

The Implications of the Market Structure and Nature of Competition in the Zambia Agriculture Sector

A Case Study of Soya Beans and Banana Agro-Processing Value Chains



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Abbreviations

BBTD	Banana Bunchy Top Disease
CCPC	Competition and Consumer Protection Commission
CR4	Four Firm Market Concentration Ratio
ETG	Export Trading Group
FISP	Farmer Input Support Programme
FRA	Food Reserve Agency
GMO	Genetically Modified Organism
HHI	Herfindahl – Hirschman Index
IBER	International Business & Economics Research Journal
NAIP	National Agriculture Investment Plan
UNDP	United Nations Development Programme
ZAMSEEDS	Zambia Seed Company
ZARI	Zambia Agriculture Research Institute

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Executive Summary

A considerable portion of people's total income is spent on food items across the nation and beyond. When citizens access food, it is expected that they will be buying the best possible quality of food at the best possible prices, each and every time. This ideal situation is however not always possible owing to several factors ranging from government policy to industry anti-trust practices and low quality food production processes.

A key determinant of the quality of food and non-food products in a particular market is the quality of the value chain through which the product passes. It is generally agreed that the more competitive, transparent and trustworthy a value chain is, the better it meets the needs and demand of the customers accessing goods and services derived from there.

Apart from consumers, the way a value chain functions within itself as a system also has a great effect on how the players involved in the chain operate, benefit and remain sustainable. In view of the ever changing nature of value chain dynamics in the Zambian agriculture sector, this study was undertaken.

The main objective of the study was to undertake a competition assessment of the agriculture market in Zambia, using soya bean and banana production as case studies. This is intended to identify any anti-competitive practices as well as any market distortions, policy induced or otherwise, that need to be removed to complement the implementation of the National Agriculture Investment Plan (NAIP). In the process, the following intermediate objectives of the study sought to address several concerns:

- Understand the nature of markets across the value chain of the agriculture markets;
- Identify key players in the markets and their role in influencing the existing nature of the markets;
- Identify anti-competitive practices that are taking place in the market;
- Insinuate the possible impact of the nature of markets and competition on farmers; and
- Identify any policy gaps as far as having fair markets in terms of competition is concerned in the agriculture sector.

The study has generally revealed that the market structures within the soya bean and banana value chains differ, giving rise to different competition fears. Among the findings, the following stand out:

The input markets for both soya beans and bananas have some concerns. The soya bean seed supply market in Zambia, which is mostly met by four main firms, is vulnerable to abuse of dominance and cartelisation, as currently the two leading players have a near monopoly in the market. Given that dominance is not per se bad, but the abuse of such dominance, there is need for the Competition and Consumer Protection Commission (CCPC) to constantly keep an eye on

the market. This is particularly within the current context where a significant number of farmers use recycled seeds due to cost considerations.

The banana seedling input market is also dominated by Amiran, which is currently only supplying commercial farmers who can afford the high price offered. There is need for CCPC to also investigate whether the high price is justifiable or is a manifestation of excessive pricing on the part of the dominant firm.

The production of inoculants, which is mostly consumed by commercial farmers, is currently monopolised by ZARI. Although imports can be used to augment supply, about 10-20 per cent of smallholder farmers currently use them due to cost considerations. To increase the use of fertiliser among soya bean farmers, which about 35 per cent of the farmers interviewed, rarely use, **there might be need to consider whether the current cost of the chemical is not inflated due to abuse of dominance.**

The agro-processing market for the soya bean value chain is highly concentrated and prone to abuse and cartelisation. In the oil processing market, the three leading firms have a market share of about 74 per cent. About 70 per cent of the national animal feed market is controlled by only three players. Given that traders, who complement these in buying from farmers also, have to sell to the agro-processors, there is ability on the part of the agro-processors to influence soya bean prices. This also calls for vigilance on the part of CCPC.

In terms of market structure and competition, the farming stage for both soya bean and bananas in Zambia is a highly competitive market, given the high number of households participating in it. Individually, no farmer, including commercial farmers, has the ability to influence market outcomes. Besides the seedling issue, the banana value chain is also not a concern as far as market structure is concerned, as the marketing is a competitive process characterised by intense competition among the participants.

We hope that this paper will provide much needed information to all stakeholders participating in the value chains of bananas and soya beans. We also hope that it will in some way inform policy formulators to address issues raised and ultimately it is the desire of the researchers and our partners that this paper will contribute positively to the improvement of policy and business practice in agriculture industries.

1. Introduction

Background

In developing countries, the importance of value chain linkages between the agriculture and the manufacturing sectors lies in their ability to foster inclusive development oriented policies. In Zambia, the agriculture sector is a critical component of the economy as a significant proportion of the population relies on the sector for survival. As such, policies that seek to promote the agricultural value chains are, therefore, crucial for enhancing poverty alleviation. Subsequently, the nature and conduct of the players within the agriculture value chain is, therefore, vital as some of the benefits from one section of the value chain may fail to trickle down to the other sections if rents are captured by influential players through anti-competitive conduct. It is, therefore, important to fully understand the nature of competition across agricultural value chains as well as the implications of such market characteristics.

The assessment of competition within sectors is critical in determining the extent, to which the agriculture sector is susceptible to anti-competitive practices. A market is susceptible to anti-competitive practices generally if it is highly concentrated and this gives room to those players with an advantage to exploit others. This has negative implications regardless of the stage of the value or supply chain where this happens.

At the crop production stage, competition concerns arise if large corporations through anti-competitive behaviour, aimed at influencing prices enhance their own profits by controlling the production process. Such concerns are less if individuals or families dominate production where activities are mostly uncoordinated across units of production. Even if associations exist, in the agriculture sector they hardly provide farmers with any significant market power.

The input supply stage is also bound to create more distortions, as the inflation of prices at this stage due to anti-competitive practices can have serious multiplier effects on stages down the value chain. At the input stage, competition concerns depend on how farmers obtain seeds and fertiliser, as the conduct of seed and fertiliser suppliers, in terms of supply terms and pricing could be influenced by anti-competitive practices.

For seeds, multinational corporations produce some varieties under intensive research technology where exploitative monopolistic practices such as excessive pricing and unfair buying conditions can be easily imposed under the protection of intellectual property rights. Where seed suppliers are also few, cartelisation is common. Price fixing is done to exploit farmers.

Fertiliser supply is also very prone to anti-competitive conduct. This could be both policy-induced and behavioural. Poorly designed subsidy regimes can facilitate anti-competitive practices while few suppliers also facilitate collusion among themselves on prices and supply

terms. Competition authorities from around the world, including in Zambia, have acted on competition issues in the fertiliser supply market.

At the marketing stage, there are various sources of market distortions that harm consumers and farmers. Powerful middlemen have emerged in many developing countries and have organised themselves into cartels, with a monopsony in buying from farmers and a monopoly in selling to retailers. Where this phenomenon exists, huge producer-consumer price margins are observed. Abuse of monopsony power by agricultural processing firms and huge retailers buying directly from farmers is also common. This includes exploitative practices related to prices as well as unfair trading terms (such as low prices, delaying payment, non-transparent grading of produce, excessive deductions from producer prices and contract manipulation).

The current strategy by the Government of Zambia through the Ministry of Agriculture and Livestock to govern the agriculture sector is the National Agriculture Investment Plan (NAIP), which has been in place since 2014 and is expected to run its course in 2018. For crops, the strategic objectives of NAIP include the following:

- Increase crop production and productivity, in order to meet national needs, and promote exports;
- Promote access to and efficient use of inputs by improving access to inputs (seed and fertiliser) through better targeting of the farmer input support programme (FISP); and
- Promote good agriculture practices such as pest control, fertiliser application, and weed management.

These objectives can be easily thwarted if the conditions in the markets are not conducive, especially if the market structure is such that dominant firms can easily manipulate the market to their advantage at the expense of farmers and consumers in general.

This study assesses the market structures in two products, namely: soya beans and bananas, by tracing the value chain across the three stages: production, input supply and marketing, to identify any competition concerns that can easily counter the momentum that has been gained so far in the implementation of the NAIP. Competition in each of the three stages is analysed by looking at both the demand and supply side factors, as is reflected by the available data.

Objectives

The main objective of the study is to undertake a competition assessment of the agriculture market in Zambia, using soya bean and banana production as case studies. This is intended to identify any anti-competitive practices as well as any market distortions, policy induced or otherwise, that need to be removed to complement the implementation of the NAIP. In the process, the following intermediate objectives of the study will also seek to be addressed:

- Understand the nature of markets across the value chain of the agriculture markets;
- Identify key players in the markets and their role in influencing the existing nature of the markets;

- Identify anti-competitive practices that are taking place in the market;
- Insinuate the possible impact of the nature of markets and competition on farmers; and
- Identify any policy gaps as far as having fair markets in terms of competition is concerned in the agriculture sector.

Methodology

The study involved a competition assessment of the three markets: production, inputs (seeds and fertiliser) and marketing (to agro-processors). The analysis involved a distinct process for each of the three stages as follows:

Identifying the players involved in the market as well as their market shares

This study looked at two markets: the soya bean and banana markets. Thus, players in the value chain within these were identified, including input suppliers as well as firms that use each product as raw materials in the downstream value chain. However, for bananas in Zambia, these are mostly grown directly for consumption; with little concern towards value addition. Thus, the banana value chain in this study could not go beyond the farming stage, where the players grow and sell to numerous agents who cannot be easily classified into groups.

For the soya beans market, the identification of the players went beyond farmers. Market players are referred to the suppliers of the raw materials, suppliers of the processed products, and those players that purchased the product for further processing. Once the players were identified, their views regarding the nature of the market, the challenges, market distortions and any policy bottlenecks were solicited. Although all players play an important role in the value chain, in this study they are often ranked according to their relative importance in the market.

