



THE KEY ROLE OF FARMERS IN IMPROVING NUTRITION



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ABOUT THIS BOOKLET

No matter how it is defined, nutrition starts with what we eat, the products of the food and agriculture sector. From increasing the availability of total calories, to specific measures on nutrient deficiencies, agriculture can play an important role in addressing nutrition security.

With a projected global population of 10 Billion by 2050, food production needs to increase and it must be done in a sustainable way.

Farmers are the first nutrient providers and the entire agri-food chain has a vital role to play.

This booklet contains a series of cases showing some strategies, techniques, and practices used by farmers all around the world in improving the quality of the food and nutrients we assume, thus, showing how farmers play a key role in improving nutrition security and combating malnutrition.

Dr. Marco Marzano de Marinis

SECRETARY GENERAL
World Farmers' Organisation, WFO







CASE STUDY 1

TRANSFORMING PEOPLE'S NUTRITION THROUGH AGRICULTURE

Lessons from SUN member countries

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2016 has been a monumental year for nutrition and the SUN Movement. The 2030 Agenda for Sustainable Development and the Decade of Action for Nutrition have set out new opportunities for creating nutrition impact and delivering results, for all who suffer unjustly, due to malnutrition. Complementing this, the second phase of the SUN Movement has been launched with a new Strategy and Roadmap (From Inspiration to Impact: 2016-2020), a new Coordinator and a newly formed Lead Group, which are championing the cause.

At the same time, the urgency of the nutrition challenge only continues to mount. According to the [2016 Foresight Report](#), approximately three billion people have low-quality diets. Over the next 20 years, food systems will face increasing threats as population growth, climate change and rapid urbanization conspire to accelerate the prevalence of multiple forms of malnutrition across the globe, but particularly in Asia and Africa¹.

Countries across the SUN Movement are responding by making strides in their multi-sectoral approaches to improving nutrition – but much more needs to be done. In many countries, growth in the agricultural sector has contributed strongly to economic growth— yet improvements in nutrition are not keeping pace. All too often, investing in agricultural production alone has not resolved the high rates of underweight and stunted children. If we are to truly transform the way we tackle and prevent malnutrition in all its forms, we must look beyond calories and focus on equitable access to high-quality diets. This will quickly shed light on the need for policy shifts towards agriculture and food systems that get to the heart of the roles of both the private sector to provide high-quality diets for all and the rights of the consumer to demand these better diets.

Increasing access to nutritious diets based on knowledge of appropriate nutrition and care, as well as adequate water and sanitation, should be essential

elements of agricultural practice and such approaches are being translated into action in countries like Burundi, Mali and Lao PDR. SUN Countries including Nepal and Yemen are also sharing their experience in utilising social protection programmes which are helping to narrow the access gap².

We know that diverse and sustainable agricultural production and food value chains can improve nutrition—which will result in a more productive workforce for the agricultural sector and beyond. Policy-makers and programme implementers can help create nutrition-sensitive agriculture interventions that will help to improve diet quality and improve health for generations to come. Countries are also demonstrating that by integrating nutrition into social protection programmes, we can help sectors deliver better nutrition results.

Building on these important learnings is critical and there are several opportunities for action which can further enhance our efforts. A study from Columbia University on *The Importance of Context in Nutrition Decision Making*, provides us with some key steps which can help guide us, such as:

1. Examining policies and programs around large-scale agricultural investments
2. Building consensus on which agricultural factors drive the most significant changes in nutrition outcomes
3. Estimating the additional costs of enhancing the nutrition-sensitivity of agricultural and social protection investments and to support prioritisation
4. Establishing dialogue across sectors, for example public health, water and sanitation, to coordinate on resource mobilisation and align on programming.

Together, SUN member countries are demonstrating that nutrition-sensitive agriculture programmes can help enhance the scale of nutrition-specific interventions and create a stimulating environment in which children can grow and develop to their full potential, creating a prosperous future for everyone in society.

