

Conservation Agriculture and Food Security: An Analysis of Action Contra La Faim's (ACF) Interventions in Chipinge District, Zimbabwe.

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Abstract

Food insecurity among smallholder farmers in agricultural marginal areas of Zimbabwe has been on the increase despite government and Non-Governmental Organisations (NGOs) efforts to curb it. Using Action Contra la Faim's (ACF) Conservation Agriculture (CA) interventions across three wards in Chipinge district in Zimbabwe as a case study, the study investigated the impacts of CA on household food security. A total of 200 close-ended questionnaires were administered to 200 beneficiaries of CA. Qualitative techniques used in data collection include Key Informant Interviews, Focus Group Discussions and Participant Observation. Statistical Package for Social Scientists and thematic analysis were used to analyse quantitative and qualitative data, respectively. Preliminary findings indicate that household food insecurity remains high despite the introduction of CA. Interlinkages of social, economic and ecological drivers have been noted as possible contributors to these outcomes. The study concludes that there is need for local level participation in designing developmental projects.

Key words: Food security, Conservation Agriculture, Non-Governmental Organisation, Interventions

1. INTRODUCTION AND BACKGROUND

This paper discusses the potential role of NGO led agricultural interventions on household food security. The paper is motivated by the authors' assessment that there has been limited independent evaluation on the impacts of CA on food security. An exhaustive literature search shows that most evaluations are largely self-assessments conducted by implementing organisations and their close partners hence raising more questions on the authenticity or sincerity of the presented outcomes. In addition the majority of literature on CA mainly focuses on the adoption of CA and the perceptions of users, leaving out its contributions on household food security. The objective of this paper is therefore to assess the impacts of CA, on household food security among households participating in CA. In this connection we looked at three related components of food security. Firstly, we looked at food

consumption patterns before and during CA – and frequency of meals is the chief indicator. Secondly, we looked at changes in the quality of food resulting from CA. In respect of this, our concern was on the diversity of consumed food as a result of CA. Finally, we looked at whether the project has made any inroads in improving household food availability since its inception.

The case study is based on CA intervention introduced in the year 2009 by a French NGO - Action Contra la Faim (ACF – Action against Hunger) in Chipinge District Zimbabwe. The programme targeted a total of 2000 households in administrative wards 1, 4 and 22. The overall objective was to increase dry land crop production for households to be food secure. The study approach involved both quantitative and qualitative techniques. In addition time

series analysis was used starting with the period prior to CA (2010) and the second period being limited by the end of the first year (2011) following interventions by Action Contra La Faim in Chipinge District, an impoverished and drought prone region located in south eastern Zimbabwe. Both qualitative and quantitative data collection methods were utilised in data collection. Conclusions from this study indicate limited immediate food security improvements resulting from CA across the study area. Since the study is limited to two farming seasons after the introduction of CA, the paper suggests a longitudinal study to assess the long term impacts of the intervention. This paper is organised into four sections. Literature review on food security and conservation agriculture comes first, the second section describes the study area and methods that were used in this study. The third section present findings in relation to the objective of the paper. The last section discusses the findings and a small section concludes the paper.

2. FOOD SECURITY

The 1996 World Food Summit defines food security as having access to enough, safe and nutritious food at all times, on the same note, the world bank views food security as a situation whereby all people have access to enough food at all time (Kidane et. al., 2005). It is also important to recognise that definitions the definition of food security is both relative and contextual as well as being a social construct defined in time (temporal), space (spatial), society and cultural beliefs of an area (Maxwell 1996). However, what need to be taken cognisance of are amounts of food needed for daily survival and also supportive of an active and healthy society (Eide 1990). The working definition of food security adopted in this paper is as a situation whereby all household members have access to enough food at all times (Maxwell 1996).

2.1 Food Security Challenges and Responses

2.1.1 Challenges

Food insecurity is a result of a plethora of variables, including rapid population growth and the failure by developing countries in Africa and Asia to produce enough food to feed their human populations, a situation which results in chronic food shortages (Murungweni 2011). In Zimbabwe, food security is reported to be a result of limited access to financial and physical resources among small-holder farmers (Giller et al., 2006), poor macro-economic environment triggered by the land reform of the early 2000s and the Economic Structural Adjustment Programme of the early 1990s and more continuous climatic changes (Chaumba 2003; Rurinda et al., 2013; Rusinamhodzi et al., 2013).

