Quantitative Study

SBC Assignment for FANSER Project of GIZ Zambia

Prepared by CorePlus Consult Limited

Email: bruno@coreplusconsult.com

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2. SAMPLE TARGETS AND RESPONDENTS CHARACTERISTICS

1.1. Sample targets

In all the target provinces and districts, the percentage reach was >100%. The overall target was 878 beneficiaries in all the districts, and the survey reached 1,052. In Eastern province, the target was 440 beneficiaries and the survey reached 490. The same applies to Luapula province where the target sample was 438 beneficiaries, and the survey reach was 561.

Table 1:Sample coverage by districts and provinces

Province	District	Target sample	Reach	Percentage reach
All provinces		878	1052	120%
Eastern	Petauke	190	212	112%
	Katete	130	139	108%
	Sinda	120	139	116%
	Total	**440**	**490**	**112%**
Luapula	Kawambwa	168	249	148%
	Mwense	189	196	104%
	Mwansabombwe	81	116	143%
	Total	**438**	**561**	**128%**

1.2. Respondents' Characteristics and Household Information

The survey targeted project beneficiaries who were mothers with children of age between 6 – 23 months. The average age of children in Luapula province was 14 months whilst in Eastern province the average age was13 months. The main source of age data was from the mother of the child (94.5%) whilst only 5.5% of the age data were obtained from the health card/vaccination card in Eastern province. Considering Luapula province, above half (58.5%) of the child age data was obtained from the health card/vaccination card whilst 41.5% of the age data was obtained from the mother.

Household headship data was also collected, out of the 490 respondents/beneficiaries interviewed in Eastern province, 29.4% were head of households. This was common in Katete (32.4%), followed by Petauke (30.7%) and Sinda (24.5%). In Luapula province, out of the 561 interviewed beneficiaries, about 20.9% were mentioned to be the head of their households, this was prevalent in Kawambwa (23.7%), Mwansabobwe (21.6%) and Mwense (16.8%). Gender of the household head was also collected, about 60.6% of the beneficiaries came from male-headed households whilst 39.4% came from female-headed households in Eastern province. In Luapula province, again, most of the respondents came from male-headed households (70.2%). The results show that Luapula province has significantly more male-headed households (70.2%) when compared with Eastern province (60.6%), $p<0.05$.

Upon being asked if beneficiaries are living with a husband or partner, 75.1% were affirmative in Eastern province. This proportion is slightly higher when comparing it with Luapula where 70.4% mentioned to be living with a partner. Disaggregating data by district, in Luapula province, beneficiaries living with husbands or partners were common in Kawambwa (78.3%) followed by Mwense (68.4%) and Mwansabobwe (56.9%). Considering Eastern province, they were prevalent in Katete (76.3%), followed by Patauke (75.5%) and Sinda (73.4%). See table 2 below for results,

Table 2: Characteristics of interviewed respondents

	Luapula								Eastern							
	Kawambwa		Mwansabombwe		Mwense		Total		Katete		Petauke		Sinda		Total	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
Respondent household head status																
Household head	59	23.7%	25	21.6%	33	16.8%	117	20.9%	45	32.4%	65	30.7%	34	24.5%	144	29.4%
Not a household head	190	76.3%	91	78.4%	163	83.2%	444	79.1%	94	67.6%	147	69.3%	105	75.5%	346	70.6%
Total	249	100%	116	100%	196	100%	561	100%	139	100%	212	100%	139	100%	490	100%
Gender of the head of household																
Male	176	70.7%	76	65.5%	142	72.4%	394	70.2%	79	56.8%	128	60.4%	90	64.7%	297	60.6%
Female	73	29.3%	40	34.5%	54	27.6%	167	29.8%	60	43.2%	84	39.6%	49	35.3%	193	39.4%
Total	249	100%	116	100%	196	100%	561	100%	139	100%	212	100%	139	100%	490	100%
Living with a husband or partner																
Yes	195	78.3%	66	56.9%	134	68.4%	395	70.4%	106	76.3%	160	75.5%	102	73.4%	368	75.1%
No	51	20.5%	48	41.4%	62	31.6%	161	28.7%	33	23.7%	52	24.5%	37	26.6%	122	24.9%
Won't say	3	1.2%	2	1.7%	0	0.0%	5	0.9%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Total	249	100%	116	100%	196	100%	561	100%	139	100%	212	100%	139	100%	490	100%

1.2.1. Average household size

Data on average household size was collected, respondents were asked about the number of children and adults that they stay with. The results show that the average household size for Luapula was 5.7 whilst for Eastern it was 5.6, there was no difference between the average household size between the two provinces ($p>0.05$). The average household sizes are in sync with what was reported during Zambia national census in 2010, Luapula (5.1) and Eastern (5.2). Disaggregating data by the district show no difference in Luapula province, $p>0.05$. Mwansabobwe district had an average household size of 6, followed by Mwense (5.9) and Kawambwa (5.5). On the other hand, in Eastern province, disaggregating data by the district show a statistically significant difference ($p<0.05$). Households in the Petauke district had a significantly higher household size of 5.9 when compared with by Sinda (5.5) and Katete (5.4). See table 3 below for detailed results,

Table 3: Average household sizes

Province	District	N	Average	Minimum	Maximum	Standard Deviation
Luapula	Kawambwa	249	5.5	2	14	2.4
	Mwansabombwe	116	6	3	14	2.4
	Mwense	196	5.9	2	30	2.9
	Total	561	5.7	2	30	2.6
Eastern	Katete	139	5.4	2	11	1.9
	Petauke	212	5.9	2	15	2.4
	Sinda	139	5.5	2	17	2.2

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	Total	490	5.6	2	17	2.2

Analysis of data by gender of the household head shows that there was a significant difference in Luapula province, ($p<0.01$). Male headed households had a significantly higher household size (5.9) when compared with female-headed households (5.1). Considering Eastern province, the results did not show any significant difference in the average household size between male and female-headed households, ($p>0.05$). Female-headed households had an average of 5.7 whilst male-headed households had an average of 5.6.

The household sizes were categorised into, 2-4 members, 5 – 7 members, 8-10 members and more than 10 members, see table 4 below. The results show that most of the households in Luapula province had 2 – 4 members (39.4%), followed by 5 – 7 members (38.1%) and 8 – 10 members (18.7%). In Eastern province, most of the households had 5 – 7 members (44.5%) followed by 2 – 4 members (35.9%) and 8 – 10 members (16.5%).

Table 4: Number of children and adults in a household

Province	District	Number of children and adults in a household									
		2 - 4 members		5 - 7 members		8 - 10 members		> 10 members		Total	
		Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %
Luapula	Kawambwa	109	43.8%	91	36.5%	40	16.1%	9	3.6%	249	100%
	Mwansabombwe	39	33.6%	41	35.3%	32	27.6%	4	3.4%	116	100%
	Mwense	73	37.2%	82	41.8%	33	16.8%	8	4.1%	196	100%
	Total	221	39.4%	214	38.1%	105	18.7%	21	3.7%	561	100%
Eastern	Katete	53	38.1%	64	46.0%	21	15.1%	1	0.7%	139	100%
	Petauke	66	31.1%	98	46.2%	36	17.0%	12	5.7%	212	100%
	Sinda	57	41.0%	56	40.3%	24	17.3%	2	1.4%	139	100%
	Total	176	35.9%	218	44.5%	81	16.5%	15	3.1%	490	100%

3. INDICATOR 1: THE NUTRITIONAL DIVERSITY OF 110,000 VULNERABLE WOMEN (AGED 15-49) IN THE DISTRICTS OF KATETE, PETAUKE AND SINDA IN THE EASTERN PROVINCE (77,500 WOMEN) AND IN THE DISTRICTS OF KAWAMBWA, MWENSE AND MWANSABOMBWE IN LUAPULA PROVINCE (32,500 WOMEN) HAS IM-PROVED ACCORDING TO THE INDIVIDUAL DIETARY DIVERSITY SCORE (IDDS).

Women were asked about what they ate or drank during the previous day or night before the survey, researchers then grouped the food into 14 different categories categories, see table below. The results show that, in Luapula province, the top three most mentioned food groups were dark green leafy vegetables (91.6%), followed by foods made from grains (85.7%) and white roots, tubers and plantains (68.1%). The three least mentioned food groups in Luapula were, meat and poultry (20.1%), followed by milk and milk products (14.6%) and organ meat (13.9%). On the other hand, in Eastern province, the top three most

mentioned food groups were, foods made from grains (99.8%), followed by dark green leafy vegetables (83.9%) and nuts (including groundnuts) and seeds (60%). The three least mentioned food groups were Milk and milk products (11.4%), followed by organ meat (9.6%) and fish and seafood (9.2%). Table below has the results in detail,

Table 5: Foods the women ate or drank during the previous day or night before the survey

N	Luapula				Eastern			
	Kawambwa	Mwansabombwe	Mwense	Total	Katete	Petauke	Sinda	Total
	249	116	196	561	139	212	139	490
Foods made from grains (maize, millet, rice, wheat, sorghum,)	86.3%	90.5%	82.1%	85.7%	100.0%	100.0%	99.3%	99.8%
White roots and tubers and plantains (white potatoes, cassava, white yams, plantains)	73.1%	56.0%	68.9%	68.1%	22.3%	17.0%	7.9%	15.9%
Pulses (beans, peas, soya)	35.3%	33.6%	19.9%	29.6%	59.0%	42.9%	45.3%	48.2%
Nuts (including groundnuts) and seeds	50.6%	31.9%	33.2%	40.6%	70.5%	67.0%	38.8%	60.0%
Milk and milk products (e.g. yoghurt)	13.7%	25.0%	9.7%	14.6%	16.5%	12.3%	5.0%	11.4%
Organ meat (liver, kidney, heart)	13.7%	25.0%	7.7%	13.9%	15.1%	11.3%	1.4%	9.6%
Meat and poultry (poultry, goat, small animals)	22.9%	25.9%	13.3%	20.1%	50.4%	42.5%	21.6%	38.8%
Fish and seafood (including canned and dried fish)	49.4%	55.2%	65.8%	56.3%	18.0%	6.6%	4.3%	9.2%
Eggs (from any kind of animals)	39.8%	32.8%	22.4%	32.3%	35.3%	33.0%	18.0%	29.4%
Dark green leafy vegetables (leaves of cassava, pumpkin, rape, sweet potatoe, amaranthus)	92.8%	90.5%	90.8%	91.6%	77.0%	88.7%	83.5%	83.9%
Vitamin A-rich vegetables, roots and tubers (carrot, pumpkin, squash, orange sweet potatoes)	37.8%	25.0%	36.7%	34.8%	16.5%	20.8%	23.0%	20.2%
Vitamin A-rich fruits (yellow mangoes, yelow paw paws, mikama	87.6%	26.7%	44.9%	60.1%	55.4%	40.6%	59.0%	50.0%
Other vegetables	36.1%	28.4%	25.5%	30.8%	38.1%	38.7%	30.9%	36.3%
Other fruits	26.5%	24.1%	22.4%	24.6%	24.5%	15.6%	12.2%	17.1%

The food categories/groups were used to calculate the women individual dietary diversity score (IDDS). Generally, women, IDDS is calculated based on 9 food groups which include, starchy staples[1], dark green leafy vegetables, other Vitamin A rich fruits and vegetables [2], other fruits and vegetables [3], organ meat, meat and fish [4], eggs, legumes, nuts and seeds and milk and milk products (Swindale and Bilinsky, 2006). An analysis of the foods consumed by women was carried out. After grouping the fooods into nine groups, the results show that the most eaten food group was grains, roots or tubers (99.8% in Eastern and 97.5% in Luapula), this is followed by dark green leafy vegetables (91.6% in Luapula and 83.9% in Eastern) and other vitamins A rich fruits and vegetables (64% in Luapula and 58.2% Eastern). The least consumed food group was found to be milk and milk products (14.6% in Luapula and 11.4% in Eastern).

In Luapula province, milk and milk product were commonly consumed in Kawambwa (13.7%), whilst in Eastern, it was prevalent in Katete (16.5%). See table below for detailed results,

Table 6:Food group types consumed by women

N	Luapula				Eastern			
	Kawambwa	Mwansabombwe	Mwense	Total	Katete	Petauke	Sinda	Total
	249	116	196	561	139	212	139	490
Grains, roots or tubers	96.8%	97.4%	98.5%	97.5%	100%	100.0%	99.3%	99.8%
Dark green leafy vegetables	92.8%	90.5%	90.8%	91.6%	77.0%	88.7%	83.5%	83.9%
Other vitamin A rich fruits and vegetables	88.4%	27.6%	54.6%	64.0%	63.3%	45.3%	72.7%	58.2%
Other fruits and vegetables	37.3%	28.4%	26.0%	31.6%	42.4%	42.9%	34.5%	40.4%
Meat and fish	55.8%	56.9%	69.4%	60.8%	54.7%	43.9%	23.7%	41.2%
Eggs	39.8%	32.8%	22.4%	32.3%	35.3%	33.0%	18.0%	29.4%
Legumes, nuts and seeds	58.2%	38.8%	41.3%	48.3%	82%	75.9%	56.8%	72.2%
Milk and milk products	13.7%	25.0%	9.7%	14.6%	16.5%	12.3%	5.0%	11.4%

Disaggregating data by household wealth shows a significant association between and women who had consumed grains, roots or tubers, $p<0.05$. A higher proportion of women who ate such foods were from relatively richer households (99.5%) when compared to poorest households (94.7%). The consumption of dark green leefy vegetables and household wealth was significant in Eatsern province ($p<0.05$). About 89.6% of the women who had consumed such food group were from relatively richer household, this is significantly higher when comparing with the poorest households (78.5%). In Luapula province, the association of wealth and consumption of meat and fish was significant, $p<0.05$. Such food group was commonly consumed by women fom households with moderate wealth (71.7%), however the proportion of women who had consumed meat and fish were signicantly higher among relatively richer households (58.3%) when compared to poorest households (52.4%). See table below for detailed results,

Table 7: Food group types consumed by women by wealth group

	Luapula	Eastern

[1] A combination of cereals and white roots an tubers
[2] A combination of vitamin A rich vegetables and tubers and vitamin A rich fruits
[3] A combination of other fruits and other vegetables
[4] A combination of meat and fish

N	Poorest	Moderate	Relativley rich	Total	Poorest	Moderate	Relativley rich	Total
	187	187	187	561	163	164	163	490
Grains, roots or tubers	94.7%	98.4%	99.5%	97.5%	99.4%	100.0%	100.0%	99.8%
Dark green leafy vegetables	89.3%	92.0%	93.6%	91.6%	78.5%	83.5%	89.6%	83.9%
Other vitamin A rich fruits and vegetables	69.5%	62.6%	59.9%	64.0%	60.1%	55.5%	58.9%	58.2%
Other fruits and vegetables	33.7%	28.9%	32.1%	31.6%	43.6%	41.5%	36.2%	40.4%
Meat and fish	52.4%	71.7%	58.3%	60.8%	44.8%	41.5%	37.4%	41.2%
Eggs	33.7%	32.1%	31.0%	32.3%	25.8%	29.9%	32.5%	29.4%
Legumes, nuts and seeds	50.8%	48.7%	45.5%	48.3%	69.9%	73.8%	73%	72.2%
Milk and milk products	13.4%	15.5%	15.0%	14.6%	6.7%	16.5%	11.0%	11.4%

The food groups shown above were grouped into two groups, (1) five or more food groups and, (2) less than five food groups. The results show that a slightly higher proportion of women in Luapula province (40.3%, N=561) consumed a wide variety of foods (more than 5 food groups) when compared to Eastern province (40.2%), however, the difference is not statistically significant (p>0.05), see figure 1 below

Analysis by district shows an association between the number of food groups consumed by women and district (p<0.05). In Luapula province, most women who consumed more than five food groups were found in Kawambwa (53%), followed by Mwense (32.7%) and Mwansabobwe (25.9%). Considering Eastern province, women who consumed more than five food groups were found in Katete (51.1%) followed by Petauke (42%) and Sinda (26.6%). See figure below for the results,

Figure 1:Number of food groups consumed by women

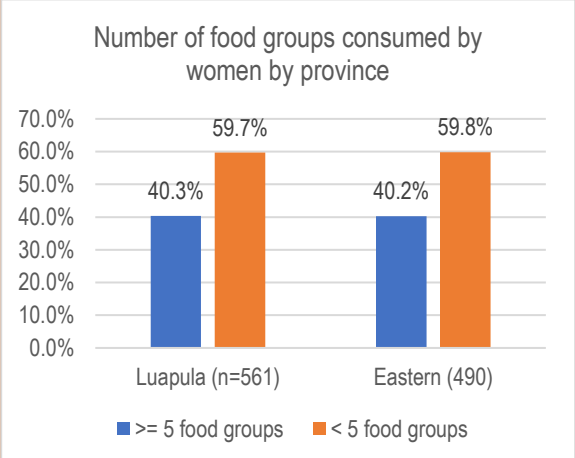
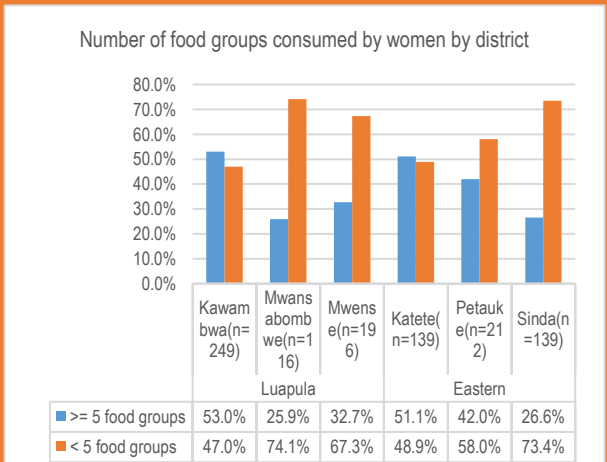


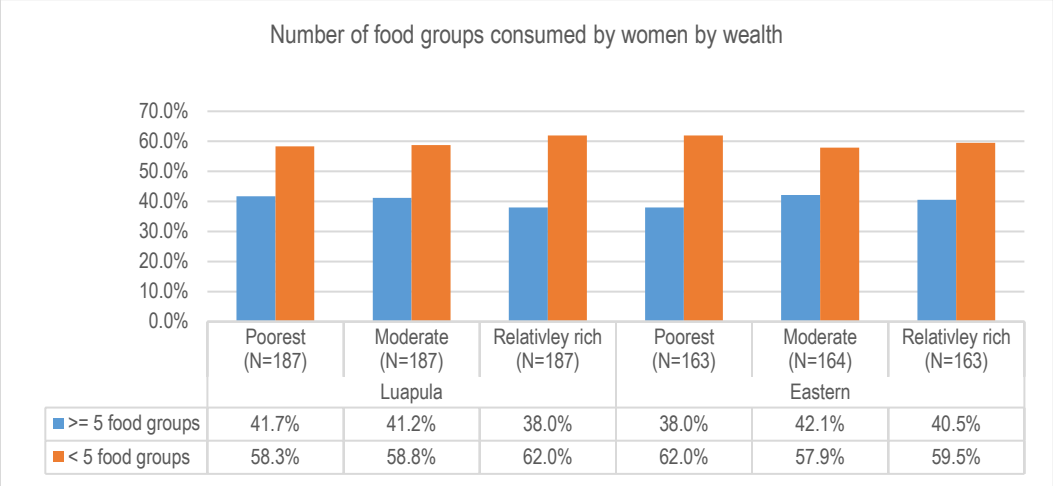
Figure 2:Number of food groups consumed by women by district



Analysis of data by wealth show that, in Luapula district, women who consumed more than 5 food groups were common among households who were in the poorest group (41.7%), followed by households with moderate wealth (41.2%),

and 38% from relatively rich households. There exist a significance difference between the proportion of women who ate more than 5 food groups between the poorest households (41.7%, N=187) and relatively rich (38%, N = 187). Women from poorest households tend to have mostly consumed more than 5 food groups when compared with those that were from relatively rich households. On the other hand, Eastern province, most of the women who consumed more than 5 food groups were prevalent amoung households with moderate weath (42.1%), followed by 40.5%% from relatively rich households and 38% from poorest households. The difference in the proportion of women who consumed more than five food groups between the poorest and relatively rich households was statistically significant (p<0.001). Women from relatively rich households (40.5%, N=163) tend to have mostly consumed more than five food groups when compared with those from poorest households (38%, N=163). See figure below fro detailed results,

Figure 3:Number of food groups cosnumed by women by household wealth



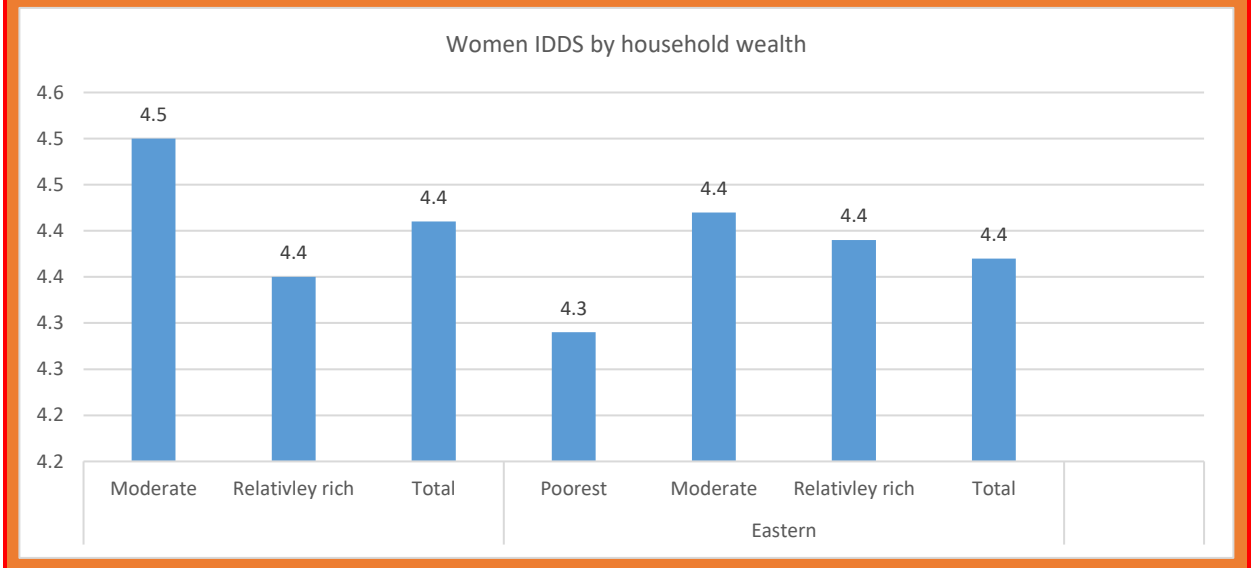
To calculate indicator number one, the average of IDDS was calculated. The results show that there was no difference in the average number of food groups consumed in Luapula and Eastern provinces, (p>0.05). The average women IDDS in Luapula and Eastern provinces was the same, 4.2. Disaggregating data by districts show that, districts were significantly different in the average IDDS, (p<0.01). Kawambwa district had women who had considerably higher IDDS of 4.8, followed by Katete with a score of 4.7 and Petauke with a score of 4.4. See the table below which shows the average women individual dietary diversity scores for different districts,

Table 8:Women IDDS by district

District	N	Mean	Std. Deviation	95% Confidence Interval for Mean		Minimum	Maximum
				Lower Bound	Upper Bound		
Kawambwa	249	4.8	1.8	4.6	5.0	1	8
Mwansabombwe	116	4.0	2.4	3.5	4.4	0	8
Mwense	196	4.1	1.8	3.9	4.4	1	8
Katete	139	4.7	1.7	4.4	5.0	2	8
Petauke	212	4.4	1.4	4.2	4.6	2	8
Sinda	139	3.9	1.3	3.7	4.2	1	8

Dissagreggating data by wealth did not show any variations in the women average IDDS, (p>0.05). The average IDDS was at least 4.3 in all the groups of wealth in the two provinces, see figure below,

Figure 4: Women IDDS by household wealth

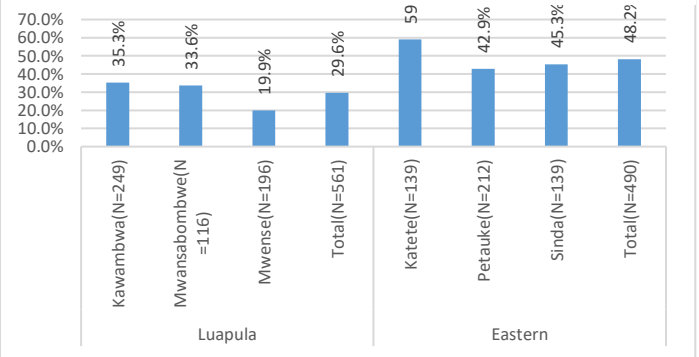


1.3. Consumption of Pulses by Women

1.3.1. The proportion of respondents who ate any type of pulses during the previous day and the last time a respondent ate any type of pulses

A pulse is an edible seed that grows in a pod[5], they include beans, lentils, peas, soya and other local beans. The survey collected data on the consumption of pulses by women. Respondents/women were asked if they had consumed pulses during the previous day. The results show that consumption of pulses by women was prevalent in Eastern province (48.2%, N=490) when compared with Luapula province (29.6%, N=561), the difference was statistically significant (p<0.01). In Eastern province, women who had eaten any type of pulses during the previous data were common in Katete (59%), followed by Sinda (45.3%) and Petauke (42.9%). On the other hand, in

Figure 5: Proportion of women who ate any type of pulses during the previous day



[5] Beans and pulses in your diet - NHS (www.nhs.uk)

Luapula province, they were mostly found in Kawambwa (35.3%), followed by Mwansabobwe (33.6%) and Mwense (19.9%). See figure 3 for detailed results.

