global forum for rural advisory services
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Republic of Rwanda
Ministry of Agriculture & Animal Resources

Rwanda Customized Module

Nutrition-Sensitive Extension

Student Guide

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Acknowledgements

In 2016 the Global Forum for Rural Advisory Services (GFRAS) developed the New Extensionist Learning Kit (NELK) modules https://www.g-fras.org/en/knowledge/new-extensionist-learning-kit-nelk.html on functional skills for individual extension staff, in response to the demand from its network. GFRAS continues to develop new set of modules covering different technical skills. The Learning Kit contains modules designed for self-directed, face- to-face, or blended learning and can be useful resource for individual extension field staff, managers, and lecturers.

Responding to the growing demand from extension and rural advisory service providers worldwide to adapt the modules to the local contexts, GFRAS has embarked on the journey to support the NELK Customization process. NELK Customization is understood as a **guided process as permitted by GFRAS** aimed as adapting the original module to suit the local context. Details on this process can be found on the NELK Customization Guide.

This **Nutrition Sensitive Extension Module** is development as part of the NELK Customized package adapted from *Module 16: Nutrition Sensitive Extension*.

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Contents

1. Before you begin

1.1 General instruction

This module should be used in conjunction with the workbook provided. As you read through the module, you will find different visual features that are designed to help you navigate the document.

Figure 1: Icons used to highlight important information throughout the manual

The module makes use of keywords (difficult or technical words that are important for you to understand). To ensure that you receive the full benefit from the module, keywords will be marked the first time they occur and defined in a box containing the keywords symbol. Make sure that you read the definition of any words that you are unsure about.

1.2 Activities

Each session in the module will contain various types of activities to help you become knowledgeable and competent. The module contains three types of activities:

A **pre-assessment** is to be completed before reading through the module overview and introduction, and a **post-assessment** is to be completed once the entire module has been covered. This will measure the degree to which your knowledge has improved by completing the module.

Each session contains one or more **session activities** to be completed, in the workbook, where indicated in the module. These activities measure your ability to recall and apply theoretical knowledge.

At the end of each study unit a **summative assessment** needs to be completed. These assessments are longer than the session activities and will test your knowledge on all the work within the study unit.

1.3 Assessment instructions

Keep the following in mind before doing any of the assessments:

- All assessments are to be completed in the provided workbook.
- The manual contains all relevant information you will need to complete the questions, if additional information is needed, such as the use of online sources, facilities will be made available.
- Work through the activities in a study unit and make sure that you can answer all the questions before attempting the summative assessment. If you find that you are not certain of any part of the training material, repeat that section until you feel confident.
- The summative assessment must be done under the supervision of your trainer at the end of your learning period.

1.4. End users

This training module is designed to be used by public and private Rwandan extension agents that face and interact with lead farmers (farmer promoters, Farmer field school facilitators) and most particularly smallholder farmers. The targeted categories, from 1 to 11 are included in Box 1.

Box 1: Rwandan Extension Categories

1=Cell development officer (CEDO)/IDP
2=Sector agronomist
3=Sector livestock officer
4=District agronomist
5=District livestock officer
6=District veterinary officer
7=District director of agriculture, livestock and environment
8=Veterinary pharmacist
9=Crop/agronomic advisor for a private company
10=Crop/agronomic advisor for an NGO
11=Other field staff for an NGO
12=Farmer field schools facilitator
13=Farmer-promoter
14=Other

Nutrition-Sensitive Extension

Module outcomes

After completing this module, you will be able to:

1. Describe what a nutritious diet is
2. Explain how malnutrition negatively impacts agriculture and society
3. Promote agriculture practices that will improve access to healthy foods
4. Identify and partner with colleagues performing complementary efforts in a given area

Module overview

Every country on the earth is affected by poor **nutrition** and the results of poor nutrition affect most families. What can **agricultural** extension professionals do to support better nutrition? And what might be unrealistic to expect of extension? By completing this training, you will have the opportunity to consider these questions and others and to find the right answers for the situations in which you work. The module covers dietary recommendations and the results of poor nutrition, ways that agriculture and nutrition impact each other, things that you can change within a community in order to improve nutrition and how to effectively partner with others working on improving the nutrition of different communities.

Module introduction

Nutrition is the study of the basic nutrients needed by a person or animal to stay alive. Nutrition also involves the study of the availability of nutrients in **food**, the effect of cooking and storage on these nutrients and what happens when a person

or animal does not get enough of the correct nutrients in their **diet**. **Malnutrition** and **undernutrition** are a very big problem worldwide.

Being food secure means being able to meet essential food and non-food needs without engaging in atypical coping strategies. In Rwanda, 81,3% of all households are food secure, have an acceptable diet, and use a low amount of their budget to cover food needs. Among food secure households, 38,6% (966 160 households) are marginally food secure, meaning that they are at high risk of becoming food insecure. In total, 18,7 % (468 062 households) are food insecure and, out of these, 17 % (42 551 households) is severely food insecure (CFSVA, 2018).

Inadequate dietary intake and unsatisfactory health are immediate causes of malnutrition in Rwanda[1].

Good nutrition can save the lives of babies and young children, help school aged children learn better and increase the productivity of adults. Economists estimate that better nutrition could improve the Gross Domestic Product (GDP) in many countries by several %age points a year, equal to many billions of US dollars. Front line extension workers support farming households in making informed production decisions and play an important role in making nutritious foods more readily available to both rural households that grow food and to households that go to markets to buy their food. Like farming households, front line extension workers professionals also eat food and are **susceptible** to poor nutrition. Because of the important role that food plays in protecting health and bringing people together, you should reflect on your experience when you identify how you can support farmers in making decisions that will improve their health and livelihoods.

1 https://scalingupnutrition.org/wp-content/uploads/2013/02/Rwanda_National-Nutrition-Policy_2005.pdf

Diet: Includes the types and combinations of foods typically consumed by individuals and groups of people.
Malnutrition: A condition of weakness and poor health that results from not eating enough food or from eating food without the proper nutrients.
Nutrition: All processes through which we obtain, prepare and eat food; what different foods are made of (i.e. nutrients) and the processes through which our bodies use the nutrients to enable us to perform daily activities such as work.
Agriculture: The science, art, or practice of cultivating the soil, producing crops and raising livestock.
Nutrients: The chemical substances found in food. They are extracted from food when it passes through the digestive system and the body then uses them to perform its functions. Nutrients contained in food are needed in the right amounts and combinations for the body to function properly.
Food: Food is defined as any substance containing nutrients (such as carbohydrates, proteins, and fats) that can be ingested by a living organism and metabolized into energy and body tissue. In essence, food stimulates growth, helps us to stay alive and produces energy
Susceptible: Easily affected, influenced, or harmed by something.
Undernutrition: Undernutrition can result from undernourishment, poor absorption, or poor biological use of nutrients consumed as a result of repeated infectious disease. This condition includes being underweight for one's age, too short for one's age (stunted), dangerously thin for one's height (wasted), and deficient in vitamins and minerals (micronutrient malnutrition).

Complete the pre-assessment in your workbook.

Study unit 1: What is nutrition?

Study unit outcomes

After completing this study unit, you should be able to:

1. Describe ways that food affects your own life, both socially and physically;
2. Explain how different foods help us stay healthy; and
3. Identify ways that nutrition and agriculture depend on each other.

Study unit overview

Nutrition focusses on what we should eat, and is also concerned with promoting

- Personal and environmental hygiene and sanitation,
- Health seeking behaviours, and
- Providing care for all household members so that they are healthy.

