SOCIO-ECONOMIC ASSESSMENT ON THE IMPACT OF ZADT CREATE FUND ON SMALLHOLDER POULTRY FARMERS, THE CASE OF PROFEEDS

STUDY REPORT

BY

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Executive Summary

Zimbabwe Agricultural Development Trust (ZADT) engaged the Institute of Agribusiness Research and Development in Southern Africa (IARDSA) to undertake a study to assess the benefits of the ZADT's CREATE Fund on smallholder poultry farmers who are being supported by Profeeds. The study was based on a quantitative research method which used a semi-structured questionnaire to collect data on 250 smallholder poultry farmers buying inputs from Profeeds across five provinces in Zimbabwe.

The study results showed a range of value chain relationships between smallholder poultry farmers and Profeeds. In this study, smallholder poultry farmers were classified into two categories, non-regular and regular farmers. Regular farmers were defined as those who produces more than 6[1] batches of broiler chickens per year. On the other hand, non-regular farmers were defined as those who produce less than 6[2] batches of broiler chickens per year.

The study results showed that regular farmers have business-oriented chicken production patterns, hence they are in regular value chain relationship with Profeeds. They are relatively well endowed with respect to household and farming assets. Regular poultry farmers have relatively high level of education, on average many of them are holders of secondary education with some holding tertiary qualifications. In addition to being relatively educated most regular farmers are either fully employed or are in full-time farmers. On average regular they produce 6 batches per annum and they have average batch sizes between 100 to 200 birds.

Non-regular farmers have inconsistent chicken production patterns both in terms of scale and stocking levels. They have relatively low educational levels with the majority having not completed secondary education. Majority of non-regular farmers have low endowments in

[1] Conventionally according to Profeeds a small farmer can fit 6 batches per year taking into consideration the two weeks required between culling and restocking of a chicken house

[2] Conventionally according to Profeeds a small farmer can fit 6 batches per year taking into consideration the two weeks required between culling and restocking of a chicken house

terms of household and farm assets. On average they usually stock 3 batches with average size of between 25 to 50 birds per cycle.

The relationship between farmers and Profeeds is still in the infancy stage, on average most respondents have been buying from Profeeds for less than five years. Relationship between Profeeds and smallholder poultry farmers is limited to training and input trading. The company does not provide comprehensive support like those it renders to its current contract farmers. Profeeds does not support smallholder farmers with access to markets and finance, this is despite the firm being a beneficiary of the value chain finance[3] facility where agribusinesses should render those services. Most survey participants highlighted that they would expect Profeeds to provide them with production finance as well as arrange off-take marketing contracts. Despite the reluctancy by Profeeds in providing finance and market assistance, there are high level of brand loyalty among its customers. Only 10% of the respondents indicated that they have switched from Profeeds inputs. Of those who changed the majority changed to buying poultry inputs from Novatek. High prices and shortages of day old chicks were highlighted as the major reasons for switching.

The survey results indicated that 90% of the respondents sell their chicken to informal markets, of these 60% they sell to neighbours and 30% sell to local restaurants. Few farmers (5%) sell to formal channels such as butcheries and supermarkets. The study results showed that on average most chicken producers generate positive gross margins however there are wide variations with some having negative profits. Most farmers (65%) reinvest profits which they generate form chicken production, other use the incomes to meet basic needs such as food, education and health. Some farmers (40%) used the income from chicken production to purchase household and farm assets, these ranges from household appliances, agricultural equipment and building materials.

[3] CREATE fund uses the value chain finance model to fund smallholder farmers

The study used several variables to measure the impact of the relationship between Profeeds and small poultry farmers. Production knowledge, food security and cashflow were identified as having the most impact of Profeeds on smallholder poultry farmers. The survey results showed that most of the respondents (over 90%) indicated that they have had a positive relationship with Profeeds. They indicated that their relationship with Profeeds has led to the growth of their chicken business in terms scale and viability. Most farmers linked changes in their chicken production operations to the relationship which they have with Profeeds. Few farmers (10%) attributed the success of chicken production elsewhere, these alluded the role of local extension workers and development organisations.

Study Recommendations.

Several recommendations were drawn from the study on "The impact of CREATE Fund on smallholder poultry farmers using the case of Profeeds. These recommendations are discussed under the following broad categories: farm level, agribusiness level, ZADT level and Government level recommendations.

Farm level Recommendations	
Recommendation#1	**ORGANIZE SMALLHOLDER POULTRY FARMERS**
	Smallholder farmers need to be organized collectively to increase their productivity, production scale and consistency. These groups must be strengthened to organise farmers to produce individually but market collectively.
	There is need to undertake a case study of poultry groups and associations in Zimbabwe with respect to how they can enhance production among small scale farmers
	Poultry Producer Associations should partner with ZADT to pilot a value chain development program driven by farmers (farmer agency).

Recommendation#2	**MARKETS AND MARKETING**
	Farmers need to secure markets (off-take contracts) before committing resources to production.
	Farmers must integrate into the market by selling slaughtered and packaged birds as opposed to live birds
Recommendation#3	**FARMER TRAINING**
	Farmers must get financial literacy training to improve cash-flow management and business viability
	Farmers need regular formal training on poultry production preferably through digital platforms
	Farmers must be trained to keep records through use of user friendly record keeping platforms, digital introduction of mobile application for record keeping should be considered.
Recommendation#4	**CREDIT AND FINANCIAL LITERACY**
	Farmers must organize themselves into saving groups to enhance access to if they need access to reliable credit to grow at scale and consistently
	Farmers must formalize and grow ISALs as alternative sources of cheap finance alternative
Agribusiness level Recommendations	
Recommendation#1	**DATABASE DEVELOPMENT**
	Profeeds needs to create a database which shows buying patterns of customers. From this, Profeeds can tailor make comprehensive farmer support models targeting small scale chicken producers
Recommendation# 2	**FARMER DEVELOPMENT**
	Profeeds should consider introducing tailor made financial literacy and business training to its customers

	Profeeds should consider introducing a micro input credit scheme for small scale chicken producers
	Profeeds should consider partnering with development agencies and farmer associations to operate poultry farmer development programs throughout the country.
ZADT Level Recommendations	
Recommendation# 1	**IMPACT MEASURES**
	ZADT must engage firms (in chicken business) receiving CREATE Fund to show incremental impact on smallholder agriculture
	ZADT must undertake an annual survey on the impact of CREATE Fund on smallholder farmers which includes all poultry firms receiving funding under CREATE fund
	ZADT must consider collecting panel data, to measure impact over time and its causality
	ZADT should consider using more impact indicators such as Dietary Diversity, Progress out of Poverty Index and Women Empowerment in Agriculture Index.
Recommendation# 2	**FARMER SUPPORT**
	ZADT must engage firms (in chicken business) to provide on-lending facilities in line with its value chain finance approach which underpins the CREATE fund
	ZADT must consider cluster finance to fund different value chain role players to enable them to deliver comprehensive support to enable farmers
	ZADT should pilot direct financing of smallholder farmers one alternative is through digital finance
Recommendation# 5	**GREEN ECONOMY**

	ZADT should increase awareness among farmers and agribusinesses on the availability of funds for renewable energy, example chicken farmers may be organized by firms to generate biogas
Government Level Recommendations	
Recommendation# 1	**IMPORT CONTROLS**
	Government through the Ministry of Trade and Industry must strengthen mechanism for fighting illegal chicken imports which has negative impact on the local poultry industry
Recommendation# 2	**FARMER SUPPORT**
	Government must strengthen the Zimbabwe Poultry Association[4] role in providing comprehensive support to smallholder poultry farmers
Recommendation# 3	**NATIONAL CHICKEN CLUSTER**
	Government of Zimbabwe through Ministries of Agriculture, Youth and Indigenization, Women and SMMEs should partner with agribusinesses to grow the to develop a national chicken cluster which focus on establishing robust poultry industry

[4] It is the APEX organization for organizing smallholder poultry farmers in Zimbabwe

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

ACRONYMS

CREATE	Credit for Agricultural Trade and Expansion
GMO	Genetic Modified Organisms
RRA	Rapid Rural Appraisal
MT	Metric Tone
ISALS	Internal Savings Lending Society
IARDSA	Institute of Agribusiness Research and Development in Southern Africa
SMME	Small Micro Medium Enterprises
ZADT	Zimbabwe Agriculture Development Trust

1.1. Introduction

The Zimbabwe Agriculture Development Trust (ZADT) uses longitudinal sentinel study approach to assess the impact of the CREATE Fund on smallholder farmers who have a longer-term relationship of at least three years with funded value chain actors. These farmers benefit through accessing funding directly from financial institutions or indirectly through linkages with the borrowing value chain actors. It has been found that the conventional sentinel approach has limited application when assessing the impact of the Fund on smallholder farmers who have irregular relationships with borrowers and agribusinesses. In an irregular relationship, there may not be repeat transactions between the value chain actor(s) with a farmer which therefore leads to attribution problems.

The ZADT engaged the Institute of Agribusiness Research and Development in Southern Africa (IARDSA) to undertake an assessment of the benefits of the ZADT's CREATE Fund focusing on the smallholder poultry farmers using the case of Profeeds. The report has three sections, first section is literature survey on the dynamics of the chicken industry with reference to participation of smallholder farmers. The second section is on the methodology which was used to undertake the study. The third section presents the survey results as well as the summary, conclusion and recommendations.

1.2. Overview of Chicken Industry in Zimbabwe

1.2.1. Industry Structure

The Zimbabwean Poultry industry production relies on both the indigenous and imported poultry strains for breeding stock[5] . Zimbabwe poultry industry is dualistic, comprising large and small-scale producers. Broiler production in Zimbabwe has several categories, on one extreme there are smallholder producers who have production capacity ranging from 25 to 100 birds per cycle. On the other extreme, there are large scale producers with production capacity varying

[5] Sourced from Faranisi 1995

from 10 000 to 100 000 birds per cycle. The same production patterns apply to the layer production systems (for eggs) where small scale egg producer capacity ranges from 50 to 100 eggs per day and large-scale layers capacity ranges from 1 000 eggs per day and above.

The Poultry industry in Zimbabwe is dominated by large scale producers of which there are four main ones namely Irvines, Suncrest, Lunar Chickens and Ostrindo. Two companies Irvines and Suncrest control 70% of the chicken industry. Irvines Day Old Chicks throughput is 240,000 birds a week whereas Suncrest has a capacity of 96,000–120,000 birds per week[6]. These two big companies are integrated[7] throughout the value chain, operating business units across the value chains.