Since independence in 1980, the Zimbabwean economy suffered a steady decline. However the situation became worse in the early 1990s to date. The majority of industries closed, unemployment rates, increased scarcity of foreign currency and high rates of inflation reduced rural farmer's access to financial capital to invest in agricultural enterprises (Mavedzenge et al., 2006). The majority of small holder farmers could not afford to purchase agricultural inputs from the informal markets which charged exorbitant prices. As a solution, farmers reduced their acreage and planted retained seeds which reduced yields resulting in increased food insecurity (Moyo 2008). In addition the introduction of the Fast Track Land Reform Program (FTLRP) by the government to redress the unequal distribution of land from colonialism disturbed production in commercial farms thus increasing food insecurity in the country (Moyo 2008). Prior to the land reform program the country produced enough grain for consumption and exportation, however after the FTLRP more grain is now being imported. The major contributing factor to the reduction

has been attributed to lack of or limited access of newly resettled farmers to physical, social, financial and human capital (Zikhali 2010).

2.1.2 State Responses

The Zimbabwean Government's response to increasing food security through agricultural support programmes inclusive of Operation Maguta and Presidential Agriculture Input Schemes, among others. Free or subsidised agricultural inputs were allocated to small holder farmers to reduce costs incurred in purchasing inputs (Mujeyi, 2010). However, government initiatives were mixed with a host of shortcomings which affected production and food security levels. Price controls on inputs resulted in commodity holding for speculation purposes which created artificial shortages on the formal markets (GoZ 2009). Agricultural inputs were now being sold on the informal markets at an exorbitant price far beyond the reach of many farmers (Govera 2009). In addition, mismanagement, corruption and late allocation of inputs way after the planting season reduced the effectiveness of government agricultural programs to address the food security situation of the country (Govera 2009). Agricultural production therefore remains low resulting in increasing food insecurity

2.1.3 Individual Responses

Faced with limited food, and becoming clear that government interventions were proving not to be sufficient in terms of improving food security, individuals adopted strategies such as cross-border trade and migration, particularly to South Africa, Botswana and Europe. These strategies were particularly engaged by young people and it affected availability of agricultural labour (Tevera and Chikanda 2009). Remittances from outside and inside the country declined also leaving rural households with little or no money to invest in agricultural production (Chaumba 2002). Out of desperation households resorted to alternative and some paralegal income

generating activities inclusive of smuggling, mineral panning, petty commodity production (crafts) and trading. These economic activities however were unable to generate enough income for household food security.

2.1.4 Non-Governmental Organisations Conservation Agriculture Response

As if not to be left out, a number of non-state actors inclusive of international donors, NGOs and international research organisations came to the fore and launched numerous initiatives in various parts of the country. International research organisations and NGOs prominent in promoting CA in Zimbabwe include CYMMT, Food and Agricultural Organisation (FAO), International Crops Research Institute for the Semi-Arid Tropics (ICRISAT), CARE, ACF (our case study). Local NGO include Fambidzanai, Pfumvudza/ Intwasa among others. Conservation Agriculture (CA) involves 3 basic conditions: minimum tillage, mulching and crop rotations. Reduction in the rate of soil moisture lost, and increased crops nutrient uptake are the presumed outcome of CA. Advocates of CA argue that CA improves harvested crops, potentially ensuring food security (IIR and ACT 2005; Twomlow et al., 2008). Since the turn of the millennium, planting basins has been the dominating CA strategy among small holder farmers in Zimbabwe (Mazvimavi and Twomlow 2009; Ngwira et al., 2013). In utilising planting basins, seeds, and fertilizers or manure are placed in the same basin for maximum nutrient and moisture uptake thus theoretically increasing crop yields (Rusinamhodzi 2013).

CA proved is more be successful in areas that receives good annual rainfall (Agro Region 1, 11 and 111) However, available literature indicates that CA proved to be a challenge in the drier parts of the country which receives poor annual rainfalls (Agro Region 1V and V). Nyamangara et al., (2013) argued that it is practically impossible for small holder

farmers to utilise all of the principles of CA limiting the performance of the technology in fighting food insecurity. In accordance to this, Rusinamhodzi (2013) indicated that the majority of rural farmers prefer to feed livestock with crop residue rather than using it as mulch material. Further, farmers argue that even if they left crop residue in the field they are destroyed by freely roaming livestock during the dry season or destroyed by termites. These mulch related challenges force farmers to plant in bare planting basins. The other challenges with CA are that it demands more labour. Though the argument is that preparation of planting basins are done during the dry season potentially to spread labour across several months, it emerged that the soil will be very hard and dry making it difficult to prepare planting basins. In addition, the majority of fields are unfenced resulting in the destruction of planting basins by freely roaming livestock during the dry season (Nyamangara et al., 2013; Andersson et al., 2011). Despite a host of the above challenges, CA is still widely viewed as a solution to poor harvests experienced in semi-arid regions (Mazvimavi and Twomlow 2008). The paper therefore is a critical inquiry on the impacts of CA on household food security in a semi-arid region of Zimbabwe.

