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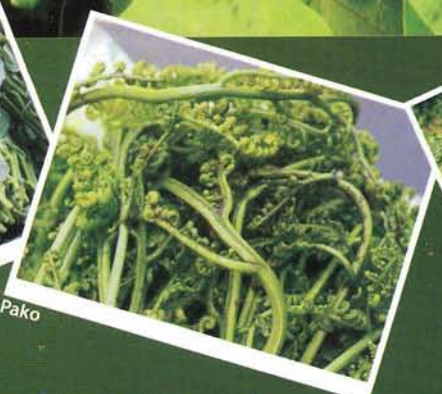
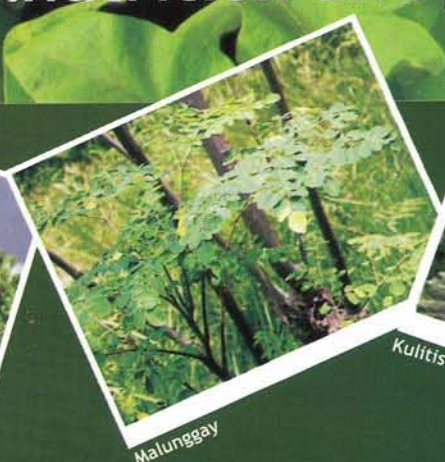
This issue....

Indigenous vegetables

Staving off rural malnutrition and poverty


Alugbati


Pako


Malunggay


Kulitis

Vegetables for life

BY MARLOWE U. AQUINO, PH.D.
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The "Vegetables for Life" thematic phrase came from our visitors from the Asian Vegetables Research and Development Center - The World Vegetable Center (AVRDC-WVC), Dr. George Kuo and Ms. Mandy Lim, during their recent visit in the Philippines from 28 November to 06 December 2006. It came with a key chain and a 2007 calendar showing the importance of vegetables in our lives. Because of my curiosity, I asked, why vegetables for life? To my amazement, the simple and straight answer was: Vegetables are the lifeblood of our farmers. I believe it is true, not only for Taiwanese farmers but also for all vegetable farmers around the world. It came as a reminder that vegetables are important ingredients in our lives not only for health reasons but for social, economic, and ecological considerations, as well.

During our younger days, vegetables were difficult to eat. They were slimy and difficult to swallow. Our parents would make all the threats and excuses in order that the vegetable dish they prepared would be eaten and appreciated. They prepared and presented the dishes in a way that they were pleasing to our very young eyes. Why did they do so? The real reason is, vegetables are our life, they make us healthy. The context behind this is, our lives are short lived and we need to be vibrant, healthy and strong. We maintain our youthfulness with style. Vegetables simply add life.

The decision to prepare and publish this last quarter issue is a challenging one. The BAR R&D Digest Editorial Board agreed to feature what we have done with vegetable research and development (R&D) over the last couple of years or during the administration of Director Nicomedes P. Eleazar. It was a good decision because we are highlighting recent and up-to-date projects, activities, and areas for research that are socially, economically and ecologically relevant in our times. Indigenous vegetables are coming back to the mainstream of R&D. Organically grown vegetable, as answer to the health buffs and enthusiasts are improved for food safety. Historical and cultural researches have become important part of the R&D milieu in order that social science be accepted in the arena of agriculture R&D.

These trends in vegetable R&D lead DA-BAR to refocus its programs making them relevant and valuable. "Vegetables for life" are a representation and reminder to all of us to make our efforts in vegetable R&D simpler, healthier, suitable, and client-oriented. ☺

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Photo by anthony constantino

Back to the basics: Vegetables for health

BY MARLOWE U. AQUINO, PH.D.
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Ah! Vegetables again! I do not like vegetables!!! This was how we expressed our feelings whenever our mothers told us to eat vegetables during our younger days. To me, it was different. Coming from a place where fresh vegetables are grown right in front of our doorstep, my siblings and I ate the best vegetables in town. Most often, we prepared them as fresh salads or as the local lowland vegetable stew, called *"dinengdeng"* with grilled fish. It was a feast even up to this day.

This scenario has been very common to young kids who experienced the same condition we had back in La Trinidad, Benguet, the place considered as the Salad Bowl of the Philippines. Today, the condition has changed. This is the very reason why we would like to showcase that vegetables are for people's health.

Vegetables are healthful food because these are sources of vitamins and minerals needed by our body. Our elders who are still living today could attest to their strict diet full of vegetables, eaten as fresh or cooked in a delectable way. The recommended vegetable consumption is 200g/capita/day (AVRDC, 2005).

Vegetable consumption may increase per our requirement and nutritional need.

Vegetables are health food

My interest in vegetables could be traced back to my growing years. My appreciation of vegetables was transformed into vegetable culinary arts. I love to cook because I like to eat. I consider this basic because people who know food would eat the right kind, quantity, and quality. So far, there has not been any negative attribute to vegetables which are considered the major source of minerals, vitamins, fibers and in some case, of proteins. The nutritional pyramid shows that vegetables are the base component of every meal. Most diets are provided with vegetables and these are supplemented with other important food items such as fruits, fish and meat and cereals.

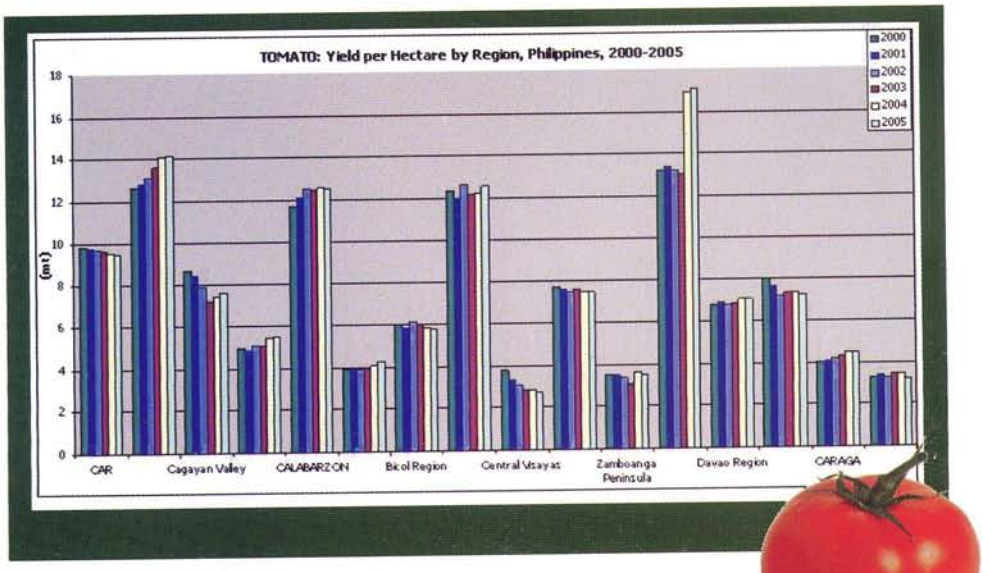
The global vegetable concern

The next cycle of Green Revolution focuses on improved and safe production of high value horticultural crops including vegetables. The worldwide concern for vegetable research and development including extension and information management is getting positive response by R&D institutions and development-oriented organizations around the world.

Globally, vegetables have taken significant importance in research and development. Through the strong leadership of the Asian Vegetable Research and Development Center - The World Vegetable Center (AVRDC-WVC), continents around the world identified areas for collaboration, complementation and partnership. The five regional sub-centers in Southeast Asia, South Asia, Central

Globally, vegetables have taken significant importance in research and development.

and West Asia, Sub-Saharan Africa, and Central America place vegetables as the core for overcoming micronutrient deficiencies and for providing smallholder farmers with higher income and more jobs per hectare than staple crops. These regional sub-centers conduct vegetable research from breeding and production to consumption and socio-economic impacts on communities. In addition to germplasm conservation and varietal development, other core activities include genetic enhancement using molecular technologies; studies on nutritional security and human health, safe and sustainable production systems and crop protection, postharvest management, market opportunities and income generation.



Challenges and emphases

Although vegetables have minimal contribution to gross national domestic products of some countries, directions have been identified for research and development plans and programs. These plans and programs are emphasized because of the need to make vegetable a part of people's lives.

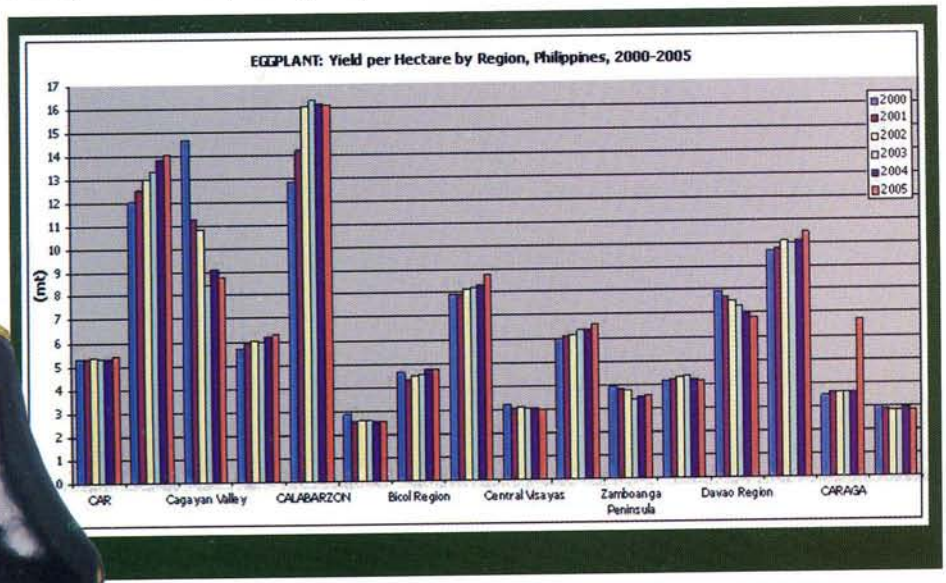
Vegetable research has three broad emphases which majority of institutions follows as guide in their development plans and programs as initiated by AVRDC-WVC. These are HEALTH-producing vegetables more safely and promoting nutritional value of vegetables; WEALTH-improving crop yields, production systems and marketing opportunities; and DIVERSITY-building on genetic diversity to improve the production of high quality vegetables. On the other hand, development activities in support to research are anchored on CAPACITY BUILDING providing long and short-term training in vegetable production; COLLABORATION actively contributing to development partnerships and networks; and COMMUNICATION providing extensive on-line and hard copy information resources.

