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Economic Analysis of Contract Farming of Bean Famers in the Southern Highlands of Tanzania

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Abstract:
This study aimed at analysing the performance of common bean (Phaseolus vulgris) producers under contract farming arrangement in the Southern Highlands of Tanzania. Specifically, the study sought to examine operations and contractual agreements between participants in farming contracts under two Agribusiness Companies (RG Co Ltd and G2L Co Ltd); assess the gross margins of participants in contract farming system vis-à-vis those operating outside the system; and explore constraints facing beans contract farming system under the two agribusiness companies; and make policy recommendations aimed at improving effectiveness of contract farming business model. The study was basically qualitative triangulated with some quantitative data obtained during Focus Group discussions (FGD) with farmers and scheduled interviews with agribusiness company staff and other key informants (government officials and service providers). Results show that the two agribusiness companies have successfully demonstrated that contract farming is a viable model in common bean sub-sector. Gross margin analysis comparisons between contracted and non-contracted farming indicated a statistically different figure. Off-takers margins have also show significant differences between contractors and who did not contract farmers. A number of constraints were identified and respective policy recommendations were made.

Keywords: *Economic Analysis, Gross Margin Analysis Beans, Phaseolus Vulgaris, Contract Farming*

1. Introduction

Tanzania is one of the largest producers of common bean (Phaseolus vulgaris L.) in Africa, allocating approximately 1.2 million hectares per year to this crop (FAO, 2015). The crop is produced for both food and cash and are planted up to 2 to 3 times per year. Countrywide, the crop is mainly produced in the Southern Highlands Zone (SHZ) with Mbeya and Ruvuma ranking highest. The drivers for high production in this zone include sufficient rainfall; traditionally beans are part and parcel of the farming system in this part of the country; availability of adequate land, and good soils. The Northern Highlands Zone (NHZ) – Arusha and Kilimanjaro and Tanga rank the second, usually driven by availability of reliable access to good markets. The western zone (Kigoma and Kagera) ranks third; also, being driven by availability of good markets (CIAT, 2012). About 80% of beans are consumed in the local markets, usually based in urban centres. About 20% of Tanzania's beans go into regional and export markets with promising future prospects. The major destination of beans in the local market is Dar es Salaam, where they are sold at Kariakoo, Tandale, Buguruni, Mabibo, Kisutu and other small outlets dispersed across the city. Other destinations in local markets include Dodoma, Arusha, Mbeya, Mwanza, Tanga. These are major urban centres in Tanzania. It is estimated that local supply of beans in Tanzania is less than demand by about 200,000 MT (FAO, 2011). The regional markets for beans include the northern corridor (Kenya-Sudan-Somali) and the southern corridor (Zambia, South Africa, Malawi, DRC). In addition, beans go to local and regional markets through the Eastern corridor via the Dar es Salaam sea port to Zanzibar, Pemba and the Comoros.

Despite growing economic potential of beans in Tanzania and regional markets, farmers are experiencing dwindling production potential especially in this era of climate change where rainfall variability and related catastrophes are increasingly affecting crop yields. Farmers need increased support that will enable them to manage effectively farm operations, postharvest and marketing costs. The government initiatives such as subsidy schemes and extension system have generally failed and do not seem to be sustainable in terms of supporting farmers. Win-win business models between farmers and private actors would provide a sustainable support to farmers. Contract farming is one of such win-win business models that have shown sustained increase in production in parts of the world. This study therefore sought to analyse performance of contract farming of beans in the southern highland so as to establish its potential to be scaled up in the country. There are basically no studies that have documented contract farming on common beans in the southern highlands of Tanzania.

2. Literature Review

Tanzania is one of the largest producers of common bean in Africa, allocating about 1.2 million hectares per year to this crop (FAO, 2016). Countrywide, the crop is mainly produced in the Southern Highlands Zone with Mbeya and Ruvuma ranking highest (CIAT, 2012). The drivers for high production in this zone include sufficient rainfall; traditionally beans are part and parcel of the farming system in this part of the country; availability of adequate land, and good soils.

Northern Highlands Zone (Arusha, Kilimanjaro and Tanga) rank the second after southern highlands, usually driven by availability of reliable access to good markets within the regions and across the borders to Kenya. The western zone (Kigoma and Kagera) ranks third; also, being driven by availability of good markets (CIAT, 2012). It is estimated that about 70% of bean production countrywide is consumed at household level and the remaining 30% is sold. Over 94% of beans are consumed in dry form while about 5% is consumed in green form, usually at household and/or sold local markets. About 80% of beans are consumed in the local markets, usually based in urban centres. The major destination of beans in the local market is Dar es Salaam, where they are sold at Kariakoo, Tandale, Buguruni, Mabibo, Kisutu and other small outlets dispersed across the city. Other destinations in local markets include Dodoma, Arusha, Mbeya, Mwanza, Tanga. These are major urban centres in Tanzania. It is estimated that local supply of beans in Tanzania is less than demand by about 200,000 MT (FAO, 2011). Bean consumption per capita in Tanzania is about 19.3kg, contributing 16.9% protein and 7.3% calorie in human nutrition (Rugambisa, 1990). About 20% of Tanzania's beans go into regional and export markets with promising future prospects. The regional markets for beans include the northern corridor (Kenya-Sudan-Somali) and the southern corridor (Zambia, South Africa, Malawi, DRC). In addition, beans go to local and regional markets through the Eastern corridor via the Dar es Salaam sea port to Zanzibar, Pemba and the Comoros.