3. MATERIALS AND METHODS

3.1 Study Area

The study was conducted in Chipinge District, Zimbabwe. The District is peculiar in that all of the country five agro-ecological Natural Regions (NRs) are represented (Vincent and Thomas 1979). NR I is characterised by high altitude, low temperature range with high annual rainfall above 1000 millimetres. It is suitable for the production of crops such as tea, macadamia nuts, coffee, forest crops and intensive livestock production. NR II receives 750-1000 mm of rainfall per annum, production of tobacco, cotton, wheat, maize and intensive livestock are dominant. NR III is associated with relatively high

temperature and unreliable rainfall ranging from 500-700mm per annum.

The specific study areas covers administrative Wards 1, 4 and 22 which are located in NR IV and V. NR IV receives low rainfall range of 450-600 per annum mm. NR V receives less than 500mm of erratic rainfalls per annum (Vincent and Thomas 1979). Low rainfalls received across the study area, contribute to decreased agricultural production which result in lifetime food insecurity (Chaumba 2002). Prolonged dry winter seasons and low rainfall contribute to the drying of the majority of water sources. Lack of water particularly during the dry season increased human disease outbreaks and livestock deaths. Human beings are forced to rely on unprotected water source which result in Cholera and Typhoid outbreaks. Malnutrition among the elderly and stunted growth according to ACF report can be attributed to unbalanced diet caused by lack of enough nutritious food (ACF 2009).

3.2 Methodology, Methods and Data Analysis

The study combined quantitative and qualitative approaches, as well as adopting a temporary approach to understanding changes in food security status of people who participated in the surveys. However, household food security questions excluded food derived from non-farm agricultural economic activities. Quantitative aspects of the study included a questionnaire which was designed to collect information on household demography, livelihood strategies, crop production, household food consumption patterns, food diversity and household food security status. Comparison purpose, study periods were divided into two time zones; the period before the interventions is limited to two consecutive farming seasons before ACF interventions (2008 -2009) and the period during ACF interventions (2010 - 2012). 200 respondents were randomly selected from ACF CA beneficiaries list.

Qualitative aspects of the study collected data on perceptions (cognitive issues) and included use of Key Informant Interviews, (KIIs), Focus Group Discussions (FDGs) and Participant Observation. KIIs were conducted with individuals deemed knowledgeable of agricultural practice and trends on food security across the study area. Village heads, Agricultural Technical Extension Services (AGRITEX), ACF village committee members CA lead farmers and village elders were selected for (KIIs). Focus group discussions were conducted with ACF CA practicing farmers. Discussions centred on protection and food security changes resulting from CA. Participant Observation became handy in assessing crop quality in the fields and quantity of harvested crops from CA plots. Informal group or individual discussions were conducted wherever an opportunity arises. Statistical Package for Social Sciences (SPSS) was used to capture quantitative data and generating of descriptive graphs.

4. RESULTS

4.1 Demographic Characteristics of Informants

The case study sample comprised 54% and 46 % male and female headed households respectively. On marital status, 63 % of respondents are married, 29% widowed, 6% single and 2% divorced. On educational and

professional qualifications, 68 % attended Secondary Education but did not complete it up to ordinary level (Form 4), 27 % did not proceed beyond Primary Education (grade seven), 5 % never attended any form of formal education and only 1 % managed to attend tertiary education. In terms of sources of livelihoods, reliance on agricultural practice is dominant at 87% other non-agricultural sources of livelihood which include Cross boarder trading, petty trading, seasonal/ permanent employment, remittances, and fish constitute 13%.

