FARM-GATE PRICE MONITORING IN SELECTED IMPACT COUNTRIES

TANZANIA

February 2015 – *Draft*

CONTENTS

KEY FINDINGS

Between July 2013 and January 2014, maize was the primary crop sold by farmers in the data sample and represented the main share of supplies in northern, central, and southern areas of Tanzania. In western regions of the country, beans were the main product supplied by monitored farmers.

Nearly 40% of farmers who contributed to data monitoring relied on just one or two marketing channels for selling their produce; 25% of farmers recorded no sales throughout the reporting period. Only 10 farmers (40% of the sample) supplied their products to P4P-supported farmers' organizations (FOs).

With the exception of sales through FOs, no clear relationship was found between the farmer's choice and the price differentials of marketing channels. The local market was the main channel in northern areas regardless of price differences to other markets. In southern regions, the farm gate was the main marketing channel for maize during harvest, although prices were lower than at other selling points.

On the other hand, farmers chose to sell through FOs only when prices were more advantageous prices as compared to other marketing channels in their respective locality.

Maize sales through farmers' co-operatives particularly increased during the harvest season, when FOs allowed farmers to receive better prices than at other points of sale.

1. INTRODUCTION

This report summarizes main findings from the analysis of data provided by the P4P-VAM Farm-Gate Price Data Collection in Tanzania, between July 2013 and mid-January 2014.

Since 2013, the pilot has established a monitoring system for prices and sales of P4P-supported Farmers' Organizations (FOs) in four impact countries (El Salvador, Ethiopia, Ghana, Tanzania) using GRASP-based mobile technology.

The primary aim of the project is to enhance the understanding of farmers' marketing decisions in P4P-supported countries and to support P4P M&E activities through the integration of farm-gate prices into VAM's online price tools.

This report is the second of a series of three studies, the other two discussing major sales and price trends from data collected in Ghana and El Salvador.

The data collection in Tanzania involved a sample of 25 farmers in the 10 regions covered by P4P pilot activities in 2009-2013 (Box 1). The farmers submitted 313 weekly reports on the agreed reporting day.

The dataset comprises weekly records of prevailing market prices, farmers' selling prices, and sale volumes of 5 commodities (beans, maize, pigeon peas, sorghum, and rice) in diverse marketing channels: auction markets; local markets; farm-gate; P4P-supported farmers' organizations (FOs).

Results will be discussed in light of the following four dimensions[2]: marketing channel, time, price, volume.

Specifically, the study aims to:

Box 1-Background: P4P pilot in Tanzania

Between 2009 and 2013, P4P activities in Tanzania aimed to reduce post-harvest losses, rehabilitate market infrastructure, and enhance marketing opportunities for more isolated smallholder farmers. The five-year-pilot involved about 19,000 farmers distributed across 28 farmers' organizations (FOS) in 10 regions of the country.

WFP partnered with Saving and Credit Co-operatives (SACCOs) to provide credit to smallholders and to promote investments for the upgrade of storage facilities.
Nearly 25% of registered farmers received training for the improvement of post-harvest handling and the marketing of their produce through P4P-supported FOs.

Participation in sales through FOs provided smallholder farmers with enhanced access to WFP and non-WFP procurement processes: nearly 12.000 Mt of food were purchased by WFP in Tanzania between 2008 and 2013; an additional 3,000 Mt of crops were purchased by other buyers, including the National Food Reserve Agency.[1]

- Assess regularity in data reporting and its impact on data availability (Section 2);
- Compare average selling prices and seasonal price trends of main commodities in the sample (Section 3.2; Section 3.3); track major differences among average selling prices at different points of sale and in relation to prevailing market price levels (Section 3.4);
- Analyze farmers' access to marketing channels (Section 4.2), main sales patterns (Section 4.3) and trends in the allocation of sale volumes during data collection (Section 4.4);
- Report on the shares of income received by main commodities and marketing channels in the data sample (Section 5).

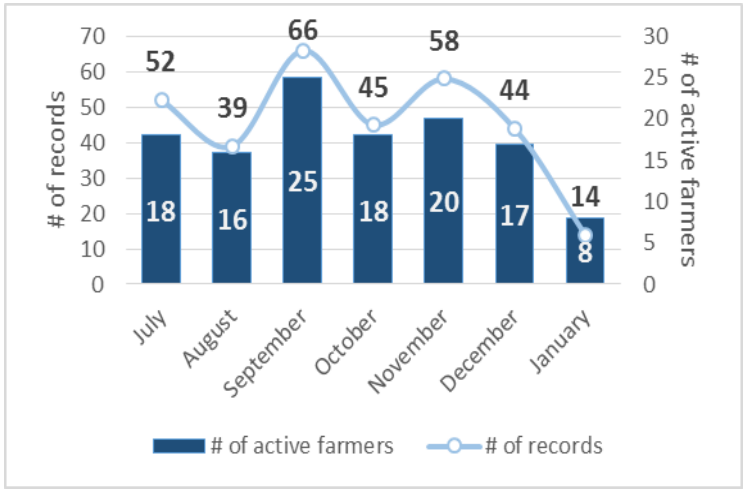
[1] Source: Purchase for Progress P4P Tanzania. Available at: https://www.wfp.org/purchase-progress/news/blog/spotlight-p4p-tanzania;
[2] As highlighted during the NFR of a meeting on P4P-VAM farm-gate price monitoring in February 2012.

2. FARM-GATE PRICE DATA COLLECTION IN TANZANIA: DATA REPORTING

The 25 farmers who contributed to data collection in Tanzania were distributed across the 10 regions covered by the monitoring pilot as follows: 5 farmers in *Kigoma*, 4 farmers in *Kagera* and *Dodoma*; 3 farmers in *Mayara*; 2 farmers in *Arusha* and *Kilimanjaro*; 1 farmer in *Iringa*, *Rukwa*, *Ruvuma*, and *Singida.*

Figure 1 plots the number of sampled farmers who actively contributed to data transmission along with the amount of records submitted for each month in the data sample.

Figure 1 - "Number of records" and "Active farmers"



On average, farmers' participation in data collection was 65%-80% from July to December 2013. However, it dropped sharply in January 2014, with only 8 active farmers and 14 reports available for data analysis.

Timeliness of data transmission decreased during the reporting period: 35% of selected farmers submitted less than 3 records since September 2013 (Table 5, Annex I). The six farmers listed in Table 1 became totally "inactive" since September and November 2013.

Table 1 - "Inactive farmers"

Region (District)	Farmer's ID	# of records received by month							# of records	Last record sent
		2013						2014		
		July	August	September	October	November	December	January		
Iringa (Njombe)	TZ56	✓	✓	!	✗	✗	✗	✗	**10**	**09/09/2013**
Kigoma (Kasulu)	TZ49	✗	✗	!	✗	✗	✗	✗	**1**	**23/09/2013**
Kigoma (Kigoma)	TZ52	!	!	!	✗	✗	✗	✗	**3**	**16/09/2013**
Kilimanjaro (Hai)	TZ03	!	✗	!	!	!	✗	✗	**8**	**11/11/2013**
Manyara (Mbulu)	TZ11	✗	✗	!	!	!	✗	✗	**7**	**18/01/2013**
Ruvuma (Sumbawanga)	TZ54	!	!	!	!	!	✗	✗	**10**	**25/11/2013**

✗ No records
! Irregular reporting (1 to 3 records per month)*
✓ Regular reporting (4/5 per month)**

* Beginning to mid-January 2014: irregular reporting (1 record per month)
** Beginning to mid-January 2014: regular reporting (2 records per month)

Irregularity in reporting significantly reduced data availability for successive analysis. Gaps in data transmission particularly affected the geographical representativeness of the sample. In regions like *Kigoma, Iringa*, and *Ruvuma* the amount of reports submitted by farmers covered only 20% to 30% of the data expected. In *Rukwa*, the quantity of records submitted covered only 7% of the data needed and did not allow for the analysis of trends in either prices or sales in that specific region.

In order to overcome these limitations, the 10 regions included in the data sample were clustered at two different levels of geographical aggregation (Table 2)[3], based on similarities in climatic conditions and socio-economic outcomes:

- **Tanzania's socio-economic zones**, as defined by the 2010 Demographic and Health Survey;
- **Rainfall regimes**, as defined by the 2012 Tanzania Comprehensive Food Security and Vulnerability Analysis (CFSVA):
    - *Unimodal*: comprising the southern, western, and central regions of Tanzania and characterized by a unique long rainy season from December to May;
    - *Bimodal* areas, including northern regions and characterized by two rainy seasons from March to May and from September to November.

Table 2 - Geographical aggregation

Rainfall regime	Socio-economic zones	Regions	Sampled farmers
Bimodal	Northern	Arusha	2
		Kilimanjaro	2
		Manyara	3
	Lake	Kagera	4
	Central	Dodoma	4
		Singida	2
Unimodal	Western	Kigoma	5
	Southern	Iringa	1
		Rukwa	1
		Ruvuma	1

Differences between unimodal and bimodal rainfall regimes were considered during the analysis of seasonal price trends (in Section 3.3) and monthly sales of commodities in the data sample (in Section 4.4).

Socio-economic zones were the key dimension for identification of price differentials among marketing channels (in Section 3.3) and overall sales patterns (in Section 4.3) during the period July 2013 to mid-January 2014.

[3] Moreover, triangulation was made using data provided by additional sources, where applicable. Main sources included: VAM Food and Commodity Price Data Store; WFP Emergency Preparedness and Response Web; CountryStat, (Food Security and agriculture data network).

3. PRICE TRENDS, PRICE SEASONALITY AND PRICE DIFFERENTIALS

3.1 Overview of main findings

Price seasonality influenced the general pattern of selling prices of most commodities in the data sample, as well as price differentials among marketing channels in most socio-economic zones.

Specifically, in *Northern* and *Lake* regions, prices at the farm gate were above local market prices during the lean season; they were lower than in other selling points during harvest in *Central* and *Western* zones. P4P-supported FOs generally offered higher revenues than other marketing channels both during and after harvesting, while diminishing with the progression of the lean season in October.

