

## Project Summary

Title	Evaluating the effects of conservation agriculture and related technologies on soil biodiversity, crop and labour productivity in semi-arid Zimbabwe
PI	Dr. Isaiah Nyagumbo Department of Soil Science & Agricultural Engineering, University of Zimbabwe, P. O. Box MP167, Mount Pleasant, Harare, Zimbabwe. Tel: 263-4-303211, Fax: 263-4-307304, cell: +263(0)912 238284 Email: <a href="mailto:inyaqumbo@agric.uz.ac.zw">inyaqumbo@agric.uz.ac.zw</a> ; <a href="mailto:inyaq@ecoweb.co.zw">inyaq@ecoweb.co.zw</a>
Co-researchers	Prof. Justice Nyamangara Department of Soil Science & Agricultural Engineering, University of Zimbabwe P. O. Box MP167, Mount Pleasant, Harare, Zimbabwe., Tel: 263-4-303211, Fax: 263-4-332853, Email: <a href="mailto:jnyamangara@agric.uz.ac.zw">jnyamangara@agric.uz.ac.zw</a>  Mr. Saidi Mkomwa African Conservation Tillage Network (ACT), P.O Box 10375-00100, Nairobi, Kenya, Tel +254(020) 4444252; Fax 445391; Email: <a href="mailto:info@act-africa.org">info@act-africa.org</a> ; Web: <a href="http://www.act-africa.org">www.act-africa.org</a>  Professor Ken Giller Wageningen University, 6700AK, P.O Box 430, Wageningen, Netherlands. Email: <a href="mailto:ken.giller@wur.nl">ken.giller@wur.nl</a>
Purpose	The proposed project seeks to mitigate climate change impacts and mid-season droughts by investigating the effects of conservation agriculture and water harvesting technologies integrated to various nutrient management regimes on soil biodiversity, crop and labour productivity under rainfed conditions through two Masters postgraduate students' studies.
Project Summary	About 60 % of the Zimbabwe is semi-arid or arid and suffers from periodic droughts, thus maize production patterns for example, are distinctly determined by the quality of each rainfall season. Most cropping seasons are characterized by mid-season dry spells which seriously reduce yield potential, making water the greatest limitation to crop productivity. Thus, climate change associated with global warming predicted to bring droughts to this region, is likely to cause even more serious water deficits in the near future. In addition, the increasing cost of inputs such as seed and fertilizer in the last decade has seen smallholder farmers failing to capitalize on good rainfall seasons thus resulting in low productivity. Therefore this proposed project seeks to mitigate climate change impacts and mid-season droughts by investigating the effects of conservation agriculture and water harvesting technologies integrated to various nutrient management regimes on soil biodiversity, crop and labour productivity under rainfed conditions through two Masters postgraduate students' studies. Student 1 (MSc) will investigate the benefits of 3 water conservation techniques namely rip and potholing, conservation farming basins and post-emergence tied ridging relative to conventional mouldboard ploughing (control) while fertility management treatments (organic and inorganic fertilizers) will be superimposed as

	sub-treatments. Factors affecting farmers' capacity to scale out such technologies will also be explored as well as labour productivity assessments. The second student (Mphil) will explore the linkages between termite prevalence under conservation agriculture at various crop residue levels and assess soil biodiversity and related soil properties. The study will also explore indigenous termite control methods for residue management under conservation agriculture. New knowledge will be gained regarding integration of soil water and nutrient management technologies, relationships between termite prevalence and crop residue levels in CA as well as key factors on scaling out. Results will be disseminated to other stakeholders in publications, stakeholder conferences and other relevant media. The project requires US\$ 60 000.00 over two years.
Country and Specific Location(s)	Kadoma district, Mashonaland West Province, Shurugwi district, ward 8, Midlands province, Zimbabwe
Participating Institutions	University of Zimbabwe, African Conservation Tillage Network (ACT), Wageningen University
Start Date	September, 2009
End date	August, 2011
Amount of Funding	US \$60,000