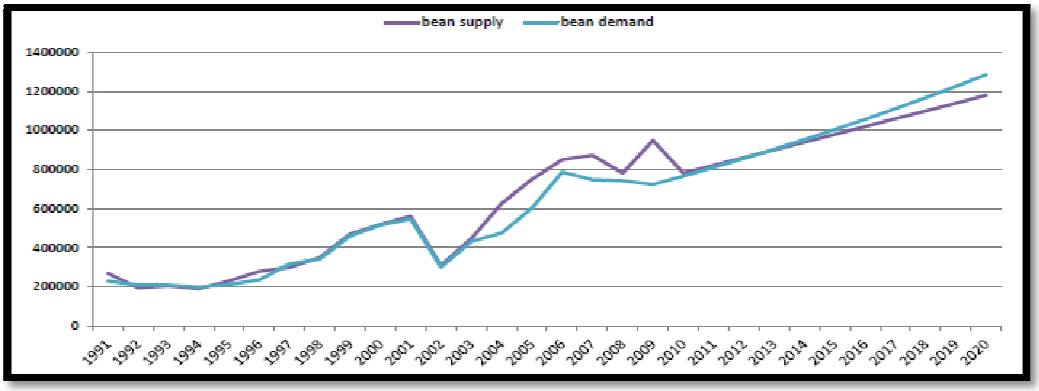

Figure 1: Estimated Bean Supply and Demand in Tanzania from 1991 To 2020
Source: FAOSTAT, 2011

2.1. Impact of Contract Farming on Income: A Review of Literature

Contract farming is widely recognized as a pro-poor institutional arrangement for facilitating and accelerating agricultural commercialization. It generally refers to agricultural production carried out according to an agreement between a buyer and farmers, which establishes conditions for the production and marketing of a farm product or products (FAO, 2016). It entails a contractor providing farmers with input supplies, technical advice, in-kind credit, and market services; while the farmer commits to produce a specified quantity and quality of an agricultural product which is sold exclusively to the contractor, usually at a pre-determined price. contract farming increases access to credit for smallholders and drives production scales; opens up markets and increases income; provides farmers with price insurance against fluctuations; enhances extension services and use of new knowledge; improves business management skills of farmers; and stimulates rural development through multiplier effects for employment creation, infrastructure and market development.

In contrast, traditional marketing refers to systems in which farmers produce under their decisions on variety, quantity, quality and timing and then sell to open market at the market price (Wang et al., 2014). In traditional contract farming arrangement, the farmer consents to provide certain quantities of a commodity at the specified quality standards, price and time, and the buyer commits to procure the commodity at a specified price. The buyer may also agree to supply some inputs and technical support to the farmer. Typical farming contracts specify quantity of output farmers should sell to the contractor. Well-organised contract farming provides mutual benefits between farmers and agribusinesses.

Alongside many drivers for farmers' engagement in contract farming, Simmons et al., (2005) consider farmer access to credit as one potential motive for contract participation. Farmers with poor access to credit may be particularly vulnerable to market fluctuations and therefore find it relieved when they extend this risk to contractors and thus find increased safety when engaged in a contract. In some farming contracts farmers are linked to loan providers, which provide further motive for credit constrained farmers to participate in a contract. A large number of studies report a positive income effect from contract farming in developing countries, where governments and international nongovernment organizations (NGOs) pay more attention. These studies include Leung, et al., 2008; Wainaina, et al., 2012; Kalamkar 2012; Bellemare 2012; and Michelson 2013). However, many studies document that the increase in farmer income from contract farming may come from several other sources such as better price (Henson, 2005; Simmons et al., 2005; Bijman, 2008); better technology and inputs provided by the contracting firms (Gulati et al. 2007; Leung, et al., 2008; Miyata, et al., 2009); and supports such as loans and insurance from the NGOs; financial institutions, government agencies (Bijman 2008; Michelson 2013).

The potential benefits of contract farming are, however, not necessarily guaranteed because failed attempts of contract farming have been documented from around the Globe (Grossman 1998; Kumar, 2008). The common pitfalls of contract farming include Breach of contracts by either partner; Side-selling by farmers; delays in agreed payments to

farmers and unequal power balance between parties, where farmers have always been inferior to contractors. Overall, one of the indicators of fairness in conract farming is gross margin received by those engaged in the contract (agribusiness and farmers). In practice Gross Margin analysis establishes how much profit an actor makes after paying off its Cost of Goods sold (COGS). It is a proxy indicator of return to efforts employed in performing functions. Welfare economics needs that the actors along value chain get equitable returns to their efforts (Atampugre, 2014; Jalang'o, et al., 2016). In this regard we need to compare gross margin downstream the value chain. We examine GM that off-taker and farmers get as common bean moves between them.

