FEED THE FUTURE
The U.S. Government's Global Hunger & Food Security Initiative

The Role of Increased Income and Women's Empowerment on Nutrition

A Review of Communities' Perceptions of Changes due to Two Feed the Future Activities in Rwanda

November 2014

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SPRING
Strengthening Partnerships, Results, and Innovations in Nutrition Globally

ABOUT SPRING

The Strengthening Partnerships, Results, and Innovations in Nutrition Globally (SPRING) Project is a five-year USAID-funded Cooperative Agreement to strengthen global and country efforts to scale up high impact nutrition practices and policies and improve maternal and child nutrition outcomes. The project is managed by JSI Research & Training Institute, Inc., with partners Helen Keller International, The Manoff Group, Save the Children, and the International Food Policy Research Institute.

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DISCLAIMER

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SPRING

JSI Research & Training Institute, Inc.
1616 Fort Myer Drive, 16th Floor
Arlington, VA 22209 USA
Phone: 703-528-7474
Fax: 703-528-7480
Email: info@spring-nutrition.org
Internet: spring-nutrition.org

PHOTO CREDITS: Samantha Clark, SPRING.

Table of Contents

Acronym List

BCV	Be the Change Volunteer
FGD	focus group discussion
IILP	Integrated Improved Livelihoods Program
ISLG	integrated savings and lending group
KII	key informant interview
MCC	milk collection center
MFI	micro-finance institution
PPDS	participant's diet diversity score
RDCP II	Rwanda Dairy Competitiveness Program
SACCO	Savings and Credit Cooperative Organizations
SPRING	Strengthening Partnerships, Results, and Innovations in Nutrition Globally
USAID	United States Agency for International Development

Executive Summary

Feed the Future is the U.S. Government's global hunger and food security initiative, and aims to address the root causes of poverty, hunger, and undernutrition. One of its primary approaches involves integrating agriculture and nutrition, focusing specifically on women and children. While the potential of agricultural production to improve women's and children's nutrition has been recognized, there is still limited understanding of the specific pathways through which Feed the Future value chains can positively impact nutritional status in vulnerable households. The Strengthening Partnerships, Results, and Innovations in Nutrition Globally (SPRING) Project conducted the current study to document the process and progress made by two Rwanda-based Feed the Future activities, the Integrated Improved Livelihoods Program (IILP) and the Rwanda Dairy Competitiveness Program II (RDCP II), in working along agriculture-to nutrition pathways. The study explored three main questions:

1. Have increases in income, as a result of participating in Feed the Future activities, changed purchasing and consumption patterns?
2. How has activity engagement affected care-seeking and care-giving practices?
3. How has activity engagement affected women's empowerment (i.e. household decision-making regarding use of income and consumption, participation outside the household, perceptions of status)?

The study used both quantitative and qualitative data collection methods, including conducting individual surveys, key informant interviews, and focus group discussions with relevant stakeholders in Nyanza, Karongi, and Rubavu districts of Rwanda. Stakeholders included IILP and RDCP II beneficiaries, activity staff, and community leaders at the district, sector, and cell levels.

Study results indicate a general improvement in program beneficiaries' income, crop production, and women's empowerment. Despite this positive trend, the two Feed the Future activities face challenges that may hinder further movement along the agriculture-to-nutrition pathways, including demands on women's time and energy use, low consumption of animal-sourced foods, targeting children's nutrition within the first 1,000 days, and monitoring nutrition indicators. This report concludes with recommendations to further improve nutrition for women and children in Rwanda.

Background

In the past two decades, Rwanda has made significant improvements in the health of its people, yet almost half of all children under age five remain chronically undernourished (Republic of Rwanda 2012). Rwanda acknowledges that addressing undernutrition requires a multisector response, and the country's 2013-2018 National Food and Nutrition Strategic Plan both emphasizes cross- sector linkages and prioritizes the prevention of stunting in children under age two (Republic of Rwanda 2013). The U.S. Government implements the Feed the Future initiative, which supports a country-driven approach to address the root causes of poverty, hunger, and undernutrition as part of its effort to reduce child undernutrition in 19 low-income nations. Rwanda is one of the Feed the Future focus countries in sub-Saharan Africa. Two Feed the Future activities, the Integrated Improved Livelihoods Program (IILP) and the Rwanda Dairy Competitiveness Program II (RDCP II), aim to improve the livelihoods and nutrition of Rwanda's most vulnerable women and children.

Research suggests that improved household wealth leads to an improvement in children's nutritional status, but this correlation is not always strong or inevitable (Herforth & Harris 2014). Research also suggests that empowering women can lead to increased nutrition for women and their families (SPRING 2014), while increased income has been shown to lead to positive, negative, or neutral impacts on nutrition within agricultural activities. Two of several modifying factors are the extent to which women are engaged in income generation activities and whether or not income is controlled by women (SPRING 2014).

In order to more closely align agriculture and nutrition interventions and ensure that the nutrition goals within Feed the Future activities are being met, the USAID-funded Strengthening Partnerships, Results, and Innovations in Nutrition Globally (SPRING) project has introduced a framework: the agriculture-to-nutrition pathways (Herforth & Harris 2014). The framework identifies how various agricultural investments or activities may increase and improve access to food and health care, how they affect and are affected by the enabling environment, and how they ultimately impact women's and children's nutrition.

It is important to identify specific ways through which Feed the Future value chains can positively impact women's and children's nutrition. The present analysis tests assumptions underlying two of the primary pathways from agriculture to nutrition used in two Feed the Future activities and documents how these activities have been implemented among vulnerable households.

Using qualitative and quantitative methods, SPRING sought to understand how key household level behaviors along the agriculture-to-nutrition pathways are influenced by IILP and RDCP II interventions. It is our hope that with a better understanding of these behaviors, the Government of Rwanda, local partners, Feed the Future, and USAID will identify ways to leverage agricultural investments to achieve measurable improvements in nutrition.

Objectives

The specific objectives of the study were to document the process and progress made by two Rwanda-based Feed the Future activities, IILP and RDCP II, in working along agriculture-to nutrition pathways.

SPRING conducted quantitative and qualitative data surveys to explore three main questions:

- Have increases in income, as a result of participating in Feed the Future activities, changed purchasing and consumption patterns?
- How has activity engagement affected care-seeking and care-giving practices?
- How has activity engagement affected women's empowerment (i.e. household decision-making around use of income and consumption, participation outside the household, perceptions of status)?

Activity Description

Activity selection for this study was based on a combination of recommendations from USAID/Rwanda and interest of the local activity leadership and staff. A brief description of the two activities follows:

The **Integrated Improved Livelihoods Program** seeks to improve the livelihoods and food consumption of Rwanda's very poor, particularly women. Implemented by Global Communities, an international nongovernmental organization, the activity has been locally named *Ejo Heza*, which translates to "Brighter Future" in Kinyarwanda. The activity started in 2011, will be implemented until 2016 and is being implemented in eight districts of the southern and western provinces of Rwanda: Gisagara, Huye, Nyamagabe, Nyaruguru, Nyanza, Rutsiro, Karongi, and Ngororero.

The IILP has four main areas of focus: improving adult literacy (literacy groups), providing access to financial services via integrated savings and lending groups (ISLGs), increasing agricultural production through the formation of cooperative groups (cooperatives), and improving health and nutrition (nutrition groups). The program works to increase low-income households' access to financial services and lobby micro-finance institutions (MFIs), Savings and Credit Cooperative Organizations (SACCOs), and commercial banks to create services and products that are more accessible to the communities that they serve. To increase agricultural productivity, IILP provides practical demonstrations of agriculture techniques through Farmer Field Schools and links its beneficiaries to markets.

The activity recognizes the importance of community members' health and nutrition status to productivity and integrates nutrition messaging throughout all of its program activities. As such, IILP also promotes kitchen gardening and improved food handling to support more nutritious diets. Literacy classes, which incorporate core messages of nutrition, agriculture, and financial services into lessons, provide adults with the opportunity to develop literacy and numeracy skills while learning practical, program-related content. Finally, behavior change communication activities increase demand for all program elements, sensitize populations to the benefits of IILP services, and ultimately contribute towards planned outcomes in health, nutrition, and agriculture.

The **Rwanda Dairy Competitiveness Program II**, locally referred by the name of its implementing non-governmental organization, "Land O'Lakes," seeks to reduce poverty through expanded marketing of good quality milk that generates income and employment, and improves household nutrition. The RDCP II is a five-year activity that began in 2012 and is being implemented in 17 districts across Rwanda: Gasabo, Kicukiro Bugesera, Gatsibo, Kayonza, Nyagatare, Rwamagana, Gicumbi, Musanze, Rulindo, Nyabihu and Rubavu, Gisagara, Huye, Kamonyi, Nyanza, Ruhango and overlaps with IILP in three: Gisagara, Nyanza, and Huye. The RDCP II provides technical assistance to various stakeholders along the value chain, including dairy farmers, milk transporters, Milk Collection Centers (MCCs), processors, and retailers (referred to as milk sellers or traders), helping to build and strengthen business-to-business partnerships. A key component of the RDCP II program focuses on training and empowering its beneficiaries, many of whom are women. As part of the value chain, milk transporters collect milk from various farmer clients and deliver the milk to MCCs for aggregation and preliminary processing prior to distributing the milk to processing plants and retailers. Milk retailers sell milk to local markets such as

Busasamana in the Nyanza District and Gisenyi in the Rubavu District, while processors package and sell milk and milk products to nearby markets as well as those as far away as Kigali.

In addition, RDCP II encourages milk consumption as part of its efforts through Feed the Future to improve nutrition and strengthen Rwanda's dairy industry. In June 2014, RDCP II, in collaboration with the Ministry of Agriculture and Animal Resources, launched a national milk consumption campaign called '*Shisha Wumva'* (literally translating to 'Feel the Goodness') that focuses on raising awareness of the benefits of milk consumption as well as its availability in the Rwandan market.

It is important to note that the two Feed the Future activities are different in their focus, approach, and expected results. For these reasons, they cannot be directly compared. Though each should be viewed as a separate stand-alone activity, both provide an opportunity to examine alternative approaches to reach the ultimate goal of improving livelihoods and nutritional status.

Methods

Geographical Location and Sampling

The study was conducted in three districts: one district where IILP and RDCP II activities overlapped (Nyanza) and two districts that were unique to either IILP (Karongi) or RDCP II (Rubavu). Selection of the three districts was dictated by geographic location, as well as funder and partner recommendations. Purposive sampling was used for maximum variation. To ensure that the study identified the widest possible range of opinions, focus group discussion (FGD) participants were identified from among different types of activity engagement (farmers, milk sellers, nutrition group members, etc.) and both women and men were selected for participation. Once subgroup lists were created by type of activity engagement, SPRING selected 8-11 participants from each subgroup (see Table 1).[1] Random selection was used for IILP groups, except for the Be the Change Volunteer (BCV) group; random selection was used for identifying RDCP II groups in Rubavu, but this was not possible in Nyanza. In all cases, selected participants were invited, via activity field staff, to participate in focus group discussions.

Table 1. Focus Group Discussion Participants: IILP and RDCP II

District	IILP			RDCP II		
	Group	Gender	Group Size	Group	Gender	Group Size
Nyanza	ISLG/Nutrition	Female	9	Nyagisozi Farmers	Female	9
	Literacy	Male	8	Nyagisozi Farmers	Male	8
	Cooperative	Female	8	Nyagisozi Milk Transporters	Male	9
	BCV	Male & Female	11	Busasamana Milk Sellers[2]	Male & Female	8
Karongi	Literacy	Female	9	-	-	-
	Nutrition	Female	9	-	-	-
	Cooperative	Male	9	-	-	-
	Nutrition	Male	8	-	-	-
	ISLG	Female	9	-	-	-
Rubavu	-	-	-	Cross-border traders[3]	Female	9
	-	-	-	Mudende Farmers	Female	8
	-	-	-	Gisenyi Milk Sellers[4]	Male & Female	8
	-	-	-	Bugeshi Milk Transporters	Female	9
	-	-	-	Bugeshi Farmers	Male	9
Total Participants			**80**	**Total Participants**		**77**

[1] The total number of beneficiaries in the various groups (milk cooperatives, sellers groups, literacy groups, ISLGs, farmer groups etc.) varied widely across group type and location, ranging from 10- 50.

[2] Sell cultured and uncultured milk within Busasamana town in Nyanza district.

[3] Sell cultured and uncultured milk within Goma town in the Democratic Republic of Congo.

[4] Sell cultured and uncultured milk within Gisenyi town Rubavu District.

Key informants were selected based on the recommendations of the Feed the Future activity office as they were best qualified to identify the leaders in the communities where they worked, as well as which of their own staff worked directly with activity beneficiaries. Key informants included Feed the Future activity staff, Feed the Future activity service providers, and local community leaders.

Data Collection

A mixed methods approach, using both quantitative and qualitative data collection methods, was adopted for the study. Study tools consisted of a secondary document review, individual questionnaires and FGDs with activity beneficiaries, and key informant interviews (KIIs) with Feed the Future activity staff, service providers, and community leaders at the district, sector, and cell levels.

Integrated Improved Livelihoods Program and RDCP II staff reviewed draft data collection instruments, helped refine questions relevant to their activities and assisted local staff and government offices coordinate site visits. A local research firm was contracted to translate instruments from English into Kinyarwanda, support data collection, and translate FGD and KII responses into English. Study tools were pretested with a group of IILP activity participants (not selected to participate in the main study) then modified as required.

Project Activity Document Review

As part of this study, team members examined annual reports, work plans, and activity monitoring plans. This document review, along with planning discussions with activity managers and USAID/Rwanda staff, informed the development of data collection instruments and selection of activity sites and respondents.

Individual Questionnaire

The individual questionnaire was conducted with activity participants and collected information on household demographics, socioeconomic status, farm animal ownership, crop production, food sources, and food consumption. It also assessed perceptions about income changes and decision-making (see Annex 1). Study participants were asked to indicate if they had consumed foods from the following food groups in the previous 24 hours: cereals, white roots and tubers (including green cooking bananas), vitamin A-rich vegetables and tubers, dark-green leafy vegetables, other vegetables, vitamin A-rich fruits, other fruits, organ meats, flesh meats, eggs, fish and seafood, legumes and nuts, milk and milk products, oil and fats, spices and sweets, condiments, and beverages. In addition, study participants were asked to indicate if any household member had consumed foods from these food groups within the previous seven days. Questionnaires were administered in Kinyarwanda by trained enumerators. Overall, 91 percent (143 out of 157) of the FGD participants also completed individual questionnaires.

Focus Group Discussions

Focus group discussions explored beneficiary perceptions of income (including changes in income since joining the activity and factors contributing to the change), food acquisition and consumption (including changes in and factors influencing purchasing and consumption patterns), women's empowerment

(including decision-making related to food consumption, keeping, and spending income, as well as activity engagement and its impact on time available to care for themselves and others), and overall health (including perceptions of change in health and nutrition status for them and their families) (See Annex 2). Each FGD was led by one of the three experienced FGD facilitators. Focus group discussions were audio-recorded and two members of the research firm observed and recorded the FGD proceedings on paper. A total of 18 FGDs with 157 participants were conducted across the three districts.

Key Informant Interviews

Key informant interviews explored perceptions on important agricultural and nutrition issues in the community, as well as potential solutions to address these issues. Interviews with community leaders sought out opinions of the Feed the Future activity implemented in their district, perceptions of change in the community as a result of the Feed the Future activity, and possible areas for improvement. Interviews with activity staff sought out opinions about the successes, challenges, and lessons learned related to Feed the Future activity engagement, as well as their perceptions of change in the communities in which they work. The team conducted KII with activity staff based in Kigali and regional offices in Nyanza (for RDCP II and IILP), Karongi (for IILP), and Rubavu (for RDCP II). In addition, sector and cell level government officials and select service providers were also interviewed. The team completed a total of 16 KII across the three districts. The instruments are attached in Annexes 3 and 4.

