A B II S P
Agricultural Biotechnology Support Project II, South Asia
Supporting Agricultural Development Through Biotechnology

NEWSLETTER

January 2006
Volume 1 No 2

About ABSPII

The developing world can benefit from advances in biotechnology, but much needs to be done to make bio-engineered products available in forms that farmers can use. The Agricultural Biotechnology Support Project II (ABSPII) believes that farmers and consumers worldwide should have the opportunity to make informed choices about using bio-engineered products. ABSPII focuses on the safe and effective development and commercialization of bio-engineered crops as a complement to traditional and organic agricultural approaches in developing countries. The project helps boost food security, economic growth, nutrition and environmental quality in East and West Africa, Indonesia, India, Bangladesh and Philippines. Funded by the United States Agency for International Development (USAID) and led by Cornell University, ABSPII is a consortium of public and private sector institutions.

The consortium develops innovative, pragmatic solutions, building on the successes of the Agricultural Biotechnology Support Project (ABSP) that was led for over a decade by Michigan State University.

In South Asia (India and Bangladesh), ABSPII supports development of expertise in the areas of research, policy development, licensing and outreach to help reduce poverty and hunger through agricultural biotechnology. Current initiatives relate to development of Tobacco Streak Virus Resistant (TSVR) Groundnut, Late Blight Resistant (LBR) Potato, Fruit and Shoot Borer Resistant (FSBR) Eggplant, Drought Tolerant Rice and Salinity Tolerant Rice.

Message from Larry Paulson

Agricultural Officer , Office of Economic Growth, United States Agency for International Development, New Delhi

Nurturing Cooperation in International Agricultural Research

Much is made of partnerships in agricultural research. The idea is that productivity goes up when institutions of different strengths work together. Productivity can mean the speed of moving a new technology to users; it can also describe the technology's quality, it adaptation or adaptability, or its cost.

Partnerships can comprise national and international research organizations, universities of various types, and private for-profit and not-for-profit bodies. Successful partnerships are problem-focused, policy-informative, draw on each partner's strengths and compensate for weaknesses through complementarity.

The partnerships evolved under ABSPII seem to be meeting these criteria for success. A key factor has been the deliberate and systematic pace of consultations, on national, regional and global bases, where issues and priorities were identified and where prospective participants could meet and look for that complementarity and for common purposes.

From a USAID perspective as a catalyzer of development processes, two features of these partnerships stand out. First, they bridge public and private entities, bringing the two together for common purpose and the greater good. Public-private partnerships do not have a strong history in South Asia; making them work is widely thought to be essential for next steps in growth and development across a range of issues. Second, these partnerships cross national borders: they have a global reach, for technologies, for expertise, and for ideas. This is entirely consistent with twenty-first century developments and opportunities. It brings new powers of experience and innovation to 'local' problems.

The prospects for successful achievement of partnership objectives in the ABSPII case are good. Perhaps these partnerships can also serve as partnership models for a 'next-generation' of public-private and national-global partnerships, too!

ABSPII Eggplant Partners Interact with Philippines Farmers

ABSPII South Asia regional coordinator K. Vijayaraghavan, ABSPII South East Asia regional coordinator Desiree Hautea and other ABSPII partners interact with local farmers growing eggplant in September 2005 in Los Banos, Philippines.

The partner institutions of the ABSPII-supported Fruit and Shoot Borer Resistant eggplant project converged in Los Banos, Philippines for three days (9th to 11th September 2005) to interact with local farmers growing eggplant in the region, to review the progress of the project and to exchange information on areas that are cross cutting partner institutions based in India, Bangladesh and Philippines. The schedule included a field visit, interaction with the local farmers, a visit to UPLB-IPB's biotech facilities, a review of on going studies at UPLB, a presentation of the progress reports by various country partners and presentations by various expert groups who had carried out socio-economic studies.

The field visit provided the ABSPII partners a clear perspective of the extent of damage created by fruit and shoot borer and an analysis of the constraints faced by farmers in mitigating crop losses. Participants included Dr. Bhavani Pathak from USAID, Washington and senior officials from Indian Institute of Vegetable Research, Tamil Nadu Agriculture University, Coimbatore, University of Agricultural Sciences, Dharwad, Bangladesh Agriculture Research Council, Dhaka, Bangladesh Agriculture Research Institute, Dhaka, University of Philippines, Los Banos, Mahyco Seed Company, East West Seeds, Dhaka, Sathguru Management Consultants and ABSPII officials from Cornell University and regional centers.