3.2 Monthly trends in average selling prices of main commodities

Figure 2- Weighted average selling price by commodity (Tanzanian Shilling, TZS/kg) - National

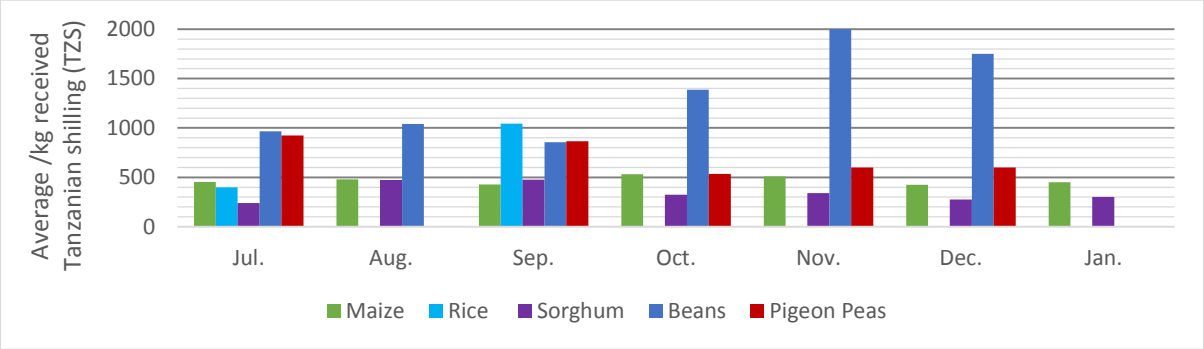


Figure 2 compares the monthly weighted average of the selling prices per kg received by monitored farmers for each commodity in the data sample: maize, rice, sorghum, beans, and pigeon peas. Respective total volumes sold at each time of sale were used as weights for the estimation.[4]

Between July 2013 and January 2014, the average price for **maize** was generally stable in all socio-economic zones of Tanzania, ranging between 396 TZS/kg and 524 TZS/kg. The coefficient of variation[5] (10%) confirms that volatility of maize prices was the lowest within the other cereal crops (45% for rice; 25% for sorghum) and pulses (32% for beans; 22% for pigeon peas) in the data sample.

Volatility of **sorghum** prices mostly resulted from the combined effect of predictable price increases after harvesting (August) and continuous fluctuations of local market prices in *Kagera* (*Lake* zone), the main market for sorghum in the data sample. Sorghum prices ranged between 240 TZS and 340 TZS in any marketing channel of the other economic zones.

Unsurprisingly, unit prices for **pigeon peas** were higher at the end of the lean season in July (1,068 TZS) and gradually dropped to 600 TZS/kg in correspondence to harvesting (July-November)[6]; the only exception, a significant spike characterized both local market and FOs prices in the region of *Kigoma* (*Western* zone) in September 2013.

[4] The analysis presented in this section only covers price trends at country level; focus on regional differences in price levels is provided in Figure 18, Annex II.

[5] The coefficient of variation is estimated as the ratio of the standard deviation of a data series to the mean. In the case under analysis, the coefficient of variation provides a measure of the dispersion of unit prices from their average during the reporting period and allows to compare price volatility among commodities in the data sample.

[6] Source: FAO Crop Calendar

With few exceptions, **beans** prices globally increased since the main harvest season (July-August) and reached 2,000 TZS/kg at the peak of the lean period in November. In September, the average price/kg for beans was dragged down by high price differentials among economic zones (Figure 18 Annex II and

Figure 19, Annex III): at that time, farm gate and local market prices in beans exporting regions (Lake and Western zones) were roughly double than prices recorded on the same selling points in the rest of the country, possibly a reflection of the expansion of beans exports witnessed during the second and third quarters of 2013.[7]

3.3 Analysis of seasonal trends in average selling prices - Beans and Maize

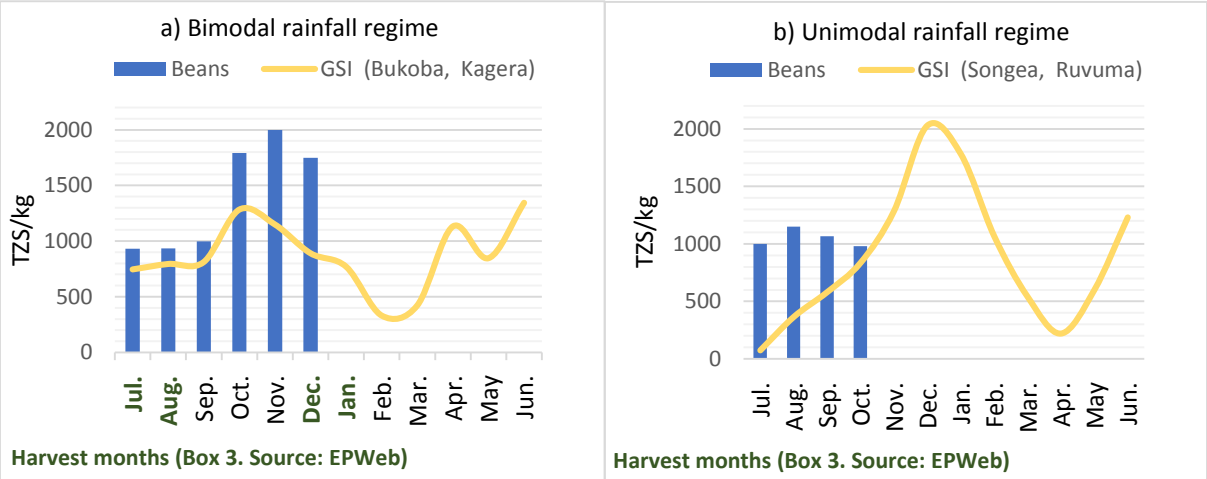
The monthly distribution of average selling prices suggests that seasonality particularly affected the price behaviour of some of the commodities in the data sample such as **beans** and **sorghum**, though it appeared less evident for **maize**, due to scarce price volatility throughout data reporting**.**

Beans' prices followed an underlying seasonal pattern across the sampling period, confirmed by the Grand Seasonal Index (GSI).[8] Figure 3(*a/b*) displays the weighted average selling prices/kg received for beans by participating farmers in *bimodal* and *unimodal* areas of Tanzania and compares them to the GSIs that reflect price seasonality according to the two rainfall regimes.[9]

Seasonal price behaviour was more pronounced in *bimodal* than in *unimodal* areas. In bimodal regions, average bean selling prices followed the GSI during most of data collection (Figure 3 a): they were stable (*Northern* zone) or increased slightly (*Lake* zone) after harvest, increased significantly in October, and declined in December at the onset of the *vuli* harvest (December-January).

In *unimodal* areas, beans prices in any marketing channel surprisingly fell by 7% in September and by 8% in October, in contrast with the expected seasonal price behaviour at the beginning of the lean period (Figure 3 b).[10]

Figure 3 -Monthly distribution of average selling prices and price seasonality - Beans



[7] The *East Africa Cross-Border Bulletin* produced by the Food Security and Nutrition Working Group (FSNWG) in October 2013 highlighted a 70% increase of beans exports from Tanzania between April and September 2013.

[8] The Grand Seasonal Index (GSI) is the average of seasonal indices, which are the ratio between a price and its centred moving average capturing the cycle of seasonal trends over the year.

[9] Specifically, wholesale prices provided by VAM[9] for the market of *Bukoba* in *Kagera* (*Lake* zone) were used to estimate the GSI for bimodal areas; beans prices in *Songea– Ruvuma* (*Southern* zone) were used to estimate the GSI for unimodal ones.

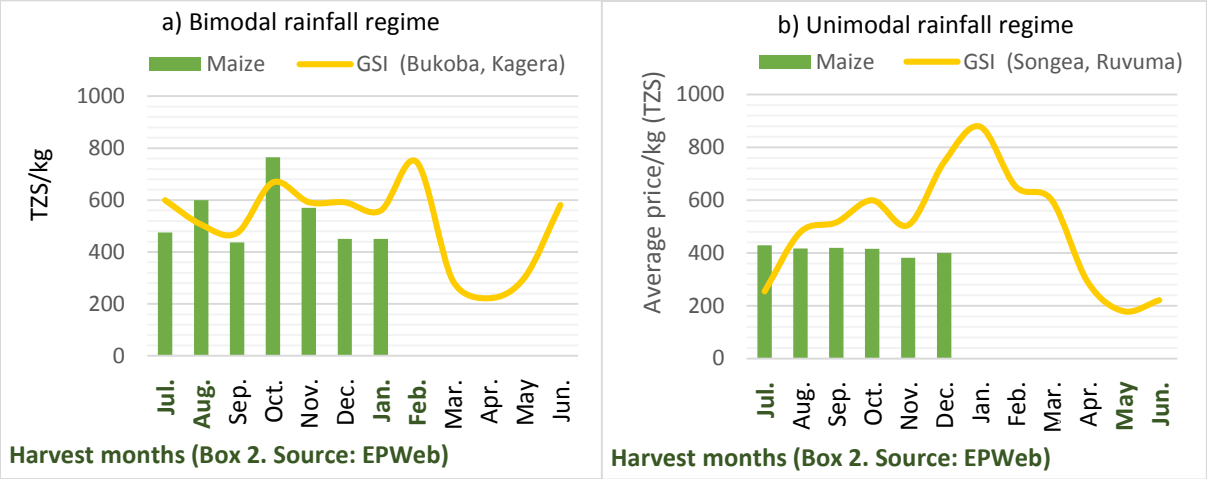
[10] This result should be interpreted with caution. In fact, the beans prices/kg recorded in unimodal areas throughout data collection coincide to the selling price received by a single farmer in *Kigoma* – in the *Western* zone. For this reason, they can be hardly regarded as a representative average for the whole monitored area.

Fluctuations of the average selling prices for **maize** (Figure 4 a/b) were generally limited throughout the agricultural cycle and poorly correlated with the GSI for both rainfall regimes.

In *bimodal* regions, the seasonal trend of average maize prices was evident only around the peak of the lean season: prices decreased twice at the end of harvesting in September and at the beginning of the *vuli* harvest in November, coinciding to a double fall in the GSI; in October they experienced a 27% increase, following a 8% increase in the GSI. Seasonal trends did not emerge during the remainder of the reporting period.

In *unimodal* areas, maize prices fell by 3% at the beginning of the lean season, in August; they remained stable or slightly decreased in September-October and December, despite the upward seasonal trend of the GSI (Figure 4 *b*).