Strengths and Limitations of Methods

The qualitative methods SPRING used for this study allowed the participants the room to expand discussions on particular topics resulting in a deeper exploration of different viewpoints. The methods also facilitated collection of quotations and anecdotes that provided important insight into beneficiaries' perceptions of successes and challenges to participating in the two Feed the Future activities. Triangulation of data across different beneficiaries groups, activity staff, and locations enabled SPRING to make generalizations and draw reasonable conclusions.

Limitations of the methods used include the purposive sampling of the districts studied; lack of a baseline assessment with which to compare the study's survey results; reliance on self-reporting by the activity beneficiaries (for things like changes in income, consumption patterns, and women' status); and the use of only one day for 24-hour recall of food consumption. Weakness resulting from the limited number of beneficiaries interviewed includes an increased chance of overstating or understating an issue or finding.

Data Processing and Analysis

Data from individual questionnaires were entered into an MS ACCESS database daily (Microsoft, Redmond, Washington). SAS 9.1 (SAS Institute, Cary, North Carolina) was used for data analysis. Means, medians and percentages were calculated.

To determine the study participant's diet diversity score (PDDS), one point was given for each of the following food groups consumed by a study participants for a maximum score of nine points: starchy foods (cereals and white roots and tubers), dark-green leafy vegetables, vitamin A-rich fruits and vegetables, other fruits and vegetables, organ meats, meat-fish-poultry, eggs, legumes and nuts and, milk and milk products.

Focus group discussion proceedings were translated into English on a daily basis. The research team, consisting of enumerators and senior researchers, discussed any translation differences until agreement was reached. Translated FGD recordings were coded by the report's authors into existing themes within an analysis matrix in MS EXCEL. Key informant interview recordings were coded into existing themes including income, food acquisition and consumption, women's empowerment, activity engagement, care-giving, and overall health.

Results

Study Participants' Socioeconomic and Demographic Characteristics

A total of 143 participants (76 from IILP and 67 from RDCP II) completed questionnaires, and 57 percent (65 percent in IILP and 52 percent in RDCP II) of participants were female. A total of 52 percent of participants joined Feed the Future activities in 2012, while 42 percent and six percent of participants joined in 2013 and 2014, respectively. Over 78 percent of the participants were married and 59 percent identified themselves as head of household at the time of the study. Study participants ranged from 20 to 75 years with a mean age of 42 years (standard deviation 12) and median age of 41 years. Overall, 21 percent of the study participants had not completed any formal education, 60 percent had completed some primary education, 16 percent had completed some secondary school education, and three percent had completed post-secondary education. A larger proportion of RDCP II participants had completed post-primary school education than IILP participants, while a larger proportion of IILP participants had not completed any formal education (see Table 2). The number of completed school years was higher among RDCP II participants (mean = 5.53, standard deviation = 3.30, median = 6) compared with IILP participants (mean = 3.00, standard deviation = 2.67, median = 3).

Table 2. Study Participants' Socioeconomic and Demographic Characteristics[5]

Characteristic	IILP %	RDCP II %	All %
Year Joined Feed the Future Activity:			
2012	53	52	52
2013	41	42	42
2014	6	6	6
Female	61	52	57
Marital Status:			
Married	76	81	78
Single	15	6	11
Widowed	9	13	11
Identifies as head of household	58	60	59
Household Membership:			
Adult Male	81	96	92
Adult Female	95	99	97
School-age child	67	87	76
Under-five	49	42	45
Under-two	20	24	27
Education level:			
None	28	12	21
Primary	65	55	60
Secondary	7	27	16
Post-secondary	0	6	3

[5] n=143 for all, n=76 for IILP, n=67 for RDCP II

Figure 1. Household Composition among IILP Beneficiaries (%)

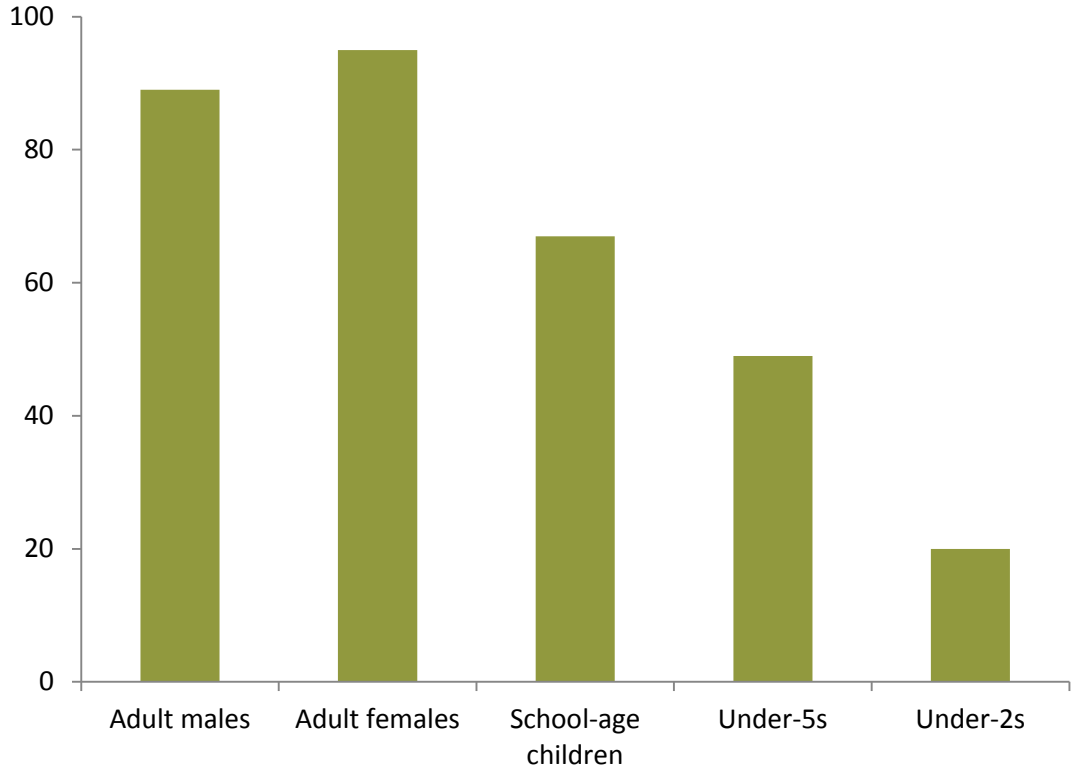
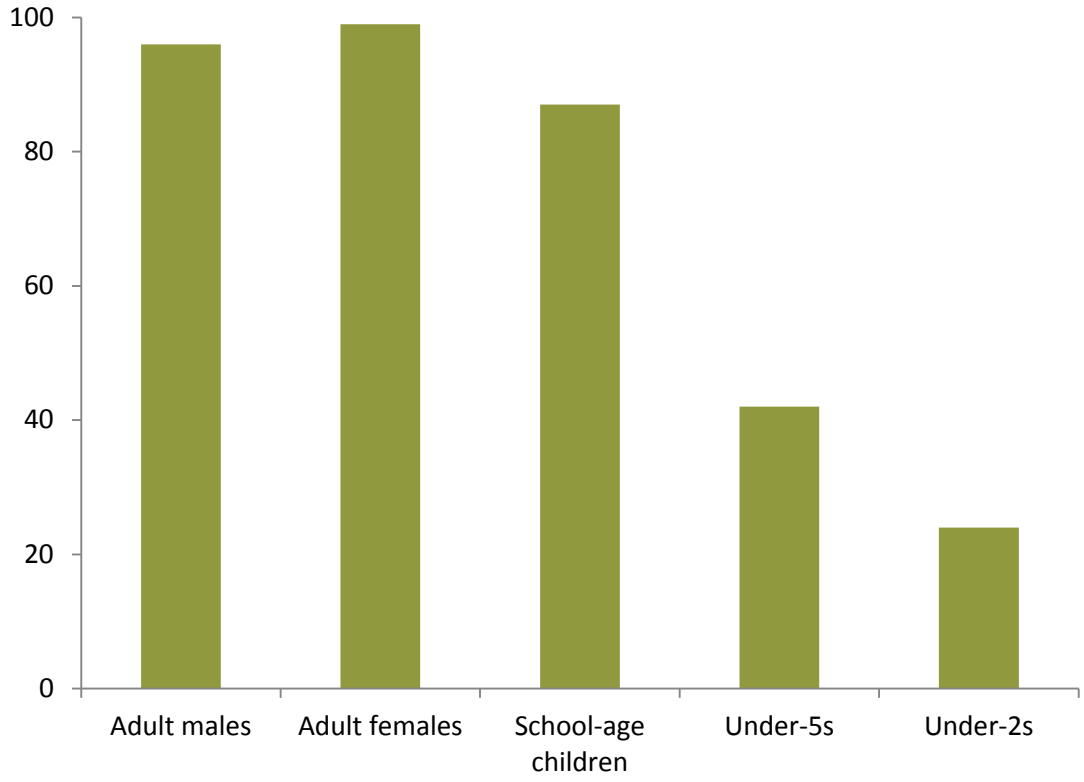


Figure 2. Household Composition among RDCP II Beneficiaries (%)



The study participants' household composition reflected that of the general population. Overall 92 percent, 97 percent, 76 percent, 45 percent and 22 percent of the study participants reported having at least one adult male, an adult female, a school-aged child, under-five and under-two within their household, respectively. Study participants lived within their own homes (97 percent) and overwhelmingly used firewood for fuel (96 percent). Although all study participant households owned some land, RDCP II participants owned larger parcels of land compared with IILP participants (median land size was 1937 square meters for IILP versus 5950 square meters for RDCP II). Overall 70 percent (74 percent in IILP and 64 percent in RDCP II) of participant households leased additional land for agricultural production.

Income Changes

Overall, 84 percent of study participants reported that their income had increased since they started participating in Feed the Future activities (see Figures 3 and 4). The remaining reported no change in income (8 percent) or a decrease in income (8 percent). No notable differences were seen between the two Feed the Future activities.

Integrated Improved Livelihoods Program beneficiaries attributed income increases to several factors including improved money saving and handling skills, access to small loans within their groups, increased food production at home with subsequent reduction in food expenditures, increased production and sale of crops, the buying and selling of small animals, and involvement in other income-generating activities. As one of the beneficiaries noted:

> *"The amount of money has increased as result of the Ejo Heza training program. We have learned how to save our money taking into consideration needs in future. This practice was not there in the past. Now we keep aside little money as we spend in addressing our family needs."-male respondent, BCV, Nyanza District*

Others noted that they were more confident in their ability to generate income:

> *"The program changed the attitude of feeling shy and ability to do income generating activities." -female respondent, ISLG, Nyanza District*

The IILP's literacy program was commended for equipping participants with functional literacy skills. As one participant noted:

> *"Now we know how to count and buyers cannot steal from us when we go to sell at the market place" -male respondent, literacy group, Nyanza District*

RDCP II beneficiaries attributed income increases to several factors as well, including improved milk quantity and quality, increased access to a functioning MCC, higher and relatively stable milk prices, improved animal breeds, increased access to markets, improved animal husbandry and milk-handling practices, and increased animal manure to produce crops and animal feed. As noted by one of the participants:

> *"Income has changed increasingly because before joining [RDCP II], we were selling our milk production in disorganized way with little access to the market and on variable prices (low price and sometimes high price per liter) and sometimes fail to get one to buy*

our milk. But after joining [RDCP II] they brought us together to work as "Giramata" women milk producer's cooperative, where together, as cooperative members, we bring milk to the same MCC that was brought near to us as a viable and reliable market for our milk. They buy our milk produce on improved or reasonable price consistently; hence increasing our income." -female milk farmer, Rubavu District

A majority of those who reported a decrease in income attributed the decrease to factors that were external to Feed the Future activities, including the presence of lower-priced milk from milk sellers not affiliated to the RDCP II program. Cross-border traders reported that visa and custom fees had been recently introduced by the Government of the Democratic Republic of Congo, while Nyanza district participants specifically cited their inability to use recently-terraced parcels of land for crop production. Building of terraces is part of the Ministry of Agriculture's land-use consolidation policy (Republic of Rwanda 2014).

Figure 3. Reports of Income Changes among IILP Beneficiaries: Before Feed the Future Activity and Current

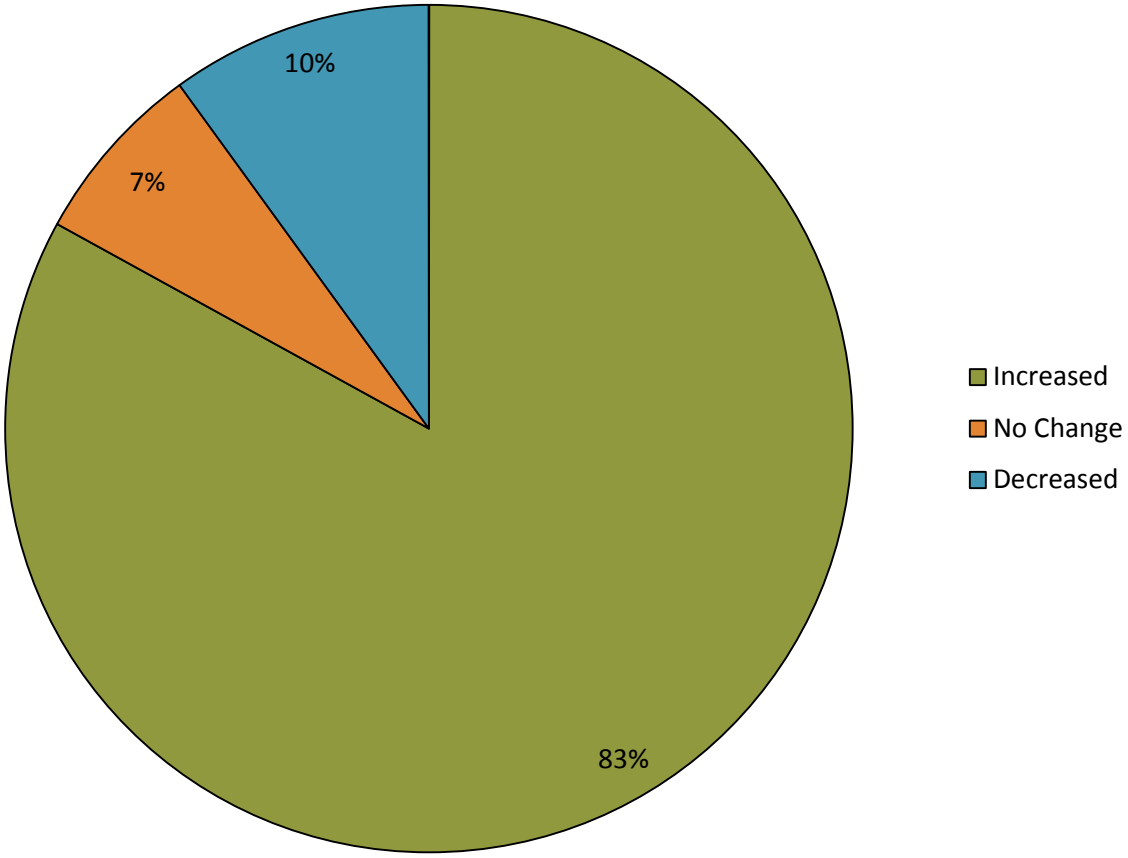
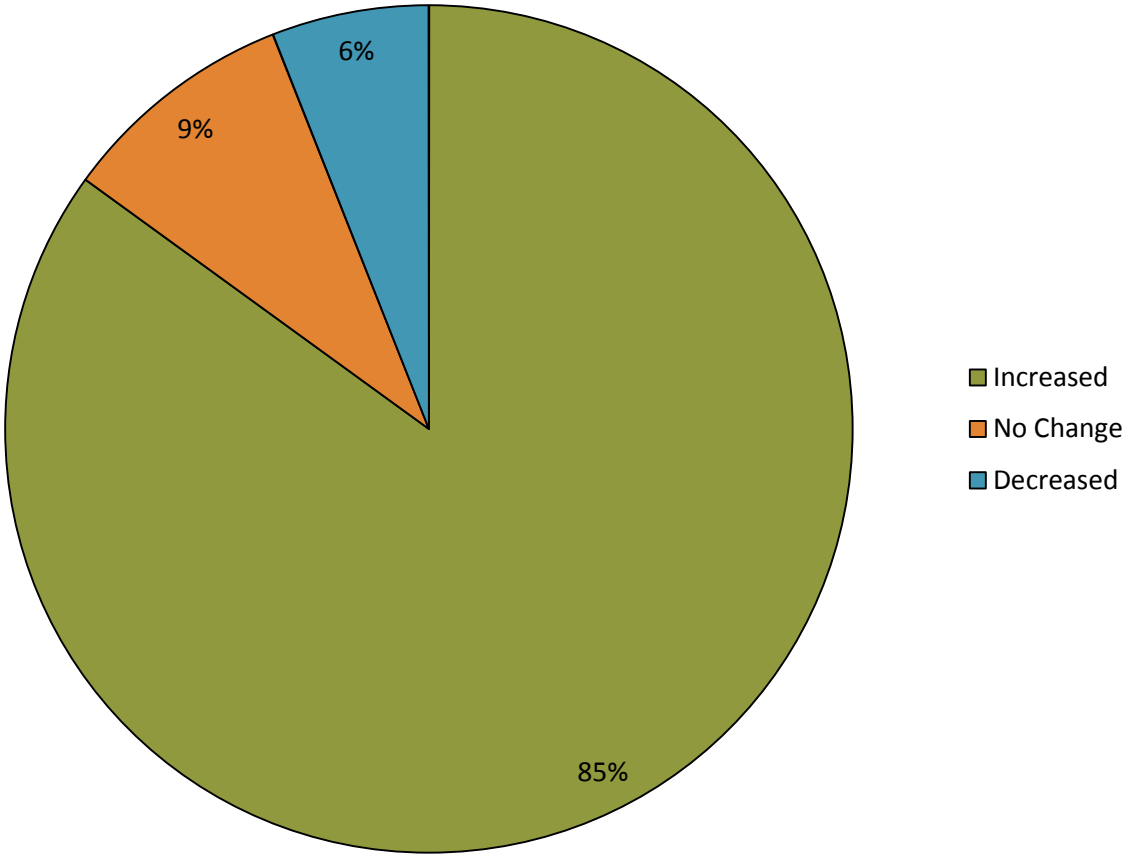