Moreover, women were asked about the last time they had eaten any type of pulses. The results show that in Eastern province about 31.2% mentioned that they had eaten pulses between 1 – 2 days ago, this is followed by 20.4% who mentioned 3 – 4 days ago and 12.2% who mentioned 1 – 2 weeks ago. On the other hand, in Luapula province, most of the women (24.5%) mentioned that they had eaten pulses more than one month ago followed by about 13.8% who mentioned they have eaten pulses 1 – 2 weeks ago. A considerably higher proportion (15.8%) of women in Luapula province mentioned that they did remember when they had eaten pulses. It is worth noting that, a very low proportion, 6.3% and 1.5% in Eastern and Luapula province respectively mentioned that they had eaten pulses during the very day when data collection was taking place..Table 7 below show the results,

Table 9: the last time the respondent ate any type of pulses

N	Luapula				Eastern			
	Kawambwa	Mwansabombwe	Mwense	Total	Katete	Petauke	Sinda	Total
	249	116	196	561	139	212	139	490
Today	3.6%	0.9%	1.5%	2.3%	10.8%	3.8%	5.8%	6.3%
1-2 Days Ago,[6]	21.3%	6.9%	11.2%	14.8%	34.5%	27.8%	33.1%	31.2%
3-4 Days Ago,	17.3%	8.6%	10.2%	13.0%	17.3%	24.5%	17.3%	20.4%
5-7 Days Ago,	5.6%	6.0%	11.2%	7.7%	9.4%	10.4%	9.4%	9.8%
1-2 Weeks Ago,	11.2%	9.5%	13.8%	11.8%	11.5%	13.2%	11.5%	12.2%
2-4 Weeks Ago,	10.8%	4.3%	11.7%	9.8%	2.9%	4.2%	5.0%	4.1%
More than one month ago	22.9%	44.0%	24.5%	27.8%	8.6%	9.0%	9.4%	9.0%
More than 3 months ago	0.0%	0.0%	0.0%	0.0%	3.6%	3.3%	5.0%	3.9%
Doesn't Remember	7.2%	19.8%	15.8%	12.8%	1.4%	3.8%	3.6%	3.1%
Total	100%	100%	100%	100%	100%	100%	100%	100%

1.4. Growing and consumption of pulses by women

Women were asked if in the past 12 months their households grew any types of beans, peas, cowpeas, or soya. In Luapula province, above half of the respondents, 51.9% were affirmative. The proportion was significantly higher in Eastern province , 64.1%. An analysis was carried out to check the proportion of women who did not eat pulses yesterday and were from households that grew pulses was carried out. The results show an association between household growing any types of beans and the consumption of pulses by women ($p<0.01$) in Luapula province. In Luapula province, out of the 291 respondents who were from households who had grown any type of beans, peas, cowpeas or soya in the past 12 months, about 36.4% of them mentioned that they had ate pulses during the previous day. On the other hand, this proportion was slightly higher in Eastern province (50.6%, N=314).

[6] The proportion of respondents who mentioned 1-2 days, 14.8% in Luapula and 31.2% in Eastern is slightly different from the dietary recall. This was because, the two questions were asked on different occasions, dietary recall was asked first, then the "last time" question was asked a bit more later, most likely the respondents had forgotten what they had answered on the dietary recall

In addition, an analysis of household who did not grew any types of beans, peas, cowpeas or soya in the past 12 months with women who ate pulses during the previous day was carried out. The results show that, these proportion was higher in Eastern province (43.8%, N=176) when comparing with Luapula province (22.2%, N=270). See table below for detailed results,

Table 10: Growing and consumption of pulses by women

N	Luapula			Eastern		
	Household grew any types of beans, peas, cowpeas or soya in the past 12 months	Household DID NOT grew any types of beans, peas, cowpeas or soya in the past 12 months	Total	Household grew any types of beans, peas, cowpeas or soya in the past 12 months	Household DID NOT grew any types of beans, peas, cowpeas or soya in the past 12 months	Total
	291	270	561	314	176	490
Women ate pulses (beans, peas, soya) yesterday	36.4%	22.2%	29.6%	50.6%	43.8%	48.2%
Women DID NOT eat pulses (beans, peas, soya) yesterday	63.6%	77.8%	70.4%	49.4%	56.3%	51.8%
Total	100%	100%	100%	100%	100%	100%

1.4.1. Proportion of respondents who enjoy eating pulses

Respondents were asked about the type of pulses they enjoy eating the most. In Luapula province, the top three most enjoyable pulses consumed by women were, Mbereshi beans (49.2%), followed by Kabulangeti (26.9%) and Cowpeas (23.5%) On the other hand, in Eastern province, the top three are, brown beans/chimpusa (29.6%), followed by Mbereshi beans (28.4%), and Kabulangeti (27.1%)Table 8 below show the results in detail

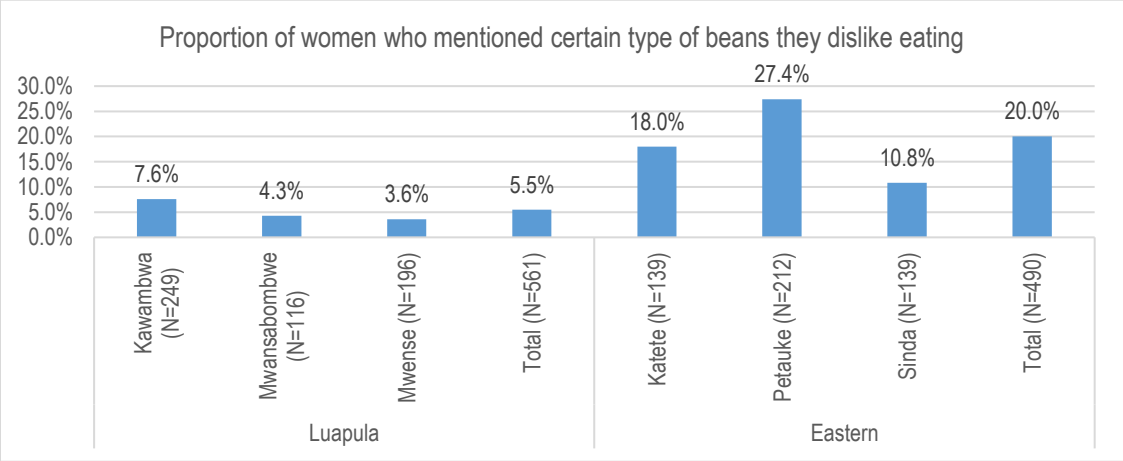
Table 11: Types of beans which women enjoy eating the most

N	Luapula				Eastern			
	Kawambwa	Mwansabombwe	Mwense	Total	Katete	Petauke	Sinda	Total
	249	116	196	561	139	212	139	490
Soya beans	24.1%	33.6%	15.3%	23.0%	5.0%	4.7%	14.4%	7.6%
Cowpeas	18.1%	38.8%	21.4%	23.5%	14.4%	30.2%	28.8%	25.3%
Green peas	12.0%	26.7%	15.8%	16.4%	1.4%	2.4%	9.4%	4.1%
Mbereshi Beans	68.3%	43.1%	28.6%	49.2%	24.5%	32.1%	26.6%	28.4%
Lusaka white beans	18.1%	13.8%	19.4%	17.6%	2.2%	11.8%	1.4%	6.1%
Kabulangeti	25.7%	31.9%	25.5%	26.9%	18.7%	29.2%	32.4%	27.1%
All types	2.4%	0.0%	1.0%	1.4%	0.0%	0.0%	0.0%	0.0%
Brown beans/Chimpusa	0.4%	11.2%	30.1%	13.0%	47.5%	20.8%	25.2%	29.6%
None	0.4%	0.9%	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%

Nyanyati	0.0%	0.0%	0.0%	0.0%	1.4%	0.5%	2.2%	1.2%

Women/respondents were further asked if they are any types of beans, peas, cowpeas or soya that they dislike eating. The results show that, in Luapula province about 5.5% mentioned some beans they dislike. Dissagregating data by district show that, these were common in Kawambwa (7.6%), followed by Mwansabobwe (4.3%) and Mwense (3.6%). On the other hand, in Eastern province, the proportion of women who mentioned beans the dislike was significantly higher when comparing with Luapula province, 20%. Analysis by district shows that, this was common in Peatuke (27.4%), followed by Katete (18%) and Sinda (10.8%). See figure below,

Figure 6:Proportion of women who mentioned certain type of beans they dislike eating



Further, those women who mentioned that they are types of beans they dislike were asked on the actual types they dislike, see table below. The results show that, in Luapula province, the top 3 most disliked bean types were Lusaka white beans (48.4%), followed by Cowpeas (35.5%) and soya beans (12.9%). On the other hand, in Eastern province, the top 3 most disliked beans were Lusaka whaite beans (69.4%), followed by Mbereshi beans (9.2%) and cowpeas (8.2%).

Table 12:Types of beans that women dislike eating

	Luapula				**Eastern**			
	Kawambwa(N=19)	Mwansabombwe(N=5)	Mwense(N=7)	Total(N=31)	Katete(N=25)	Petauke(N=58)	Sinda(N=15)	Total(N=98)
Soya beans	10.5%	40.0%	0.0%	12.9%	4.0%	8.6%	0.0%	6.1%
Cowpeas	36.8%	40.0%	28.6%	35.5%	12.0%	5.2%	13.3%	8.2%
Green peas	0.0%	20.0%	14.3%	6.5%	0.0%	1.7%	0.0%	1.0%
Mbereshi beans	5.3%	20.0%	0.0%	6.5%	4.0%	13.8%	0.0%	9.2%
Wont say	5.3%	20.0%	28.6%	12.9%	0.0%	1.7%	0.0%	1.0%
Kabulangeti	5.3%	0.0%	0.0%	3.2%	0.0%	12.1%	6.7%	8.2%
Lusaka white beans	47.4%	40.0%	57.1%	48.4%	84.0%	60.3%	80.0%	69.4%

Women were also asked about the type of bean they felt are the most affordable. The result show that, the top three most affordable type of beans in Luapula were Mbereshi beans(34.2%), followed by Lusaka white beans (25.3%) and

Cowpeas (23.2%). Mbereshi bean beans were commonly affordable in Kawambwa (54.2%), followed by Mwansabombwe (20.7%) and Mwense (16.8%). On the other hand, in Eastern province, the top three most affordable types of beans were cowpeas (61%), followed by mbereshi beans (20%) and soay beans (15.9%). Cowpeas we commonly affordable in Sinda (73.4%), followed by Petauke (66%) and Katete (41%). See table below

Table 13: Types of beans, peas, soya, cowpeas that are most affordable

	Luapula				Eastern			
	Kawambwa	Mwansabombwe	Mwense	Total	Katete	Petauke	Sinda	Total
N	249	116	196	561	139	212	139	490
Soya beans	21.7%	4.3%	9.2%	13.7%	26.6%	8.0%	17.3%	15.9%
Cowpeas	20.5%	25.9%	25.0%	23.2%	41.0%	66.0%	73.4%	61.0%
Green peas	11.6%	16.4%	18.9%	15.2%	0.7%	0.0%	0.7%	0.4%
Mbereshi beans	54.2%	20.7%	16.8%	34.2%	21.6%	22.2%	15.1%	20.0%
Any type of beans	0.4%	0.0%	0.0%	0.2%	0.0%	0.0%	0.0%	0.0%
Kabulangeti	17.3%	26.7%	17.9%	19.4%	2.9%	8.0%	10.8%	7.3%
None is affordable	6.0%	7.8%	4.1%	5.7%	0.7%	3.3%	0.7%	1.8%
Chimpusa	0.0%	11.2%	23.0%	10.3%	0.0%	0.0%	0.0%	0.0%
Lusaka white beans	20.5%	25.9%	31.1%	25.3%	5.8%	5.2%	0.7%	4.1%
Yellow beans	4.8%	1.7%	4.6%	4.1%	0.7%	0.0%	0.0%	0.2%
Solwezi/sweet beans	0.8%	1.7%	0.0%	0.7%	15.1%	4.2%	2.2%	6.7%
Red beans	0.0%	0.0%	4.1%	1.4%	2.9%	4.7%	3.6%	3.9%

A scenario was given to the respondents that, "*Some people think that women should not eat beans, peas, cowpeas and soya during pregnancy and in the weeks after delivery. Other people say that they should eat them during that time".* They were asked on what they thought about the statement. A greater proportion 95.9% in Luapula and 83.3% in Eastern felt that a women can eat pulses at anytime. However, about 15.3% in Eastern province and 1.8% in Luapula didn't know if beans had an effect of pregnancy or noy, see table below for results,

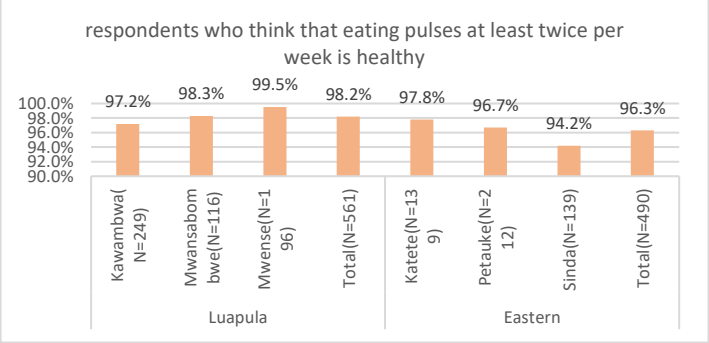
Table 14:Women's thoughts on eating beans during and in the week after delivery

	Luapula				Eastern			
	Kawambwa	Mwansabombwe	Mwense	Total	Katete	Petauke	Sinda	Total
N	249	116	196	561	139	212	139	490
Can eat pulses anytime	96.4%	91.4%	98.0%	95.9%	81.3%	86.3%	80.6%	83.3%
Should not eat pulses during pregnancy	3.2%	6.0%	0.5%	2.9%	0.0%	0.5%	2.2%	0.8%
Should not eat pulses after delivery	2.0%	4.3%	0.0%	1.8%	0.0%	0.5%	0.0%	0.2%
Doesnt know	1.6%	2.6%	1.5%	1.8%	18.0%	12.7%	16.5%	15.3%
Other	0.0%	0.0%	0.0%	0.0%	0.7%	0.0%	0.7%	0.4%

1.4.2. The proportion of respondents who think that eating pulses at least twice per week is healthy

Women were asked if eating pulses at least twice per week is healthy. The results show that>95% of women felt it was healthy to eat pulses twice per week is healthy. About 98.2% and 96.3% in Luapula and Eastern province respectively, mentioned that eating pulses at least twice per week is healthy. See figure below shows the results in detail,

Figure 7: Proportion of respondent who mentioned that they think eating pulses twice per week is healthy

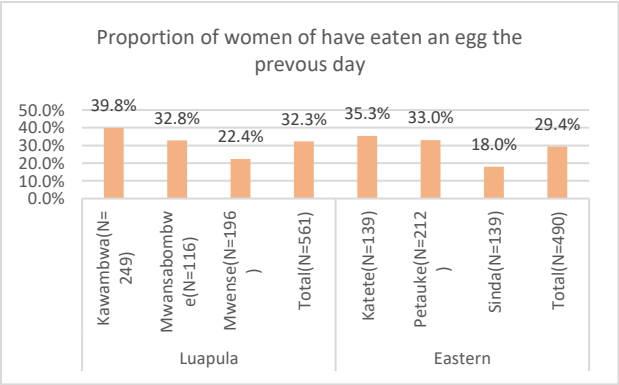


1.4.3. Consumption of Eggs by Women

1.4.3.1. The proportion of respondents who ate an egg during the previous day and the last time the respondent ate an egg

The survey also collected data on the consumption of eggs by women. Upon being asked if they had consumed an egg during the previous day, about 32.3% and 29.4% of interviewed women in Luapula and Eastern provinces respectively were affirmative. The difference was statistically significant ($p<0.05$). The proportion of women who mentioned having eaten an egg during the previous day was significantly higher in Luapula province when compared to Eastern province. Disaggregating data by district, the results show that in Luapula province most of the women who had consumed an egg during the previous day were prevalent in Kawambwa (39.8%), followed by Mwansabobwe (32.8%) and Mwense (22.4%). In Eastern province, on the other hand, they were commonly found in Katete (35.3%), followed by Petauke (33%) and Sinda (18%), see figure 6 for results in detail.

Figure 8: Proportion of respondents who have eaten an egg the previous day



Apart from women who mentioned that they had eaten an egg during the previous day, women were further asked about the last time they have ate an egg. This was only asked of the respondents in Luapula province.

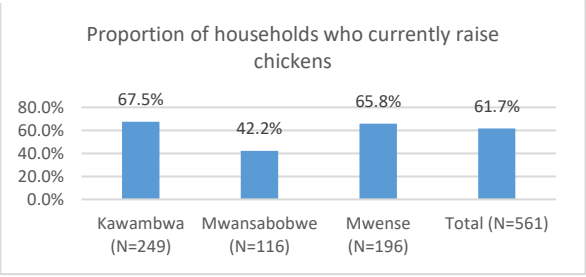
The results show that most of the women mentioned having eaten an egg previous 1 – 2 days (23.9%), this is followed by 17.5% who mentioned that they had eaten an egg between 1 – 3 days ago and 16.9% who mentioned they had eaten an egg more than one month ago. It is worth noting that, a considerably higher proportion, 13.4% mentioned that they didn't remember when they had eaten an egg. Considering those who mentioned that they had eaten an egg between 1 – 2 days ago, they were common in Mwense (28.1%) followed by Kawambwa (27.3%) and Mwansabobwe (9.5%). Table 9 below shows the results in detail,

Table 15: Last time when a woman ate an egg (Luapula province).

	Kawambwa	Mwansabombwe	Mwense	Total
N	249	116	196	561
Today	3.2%	0.9%	3.6%	2.9%
1-2 Days Ago,[7]	27.3%	9.5%	28.1%	23.9%
3-4 Days Ago,	20.1%	11.2%	17.9%	17.5%
5-7 Days Ago,	9.2%	5.2%	11.7%	9.3%
1-2 Weeks Ago,	11.6%	6.9%	8.7%	9.6%
2-4 Weeks Ago,	7.6%	2.6%	7.7%	6.6%
More Than One Month Ago	11.6%	32.8%	14.3%	16.9%
Doesn't Remember	9.2%	31.0%	8.2%	13.4%
Total	**100%**	**100%**	**100%**	**100%**

Women in Luapula province were asked if in their households they are currently raising chickens, the results show that about 61.7% of the households are currently raising chickens, see figure7. Disaggregating data by the district show that most of the households who are currently raising chickens were from Kawambwa (67.5%), followed by Mwense (65.8%) and Mwansabobwe (42.2%). An analysis on the proportion of women who ate eggs yesterday and were from households that raise chickens was carried out. Out of 346 women who came from households were mentioned that they currently raise chickens, about 37.6% mentioned that they had consumed an egg during the previous day. The was prevalent in Kawambwa (42.9%), followed by Mwansabobwe (40.8%) and Mwense (29.5%).

Figure 9:Proportion of households who currently raise chickens



Also, an analysis to check the proportion of women who ate eggs yesterdays and were from households that do not raise chickens was carried out. Out of the 215 households who came from households who do not raise chickens, around 23.7% mentioned that had consumed an egg during the previous day. Analysis by district show that, this was common in Kawambwa (33.3%), followed by Mwansabobwe (26.9%) and Mwense (9%). See table below

[7] The proportion of respondents who mentioned 1-2 days, 23.9% is slightly different from the dietary recall. This was because, the two questions were asked on different occasions, dietary recall was asked first, then the "last time" question was asked a bit more later, most likely the respondents had forgotten what they had answered on the dietary recall

Table 16:Consumption of eags by women and production of chickens at households:

District		Household currently raise chickens		Household DOES NOT currently raise chickens		Total	
		N	%	N	%	N	%
Kawambwa	Women has ate egg(s) during the previous day	72	42.9%	27	33.3%	99	39.8%
	Women DID NOT eat egg(s) during the previous day	96	57.1%	54	66.7%	150	60.2%
	Total	168	100%	81	100%	249	100%
Mwansabombwe	Women has ate egg(s) during the previous day	20	40.8%	18	26.9%	38	32.8%
	Women DID NOT eat egg(s) during the previous day	29	59.2%	49	73.1%	78	67.2%
	Total	49	100%	67	100%	116	100%
Mwense	Women has ate egg(s) during the previous day	38	29.5%	6	9.0%	44	22.4%
	Women DID NOT eat egg(s) during the previous day	91	70.5%	61	91.0%	152	77.6%
	Total	129	100%	67	100%	196	100%
Total	Women has ate egg(s) during the previous day	130	37.6%	51	23.7%	181	32.3%
	Women DID NOT eat egg(s) during the previous day	216	62.4%	164	76.3%	380	67.7%
	Total	346	100%	215	100%	561	100%

1.4.3.2. The proportion of respondents who think that eggs should be eaten during pregnancy

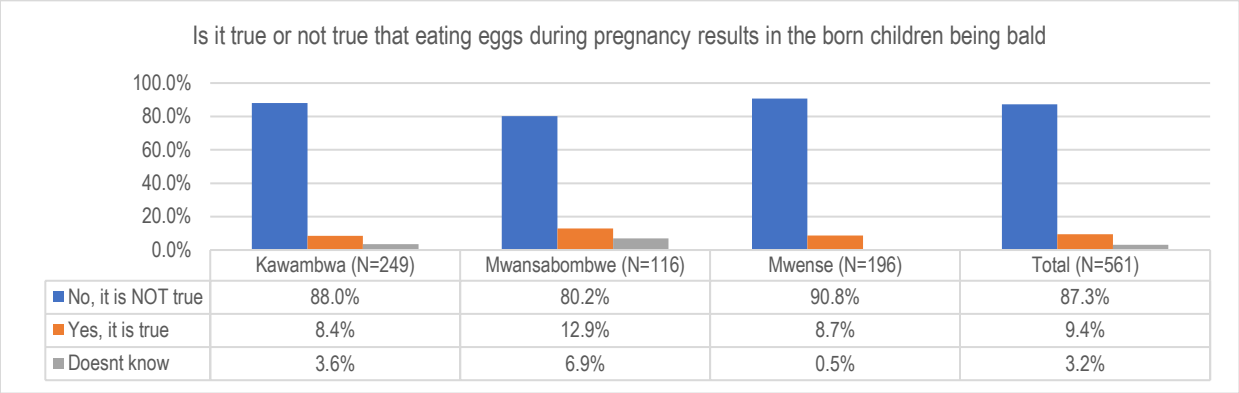
Women from Luapula province were also asked their opinion if they thought that eggs should not be eaten during pregnancy. The results show that most of the women >90% felt that eggs should be eaten during pregnancy, this was prevalent in Mwense (94.4%), followed by Kawambwa (90.4%) and Mwansabobwe (82.8%). It is worth noting that, about 7.1% of the women in Luapula mentioned that eggs should NOT be eaten during pregnancy, this was common in Mwansabobwe (11.2%), followed by Kawambwa (6.8%) and Mwense (5.1%).

1.4.3.3. The proportion of respondents who believe that eating eggs during pregnancy results in children being bald

The survey also collected data on the myth that say if women eat eggs during pregnancy, it will result in Children being born with a bald head. Women were asked if this myth was true or not true. The results show

that most of the women (87.3%) felt that it was not true. This was common in Mwense (90.8%), followed by Kawambwa (88%) and Mwansabobwe (80.2%). On the other hand, about 9.4% of the interviewed women felt that it was true, and this was prevalent in Mwansabobwe (12.9%), followed by Mwense (8.7%) and Kawambwa (8.4%). Around 3.2% mentioned that they did not know whether the myth was true or not, these were common in Mwansabobwe (6.9%), followed by Kawambwa (3.6%) and 0.5% in Mwense. See figure 8 below

Figure 10: Proportion of respondents who felt that it is TRUE on NOT true that eating eggs during pregnancy results in the born children bald



	Kawambwa (N=249)	Mwansabombwe (N=116)	Mwense (N=196)	Total (N=561)
No, it is NOT true	88.0%	80.2%	90.8%	87.3%
Yes, it is true	8.4%	12.9%	8.7%	9.4%
Doesnt know	3.6%	6.9%	0.5%	3.2%

1.4.3.4. The proportion of respondents who think that purchased eggs do not contain many nutrients

Respondents were asked if they felt that eggs from the shops do not contain many nutrients. A significantly higher proportion of the respondents (70.1%, N=561) felt that it is NOT true that purchased eggs are not very nutritious. Disaggregating data by district shows that most of the women who felt that it is NOT true were prevalent in Mwense (77%) followed by Mwansabombwe (69.8%) and Kawambwa (64.7%). However, about 22.5% (27.3% in Kawambwa, 20.7% in Mwansabombwe and 17.3% in Mwense) felt that it is true that eggs from shops do not contain Nutrients.