Representatives from 'Public-Private Institutions' Congregate to Launch STEM's First Regional Chapter in Hyderabad

In a bid to forge private-public partnerships and promote best practices in technology management, The Society for Technology Management (STEM) launched its first regional chapter for South India in Hyderabad on November 30, 2005.

More than 30 representatives from a cross-section of industry from both private and public institutions congregated and held discussions on various issues including public-private partnership, wherein the technologies are to be shared or developed among the public-private partners. The representatives also agreed that the private-public approach would significantly shorten the product development and delivery time.

Dr. K. Satyanarayana, Senior Deputy Director General and Chief of Intellectual Property Rights Unit, Indian Council of Medical Research, New Delhi, who is the chief guest of the function, launched the regional chapter for South India. He also released the STEM's first biannual newsletter.

Later addressing the gathering, Dr. Satyanarayana said with technology taking center stage in global economic growth, management of technology has assumed an increasingly important role. The tech transfer professionals will ensure that appropriate policies are formulated which

Dr. K. Satyanarayana, Senior Deputy Director General and Chief of Intellectual Property Rights Unit, Indian Council of Medical Research, New Delhi releases the first copy of the STEM newsletter in Hyderabad on November 30, 2005. Also seen in the picture are STEM President K. Vijayaraghavan and Dr. Kiran K. Sharam of ICRISAT.

include rewarding innovators, creating incentives for universities to support inventors to commercialize new inventions, encouraging a culture of entrepreneurship and facilitating collaboration between private and public institutions to quickly bring products to market.

In such a scenario, it is exciting and challenging for a technology managers' forum like STEM to play a crucial role. He said STEM can offer guidance and assistance to inventors and agencies on issues of IPR and tech transfer, promote best practices in technology management and engage in capacity building for the emerging professionals in both private and public sectors.

STEM President, K. Vijayaraghavan, who has been associated with number of global organizations in the transfer of technology for commercialization and public good said publicly funded academic institutions and private enterprises have forged alliances for accelerating inventions through collaborative research programs. For technology and scientific knowledge to flow, and for commercialization of technologies to take shape, it is essential to understand the mechanisms for technology development, technology transfer and trade, intellectual property mechanisms and the licensing policy and regulatory frameworks, he added.

STEM will promote best practices in technology management and engage in capacity building among technology management professionals in India and neighboring countries.

ABSPII Advisory Board Visits International Crops Research Institute for the Semi-Arid Tropics In Hyderabad

Dr. Kiran K. Sharma of ICRISAT explains the progress of TSVR groundnut plant growth at a green house facility at ICRISAT to Dr Estrella Alabastro (Chair, ABSPII Advisory Board and Secretary of Science, Government of the Philippines), and Dr Isi Siddiqui, Vice President, Science and Regulatory Affairs Crop Life America, Washington, when they visited Hyderabad during the ABSPII Advisory Board meeting in September 2005.

Dr. Kiran K. Sharma of ICRISAT explains the progress of TSVR groundnut plant growth at a green house facility and field experiment station at ICRISAT to Dr Estrella Alabastro (Chair, ABSPII Advisory Board and Secretary of Science, Government of the Philippines), and other ABSPII board members when they visited Hyderabad during the ABSPII Advisory Board meeting in September 2005.

ABSPII Conducts International Journalists Meet in Coimbatore

Dr. Veeraraghavathatham of Tamil Nadu Agricultural University (TNAU) makes a point about fruit and shoot borer resistant (FSBR) eggplant at a TNAU greenhouse in Coimbatore. He is explaining the performance of the FSBR eggplant to the international journalists from the Philippines, Bangladesh and India who visited the TNAU greenhouse to witness the performance of FSBR eggplant on November 14, 2005.