Figure 4. Reports of Income Changes among RDCP II Beneficiaries: Before Feed the Future Activity and Current



Household Expenditures

Virtually all study participants spent money on food, health care, and clothing. Other large expenditures included school fees, agricultural inputs, home improvement projects, and investments in animals and owned or rented land (see Table 3). A comparison of expenditures between the time of the survey and the time period prior to becoming part of the Feed the Future activities showed that there was at least a ten percent increase in the percentage of IILP beneficiary households that were spending money on agricultural inputs, veterinary services, farm labor, and home improvements over time. Such an increase was not noted among RDCP II households with the exception of expenditures in farm labor. This finding reflects the difference in focus and interventions for the two activities since IILP explicitly works to improve production of crops, while RDCP II works with farmers and other individuals in the milk value chain to enhance competitiveness and the quality of the milk. In addition, RDCP II provides veterinary services to some of its clients; therefore, this would not be a new expense for these individuals.

Table 3. Study Participants with Specific Household Expenditures: Before Feed the Future Activity and Current[6]

	IILP		RDCP II	
	Pre-Feed the Future Activity %	Current %	Pre-Feed the Future Activity %	Current %
Food	100	97	98	95
Agricultural Inputs	64	85	85	86
Veterinary Services	39	65	82	82
Land Rent	55	65	58	56
Health Care	99	97	95	97
Farm Labor	37	49	77	90
Home Improvement	33	49	69	72
School Fees	56	60	89	90
Taxes	30	34	47	55
Clothes	99	100	98	98

Animal ownership and crop production

A higher proportion of RDCP II beneficiaries already owned cows at the time of the study compared with IILP beneficiaries (see Table 4). By design, RDCP II works with farmers who own at least one cow. However, cow ownership is not a requirement for milk transporters and sellers. There was at least a 10 percent increase in the percentage of IILP beneficiary households that owned cows, goats, sheep, pigs, rabbits and chickens over time (see Figure 5). Similar increases were noted in goat and chicken ownership among RDCP II beneficiary households (see Figure 6).

Table 4. Farm Animal Ownership Status: Before Feed the Future Activity and Current[7]

	IILP		RDCP II	
	Pre-Feed the Future Activity %	Current %	Pre-Feed the Future Activity %	Current %
Cows	30	42	78	77
Goats	16	55	33	42
Sheep	3	12	18	20
Pigs	17	42	3	6
Rabbits	5	22	6	8
Chicken	19	47	33	42

[6] n=143 for all, n=76 for IILP, n=67 for RDCP II

[7] n=143 for all, n=76 for IILP, n=67 for RDCP II

Figure 5. Percent IILP Beneficiary Households Identified as Animal Owners: Before Feed the Future Activity and Current

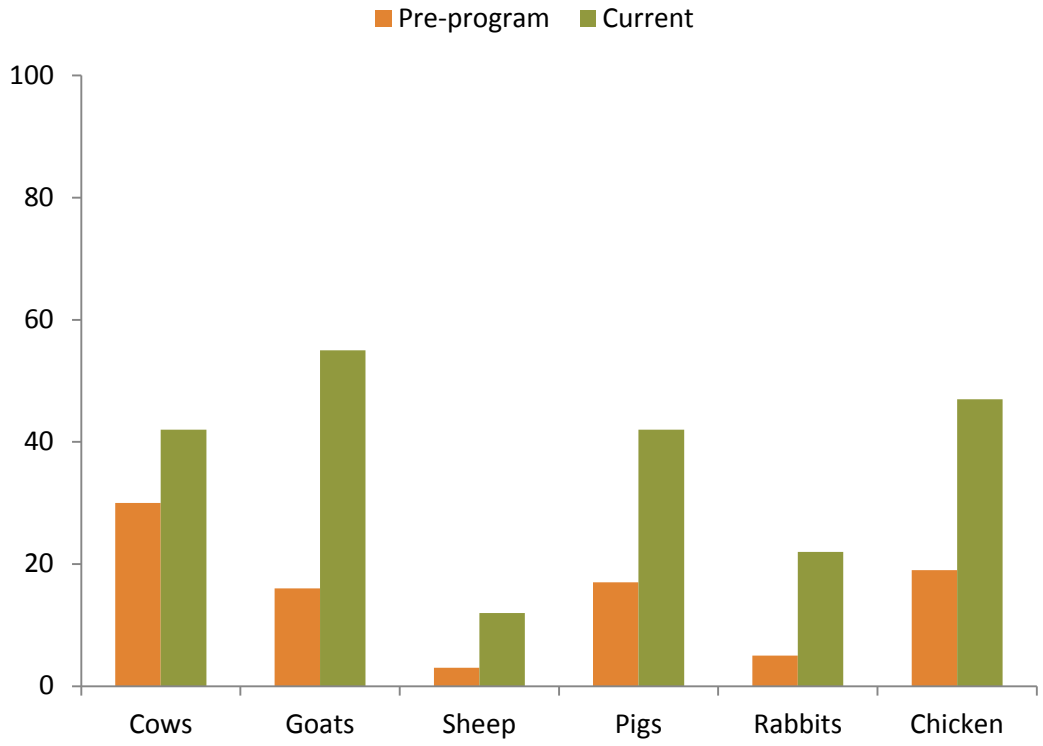
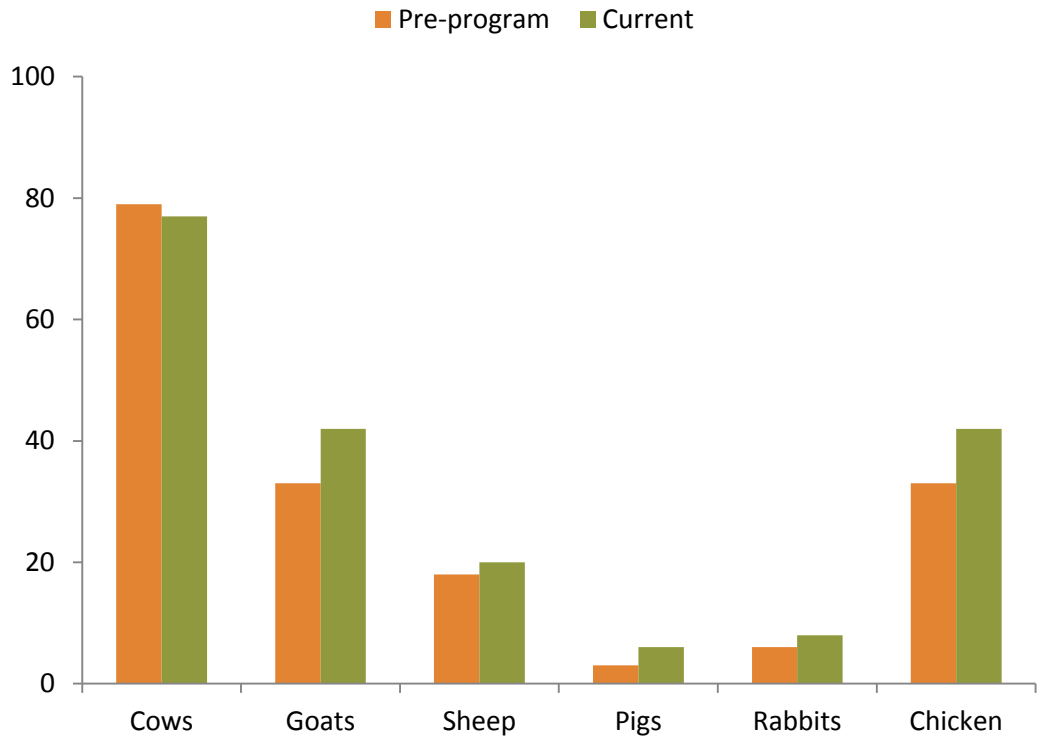


Figure 6. Percent RDCP II Beneficiary Households Identified as Animal Owners: Before Feed the Future Activity and Current



Animal ownership is considered a priority investment in Rwanda. As noted by one of the program officers:

> *"In our culture, if a household gets money they try to prioritize and mostly in Rwandan culture, a household that has a domestic animal is the richest household. Mostly their goal is to have at least a goat. If the income is more they try to get cows. Animals are investments and also provide organic manure."-IILP program officer, Kigali*

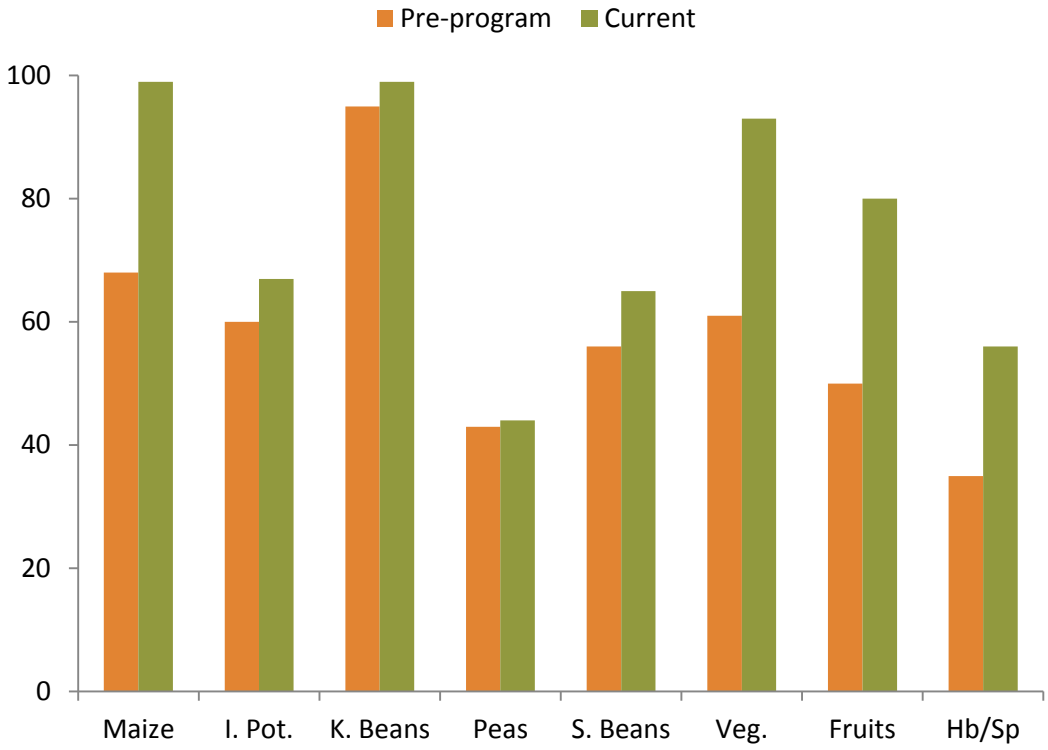
A similar pattern was noted in crop production activities (see Table 5 and Figures 7 and 8)). There was an increase in the proportion of IILP beneficiary households that produced maize, vegetables, fruits and herbs and spices over time.

Table 5. Crop Production Status: Before Feed the Future Activity and Current[8]

	IILP		RDCP II	
	Pre-Feed the Future Activity %	Current %	Pre-Feed the Future Activity %	Current %
Maize	68	99	74	80
Irish Potatoes	60	67	64	68
Kidney Beans	95	99	79	80
Peas	43	44	38	35
Soy Beans	56	65	26	27
Vegetables	61	93	71	85
Fruits	50	80	56	58
Herbs/Spices	35	56	39	45

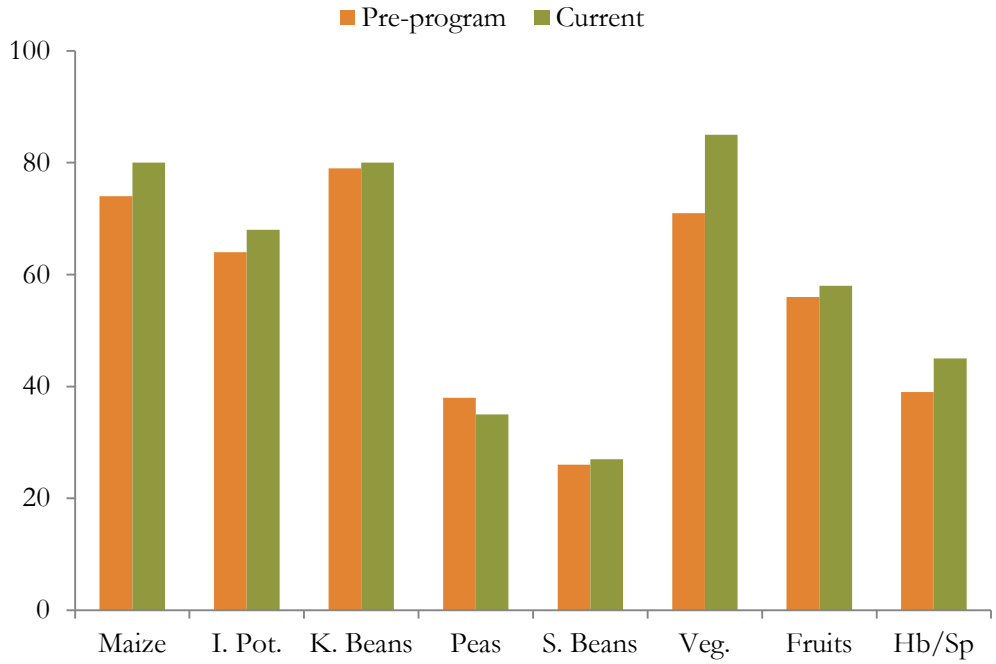
[8] n=143 for all, n=76 for IILP, n=67 for RDCP II

Figure 7. Percent IILP Beneficiary Households Identified as Crop Producers: Before Feed the Future Activity and Current



*I. Pot.: Irish potatoes; K. Beans: kidney beans; S. Beans: soy beans; Hb/Sp: Herbs or spices

Figure 8. Percent RDCP II Beneficiary Households Identified as Crop Producers: Before Feed the Future Activity and Current *



*I. Pot.: Irish potatoes; K. Beans: kidney beans; S. Beans: soy beans; Hb/Sp: Herbs or spices

Food Acquisition and Consumption

Food Acquisition

Within the range of foods consumed by surveyed households, vitamin A-rich fruits, other fruits, meats, fish and seafood, oils and fats, sweets and spices, condiments, and beverages were more likely to be purchased, while cereals, dark-green leafy vegetables, vitamin A-rich vegetables and tubers, and other vegetables were more likely to be sourced from the participants' homes/farms (Tables 6 and 7; Figures 9 and 10). Changes before and after participating in the program are detailed below.