Figure 4 - Monthly distribution of average selling prices and price seasonality - Maize

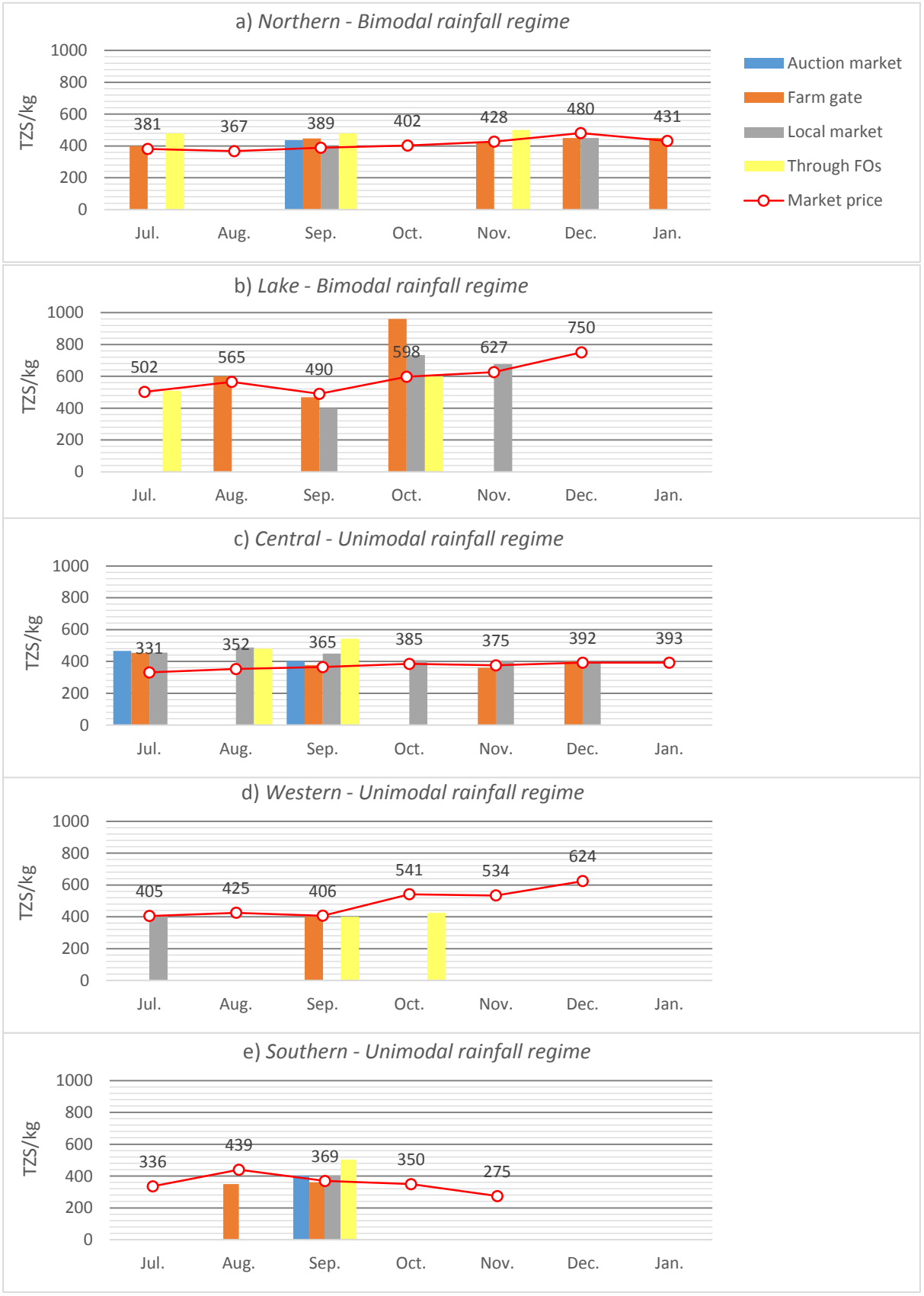


3.4 Monthly selling price trends and price differentials among marketing channels - Maize

Strengthening FOs' marketing capacity is among primary aims of P4P, to be achieved through wider market access and improved quality of the commodities for sale. This should translate in FOs' ability to grant their members higher prices relative to prices prevailing in each locality and in comparison to what they could earn through other channels during the marketing season.

The analysis of maize prices in the data sample confirms that the prices received by farmers through their FOs were generally higher than prevailing market prices for this commodity in most socio-economic zones. Similarly, FOS in all areas were able to ensure higher revenues for maize than all other marketing channels both during harvesting and at the beginning of the lean season.

Figure 5- Monthly weighted average of maize prices per kg by marketing channel vs. market price



3.4.1 Selling prices vs. prevailing market prices

Figure 5 tracks the monthly distribution of the average selling prices/kg for **maize** in each point of sale; panels *a/e* focus on the diverse socio-economic zones of Tanzania. Selling prices are compared to the level maize price/kg that, according to farmers, prevailed in the market of their respective localities at the time of each sale (red line in the graph).[11]

Maize prices received by farmers for their sales in the **local market** were at the same level or slightly above the reference price for the same commodity in nearly all socio economic zones. Among exceptions, the local market price/kg paid to monitored farmers in the *Central* zone was above prevailing maize prices in August and September (by 38% and 23%, respectively); in the *Lake* zone, it shifted from 20% below to 20% above the prevailing maize price between September and October.

Similarly, maize prices at the **farm gate** remained aligned to the level of prevailing market prices in most socio-economic zones. There are few exceptions: in October 2013 the prices received by monitored farmers at the farm gate were 60% higher than reference maize prices in the *Lake* zone. In contrast, the farm gate price/kg in the *Southern* regions was 20% lower than the general maize price level in August.

Between July 2013 and January 2014, prices received by sampled farmers through their respective FOs were equal the market price for maize in the *Lake* zone while consistently higher in the *Northern* (15-30%), *Central* (35%-50%), and *Southern* areas (35%).

3.4.2 Price differentials across marketing channels

Price differentials among marketing channels varied greatly among economic zones and were more pronounced at the beginning of the lean season in September and October.

In *Northern* and *Lake* regions, the **farm gate** offered prices which were higher or equal than those offered by the local market during the reporting period.[12] Differently, farm gate prices in the *Central* zone were on average 15% below local market prices in the data sample.
In *unimodal* areas, selling prices at the farm gate remained lower than the prices received in all other marketing channels during the entire reporting period.[13]

Figure 6 focuses on the percentage differences between FOs' maize prices and the prices offered by other marketing channels in bimodal (Figure 6a) or unimodal areas (Figure 6 b). Only four months are considered, in correspondence to sales to FOs reported in the data sample.

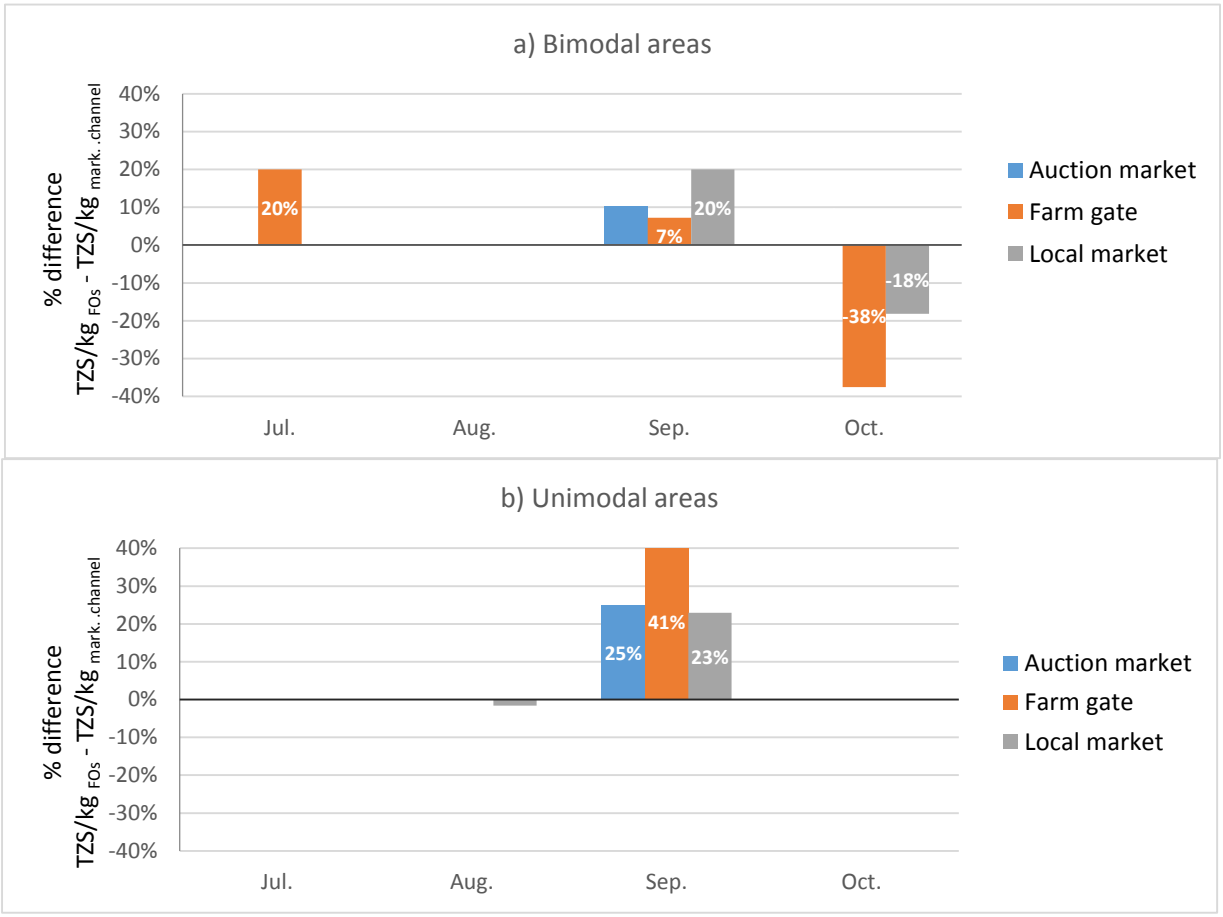
Prices received **through FOs** were generally higher during harvest and at the onset of the lean season (July-September) while turned lower at the peak of the lean period (October).

[11]Based on data availability, analysis of price differentials for other commodities in the data sample is in Annex II;
[12] Specifically, farm gate prices in the *Northern* region were 25% higher than local market prices in *Hai* (*Kilimanjaro*) at the end of the main harvest season, in September; in *Arusha*, farm gate prices were equal to prices paid in the local market in December. In the *Lake* zone, prices at the farm gate were more advantageous than local market prices in September (by 17%) and October (by 31%);
[13]For instance, farm gate prices in *Rukwa* (Southern zone) were 10% lower than corresponding local and auction market prices in September 2013

In *unimodal* areas, P4P-supported farmers' organizations were on average more advantageous than all other marketing channels in September by offering higher selling prices than auction markets (25%), the farm gate (41%), and local markets (21%).[14]

In *bimodal* regions, FOs granted higher revenues than the farm gate in July (by 20%); in September, they were higher than prices at the farm gate (7%), in auction markets (10%), as well as in the local markets (20%) of the Kilimanjaro region (*Northern* zone). FOs prices fell 38% below farm gate prices and were 18% lower than local market prices in the *Lake* zone in October 2013.[15]

Figure 6- Price differentials for maize: TZS (FOs) - GHS/Kg (other marketing channels)



4. Sale volumes and farmers' selection of marketing channels

4.1 Overview

Sale patterns for commodities in the data sample differed across Tanzanian economic zones, reflecting principal cross-border trade flows: maize sales were higher in Northern, Central¸ and Southern areas,

[14]Price differentials reflect regional price differences in the *Central* zone (regions of *Dodoma* and *Singida*) and the *Southern* zone (region of *Rukwa*). No comparison was possible for the *Western* zone, since FOs were the only marketing channels indicated by farmers in September 2013.

[15]In bimodal areas, interaction with P4P-supported FOs in the data sample were limited to October and localized in the region of *Kagera* (*Lake*zone): for this reason, price differentials for that month refer to that region only.

along main routes to Kenya; beans sales prevailed in Western and Lake regions, at the border with Rwanda.