Nutrition is not only related to what happens to nutrients in the body but also to how people can get the right types of food for good health and growth and get good health services. This module will cover the basics of nutrition focusing on the macro- and micronutrients a person needs. In this module you will learn the importance of different food groups and following food based dietary guidelines and guides. Different people will have different nutritional needs throughout their lives and this module will briefly discuss these differences. Finally, this module will teach you the skills to motivate people to change their diets and make healthy choices.

Study unit introduction

Food is very personal. Every person can name foods that they prefer and others that they avoid. Even people with access to healthy food and knowledge about how it affects their health often make choices that might lead to them becoming sick or not eating a nutritious diet. By reflecting on your own experiences with food, you can consider how others make food choices and what extension professionals can do to make it easier for people to make healthy food choices.

Nutrition is often associated with the health, environment and education sectors and people working in the agriculture sector often do not consider how it is connected to their work. Since agriculture produces food, it is the foundation for nutrition. By improving your understanding of agricultural activities that can improve or worsen nutrition, you can play an important role in improving nutrition in the communities you work with.

Session 1.1: The basics of nutrition

Session outcomes

After completing this session, you should be able to:

1. Discuss the basics of a healthy diet and provide examples of combinations of foods that make up a healthy diet;
2. Define micronutrients and macronutrients and describe their role in the body;
3. List food groups and the nutrients associated with foods in each group; and
4. Explain the role that food-based dietary guidelines and food guides play in supporting healthy diets.

Introduction

When people talk about nutrition, they often only consider what happens to nutrients inside of the body and not how people can access more nutritious food for a healthy diet.

Extensionists are primarily concerned with agriculture and food production, so your efforts can impact access to nutritious foods in the communities and societies you work in. When people do not eat foods that provide the nutrition their bodies need, they are more likely to get sick with different illnesses. The specific illnesses depend on their diets and the diseases they are exposed to. Making nutritious choices depends on a number of things. People must have knowledge about what healthy diets are and the relevant skills, such as cooking, food processing and other tasks that make food safe and nutritious. When making food choices, people need the support of their family and community and motivation to select a healthy diet. Finally, people must have access to the right foods in order to consume healthy diets.

Extension professionals can make a contribution to at least some of these factors.

Extension professionals will be more successful in contributing to nutrition when they know something about nutrition and are sensitive to the barriers to changing diets. Considering your own diet is one way to build knowledge and to make the barriers more personal.

In order to eat a diverse, nutritious diet, the food system have food that is

- Available,
- Accessible,
- Affordable,
- Acceptable, and
- Safe.

These factors influence the choices that people make about the food they grow, purchase, and consume.

What does a body need?

The body needs both macro and micro nutrients for it to be healthy and function optimally. People get these nutrients from the food they eat.

Macro- and micronutrients

Nutritionists study the components of food and their effect on health. These components are grouped into macronutrients that provide energy, which is measured in kilocalories or kilojoules, and micronutrients, or the vitamins and minerals that the body needs to function properly. Macronutrients are needed in relatively large amounts to support normal body functions and health, whereas micronutrients are needed in relatively smaller amounts to maintain a healthy body.

Macronutrients

Macronutrients include carbohydrates, proteins and fats and oils. Carbohydrates provide energy for the body to move, breathe and perform daily activities (fetch water, cook, work in the field, tend animals, etc.). Carbohydrates include cereals and root tuber crops rice, porridge, cassava and sweet potatoes Proteins help build muscles and repair wounds. Examples of proteins include leguminous (beans) and animal products (meat, fish and milk).

Fats and oils provide the body with energy, support brain function and protect organs (like the heart, liver and skin). Fats need to be consumed in small amounts because they provide more energy than proteins and carbohydrates. Examples of fats and oils are butter, plant and vegetable oils and nuts and seeds.

Micronutrients

Micronutrients include vitamins and minerals and the body requires a relatively smaller amount of them.

Micronutrients Vitamins support the immune system, help the body grow and break food down into energy. Vitamins can be divided into fat soluble vitamins (like vitamins A, D, E and K) and water soluble vitamins like B vitamins (e.g. niacin, riboflavin, folate) and vitamin C. Many people do not consume enough vitamins, especially vitamins A and C:

- Vitamin A helps with eyesight and reduces illness. Sources of Vitamin A include carrots, squash, dark leafy greens and animal liver.
- Vitamin C helps wound healing and repairs and maintains bones and teeth. Sources of Vitamin C are bell peppers, dark leafy greens, papaya and tomatoes.

Minerals support bone growth and proper nerve function and they help regulate heartbeat. The most common minerals that people do not consume enough of include iron and zinc:

- Iron helps provide oxygen to cells and reduces illness. Iron can be found in red meats and animal liver, **fortified** beans.

- Zinc helps with growth and brain development and reduces illness. Zinc is commonly found in beef, lentils, shrimp and edible seeds.

Fortified: Food that has had extra vitamins and/or minerals added.
Dietary supplement: A product that contains one or more ingredients (such as vitamins) and that is taken to increase a person's intake of those ingredients.

Key nutrient classifications

Foods are classified according to the key nutrients they supply. According to this classification, there are:

- Energy giving foods
- Body building foods
- Protective foods

Water is not part of the classification but it is also essential for the human body to function properly.

Energy giving foods

Energy giving foods provide the energy our bodies need to:

- Perform activities like walking, digging, and working.
- Maintain normal processes in our bodies like breathing

Energy giving foods are mainly rich in carbohydrates or fats. The main examples of carbohydrate containing foods are cereals and root tuber crops, ;like maize, potatoes, cassava, yams, and rice.

Fats and oils can be solid, semi-solid or liquid. An example of fats and oils commonly consumed is liquid oils like sunflower oil.

Fats and are good sources of energy and also add flavour to food. They insulate the body, cushion vital organs and are essential for the body to absorb and use fat-soluble vitamins A, D, E and K. Consuming too few fats and oils may lead to a deficiency of these vitamins, making diseases and symptoms associated with a lack of these vitamins more likely.

When a person consumes too much energy giving food and does not use this energy through physical activity, the surplus energy is converted and stored by the body as excess fat.

Body building foods

Body building foods are rich in proteins. They are essential for

- Growth,
- Boosting immunity against infections and diseases,
- Forming tissue, including muscles, bones, teeth, skin and nails, and
- Wound repair.

Bodybuilding foods come from two major sources:

- Animal-based foods: fish, meat, poultry, eggs, milk and yoghurt.
- Plant-based foods: mainly beans (including soy beans) and peas.

Animal-based foods provide a richer source of proteins that the body can use more easily than those supplied by plant-based foods. The household intake of animal-based proteins can be increased by domesticating certain animals and birds. The birds (hens and ducks) can be eaten but also lay eggs, which are a rich source of proteins. Animals like rabbits are also relatively easy to rear because they do not require much space, are not too demanding in terms of feeding, and have high multiplication rates. The quality of proteins from plant-based foods can be improved by eating a combination of different such foods, like rice and beans. The proteins missing in beans are

present in rice, so when these are eaten in combination, you can obtain a good supply of proteins for your body. This is why it is important to eat a mixture of plant-based foods, especially if access to animal-based foods is limited. People have different protein requirements at different ages. For example, children need more protein-rich foods than adults because they are growing. Pregnant women should also eat plenty of protein-rich foods because they need to feed both themselves and their growing baby. The same is true for lactating or breastfeeding mothers whose bodies need to be able to produce breast milk.

Examples of locally available plant-based foods rich in proteins are beans, soya, sesame, and ground nuts.