4. INDICATOR 2: THE PROPORTION OF 64,0002 INFANTS (6-23 MONTHS) IN THE EASTERN PROVINCE (45,000) AND IN LUAPULA PROVINCE (19,000) RECEIVING A MINI-MUM ACCEPTABLE DIET (MAD) IN TERMS OF APPROPRIATE FREQUENCY AND DIVERSITY OF MEALS HAS INCREASED BY 15 PERCENTAGE POINTS ON AVER-AGE.

Similarly, to women diet, data on child diet was also collected for the calculation of indicator number two. Respondents were asked on 15 different type of food groups that were consumed by their children in the

previous day. The indicator captures the proportion of infants (6- 23 months) receiving a minimum acceptable diet (MAD). results show that the most mentioned foods consumed by children in Luapula province were Foods made from grains (80.4%), dark green leafy vegetables (80.4%), Breast milk (72.9%) and Vitamin A rich fruits (58.6%). Meat and poultry (18.4%), milk and milk products (16.2%) and organ meat (12.7%) were the least meationed foods consumed by children.

On the other hand, in Eastern province, the mentioned foods consumed by children were foods made from grains (92.9%), breast milk (75.3%), dark green leafy vegetables (70.2%) and nuts (including groundnuts) and seeds (65.5%). The least mentioned foods were, fish and seafood (including canned and dried fish) (6.9%), white roots and tubers and plantains (5.1%) and organ meat (3.7%). See table below for detailed results

Table 17:Foods consumed by children duirng the previous day

	Luapula				Eastern			
	Kawambwa	Mwansabombwe	Mwense	Total	Katete	Petauke	Sinda	Total
N	249	116	196	561	139	212	139	490
Foods made from grains	80.3%	85.3%	77.6%	80.4%	93.5%	94.3%	89.9%	92.9%
White roots and tubers and plantains	57.0%	44.8%	45.4%	50.4%	9.4%	4.2%	2.2%	5.1%
Pulses	32.9%	30.2%	20.9%	28.2%	37.4%	23.1%	27.3%	28.4%
Nuts (including groundnuts) and seeds	47.4%	44.0%	45.4%	46.0%	67.6%	72.6%	52.5%	65.5%
Milk and milk products	16.1%	25.0%	11.2%	16.2%	20.9%	18.4%	5.0%	15.3%
Organ meat	12.0%	22.4%	7.7%	12.7%	4.3%	5.7%	0.0%	3.7%
Meat and poultry	19.7%	24.1%	13.3%	18.4%	27.3%	28.3%	11.5%	23.3%
Fish and seafood (including canned and dried fish)	42.6%	51.7%	55.6%	49.0%	11.5%	5.2%	5.0%	6.9%
Eggs	36.9%	28.4%	18.9%	28.9%	25.9%	25.0%	12.2%	21.6%
Dark green leafy vegetables	86.7%	82.8%	70.9%	80.4%	63.3%	75.5%	69.1%	70.2%
Vitamin A-rich vegetables, roots and tubers	30.9%	22.4%	35.2%	30.7%	6.5%	20.8%	20.9%	16.7%
Vitamin A-rich fruits	84.3%	25.9%	45.4%	58.6%	54.0%	41.5%	45.3%	46.1%
Other vegetables	34.1%	26.7%	24.5%	29.2%	29.5%	29.2%	20.9%	26.9%
Other fruits	26.1%	22.4%	22.4%	24.1%	17.3%	20.8%	12.2%	17.3%
Breast milk	73.1%	62.1%	79.1%	72.9%	76.3%	80.2%	66.9%	75.3%

Foods that are essential to children are grouped into 8 food groups (7 foods and breastmilk) (Swindale and Bilinsky, 2006). The food groups which are necessary for children include grains, roots or tubers, vitamin A-rich plant foods, other fruits or vegetables, meat, poultry, fish, seafood, eggs, pulses/legumes/nuts, breast milk and milk products. Analysis of these food groups shows that, the top three most mentioned food groups in Luapula were grain, roots, tubers (91.1%), followed by Other fruits or vegetables (81.6%) and breast milk (72.9%)On the other hand, in Eastern province, the top three most mentioned food groups were grains, roots or tubers (92.9%), followed by breast milk (75.3%) and Other fruits or vegetables (74.9%). Considering pulses legumes/nuts, they were commonly consumed by children from Eastern province (70.6%) when comparing with Luapula province (52%), see table below of the detailed results,

Table 18:Food groups consumed by children (6 - 23 months)

	Luapula				Eastern			
	Kawambwa	Mwansabombwe	Mwense	Total	Katete	Petauke	Sinda	Total
N	249	116	196	561	139	212	139	490
Grains, roots or tubers	92.0%	91.4%	89.8%	91.1%	93.5%	94.3%	89.9%	92.9%
Vitamin A-rich plant foods	85.9%	25.9%	54.6%	62.6%	56.8%	50.5%	58.3%	54.5%
Other fruits or vegetables	87.6%	82.8%	73.5%	81.6%	65.5%	80.7%	75.5%	74.9%
Meat, poultry, fish, seafood	47.4%	53.4%	58.2%	52.4%	35.3%	35.4%	15.1%	29.6%
Eggs	36.9%	28.4%	18.9%	28.9%	25.9%	25.0%	12.2%	21.6%
Pulses/legumes/nuts	55.8%	46.6%	50.5%	52.0%	73.4%	76.4%	59.0%	70.6%
Breast Milk	73.1%	62.1%	79.1%	72.9%	76.3%	80.2%	66.9%	75.3%
Milk and milk products	16.1%	25.0%	11.2%	16.2%	20.9%	18.4%	5.0%	15.3%

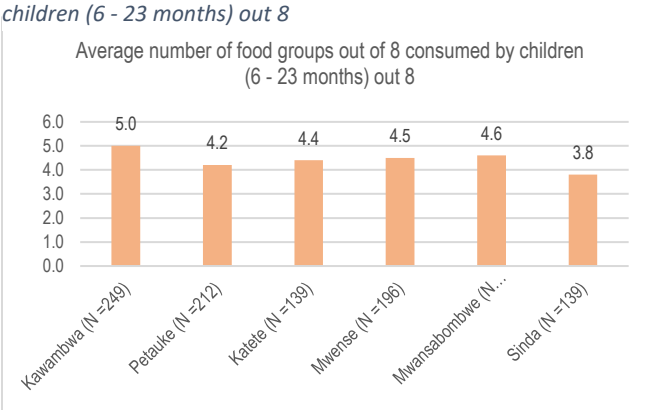
Dissagregagation data by household wealth show that, in Luapula province, grains, roots and tubers were commonly consumed by children from relatively richer households (92%) when comparing with poorest households (89.8%). Th picture is slightly different from Eastern province, most of the children who consumed grains, roots and tubers were from poorest households (94.5%) when comparing with relatively richer household. Milk and milk products were commonly consumed by children from realativley richer households, 17.6% in Luapula and 15.3% in Eastern. See table below for detailed results,

Table 19:Food groups consumed by children (6 - 23 months) by household wealth

	Luapula				Eastern			
	Poorest	Moderate	Relativley rich	Total	Poorest	Moderate	Relativley rich	Total
N	187	187	187	561	163	164	163	490
Grains, roots or tubers	89.8%	91.4%	92.0%	91.1%	94.5%	93.3%	90.8%	92.9%
Vitamin A-rich plant foods	73.3%	56.1%	58.3%	62.6%	53.4%	51.8%	58.3%	54.5%
Other fruits or vegetables	85.6%	73.3%	86.1%	81.6%	76.7%	74.4%	73.6%	74.9%
Meat, poultry, fish, seafood	43.9%	60.4%	52.9%	52.4%	30.1%	29.9%	28.8%	29.6%
Eggs	32.1%	26.7%	27.8%	28.9%	21.5%	22.6%	20.9%	21.6%
Pulses/legumes/nuts	53.5%	52.4%	50.3%	52.0%	65.0%	73.2%	73.6%	70.6%
Breast Milk	74.3%	72.7%	71.7%	72.9%	72.4%	79.3%	74.2%	75.3%
Milk and milk products	15.5%	15.5%	17.6%	16.2%	12.9%	13.4%	19.6%	15.3%

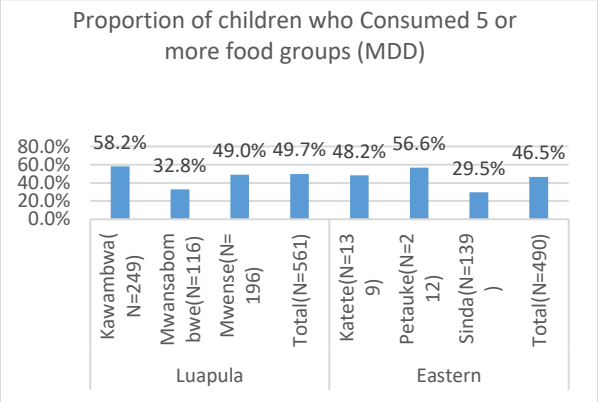
Analysis of the average number of food groups consumed by children (6-23 months) shows that there is a statistically significant difference between the two visited provinces, p<0.05. Children from Luapula consumed significantly higher number of food groups with an average of 4.6 when compared with children from the eastern province, with an average of 4.3. Disaggregating data by districts reveal a statistically significant difference, p<0.01. Children in Kawambwa consumed significantly higher number of foods groups on average (5.0) when compared to others. This is followed by Mwansabobwe (4.6) and Mwense (4.5). . Sinda was found to be the group with children who consumed the least number of food groups (3.8). (See figure 10, Analysis by gender of the child did not show any variations in the average number of food groups consumed. In both Luapula provinces, both males and females had the same average score of 4.6 whilst, on the other hand in Eastern province, male children had an average of 4.3 whilst females had an average of 4.4.

Figure 11:Average number of food groups out of 8 consumed by children (6 - 23 months) out 8



Further, disaggregating data by wealth did not show any variations in both provinces, p>0.05. in Luapula province, children from relatively rich household had an average of 4.7, followed by those in the poorest who also had an average of 4.7 and households with moderate wealth had and average of 4.5. In Eastern province, both poorest households and relatively richer households had ana average if 4.3.

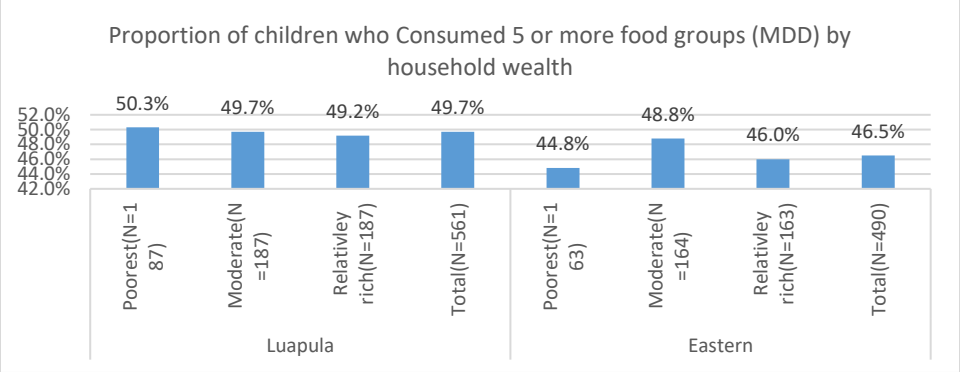
Figure 12:Proportion of children who Consumed 5 or more food groups (MDD)



According to World Health Organisation (WHO, 2008), the minimum dietary diversity (MDD) score for children aged 6-23 months old is a population-level indicator designed to assess diet diversity as of infant and young child feeding. An analysis of the proportion of children who consumed five or more food groups was carried out. The results show that most of the children who consumed five or more food groups were found in Luapula province (49.7%%, N=561) when compared with Eastern province (46.5%%, N=490), the difference was statistically significant p<0.05. Disaggregating data by districts show that, in Luapula province, children who consumed more than five food groups were commonly found in Kawambwa (58.2%, N=249), followed by Mwense (49%%, N=196) and Mwansabobwe (32.8%, N=116). On the other hand, in Eastern province, they were commonly found in Petauke (56.6%, N=212), followed by Katete (48.2%, N=139)and Sinda (29.5%%, N=139). See figure 12 above for detailed results,

Analysis of data by wealth show that, the difference in the proportion of children who consumed more that five food groups in poorest households (50.3%, N=187) was not significantly higher when comparing with the relatively rich households (49.2%, N=187), p>0.05 in Luapula province. In Eastern province, the difference was also statistically significant (p<0.001). Children who consumed more that five food groups were commonly found from the households who are relatively rich (46%, N=163) when comparing with those came from poorest households (44.8%, N=163). See figure below for detailed results,

Figure 13: Proportion of children who Consumed 5 or more food groups (MDD) by household wealth



1.5. Breastmilk, milk, and milk products.

1.5.1. Consumption of breastmilk by children (6 – 23 months)

Respondents were asked if their children were breastfeeding during the previous day before the survey. Breast feeding was inclusive of those children who were breastfed through other means by spoon, cup bottle or some other way The results show that a higher proportion of children 76.1%% and 72.9% were breastfed during the previous day/night in Eastern and Luapula province respectively. Breastfeeding was prevalent amount children who were between 6 -12 months on both provinces, Luapula (93.4%) and Eastern (91.8%). See table below,

Table 20: Proportion of children (6 – 23 months) who were breastfed yesterday during the last day or at night

N	Luapula				Eastern			
	6 - 12 months	13 - 18 months	19 - 23 months	Total	6 - 12 months	13 - 18 months	19 - 23 months	Total
	229	190	142	561	232	151	107	490
Breastfed	93.4%	78.4%	31.4%	72.9%	92.7%	76.2%	40.2%	76.1%
Not breastfed	6.1%	14.2%	39.4	17.3%	7.3%	23.8%	59.8%	23.9%%
Don't know	0.0%	0.0%	0.7%	0.2%	0.0%	0.0%	0.0%	0.0%
Not applicable	0.4%	7.4%	27.5%	9.6%	0.0%	0.0%	0.0%	0.0%
Total	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

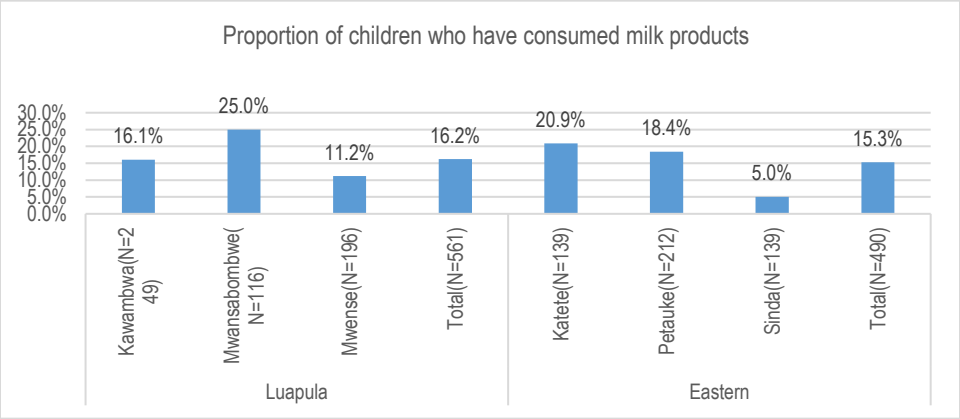
1.5.2. Consumption of milk and milk products by children (6 – 23 months)

Respondents were asked if their children had consumed any milk products[8] during the previous day before the survey. The results who that, the majority of children who consumed milk products were found in Luapula province (16.2%, N=561) when comparing with Eastern province (15.3%, N=490). The difference was statistically significant, $p<0.05$. In Luapula province, the consumption of milk and milk products by children was prevalent in Mwansabobwe (25%), followed by Kawambwa (16.1%) and Mwense (11.2%). On the other

[8] This can include: infant formula, yoghurt, yoghurt drink or fresh / tinned / powdered animal milk. It does not include any creamers made of plants.

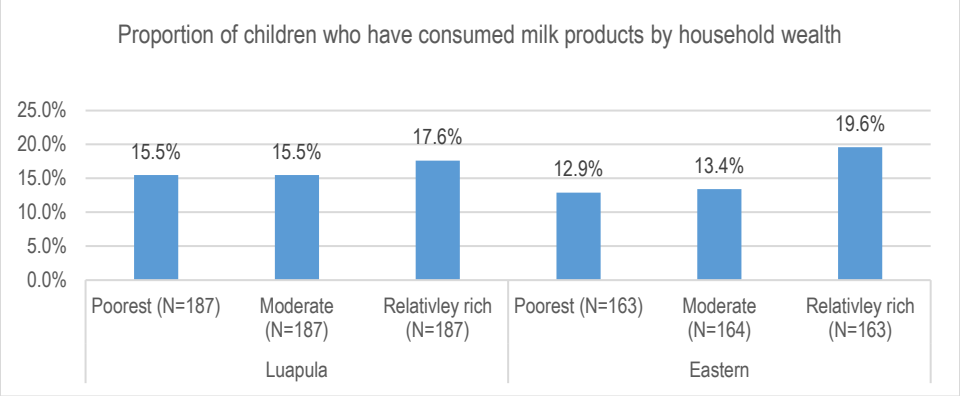
hand, in Eastern province, children who consumed milk and mik products were common in Katete (20.9%), Petauke (18.4%) and Sinda (5%), see figure below of results,

Figure 14:Proportion of children who have consumed milk products



Dissaggregatting data by wealth show that, in Luapula province, milk products were commonly consumed by children from relatively rich households (17.6%) when compared with poorest households (15.5%). On the other hand, in Eastern province, milk products were also consumed by children from relatively rich households (19.6%) when compared with poorest households (12.9%). See figure below,

Figure 15:Proportion of children who have consumed milk products by household wealth



Respondents were further asked on the number of times their children consumed any of the milk products. The results show that, in Luapula province, the average number of times their children consumed milked products was significantly higher (2.4) when compared with Eastern province (1.7). In Eastern province, the number of times in which milk products were consumed was higher in Sinda (2.0), followed by Katete (1.9) and Petauke (1.6). On the other hand, in Luapula province, the number of times were higher in Mwansabombwe (3.3) followed by Kawambwa (2.3) and Mwense (1.5). See table below for results in detail,

Table 21:Average number of times children have consumed milk products

Province	District	N	Average	Maximum	Minimum	Standard Deviation
Luapula	Kawambwa	10	2.3	5	1	1.34
	Mwansabombwe	4	3.3	10	1	4.5
	Mwense	3	1.5	2	1	0.71

	Total	17	2.4	10	1	2.34
Eastern	Katete	31	1.9	5	1	1.19
	Petauke	49	1.6	3	1	0.74
	Sinda	13	2.0	3	1	0.89
	Total	**93**	**1.7**	**5**	**1**	**0.93**

1.5.3. Minimum Meal Frequency

To come up with children minimum meal frequency, respondents were asked about the number of times their children ate other foods other than liquids during the previous day. According to the world health organisation (WHO), [9]minimum meal frequency is defined in three scenarios,

- **Two feedings** of solid, semi-solid or soft foods for **breastfed** infants aged **6 - 8 months**.
- **Three feedings** of solid, semi-solid or soft foods for **breastfed** children aged **9 - 23 months**: and
- **Four feedings** of solid, semi-solid or soft foods or milk feeds for **non-breastfed** children aged **6 - 23 months** whereby at least one of the four feeds must be a solid, semi-solid or soft food (i.e. non-fluid food).

After the analysis of data, the results show that the proportion of children who met minimum meal frequency (MMF) was significantly ($p<0.01$) higher in Eastern province (32.9%, N=490) when compared with Luapula (29.2%, N=561). Analysis by gender, in Eastern province, shows a significant variation between males and females, $p<0.01$. Most female children met the minimum meal frequency (35.2%) when compared with males (30.4%). On the other hand, in Luapula province, the difference among male and female children who met MMF was not statistically significant. Male and female children who met the MMF were more likely the same, male (29.4%) and females (29.1%), Disaggregating data by the district show that, in the Eastern province, most children who met the MMF were from Katete (43.9), followed by Sinda (29.5%) and Petauke (27.8%). Considering Luapula, such children were common in Kawambwa (32.1%), followed by Mwense (29.1%) and Mwansabobwe (23.3%). The figure below shows the results in further detail,

[9] Minimum Meal Frequency | IndiKit

Figure 16:Proportion of children who met the minimum meal frequency by gender

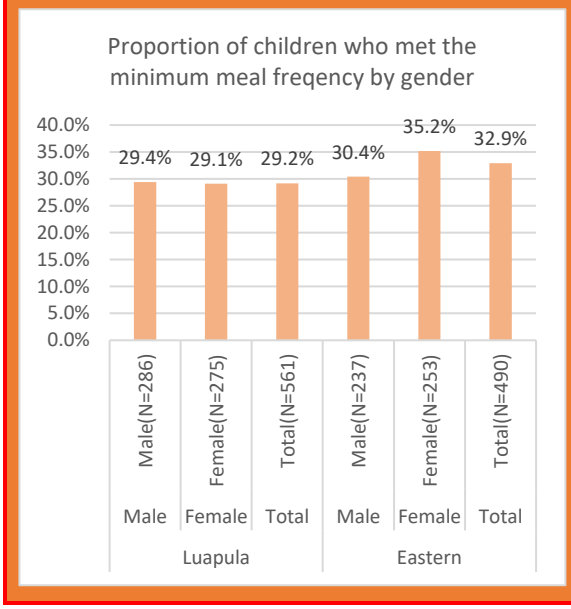
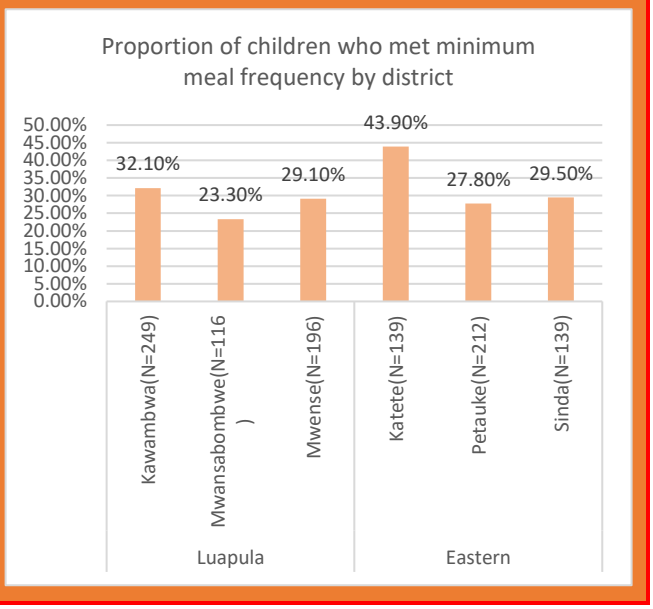


Figure 17:Proportion of children who met minimum meal frequency by district



Disaggregating data household wealth shows that, in Luapula province there was no difference in the proportion of children who met the MMF between poorest households (30.5%, N=187) and relatively rich households (30.5%, N=187). In the other hand, the difference was statistically significant, $p<0.05$. Most of the children who met the MMF were from households with moderate wealth (35.7%), followed by poorest (33.7%) and relatively rich households (29.4%). See table below for detailed results

Table 22:Child minimum meal frequency by household wealth

Province	Wealth group	Child has met mimimum meal frequency		Did not meet minimum meal frequency		Total	
		Count	Row N %	Count	Row N %	Count	Row N %
Luapula	Poorest	57	30.5%	130	69.5%	187	100%
	Moderate	50	26.7%	137	73.3%	187	100%
	Relativley rich	57	30.5%	130	69.5%	187	100%
	Total	164	29.2%	397	70.8%	561	100%
Eastern	Poorest	55	33.7%	108	66.3%	163	100%
	Moderate	58	35.4%	106	64.6%	164	100%
	Relativley rich	48	29.4%	115	70.6%	163	100%
	Total	161	32.9%	329	67.1%	490	100%

1.5.3.1. The proportion of respondents aware of the recommended meal frequency

Respondents were asked about their opinion of MMF, they were asked three sets of questions (1) In your opinion, what is the minimum number of meals or snacks that 7 MONTHS old children should eat per day if they are still breastfed? (2) In your opinion, what is the minimum number of meals or snacks that 1-YEAR-old children should eat per day if they are still breastfed? And (3) In your opinion, what is the minimum number of meals or snacks that 1-year-old children should eat per day if they are NOT breastfed.

Upon asked their opinions about the minimum number of meals or snacks that 7 months old child should eat per day if they are still breastfed, the majority of respondent in Luapula mentioned three meals (45.5%), followed by 28.6% who mentioned two meals and 20.4% who mentioned for or more meals. In Eastern province, more than half of the repondents 52.5% mentioned three meals, followed by 28.2% who mentioned for or more meals and 16.5% who mentioned two meals.

When asked about the minimum number of meals or snacks that one year old child should eat per day if they are still breastfed, the majority of respondents in Luapula province mentioned three meals (44.6%), these are followed by 40.4% who mentyioned four or more meals and 14.1% who mentioned two meals. On the other hand, in Eastern province, mosty of the respondents, 46.7% mentioned four or more meals, followed by 46.5% who mentioned three meals and only 5.3% who mentioned two meals.

