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Women's food security and conservation farming in Zaka District-Zimbabwe

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ABSTRACT

Changes in rainfall patterns because of climate alteration amongst other factors contributed towards a decline in food security in Zimbabwe's Zaka District-Ward 31. In response, women in Ward 31 adopted conservation agriculture since the 2005/6 agricultural season to address food insecurity and other problems experienced in the crop production system. The research was designed to evaluate the extent to which conservation agriculture led to increased food security in the semi-arid area. The researchers used the mixed method approach and collected data through key informant interviews, Focus Group Discussions and observations. It was evident from the research that the farmers who practised conservation agriculture whilst correctly following most of the prescribed components and engaging the relevant strategies were able to increase their food security in the dry part of the district. It concludes that female farmers constrained by: fencing, long dry spells and labour were incapacitated to effectively implement conservation agriculture hence failed to attain food security.

1. Introduction

Conservation agriculture (CA) was introduced in Sub-Saharan Africa (SSA) as a key measure targeting the improvement of food security (Hobbs, 2007). In Zimbabwe, CA locally known as conservation farming emerged as a promising panacea when the country increasingly struggled to feed itself as a result of several factors including but not limited to agrarian land reform and climate change (Mutema et al., 2013: 6). Food security declined dramatically and this is evident in the varying degrees of food imports including during the 2011/12 season when the country imported in excess of 50% of its maize needs (Manyeruke et al., 2013: 271). More so, in the 2014/15 season, maize production declined by 51% (Anand, 2016). Clearly, the decline in food security in the country has varied from year to year. Linked to this, in April 2012 Masvingo Province had 378 300 food insecure households and 39% of these were from Zaka District (Zimbabwe Vulnerability Assessment Committee (ZIMVAC, 2012). Most of these households usually harvest "winter-pushers"[1] forcing the women village farmers to mostly rely on market purchases (ZIMVAC, 2012).

In light of this decline in food security, innovative interventions to promote food security have been adopted including CA on the premise that simultaneously it protects the soil and improves resilience in climatic unpredictable areas (Farnworth et al., 2015: 2). This study focuses on the case of Ward 31 in Zaka District where CA was implemented by some women with the help of nongovernmental organisations (NGOs) in order to enhance household food security. The purpose of this research was to evaluate the extent to which CA led to increased food security in the semi-arid area of Zaka District focusing on ward 31. The objectives of the study were to: a) Establish the food insecurity situation before the implementation of CA in Ward 31 of Zaka East Constituency; b) Describe how CA was implemented in Ward 31 of Zaka East Constituency; c) Find out whether CA managed to improve the women's food security situation in Ward 31 of Zaka East Constituency; d) Establish the challenges militating against the successful implementation of CA in Ward 31 of Zaka East and; e) Suggest ways of enhancing the successful implementation of CA in the area of the study and other arid or semi-arid parts of the country.

This study argues that those women farmers who practised CA whilst correctly following most of the prescribed components and engaging the relevant strategies were able to increase their food security in Zaka District's Ward 31. It is significant because it helps in understanding how gender relations in smallholder agriculture systems

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[1] This refers to cereal harvests which only sustain households between May and October.

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functioned regarding decision-making over technology acceptance, roles, and duties for particular farm responsibilities and how gender relations may influence the adoption of CA. Furthermore, it exposes the expenses and benefits of CA adoption to women focusing on: income, labour arrangement, roles in food and nutrition security, comparative decision-making power at household and community level, which had hitherto remained mostly unknown. Again, the study reveals the less known aspects about CA thus offers an opportunity for women to change existing gender relations and the conditions under which this is possible.

The article consists of five sections. The first section provides the study's conceptual framework and literature review while the material and methods are covered in the second section. The results and discussion are offered in the third and fourth sections respectively. The last section provides the study's conclusion.

2. Conservation agriculture, food security and gender: existing literature

This study discusses two main concepts: food security and CA. Food security is achieved when people from all walks of life have physical, social and economic access to adequate, secure and nourishing food that meets all nutritional needs and food favourites for an energetic and healthy life at all times (FAO, 2004). Although various factors cause food insecurity, literature on CA largely claim that it can contribute to food security. A number of studies have emphasized the role of CA in decreasing greenhouse gas emissions (Dendooven et al., 2012; Verhulst et al., 2012) and growing soil carbon sequestration (UNEP, 2013). However, other features of CA, for example the role of minimum tillage to soil carbon sequestration, have been exaggerated (Govaerts et al., 2009; Powlson et al., 2014). CA contributes to the enhancement of soil function and value under certain conditions, which can stimulate greater yields and better resilience to climatic changeability (Thierfelder et al., 2014; Thierfelder and Wall, 2010), although not in all circumstances (Pittelkow et al., 2014). Be that as it may, CA is singled out by many as possessing the potential to increase both global and national food security and better resilience and adaptation to climate change.