¹ *Global Panel on Agriculture and Food Systems for Nutrition. 2016. Food systems and diets: Facing the challenges of the 21st century.*

² *Scaling Up Nutrition In Practice Brief: The Contribution of Agriculture and Social Protection to Improving Nutrition.*

CASE STUDY 2

A MATTER OF PROSPECTIVE

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The recent report by the Italian National Institute of Statistics (ISTAT) published on July 26th, 2016 (2015 data) emphasized the increasing incidence of overweight and obesity in Italy: one out of three adults is overweight and one out of ten is obese. The rate becomes even more alarming when we consider that this phenomenon is now transverse, in relation to the different Italian regions and has a peak for children from 6 to 10 years old (34.2% obese). In fact, we know that 70% of these children will maintain this condition when adults. This trend, in common with other EU countries, has officially recognized obesity as a “risk factor for health”, along with a sedentary lifestyle: in Italy, only 8% of health expenditure is linked to obesity and its related diseases. Another interesting data, in terms of health, is the continuous rise of the celiac disease, especially in adults (90%): it affects an estimated 1% of the population. Only in Italy 23,000 new cases have been registered in 2013 compared to 2012 and again 8,000 more in 2014, with peaks in the more industrialized regions like Lombardy, in Northern Italy.

A common denominator recognized at the basis of these diseases is **malnutrition**, not only meant as excess or repetitive food and junk food intake, but also as a poor food consumption in macro and micro nutrients, low nutritional value and high calorific value.

Despite the overall progress, a reduction of 23.3% of global malnutrition rate has been registered in 2015 (SOFI 2015).

The logical question is:

WE EAT MORE, BUT WHAT DO WE EAT?

FARMERS AND THE WAY THEY PRODUCE RAW FOOD BECOMES THE FIRST REAL STEP TOWARDS MAINTAINING CURRENT HEALTH STANDARDS FOR FUTURE GENERATIONS.

In this sense, the European Commission (EC) adopted the EC Regulation 1782/2003 and 796/2004, aiming at establishing Good Agricultural Practices “The standard practices that a careful farmer would follow in the geographical area concerned”.

This regulation contains a number of obligations for organic and biodynamic farms and, today, also addressed to conventional companies, recipients of EU funding. The primary condition is **crop rotation**: it is mandatory to rotate crops in order to avoid impoverishing the soil (wheat, barley, oats). In biological farming it is necessary to rotate impoverishing crops with nitrogen-fixers plants (such as legumes and vegetables), with the added benefit of keeping the soil rich in nutrients. Nutritionally, this leads to a higher nutritional value of the bio product (Fig 1), that is expected to increase during the years of bio-cultivation¹.

ORGANIC VS CONVENTIONAL

Vegetables Type of Soil Management	Minerals (in milliequivalents)						
	Calcium	Magnesium	Potassium	Sodium	Manganese	Iron	Copper
Snap Beans							
Organic	40.5	60.0	99.7	8.6	60.0	227.0	69.0
Conventional	15.5	14.8	29.1	0.0	2.0	10.0	3.0
Cabbage							
Organic	60.0	43.6	148.3	20.4	13.0	94.0	48.0
Conventional	17.5	15.6	53.7	0.8	2.0	20.0	0.4
Lettuce							
Organic	71.0	49.3	176.5	12.2	169.0	516.0	60.0
Conventional	16.0	13.1	53.7	0.0	1.0	1.0	3.0
Tomatoes							
Organic	23.0	59.2	148.3	6.5	68.0	1938.0	53.0
Conventional	4.5	4.5	58.6	0.0	1.0	1.0	0.0
Spinach							
Organic	96.0	293.9	257.0	69.5	117.0	1584.0	0.0
Conventional	47.5	46.9	84.0	0.8	1.0	19.0	0.5

Research conducted by Firman E. Bear at Rutgers University in the Natural Gardener's Catalog (1995)

The second aspect, related to crop rotation, is the prohibition of using any pesticide, an organic agriculture cardinal rule. This guarantees the absence of endocrine disruptors, chemicals with direct proven action on the neuro-endocrine human system with damages able to epigenetically alter DNA processing and possibly even transmitted to future generations. It's also important the use of a water of secure derivation and protection of water irrigation systems from the presence of nitrates, pesticides and plant protection residues, to avoid the contamination of food and the known consequences on health. Also, in this context, it is crucial to use manure or green manure, and to abandon the chemical fertilizers, generally urea (prohibited in the bio), which un hinge completely the balance connected to the nitrogen in the soil and gives rise to nitrites and their genotoxic action.

¹ J. Agric. Food Chem. 2007,55,6154-6159



Last key point in cultivation is **bio-diversity**, not only in terms of the types of crops but also in terms of varieties within the same kind. As it has been demonstrated in the Integrated Industrial Sector Project (2014) conducted in Tuscany in collaboration with the University of Pisa, different varieties have different nutritional profiles in relation to both micro and macronutrients such as antioxidants, carotenoids, chlorophylls and vitamin E. These nutrients, natural protection against atmospheric agents and parasites for the crops, are important supplements for human health, in the prevention and treatment of obesity-related diseases.