Table 1: Market Share of Chicken firms

	Market Share (%)
Irvines Day Old Chicks	40
Suncrest	30
Small producers	30

Source: Own compilation

1.2.2. Competitiveness

The Zimbabwe poultry industry is highly developed, sophisticated, and was self-sufficient before the economic crisis period. Before 2000, the industry was not only able to meet local demand in terms of poultry products but was also enjoying a significant share of the export market in the sub-Saharan Africa region, exporting meat, breeding and production stock. Prior to the economic crisis that hit Zimbabwe for the greater part of the decade starting in the year 2000, the local poultry industry was producing 2,600 MT of chicken meat per month, which translated to 31,200 MT annually[8]. These levels of production were sufficient to meet local demand, estimated at 1,800 MT of chicken meat per month and a balance of 800 MT was

[6] Sourced from Zengeni 2014
[7] They are integrated forward and backwards, backwards they run feed business, produce day old chicks, forward they run contract farming, abattoir meat processing and retail
[8] Sourced from Sukume 2015

exported regionally. In 2008 chicken production fell by 50 percent. Since then the country started getting cheap imports from South Africa and Latin American countries such as Uruguay, Paraguay and Brazil[9]. Then, imports were landing in Zimbabwe at a price of $2.25/kg, compared to $2.70/kg for locally produced chicken[10]. Zimbabwe's lack of competitiveness emanates from two fronts, production period and feed type. Local producers' take six weeks to produce a 1.8kg bird whilst imported birds takes about three weeks. With respect to feed, farmers in Zimbabwe use GMO free maize which is more expensive costing 30% more to grow than GMO maize.[11]

1.2.3. Dynamics of Chicken Industry

Recently there has been an exponential increase in chicken production among small scale producers especially in the urban areas. This has largely been driven by increased consumption of chicken in the urban areas who consider it to be more affordable than beef. Chicken production has become attractive given its short production cycle as it has low set-up costs. The increase in numbers of chicken producers in the country has resulted in the restructuring of the chicken industry. It has been characterized by increased consolidation, vertical integration and emergence of new business format. Traditional chicken firms in the industry have undergone consolidation and integration. On one hand, traditional abattoirs have integrated into production (in out-grower schemes). Feed producers such as National Foods have integrated into retailing and wholesaling of inputs (birds, vaccines and feed). Large players such as Irvine's have consolidated their business model integrating into feed production (Feedmix) and retail (Profeeds).

The restructuring of the poultry value chain has led to an emergence of new business formats, in the form of agribusiness firms selling inputs package for chicken production. These firms sell wide range of chicken inputs including equipment, day old birds (broiler production), point of lay birds (for egg production), chicken feed and vaccines. These businesses such as Novatek Animal Feeds, Pro-feeds, and National Foods (among many others) are running franchise like

[9] Sources from Zengeni 2014
[10] Sourced from Zengeni 2014
[11] Sourced from Zengeni 2014

businesses through outlets operating throughout the country. The customer base for these poultry agro-businesses is largely comprised of small scale producers operating in both rural and urban areas.

1.3. Poultry Value Chain in Zimbabwe

The poultry value chain in Zimbabwe has six main stages namely; stock- feed manufacturing, hatchery and breeding, production, abattoir, marketing and distribution and consumption.

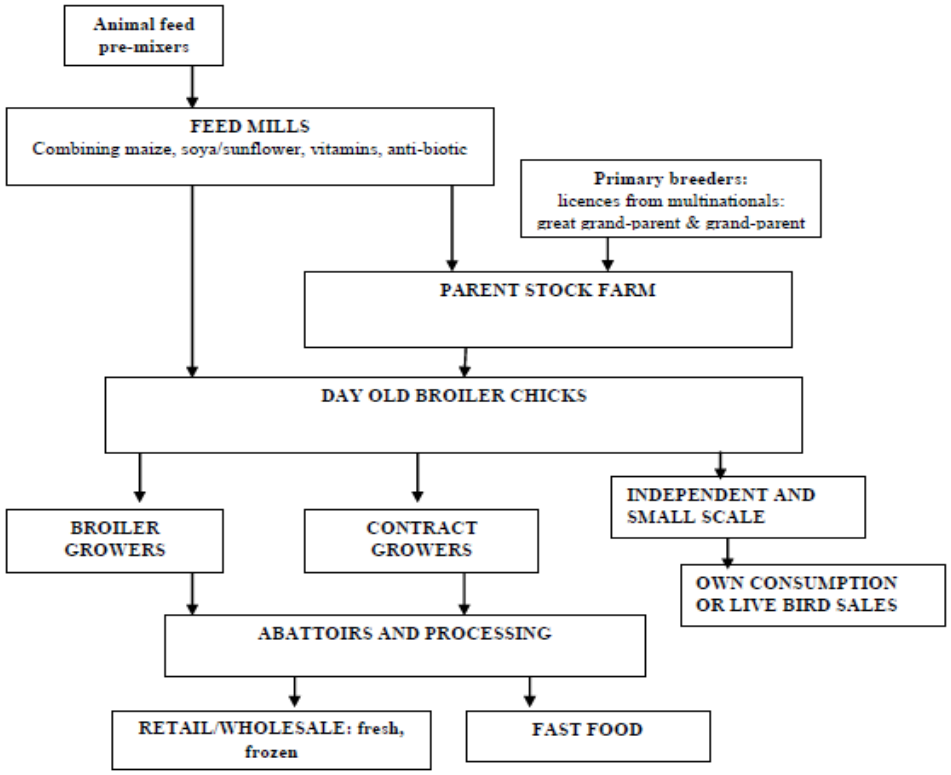

Figure 1: Poultry value chain[12]

1.3.1. Feed production

Poultry feed is a key raw material in poultry production and in this instance, feed stock is produced in relation to the different stages that chickens pass through from day old to six weeks. There are three main types of feed produced by the subsector namely; starter, grower and

[12] Sourced from Bagopi *et al*., 2013

finisher. They can be manufactured as straight feeds or as concentrates where one would need to buy additives such as cereal crush.

1.3.2. Hatchery

The hatchery industry in Zimbabwe is largely based on imported stock of grandparents which are used to produce parents which in turn produce day old chicks. There are only two poultry Grandparents importers in Zimbabwe which are Irvine's Zimbabwe Private Limited and Hubbard Zimbabwe Limited. Hubbard import the Cobb 500 and Hubbard breeds from UK and France respectively. The parent stock is used to lay eggs that produce day old chicks which are then sold to hatcheries. In addition to the two there are several companies importing fertilized eggs from South Africa.

1.3.3. Production

Chicken production in Zimbabwe is dominated by large producers who make up 70% of production capacity. They produce on their own or have contract farming arrangements in which out-growers are provided with day old chicks, feed and chemicals by day-old chick producers and in turn sell back full-grown birds at a fixed or agreed price. Smallholder poultry farmers outside contract farming make 35% of broiler production. They rely on feed firms who supply them with bundled inputs (day old chicks, vaccines and feed). Total Chicken meat production in Zimbabwe revolves around 8 000 to 14 000 metric tonnes per month. Large scale commercial production is steady averaging 2 000 metric tons[13] per year. Small scale production hovers between 4 000 to 9 000 metric tons per month, peaking around August and December (during the Holiday season)[14] (see Figure 2).

[13] Sourced from Sukume 2015
[14] Sourced from Sukume 2015

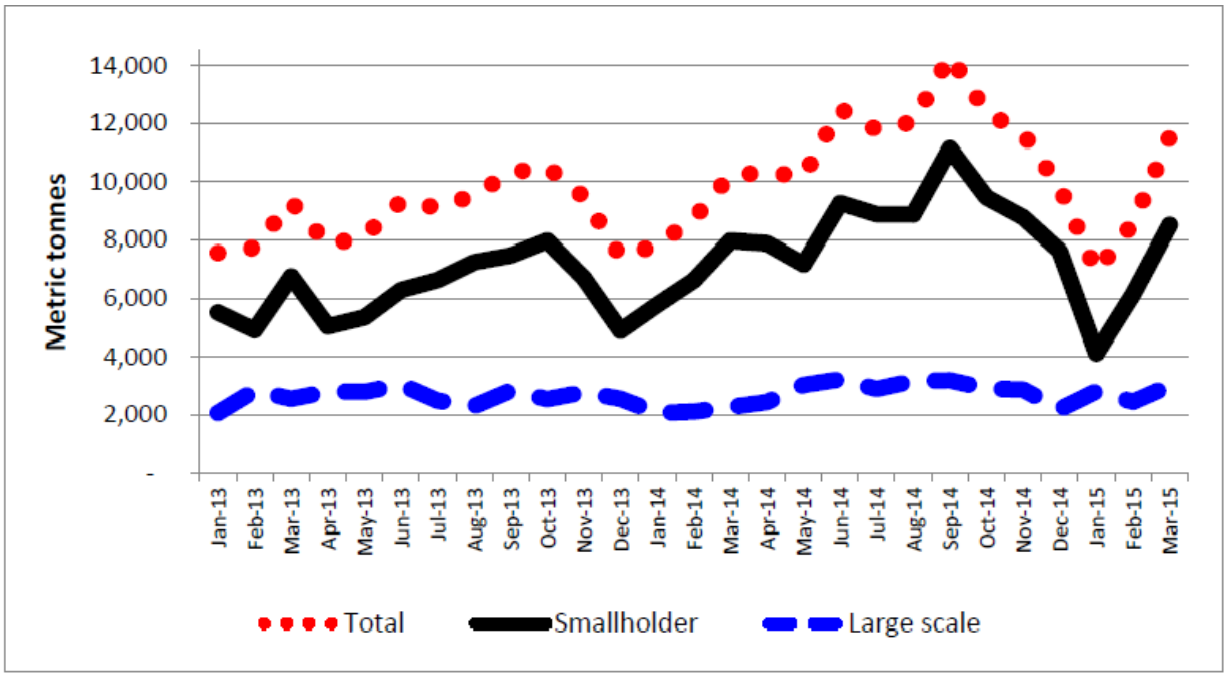

Figure 2: Trends in chicken production (for 2015)
Source: Sukume 2015

1.3.4. Abattoir

After rearing, the chickens are then brought to the abattoirs where they are slaughtered and dressed in preparation for selling to wholesalers, supermarkets and fast foods. Most day-old producers mentioned earlier have abattoirs for slaughtering chickens.

1.3.5. Markets and distribution

Most farmers (55%) sell their broilers to individual households. No farmers sell directly to hotels, 25% sell to supermarkets and 20% sell to canteens. Some farmers sell their broilers to multiple markets simultaneously[15].