Ground nuts | Simsim (Sesame) seeds | Soy (*soya*) | Beans

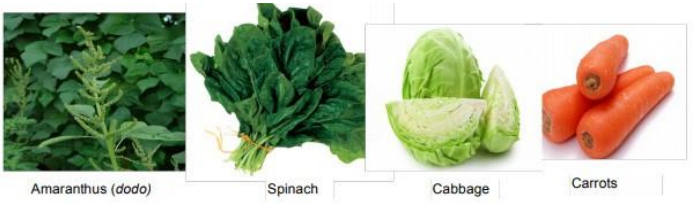
Examples of locally available animal-based foods rich in proteins are meat, fish, eggs, milk, and milk products like yoghurt and fermented milk

Protective foods

Protective foods include vegetables and fruits. These foods are rich in the vitamins and minerals the body requires for physiological functions like strengthening the immune/defence system and preventing conditions like

- **Anaemia** (resulting from iron deficiency),
- Night blindness (resulting from Vitamin A deficiency),
- Goitre (resulting from iodine deficiency), and
- Rickets (resulting from a lack of Vitamin D and calcium).

Some vitamins and minerals are also essential for the body to produce energy and maintain water balance. Vegetables are a rich source of several vitamins and minerals. Vegetables also add taste, flavour and colour to meals. Common vegetables include Amaranthus (dodo), spinach, cabbage, and carrots, among many others.



A variety of fruits are grown and are accessible in the markets of Rwanda, including avocados, mangoes, pumpkin, passion fruit, pineapple, oranges, lemons, yellow banana and other fruits. The deep yellow or orange coloured fruits are richer in vitamins, particularly vitamin A.

Food based dietary guidelines and food guides

Like many other countries around the world, Rwanda, in collaboration with FAO, has developed Food-Based Dietary Guidelines (FBDG)[2] to inform citizens about healthy eating in their own language, reflecting locally available and culturally preferred foods. Dietary guidelines provide science-based recommendations about the quantity, quality and diversity of foods that ought to be consumed, depending on a person's size, activity level and factors like pregnancy and illness that make some people require more nutrients than others. Figure 1 shows food groups. Food groups that should be consumed in greater quantities make up the foundation of the pyramid, while foods that are needed in smaller quantities are shown in the smaller, higher tiers of the pyramid.

Figure 1: Food Guide in Rwanda

2 https://rwandainspirer.com/2018/03/30/nutritional-guidelines-developed-to-address-rwandas-food-insecurity/

 Complete Activity 1.1 in your workbook.

 Complete Activity 1.2 in your workbook.

Session 1.2: Nutrition for all - who needs what?

Session outcomes

After completing this session, you should be able to:

1. Identify the physical factors that determine a person's nutritional needs
2. Define the primary forms of malnutrition
3. Explain the factors that contribute to health and nutrition

Introduction

People and animals at different stages of their lives have different dietary needs. For example, infants only need to consume breast milk, while adults working in the fields may need twice as much energy as adults who are not very active. Nutritional needs are determined by:

- Age;
- Body size;
- Activity level; and
- Physical state (health status, pregnancy and lactation, etc.).

Nationally, 38% of children under five are stunted and 2% suffer from **acute** malnutrition, which is wasting or having a low weight for their height. Stunting increases with the age of the child up until 23 months, rising from 18% among children 6–8 months to a peak of 49% among children 18–23 months. Variation in children's nutritional status by province is quite evident, with stunting being highest in West (45%) and lowest in the city of Kigali (23%). Forty-one percent of rural children are stunted, as compared with 24% of urban children. Further, the correlation extends to higher stunting found

in poorest households compared to richest households. While the status of nutrition made significant progress between 2010 and 2019, rates of **chronic** malnutrition among children under five are still too high (33%)[3].

Nutritional status

An individual's health influences their nutritional status sometimes even more strongly than the foods that they eat. This is because certain illnesses and infections prevent the body from absorbing the nutrients it needs to function well. For example, if a young child has diarrhea, their appetite will decrease and their body will be less able to absorb the nutrients in the food that they eat. If they fall sick repeatedly, and do not have access to a nutritious diet, their growth will slow down.

This is referred to as an individual's nutritional status. Nutritional status is the physical state of a person that is a result of the relationship between how many nutrients that individual takes in, their nutritional requirements and the body's ability to digest, absorb and use these nutrients. Figure 2 shows the elements that determine nutritional status.

Because of their increased vulnerability to poor nutrition, infants, young children and women of reproductive age are most often targeted by nutrition projects. This does not mean that men's nutrition is not important. Men also need to eat nutritious diets in order to stay healthy and work. They can also play an important role in supporting the nutrition of other family members.

3 Rwanda Demographic Health Survey 2019/2020 published by the National Institute of Statistics of Rwanda

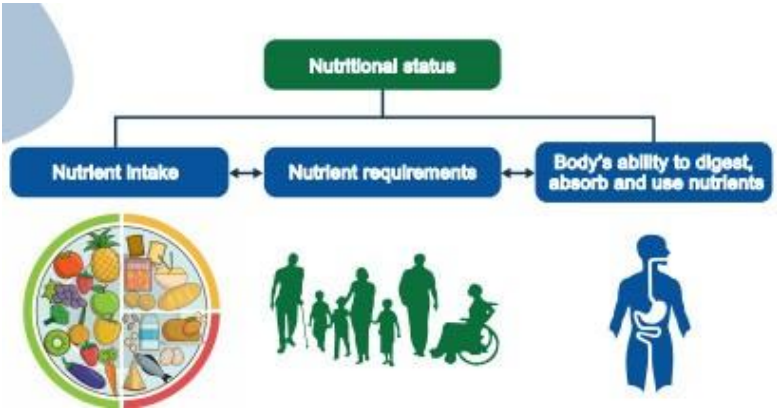


Figure 2: Elements of nutritional status

Nutritional status indicators

Nutritional status indicators are used to assess the nutritional status of a person and usually involve measuring a person's height and weight, followed by comparing those measurements with what is normal or acceptable for their sex and age. Nutritional status indicators are especially important in the case of children, since they are still growing. The most commonly used indicators that point to malnutrition are **underweight**, **wasting**, **stunting**, **overweight** and **obese**.

Look at Figure 3, which shows the bodies of four different boys who are all the same age, and determine which children are malnourished.

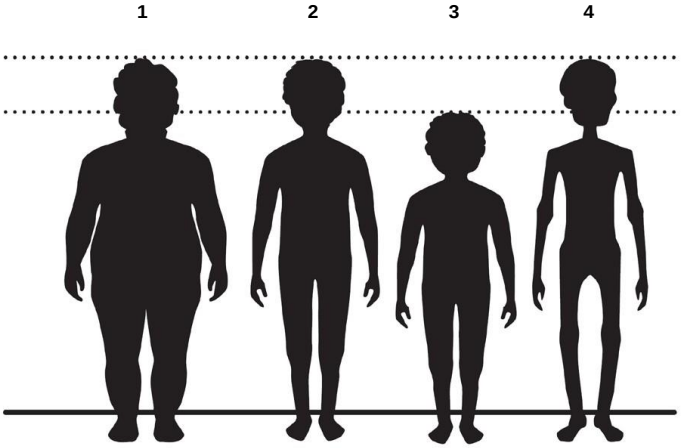


Figure 3: Malnourished children

All of the boys, except for Boy 2, are likely malnourished. Boy 2 has a normal weight and height for his age. Boy 1 is likely overweight or even obese, meaning that he is more vulnerable to Type 2 Diabetes and even heart disease at a young age. Obesity can be a result of consuming more energy than your body uses to function normally and be active and the body stores this extra energy as fat.