The literature review above gives a picture that there might be potential of building farmers capacity to increase yield of beans by enabling them to engage effectively into synergic cooperation with private agribusinesses. However, there has not been evidence of this cooperation happening in the southern highland which is basically the leading producer of common beans in the country.

3. Methodologies

The focus of this study was common beans in Mbeya and Njombe targeting areas where RGL and G2L have contract farming arrangement with common bean farmers. A sample of 241 contracted farmers was randomly selected. Furthermore, 29 non-contracted farmers in the same geographic area were purposively selected on the condition they grew Uyole Njano common bean variety. For comparison purpose, the contracted farmers were used as experimental group while non-contracted farmers were a control group. Data collection was conducted through face to face interviews with key informants - Regional Agricultural Development Officers, extension staff, researchers, and off-takers (traders, processors and middlemen). Focus Group Discussion (FGD) was employed with smallholder farmers. Observation supplemented the other data collection methods. Quantitative data for calculating gross margins were obtained during FGD. According to Kothari, (2009) there is no data collection method that is superior to another in data collection. Therefore, this study used a mixture of them based at stakeholders' convenience.

4. Findings of the Study

4.1. Flow of Beans from Producers to Consumers in Two Scenarios

One of the economic benefits contract farming offers to farmers and off-takers is to cut down the number of middlemen interacting with farmers who usually reduce gross margin among farmers by setting low produce prices. For off-takers middlemen create competition which shrinks chances of getting produce from farmers within reasonably short period of time. The value chain structures for two scenarios are indicated in figure 2 and 3. Figure 2 shows flow of beans among market stakeholders involved under ordinary scenario. Figure 3 shows flow of beans under contract farming arrangement. Generally, the number of stakeholders under contract arrangement is smaller than under ordinary arrangement.