4.2 Household Food Security

Comparing the period before CA interventions, findings from the study indicate that CA did not immediately improve household food security among beneficiaries of CA project. As indicated by the table below, Before CA interventions 82% of respondents were food insecure. This percentage however increased to 93 % during the intervention years. Food secure households stand at 12 % before CA interventions this percentage dropped to 7 % during the interventions. Computed chi-square tests presented below further confirms the existence of low statistical significance ($p = .0001$) of CA on household food security which marginally decreased instead of an expected increase in the number of meals during CA implementation years.

Table 1: Household food security status before and during CA

Period under review	Food secure HH	Food insecure HH	Total sample
Before CA	12 %	82 %	200
During CA	07 %	93%	200
Computed Chi-square	$P\text{-Value} = 2.337$	$df=1$	Asymp. Sig. (2-sided) = .0001

Recurring themes from qualitative data across the study area concurred with findings from quantitative data that CA

did not improve household food security in the short term. FGDs participants further pointed out that they were not

properly consulted before the project was introduced and if they were consulted they would not receive CA because they have already witness its failure in other wards where it was introduced earlier. It emerged that the majority of farmers participated in CA activities not for the good of it in fighting food insecurity but to benefit from free agricultural inputs and free food during trainings and meetings.

4.3 CA and Food Productivity

Analysis for sorghum production over the two periods indicates an insignificant

change attributable to CA. Survey results (Figure 1) indicated an increased percentage of households lasting up to 4 post-harvest months with harvested sorghum crop from 40 % before ACF to 52 % during ACF. The percentage of households lasting up to 8 months with harvested Crop declined from 36 % before ACF to 31 % during ACF. Lastly households lasting the whole year with harvested sorghum dropped from 24 % before CA to 17 % during CA interventions.

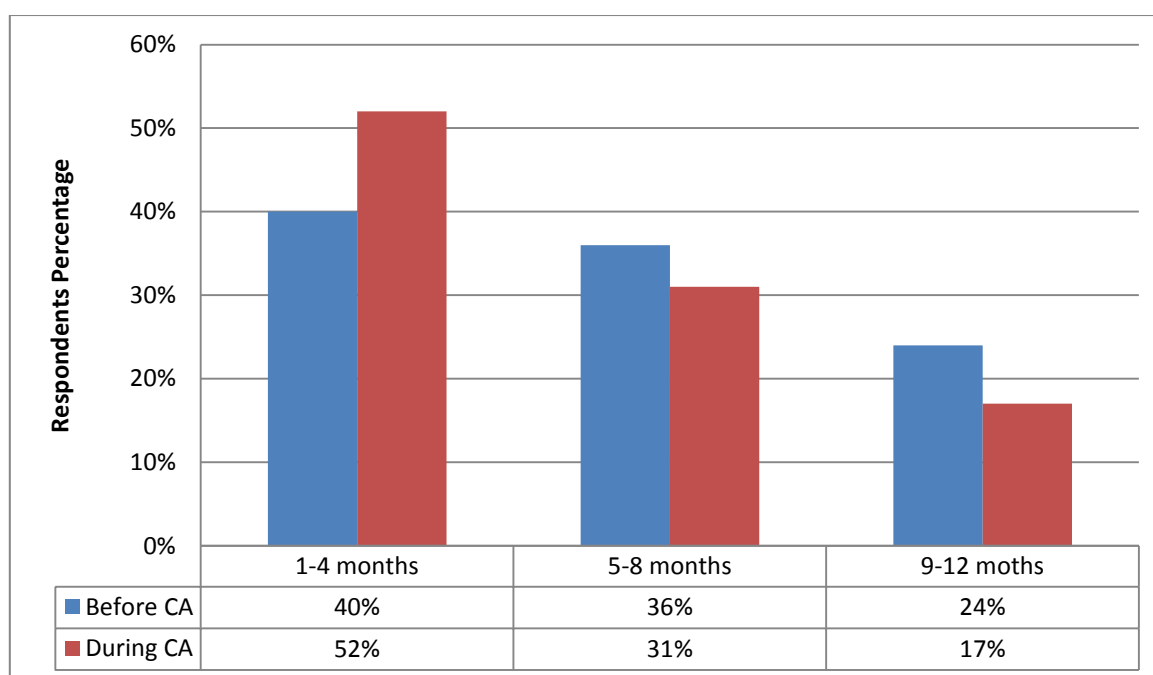


Figure 1: Months lasted with harvested sorghum crop before and during CA

From Focus group discussions and interviews, farmer's further supports that before CA they had better yields. Reasons for the reduction in yields and increased food security are inclusive of difficulties in the preparations of the basins which demand a large pool of labour force, lack of proper digging hoes and picks for land preparation during the dry season. Lastly farmers indicated long dry winter season makes it impossible to implement all of CA principles introduced by ACF. The immediate outcome of this shortage is that farmers only dig planting

basins without the much needed mulch materials resulting in poor moisture retention and poor yields.