Market Concentration

Once the market players were identified and their market shares estimated, the market structure was established. One widely used indicator of market structure is the market concentration ratio. Market concentration refers to the extent to which a few large players dominate the market. Although there are many concentration ratios, only two are widely used: the four firm market concentration ratio (CR4) and the Herfindahl-Hirschman Index (HHI).

The CR4 is simply the sum of the market shares of the top four market players¹. Given that it was difficult to establish the market shares of all the players in the value chain, this measure was adopted, where only the market shares of the leading firms was used to infer the level of concentration. The HHI was not used due to insufficient data.

It is important to note that being highly concentrated is not a problem on its own, as this could be due to other legal means, especially the extent to which firms have been able to utilise economic advantages that they come across; it is their behaviour that is more important.

¹The closer the ratio is to 100, the more concentrated the market is. Only a CR4 exceeding 75 percent indicates a highly concentrated market

Identification of anti-competitive practices

While the stages in competition assessment already described are critical in establishing the ease with which anti-competitive practices could arise in a market, they are not necessarily conclusive. Thus the actual extent to which anti-competitive practices exist across the three stages requires an enquiry into the on-the-ground realities of the players in the value chain.

Such an assessment is generally based on both primary data collected from the various players already described, as well as secondary data based on the historical developments in the industry. Other key informants in the industry are also contacted to validate most of the findings.

As such, for this study, interviews were conducted with the various players identified across the value chain, namely: farmers, traders and the agro-processors. A total of 79 stakeholders were consulted and their views and experiences documented. The breakdown of the interviewed stakeholders was as follows:

Farmers

As will be discussed later in Section 2, the Central and Copperbelt Provinces are the leading producers of soya beans. Thus, these two were selected for the interviews those were conducted with the soya bean farmers. A sample of 29 soya bean farmers (from a target of 30) was interviewed to give their perspectives about the soya bean value chain; and attempts were made to ensure that both large scale and small-scale farmers were part of the sample. It is important to note, however, that the interviews were only meant to capture the main issues involved and is not meant to be representative of all the farmers in the country.

In addition, a total of 24 banana farmers were also interviewed. These farmers were interviewed in Mkushi (Central Province), Kafue (Lusaka Province) and Chirundu (Lusaka Province). These areas were selected based on concentration of banana production activity as well as to ensure that the different characteristics in each market were captured. Just like in the soya bean case, the farmers interviewed were generally selected on convenience with the intention being mostly to capture the main challenges and operational framework rather than to get a statistically representative sample of all farmers in the country.

Information obtained from the interviews with the farmers includes the following:

- Information about the production patterns;
- Stakeholders they interact with and their roles;
- Sources of inputs;
- The nature of competition in the input market based on their knowledge;
- Where they market the products;
- How the products are determined;
- Nature of competition at the marketing stage;
- Linkages with agro-processors;

- Behavioural issues with respect to all the stakeholders they interact with; and
- Challenges they face at production, marketing and sourcing inputs.

Agro-processors

The agro-processors in the soya beans sector were identified based on a literature review as well as interviews with key informants. However, only six agro-processors were successfully interviewed within the timeframe of the study, as the others were too busy. Issues obtained from the interviews would include the following:

- Nature of assistance given to farmers;
- Nature of contracts entered with farmers;
- The negotiation process with farmers;
- Determination process of prices to farmers;
- Current relationships with other competitors;
- Challenges involved in dealing with farmers;
- Nature of competition at agro-processing;
- Challenges faced at agro-processing; and
- Issues which need policy responses.

Traders

Traders are generally the bridge between farmers and agro-processors. They buy from farmers and sell to the agro-processors, even though the agro-processors can bypass them. A total of 20 traders were interviewed under the study, (14 traders in the soya bean business and six in the banana trading business). These traders were mostly drawn from the Central Province, although three traders were from Lusaka Province. Getting access to traders also proved difficult within the time frame of the project. However, given that it was found that these markets are generally competitive, it is unlikely that there are competition issues that could have arisen with a larger sample. Their views, however, also proved critical for the study.

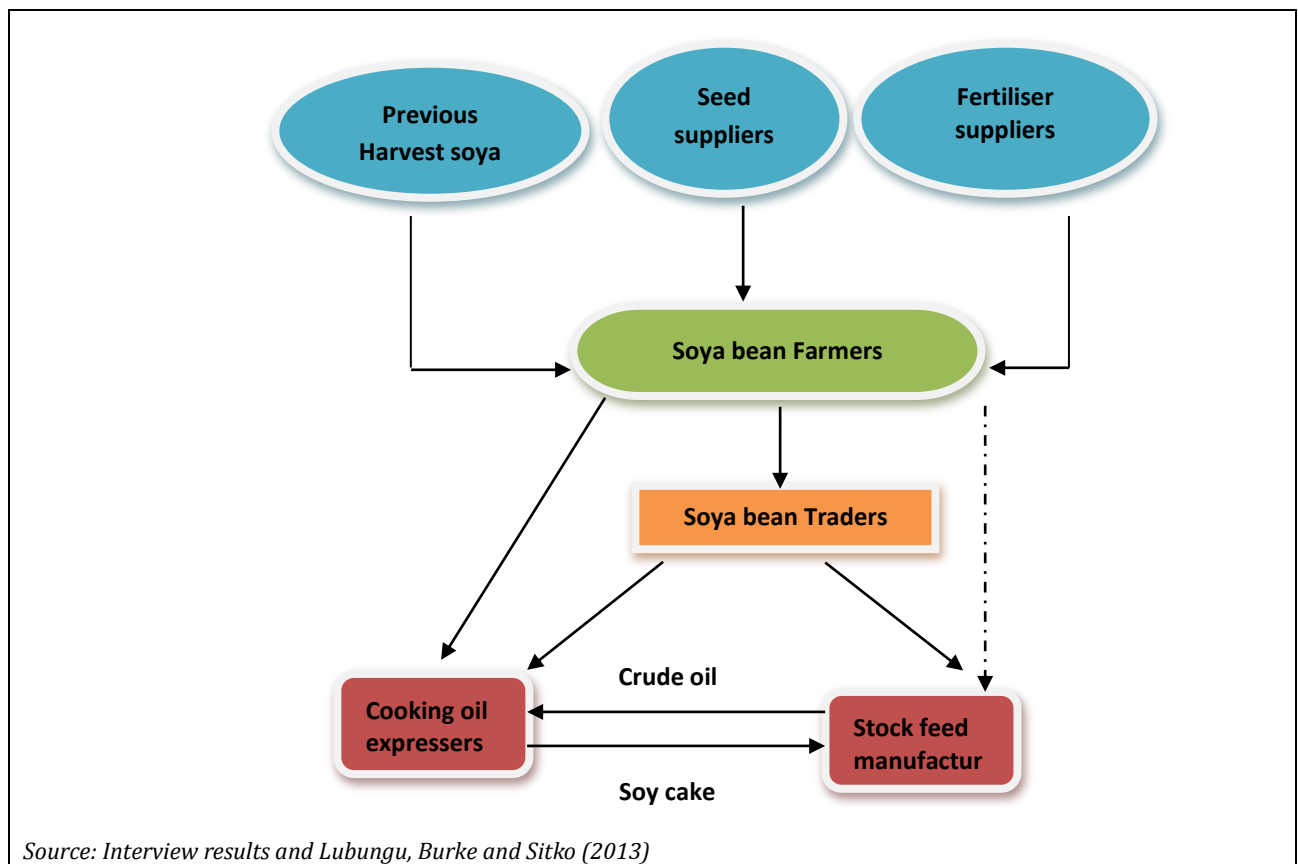
Structured questionnaires were developed for each group of stakeholders to understand the market dynamics from the farmers as well as the agro-processors to ensure that the individual characteristics also come out, which can be easily compared across the respondents.

2. Market Structure of the Soya Bean Value Chain

Three critical stages can be identified in the soya bean value chain; the input supply stage, the farming stage and the marketing stage. The interaction of the players in the three stages is depicted in Figure 1. Although the soya bean can be directly consumed, especially after mixing with other ingredients to form a nutritious rich protein blend that can be prepared into breakfast porridge (Lubungu, Burke and Sitko, 2013), this only happens on a very small scale in Zambia as the crop is mostly used as an industrial crop. Thus, the value chain of interest would only trace the industrial process.

Oil processors buy the soya bean from farmers either directly or indirectly through traders, who buy from farmers and sell to the oil processors. The oil processors in turn extract the oil from the soya bean, and in the process produce a by-product, a soy cake, which is also a critical input into the stock feed manufacturing business. Thus, stock feed processors buy the cake from the oil processors if they are not involved in oil processing. The soya bean value chain, therefore, includes input suppliers (seeds and fertiliser), farmers, traders that buy from farmers for resale and ends with agro-processors (cooking oil manufacturers and stock feed manufacturers).

Figure 1: The Soya Bean Value Chain in Zambia



It is also important to assess the structure of the markets in terms of competition to assess whether the markets are highly concentrated. Market concentration refers to the extent, to which a few large players, who would have the ability to abuse the market by engaging in anti-competitive practices, control the market. A description of each of the three value chain stages depicted in Figure 1 together with the market structure can be done with respect to Zambia as follows:

Input Supply Stage

Seed Suppliers

In Zambia, the responsibility of multiplying basic seed and distributing new varieties is primarily bestowed on the Zambia Agriculture Research Institute (ZARI), which is a public sector institution. The ZARI is represented in the country's 10 provinces through research centres, for example, in Eastern Province, such role is undertaken by the Msekera Research Station, which is part of ZARI network of public agricultural research. (Lubungu, Burke and Sitko, 2013).