Furthermore, when respondents were asked about their opinions on the minimum number of meals or snacks that 1 year old children should eat per day if they are NOT breastfed, in Luapula province, a greater proportion 71.2% felt that four or more meals are okay, these are followed by 23.7% who mentioned three meals and small proportion 4.5% mentioned two meals. The situation is also the same as what was found in Eastern province, a greater proportion, 76.2% mentioned four or more meals followed by 21.3% who mentioned three meals and only 2.5% mentioned two meals. See table below,

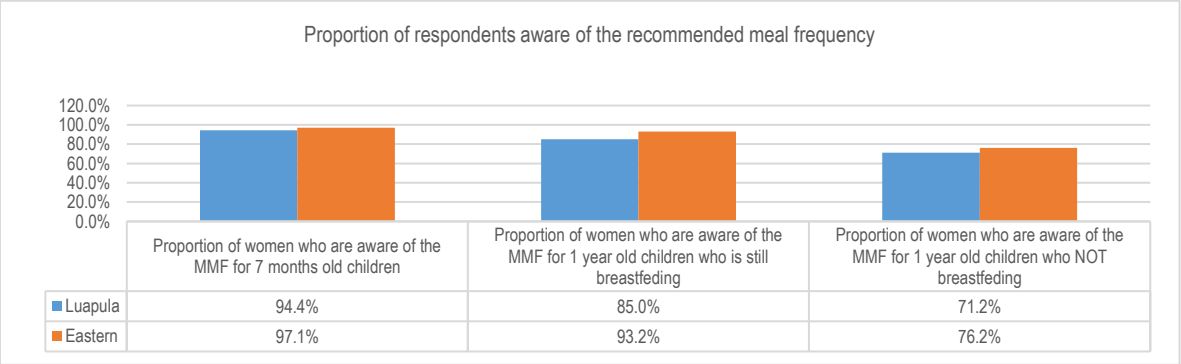
Table 23: Opinion of women on the number of meal a child should eat in a day

	Luapula				Eastern			
	Kawambwa (N=249)	Mwansabombwe (N=116)	Mwense (N=196)	Total (N=561)	Katete (N=139)	Petauke (N=212)	Sinda (139)	Total (N=490)
In your opinion, what is the minimum number of meals or snacks that 7 MONTHS old children should eat per day if they are still breastfed?								
One meal	7.5%	2.7%	4.7%	5.6%	3.6%	0.9%	5.1%	2.9%
Two meals	25.5%	27.3%	33.2%	28.6%	15.9%	13.7%	21.2%	16.5%
Three meals	37.2%	59.1%	47.9%	45.5%	56.5%	50.2%	51.8%	52.5%
Four or more meals	29.7%	10.9%	14.2%	20.4%	23.9%	35.1%	21.9%	28.2%
Total	100%	100%	100%	100%	100%	100%	100%	100%
In your opinion, what is the minimum number of meals or snacks that 1 YEAR old children should eat per day if they are still breastfed?								
One meal	1.2%	0.0%	1.1%	0.9%	0.7%	0.5%	3.6%	1.4%
Two meals	14.1%	14.3%	13.9%	14.1%	3.6%	5.2%	7.3%	5.3%

Three meals	36.9%	63.4%	43.3%	44.6%	51.8%	35.2%	58.4%	46.5%
Four or more meals	47.7%	22.3%	41.7%	40.4%	43.9%	59.0%	30.7%	46.7%
Total	100%	100%	100%	100%	100%	100%	100%	100%
In your opinion, what is the minimum number of meals or snacks that 1 year old children should eat per day if they are NOT breastfed?								
One meal	1.3%	0.0%	0.0%	0.6%	0.0%	0.0%	0.0%	0.0%
Two meals	3.8%	2.7%	6.4%	4.5%	0.7%	1.4%	5.8%	2.5%
Three meals	23.2%	33.6%	18.6%	23.7%	20.6%	15.6%	30.7%	21.3%
Four or more meals	71.7%	63.6%	75.0%	71.2%	78.7%	82.9%	63.5%	76.2%
Total	100%	100%	100%	100%	100%	100%	100%	100%

Under the minimum number of meals/snacks that 7-month-old children should eat per day if they are still breastfed, the recommended is at least two meals/feedings per day. The results show that a higher proportion of respondents who are aware of this recommended practice are common in Easter province (97.1%) when compared with Luapula province (94.4%) .On the other hand, for the MMF for 1-year-old children who are still breastfeeding, the recommended is at least three feedings/meals per day. The results show that, most of the women are aware of this recommendation. Most of the women who were aware of this were found in Eastern province (93.2%) when compared with Luapula province (85%). Lastly, the recommended MMF of a 1-year-old child who is not breastfeeding is at least four feedings/meals per day. A higher proportion of women who know about this were common in Eastern province (76.2%(when compared with Luapula province (71.2%). See figure below for detailed results,

Figure 18:Proportion of respondents aware of the recommended meal frequency



1.5.3.2. The proportion of respondents who say that it is 'very difficult' for them to have enough food to ensure MMF (disaggregated by pre + post-harvest season)

Respondents were asked how easy or difficult it is to have enough food to ensure recommended for a 1 year old child that is not breastfed which was to eat at least 4 meals or snacks per day (Minimum meal frequency MMF) The proportion of respondents who mentioned that it is 'very difficult' during the rainy season was higher in Eastern province (16.5%) when compared with Luapula province (15.3%), the difference was statistically significant, $p<0.01$. The proportion of women who find it 'very difficult' to follow the recommended MMF is significantly lower during the end of the rainy season, 2.9% in Eastern and 2.3% in Luapula. See table below for detailed results,

Table 24:How easy or difficult would it be for you to follow the recommendation of MMF

	Luapula		Eastern	
	Count	Column N %	Count	Column N %
How easy or difficult would it be for you to follow the recommendation of MMF at the beginning of the rainy season				
Very easy	187	33.3%	98	20.0%
Quite easy	129	23.0%	124	25.3%
Quite difficult	155	27.6%	186	38.0%
Very difficult	86	15.3%	81	16.5%
Doesn't know	4	0.7%	1	0.2%
Total	561	100%	490	100%
How easy or difficult would it be for you to follow the recommendation of MMF at the end of the rainy season				
Very easy	414	73.8%	219	44.7%
Quite easy	100	17.8%	216	44.1%
Quite difficult	29	5.2%	40	8.2%
Very difficult	13	2.3%	14	2.9%
Doesn't know	5	0.9%	1	0.2%
Total	**561**	**100%**	**490**	**100%**

Repondents in Luapula only were asked how easy or difficult is it for them to have enough ideas of not expensive but nutritious meals that they can prepare for their children. The results show that, a greater proportion of the respondents, 46.7% mentioned that it very easy, 35.8% mentioned that it was quite difficult and only 9.1% mentioned quite difficult. It is worth noting that, about 5.9% mentioned that it was very difficult and this ws common amount respondent from Mwense (8.7%), followed by Kawambwa (4.4%) and Mwansabombwe (4.3%). See table below for detailed results,

Table 25:How easy or difficult is it for you to have enough ideas of not expensive but nutritious meals that you can prepare for your child

	Kawambwa		Mwansabombwe		Mwense		Total	
	n	%	N	%	n	%	n	%
Very easy	155	62.2%	33	28.4%	74	37.8%	262	46.7%
Quite easy	62	24.9%	48	41.4%	91	46.4%	201	35.8%
Quite difficult	14	5.6%	24	20.7%	13	6.6%	51	9.1%
Very difficult	11	4.4%	5	4.3%	17	8.7%	33	5.9%
Doesnt know	7	2.8%	6	5.2%	1	0.5%	14	2.5%
Total	249	100%	116	100%	196	100%	561	100%

Respondents in Luapula province only were given a list of foods (beans) and were asked if any member in their households had ate such foods (beans) and home in the past 12 months. Results show that, the majority of the respondent mentioned Mbereshi beans (40.1%), followed by 34.8% who mentioned Cow peas and 28.35 mention Soya beans. Mbereshi beans were commonly mentioned in Kwawambwa (59.4%) followed by Mwense (25.5%) and Mwansabobwe (23.3%). See table below for results in detail

Table 26:Which of the following foods did ANY MEMBER of your household eat at home in the past 12 months

	Kawambwa	Mwansabombwe	Mwense	Total

N	**249**	**116**	**196**	**561**
Mbereshi beans	59.4%	23.3%	25.5%	40.1%
Cowpeas	36.1%	24.1%	39.3%	34.8%
Soya beans	40.6%	10.3%	23.5%	28.3%
Kabulangeti	24.9%	31.9%	26.0%	26.7%
Green peas	22.9%	26.7%	27.6%	25.3%
Lusaka white beans	21.3%	23.3%	21.9%	21.9%
None of the above	6.4%	9.5%	3.6%	6.1%
Pembela	0.0%	8.6%	9.2%	5.0%
Chimpusa	0.0%	0.0%	13.8%	4.8%
Yellow beans	4.4%	0.9%	2.0%	2.9%
Any type of beans	0.0%	0.0%	1.0%	0.4%

1.6. Consumption of Pulses by Children

1.6.1. The proportion of children [boys/girls / all] aged 6-23 months who ate pulses during the previous day

Respondents were asked if their children had consumed pulses during the previous day before the survey. The highest proportion of children who were mentioned to have consumed pulses during the previous day was common in Eastern province (28.4%) when compared with children from Luapula province (28.3%), however, the difference was not statistically significant. See the table below for detailed results

Table 27: Proportion of children who have consumed any type of pulses during the previous day

Province	District	Male		Female		Total	
		N	%	N	%	N	%
Luapula	Kawambwa	39	31.5%	43	34.4%	82	32.9%
	Mwansabombwe	19	31.1%	16	29.1%	35	30.2%
	Mwense	17	16.8%	24	25.3%	41	20.9%
	Total	75	26.2%	83	30.2%	158	28.2%
Eastern	Katete	25	41.0%	27	34.6%	52	37.4%
	Petauke	21	20.4%	28	25.7%	49	23.1%
	Sinda	23	31.5%	15	22.7%	38	27.3%
	Total	**69**	**29.1%**	**70**	**27.7%**	**139**	**28.4%**

Respondents were further asked on the last time their children had eaten any type of pulses. The question was asked in Luapula province only. The results show that, in all districts, pulses were consumed by children more than a month ago (24.2%), followed by 15.2% who mentioned 1 – 2 days and 11.2% who mentioned 3

– 4 days ago. It is worth noting that, about 20.9% mentioned that they did not remember when. See table below

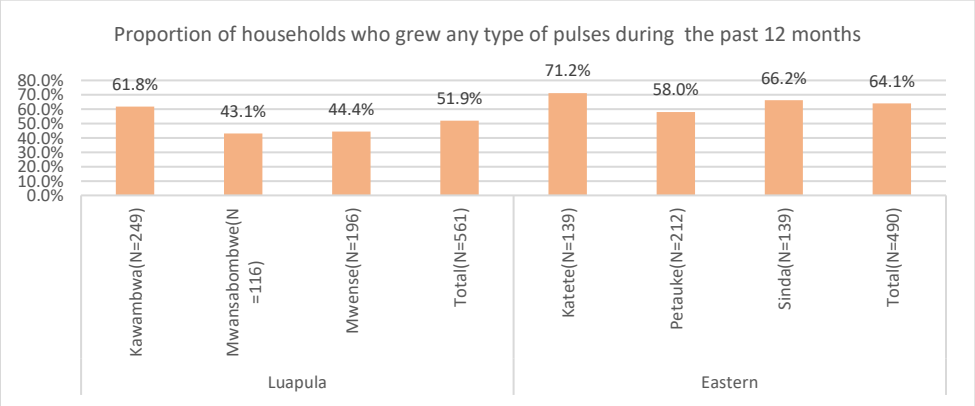
Table 28: last time a child ate any type of pulses

N	Kawambwa			Mwansabombwe			Mwense			All districts		
	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
	124	125	249	61	55	116	101	95	196	286	275	561
Today	4.0%	3.2%	3.6%	0.0%	0.0%	0.0%	3.0%	2.1%	2.6%	2.8%	2.2%	2.5%
1-2 Days Ago,[10]	25.0%	20.8%	22.9%	6.6%	7.3%	6.9%	5.9%	15.8%	10.7%	14.3%	16.4%	15.3%
3-4 Days Ago,	12.9%	12.0%	12.4%	9.8%	5.5%	7.8%	9.9%	13.7%	11.7%	11.2%	11.3%	11.2%
5-7 Days Ago,	4.8%	6.4%	5.6%	8.2%	3.6%	6.0%	9.9%	7.4%	8.7%	7.3%	6.2%	6.8%
1-2 Weeks Ago,	10.5%	11.2%	10.8%	8.2%	12.7%	10.3%	10.9%	7.4%	9.2%	10.1%	10.2%	10.2%
2-4 Weeks Ago,	8.1%	8.0%	8.0%	3.3%	3.6%	3.4%	10.9%	15.8%	13.3%	8.0%	9.8%	8.9%
More Than One Month Ago	17.7%	19.2%	18.5%	36.1%	50.9%	43.1%	25.7%	14.7%	20.4%	24.5%	24.0%	24.2%
Doesn't Remember	16.9%	19.2%	18.1%	27.9%	16.4%	22.4%	23.8%	23.2%	23.5%	21.7%	20.0%	20.9%
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

1.6.2. The proportion of households who grew any type of pulses during the past 12 months

Women were asked if in the past 12 months their households grew any type of pulses, the results show that most of the households who grew pulses were in Eastern province (64.1%, N=490) when compared with Luapula province (51.9%, N=561), the difference was statistically significant ($p<0.05$). Analysis by district shows that in Eastern province households who mentioned to have grown any type of pulses during the past 12 months were common in Katete (71.2%), followed by Sinda (66.2%) and Petauke (58%). On the other hand, in Luapula province, such households were common in Kawambwa (61.8%), followed by Mwense (44.44%) and Mwansabobwe (43.1%). See figure below for detailed results,

Figure 19:Proportion of households who grew any type of pulses during the past 12 months



[10] The proportion of respondents who mentioned 1-2 days, 15.3% is slightly different from the dietary recall. This was because, the two questions were asked on different occasions, dietary recall was asked first, then the "last time" question was asked a bit more later, most likely the respondents had forgotten what they had answered on the dietary recall

1.6.3. Household growing and consumption of pulses by children

An analysis of the proportion of children who ate pulses during the previous day and were from a household that grew pulses was carried out. In all the provinces, about (30.9%, N=605) of the children ate pulses and were from households who grew pulses in the past 12 months. This proportion was higher in Luapula province (33.7%, N=291) when compring with Eastern province (28.3%).

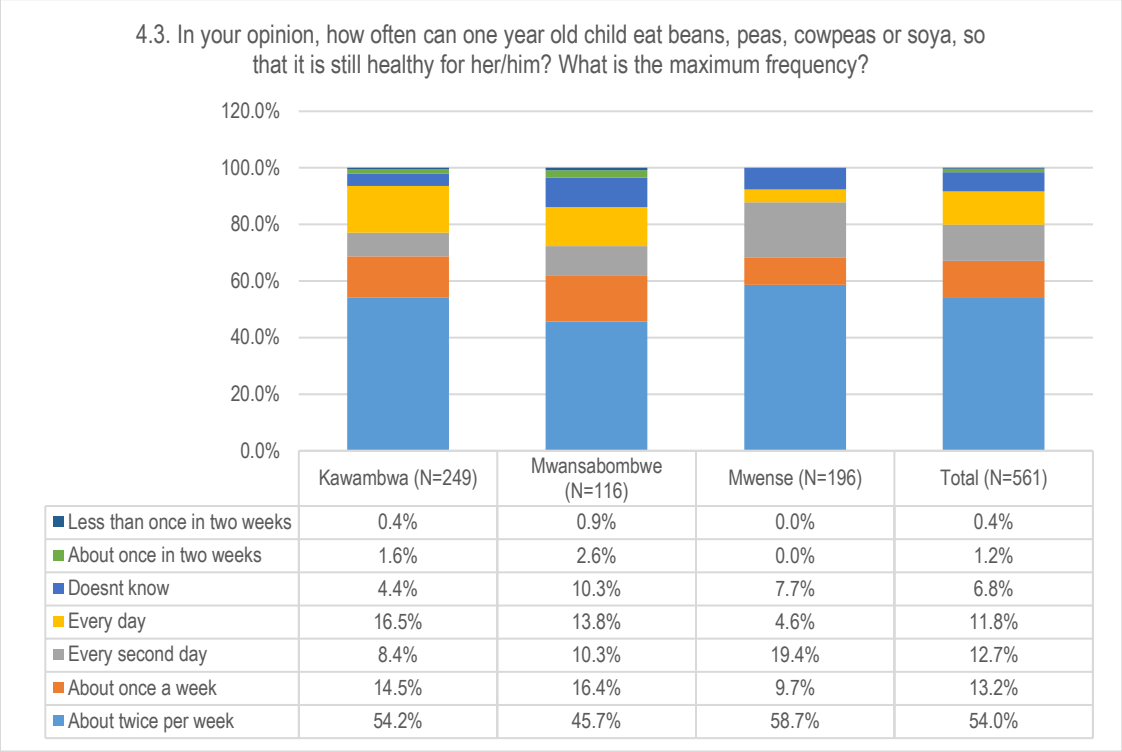
In addition, about 24.7% fo the children who ate pulses during the previous day were from households who did not grow pulses during the last 12 months. The was prevalent in Eastern province (28.4%) when compared with Luapula province (22.2%). See table below,

Table 29: Household growing and consumption pulses by children

Province		Household grew pulses during the last 12 months		Household DID NOT grow pulses during the last 12 months		Total	
		N	%	N	%	N	%
Luapula	Child consumed pulses during the previous day	98	33.7%	60	22.2%	158	28.2%
	Child DID NOT consume pulses during the previous day	193	66.3%	210	77.8%	403	71.8%
	Total	291	100%	270	100%	561	100%
Eastern	Child consumed pulses during the previous day	89	28.3%	50	28.4%	139	28.4%
	Child DID NOT consume pulses during the previous day	225	71.7%	126	71.6%	351	71.6%
	Total	314	100%	176	100%	490	100%
Total	Child consumed pulses during the previous day	187	30.9%	110	24.7%	297	28.3%
	Child DID NOT consume pulses during the previous day	418	69.1%	336	75.3%	754	71.7%
	Total	605	100%	446	100%	1051	100%

Respondents in Luapula province only, were they opinion on how often can a child eat beans, peas, cowpeas or soya so that he/she is stilly health. They were asked on the maximum frequency. The majority of the respondents, more that half (54%), felt that the maximum frequency should be about twice per week, followed by 13.2% who felt that its about once a week and 12.7% who felt that it should be every second day. A very small proportion, 0.4% felt that it should be less than once in twoo weeks. See figure below,

Figure 20: How often can one year old child eat beans



	Kawambwa (N=249)	Mwansabombwe (N=116)	Mwense (N=196)	Total (N=561)
Less than once in two weeks	0.4%	0.9%	0.0%	0.4%
About once in two weeks	1.6%	2.6%	0.0%	1.2%
Doesnt know	4.4%	10.3%	7.7%	6.8%
Every day	16.5%	13.8%	4.6%	11.8%
Every second day	8.4%	10.3%	19.4%	12.7%
About once a week	14.5%	16.4%	9.7%	13.2%
About twice per week	54.2%	45.7%	58.7%	54.0%

Moreover, respondents in Luapula were given a scenario that, some women think that young children, aged between 8 and 10 months, should not eat beans, peas, cowpeas or soya. Other women think that children aged 8 to 10 months should eat them. They were then asked on their opinions on the given scenario. The results show that, the majority (>90%) felth that children should eat beans, a very smalle proportion 5% felt that they should not eat them. Upon asked on the main reason why children should not eat beans, a higher proporting felt that beans cause stomach/gases. See table below,

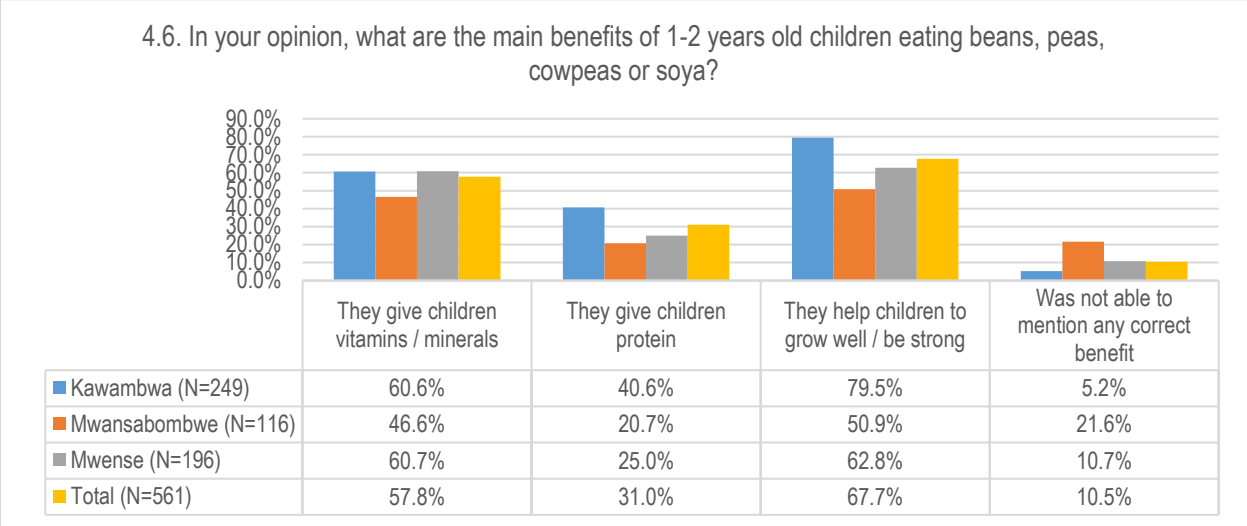
Table 30: Respondent opinions on wether a child 8 - 10 months should eat beans

	Kawambwa		Mwansabombwe		Mwense		Total	
	N	%	N	%	N	%	N	%
Some women think that young children, aged between 8 and 10 months, should not eat beans, peas, cowpeas or soya. Other women think that children aged 8 to 10 months should eat them. What is your opinion?								
Children should eat them	233	93.6%	95	81.9%	183	93.4%	511	91.1%
Children should NOT eat them	7	2.8%	11	9.5%	10	5.1%	28	5.0%
Doesnt know	4	1.6%	9	7.8%	3	1.5%	16	2.9%
Other	5	2.0%	1	0.9%	0	0.0%	6	1.1%
Total	249	100%	116	100%	196	100%	561	100%

Why do you think that children aged 8 to 10 months should not eat beans, peas, cowpeas or soya?								
They cause stomach pains / gasses	4	57.1%	9	81.8%	8	80.0%	21	75.0%
The baby is too young to eat beans	3	42.9%	2	18.2%	2	20.0%	7	25.0%
Total	7	100%	11	100%	10	100%	28	100%

Furthermore, same repondents from Luapula were asked on their oponions on the main benefits of children eating beans, peas, cowpeas or soya. The result show that, the majority of respondents mentioned that beans provide children with vitamin/minerals (57.8%), followed by 67.7% who mentioned that bean help children to grow well or be strong and about 31% mentioned atht the give children protein. Around 10.5% (21.6% in Mwansabobwe, 10.7% in Mwense and 5.2% in Kawambwa) were not able to mentioned any correct benefit, See figure below,

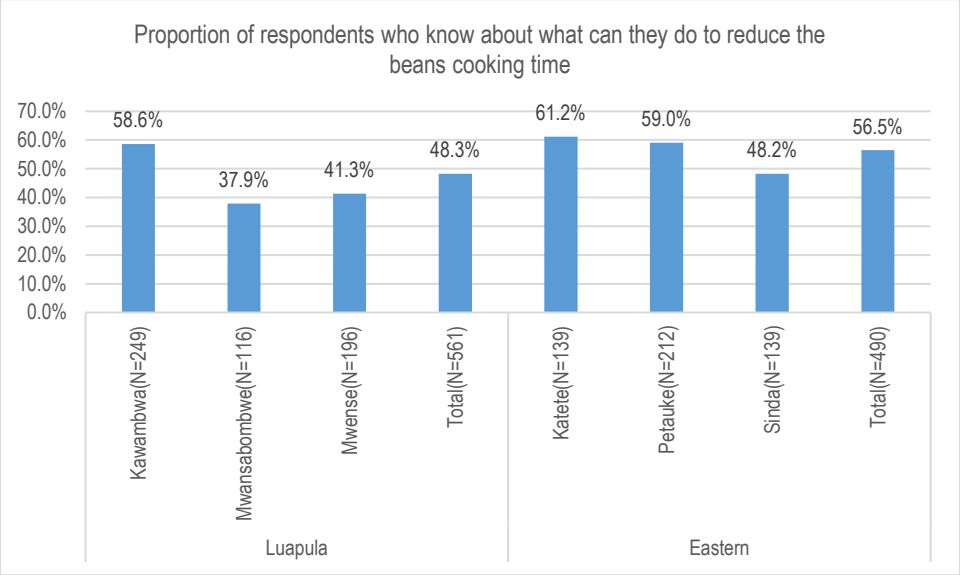
Figure 21: Respondents opinions on the main benefist of 1 - 2 year old children eating beans