Boy 3 is likely stunted, meaning he is too short for his age because of chronic malnutrition. Stunting is difficult to reverse after a child's second birthday. Adults who were stunted as children are more susceptible to chronic diseases like diabetes and they may be less intelligent and not able to work as hard as adults whose growth was not stunted. Boy 4 is likely underweight and perhaps even wasted a form of acute malnutrition due to inadequate dietary intake that requires immediate treatment.

Underweight: Weighing less than the normal amount for one's age, height and build.
Wasting: (Also known as acute malnutrition) A condition characterized by a rapid deterioration in nutritional status over a short period of time. In children, acute malnutrition can be measured using the weight-for-height nutritional index or mid-upper arm circumference.
Stunting: Reduced growth rates and physical development caused by long term malnutrition.
Overweight: Weighing more than the normal amount for one's age, height and build.
Obese: A more severe form of being overweight.
Chronic: Long term or constantly recurring.
Acute: A sudden onset or sharp rise.

Normal growth

When health professionals talk about "normal weight and height", others sometimes get confused. Any of the other children in the picture might actually be growing normally, especially if their parents are larger or smaller than average. However, when most children in a particular community are short or thin, they are probably malnourished. It is important to regularly monitor, or measure and record, a child's growth in order to determine whether their growth is normal for them. Any abnormal growth patterns should lead health professionals and the children's caretakers to consider how the child is eating and whether they are sick too often.

Micronutrient deficiencies are another form of malnutrition that are typically less visible, and are therefore sometimes called 'hidden hunger'. **Micronutrient malnutrition** affects many people around the world as well as in Rwanda. Thirteen percent of women age 15-49 are anaemic and 37% of children suffered from some degree of anaemia in Rwanda: 21% were classified as mildly anaemic, 15% were moderately anaemic, and less than 1%

were severely anaemic), which can be caused when diets do not contain enough iron and/or other vitamins (B12 and folate), or when people have malaria or other health conditions (e.g. sickle cell anaemia). Rwanda, like other many low-income countries, struggle with both undernutrition and increasing rates of obesity. Better diets can address both undernutrition and obesity.

Micronutrient malnutrition: A moderate to severe lack of one or more important micronutrients.
Anaemia: A condition caused by inadequate intake and/or poor absorption of iron, folate, vitamin B12 and other nutrients. This condition can also be caused by infectious diseases like malaria, hookworm infestation, schistosomiasis, and various genetic diseases. It means that the body is not able to supply enough oxygen to its tissue

Complete Activity 1.3 in your workbook.

Session 1.3 Motivating people to make healthy choices

Session outcomes

After completing this session, you should be able to:

1. Describe how difficult it can be to change diets
2. List the factors that influence people's food choices
3. Demonstrate how to make a convincing case for choosing a healthy diet

Introduction

With Rwanda's continuing rapid economic growth and urbanisation, the problems of overnutrition, poor food choices and poor eating habits have grown in importance. In Rwanda, being overweight is both a rural and urban issue, but obesity is found mainly in urban areas and towns.

Think about how your own diet compares to the guidelines for fruit and vegetable consumption recommended in Rwanda. You may identify a gap between what you eat and what's recommended for good health outcomes. If you did not consume at least 400 grams of fruits and vegetables yesterday, you are not alone. Seventy four percent of the world's population does not reach this minimum threshold, with the majority of people eating inadequate amounts in both high-income and low income countries. People who have access to healthy foods still prefer to eat other, less-healthy foods. Food preferences are informed by our experiences, culture and personal factors such as a dislike of specific flavours or textures. It can be very difficult for a person to change his or her food behaviours, even when information about the health benefits of certain foods is well known.

Making better food choices

There are several methods for influencing the food choices that people make that are often carried out by public health. These methods are assigned a variety of names, with some of the most commonly used being nutrition education, social and behaviour change communication and social marketing. At a personal level, food choices are determined by people's food preferences and feedback related to food provided by their social networks. For example, one person might not like to eat cabbage because it is unfamiliar, because of a dislike for the flavour, or because of past experience. Another individual might prefer cabbage because it is an essential ingredient in a traditional dish and their family members would disapprove of preparing the traditional dish without cabbage. Food choices can also be connected to how a person sees themselves and how others see them. For example, some foods might be associated with poverty or hunger, while others make a person feel like they are wealthy, well-educated or urban. Processed foods with extra sugar and fat might demonstrate that a person is rich, as opposed to traditional foods like indigenous fruits and vegetables. Unfortunately, eating too many sweet, salty, or fatty processed foods also contributes to chronic diseases like high blood pressure and diabetes.

People who have greater risk of getting or already have a diagnosed disease and those people who are transitioning to a different life stage (e.g. first-time parents, school aged children) are often more likely to make changes to their diets. People will also be more likely to change their food behaviours when they are supported by their social networks and when they have greater agency, or the ability to act independently and make their own choices. One of your roles as an extension professional is to provide the people in your community with easy to understand information about healthy food choices. The people in the communities where you will work will most likely have low levels of education and will not be familiar with complicated nutritional terminology. It is important that you know your audience well and adapt your explanations to different audiences.

The following tips will help you to talk to your community about changing unhealthy food habits and choosing healthy foods:

- Use simple language and words that your audience will understand.
- Do not use complicated technical terms.
- Give only the essential information.
- Do not go on about nutritional information that will not help your audience change their food choices.
- When talking to you community, avoid lecturing. Talk to them in a natural and friendly tone.
- Always treat people with respect, even if they choose not to change their eating habits.
- Always check whether your audience have understood your message. Encourage them to ask questions and discuss the information you have presented them.

The food environment

A person's diet quality is largely influenced by their food environment. The food environment is a combination of the physical, **sociocultural**, political and economic surroundings and conditions that shape a person's food preferences and choices.

Sociocultural: Relating to a combination of social and cultural factors.

Within the food environment there are several factors that affect a person's food choices, they include:

- Food availability: Many people will only choose food that is already available in their local markets.
- Accessibility: Most people tend to choose food that is easy to get at a manageable distance from their home or work.
- Affordability: The price of food is a very important factor for food choice especially in poor and subsistence communities.
- Desirability: Social and cultural backgrounds play an important role in what food a person will want to eat or not.

- Convenience: If a certain type of food is not easy to get, most people will rather choose a convenient alternative.
- Convenience: If a certain type of food is not easy to get, most people will rather choose a convenient alternative.

As an extension professional, you will primarily support the production decisions and market access of smallholder farmers. One of the ways that you can improve access to healthy food in the communities you work in is to encourage farmers to produce healthy foods. However, it is important that you consider that consumers must be motivated to eat healthy foods. What is eaten in the households of smallholders and demanded in local markets provides the "pull" for farmers' production decisions. If this "pull" does not exist, farmers will not want to plant and harvest those products as it will not be cost effective for them. Marketing professionals frequently discuss the "Four P's" that influence market demand:

- **Product:** Product refers to goods or services provided by a business. Within the food environment context product refers to different types of food. If more farmers are to produce healthy food, there has to be a need for the product.
- **Price:** The cost someone pays for a product. If it is not cost effective for local farmers to produce healthier food or affordable for local community members to buy healthier food, there will be no demand for healthier food alternatives.
- **Place:** This refers to where the product is sold as well as how it is reaches the market. If local farmers do not have access to markets where healthier food is bought and sold, they will most likely not produce these foods.
- **Promotion:** Promotion refers to the commercial advertising of a product. One of the best ways to motivate people to choose healthier food and drive the demand for these products is to promote the benefits of choosing these foods.