1.4. Consumption

Poultry provides animal protein in the form of meat and eggs and are available for sale through cash or barter in societies where cash is not abundant. On average chicken consumption in Zimbabwe is 14kg per capita per annum and this is relatively lower compared to South Africa where per capita consumption is 35kg per year. Eating poultry meat is especially important for

[15] Sourced from Sukume 2015

children and expectant mothers as it can make a significant contribution in areas where child malnutrition is common.

1.5. Smallholder Poultry Production

Smallholder poultry production sector in Zimbabwe can be categorised as intensive, semi-intensive or extensive. Most intensive poultry units in the smallholder sector are dominated by hybrid broiler and layer breeds. The extensive system is dominated by village chickens, which are not classified into specific breeds and usually rely on scavenging and is often described as a low input/low output production system.

1.5.1. Number of small farmers

According to Sukume 2015 it is estimated that there are around 35 000 smallholder chicken farmers which account for 50% of the day-old chicks sold in the country. The graph below shows monthly trends (in 2013) of smallholder poultry farmers. It shows the number of smallholder farmers selling chickens, buying day old chicks and combined.

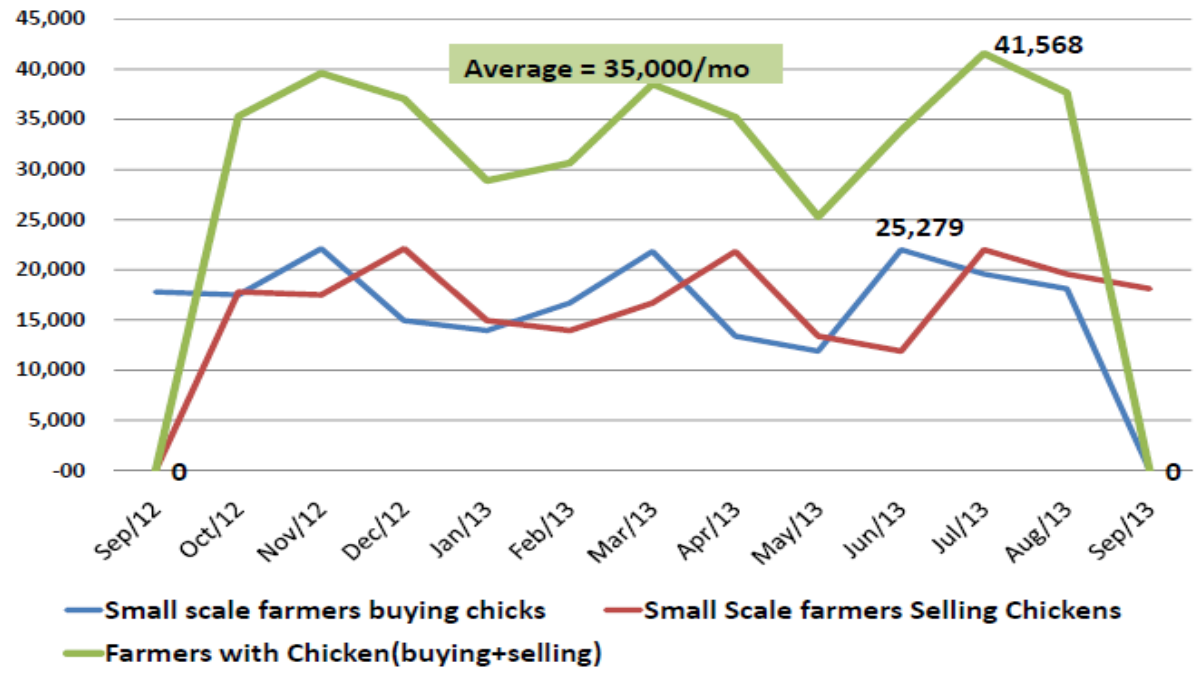

Figure 3: Smallholder Production Trends
Source: Sukume 2015

1.5.2. Location

Smallholder production is highest in Harare province which account for 44% and the least in Bulawayo. This may suggest that smallholder chicken producers are in urban and peri-urban spaces.

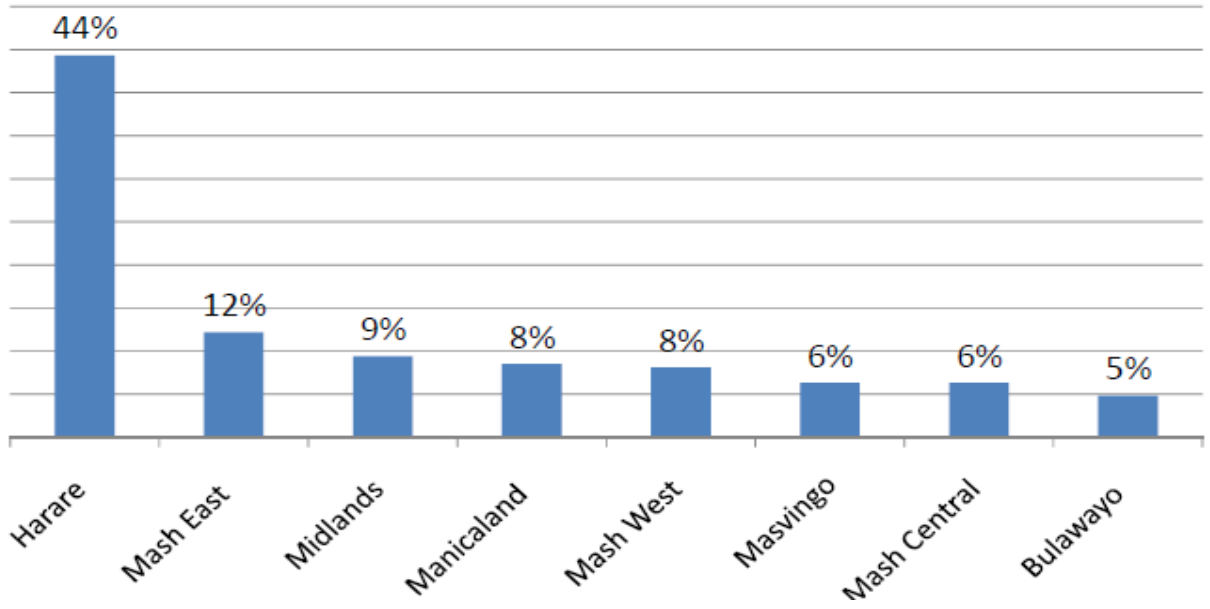

Figure 4: Location of Smallholder farmer involved in chicken production
Source: Sukume 2015

1.5.3. Production Scale

It is estimated that there are 29 million chicks purchased by small scale growers per annum. Of these, 19 million were by farmers growing 100-200 chickens per batch and 6 million is by those producing less than 100 chicks; and 4 million by farmers raising more than 200 chicks at a time[16]. On average smallholder farmers annually produce close to 43,200 MT of broiler meat 85% of which was from farmers raising 200 chickens or less per batch at a time. Most smallholder farmers produce between 100 birds to 200 birds per cycle, accounting for 60%, and 35% produces between 25-100 chicks and less than 5 % are producing more than 200 chicks per cycle.

[16] Sourced from Sukume 2015

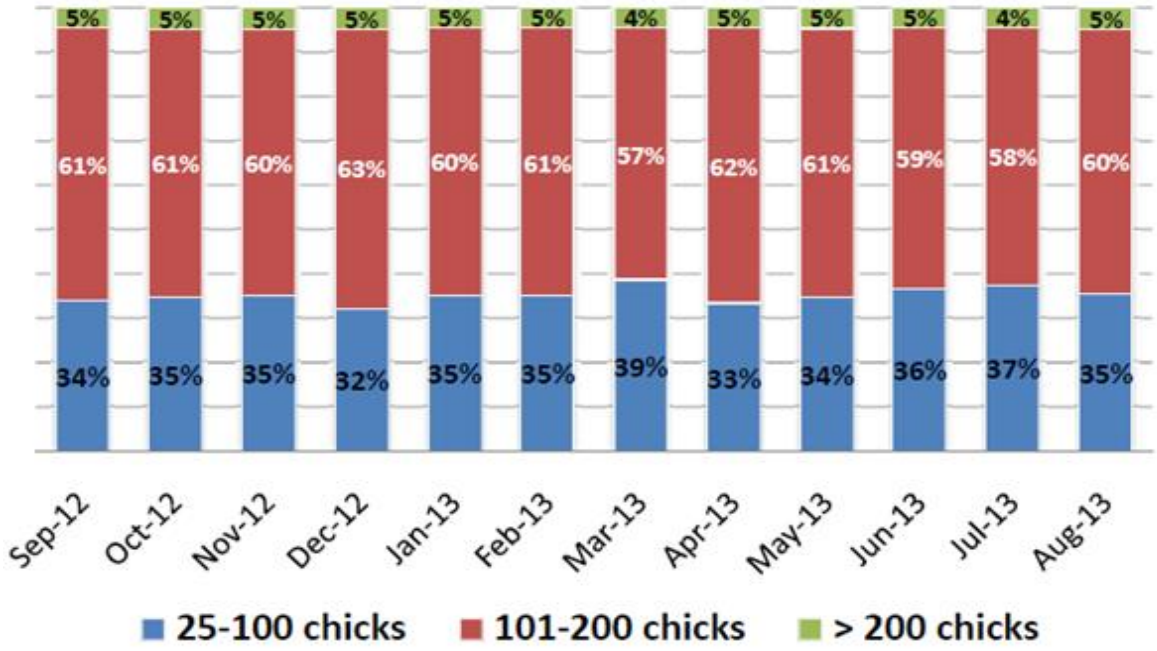

Figure 5: Chicken production scale

Source: Sukume 2015

1.6. Value chain participation

Participation of smallholder farmers in chicken value chain can be described as a continuum of the relationship between farmers and agribusinesses. On one end smallholder poultry farmers and agribusiness firms are vertically integrated in the value chain through long term contracts and on the other end farmers and firms are not integrated, as they only engage in spot transactions.

Table 2. Value chain relationships

	Spot	**Hybrid**	**Hierarchy**
Relationship	Non-regular	Non-regular	Regular
Formalisation	Informal	Informal/formal	Formal
Duration	Once off	Once off/repetitive	Repetitive

Adapted from Eaton *et al.*, 2008

1.7. Economic benefits

Smallholder farmers buy feed worth $63 million from feed manufacturers per annum, equivalent to 69,000mt of maize and 27,000mt of soya meal[17]. On average 14% of the maize is home produced or sourced in community markets for on-farm feed. In addition to feed smallholder farmers use on average $25 million to buy day old chicks[18] per year. Chicken production by smallholder farmers generate downstream economic activities which amounts to $15 million in terms of transport, farm labour, veterinary supplies and energy for brooding activities. Using the assumption that 35 000 households produce chicken, with an average net income of US$1500 per producer per year. Around $60 million of household incomes is generated annually. Smallholder poultry industry contributes close to 100 000 informal jobs, 80 000 in production and 20 000 in value addition services (meat vendors, street restaurants)[19].