The Philippine vegetable industry

The Philippine's vegetable R&D could be described as innovative and responsive. Innovative since it deals with appropriate information that is supportive to R&D and responsive because it makes sure that pressing issues and concerns are immediately analyzed and addressed. The researchable areas and disciplines along bacteriology, biotechnology, crop and ecosystem management, entomology, genetic resources and seed management, mycology, nutrition, socio-economics, and virology including support services such as information, communication and education.

These areas have set the direction to make the industry more responsive. The developed information, breakthroughs and technologies are the guides for integration and consolidation to address issues of production, postharvest, marketing including social relevance of food safety and nutritional benefits. Through these activities, the Department of Agriculture focused on two vegetable programs like the "*chopsuey*" vegetable crops and the "*pinakbet*" lowland vegetable crops.

Vegetables grown is a semi-temperate climatic condition are classified under the *chopsuey* group. These are cabbage, lettuce, cucumber, tomatoes, zucchini, carrots, cauliflower, broccoli and even young corn. The *pinakbet* group includes bitter gourd, string beans, eggplant, okra, *sigarillas*, onions, garlic and lima beans. The *chopsuey* group is normally grown under mid to high elevation while



pinakbet group is grown under lowland conditions. These vegetables are produced through innovative practices using indigenous knowledge and practices complemented by modern technologies.

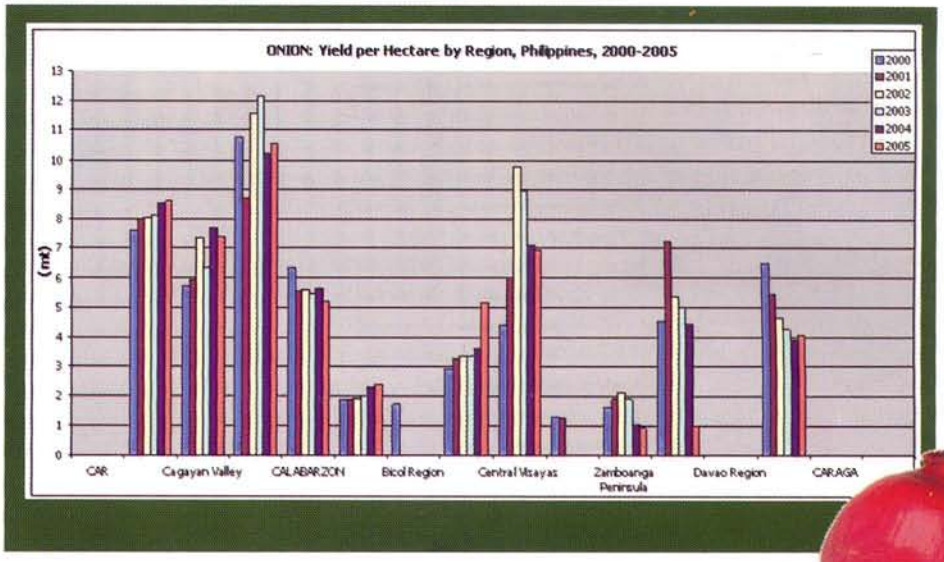
Growing vegetables

A lot of the vegetables can be grown in small pieces of land or even in pots or containers. Growing them is a stress reliever after long working hours or for some intellectual reflections. Vegetables practically grow anywhere. When the household requires a healthy meal, one can just harvest, cook and serve hot. The vegetables are either introduced or endemic to the place.

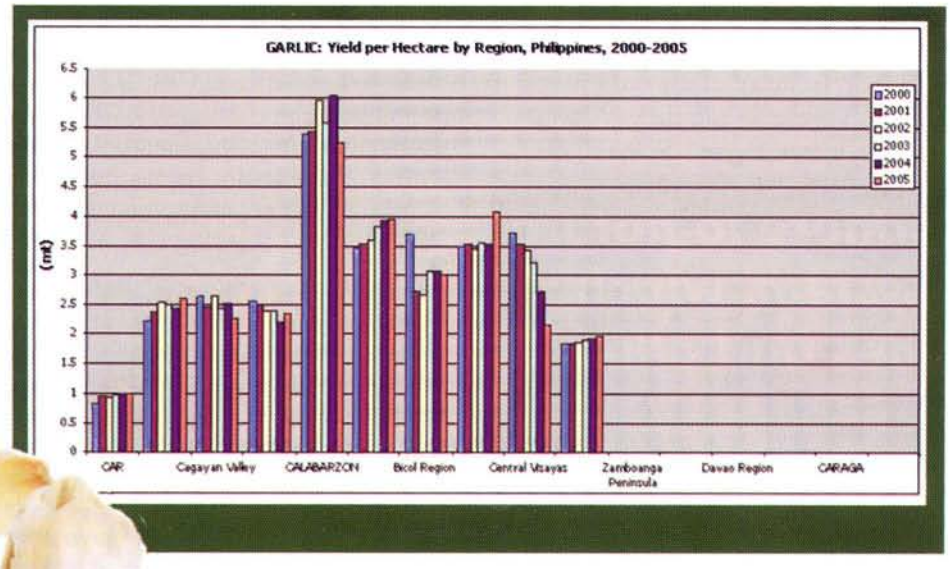
Vegetables can grow in any climatic condition type of soil and requires minimum water and cultural management. Two important considerations in vegetable growing are observed nowadays. In the rural areas, vegetables are grown for home consumption and for supplying the needs in the urban areas. Urban vegetable growers make it a part of recreation or simply for aesthetic value. However, these two contrasting situations are vegetable directions for further research and development.

Vegetable production and utilization

There are about 43 major kinds of vegetables grown in the country and 250 lesser known species. The major vegetables are generally grown during the dry season wherein production is ideal to most crops resulting to high supply and hence prices are low. During the wet season, production is generally difficult so supply is low and prices are high. This is especially true for the seasonal crops like tomato, onion, garlic and cabbage. However, with new innovations in vegetable production such as the use of protective structures and off-season varieties, the problem of high prices and low supply are now being addressed for better production and marketing.



Based on 2005 data, vegetables contribute an increase of 4% from 8% of the total agricultural output of the country in 1997. The increase could be derived from the increase in area usage from open farms to protected structures which have sprouted like mushrooms in strategic areas of the country due to increasing health and wellness centers in the metropolis and sub-urban areas in the provinces. From a mere 5% total land area devoted to vegetable production in 1997, an increase of 0.8% or 745,600 hectares was achieved.



Vegetable production

In 2005, squash production was 272,538 metric tons followed by eggplant (187,793 metric tons), tomato (173,740 metric tons), and cabbage (91,439 metric tons). However, onion production was high at 82,019 metric tons.

Area devoted for vegetable production was according to commodities with high economic return and market competitiveness. Among the highest production areas were for eggplant (21,233 ha) tomato (17,731 ha), bottle gourd (9,606 ha), squash (7,820 ha), onions (8,884 ha), cabbage (7,420 ha), garlic (4,704), and carrots with 3,585 ha. The least production area were from Chinese pechay (3,133 ha) and cauliflower (1,017 ha).

The highest regional producing area are Ilocos Region for eggplant and

tomato with 4,987 ha and 3,901 ha, respectively, followed by CALABARZON for bottle gourd (4,019 ha), onions in Ilocos Region (4,961 ha) and Central Luzon (3,527 ha), and garlic in Ilocos Region with 3,786 ha. The Cordillera Region still has the highest production area devoted for cabbage (4,356 ha), Chinese pechay (2,734 ha), carrots (1,795 ha), and cauliflower (1,017 ha).

In terms of yield per hectare, CALABARZON is highest on eggplant at 16.09 mt followed by Ilocos Region with 14.02 mt and SOCSARGEN with 10.44 mt. Tomato yield per hectare is highest in Northern Mindanao (17.11 mt), followed by Ilocos Region (14.18 mt), Western Visayas (12.54 mt), and CALABARZON (12.52 mt). CARAGA produced more on bottle gourd per hectare basis with 19.44 mt, followed by Bicol Region (18.88 mt), Cagayan Valley (16.55 mt), Zamboanga Peninsula (16.26 mt) and Central Visayas (14.87 mt), respectively.

The data revealed that vegetables are practically productive on areas with good climatic conditions supported by good agricultural practices and services. Farmers indigenous knowledge of vegetable production systems contribute a lot specifically on quality size, shape and color.