Table 6. Food Purchases: Before Feed the Future Activity and Current [9]

	IILP		RDCP II	
	Pre-Feed the Future Activity %	Current %	Pre-Feed the Future Activity %	Current %
Cereals	37	28	36	33
White Roots and Tubers	22	33	23	24
Other Starches	32	36	61	68
Vitamin A-Rich Vegetables & Tubers	28	25	64	62
Dark-Green Leafy Vegetables	32	18	45	41
Other Vegetables	70	46	50	45
Vitamin A-Rich Fruits	73	69	73	70
Other Fruits	62	59	79	79
Organ Meats	87	88	94	94
Flesh Meats	95	93	91	89
Eggs	61	50	62	59
Fish and Seafood	83	87	86	88
Legumes, Nuts and Seeds	18	20	29	36
Milk and Milk Products	68	62	33	33
Oils and Fats	93	96	92	91
Sweets	89	95	95	95
Spices, Condiments, Beverages	88	87	88	89

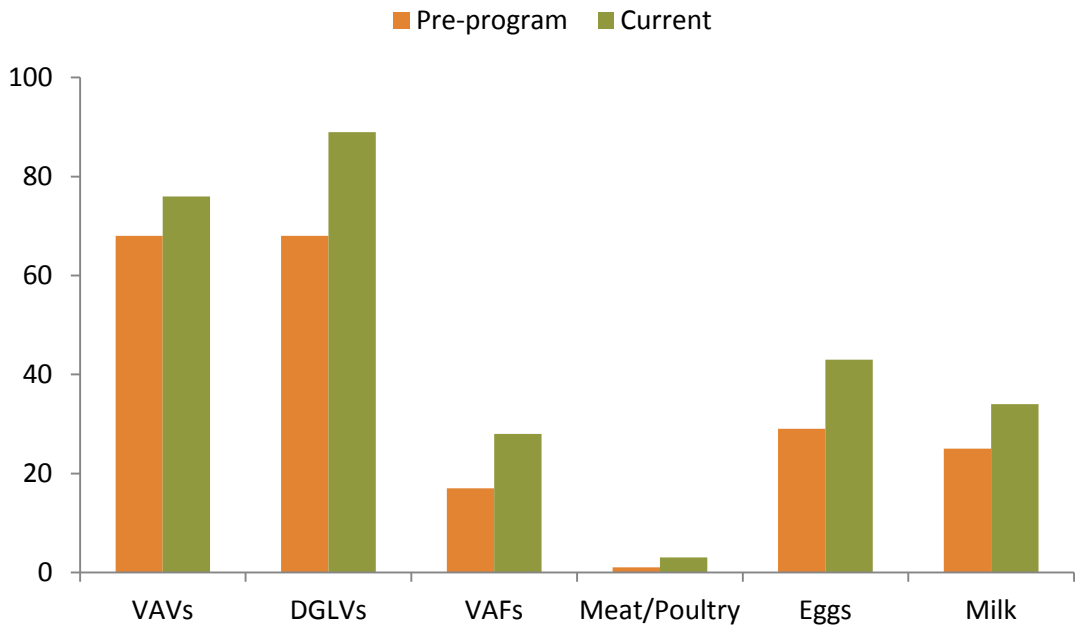
[9] n=143 for all, n=76 for IILP, n=67 for RDCP II

Table 7. Home/Farm Food Production: Before Feed the Future Activity and Current[10]

	IILP		RDCP II	
	Pre-Feed the Future Activity %	Current %	Pre-Feed the Future Activity %	Current %
Cereals	70	89	76	79
White Roots and Tubers	92	80	80	79
Other Starches	67	63	38	32
Vitamin A-Rich Vegetables & Tubers	68	76	38	41
Dark-Green Leafy Vegetables	68	89	58	64
Other Vegetables	28	57	52	59
Vitamin A-Rich Fruits	17	28	29	32
Other Fruits	25	30	9	11
Organ Meats	1	0	3	5
Flesh Meats	1	3	6	11
Eggs	29	43	33	40
Fish and Seafoods	1	0	0	0
Legumes, Nuts and Seeds	97	96	79	74
Milk and Milk Products	25	34	67	70
Oils and Fats	5	3	11	14
Sweets	3	7	2	2
Spices, Condiments, Beverages	9	14	6	6

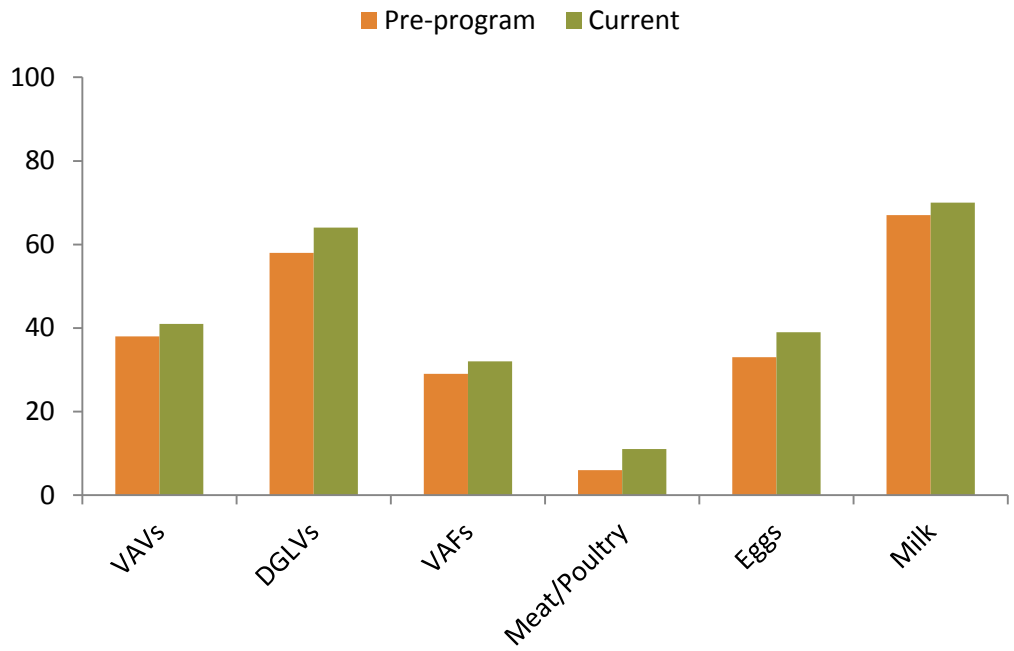
[10] n=143 for all, n=76 for IILP, n=67 for RDCP II

Figure 9. Percent IILP Beneficiary Households Producing Vegetables, Fruits and Animal-Source Foods for Home Consumption: Before Feed the Future Activity and Current[11] *



*VAV: vitamin A-rich vegetables; DGLVs: dark-green leafy vegetables; VAFs: vitamin A-rich fruits

Figure 10. Percent RDCP II Beneficiary Households Producing Vegetables, Fruits and Animal-Source Foods for Home Consumption: Before Feed the Future Activity and Current[12] *



*VAV: vitamin A-rich vegetables; DGLVs: dark-green leafy vegetables; VAFs: vitamin A-rich fruits

[11] n=143 for all, n=76 for IILP, n=67 for RDCP II

[12] n=143 for all, n=76 for IILP, n=67 for RDCP II

Some differences in current food acquisition patterns across Feed the Future activities were noted: a higher proportion of IILP beneficiary households compared with RDCP II sourced vitamin A-rich vegetables and tubers, dark-green leafy vegetables, other fruits and legumes, seeds and nuts from their own homes both before the Feed the Future activity and currently. A higher proportion of the IILP households also purchased milk compared with RDCP II households. On the other hand, a higher proportion of RDCP II beneficiary households compared with IILP sourced milk and milk products and oils and fats from their own homes both before the Feed the Future activity and currently, but a higher proportion of them purchased vitamin A-rich vegetables and tubers, dark-green leafy vegetables, other fruits and legumes, seeds and nuts compared with IILP households.

Changes in Food Acquisition Patterns

Comparing pre-Feed the Future and current food acquisition patterns showed that there was an increase in the proportion of IILP beneficiary households that sourced cereals, dark-green leafy vegetables, and other vegetables from within their own homes. Similarly sized changes were not recorded among RDCP II beneficiaries.

Determinants of Food Purchases

Over 50 percent of participants identified “availability of money” as a determinant of the types and amounts of foods that could be purchased prior to joining Feed the Future activities and at the time of the study (see Table 8). It is important to note that although money remained an important factor in determining food purchases, fewer participants cited this factor as a constraint at the time of the study when compared with the time prior to Feed the Future activities. As one respondent noted:

> *"When we have money, we buy the food we prefer by considering every person's preference."-male respondent, cooperative group, Karongi District*

Table 8. Determinants of Food Purchases: Before Feed the Future Activity and Current[13]

	IILP		RDCP II	
	Pre-Feed the Future Activity %	Current %	Pre-Feed the Future Activity %	Current %
Money	72	57	65	50
Health	14	22	18	20
Food Preparation Skills	3	0	0	0
Availability in the Market	3	3	2	2
Food Preference	13	12	20	20
Food Not Available at Home	28	28	35	35
Household Size	7	5	3	3
Food Nutrient Content or Balanced Diet	32	76	58	77

[13] n=143 for all, n=76 for IILP, n=67 for RDCP II

Respondents noted that meat was quite expensive and that in some instances the men decided when meat could be purchased for home consumption. It is important to note that although money remained an important factor in determining food purchases, many participants cited "availability of money" to be less of a constraint at the time of the study when compared with the pre-Feed the Future times.

Other determinants of food purchases included "food nutrient content" or "provision of a balanced diet" and the proportion of individuals who identified these as determinants increased over time for both Feed the Future activities. Although RDCP II did not focus on human nutrition education, it is important to note that in places where both RDCP II and IILP have been implemented, there is the increased likelihood that household members would be part of both activities. In addition, RDCP II officers encouraged its beneficiaries to save some milk for home consumption and discussed the importance of improved human nutrition on an informal basis. As one of the field officers noted:

> *"When in training, we encourage the farmers to keep some milk for home consumption before selling. You teach them on how to improve nutrition - though not as a main focus, we can mention it."-RDCP II milk shed quality specialist, Nyanza district*

Food Consumption

Fruits (other than Vitamin A-rich), organ meats, flesh meats, fish and seafood, and eggs were the least consumed foods (see Table 9). Fewer than 30 percent of study participants had consumed foods from these food groups in the previous 24 hours. The most commonly consumed fish was the dry small fish (*Rastrinobola argentea*) which was noted to be cheaper compared with other types of meat. A higher proportion of RDCP II beneficiaries, compared with IILP, had consumed milk and milk products in the previous 24 hours. This was expected since RDCP II has capitalized on opportunities to promote household consumption of milk and milk products with famers and other beneficiaries, even though the activity does not include formal nutrition-related interventions.

Table 9. Household and Individual Food Consumption in Previous 24 Hours[14]

	IILP		RDCP II	
	Household[15] %	Individual[16] %	Household[15] %	Individual[16] %
Cereals	80	66	89	68
Other Starches[17]	97	89	100	89
Vitamin A-Rich Vegetables & Tubers	84	56	83	36
Dark-Green Leafy Vegetables	86	65	74	48
Other Vegetables	97	87	98	89
Vitamin A-Rich Fruits	38	25	55	29
Other Fruits	45	23	42	11
Organ Meats	13	7	27	5
Flesh Meats	39	20	43	26
Fish and Seafoods	50	31	29	8
Eggs	47	23	41	20
Legumes, Nuts and Seeds	97	93	98	91
Milk and Milk Products	71	47	91	77
Oils and Fats	95	84	98	92
Sweets	71	51	91	79
Spices, Condiments, Beverages	71	53	75	58

With the exception of the Gisenyi milk sellers, all study respondents acknowledged that their dietary patterns had changed because of Feed the Future activity participation. Specifically, they cited increased access to different foods (either through home production or purchases), increased consumption of vegetables, fruits, milk, fish (considered a new food), sugar, and oils, and having learned the importance of paying attention to food nutrient content. There has also been a shift in perceptions relating to the importance of consuming fruits and vegetables across all age groups, and about the consumption of porridge by adult males. These changes were expressed in different statements from IILP beneficiaries:

> *"Before we didn't know how to grow or prepare green vegetables; but now green vegetables have been recognized to be very [nutritious] and are introduced in our meals." -male respondent, literacy group, Nyanza District*

> *"After joining Ejo Heza programs, we added eating green vegetables, avocado, yellow banana. These used to be only for children, changing of our mindsets that "no old person*

[14] n=143 for all, n=76 for IILP, n=67 for RDCP II

[15] Consumed by at least one household member in the previous 7 days

[16] Consumed by study participant in the previous 24 hours

[17] Includes white roots and tubers, green bananas

eats fruits." We added also carrots and beets. The porridge was previously prepared with sorghum; we added maize, when previously we were not planting maize. We have learned to add soya or Sosoma (a soy-based processed porridge-mix). We learned also to eat more food in quantity and are now aware of the different nutrients (with energy for example)." -female respondent, cooperative group, Nyanza District

"Fish is a new food in our diet. We did not even know their value in nutrition but now we buy it when having some money in the household."-male respondent, nutrition group, Karongi District

"When I was young, parents used to tell us to go and look after cows and it's only when we could get milk to drink but now we buy milk when we get money from selling our crops." -male respondent, nutrition group, Karongi District

"We buy milk because we learned its importance to our health but before joining the program we weren't buying or taking milk." -male respondent, cooperative group, Karongi District

RDCP II beneficiaries noted that they now had more money that they could use to purchase a variety of foods:

"We now have more money with the increase of milk price per liter. This income has eased the way of affording money to buy what we want from the market, for instance, increasing the quantity of banana, cassava leaves, sweet potatoes, ground nuts and spices, salt, and cooking oil." -female milk transporter, Rubavu District

Some also commented on the importance of reserving some milk for home consumption:

"In my family, I used to sell all my milk every six days of the week and keep some at home only for one day. But now with the training of RDCP II, I sell milk two days and keep something for the house on the third day." -male farmer, Rubavu District

Responses focusing on meat consumption were mixed. While some participants noted that meat consumption had increased, others noted that meat was still inaccessible to them.

"*I did not eat enough meat, but now I eat more meat than our household need. I was consuming meat at Christmas or at New Year, but now we eat meat like 2 to 3 times a week.*" -female cross-border trader, Rubavu District

"*It's not always possible that we consider everybody's preference; you may tell your wife to buy meat because you miss it and the wife may suggest that you buy beans instead for economic reasons. Her point of view is based on the fact that 1 kg of meat costs four times 1 kg of beans!*" –male respondent, nutrition group, Karongi District

Fewer than 30 percent of study participants had consumed flesh or organ meat in the previous 24 hours. Approximately 20 percent had consumed eggs in the previous 24 hours. Study participants had a mean diet diversity score of 5.2 years (standard deviation = 1.6) and a median score of 5.

