation agriculture helps farmers to mimic – rather than control – nature. The three main principles of CA – till the soil as little as possible; keep the soil covered year-round with organic matter; and increase the biodiversity of the planted crops – improve soil fertility, water infiltration and retention of soil moisture. CA builds organic matter, improves the soil’s structure, reduces erosion, helps water soak into the soil more quickly, and reduces water loss through evaporation, all while improving fertility and productivity. This is vital, especially given the effects of climate change, with higher temperatures and erratic rainfall, and bursts of torrential rainfall alternating with prolonged dry spells that bake the soil. Further, the program is introducing more productive and disease tolerant varieties of the staple crop, cassava, as well as several new legumes. This combination of CA and better varieties is leading to greater productivity, contributing to increases in diet diversity and food and nutrition security.

Farmer Field Schools
These new techniques and varieties are being introduced through a participatory approach to research and extension. Farmer Field Schools guide farmers to undertake practical experiments of side-by-side comparisons between common farming techniques and CA practices. Farmers test different varieties and arrangements of crops for yield, flavor and disease resistance. They select those that are most appropriate for their own situations, giving them more control in a difficult and changing situation.

“We learned in the Farmer Field School that we don’t have to do agriculture as it has always been done, that we can do it differently.”
As they gain experience in running and analyzing their own experiments, farmers build confidence, and deepen their capacity to adapt to economic and environmental changes.

**Farmer Innovation**

In March 2013, rain fell in Namizope and Mukuvula communities in Nampula’s Angoche District “until the water was almost to our knees, inundating our fields.” With entire fields of cassava washed away, the results for some were catastrophic. But all was not lost. After the rains, farmers like Mwancha Amisse and her husband in Mukuvula community immediately saw how some plots responded differently to the flooding in terms of water flow, erosion, and moisture absorption. Farmers found that mulches and ground cover significantly reduced topsoil erosion compared to areas where no mulching had been applied. Erosion also decreased – and water absorption increased – in plots where farmers had used minimum tilling. While CA is often seen as a way of mitigating the impacts of drought, these outcomes showed that CA can also mitigate impacts of floods.

Amisse assessed the flooding on her low, flood prone fields, and decided to build berms to improve her crop’s chance of survival even in torrential downpours. Based on her experience in the FFS, she added layers of dry grass to increase the soil’s capacity to absorb water, and to reduce run-off and erosion.

To mitigate the impact of potential floods this coming season, the women of Wiwanana Wa Tiane agriculture association in Namizope decided to incorporate drainage systems in their fields. “We are going to be sure to include a way for water to flow out of our fields, but in ways where our crops will not be washed away with it,” noted Alima Chereira, President of the Association. Based on their FFS experience, the group also plans to increase their use of soil cover to improve moisture retention and to plant more varieties to diversify the risk in case any one crop is lost.

José Tahauaia of Namizope referred to the increasingly unpredictable weather patterns, noting “We know that we need to be prepared for whatever comes, whether that is torrential rain or none at all. What we can count on is that conservation agriculture will help us either way.” He added, “We will also plant varieties of cassava not prone to root decay. At least we have chances for greater yield regardless of the weather.”

The Farmer Field Schools emphasis on farmers as decision-makers helps members, especially women, to build their confidence and capacity to experiment, while helping them to improve their farming potential. “We learned in the Farmer Field School that we don’t have to do agriculture as it has always been done, that we can do it differently,” shared Amisse Mandasse.