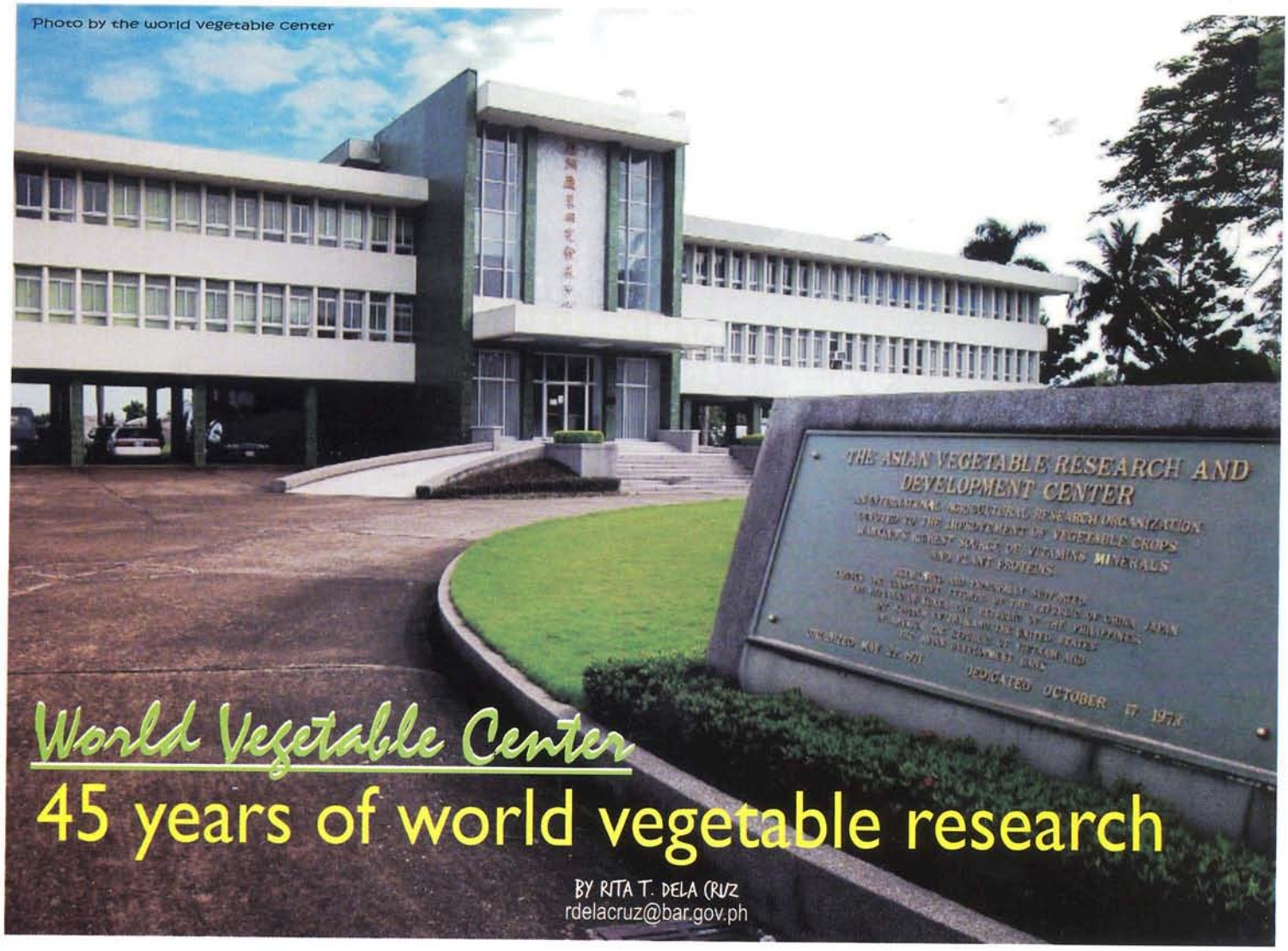
Photos by rita dela cruz

Prospects and directions

Since vegetable production goes back to traditional systems, it has also set the direction in terms of appreciation and importance. Today, vegetables adhere to nature or natural farming system, which is less use of pesticides and other inorganic fertilizers. If farmers apply fertilizers, they use their own formulation coming from natural sources of farm by-products or even household raw materials like sugar, baking powder or corn starch and even locally produced vinegar. For progressive farmers, they establish their own organic farms complete with protective structures and irrigation facilities. They are assisted in making vegetable productive using modern technologies. Some of the farmers make connections with health and wellness centers to market their produce. Targeting certain clientele is the in thing today especially for health conscious and food safety buffs.

Today, vegetables adhere to nature or natural farming system, which is less use of pesticides and other inorganic fertilizers.

Moreover, agri-tourism initiatives are getting recognized through farms for their aesthetic value. These are mostly established by big companies like Ayala Group of Companies, Netafim Philippines, selected seed companies and private farmer hobbyists concerned with the environment. These farms can be found in La Trinidad, Benguet (Tomay Farms, Brookspoint Farms, and Master's Garden), Antipolo City, Tagaytay City, Bacolod City (Penalosa Farms), Davao City, Cagayan de Oro and Negros Occidental. Farms in Cebu, Dumaguete City, Bohol and General Santos City are also now being developed. All farms, both existing and emerging, consider food safety and environment friendly production systems making "back-to-the- basic" concept an interesting and profitable activity. ☺



World Vegetable Center
45 years of world vegetable research

BY RITA T. DELA CRUZ
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When it comes to rice research, we have the International Rice Research Institute (IRRI) based in the Philippines. For fish, it's the World Fish Center in Malaysia, agroforestry at the World AgroForestry Centre in Africa, water and water management at the International Water Management Institute (IMWI) in Sri Lanka and livestock at the International Livestock Research Institute (ILRI) in Kenya and Ethiopia.

For vegetables, we have the Asian Vegetables Research and Development Center (AVRDC) - The World Vegetable Center in Taiwan, which sets the trends and priorities for vegetable R&D and vegetable-related issues.

Mission beyond vegetable

Vegetable is important. This is the standing campaign of the AVRDC. Vegetable is vital for a strong economy, significant for a healthy diet, and generally, an imperative component for a productive human life.

Economy-wise, the vegetable industry is the "engine" for growth particularly among developing countries. It provides jobs, supports agribusiness industries, and diversifies farm income.

As an important food-source, vegetables are essential for human health and survival. Even though people in the developing countries live mostly on rice, wheat, and cereals these are not enough to achieve the essential micronutrients needed by our body. Vegetable is not only cheap, it is also renewable and sustainable.

Those who eat vegetables, grow healthy and strong. This sounds like a passé catchphrase for a government ad campaign, but this practically summarizes the basics of healthy living. As AVRDC succinctly puts it, "a diet rich in vegetables is an essential first step in helping a poor family to live a productive life and break the vicious cycle of poverty."

But beyond vegetable is a mission that AVRDC puts to heart: alleviate poverty and malnutrition in developing countries through improved production and consumption of vegetables.

AVRDC at a glance

The World Vegetable Center, one of the 15-member alliance centers of the Consultative Group of International Agricultural Research (CGIAR), is based in Shanhua, Tainan, Taiwan. But it has regional centers in Thailand, India, and Tanzania and outreach project offices located in Mali,

PDR, and Uzbekistan.

It was established in 1971 as a non-profit international agricultural research institute which is supervised by a management team that reports to a board of directors and whose members come from various countries. Its principal partners are national agricultural research and extension systems (NARS) and non-government organizations (NGOs) in developing countries.

With its approximately 30 internationally recruited professional staff and over 300 locally recruited researchers, technical, and administrative staff, the Center is committed to develop and disseminate technologies that increase people's access to safe and affordable vegetables.

The Center's four major research themes include: 1) Innovative germplasm enhancement for greater productivity, consumer acceptance, and biofortification; 2) Year-round supply of safe and nutritious vegetables; 3) Indigenous vegetables for biodiversity, healthy diet and marketing opportunities; and 4) Interactive, user-friendly information management for vegetables in developing countries.

AVRDC and BAR on vegetable R&D in the Philippines

The Bureau of Agricultural Research (BAR), with vegetable as one of its R&D priority areas of concern, has always been in close coordination with The World Vegetable Center.

Currently, BAR is supporting two major researches geared towards poverty alleviation, nutrition improvement and livelihood opportunities for those in the rural areas. These researches are: 1) Promotion of Indigenous Vegetables for Poverty Alleviation and Nutrition Improvement of Rural Households in the Philippines and; 2) Performance Evaluation of Promising Lines of Vegetables in the Ilocos Region.

The foreign-assisted project, "Promotion of Indigenous Vegetable for Poverty Alleviation and Nutrition Improvement of Rural Households in the Philippines," aims to strengthen food security, improve nutrition and the income-generating capacity of the rural poor while at the same time conserving the biodiversity of Philippine vegetables. It is coordinated by BAR of the Department of Agriculture (DA) in collaboration with DA-Regional Field Units (RFUs), the National Nutrition Council (NNC) and the local government units (LGUs).

Specifically, the project aims to: 1) gather information on existing indigenous vegetables and their utilization in the target areas; 2) introduce at least 20% of the farmers and rural households in the target areas to potential income opportunities offered by indigenous vegetable cultivation; 3) introduce indigenous vegetable varieties that will contribute to better nutrition and healthy diet in the target areas; 4) improve nutrition of resource-poor households in the target areas through increased consumption of indigenous vegetables and dissemination of technologies for their production; and 5) train at least seven NARS staff on strategies to promote utilization of indigenous vegetables for them to be trainers in indigenous vegetable production and utilization.

Meanwhile, the project on "Performance Evaluation of Promising Lines of Vegetables in the Ilocos Region" is supported by BAR through its National Technology Commercialization Program (NTCP) and is coordinated by AVRDC in collaboration with DA-RFUs.

Among the vegetables being tested are tomato, garlic, eggplant, Chinese cabbage and sweet pepper. According to Dr. Marlowe U. Aquino, NTCP coordinator, who accompanied the AVRDC mission team during their trip in the Philippines to conduct vegetable evaluation in November 2006, these vegetables are evaluated for regional adaptation to support the vegetable R&D and later on the vegetable industry for sustainability of quality vegetable. He said further that, the current partnership strategy between the Center and the Philippines is now the model to be introduced by the AVRDC to its partner agencies and country representatives especially in Asia, Africa, and the Latin American regions to make their vegetable programs efficient and effective globally. Likewise, this evaluation activity is part of the technology sourcing and validation activities that determine whether the introduced technologies are properly accepted, utilized, and adopted for wide-scale application. In this case, vegetable varieties are initially tested prior to distribution for farmers' utilization. ☺

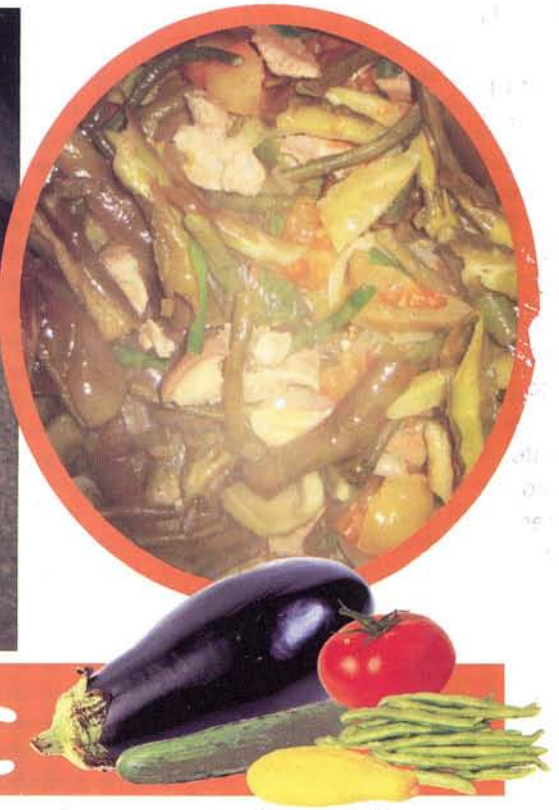
Sources

1. The World Vegetable Center official website. http://www.avrdc.org
2. Promoting Utilization of Indigenous Vegetables for Improved Nutrition of Resource-poor Households in Asia. AVRDC Annual Technical Report, January 1 to December 31, 2005.
3. "AVRDC team conducts vegetable R&D evaluation" by Dr. Marlowe U. Aquino. BAR Chronicle, Vol.7 No. 11. November 2006 issue.