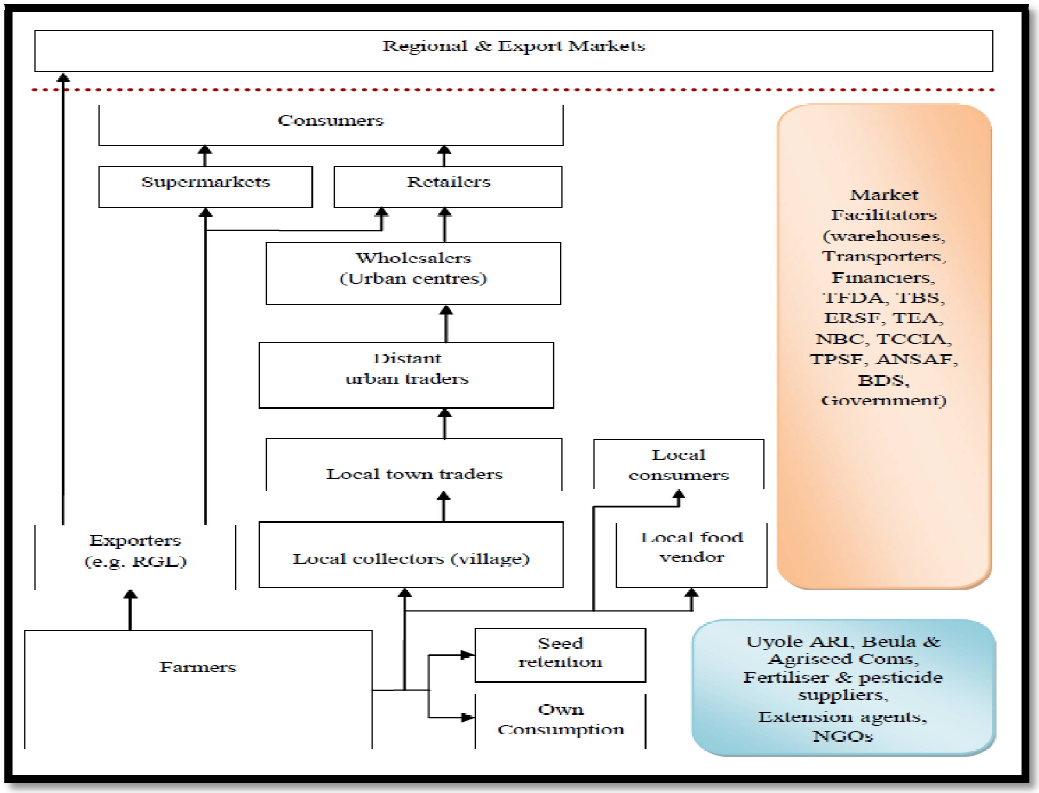

Figure 2: Flow of Common Beans from Producers without Contract Farming

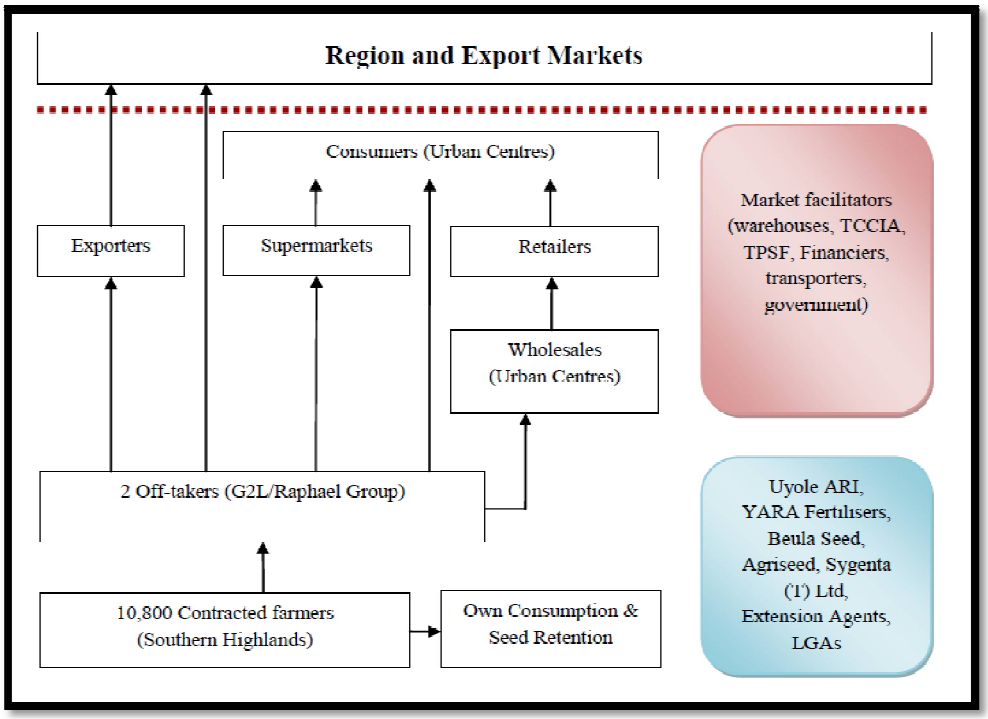

Figure 3: Flow of Beans from Producers under Contract Farming Arrangement

Interviews with smallholder farmers in the study area indicated that they are grateful with the contract farming business model and would like the model to continue: more farmers have indicated high urge to join the arrangement.

4.2. Contractual Agreements between the Agribusiness Companies and Bean Farmers

A segment of bean value chain has emerged in the Southern highlands Zones, where institutions (off-taker & farmers) have formally organised themselves into contract farming arrangement (out-grower schemes). Two companies risked and demonstrated that contract farming arrangement is possible in Tanzania unlike the past perceptions by most off-takers who avoided working directly with farmers under contract farming fearing risk of side-selling which was common among farmers. The two companies are RG (based in Uyole Mbeya) and G2L Company Limited, which is based in Makambako, Njombe. In total the two companies are working with about 11,000 common bean farmers. Contract farming in the southern highlands has actually minimised the number of middlemen which have in most cased been blamed to cheat smallholder farmers. It would be worthwhile to support these organisations reach their expectations.

4.2.1. RG Limited

RGL, based in Mbeya, has entered into contracts with 5800 common bean farmers in Mbeya, Songwe and Rukwa regions. These farmers are organised in 30 groups. The company works with these smallholders through a consortium of 5 partners called the Southern Highlands Beans Consortium (SHIBECO) comprising of YARA, an international fertiliser company which provides fertilisers to farmers on credit; Agriseed Ltd which distributes improved bean seeds and pesticides to the farmers on credit; OBO Co Ltd collects credits from farmers after sale of their beans; and Uyole Agricultural Training Institute (MATI –Uyole) provides agricultural training to contracted famers on appropriate crop husbandry practices, quality and postharvest management. In this consortium, farmers have entered into contract farming model with RGL which coordinates the consortium; other partners facilitate the workings of the farming arrangement to ensure that the necessary inputs and services are available to farmers. The consortium is not registered but the 5 partners operate through a MoU.

Commercially, RGL sells common beans in local, regional and export markets. In addition to local markets, the company is exporting common beans to South Africa, Malawi and some trade agents in Zambia, Kenya and Rwanda. The total demand for RGL market for Uyole 03 bean variety in Tanzania is around 3,000 MT per year and the combined regional and international demand is around 13,000MT. Currently, the contracted farmers can supply about 4,600 MT only. The major buyers in local market are based in Dar es Salaam.

