

Africa RISING science, innovations and technologies with scaling potential from ESA-Zambia

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Key messages

- ✓ Cropping systems based on the principles of conservation agriculture increase yield in 2-5 cropping seasons
- ✓ Labour benefits of 25-45 days can be achieved when using labour saving planting methods and weed control strategies, especially benefitting women
- ✓ Increased financial returns make CA rotation and intercropping systems more profitable
- ✓ 25,648 households have been reached; of these 10,258 have been using CA-based practices on at least 0.25 hectares consistently; 2,116 are full adopters of all CA principles.

Objectives and approach

Smallholder farmers in Eastern Zambia are confronted with declining soil fertility, low access and use of improved seed and agriculture inputs. Increasingly, the negative impacts of climate variability and change affect their farming systems.

Efforts have been made to provide cash constrained farmers with options in reach to improve productivity, profitability and diversification while adapting to a changing climate.

Conservation agriculture (CA) systems, based on minimum soil disturbance, crop residue retention and crop rotations have been promoted from 2011-2016 in mother-and-baby trials and innovation systems in Eastern Zambia.

Key results

CA systems, as practiced in Eastern Zambia, showed yield benefits across different planting systems (Figure 1, Picture 1) but only after 2-5 cropping season. Immediate financial benefits can be achieved due to reduced labour on planting and weeding (Figure 2a, Picture 2). Diversification in CA systems enhance yield benefits and increase the nutritional value of farming systems. The relative yield performance of CA vs conventional agriculture shows greater potential for CA (Figure 2b).

Significance and scaling potential

CA systems have been extended widely in Eastern Zambia by Africa RISING and other scaling partners. Specific components of the system (e.g. herbicides and animal traction ripping) are currently adopted very rapidly. Due to Governmental buy-in and conducive policies, the technology has been increasingly institutionalized and mainstreamed. CA provides a base of synergy with other SI innovations (e.g. doubled-up legume and intercropping systems) but options have to be adapted to site and farmer circumstances to overcome barriers to adoption and to achieve behavior change for more sustained uptake.