 Complete Activity 1.4 in your workbook.

Conclusion

A person's nutritional status plays a major role in determining their health, intelligence, strength and size. A healthy diet is essential to good nutrition, but many people lack the knowledge, skills, access, or motivation to eat healthy diets. Healthy diets include a range of foods from various food groups and each food group provides the body with specific nutrients essential to good nutrition. Everybody makes choices related to their nutrition every day. These decisions are influenced by which foods are available and affordable and how desirable they are. The recommendations that extensionists make relating to which crops to grow and how to handle and market them can either make it harder or easier for people to eat healthy diets and have good nutrition.

 Complete the summative assessment in your workbook.

Study unit 2: Ways that agriculture can impact nutrition

Study unit outcomes

After completing this study unit, you should be able to:

1. Explain why extension and advisory services are nutrition-sensitive
2. Define a food system
3. Describe your role in the food system
4. Explain how nutrition is affected by the way a food system functions
5. Apply basic gender analysis in your work to acknowledge and address what limits or facilitates equity among men and women

Study unit overview

As you have learned, malnutrition has negative consequences for individuals, households and society. Agriculture has the potential to support healthier diets and better nutrition. This unit will introduce the food system, which affects people's choices about the types of food to grow, consume, purchase and sell and outline the linkages between agriculture and nutrition. This unit will also consider how women's empowerment can build stronger pathways between agricultural livelihoods

Study unit introduction

Agriculture presents an important opportunity for improving nutrition and health as it is frequently the main source of livelihood in poor communities. Improved agricultural practices allow people in resource poor communities to produce, buy and eat more, better and cheaper food; directly improving their

health. More indirectly, improved agriculture can increase the income of people in rural areas. Reducing poverty is very Study unit outcomes After completing this study unit, you should be able to: y Define a food system; y Describe your role in the food system; y Explain how nutrition is affected by the way a food system functions; and y Apply basic **gender** analysis in your work to acknowledge and address what limits or facilitates equity among men and women. NELK Nutrition Module important as it is one of the key contributors to poor health and malnutrition.

As agricultural extension agents, your main function is to educate communities about agricultural innovations and supporting them as they implement or improve their agricultural practices. In order for you to understand how your efforts will impact their lives, you have to be familiar with the food system of the community you are working with.

One of the most overlooked ways through which agriculture can improve nutrition, is through the empowerment of women.

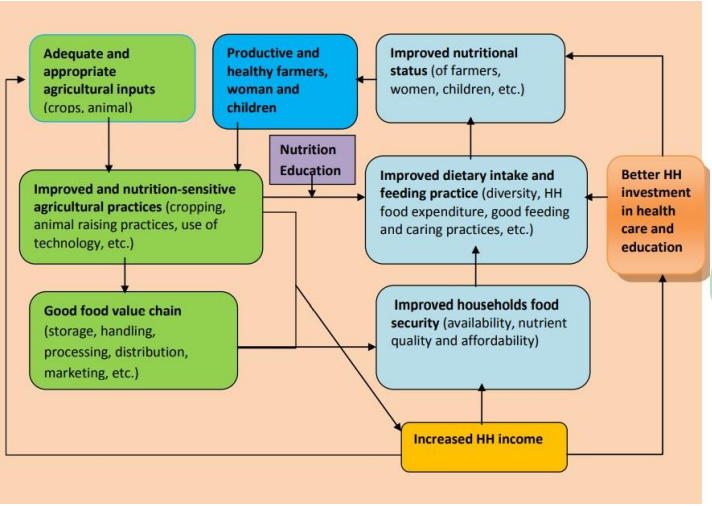


Figure 4: Possible options that show the relationship between agriculture and Nutrition

Session 2.1: Understanding food systems

Session outcomes

After completing this session, you should be able to:

1. Describe the factors of a food system that are required in order for people to eat healthy diets
2. Identify ways that Front Line Extension Agents can support good nutrition at multiple places across the food system

Introduction

To better understand how agriculture influences nutrition, it is important to understand the food system in which individuals and households make choices about what to eat. Eating a diverse, healthy diet depends on a food system where:

- Enough food is available to be grown, collected or purchased to meet the food and nutrition needs.
- Food is easily accessible, people can purchase food, fruit and vegetables in their community markets and women are not restricted from going to the market.
- The price of food is reasonable and people can afford to buy the food or the inputs needed to produce it.
- Food is acceptable and people are willing to eat and prepare it.
- For sustainability, there is enough food to feed people tomorrow, the next week, next month and next year. Food should therefore be available, accessible and usable at all times.

Food systems are the sum of actors and interactions along the food value chain from input supply and production of crops, livestock, fish, and other agricultural commodities to transportation, processing, retailing, wholesaling, and preparation of foods to consumption and disposal. Food systems also include

the enabling policy environments and cultural norms around food(According to the International Food Policy Research Institute IFPRI). Source https://www.ifpri.org/topic/food-systems

A value chain in agriculture: identifies the set of actors and activities that bring a basic agricultural product from production in the field to final consumption, where at each stage value is added to the product while linking buyers, sellers and markets.

Food systems

Agriculture is the main economic activity in Rwanda, with 70% of the population engaged in the sector, and around 72% of the working population employed in agriculture. They produce food for both the rural and urban population[4]. However, the producers are often in a permanent state of food and nutrition insecurity, suffering from poor quality diets and undernutrition. Agriculture is fundamentally import to human nutrition, both in determining food consumption and through its role in people's livelihoods through income generation.

Agriculture also plays a fundamental role in food systems and influences the varieties and prices of foods that are widely available to the population. Therefore, the agriculture sector is an essential part of improving nutrition. A food system and value chain approach can help develop a fuller understanding of how agriculture and food chains are linked to healthy diets and nutrition.

There are four functions of the food system:

- Food production;
- Food handling, storage and processing;
- Markets and trade; and
- Consumer demand, food preparation and preferences.

These components influence a household's choices about the food that they grow, purchase and consume.

4 http://www.fao.org/rwanda/our-office-in-rwanda/rwanda-at-a-glance/en/

Table 1: Examples of the impact of food systems in Rwanda

No	Classification	Importance
1	Food Production: It determines how available food is and how diverse it is. Through the use of good agricultural practices, farmers can produce safe, nutritious food while protecting natural resources.	A farmer relies solely on maize production, planting maize in the same field year after year. This practice has led to poor soil fertility and crop productivity. With fewer staple foods available for home consumption, the farmer's family has low energy intake. This insufficient energy intake has led to wasting in the farmer's young child and his pregnant wife is underweight. Another farmer grows maize intercropped with legumes, rotating the crops grown on his fields after each season and practicing minimum tillage. The soil in his fields is rich in organic matter and his fields produce enough food to feed his family, even in seasons with poor rainfall. The farmer also keeps goats, which the family relies on for milk and income. The quality staple crops and fresh milk, combined with fruits and vegetables purchased with the income from livestock sales, has helped the family maintain good nutritional status.