Based on the analysis of sale trends, no clear relation emerged between farmers' selection of, and price differentials among, selling points, even when more options were available to single farmers. The farm gate was the main marketing channel for maize in Southern and Western regions despite lower prices than in other selling points during harvest. In the Lake zone, the local market prevailed at all times as the main channel for sorghum or beans, regardless of greater price incentives at the farm gate or in auction markets. The only exception: farmers sold part of their produce through FOs when they were offered better prices compared to other channels, as in September 2013.

4.2 Farmers' access to marketing channels

Preliminary considerations of the marketing options available to farmers at the time of data collection is a pre-requisite to understanding the main factors that drove their selection of preferred selling points.

In fact, access to multiple marketing channels appeared to be limited for most of the participating farmers in any socio-economic zone: 30% of farmers relied on the **farm gate** as their sole selling point; an additional 10% considered the **local market** or P4P-supported farmers' organization as a second marketing option. **Auction markets** were an option only for 36% of farmers (i.e., 9). In total, 10 farmers (i.e. 40% of the sample) sold to **P4P-supported farmers' organizations** between July 2013 and January 2014.

Table 3 compares the percentage of sampled farmers selling through each marketing channel both at national level and in individual socio-economic zones. Total farmers by area are reported for reference in column 6.

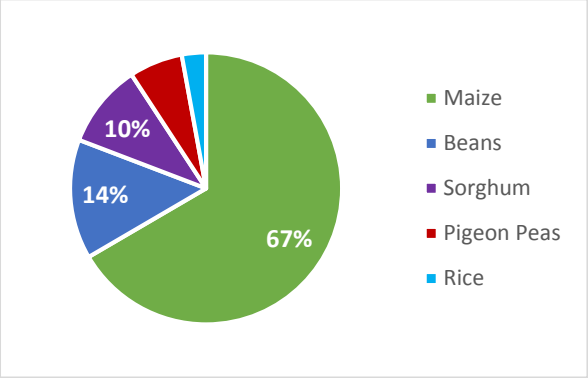
Table 3- Percentage of farmers selling through each marketing channel – Breakdown by socio-economic zones

	Farmers selling by marketing channel				Sampled farmers by area
	Farm gate	Auction market	Local market	Through FOs	
Northern	16%	29%	43%	29%	7
Lake	100%	25%	75%	75%	4
Central	83%	50%	50%	50%	6
Western	20%	40%	40%	20%	5
Southern	67%	33%	67%	33%	3
National	64%	36%	52%	40%	25

Finally, it should be noted that 4 farmers (16% of participants) did not record any sales but only reported prevailing price levels observed in the market of their locality.

4.3 Sale volumes and marketing channels

Figure 7- Sale shares by commodity - National



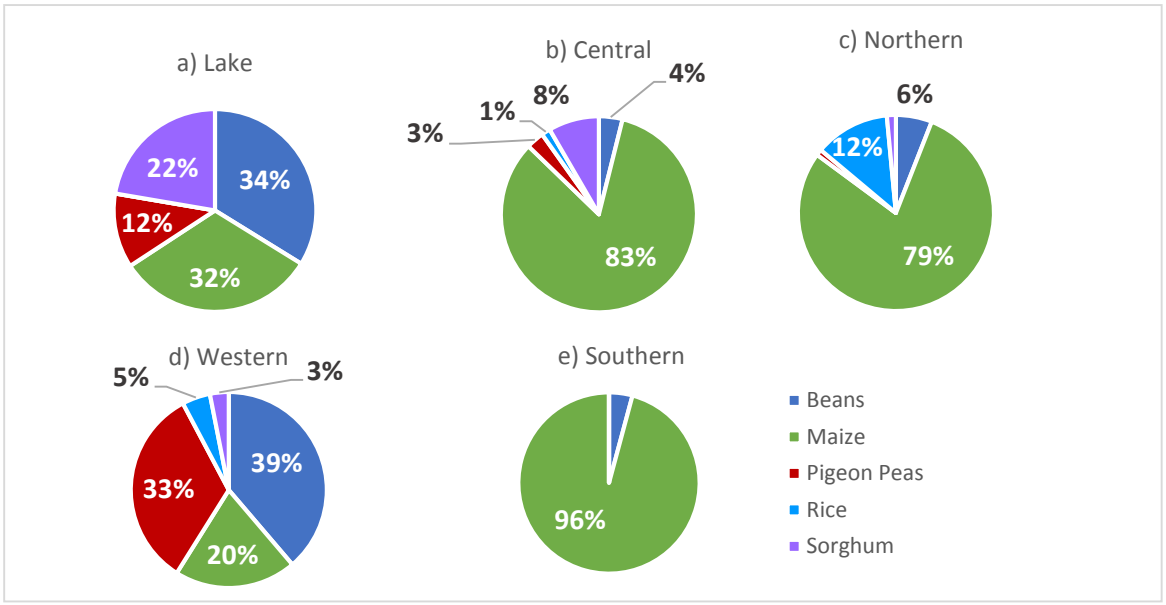
Maize was the main crop supplied by farmers in the monitored sample: 16 Mt of maize were sold from July 2013 to mid-January 2014, corresponding to 67% of total sales in the same time span (Figure 7).

Sale patterns differed across geographical zones.[16] Figure 8 shows that maize sales in the monitored sample were prevalent in the *Northern* (3Mt, 79% of supplies), *Central* (9Mt, 83% of total sales), and *Southern* areas (2 Mt, 96% of sales).

Beans were the primary commodity supplied by selected farmers in the *Western* zone (0.5 Mt, 39% of total sales in the area) and in the *Lake* region (about 2 Mt of beans sold, 34% of total supplies).

Geographical differences among sale patterns in the data sample seem related to directions of main cross-border trade flows observed from Tanzania to the rest of the East African region.[17] More specifically, concentration of maize sales was higher in the *Northern*, *Central*, and *Southern* zones of Tanzania where maize trade flows connect *Mbeya* (in the Southern Highlands) to *Arusha* (in the Northern area) to destination markets in southern Kenya. Beans were mostly sold by selected farmers in *Western* Tanzania and in the *Lake* region, where beans production meets demand for imports to neighboring Rwanda and southwestern Kenya. Rice sales appeared minor in the monitored sample (0.7 Mt, 3% of total supplies in the country) and were mostly localized in the *Northern* and *Western* regions, along main routes for rice exports to Rwanda, Uganda, and Kenya.

Figure 8 –Sale shares of main commodities by geographical zones of Tanzania



[16] As defined by the 2010 Demographic and Health Survey and reported on the 2012 Comprehensive Food Security and Vulnerability Assessment (CFSVA), Tanzania.

[17] Food Security & Nutrition Working Group (FSNWG), "East Africa and Cross-border Trade Bulletin", FWSNET/FAO/WFP Joint Cross-Border Market and Trade Monitoring Initiative, July 2014.

Table 4 shows that the farm gate and the local market were the major marketing channels chosen by selected farmers and absorbed nearly two thirds of total sales (15.2 Mt). The local market was the main selling point in the *Lake* zone: the four farmers who participated in data collection channeled 4.7 Mt of produce (61% of their supplies) into the market of *Kagera*. The farm gate was the main selling point in the *Southern* areas, where it counted 52% of total sales (1.2 Mt).

Nearly 20% of total marketed produce was channeled through FOs involved in P4P pilot activities: 4 Mt of maize and 0.5 Mt of beans were sold by farmers in the data sample to FOs between June 2013 and mid-January 2014. In particular, FOs stood out as the main marketing channel in the *Northern* and *Western* regions, where they absorbed 40% and 44% of recorded sales.

Figure 9-Sale share of main commodities by marketing channel - Socio-economic zones