Due to capacity challenges, the ZARI contracts seed certification and multiplication responsibilities to private growers. In addition to those contracted by ZARI, other private sector institutions also produce their own varieties of soya bean seeds in competition with ZARI. These include Seed Co, Pannar Seeds and Zambia Seed Company (Zamseeds). These firms have a wide distribution network in the country, with strategic stores distributing the soya bean seeds to farmers in the country's 10 provinces.

In addition, seed companies register agro-dealers as retail outlets for distributing the seeds. However, other unlicensed agro-dealers also crop up, with a risk of counterfeit seeds being sold in the market. Agro-dealers have to be registered with a seed company to ensure the quality of their service, for which the seed company conducts unscheduled spot-checks ensuring the quality of the seed is not being contaminated with non-soya seed. Registered dealers make a commission of about 12 per cent of the selling price and it is estimated that about 75 per cent of the official soya seed is sold through registered agro-dealers, 10 per cent is sold through unregistered dealers, while about 15 per cent is sold from the company's own depots (Lubungu, Burke and Sitko, 2013).

Farmers also use recycled seeds, which are largely from previous harvests. Lubungu, Barke and Sitko (2013) actually established that this is the predominant source of soya seeds in the Eastern Province due to cost considerations as well as due to the unreliability of seeds from the formal market.

Thus, generally the seed supply market for soya beans in Zambia is mainly the responsibility of about four firms: ZARI, Zamseeds, Seed Co and Panner. This makes the market vulnerable to anti-competitive practices as these firms can easily collude unless there is significant buyer power and other countervailing measures to protect the market from abuse of power by such a few firms.

Although the market shares generally evolve with time, it is estimated that Seed Co had a market share of about 60 per cent while MRI had a market share of about 30 per cent in 2010 (Technoserve, 2011). This implies that Zamseed and Pannar shared only about 10 per cent of the market. While the situation might have changed, the dominance of Seed Co in the market is still expected. Thus the soya bean market is a highly concentrated market, given that the leading two players have a market share of about 90 per cent; a situation which can be easily manipulated by the dominant firms if opportunities allow.

Fertiliser Supply

Fertiliser use is not very common among soya bean farmers, as this is generally regarded as a cost that can be easily avoided. This is primarily because soya beans are able to consume atmospheric nitrogen, such that fertilisation is not particularly beneficial so long as root nodules have formed, which explains why only less than 1 per cent of the soya bean growers in Eastern Province use fertiliser (Lubungu, Burke and Sitko, 2013).

Given that fertiliser is not widely used in the soya bean production process, its market structure might not be very critical with respect to soya bean. There is no manufacturing currently taking place in Zambia, as the only company that used to manufacture is state-owned Nitrogen Chemicals of Zambia, which is based in Kafue town. There is currently no production taking place there as the plant is in need of major repairs and upgrades.

However, the market is supplied through imports, and the number of importers involved in wholesaling and distribution of fertiliser is estimated at around 13 including: Nitrogen Chemical of Zambia, Greenbelt Ltd, Zambia Fertilizers Ltd, Bridgeways Commodities, Pro-vet, Nyiombo, Omnia Ltd., Louis Dreyfus and Export Trading Group (ETG). Thus, the market structure under such a liberalised regime is not worrying, as the firms can effectively compete as far as supplying fertiliser to soya bean farmers is concerned.

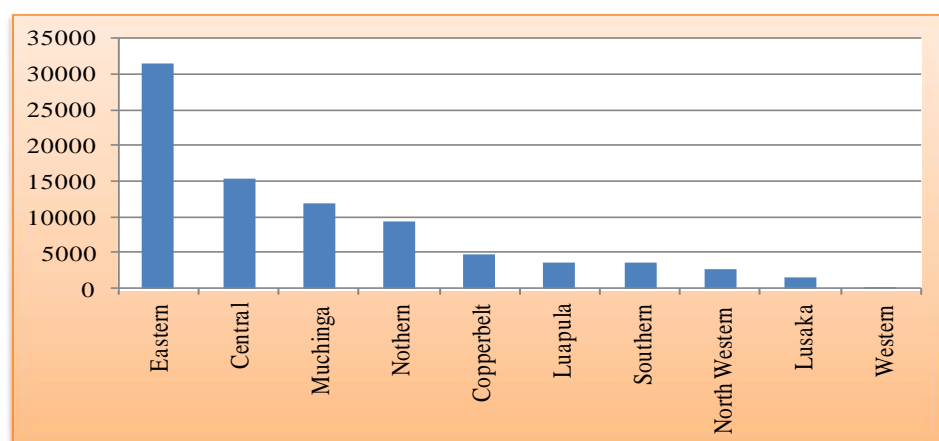
However, a critical input in soya bean production is inoculants, which encourage the formation of high-nitrogen nodules on plant roots to make the soil richer, the plant bigger, as well as achieve better yields. It is estimated that in Zambia, inoculants use is about 60 per cent for commercial usage, and only about 10-20 per cent of smallholder farmers use inoculants, with the ZARI as the only local producer and imports such as the Soya Grow brand from South Africa, are also significant (Technoserve, 2011).

There is, therefore, a monopoly in the manufacture of inoculants within Zambia, although significant volumes are also imported. Given limited local availability, inoculants are mainly supplied to commercial farmers and corporate entities at the expense of smallholder farmers. The nature of competition among the producers thus could explain why there is a shortage of the product for all the farmers to have access.

Soya bean Farming

Based on the Crop Forecasting Survey Report for the 2012/2013 season (Ministry of Agriculture and Livestock, 2013), about 84,380 households grow soya bean in the country's 10 provinces, producing about 258 thousand metric tonnes of soya beans per annum. The Eastern Province, where about 31,522 households participate in soya bean production is the leading province in terms of household participation, followed by the Central Province (15,353) while the Western province is the least with only 233 households participating (Figure 2).

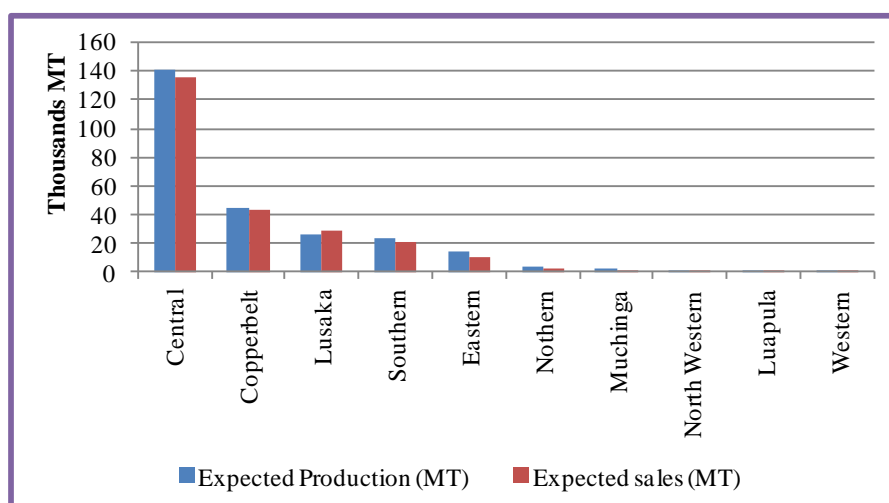
Figure 2: Households Participating in Soya Bean Production in Zambia by Province



Source: Ministry of Agriculture and Livestock, 2013

Although there is more than twice the number of households involved in soya bean production in the Eastern Province than in the Central Province, the Central Province far exceeds all the other provinces in terms of production and sales. Production in the Central Province is over 141 thousand metric tonnes, which is almost 10 times more than the Eastern Province where the highest number of households participate (Figure 2). The same trend is also witnessed in terms of sales. This is generally because while there are more smallholder farmers in the Eastern Province compared to all the other provinces, they generally produce on a small scale, with less efficient production methods compared to the Central Province, where large scale and more organised farming takes place. In terms of production and sales, the Eastern Province is a distant fifth, below Lusaka Province for example where only a few households participate in the production. Thus, more support to smallholder farmers in the Eastern Province, including access to inputs and production methods, is bound to have more results in terms of improving national output compared to any other province.

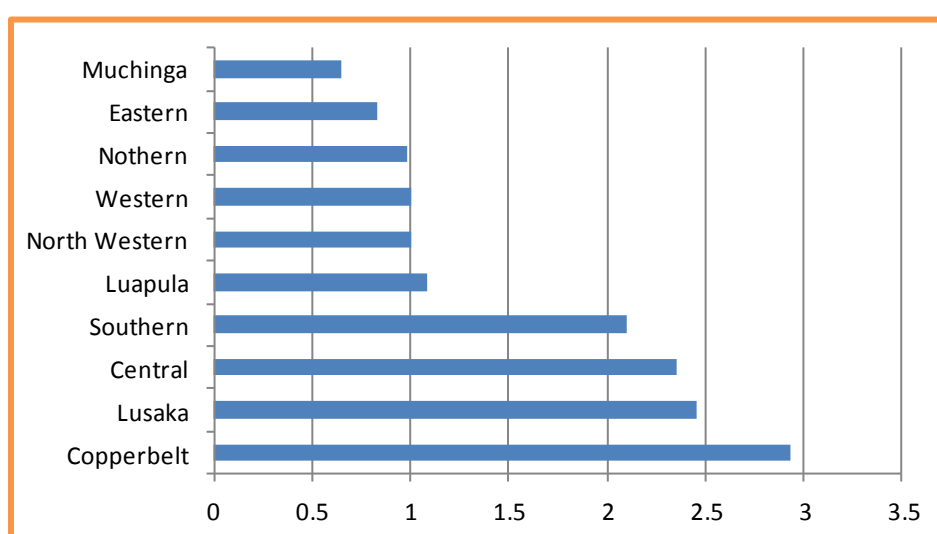
Figure 3: Soya Bean Production and Sale Volumes By province, Zambia



Source: Ministry of Agriculture and Livestock, 2013

In addition to size of land, the high production levels compared to Eastern Province with the highest number of households is also determined by efficiency as reflected by productivity. Productivity is highest in the Copperbelt Province, where soya bean yield is about 2.9 metric tonnes per hectare, followed by Lusaka (2.5) and the Central Province (2.4) (Figure 4). Yield is lowest in Muchinga Province (0.7) and Eastern Province (0.8), where it is only about 0.7 and 0.8 metric tonnes per hectare respectively. The objective of enhancing production can best be pursued by improving productivity in the Eastern Province, where more households participate, which would also assist in poverty alleviation.

