



Tillage & Traffic Management For Row Crops in Sub Saharan Africa

STUDY CONTACT:

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OBJECTIVE:

To determine the effect of tillage and traffic systems on growth and yield of maize and wheat.

STUDY DESIGN:

The trial was conducted at the AGCO Future Farm in Zambia on a 12 hectare field, split in four blocks both under irrigation and dryland cropping. The treatments were controlled traffic farming where all machinery movement is confined to permanent wheel tracks in the field and random traffic where machinery is driven at random without designated wheel tracks.

RESULTS:

Higher yields averaging 6.55t/ha for wheat and 7.7t/ha for maize in both seasons were obtained in the controlled trafficked plots compared to average yields of 5.55t/ha wheat and 7t/ha maize for the random trafficked plots during the same period. However, these results are considered as preliminary for a long-term field trial.

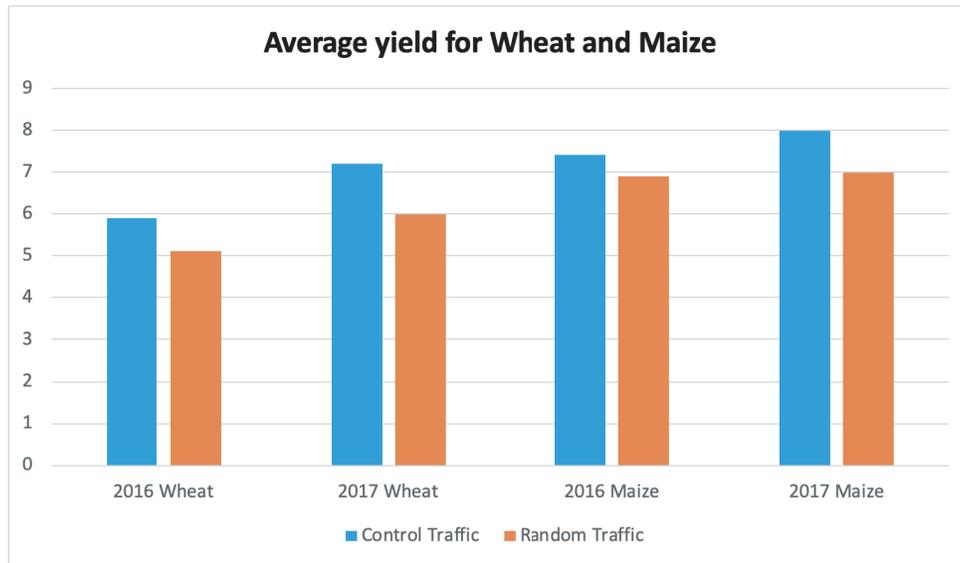
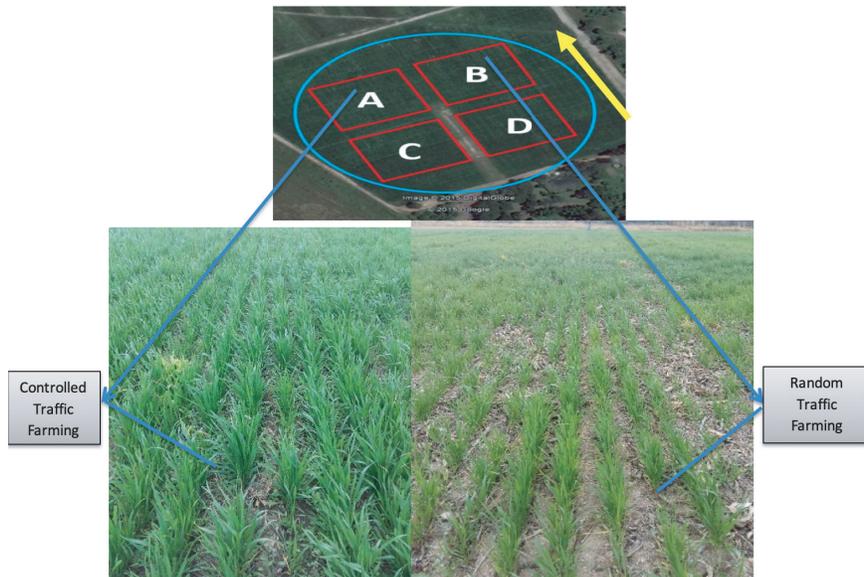


Figure 1: Average yields for Wheat and Maize for 2016 and 2017 season



ADDITIONAL OBSERVATIONS:

Crop emergence and plant stand was more uniform in the controlled traffic plots and was attributed to less compaction of the soil, which ensures good movement of water, air and soil organisms.

RECOMMENDATIONS & EQUIPMENT SOLUTIONS:

Controlled Traffic Farming is a concept that may provide an option for zero tillage systems without the inherent problem of soil compaction for mechanised large scale farming.

Machine operation in a controlled traffic field presents fuel savings resulting from cultivating less compacted soils.

PAYBACK

The controlled traffic farming technique project conducted at the AGCO Future farm shows that:

- A field operated on CTF technique has an average pay back of 26 Ha on Maize crop and an average payback of 11.2Ha on Winter Wheat

Estimated cost for full kit RTK guidance system on C3000 screens is \$27,000 on Tractor and Combine harvester, Estimated Maize price in 2016 \$140/t and \$130/t in 2017, Estimated Wheat price in 2016 \$340/t and \$420/t in 2017