Although Feed the Future activity staff expects diet diversity to increase over time, they acknowledge that this is a slow process that requires improved economic status as well as attitude changes:

"Meats are expensive. Meats are for the rich. Meat is for the party or the holidays like Christmas or New Year - that is the mindset. But from our skills and training, we are telling them to try and incorporate at least some fish, the small dry ones. They are less expensive than meat. A kilo of meat costs about 3 USD - no one will spend that money on meat. Also, a kilo of meat for a family with eight children - that is nothing. And that is why we are saying we need to introduce the small fish in the diet."-IILP program officer, Kigali

"Diet diversity has changed a little bit. In our culture, we care about quantity and not quality. You will find that our beneficiaries will sell the little milk they produce or eggs to buy beans. A bowl of beans is better than one egg. Traditionally, eggs are for the rich. So even if they produce eggs they will sell all the eggs. But we are training them now on ways to use eggs at home. Also, when they eat it, they say that eggs are for women or children but we hope that this is changing. We are also telling them not to sell all the milk." -IILP program officer, Kigali

Care-giving and Care-Seeking Activities

Agriculture-related activities consumed a large proportion of study participants' time, taking on average six hours per day. With respect to time management, all respondents, irrespective of Feed the Future activity, noted that they now have more time for care-giving activities. For most IILP beneficiaries, this change has been attributed to improved time management skills, while for RCPDII beneficiaries, improved time management skills, easy-to-reach MCC, and use of more efficient tools for RDCP II accounts for this change.

"We have started planning for everything from morning up to night taking into consideration time for caring for children, cleaning them, washing their clothes, feeding them and listening to their needs as well as time for taking them to health facilities for immunization. We no longer misuse our time." –female respondent, literacy group, Karongi District

With respect to easy-to-reach and improved facilities:

"Prior to the project, we used to have to walk two hours to sell milk; now only one hour to reach MCC." -female milk transporter, Rubavu District

"Before, we used to work in disorganized way, each struggling for his/her own means of transport for his/her own milk to Congo. But today we use our vehicles to transport milk to Congo; for example, right now we are here, but the milk is already in Congo!" -female cross-border trader, Rubavu District

Some male participants noted that they were becoming more engaged in care-giving activities.

"Before the project, fathers didn't care about our children. There were even children who used to ask their mothers "where does our father live"?! But today awareness of men to take care of children has increased." -male respondent, cooperative group, Karongi District

Other men noted that childcare activities remain the responsibility of their wives but that they could assist when needs arise, such as when a child became sick. A similar sentiment was shared by the IILP program officers:

> *"Women are overworked - they have to do business, go for meetings and trainings and still they ae expected to take care of the children and cook for their families and clean the house and do everything. In our culture men do not do any house duties. We need to work towards changing this."-Program Officer, Kigali*

Changes in Health and Nutritional Status

Study respondents reported that their health and their children's health have improved since they became engaged in Feed the Future activities. These changes were attributed to increased income, ability to purchase health insurance (thus increasing access to health services), improved dietary practices, improved sanitation, hygiene and food handling (frequent cleaning of children and their clothes, boiling milk and water before drinking), and reduced distances and travel times. Improved health and nutritional status was defined by respondents in different ways: being more energetic, suffering fewer illness episodes, gaining weight, improved physical appearance (looking younger and improved skin), and improved eyesight.

> *"You can see a man of 60 years old looks as if has 30 years. Don't you see that we are shining and look healthy?" –male respondent, cooperative group, Karongi District*

> *"When you see me at work, you would say I am like an engine because of energy I use due to my improved nutrition as a result of Ejo Heza support program." –male respondent, cooperative group, Karongi District*

> *"With Ejo Heza I am better nourished and have gained more weight. Before joining Ejo Heza, I had 49 kg by weight, but now I am 54kg." -female respondent, cooperative group, Nyanza District*

Women's Empowerment

Involvement in Income-Related Decisions

A majority of IILP beneficiaries saved money within SACCOs. Savings and Credit Cooperative Organizations require the signatures of both partners (beneficiaries and their spouses for most of the program recipients) prior to money being withdrawn from a savings account. When asked to compare their level of involvement in income-related decisions at the time of the study compared with pre-Feed the Future activities, 68 percent of study participants reported that they were more involved, 30 percent reported no change in their level of involvement and two percent reported a decreased level of involvement. At the time of the study, 80 percent of study participants indicated that they were more involved in decisions regarding use of household money (see Figures 11 and 12). Approximately 86 percent indicated that they always had the freedom to use the money they had earned themselves, and 68 percent indicated that they had the freedom to use money earned by their partners.

A comparison between gender showed that 72 percent of female study participants indicated that they were more involved in decisions around household money, 90 percent indicated that they always had the freedom to use the money they had earned themselves, and 73 percent indicated that they had the freedom to use the money earned by their partners (See Annex 6, Figures 13 and 14).

Further exploration of FGD recordings did reveal a regional divide when it came to money-related decisions. Most respondents in Nyanza district, regardless of program, indicated that partners often consulted and made money-related decisions together. One male respondent in Nyanza district noted:

> *"..before joining Ejo Heza program, I used to take final decision without consulting my wife and I had a mindset that women are unable and irresponsible and can't take right decision. This was wrong." -male respondent, cooperative group, Nyanza District*

Male views continued to hold greater weight in Rubavu district. Focus group discussion participants, for the most part, noted that despite consultations between partners, male partners often made the final decision (unless in emergency situations) or had the last word on how money was spent within the household, especially for large items or investments. As one female respondent noted:

> "*In our culture it is the man who comes up with an idea on what to do with the money and then asks his woman for discussion and approval*." –female farmer, Rubavu District

Figure 11. Perceived Changes in Income-Related Decision Making among IILP Beneficiaries: Before Feed the Future Activity and Current

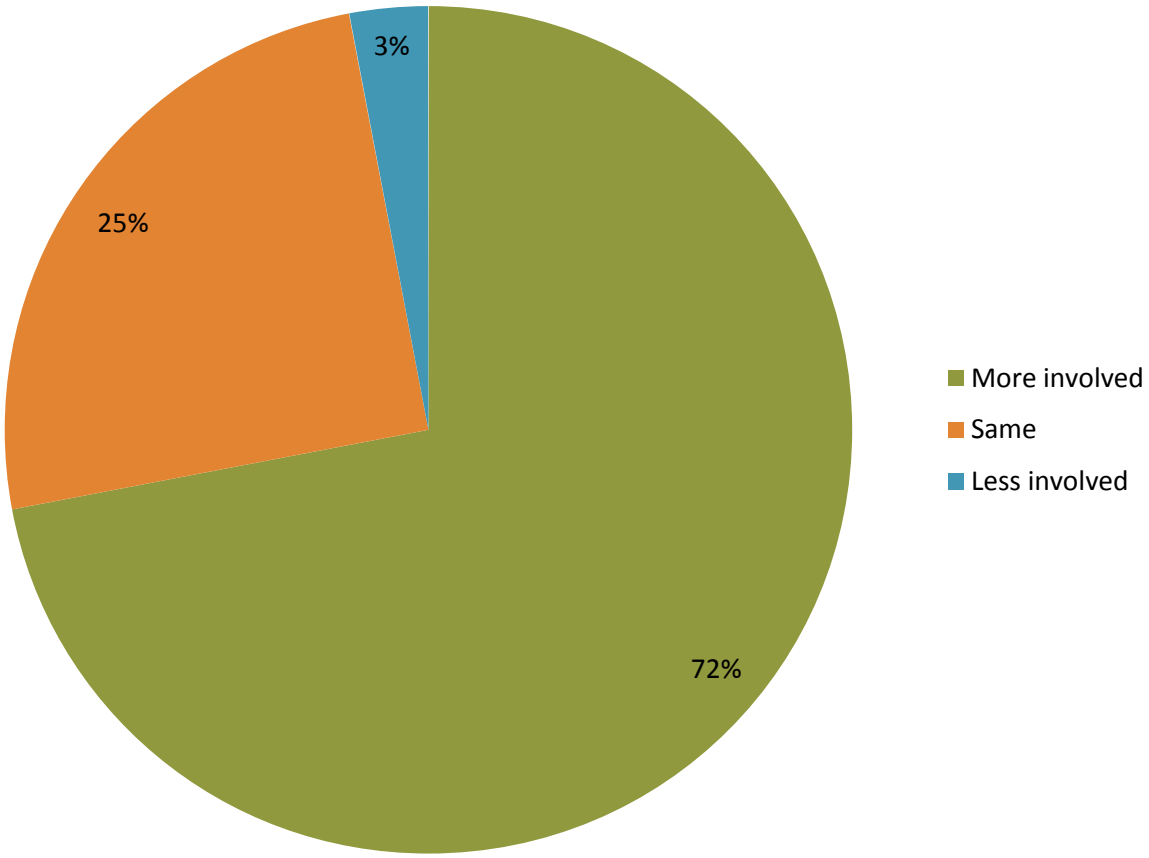
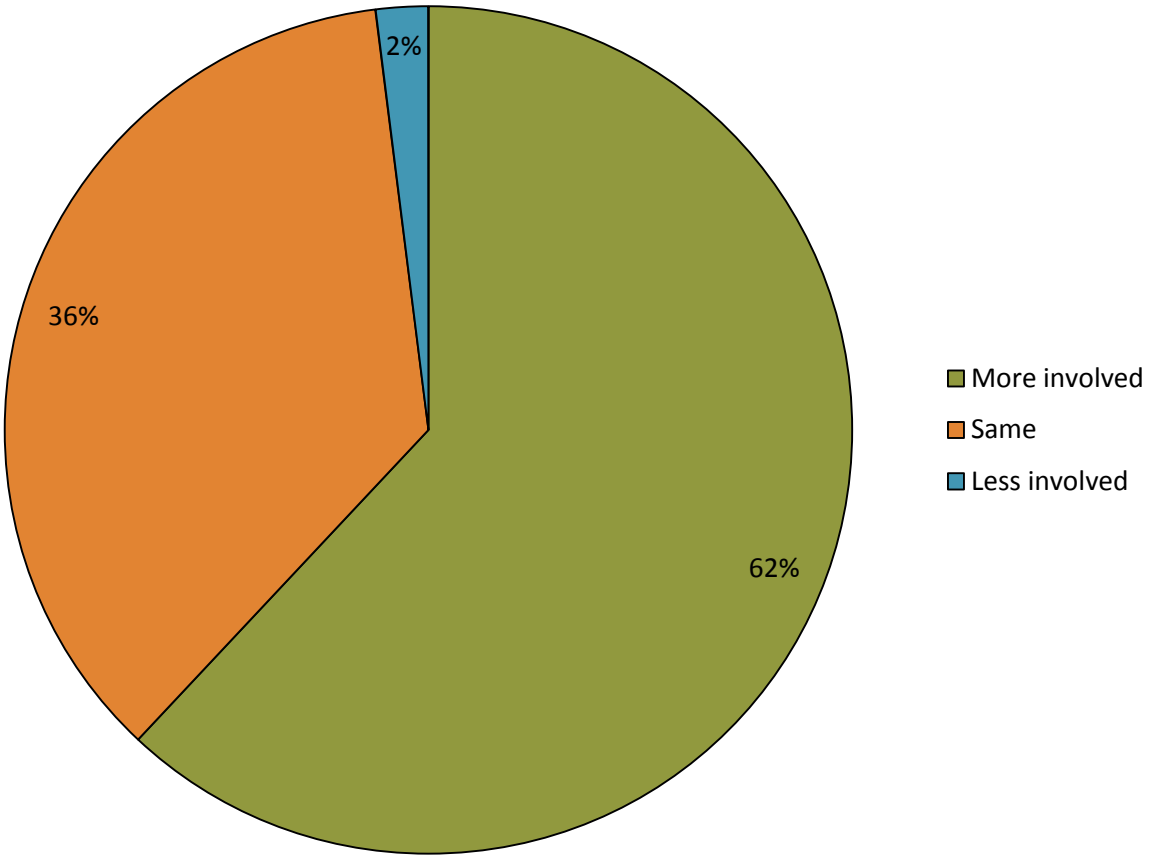


Figure 12. Perceived Changes in Income-Related Decision Making among RDCP II Beneficiaries: Before Feed the Future Activity and Current



Involvement in Food-Related Decisions

It was generally agreed that food preparation is a woman's domain. Women make decisions about the types of foods to be prepared and amounts to be served, often taking household members' (especially children's and husbands') preferences and needs into consideration. As noted above, sometimes men decided on when meat could be purchased for home consumption.

Women's Participation Outside the Household and Perception of Status

Participation in Feed the Future activities has increased women's presence and participation in activities outside their homes. Change in women's status was captured in several ways including involvement in decision-making, engagement in development projects and in income-generating activities, reduced dependency on their male partners, improved physical appearance (especially dressing), and taking up leadership positions within their groups (nutrition, cooperatives, ISLGs, BCVs and literacy groups) and in the local committees. As some respondents noted:

> *"The program helped us to open our mind in understanding our role in decision making at our household which also contributed much in improving the standards of living of our*

family. But before joining the project, it was only the husband that was contributing much in making decisions at home, so we realized that "two heads are better than one." -female milk farmer, Nyanza District

"Before joining Ejo Heza, we used to waste our time in bars spending our household-generated money buying alcohol to drink, which accelerated quarrels at home. When my wife used to ask me where is money or where have I been I used to beat her to stop asking me those questions because of complex that I misused money that could have benefited all household members. But today it has changed significantly. We plan together for everything and increased working hours for activities that can generate more income at home than before to improve our standards of living."-male respondent, cooperative group, Karongi District

Female beneficiaries of Feed the Future activities were identified as self-confident and as opinion leaders as a result of the successes they have achieved so far, including operating their own small businesses, increasing investments, and adopting modern farming practices. These beneficiaries are now being used to promote development-related messages within their communities. As one leader noted:

"Marie is a farmer with self-confidence. She is promoting maize and beans. On liberation day, she gave testimony of the difference. After the Ejo Heza training, she has become a community health worker and now is a representative of farmers at the village level. She is now considered affluent and she is used by the village leaders to promote different development-related messages (something she did not do before the trainings). She has terraces at household level (showing she is an early adopter). They gave her 20kg of seeds - she got a yield 500kg of beans. The leaders can now use her to promote these messages. They used her on the liberation day to share the information that terraces give increased production. Liberation day is a big day when the community gathers. Nyiramiza is one of the nutrition and ISLGs group. After her testimony on liberation day, some community members committed to change, some have already made some changes in agricultural practices."-Executive Secretary (Community Leader), Nyanza District

Community leaders recognized women's increased level of independence and improved living conditions:

"The women's living conditions have been improved, in the past the women needed to ask for money from their husbands to buy clothes, food, etc. and now do not need to seek permission. The women are able to receive loans from ISLGs to buy and sell sorghum and pay back more money earned to the ISLG. The six ISLGs have collected more than 1 million RWF." -Executive Secretary (Community Leader), Karongi District

Some key informants noted that empowering women is a work in progress and that although the Government of Rwanda has identified women's empowerment as a development priority, changing the general population's perception of women's roles will take time.