In 2015, RGL entered partnership with the DFID funded Food Trade ESA which is regional staple food trade programme to implement the project called RG Bean Marketing Centre (RGBMC). This project is working with over 5,000, (about 3000 male and 2000 females) producing one of the highly demanded bean variety (Uyole 03) locally known as Mwasipenjele. These farmers have been trained on Good Agronomic Practices (GAP), Post-Harvest Management through Farmer Business Schools (FBS). This project intervention has enabled farmers to improve their productivity from 0.75MT/Ha to 1.75MT/Ha with post-harvest losses reduced by about 24% from the national figure of 40%. The project is also constructing the bean Village Aggregation Centres (VACs) in the 22 villages of Mbeya Rural, Mbozi and Momba districts. The VACs will serve feeding the Main collection canter at RGL site. In 2017 RGL collected about 4600 MT of common beans from farmers. About 1500 MT have been exported and the remaining is sold locally. The company through Food Trade Project has built 22 crop collection centres in villages where it works with farmers.

4.2.1.1. Contractual agreements RGL and farmers

On the onset of production season, RGL meets with the contracted farmers to agree on a number of issues, including price, quantity, quality of beans to be collected from farmers. The indicative price of beans that farmers should sell beans to RGL is normally agreed upon before farmers start production season. In case of changes of price during harvest season, the farmers are obliged to sell the agreed quantity of beans at the agreed prices. They are free to sell any extra quantity of beans to other traders at price they might wish (usually higher price). After the agreed quantity is received at pre-agreed price RGL buys beans from farmers at prevailing market price. Like price, the quantity of beans farmers should sell to RGL is agreed right before farmers start production. The farmers are free to sell any extra quantity produced to other traders in villages or near-by market outlets on prevailing market price. The farmers and RGL agree on the quality specifications required for the pulses to be procured. The quality aspects are usually moisture content and amount of dirty in the beans is specified. The Local (District) Government Authority in districts where business is done is engaged during contract farming formation to ensure that both parties adhere to contract requirement. The government will usually intervene in case of any breach of the contract by farmers or RGL.

4.2.2. G2L Company Ltd

G2L Company Ltd, based in Makambako (Njombe region), is working with about 5000 smallholders growing beans and soybeans. From 2016, DFID-Funded Vuna programme supported the company to strengthen its contract farming (out-grower) business model between G2L Company Ltd and common bean and soybeans farmers in Ruvuma, Njombe and Iringa regions. The business model has shown notable success. For example, the company has managed to buy beans from all contracted farmers

In this contact farming arrangement G2L Company Ltd committed itself to provide farmers with improved bean seeds, fertilisers, pesticides and extension education (training on agronomic practices, quality and post-harvest management) in condition that they should in turn sell their produce to the company at pre-agreed price. The local government councils (LGC) in all districts where the company has contracted farmers are involved during contract signing. About 45 farmers groups have been formed during since 2015.

4.3. Aggregation Model Used

The two companies use the same aggregation model. In this model the aggregation centres are jointly established by the off-taker and smallholders. Producers bring their produce to the collection centres where they sell pulses at price agreed upon signing contract. The model promotes win-win situation between farmers and the off-takers. For example, through the DFID-funded Food Trade ESA Programme RGL implemented the RG Bean Marketing Centre (RGBMC) which constructed 22 Village Aggregation Centres (VAC) in 22 villages in Mbeya Rural, Mbozi and Momba districts. The VAC feed the Main collection centre at RGL site (in Uyole – Mbeya). G2L Company Limited has established over 30 collection centres in Ludewa, Madaba, Namtumbo, Songea, Mufindi and Kilolo for the collection of common beans and soybeans from farmers. The village-based collection centres feed the main centre in Makambako. Both RGL and G2L use hub-and-spoke system because they start by bulking pulses in village-based collection centres and transport to the main centre in Mbeya and Makambako town respectively before transporting to Dar es Salaam, regional or export markets.

4.4. Gross Margin Analysis Comparison

The gross margins of twenty-nine pairs of farmers who grew Uyole Yellow bean variety were compared and t-test was generated to test if there was significant difference. Results shows that, at 5% Confidence Level and 28 degree of freedom (df) the calculated t-test value for the differences is 20.008 against critical (tabulated) value of 2.048. This indicates that there was significant difference if gross margin between contracted and non-contracted farmers.

