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FEEDING THE FUTURE: NUTRITION-SENSITIVE EXTENSION- A KEY INGREDIENT FOR GLOBAL FOOD SECURITY

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Small-scale farmers are assisted by extension advisory services (EAS) in making decisions about the future of their businesses as well as increasing the production and efficiency of their farms. Public and private EAS work with smallholders to increase the production of a single or small number of lead crops that are either exported or used as staples in the local diet. These crops have a substantial market demand and produce relatively high profit margins. But in addition to being cash poor, the smallholders and households targeted by EAS are frequently food insecure and are subject to chronic or acute forms of malnutrition. Children's physical and intellectual development is impacted, and family members' productivity and capacity for agricultural work is decreased. Malnutrition and food insecurity can be caused by a lack of money or income that is excessively changeable. But better nutrition does not always follow from increased incomes. Poor eating habits, ignorance about healthy nutrition practices, and restricted access to a variety of foods are other significant variables. Agri-food systems should not only produce enough food, but also a variety of safe, nutritious foods, increase rural incomes and resilience, and make foods that support healthy diets available and accessible at both the national and subnational levels.

Why Should Extension and Advisory Services be Nutrition- Sensitive?

A large part in boosting nutrition and NSA can be played by agricultural extension and advisory services (EAS), thanks to their technical expertise, network of field personnel, and relationships with producers. EAS actors today include a wide range of groups in addition to public extensionists, such as civil society, producer organizations, development initiatives, agri-input dealers, and many more. This plurality allowed them to offer a variety of essential services, such as: Sustainable and nutrition-sensitive production and supply chains

- Food and nutrition education
- Food safety
- Enhancement of incomes and improved market access
- Women empowerment
- Coordination with other actors delivering nutrition specific programs etc.

What is Nutrition?

In addition to what happens to nutrients in the body, nutrition also has to do with how people can obtain the correct foods for growth and good health. People need to consume a nutritious diet in order for their bodies to function correctly and to be able to fend off illnesses and disorders. A healthy diet is one that provides the daily nutritional needs of an individual. Foods that are high in macronutrients and micronutrients and low in superfluous fat and sugar are the foundation of any healthy diet. Individuals of all ages need to consume a variety of macro- and micronutrients in order to maintain healthy growth and brain development, but additionally newborns and children have a special requirement for these nutrients. While micronutrients are required in relatively lower amounts to sustain a healthy body, macronutrients are required in relatively larger levels to support normal bodily processes and health.

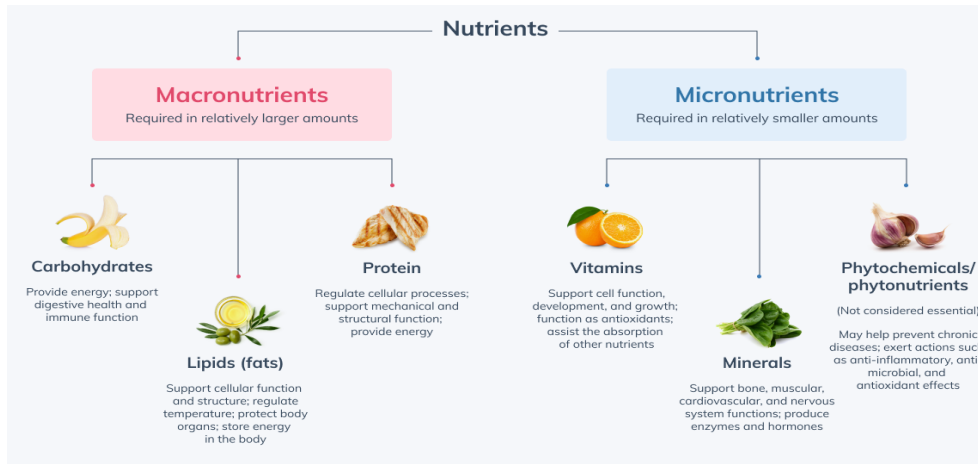
A. Macronutrients -

Carbohydrates, proteins, fats, and oils are macronutrients. The body needs energy from carbohydrates to move, breathe, and carry out daily tasks. Foods that contain significant carbohydrates include sweet potatoes, cassava, and rice. Protein-rich diets aid in wound healing and muscular growth. Beef, seafood, lentils, and cowpeas are a few examples of proteins. The body uses fats and oils for energy, to maintain brain function, and to protect organs (such as the liver, heart, and skin). Because they give more energy than proteins and carbs, fats must be consumed in moderation. Butter, plant and vegetable oils, nuts, and seeds are a few examples of fats and oils.