[17] Sourced from Sukume 2015
[18] Sourced from Sukume 2015
[19] Sourced from Sukume 2015

2. Study methodology

The methodology used to undertake this study is presented in three sub-sections. The first sub-section is the research design, the second sub- section presents the analytical framework and the third sub-section is the data collection framework which focused on, data collection tools and analysis framework.

2.1. Study design

The study design followed a quantitative approach based on research survey(s) which used structured tools to collect quantitative data focusing on several social and economic indicators which were used to statistically measure the impact of CREATE Fund on smallholder poultry farmers linked to Profeeds. The survey used Rapid Results Approach (RRA) using structured questionnaires to solicit information from Profeeds management and store managers and poultry farmers who buy production inputs from Profeeds.

The study design was largely influenced by the ZADT need to understand the impact of CREATE Fund on poultry farmers. The conventional sentinel approach has limited application in assessing impact on this sub-section of smallholder poultry farmers initially due to the inconsistent and fluid nature of production pattern among this group. For example, a farmer may produce chicken in **X** months, then goes out of production for the rest of the year. Another example is that some farmers may only produce chicken outside the cropping season only mainly due to labor and finance constraints.

Using a value chain framework, the firm-farmer relationships can be described along a continuum, on one extreme of this continuum, there is spot relationship and on the other extreme is vertical integration. There are several permutations and combinations of chicken production patterns and value chain relationships among smallholder farmers. Sampling these farmers is complicated in the absence of data from respective agribusinesses such as Profeeds.

The company has made attempts to create a database of their customers to better understand their poultry production and input buying patterns. In general, there are no contractual relationships between the funded poultry feed companies and the smallholder farmers. There is however an array of transaction relationships between the smallholder farmers and the

companies. Some smallholder farmers produce chickens on a full-time basis, irrespective of the scale of operations. Such farmers therefore buy inputs from feed companies on a regular basis. Others produce chickens on a part-time or non-regular basis meaning that they also buy inputs irregularly. Random sampling was therefore adopted to capture the different relationships between Profeeds and smallholder poultry farmers. Random sampling allows one to focus on two things, firstly to understand the differences among different types of smallholder poultry farmers and it also allows one to analyse the impact of the Fund on these farmers.

2.2. Data collection framework

Primary data was collected through surveys on sampled poultry farmers. The producer questionnaire had three sections: 1st section contained farmer profiles, 2nd section contains production characteristics and the 3rd section focused on the impact of CREATE Fund on survey participants (see Table 3).

Table 3: Preliminary Questionnaire structure

Data source	Variables
Section 1: Producer characteristics	Socio economic characteristics (gender, age, education levels, marital status, family size, livelihood source, employment status) -Asset endowment: Land ownership, tenure type, size, arable land, household assets and farm implement -Household expenditure food and non-food expenses
Section 2: Production profile	-Agricultural production (crop and animal enterprises) -Chicken production: enterprise type broiler versus layers, number of years in production, production pattern, production mode (subsistence versus commercial), production infrastructure, production knowledge
Section 3 Impact Assessment	Impact Assessment; Income analysis, production costs, and income, livelihood impact assessment (food security, nutrition, youth and women, well-being, asset accumulation, expenditure, savings gross, productivity, commercialization

The principal researcher administered the key informant interview and questionnaire to the store managers in the 5 outlets in five provinces.

Figure 6: Map of survey sites

Ten enumerators were trained on administering the questionnaires. These were pre-tested before the data collection process. The sample size for the producer survey was scientifically determined. The sample size is 250 covering five Profeeds outlets which translates to 50 respondents per location. Data collection was undertaken over a period of 5 days. The questionnaires were captured using Excel then SPSS (version 15) was used for analysis.

3. Survey results

3.1. Socio-economic profile

The survey on poultry farmers was administered to 250 poultry farmers and there were relatively more male respondents (51%) compared to their female counterparts (49%). Most respondents were married (*dejure*) staying with their partners. There are relatively more married couples who are regular compared to non-regular farmers.

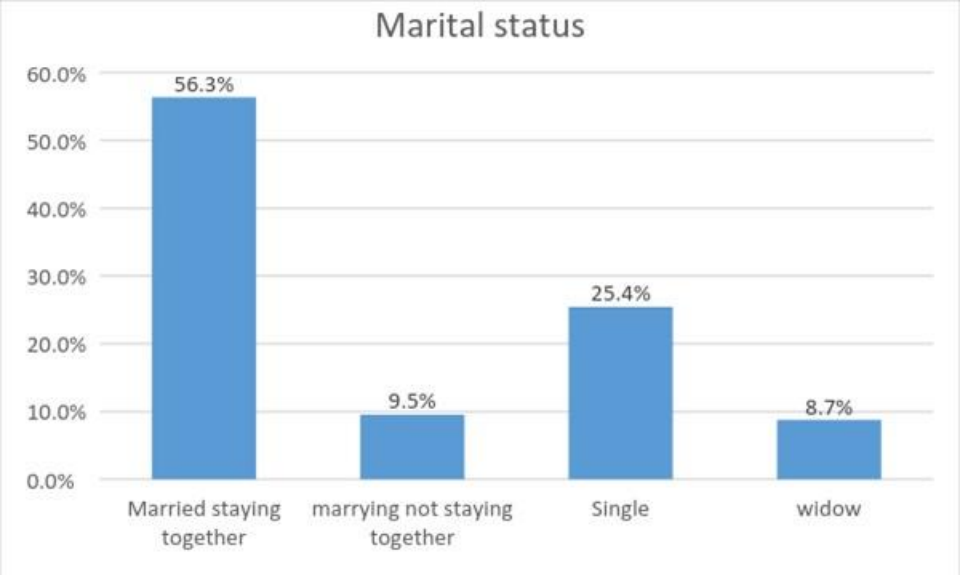

Figure 7: Marital status

3.2. Education level

Figure 8 shows the distribution of education level among the survey respondents. Most respondents have post primary education level. There was relatively no difference between respondents in the non-regular and regular farmers, however there were relatively more non-regular customer farmers who have incomplete secondary education (secondary ZJC level).

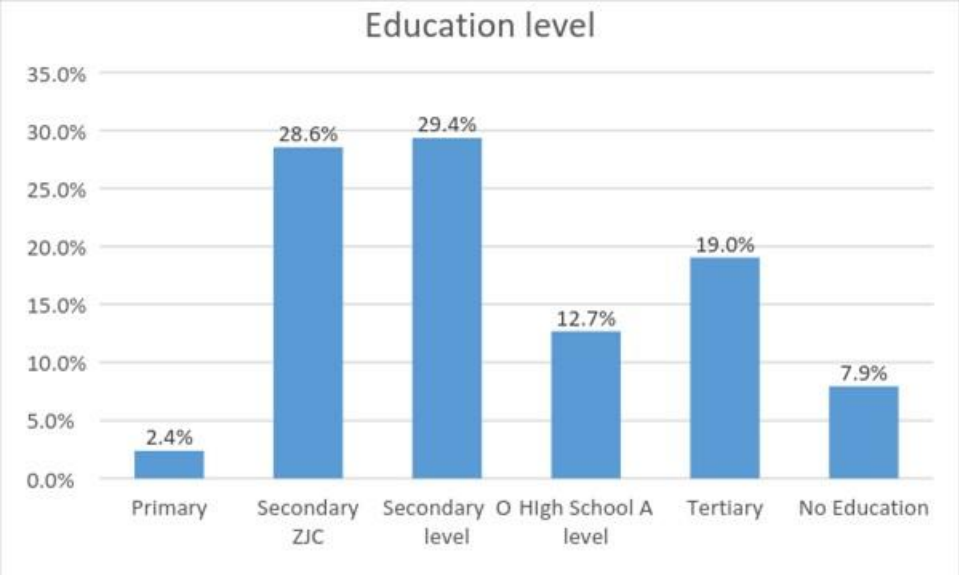

Figure 8: Education level

3.3. Employment type

Table 4 shows the distribution of employment status of the respondents. Most respondents are not employed although there is significant number of respondents who are full time farmers.

Table 4: Employment type

Type	Response (N=250)
Full time off farm	32.0%
Seasonal off farm	29.3%
Full time farmer	17.3%
Unemployed	18.7%

3.4. Income source

Figure 9 shows distribution of source of income among survey respondents., majority of the respondents indicated petty trade as their main source of income followed by formal employment. The survey results showed that own business is the main source of income for both regular and non-regular farmers.

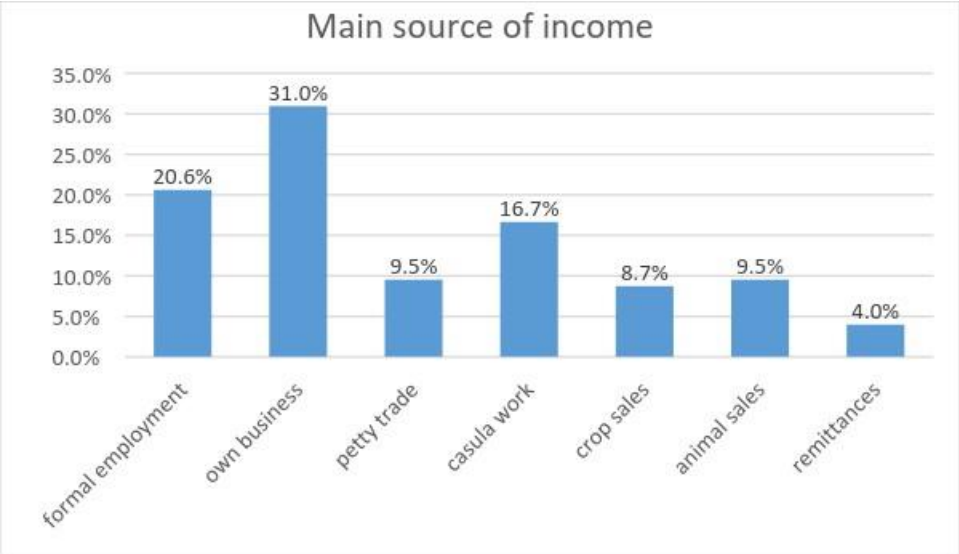

Figure 9: Main source of income

3.5. Income scale

Table 5 shows the distribution of household income. The average annual income for regular farmers is $2 800 which is significantly[20] more than the average for non-regular farmers ($1 700). This is the same with per capita income. Regular farmers have high per capita income compared to non-regular farmers. This can be explained by a relatively large number of regular farmers who have full time employment. A poverty indicator of $2 per day was used to estimate poverty levels among smallholder poultry producers. There are relatively low levels of poverty. It is relatively[21] lower (at 3%) among regular farmers compared to non-regular farmers (at 6%).