Figure 4: Soya Bean Yield by Province, Zambia



Source: Ministry of Agriculture and Livestock, 2013

In terms of market structure and competition, the soya bean farming market in Zambia is a highly competitive market, given the high number of households participating in it. Individually, no farmer, including commercial farmers, has the ability to influence market outcomes. Thus,

the farming stage is an open market, where input suppliers as well as soya bean buyers can easily exploit due to absence of any significant market control by the farmers. However, competition in the soya bean farming can be looked at with respect to province, if the assumption is that agro-processors would take provincial characteristics in deciding whether to buy from any province or to set up a processing facility in it.

Based on the Crop Forecasting Survey Report for the 2012/2013, if the number of households is what is considered critical, then the Eastern province, with about 37 per cent of the households growing the soya beans would be dominant, followed by the Central province, which has a share of 14 per cent of the total households involved in soya bean growing (Table 1). For poverty alleviation interventions, the Eastern province would therefore be ideal. In terms of expected production, however, it is the Central Province, with a share of 55 per cent of the total soya bean produced, which is dominant. The Copperbelt province, with a share of 17 per cent of the total soya bean produced in the country, is second. This generally shows that the Central province is more lucrative for agro-processors and big retailers who would want more output. The same trend is also witnessed with respect to sales, as the Central province is where most of the trading in soya beans takes place. Lusaka, at 12 per cent and 13 per cent share of production and trading respectively, is also a significant province as far as the soya bean business is concerned.

Table 1: Provinces' Market Shares for Soya Beans

	Percentage Market share based on:		
	Number of households	Expected Production (MT)	Expected sales (MT)
Eastern	37	6	4
Central	18	55	55
Muchinga	14	1	1
Northern	11	1	1
Copperbelt	6	17	18
Luapula	4	0	0
Southern	4	9	9
North Western	3	0	0
Lusaka	2	10	12
Western	0	0	0

Source: Ministry of Agriculture and Livestock, 2013

Soya bean Marketing

Farmers have various options for marketing their produce. Firstly, they have the option of selling through traders (small and large scale) who purchase for resale to agro-processors. Secondly, they can sell also directly to the agro-processors (cooking oil manufacturers or stock feed manufacturers) or their agents. This particularly happens where the farmer is growing on a

relatively large scale to meet the expectations (both in terms of quality and quantity) of the agro-processing firms. Thirdly, farmers can enter into contract farming arrangements with the agro-processors, who supply the necessary operating equipment to the farmer in return of soya bean. The farmer would thus have an assured market while getting access to the necessary support. The prices in this case would be pre-determined, which could disadvantage both the farmer and the agro-processor depending on the price that ends up prevailing on the market.

Traders are regarded as the main buyers of soya beans from farmers in Zambia, especially in Eastern Province, where about 60 per cent of the farmers sell through traders (Lubungu, Burke and Sitko, 2013). Assembly traders, who act as agents for the traders, go into the rural areas to buy the soya bean from the farmers. In some instances, the traders can also negotiate with farmers to buy the soya bean prior to harvest. The price is negotiated between the farmers and the buyers, with the bargaining ability between the two influencing the winner from the process. The traders sell the soya beans to the agro-processors, who are mainly stationed in Lusaka although many have also decentralised to the main growing areas. Soya bean processing is mostly undertaken in Lusaka and the Copperbelt. Cooking oil processors using soya beans include Zamanita, Gourcock, Unified Chemicals, Hi-Pro; Parrogate Zambia; EFE Limited; Global Oil Industries and Mt. Meru. These also compete with imported brands that are available in the market.

In the edible oils processing market, it is estimated that Mount Meru has the largest crushing capacity among all the edible oil crushers in Zambia with a total capacity of 400 tonnes per day followed by Zamanita and EFE limited with 300 tonnes and 100 tonnes respectively. The other oilseed crushers have moderate capacities ranging from 15 to 75 tonnes per day. The total installed oilseed crushing capacity for Zambia is about 1,085 tonnes per day or (Chisanga and Sitko, 2013). What this implies is that Mount Meru has a market share of about 37 per cent, followed by Zamanita (28 per cent) and Efe (9 per cent). Thus, the three leading firms have a market share of about 74 per cent, underlying the dominance of the industry by a few large firms (high market concentration).

The market for soya bean is also driven by the feed industry, particularly the poultry industry. There are many stock feed manufacturers (Box 1) who are all possible destinations for the soya bean manufactured in Zambia. Some of the feed manufacturers are also oil processors, making it easy for the businesses to feed each other with the critical raw materials, which would be the by-product in the process.

It is estimated that Novatek Milling, which is a subsidiary of Zambeef Products, is the leading firm in the industry with a share of about 30 per cent of the national animal feed milling market, followed by Tiger Feeds and National Milling with a market share of 20 per cent a piece (UNDP, 2013). This implies that about 70 per cent of the national animal feed market is controlled by only three players, which demonstrate a high level of market concentration and ability to manipulate the industry.

Box 1: Examples of Feed Manufacturers in Zambia	
Seba	Tiger Feeds
Bokomo	Farm Feed Ltd
National Milling	Zamanita
Chakwakwa Ltd	Agri Options
Nutri Feeds	Olympic Milling Stock feed Limited
Emman Farming	Astral
Quicksave	Golden Lay Ltd
Tiger Animal Feed	Quality Commodities
Novatech	Simba Milling

3. Impact of the Market Structure in Soya Bean Value Chain: Stakeholder Consultation Results

Farmers' Opinion about the Soya Bean Value Chain

In order to understand the impact of the market structure, which is generally highly concentrated with respect to the input supply as well as the downstream demand, stakeholders were consulted. This included farmers, traders and agro-processors. More farmers were interviewed from Mkushi in the Central Province (17 farmers) than in the Copperbelt province (12 farmers) in relation to the output patterns. Only two out of 29 respondents were female. However, the majority of the farmers interviewed (93 per cent) are married, who grow soya bean as families. Thus the reason for male dominance among the respondents can only be due to the fact that men tend to prefer to speak on behalf of their families rather than that there are more men than women involved in soya bean production.

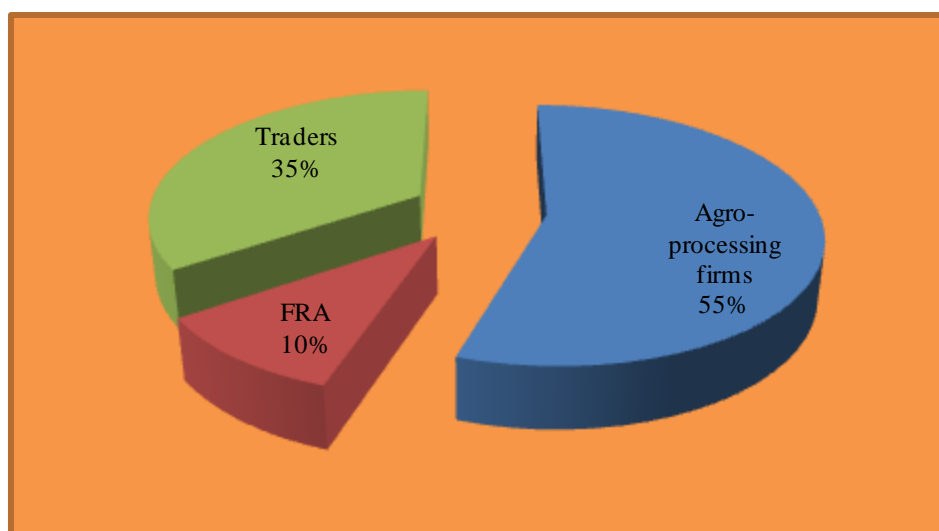
Soya bean farming also appears to be a lucrative business opportunity; given that more than half of the respondents had acquired either an agriculture related certificate/diploma or reached degree level. The farmers grow soya beans on relatively large tracts of land, given that about 93 per cent of those interviewed grow on land that is more than 2 hectares. The size of the land ranged from 3 hectares to as high as 214 hectares. About 62 per cent of the farmers interviewed grew soya beans on land that was at least 10 hectares large, which shows that it was mainly commercial farmers with large tracts of land who were interviewed. The level of output derived from farming, as about 69 per cent of the farmers produce more than 10 tonnes of soya beans per annum, also confirms this. The large production volumes ranged from 12 tonnes to as high as 856 tonnes of soya beans per annum. More than 55 per cent of those interviewed produce at least 50 tonnes of soya beans per annum.

None of the farmers interviewed rented the piece of land, on which they grow the crop. About 48 per cent of the farmers owned the land individually, while the rest owned it as a family. This is also critical as it ensures that there is some form of continuity in the production of the crop. This also explains why there has been some significant investment into the farming business. Out of the farmers interviewed, more than half (55 per cent) use some machines in the business as compared to manual and draught power.

