

The fight against fusarium wilt begins

The fight is on! On 1 July 2006, the project entitled "Mitigating the threat of banana fusarium wilt: Understanding the agro-ecological distribution of pathogenic forms and developing disease management strategies" officially went underway, signalling the start of the fight against fusarium wilt disease in the Asia-Pacific region. Funded by the Australian Centre for

International Agricultural Research (ACIAR), the project involves the countries of Indonesia and Papua New Guinea (PNG) and will run for three years until 31 May 2009. The project inception meeting was held on August 22-26 at Bukit Tinggi, West Sumatra, Indonesia (see related story below).

The project aims to understand the agro-ecological distribution of pathogenic forms of fusarium wilt and to develop appropriate disease management strategies. Its activities will be mostly concentrated in Indonesia and PNG with the participation of advanced laboratories in Australia. Under the project, the participating countries will carry out a comprehensive survey and characterization of *Fusarium oxysporum* f.sp. *cubense* (*Foc*) pathogenic forms and develop national strategies for disease exclusion, containment and management, identifying a package of management tools through participatory approaches and exploiting existing

networks to 'fast-track' the adoption of effective measures. The main outputs of the project include a characterized collection of *Foc* strains, distribution maps of *Foc* pathogenic forms, validated diagnostic tools, a manual of farmer-evaluated tactics for disease management, national strategies and improved capacity for disease exclusion, containment and control.

The International Network for the Improvement of Banana and Plantain (INIBAP), through its Asia-Pacific Regional Office in Los Baños, Laguna, Philippines, will coordinate the implementation of the project, with the Indonesian Agricultural Research Centre (IARC), the Indonesian Tropical Fruit Research Institute (ITFRI), the Indonesian Agency for Agricultural Quarantine, Queensland Department of Primary Industry and Fisheries (QDPI&F), the National Agricultural Research Institute of PNG, and the National Agriculture Quarantine and Inspection Authority (NAQIA) also of PNG as implementing institutions. Dr. Agustin B. Molina, INIBAP-AP Regional Director, will serve as the overall project coordinator. Inquiries about the project could be sent to his email address at a.molina@cgiar.org.

Fusarium wilt project inception meeting and planning workshop

The inception meeting and planning workshop of the project on "Mitigating the threat of fusarium wilt: Understanding the agroecological distribution of pathogenic forms and developing disease management strategies" (CP2005/136) was held on 22-26 August 2006 at Hotel Pusako, Bukit Tinggi, West Sumatra, Indonesia, hosted by the Indonesian Tropical Fruits Research Institute (ITFRI) of the Agricultural Ministry of Indonesia. Seventeen participants representing the project's various stakeholders attended the meeting.



Fusarium wilt-infected banana plant in a farmer's field in the Philippines.



Pseudostem damage (split) indicative of fusarium wilt infection.

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Participants of the inception meeting and planning workshop of the ACIAR-funded fusarium wilt project.

During the meeting, the project's objectives were reviewed and its workplan developed. Persons responsible were also identified for each of the project's activities. Output highlights of the inception meeting/workshop include:

1. Formulation of a survey and collecting schedule for *Foc* samples initially for Indonesia, and finalization of the accompanying socio-economic questionnaire and biological data sheet for the collected samples;
2. Development of a protocol for the safe movement of germplasm and collected samples;
3. Formulation of a schedule to conduct tests on the collected samples to establish pathogenic relationships between VCGs and various *Musa* accessions;
4. Establishment of a protocol for pathogenicity/ inoculum testing, initially for three varieties (e.g. highly susceptible, resistant and moderately-resistant), to standardize the protocol for the pathogenicity studies;
5. Development of a draft protocol for eliminating or destroying materials used for the pathogenicity tests;
6. Formulation of a schedule to establish demonstration plots to develop and evaluate on-farm disease management tactics;
7. Development of methodology and different management packages for establishing demo plots in Lampung and East Java (best management options);
8. Finalization of the schedule to conduct farmers' participatory meeting/ planning in East Java and Lampung in April 2007;
9. Offering of a training on soil health measurements and survey (6-10 November 2006) by Dr. Tony Pattison (*see story in this article*);
10. Development of a capacity building/ training programme schedule (i.e., soil health indicators and survey methods; training workshop for extension workers and quarantine personnel, farmer participatory training and meeting);
11. Establishment a virtual community (*listserv*) for the project (*Foc2005-136*).