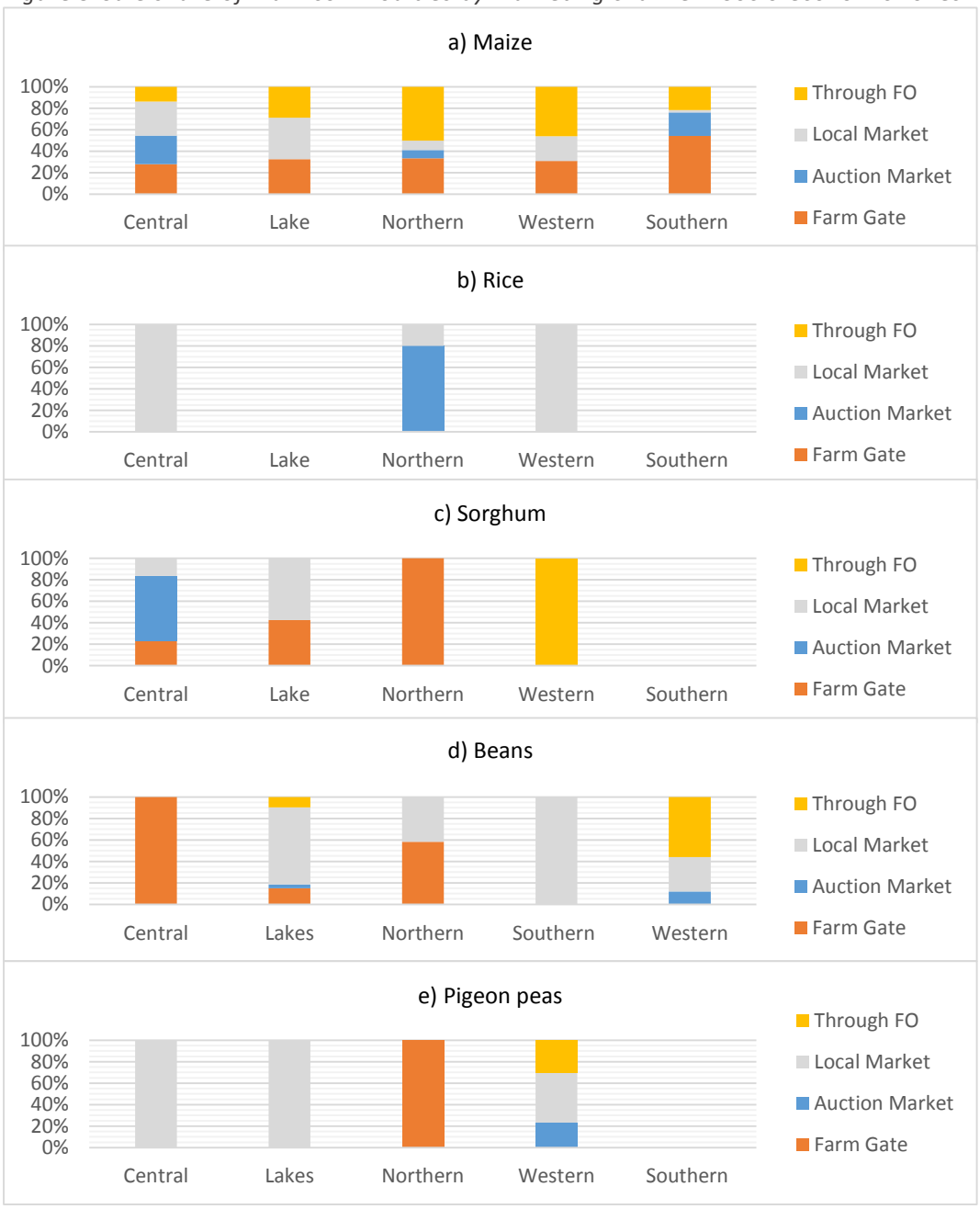


Table 4- Allocation of aggregate sales by marketing channel

		Auction Market	Farm Gate	Local Market	Through FO
Central	**Dodoma**				
	Beans	-	0.4	-	-
	Maize	2.1	1.8	1.7	0.6
	Pigeon Peas	-	-	0.3	-
	Sorghum	-	-	-	-
	Singida				
	Maize	0.2	0.6	1.0	0.6
	Rice	-	-	0.2	-
	Sorghum	0.5	0.2	0.1	-
	Total (Central)	**2.8**	**3.0**	**3.3**	**1.2**
Lake	**Kagera**				
	Beans	0.1	0.3	1.6	0.2
	Maize	-	0.7	0.8	0.6
	Pigeon Peas	-	-	0.8	-
	Sorghum	-	0.6	0.9	-
	Total (Lake)	**0.1**	**1.7**	**4.1**	**0.8**
Northern	**Arusha**				
	Beans	-	-	0.1	-
	Maize	0.2	0.3	-	-
	Pigeon Peas	-	-	-	-
	Sorghum	-	0.1	-	-
	Kilimanjaro				
	Beans	-	-	-	-
	Maize	0.1	0.2	0.2	1.1
	Rice	0.4	-	0.1	-
	Manyara				
	Beans	-	0.1	-	-
	Maize	-	0.5	-	0.5
	Total (Northern)	**0.7**	**1.3**	**0.5**	**1.6**
Southern	**Ruvuma**				
	Beans	-	-	0.1	-
	Iringa				
	Maize	-	0.8	-	-
	Rukwa	0.5	0.4	0.1	0.5
	Maize	0.5	0.4	0.1	0.5
	Total (Southern)	**0.5**	**1.2**	**0.2**	**0.5**
Western	**Kigoma**				
	Beans	0.1	-	0.2	0.3
	Maize	-	-	0.1	0.1
	Pigeon Peas	0.1	-	0.2	0.1
	Rice	-	-	0.1	-
	Sorghum	-	-	-	-
	Total (Western)	**0.2**	**0.1**	**0.5**	**0.6**
	Total (Entire country)	4.2	7.3	8.5	4.7

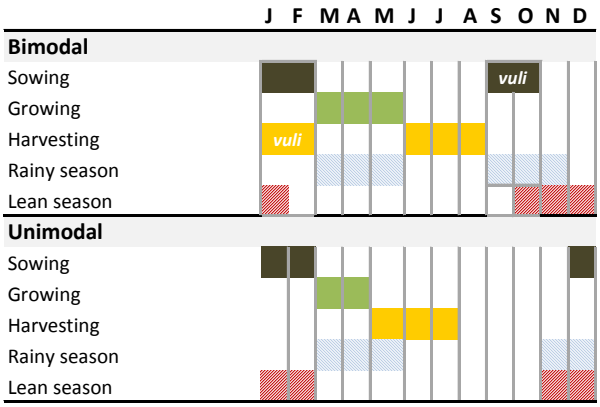
4.4 Trends in sale volumes across marketing channels

MAIZE

Figure 10 plots maize sale volumes in Tanzania as recorded by selected farmers between July 2013 and mid-January 2014. The allocation of maize supplies across marketing channels is analyzed in relation to the seasonality of maize production in the bimodal and unimodal areas of the country (Box 2).

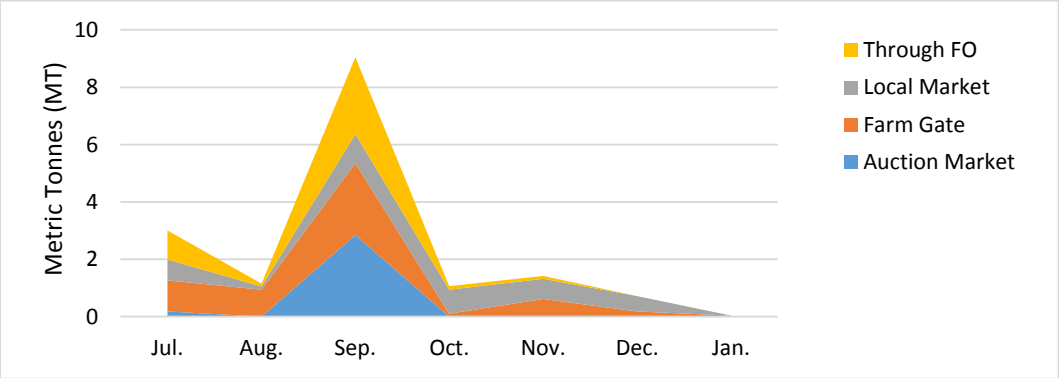
Broadly, maize sales counted 3 Mt in July and 9 Mt in September, coinciding with the main harvest season. In those months, the **farm gate** and **P4P-supported FOs** absorbed nearly 60% of total sales (2Mt in July; 5 Mt in September).

Box 2- Seasonal calendar for maize production



Source: EPWeb

Figure 10-Maize sale volumes by marketing channel

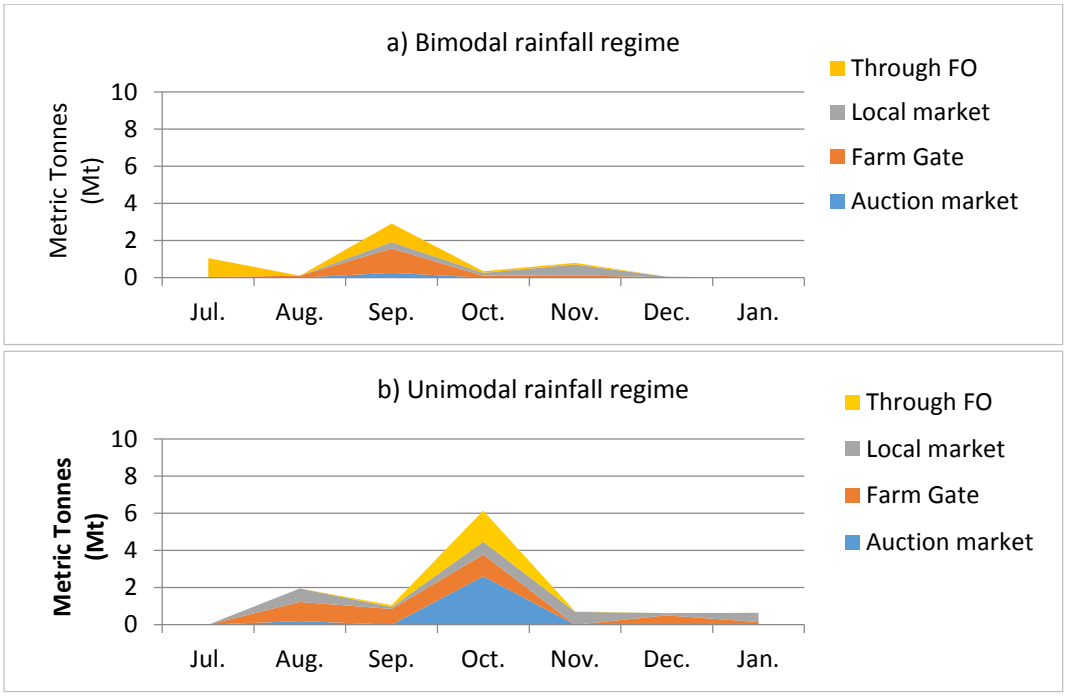


In particular, P4P-supported FOs in *bimodal* areas purchased nearly 96% of harvested maize crops in July 2013 (Figure 11a) and 30% of maize supplies in unimodal regions in September (Figure 11 b). At that time, prices paid by FOs were above those received in all other marketing channels.

In unimodal areas (Figure 11b), the farm gate was the main selling point for maize during harvest: namely, farm gates in Western and *Southern* socio-economic zones absorbed nearly 70% of supplies from July to August although farm gate prices were lower than in other marketing channels. The **local market** became the main marketing channel during the lean season: 40% to 80% of maize sales were channeled in local markets from October to December, when prices were equal or higher than in other selling points.[18]

[18] For instance, in bimodal regions the local market price for maize was on average 35% higher the corresponding FOs price and 60% above the average price/kg received at the farm gate in November 2013. In unimodal areas, the local market price was 10% higher than the respective farm gate price in *Dodoma – Central* zone.

Figure 11-Trends of maize sale volumes by marketing channel - Bimodal and unimodal areas



BEANS

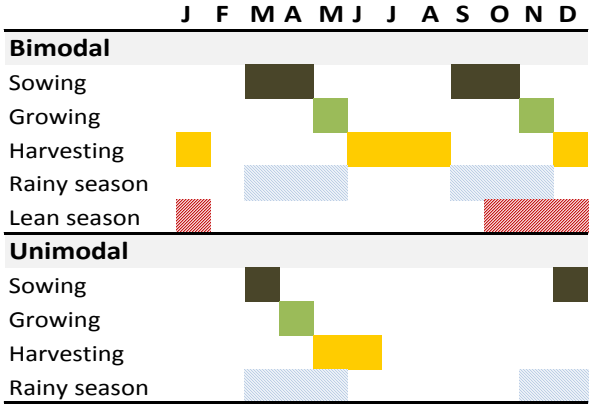
Figure 12 displays monthly trends in the allocation of beans by marketing channel, based on records of monitored farmers.

For beans, differences in the choice of preferred marketing channels by farmers appear between bimodal and unimodal areas (see Figure 13a/b).

Total sales of beans in bimodal areas increased in all markets up to 1.6 Mt after harvest (Box 3). Sale volumes declined gradually from October onward.

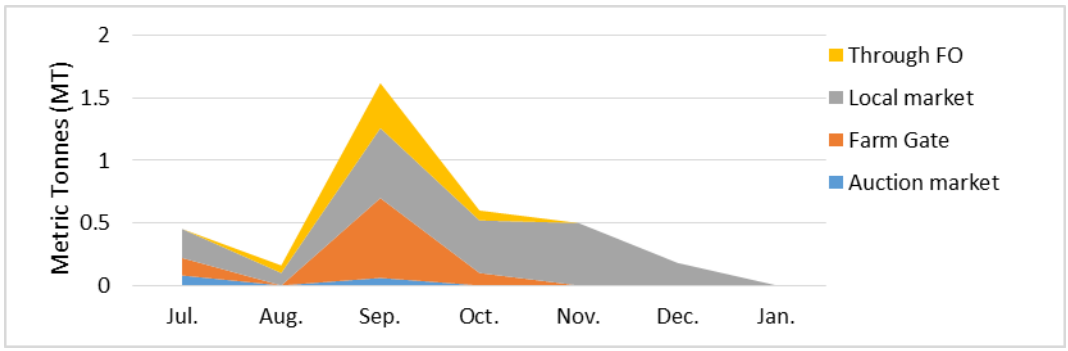
In *unimodal* areas, beans sales remained low at the beginning of the lean season (July-August) and sharply dropped from November until the end of the reporting period.

