OVERVIEW  Mr Roland Bunch, an agroecologist with 40 years of experience and author of “Two Ears of Corn” and “Restoring the Soil,” is providing technical assistance to CARE Mozambique and partners. This is a summary of his report in September 2013, based on field work and extensive meetings in Nampula and Inhambane. (A longer version of this report is available from CARE Mozambique or from Roland Bunch; see details on reverse side.)

Farming in Mozambique
In Nampula and Inhambane provinces, frequent droughts, floods, cyclones and erratic rainfall combine with sandy, infertile soils to create an agricultural environment that is among the most unproductive in the world. Most sustenance farmers can’t produce enough food for their families. Many mature maize plants in Inhambane don’t reach chest high, and the average yield is about one third that of Africa as a whole. In Nampula, cassava yields more edible biomass than maize, but output is still tremendously low. Cassava also has less nutritional value. The combination of low yields and poor nutritive value contribute to an under-nutrition rate in rural areas of 43% in Mozambique (2011 DHS), and over 56% in Nampula – among the highest in the world.

Adding to this, routine hoeing destroys soil structure and exacerbates erosion, while exposure to the sun further reduces organic matter content. Also, due to population growth and shrinking landholdings, fallowing – the traditional way of maintaining soil fertility – is being abandoned.

The good news is that there’s a proven solution that is cheap and widely applicable within Mozambique: Conservation Agriculture (CA). CARE, WWF, the National Rural Extension Association (AENA) and the Ministry of Agriculture promote CA so farmers can learn how to work with instead of against nature, significantly increasing their yields in the process.

Conservation Agriculture: A Proven Solution
Conservation agriculture is modeled on tropical forests, which have been producing huge amounts of biomass on nutrient-poor soils for millennia by following five “rules”: 1) Soils are never turned over; 2) Soils are constantly covered by dead mulch; 3) The trees feed from the mulch, not the soils; 4) The forest produces a maximum of biomass; and 5) The forest is made up of a maximum of biodiversity.
To make an agriculture system more efficient and productive, farmers can adopt the rules of the forest by using CA: 1) Till the soil as little as possible; 2) Keep the soil covered year-round (while maximizing biomass production); and 3) Increase the biodiversity through crop rotation or inter-cropping (which feeding crops through the mulch or green manure).

CARE and partners have been supporting CA in Mozambique for years, and continue to improve their model. Most recently, this involves looking for alternatives to mulching. Cutting and carrying grass mulch adds to farmers’ workloads. Further, mulches degrade rapidly, leaving soil uncovered, while robbing nitrogen from crops and lowering potential productivity by 40 percent.

"Using tropical forests as a model, farmers can modify their current CA practices to reduce required labor and increase harvests."

In southern Africa, most farmers just use CA on a fraction of their land. This is often due to increases in workload, often linked to mulching. Using tropical forests as a model, farmers can modify their current CA practices to reduce required labor and increase harvests by 50 to 100 percent, with virtually no additional costs. Soil improvements and added organic matter will give farmers improved resilience against erratic rainfall and increasing temperatures, a more varied protein-rich diet, and increased sustainability. A technology with such an array of advantages and virtually no cost is bound to take off and spread across the landscape.

CARE Mozambique works in partnership on conservation agriculture and Farmer Field Schools with:

**Learning through Farmer Field Schools**
The FFS approach is a group-based learning process. The field is a school, allowing farmers to undertake experiments and side-by-side comparisons of different farming practices and crop varieties. In 2012-13, CARE and partners supported 147 experimental FFS plots in different agro-ecological zones, with a series of cropping and practice treatments. In the 2013-14 farming season, FFSs are experimenting to find locally appropriate green manure / cover crops, including mucuna, jackbeans and lablab beans.

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