No	Classification	Importance
2	Food handling, storage and processing helps to preserve the quality of food and limit food losses, supporting stable food supply and prices. Proper handling, storage and processing techniques can affect the shelf-life, safety, nutrient content and taste of foods.	After harvesting leafy green vegetables grown in her home garden, a farmer dries them in a clean area of her homestead. By preserving nutrient-rich vegetables, she is ensuring that nutritious foods are available for her children throughout the year. Unfortunately, the same farmer did not properly dry the groundnuts she produced before storing them, leading to food contamination. Eating these contaminated groundnuts has caused the children to get diarrhoea. As they are now sick, the children are at higher risk of wasting and stunting because their bodies cannot effectively use the nutrients available in the foods.
3	Markets and trade within countries and across borders take products from the farm to the consumer, making diverse food more accessible.	Roads leading to rural communities are poor and during the rainy season, trucks are unable to bring diverse foods, like fruits and vegetables, to these communities. Poor availability of foods leads to higher food prices during this season, so some families are unable to purchase these nutritious foods.

No	Classification	Importance
4	Consumer demand, food preparation and preferences drive decisions on the foods that are produced, processed and traded in markets. People's ability to purchase food and their food preferences, sometimes based on cultural beliefs and gender norms, will drive demand.	A household believes that men and young boys should eat first, leading to unequal food allocation within the household. The father and sons often receive the best meat and vegetables, while the mother and daughter eat what remains. The mother is underweight and her daughter is stunted. In another household, a young mother has participated in cooking demonstrations hosted by a community health worker. She has learned how to make nutritious meals for her young child using locally available harvested and gathered foods. Before preparing foods, she carefully washes her hands with clean water and soap. Her child is free from illnesses and shows normal growth when the mother takes him to growth monitoring sessions.

Because food systems determine the availability, accessibility, affordability and desirability of foods, they directly affect diet quality or the diversity, quantity and safety of the foods people eat. The quality of a person's diet affects their nutritional status.

Complete Activity 2.1 in your workbook.

Session 2.2: Women's empowerment: Pathway between agriculture and nutrition

Session outcomes

After completing this session, you should be able to:

1. Explain how improving gender equity can empower women
2. Describe how the roles traditionally filled by women can affect household nutrition
3. Identify how men and women might be impacted differently by an agricultural practice or technology and propose solutions that meet the needs of men and women farmers

Introduction

There are three primary pathways that agriculture contributes to nutrition:

1) Food production is the main pathway through which many vulnerable households consume nutrients and ensure food security. Food is produced for consumption and income. Local food availability determines food security for many households. Diversity of production, such as crops, livestock, and fisheries, can strengthen dietary diversity. Furthermore, production diversity is also good for agriculture.

2) Agricultural income: Agriculture can offer a reliable and sustainable source of income for rural households. Agricultural income can used for food and non-food purchases, like preventive care and clean water, can support more nutritious and stable diets and healthier lives

The first two pathways have been addressed in the discussion of food systems, so this section will focus on women's empowerment.

3) Women's empowerment is a meaningful way of improving nutritional status through agriculture. Women who are empowered have

- Greater decision-making power,
- Access to and control over resources, and
- Labour and time allocation.

In this pathway, women's empowerment influences women's use of income, their ability to care for themselves and their families, and their energy expenditure. Empowering women through producing and selling cash crops at local markets can increase their income, but may also contribute to greater burdens on women's labour and time, which will her health and her ability to feed and care for children.

Women's role in nutrition

When women are able to make decisions about income and food, the whole family will likely benefit. Men can also play an important role in nutrition and when men and women in a household make decisions together about agricultural production, labour and income, **gender equality** and household nutrition greatly improve.

Extensionists must be sensitive to the roles of women within households and communities. Women are not only engaged in productive activities, including agricultural production, harvesting and processing, but also activities that contribute to the family's growth, health and nutrition. Empowering women through the production and sale of cash crops at local markets can, for example, increase incomes, but may also contribute to greater burdens on a woman's labour and time. This, in turn, affects her own health and her ability to feed and care for children. To improve nutrition by increasing women's participation in agricultural activities, you need to have a strong

understanding of the existing **gender roles** and social norms in the communities you work in.

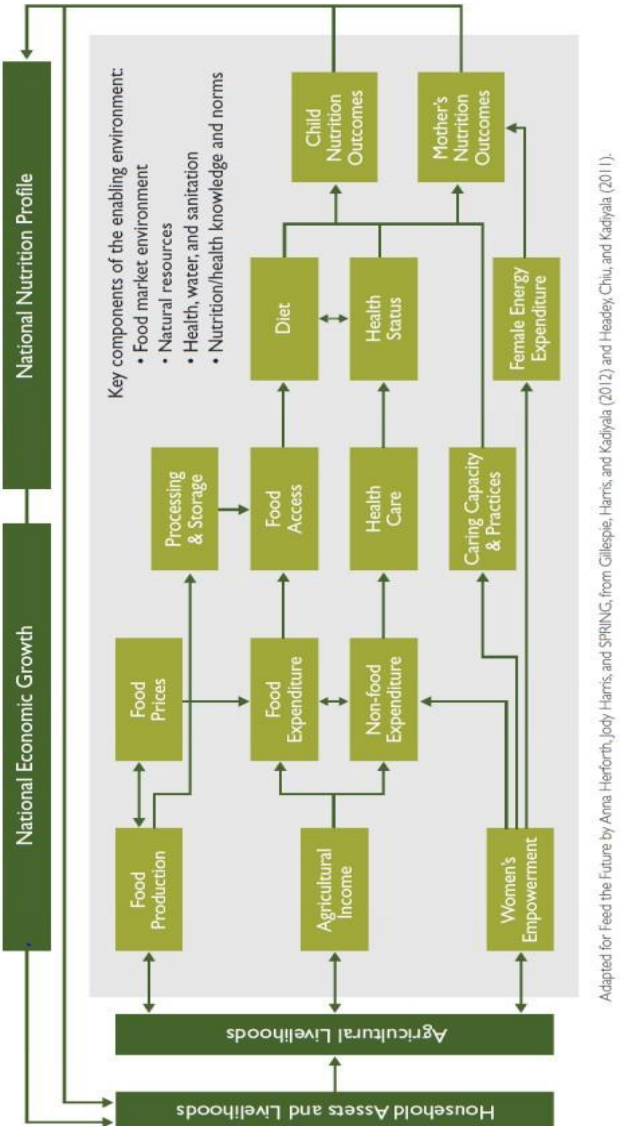


Figure 5: Agriculture pathways

The following are some tips in identifying ways to integrate gender concerns in agriculture and nutrition interventions by extensionists:

Involve and empower both men and women equally when addressing nutrition problems in the community. Focusing on women only as victims may have negative outcomes, such as inciting jealousy among me, turning men away from nutrition issues, and actions resulting in the stigmatization of nutrition activities as "women's business."

- Acknowledge and enhance the key roles of women in the production, storage and preparation of food by providing training and nutrition education to empower their ability to offer healthy diets to their families through homestead gardening.
- Acknowledge and promote the role of men in improving nutrition for their families. Engage men as partners, as caregivers and as agents of positive change.
- Use Farmer Field Schools to practically demonstrate gender and nutrition-sensitive interventions as complementary to other health-based nutrition interventions.
- Consult and include men and women in community meetings, demonstrations at field level and the monitoring and evaluation of nutrition interventions.
- Educate men and women on good parenthood practices, breastfeeding, complementary feeding and other nutrition matters.
- Incorporate gender awareness as part of the community awareness sessions and campaigns on health and nutrition matters.

Gender: The way women and men, boys and girls are expected act that will vary from culture to culture and often change over time.
Gender equality: Fairness in representation, participation and benefits afforded to men and women.
Gender lens: A tool used to identify problems and obtain information related to gender.
Gender roles: How your society defines tasks, responsibilities, and behaviours considered appropriate for men and women. These depend on context and can also change over time.

Complete Activity 2.2 in your workbook.