Table 5: Income distribution

Variable	Descriptive	Regular	Non-regular farmer
Household income	Maximum	$4 000	$3 000
	Minimum	$300	$276
	Average	$2844	$1705
Poverty levels	Per capita	$2.87	$4.67

[20] At 5% significance level
[21] There is a significant difference at 10% significant levels

	Below $2 per day	3%	6%

3.6. Household and farm assets

Figure 10 shows ownership patterns of household assets among survey respondents. Most respondents own basic household assets (with over 70% ownership levels). The survey results showed that there is relatively no significant difference with respect to asset ownership between regular and non-regular farmers.

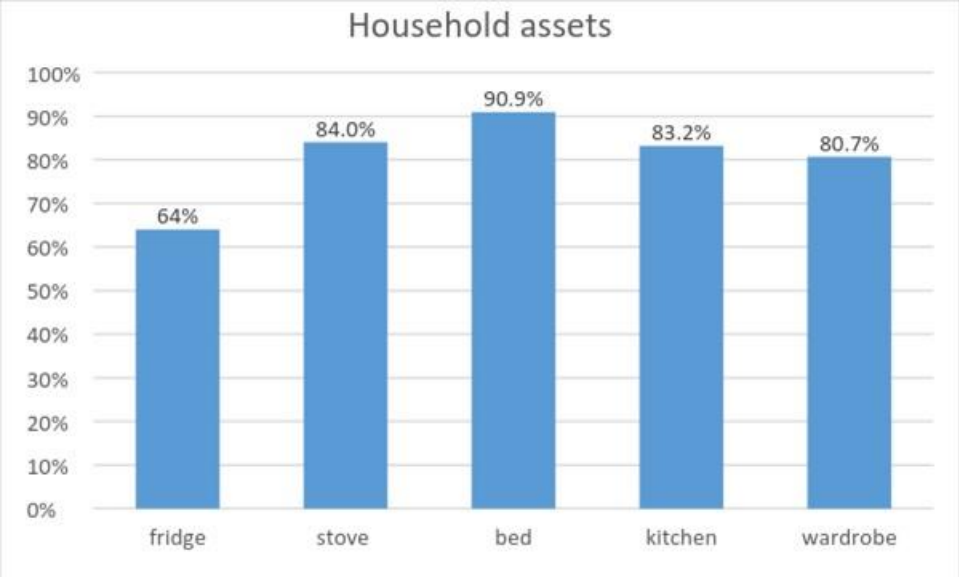

Figure 10: Household assets

3.7. Farm assets

Figure 11 shows the distribution of respondents in terms of ownership of farm assets. There are relatively low levels of farm asset ownership except for chicken houses where ownership was over 80%. Most non-regular farmers have relatively high number of respondents with farming assets (ploughs, farming implements, and knap-sack sprayers) compared to those in the regular farmer category.

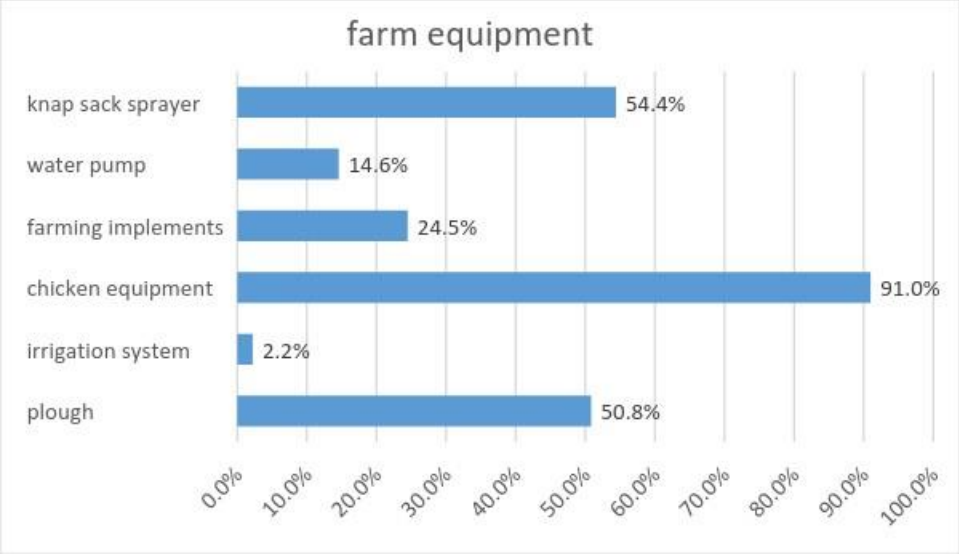

Figure 11: Farm equipment

3.8. Water and Sanitation

Figure 12 shows the distribution and access to sanitation facilities among respondents. Majority have flush type of toilet except this may suggest that most of the respondents leave in semi-urban setting around the growth points especially in Plumtree and Murehwa. On average respondents walk 10 meters to access a toilet though there are variations.

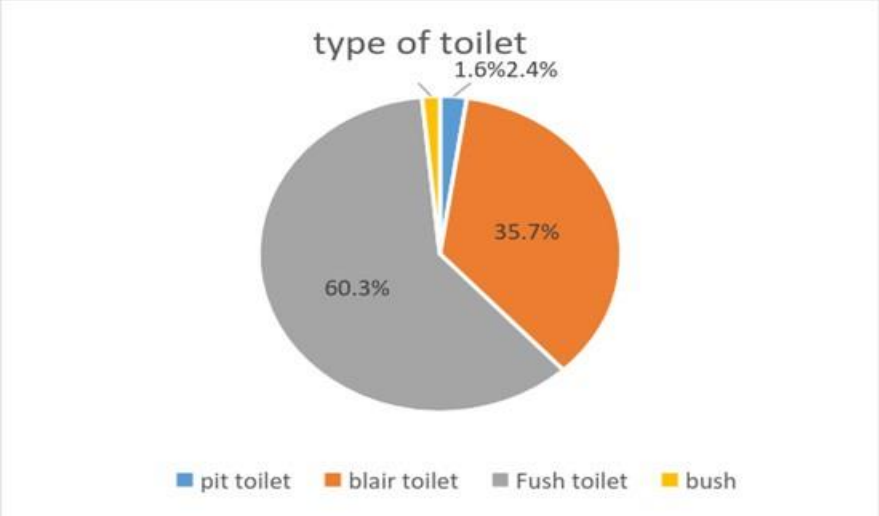

Figure 12: Toilet type

Figure 13 shows the distribution of water sources among the survey respondents. The results show that most households access their water from household taps. The average distance to water tap is 2 meters, however there is wide variation among respondents.

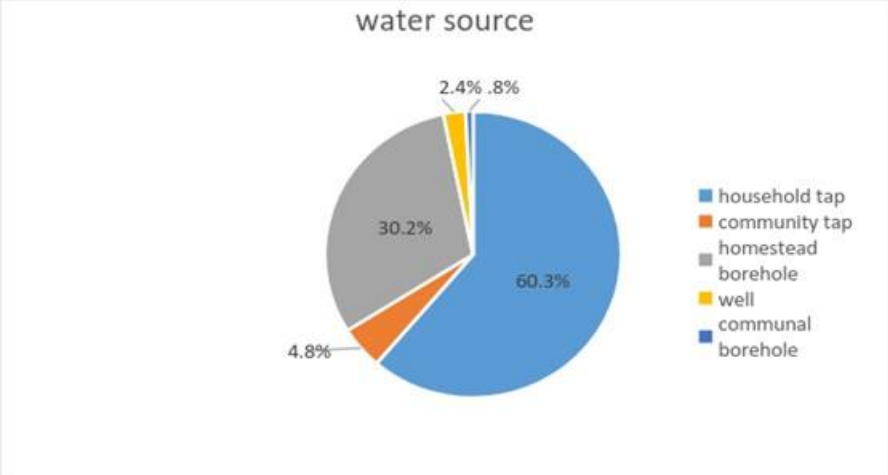

Figure 13: Water source

3.9. Energy source

Figure 14 shows the distribution of energy sources among the survey respondents with most respondents using electricity as a source of energy especially in Matabeleland, Mashonaland Central, and Mashonaland West. There is also a significant number (around 30%) of respondents who use firewood as a main source of energy especially in Midlands, Mashonaland East and Central. The results suggest that the respondents were drawn from peri -urban and rural areas as suggested by the spread of energy type.

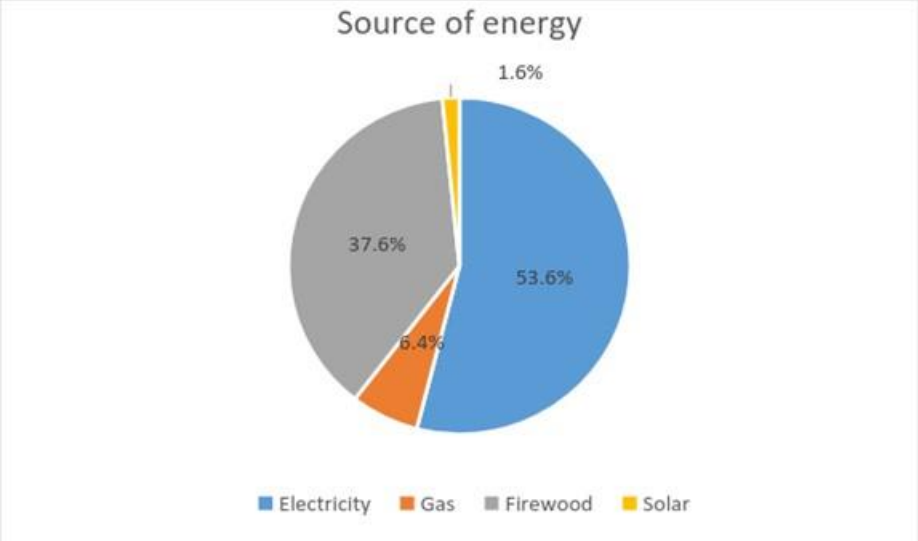

Figure 14: Energy source

3.10. Chicken production

3.10.1. Driving factors

Table 6 presents the distribution of reasons among survey respondents on the drivers of chicken production. Most respondents pointed that they were motivated by the need to generate income employment. There are relatively more non-regular farmers compared to regular farmers who indicated that food security is their main motivation for starting broiler production.