Given that the interviews were conducted in the areas where there is significant crop production and hence some higher level of agro-processing compared to other provinces, there were more farmers selling to agro-processing firms compared to those selling to traders or to FRA (Figure 5). This shows very strong value chains, as farmers are directly linked to the agro-processors, which also reduces rent extraction by middlemen. This also helps enhance competitiveness of the stock feed and cooking oil produced, as some margins that could have been attributed to traders are eliminated.

However, traders are still playing an important connection role, as they are also enjoying some significant level of business in the two provinces. Given that the agro-processing market is generally a highly concentrated market, there is also a risk that farmers could have lower bargaining power as there are limited options to compare with among the agro-processors.

Figure 5: Main Customers for Interviewed Soya Bean Farmers



The level of education of the farmer also plays a critical role in determining the farmer's major customers. For example, almost all those farmers dealing directly with agro-processors either have a degree or an agriculture related diploma or certificate while those with basic primary and secondary education deal with traders. This generally implies that those who are educated see value in dealing directly with agro-processors rather than dealing with traders, an issue that those who are not very educated fail to appreciate.

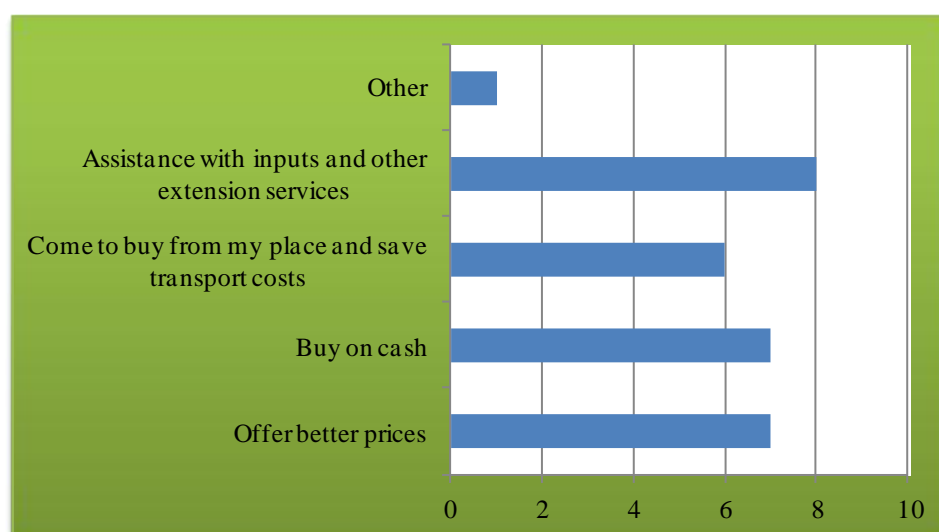
The farmers were asked about the nature of arrangements that they have with the agro-processors. Out of those dealing with agro-processors, only about 38 per cent have signed a pre-negotiated contract with the agro-processors, while the rest have allowed themselves to be flexible by only dealing with agro-processors when they compare prices with the retailers. The ability of the agro-processors to exploit farmers is to some extent, therefore, limited by this flexibility on the part of the farmers. Only those farmers with at least an A-level qualification have signed contract with agro-processors, which also demonstrates the importance of education in strengthening value chains.

The farmers that deal with agro-processors were also asked whether they have the choice as far as choosing the particular processors that they might want to do business with. They all generally agreed that there is a lot of choice at their disposal, as they can deal with any processor of their choice. Thus, the general impact of the highly concentrated market structure is limited as far as limiting choices for the farmers is concerned.

The farmers that are not currently dealing with the agro-processors were also asked the reason for preferring to deal with traders who are mostly an indirect route to agro-processors. About 46 per cent indicated that they have never tried to deal with agro-processors as they are currently satisfied with the traders while the remaining indicated that they were not happy with the conditions that agro-processors set, (on quantity and quality to be supplied) which are difficult for them to meet. Others also complained about the low prices that they were paid for their soya beans by the agro-processors.

As a way of understanding the factors that generally attract farmers to either agro-processors or traders, the farmers were asked the reasons as to why they consider the current preferred customer ideal. The reasons are fairly varied, although getting assistance, especially in the form of inputs and other extension services appears to be critical (Figure 6). However, buying straight from the farm, buying on cash and pricing are also critical determinants of farmers' allegiances.

Figure 6: Reasons for Selecting Current Customers By Farmers



As has already been noted, the use of recycled seeds from previous harvests is common among farmers. **However, of all the farmers interviewed in the two districts, none uses recycled seeds, which is probably due to the seriousness that the farmers give farming.** (Sentence not making sense) They all indicated that they buy seeds from the official market, and four suppliers were identified as suppliers of seeds; ZARI and Seed Co (identified by about 97 per cent of the respondents); Zamseed (93 per cent of the farmers) and Pannar (76 per cent of the farmers). While the farmers' opinion generally confirms the dominance of Seed Co and MRI, it also reflects that the other two players are also known in the market, which would imply that in the two provinces, the two might share a higher market share than the 10 per cent attributed to them earlier.

The farmers were also asked about fertiliser application, for which 35 per cent indicated that they rarely use fertiliser. Education also appears to be a critical factor in fertiliser use, as only those with basic primary and secondary education fall into the category of those who rarely

apply fertiliser. The rest indicated that they procure fertiliser using their own resources. The farmers were also asked to identify the key fertiliser suppliers and Greenbelt (66 per cent of respondents); Nyiombo (59 per cent) and Omnia (14 per cent) were the only three identified firms. The ZARI, the only supplier of inoculants was not identified, generally implying that none of the farmers interviewed apply it. This generally underlines the need for more players in the market as well as methods to expand supply beyond the large commercial farmers that are prioritised by ZARI.

Given the limited interest in contract farming arrangements, the bulk of the farmers believe that they influence the prices on their own. About 83 per cent of the farmers indicated that they determine their own prices based on competition while only 17 per cent indicated that the main customer influenced their prices.

While this reveals that the influence of the agro-processors and the big retailers cannot be ignored, it also shows that the farmers are not necessarily at the mercy of their customers as would be implied by the nature of market concentration. However, the farmers' ability to speak with one voice and probably impact market outcomes is also limited by the fact that the majority of the farmers do not belong to any association and do not engage in any collaborative activities with other farmers. Only 35 per cent indicated some collaboration, which include lobbying government for market reforms as well as general peer support and technical assistance. Only one farmer indicated that he has entered into collaborative activities with other farmers in purchasing inputs to increase the critical mass and enjoy some discounts. This needs to be encouraged to enhance easier access to inputs, which was identified as one area of concern by the farmers. Other challenges that need policy responses to improve production were identified as access to finance, high costs of inputs, poor road network and poor mechanisation.

Traders' Views on the Soya Bean Value Chain

A total of 14 soya bean traders were interviewed as part of the stakeholder consultation exercise. These traders were mostly interviewed in the Central Province in Mkushi district, although in the Copperbelt (1 trader) and Lusaka (2 traders), interviews were also attempted. The discussion with traders was only aimed at establishing some of the concerns at the traders' level, even though the views cannot be regarded as being nationally representative.

Traders interviewed included those who are recent entrants into the industry (just one year in operation) to those who are fairly experienced (about nine years in operation), with the average experience being about four years. These traders procure soya beans from farmers ranging from a minimum of about 90 tonnes per season to a maximum of 4,000 tonnes. On an average, each trader among those interviewed procures about 1,255 tonnes per season. All the interviewed traders indicated that they are getting adequate supplies from the farmers in line with their capacity.

The traders indicated that they have devised different strategies for buying from the farmers. Some traders prefer to deal with farmer cooperatives, as this would lessen their mobilisation efforts and reduce costs. Others rely on third party references and just randomly select farmers

based on convenience and agreements. This is also done by visiting the farmers and setting up collection points near them, where they would come to sell. The largest procurer, who purchases about 4,000 tonnes per season from the farmers, indicated that they established a buying depot in Mkushi where farmers come to sell. None of the traders interviewed had any pre-negotiated contracts with the farmers. In order to ensure that the farmers find traders attractive relative to the agro-processors, the traders have engaged in different marketing styles, which include the following:

- Offering good prices;
- Making instant cash payments to the farmers;
- Going closer to the farmers to reduce transportation costs for the farmers; and
- Allow for negotiation with farmers rather than fixed prices, which millers give the farmers on a take or leave basis.

The traders also insist that the price determination process is not skewed in their favour, as they try to follow market conditions. They compare the prices with what other buyers are being and negotiate with the farmers. However, the negotiation process implies that the prices per tonne offered can differ depending on the farmer's negotiation capacity, which could also be room for exploitation. However, market conditions play a leading role in influencing prices. This also conforms to what the farmers indicated concerning the price determination process.

The traders indicated that they generally buy from the farmers to sell to the agro-processing firms. Several firms were mentioned as the final buyer of the soya bean and the most prominent from the list include those given in Box 2.

Box 2: Processors buying soya beans through traders	
Pembe	Zamanita
Novatek	Zamfeed
Mount Meru	Afgri
Zamfeed	Tiger feeds
NWK (Dunavant)	Namfeeds
FRA	Nutri feeds
National milling	

The traders indicate that although the price determination between the millers and the traders is also determined by competition and some negotiation process, it is mostly the millers who offer the prices first, through adverts or otherwise. The traders would then choose the millers offering the highest prices. Some traders also have supply contracts with supermarkets and millers, with pre-determined prices. It generally comes out that the millers have a larger say in the price determination process as they offer the prices first.

Given that the markets are generally highly concentrated, there is a risk that the millers can collude to determine prices, which would generally be similar across millers and often attributed to competition. This is also worsened by the fact that the same customers who buy from the traders also happen to be their largest competitors, as they also have the option of by-passing them to deal directly with the farmers. Thus, unless coordinated behaviour is carefully monitored, the traders face pricing risks which are influenced by anti-competitive behaviour. Traders also indicated that the price setting process by some millers is anti-competitive, as there is a tendency to offer very low prices to the traders, knowing that the traders have little choice.