No.	Contracted farmers	Non-contracted farmers	GM Difference
1	254,500	169667	84,833
2	263,000	230510	32,490
3	236,350	157000	79,350
4	211,600	189200	22,400
5	198,500	132333	66,167
6	256,300	170867	85,433
7	205,900	137267	68,633
8	222,603	208300	14,303
9	216,890	144593	72,297
10	188,600	125400	63,200
11	211,200	306500	-95,300
12	102,500	159600	-57,100
13	206,300	137533	68,767
14	301,500	201000	100,500
15	298,000	286500	11,500
16	201,500	266500	-65,000
17	266,900	268900	-2,000

No.	Contracted farmers	Non-contracted farmers	GM Difference
18	158,620	222300	-63,680
19	233,650	154200	79,450
20	187,560	305600	-118,040
21	279,600	186400	93,200
22	235,600	165000	70,600
23	255,340	175600	79,740
24	203,890	142600	61,290
25	199,650	201500	-1,850
26	115,003	201300	-86,297
27	287,600	192800	94,800
28	223,200	152300	70,900
29	236,500	206500	30,000

Table 1: Gross Margin of Contracted and Non-Contracted Farmers

The difference might come from different factors. However, the contracted farmers did not apply storage agrochemical and transport beans to the market while non-contracted farmers applied the chemical and sold the harvest at home premise or village-based collection centres. Furthermore, contracted farmers received trainings and assured extension services provided by the agribusiness company. Non-contracted farmers, on the other hand claimed that they did not receive any training regarding farm management of the bean variety (Uyole Yellow).

4.4.1. Gross Margin – Contracted Farmers

We could assess the fairness of the contract farming by looking at what smallholder bean producers get out of efforts they have invested in producing and bringing the commodity to the off-taker (Agribusiness Company) vis-à-vis the off-takers.

Functions	Cost (TZS)	Cost (USD)
Land preparation	25,000	11.21
Ploughing (ox-ploughing)	70,000	31.39
Buy seeds (for planting - 30kg)	105,000	47.09
Buy fertiliser (for planting)	62,000	27.8
Planting (labour)	35,000	15.7
Weeding (labour)	30,000	13.45
Fertiliser application (foliar fertiliser - booster)	17,000	7.62
Apply fungicide (Ridomil)	25,000	11.21
Apply pesticides	5,000	2.24
Harvesting	50,000	22.42
Cleaning/sorting (5 bags = 100kg)	2,500	1.12
Packing material (empty bags)	4,000	1.79
Transport from farm to home	10,000	4.48
Transport (home to collection centre)	5,000	2.24
Total Cost	445,500	199.76
Sales	700,000	313.90
Gross profit	254,500	114.13
GM%	36.4%	36.4%

Table 2: GM Analysis – Contracted Bean Farmers (Per Acre)

Gross margin (GM) analysis for famers was conducted during focus group discussion with famers and traders. It is expressed as a percentage of sales. The gross margin analysis above shows that both, the off-taker and common bean farmers get more or less equal gross margin (returns to their efforts). It can be concluded that working with farmers through contract farming arrangement has demonstrated to produce a win-win situation between off-taker and farmers. It would therefore be essential if interventions are directed towards strengthening this business model.

Functions	Cost (TZS)	Cost (USD)
Land preparation	25,000	11.21
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Apply pesticides	5,000	2.24
Harvesting	50,000	22.42
Cleaning/sorting (5 bags = 100kg)	2,500	1.12
Packing material (empty bags)	4,000	1.79
Transport from farm to home	10,000	4.48
Transport (home to market)	12,000	5.381
Storage pesticide (125g actellic powder)	8,750	3.92
Total Cost	461,250.00	206.82
Sales	640,000.00	287.00
GM	178,750.00	80.17
GM%	27.9%	27.9%

Table 3: Gross Margin of Non-Contracted Farmers

4.4.1.1. Gross Margin Analysis

Functions	Cost (TZS)	Cost (USD*)
Buying	1,400,000	627.80
Storage at collection point	5000	2.24
Transportation from collection points	20,000	8.97
Loading/offloading (buying)	10,000	4.48
Pay for security	50,000	22.42
Pay Village levy/cess	20,000	8.97
Buy packing materials	5000	2.24
Transport to market (Dar)	70,000	31.39
Loading/offloading (selling)	7,500	3.36
Bu packaging materials	60,000	26.91
Pay District cess	20,000	8.97
Total cost	1,667,500	747.76
Sales (TZS 2600/Kg)	2,600,000	1165.92
GM	932,500	418.16
GM%	36%	36%

Table 4: Gross Margin Analysis of Common Bean Agribusiness Companies per MT
USD-TZS Exchange Rate (1 USD = TZS 2230)

By interpretation, the GM analysis above has shown that the common bean off-taker gets 36% of efforts invested in sourcing beans from farmers and selling the same to buyers.

Functions	Cost (TZS)	Cost (USD)
Buying	1,000,000	448.43
Packing materials	8,000	3.59
Transport from farmers	62,500.00	28.03
Loading offloading	10,000	4.48
Village cess	20,000	8.97
Market levy	0.03	0.00
Rent	0.31	0.00
Beans storage pesticide	7,500	3.36
Pay for security	0.01	0.00
Total cost	1,108,000	496.86
Sales	1,375,000	616.59
GM	267,000	119.73
GM%	19%	19%