	They give children vitamins / minerals	They give children protein	They help children to grow well / be strong	Was not able to mention any correct benefit
Kawambwa (N=249)	60.6%	40.6%	79.5%	5.2%
Mwansabombwe (N=116)	46.6%	20.7%	50.9%	21.6%
Mwense (N=196)	60.7%	25.0%	62.8%	10.7%
Total (N=561)	57.8%	31.0%	67.7%	10.5%

Beans, peas, cowpeas and soya can take a long time to cook. Respondents were asked if they knew what can be done to reduce the cooking time. The results show that, the proportion of the respondents who knew about how to reduce beans cooking time was higher in Eastern province (56.5%) when compared with respondents in Luapula province, see figure below

Figure 22:Proportion of respondents who know about what can they do to reduce the beans cooking time



Those respondents who mentioned that they knew who to reduce beans cooking time, were further asked on the actually methods they use. The results show that, in Luapula province, the top three methods mentioned were soaking them in water before cooking (37.5%), followed by 31.7% who mentioned adding cooking oil to the beans and 28% who mentioned adding a lot of charcoal or firewood. In Eastern province, the top three most mentioned were adding cooking oil (52%), followed by soaking them in water before cokking (31%) and adding soda (14.8%). See table below,

Table 31: Methods of reducing beans cooking time

	Luapula				Eastern			
	Kawambwa	Mwansabombwe	Mwense	Total	Katete	Petauke	Sinda	Total
N	146	44	81	271	85	125	67	277
Soak them in water before cooking	35.6%	38.6%	39.5%	37.3%	35.3%	21.6%	43.3%	31.0%
Cook them in a pot using a lid	6.8%	29.5%	11.1%	11.8%	0.0%	0.8%	1.5%	0.7%
Remove the outer cover / peel them	17.1%	22.7%	11.1%	16.2%	0.0%	0.0%	0.0%	0.0%
Add cooking oil	43.2%	31.8%	11.1%	31.7%	43.5%	62.4%	43.3%	52.0%
Add soda	4.8%	18.2%	8.6%	8.1%	18.8%	14.4%	10.4%	14.8%
Add lot of charcoal or firewood	24.7%	9.1%	44.4%	28.0%	8.2%	4.8%	4.5%	5.8%
Add salt	2.1%	2.3%	2.5%	2.2%	1.2%	1.6%	0.0%	1.1%

Respondents in Luapula were asked on which months of a year when it is EASIEST for them to afford buying beans or peas or cowpeas or soya for their children for consumption. The most mentioned months were April (45.6%), followed by March (17.6%) and May (9.6%). Those who find it easy during the months of April, were common in Mwansabobwe (52.6%), followed by Mwense (50.5%) and Kawambwa (38.6%), see table below,

Table 32:Months of the year when it is EASIEST to afford to buy beans or peas or cowpeas or soya for children

	Kawambwa	Mwansabombwe	Mwense	Total
N	249	116	196	561
January	8.4%	11.2%	4.6%	7.7%
February	4.0%	5.2%	3.6%	4.1%
March	10.8%	26.7%	20.9%	17.6%
April	38.6%	52.6%	50.5%	45.6%
May	14.1%	0.0%	9.7%	9.6%
June	11.6%	0.9%	3.6%	6.6%
July	4.4%	0.0%	1.0%	2.3%
August	2.4%	0.0%	2.0%	1.8%
September	1.2%	1.7%	0.0%	0.9%
October	2.0%	0.9%	2.6%	2.0%
November	1.6%	0.0%	0.5%	0.9%
December	0.8%	0.9%	1.0%	0.9%
Total	100%	100%	100%	100%

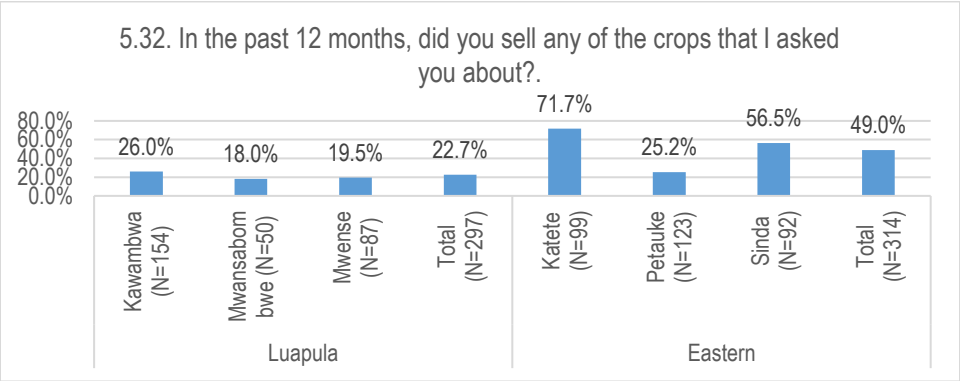
Further, respondents in Luapula were asked on which months of a year when it is MOST DIFFICULT for them to afford buying beans or peas or cowpeas or soya for their children for consumption. The most mentioned months were during the rainy seasons, December (37.3%), followed by January (32.35), and November (12.1%). See table below for detailed results,

Table 33: Months of the year when it is MOST DIFFICULT to afford to buy beans or peas or cowpeas or soya for children

N	Kawambwa	Mwansabombwe	Mwense	Total
	249	116	196	561
January	35.7%	31.0%	28.6%	32.3%
February	1.6%	0.0%	0.5%	0.9%
March	0.8%	0.9%	0.0%	0.5%
April	1.6%	2.6%	1.5%	1.8%
May	0.4%	0.0%	1.0%	0.5%
June	1.6%	1.7%	1.5%	1.6%
July	0.0%	1.7%	1.0%	0.7%
August	2.4%	1.7%	1.5%	2.0%
September	3.2%	6.0%	0.5%	2.9%
October	6.8%	10.3%	6.6%	7.5%
November	13.7%	7.8%	12.8%	12.1%
December	32.1%	36.2%	44.4%	37.3%
Total	100%	100%	100%	100%

Respondents who mentioned that they grew pulses in the past 12 months were further asked if they at any time during the past 12 months sold any of their pulses. The majority of the respondents who mentioned that they sold pulses were found in Eastern province (49%) when comparing with Luapula province (22.7%). In Eastern province, the proportion of the respondents who mentioned that they sold their pulses were prevalent in Katete (71.1%), folloed by Sinda (56.5%) and Petauke (25.2%). On the other hand, in Luapula, they most common in Kawambwa (26%), followed by Mwense (19.5%) and Mwansabombwe (18%). See figure below,

Figure 23: Proportion of respondents who mentioned that they sold their pulses



Those who mentioned that they sold pulses during the past 12 months, were asked on the type pulses they sold. The results show that, in Eastern province, the top three most mentioned pulses were soya beans (62.3%), followed by cow peas (33.8%) and Lusaka white beans (10.4%). On the other hand, the most mentioned in Laupula was Lusaka white beans (31.8%), followed by mbereshi beans (27.3%) and Kabulangeti (27.3%), see table below,

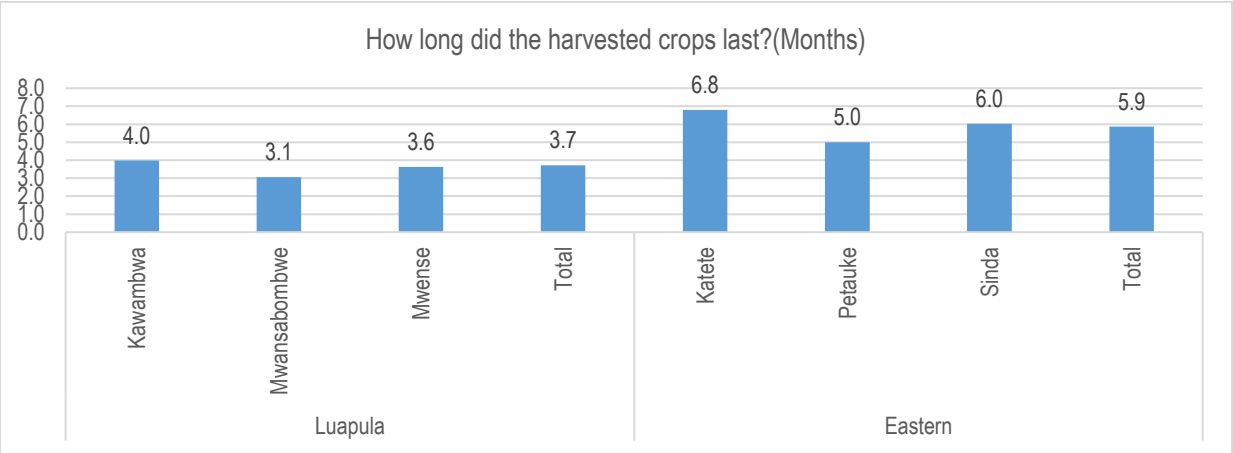
Table 34: Pulses sold during the last 12 months

	Luapula				Eastern			
	Kawambwa	Mwansabombwe	Mwense	Total	Katete	Petauke	Sinda	Total
N	40	9	17	66	71	31	52	154
Sold soya beans	20.0%	22.2%	5.9%	16.7%	85.9%	32.3%	48.1%	62.3%
Sold cowpeas	15.0%	11.1%	23.5%	16.7%	7.0%	71.0%	48.1%	33.8%
Sold green peas	2.5%	0.0%	11.8%	4.5%	0.0%	0.0%	0.0%	0.0%
Sold Mbereshi beans	40.0%	11.1%	5.9%	27.3%	7.0%	19.4%	7.7%	9.7%
Kabulangeti	22.5%	22.2%	41.2%	27.3%	7.0%	3.2%	11.5%	7.8%
doesnt know / wont say	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Chimpusa	0.0%	0.0%	23.5%	6.1%	0.0%	0.0%	0.0%	0.0%
Yellow beans	5.0%	0.0%	11.8%	6.1%	0.0%	0.0%	0.0%	0.0%
Lusaka white beans	30.0%	44.4%	29.4%	31.8%	15.5%	0.0%	9.6%	10.4%

Respondents were asked on how many months were their household members able to consume the beans/cowpeas/soya that they haversted. This was asked to capture how long their harvested crops last. In Eastern province, the harvested crop lasted an average of 5.9 months with highest found in Katete with an average of 6.8

months followed by Sinda with average of 6 months and Petauke with ana verage of 5 months. On the other hand, In Luapula province, their haversted crops lasted an average of 3.7 months and this was prevalent in Kawambwa with an average of 4 months , followed by Mwense with an average of 3.6 and Mwansabobwe with an average of 3.1 months. See figuire below,

Figure 24:How long did the harvested crops last in months



Respondents were also asked on how easy or difficult it is for their households to afford buying seeds of beans or peas or cowpeas or soya. The results reveal that, in Luapula province, the majority of the respondents (26.7%) mentioned that it was very easy, this is followed by 22.5% who mentioned that in was wuite difficult and 21% who mentioned that it was very difficult. On the other hand, in Eastern province, the majority of the respondents (25.3%) mentioned that it was quitye difficult, followed by 23.3% who mentioned that it was quite easy and 22.4% who mentioned that it was very difficult. It is worth noting that, about 12.4 in Eastern and 10.5% in Luapula mentioned that they do not need to buy them because the have them from previous season. See table below for detailed results,

Table 35:How easy or difficult is it for your household to afford buying the SEEDS of beans or peas or cowpeas or soya?.

	Luapula				**Eastern**			
	Kawambwa	Mwansabombwe	Mwense	Total	Katete	Petauke	Sinda	Total
N	249	116	196	561	139	212	139	490
Very easy	33.3%	36.2%	12.8%	26.7%	14.4%	11.3%	5.8%	10.6%
Quite easy	13.7%	15.5%	17.9%	15.5%	26.6%	26.9%	14.4%	23.3%
Quite difficult	24.9%	26.7%	16.8%	22.5%	28.1%	24.1%	24.5%	25.3%
Very difficult	23.3%	8.6%	25.5%	21.0%	16.5%	24.5%	25.2%	22.4%
I do not need to buy them - have from previous season	3.2%	8.6%	20.9%	10.5%	7.9%	7.1%	25.2%	12.4%
Doesnt know	1.6%	4.3%	6.1%	3.7%	6.5%	6.1%	5.0%	5.9%
Total	100%	100%	100%	100%	100%	100%	100%	100%

Respondents were further asked on the type of seeds of beans, peas or soy that are easisted to afford their households. In Luapula, the top 3 most affordable seeds are Mbereshi beans (34.2%), followed by Lusaka white beans (25.3%),

and cow peas (23.2%). On the other hand, in Eastern province, the top three are cow peas (61%), followed by mberehsing beans (20%) and soya beans (15.9%). See table below,

Table 36:Which types of SEEDS of beans, peas, cowpeas or soya are the easiest to afford for your household?/

	Luapula				Eastern			
	Kawambwa	Mwansabombwe	Mwense	Total	Katete	Petauke	Sinda	Total
N	249	116	196	561	139	212	139	490
Soya beans	21.7%	4.3%	9.2%	13.7%	26.6%	8.0%	17.3%	15.9%
Cowpeas	20.5%	25.9%	25.0%	23.2%	41.0%	66.0%	73.4%	61.0%
Green peas	11.6%	16.4%	18.9%	15.2%	0.7%	0.0%	0.7%	0.4%
Mbereshi beans	54.2%	20.7%	16.8%	34.2%	21.6%	22.2%	15.1%	20.0%
Any type of beans	0.4%	0.0%	0.0%	0.2%	0.0%	0.0%	0.0%	0.0%
Kabulangeti	17.3%	26.7%	17.9%	19.4%	2.9%	8.0%	10.8%	7.3%
None is affordable	6.0%	7.8%	4.1%	5.7%	0.7%	3.3%	0.7%	1.8%
Chimpusa	0.0%	11.2%	23.0%	10.3%	0.0%	0.0%	0.0%	0.0%
Lusaka white beans	20.5%	25.9%	31.1%	25.3%	5.8%	5.2%	0.7%	4.1%
Yellow beans	4.8%	1.7%	4.6%	4.1%	0.7%	0.0%	0.0%	0.2%
Solwezi/sweet beans	0.8%	1.7%	0.0%	0.7%	15.1%	4.2%	2.2%	6.7%
Red beans	0.0%	0.0%	4.1%	1.4%	2.9%	4.7%	3.6%	3.9%

1.6.4. Consumption of Eggs by Children

1.6.4.1. The proportion of children who ate an egg during the previous day

An analysis of the consumption of eggs by children was carried out. The response for this aspect of eggs was obtained from the dietary recal, when Respondents were asked if their children had consumed an egg during the previous day. Most of the children (6 – 23 months) who were mentioned to have consumed an egg during the previous day were from Luapula province (28.9%, N=561) when compared with Eastern province (21.6%, N=490), the difference was statistically significant ($p<0.05$). Disaggregating data by child gender shows a significant difference in both provinces. In Luapula province, most of the children who had an egg during the previous day were females (29.5%) when compared to males (28.3%). In Eastern province, male children (24.5%) were more likely to have eaten an egg during the previous day when compared to females (19%). Disaggregating data by the district show that, in Eastern province, a higher proportion of children who were mentioned to have eaten an egg during the previous day were from Katete (25.9%), followed by Patauke (25%) and Sinda (12.2%). On the other hand, in Luapula, a higher proportion was from Kawambwa (36.9%), followed by Mwansabobwe (28.4%) and Mwense (18.9%), a more detailed picture of the results can be shown by the figure below,

Figure 25: Proportion of children who ate an egg during the previous day

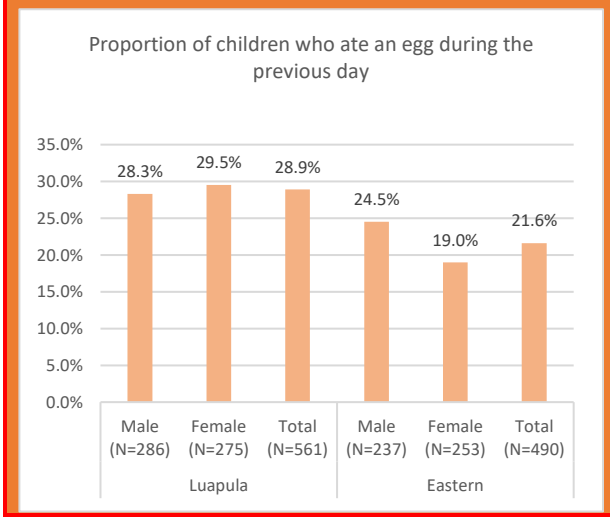
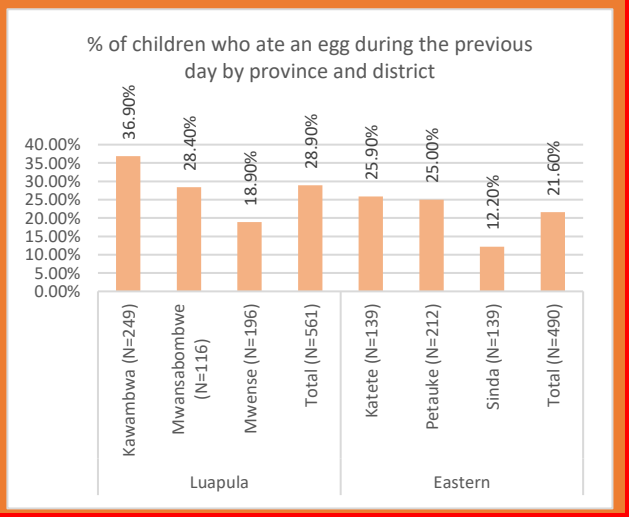


Figure 26: % of children who ate an egg during the previous day by province and district



1.6.4.2. The last time a child ate an egg

Women were asked about the last time their children had eaten an egg, and the results show that most of the children 24.8%, were mentioned to have eaten an egg during 1 – 2 days ago, 14.3% ate them 3 – 4 days ago whilst 10% mentioned that their children had eaten the eggs 1 – 2 weeks ago. It is worth noting that some 19.6% mentioned that they did not remember when the eggs were eaten by their children. In addition, a very lower proportion, 3.6% (4.4% in Kawambwa, 3.6% in Mwense and 1.7% in Mwansabobwe) mentioned that their children had eaten an egg during the day of the survey.

Table 37:The last time a child had eaten an egg

N	Kawambwa	Mwansabombwe	Mwense	Total
	249	116	196	**561**
Today	4.4%	1.7%	3.6%	**3.6%**
1-2 Days Ago,[11]	30.1%	6.9%	28.6%	**24.8%**
3-4 Days Ago,	14.5%	12.1%	15.3%	**14.3%**
5-7 Days Ago,	7.2%	10.3%	8.7%	**8.4%**
1-2 Weeks Ago,	13.3%	5.2%	8.7%	**10.0%**
2-4 Weeks Ago,	7.2%	2.6%	6.1%	**5.9%**
More Than One Month Ago	10.8%	23.3%	11.2%	**13.5%**
Doesn't Remember	12.4%	37.9%	17.9%	**19.6%**
Total	100%	100%	100%	**100%**

[11] The proportion of respondents who mentioned 1-2 days, 24.8%is slightly different from the dietary recall. This was because, the two questions were asked on different occasions, dietary recall was asked first, then the "last time" question was asked a bit more later, most likely the respondents had forgotten what they had answered on the dietary recall

Respondents in Luapula province were asked on the number of eggs their children had ate during the previous 7 days. The results show that, on average children had consumed 2.6 eggs with a minimum of 0 and maximum of 14 eggs during the last seven days. The difference in the average number eggs consumed by children in different districts was statistically significant, ($p<0.01$). Children from Kawambwa tend to have consumed more eggs (an average of 3 eggs) when comparing with Mwansabobwe (2.8) and Mwense (2.1). See table below,

Table 38:Average number of eggs consumed by children

District	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Kawambwa	138	3.0	2.0	0.2	2.6	3.3	0	14
Mwansabombwe	35	2.8	1.7	0.3	2.2	3.3	0	7
Mwense	108	2.1	1.4	0.1	1.9	2.4	0	7
Total	281	2.6	1.8	0.1	2.4	2.8	0	14

Dissagreggating data by gender of the child did not show any variations ($p>0.05$), male children had consumed and average of 2.7 eggs whilst female children had consumed 2.5 eggs during the previous seven days. Further, dissagregating data by household wealth did not show any variation, $p>0.05$.

1.6.4.3. The proportion of households who currently raise chickens

Women in Luapula province were asked if they currently raise chickens, the results reveal that about 61.7% of the households currently raise chickens, see figure below for detailed results. Disaggregating data by the district show that most of the households who currently raise chickens were from Kawambwa (67.5%), followed by Mwense (65.8%) and Mwansabobwe (42.2%). Disaggregating data by the gender of head of the household show that, a higher proportion of households who currently raise chickens were male-headed (62.9%, N=394) when compared with female-headed households (58.7%, N=167),

Figure 27:Proportion of households who currently raise chickens

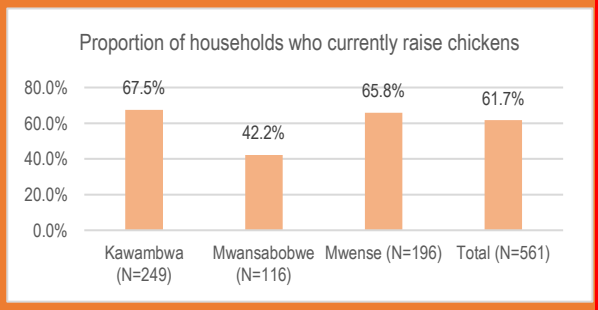
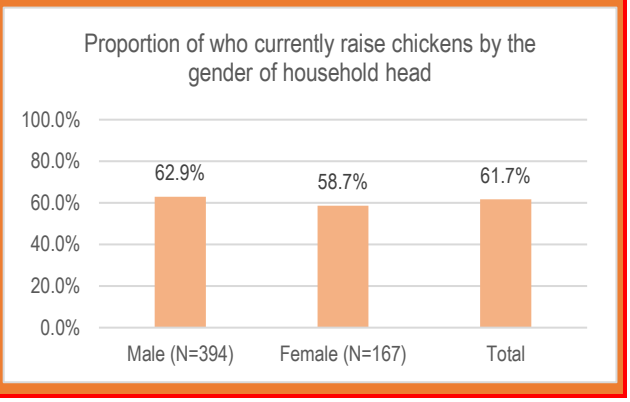


Figure 28:Proportion of who currently raise chickens by the gender of household head

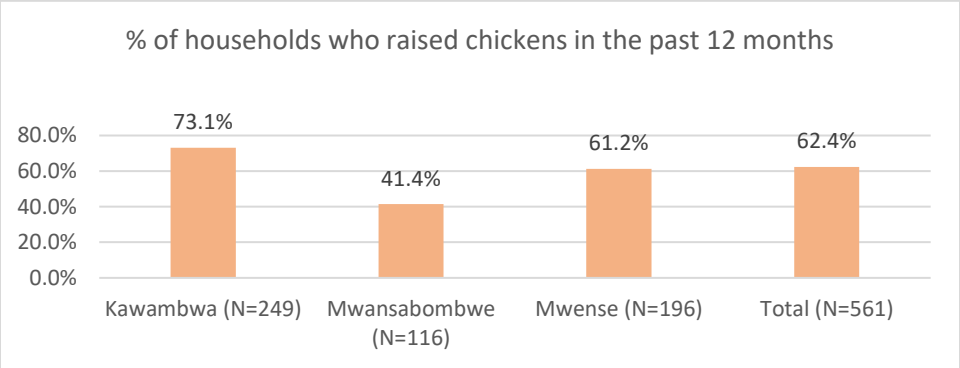


1.6.4.4. The proportion of households who raised chickens in the past 12 months

In addition, women were asked if their households raised chickens in the past 12 months. About 62.4% mentioned that they raised chicken during the past 12 months.. The proportion of households that mentioned

to have raised chickens during the past 12 months was common in Kawambwa (73.1%) followed by Mwense (61.2%) and Mwansabobwe (41.2%), see figure below,

Figure 29:% of households who raised chickens in the past 12 months



1.6.4.5. Number of chickens raised currently raised

Respondents were further asked about the number of chickens and chicks they currently have, overall, in Luapula province results show an average of 7.2 chickens with a minimum of one and a maximum of 50 chickens raised at a household. Analysis of data by districts show that households in Kawambwa district had a significantly higher average number of chickens of 8.3 followed by Mwense (6.3) and 6 in Mwansabobwe, see table below for more detailed results,

Table 39: Number of chickens raised in households

District	N	Average	Minimum	Maximum	Standard Deviation
Kawambwa	168	8.3	1	50	8.8
Mwansabombwe	49	6.0	1	32	5.6
Mwense	129	6.3	1	30	5.6
Total	346	7.2	1	50	7.4

1.6.4.6. The proportion of children from households that currently (do not) raise chickens who ate an egg recently

An analysis of the proportion of children who ate an egg during the previous day and were from households that raises chickens was carried out. The results show that, about 32.9% of children who ate an egg during the previous day were from households who do not raise chickens. Such children were commonly found in Kawambwa (40.5%), followed by followed by Mwanabobwe (36.7%) and Mwense (21.7%).