Table 6: Driving factors for production

	Regular farmers(N=135)	Non-regular farmers (N=115)
Income	59.6%	50.8%
Food security	7.0%	15.1%
Employment	28.9%	17.5%
Hobby	1.8%	6.3%
Food and employment	0.9%	0.0%
Income and employment	0.9%	3.2%
Income and food security	0.0%	4.0%

3.10.2. Production

Table 7 shows the distribution of responses on whether the respondents stopped producing over the past years. The results showed that less than 5% of the respondents indicated that they once stopped producing chickens. There are relatively more non-regular farmers who have stopped producing chickens compared to regular farmers. High prices and shortage of day old chicks were highlighted as the main reasons for stoppage in broiler chicken production.

Table 7: Production stoppage

	Regular farmers(N=135)	Non-regular farmers (N=115)
Stopped producing		
Yes	1.8%	5.6%
No	98.2%	92.9%
Reason for stopping		
High price	1.3%	2.7%
Poor quality	1.3%	0.0%
Shortage	0.0%	0.9%

3.10.3. Production pattern

Table 8 shows survey respondents on the timing of their production pattern, majority of both regular and non-regular do not have a specific season they produce anytime of the year. A significant number of non-regular farmers produce during the off-cropping and holiday seasons. They target producing during the holidays in anticipation of high demand around national holidays such as Easter, Heroes and Christmas. The results showed that a significant number of non-regular farmers are engaged in full time crop production, hence they can only go into poultry during the off-cropping season.

Table 8: Production pattern

	Regular farmers (N=135)	Non-regular farmers (N=115)
Anytime of the year	89.5%	65.9%

During national holidays	0.9%	14.3%
Off cropping season	9.6%	19.8%

3.10.4. Production scale

Table 9 shows the chicken production scale among survey respondents; the majority are growing between 51 to 100 birds per cycle. There is significant variation of production scale between regular and non-regular farmers with averages of 51 to 100 and 25 to 50 birds per cycle respectively.

Table 9: Production scale

Scale	Regular farmers(N=135)	Non-regular farmers (N=115)
1-25	1.8%	2.4%
25-50	27.7%	53.2%
51-100	61.6%	38.7%
101-200	1.8%	3.2%
200 plus	7.1%	2.4%

3.10.5. Factors affecting production scale

Table 10 shows the distribution of the factors which determines production scale among survey respondents. Access to capital and access to markets were highlighted as the main determinants of production scale among survey respondents. There is no difference between regular and non-regular farmers with respect to factors which determines chicken production scale. There are however relatively more non-regular farmers who indicated that weather is a major determinant to their production scale. They highlighted that winter weather limits their production capacity mainly due to high heating costs and high bird mortality experience during this period.

Table 10: Factors affecting production scale

	Regular farmers(N=135)	Non-regular farmers (N=115)
Limited capital	55.0%	49.2%
No markets	39.6%	38.7%
Weather	2.7%	5.6%
Limited capital and no market	2.7%	4.8%
Limited capital and weather	0.0%	0.8%
No markets and weather	0.0%	0.8%

3.10.6. Factors affecting production pattern

Table 11 shows the distribution of the factors which affect poultry production pattern among survey respondents. Limited access to capital and access to markets were highlighted as the main factors affecting poultry production scale among survey respondents. There is no significant variation between regular and non-regular farmers with respect to the determinants of poultry production pattern. There are however relatively more non-regular farmers who said weather was a major determinant of their production pattern. Winter weather limits their when they can produce due to high heating costs and bird mortality experience during in winter.

Table 11: Factors affecting production pattern

	Regular farmers(N=135)	Non-regular farmers (N=115)
Capital	55.0%	49.2%
Markets	39.6%	38.7%
weather	2.7%	5.6%
Capital and no market	2.7%	4.8%
Limited capital and weather	0.0%	.8%
No markets and weather	0.0%	.8%

3.10.7. Source of capital

Table 12 shows responses among survey respondents in terms of sources of capital for poultry production. Savings and salaries are the main sources of capital however there are no differences in terms of the source of capital between non-regular and regular poultry farmers. The results suggest that poultry production among smallholder is self-financed through salaries, savings, remittances and donations.

Table 12: Capital Source

	Regular farmers(N=135)	Non-regular farmers (N=115)
Salary	26.5%	30.6%
Savings	61.9%	55.6%
Remittances	9.7%	6.5%
Donation	1.8%	7.3%

3.10.8. Markets

Table 13 shows the distribution of poultry marketing channels used by survey respondents. Most of the poultry farmers sell to their neighbours however functions are institutions are significant to non-regular and regular farmers respectively. The study results also showed that many farmers multiple markets at a time with different combination of channels neighbors, institutions, restaurants and functions.

Table 13: Marketing channels

	Regular farmers(N=135)	Non-regular farmers (N=115)
Neighbors	61.1%	65.1%
Abattoirs	1.8%	0.0%
Restaurants	3.5%	6.3%

Functions	6.2%	11.9%
Institutions	17.7%	0.0%
neighbors and functions	5.3%	11.1%
neighbors, abattoirs, and institutions	2.7%	2.4%
Institutions and restaurants	0.9%	0.0%
Neighbors institutions and restaurants	0.0%	0.8%
Neighbors and abattoirs	0.9%	0.0%

3.10.9. Pricing

The average prices for live chickens is$6 per bird[22], however, prices range from $5 to $8 with abattoirs and restaurants paying the lowest price of between $5 and $6. Neighbors, schools, and functions pay above average prices ranging between $6 and $8, respondents indicated that such price are due differences with respect to payment terms. Restaurants and abattoirs pay cash upon delivery hence they negotiate for lower prices while on the other hand neighbours and organizers of functions usually negotiate to buy on credit hence the producer will ask for relatively higher price considering risks such as non-payment.

Table 14: Chicken prices

	Neighbours	Restaurants	Butchery	Abattoirs
Mean	$7	$6	$6	$5
Mode	$7	$6	$6	$5
Maximum	$9	$8	$8	$7
Minimum	$6	$5	$6	$5

3.10.10. Profitability analysis

Table 15 shows profitability calculations using production costs and income data from each of the survey participants. On average non-regular farmers realised lower profits compared to

[22] Average bird weight is between 1.5 to 2kg although smallholder farmers rarely keep weight records

regular farmers. On average around 78% of the regular farmers and 52% of the non-regular farmers have positive margins. The return to investments for regular farmer is 87% compared to 67% for non-regular farmers. The income from poultry farmers makes a significant share of the household and agricultural incomes. The chicken revenue makes 83% as a share of their agriculture income and 46% of the share of the agricultural income for non-regular farmers.

Table 15: Chicken profitability

		Regular farmers (N=135)	Non-regular farmers (N=115)
Production costs	Minimum	$ 786	$264
	Maximum	$33 288	$18 038
	Average	$5 167	$1 377
Production Income	Minimum	$1 500	$402
	Maximum	$14 670	$19 970
	Average	$8 963	$540
Gross Income	Minimum	-$1 374	-$1285
	Maximum	$6 663	$9 980
	Average	$ 5 519	$ 402
Viability	Return to Investment	87%	76%
Profitability	farmers with positive returns	78%	52%
Share of chicken income	Share of agriculture income	83%	46%

3.11. Utilisation of chicken income

Table 16 shows the distribution of survey respondents on how they use income generated from chicken production. Most of the respondents reinvest the money into chicken business while significant portions of the respondents use income from chicken production to buy food, pay for basic need (such as education) and some save the income.

Table 16: Income utilisation

	Regular farmers (N=135)		Non-regular farmers (N=115)	
	Proportion of respondents	Share of income	Proportion of respondents	Share of income
Re-investment	77.8%	50%	91%	51%
Food	10.3%	34%	5.3%	29%
basic needs	4.0%	29%	9%	22%
Savings	8.0%	13%	1.8%	20%

3.12. Support rendered and required

Table 17 presents the distribution of responses with respect to support provided by Profeeds. Training and production advise are the major support provided by Profeeds, there is relatively no significant difference on to support Profeeds renders to non-regular and regular farmers. Table 16 also shows the distribution of responses on additional support they would like Pro-feeds to provide. Most respondents indicated that they need Pro-feeds to support them with production finance. In addition to finance, respondents also indicated that they would want Profeeds to support them with training and access to markets.

Table 17: Profeeds farmer support

	Regular farmers(N=135)	Non-regular farmers (N=115)

Support Rendered		
Training	56.1%	50.8%
Production support	41.2%	44.4%
Support required		
Training	4.7%	9.2%
Finance	74.5%	60.6%
Production support	.9%	.9%
Markets	3.8%	15.6%
Grain markets	0.0%	1.8%

3.13. Input sourcing

Table 18 shows that most survey respondents were buying from National Foods and Novatek Animal Feeds before they started buying from Profeeds. Less than 10% of the survey respondents indicated that they have switched buying inputs for chicken production from Profeeds to other companies. There are however relatively more non-regular farmers compared to regular farmers who have switched. Table 17 also shows the distribution of inputs sources for which respondents have switched their procurement from Profeeds[23]. Most of the respondents indicated that they switched source of day old chicks and few switched sources for feeds and vaccines.

Table 18: Input switching

	Regular farmers(N=135)	Non-regular farmers (N=115)
Switched input source		
Yes	4.2%	15.2%
No	92.7%	75.0%
No response	3.1%	9.8%

[23] It should be noted that Profeeds produce feed, they get day old chicks from Irvines a sister chicken hatchery business

Inputs switched		
Day old chicks	3.8%	7.1%
Feed	0.0%	4.5%
Vaccines	1.3%	1.8%

3.14. Inputs switching and reasons

Table 19 shows the distribution of alternative input markets where survey respondents switched to. According to survey respondents, the majority of those who switched from Profeeds went to National Foods and Novatek while the others switched to Hygro, Feedmix, Suncrest, and Capital Feeds. Non–regular farmers switched to more than one feed outlets whereas regular customers only switched to one (Novatek). Table 18 also shows the distribution of reasons for switching from Profeeds to other suppliers. Non–regular farmers indicated that high prices, shortage of day old chicks and poor feed quality were their major reasons for switching whereas regular farmers indicated that high prices were the major reasons for switching.

Table 19: Inputs Switching and reasons

	Regular farmers(N=135)	Non-regular farmers (N=115)
Switching to		
National feeds	0.0%	6.3%
Fivet	0.0%	.9%
Novatek	5.1%	4.5%
Feedmix	0.0%	.9%
Hygro	0.0%	.9%
No response	94.9%	85.7%
Switching reasons		
Poor quality	0.0%	2.0%

Low quantity	2.6%	2.0%

3.15. Impact analysis

3.15.1. Profeeds Impact

Table 20 shows the range of areas of impact of relationship between Pro-feeds and survey respondents. Overall, the relationship has had positive impact as reflected in several indicators except for accumulation of basic farm assets. Three levels of impact were estimated based on the survey responses: low impact 0 to 50%(*), average impact of responses is between 50 to 70%(**) and high impact of responses are above 70% (***).