Table 5: GM Analysis – Individual traders

The analysis above shows that off-takers working out of contract farming got a gross margin of about 19%. By comparing GM gotten by off-taker working with farmers under contract farming arrangement we can see that contract farming arrangement is an attractive business model that off-takers need to engage in if they would like to benefit more from their business activities. The analysis above shows that off-taker got a gross margin of about 19%. By comparing GM gotten by off-taker working with farmers under contract farming arrangement we can see that contract farming arrangement is an attractive business model that off-takers need to engage in if they would like to benefit more from their business activities. This is essentially because engaging in contract farming basically cuts transactions cost farmers and agribusinesses would face when working outside it. It was found that by selling beans to the companies' famers have eliminated costs they would incur in marketing the produce (storage, transport, security). The agribusiness companies on the others had reduced transaction costs which would be incurred during bulking the produce from unorganized farmers. In this case the results of gross margin (GM) analysis of smallholders and off-takers engaged in contract farming (out-grower schemes) present a more win-win situation than off-takers working outside farming contract farming. The GM obtained by off-taker engaged in contract farming was about 36% of sales per MT against 35% that of smallholder while GM for the off-takers working outside contract farming was about 19% of sales per MT.

4.5. Constraints Facing Contract Farming

A number of issues were identified to hinder effective functioning of the contract farming among agribusinesses and farmers. A few discussed here include limited availability of seed due to long seed certification process, which causes shortage of improved seeds which could be available to farmers; Government export ban; side selling limited access to financial services among smallholder bean farmers; and limited information flow between actors in the common bean value chain.

4.5.1. Shortage of Seeds

Farmers reported that there was serious shortage of improved seeds (especially the early maturing and disease resistant common bean varieties which is required due to climate change) because those provided by the agribusiness Company were not adequate. The agribusiness companies indicated that they could not distributed seeds to all farmers due to shortage of these from its sources (Uyole Agricultural Research Institute (Ari-Uyole) and multiplication companies such as Agriseed Co. Ltd). Nevertheless, the companies are requesting the government to allow farmers to use Quality Declared Seeds (QDS) which basically have partly gone through the lengthy Seed Certification process. QDS are sold at better price and could readily be available to farmers.

4.5.1.1. Time –Consuming Process of CS Seed Certification and Approval

The shortage of improved seeds was among others caused by lengthy processes of seed certification through Tanzania Official Seed Certification Institute (TOSCI). Although Tanzanian legislation is reasonable in terms of intentions to achieve its ambitious targets on quality seed production and supply, the process of getting seed certified for use by farmers in is so cumbersome, bureaucratic and time-consuming and is reportedly the primary cause of high prices of CS seeds which farmers cannot afford to buy and use. Basically, the country has two legislations which ensure production and supply of quality seeds to farmers. These are the Seed Act of 2003 and the Seeds Regulations of 2007 which govern seed production and trade related issues. The law provides for a compulsory seed certification, laboratory seed testing, variety evaluation and registration under the control of the Tanzania Official Seed Certification Institute (TOSCI). The Institute is also responsible for testing Distinctness, Uniformity and Stability (DUS) and the National Performance Trials (NPT) which are necessary tests for variety release and registration. Under the system, locally bred varieties must be tested for three years/seasons before being released for commercialization. Varieties released in other Eastern African countries whose seed systems are harmonized with that of Tanzania, need one season of verification before being registered. This regulatory procedure, however, follows after years of research work to identify appropriate seed for particular process and does not exclude CS seeds which are highly demand in these days of changing climate.

4.5.2. Government Export Ban

Both contractors indicated that they faced limited access to markets when the government-imposed protectionist regulations and actions such as export ban. When cross-border trade is banned by the government the companies are not allowed to export selected commodities, such as grains to the neighbouring countries (Regional Market). With this government market regulation, the companies reported that they recruited few farmers just to meet demand in the local market; the companies tend to avoid recruiting farmers in excess of the demand in local market.

Nevertheless, the government imposes crop export ban with good intentions in a bid to encourage investment in agro-processing industries and as a way of preparedness against potential food shortage in the country and stabilising food prices in the country. Critics of this government export ban policy would like the government to impose the ban after it has set good arrangements for crop to move from excess to deficit areas within the country so that farmers could have access to local markets. Currently, farmers affected by crop ban have limited marketing options except to store the crop until when local markets open up through local traders who move from one district to another in search of the crop usually setting low price.

4.5.3 Side Selling

Side-selling was reported to be one of the common challenges facing contract farming in the study area. As means to overcoming this challenge, the agribusiness company deployed extension staff in every district it had contracted

farmers to help in monitoring the suspected moves of farmers. The staffs are deployed from time of planting to harvesting, storage and bulking of the produce from the farmers which done at collection centres. In so doing farmers who were tempted to side-sell their produce could not do so in fear that they would be identified by these officials. Furthermore, the company started bulking and buying the produce from contracted farmers early in June before many traders go in the villages. The company worked with closely with local government authorities which help to monitor suspicious actions of farmers.