The study showed, for example, that black chickpea is richer in beta-carotene, lutein and chlorophyll, than lentils. Within the same varieties, differences could be found in relation to the specific genotypes. For example, *Triticum Monococcum* (einkorn) gives rise to a **different gluten** than that of other members of the same family (Fig.2), almost completely digestible by human stomach proteases. In the Hammurabi genotype, the presence of a major fraction of omega-gliadins, reduces the polymerization of the gluten, making it highly digestible. Johansson et al. (2), stated in 2014 that the consumption of foods obtained from organic agriculture (or agriculture following the same principles) is beneficial to health and that this effect is made possible by the synergic action of the product quality, greater presence of nutrients and the absence of residues of chemical origin. So, keeping in mind the nutrition and health's point of view, this should have an impact on agricultural choices: Bio cultivation should be preferred. Nonetheless the ability to grow a variety of ancient or abandoned grains and legumes, if accompanied by an industrial innovation for collection, processing and storage of food, allows conventional agriculture to produce a raw material more varied and rich in nutrition, with a positive contribution to the maintenance of health of our and future generations.





CASE STUDY 3

HOME GROWN:

How linking farmers to markets is reviving interest in local biodiversity, improving nutrition and empowering communities in Western Kenya (BIOVERSITY INTERNATIONAL)

Teresa Borelli, Hannah Gentle and Aurillia Manjella

Bioversity International

In Busia County, Western Kenya, women and men farmers belonging to the community-based organization Sustainable Income and Generating Investment (SINGI) firmly believe that African Indigenous Vegetables (AIVs) such as spider plant, amaranth, cowpea and slenderleaf are nutritionally superior to exotic crops. With help from the Biodiversity for Food and Nutrition (BFN) Project* and the Kenya Agricultural and Livestock Research Organization, Busia farmers are proving that it is possible to include indigenous foods in school feeding programs at little or no additional cost for school budgets while providing sustainable, long-term support and empowerment to children, families and communities.

Challenges facing smallholder farmers in Busia are similar to other areas of East Africa. Most farmers practice subsistence agriculture and on an average farm size of 0.5 hectares grow mostly maize and beans. Low productivity, limited access to technology, markets and credit mean that over two-thirds of the County's population is unable to meet its basic food minimum requirements and that 1 in 4 (22%) children below the age of five remains stunted, 10% are underweight and 4% are thin, conditions that could be easily prevented by providing adequate nutrition in the early stages of child development. On the school side, unreliable supplies of indigenous vegetables, lack of year-round availability, longer preparation methods and higher market prices imply that schools are often unable to include local foods into their school feeding programs, leaving them to provide meals that are repetitive and nutrient-poor.

To bridge the gap, demand and supply-side constraints linked to the marketing of traditional crops are being addressed by training 30 SINGI farmer groups to sustainably produce and respond to market demands for AIVs from institutional markets (such as schools and clinics) as well as to manage their agro-businesses.

At the same time nutrition information, recipes and food fairs are being promoted to increase the appreciation and use of local nutritious biodiversity to improve dietary diversity.

One farmer group is now supplying six indigenous vegetables to one school under a negotiated memorandum of understanding. While the school purchases the produce at an agreed market price and has a reliable and constant supply of quality AIVs, the farmers have a dependable buyer for their produce and have been able to cut transport costs and avoid food losses by growing the vegetables directly on school land. School caterers are also trained on how best to prepare the foods to preserve their nutrient values and 410 students are now consuming more diversified and nutrient-rich diets. On the economic side, early projections for the dry season, when market prices for leafy greens are higher, show that the school can save up to 10 Ksh (\$0.10) per Kg of leafy greens supplied. That sums up to a weekly savings of approximately \$9 per week and yearly savings of \$360 a year. The farmer group, on the other hand, who supplies 91 Kg of AIVs to the school per week, makes a profit of 15Ksh (\$0.15) per Kg. This translates into a weekly profit of 1,365 Ksh (\$13) per week and yearly profits of roughly \$540 a year.

The success of this approach is raising the interest of neighbouring schools and local administrations. In addition, the plots provide a useful educational tool for students who learn about sustainable agricultural practices and get hands-on experience in growing and using local crops.



CASE STUDY 4

ARGENTINIAN “MEAT OF PASTURE”

A model to follow for Latin American Countries (SRA)

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Despite its status as a net producer and exporter of food, and still having great potential to increase its net food supply, Argentina was unable to resolve key aspects related to the quantity and quality of food security of its population. According to estimates of the Social Debt Observatory (ODSA) of the Universidad Católica Argentina, in 2015, approximately 20% of children and adolescents were food insecure and almost 10% of the same population was indigent. More than 6 million people suffered some degree of food insecurity.