Box 3 -Seasonal Calendar for beans production



Source: EPWeb

Figure 12-Beans sale volumes by marketing channel

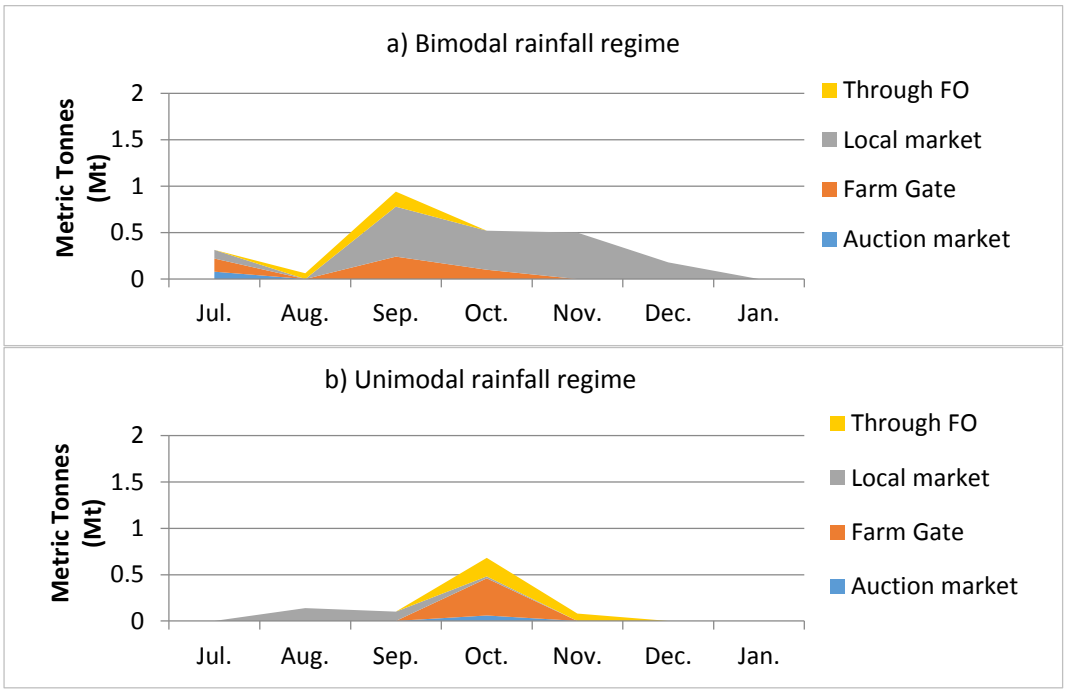


Little relation was found between either price differentials or price seasonality and farmers' selection of preferred marketing channels.

In *bimodal* regions, the **local market** was the main marketing channel during data collection regardless of price differences with other selling points. In September, about 60% of local supplies of beans were channeled through local markets in the *Lake* zone, where local market prices were on average 20% higher than prices at the farm gate and 40% above the price offered by P4P-supported farmers' organizations. In October 2013 the local market still absorbed 80% of sales (0.4 Mt) in the same areas, although farm gates prices were nearly twice the local market price (2,400 TZS as compared to 1,187 TZS).

P4P-supported FOs were the main marketing channel for selected farmers in the *Western* zone and were preferred to local markets in *Kigoma* in September 2013, when a limited amount of beans (0.2 Mt) was sold by farmers through FOs in correspondence to a unit price of 1,200 TZS/kg (22% above prevailing market prices in the same area).

Figure 13- Trends of beans sale volumes by marketing channel - Bimodal and Unimodal areas

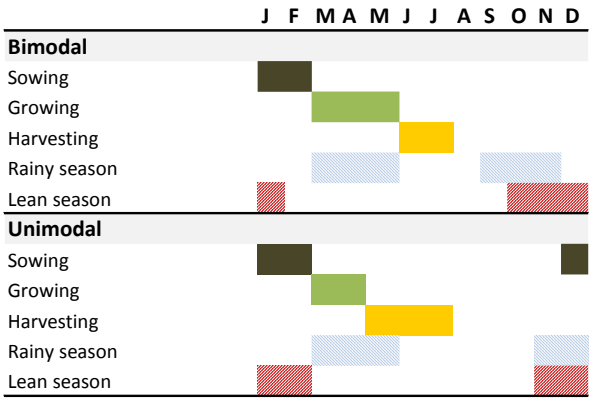


SORGHUM

Figure 14 compares sorghum sales in bimodal (panel *a*) and unimodal areas (panel *b*) between July 2013 and mid-January 2014.

Sorghum sale volumes increased twice during the reporting period in September and November 2013, although those months coincided to the lean season for both rainfall regimes.

Box 4 - Seasonal calendar for sorghum production

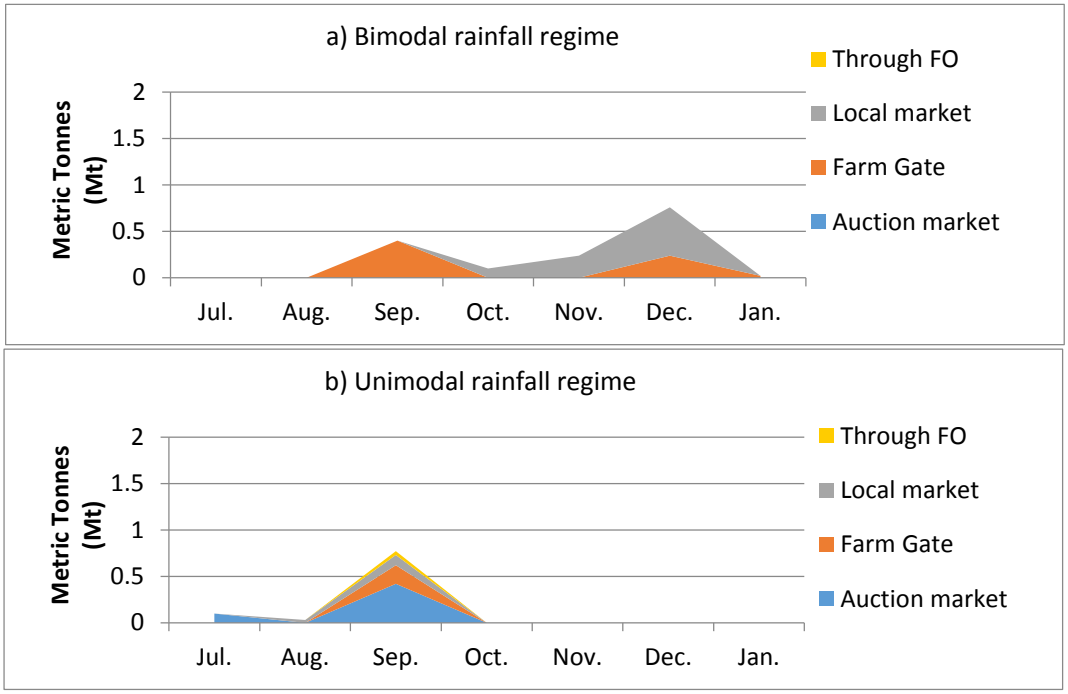


Source: EPWeb

In September, the **auction market** in the *Central* zone of Tanzania represented the main marketing channel, absorbing nearly half of total sorghum supplies. At that time, unit prices received in this selling point were 67% higher than at the farm gate and 83% higher than in the local market.

The **local market** was the primary marketing channel in the *Lake* zone, with little relation to price differentials even when several marketing options were available to single farmers. For instance, in November, 0.5 Mt of sorghum were sold in the local market of *Kagera,* although farm gate price offered a 6% higher nominal gain.

Figure 14-Trends in sorghum sales by marketing channel - Bimodal and Unimodal areas

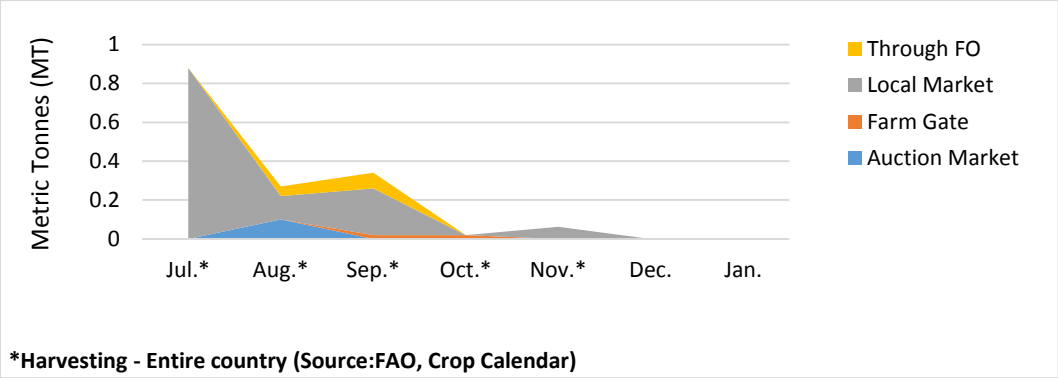


Rice and Pigeon Peas

Rice sales in the data sample were very limited during data collection and occurred punctually in July and September 2013, with 0.3 Mt at the farm gate and 0.4 MT in the auction market.

Also pigeon peas were sold in generally small quantities during data collection Figure 15. Majority of sales took place between July (mostly in bimodal areas) and September (in unimodal regions), coinciding to the harvest season. The **local market** was the main selling point. It absorbed almost the totality of supplies in July 2013 and 70% of sales in September. In both months, the average local market price in unimodal regions was nearly double the price/kg paid in other marketing channels.

Figure 15- Trends in pigeon peas sales by marketing channel



***Harvesting - Entire country (Source:FAO, Crop Calendar)**

5. ANALYSIS OF INCOME RECEIVED: MAIN COMMODITIES AND MARKETING CHANNELS

Analysis of individual income helps to shed light on the actual gains from the sale of different commodities and the contribution of each marketing channels to final income flows.