4.4 Household Food Consumption

Survey results highlighted that the number of solid meals from harvested crops (sorghum) consumed by sampled households decreased during the implementation years of CA. Children consuming at least three meals per day decreased from 75 % before CA interventions to 67 % during CA. Adults consuming at least three meals

decreased from 63 % to 51% before and during the interventions respectively an indication of increased food unavailability. Food unavailability is further supported by a continued decrease of adult consuming two meals per day from 30% to 26% before and during CA respectively. Adults that consumed a single meal per day increased from 7 % to 23 % before and during the interventions respectively. Notable increase was only recorded on children who consumed a single and two meals

before and during the interventions. 2 % consumed a single meal before and it dropped to 0 % during CA. Reduction in the number of meals consumed point to a negative immediate outcome of CA interventions across the study area. Statistically, CA did not improve the number of consumed meals. The table below is a summation of computed chi-square which shows a negative significance of CA and improved number of household meals consumed by adults and children.

Table 2 Household's daily food consumption trends

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	4.190 ^a	2	.242
Likelihood Ratio	6.443	2	.092
Linear-by-Linear Association	3.480	1	.062
N of Valid Cases	200		

Interviewed farmers and participants in discussion generally agreed that due to poor harvest experienced from CA they were forced to reduce the number of food consumed per day. As a coping strategy, adults were forced to reduce their consumption in preference to children.

4.5 Technical Issues: Labour and Food Security

Study results highlight a mismatch between the amount of labour and time invested in CA and food security outcomes. Time and labour that is invested in CA does not tally with poor harvests experienced. Shifting from conventional tillage to planting basins required more than double the labour input especially for land preparation. Table 2 indicates that more months were used in preparing CA plots than before the interventions were traditional planting methods and draught power was dominant. The majority of respondents (57 %) completed land preparation in less than 20 days before the

interventions; however this percentage decreased to 3 % during CA when planting basins were used. interviewed farmers highlighted that they expect increased agricultural productivity in relation to time and labour that they invest in land preparations. However, outcomes of CA were far below their expectations as more farmers experienced poor harvests from CA plots. Respondents who completed land preparation within a period of 20 to 30 days dropped from 30 % to 20% before and during CA respectively. Lastly, 45 % of respondents spend 30 to 60 days in land preparation during CA years which is a direct contrast of 6 % before CA. Further discussions and interviews highlights that harvested sorghum did not tally with the amount of labour invested in basin preparation in the drier season of the year and gathering of mulch material. The above results indicate that in the short term food security did not improve regardless of the introduction of CA as replacement of draught power and traditional planting ways.

Table 3: Differences in number of days used in land preparation before and during CA interventions

*Time spent in land preparation	Before ACF CA interventions	During ACF CA interventions	Land preparation methods before ACF	Land preparation methods during ACF
Less than 20 days	57 %	3 %	Draught power and <i>**Kuparira</i>	Conservation Agriculture
20 -30 days	30 %	20 %	Draught power and <i>Kuparira</i>	Conservation Agriculture
30-60 days	6 %	45 %	Draught power and <i>Kuparira</i>	Conservation Agriculture
60-90 days	7 %	23 %	Draught power and <i>Kuparira</i>	Conservation Agriculture
More than 90	0 %	9 %	Draught power and <i>Kuparira</i>	Conservation Agriculture

**Same plot size for periods under study*

***Kuparira – refers to unsystematic traditional shallow planting holes used by farmers*

4.6 Household Food Security Coping Strategies

Food security coping strategies increased during CA interventions. Casual labour (Maricho) within or outside the community increased from 28 % to 34 % before and during CA interventions respectively. From focus group discussions and interviews labour was exchanged for monetary gains or in exchange with food stuffs. Money

generated was mainly used to purchase for the family.

Reliance on remittances from friends and relatives dropped from 20 % before to 15 % during CA interventions. From focus group discussion and key informant interviews it emerged that relatives who used to remit back withdrew their frequency of remitting assuming that free inputs received were enough and has the potential to increased harvests.