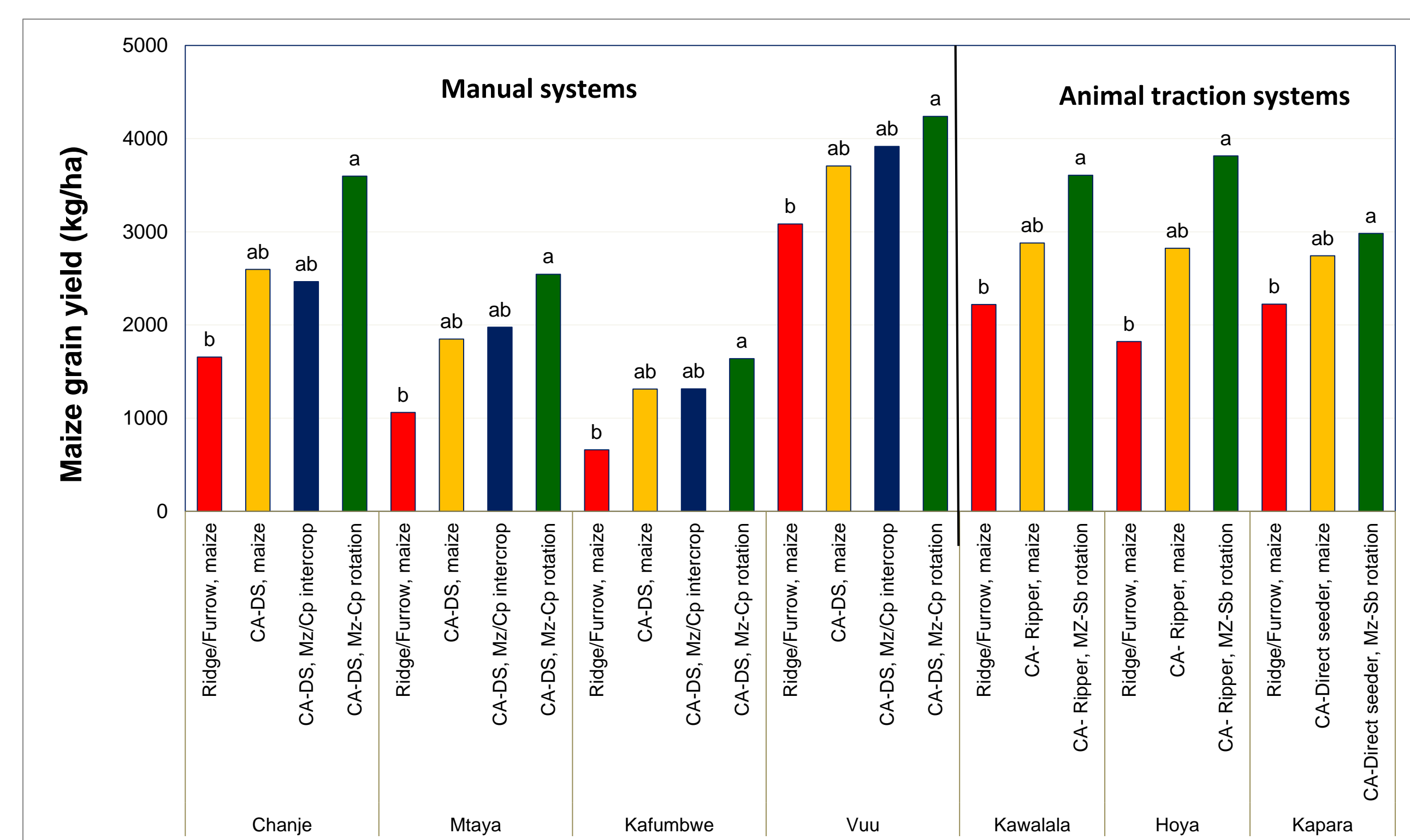


Figure 1: Maize grain yield in different CA systems in seven target communities of Eastern Zambia, 2014



Picture 1: Performance of CA (left) and conventional agriculture on farmer's fields (right), Kawalala Camp, Eastern Zambia, February 2015

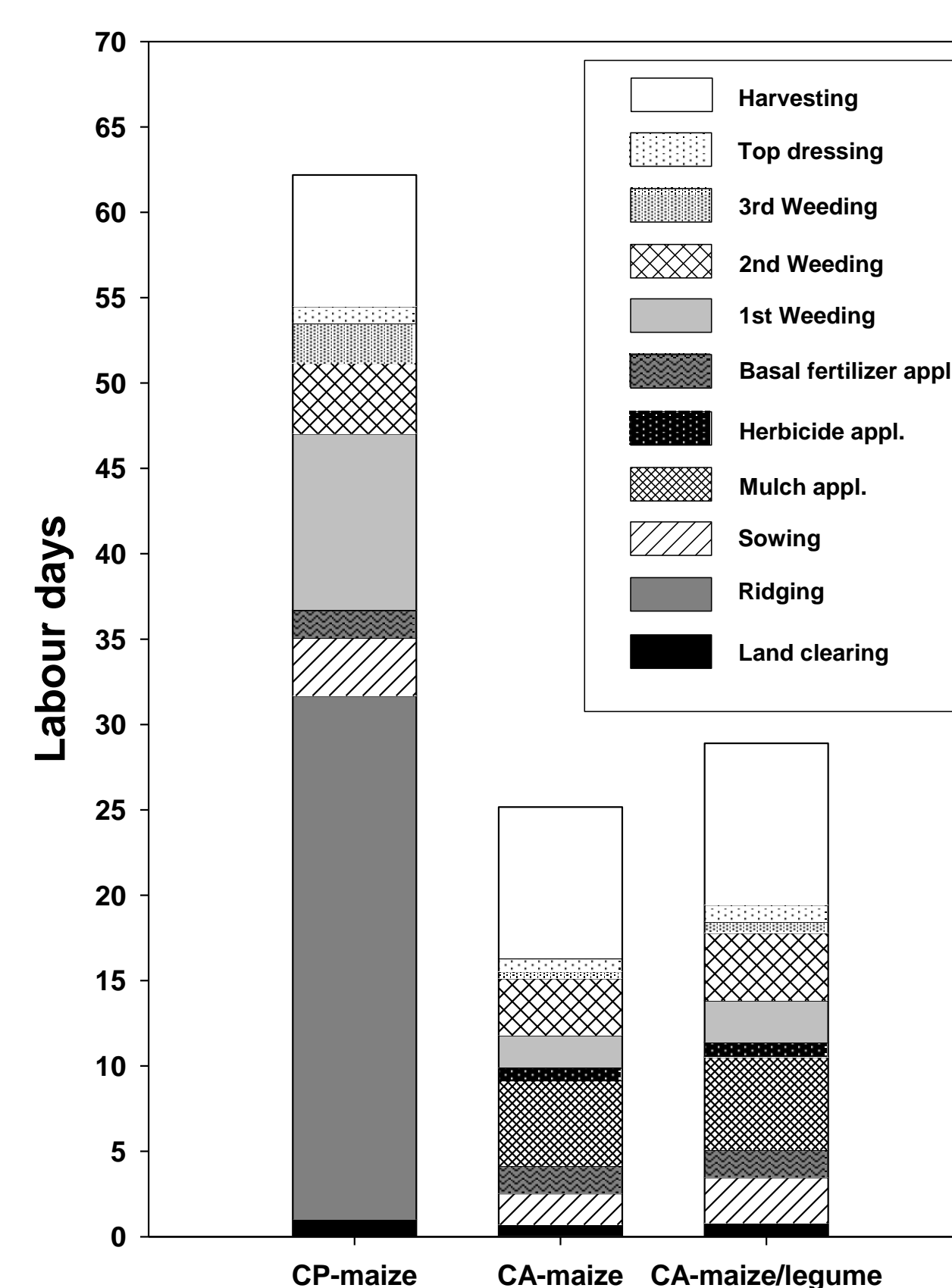


Figure 2a-b, Picture 2: Labour savings can be achieved when practicing CA (top left) to avoid manual ridging (top right).

The relative yield performance of CA vs conventional agriculture in Eastern Zambia (bottom right) from 2011-2016. Dots above the 1:1 line are more beneficial for CA.