In relation to the nutritional aspects, Argentina has a population in which child malnutrition is marginal, reaching 1.3%, chronic malnutrition 8%, while the prevalence of overweight (including obesity) is on average 35% in school-children and 58% in adults.

From the food production sectors, aware of the importance of the subject and from the joint action with governments and research sectors, they began to work towards food, nutrition and health.



“Meat producers have made great efforts in more than a decade from the genetic and nutritional aspects of their herds, to producing lean meats with increases in the supply of polyunsaturated (n-3) acids; Decrease in the n-6 / n-3 ratio and higher concentrations of inactive substances such as natural antioxidants, conjugated isomers of linoleic acid (CLA). These have been the priority objectives in most areas of research, highlighting the great potential to contribute to optimize the lipid supply of meat to the diet, a fundamental aspect to consider, said Dr. Pilar Teresa Garcia, at the First Latin American Congress of the Forum on Food, Nutrition and Health“.

A project known as “Meat of Pasture” is being carried out with the leadership of the Wildlife Foundation, associated with the World Wide Fund for Nature (WWF). With the support of technical agencies such as the National Institute of Agricultural Technology (INTA) and the Consortium of Livestock Producers (PROGAN), the project is having a strong presence not only in Argentina but also in other countries in the region, such as Brazil, Paraguay and Uruguay. The project consists of a protocol that certifies its origin and process, guarantees a nutritious, healthy and “friendly” product of the biodiversity of natural pasture.

“Beef produced on the basis of grass pastures has a higher nutritional value, higher content of Beta carotenes, conjugated linoleic acids and Omega 3 fatty acids, lower cholesterol, and a lower bacterial content (Escherichia Coli and Campylobacter). In addition, if forage comes from native pastures instead of pastures of exotic species, the environmental impact generated during the production process will be much lower“.





CASE STUDY 5

THE CHANGING DIET IN JAPAN AND THE ACTIVITIES OF JA GROUP (JA-ZENCHU)

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In December 2013, “WASHOKU- Traditional Dietary Cultures of the Japanese” was registered as an Intangible Cultural Heritage of UNESCO. The characteristics of WASHOKU are ‘various fresh ingredients and use of their natural tastes,’ ‘well-balanced and healthy diets,’ ‘emphasis on the beauty of nature in the presentation,’ and ‘connecting to annual events.’

WASHOKU has been drawing attention throughout the world and is served at Japanese restaurants all over the world. WASHOKU ingredients and cooking methods such as ‘DASHI’ are used in various national dishes.

However, Japan also faces a number of dietary issues, including lifestyle diseases caused by the change of diet, along with greater focus on convenience and enhanced wealth. The number of children who do not have breakfast or who have a meal alone without communicating with their family (so-called “solitary eating”) is increasing and has become a social problem. People’s appreciation of the value of food is changing and diversity of lifestyles are expanding. Deteriorating children’s diet is a major problem, which makes dietary education all the more important.

In this context, JA group works on food education including dietary guidance to help people understand the important role of diet as part of a healthy life. There is also a campaign called ‘Good Diet Project for Everyone,’ which explains the value of agriculture.

Like other countries, the urban population in Japan continues to grow and is particularly remarkable in major metropolitan areas. Since urban areas are far apart from production areas, it is hard for urban residents to understand the importance of agriculture, and this causes concern since food consumption is concentrated in urban areas.

In order to tackle this problem, JA-Zenchu has opened the “Gallery of Agriculture and Farm Village” at the very center of Tokyo surrounded by skyscrapers in order to target office workers that work in one of the most urban areas of Japan. The Gallery has a “marché”, or market, where agricultural products, including seasonal fruits, vegetables, and unique regionally processed food by agricultural cooperatives from all over the country, can be found. Moreover, the gallery also includes cooking classes by famous chefs of WASHOKU to demonstrate how to use seasonal ingredients.

This effort contributes in promoting and teaching urban residents about the benefits and value of Japanese agriculture as well as the agricultural products themselves. The Gallery also contributes in passing a little portion of the WASHOKU culture onto the next generation.

According to a questionnaire by the Ministry of Agriculture, Forestry and Fisheries, people who “don’t eat breakfast” account for 12% of all respondents. For men in their 20’s, those not eating breakfast account for 20%. Additionally, an expanding aging society with fewer children has led to decreasing consumption of rice, which makes it more urgent to encourage rice consumption including at breakfast.