Conclusion

There are three important ways that agriculture can impact nutrition. Food production is the main pathway through which many vulnerable households consume nutrients and ensure food security. Agriculture can offer a reliable and sustainable source of income for rural households for food and non-food purchases creating an important pathway to better nutrition. Women's empowerment is a frequently overlooked pathway to increased health and nutrition. These pathways are not a straight line from food production to healthy diets and better nutrition. The pathways often cross lines and interact and are influenced by the greater food system. However, the pathways can be applied to any household that is nutritionally or economically vulnerable.

Extension agents need to be familiar with all these pathways, and the food system of the community they work in, if they are to have a real impact on the nutrition of their community.

Complete the summative assessment in your workbook.

Study unit 3: Actions that extensionists can take to improve nutrition

Study unit outcomes

After completing this study unit, you should be able to:

1. Describe the various actions that Front Line Extension Agents can take to improve nutrition
2. Carry out appropriate nutrition-sensitive actions in the situation where you work
3. Identify agricultural activities that can make nutrition worse and find alternatives

Study overview

You have learned how food affects nutrition and health and how agriculture is connected to nutrition. Now you will consider specific actions that you can take that can contribute to more nutritious food systems.

Study unit introduction

As an agricultural professional, you are familiar with the variety of challenges faced by various farmers. For example, while two farmers may grow the same crops and have the same livestock, one might have better soil fertility, while the other might be better at budgeting and planning ahead. In the same way, the actions that you can take to improve nutrition will depend on the local nutrition situation, **agro ecological** factors, the way that local markets operate and your responsibilities.

Agro ecology: The study of ecological processes applied to agricultural production systems.

Session 3.1: Nutrition-sensitive rural advisory services

Session outcomes

After completing this session, you should be able to:

1. Describe the various actions that extension agents can take to promote nutrition-sensitive agriculture

Introduction

Nutrition-sensitive agriculture is an approach to agricultural development that puts healthy foods, dietary diversity and food fortification at the forefront of reducing malnutrition and micronutrient deficiencies. Nutrition-sensitive agriculture focuses on the production of a variety of affordable, nutritious, culturally appropriate and safe foods in enough quantities and quality to meet the nutritional needs of a community in a sustainable manner. This session will look at how extension professionals can promote nutrition-sensitive agriculture.

Nutrition-sensitive actions

An action is 'nutrition-sensitive' when it is intended to improve the underlying causes of poor nutrition. The following are some examples of actions that relate to typical Front line Extension agents duties. As an extensionist, you should aim to:

Figure 6: Proposed Nutrition sensitive actions in Rwanda

Complete Activity 3.1 in your workbook.

Complete Activity 3.2 in your workbook.

Conclusion

Nutrition-sensitive agriculture and extension services play an important role in the improvement of the health of people and the production of diverse, safe and nutrient-rich food. Nutrition sensitive agriculture and extension actions should focus on diversification and sustainable intensification of agricultural production, nutrition-sensitive post-harvest handling, storage and processing and food fortification, nutrition education and behaviour change communication and women's empowerment and gender equality.

Complete the summative assessment in your workbook.

Study unit 4: Establishing partnerships across sectors for better nutrition

Study unit outcomes

After completing this study unit, you should be able to:

1. Discuss how extensionists' contribution to nutrition complements the work others are doing to improve health and nutrition
2. Negotiate with partners working in your community in order to join forces to improve rural households' nutrition

Study overview

Many different organisations interact with rural communities. This study unit will discuss the importance of forming partnerships and collaborations with different organisations in your area as well as the problems faced when forming partnership. In this study unit you will also learn basic negotiation skills and how to commit to action

Study unit introduction

Nutrition requires interventions that are designed within a complementary framework and implemented with joint ownership, therefore calling for multi-sector approaches and integrated coordination mechanisms. In Rwanda, nutrition activities are coordinated at two levels of administration: Central and District. The National Child Development Agency (NCDA), which is managed by the Ministry of Gender and Family Promotion (MIGEPROF), coordinates food and nutrition issues across five ministries:

- The Ministry of Health (MoH),
- The Ministry of Agriculture and Animal Resources (MINAGRI),

- The Ministry of Local Government (MINALOC),
- The Ministry of Infrastructure (MININFRA), and
- The Ministry of Education (MINEDUC).

In addition to UN-based agencies, other relevant players are also working towards these five key indicators including bilateral and multilateral development partners, NGOs, academic, private sector operators, and farmers' organizations.

One of the most effective ways agricultural extension can improve the health and livelihoods of people in a community is to communicate and work together with all the different role-players in that community.

Session 4.1: Partnerships and Collaborations

Session outcomes

After completing this session, you should be able to:

1. Describe how effective partnerships will help extension professionals do their work better
2. Discuss how these partnerships will help the community members meet more of their nutritional needs

Introduction

In addition to extension professionals, many different groups employ frontline workers or individuals/officers/volunteers that work directly with clients. The field of nutrition can become extremely technical and this training module has covered the basic aspects of nutrition that are most relevant to agricultural advisory services. You would not expect a medical doctor to be able to advise farmers on fertiliser applications and, since extension professionals are responsible for other types of technical information, it is likely not appropriate to expect you to become a nutrition expert.

How, then, can you effectively partner with other sectors that are committed to improving nutrition? Consider the types of groups that interact with households similar to those reached by extensionists. Different organisations often interact with distinct individuals within the household. For example, a health-focused organisation may work with women of reproductive age, a school teacher might reach children and an extensionist may relate primarily with mature men and women.

By forming partnerships and collaborations, developing your negotiations skills and committing to action, you will be able to

effectively work with other actors to achieve nutrition security in the communities you serve.

Partnerships and collaborations

The Government has designed and implemented programmes that support agriculture and nutrition to respond to malnutrition. These programmes require partnership and collaboration with different actors. The Rwandan government has put policies, programs, projects to significantly reduce malnutrition from national to district level.

The Government coordinates the efforts of several different line ministries relevant to reducing malnutrition and expects ministry staff and frontline workers to coordinate at community and district levels to develop integrated, multi-sectoral district plans. These include

- Maternal, infants' and young children's nutrition,
- Dietary diversity,
- Hygiene promotion,
- School nutrition,
- Supplementary feeding,
- Micronutrient deficiency, and
- Behaviour change.

The government nutrition programme introduced several nutrition-related activities into the agriculture sector, including nutrition-focused farmer field learning schools (FFLS) and kitchen gardens and small livestock to improve the nutritional status of pregnant and lactating women as well as young children.

National level

The National Food and Nutrition Technical Working Group (NF&NTWG) meets quarterly to coordinate the implementation of the National Food and Nutrition Policy and National Food and Nutrition Strategic Plan (2013–2018). The group includes a variety of stakeholders from the food, health, and nutrition

sectors such as UN agencies, NGOs, academia, donors, and the private sector, and is co-chaired by USAID and the Ministry of Health[5].

District level

The Joint Action Development Forum (JADF) coordinates activities at district and sector levels. The JADF works with local authorities to ensure proper targeting and to avoid overlap in partners' activities across all sectors. It involves looking at coordination of activities for improved nutrition, but is not limited to that. In addition to the meetings, the JADF facilitates open days, which create a platform for all development partners to discuss their activities. This provides a way for partners to learn about other's innovations that they could incorporate or adapt for their own programs.

Every district in Rwanda adapted their own District Plans to Eliminate Malnutrition (DPEMs) and holds meetings at the district level to monitor the implementation of the DPEMs. The DPEM steering committees meet with nutrition partners on a monthly or quarterly basis to discuss planning and evaluating activities at the district, sector, and village levels. This leads to better coordination of actions to improve nutrition.