"It is an ongoing process, of gender mainstreaming. This region used to be polygamous, to change the habits is not easy. The reality is that in Rwanda, the cow is for the man. With their teaching, training them to share what they have at home. Slowly they are educating people, some get it. Some are more stubborn. But for the young, they understand. The process is at the beginning. But RDCP II is a good project because it is generating income for the women. They are becoming more visible, they have more position in society. They women are well-dressed, they can go everywhere."-Project Director, local nongovernmental organization and RDCP II partner, Rubavu District

Both Feed the Future activities have made conscious effort to engage women at different points along the value chain. Approximately 60 percent of the IILP beneficiaries are women, while RDCP II's goal is that 50 percent of beneficiaries should be women. Both activities have made conscious efforts to engage women (e.g. holding training sessions at times most convenient for women, setting targets of female participation before training sessions and actively encouraging women to participate, stipulating to service providers to reach out to women, and encouraging women to actively engage when they attend training sessions). In addition, the activities highlight the importance and benefits of engaging women as equal stakeholders and they have noted a positive trend in self-efficacy, self-confidence, and equity among its beneficiaries:

"Our staff and providers assess three indicators - self-efficacy, self-confidence and equity - before and after training and as we move throughout the year and we seem to be having positive indication in many levels that the males are more aware of the importance of the contribution their female counterparts can make and they actively say that they realize that this is something they have not considered before. There is definitely a positive trend but it is quite a difficult thing to be measured - it is more qualitative than quantitative."-Chief of Party, RDCP II, Kigali

Similar sentiments were shared by IILP program officers:

"It is hard at our level to say how a man and a woman share decisions in their home. We do not go to their homes. We get testimonies. Many women are saying that they are being taken into consideration when it comes to decision-making. Traditionally women say that they cannot do this and that (for example talk in public) - this is for the men. The men are also not happy. Now they have to check with the women. You have to go slowly. It is changing little by little." -IILP program officer, Kigali

The existing national policy and strategies to enhance women's empowerment and gender-mainstreaming have been commended for making it easier to discuss gender-related issues within the Feed the Future activities:

"We are really lucky because of the measures taken by the government. People have been sensitized about the gender issues from the top to the low levels. The families have a better understanding. When you bring up a gender topic to our beneficiaries it is like a repetition or revision. It has started to become normal life for them. We are introducing gender issues through our entry points - nutrition, ISLGs, cooperatives and literacy groups. They are not really new things and that is why their involvement is high. Because

of the government policy, many partners are now legally married and have 50-50 sharing. Both partners have to be registered when it comes to land registration. A man cannot sell land or a cow without the woman's agreement. Also no one will buy your animal without a signature of the woman." -IILP program officer, Kigali

Discussion

Both IILP and RDCP II beneficiaries indicated that they had benefited from program participation. Benefits from these two activities were articulated in different ways, including increased income, increased food production, and increased levels of women's empowerment. It has been postulated that agriculture effects nutrition in three main non-linear pathways: the food production-to-nutrition pathway, the agriculture income-to-nutrition pathway, and the women's empowerment-to-nutrition pathway (Herforth & Harris 2014).

Increases in income were attributed to multiple factors, including increased investment and sale of agricultural products, increased engagement in small business opportunities, and increased knowledge of, and engagement in, money-saving opportunities. As expected, income increases correlated with increases in small animal ownership and expenditures for agricultural inputs, veterinary services, and home improvement, especially among IILP beneficiary households. Because of its focus on improving agricultural production, it is possible that the IILP program encouraged its beneficiaries to invest in small animals as well as in agricultural inputs and services as part of adopting improved farming practices, as investments in farm animals are a culturally acceptable way of improving one's social status in Rwanda. Small animals are both more affordable and provide a more accessible source of animal protein when compared with larger animals, and build households' resiliency to economic shocks.

It is important to explore the relatively lower percentage of RDCP II beneficiaries making small animal investments. One possible explanation for this is that a large proportion of RDCP II beneficiaries already owned cows and paid for agricultural inputs, veterinary services, farm labor, home improvement, and school fees prior to joining RDCP II. The amount of money spent on these services/products may have changed over time, but quantified changes were not recorded in the current study.

Home food production increased, with IILP beneficiaries reporting increases in cereal, vegetable, and fruit production and RDCP II beneficiaries reporting improvements in milk quantity and quality. Despite the continued limited access to meats, beneficiaries described a general improvement in their diets (especially for vegetables, fruits, and milk), thus supporting a positive movement along the "food production-to-nutrition" pathway. Not only did the proportion of IILP beneficiary households that adopted crop production increase, but the variety of crops that they produced was also greater than that of RDCP II households. The higher variety of crops served to broaden participants' agricultural income base, build resiliency with respect to food security and provide for households' nutritional needs. In the two years that the two Feed the Future activities have been operational, the percentage of IILP beneficiaries who are producing cereals and vegetables for home consumption has increased by 20-30 percent. On the other hand, a larger proportion of RDCP II beneficiaries have continued to purchase most of their foods from the local markets, with the exception of milk and milk products. This finding is not surprising, as RDCP II's focus is to improve the quality of milk rather than increasing the home production of other products. Fifty to fifty-seven percent of study participants identified money as one of the determining factors when it came to food purchases. However, these numbers represent a 15 percent decrease over the two year period, indicating lower levels of financial stress for beneficiary households. Instead, there was a reported increase in the proportion of beneficiaries that identified

balanced diet or food nutrient content as a determining factor for their purchases, demonstrating that nutrition knowledge and awareness and the demand for nutritious foods is on the rise. Nutrition knowledge has been identified as an important component of the "agriculture-to-nutrition" enabling environment (Herforth & Harris 2014). While knowledge and practice retention over time has not been studied, it is notable that IILP has taken precautionary measures to guard against regression in knowledge and practices by training BCVs, who will continue to provide educational support to beneficiaries after the program ends.

There was a general consensus among Feed the Future activity beneficiaries, community leaders, and Feed the Future staff members that women's empowerment was on the rise with female beneficiaries getting more involved in income-related decision-making and becoming more visible within and outside their homes. Part of the progress made thus far was attributed to the strong political will in the Republic of Rwanda to address women's empowerment issues. However, respondents were cautious to note that women's empowerment was a slow process that required patience as well as continued education and awareness. Feed the Future beneficiaries reported improved care-giving practices, which they attributed to better time management skills, the use of more efficient working tools and equipment, and increased knowledge of both nutrition and care-giving practices. Through FGDs, IILP and RDCP II beneficiaries expressed an increased ability to pay for health insurance and improved health and nutritional status among children and adults.

While results suggest improvements in income and production and a positive trend along the "agricultural-to-nutrition" pathways, challenges remain that may hinder further movement along these pathways.

Challenges and Recommendations

Though IILP's and RDCP II's activities were not designed using the agriculture-to-nutrition pathways framework, many of the interventions and assumptions underlying the design and implementation of these activities fall within the framework. Both activities provide opportunities to incorporate nutrition-sensitive thinking and interventions along the value chain and within the enabling environment.

Time Availability and Care-Giving

Despite the time management skills acquired by the Feed the Future activity beneficiaries, the demand on women's time is still high. In addition to their increased engagement in income-earning and other out-of-home activities, women remain the primary caregivers within their homes with very little help from their male partners. Just as they address the importance of males engaging their partners in decision-making, both Feed the Future activities should consider addressing different ways through which men can contribute to the care-giving process within their homes.

Some of the Feed the Future activities are still time-consuming. For example, at-home milk processing, as currently practiced by the cross-border traders is both labor and time intensive. Larger and more energy-efficient milk processing equipment, including milk boiling containers, milk coolers, and stoves, is needed. While providing free equipment may be outside RDCP II's business model, RDCP II should work with beneficiary cooperatives/groups such as cross-border milk transporter cooperatives to identify appropriate RDCP II and non-RDCP II grants or loans, and support training opportunities aimed at improving beneficiaries' ability to secure grants and loans.

Supporting Policies and Program Activities

Feed the Future activity implementers should be aware of/sensitive to policies, actions, and practices that may positively or negatively impact Feed the Future beneficiaries' ability to increase income and/or improve nutritional outcomes. For example, Gisenyi milk sellers attributed their lack of income increases to the stiff competition coming from cheaper, lower quality milk sold by the informal milk sellers. Such practices not only impact movement along the income-to-nutrition pathway at the household level, but also impede progress towards achieving RDCP II's goal of reducing poverty through expanded marketing of good quality milk. Additionally, other steps along the income-to-consumption and production-to-consumption pathways could also be threatened when milk is not stored correctly or is of very poor quality, thereby posing threats to health status. RDCP II should identify opportunities to engage more milk sellers into their value chain thus ensuring an increased supply of better quality and uniformly-priced products in the market. High cooperative membership fees might discourage small-scale milk sellers from becoming part of the milk value chain, but subsidized membership fees or more flexible fee payment plans could reduce this burden. While it does not make policy, RDCP II should consider engaging policy makers to increase their understanding of the importance of appropriate policies to support such activities, including the institution of regular milk quality checks within the market.

There is also a need to maximize nutrition and health returns by looking for opportunities to engage in income generation and nutrition-focused activities in a coordinated manner. Integrated Improved

Livelihoods Program and RDCP II activities overlapped in parts of Nyanza district, thus giving households an opportunity to benefit from the nutrition education from IILP and income generation support from both IILP and RDCP II activities. Additional investments to support positive movement along the "agriculture-to-nutrition" pathway should consider access to a stable water supply system and post-harvest technology, both of which would help ensure income and food adequacy across all seasons. Some of these investments may be outside the mandate of Feed the Future, but USAID/Rwanda and Feed the Future, alongside the Government of Rwanda, should look for collaborative opportunities and consider these investments when advocating with local/regional governments about their targeting process or follow-on programming. The recently-launched milk consumption campaign is an example of a good partnership between RDCP II and the Ministry of Agriculture and Animal Resources (Republic of Rwanda 2014).

Dietary Diversity

While vegetable, fruit, and milk consumption were reported to have increased, inclusion of meats in the beneficiaries' diets remains limited, with only 23 percent of the individuals interviewed consuming flesh or organ meat in the previous 24 hours. Focus group discussions and KIIs revealed beneficiaries' limited meat-purchasing power, the financial gains associated with selling farm animal and animal-source foods, and the general perception that meat is reserved for the rich. Increasing meat consumption seems to require a greater increase in income levels in addition to a change in attitudes about "production for consumption" and purchasing of animal source foods. There is a need to (i) look into less expensive options for animal source foods and (ii) use targeted, realistic, and actionable nutrition messages that are sensitive to different income levels, ages and life stages. It is also important to note that despite Feed the Future's focus on improving nutritional status via the agriculture-to-nutrition pathways, RDCP II, as originally designed, does not evaluate beneficiaries' dietary practices. Determining the appropriate nutrition-related indicator that is relevant to the RDCP II design could be useful. However, dietary practices can be tracked through partnerships with institutions having such expertise and can be achieved using easy-to use tools that are relevant to the local context.

Reaching Individuals Outside IILP and RDCP II Target Groups

While both IILP and RDCP II may have the potential to improve nutritional status of young children, only 27 percent of the respondents reported having children under age two. Though this number only represents individuals that participated in the study, it suggests there may be an opportunity to modify targeting. Over 44 percent of children under age five in Rwanda have been diagnosed with chronic undernutrition (Republic of Rwanda 2012). To effectively address child undernutrition in Rwanda, Feed the Future should support programs that target the first 1,000 days in Rwanda, in other words, activities that specifically work with pregnant women and children under age two. Notably, IILP's nutrition education interventions include specific messaging around the importance of proper nutrition in the first 1,000 days; however, some of the effectiveness of this work will be lost if the beneficiary population does not include households with pregnant women and children under age two.

Designing for Nutrition Results

The agriculture-to-nutrition pathways help illustrate how various agricultural investments or activities could eventually influence women's and children's nutrition. However, movement along these pathways can only occur if certain programming principles are followed. These key principles can be used as a broad checklist in the design of nutrition-sensitive activities (Herforth & Harris 2014). See Annex 5 for the full list of programming and policy principles. Importantly, many of these programming principles have been incorporated into the design and implementation of both IILP and RDCP II:

- Empower women;
- Facilitate production diversification, and increase production of nutrient-dense crops and livestock;
- Improve processing, storage, and preservation of food; and
- Expand market access for vulnerable groups, and expand markets for nutritious foods.

However, some of these principles are not being explicitly addressed in the activities. The first and most basic principle, "incorporate explicit nutrition objectives and indicators into design," has shown a positive impact on nutrition. Presumably because RDCP II focuses on private sector development, this principle was not included in the activity's design. However, indicators of food access and diet quality and diversity are key to linking agriculture investment to nutrition outcomes for vulnerable groups. Without explicit nutrition indicators, the activity cannot be held accountable for nutrition outcomes.

Another important principle that should be considered in the design of Feed the Future activities to address undernutrition is to incorporate nutrition promotion and education that builds on local knowledge. While IILP features a prominent nutrition promotion and education component, RDCP II was not designed in this manner, but it may be possible to expand RDCP II's milk campaign work to include more detailed information about the nutritional value of milk. USAID and Land O' Lakes may also consider modification of the activity to incorporate nutrition education in farmer-level interventions. It could be helpful for USAID and the Feed the Future implementing partners to revisit activity objectives using the agriculture-to-nutrition pathways framework and the key principles for improving nutrition through agriculture to identify adjustments to current activity designs to enhance the nutritional benefits of each of the activities.

Conclusion

Results from the current study point to the potential of IILP and RDCP II programs to improve maternal and child nutrition in Rwanda. Increases in household income have the potential to improve the quality and quantity of food produced, increase food and non-food expenditures and investments, and increase access to health services. An increase in agricultural production not only sustains household consumption but has the potential to support the local food supply and market, thus contributing to the agriculture-to-nutrition enabling environment. A rise in women's empowerment has the potential to improve household dietary practices, increase women's and children's access to healthcare services, and improve care-giving practices. While the current study's results suggest a positive trend along the agriculture-to-nutrition pathways, further movement along these pathways is likely to be hindered by the challenges described above, including demands on women's time and energy use, low consumption of animal-sourced foods, targeting children's nutrition within the first 1,000 days, and monitoring nutrition indicators. Additional investment, as suggested above, will be required to achieve Feed the Future goals and objectives in Rwanda.

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Annex 1- Quantitative Questionnaire

Demographic

District: _____ Cell: _____

Year joined RDCP II/ EJO HEZA: _____

Gender: 1☐Male 0☐Female Date of birth: _____Age (years): _____

Highest grade of school completed: _____

Marital Status (Married/Single/Widowed/Divorced/Never married): _____

Head of Household: 1☐Yes 0☐No

Sex of Head of Household (Male/Female): _____ Age of Head of Household (Years):_____

Number of adult males (≥ 18 years old) living in household: _____

Number of adult females (≥ 18 years old) living in household: _____

Number of children < 5 years living in household: _____

Number of children < 2 years living in household: _____

Number of school-age children (5 - <18 years) living in household: _____

Number of household members who contribute to household income: _____

How much land (meters-square) does the household OWN?_____

How much land (meters-square) does the household RENT from someone else? _____

2. Does your household own the following animals (before joining the RDCP II/ EJO HEZA and current)?

Animals	Before RDCP II/ EJO HEZA		Current	
		Number		Number
a. Cows	1☐Yes 0☐No		1☐Yes 0☐No	
b. Goats	1☐Yes 0☐No		1☐Yes 0☐No	
c. Sheep	1☐Yes 0☐No		1☐Yes 0☐No	
d. Pigs	1☐Yes 0☐No		1☐Yes 0☐No	
e. Rabbits	1☐Yes 0☐No		1☐Yes 0☐No	
f. Chicken	1☐Yes 0☐No		1☐Yes 0☐No	
g. Other fowl:	1☐Yes 0☐No		1☐Yes 0☐No	
h. Other:	1☐Yes 0☐No		1☐Yes 0☐No	
i. Other:	1☐Yes 0☐No		1☐Yes 0☐No	

3. Which of the following is a source of income for your family (before joining RDCG II/ EJO HEZA and current)?

Source of income/cash	Before RDCP II/ EJO HEZA	Current
a. Government employment	1☐Yes 0☐No	1☐Yes 0☐No
b. Non-government employment	1☐Yes 0☐No	1☐Yes 0☐No
c. Own business	1☐Yes 0☐No	1☐Yes 0☐No
d. Farm employment	1☐Yes 0☐No	1☐Yes 0☐No
e. Other:	1☐Yes 0☐No	1☐Yes 0☐No
f. Other:	1☐Yes 0☐No	1☐Yes 0☐No