Mapping fusarium wilt in Asia

To complement the ACIAR-funded fusarium wilt project, INIBAP has undertaken LOAs with five Asian countries to map the distribution of *Foc* in the region. Funded through INIBAP unrestricted funds and supplemented by NARS' counterpart funding, the project "Survey, characterization and development of *Foc* distribution map in Asia and contribution to the establishment of international *Foc* collection" started in November 2006 and will run for one year. The project aims to: (1) determine the extent of fusarium wilt incidence in Bangladesh, Cambodia, Malaysia, Sri Lanka and Vietnam; (2) determine the geographic distribution of the various *Foc* races in Asia; (3) identify the *Musa* varieties they attack; and (4) collect these *Foc* isolates to contribute to the establishment of an international *Foc* collection and the development of *Foc* distribution map for the Asia-Pacific region.

To achieve the project's objectives, surveys for the occurrence of fusarium wilt will be conducted in different banana growing areas of the five participating countries. Pseudostem samples will be collected from infected banana plants, after which these samples will be sent to the Forestry and Agricultural Biotechnology Institute (FABI) in South Africa for VCG analysis. The result of the analysis will identify *Foc* races present in the banana growing areas where the samples were taken and will



A fusarium wilt-infected banana plant in Malaysia; (*inset*) a VCG test plate.

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also identify the specific *Foc* races that are pathogenic to specific *Musa* varieties. The occurrence of the disease in the participating countries will be charted to contribute to the development of the regional *Foc* geographic distribution map. To complete a regional map, in the framework of BAPNET collaboration, the Philippines, China, India and Taiwan will conduct their own survey and collection using their own national funding. *Foc* samples from these countries will be sent to FABI for VCG analysis

INIBAP will monitor and coordinate the implementation of the project, in collaboration with the Bangladesh Agricultural Research Institute (BARI), the Cambodia Agricultural Research and Development Institute (CARDI), the Horticultural Crops Research and Development Institute of Sri Lanka (HORDI), the Plant Protection Research Institute of Vietnam (PPRI), the Malaysian Agricultural Research and Development Institute (MARDI), the Forestry and Agricultural Biotechnology Institute of South Africa (FABI), the Pomology Research Institute of GDAAS - China, PCARRD-BPI-UPLB-PBGEA-DA-BAR in the Philippines, NRCB-ICAR in India, and TBRI in Taiwan. Dr. Agustin Molina will also serve as the project's overall coordinator.

Training on banana soil health indicators and survey methodology

Under the auspices of the ACIAR-funded fusarium wilt project, INIBAP, ITFRI and QDPI&F co-organized and conducted a training course on Banana Soil Health Indicators and Survey Methodology from 6 to 10 November 2006 at ITFRI, Solok, West Sumatra, Indonesia. The course was participated in 42 banana researchers and technicians of ITFRI, Dr. Tony Pattison of QDPI&F served as the course instructor.

The training course was conducted to assess and validate different diagnostic tools that determine soil health and other parameters appropriate for use in developing disease management strategies for fusarium wilt. By analysing the physical, chemical and biological soil properties linked to changes in management of bananas, a better understanding of what practices can be adopted to suppress the incidence of *Foc* in bananas can be made.

Specifically, the course focused on enhancing the skills of researchers on using the soil health indicator kit and interpreting their results, which will then be utilized in the implementation of the fusarium wilt surveys in Indonesia. The training consisted of classroom and field discussions, and hands-on demonstration and practice. The participants were also taught to measure soil properties under field conditions within 15 to 25 minutes. On the other hand, the discussions on survey methodology included selecting survey location, generating secondary data and selecting and interviewing farmer-respondents.

Fusarium wilt surveys in Indonesia

As initial activities of the ACIAR-funded fusarium wilt project, disease incidence surveys were conducted in West Java and Central Kalimantan, Indonesia on 3-17 December 2006. ITFRI project staff composed of Dr. Jumjunidang and Edison Hs, supported by INIBAP-AP staff Ms. Vida Grace Sinohin, conducted the surveys in West Java, while Dr Catur Hermanto and Agus Sutanto, also of ITFRI, covered the Central Kalimantan areas.