There is no specific legal framework in Tanzania for addressing issues of contract farming. The relationship in contract farming in the country mainly depends on farmer-contractor trust. Despite presence of witnesses during contract signing, the enforcement of contract is still hardly practical in the country due to lack of the legal framework. Defaulters such as side sellers are usually dealt with under the general law which might not be friendly to one party participating in the contract. For example, when contractors delay to distribute climate smart inputs such as seed to farmers, farmers have no option except to take the seeds even when it is too late to apply in the farm. Likewise, Agribusiness Company may not be able to sue large number of side-sellers due to number of reasons including limited capacity of farmers to pay cash penalties.

4.5.4. Limited Information Flow between Researchers and Smallholders

There is need to strengthen information flow between researchers and farmers. For example, framers in Njombe and Iringa indicated that there was limited availability of improved varieties such as Njano Uyole and Uyole 96 while the ARI Uyole and Agriseed Ltd had tons of the same varieties stored in their warehouses looking for farmers to buy them. It also seems that while researchers are actively engaged, the extension system is passive. Extension staff indicated that the main reasons for inactive extension staff lack of motivation due to low-quality working conditions in farming communities; the government extension system is faced with shortage of extension staff. For example, it was noted in other places that one extension staff serves 3 to 5 villages. The training of extension staff is based on conversional system which stresses on husbandly practices only. Extension staff receives little or no training on agribusinesses and entrepreneurship. This inclination of training institutions produces staff with outlook of traditional farming that does not consider agriculture as commercial activity. At times this extension staffs don't understand messages to deliver to farmers

4.5.5. Limited Access to Financial Services

Interviewed smallholders indicated that they are still challenged by limited access to capital required to invest in farming. The amount of credit contractors (Agribusiness Companies) provide to farmers in the form of farm inputs is limited; they need more funds to scale-up production and working capital to meet farm operations such as planting, weeding, harvesting and storage. Financial institution officials indicated that they avoid extending loans to them, perceiving that farming is a risky business which mainly depends on unreliable and unpredictable rains. On the same grounds, interviews with farmers indicated that they don't approach banks for loans fearing risk of losing their property in case of failure to repay the loans. Nevertheless, smallholder farmers indicated that they mostly access finance from member-based organisations such as SACCOS and Community Development Banks offering loans at interest rate ranging from 2.5% to 3% monthly. However, these organisations have limited capital base to finance smallholders adequately because they borrow funds from commercial banks particularly CRDB and NMB bank.

In terms of loan size, interviews identified that financial institutions provide funds to smallholders mainly through farmer groups. Community banks such as Njombe Community Bank (NJOCOBA) could disburse a maximum of TZS 2,000 to individual farmers on condition that they should be organised in groups of up to 30 members (TZS 60 million per group). Smallholders indicated that they also get small loans from microcredit institutions such as FINCA and PRIDE which also tend to avoid smallholders. For example, interview with FINACA indicated that only 10% of all microloans it disburses go to farmers. The off-takers (Agribusiness Companies) reported that they secure loans from financial institutions, mainly CRDB Bank, National Microfinance Bank (NMB) and Bank of Africa (BOA), etc.

Tanzania Agricultural Development Bank (TADB) is the newly established public bank that offers credit to the agricultural sector, along with capacity-building strategies and programmes designed to strengthen the value chain, however, its capital base is still low.

4.5.6. Demands by Financial Institutions

Nearly all financial institutions need loan applicants to present some form of collateral. Immovable own property is the most common form of collateral these institutions would require from the applicants who will also be required to provide proof of ownership such certificate of occupancy. In terms of size, collaterals can be as high as 65% or more of the loan applied for. Farmers cannot access loans because they don't have verifiable collateral. Although they own land, there is no documented proof that the land belongs to them; they basically don't have collateral and therefore cannot be trusted by the financial institutions. In some instances, farmer groups can be offered loans on conditions that a follow-up strategy that shows that no group members will default is presented to the financial institution.

Grain is not considered collateral, although some banks such as CRDB and NMB do accept commodities in storage under Government Warehouse Receipt System. The latter system is potentially challenging when a warehouse is not secure or well maintained. The largest agribusiness financier has over 200 branches throughout Tanzania including the southern highlands. Interviews with southern highlands-based banks could not provide figures related to loans lending to beans value chain actors because the information is centralised in Dar es Salaam. Researchers seeking these data have to first find permission from the head office usually based in Dar es Salaam.

5 Conclusions

This study has demonstrated that contract farming is one of the strategic approaches the government of Tanzania can employ to helping farmers improve yields and hence improve their gross margins. It does so mainly through the support services it provides to the contracted farmers including training, provision of inputs, enhancing farmers' access to finance, appropriate technologies and information. Government should create enabling environment that will enable smooth implementation of the contract farming among agribusinesses and smallholders to collaborate using this business model. However, a substantial proportion of farmers seem to have engaged in the business model, which calls for investment of deliberate efforts and resource to encourage more farmers and agribusinesses to engage into this business model which basically win-win situation among the participating parties. Further research is required in the area on factors determinants of participation in contract farming model.

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