Mascotte character Good Diet Project

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Gallery of Agriculture and Farm Village

CASE STUDY 6

The Agri-tata service:

CHILD LEARNING THROUGH ANIMAL CARE AND VEGETABLE GARDENING (COLDIRETTI)

Silvia Marocco

AgriTata, Coldiretti Giovani Impresa



The AgriTata (Agri-Nanny) service is an early childhood education service for families with children aged between three months and three years. Through this service, provided by the AgriTata in her house which is part of the family farm, children are involved in agricultural activities, such as animal care and vegetable gardening.

According to the principles of Active Learning Pedagogy (the so called “learning by doing”), children take active part in their education process. Taking care of the vegetable garden (planting, pouring water, enjoying the fruits of their labour) and cooking together with the AgriTata allows them to establish a connection between outdoor and indoor activities as well as gain a unique sensory and perceptual experience. Children are granted a sustainable food education at an early age, as they are exposed to rural life and learn about the food they consume.

Moreover, thinking about the activities undertaken with the AgriTata helps children remember the morphological and organoleptic characteristics of the food they have taken care of. Since the menu offered by the AgriTata is made of various seasonal products, especially those grown in the family farm, children are given healthy, genuine and farm-to-fork food.

Children also actively participate in setting and clearing the table, pouring water and help the AgriTata to serve some dishes. The preparation of some of them (cakes, homemade pasta) gives kids the opportunity to touch the food

and perceive the consistency as well as the organoleptic characteristics of the individual ingredients.

Thanks to the involvement of children in cooking activities, the kitchen of AgriTata becomes the place where the child delves into learning experiences that go beyond the act of eating. They consist, indeed, in discovering the ingredients of food, being stimulated in their perception and sense, acquiring and consolidating knowledge and skills, interacting with other children and building a strong relationship with their land.

Days spent with the Agritata are adventurous and never the same, as they follow the rhythm of nature. After the welcome to the house, during which the AgriTata waits for all children to arrive, children are brought outside to take care of the vegetable garden and the animals. One of the morning activities all children are excited about is opening the door to hens to feed them with the leftovers of the day before and collect their eggs. Through such activity, children learn that leftovers are not thrown away but they serve as feed to other creatures, which provide food for their meals (if included in the weekly menu) or for cakes or cookies to be prepared together with the AgriTata.

The care of the vegetable garden and the orchard that keeps children busy for most of the morning is also of great importance, as it allows them to eat a healthy farm-to-fork snack on the meadow. The afternoon snack is made of fruits grown in the orchard, which are often used to make cakes, cookies, ice creams and milkshakes. The harvested vegetables, instead, are brought home and transformed with the help of the AgriTata in healthy and tasty meals to be eaten together. After the meal, some children return to their houses while the others stay for the afternoon nap. The limited number of children who can be hosted in the AgriTata house (maximum 5) assures special attention to each child, satisfying his/her needs in a timely manner. The day ends with a nice song and a goodbye to the next day.

As provided for under D.G.R. 2412 dated 27/07/2011, the AgriTata service can be only activated when the AgriTatas live a residential house located in the family farm and they have successfully passed the 400 hour training course recognized by the Piemonte Region called 'Techniques of in-home childcare- AgriTata' which enables them to practice the profession of Agritata.



CASE STUDY 7

ORTOLAB - THE FUTURE IS CULTIVATED AT SCHOOL

“If the children do not go to the farm, it’s the farmer who goes to school” (CIA)

Rudy Marranchelli

Presidente AGIA-CIA Basilicata, Italy

Changes in the past few years have been extraordinarily deep and swift. Particularly, the intensity of the economic growth has made the issue of the imbalance between development and available resources increasingly obvious and worrying.

Some of these changes are taking the form of a structural change, especially the increase in global food demand due to the population and economic growth which is affecting large shares of the world’s population.

While hunger and malnutrition are dramatically increasing around the world, statistics indicate that the number of people suffering from overweight and obesity is expanding just as much.

Agriculture plays a key role in this context. First, farmers face the difficult challenge of maintaining high levels of food production with fewer inputs such as water, land, energy and fertilizers in order to ensure food security and combat malnutrition. In addition, the fight against overweight and the spread of childhood obesity phenomena are based on a healthy food supply.

In Italy, 37% of children aged between 8 and 9 are overweight or obese, and according to the statistics issued by the Ministry of Health three years ago, 32.3% of primary school children suffer from overweight problems, and this rate is around 40% in Abruzzo, Basilicata, Campania, Molise and Puglia.