In West Java, fusarium wilt samples were collected from the Ciamis and Cianjur districts. In Ciamis, a low percentage of fusarium wilt incidence was observed in the banana farms surveyed, while in one farm in Cianjur, the survey team noted a very high rate of fusarium wilt incidence. Samples were collected from fusarium-infected varieties, some of which were: Pisang Muli, Pisang Raja Bulu, Pisang Raja Puti, Pisang Ambon Hijau and Pisang Raja Serei. Single spore cultures of *Foc* will be prepared from the collected samples and then sent to QDPI&F in Australia for VCG analysis.

In Central Kalimantan, the project team noted that the banana farmers' problems were more related to the swampy and water-logged conditions of the soil than fusarium wilt infection, which had very low incidence in the areas surveyed. Further surveys are scheduled to be completed in South Kalimantan and Nangroe Aceh Darussalam by the project team in the early part of January 2007.



Dr. Tony Pattison (center) giving training participants some pointers on using the soil health indicator kit.



The survey team taking samples from a fusarium wilt-infected banana plant in West Java.

Evaluating the acceptability of introduced banana cultivars

FS Dela Cruz, Jr., Associate Professor, Institute of Plant Breeding, UP Los Baños, Philippines

As a followup activity to the farmers' field day held on 15 March 2006 at INIBAP's Banana Demonstration Plot, Central Experiment Station, University of the Philippines Los Baños (UPLB), the Institute of Plant Breeding (IPB), UPLB conducted sensory evaluation of introduced banana cultivars to determine the acceptability of the various banana-based preparations showcased during the field day. Twenty banana hybrids and landraces introduced from the *Musa* Germplasm Transit Centre of INIBAP in Leuven, together with the local cultivars, were subjected to visual and organoleptic evaluations to determine their acceptability as fresh and cooked (boiled) bananas. A total of 168 respondents consisting of farmers and housewives from three sites participated in the evaluation. The different cultivars were scored in terms of the finger shape and size, peel color, pulp color, size, texture, taste, flavor and sweetness and overall acceptability.

Results indicated that the local cultivars were rated higher than introduced cultivars in most of the fresh fruit characters. Among the introduced cultivars, FHIA 23 was consistently rated high for finger shape, size, peel color, pulp color, sweetness and overall acceptability, while FHIA 17 was also rated high in overall acceptability. Among the cooking bananas, the local cultivars Cardaba and Saba were rated high in fruit texture, taste, flavor and texture while Cachaco was the most preferred in terms of peel and pulp color and was also rated high in pulp taste, flavor and sweetness.

Both the local and introduced cultivars are being multiplied, distributed and promoted to farmers, researchers and research institutions through the National Repository, Multiplication and Distribution Center (NRMDC) at IPB, College of Agriculture, UPLB.



A FHIA 23 bunch.

Adding value to banana

INIBAP organizes training on banana processing



A staff of CavSu's Food Technology Division showing some training participants how to make banana catsup

As part of its objective to help small-scale banana farmers increase their incomes, INIBAP, in collaboration with the Cavite State University (CavSU), Philippines, organized and conducted a hands-on training workshop on processing banana into chips and catsup on 1 February 2006 at the CavSU campus. Some 25 participants attended, composed of the wives of farmer-members of the Infanta Integrated Community Development Assistance, Inc. (ICDAI) of Infanta, Quezon, and the male wards of the Virlanie Foundation, Inc., a French NGO that houses and helps rehabilitate former streetchildren.

Dr. Edna Vida of the Food Technology Division of CavSU facilitated the training workshop, assisted by other staff of the division. Two staff of INIBAP's Asia-Pacific Regional Office, Ms. Vida Sinohin and Ms. Katrina Borrromeo, also extended training support. The activity focused

on making banana chips and catsup, utilizing the locally-available Saba variety. Dr. Vida pointed out that although Saba was used for the training, the same procedure could be applied regardless of the variety preferred or available, whether they are local or introduced. A taste-test was also conducted among the participants to determine the acceptability of the finished products. Some pointers on household-level packaging were also discussed.

The training aimed to provide small-scale banana farmers and their households some basic processing skills to diversify and widen their livelihood options. The training also showed farmers that by processing bananas into different value-added and marketable products, they will be able to supplement and thereby increase their farm income as compared to simply producing the fruit.

Meet BARI's new Director General

The Bangladesh Agricultural Research Institute (BARI) has a new Director General in the person of Dr. M. Matiur Rahman, who was officially sworn in on 10 November 2006.