4. Compared to Last Year, the household made:

1 = More income

2 = Same income

3 = Less income

Explain:_____

_____

5. Compared to the time before you joined RDCP II/EJO HEZA, the household made:

1 = More income

2 = Same income

3 = Less income

Explain:_____

_____

6. Did your household produce the following crops (before joining the RDCP II/ EJO HEZA and current)?

	Before RDCP II/EJO HEZA	Current
a. Coffee	1☐Yes 0☐No	1☐Yes 0☐No
b. Tea	1☐Yes 0☐No	1☐Yes 0☐No
c. Barley	1☐Yes 0☐No	1☐Yes 0☐No
d. Bananas	1☐Yes 0☐No	1☐Yes 0☐No
e. Maize	1☐Yes 0☐No	1☐Yes 0☐No
f. Kidney beans	1☐Yes 0☐No	1☐Yes 0☐No
g. Peas	1☐Yes 0☐No	1☐Yes 0☐No
h. Soy beans	1☐Yes 0☐No	1☐Yes 0☐No
i. Millet/Sorghum	1☐Yes 0☐No	1☐Yes 0☐No
j. Vegetables	1☐Yes 0☐No	1☐Yes 0☐No
k. Fruits	1☐Yes 0☐No	1☐Yes 0☐No
l. Nuts: e.g. peanuts	1☐Yes 0☐No	1☐Yes 0☐No
m. Herbs/spices: garlic, ginger, etc	1☐Yes 0☐No	1☐Yes 0☐No
n. Sweet potatoes	1☐Yes 0☐No	1☐Yes 0☐No
o. Irish potatoes	1☐Yes 0☐No	1☐Yes 0☐No
p. Cassava	1☐Yes 0☐No	1☐Yes 0☐No
q. Rice	1☐Yes 0☐No	1☐Yes 0☐No
r. Sugarcane	1☐Yes 0☐No	1☐Yes 0☐No
s. Other:	1☐Yes 0☐No	1☐Yes 0☐No
t. Other:	1☐Yes 0☐No	1☐Yes 0☐No

7. Which of the following expenses do you have each year (before joining the RDCG II/EJO HEZA and current)?

Expenditure	Before RDCP II/ EJO HEZA	Current
a. School: fees, books, uniform	1☐Yes 0☐No	1☐Yes 0☐No
b. Hospital/medicine/health	1☐Yes 0☐No	1☐Yes 0☐No
c. Veterinary services	1☐Yes 0☐No	1☐Yes 0☐No
d. Food	1☐Yes 0☐No	1☐Yes 0☐No
e. Agriculture input: seeds, fertilizer, animal feed	1☐Yes 0☐No	1☐Yes 0☐No
f. Home improvement	1☐Yes 0☐No	1☐Yes 0☐No
g. Laborers	1☐Yes 0☐No	1☐Yes 0☐No
h. Taxes	1☐Yes 0☐No	1☐Yes 0☐No
i. Rent	1☐Yes 0☐No	1☐Yes 0☐No
j. Clothes	1☐Yes 0☐No	1☐Yes 0☐No
k. Donations	1☐Yes 0☐No	1☐Yes 0☐No
l. Drinks	1☐Yes 0☐No	1☐Yes 0☐No
m. Others:	1☐Yes 0☐No	1☐Yes 0☐No

8. Compared to last year, the household feels:

1 = Better off

2 = Same (no change)

3 = Worse off

9. Compared to the time before you joined RDCP II/Ejo Heza, the household feels:

1 = Better off

2 = Same (no change)

3 = Worse off

10. Household possessions in working condition

Possession		Year Bought:
a. Tadoa	1☐Yes 0☐No	
b. Radio	1☐Yes 0☐No	
c. Cellphone	1☐Yes 0☐No	
d. Rondereza	1☐Yes 0☐No	
e. Bench	1☐Yes 0☐No	
f. Mattress	1☐Yes 0☐No	
g. Solar	1☐Yes 0☐No	
h. Bicycle	1☐Yes 0☐No	
i. Sofa	1☐Yes 0☐No	
j. Cupboard	1☐Yes 0☐No	
k. Television	1☐Yes 0☐No	
l. Motorcycle	1☐Yes 0☐No	

11. House ownership: ☐Rental ☐Owner

12a. What type of fuel do you use for cooking?

a. Electricity	1☐Yes 0☐No	b. Gas	1☐Yes 0☐No
c. Charcoal	1☐Yes 0☐No	d. Wood	1☐Yes 0☐No
e. Paraffin	1☐Yes 0☐No	e. Biogas	1☐Yes 0☐No

12b. What type of energy do you use for lighting?

a. Electricity	1☐Yes 0☐No	b. Solar	1☐Yes 0☐No
c. Biogas	1☐Yes 0☐No	d. Wood	1☐Yes 0☐No
e. Paraffin	1☐Yes 0☐No	f. Candles	1☐Yes 0☐No
e. Batteries	1☐Yes 0☐No	e. Torch	1☐Yes 0☐No

13. I want you to think about the foods (meals and snacks) that were prepared and eaten in your household for the last 7 days. Were the following foods prepared and eaten or drunk in your household in the last 7 days?

Food group	Examples	Yes=1 No=0
Cereals	Maize, rice, wheat	
White roots and tubers	Irish potatoes, white sweet potatoes, cassava	
Other starches	Green bananas (matoke)	
Vitamin A rich vegetables & tubers	Pumpkins, carrots, orange sweet potatoes	
Dark-green leafy vegetables	Kales, spinach, cassava leaves	
Other vegetables	Tomatoes, onions, eggplant	
Vitamin A rich fruits	Ripe mango, ripe papaya	
Other fruits	Oranges, lemons	
Organ meats	Liver, kidney	
Flesh Meats	Beef, pork, chicken, lamb, goat	
Eggs	chicken eggs, duck eggs, other bird eggs	
Fish and seafoods	Fresh or dried fish	
Legumes, nuts and seeds	Dried beans, peas, lentils, peanuts	
Milk and milk products	Milk, cheese, yoghurt	
Oils and fats	Oils, fats, butter	
Sweets	Sugar, honey, sodas, juices, candies	
Spices, condiments, beverages	Spices, royco, tea, coffee, alcohol	
Other:		

14. I want you to think about the foods (meals and snacks) that your young child (<2 years) ate or drank yesterday. Did your child (< 2 years) eat or drink foods from the following food groups yesterday?

Food group	Examples	Yes=1 No=0
Cereals	Maize, rice, wheat	
White roots and tubers	Irish potatoes, white sweet potatoes, cassava	
Other starches	Green bananas (matoke)	
Vitamin A rich vegetables & tubers	Pumpkins, carrots, orange sweet potatoes	
Dark-green leafy vegetables	Kales, spinach, cassava leaves	
Other vegetables	Tomatoes, onions, eggplant	
Vitamin A rich fruits	Ripe mango, ripe papaya	
Other fruits	Oranges, lemons	
Organ meats	Liver, kidney	
Flesh Meats	Beef, pork, chicken, lamb, goat	
Eggs	chicken eggs, duck eggs, other bird eggs	
Fish and seafoods	Fresh or dried fish	
Legumes, nuts and seeds	Dried beans, peas, lentils, peanuts	
Milk and milk products	Milk, cheese, yoghurt	
Oils and fats	Oils, fats, butter	
Sweets	Sugar, honey, sodas, juices, candies	
Spices, condiments, beverages	Spices, royco, tea, coffee, alcohol	
Other:		

15. I want you to think about the foods (meals and snacks) that YOU ate or drank yesterday. Did you eat or drink foods from the following food groups yesterday?

Food group	Examples	Yes=1 No=0
Cereals	Maize, rice, wheat	
White roots and tubers	Irish potatoes, white sweet potatoes, cassava	
Other starches	Green bananas (matoke)	
Vitamin A rich vegetables & tubers	Pumpkins, carrots, orange sweet potatoes	
Dark-green leafy vegetables	Kales, spinach, cassava leaves	
Other vegetables	Tomatoes, onions, eggplant	
Vitamin A rich fruits	Ripe mango, ripe papaya	
Other fruits	Oranges, lemons	
Organ meats	Liver, kidney	
Flesh Meats	Beef, pork, chicken, lamb, goat	
Eggs	chicken eggs, duck eggs, other bird eggs	
Fish and seafoods	Fresh or dried fish	
Legumes, nuts and seeds	Dried beans, peas, lentils, peanuts	
Milk and milk products	Milk, cheese, yoghurt	
Oils and fats	Oils, fats, butter	
Sweets	Sugar, honey, sodas, juices, candies	
Spices, condiments, beverages	Spices, royco, tea, coffee, alcohol	
Other:		

16a. Did you make porridge for your young child/children (<5 years) yesterday?

1☐Yes 0☐No

16b. What ingredients did you use to prepare the child's/children's porridge yesterday?

Porridge ingeredients:_____

_____

17a. Do you have a child/children < 2 years of age? 1☐Yes 0☐No

17b. Are you currently breastfeeding your child/children < 2 years of age? 1☐Yes 0☐No

17c. If yes, how many times a day do you breastfeed your child/children? _____

17d. How old was the child when you first gave him water? _____ months

17e. How old was the child when you first gave him/her other foods? _____ months

17f. How much time do you spend in feeding your child? _____ minutes

18. Where do you usually get the following foods/food products from (before joining RDCP II/EJO HEZA and current)?

Food	Examples	Before RDCP II/USAID EJO HEZA		Current	
		Own Production	Buy	Own Production	Buy
Cereals	Maize, rice, wheat				
White roots and tubers	Irish potatoes, white sweet potatoes, cassava				
Other starches	Green bananas (matoke)				
Vitamin A rich vegetables & tubers	Pumpkins, carrots, orange sweet potatoes				
Dark-green leafy vegetables	Kales, spinach, cassava leaves				
Other vegetables	Tomatoes, onions, eggplant				
Vitamin A rich fruits	Ripe mango, ripe papaya				
Other fruits	Oranges, lemons				
Organ meats	Liver, kidney				
Flesh Meats	Beef, pork, chicken, lamb, goat				
Eggs	chicken eggs, duck eggs, other bird eggs				
Fish and seafoods	Fresh or dried fish				
Legumes, nuts and seeds	Dried beans, peas, lentils, peanuts				
Milk and milk products	Milk, cheese, yoghurt				
Oils and fats	Oils, fats, butter				
Sweets	Sugar, honey, sodas, juices, candies				
Spices, condiments, beverages	Spices, royco, tea, coffee, alcohol				

19. What are the factors that you think about when selecting/buying foods from the market? (List factors mentioned. Ask respondent to rank them starting with "the most important" to "the least important")

Factor	Before RDCP II/ EJO HEZA	Current

20. Utilization of clinic/health center/ hospital services

a. Have you visited the clinic/health center/hospital within the last one month? ☐Yes ☐No

b. Have you taken your child < 2 years old to the clinic/health center/hospital in the last six months?

☐Yes ☐No

If answered "NO", why have you not taken the child < 2 years old clinic in the last six months

Explanation:_____

_____

c. Length of time it takes to get to clinic/health center/hospital (minutes):_____

d. Maternal and Child Health (MCH) clinic card present ☐Yes ☐No

21. How often are you involved in making decisions regarding each of the following?

Activity	Never	Sometimes	Almost always
a. Household money			
b. Household crop produce: use			
c. Household crop produce: sale			
d. Household crop produce: gifts			
e. Household animals: use			
f. Household animals: sale			
h. Household animals: gifts			
i. Types of foods prepared			
j. Amounts of food prepared			
k. Food expenditures			
m. Non-food expenditures			
n. Freedom to use your own income/money			
o. Freedom to use money made by your husband or wife			
p. Others:			

22. Compared to the time before you joined RDCP II/ EJO HEZA, how much have you been involved in making income-related decisions in your household?

1 = More involved

2 = Same (no change)

3 = Less involved

23. What are the different activities that you are involved in as part of the RDCP II/ EJO HEZA program?

_____

_____

24a. Are other members of your household involved with the RDCP II/ EJO HEZA? ☐Yes ☐No

b. What relation do you have with this person?_____

c. What activities does he/she do within the RDCP II/ EJO HEZA program?

_____

_____

25. Wrap-up

a. Is there anyone else that I should speak with about RDCP II/ EJO HEZA?

_____

b. Do you have any questions about the assessment?

_____

Annex 2 - Focus Group Discussion Guide

Major Domains

A. Income and expenditures
B. Food acquisition and consumption
C. Time commitment, care-giving, healthcare seeking/utilization
D. Program engagement, support and reach

A. Income and Expenditures

1. How do you think the amount of money made by you or your household has changed since you joined this program (IILP/RDCP II) has?
    - If your income has increased, what has contributed to this increase? (Probe for remittances, participation in project, additional person in the household working, better prices for products, change in way money is being earned (a new/different job), etc)
2. How do you think that this program has contributed to the money made?
    - If no, why do you think the program has not helped bring about the changes?
    - If no, how do you think participating in this program may help you make money in the future
3. When you or your household makes or earns some money, how do you usually keep the money? Who keeps it?
4. How do you decide on ways to use the money earned? Who in your household makes decisions on how money is spent? Are you involved in these decisions?

B. Food acquisition and consumption

Now I would like to discuss with you about the foods that you consume within your home.

- On a typical day, what are some of the foods that you prepare or consume within your home? [Breakfast, mid-morning, lunch, afternoon, dinner]
- What are some of the things that usually influence your decisions on the types of foods you prepare in your household?
- Who, in your household, makes decisions on your household's food consumption (types of food, food preparation methods, when food is eaten, how much is eaten by household members, types of foods served to different household members)?
    - How are you involved in these decisions? How are your household members' preferences considered when deciding on foods to be prepared?
- Do you think that the type of food that you or your household eats has changed since you joined this program?
    - How has it changed?
        - Meats (beef, fish or chicken), milk (and milk products), beans, fruits, vegetables, grains (maize, rice), potatoes or bananas, use of oil in cooking, use of sugar (*Use a chart/table to indicate increase or decrease*)
- Where do you get your foods from? Do you buy them or produce them within your home or farm?
    - Meats (beef, fish or chicken), milk (and milk products), beans, fruits, vegetables, grains (maize, rice), potatoes or bananas, oil, sugar (*Use a flip chart for ranking activity: list purchase, own home, gifts, etc*)

- What do you think are the foods commonly provided to young children (<2 years)?
    - What do you usually use to make children's porridge?
    - Has the way in which you make children's porridge changed since you joined RDCP II/IILP?
- Has the way in which you obtain your food changed since you joined the program?
    - Are you now producing a higher amount or a lower amount these foods in your own home or farm than you did before you joined the program?
    - Are you now buying a higher amount or a lower amount of these foods than you did before you joined the program?
- How do you think your health has changed since you joined the RDCP II/IILP program?
- How do you think your nutritional status has changed since you joined the RDCP II/IILP program?
    - If so, in what way(s)?
- How do you think your children's health has changed since you joined the RDCP II/IILP program?
- How do you think your children's nutritional status has changed since you joined the RDCP II/IILP program?
    - If so, in what way(s)?

C. Time commitment and care-giving

I would now like for us to talk about the amount of time spent on the different activities that you are involved in.

- Walk me through the different things/activities that you do on a typical day, from the time you wake up to the time you go to bed.
- Which of these activities take the most of your time? (*Use a flip chart to list and rank activities*)
    - How much time do they take?
- Do you think the amount of time that you spend in the home, taking care of your children, has changed since you joined the RDCP II/IILP program?
    - If yes, how has it changed?
        - Are there any specific things that you used to do for your children or with your children that you no longer have enough time to do?
    - TO MOTHERS WITH CHILDREN < 2 YEARS OLD:
        - Are you currently breastfeeding?
        - If yes, how many time s a day do you breastfeed your child?
        - How old was the child when you first gave him/her water?
        - How old was the child when you first gave him/her other foods?
        - How much time do you spend in feeding your child?
        - How much time do you spend with your child in a day?
        - How often do you take him/her to the clinic/hospital?
            - For each of the above, has the amount of time changed since joining RDCP II/IILP program?
        - Are there any specific things that you used to do for yourself that you no longer have enough time to do?
    - If no, why do think it has not changed?