Following this data and drawing on the experience of the Nutritionist Antonella Catenacci, AGIA Basilicata (the association of CIA young farmers) and Orto Sociale (Association for the right to healthy and safe food) have launched a project to enhance the food production of the region. The meeting place is the school, where children can learn how to distinguish the fast food from the fresh food prepared at home. The good food does not consist only in tasty food but also in food that respects the environment, human health and reduces waste.

The “ORTOLAB - the future is cultivated at school” initiative includes a series of general recommendations to eat healthy food and improve young people’s health. Acquiring a good nutrition education is the only means we have to take care of our health in a safe and effective manner, and without the risk of side effects. This project represents the most natural way to achieve a real change for the entire community, gain a healthy lifestyle and teach it to those who represent the future, the children.

The initiative is movable, so that if the child does not go to the farm, it’s the farmer who goes to school, with a fun and interactive approach. An animated cartoon, drawn by Ms. Catenacci is used during the workshops. The cartoon, which is tailored for children, tells the story of a little girl, Maria, and her relationship with food. Through the story of Maria, children learn the effects of food on health. She is a perfect alter ego that reflects children’s eating habits and offers an example of how to correct their daily dietary mistakes. The story of Maria, who changes her eating habit when she realizes that excluding fruits and vegetables from her diet does not give her proper energy and good health, is a journey to rediscover the principles of a healthy diet, exploring nature, rural life, fruit, vegetables and their nutritional properties. It is a journey to discover the nutrients for having healthy meals.

Children interact with the nutritionist and the entrepreneur during the projection and the lecture turns into a game. In the end, everyone is proud of the role played by agriculture that “feeds the world” and “protects the environment” for future generations.

From September to December 2016, four Institutes (2 Policoro (MT), 1 Nova Siri (MT), 1 Pomarico (MT) have been involved in the project. In 2017 other 4/5 institutes are expected to participate in the initiative.

Unfortunately some jokes on “overweight boys” have been underlined during the visits. This led to the development of “educational programs” aimed at preventing bullying. With the involvement of the Psychologist Antonella Magno, it has been decided to integrate the workshops with educational programs aimed at improving self-esteem, the trust in others, and the development of responsible behaviour, even in a non-traditional school environment, such as the Orto Sociale.

Thanks to Ortolab, CIA young agropreneurs are the protagonists of a program devoted to the growth of a new generation of youth enriched with healthy principles and lifestyles.

The future is cultivated at school.



CASE STUDY 7

MILK AT SCHOOL

Growing knowledge from farm to school

Dr. Ulrike Tonner

Press and Public Affairs Officer,
Südtiroler Bäuerinnenorganisation, Südtirol Alto Adige, Italy

Every year Milk Ambassadors visit about 300 classrooms and approximately 4130 students in the Südtirol region, an autonomous province in northern Italy. The International Day of Milk, every 1st of June, represents an important day for women dairy farmers to promote their agricultural knowledge, their traditions and values.

“Milk at school” is a sustainable project, promoted by the IDM Südtirol, in joint collaboration with the Dairy Federation Alto Adige, (Federazione Lattèria Alto Adige) and local women dairy farmers.

“As a producer of milk, women farmers are the real ambassadors of this product. They provide a firsthand overview of their life on the farm, communicating the values related to their land and the passion for agricultural products. No one else is able to do it in a more credible manner. Students appreciate their genuineness, revealing all the secrets of their daily lives in the farm “ says the director of Dairy Federation Alto Adige, Annemarie Kaser.

During the lesson students receive interesting information and practical knowledge on milk and other dairy products. What do cows eat? What is a ruminant? How do we make butter?

Petra Eisenstecken from German Department of Education and Training, explained us how this knowledge can be transmitted to children and strengthen long-term: “All children, both those who live in urban areas and those who come from rural areas, should be able to refer to local products”.

Every child can learn why the milk overflows when it boils, or discovers reasons why some cheeses have holes in them. The Milk Ambassadors share their knowledge, encouraging children to think about it from another point of view. “Through direct experiences, such as visiting the farm, the information provided by the Milk Ambassadors becomes clear”.

The “Milk Project” could impact the whole family and, consequently, the whole community. The opportunities of learning are huge. The critical element is the preparation of a dairy product, mostly butter. Students are curious about the “origin of the food” and establish close relations with local women farmers. Students have the chance to develop a wider knowledge of the agricultural sector in their region, understanding the critical role of farmers in feeding world population and, consequently, giving high value and appreciation for regional products.