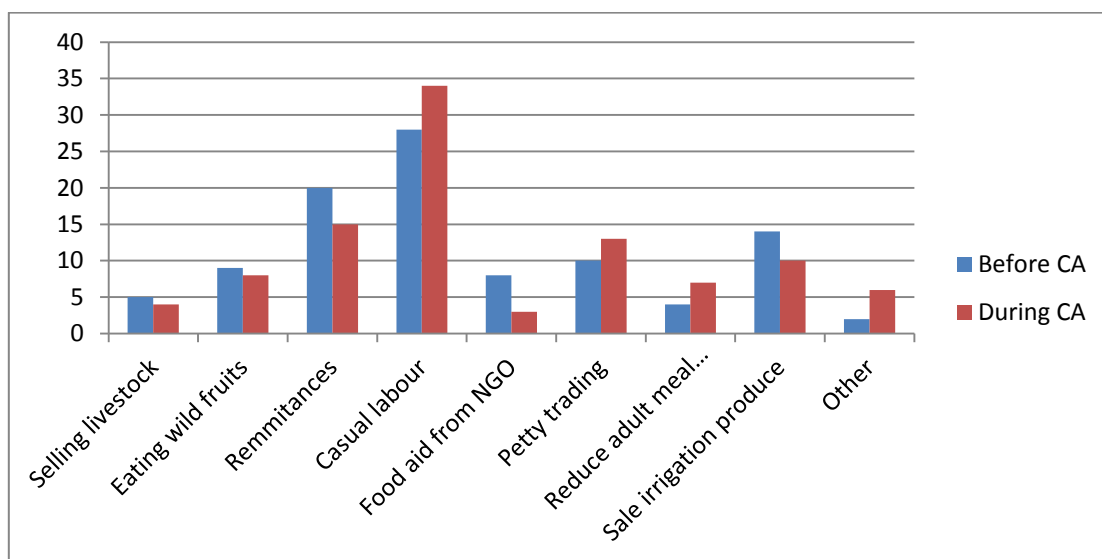


Figure 2: Household coping strategies before and during CA

Petty trading increased from 10 % before the interventions to 13 % during the interventions. Respondents indicate that they were forced to increase their petty trading business after realising that CA did not do much in improving household food availability and accessibility all the time. Hand crafts (mats, baskets, wooden spoon, drums among other) and second hand clothing are the major wares sold for monetary gains or exchanged with food items.

The study area has a long history of food insecurity. This is supported by survey results which indicated that 8 % of respondents relied on food aid from NGO before CA interventions. During CA the percentage of reliance on NGO dropped to 3% during after the introduction of CA. Key informants pointed out that the drop of households relying on food aid does not necessarily mean an improvement on food security status rather it is because other NGOs (AFRICARE and Christian Care) withdrew food aid programs soon after the introduction of CA. Reducing adult consumption was also another key food insecurity coping strategy, before the CA 4 % used this strategy which rose to 7 % during CA program. The increase was attributed to increased food shortages due to poor harvests experienced from CA plots.

Selling or bartering of livestock was another strategy that respondents engaged at 5 % and 4 % before and during CA interventions respectively. Eating of wild fruits (*Nyii*, *makwakwa* and *mauyu*) slightly dropped from 9 % to 8 % during ACF. Some unspecified economic activities increased to 6 % during the interventions from 2 % before. Overall, the results above indicated an increase in non – agricultural income generating of food security coping strategies during the implementation stage of CA and interventions than before. The majority of the respondents' perceptions were that an increase in coping strategies during ACF interventions was based on the realisation that CA did not bring much positive food security income.

5. DISCUSSION AND CONCLUSION

Prevailing social - ecological conditions across the study area make it impossible for full implementation of CA principles introduced by ACF particularly using mulch material. Due to the long dry season across the study areas any crop residue is destroyed by the natural action of termites or consumed by livestock (Baudron et al 2012). Interviewed CA practising farmers only dig planting basins without mulch material which is supposed to at least cover 30 % of the surface (Anderson and Giller 2012). In

this regard the technology that is being referred to as CA can be questioned since only one CA technique (*planting basins*) is practically possible across the study. In addition, Crop residues left in the fields are largely believed by farmers as attracting termites during the summer season which destroy green crops.