A plant breeder by profession, Dr. Rahman obtained his PhD in Genetics and Plant Breeding from the University of Wales, UK in 1982. Prior to being appointed as Director General, he served as BARI's Director for Research since 2002. He was involved in research planning, monitoring and evaluation, particularly taking initiatives to conduct research on abiotic and biotic stresses, biotechnology, IPM and natural resources management to increase crop productivity. He was also directly involved in the development of new varieties of Pulses and other technology generation activities of BARI. Dr. Rahman has published more than 45 articles in local and international scientific journals and has represented BARI in about 30 international conferences, seminars and workshops in different countries.

As BARI's new Director General, Dr. Rahman will also oversee the activities of the Horticulture Research Centre (HRC), one of the Institute's research units mandated to conduct research on fruits and vegetables, which includes banana and plantain. For bananas, HRC is presently doing work in developing superior cultivars and testing their performance in farmers' fields to help improve the livelihood of small-scale Bangladeshi banana producers. In this aspect, BARI has received germplasm of 26 banana cultivars from INIBAP for field evaluation. Among these, FHIA-03 has been released to farmers under the name BARI Kola-2 as a plantain variety, while another variety, ITC 1441, has also been found promising under local field conditions.

Dr. Rahman will be representing Bangladesh in the Steering Committee of BAPNET. He may be contacted at dg.bari@bari.gov.bd.



Dr. M. Matiur Rahman,
new Director General
of BARI

NRCB also has new head

Dr. MM Mustafa, a horticulturist specializing in tropical fruits, is the new head of the National Research Centre for Banana (NRCB), India's premiere R&D institution for *Musa*. Dr MM Mustafa obtained his Bachelor of Science degree in Agriculture as well as his Master of Science degree in Horticulture from the Tamil Nadu Agricultural University, Coimbatore, and his Doctorate degree in Horticulture from the University of Agricultural Sciences, Bangalore. He specializes in banana, citrus and pineapple in the areas of genetic conservation, canopy management, integrated nutrient management, irrigation management and use of growth regulators. Concurrent to his new position, he would also be representing India in the Steering Committee of BAPNET.

The NRCB is a sub-unit of the Horticulture Division of the Indian Council of Agricultural Research. The Centre is mandated to develop new banana varieties resistant or tolerant to major biotic stresses like nematodes, wilt and leaf spot diseases, as well as to advance IPM strategies for the effective management of major banana pests and diseases in the country. Major activities of NRCB include the collection, molecular characterization and conservation of the available *Musa* germplasm in India; development of improved production technologies to enhance the productivity and sustainability of small-scale and marginal banana farmers under different systems of cultivation; and the standardization of a protocol and technology to extend the storage life of export bananas and plantains. In the area of extension, the Centre extends training on the commercialization of banana value-added products involving entrepreneurs, and conducting banana farmers' meet and field demonstrations.

For information regarding NRCB, Dr MM Mustafa may be contacted through his email addresses at nrcbdirector@sancharnet.in or directorncrb@gmail.com.



Dr. MM. Mustafa, new
NRCB Director



IPGRI and INIBAP are now Bioversity International



Dr. Emile Frison,
Director General,
Bioversity International

"People are now at the centre of everything we do, a change that is also reflected in our new logo"

On 1 December 2006, the International Plant Genetic Resources Institute (IPGRI) and the International Network for the Improvement of Banana and Plantain (INIBAP) merged into a single organization - Bioversity International - or Bioversity for short. The new name and its slogan "Improving lives through biodiversity research" reflects an expanded vision of the organizations' role in the area of biodiversity research for development.

According to Dr. Emile Frison, Bioversity International's Director General, "the change in the name is not simply for the sake of change. IPGRI/INIBAP has evolved over the years and the old names, respected as they were, simply no longer adequately reflected the work we do." He adds, "We are a research organization dedicated to conserving and using biodiversity, but the scope of our work extends far beyond plant genetic resources. We are working with our research collaborators to conserve all types of biodiversity, including animal, aquatic and even microbial genetic resources. What's more, our research is about much more than genetic resources and genetics. Changing our name reflects that change in emphasis. People are now at the centre of everything we do, a change that is also reflected in our new logo."

"We don't measure our success by calculating the amount of germplasm saved in genebanks and laboratories or the number of varieties and species conserved. It is measured in the tangible benefits our research brings to the people of the world, especially those living in poverty and hunger in developing countries. We are committed to working with an international network of partners to produce research that helps conserve and harness biodiversity to secure dignified and sustainable livelihoods for the poor, provide better nutrition to the undernourished and protect threatened ecosystems," he adds.