Milk Ambassadors have a crucial role to play in raising awareness on the high-quality, healthy and nutritious local food products while strengthening their enhancing their awareness on the proper use and values of the Sud Tyrolean food.

In addition to the dairy project, from mid-November to mid-February IDM Südtirol is organizing the “Apple at School”. Last year, the project has involved about 250 classes, around 3800 students.

For children, “Milk and Apple at School” is an unforgettable experience.





CASE STUDY 8

MAKING SOYA SAFE FOR HUMAN CONSUMPTION AT RURAL HOUSEHOLD (NASFAM)

Dyborn Chibonga

Chief Executive Officer, NASFAM, Malawi

Soya is an important legume to human bodies because it is one of the common sources of protein with high biological value and essential amino acids. It is a source of carbohydrates, water and other mineral salts such as iron, manganese, potassium, sodium, zinc, copper, isoflavones, Vitamins (C, B Complex, A, E). Soya facilitates effective utilization of other foods previously consumed while removing bad cholesterol in the body.

However, soy beans are rich in unsaturated fatty acids and low in saturated fatty acids, which need to be avoided in people's diets.

Soybeans should therefore be treated to increase their nutritional benefits and decrease any health risks. These following steps demonstrate treatment of soya with hot water to remove the plastic-like seed coats which harbour inhibitors.

1 Clean soy beans by removing stones, dirty and mouldy beans. Boil adequate water depending on the amount of soy beans in the ration of 3:1 Drop the beans into boiling water without causing the water to stop boiling.

2 The soy beans should boil for at least 30 minutes, when the seed coats are easily removed. Remove soy beans from the fire, drain off the water and rinse in cold water. Remove the skins of the cooked beans (dehulling) by rubbing between hands while rinsing with cold water.





CASE STUDY 9

THE CHALLENGE OF HUNGER

Poverty and malnutrition in South Africa - Success stories of the Nutrition Programmes (AFASA)

Aggrey Mahanjana

Secretary General, AFASA, South Africa

Malnutrition has devastating consequences for health, livelihoods and the South African economy as a whole. We know that 45% of the deaths of children under 3 are related to malnutrition. We also know that children who are stunted are less likely than their non-stunted counterparts to do well in school, gain employment and if they do find work, will have lower wages. As adults, they are more likely to get diseases like diabetes, hypertension and some forms of heart disease and cancer.

South Africa is one of the African countries where rate of stunting has increased. Stunted girls when they become mothers they are more likely to give birth to malnourished babies. Adults who are diagnosed with obesity and diabetes are estimated to generate economic costs for their families that are the equivalent of 8-16% of their annual income. At the national level it is estimated that, for African countries on average, malnutrition depresses GDP by 11%.

South Africa is committed to ending malnutrition and hunger by 2030. There are over 50 programmes and initiatives which address food security and malnutrition. There have been successes as wasting and severe acute malnutrition rates have declined. Our social assistance programme witnessed its largest expansion yet, and almost 17 million people are benefitting from the programme.

Twelve (12) million of the grant recipients are recipients of the **Child Support Grant (CSG)** while more than 3.2 million receive the **Old Age Grants**. These and many other achievements bear testimony to our determination to create a fairer society. During the 2015/16 reporting period Cabinet approved the **Early Childhood Development (ECD)** policy that seeks to ensure universal access to ECD services and appropriate nutrition interventions for children in ECDs by 2030. Similarly, the number of children enrolled in the more than 27, 000 ECD centres has grown phenomenally and almost 1 million children were being subsidised by the state.

The **National School Nutrition Programme (NSNP)** reaches about 9 million learners among the poorer primary and secondary schools around the country. The school feeding programme alleviates short term hunger, and thus improves concentration in class. Furthermore, it has the potential of increasing attendance and enrolment of children in schools, resulting in improved retention in the schooling system.

Through implementation of the NSNP 2017-2022, it is anticipated these milestones will be enhanced, in particular to ensure that the learners receive adequate, safe and nutritious meals.

As part of strengthening the **Food and Nutrition Security Programme**, government is now operating Food Distribution Centres linked to **Community Nutrition and Development Centres (CNDs)** in Provinces, to meet the immediate nutritional needs of the most vulnerable and food insecure members of our society. Despite the large number of food and nutrition programmes, some forms of malnutrition continue to exist and grow.

This inspires us to redouble our efforts.