Photo by the world vegetable center

The indigenous vegetable garden at the AVRDC Headquarter in Taiwan


photos by marlowe aquino



Pinakbet

A cultural symbol of Filipino traits and values

BY MARLOWE U. AQUINO, PH.D.
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In the sphere of food and culture, a particular food is associated with culture. Why is this so? In the early days, people grew crops according to their needs. What they did not know was, they produced crops and raised animals for specific reasons. Crops are grown in small parcels of land or on one's own backyard as a ready source of fresh food. On the other hand, crops are grown to augment household finances and supplies for better farm production. Nonetheless, what is the relationship of food with culture? The way people, places and events are intertwined to describe a true Filipino trait.

What is *pinakbet*?

Pinakbet is a local Filipino dish complete with a variety of indigenous vegetables cooked in a big pot and seasoned with *bagoong* or fish sauce. *Pinakbet* originated in the Ilocos region (Ilocos Norte, Ilocos Sur, La Union and Pangasinan) which is prepared specifically by true blooded-Ilocanos.

The local dish is a mixture of eggplant (either small, green round-shaped or slender purple in color), okra, bitter gourd (the small mature ampalaya), garlic, onions or shallots (locally termed as *lasona*), tomatoes, lima beans, string beans, green chili, and sigarillas. The Ilocanos do not place squash (*kalabasa*) unlike other ethnic groups cooking *pinakbet*. The squash distorts the taste and aroma of the vegetables, which are uniquely delectable and sumptuous. The variations in the vegetables came because of their availability and the inter-marriages that happened in the course of cuisine development.

Dish preparation

Traditionally, the vegetables are harvested at the backyard of the family. They are prepared immediately to maintain their freshness. This is associated with the local song *Bahay Kubo*, in which the vegetables are grown in the small lot of the farmer or family.

The vegetables are washed, sliced and chopped according to desired length and size. In most cases, these are cut and mixed together in one big clay pot. Cooking in the clay pot is believed to enhance the flavor of the vegetables. The garlic, onions and tomatoes are sautéed in a separate pan using coconut oil. As soon as these are cooked, they are seasoned with the *bagoong* placed on top of the mixed vegetables. The vegetable dish is made to simmer until cooked and then served immediately. The secret to delicious *Pinakbet* is: DO NOT OVER COOK THE VEGETABLES. The heat of the pot will do the rest. Over-cooked vegetables sag and lead to discoloration resulting to loss of vitamins and minerals.

Cultural symbolization

The *pinakbet* is one of the Filipino dishes that reveals a story of Filipino life and culture. During the early days, vegetables harvested in ne's own farm signify openness and armth. It provides an atmosphere of eshness and willingness to share. It ives an opportunity to discuss with ther families or farmers the manner of vegetable production including the arieties used and management ollowed. In short, the start of production until the vegetables are cooked and served is already associated with the farmer and his/her family's as industry and generosity. Ilocanos may be questioned on their generosity but they really spend and share whatever they have that is worthy and valuable.

In addition, *pinakbet* is served during the farming season. The activities include land preparation, irrigation, fertilization, crop protection management, and harvesting. No household will miss serving the dish because it is believed to provide strength and vitality to the farm workers. If the farm is rich with *hito* (African Eel) and *dalag* (Mudfish), for sure the *pinakbet* would be sumptuous thus encouraging the farm laborers and neighbors to go and help in the farm activities.

Beyond *pinakbet*

Over the years, the crops have become part of the Filipino cuisine and lifestyle. In order to maintain abundance and supply, farmers started to diversify and increase their production not only for household purposes but also for other uses. Majority of dishes now include these crops as main vegetable ingredient or as garnishing. The crops can now be identified with specific places where there are Ilocanos attending to farm operations; Ilocos Norte and Ilocos Sur as the sources of garlic, tomato and in some instance, onions. La Union became the center of string beans and lima beans at one time. Pangasinan still maintains their eggplant, okra and ampalaya production to meet the demand of Metro Manila and nearby provinces. These places remain as the prime Ilocano *pinakbet* producing areas.

Presently, the need to increase production of these crops led to the launching of two major programs under the Department of Agriculture (DA). These are the *Ginintuang Masaganang Ani* of the High Value Commercial Crops for *pinakbet* to meet market demands at a lower cost and the *Gulayan Para Sa Masa* to address food scarcity and malnutrition in the rural and urban poor areas. These DA programs are jointly implemented with other support agencies like the local government units, rural and public health offices, state universities and colleges and financial institutions.

In implementing these programs, true Filipino values and spirit such as strong partnership and leadership are always integrated shown through cultural identification and integrity. ☺

Ready-to-cook...from page 24

Photo by marlowe aquino

the packed vegetables were transferred to 5°C.

The scientists also observed a lower level of oxygen in the vegetables packed in PE bag as compared to the vegetable packed using PVC bag. They believed it was because the PE bag was sealed tighter, as it was electronically sealed. The PVC bag was sealed using a packing tape. Changing levels of oxygen and carbon dioxide increase respiration rate inside in the vegetable causing diseases to develop in the vegetable.

The study concludes that deterioration of the vegetables can also be caused by it losing moisture, which sometimes depends on the kind of vegetable, and on how thick or thin they were cut.

What you can do

Deterioration in fresh produce is inevitable, even without interference. Regardless of how it was cut or sliced, minimally processed, peeled, trimmed, and cut - vegetables or fruits showed hastened signs of decay as compared to the whole or intact vegetables.

The key to a safer and longer shelf- life of a produce, as recommended by the study, is proper temperature and packing treatments. Vegetables like *sayote, sitao,* eggplant, squash and *ampalaya* the vegetables which showed higher ethylene production - should be packed three hours after cutting when the production of ethylene, the substance causing ageing, has declined.

While unpacked, cut vegetables should be stored at 5°C to arrest moisture loss, aging, and breaking down. If stored at 15°C, you can still hope to treat your family to a dinner of *sinigang* even at 5 days after packing. Even better if held at a chilled temperature of 5°C, your packed *chopsuey* will still be toothsome after 14 days.

Next time you drop by the market, you might want to take a closer look at the packed vegetables sold. With this know-how in mind, you are assured of an instant, worry-free dinner. ☺

This study was based from the study "Physiological and microbial changes of packed ready-to-cook vegetables during storage" by Noida B. Flor, Gladys S. Ocfemia, Elda B. Esguerra, Gloria D. Masilungan and Ofelia K. Bautista of the Postharvest Training and Research Center (PHTRC), University of the Philippines Los Banos (UPLB), College Laguna. For more information, you may contact them at telephone nos. 049-535-3138; 536-2444; or fax at 049 536-3259

ROAD TO SUSTAINABLE organic agriculture industry

BY MA. ELOISA E. HERNANDEZ
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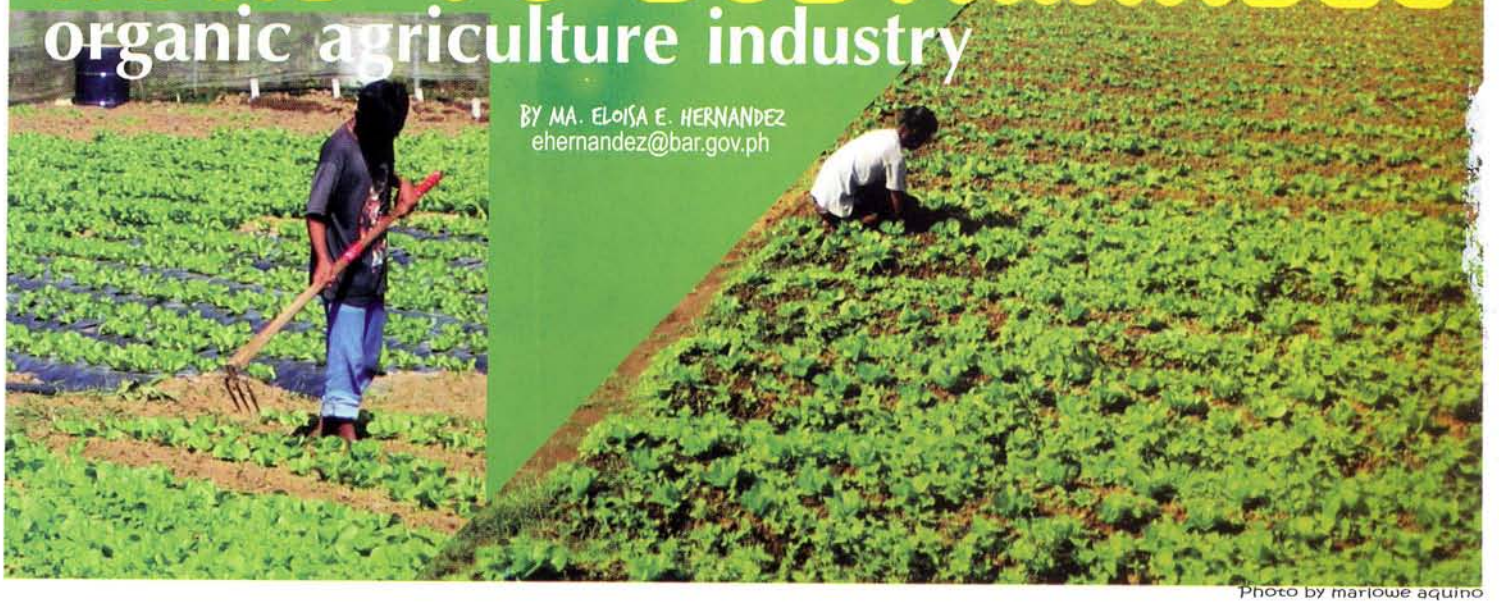

Photo by marlowe aquino

Farmers have long been crying for attention on their poverty situation exacerbated by food shortage, lack of proper nutrition and lack of income for their families.

This condition paved the way for the issuance of Executive Order (E.O.) 481 signed by President Gloria Macapagal-Arroyo known as the Promotion and Development of Organic Agriculture in the Philippines.

The E.O. states: "to promote agriculture development, conserve environmental resources and promote social equity and product access to foreign and domestic markets". Furthermore it seeks to enhance global competitiveness, environmental integrity, food security and safety, and increase productivity and alleviate poverty.

This law prompted the drafting of the Philippine Organic Agriculture Roadmap (2007-2010). As articulated by the International Federation of Organic Agriculture Movements (IFOAM), "Organic agriculture includes all agricultural systems that promote the environmentally, socially, and economically sound production of food and fibers". This reduces the use of chemo-synthetic fertilizers, pesticides, and pharmaceuticals. Instead, it allows the powerful laws of nature to increase both agricultural yields and disease resistance.