Dr. Frison emphasizes that although the organization will often be referred to simply as Bioversity, the word 'international' has been retained as part of its official name. He explains that this is not simply because Bioversity's research activities are carried out all over the world and its members, donors and research partners come from many countries, but because the organization is committed to ensuring that its research contributes to international efforts to establish effective policies and plans of action for the conservation and sustainable use of biodiversity.

Bioversity International is one of the Future Harvest Centres of the Consultative Group on International Agricultural Research (CGIAR). Bioversity is hosted in Maccarese, Rome with the support of the Italian Foreign Ministry. For more information about Bioversity, visit their website at <http://www.bioversityinternational.org> or email them at bioversity@cgiar.org. - picture and excerpts from <http://www.bioversityinternational.org>

Rescuing Philippine banana germplasm

When Category 4 typhoon 'Milenyo' (international code name Xangsane) struck the northern island of Luzon in the Philippines on 28 September 2006, it directly hit the town of Los Banos, Laguna Province where the National Plant Genetic Resources Laboratory (NPGRL) of the Institute of Plant Breeding, University of the Philippines Los Baños (IPB-UPLB) is located. The typhoon's 210-240kph winds severely damaged NPGRL's facilities, which holds the world's largest collection of *Musa balbisiana* (banana) as well as medium-term germplasm collection of major Philippine agricultural crops. In response to this emergency conservation situation, the Global Crop Diversity Trust (the Trust), the International Plant Genetic Resources Institute (IPGRI) and the International Rice Research Institute (IRRI) provided immediate aid to rehabilitate NPGRL's facilities and help it restore normal operations.

According to Prof. Tess Borromeo and IPB researcher Nestor Altoveros, about 70% of NPGRL's stored genetic materials were destroyed, while the laboratory's entire collection of root crops was buried under mud and debris. They estimated that about 5% of their total seed collection were also damaged. More importantly, floodwater and mud spurred by the typhoon severely damaged the laboratory's four convirons (controlled-environment facilities where germplasm collections are stored) and their back-up generator, rendering them inoperable. Damages were estimated at around US\$ 400 000. But more importantly, without these convirons

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the germplasm lose their long-term viability.

As stop gap measure, IRRI offered the facilities of its International Rice Genebank to temporarily store NPGRL's germplasm collection, consisting of cereals, food legumes, forage/pasture crops, plantation/industrial crops, root crops, medicinal plants and spices, fruit trees, nut trees, ornamentals, small fruits, vegetables and other unclassified recent introductions.

Additionally, the Trust and IPGRI signed on 15 October 2006 an agreement to support emergency activities to rehabilitate and secure germplasm maintained and conserved in NPGRL for the next six months, as well as providing funds to repair damage and to restore the operations of NPGRL and IPB. The agreement was initiated and brokered by the International Network for the Improvement of Banana and Plantain - Regional Office for Asia and the Pacific (INIBAP-AP), whose own banana demo plot, also located within UPLB, suffered heavy damage from Milenyo.

The agreement, one of the Trust's first actual support mobilization to an emergency conservation situation, provided for an emergency package amounting to US\$ 15 700. Part of the funds have already been used to purchase much-needed equipment to rehabilitate NPGRL's germplasm collection. These include a drying room dehumidifier, an aluminum foil sealer, laminated foil packets and plastic trays. The Trust have also contributed to the cost of repairing screenhouses used to maintain foundation stocks of *Musa* for the National Repository, Multiplication and Distribution Centre project of INIBAP, as well as other vegetatively-propagated crop species. Funds have also been provided to repair IPB's stand-by generator, which was inundated by floodwater and mud. Additionally, in a gesture of goodwill, the Office of the Director General of IPGRI also donated two sets of power chainsaws to help clear fallen tree debris within IPB's premises.

The Trust is a joint initiative of IPGRI, acting on behalf of the Future Harvest Centres of the CGIAR, and FAO of the United Nations. It supports an endowment that will fund in perpetuity the urgent and chronic financial shortages that face the world's most important collections of crop diversity. The Trust also supports priority upgrading and capacity-building activities. The Trust operates as one element of the funding strategy of the International Treaty on Plant Genetic Resources for Food and Agriculture.

The NPGRL, established on 12 November 1976, serves as the Philippines' centre of plant genetic resources activities. It provides national crop improvement programmes a wide range of genetic materials for breeding superior crop varieties and to help minimize the rapid erosion of the natural viability of cultivated species and their wild relatives.