Traders are also not happy with the conduct of farmers in some instances. For example, farmers can renege on initial agreements at the last minute, after better offers have materialised when the trader has already planned on the output. Traders also admit that at times when production falls, farmers can react by increasing prices for their crops even if production costs remain the same. This also underlines that the farmers are not entirely at the mercy of traders as far as exploitation is concerned.

Traders also complain about some anti-competitive behaviour by fellow traders aimed at elbowing out competition. Predatory behaviour was alleged, where some bigger traders with some financial muscle offer prices that are too high for smaller traders as a way of removing them from the market. This also applies in situations where some traders would have secured the orders, only for the orders to be cancelled out at the last minute in favour of the above normal predatory prices.

Traders believe that there is more that can be done to improve the market conditions for traders. This includes regulation of the industry by government to ensure that millers only offer competitive offers that are competition driven and not anti-competitively determined. This also includes policies that are aimed at improving soya bean production by supporting the smallholder farmers.

Agro-processors View on the Soya Bean Value Chain

Interviews were also conducted with some agro-processors to understand the value chain market structure issues from their point of view. Only six agro-processors could be interviewed within the study's time frame. Engagement with the agro-processors was quite a challenge, as many of them are too busy. However, among those who were interviewed were two large national processors that have been in the business for about 20 and 15 years respectively. Other respondents include those that are mainly based in the provinces and only process for their own and immediate communities' poultry needs, such as Chimpinde Farm; Muchinka farm; Mulela Poultry Farm and Mansansa Farm in the Central Province.

The agro-processors interviewed indicated that they mostly prefer to deal with small-scale farmers as their main supplier of soya beans as traders would be more expensive. However, while buying from farmers is easier, some traders are also reliable, which is why they would be preferred.

The big agro-processors enter into contract farming arrangements with the small-scale farmers. However, the firms do not have binding model contracts, as there are instances where they can support the small-scale farmers at input level but these can decide not to sell to the agro-processors. There is need for reforms in the policy to ensure that contract farming arrangements, which can create a win-win situation for both the farmers and the agro-processors can be obtained. Farmers in contract farming arrangements can also fail to deliver due to other viability issues, which would see agro-processors having lost out in terms of the investment into contract farming support. The agro-processors also insist that the price-making decision is market driven rather than any other forces, including political interference. However, middlemen (traders) may also influence the final price by initiating a price that agro-processors would also strive to meet.

Although there are many agro-processors, one of the large agro-processing firms admitted that the level of competition in the market was so fierce that they could easily get required volumes in the market. This also confirms the existence of a highly concentrated market, where bigger players face competition. However, the smaller agro-processors indicated that they at times face challenges when the farmers hold on to the crop for a long time while waiting for prices to rise, which create some artificial shortages and lead to higher prices being offered. The small-scale agro-processors also blame the traders and middlemen for the high prices offered to farmers based on price speculations, and as a result buy huge quantities, and then eventually cause prices to go up.

The large agro-processors interviewed submit that competition is fair with no cartel behaviour in place, as the return on equity is the biggest determinant of prices. However, the smaller agro-processors accuse the bigger firms of predation, as they offer much higher prices, pushing the price beyond small-scale processors' ability. This cannot be ruled out, given the dominance of some of the players in the market.

The agro-processors also believe that there are areas where policy intervention is needed to improve soya bean production in Zambia. They complain about the current grain levy structure, which need to be reformed as it causes price increases. The millers also believe that government should try to protect the local milling industry against cheaper GMO products that are imported from countries that allow GMOs. This also includes the importation of soya cake, which can be controlled to ensure that the local industry relies more on farmers to strengthen the value chain.

4. The Banana Value Chain in Zambia

Overview of the Value Chain in Zambia

Unlike in East African countries where banana production has a distinct value chain, in Zambia bananas are mostly grown for final consumption, either as a fruit or served as part of dessert in meals. This implies that there is limited value addition of bananas in Zambia. However, in some countries, bananas are further processed into a brew (banana beer), which is popular among imbibers. As reported by Ouma and Jagwe (2010), banana beer processing involves the peeling of bananas, extraction of the juice from the bananas, filtration, dilution, fermentation and packaging. This is predominantly done by cottage industries using simple technologies. However, some larger producers are also known, for example Akanovera Company in Burundi as well as the Covibar and Fruits and Crops Initiative in Rwanda (Ouma and Jagwe, 2010). The banana beer producers would buy bananas either directly from the farmers or from rural assemblers who have strategic collection points where they buy from farmers within the area for resale. The beer would then be packaged and sold to bars and restaurants, while some proportion is also exported.

In Zambia, however, the banana chain is predominantly consumption based with little to no value addition done to the fruit. This generally implies that the banana value chain does not involve any agro-processing in Zambia, as the final consumed product is still as the product produced at the initial stage by the farmer. Critical value chain stages within the Zambian context are thus only three; the input market where farmers get seeds and fertiliser, the production stage and the marketing stage. These can be discussed in turn as follows:

Input Market

Unlike other fruits that require seeds to germinate, bananas can be grown without access to any seed as they grow from a bulb or rhizome. This is, however, not to imply that there are no banana seeds. As the banana tree grows, it forms rhizomes that form into a little tree, known as a pup or sucker that can be removed and planted elsewhere². In this regard, a farmer can be self-sufficient as far as seedlings are concerned. Relying on the same plant would, however, imply that a farmer can only have one variety. Thus, seedlings suppliers are always needed in the market. In Zambia, Amiran Limited, a firm that specialises in crop health by supplying fungicides, herbicides and insecticides, mostly does the local supply of banana seedlings. Amiran also supplies a variety of seedlings to farmers, including banana seedlings, which include imported varieties from various countries.

Farmers can also engage the service of other importers for seedlings. Following the outbreak of the Banana Bunchy Top Disease in 2011, the Minister of Agriculture and Cooperatives, Dr. Eustarckio Kazonga issued a press statement, in which he also indicated that the biggest

² <http://treesandshrubs.about.com/od/fruitsnuts/f/Do-Bananas-Have-Seeds.htm>

challenge in controlling the disease was the reliance on own (diseased) varieties by small scale farmers. Given that Amiran, the only company, which was importing tissue cultured banana plants from outside the country was only supplying commercial farmers who could afford the high price offered, which small-scale farmers could not afford³. Thus, the seedlings market is a highly concentrated market that is dominated by one firm.

Banana trees also grow well if fertiliser is applied. As already discussed during the soya bean section, the fertiliser supply market is characterised by about 13 players, who effectively compete as far as supplying fertiliser in the market is concerned. It is not expected that access to fertiliser by the banana farmers can be affected by any anticompetitive behaviour.

Production Stage

Zambia cultivates a variety of bananas, which include Grande Naine, Dwarf Cavendish and Williams⁴. Bananas, which are mostly grown under irrigation systems, are available throughout the year. In addition to being grown for commercial purposes, bananas are also an important source of carbohydrates, protein and vitamins such as vitamin A, B, C, D and E. The banana production business is characterised by both small scale and commercial farmers. For the Zambian economy, banana production is also critical as it contributes significantly to food security, employment creation and poverty reduction⁵.

Banana production is done all over the country, especially Zone II and Zone III. Zone II is a medium-rainfall belt running east-west through the centre of the country on the plateau of the Central, Lusaka, Southern and Eastern Provinces. Zone III is a high-rainfall area in the north of the country in Copperbelt, Luapula, Northern and North Western Provinces (Siegel, 2008). **However, since bananas are mostly grown using simple irrigation systems, areas that are close to rivers, including in Zone I (a low-rainfall area in the southern portion of the Southern and Western Provinces).** (Fragmented sentence) An example of the area that is well known for banana production is the Mkushi Commercial Block, a predominantly commercial farming area, with large-scale farming conducted by both local farmers and settlers from outside the country (especially South Africans and Zimbabweans). It is a major source of bananas for Lusaka and Copperbelt Provinces (Siegel, 2008).

Based on the interview results, other supplies of bananas at Soweto market are from Chirundu and Kafue districts in Lusaka Province; Nega-Nega in Mazabuka district and Siavonga in Southern Province; Sikongo in the Western Province; Fwankumba area in Luanshya district, Nachansanje in Chiawa; and Kawambwa in Luapula Province which primarily supplies the Copperbelt.

³ Ministerial statement by Hon. Dr. Eustarckio Kazonga, MP Minister of Agriculture and Co-Operatives on the Banana Bunchy Top Disease (BBTD) Outbreak in Zambia

⁴ Ministerial statement by Hon. Dr. Eustarckio Kazonga, MP Minister of Agriculture and Co-Operatives on the Banana Bunchy Top Disease (BBTD) Outbreak in Zambia

⁵ The authors could not establish disaggregated statistics on banana production by gender or in terms of scale of production.

In Zambia, several households and individuals in addition to the commercial farmers grow bananas. This makes the growing of bananas an open economy that is not likely to be influenced by any powerful growers. Although some banana farmers form associations, there are also many of them that compete on trading terms. The formation of associations cannot be regarded as a threat to competition among the farmers.

Marketing

The marketing of bananas is done from different levels. First, farmers can sell directly to households for consumption at their farm gates or in the residential areas close to their farms. Second, farmers can sell to traders (village assemblers) who set up collection points to buy in bulk and then resale to supermarkets and urban consumers. Third, the farmers can also sell their bananas to traders in designated open market trading point in towns. Smallholders sell nearly all their banana to rural traders (“assemblers”) who go farm-to-farm purchasing product and then take it to the city (Hichaambwa and Tschirley, 2006). Although this intermediation helps lessen the marketing costs for the farmers, it also results in lower earnings to the farmer compared to what he would have made by directly selling to end consumers or supermarkets. The traders also include those buying on a very small scale, buying about 5–10kg of bananas to sell as individual units to consumers in traders’ markets. It is estimated that this group of retailers make most of the profit, as their mark-up can go as 100 per cent (Ledgerwood and Morgan, 2012).