Without undermining the potential advantages of CA inclusive of reducing soil erosion, protecting soil structure, increasing soil fertility among others a combination, this paper concludes that though the study aimed at testing all CA components, the prevailing conditions across the study area practically made it impossible to fully implement CA components. We therefore argue that given the social, economic, and ecological diversities across communities emphasis is on the need for pre-project research on whether prevailing conditions supports any technological interventions. Forcing farmers to work with components not readily available can negatively affects otherwise good technologies.

In addition, the immediate negative food security outcome from CA across the study area can be traced to blanket recommendations basing on the success of the same project in different social, ecological and economic conditions. In most cases the poor farmer with his single hoe is usually blamed for lack of commitment and resistance to change (Murungweni, 2011). However, after recording minimal success different geographic areas implementing organisation tend to re - introduce another project with better equipment and skill as a way of convincing recipients to adopt it. The tragedy with this approach is the failure to grasp and deal with the root causes of poor projects outcomes. Literature on CA interventions in Zimbabwe highlight a number of challenges of implementing CA in semi-arid region 1V and V, however the same interventions are continuously introduced with little modifications to the initial ones (Ngwira et al., 2013).

To attain food security through CA, proper targeting of farmers with the capacity and potential to produce is essential. In the case study, some of the beneficiaries of CA proved to be more concerned with accessing free inputs which they later sold without planting any or prepare any plot. Micro differences within communities need also to be considered in selecting locations that are in dire need of an intervention. Findings indicate that beneficiaries who own or accessed plots in the main two irrigation plots Maunganidze and Musikavanhu did not even bother to prepare conservation agriculture fields rather they only collected inputs to use in their irrigations. It can be concluded that conservation agriculture is oversubscribed as a panacea to food insecurity proved otherwise in Chipinge district. Rather it needs to be implemented together with other agricultural mechanisation. Micro differences within societies are usually neglected yet central in the success or failure of an intervention. For example in Ward 22 massive dusty storms and wind erosion during the dry season makes it totally impossible for farmers to prepare planting basins during the dry season. This is not however the situation other wards were these challenges are not prevalent. The study therefore recommends a people based intervention were local farmers take the lead in identifying their challenges and possible interventions suitable for livelihood expectations.

Labour challenges associated with CA have been reported as a major hindrance to improved production for food security. As reported in the findings, shifting from traditional tillage system to planting basins required more labour in basin preparation and weeding. A study by Nyamangara et al., 2013 indicates that producing crops by utilising planting basins demands a total of 85 man days ha⁻¹ which is almost double a total of 39 days ha⁻¹ needed for traditional tillage practices. Though the rationale behind CA planting basins rests on the argument that planting basins are

dug well before the rains thus spreading labour over a number of month's hosts of challenges makes it practically challenging. The soils are usually hard thus the technology is known in vernacular *timba ufe* (dig and die). Beside the majority of fields across the study area are not properly fenced which results in the destruction of basins by freely roaming livestock in the dry season. In addition, interviewed farmers in the study area further pointed out that weeding in CA field's demands double labour as compared to conventional tillage practices. In accordance with these outcomes this paper concludes that CA intervention across the study area increased labour burden on farmers not crop production.

Beside challenges to CA design and implementation, rainfall patterns also constrain the effectiveness of CA. Since the inception of CA in the study area, good early summer rains were experienced; however the rainfall disappeared during the middle of the summer during the flowering stage of crops leading to crop wilting. Continuous poor and unreliable rainfall received across the study area calls for other interventions to support CA and free inputs introduced by ACF. Construction of dams, establishment of irrigation schemes and other water harvest technology need to be introduced for improved yields and food security. The study area has the potential for successful irrigation considering the presence of a perennial river (Save) that flows across the study area and flat arable lands particularly in ward 22.

Short term outcomes of this study conclude that CA did not improve household food security; this paper therefore proposes for a longitudinal study to assess long term impacts of CA on household food. However, four immediate food security outcomes from CA emerged in the study. Firstly food consumption patterns did not improve with the majority of households members consuming less than three meals per day. Secondly we note there are no

substantive changes in the diversity of harvested food despite the introduction of cowpeas and groundnuts seeds under CA intervention. Thirdly, months lasted with food availability from harvested crops did not improve much since the majority of households experienced post-harvest food insecurity. Lastly, we noted that beneficiaries increased food insecurity coping strategies during the intervention stage than before. All these coping strategies became means of subsistence in the context of a failed agricultural intervention. In recommendations; we suggest that local people should be involved in the formulation of projects that will improve their livelihoods.

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