Figure 16 -Total income received by commodity during data collection (July 2013-January 2014)

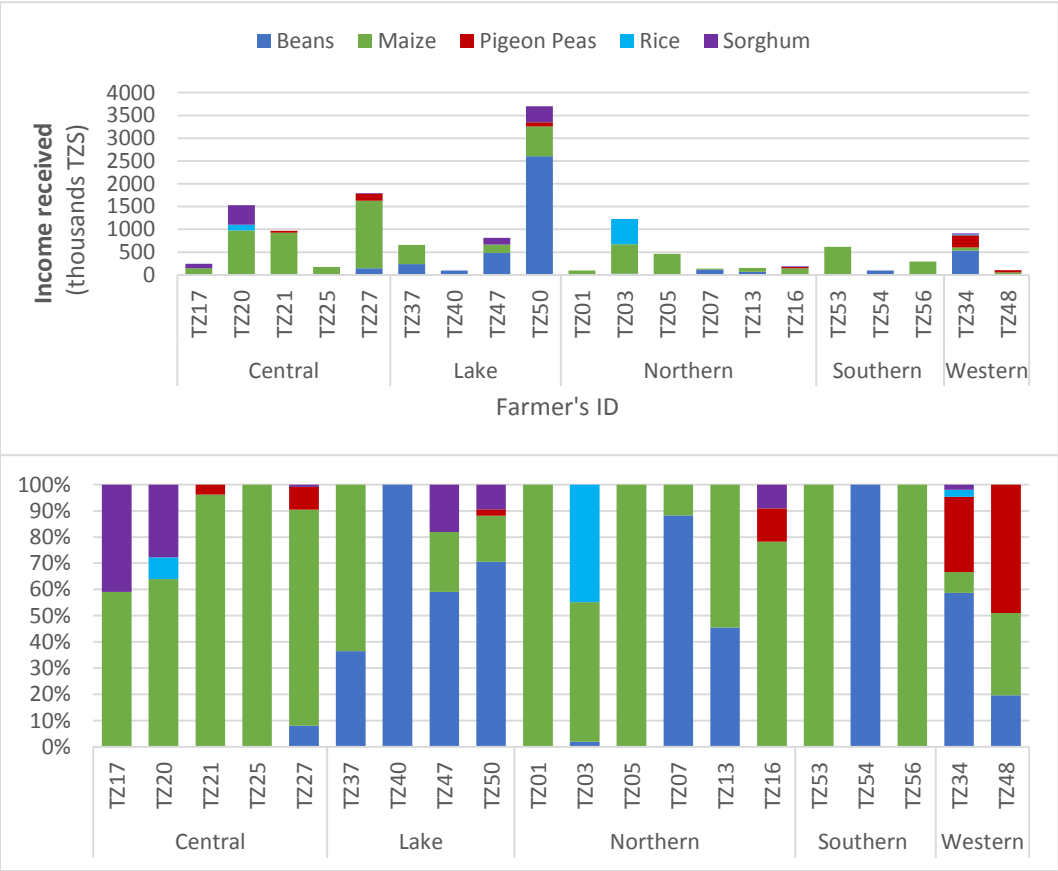
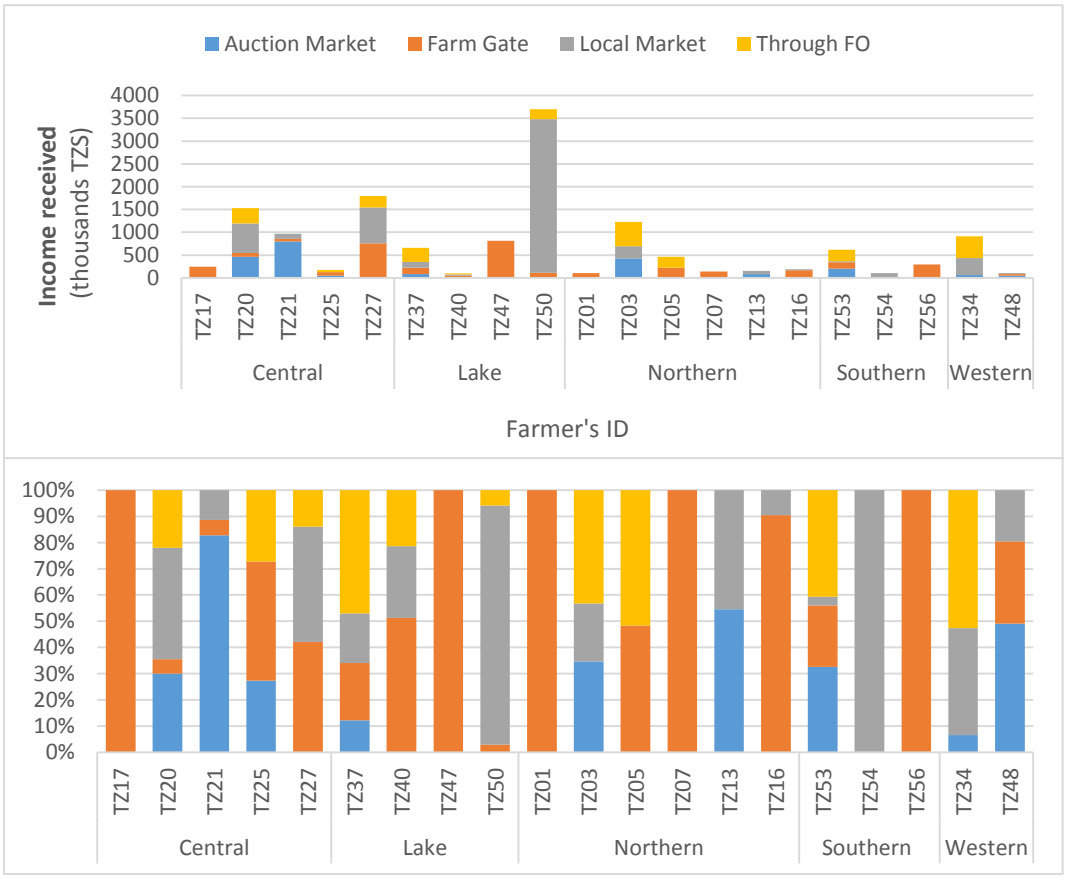


Figure 16 shows that maize was the main source of revenues in the Central, *Northern*, and *Southern* regions, where maize sales granted between 50% and 100% of the money received during the entire reporting period. With few exceptions, beans generally provided the major share of total revenues to farmers in *Lake* and *Western* zones of the country.

For 25% of sampled farmers the farm gate was the only source of income. For those farmers who had access to two marketing channels only, the farm gate was the major income sources (50%-90%) (Figure 17).The local market was the main channel for farmers in the upper quintile of the income distribution, generating between 650 and 3.4 million TZS in revenues (corresponding to 43%-90% of their total income flows).

Revenues from the local market were more limited for the other farmers in the data sample (18 and 370 thousands TZS) and generally lower as compared to the money they received in the other selling points.

Figure 17-Total income received by marketing during data collection



P4P-supported farmers' organizations provided between 14% and 53% of total income flows of the nine farmers sold through this marketing channel during the reporting period. In particular, farmers' organizations were the main income source (40%-53%) for farmers in the *Northern*, *Western*, and *Southern* areas of Tanzania[19]; in the *Lake* and *Central* regions FOs' contribution to total income was more limited (10%-30%) as compared to other selling points.

ANNEX I – REGULARITY OF DATA REPORTING BY FARMER

Table 5- Regularity of data reporting and number of sales by selected farmer

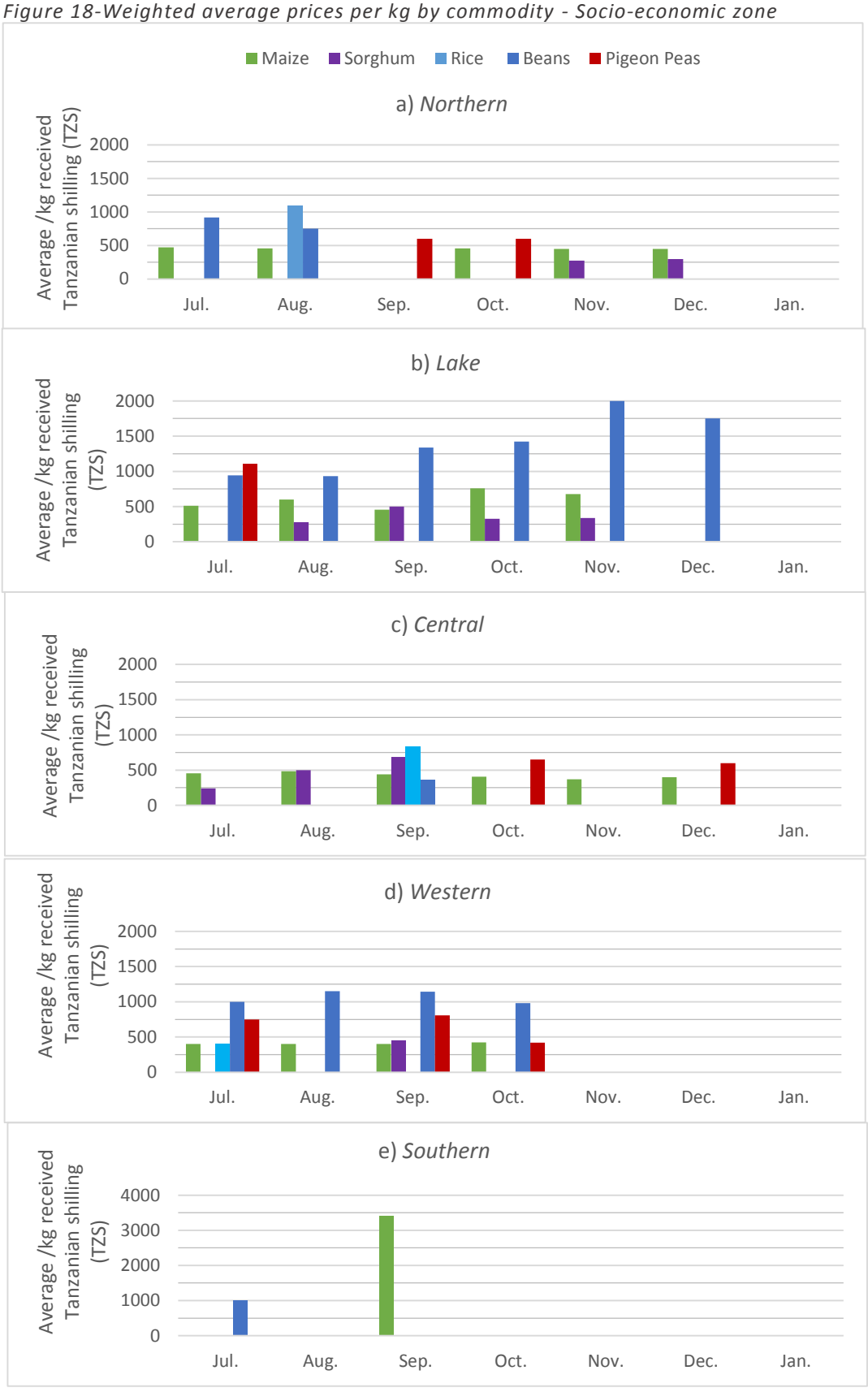
District	Farmer's ID	# of records received by month							# of records
		2013						2014	
		July	August	September	October	November	December	January	
Arusha									
Karatu	TZ13	!	✗	✓	!	✓	✓	✗	15
	TZ16	✗	✗	!	!	✓	✓	!	14
Total by region		1	0	6	4	8	8	2	29
Dodoma									
Kondoa	TZ23	✗	✗	✓	!	!	!	!	10
	TZ27	✓	!	!	!	✓	✓	!	18
	TZ25	✓	!	!	!	!	!	!	18
Kongwa	TZ21	!	!	✓	!	✗	✓	!	16
Total by region		11	6	12	7	10	11	5	62
Iringa									
Njombe	TZ56	✓	✓	!	✗	✗	✗	✗	10
Total by region		4	4	2	0	0	0	0	10
Kagera									
Karagwe	TZ40	✓	✓	!	✓	✓	!	✗	21
	TZ47	✓	✓	✓	!	✓	✗	✗	19
	TZ50	!	!	✓	✓	✓	!	✗	16
	TZ37	!	✗	!	!	!	✗	✗	7
Total by region		12	10	12	12	13	4	0	63
Kigoma									
Kasulu	TZ49	✗	✗	!	✗	✗	✗	✗	1
	TZ34	✓	!	!	!	!	!	✗	14
	TZ48	✗	✗	!	✓	✓	!	✗	13
Kigoma	TZ31	✗	✗	!	✗	!	!	✗	3
	TZ52	!	!	!	✗	✗	✗	✗	3
Total by region		5	2	8	7	7	5	0	34
Kilimanjaro									
Hai	TZ03	!	✗	!	!	!	✗	✗	8
	TZ01	!	✓	!	✗	!	✓	!	19
Total by region		4	4	6	2	5	4	2	27
Manyara									
Babati	TZ07	✓	!	!	✗	!	✓	!	18
Hanang	TZ05	!	!	!	!	!	!	✗	11
Mbulu	TZ11	✗	✗	!	!	!	✗	✗	7
Total by region		5	4	8	5	6	6	2	36
Rukwa									
Songea	TZ53	✗	✗	!	✗	✗	!	✗	2
Total by region		0	0	1	0	0	1	0	2
Ruvuma									
Sumbawanga	TZ54	!	!	!	!	!	✗	✗	10
Total by region		3	3	2	1	1	0	0	10
Singida									
Iramba	TZ17	✓	✓	✓	!	✓	!	!	24
	TZ20	!	!	✓	✓	✓	!	✗	18
Total by region		7	5	9	6	8	5	2	42
Grand Total		52	38	65	44	58	43	13	313