Further, the proportion fof children who consumed an egg during the previous day and were from households who did not raise chickens was also checked. The results show that, about 22.3% of the children ate an egg and were from the households that do not raise chickens. Dissaggregatting data by districts show that this was prevalent in Kawambwa (29.6%), followed by Mwansabombwe (22.4%) and Mwense (13.4%), see table below for the results in detail,

Table 40:Raising chickens and consumption of eggs by children

District		Household currently raise chicken		Household do not currently raise chicken		Total	
		N	%	N	%	N	%
Kawambwa	Child has ate an egg recently	68	40.5%	24	29.6%	92	36.9 %
	Child DID NOT eat an egg recently	100	59.5%	57	70.4%	157	63.1 %
	Total	168	100%	81	100%	249	100%
Mwansabombwe	Child has ate an egg recently	18	36.7%	15	22.4%	33	28.4 %
	Child DID NOT eat an egg recently	31	63.3%	52	77.6%	83	71.6 %
	Total	49	100%	67	100%	116	100%
Mwense	Child has ate an egg recently	28	21.7%	9	13.4%	37	18.9 %
	Child DID NOT eat an egg recently	101	78.3%	58	86.6%	159	81.1 %
	Total	129	100%	67	100%	196	100%
Total	Child has ate an egg recently	114	32.9%	48	22.3%	162	28.9 %
	Child DID NOT eat an egg recently	232	67.1%	167	77.7%	399	71.1 %
	Total	346	100%	215	100%	561	100%

Table 41:Proportion of children from households that currently (do not) raise chickens who ate an egg recently

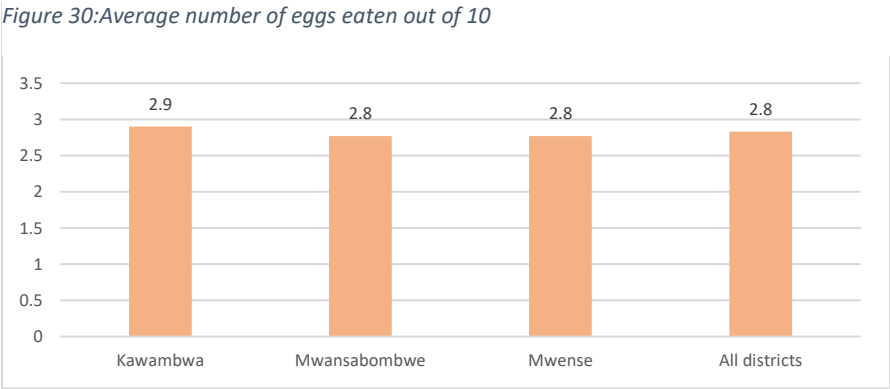
District	The child has eaten an egg	Male headed		Female-headed		All households	
		N	%	N	%	N	%
Kawambwa	Yes	14	25.5%	10	38.5%	24	29.6%
	No	41	74.5%	16	61.5%	57	70.4%
	Total	**55**	**100%**	**26**	**100%**	**81**	**100%**
Mwansabombwe	Yes	8	21.1%	7	24.1%	15	22.4%
	No	30	78.9%	22	75.9%	52	77.6%
	Total	**38**	**100%**	**29**	**100%**	**67**	**100%**
Mwense	Yes	7	13.2%	2	14.3%	9	13.4%
	No	46	86.8%	12	85.7%	58	86.6%
	Total	**53**	**100%**	**14**	**100%**	**67**	**100%**
All Districts	Yes	29	19.9%	19	27.5%	48	22.3%
	No	117	80.1%	50	72.5%	167	77.7%
	Total	**146**	**100%**	**69**	**100%**	**215**	**100%**

4.2.4.7. Average proportion of eggs left for consumption vs. for hatching

Respondents were asked about the number of eggs that they can consume vs what they will leave for hatching. They were given a scenario to say if their chicken produced 10 eggs, how many of them would be eaten. The results show that women mentioned an average of 2.8 eggs out of 10 would be eaten.

Disaggregating data by the district show that women in Kawabwa mentioned an average of 2.9 whilst in Mwansabobwe and Mwense they mentioned an average of 2.8 eggs out of the 10.

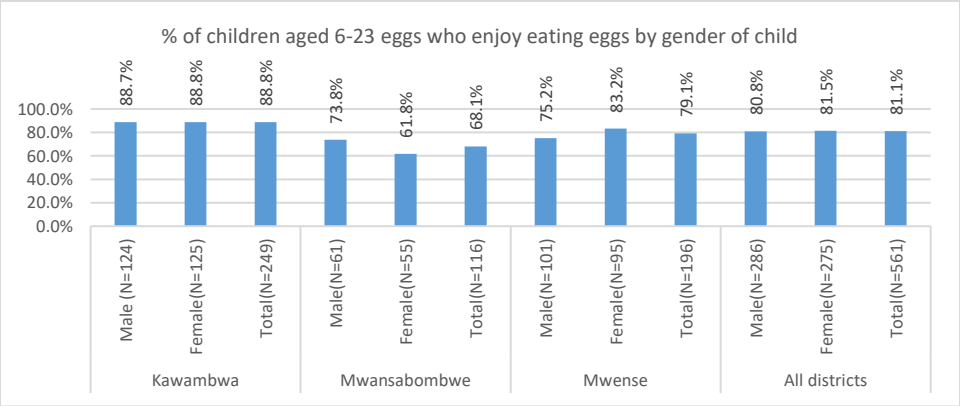
Figure 30:Average number of eggs eaten out of 10



4.2.4.8. Proportion of children aged 6-23 eggs who enjoy eating eggs

Respondents were asked if their children (6 - 23 months) enjoyed eating eggs. Across all districts, about 81.1% of the respondents mentioned that their children enjoy eating the eggs. Analysis of data by gender of the child did not show any variations, 80.8% of female children liked eggs whilst 81.5% of the male children liked eggs. Disaggregating data by the district show that most of the children who liked eggs were from Kawambwa (88.8%), followed by Mwense (79.1%) and Mwansabombwe (68.1%), see figure below

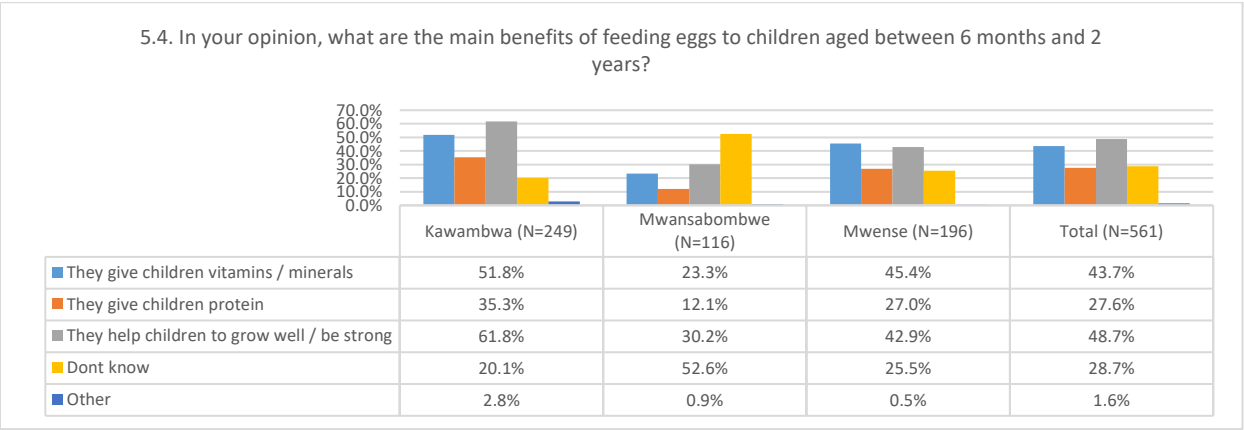
Figure 31:% of children aged 6-23 eggs who enjoy eating eggs by gender of the child



4.2.4.9. Proportion of respondents aware of the benefits of children eating eggs

Respondents were further asked about the benefits of feeding eggs to children aged between 6 months and 2 years. Overall, across all districts in Luapula province, the most mentioned benefit was that eggs help children to grow well/be strong (48.7%), followed by those who mentioned that eggs give children vitamin/minerals (43.7%). About 28.7% of the respondents didn't know the benefits of feeding eggs to children.

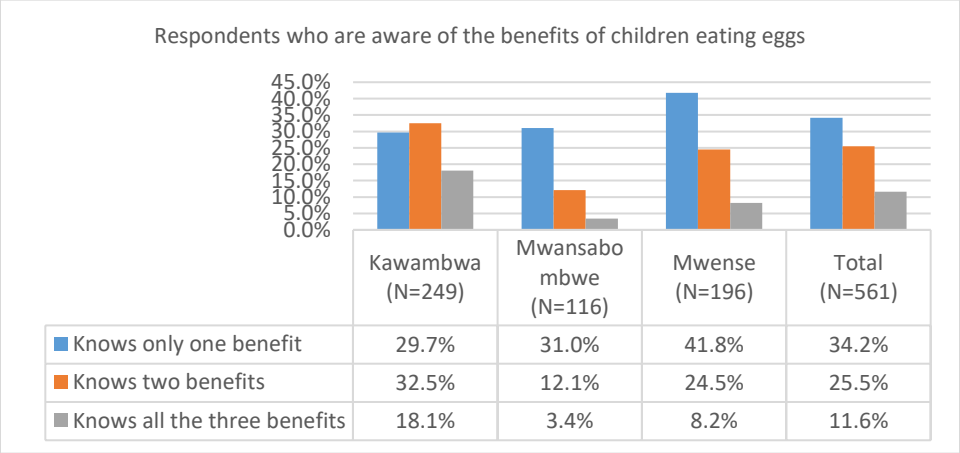
Figure 32:In your opinion, what are the main benefits of feeding eggs to children aged between 6 months and 2 years?



	Kawambwa (N=249)	Mwansabombwe (N=116)	Mwense (N=196)	Total (N=561)
They give children vitamins / minerals	51.8%	23.3%	45.4%	43.7%
They give children protein	35.3%	12.1%	27.0%	27.6%
They help children to grow well / be strong	61.8%	30.2%	42.9%	48.7%
Dont know	20.1%	52.6%	25.5%	28.7%
Other	2.8%	0.9%	0.5%	1.6%

The responses were further categorized to calculate the proportion of women who knew either one or two or three benefits of feeding eggs to children. The three main benefits which were being followed up were (1) Eggs give vitamins/minerals (2) they give children protein and (3) they help children to grow well/be strong. The results show that a higher proportion of the respondents 34.2% knew one benefit, this is followed by 25.5% who knew two benefits. Only about 11.6% were found to know all the three benefits. Disaggregating data by districts show that the proportion of respondents who knew all the three benefits was common in Kawambwa (18.1%), followed by Mwense (8.2%) and Mwansabobwe (3.4%). See figure below,

Figure 33:Respondents who are aware of the benefits of children eating eggs



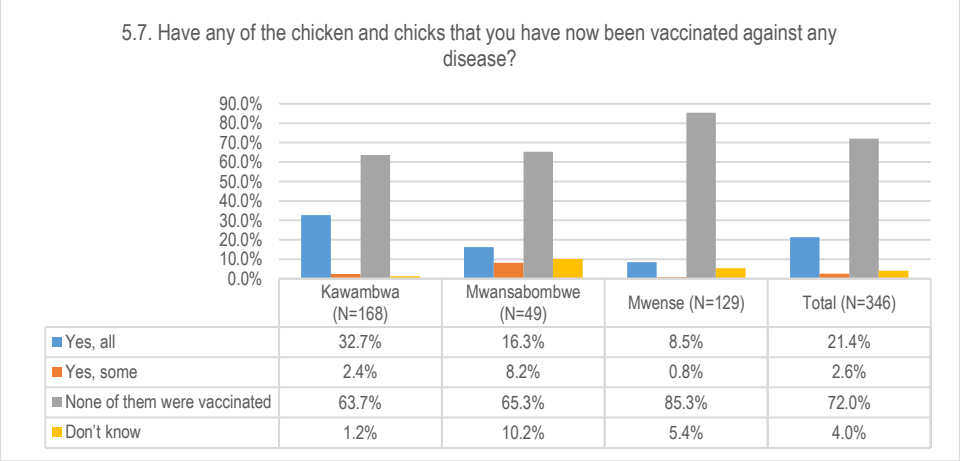
	Kawambwa (N=249)	Mwansabombwe (N=116)	Mwense (N=196)	Total (N=561)
Knows only one benefit	29.7%	31.0%	41.8%	34.2%
Knows two benefits	32.5%	12.1%	24.5%	25.5%
Knows all the three benefits	18.1%	3.4%	8.2%	11.6%

4.2.4.10. Proportion of households raising chicken who vaccinated them in the past 12 months

Vaccination of chickens was also assessed; the respondents were asked if any of their chicken and chicks have been vaccinated against any disease. Most of the respondents (72%) mentioned that their chickens were not vaccinated. However, about 21.4% (32.7% in Kawambwa, 16.3% in Mwansabobwe and 8.5% in Mwense) mentioned that all their chickens and chicks were vaccinated. About 2.6% of the respondents

mentioned that some of their chicken and chicks were vaccinated, these were prevalent in Mwansabobwe (8.2%), followed by Kawambwa (2.4%) and 0.8% in Mwense. See figure below

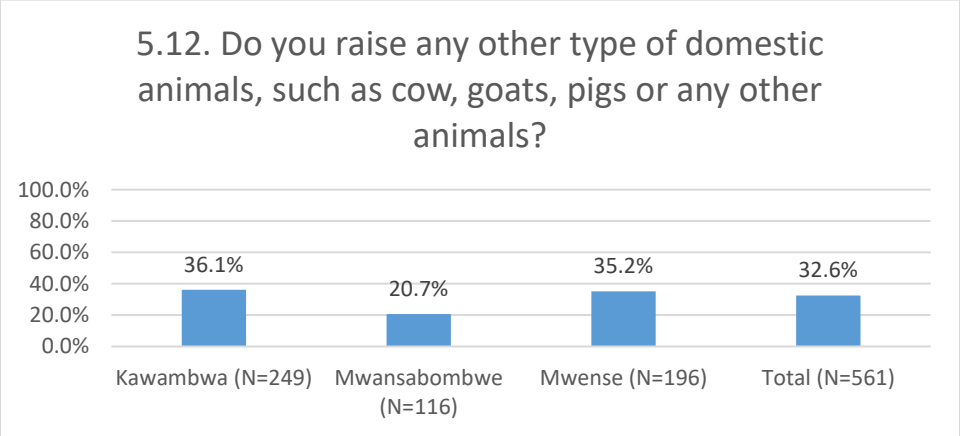
Figure 34:Have any of the chickens and chicks that you have now been vaccinated against any disease?



	Kawambwa (N=168)	Mwansabombwe (N=49)	Mwense (N=129)	Total (N=346)
Yes, all	32.7%	16.3%	8.5%	21.4%
Yes, some	2.4%	8.2%	0.8%	2.6%
None of them were vaccinated	63.7%	65.3%	85.3%	72.0%
Don't know	1.2%	10.2%	5.4%	4.0%

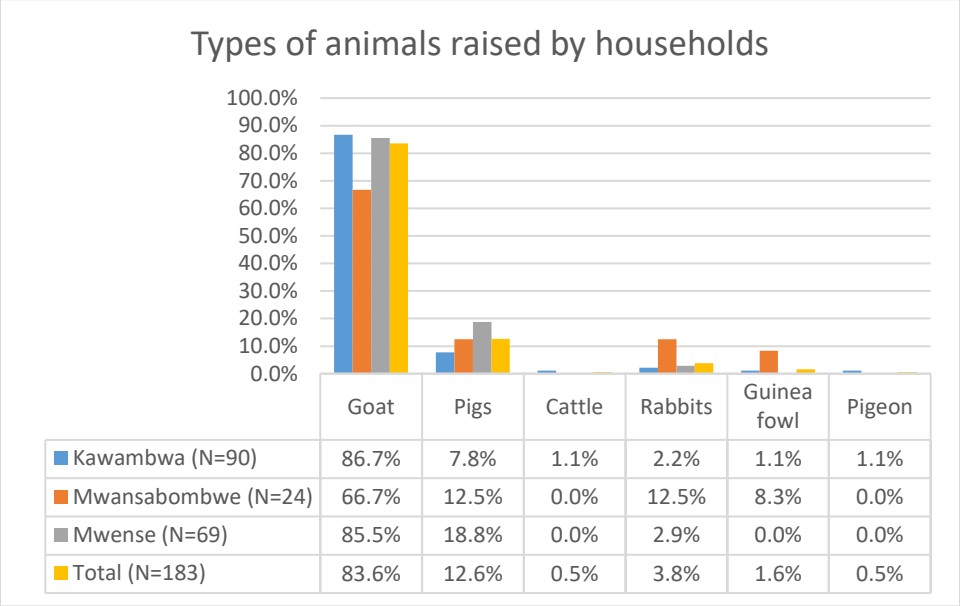
Respondents in Luapula province were asked if they raise any other types of domestic animals such as cow, pigs and any other animals. The results who that, about 32.6% mentioned that they do raise other types of domestics animals. Dissagreggating data by district, show that this was prevalent in Kawambwa (36.1%), followed by Mwense (35.2%) and Mwansabobwe (20.7%). See figure below,

Figure 35:Proportion of households who raise other types of domemstic animals



Dissagreggating data by the gender of household head show a significant difference between male headed households and female headed households, $p<0.05$. Most of the households which were reported to keep the domestic animals were males headed (35%, N=394) when comparing with female headed households (26.9%, N=167). Further, those respondents who mentioned that they raise domestic animals were asked on the type of domestic animals they keep. The results show that, the top 3 most common animals raised buy households were goats (83.6%), followed bu pigs (12.6%) and rabbits (1.6%). Goats were common in Kawambwa (86.7%), Mwense (85.5%), and Mwansabombwe (66.7%). See figure below,

Figure 36:Types of animals raised by households

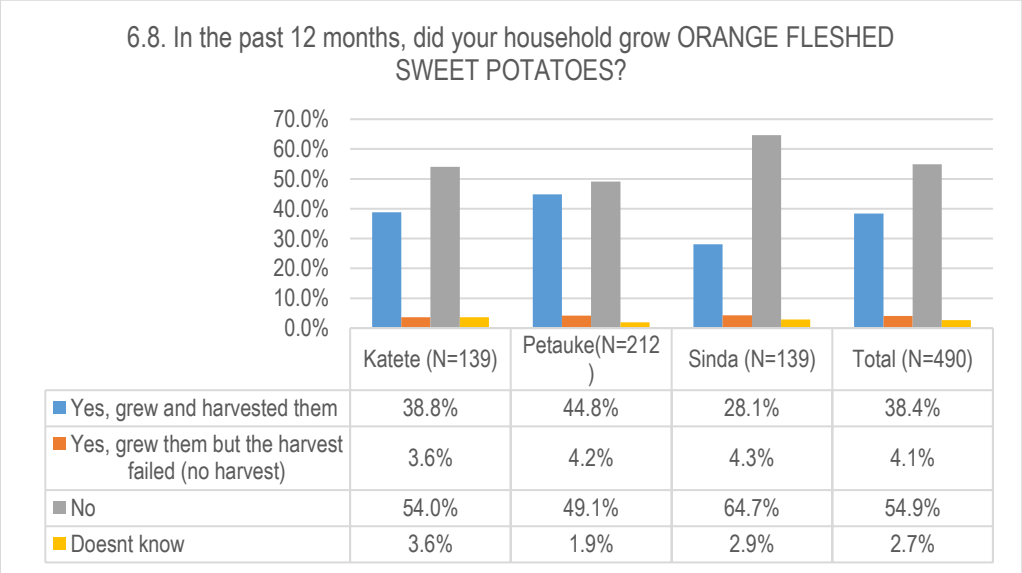


	Goat	Pigs	Cattle	Rabbits	Guinea fowl	Pigeon
Kawambwa (N=90)	86.7%	7.8%	1.1%	2.2%	1.1%	1.1%
Mwansabombwe (N=24)	66.7%	12.5%	0.0%	12.5%	8.3%	0.0%
Mwense (N=69)	85.5%	18.8%	0.0%	2.9%	0.0%	0.0%
Total (N=183)	83.6%	12.6%	0.5%	3.8%	1.6%	0.5%

1.7. Production of orange fleshed sweet potatoes

Respondents were asked on the production of oranged fleshed sweet potatoes. They were asked about if their households grew orange fleshed sweet potatoes during the past 12 months. The results show that, over half of the respondents (54.9%, N=490) mentioned that they did not grow oranged fleshed sweet patoes in the past 12 months. This was common in Sinda (64.7%), followed by Katate (54%) and Petauke (49.1%). However, although a higher proportion mentioned that thy did not grow orange fleshed sweet potatoes, about 38.4% (44.8% in Petauke, 38.8% in Katete and 28.1% in Sinda) mentioned that, they grew and harvested them. See figure below,

Figure 37:Proportion of households that grow orange fleshed sweet potatoes

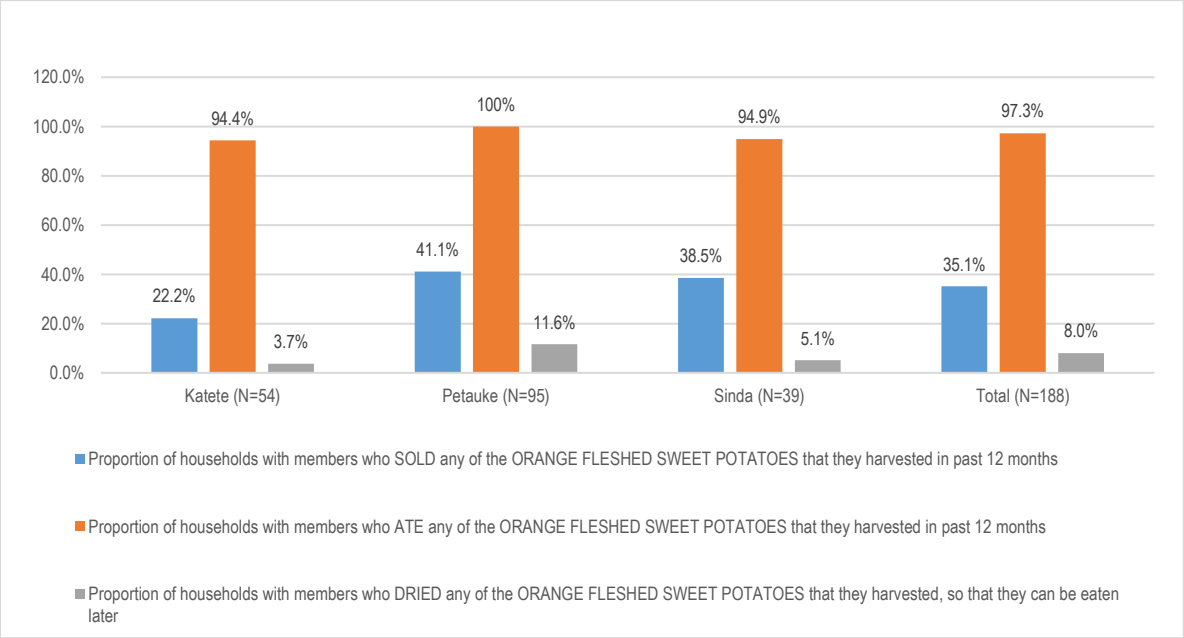


	Katete (N=139)	Petauke(N=212)	Sinda (N=139)	Total (N=490)
Yes, grew and harvested them	38.8%	44.8%	28.1%	38.4%
Yes, grew them but the harvest failed (no harvest)	3.6%	4.2%	4.3%	4.1%
No	54.0%	49.1%	64.7%	54.9%
Doesnt know	3.6%	1.9%	2.9%	2.7%

Furthermore, they were asked if they sell, ate of dried their harvested orange fleshed sweet potatoes during the past 12 months. About 35.1% (41.1% in Petauke, 38.5% in Sinda and 22.2% in Katete) mentioned that the sold their

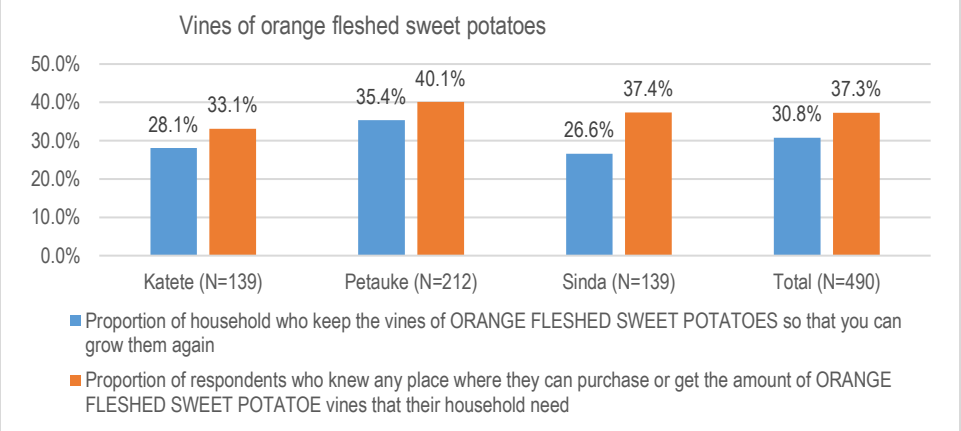
harvested orange fleshed sweet potatoes. Most of the respondents (>95%) mentioned that they ate their harvested orange fleshed sweet potatoes, see figure below. Interms of drying the orange fleshed sweet poptatoes, a very small proportion 8% (11.6% in Petauke, 5.15 in Sinda and 3.7% in Katete) were affirmative.