In a meeting held at the Century Imperial Suites, Quezon City on 27 October 2006 to formulate the road map, Philippine Development Assistance Program (PDAP) mentioned that the, "the issuance of EO 481 presents opportunities and challenges to the organic agriculture industry. As the industry is dispersed, regrouping and constituency building is needed for a stronger voice at the policy level. The road map is seen to look over the long-term development of the industry and would serve as a platform where different sectors could collaborate."

The E.O. 481 has the following objectives: (1) promote organic agriculture as a farming scheme especially in rural farming communities; (2) forge effective networking and collaboration with the stakeholders involved in the production, handling, processing and marketing of organic agriculture products; (3) guarantee food and environmental safety by means of an ecological approach to farming; and (4) ensure the integrity of organic products through the approved organic certification procedures and organic production, handling and processing standards.

Consultations

Series of meetings, workshops and consultations were already conducted. From 2004 to present, these gatherings provided outputs which served as baseline information essential in crafting the roadmap, some of these were: National Organic Workshops (June 2004 and December 2005), Organic Agriculture Agenda Workshops in Bacolod (August 2006) and Davao (September 2006), interview of industry stakeholders by Peace and Equity Foundation (August 2006), EO 481 Working Committee Meeting (September 2006), BAFPS EO Consultations in Davao, Cagayan de Oro, Bacolod, and Manila (October 2006 and November 2006) and previous studies on organic agriculture in the Philippines.

Based on the draft roadmap prepared by the PDAP "these consultations converge on the common agenda of ensuring genuine representation of small-scale organic farmers as well as increasing their access to and control of resources".

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Indigenou
Staving off rura

BY RITA T. DELA CRUZ
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Poverty and malnutrition are two big words. We often hear them being cited as two of the most emerging global issues we face today. For a developing country like the Philippines, these issues are already humdrum to the ears. We witness and feel them mostly in the rural areas where livelihood opportunities are scarce and nutrition advocacy programs of the government fail to reach those in the far-flung areas of the country.

Poverty, malnutrition, and Philippine indigenous vegetables. What is the connection?

They don't seem to rhyme or make a significant combination either but these three big concepts play an important role in a project implemented by Asian Vegetable Research and Development Center (AVRDC) -The World Vegetable Center, the principal international center for vegetable R&D, based in Taiwan. It aims to reduce poverty and malnutrition in developing countries through improved production and consumption of vegetables.

The project, "Promotion of Indigenous Vegetable for Poverty Alleviation and Nutrition Improvement of Rural Households in the Philippines," aims to strengthen food security, improve nutrition and the income-generating capacity of the rural poor, at the same time conserving the biodiversity of Philippine vegetables.

It is coordinated by the Bureau of Agricultural Research (BAR) of the Department of Agriculture (DA) in collaboration with DA-Regional Field Units (RFUs), the National Nutrition Council (NNC) and the local government units (LGUs).

Indigenous vegetables

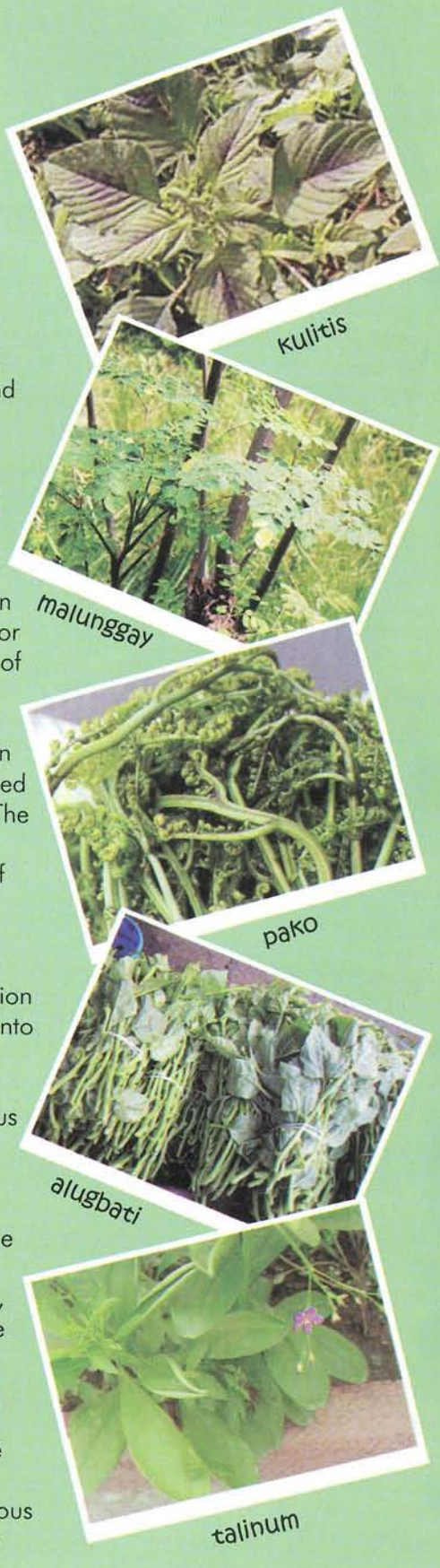
According to the World Indigenous Vegetables (2006), indigenous vegetables (IVs) refer to those vegetable species native to or originating from a particular region or environment. It includes those species that are naturalized or varieties that have evolved from materials introduced to the region from another geographical area over a long period of time. High-yielding vegetables as products of scientific breeding are not indigenous.

Examples of Philippine indigenous vegetables are: alugbati, ampalaya, bayok-bayok, himbabao, kulitis,

Photo by marlowe aquino

...s vegetables: ...l malnutrition and poverty

Photos by the World Vegetable Center



labong, upo, malunggay, pako, saluyot, talinum, talong, amaranths, cucurbits, radish, luffa, wax gourd, snake gourd, squash, jute, basella, kangkong, ivy gourd, basil, lablab, rosella, okra, yardlong bean, winged bean, cucumber, tomato, and vegetable soybean.

These vegetables are easier to grow, more resistant to pests, and acceptable to local tastes. It is due to these reasons that indigenous veggies are suitable as cash crops in peri-urban systems, source of vegetables for daily sustenance in home gardens, source of new crops, and as source of variation for diversification of production systems and diet.

Unfortunately, these vegetables are at risk in many countries. This is because traditional varieties are being replaced by high yielding commercial varieties, which are more proficient and are preferred by most producers.

Why indigenous vegetables?

Vegetables are cheap sources of food in promoting health and are also the most sustainable. Indigenous vegetables are rich in vitamins and minerals and other health promoting factors such as high anti-oxidant activity.

Indigenous vegetables can play a major role in the diversification of Filipino diet leading to a more balanced source of micronutrients. AVRDC studies showed that the diversification of diets can increase in nutritional content. Although the production of indigenous vegetables is challenged by the extensive cultivation of high value commercial vegetables, the value and desirable traits of indigenous vegetables are comparable and sometimes better than the commercial varieties. They are resistant to pests and diseases, easier to cultivate, and acceptable to local taste.

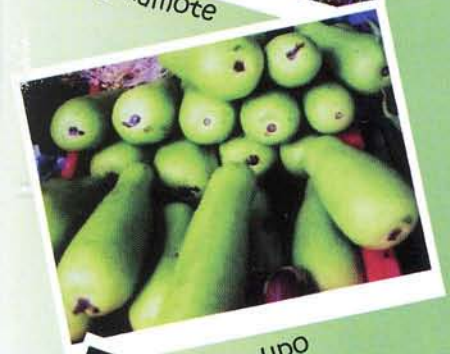
Moreover, the integration of indigenous vegetables in the backyard garden or as intercrop to major crops and in other production systems could provide livelihood opportunities and an increase in income of the resource-poor households thus, addressing the issue of poverty.

Despite the recognized importance of indigenous vegetables in supplementing food and nutritional need of the people, they are underutilized. The possible reasons are lack of available germplasm for widespread use, lack of seeds, inadequate information on use and importance, lack of information about their performance and input requirements, and insufficient information on how indigenous vegetables can fit into production systems.

Through this AVRDC project, introduction and selection of indigenous vegetables is promoted through technology demonstrations on proper cultivation and utilization in selected, target rural areas in the Philippines. The priority areas include those with high prevalence of malnutrition and poverty, specifically the poorest provinces of the country in Regions 5, 6, and 10. Likewise, the project promotes the use and benefits of cultivating indigenous vegetables in home gardens and in the production of seeds.

Among the 10 priority indigenous vegetables for promotion are: alugbati


talbos ng kamote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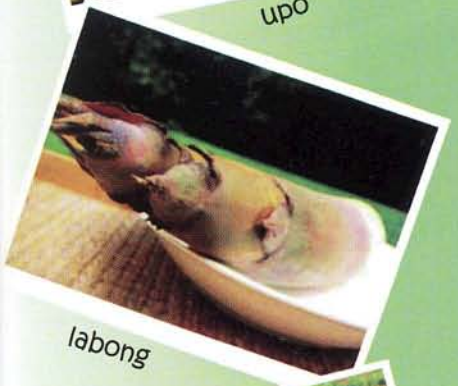
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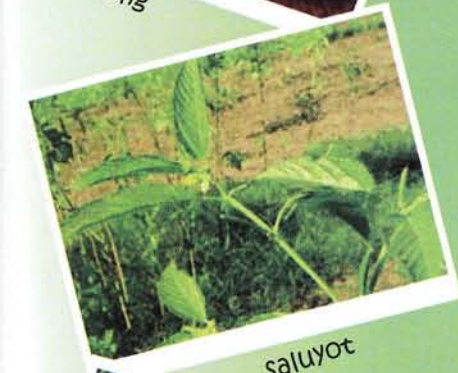
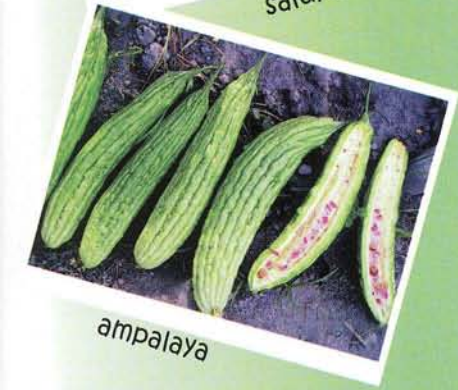

saluyot


ampalaya

(*Basella alba*), *ampalaya* for leaves or *bayok-bayok* (*Momordica charantia*), *himbabao* (*Allaeanthus luzonicus*), *kulitis* (*Amaranthus spp.*), *labong* (bamboo shoot), *upo* or bottle gourd (*Lagenaria siceria*), *malunggay* (*Moringa spp.*), *pako* (fern), *saluyot* (*Corchorus spp.*), and *talinum* (*Talinum triangulare*). These indigenous vegetables were chosen based on: 1) nutrient content, 2) medicinal and health benefits, 3) non-food uses, and 4) volume of production and food preparation.