Although this type of collaboration can help professionals use their time and resources more effectively, there are several common challenges to coordination. It can be hard to find time to meet with partners, especially when coordination is not part of their assigned duties. Sometimes the words used by one sector to describe problems and solutions are unfamiliar to people from another sector, even though the concepts might be familiar. Supervisors must support their staff in developing cross-sectoral partnerships.

5 Rwanda Country Strategic Review of Food and Nutrition Security, 2018

Successful negotiation skills for effective collaboration

It is important for you to work with these various entities so that community members can benefit from everyone's interventions but not be overwhelmed by them. Effective collaborations also allow you to focus on your job without having to do tasks that another group is better able to do. No doubt you have good relationships with many of these groups, but you may also have a difficult relationship with a group, where conflict interferes with your efforts to work together to improve nutrition in a community. Effective negotiation skills can improve both good and bad relationships. Negotiating requires that you clearly communicate your needs to partners and potential partners. By focusing on your needs and listening respectfully to others' needs, you establish the basis for a fruitful partnership. Table 3 shows the basics of negotiation.

Table 2: Basics of negotiation

	The first picture demonstrates the need to clearly state what you need and what you feel the communities need. This is your opportunity to talk frankly to a potential partner or someone you are obligated to cooperate with about what you see the main issues to be and how you want to deal with them. This step requires you to go into a meeting with clarity on what you want and need and what you are seeking in terms of an outcome. Prepare to speak openly and clearly about your needs.
	The second picture demonstrates the need to listen to and understand the needs of the potential partner or collaborator. Use the listening period to ask probing questions and seek to understand their position. Use what you know about them to anticipate questions you might ask. This step requires you to go into a meeting with good questions focused on the needs of the community and what a potential partnership will mean for community members. Prepare to engage openly and ask questions to understand.
	The third picture raises an important point that is often neglected when we get into discussions. The hand motions here represent repetition. In this case it means taking what you have heard from them and returning to your needs. It does not mean that you mechanically repeat what you said before but that you stay closely focused on your needs and the needs of communities and NOT get side-tracked. Prepare to stick carefully to your needs and not get drawn into a debate on other issues

	The fourth and final picture shows clasped hands indicating agreement has been reached. It is important not to be impatient to arrive at this point. Finalise the agreement only when you are sure it will enable you and the communities to get what they really need. The clasping hands might imply that some written agreement can be drawn up describing roles and responsibilities. Don't hesitate to request this. Prepare to continue the discussions if you don't get what you need.

Think about the multiple organisations working alongside you in your intervention communities. Which are promising potential collaborators for improving nutrition? Which organisations do you have existing relationships with? How would you describe your relationships (e.g. good collaboration, little collaboration, tense or difficult relationship, no relationship at this time)? For those you would like to collaborate with, think about what they want or need and what you want and need in a potential collaboration.

Committing to action

This module has addressed many different ways that extension professionals can contribute to better nutrition, both in the communities that you work in and beyond, as the food that farmers produce reaches urban and maybe even international markets. This might be a lot of new information. As an extension professional, you have learned how to support farmers to take steps to adopt new technologies and practices. How will you be able to act on some of the information and skills that you have acquired while working through this training? Sometimes having a lot of information can be overwhelming and make you feel like you do not know where to start. One way to take action on new information is to identify two or three things that you know you can do. To support yourself in identifying and carrying out the first steps you can take to improve nutrition, consider what

you are already doing at the community level and answer the following questions: y Which of your current activities already contributes to nutrition? y Which activities could be shifted slightly so that they contribute more to nutrition? y Are there activities that may be impeding nutrition?

 Complete Activity 4.1 in your workbook.

 Complete Activity 4.2 in your workbook.

 Complete Activity 4.3 in your workbook.

Conclusion

There will always be many different people, groups and organisations working in a local community. By working together, these different individual entities can draw on each other's skills and strengths. Almost every country in the world is suffering from some form of malnutrition and food systems worldwide are facing many challenges. Agricultural extension services should realise that through creating innovative and meaningful partnerships they will be able to improve the lives of rural people and advance good nutrition and health. Complete the summative assessment in your workbook.

Complete the post-assessment in your workbook.

Glossary

Definitions

Word	Definition
Acronym	An abbreviation formed from the first letters of other words and pronounced as a word.
Acute	A sudden onset or sharp rise.
Agriculture	The science, art, or practice of cultivating the soil, producing crops and raising livestock.
Agroecology	The study of ecological processes applied to agricultural production systems.
Biofortified crops	Crops that have been intentionally bred to increase their nutritional value.
Chronic	Long term or constantly recurring.
Diet	The types and combinations of foods typically consumed by individuals and groups of people.(FAO Zimbabwe, 2015)
Fortified	Food that has had extra vitamins and/or minerals added.
Gender	The way women and men, boys and girls are expected act that will vary from culture to culture and can change over time.
Gender equality	Fairness in representation, participation and benefits afforded to men and women.
Gender lens	A tool used to identify problems and obtain information related to gender.

Word	Definition
Food System	According to the International Food Policy Research Institute IFPRI, Food systems are the sum of actors and interactions along the food value chain from input supply and production of crops, livestock, fish, and other agricultural commodities to transportation, processing, retailing, wholesaling, and preparation of foods to consumption and disposal. Food systems also include the enabling policy environments and cultural norms around food.

Acronyms and abbreviations

Word	Definition
CFSVA	Comprehensive Food Security & Vulnerability Analysis
DHS	Demographic Health Survey, Rwanda
DPEMs	District Plans to Eliminate Malnutrition
FFLS	Farmer Field Leaning Schools
FAO	Food and Agriculture Organization of United Nations
GDP	Gross Domestic Product
GFRAS	Global Forum for Rural Advisory Services
IFPRI	International Food Policy Research Institute(),
JADF	Joint Action Development Forum
MINAGRI	Ministry of Agriculture and Animal Resources
MINALOC	Ministry of Local Government
MIGEPROF	Ministry of Gender and Family Promotion
MININFRA	Ministry of Infrastructure
MINEDUC	Ministry of Education
MoH	The Ministry of Health
NCDA	National Child Development Agency
NF&NTWG	National Food and Nutrition Technical Working Group
NSA	Nutrition Sensitive Agriculture
NGO	Non-Governmental Organization
SDGs	Sustainable Development Goals

Word	Definition
UN	United Nations
USAID	United States Agency for International Development
WFP	World Food Program

Resources

The following resources were used in writing this manual:

- ACDI/VOCA, http://www.acdivoca.org/projects/ production-finance-and-improved-technology-plus-profit
- Comprehensive Food Security & Vulnerability Analysis (CFSVA,2018) Rwanda.
- FAO, 2021. Making extension and advisory services nutrition-sensitive. The link between agriculture and human nutrition
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- IFAD initiative, https://www.ifad.org/documents/10180/32a84d58-3aa6-4379-a345-e816b2d5bf70.
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- Smolin L, Grosvenor M. Nutrition Science and Applications, 4th ed. John Wiley & Sons Inc., 2016. FAO E-learning course, 'Improving Nutrition through Agriculture and Food Systems', http://www.fao.org/elearning/#/elc/en/ Course/ NFS Merriam-Webster Online Dictionary,
- World Food Programme's Home Grown School Meals initiative, http://www1.wfp.org/home-grown-school-meals.

Republic of Rwanda
Ministry of Agriculture
& Animal Resources