CASE STUDY 10

HEALTHY HERD PROGRAMME

How to treat selenium deficiency in livestock for healthy milk (NFU UK)

Ashleigh Henderson

Nemi Dairy Ltd, UK

Over time the natural levels of selenium in our soils have depleted. Selenium is a trace mineral and micronutrient that is an essential component in all livestock's diets. Respectively, many farmers - some unknowingly- have experienced the negative symptomatic effects of low Selenium status in their herds.

For instance, the following are signs of Selenium deficiency in livestock: white muscle disease (calves); increased somatic cell counts; chronic mastitis; cystic ovaries; miscarriages; infertility; retained placenta; lameness and chronic pneumonia. Not only are most of these symptoms costly to treat, but many present major obstacles for farmers to achieve efficient and profitable farms.

In most cases, especially adult livestock, Selenium deficiency will not be diagnosed based on clinical signs alone. Thus, Andrew Henderson, a qualified ruminant nutritionist and managing director of Nemi Dairy, designed his 'Healthy Herd Programme' to spot signs of nutrient deficiency and to monitor, maintain and support the farmer and his herd in all aspects of quality milk production.

Nemi Dairy takes care to address mineral deficiency by complementing the cow's diet with an organic Selenium yeast. Ensuring the correct level of Selenium in the cow's diet means that if she is unwell the recovery period is shorter and the general health of the cow is much better. One way we know this is that Selenium stable cows suffer 15% less Mastitis than average.

The benefit to Nemi farmers is three-fold. Firstly, their animals are healthier; they have less instances of chronic disease and can rest assured that a professional nutritionist is always on hand to offer them advice. Also, as part of the 'Healthy Herd Programme' they automatically become members of Edinburgh University's 'Dairy Herd Health and Productivity Service' (DHHPS) - a fantastic resource for all dairy farmers.

Secondly, their pockets are healthier; rather than spending large amounts of money addressing problems that have already arisen,

Nemi farmers spend a little to prevent a lot. This is key, prevention rather than cure can save a farmer both emotionally and financially in the long run. Thirdly, Nemi farmers receive a sustainable milk price for their healthy milk; Nemi Dairy will always pay a minimum of 30ppl for every litre of Nemi milk sold. The implementation of our 'Healthy Herd Programme' also guarantees the natural enrichment of their milk too. This way Nemi farmers are producing an added-value product that is full of the nourishment that we need to be healthy and in return they we look after them too.





CASE STUDY 11

WOMEN FARMERS' ROLE IN FAMILY'S NUTRITION

Kati Partanen

Facilitator, WFO Women's Committee

Women's role in the world food security is crucial. Women produce remarkable share of food. Also, women's role in nutrition is crucial as majority of the household food preparation is in women's responsibility. Therefore, it's inevitable that any of the development goals set by international fora can't be reached without real gender equality with equal possibilities for all.

It's ironic that majority of the world's poor and hungry are farmers, and especially women farmers. When women are lacking rights to decision making, land, financing etc. it reflects heavily on the whole family. Good nutrition is not only having enough food to eat, but also having enough micronutrients from the food - not only calories, it's also what kind and quality of food we eat.

In [several researches](#), e.g. made and reported by CGIAR and FAO, has been showed that when women have decision power on the family's money, the nutritional level of children is higher. Women invest on their income on average 90 % in their families as men invest only 30 - 40 % of their income to the family. Empowering women can, over time, lead to more than 40 % of reduce in children's malnutrition, showed IFPRI's study. FAO's research estimated that if women had same access to resources as men, up to 150 million people would not be hungry anymore. IFPRI reported that women themselves and girls are often suffering hunger more than their family members as when food is scarce women and girls are less likely or often the last of the family to eat. In many cultures women are the last ones to get to eat by cultural tradition.

[UNESCO](#) reported in 2014 that education - especially education that empowers women - is preventing efficiently malnutrition of children. Educated mothers are, according to the report, more likely to ensure that their children receive enough nutrients. Also health and hygiene practices are better dealt in families where mother has been to school. Good hygiene and health enables children to benefit fully from their food intake. Education helps women to allocate better households resources to meet nutritional needs of family members.

Women's education about good nutrition is important as they are usually responsible of the family's food preparation. When combining the nutrition education with farming and gardening education it's possible to get benefits both for family nutrition and incomes. Several projects during last decades has proved this to be efficient method.

Women's rights in agriculture as decision makers and entrepreneurs as well as women's and girls' right to education is not only question of equality and producing enough food for the world. It's clearly also crucial factor to solve the nutritional problems. It's a resource we can't afford wasting anymore if we want to feed all hungry people and to reach food security.





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