The marketing of bananas to consumers in Lusaka and Ndola by the traders is highly diversified. Consumers obtain their produce in open-air markets ranging from very large wholesale/retail centres, and smaller markets serving mostly low- and middle-income consumers, to markets serving almost exclusively high- and middle-income consumers. This also includes small independent supermarkets and chain supermarkets as well as street vendors. Open-air markets are estimated to account for between 70-80 per cent of all fresh produce marketed in Lusaka and Ndola. Supermarket chains and independent supermarkets are estimated to account for about 7 per cent to 11 per cent, while vendors have a market share of about 9 per cent (Hichaambwa and Tschirley, 2006). Discussions with Shoprite, one of the leading supermarkets indicated that they acquire about 90 per cent of their banana supply from commercial farmers, with Chakanaka Investments from lower Zambezi and Pegaus Estates from Mukushi farming block being the leading suppliers. The reason why only 10 per cent is from small scale farmers is due to challenges in mobilising produce; for example filling up a 30 tonne truck is easier at large scale farms compared to small scale farms. This generally shows that small scale farmers have higher chances at marketing if they collaborate rather than compete on their own to have a critical mass.

Given that in each category are several players whose behaviour is independent and uncoordinated, the marketing of bananas is a competitive market that is not concentrated. This makes it unlikely that anti-competitive behaviour could be sustained.

Unlike vegetables, bananas have less seasonal variations in prices, as these are grown throughout the year. Attempts are also made to differentiate between bananas at the market

place, with bananas being named based on areas where they are grown. For example, at Soweto Market in Lusaka, Nega-Nega bananas are from Nega-Nega in Mazabuka district.

Other important areas for banana supply in Soweto include the following:

- Chakanaka Farms, Kafue district
- Kapululila Multi-Purpose Cooperative (formerly Zambezi Training Farm), Chirundu district
- Nachansanje bananas from Chiawa;
- Amapula Farm, Kafue district
- Gota-Gota Farm, Chirundu district

Based on the opinions of traders at the Soweto market, which is the largest open market trading point in Lusaka, Chakanaka Investments Limited and Kapululila cooperative members collectively are the two most prominent suppliers of bananas at the market.

Kapululila cooperative members are based on land formerly known as Zambezi Training Farm, which was owned by Italian missionaries. It is now owned by a cooperative, the Kapululila Multi-Purpose Cooperative, which has 89 members. As revealed by the chairman of one of the three 'sub-groups' within the cooperative, the cooperative owns a total of approximately 90 hectares, shared among the 89 farmers. Other small scale farmers do own land away from Kapululila cooperative on traditional land rights in both Chirundu and Kafue districts whose farms transcend each other administrative boundaries.

Traders interviewed also indicated that bananas from Mununshiin Luapula province, a former major supplier to Lusaka, no longer reach Soweto market due to the long distance (990 kilometres), which makes them unprofitable. The establishment of more farms in nearby Mkushi (320 kilometres from Lusaka) have also contributed to making Luapula unattractive.

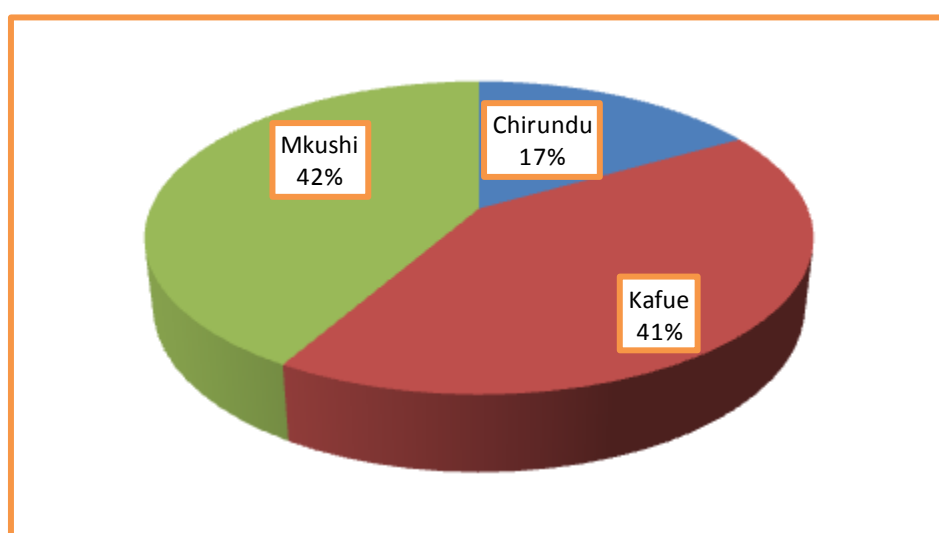
5. Impact of The Market Structure: Stakeholders' view

Farmers' Perceptions on Banana Marketing Chain

General characteristics of banana farmers

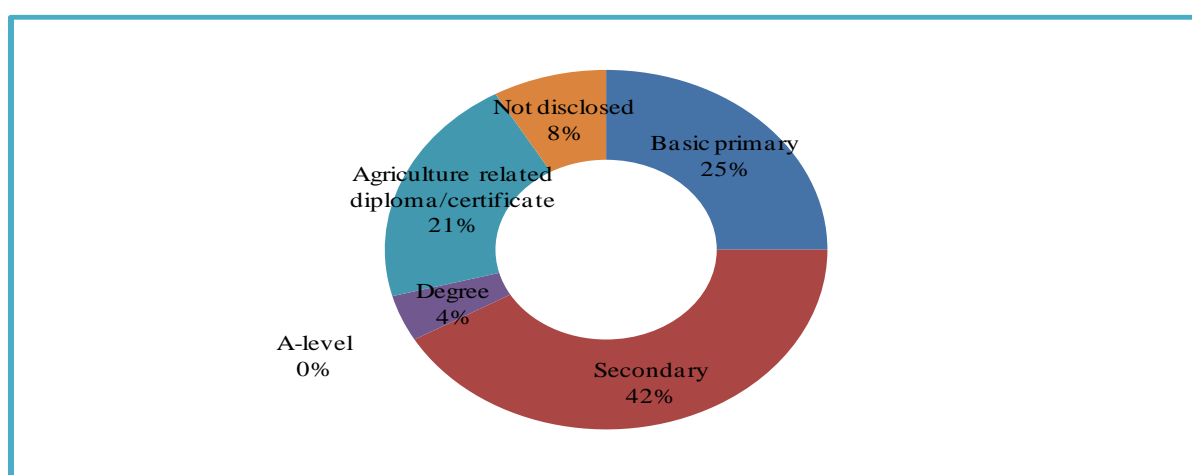
A total of 24 banana farmers, widely distributed in three districts; Kafue, Mkushi and Chirundu (Figure 7) were interviewed for their experiences concerning the impact of the banana market structure.

Figure 7: Distribution of Banana Farmers Interviewed by District



The respondents found were mostly male, as only four women were interviewed. However, most of the respondents (about 88 per cent) were married, which would also imply that the banana farming business would be done as a family initiative. Just like the soya bean case, having more male respondents compared to female respondents does not necessarily show that the production of bananas is dominated by men. In terms of education levels for the farmers, it is mostly those that have secondary education that are more pronounced (Figure 8), although those with agriculture-related qualifications are also significant in the small sample. Thus, it would also be expected that business acumen skills are generally limited, which can be taken advantage of by those dealing with the farmers.

Figure 8: Education Levels of Banana Farmers Interviewed



Banana farmers grow the crop on relatively smaller pieces of land compared to soya bean farmers. Most of those who were interviewed own just less than two hectares of land, even though those with more than two hectares of land are also quite significant. There, however, does not appear to be a significant correlation between the size of land and the amount of bananas produced per month (Table 2), as some farmers with smaller pieces of land actually outperform those with larger tracts of land. For example, a farmer with less than one acre of land indicated that he could produce about six tonnes of bananas per month, even though other farmers with more than two hectares can only produce two tonnes per month.

Table 2: Relationship between Bananas Produced and Size of Land

What is the approximate size of your land?		How many bananas do you produce per month?					Total
		Less than 1 tonne	1-3 tonnes	3.5-5 tonnes	5.5-10 tonnes	More than 10 tonnes	
	Less than 1 acre	0	0	0	1	0	1
	More than 1 acre but less than 1 hectare	1	1	0	0	0	2
	1-2 hectares	0	0	1	9	0	10
	More than 2 hectares	0	7	0	0	4	11
	Total	1	8	1	10	4	24

The quantities of bananas produced also appear to be related to the district where the farmers interviewed came from. For example, only 30 percent of the farmers interviewed in Mkushi grow more than five tonnes of bananas per month, while this ratio is 90 per cent for Kafue and 50 per cent for Chirundu. Banana production on a larger scale appears to be more oriented in Kafue than the other areas, possibly due to the availability of larger tracts of land.

Among all the farmers interviewed, none was renting the piece of land on which they were growing the bananas. The land is either individually owned or owned as a couple, with the exception of one case where it was owned as a cooperative. This is also critical as this can give

confidence to suppliers and customers that there would be continuity of the banana production business. The level of mechanisation among the banana farmers is also very low; the majority of the farmers use simple irrigation systems, with only few farmers found with some degree of mechanisation. This is due to funding constraints, which also explains the small-scale nature of the business.