These vegetables are considered "indigenous" to the Philippines because they grow abundantly in the rural areas, although not everybody is aware of their value as food and as affordable and alternative sources of essential nutrients.

Indigenous vegetables field day

With more than a hundred attendees (farmers, traders, students, and consumers) during the Indigenous Vegetable Field Day held in Eastern Visayas in October and Northern Mindanao in November, who were thrilled at the sight of flourishing plots with diverse indigenous species of vegetables of different shapes, sizes, vibrant color variations, and texture the activity was considered a success.

The field day served not only as an eye opener for hopeful growers but a wider opportunity for other concerned stakeholders to learn the importance and essence of the project.

The effective networking of concerned agencies like the Eastern Visayas Integrated Agricultural Research Center (EVIARC), the Northern Mindanao Integrated Agricultural Research Center (NOMIARC), and the LGUs also contributed a lot to the success of the activity.

Among the indigenous vegetables exhibited in plots include: eggplants, amaranths, cucurbits, radish, bottle gourd, luffa (smooth and ridged types), wax gourd, bittergourd, snake gourd, squash, jute, basella, kangkong, ivy gourd, basil, lablab, rosella, okra, yardlong bean, winged bean, cucumber, tomato, and vegetable soybean.

The attendees selected the vegetables based on overall appearance, yield and high fruiting ability which are also the standards for high demand and profitability in the local market. The size and appearance of the vegetables also made a great impact particularly those in the food and eatery business.

These field days are parts of the AVRDC and its Philippine partners' efforts to collect and conserve indigenous vegetables. As Dr. Liwayway Engle, head of the AVRDC Genetic Resources and Seed Unit, emphasized initiating the awareness about these kinds of veggies and collecting the seeds are just part of the initial steps. The ultimate goal is an increase in the actual utilization of these vegetables.

At the moment, promising lines are being identified and their seeds are being purified before distribution. Nutritional tests have also been conducted and production strategies are being developed. In no time, these so-called underutilized vegetables will be known and used in the mainstream vegetables arena. ☺

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Innovating vegetable links:

Farm to fork approach

BY MARLOWE U. AQUINO, PH.D.
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Farm to market

The new direction of the vegetable industry in the world market has led to innovative approaches that link research results generated and developed by research institutions to end-users. Most often, these are translated into information and technologies coupled with strategies to support implementation. These address complementation, partnerships including linkage and networking, agribusiness and enterprise development; all of which are towards domestic and international global competitiveness. In the case of vegetables, majority of these strategies lead to social and economic development including systems operation to ease production and marketing. With the aid of information and communication and technology, these strategies are immediately shared to ensure that specific commodity issues and concerns faced by the industry are dealt with. The vegetable industry adheres to the Farm-to-Fork Approach which is moving to its peak towards worldwide application.

The approach

The Farm-to-Fork or Farm-to-Plate (FTF) is an innovative approach that enables agricultural produce particularly vegetables to be freshly harvested, packaged and processed to reach the household. Through the approach, three critical factors are considered - the people (producers and consumers), place (market) and price. These factors are interlinked with each other that they rely on functional relationship. This, means that people should be aware of product standards and appropriate uses of the produce as well as areas where they are coming from. The produce must be found in places where it is accessible and provide an avenue for information exchange by farmers, processors, traders and even financial institutions. Vegetables should have reasonable price that enables everyone to purchase and have a good feast.

Advantages

The FTF approach was first introduced by developed countries like US, Australia and Canada as an alternative way for easy and convenient cooking. Housewives prepare vegetable salads already found in food trays in supermarkets which are well-packaged and ready to serve. In addition, weight watchers and health fitness centers adopted and introduced the approach by having their own farms producing vegetables which are sold to their health buff clients. This approach eventually helped a lot of individuals who are health conscious and with dietary concerns.

Users of the approach

In Southeast Asia and East Asian countries like Singapore, Korea, Japan, China, Hong Kong, Taiwan, Thailand, Malaysia, and Brunei, the approach was extensively used in their farms. Progressive farms build their own processing and packaging structures. Still at the farm, vegetables are classified and graded. Vegetables

not pass the quality
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address another client
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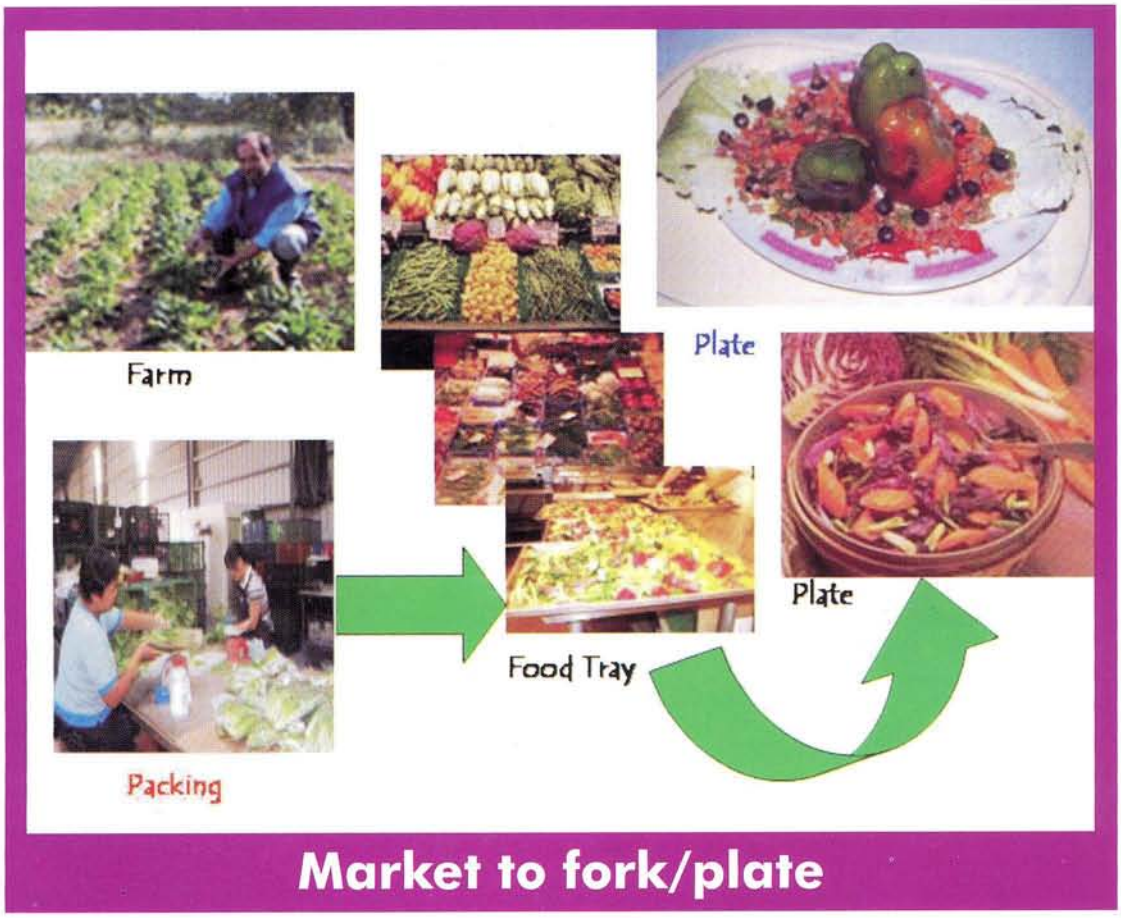
proven vegetable
practices and strategies.

The case of Singapore could be considered as very successful. The Singaporean government introduced a complementary strategy of contract farming to produce its vegetable needs in areas where production and processing systems could be monitored with strict quarantine laws. The laws and regulations are strictly followed to address global competitiveness through product standards, food safety, and nutritional value. This made Singapore successful that other neighboring countries ventured into the approach tapping natural farming or organic agriculture.



Market to fork/plate

Future directions

Vegetables are already recognized for their nutritional importance in every meal around the world. Because people are now very particular on quality of produce, every vegetable should be seen in the market anytime of the year with affordable price. These directions in vegetables globally are addressed by institutions on research and development particularly on biotechnology and genetic engineering, marketing systems, information, communication and education and now development trends highlighting people's social needs.

In the Philippines, the Department of Agriculture's National Technology Commercialization Program (DA-NTCP) is into commercializing vegetable technologies that have impact on people's lives. The DA-NTCP supports efforts of its partner agencies on the production of pesticide-free vegetables and natural farming to ensure that this will not have a tremendous effect especially on small farmers. In addition, the program is also on guard regarding the influx of vegetables because of world trade. The DA-NTCP safeguards the interest of the small farmers and addresses the needs for a global competitive market. ☺

Because people are now very particular on quality of produce, every vegetable should be seen in the market anytime of the year with affordable price.

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Gulayan Para sa Masa

Photos by marlowe aquino

Backyard vegetable-growing opportunities for poor Filipinos

BY RITA T. DELA CRUZ
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Poverty and hunger are two of the most common global issues we face today, particularly in a developing country.

The recent Survey Review of the Social Weather Station (SWS) revealed that the Philippines is of a record-high level of hunger, amidst the promise of an emerging growth in the economy.

A deep concern over this high incidence of hunger and poverty, the Department of Agriculture (DA) through the Bureau of Plant and Industry (BPI) implemented a program that would increase farm productivity, create jobs and livelihood opportunities, and pull down the cost of essential goods for the benefit of the poor Filipino consumers.

DA Secretary Arthur C. Yap, in his latest proclamation, pointed out that "the nascent rebound of the economy will remain as cold statistics to ordinary Filipinos unless this turnaround can put a dent on the high incidence of hunger and poverty."

Gulayan Para sa Masa project

Anchored on the premise of alleviating rural hunger and malnutrition in depressed areas of the country, the *Programang Gulayan ng Masa Tungo sa Kanayunang Malusog sa Pag-asa* also known as the Family Farm Program, was born.

The *Gulayan Para sa Masa* is only one of the four main anti-poverty initiatives of the DA along with other national programs such the *Manukan Para sa Masa*, *Isdaan Para sa Masa*, and the *Barangay Food Terminal*. These programs are anchored on promoting integrated food production through backyard gardening in the country's most vulnerable rural communities and provision of training with starter seeds, planting materials, chicken, swine, small livestock and fish.