B. Micronutrients -

Vitamins help the body grow, maintain the immune system, and convert food into energy. Vitamin intake is frequently inadequate, particularly for vitamins A and C. Vitamin A improves vision and prevents sickness. Carrots, squash, dark leafy greens,

and animal liver are all sources of vitamin A. Vitamin C promotes wound healing and supports bone and tooth health. Bell peppers, dark leafy greens, papaya, and tomatoes are all sources of vitamin C. Minerals help regulate pulse, healthy neuron function, and bone formation. Iron and zinc are the most frequent minerals that people do not consume enough.



(Source- <https://fullscript.com/blog/macronutrients-and-micronutrients>)

Food group	Examples	Importance
Staples	Maize, bread, tortilla, rice	Provides energy for the body to move, breathe and perform daily activities (cook, work in the fields, etc.).
Fats	Vegetable oil, butter, nuts	Provides the body with energy and protects the organs (heart, liver, skin).
Fruits	Papayas, mangoes, bananas, avocados	Helps protect the body from diseases and illnesses.
Vegetables	Pumpkins, potatoes, leafy greens, tomatoes	Helps protect the body from diseases and illnesses
Legumes	Cowpeas, kidney beans, lima beans, black beans	Helps strengthen the muscles, repairs wounds and protects against heart disease and diabetes
Meat and eggs	Chicken, beef, mutton, organ meats, eggs, fish	Helps strengthen the muscles and repairs wounds
Dairy	Milk, yoghurt, cheese	Helps strengthen bones

Table 1: Common food groups and examples of their nutritional importance

(Source-<https://www.g-fras.org/en/component/phocadownload/category/70-new-extensionist-learning-kit-nelk.html?download=713:module-16-nutrition-sensitive-extension>)

Nutritional Indicators

A person's height and weight are typically measured in order to determine their levels of nutrition, and those results are then compared to the norms or permissible ranges for that person's age and sex. Children's nutritional indicators are particularly crucial because they are still developing. Underweight, wasting, stunting, overweight, and obese are the most often used indicators of malnutrition.

- **Underweight:** Weighing less than is considered healthy for one's age, height, and body type.
- **Wasting:** A type of acute malnutrition characterized by a rapid loss of weight brought on by insufficient food intake.
- **Stunting:** Decreased growth and development brought on by chronic malnutrition.
- **Overweight:** Weighing more than is typical for one's age, height, and physique.
- **Obese:** An extreme case of overweight. Chronic: Persistently occurring over time.
- **Acute:** An abrupt start or rapid rise.

Factors Affecting Food Choice

A person's dietary preferences and choices are influenced by a combination of their physical, sociocultural, political, and economic environments and conditions. The following are some elements that influence someone's eating preferences:

- **Food availability:** Many people will only select food that is offered in their local markets.
- **Accessibility:** Manageable distance from their home or place of employment is usually the food that most individuals prefer.
- **Affordability:** Particularly in poor and subsistence sections, the cost of food plays a significant role in influencing food choices.
- **Desirability:** People's beliefs of the health advantages of various foods as well as their social, cultural, and ethnic origins all have a significant impact on what foods they choose to eat or refrain from eating.
- **Convenience:** Most people will opt for a convenient substitute over a particular food item if it is hard to obtain or cook.

Women's Role in Nutrition

Women make dinner for their families in a large number of households all around the globe and are typically the last to eat. As a result, they occasionally fall short of satisfying all of their dietary requirements because they prioritize the needs of the family over their own. Women of reproductive age (usually between the ages of 15 and 49) need to eat a very nutritious diet, especially if pregnant or breastfeeding. The body needs more nutrients during pregnancy not just to sustain the mother's health but also the health and brain development of the fetus. For a mother who is breastfeeding, nutritional needs are much higher. Children under two years old also need lots of attention y towards their nutrition. For a variety of factors, including women's reproductive biology, poor social standing, poverty, and lack of education, women are more likely than men to experience nutritional deficiencies. Women frequently produce and prepare the majority of the household's food, so their understanding of nutrition may have an impact on the overall health and nutritional condition of the family.