Figure 38: Eating, selling and drying of orange fleshed sweet potatoes



Accessibility of vines for orange fleshed sweet potatoes was also assessed. Respondents were asked if they keep the vines for orange fleshed sweet potatoes so that they grow them again. About 30.8% mentioned that they keep, this was common in Petauke (35.4%), followed by Katete (28.1%) and Sinda (26.6%). Further, they were asked if they knew any place where they can purchase or get the amount of orange fleshed sweet potatoes. The results sho that, about 37.3% (40.1% in Petauke, 37.4% in Sinda and 33.15 in Ketete) mentioned that they knew. See figure below,

Figure 39:Vines of orange fleshed sweet potatoes



In addition, respondents were asked if the knew of someone who grows orange sweet potatoes. The results show that about 48.8% knew of someone. They were also asked if the knew of someone who can give them advice on how to

produce orange fleshed sweet potatoes. The results show that, about 41% mentiond that they knew. They were also asked on how easy of difficult for them to protect orange fleshed sweet potatoes from pest ans diseases. The results show that the majority of the respondents 46.5% mentioned that they did not know, this is followed by 16.9% who mentioned that it was quite easy and 15.3% who mentioned that it was very easy. See table below,

Figure 40:Orange flesshed sweet potatoes

	Katete	Petauke	Sinda	Total
N	**139**	**212**	**139**	**490**
6.14. Do you know someone who grows ORANGE FLESHED SWEET POTATOES?				
Yes	45.3%	57.5%	38.8%	48.8%
No	54.7%	42.5%	61.2%	51.2%
Total	100%	100%	100%	100%
6.15. Do you know someone who can give you advice on how to produce ORANGE FLESHED SWEET POTATOESeffectively?				
Yes	34.5%	51.4%	31.7%	41.0%
No	65.5%	48.6%	68.3%	59.0%
Total	100%	100%	100%	100%
6.16. How easy or difficult is it for your household members to protect ORANGE FLESHED SWEET POTATOES from pests and diseases?				
Very easy	17.3%	15.6%	12.9%	15.3%
Quite easy	16.5%	19.3%	13.7%	16.9%
Quite difficult	8.6%	21.7%	4.3%	13.1%
Very difficult	10.8%	8.5%	5.0%	8.2%
Doesnt know	46.8%	34.9%	64.0%	46.5%
Total	100%	100%	100%	100%
6.17. Can you please tell me what are the benefits of growing and eating orange ORANGE FLESHED SWEET POTATOES?				
They provide vitamin A	29.5%	45.3%	38.8%	39.0%
They protect eyesight	10.1%	14.6%	5.8%	10.8%
They protect body from diseases	7.9%	4.2%	2.9%	4.9%
Other correctly mentioned benefits	2.9%	1.9%	0.7%	1.8%
Doesnt know	49.6%	34.0%	51.8%	43.5%
Total	100%	100%	100%	100%

1.7.1. Drying Sweet Potatoes

1.7.1.1. The proportion of households who grew sweet potatoes in the past 12 months

Respondents were asked if they grew and harvest any sweet potatoes, the results show that, most of the respondents in Luapula province (74%) mentioned thay they grew and harvested them, followed by 24.1% who mentioned that they did not harvest them whilst only 1.8% mentioned that they grew them but did not harvest. On the other hand, in Eastern province, about 53.5% mentioned that the grew and harvested them, followed by 43.3% who mentioned that they did not grew them and only 1.8% mentioned that they grew but did not harvest them. Disaggregating data by the district in Luapula province show that most of the

respondents who mentioned to have grown and harvested sweet potatoes were common in Kawambwa (82.7%) followed by Mwense (77%) and Mwansabobwe (50%). On the other hand, in Eastern province, most of them were from Petauke (60.4%), Katete (51.8%) and Sinda (44.6%), see table below for detailed results

Table 42. Did you grow and harvest any sweet potatoes?

Did you grow and harvest any sweet potatoes?								
N	Luapula				Eastern			
	Kawambwa	Mwansabombwe	Mwense	Total	Katete	Petauke	Sinda	Total
	249	116	196	561	139	212	139	490
Yes, grew and harvested them	82.7%	50.0%	77.0%	74.0%	51.8%	60.4%	44.6%	53.5%
Yes, grew but no harvest	2.8%	0.9%	1.0%	1.8%	1.4%	1.9%	2.2%	1.8%
No	14.5%	48.3%	21.9%	24.1%	44.6%	36.8%	51.8%	43.3%
Doesn't know	0.0%	0.9%	0.0%	0.2%	2.2%	0.9%	1.4%	1.4%
Total	100%	100%	100%	100%	100%	100%	100%	100%

1.7.1.2. The proportion of households who grew sweet potatoes and 1) did not sell any (ate them); 2) dried them; 3) sold them

Respondents from households who mentioned to have grown the sweet potatoes were assessed if they sold, eat, or dried them. Considering households that sold their harvested sweet potatoes, a higher proportion of them were found in Eastern province (33.6%) when compared with Luapula province (25.1%). In Eastern province, the proportion of respondents who mentioned that they sold their sweet potatoes was prevalent in Sinda district (38.7%), followed by Petauke (34.4%) and Katete (27.8%). On the other hand, in Luapula province, they were common in Mwense district (32.5%), followed by Mwansabombwe (24.1%) and Kawambwa (19.9%). Upon being asked if they also ate the sweet potatoes, they harvested in the past 12 months, >95% of the respondents in both provinces were affirmative.

Further, the respondents were asked if in their households they have dried the harvested sweet potatoes so that they can be eaten later. Most of the affirmative respondents were from Luapula province (35.9%) when compared with Eastern province where only 8.4% mentioned that they had dried the sweet potatoes for the future. It seems households in Luapula province tend to grow sweet potatoes mostly for consumption unlike households in Eastern where households tend to grow them for selling. See table below for results,

Table 43:Ordinary sweet potatoes

N	Luapula				Eastern			
	Kawambwa	Mwansabombwe	Mwense	Total	Katete	Petauke	Sinda	Total
	206	58	151	415	72	128	62	262
Proportion of household who SOLD any sweet potatoes harvested in the past 12 months	19.9%	24.1%	32.5%	25.1%	27.8%	34.4%	38.7%	33.6%
Proportion of household who ATE any sweet potatoes harvested in the past 12 months	98.1%	94.8%	94.7%	96.4%	97.2%	95.3%	95.2%	95.8%
The proportion of households who DRIED the harvested sweet potatoes so that they can be eaten later	50.5%	25.9%	19.9%	35.9%	6.9%	9.4%	8.1%	8.4%

1.7.1.3. The proportion of respondents who know where they can access vines of sweet potatoes,

When asked if they knew of any place where vines of sweet potatoes can be purchased/accessed, around 54.5% and 41.4% in Eastern and Luapula province respectively were affirmative. Analysis by the district

shows that, in Luapula province, most of the respondents who knew where the vines can be purchased/accessed were in Katete (59.7%), followed by Petauke (58%) and Sinda (43.9%). On the other hand, in Luapula province, they were prevalent in Kawambwa (49%), followed by Mwense (38.35) and Mwansbobwe (30.2%). In addition, respondents were asked if they knew someone who dries sweet potatoes, most of them were found in Luapula (63.3%) when compared with Eastern province, where only 9.2% mentioned that they knew. Respondents were also asked if they knew someone who can advise on how to effectively dry sweet potatoes. The results show that about 61.9% and 19% in Luapula and Eastern province respectively were affirmative. Considering Luapula province, the proportion of respondents who knew someone who can effectively dry sweet potatoes were common in Kawambwa (75.5%) followed by Mwense (57.1%) and Mwansabombwe (40.5%). See table below for detailed results,

Table 44:Sweet potatoes production

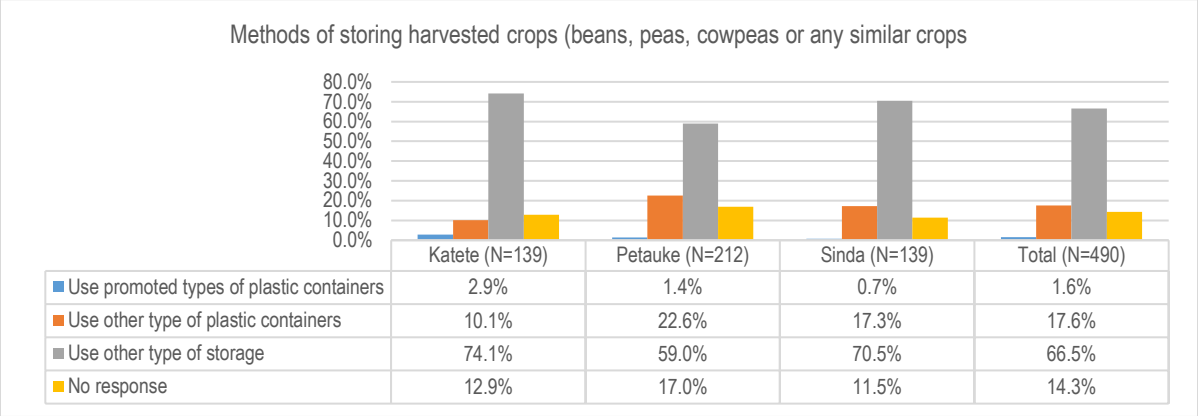
N	Luapula				Eastern			
	Kawambwa	Mwansabombwe	Mwense	Total	Katete	Petauke	Sinda	Total
	249	116	196	561	139	212	139	490
Respondents who knew any place where vines of sweet potatoes can be purchased or accessed	49.0%	30.2%	38.3%	41.4%	59.7%	58.0%	43.9%	54.5%
Respondents who knew someone who dries sweet potatoes	77.9%	41.4%	57.7%	63.3%	7.9%	12.3%	5.8%	9.2%
Respondents who knew someone who can give advice on how to dry sweet potatoes effectively	75.5%	40.5%	57.1%	61.9%	15.1%	25.0%	13.7%	19.0%

1.7.2. Use of Plastic Containers

1.7.2.1. The proportion of respondents aware of the possibility of storing crops in plastic containers [need to specify which crops are we asking about]

The use of plastic containers was only assessed in the eastern province. Respondents were asked several questions on the use of plastic containers. They were asked how they store their harvested pulses e.g., beans, peas, cowpeas, and similar crops. The results show that most of the respondents (66.5%) mentioned that they use other types of storage when storing their harvested pulses. About 17.6% mentioned that they use other types of plastic containers and only 1.6% mentioned to be using promoted types of plastic containers. The proportion of the respondents who mentioned the use of promoted types of plastic containers was higher in Katete (2.9%), followed by Petauke (1.4%) and Sinda (0.7%). See figure below for the results in detail,

Figure 41. Methods of storing harvested crops (beans, peas, cowpeas or any similar crops



	Katete (N=139)	Petauke (N=212)	Sinda (N=139)	Total (N=490)
Use promoted types of plastic containers	2.9%	1.4%	0.7%	1.6%
Use other type of plastic containers	10.1%	22.6%	17.3%	17.6%
Use other type of storage	74.1%	59.0%	70.5%	66.5%
No response	12.9%	17.0%	11.5%	14.3%

Respondents in Eastern province, were further asked on the benefits of storing some of their harvested crops in such container mentioned above. Half of the respondents (56.1%) were not aware of the anay benefits, and equaly about 56.1% mentioned that the containers protect crops from redents and mould/ rotting, see table below results in detail,

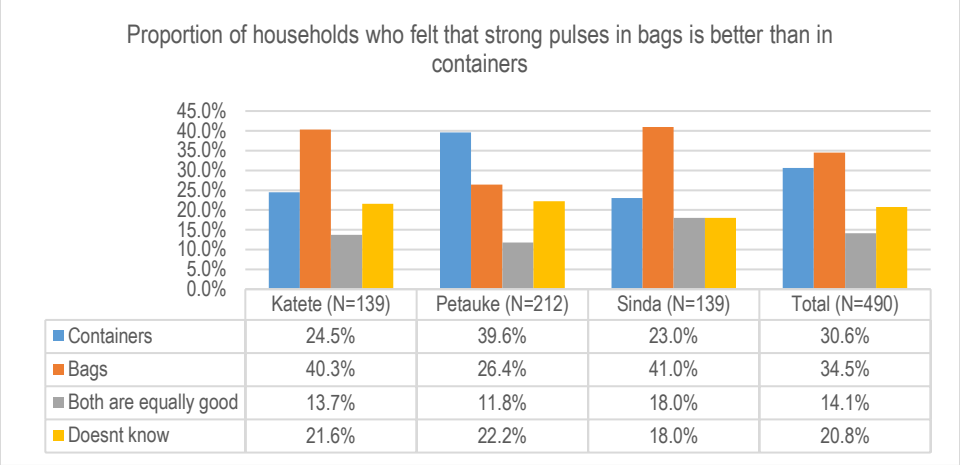
Table 45:the benefits of storing some of your harvested crops in such containers?

	Katete (N=44)	Petauke (N=86)	Sinda (N=43)	Total (N=173)
Crops protected from rodents	47.7%	55.8%	65.1%	56.1%
Crops protected from mould / rotting	47.7%	55.8%	65.1%	56.1%
Other	0.7%	2.4%	0.0%	1.2%
Not aware of any benefits	47.7%	55.8%	65.1%	56.1%

1.7.2.2. The proportion of households who think that storing pulses in bags is better than in containers + reasons for the opinion

Opinions of respondents on which one is better to store pulses between bags and containers were also assessed. Most of the respondents, 34.5% felt that bags are better, this is followed by 30.6% who felt that containers are better. About 20.8% mentioned that did not know which one is better. Around 14.1% mentioned that both the bags and containers are equally good. Amongst those who mentioned that bags are better they were common in Sinda (34.5%), followed by Katete (40.3%) and Petauke (26.4%). See table below for detailed results,

Figure 42:Proportion of households who felt that strong pulses in bags are better than in containers



	Katete (N=139)	Petauke (N=212)	Sinda (N=139)	Total (N=490)
Containers	24.5%	39.6%	23.0%	30.6%
Bags	40.3%	26.4%	41.0%	34.5%
Both are equally good	13.7%	11.8%	18.0%	14.1%
Doesnt know	21.6%	22.2%	18.0%	20.8%

Further, respondents who mentioned that bags are better were asked about the reasons why they felt so. A significantly higher proportion (71.6%) mentioned that bags are easily accessible whilst 29% mentioned that bags are bigger than containers – can store more crops and, about 26.6% mentioned that bags are cheaper – it saves them money. Those who mentioned that containers are better were also further asked about the reasons why they felt so. Most of them (72%) mentioned that harvested crops cannot be easily damaged, 51.3% mentioned that crops last better in containers (quality retained) and 14.7% mentioned that container can be used for other purposes. See table below for detailed results,

Table 46: Reasons for preferring bag or containers

	Katete		Petauke		Sinda		Total	
	N	%	N	%	N	%	N	%
Reasons why bags are better								
Bags are cheaper - it saves money	25	44.6%	10	17.9%	10	17.5%	45	26.6%
Bags are easily accessible	40	71.4%	42	75.0%	39	68.4%	121	71.6%
Bags are bigger than containers - can store more crops	15	26.8%	15	26.8%	19	33.3%	49	29.0%
Crops last better in bags (quality is retained)	9	16.1%	6	10.7%	17	29.8%	32	18.9%
Other	2	3.6%	0	0.0%	0	0.0%	2	1.2%
Total	91	100%	73	100%	85	100%	249	100%
Reasons why containers are better								
They are more durable than bags	3	8.8%	6	7.1%	3	9.4%	12	8.0%
Harvested crops cannot be easily damaged by rodents	21	61.8%	61	72.6%	26	81.3%	108	72.0%
Crops last better in containers (quality is retained)	18	52.9%	45	53.6%	14	43.8%	77	51.3%
Containers are used for other purposes e.g., water storage	1	2.9%	16	19.0%	5	15.6%	22	14.7%
Saves money for longer time - no need to buy bags	0	0.0%	8	9.5%	2	6.3%	10	6.7%
Total	**43**	**100%**	**136**	**100%**	**50**	**100%**	**229**	**100%**

1.8. Production of orange, vitamin A rich crops

On the production of vitamin A rich crops, respondents were asked if they had grown such crops during the past 12 months. In Luapula province, the most mentioned crops were, Pumkin (83.4%), followed by orange maize (45.8%) and Squash (21.2%). Dissagregagating data by district shows that pumkins were commonly mentioned in Kawambwa (85.5%), followed by Mwense (83.7%) and Mwansabobwe (78.4%). Orange maize were prevalent in Kawambwa

(55.4%), followed by Mwense (42.3%) and Mwansabobwe (31%). The least mentioned crop was carrot which was mentioned by 2.6% of the respondents.

Considering Eaastern province, the situation is like wht was found in Luapula province. The most mentioned crop was pumkin (75.3%) followed by 35.7% who mentioned orange maize and 16.1% who mentiond Squash. Growing if pumokins were common in Petauke (81.1%), followed by Katete (71.9%) and Sinda (69.8%). Orange maize was common Katete (43.9%), followed by Petauke (36.8%) and Sinda (25.9%). Carrot was the least mention crop (7.6%), however this proportion is higher when comparing with Luapula province. See table below

Table 47:Orange Vitamin A rich crops grown by households

	Luapula				Eastern			
	Kawambwa	Mwansabombwe	Mwense	Total	Katete	Petauke	Sinda	Total
N	249	116	196	561	139	212	139	490
Carrot	0.8%	0.0%	7.1%	2.9%	5.8%	9.4%	6.5%	7.6%
Pumpkin	85.5%	78.4%	83.7%	83.4%	71.9%	81.1%	69.8%	75.3%
Squash	20.1%	19.8%	23.5%	21.2%	12.9%	13.7%	23.0%	16.1%
Orange maize	55.4%	31.0%	42.3%	45.8%	43.9%	36.8%	25.9%	35.7%
Papaya	8.0%	18.1%	10.7%	11.1%	19.4%	19.8%	9.4%	16.7%
Mango	20.1%	24.1%	18.4%	20.3%	39.6%	35.4%	20.1%	32.2%
Did not grow any of these crops	10.0%	20.7%	12.8%	13.2%	10.8%	17.5%	26.6%	18.2%

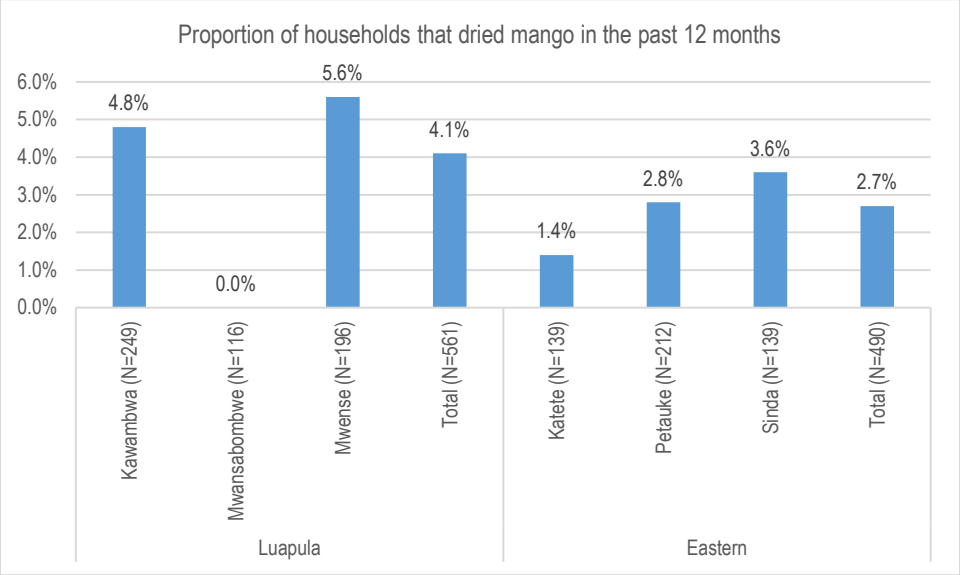
Further, the respondents were asked about their opinions, on the benefits of eating crops mentioned above. Most of the respondents in both provinces mentioned that they provide vitamin A (56.5% vs 56.6%) in Luapula and Eastern respectively. About 38.4% in Luapula nd 31.1% in Eastern province such crops protect body from diseases. See table below for detailed results,

Table 48: Benefits of orange Vitamin A rich crops

	Luapula				Eastern			
	Kawambwa	Mwansabombwe	Mwense	Total	Katete	Petauke	Sinda	Total
N	227	92	171	490	126	179	103	408
They provide vitamin A	67.8%	32.6%	54.4%	56.5%	58.7%	57.0%	53.4%	56.6%
They protect eyesight	8.4%	0.0%	6.4%	6.1%	26.2%	27.9%	22.3%	26.0%
They protect body from diseases	48.9%	17.4%	35.7%	38.4%	40.5%	30.7%	20.4%	31.1%
Doesnt know	19.4%	57.6%	25.1%	28.6%	12.7%	12.8%	31.1%	17.4%

Respondents were also asked if they have dried mango in past 12 month, the result reveal a very small proportion (4.1% vs 2.7%) in Luapula and Eastern province respectively who were affirmative. In Luapula the drying of mangos was common in Mwense (5.6%) and Kawambwa (4.8%). On the hand, in Eastearn province, such a practise was common in Sinda (3.6%), followed by Petauke (2.8%) and Katete (1.4%). See fuire below,

Figure 43:Proportion of households that dried mango in the past 12 months

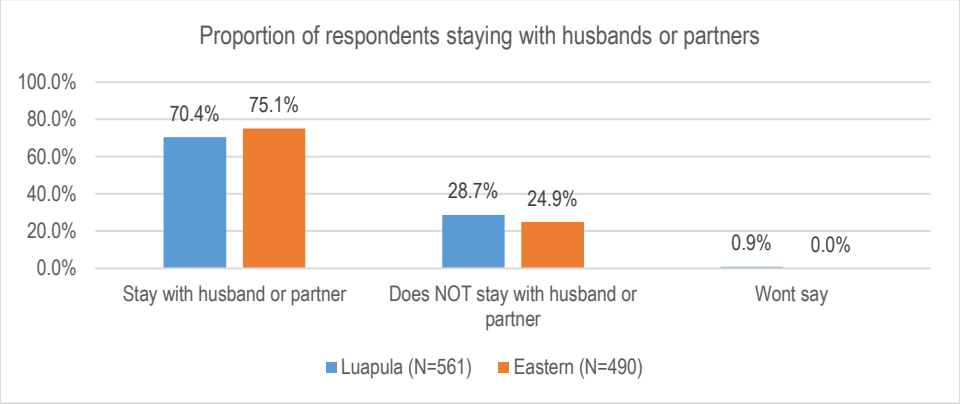


5. JOINT DECISION MAKING ON SAVINGS / LOANS

1.9. The proportion of households where both women and men decide on how savings/loans will be used

Data on decision making on saving/loans were collected and analysed. Respondents included in the survey were either living with a partner or not. The proportion of women who mentioned that they are staying with a husband or partner was slightly higher in Estern province (75.1%) when compring with Luapula province (70.4%), see figure below,

Figure 44:Proportion of respondents staying with husbands or partners



Analysis on the decision making on savings/ loans was only carried out on on thes respondents who mentioned that they stayed with a partener of husband. They were asked who in their households decides on what money from a loan of savings will be used. The results show that most of the respondents in both

provinces mentioned that they decide together, 56% and 52.9%% in Eastern and Luapula province respectively. In Luapula province, about 38.7% mentioned that the decision lies with the husband or partner, and this was more common within male-headed households (41%) than female-headed households (27%). In Eastern province, around 39.4% mentioned that the decision lies with husband/partner and like in Luapula province, this was more common among male-headed households (47.5%) than female-headed households (19.6%). Those who mentioned that it was the decision of the woman constituted 6.6% of the respondents in Luapula province and, 2.2% of the respondents in Eastern province.See the table below for detailed results.