The *Manukan Para sa Masa* is an initiative to afford families additional income and source of food and protein (eggs and chicken meat). Meanwhile, the *Isdaan Para sa Masa* provides catfish as source of food income while the *Barangay Food Terminals* are outlets for nutritious safe, and affordable food commod benefiting rural families. These programs are meant to benefit an initial 400,000 rural and urban families.

The *Gulayan Para sa Masa* is a national program that addresses hunger and malnutrition in selected areas of the country. It is a vegetable backyard raising program aimed to provide opportunities to unemployed Filipinos particularly those from the poorest provinces of the country. It is hoped to benefit 216,300 rural families over the next five years of its implementation.

Implementing this program is BPI together with other DA agencies such as the Bureau of Animal Industry (BAI), Agricultural Training Institute (ATI), Bureau of Fisheries and Aquatic Resources (BFAR) and the Department's Regional Field Units (DA-RFUs) in coordination with the Local

Photo by marioue aquino

Government Units (LGUs) and the Department of Social Welfare and Development (DSWD). Technical assistance is given by the DA agencies co-implementing the program.

The priority beneficiaries of this program are the 1,163 barangays that are considered as very very vulnerable (VVV) barangays as identified by the Department of Health-National Nutrition Council (DOH-NNC). The first three priority areas for the implementation of this program are Masbate, Sulu, and Tawi-tawi, which are also the top 3 in the 10 poorest provinces of the Philippines (NSCB, 2000).

According to BPI Director Lealyn Ramos, this program does not only provide livelihood opportunities and access to affordable vegetables but through this, communal gardens are being established for those without lots to till which then serve as seed and planting materials nursery in the areas.

After covering the VVV areas of the country, the program moves to include 1,000 other very vulnerable (VV) barangays particularly those in Apayao, Capiz, Negros Oriental, Zamboanga del Norte, Basilan, Bukidnon, Maguindanao, and Lanao del Sur.

Success story: The Masbate experience

The *Gulayan Para sa Masa* was first launched in Masbate in July 2006. The program initially covered six nutritionally-depressed municipalities of Masbate, which included Pio V. Corpuz, Placer, Dimasalang, Mandaon, Balud and Esperanza wherein about 52 barangays and 5,200 families were able to benefit from this program.

Each participating household started with a 100-square meter backyard garden wherein seeds and planting materials were given for free by the DA. Also distributed were garden tools, sprayers, fingerlings and information materials to the beneficiaries. Aside from these inputs, technical assistance from the local government DA was also provided.

Aside from the backyard garden, a 1,000 square-meter communal garden was established for each municipality to serve as source of seeds and planting materials.

One of the main reasons for the success of this program in Masbate is the active involvement of the LGU as their efforts are crucial in the successful implementation of the project and the participation of households in their area.

The people of Dimasalang, one of the covered sites for the program, saw the *Gulayan Para sa Masa* as a challenge to improve their lifestyle and not only as a livelihood opportunity. Dimasalang Mayor Henry J. Naga expressed his immediate interest in this DA-initiated program and wished to replicate it in all the barangays of their municipality. According to Mayor Naga, this program is only an initial step to realize the goal of making Dimasalang as one of the progressive municipalities not only in Masbate but in the country.

Better opportunities for farmers

Five months after its inception in July 2006, the *Gulayan Para sa Masa* program has benefited 13,669 families of the 170 barangays from the provinces of Sulu, Tawi-tawi, Masbate, Apayao, and Zamboanga del Norte. This is 78% of the 17,000 target family-beneficiaries last July-December.

So far, according to DA Secretary Arthur C. Yap in one of his recent proclamations, 9,878 families were able to harvest vegetables from

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Master's Garden

Only the best quality, nutritious vegetables

BY MA. ELOISA E. HERNANDEZ
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"As a farmer, heart and soul, it is always my goal to produce vegetable crops with the highest quality, rich in vitamins and minerals. And the only certain way to grow the best vegetable crops and enjoy nutritious supply of food is by growing them organically". This is from, Mr. Pat Acosta who put up a 3000 sq. m. micro-eco farm named, Master's Garden, located at Brgy Pinalyok, Puguis, La Trinidad.

It was a mere vision in 1999 to develop a farm where salad greens and vegetables would grow. It was not easy for him to put his vision into operation during the first few years. He faced problems especially acceptance of the community. Mr. Acosta doubted whether what he is doing would be better than the conventional method of farming. But producing tasty and nutritious vegetables has gained the trust and credibility he had been wanting.

Operations

The Master's Garden introduces organic vegetable production. "It is a production system that avoids or largely excludes the use of synthetic fertilizer, pesticides, growth regulators and chemicals. It relies on crop rotation, crop residue, animal manure, legumes, green manure, off-farm organic wastes, mechanical cultivation and mineral bearing rocks for their production. It also uses biological pest control to control insects, weeds and other pests to maintain productivity."

The Garden produces its own organic fertilizers utilizing weeds. A certain amount of compost from wild plants, kitchen scraps, weeds, leaves, etc. is produced every month, to maintain soil fertility.

"One does not need a big farm to grow vegetables and be profitable," Mr. Acosta commented. "With this, I am happy that I have benefited greatly from my minimum input which is now maximized with organic gardening," he added.

The farm has been producing lettuce, carrots, broccoli, peas, cucumber, tomatoes, beans, cabbage and a wide range of culinary herbs. Flowering plants are also available at reasonable prices. Tools and other garden equipment are also sold.

The Master's Garden does not only serve as production area but also as an educational facility. This influences more people into organic farming. School children are exposed first hand to the many processes involved in vegetable growth.

Loving nature

The techniques developed are in partnership with nature to grow the best food possible, while making the soil healthier and protecting the environment.

"Even if farming as a business requires minding return on investment, waste reduction, quality/quantity of products and profitability, we should not lose sight of our environmental responsibility, that is to leave the world better than when we found it," Mr. Acosta remarked.

Bits and pieces of success

After almost seven years of operation, they still face the problem on certification. People are uncertain


Photo by marlowe aquino

Master's Garden owner, Pat Acosta (left) with Dr. George Kuo (2nd from left), deputy director for International Cooperation of AVRDC; Ms. Mandy Lin, principal research scientist and technical staff of IC-AVRDC(right); and Ms. Leonora Verzola, asst. RIARC manager in CAR (2nd from right).

whether their products are really organic. This never hindered them though in their operations. "Certification was replaced by mere trust and word of honor to the buyers and the markets." Mr. Acosta said. They became successful due to persistence and innovative gardening techniques.

Reaching farmers

Mr. Acosta, the local government unit of La Trinidad and the Municipal Agriculture Office, and the farmers formed the La Trinidad Organic Practitioners Multi-Purpose Cooperative (LaTOP-MPC) for a joint marketing system with technology sharing.

Through Mayor Nestor Fonguin, a stall is occupied by LaTOP-MPC at the La Trinidad Public Market to sell organically produced vegetables. On Wednesdays and Saturdays, the Coop sells organic vegetables in Baguio to promote and share their ideas. They will soon bring quality organically produced products to Manila.

The coop offers training courses in organic gardening to interested participants. The modules include *organic gardening, a to z of organic gardening, composting* and *container gardening*. For children, it provides them a guided tour, shows them experiments and provides them hand-on experiences.

On a personal note

"But what is most fulfilling to me is the smile and heartfelt thanks I receive from everyone, knowing that they purchased the best and most nutritious vegetables," remarked Mr. Acosta. He added that it is more satisfying to know that he had done what is most beneficial for his family, friends, community and the environment.

Even as an entrepreneur, Mr. Acosta still gives priority to his family. "I want my family to benefit first. It gives me joy seeing them consume only the best and most nutritious vegetables," he said. He considers his enterprise a win-win situation; it nourishes his family while generating an income.

As a farmer, he has equipped himself with the right knowledge and proper skills to raise such a productive farm. A horticulturist at heart, he developed his confidence through trainings at the University of the Philippines Los Baños (UPLB) and hands-on knowledge while visiting organic farms abroad. With his enthusiasm and passion he keeps on reading technical materials then applies his knowledge on his farm.

"But what is most fulfilling to me is the smile and heartfelt thanks I receive from everyone, knowing that they purchased the best and most nutritious vegetables," - Mr. Acosta

One step forward

Mr. Acosta envisions the Philippines to set trend on exportation of organically produced vegetables. "Through the Department of Agriculture-Bureau of Agricultural Research (DA-BAR) National Technology Commercialization Program (NTCP), we can be a world leader in organic agriculture," Mr. Acosta ended. ☺

Photos by mariowe aquino

Showcasing organic farming system

BY MA. ELOISA E. HERNANDEZ
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Benguet. One of the legendary provinces in the country. It is often visited by tourists because of its cold climate, strawberry, and highland vegetable farms. For 15 years now, the Brookspoint Multi-purpose Cooperative has been in existence. Through the Brookspoint Multi-purpose Cooperative, Benguet has reverberated in the whole province and now making its name in Manila.

This cooperative initiated organic farming system here in the Philippines. From five adjacent farm members, the cooperative has now grown to diversified farms reaching different barangays. Some of these are Shilan and Bohong in La Trinidad and Acap in Tublay. With a common goal, this group of farmers aimed at addressing food safety in the country through nature farming.

The cooperative does not merely start in utilizing organic fertilizers. They once used pesticides. By utilizing pesticides they generated large income but they opened their minds and diverted their interest in organic vegetable production. Brookspoint has been successfully leading its farmer-members in producing a wide variety of crops. Brookspoint MPC President Victor Inso, officer-in-charge for marketing, served as the pioneer chairman in 1992. Now there are 56 individual farmers who are members.

Brookspoint was developed through a project under the Agricultural Competitiveness Enhancement Farm (ACEF) of the Department of Agriculture (DA) in 1991. A loan package of P 25 M was able to put up 70 units of greenhouses distributed in five municipalities, three nurseries, a soil analysis laboratory and transportation facilities. Also, a collection and distribution center was established.

Other institutions extending support are the Department of Science and Technology (DOST) and Landbank of the Philippines.

It took Brookspoint MPC 10 years to rehabilitate the whole areas forgetting pesticides and inorganic fertilizers. Years of hardship paid off, the programs and projects of the cooperative was formally approved. Moreover, Brookspoint has built credibility in producing highly-acceptable vegetables. The secret to the success is organic farming.

"Organic farming is a form of agriculture which avoids or largely excludes the use of synthetic fertilizers and pesticides, plant growth regulators and livestock feed additives" as defined in wikipedia. Organic farmers rely on crop rotation, crop residues, animal manures and mechanical cultivation to maintain soil productivity to supply plant nutrients, control weeds, insects and other pests. Through this system, farming costs are lessened. Organic farming practices preserve the environment, maintaining nature's gift.