Table 20: Profeeds impact

	Impact levels[24]
Production knowledge	83.3%***
Income	74.3%***
Food security and Nutrition	77.9% ***
Savings	64.1%**
Household assets increase	54.8**
Access to Basic needs(education)	53.4%**
Increased Economic freedom	60.9%***
Improved Financial literacy	33.3%*
Improved Gender equality	48.0%*
Employment opportunities	55.9%**
Cash-flow improvement	72.5%***
Increase in batches	62.8%**
Reduced day-old costs	69.8%**
Reduced Feed costs	75.2%***

[24] *** high impact ** Average impact * low impact

Increase overall chicken	93.4%***

3.15.2. Asset accumulation

Figure 15 shows responses on assets which respondents have accumulated from income derived from working with Profeeds. Most respondents have managed to purchase household appliances using income generated from chicken production through their relationship with Profeeds. A significant number indicated that they bought household furniture and some managed to construct their houses or buy housing stands. More non-regular farmers invested in purchasing household appliances whereas regular farmers invested into agriculture equipment, vehicles, residential stands and building material.

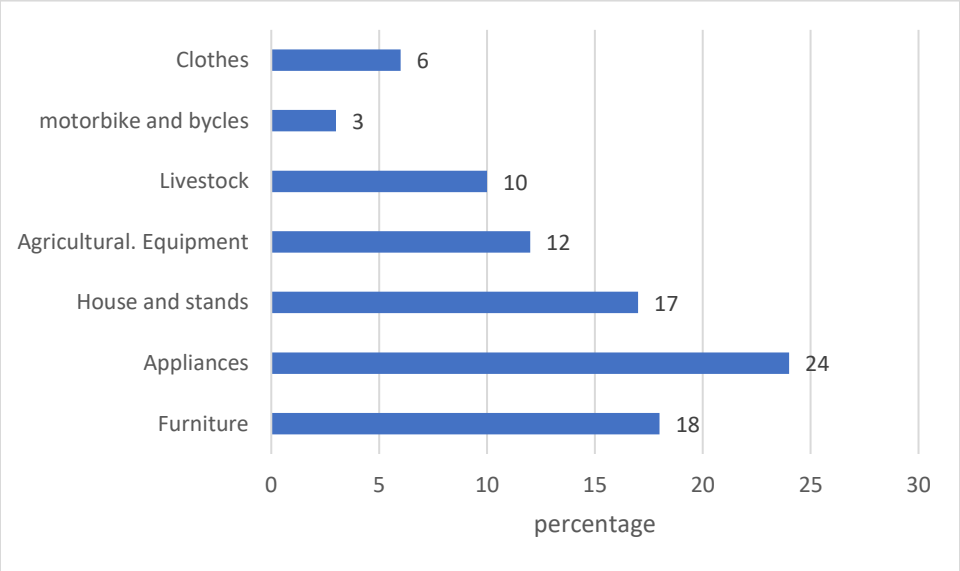

Figure 15: Asset accumulation

3.15.3. Impact attribution

Table 21 shows survey respondents with respect to attribution of success to chicken production. Close to 90% of respondents attribute their success to Profeeds. There are relatively more regular farmers than non-regular farmers who attribute success of their chicken enterprise to Profeeds. This means there are more non-regular farmers who are not satisfied with their relationship with Profeeds.

Table 21 also shows responses on who else was identified as being responsible for smallholder farmers' success in chicken production among survey respondents. Less than 10% of the survey respondents attributed success of chicken production to other players. Most of these indicated that their local extension officers helped them to achieve success. Some indicated that agribusiness firms and NGO played a crucial role in assisting farmers in establishing their farming operations.

Table 21: Impact attribution

	Regular farmers(N=135)	Non-regular farmers (N=115)
Attribution of success		
Yes	89.9%	75.9%
No	7.8%	17.8%
Responsibility for success		
Extension	9.6%	4.4%
Agribusiness	1.1%	3.3%
NGO	1.1%	0.0%
Pro feeds	87.3%	92.4%

3.15.4. Profeeds Economic impact

Profeeds estimate that they serve 100 000 smallholder farmers who buy chicken inputs through their outlets. Of this, 65 000 are regular buyers and 35 000 are non-regular buyers. Calculation of the potential economic impact of the Profeeds business, in terms chicken inputs revenues (feed and buyers), job creation and economic impact was done. The analysis showed that Profeeds can generate $32 million from revenues from inputs sales, 150 340 jobs (150 000 are in production, 220 in upstream and 120 downstream jobs).

Table 22: Profeeds economic Impact

		Regular farmers(N=135)	Non-regular farmers (N=115)	Total
Revenue	Day Old chicks	$4 875 000,00	$2 625 000,00	$7 500 000,00
	Feed	$16 250 000,00	$8 750 000,00	$25 000 000,00
Job creation	Production	97 500	52 500	150 000
	Upstream	143	77	220
	Downstream	78	42	120
Economic impact		$97 500 000.00	$17 500 000.00	$115 000 000.00

NB: More work can be done on refining the estimated economic impact of Profeeds

4. Summary of survey results

The survey results are summarised under three headings viz, Profeeds-farmer relations, farmer - buyer relationship and impact of Profeeds on farmers.

4.1. Profeeds-farmer relationship

There are no formal linkages between Profeeds and smallholder poultry farmers despite repeated transactions. The firm has made little investments in developing formal relationships with farmers beyond spot transactions. Ironically the CREATE Fund which supports Profeeds is modeled on the value chain financing approach which intend to provide finance for smallholder poultry farmers. Despite these limitations the relationship between farmers and Profeeds is developing beyond spot transaction. Profeeds is investing in supporting smallholder poultry producers through training and technical support. During the research survey, the team noticed that at the store level, the shop managers are providing advisory services on a wide range of issues from production, marketing and finance.

4.2. Farmer- buyer relationships

Two types of market transactions were observed during the research study between chicken farmers and buyers. The first market relationship type is based on spot transaction where their exchange is usually on cash basis. The second type of market relationship is hybrid contractual arrangement where there is repeated buying relationship between a farmer and buyers. Under this type of market relationship there is relatively high level of trust between farmers and chicken buyers. The relationship is characterized by informal credit arrangements with a fixed repayment period.

Based on the survey results there is no clear distinction between buyers/farmers who transact under these two arrangements. Despite this, there is a tendency that neighbors and restaurants usually buy under the second type of market relationship, whereas abattoirs, supermarkets, butcheries, and functions purchase under the first type of market relationship. Based on the customer type analogy the survey results showed that non-regular farmers largely sell to

neighbors and functions whereas regular farmers are most likely to sell to restaurants and supermarkets.

4.3. Profeeds Impact

The focus of the study was to define and evaluate impact of the CREATE Fund on smallholder poultry farmers. This can be reflected in the following areas of profitability, and empowerment.

4.3.1. Impact on profitability

Quantitative and qualitative analyses on the profitability of the poultry business on smallholder farmers were undertaken using selected indicators. Several qualitative indicators showed farmers perceptions with respect to the impact of Profeeds relationship on farmers' profitability. More than 75% of the survey respondents indicated that they have grown their chicken business, and this can be translated to mean increased income and profitability. More than 60% of the survey respondents indicated that they have experienced reduction in their input costs in term of cost of day old chicks and chicken feed.

The analysis discussed above on increased income and reduced costs translates into increased profitability among smallholder farmers. Using the gross margin analysis, on average more than 80% of the survey respondents generated positive profits. One cannot however wholly attribute farmers profitability to the presence of Profeeds. One needs to have time series data (on individual production costs and income) to trace profitability over time. Time series data allows for comparison on the impact of a value chain intervention using before and after scenarios (before and after buying from Profeeds). This type of data will allow one to undertake causality analysis.

4.3.2. Asset accumulation

An analysis was undertaken on how smallholder farmers' relationship with Profeeds impacted on asset accumulation among the farmers. The survey results showed that many farmers managed to purchase assets (households and farm) using income generated from chicken production. Household appliances, household furniture, and housing stands were the major

assets accumulated by survey respondents using incomes generated from chicken production.

4.3.3. Empowerment

The study results showed that Profeeds has significant impact on community empowerment, particularly with focus on women empowerment and youth participation. In terms of women empowerment 51% of the survey respondents are women of which around 70% of them produce independently and 40% are single parents. This suggests that chicken production can provide economic opportunities for women to generate independent income streams. Chicken production is a women-oriented value chain, therefore firms such as Profeeds doing business in this sector are advancing women empowerment by default.

Chicken production can improve equality and agency (self-determination) among women. The enterprise allows them to control household income and make key household decisions. Survey results suggest that more women are non-regular farmers, however store managers (who participated in the study) indicated that 60% of their regular customers are female. With respect to youth participation, the survey results indicate that 35% of the respondents can be classified as youths. This means Profeeds operations has effect on participation of youth in the local economy. Chicken enterprise is attractive to youth as it is characterized by short production cycles and has low barriers to entry (cash and knowledge). Poultry production in Zimbabwe has attracted youths who were traditionally not interested in agriculture.

4.3.4. Economic Impact

The study showed that Profeeds has significant economic impact in terms of Gross Value Added and employment. A calculation of potential economic impact of the Profeeds business shows Profeeds can generate $32 million to the country's economy and 150 340 jobs with most of them coming from chicken production. There are several other unaccounted for downstream and upstream economic impact which emanate from Profeeds business. These ranges from income and jobs created in the upstream such as input manufacturing and logistics, downstream activities which include meat processing and retailing.

5. Conclusion

The study on the impact of CREATE Fund on smallholder poultry farmers is partially conclusive. This is largely due to unavailability of time series data. There is need for panel data to measure change over time and causality. The study is based on cross section data. Despite such limitations survey respondents indicated that their relationship with Profeeds brought several positive impacts. Most survey respondents indicated that Profeeds relationship has allowed them to increase their productivity hence profitability of their chicken production entities. The survey results suggest that their relationship with Profeeds has enabled them to accumulate household and farm assets. In the absence of hard data most respondents indicated that progression in chicken production among them can be attributed to the presence of Profeeds.

6. Study Recommendations.

Several recommendations were drawn from the study on the impact of the CREATE Fund on smallholder farmers linked to Profeeds. These recommendations are discussed under the following broad categories, farm level, agribusiness level, ZADT level and policy level

6.1. Farm level recommendations

Several recommendations were drawn at the farm level with focus on how to improve the intended impact of CREATE Fund on smallholder farmers.