(Clockwise, from top left) Bananas felled by Milenyo in NPGRL's demo plot; part of roof of one of IPB's screenhouses blown off; IPB staff salvaging and manually cleaning hermetically-sealed aluminum foils containing germplasm of different crops; IPB and INIBAP-AP staff inspecting the two power chain saws donated by IPGRI's Director General; Dr. Jose Hernandez, IPB Director, receiving from Dr. Gus Molina, INIBAP-AP Coordinator, a heat sealer purchased through the Trust; some of the mud-damaged jars containing seeds in IPB's laboratory.

INIBAP-AP's new Communications Officer

On 1 September 2006, **Mr. Jeffrey T. Oliver** joined the INIBAP Asia-Pacific Regional Office (INIBAP-AP) as its new Communications Officer. Prior to his posting at INIBAP-AP, Jeffrey, as his colleagues call him, worked as Communications Assistant with the International Coconut Genetic Resources Network (COGENT) of the International Plant Genetic Resources Institute - Regional Office for Asia, the Pacific and Oceania (IPGRI-APO) based in Serdang, Malaysia. He will be mainly responsible for producing INIBAP-AP's publications and other public awareness materials, as well as provide communications support to the BAPNET Secretariat. Jeffrey, 35, holds a Bachelor of Science in Development Communication degree from the University of the Philippines at Los Baños, major in Educational Communication and a technical course (minor) in Agricultural Economics. He may be contacted at o.jeffrey@cgiar.org.



Joint INIBAP-NGO project poster finalist at CGIAR AGM06



Streetchildren turned banana farmers
Finding shelter under the banana tree

In the late 1990s, an outbreak of Banana Bunchy Top Virus (BBTV) hit farms in Batangas province, Philippines, almost totally decimating the banana industry there. The idea that a group of former street children could regenerate the local industry - and, in the process, their own lives - seemed inconceivable. Fortunately, inconceivable does not mean impossible. The young boys of the Virlanie Foundation have transformed a barren patch of land into a lush banana garden, gaining skills and income and bringing hope to the devastated banana-growing area.

In February 2003, the International Network for the Improvement of Banana and Plantain (INIBAP) received a request to help a French NGO that offers shelter, food and education to over 300 former street children. The Virlanie Foundation has 11 homes in Manila, and a farm for 15 boys in Batangas province.

INIBAP collaborated with Lapanday Agricultural and Development Corporation to supply healthy tissue-culture plantlets of three newly-introduced banana hybrids and two local favorites. The boys learned how to care for the plants through training organized with the support of the Philippine Council for Agriculture, Forestry and Natural Resources Research and Development (PCARRD) and the Institute of Plant Breeding (IPB).

Objectives of the partnership

- To assist Virlanie in the leaving of former street children in the basics of sustainable farming and banana production;
- To enable the Virlanie farm to be more food secure by producing their own bananas, supply other Virlanie homes in Manila and generate income through the sale of excess produce; and
- To demonstrate a workable model for sustainable banana production to local banana farmers and rehabilitate banana production in the BBTV-devastated area around Manila.

Accomplishments of the partnership

Two years later, after carefully studying and practicing their new knowledge, the boys have not only been rewarded with healthy plants bearing large bunches, but have also become the envy of the neighborhood. Having seen what healthy planting stock and good farming management can do, farmers in the area have asked whether they can buy plantlets and receive training to make full use of them.

The other Virlanie homes in Manila buy the excess fruits from the farm for about 20% less than the prevailing market price. As such, the farm has a steady market for the fruits, and the children in the city appreciate the secure source of healthy food. To fully exploit the potential of the introduced varieties, INIBAP linked the Virlanie farm with the Cavite State University (CSU), where the boys were trained to process bananas into banana ketchup and chips. Aside from adding value to the introduced banana varieties, the processing increases the shelf life of the highly perishable bananas.

The project has been positive not only for Virlanie and the local farmers, but also for INIBAP, which now has a better knowledge of the performance of introduced banana varieties under local Philippine conditions, as well as the acceptability of these varieties by local consumers.

Ideas to improve and expand the partnership

- A community-based approach to combat BBTV, involving extension work, promotional campaigns and support from local authorities;
- Establishment of demonstration plots in farmers' fields;
- Set-up of a community-based tissue-culture plantlet delivery and distribution system; and
- Access to village-level microcredit and revolving fund systems to help banana farmers set up a processing business and market their produce.