It is the simple willingness of the farmers to adapt the technologies and an open-mind that made them successful. All members are consulted on new information before its application. Leaving their conventional methods, the whole region will soon totally get rid of utilizing chemicals, inorganic fertilizers and pesticides.

According to Dr. Leonora Versola, assistant manager of the Regional Integrated Agricultural Research Center (RIARC) in CAR, farmers of Brookspoint are better identified as the "enlightened farmers" rather than calling them organic farmers. Enlightened because they shift from the traditional methods of farming using pesticide, fertilizers and other means to more simple way through organic farming. Enlightened farmers set the vision of "an enlightened and productive natural vegetable farming production system" geared to a clear direction on vegetable production.

There is one problem however,

Photo by marlowe aquino

that Brookspoint MPC has to hurdle which is accreditation. This raised issues on how certain that vegetables produced by Brookspoint are organic. Through the years, the cooperative has persuaded consumers of the great difference of organically produced vegetables and conventionally grown crops.

Now Brookspoint has been producing 18 varieties of fruits and vegetables such as tomatoes, bell pepper, broccoli, celery, lettuce, potato, carrots, pea, yacon. They also produce a wide variety of culinary herbs.

The National Technology Commercialization Program (NTCP), one of the flagship programs of the Bureau of Agricultural Research (BAR) is keen on strategically placing technologies to where they are needed through a market-driven approach. Through this program, it ensures that all technologies are applied, transferred, and commercialized for maximum utility.

The Bureau now considers culinary herbs for commercialization through the adoption of good agricultural practices. ☺

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Gulayan para sa masa...from page 18

Photo by AVRDC

their own backyards, indicating a 48% accomplishment rate. This Gulayan project is eyeing 207,403 beneficiary-households in 2007.

Secretary Yap emphasized that programs of the government can only be felt by ordinary Filipinos if the incidence of poverty is reduced through more jobs and livelihood opportunities and easy access to more affordable food. And DA is keen on its focus in enforcing initiatives to face poverty and mitigate hunger, one of which is through this *Gulayan Para sa Masa* program of DA which will continue to give opportunities and hope to poor Filipinos particularly those in the countryside. ☺

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Road to sustainable...from page 11

Unified vision

From the series of discussion by the different stakeholders and the definition and principles of organic agriculture by the IFOAM, a unified vision was formulated for the organic industry of the Philippines which is *"Sectorally reinforcing and mutually complementing approaches geared towards the development of a viable, sustainable and globally competitive organic agriculture industry".*

The program shall be aligned with the objectives to: (1) protect the integrity of organically certified products; (2) further enhance the stakeholders' awareness through a more focused capability building and establishment of commodity specific pilot sites; (3) increase productivity and income of the stakeholders in the supply chain; and (4) develop a sustainable market for organic products.

Collaboration

Non-government organizations (NGOs) and People's organizations (POs) have been long promoting diverse sustainable farming systems and technologies, developing market linkages and mechanisms, among others.

Government agencies have been conducting training for agriculture producers. In lieu of the creation of the National Organic Agriculture Program (NOAP), the Secretary of the Department of Agriculture serves as the chairperson for the National Organic Agriculture Board. Other agencies involved are the Department of Trade and Industry (DTI), Department of Health (DOH), Department of Interior and Local Government (DILG), Department of Environment and Natural Resources (DENR) and the Department of Science and Technology.

In 2003, the DA-Bureau of Agriculture, Fisheries, and Products Standards (DA-BAFPS) handled the standards development and accreditation of local certifying bodies in the Philippines. BAFPS also issued the implementing rules and regulations to carry out the provisions of E.O 481. In the same year, the Organic Certification Center of the Philippines (OCCP) was established as a local certifying body that has a multi-sectoral membership.

Research, development, and extension activities

Based on the draft, the DA-Bureau of Agricultural Research (BAR) and the DOST-Philippine Council for Agriculture, Forestry and Natural Resources Research and Development (PCARRD) are tasked to identify, prioritize and implement through their collaborating agencies research projects and related activities on organic agriculture. They shall develop, enhance, support and consolidate related activities and technologies.

Other agencies involved are the Bureau of Plant Industry (BPI), Bureau of Animal Industry (BAI), Bureau of Fisheries and Aquatic Resources (BFAR), and the Bureau of Post-Harvest Research and Extension (BPRE). These agencies shall assist in the development of organic farming systems pursuant to their organizational mandates.

The Agricultural Training Institute (ATI) shall undertake technology transfer and related extension activities. Likewise, the Bureau of Soils and Water management (BSWM) of the DA shall primarily focus on soils and water conservation measures and other strategies to enhance soil productivity and fertility.

In years to come, through the Organic Agriculture Roadmap, the organic agriculture industry in the Philippines shall stand up. Poverty incidence will hopefully diminish with farmers benefitting the most. ☺

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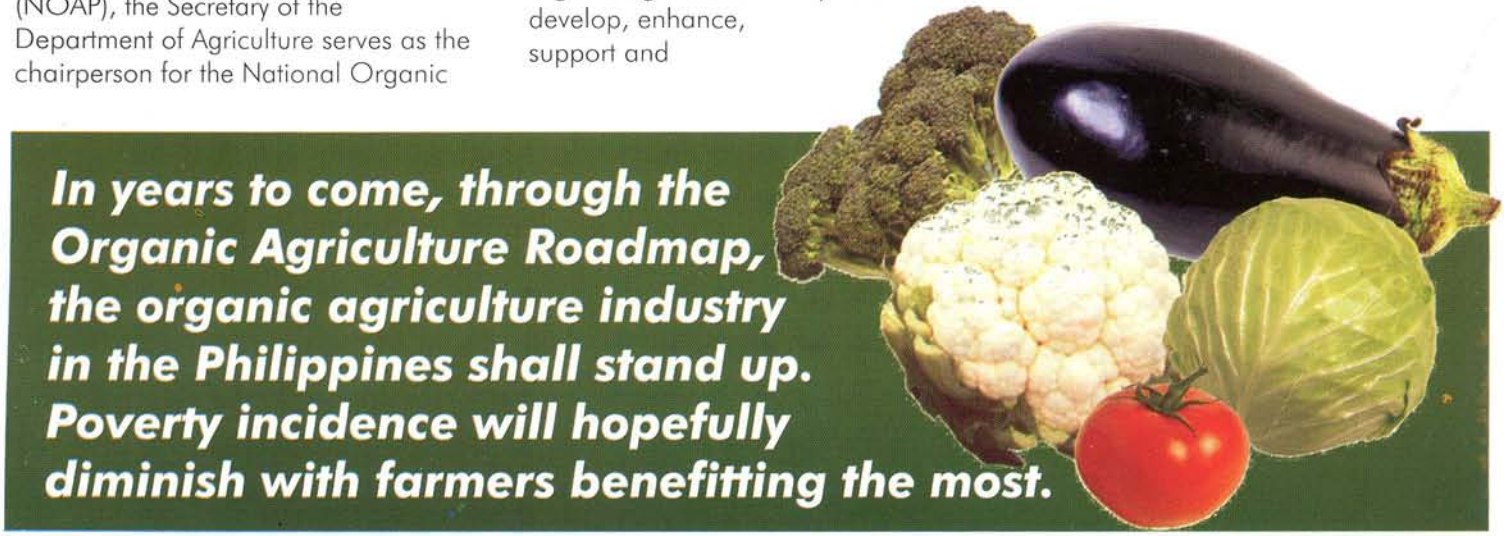

Ready-to-cook vegetables: How safe are they?

BY MA. LIZBETH SEVERA J. BARONA
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The packed, ready to cook vegetables found in local and supermarkets, a product of the ingenuity of our local wet market suki, cuts down preparation time by a considerable amount. For most people caught in the rush of the daily grind, it's supposed to be heaven-sent. However, a study by the Postharvest Horticulture Training and Research Center (PHTRC) in the University of the Philippines Los Banos says if not properly treated, the packed vegetables can pose risks.

It will help to ask a question like: how long have the sliced and packed vegetables been sitting on the market stand? The longer the time between slicing, packing, and actual cooking, the bigger the chance for the packed vegetables to deteriorate, and therefore, not safe to eat. Here's why:

Changes after 'wounding'

Before cooking, vegetables are usually peeled, cut, sliced, or trimmed. The scientists term this actions as 'minimal processing'. What we do not know is that by doing so, we are actually making a 'wound' on the vegetable. This 'wound' causes changes inside the vegetable that speeds up its decay.

At the PHTRC, a group of scientists made a study to determine the effects of peeling, cutting, and packing on the vegetables. The scientists also determined which packing material holds off decay longer and how temperature helps in keeping the vegetables fit for eating. The materials tested are polyethylene (PE) polyvinylchloride (PVC) bag. The PE bags are the plastic bags we commonly use in packing sugar and other food products, while the PVC bag is the plastic material used in wrapping food on a Styrofoam tray.

Scientists observed two main factors that change inside the 'wounded' vegetable: the respiration rate, and the ethylene production. The faster the respiration rate, the shorter the shelf life of the vegetable. Ethylene is a natural plant hormone, or substance, that is responsible for the vegetable's aging. These two factors determine how long a produce can be stored.

Putting the veggies to the test

To determine how wounding would later have an effect on a stored vegetable, they cleaned and disinfected samples of *sayote*, bell pepper, cabbage, carrot, radish, eggplant, *sitao*, *kangkong*, squash, and *ampalaya* at 20°C. Later, they were dried, cut and stored at 5°C. Ready-to-cook mixed vegetables packed were samples of three popular dishes: *chopsuey*, *sinigang*, and *pinakbet*. The vegetables were cut, packed, and sealed in PE bags, or in

Photo by rita dela cruz

Styrofoam trays wrapped with PVC plastic, They are stored in 5 and 15°C. This is how wet markets and supermarkets pack the vegetables they sell.

Changes from within

Compared to vegetables which have not been cut or peeled, or those that remain whole, the sample vegetables which were peeled, cut and stored, produced more ethylene, the substance that makes them age. Therefore, the peeled and cut vegetables aged faster. The aging of the cut vegetables slowed down when it was transferred from a storing place of 20°C to 5°C. This led the scientists to believe that storing the cut vegetables in a chilled place slows down the ageing substance from being produced.

The same effect was observed in the cut, mixed vegetables packed in PE and PVC bags. Likewise, the vegetables produced more ageing substance after they were cut slowing down only when

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