CA entails resource-saving crop production in a drive to obtain adequate profits together with optimum and sustained levels of production while simultaneously and sustainably conserving the environment. It consists of three principles namely: minimal soil disturbance, permanent soil cover and crop rotations (Farnworth et al., 2015: 2; Mutema et al., 2013: 5; Wagstaff and Harty, 2010: 68). Notwithstanding the above potential benefits of CA, its appropriateness to different African smallholder farming systems is disputed (Andersson and Giller, 2012; Baudron et al., 2012; Giller et al., 2009). Contestations have essentially focused on the credit of yield benefits, the intensities of financial investment needed, the labour savings that can be realised, and the amounts of crop residues obtainable for use as surface mulch (Andersson and D'Souza, 2014). Although capital and labour necessities are dominant in the debate of CA appropriateness for African smallholder farmers, remarkably little focus has been given to the ability of women farmers, in male-headed family units and as household heads themselves, to meet such necessities, a gap this study attempts to fill.

Very little empirical work has been carried out in regards to gender and CA in SSA (Farnworth et al., 2015). Some consultancy and donor reports exist (Wagstaff and Harty, 2010; UNDP, 2013), but only Nyanga et al. (2012); Nyanga, (2012) has conducted longitudinal in-depth studies in Zambia. This is so although Bremner (2012) asserted that food security in Africa can be comprehensively promoted if women and girls are voluntarily involved in family planning to compliment agriculture and food policy solutions. This is because the growing population in Africa and the world at large could result in the world failing to halt poverty and hunger which have become number one and two of the post-2015 sustainable development goals respectively. More so, there is a general agreement in the literature in SSA that women and men normally assume distinct roles and duties in agricultural production arrangements, all determined by sex (De Schutter, 2013; FAO, 2011). This makes this study fundamental and necessary because it provides useful and rare data on women's interactions with CA.

The important role women play in CA was realised in Zambia. The involvement of women as major key players in CA in Zambia is a typical example of a success story (UNDP, 2013). There are many benefits of CA for Zambian women. These include but are not limited to: early planting of crops which make women less dependent on the ox-drawn plough or mechanical tillage which is mainly done by men, improve crop productivity and different crop production thereby promoting food security. Moreover, CA lessens and spreads women's workload over time and helps in planning and improving the welfare of their families (NORAD Report, 2011). In Zimbabwe, the CA project has long since been promoted and supported in other areas such as Chirumhanzu, Zvishavane, Mberengwa, Silobela, and Nkayi and the project was viewed as generally successful (Woodring and Braul, 2011). This encouraged the researchers to find out how CA has influenced women's food security in the semi-arid area of Zaka District.

3. Material and methods

3.1. Study area

By 2012, about 300 000 rural farmers in Zimbabwe were implementing components of CA covering an area of over 100 000 ha (Marongwe et al., 2012: xii). This study was confined to Ward 31 of Zaka East Constituency in Masvingo Province's Zaka District, approximately 350 km south of Harare, Zimbabwe's capital city (Makwara and Gamira, 2012: 459). The case study area has a population density of 70 persons/km^2 (Central Statistical Office (CSO), 2004). It lies in Natural Ecological Region 4 which is semi-arid and receives between 450 and 650 mm of rainfall per year and has poor soils (Musiyiwa et al., 2014: 395). Its temperatures range from 10 (minimum) to 26 (maximum) degrees Celsius experienced in July and October, respectively (Makwara and Gamira, 2012: 459–460). The economy is primarily based on subsistence farming and the major crops grown are made up of maize, groundnuts, sorghum, and finger millet (Makwara and Gamira, 2012: 459). While cattle ownership is important, it widely differs across households as is the ownership of goats and chickens. Manure from cattle is largely used to improve crop productivity. In one study, only 23% of the surveyed households in ward 31 had access to basal fertilizers and about 26% of the households had access to top dressing fertilizers in 2009 (ZIMVAC, 2009). Six villages out of the 17 villages in the Ward were chosen using random sampling from the two Village Development Committees (VIDCOs).[2] The villages chosen are Gumbi, Dondo and Mahara in VIDCO 3 and Nheya, Mafunye and Mushavirwa in VIDCO 4.

Map showing the study area and Zimbabwean agro ecological regions.

[2] A VIDCO is the lowest structure in the local government system just below the ward level. It is meant to facilitate decentralized planning or bottom-up participatory democracy through grassroots planning, receiving and disseminating information from either the above (ward level to central government) or below (the villagers). Whilst they were established in the 1980s, they are still relevant today although some of their roles are now overridden by village heads. For more details, see Matysak (2010).