Understanding Food Systems

According to the FAO, a food system is made up of the people, organizations, and procedures used to produce, process, and distribute agricultural products to consumers. Understanding the food system in which people and families make decisions about what to cultivate and eat can help us better understand how agriculture affects nutrition. Consuming a varied, healthful diet requires a food system where:

- Enough food is available for collection or purchase to satisfy dietary requirements.
- Food is easily accessible in the sense that people can buy it, along with fruits and vegetables, at their local markets, and women are not prohibited from doing so.
- People can afford to purchase food and the inputs required to prepare it.
- People are willing to prepare and eat food since it is safe and acceptable.

Need of Extension Service to Strengthen Nutrition in India

According to FAO, extension agents are the best person to teach rural people on nutrition aspects –

- **Established infrastructure:** In a nation like India, the public extension system is already established; all that needs to be done is to "topping-up" its portfolio with straightforward nutrition-related activities and messages.

- **Reach:** Each extension worker in a rural area can reach 1159 people. Extension specialists have close ties to farming communities in rural and isolated places, sometimes even on a long-term basis. These connections are based on established processes and structures that apply to the majority of farming households.
- **Community trust:** Extension personnel keep in touch with the individuals and communities in their operational area on a regular basis and have built relationships with them. Communities that already have established relationships and a sense of trust make it much easier to discuss nutrition issues.
- **Cultural awareness:** The local social customs, culture, and belief systems that accompany and surround food are frequently known to extension personnel. Agents typically come from the area in which they operate, giving them a thorough knowledge and comprehension of the circumstances there. Extension workers are better equipped to display empathy and understanding because they are more familiar with the circumstances and context in which the farmers work, as well as the accompanying constraints and opportunities.
- **Empathy with the farmers.** Extension agents are better equipped to help farmers overcome obstacles thanks to their expertise of the local food production system, market accessibility, and household nutrition status.
- **Family approach:** Family is the foundation of society, and by fostering relationships and introducing cutting-edge technologies to the farming community, we can improve the family as a whole economically and socially. He is, nonetheless, the ideal individual to impart nutritional knowledge to rural residents.

Actions that Extensionists Can Take To Improve Nutrition

- Promote increase production of more varied and nutrient-dense foods that meet local nutrient deficits and those people don't eat enough of.
- Encourage safe farming techniques and technology for food processing, preservation, and storage in order to maintain nutritional value, increase the availability of seasonal foods, decrease food losses, and enhance food safety.
- Preserve natural resources by using productive farming methods that increase soil nutrients and restore biodiversity.
- Encourage people to practice appropriate sanitation and hygiene habits, especially while handling manure, insecticides, and fertilizers.

- Offer engaging nutrition instruction to motivate people to cultivate and consume a healthy diet. This could be suggestions for picking vegetables that are nutritious, enhancing meals with ingredients that are readily available nearby, or minimizing intake of excess fats, sweets, and salt.
- Increase markets for healthy foods and market accessibility for disadvantaged people. This could involve facilitating access to seeds, pest control techniques, improved livestock breeds, and market price data for farmers.
- Improve food's nutritional content by working across the value chain to promote supply and demand for healthy foods. Encourage input dealers, agricultural technology salesmen, food processors, wholesale purchasers, and others to expand their selections to support a variety of foods.
- Assuring that women in agriculture have access to employment possibilities, social networks, and financial services will empower them.
- Adopt a food-system perspective as opposed to concentrating solely on production.
- Promote dietary knowledge in accordance with national food-based dietary recommendations (where available).

Promote both on- and off-farm income creation activities while facilitating access to markets. Having more money can enhance access to wholesome foods that are not farm-produced and smooth out consumption.

Conclusion

The health, intelligence, strength, and size of an individual are significantly influenced by their dietary status. Good nutrition requires a nutritious diet, yet many people lack the knowledge, abilities, resources, or drive to do so. Each food group in a healthy diet provides the body with unique nutrients that are necessary for optimum nutrition. Healthy diets include a variety of foods from several food categories. In order to improve public health and produce a variety of healthy foods, nutrition-sensitive agriculture and extension services can be very helpful. Diversification and sustainable intensification of agricultural production, post-harvest handling, storage, and processing, nutrition education, and behavior change communication, as well as women's empowerment and gender equality, should be the main objectives of nutrition-sensitive agriculture and extension activities.

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