D. Program Engagement, Support and Reach

I would like us to start this part of the discussion by talking a little bit about your participation in the RDCP II/IILP programs:

- How long have you been involved with the RDCP II/IILP program?
- What are the different activities that you are involved in as part of this program?
- What are some of the things that the program has done to support you or your household's involvement in this program? (*Probe: training, finances, social support, extension services, etc.*)
- What would you say may be some of the difficulties that you have faced in your efforts to be part of this program?
    - How have you overcome these difficulties?
    - What are some of the efforts that you have made to overcome these difficulties?
    - What are some of the efforts that have been made by others and the program to help you overcome these difficulties?
- Have you been part of similar programs before? (*Probe: women's groups, cooperatives, farmer groups, merry-go-round groups, etc.*)
    - How is RDCP II/IILP similar to the programs that you have previously been part of?
    - How is RDCP II/IILP different from the programs that you have previously been part of?
- How well do you think RDCP II/IILP has done in reaching those who need help the most? (*Probe: Poor farmers, women, families, etc.*)
    - Do you have any suggestion on what can be done to increase their participation in RDCP II/IILP?
- What changes do you feel your participation in the program has brought to your life and to the well-being of your household?
    - If yes, how do you think the program has helped bring about the changes?
    - If no, why do you think the program has not helped bring about the changes?
- Do you have any suggestions on what can be done to improve the benefits you or your household gets from being part of the RDCP II/IILP program?

Wrap-up and Thanks

- Are there any issues that you would like to share with us?
- Do you have any questions regarding today's discussion?

Thank you so much for all your insights and your time today. We hope to be able to use the information we have learned from you and from others in neighboring villages to improve the programs.

Annex 3 - Key Informant Interview: Implementers

Introductions

Key Informant: _____

Position with the RDCP II/IILP: _____

Year joined RDCP II/IILP: _____

Responsibilities: _____

_____
_____
_____
_____

Income, food and nutrition

1. Existing records-Look at the income (or change in income) data

2. Interview questions:

- How do you think program beneficiaries' incomes have changed since they joined this program?
- What would you attribute these changes to?
- What are your perceptions on how the income earned by beneficiaries is being used (utilized)? What are their main expenditures?
- To what extent do you think the income earned has translated to improved food security within the homes?
- To what extent do you think the income earned has translated to improved diet diversity within the homes?
- What are your perceptions on how income-related decisions are being made within the beneficiaries' households? How involved are women in income-related decisions: savings, expenditures, etc.
- What are your perceptions on how women's involvement in this program may have influenced the amount of time they spend on
    - activities within the home versus activities outside the home
    - care-giving activities (exclusive breast-feeding, food preparation, child-feeding, quality time spent with children)
- What are your perceptions on how women's involvement in this program may have influenced beneficiaries' healthcare seeking behavior e.g. use of maternal child health clinic services: family planning, prenatal care, post-natal care, growth-monitoring, immunization, etc.
- What do you see as opportunities that can be used to increase the impact of programs like RDCP II/IILP on women and children's nutritional status?

Program Engagement

- What are the strategies that your program has used to reach its target audiences?
- How well do you think your program has done in reaching those who need help the most?

- How well do you think your program has done in reaching women?
- Have you had to use special strategies dedicated to targeting women compared to men?
- Have you experienced any challenges in reaching the most vulnerable groups (the poorest, women, extremely rural, etc.)
- What are some of the opportunities that you would like to take advantage of to increase your reach?
- What is the program's gender strategy?
- Are there any specific program activities/components that target women versus men?
    - If yes, why did you design it this way?
- What is the participation rate/level of women (versus men) in various program activities or along different stages/points of the value chain? (*Look at secondary data if possible*)
- Are there any differences in participation levels between genders? What do you think could be contributing to these differences?
- What are some of the resources that you have provided to support program beneficiaries in their efforts to maximize benefits from the various program activities?
- How well have these resources by program recipients? Are there any differences in the utilization levels across the different resources? What about between genders? (*Look at secondary data if possible*)
- What are your perceptions on how this program has influenced women's empowerment? What are the examples of changes that you have noted amongst the female program beneficiaries? (Examples: speaking out more, making decisions, etc.)

Wrap-up

- Are there any issues that you would like to share with us?
- Do you have any questions regarding today's discussion?

Annex 4 - Key Informant Interview: Community Leaders

Introductions

Key Informant: _____

Position: _____

Responsibilities: _____

_____
_____
_____

Introduction and Role of Nutrition and Agriculture

Mr./Mrs./Miss_____, we want to thank you for taking your time to meet with us. We are currently visiting your community to learn more about agriculture and nutrition programs that are going on in this area. We also wanted to know some of your thoughts on the role of agriculture and nutrition and how this is changing in your community.

1. What would you say are the most important issues in agriculture (animal, dairy and crop production) in your community?

2. What about nutrition?

3. What would you suggest as possible solutions to improve nutrition of women and children in your community?

4. How can agriculture (animal, dairy and crop production) be used to improve women's welfare in your community?

5. How can agriculture (animal, dairy and crop production) be used to improve nutrition of women and children in your community?

Familiarity with the RDCP II and EJO HEZA programs

1. Are you familiar with the RDCP II and EJO HEZA programs?

2. What have you heard about them?

3. What are some of your thoughts on how that the RDCP II or EJO HEZA programs have been implemented in your community?

- How well do you think the RDCP II or EJO HEZA programs have reached the people who need them the most: like poor farmers, women, households, etc.

5. What are some of the changes that the RDCP II or EJO HEZA programs have brought or could bring to the people that they work with?

6. What are some of the changes that the RDCP II or EJO HEZA programs have brought or could bring to your community?

7. What are your perceptions on how the RDCP II or EJO HEZA programs have influenced women's empowerment?

8. What are the examples of changes that you have noted amongst women involved with the RDCP II or programs? (Examples: speaking out more, making decisions, etc.)

Wrap-up

- Are there any issues that you would like to share with us?
- Do you have any questions regarding today's discussion

Annex 5 - Key Policy and Programming Principles for Improving Nutrition through Agriculture

Programming Principles

Agricultural programs and investments can strengthen impacts on nutrition if they:

1. Incorporate explicit nutrition objectives and indicators into their design and track and mitigate potential harms while seeking synergies with economic, social, and environmental objectives.

2. Assess the context[18] at the local level to design appropriate activities to address the types and causes of malnutrition[19].

3. Target the vulnerable[20] and improve equity through participation, access to resources, and decent employment.

4. Collaborate and coordinate with other sectors (health, environment, social protection, labor, water and sanitation, education, and energy) and programs through joint strategies with common goals to address concurrently the multiple underlying causes of malnutrition.

5. Maintain or improve the natural resource base (water, soil, air, climate, and biodiversity), which is critical to the livelihoods and resilience of vulnerable farmers and to sustainable food and nutrition security for all. Water resources in particular should be managed to reduce vector-borne illness and to ensure sustainable, safe household water sources.

6. Empower women by ensuring access to productive resources, income opportunities, extension services and information, credit, and labor- and time-saving technologies (including energy and water services) and by supporting their voices in household and farming decisions. Equitable opportunities to earn and learn should be compatible with safe pregnancy and young child feeding.

7. Facilitate production diversification, and increase production of nutrient-dense crops and small-scale livestock (for example, horticultural products, legumes, livestock and fish at a small scale, underutilized crops, and biofortified crops). Diversified production systems are important to vulnerable producers to enable resilience to climate and price shocks, more diverse food consumption, reduction of seasonal food and income fluctuations, and greater and more gender-equitable income generation.

[18] Context assessment can include potential food resources, agro-ecology, seasonality of production and income, access to productive resources such as land, market opportunities and infrastructure, gender dynamics and roles, opportunities for collaboration with other sectors or programs, and local priorities.

[19] Malnutrition includes chronic or acute undernutrition, vitamin and mineral deficiencies, obesity, and chronic disease.

[20] Vulnerable groups include smallholders, women, youth, the landless, urban dwellers, and the unemployed.

8. Improve processing, storage, and preservation to retain nutritional value, shelf life, and food safety; reduce seasonality of food insecurity and post-harvest losses; and make healthy foods convenient to prepare.

9. Expand markets and market access for vulnerable groups, particularly for marketing nutritious foods or products vulnerable groups have a comparative advantage in producing. This can include innovative promotion (such as marketing based on nutrient content), value addition, access to price information, and farmer associations.

10. Incorporate nutrition promotion and education around food and sustainable food systems that builds on existing local knowledge, attitudes, and practices. Nutrition knowledge can enhance the impact of production and income in rural households, which is especially important for women and young children, and can increase demand for nutritious foods in the general population.

POLICY PRINCIPLES

Food and agriculture policies can have a greater impact on nutrition if they:

1. Increase incentives (and decrease disincentives) for availability, access, and consumption of diverse, nutritious, and safe foods through environmentally sustainable production, trade, and distribution. Efforts should focus on horticulture, legumes, and small-scale livestock and fish—foods that are relatively unavailable and expensive but nutrient rich and vastly underutilized as sources of both food and income.

2. Monitor dietary consumption and access to safe, diverse, and nutritious foods. Data could include food prices of diverse foods and dietary consumption indicators for vulnerable groups.

3. Include measures that protect and empower the poor and women. Safety nets that allow people to access nutritious food during shocks or seasonal times when income is low; land tenure rights; equitable access to productive resources; and market access, including information and infrastructure for vulnerable producers, should all be considered. Recognizing that a majority of the poor are women, efforts should be made to ensure equitable access to all of the above for women.

4. Develop capacity in human resources and institutions to improve nutrition through the food and agriculture sectors, and support such capacity development with adequate financing.

5. Support multi-sectoral strategies to improve nutrition within national, regional, and local government structures.

These recommendations have been formulated following an extensive review of available guidance on agriculture programming for nutrition conducted by FAO (see: *http://www.fao.org/docrep/017/aq194e/aq194e00.htm*), and through consultation with a broad range of partners (CSOs, NGOs, government staff, donors, UN agencies), in particular through the Agriculture-Nutrition Community of Practice. These recommendations are available from the Agriculture-Nutrition Community of Practice at *http://www.unscn.org/en/nut-working/agriculture-nutrition-cop/.*

Annex 6 – Child Feeding Practices, Utilization of Healthcare Services, and Women's Involvement in Decision Making

Table 10. Current Food Consumption Among Children Under Age Two[21]

	IILP (%)	RDCP II (%)
Cereals	73	69
Other Starches[22]	93	71
Vitamin A-Rich Vegetables & Tubers	60	54
Dark-Green Leafy Vegetables	87	46
Other Vegetables	87	62
Vitamin A-Rich Fruits	27	46
Other Fruits	40	46
Organ Meats	13	8
Flesh Meats	20	15
Fish and Seafoods	53	15
Eggs	47	62
Legumes, Nuts and Seeds	87	69
Milk and Milk Products	73	77
Oils and Fats	100	77
Sweets	60	69
Spices, Condiments, Beverages	36	25

[21] n=32 for all, n=16 for IILP, n=16 for RDCP II

[22] Includes white roots and tubers, green bananas

Table 11. Current Early Feeding Practices Among Children Under Age Two [23]

	IILP	RDCP II
Child Breastfeeding at Time of Survey (%)	87	81
Breastfeeding Frequency (median times per day)	5	5
Child Drinks Water (%)	69	71
Age Child Introduced to Water (median months)	6	6
Child Eats Other Foods (%)	94	93
Age Child Introduced to Other Foods (median months)	6	6
Feeding Duration in Minutes (median, per feeding)	30	30

Table 12. Utilization of Clinic/Health Center Services

	IILP	RDCP II
Participant Visited Clinic in the Previous Month (%)	53	26
Child (<2 years old) Taken to Clinic in the Previous Six Months (%)	94	64
Time to Clinic in Minutes (median)	30	30
Participant Clinic Card Present (%)	88	90

[23] n=32 for all, n=16 for IILP, n=16 for RDCP II

Figure 13. Perceived Changes in Income-Related Decision Making among Female Beneficiaries: Before Feed the Future Activity and Current

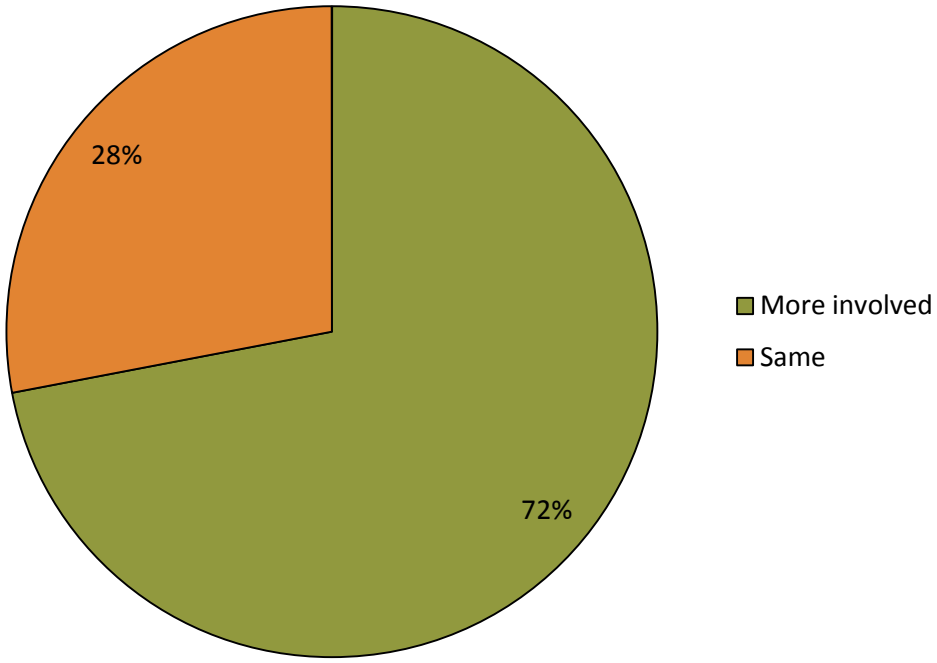
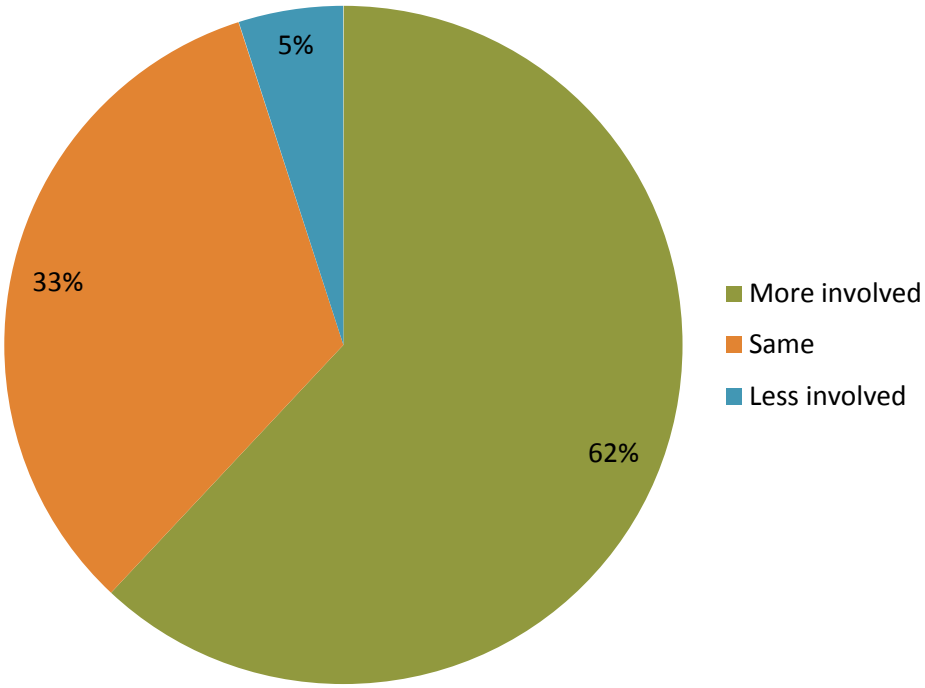


Figure 14. Perceived Changes in Income-Related Decision Making among Male Beneficiaries: Before Feed the Future Activity and Current



SPRING
JSI Research & Training Institute, Inc.
1616 Fort Myer Drive, 16th Floor ○ Arlington, VA 22209 ○ USA
Phone: 703-528-7474
Fax: 703-528-7480
Email: info@spring-nutrition.org
Internet: www.spring-nutrition.org