Table 49:Decision manking on any money from a loan or savings use by gender of households head

N	Luapula			Eastern		
	Male headed	Female headed	Total	Male headed	Female headed	Total
	332	63	395	261	107	368
Woman	6.6%	6.3%	6.6%	2.7%	0.9%	2.2%
Husband / partner	41.0%	27.0%	38.7%	47.5%	19.6%	39.4%
They decided together	50.6%	65.1%	52.9%	48.3%	74.8%	56.0%
Someone else made the decision	0.6%	0.0%	0.5%	1.5%	3.7%	2.2%
Wont say	1.2%	1.6%	1.3%	0.0%	0.9%	0.3%
Total	100%	100%	100%	100%	100%	100%

Analysis of data by district shows that, in Luapula province, the proportion of households who mentioned that they decide together was common in Kawambwa (57.9%), followed by Mwense (53.7%) and Mwansabobmbwe (36.4%). On the other hand, in Eastern province, they were common in Petauke (60%), followed by Sinda (54.9%) and Katete (50.9%)., See table below for detailed results,

Table 50: Decision manking on any money from a loan or savings use by district

	Luapula			Eastern		
	Kawambwa	Mwansabombwe	Mwense	Katete	Petauke	Sinda
N	195	66	134	106	160	102
Woman	6.2%	6.1%	7.5%	2.8%	1.9%	2.0%
Husband / partner	34.4%	56.1%	36.6%	46.2%	33.8%	41.2%
They decided together	57.9%	36.4%	53.7%	50.9%	60.0%	54.9%
Someone else made the decision	0.5%	0.0%	0.7%	0.0%	3.8%	2.0%
Wont say	1.0%	1.5%	1.5%	0.0%	0.6%	0.0%
Total	100%	100%	100%	100%	100%	100%

1.9.1. The proportion of respondents who think that it is better if spouses decide together on how savings/loans will be used + reasons for such an opinion

Furthermore, respondents were asked if it is better if a couple decides together about using the money from a loan or savings. Again, this analysis was done only on the respondents who mentioned that they stay with a partner or husband. Most of the respondents felt that it is better if the couple decides to together, in Luapula

province, this was commonly mentioned in Kawambwa (94.9%) followed by Mwense (90.3%) and Mwansabobwe (84.8%). On other hand in Eastern province, it was commonly mentioned Petauke (94.4%) followed by Sinda (94.1%) and Katete (90.6%). See table below,

Table 51: The proportion of respondents who think that it is better if spouses decide together on how savings/loans will be used

	Luapula			Eastern		
	Kawambwa	Mwansabombwe	Mwense	Katete	Petauke	Sinda
N	195	66	134	106	160	102
If decided together	94.9%	84.8%	90.3%	90.6%	94.4%	94.1%
If the man decides	3.1%	15.2%	8.2%	8.5%	3.1%	5.9%
Other response	2.1%	0.0%	1.5%	0.9%	1.9%	0.0%
Doesnt know	0.0%	0.0%	0.0%	0.0%	0.6%	0.0%
Total	100%	100%	100%	100%	100%	100%

Respondents were asked if they knew any nutrition volunteer from FANSER programme who is nearby to them. About 73.3% and 70.9% of the respondents in Eastern and Luapula province were affirmative. Dissaggegatting data by districts show that, in Luapula province a very low proportion of the respondents who knew an nutrition volunteer were found in Mwansabobwe (0.9%). On the other hand, in Eastern province, the least proportion was found in Sinda (10.8%).

Those who mentioned that they knew any nutrition volunteer from FANSER programme were further asked if they were visited by the nutrition volunteer in the past 6 months to receive an advice related to nutrition/health/hygiene. About 94.5% in Luapula and 91.1% in Eastern province were affirmative. Additionally, those who mentioned that they were visited, were also asked about if the advice they were provided was useful. Most of the respondents in both provinces, 92.6% in Luapula and 96.9% in Eastern mentioned that the advise was very useful. A very small proportion, 2.1% in Luapula and 0.9% in Eastern province mentioned that the advice was not very useful.

Further, respondents were also asked on ther extent of satisfaction with the way the nutrition volunteers treat them. Most of the respondents in both provinces mentioned that nutrition volunteers were very polite, 89.8% in Eastern and 79% in Luapula. See table below for results in detail,

Table 52: participation in care group meetings

	Luapula								Eastern							
	Kawambwa		Mwansabombwe		Mwense		Total		Katete		Petauke		Sinda		Total	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
8.3. Do you know any nutrition volunteer from FANSER programme living nearby?																
Yes	222	89.2%	1	0.9%	175	89.3%	398	70.9%	136	97.8%	208	98.1%	15	10.8%	359	73.3%
No	27	10.8%	115	99.1%	21	10.7%	163	29.1%	3	2.2%	4	1.9%	124	89.2%	131	26.7%
Total	249	100%	116	100%	196	100%	561	100%	139	100%	212	100%	139	100%	490	100%
8.4. In the past 6 months, were you visited by a nutrition volunteer to receive an advice related to nutrition or health or hygiene?																
Yes	209	94.1%	0	0.0%	167	95.4%	376	94.5%	128	94.1%	185	88.9%	14	93.3%	327	91.1%
No	13	5.9%	1	100.0%	8	4.6%	22	5.5%	8	5.9%	23	11.1%	1	6.7%	32	8.9%

Total	222	100%	1	100%	175	100%	398	100%	136	100%	208	100%	15	100%	359	100%
8.6. Would you say that the advice provided by the nutrition volunteer is usually very useful, quite useful or not very useful?																
Very useful	194	92.8%	0	0.0%	154	92.2%	348	92.6%	123	96.1%	182	98.4%	12	85.7%	317	96.9%
Quite useful	9	4.3%	0	0.0%	11	6.6%	20	5.3%	4	3.1%	3	1.6%	0	0.0%	7	2.1%
Not very useful	6	2.9%	0	0.0%	2	1.2%	8	2.1%	1	0.8%	0	0.0%	2	14.3%	3	0.9%
Total	209	100%	0	0.0%	167	100%	376	100%	128	100%	185	100%	14	100%	327	100%
8.7. To what extent are you satisfied with the way the nutrition volunteer treats you? Would you say that she is very polite, quite polite or not very polite?																
Very polite	209	88.2%	44	49.4%	154	81.5%	407	79.0%	127	93.4%	178	84.0%	119	96.0%	424	89.8%
Quite polite	28	11.8%	45	50.6%	35	18.5%	108	21.0%	9	6.6%	34	16.0%	5	4.0%	48	10.2%
Not very polite	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Total	237	100%	89	100%	189	100%	515	100%	136	100%	212	100%	124	100%	472	100%

6. INDICATOR 3: THE PROPORTION OF THE 110,000 WOMEN WHO APPLY AT LEAST THREE (75%) OF THE FOUR RECOMMENDED HYGIENE PRACTICES (WASHING HANDS, USING GOOD SANITATION FACILITIES, WATER TREAT-MENT TECHNIQUES, PREVENTIVE MEASURES AGAINST FOOD POISONING) HAS INCREASED BY AN AVERAGE OF 25

Indicator number three is mainly focused on water sanitation and hygiene (WASH), all the analyses necessary for WASH will be discussed under this section. Respondents in Luapula province were asked about the main sources of water they use during the rainy season and after the rainy season. When asked about the main source of drinking water during the rainy season, the most mentioned water sources were Tube well or boreholes (59.9%), followed by public water/public tap (13.7%) and protected shallow wells (13.2%). About 10.3% mentioned that they use surface water sources, and this was common in Kawambwa (16.1%), followed by 6.6% in Mwenses and Mwansabombwe (4.3%). See table below for results

Table 53: Main source of water during the rainy season

	Kawambwa	Mwansabombwe	Mwense	Total
N	**249**	**116**	**196**	**561**
Tube well or borehole	61.4%	45.7%	66.3%	59.9%
Piped water/public tap	0.4%	28.4%	21.9%	13.7%
Protected shallow well	18.5%	19.8%	2.6%	13.2%

Surface water source (river, stream, pond, puddles, unprotected spring)	16.1%	4.3%	6.6%	10.3%
Unprotected/ open shallow well	2.4%	1.7%	2.0%	2.1%
Harvested rainwater	0.8%	0.0%	0.0%	0.4%
Protected spring	0.4%	0.0%	0.0%	0.2%
Other	0.0%	0.0%	0.5%	0.2%
Total	**100%**	**100%**	**100%**	**100%**

When asked about the main source of drinking water during the dry season, the results did not show many variations. About 59.5% mentioned the use of a tube well or borehole, followed by 13.7% who mentioned public tap and 12.8% who mentioned protected shallow well. See table below for results in detail,

Table 54: Main source of water during the dry season

N	Kawambwa	Mwansabombwe	Mwense	Total
	249	116	196	561
Tube well or borehole	60.6%	45.7%	66.3%	59.5%
Piped water/public tap	0.4%	28.4%	21.9%	13.7%
Protected shallow well	18.9%	18.1%	2.0%	12.8%
Surface water source (river/stream/pond/puddles/unprotected/ spring)	16.5%	5.2%	7.7%	11.1%
Unprotected/ open shallow well	2.0%	0.9%	1.5%	1.6%
Harvested rainwater	0.8%	1.7%	0.0%	0.7%
Other	0.4%	0.0%	0.5%	0.4%
Protected spring	0.4%	0.0%	0.0%	0.2%
Total	**100%**	**100%**	**100%**	**100%**

1.10. The proportion of respondents who heard of treating water by using chlorine/boiling

Respondents were asked if they have ever heard of treating water by boiling, the results show that most of the respondents >90% mentioned that they have heard about treating water by boiling. In addition, they were asked if they have ever heard of treating drinking water using chlorine, again >90% mentioned they have heard of treating drinking water by using chlorine. See table below for detailed results,

Table 55:Ever heard of boiling or adding chlorine in treating water

	Kawambwa		Mwansabombwe		Mwense		Total	
	N	%	N	%	N	%	N	%
9.7. Have you ever heard of treating drinking water by boiling?								
Yes	240	96.40%	99	85.30%	172	87.80%	511	91.10%
No	9	3.60%	17	14.70%	24	12.20%	50	8.90%
Total	249	100%	116	100.00%	196	100.00%	561	100.00%
9.8. Have you ever heard of treating drinking water by using chlorine?								
Yes	235	94.40%	101	87.10%	171	87.20%	507	90.40%
No	14	5.60%	15	12.90%	25	12.80%	54	9.60%
Total	249	100.00%	116	100.00%	196	100.00%	561	100.00%

1.10.1. The proportion of households who treat their water using chlorine/boiling

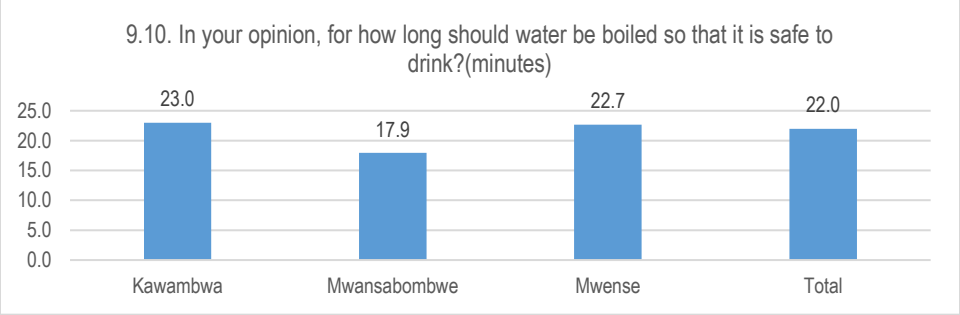
Respondents were then asked how they treat their water during the rainy and dry seasons. Most of the respondents during the rainy season mentioned that they boil the water (87.3%), 63.6% mentioned they add bleach/chlorine and about 10% mentioned they left if stand and settle, see table below for results,

N	Kawambwa		Mwansabombwe		Mwense		Total	
	Rainy season	Dry season	Rainy season	Dry season	Rainy season	Dry season	Rainy season	Dry season
	215	212	53	54	137	135	405	401
Let it stand and settle	14.0%	14.2%	0.0%	0.0%	9.5%	7.4%	10.6%	10.0%
Pour it through a cloth	0.0%	0.0%	0.0%	0.0%	0.0%	0.7%	0.0%	0.2%
Boil it	88.4%	88.2%	84.9%	88.9%	82.5%	85.2%	85.9%	87.3%
Use ceramic/ sand/ other water filter	0.5%	0.0%	0.0%	0.0%	3.6%	3.7%	1.5%	1.2%
Add bleach/ chlorine	59.5%	60.8%	66.0%	61.1%	67.2%	68.9%	63.0%	63.6%
Use solar disinfection	1.4%	2.4%	0.0%	0.0%	0.0%	0.0%	0.7%	1.2%
Other	3.7%	0.9%	0.0%	0.0%	2.9%	2.2%	3.0%	1.2%

1.10.2. The proportion of respondents aware of the benefits of treating water by using chlorine/boiling

When asked about the benefits of treating water by boiling or using chlorine, >95% of the respondent were aware of the benefits, 98.9% in Mwense, 97.25 in Kawambwa and 97.1% in Mwansabombwe. Respondents were also asked their opinion on the time needed for the water to be boiled so that it is safe to drink. Generally, all the respondents felt that the time need was 22 minutes of average. Respondents in Mwwnsabobwe mention a slightly hinger time (average of 23 miinutes) when comparing with Mwense with an average of 22.7 minutes and Mwansabobwe with an average of 17.9 minutes. See figure below,

Figure 45:Respondents opinions on hwo long should water be boiled so that its safe to drink



1.10.3. The proportion of respondents knowing any place where chlorine is readily available for purchase

Respondents were asked if they knew any place where they can purchase chlorine to treat water, most of them (63.1%) were affirmative. Disaggregating data by district shows that they were common in Mwense (75.4%) followed by Mwansabombwe (55.4%) and Kawambwa (57.4%). Furthermore, respondents who knew any place where they can purchase chlorine to treat water were asked if they knew the price of chlorine that is charged. The results show that, although a higher proportion knew a place where chlorine can be

purchased, a considerably small proportion 42.2% knew about its price. Those who mentioned that they knew the price of chlorine were further asked how easy or difficult it is for them to pay such a price. A higher proportion, 25.3% mentioned that it was very difficult, followed by 25% who mentioned that it was very easy and, 19.1% who mentioned that it was quite difficult See the table below for detailed results

Table 56:Knowlegde of places to purchase chlorine

	Kawambwa		Mwansabombwe		Mwense		Total	
	N	%	N	%	N	%	N	%
Do you know of any place where you can purchase chlorine to treat water?								
Yes	135	57.4%	56	55.4%	129	75.4%	320	63.1%
No	100	42.6%	45	44.6%	42	24.6%	187	36.9%
Total	235	100.0%	101	100.0%	171	100.0%	507	100.0%
Do you know the price of chlorine that is charged at this place?								
Yes	54	40%	26	46.4%	55	42.6%	135	42.2%
No	81	60%	30	53.6%	74	57.4%	185	57.8%
Total	135	100.0%	56	100.0%	129	100.0%	320	100.0%
How easy or difficult is it for you to pay such a price?								
Very easy	42	31.1%	22	39.3%	16	12.4%	80	25.0%
Quite easy	17	12.6%	7	12.5%	18	14.0%	42	13.1%
Quite difficult	26	19.3%	9	16.1%	26	20.2%	61	19.1%
Very difficult	21	15.6%	6	10.7%	54	41.9%	81	25.3%
Doesn't know	29	21.5%	12	21.4%	15	11.6%	56	17.5%
Total	135	100.0%	56	100.0%	129	100.0%	320	100.0%

1.10.4. The proportion of households who have a dedicated place for handwashing with water and soap available [disaggregated by location + type of the handwashing facilities

Households' handwashing facilities were observed during data collection. Data collectors observed the main place where members of the households wash their hands during the previous two days before the survey. Most of the households observed (38.2%) did not have a dedicated handwashing station available. Around 36.9% of the household only had a simple jug available and about 21.8% had a tip tap available

Table 57: Households with a dedicated handwashing area

	Katete		Petauke		Sinda		Total	
	Count	Column N %	Count	Column N %	Count	Column N %	Count	Column N %
Tippy tap available	39	28.1%	55	25.9%	13	9.4%	107	21.8%
Other type of handwashing station with flowing water available	5	3.6%	5	2.4%	0	0.0%	10	2.0%
Only simple jug is available	51	36.7%	55	25.9%	75	54.0%	181	36.9%
NO dedicated handwashing station available	43	30.9%	94	44.3%	50	36.0%	187	38.2%
Refused to show	1	0.7%	3	1.4%	1	0.7%	5	1.0%
Total	139	100%	212	100%	139	100%	490	100%

Availability of water and soap and handwashing facilities at households were assessed. Around 77.4% of households with tippy taps available had water available and around 66.4% of the tip taps had soap available, see table below,

Table 58:Hand washing facilities with water and soap available

Hand washing facility type	Availability of water or soap	Katete		Petauke		Sinda		Total	
		n	%	n	%	n	%	n	%
Tippy tap available	Water available	26	66.7%	47	85.5%	10	76.9%	83	77.6%
	Soap available	25	64.1%	37	67.3%	9	69.2%	71	66.4%
Other types of handwashing stations with flowing water available	Water available	3	60.0%	5	100.0%	0	0.0%	8	80.0%
	Soap available	2	40.0%	5	100.0%	0	0.0%	7	70.0%
Only simple jug is available	Water available	16	31.4%	20	36.4%	30	40.0%	66	36.5%
	Soap available	19	37.3%	21	38.2%	25	33.3%	65	35.9%

Respondents were asked if they had a soap for the use of hand washing and, further, they were asked if they could bring it so that interviewers would see it. Most of the respondents, 77.4% did not have a soap and only about 6.5% managed to bring the soap within a minute. These were common in Katete (8.2%), followed by Petauke (5.8%) and Sinda (5.6%). Around 1.9% of the respondents refused to answer this question. In addition, respondents who mentioned that they did not have a soap, were asked on the last time they had at home a soap for washing hands. About 20% mentioned between 3 – 4 days ago followed by 17.5% mentioned between 1 – 2 days ago and 15% who mentioned more than one month ago.. See table below for detailed results,

Table 59:Availibility of soap ata households

	Katete		Petauke		Sinda		Total	
	Count	Column N %	Count	Column N %	Count	Column N %	Count	Column N %
Do you have a soap that you use for washing hands? If so, may I see it?								
Yes, managed to bring soap within a minute	4	8.2%	3	5.8%	3	5.6%	10	6.5%
Yes, but it took longer than minute to bring soap	5	10.2%	7	13.5%	10	18.5%	22	14.2%
NO, doesnt have soap	40	81.6%	42	80.8%	38	70.4%	120	77.4%
Refused to answer	0	0.0%	0	0.0%	3	5.6%	3	1.9%
Total	49	100%	52	100%	54	100%	155	100%
When was the last time you had at home a soap for washing hands?								
Today	1	2.5%	4	9.5%	0	0.0%	5	4.2%
1-2 Days Ago	4	10.0%	9	21.4%	8	21.1%	21	17.5%
3-4 Days Ago	6	15.0%	12	28.6%	6	15.8%	24	20%
5-7 Days Ago	3	7.5%	2	4.8%	7	18.4%	12	10.0%
1-2 Weeks Ago	7	17.5%	6	14.3%	2	5.3%	15	12.5%
2-4 Weeks Ago	6	15.0%	2	4.8%	1	2.6%	9	7.5%
More than one month ago	6	15.0%	5	11.9%	7	18.4%	18	115.0%
More than 3 months ago	0	0.0%	1	2.4%	1	2.6%	2	1.7%

Doesnt Remember	7	17.5%	1	2.4%	6	15.8%	14	11.7%
Total	40	100%	42	100%	38	100%	155	100%

1.10.5. The proportion of respondents who say that it is difficult for their household to afford to buy soap

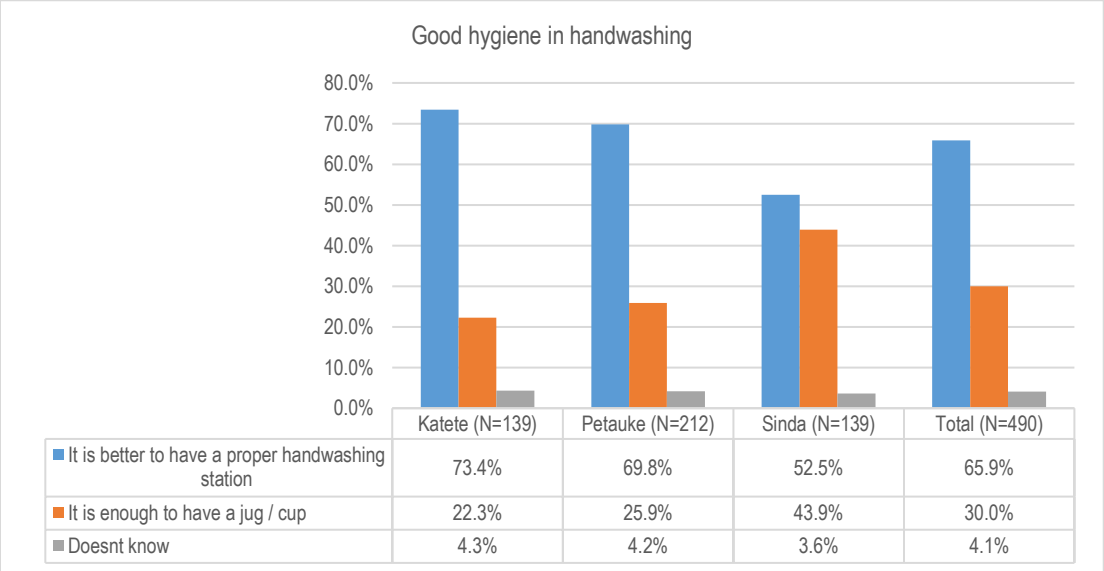
Respondents were asked how easy or difficult it is to buy soap for handwashing. Most of the respondents (45.5%) mentioned that it was somewhat difficult, followed by 29% who mentioned that it was very difficult and 25.5% who mentioned that it was not difficult. Analysis by district shows that most of the respondents who mentioned that it was very difficult were common in Sinda (30.25) followed by Katete (29.5%) and Petauke (27.8%).

Table 60:how easy or difficult it is to buy soap for handwashing

N	Katete		Petauke		Sinda		Total	
	Count	Column N %	Count	Column N %	Count	Column N %	Count	Column N %
Very difficult	41	29.50%	59	27.80%	42	30.20%	142	29.00%
Somewhat difficult	60	43.20%	91	42.90%	72	51.80%	223	45.50%
Not very difficult	38	27.30%	62	29.20%	25	18.00%	125	25.50%
Total	139	100.00%	212	100.00%	139	100.00%	490	100.00%

Further, the respondents were given a scenario that some people think that in order to ensure a good hygiene, it is better to have a dedicated handwashing station with flowing water, other people think that using a jug or cup is enough. They were assessed on their opinions about this belief. The majority of the respondents (65.9%) mentioned that it is better to have a proper handwashing station. This was common in Katete (73.4%), followed by Petauke (69.8%) and Sinda (52.5%). About 30% (43.9% in Sinda, 25.9% in Petauke and 22.3% in Katete) felt that it is enough to have a jug/cup. See figure below,

Figure 46: Good hygiene in handwashing



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1.10.6. The extent to which respondents know other households who have a facility

Respondents were further asked if their friends or relative who live in their areas have dedicated handwashing station with water and soap present. Only 9.2% were affirmative, and this was common in Petauke (15.1%) followed by 5.8% Sinda (3.6%)

N	Katete		Petauke		Sinda		Total	
	Count	Column N %	Count	Column N %	Count	Column N %	Count	Column N %
Yes, most have	8	5.8%	32	15.1%	5	3.6%	45	9.2%
Only some have	45	32.4%	70	33.0%	59	42.4%	174	35.5%
Most don't have	81	58.3%	99	46.7%	72	51.8%	252	51.4%
Doesn't know	5	3.6%	11	5.2%	3	2.2%	19	3.9%
Total	**139**	**100%**	**212**	**100%**	**139**	**100%**	**490**	**100%**

1.10.7. The proportion of respondents who say that they wash hands on the promoted occasions

Respondents were asked on some of the main occasions they washed their hands. The results show that in Luapula province the top three mentioned occasions were after using the toilet (93.4%) followed by before eating 81.8% and when the hands looked dirty (68.3%). In Eastern province, the top three mentioned were after using the toilet (93.1%) followed by after cleaning a child bottom (88.8%) and before preparing food (85.9%). See the table below for results.

Table 61:Main occasion when respondent wash their hands

N	Luapula				Eastern			
	Kawambwa	Mwansabombwe	Mwense	Total	Katete	Petauke	Sinda	Total
	249	116	196	561	139	212	139	490
When the hands looked dirty	73.5%	56.9%	68.4%	68.3%	94.2%	85.4%	64.7%	82.0%
After using toilet	94.4%	92.2%	92.9%	93.4%	98.6%	99.5%	77.7%	93.1%
After cleaning a childs bottom	44.2%	29.3%	58.7%	46.2%	93.5%	94.8%	74.8%	88.8%
Before preparing food	67.1%	42.2%	71.4%	63.5%	91.4%	91.5%	71.9%	85.9%
Before eating	82.3%	87.9%	77.6%	81.8%	92.1%	89.2%	68.3%	84.1%
Before feeding a child	58.2%	37.1%	57.7%	53.7%	79.1%	85.4%	63.3%	77.3%
After coming home from outside (e.g. fields, town)	40.2%	31.0%	33.7%	36.0%	46.8%	68.4%	50.4%	57.1%
After handling animals	6.0%	3.4%	2.0%	4.1%	45.3%	52.8%	38.8%	46.7%
After throwing out rubbish	18.1%	15.5%	18.9%	17.8%	57.6%	51.4%	35.3%	48.6%
After handling raw food	3.2%	4.3%	5.1%	4.1%	33.1%	28.8%	17.3%	26.7%
Other	2.4%	0.9%	1.5%	1.8%	1.4%	0.0%	18.7%	5.7%