✗ No records
! Irregular reporting (1 to 3 records per month)*
✓ Regular reporting (4/5 per month)**

* Beginning to mid-January 2014: irregular reporting (1 record per month)
** Beginning to mid-January 2014: regular reporting (2 records per month)

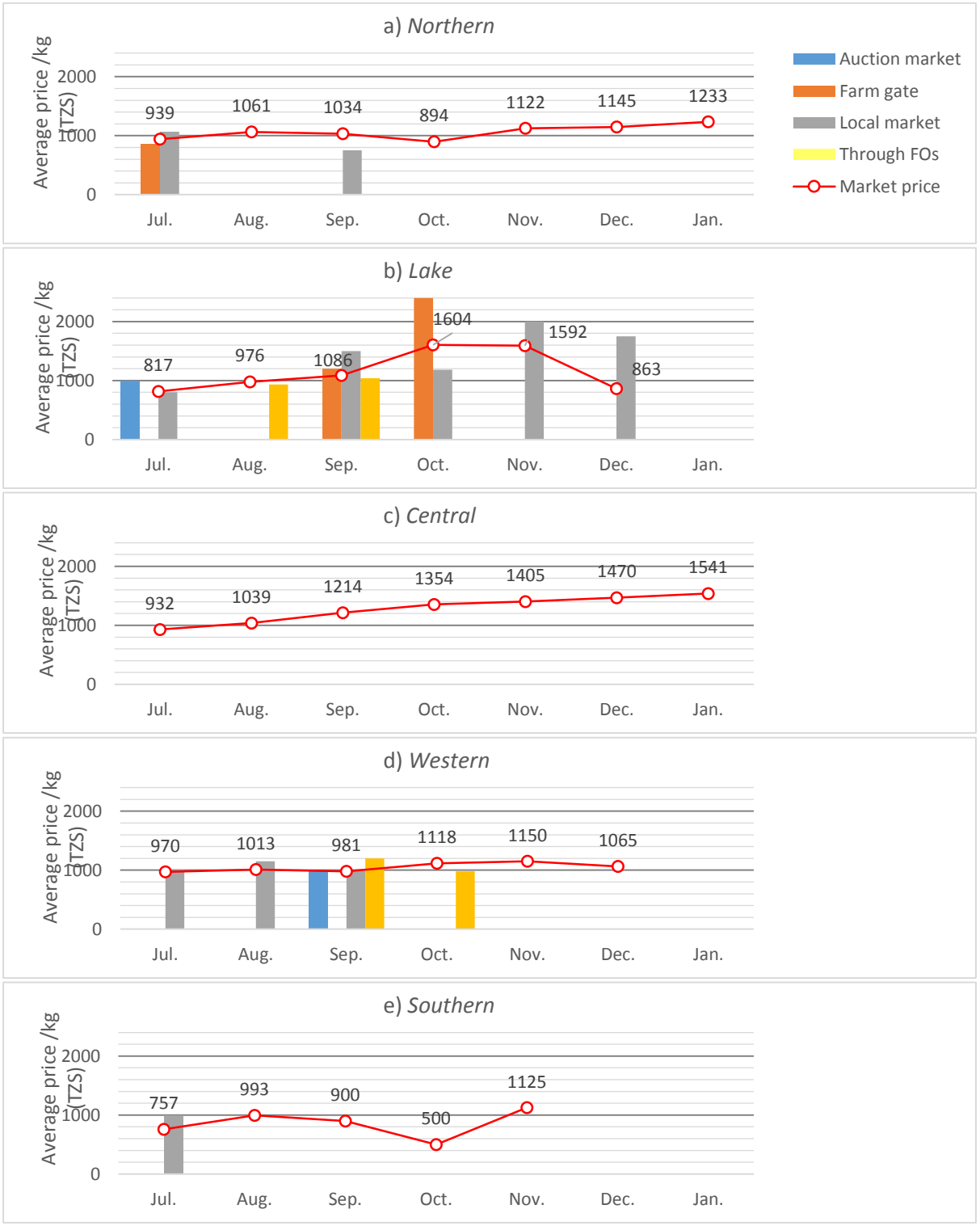
ANNEX II. WEIGHTED AVERAGE PRICE/KG– SOCIO-ECONOMIC ZONES

Figure 18-Weighted average prices per kg by commodity - Socio-economic zone



ANNEX III. PRICE DIFFERENTIALS BY MARKETING CHANNEL– BEANS

Figure 19- Monthly weighted average beans price/kg by marketing channel vs. market price



ANNEX IV. INDIVIDUAL SALES: COMMODITIES, MARKETING CHANNEL

Table 6 -Individual sale volumes (Mt) by commodity and marketing channel

	Farmer's ID	Auction Market	Farm Gate	Local Market	Through FO	Total
Northern	**Arusha**					
	TZ13					
	Beans	-	-	0.08	-	0.08
	Maize	0.20	-	-	-	0.20
	Total	**0.2**	**-**	**0.08**	**-**	**0.28**
	TZ16					
	Maize	-	0.32	-	-	0.36
	Pigeon Peas	-	-	-	-	-
	Sorghum	-	0.06	-	-	0.06
	Total	**-**	**0.42**	**0.04**	**-**	**0.46**
	Kilimanjaro					
	TZ01					
	Maize	-	0.20	-	-	0.20
	Total	**-**	**0.2**	**-**	**-**	**0.2**
	TZ03					
	Beans	-	-	-	-	-
	Maize	0.05	-	0.24	1.10	1.39
	Rice	0.40	-	0.10	-	0.50
	Total	**0.45**	**0.00**	**0.36**	**1.10**	**1.91**
	Manyara					
	TZ05					
	Maize	-	0.50	-	0.50	1.00
	Total	**-**	**0.5**	**-**	**0.5**	**1**
	TZ07					
	Beans	-	0.14	-	-	0.14
	Maize	-	-	-	-	-
	Total	**-**	**0.18**	**-**	**-**	**0.18**
Lake	**Kagera**					
	TZ37					
	Beans	0.08	-	0.10	0.06	0.24
	Maize	-	0.40	0.05	0.50	0.95
	Total	**0.08**	**0.40**	**0.15**	**0.56**	**1.19**
	TZ40					
	Beans	-	0.04	0.03	0.02	0.09
	Total	**-**	**0.04**	**0.03**	**0.02**	**0.09**
	TZ47					
	Beans	-	0.30	-	-	0.30
	Maize	-	0.20	-	-	0.20
	Sorghum	-	0.50	-	-	0.50
	Total	**-**	**1**	**-**	**-**	**1**
	TZ50					
	Beans	-	-	1.50	0.14	1.64
	Maize	-	0.10	0.78	0.12	1.00
	Pigeon Peas	-	-	0.80	-	0.80
	Sorghum	-	0.14	0.86	-	1.00
	Total	**-**	**0.24**	**3.94**	**0.26**	**4.44**

Central	**Dodoma**					
	TZ21					
	Maize	2.00	0.14	0.18	-	2.32
	Pigeon Peas	-	-	0.06	-	0.06
	Total	**2.00**	**0.14**	**0.24**	**-**	**2.38**
	TZ25					
	Maize	0.10	0.20	-	0.10	0.40
	Total	**0.1**	**0.2**	**-**	**0.1**	**0.4**
	TZ27					
	Beans	-	0.40	-	-	0.40
	Maize	-	1.45	1.54	0.50	3.49
	Pigeon Peas	-	-	0.24	-	0.24
	Sorghum	-	-	-	-	-
	Total	**-**	**1.85**	**1.81**	**0.5**	**4.16**
	Singida					
	TZ17					
	Maize	-	0.40	-	-	0.40
	Sorghum	-	0.20	-	-	0.20
	Total	**-**	**0.6**	**-**	**-**	**0.6**
	TZ20					
	Maize	0.18	0.20	0.99	0.58	1.95
	Rice	-	-	0.15	-	0.15
	Sorghum	0.52	-	0.11	-	0.63
	Total	**0.7**	**0.2**	**1.25**	**0.58**	**2.73**
Western	**Kigoma**					
	TZ34					
	Beans	0.06	-	0.14	0.28	0.48
	Maize	-	-	0.06	0.12	0.18
	Pigeon Peas	-	-	0.20	0.13	0.33
	Rice	-	-	0.06	-	0.06
	Sorghum	-	-	-	-	-
	Total	**0.06**	**-**	**0.46**	**0.57**	**1.09**
	TZ48					
	Beans	-	-	0.02	-	-
	Maize	-	0.08	-	-	0.08
	Pigeon Peas	0.10	-	-	-	0.10
	Total	**0.1**	**0.08**	**0.02**	**-**	**0.2**
Southern	**Ruvuma**					
	TZ54					
	Beans	-	-	0.10	-	0.10
	Total	**-**	**-**	**0.1**	**-**	**0.1**
	Iringa					
	TZ56					
	Maize	-	0.84	-	-	0.84
	Total	**-**	**0.84**	**-**	**-**	**0.84**
	Rukwa					
	TZ53					
	Maize	0.50	0.40	0.05	0.50	1.45
	Total	**0.5**	**0.4**	**0.05**	**0.5**	**1.45**