Roles of the partners in the partnership

- Virlanie Foundation - Request for assistance;
- INIBAP - Project coordination and facilitation, organization of training, contacts and linkages;
- PCARRD, IPB and CSU - Coordination of training;
- The French Office for Development Cooperation and Technical Assistance (VOAB) - Provision of funds for purchase of planting materials;
- Lapanday Agricultural and Development Corporation - Supply of tissue-culture banana seedlings.

Innovation + Collaboration = SUCCESS

The success of the project lies in its holistic approach: training in good management practices, combined with the use of tissue-culture plantlets and new banana varieties. Instead of research institutions or extension agencies setting up "artificial" demonstration plots, the Virlanie farm serves as a "natural" example of the benefits of the production system to farmers in the area. This approach has higher credibility. "If they can do it, we can too!"

The poster of the INIBAP-Virlanie Foundation collaborative project entitled "Streetchildren turned banana farmers: Finding shelter under the banana tree" that placed 9th among a pool of 46 entries for the Innovation Marketplace Initiative awards during the 2006 annual meeting of the CGIAR in Washington, DC in December 2006.

The poster presentation of a collaborative project by the International Network for the Improvement of Banana and Plantain - Regional Office for Asia and the Pacific (INIBAP-AP) and Virlanie Foundation, Inc., a French NGO working with streetchildren in the Philippines, made it to the top nine finalists of the Innovation Marketplace Initiative awards during the 2006 Annual General Meeting of the CGIAR held in Washington, DC on 2 December 2006. The project poster, entitled "Streetchildren turned banana farmers: Finding shelter under the banana tree" placed ninth among a competitive field of 46 entries from various CGIAR centres. Mr. Telesforo Caminsi, Project Coordinator of Virlanie, represented the project during the AGM. The poster was prepared by Dr Inge Van den Bergh and Jeffrey T Oliver of INIBAP-AP.

The poster was based on the INIBAP-AP-supported Virlanie project "*Buhay Kalikasan*" (Living with Nature). The project aimed to help former streetchildren prepare for social reintegration by teaching them basic agricultural skills so that they become productive members of society after they leave the shelter. The project was implemented in one of Virlanie's homes in Balayan, a town in the province of Batangas, a good two-hour drive southwest of Manila. Balayan was formerly a well-known banana growing area, until BBTV ravaged most of the farms there in the late 1990s. Since then, farmers have shyed away from planting bananas. In 2003, Virlanie sought the help of INIBAP to provide them with clean planting materials to start a banana farm for their wards since the planting materials from the area were infected with BBTV. INIBAP, in turn, obtained *in vitro* culture plantlets from Lapanday Corp., a private banana company in Mindanao in the Southern Philippines, and sent these to the Balayan home of Virlanie. Aside from the plantlets, INIBAP also partnered with the Institute of Plant Breeding, University of the

Philippines Los Baños and the Cavite State University to provide training to the male wards of the shelter. The "Virlanie Boys", as they have come to be known, were trained in basic nursery management and banana farming and production. From a bare landscape three years ago, the Balayan home of Virlanie is now lush with the green vegetation of banana plants. Aside from regularly having fresh fruits on their tables, the Virlanie Boys are also able to sell some of their produce to other Virlanie homes in Manila at a lower price than in existing markets in the city but still enough to earn for them some extra income. But more than just material gains, these former streetchildren are now better prepared to face the challenges of mainstream society.

The pilot project has proven to be so successful that farmers in Balayan, who previously turned their backs to planting bananas, are starting to return, encouraged of what they have seen the Virlanie Boys were able to achieve with their 'farm'. The project made them realize that it is possible to successfully produce bananas despite BBTV through the use of clean planting materials and improved varieties and IPM, an approach being espoused by INIBAP. Through the project, INIBAP was also able to show that it is possible, and advantageous, to put together GOs, NGOs and private companies to achieve a common goal while at the same time catering to the individual stakeholders' objectives and priorities.

Announcement

5th BAPNET Steering Committee meeting (*by invitation*), Cambodian Agricultural Research and Development Institute (CARDI), Phnom Penh, Cambodia, 22-25 January 2007

This is an annual meeting of the Steering Committee of the Banana Asia-Pacific Network (BAPNET) member countries. Selected resource persons are also invited.

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INIBAP is a network of the International Plant Genetic Resources Institute (IPGRI)