Unlike in the soya bean market, cooperation among banana farmers was found to be significant, with farmers belonging to various farmer associations. About 50 per cent of the farmers belong to an association of farmers, which helps mobilise them for sourcing raw materials in bulk in order to get discounts. However, the biggest challenge is that there are delays in renewing membership, due to reluctance by some farmers to pay for their subscriptions.

Perceptions about input markets

The farmers generally indicate that input costs and accessibility is an issue that needs attention. There were more farmers (58 per cent) who indicated that they do not buy banana seedlings from the market but use suckers from their ripe bananas as seeds than those who indicated that they buy seedlings from the official seed suppliers. However, the farmers could only identify Amiran Limited as the only local firms to supply banana seeds, in addition to varieties imported from South Africa. This generally confirms that the seed supply market is not very competitive, which could also be due to limited demand as many farmers opt for recycling their banana varieties. However, some farmers pointed to the challenges of few players in the market as the main reason why there are shortages of seedlings in the market. More players in the seed market could help increase seedling supply in Zambia.

The majority of the farmers also indicated that they apply fertiliser to their bananas, as only two farmers admitted that they rarely use fertiliser. About 88 per cent of the farmers identified Greenbelt as the supplier of fertiliser suitable for banana plantations. Other farmers also indicated that Nyiombo and Zambia Fertilisers also supply fertiliser that could be applied to bananas. However, there were significant challenges regarding access to fertiliser due to high costs. Farmers indicated that enhanced access to fertiliser would go a long way in increasing banana production in Zambia.

Perceptions on Marketing of Bananas

About 22 farmers disclosed their main customers and it turned out that individuals (consumers) (55 per cent) are the main customers followed by supermarkets (36 per cent) and traders). The preference to deal with individual can be due to two reasons. Firstly, individuals mean spot payments, a situation which might not happen with big establishments. Secondly, the farmer would be in control of the trade when dealing with individuals, which might not happen when dealing with bigger establishments, who might have bargaining power. However, there are no permanent relationships, as all the farmers indicated that they do not get any assistance from the main customers, implying that the supermarkets are also not comfortable in entering into contract farming arrangements with the farmers.

The methods used in marketing differ, as about 38 per cent of the farmers indicated that they go out of their way to market their crops while an equal number indicated that it is the supermarkets and the traders who come to their farms to buy the bananas. Some middlemen along the way have also assisted some farmers by connecting them to the supermarkets (about 21 per cent of the respondents). Supermarkets as the destination are more pronounced in Mkushi than in Kafue and Chirundu. About 75 per cent of those farmers who use supermarkets are from Mkushi. However, education does not play any significant role in influencing the farmer's decision to market bananas, as there is no relationship between education and banana market destination.

The relationship between the farmers and the supermarkets and traders also appears healthy, as all the farmers indicated that they are solely responsible for determining the prices, which they do by factoring conditions of supply and demand. The influence of supermarkets in exploiting farmers was not evident from the interviews, as farmers did not indicate any challenges in dealing with them. However, cooperatives decide collectively about the price to charge, which strengthens their buying power. If all the farmers belonged to one single cooperative, there is a risk that the farmers would yield significant power to inflate banana prices. There are many farmers who do not belong to any cooperative.

Perceptions by Banana Traders

Interviews were also conducted with six banana traders, just to get their experiences and operation modalities in the market. These traders were from Mkushi (3), from Lusaka (2) and Chirundu. This included those with about four years of experience in the business, as well as recent entries with only one year experience in the business. The average experience for the traders interviewed was about three years. The traders also included those on a very small scale as well as those procuring larger quantities of bananas from the farmers. The amount of bananas procured per month by the traders ranged from 10.8 tonnes to 400 tonnes. On an average, each trader procures about 218 tonnes of bananas per month from the farmers. All the traders indicated that there was enough supply of bananas in the market, given that they were all getting what they would have wanted.

Relations between Traders and Farmers

All the traders interviewed do not have any fixed contract with the banana farmers. They use different methods to get access to the farmers. Some have established long term relationships with the farmers, while others still rely on third party references when they want to procure. This pertains mostly to those traders who visit the farmers at their farms. However, some traders rely on the farmer bringing the produce to the market to escape the costs of transportation.

Traders are aware that farmers can decide to deal directly with supermarkets. As a way of taking custom, they resort to paying cash on the spot to make the offer attractive. This saves the farmer the marketing costs as well as the transport costs to the market. In addition, given that

bananas are perishable, there is a risk for the farmer overestimating demand in the market and ending up giving away the crops at very cheap prices to avoid having them rotten.

The traders also indicated that the price setting process is a negotiated process between the traders and the farmer. It is the farmer who initiates the process by offering a price. Given that traders opt for cash payment, they also have some negotiation edge over supermarkets and other traders who would offer to pay later. However, prevailing prices elsewhere are also factored in, making the process largely responsive to the conditions of supply and demand.

Relations between Traders and their Customers

The traders mainly sell to supermarkets as well as to open markets. The most targeted market is Soweto market in Lusaka. Some traders have supply contract with supermarkets, where prices would have been determined during the time the order was placed. The price determination process is also subject to negotiation between the traders and their customers. Given that there is a lot of competition and alternative methods of buying, prices offered elsewhere always guide the process. Price manipulation due to market power and dominance thus does not arise at this stage. Competition is also intense to the extent that the traders generally accuse their fellow traders of overstocking as a way of affording to sell at lower prices compared to those who would have just purchased. Price competition at this stage is very beneficial to the final consumers.

The traders, therefore, believe that there is need for government to prioritise the issue of storage facilities where traders and farmers can store to encourage bulk trading. This would also go a long way in reducing the prices as some margins are cut by economies of scale.

6. Conclusion and Recommendations

Conclusion

The study has generally revealed that the market structures within the soya bean and banana value chains differ, giving rise to different competition fears. Among the findings, the following stand out:

- The input markets for both soya beans and bananas have some concerns. The soya bean seed supply market in Zambia, which is mostly met by four main firms, is vulnerable to abuse of dominance and cartelisation, as currently the two leading players have a near monopoly in the market.
- The banana seedling input market is also dominated by Amiran, which is currently only supplying commercial farmers who can afford the high price offered.
- The production of inoculants, which is mostly consumed by commercial farmers, is currently monopolised by ZARI. Although imports can be used to augment supply, only about 10-20 per cent of smallholder farmers currently use them due to cost considerations.
- The agro-processing market for the soya bean value chain is highly concentrated and prone to abuse and cartelisation. In the oil processing market, the three leading firms have a market share of about 74 per cent. In the feed market, about 70 per cent of the national animal feed market is controlled by only three players. Given that traders, who complement these in buying from farmers also have to sell to the agro-processors, there is ability on the part of the agro-processors to influence soya bean prices.
- In terms of market structure and competition, the farming stage for both soya bean and bananas in Zambia is a highly competitive market, given the high number of households participating in it. Individually, no farmer, including commercial farmers, has the ability to influence market outcomes. Besides the seedling issue, the banana value chain is also not a concern as far as market structure is concerned, as the marketing is a competitive process characterised by intense competition among the participants.

Recommendations

Based on these issues, which stand out, the following are some of the recommendations to different stakeholders in the agriculture sector:

- a) The competition concerns in the input markets for soya beans call for the Competition and Consumer Protection Commission (CCPC) to constantly keep an eye on the market. This is particularly within the current context where a significant number of farmers use recycled seeds due to cost considerations. Development partners such as Oxfam can also assist in access to the official seed market by the farmers by coming up with farmer input support programs for soya beans. This would also create some level of competition in the seed market, especially if such seeds are not sourced from the dominant player. These programmes would bring more impact if done in the Eastern Province where more soya bean production is done at household level but with very low productivity.
- b) The banana seedling input market is also dominated by Amiran, which is currently only supplying commercial farmers who can afford the high price offered. There is need for CCPC to also investigate whether the high price is justifiable or is a manifestation of excessive pricing on the part of the dominant firm. Support to banana farmers can also be extended to include access to seedlings as their availability is also a cause for concern, especially if diseases outbreak take place.
- c) To increase the use of fertiliser among soya bean farmers, which about 35 per cent of the farmers interviewed rarely use, there might be need for CCPC to consider whether the current cost of the chemical is not inflated due to abuse of dominance. Development partners can also include the supply of inoculants in their farmer input support programmes to enhance yield per hectare.
- d) CCPC should also monitor the agro-processing market for the soya bean value chain to check if the current market structure is not being abused by the dominant firms.
- e) Although the farming stage market structure is not giving rise to any anti-competitive concerns, more support can be given to farmers to enhance market access. The use of middlemen is also contributing to reduce earnings by the farmers as they also pocket some portion of the margins. Government support is needed to help farmers get easier access to markets through direct market linkages rather than through middlemen.

7. Areas for Further Study and Limitations

It is important to note that this study was mostly an exploratory study, intended to reveal some of the issues arising from the market structure and competition dynamics in the agriculture sector, using soya bean and bananas as case studies. This shows that there are still more value chain studies that need to be explored.. In addition, there are many other variables, which could not be investigated by the study, as its focus was mostly on competition issues and market structure characteristics. These include, the gender dynamics in soya bean and banana value chains, which were not investigated by the study but are also critical areas for study. These could also be part of future study areas.

In addition, this study has a lot of limitations as far as being nationally representative is concerned. As mentioned in the methodology, the interviews conducted were mostly meant to reflect the issues with respect to the market structure and concerns that the farmers have. Due to budget and time constraints, attempts were not made to make the views from the farmers to become nationally representative. The interviewed stakeholders (farmers, traders, supermarkets and agro processors) in the soya bean and banana markets make a very small sample size relative to the total population; such a result need not to be interpreted as being representative of such stakeholders at a national level. There is a need for a nationwide survey to establish nationally representative statistics for the different issues, which the study explored.

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