Recommendation #1: Organizing producers

Production pattern among smallholder farmers is low scale and erratic and there are several ways of changing this. Firstly, farmers should be organized collectively[25] as a way of increasing their production scale. Farmers themselves should be formed into chicken study groups, where they produce individually but market as a collective. Such groups would comprise of farmers who live near each other preferably within a 5km radius in the farming areas and 1km radius around growth points. The group would coordinate when members purchase and synchronize production among themselves so that they simultaneously get their chicken to the culling weight. The advantage of the group is that members can purchase inputs in bulk which gives

[25] This is despite the scepticism around corporatives in ZImbabwe

them the power to negotiate for discounts either on chicken inputs or transport. Secondly, the group can negotiate for better market conditions especially for fair prices from established markets like abattoirs, butcheries, supermarkets, and restaurants. Organizing farmers collectively assists farmer to achieve economies of scale thereby allowing them to transform into regular customers as they will be supported by the group to produce all year round.

Recommendation #2: Secure markets before production

Smallholder poultry farmers must produce for a target market where they have informal relationship beyond an arm's length. They must not commit resources blindly without a target market who can buy all their produce at once. The lack of off-take arrangements is largely responsible for influencing inconsistent production patterns among non-regular customers. Smallholder farmers need to comprehend the importance of getting commitment from their intended market before committing production resources.

Recommendation #3: Financial Inclusion

We recommend consideration (by ZADT and Profeeds) on the issue of financial inclusion among non-regular farmers. The survey results show that farmers are financially excluded on two fronts. Firstly, given their low literacy levels they lack sound financial literacy which limits their capacity to manage chicken business which is characterized by significant cash-flow variations. Secondly, these farmers lack access to cheap reliable credit source. Survey results show that they use cash (from salaries, savings, and remittances) to finance production. The lack of finance is directly responsible for their intermittent (on and off) production patterns.

We recommend role players (either Profeeds or ZADT) to come up with program to address financial exclusion at these two levels. Profeeds should consider adding financial literacy module to their existing chicken production manual. The module must be accompanied by simple templates for recording production costs as well as incomes generated so that farmers can generate simple financial statements showing viability of the business. Given the proliferation of cheap smart phones, there is need to consider developing a simple mobile application to serve

a similar purpose. ZADT should work with its financial partners especially microfinance institutions to arrange micro-credit targeting chicken farmers. The microcredit can be coordinated between the MFI and agribusiness.

Recommendation # 4 Training and Capacity Building

The survey results indicate low production knowledge among non-regular farmers and this emanates from several factors. One of these factors is access to proper training. Most non-regular farmers had not received formal training on chicken production. There is a belief that chicken production is simple and straightforward while many farmers equate it to keeping traditional chickens which have higher resistance to diseases and scavenge for food. The opposite is true, chicken production especially broiler chickens require a certain level of technical know-how. Chicken production know-how can only be accessed through formal training. Profeeds provides regular training but these sessions are far apart (once in every 3 months per site). There is need for Profeeds to provide regular and frequent training and consider cheaper virtual training methods through mobile phones and other ICT devices for providing training to farmers especially in the rural areas.

Recommendation #5: Value Chain Development

There is need for smallholder farmers to strive for integration into formal poultry value chains. There are several integration strategies which can be pursued by those farmers in non-regular relationships with feed companies. The first strategy is to increase production in terms of scale and time. Non- regular farmers must move from low batch sizes (0 to 25) and they must strive to produce throughout the year at least 6 cycles per year. The second strategy is that they must organize themselves horizontally through joining groups made of chicken farmers. These range from primary levels (study groups and cooperatives), secondary levels of marketing networks and tertiary levels of commodity associations. Collective groups allow non-regular farmers to be integrated into formal chicken value chains which usually present barriers to entry for individual smallholder farmers. The third strategy which we recommend is vertical integration, into the value chains, where farmers are involved in other value chain activities beyond

production such as organizing markets or provision of inputs (e.g. maize grain to add to pre-mix). This strategy is usually compatible if it is pursued by organizations (producer groups, marketing networks or commodity associations).

6.2. Agribusiness Level Recommendations

Several recommendations were drawn at agribusiness level which can improve the intended impact of CREATE Fund on smallholder farmers in non-regular relationships with value chain actors.

Recommendation# 1: Profiling of non-regular customers

Profeeds need to invest in profiling its customers through a comprehensive farmer database system. Profeeds management indicated that they have designed a database to capture farmer profile. The database can provide comprehensive information about its customers and this will allow for development of categories by enterprise type, production scale and pattern. This will allow for development of proper definition of non-regular farmers. Profeeds uses an electronic sales system which can be used to feed the proposed database so that database can capture trends with respect to production, farmer type.

Recommendation# 2: Farmer support model

Profeeds must invest in developing its relationship with seasonal smallholder poultry producers. One way of doing this is to develop an enterprise development program. This program focusses on motivating smallholder farmers to engage in chicken production as proper business enterprise. The program should transform the mentality among smallholder farmers who treat poultry production as a supplementary income source. Survey results indicate that majority of the non-regular farmer treats poultry production as a second-tier income source after full-time employment and agricultural production.

We recommend a three-pronged farmer development production model which must be anchored on production support, financial inclusion and market development. Profeeds should initiate a micro-chicken contract farming model which targets farmers growing less than 100

birds per cycle. The micro contract farming model should be designed along similar parameters such as the Pro-farmer model. Profeeds should consider providing production finance and have two pronged options in this regard. Firstly, Profeeds can provide in–house finance by advancing qualifying farmers (with feed and day-old chicks and secondly Profeeds would work with microfinance providers (preferably from the CREATE Fund stable). The second option is more feasible as Profeeds is not an authorized financial service provider under Zimbabwe legislation.

As part of the micro poultry contract model, Pro-feeds should develop markets compatible with production patterns of non-regular customers. There are also two options in this regard. Profeeds can buy straight from farmers using the existing Pro-farmer model or Profeeds can partner with other agribusinesses such as abattoirs or butcheries who in this regard become primary off-takers. There is an alternative market development option which involves Profeeds providing a marketing platform where chicken buyers can approach to enquire on the availability of chicken from smallholder farmers. A social media platform preferably starting with a WhatsApp group coordinated by store managers in different outlets can be used to link farmers to potential buyers. Some outlets have partially invested in this direction. It, however, needs to be adopted by the entire organization

6.3. ZADT level recommendations

Several recommendations were drawn at ZADT level focusing on how the organization can leverage the CREATE Fund to drive smallholder farmer commercialization.

Recommendation #1: CREATE Fund selection criterion

The survey results indicated that there is little impact of Pro-feeds with respect to additionality. What the firm is doing can be done by any agribusiness, thus one cannot attribute impact of Profeeds on smallholder poultry operations. Lack of additionality should inform ZADT to change its selection criterion. Funds must be given to those firms that can demonstrate additionality impact. Additionality impact is measured as the net effect of an intervention which would not have been felt if it was not there.

Recommendation #2: Value Chain Financing

Value chain financing model which is the hallmark of the CREATE Fund must be followed through by value chain actors. It defies logic that firms expect CREATE Fund to provide them with credit but they themselves do not intend to on-lend to farmers. Credit risk maybe one of the limiting factors, we recommend ZADT to cover farmers through loan guarantees and other risk mitigating approaches.

Recommendation # 3: Cluster finance

There are many components (clusters) which make the poultry value chain and include chicken houses, energy suppliers (charcoal), day old chicks, feed, buyers, meat processors, and transporters. We recommend ZADT to adopt a cluster finance approach which means the CREATE Fund must be availed to different value chain players providing services in the chicken cluster. Cluster finance is more comprehensive than value chain finance as it looks at the holistic picture of the industry. This will increase the contribution of poultry sub sector to the economy. South Africa uses cluster approach with respect to supporting the poultry industry which makes it the second biggest agriculture sub-sector in that country.

Recommendation # 4: Mobile Money

Given the rise of use of mobile money in Zimbabwe, ZADT should use the poultry industry to pilot the introduction of digital finance as part of the finance tools for the CREATE Fund. Digital finance has potential to address traditional limitations of access to finance by smallholder farmers. A pilot program can be pursued by Profeeds in partnership with progressive finance institutions such as Steward Bank which also has working arrangements with Eco cash, a major provider of mobile finance in Zimbabwe

Recommendations # 5: Renewable energy

Chicken production is a major consumer of energy and emitter of greenhouse gases. Given ZADT emerging interest in funding renewable energy solutions targeting smallholder farmers, we recommend that the organization should pilot work in this sub-sector. There are two possible

areas which ZADT must consider in this regard. Firstly, ZADT should support firms. which supply heating systems for chicken houses, preferably those powered by renewable energy such as solar. Secondly, ZADT should work with firms who construct biogas digester to tailor make them for smallholder chicken farmers (chicken manure provides the necessary raw material for the bio-gas generation).

ZADT needs to consider engaging Hivos and SNV if the digester which they are promoting are compatible with chicken manure. We suggest ZADT to appoint a consultant to undertake a study to estimate the critical waste volume required for a standard small biogas digester. Using Biogas Water Management, a minimum of 2 cubic meters of waste is required per month to provide sufficient stock for a domestic bio-gas digester.

Recommendation # 6: Impact Evaluation

There are areas around the ZADT's impact evaluation which can be improved. The ZADT should consider introducing farming diaries for smallholder beneficiaries. These diaries are used by farmers to record all activity and transactions they are involved in during the lifespan of a project. Secondly, ZADT should invest in creating panel data (multi-year surveys), this provides better platform to measure impact over time and can allow testing for causality. The impact assessment tools currently used are not as robust. In the future ZADT should consider using Social Impact Assessment tools such Dietary Diversity, Wellbeing Index.

6.4. Government and Policy Level

Recommendations# 1: Import controls

Zimbabwe is facing a challenges of illegal chicken imports, one report by ZPA indicate that in June this year more than 1.5 million Kilograms of chicken valued at $800 000. In the first six months of 2014, 2 million kg of chicken worth $3 million. The imported chickens' lands at $1.50 per kg compared to 2.50 and 3.50 per kg prices for abattoirs and live markets. This has a potential to kill local production especially among smallholder farmers. We recommend that

the Government of through the Ministry of Trade and Industry and ZIMRA must strengthen mechanism for fighting illegal chicken imports from South Africa.

Recommendations# 2: Farmer Support

Government must strengthen the Zimbabwe Poultry Association which is the APEX organization for organizing smallholder poultry farmers in Zimbabwe

Recommendations# 1: Import controls

Government of Zimbabwe through Ministries of Agriculture, Youth and Indeginisation, Women and SMMEs should partner with Agribusinesses to grow the smallholder chicken industry mechanism for fighting illegal chicken imports from South Africa.