

Tied-ridges for water conservation in the

Rift Valley Drylands of Ethiopia

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Objectives

- ✓ To examine the effect of **tied-ridges**, and **manure** additions on maize rainwater use efficiency (RWUE)
- ✓ To simulate the long-term effect of tied-ridges in response to different rainfall patterns and fertiliser

Conclusions

- ✓ Tied-ridges and optimum fertiliser can increase "transpiration by up to 43%
- ✓ Green revolution in dryland rainfed agriculture must combine RWH ideals with agronomic principles

Methodology

- Split-plot design (tied-ridges X manure) during 2009 and 2010 growing seasons
- Calibration and validation of the FAO's AquaCrop model
- Meteorological data used to simulate the long-term effect of tied-ridges, rainfall and fertility levels

Results

- ✓ Manure (4.5 Mg ha^{-1}) and tied-ridges increased maize yield by **47%**.
- ✓ Tied-ridges do better than fertiliser during below-average rainfall seasons
- ✓ Combined tied-ridges and optimum fertiliser can double maize RWUE during average and above-average rainfall seasons