BUSINESS LINE NOV 14, 2005
Private-public partnership to make transgenic crops affordable
R. Balaji
Coimbatore, Nov. 14
Economic Times
TNAU to release 4 Bt brinjal varieties by '07
M Allirajan
COIMBATORE 15 NOVEMBER
THE TAMIL NADU Agricultural University (TNAU) is working on four varieties of Bt (Bacillus thuringiensis) brinjal to suit the agro-climatic and cropping patterns in different parts of the state.
The USAID-funded Agricultural Biotechnology Support Project (ABSP) II has partnered with TNAU, University of Agricultural Sciences (UAS), Dharwad and Indian Institute of Vegetable Research (IIVR), Varanasi, for developing the fruit and shoot borer (FSB) resistant eggplant (brinjal).
"We are developing region-specific varieties on the cost-based recovery model. The significantly lower investments will help us deliver seeds to poor farmers at a reasonably affordable prices," TNAU Vice-chancellor C. Ramasamy said.
Mahyco has provided technology access to these public institutions free of royalty. The varieties have been christened CO-2 (for the western region covering Coimbatore), MDU-1 (for the central region covering Madurai), PLR-1 (for the North-eastern region) and KKM-1 (for the southern region including Tirunelveli).
Global partnership to popularise genetically engineered brinjal
The aim is to develop the vegetable and release seeds for commercial use
THE HINDU NOV 15, 2005
Mahyco to extend its transgenic vegetable list
Joseph Vackayil
Coimbatore, Nov 14
Business Standard
News From India
FSB-resistant eggplant soon
Our Bureau / Coimbatore November 17, 2005
The partners of the eggplant conso
India, Bangladesh and Philippines
achieved in developing and testing
eggplant. Twenty journalists conv
Tamilnadu Agriculture University
Participants visited TNAU green
experiment station where Mahyco
undergoing field trials. Here are t
The Pioneer
Monsanto shares Bt gene with Tamil Nadu University
Yoga Rangatia / Coimbatore
Times of India
Indian farmer set to reap fruits of technology
TIMES NEWS NETWORK
Coimbatore: An aubergine or brinjal by any other name is still the delectable baingan bharta on the dinner plate. Or is it? The ubiquitous glossy purple vegetable has the highest dosage of insecticide sprayed on vegetables in the country.
Researchers figured this out while studying how to reduce the quantum of pesticides that get sprayed on vegetables. Apparently, the fruit and shoot borer insect had taken a fancy to this low calorie vegetable. The fancy translates into $221 million in losses every year, almost 60% of the planted yield.
Exasperated cultivators were pumping the vegetable with anything and everything to fumigate the pest. Which is why, researchers thought it would be a good idea to genetically tweak the vegetable and make it pest-resistant.
Buoyed by past success with pestresistant cotton, the Tamil Nadu Agriculture University (TNAU) entered an arrangement with Cornell University and Virginia Technology University in the US to induct the Bt gene into the eggplant.
The outcome was Bacillus thuringiensis (Bt) Brinjal. But, the challenge they face now is to ensure the new variety permeates the 0.47 million hectares in the country the vegetable is grown on.
As K Ramasami of TNAU said: "These days, people are eager to accept

sortium invited journalists from
es to discuss in depth the progress
ng Fruit and Shoot Borer Resistant
verged from the three countries.
y in Coimbatore hosted the mission.
house facilities as well as the
o-developed FSBR eggplants are
the perspectives from the press:

ABSPII & Communicating about Agricultural Biotechnology

By Dr. James Shanahan, Cornell University
Andrea Marshall Besley, Communications Coordinator, ABSPII

Dr. James Shanahan

Andrea Marshall Besley

The capacity of stakeholders (local scientists, regulators, journalists, extension workers, farmers, retailers, religious groups and consumers, among others) to make informed decisions related to using agricultural biotechnology products depends on access to quality information. Scientists and government officials have a key role to play as trusted sources of balanced information about new technologies. Yet experts often find it difficult to communicate highly specialized and technical information in a way that farmers and consumers find useful. Communicators have a responsibility to help stakeholders weigh the risks and benefits of new technology. This often means managing expectations so that the public understands the potential, as well as the limitations, of new technology.

ABSPII in South Asia began with a stakeholders meeting in which local experts determined which crops would have the greatest impact on rural communities. ABSPII supports its project managers and partnering scientists by helping them develop communication strategies for each product and encouraging them to look at each step of the development process for opportunities to communicate with stakeholders. We help each team to develop written outreach material and nurture relationships with the media. We also introduce journalists to the science behind agricultural biotechnology, and the complexities of reporting on it, through workshops and field visits. This training gives journalists the opportunity to think about the issues and ask questions at a time when they are not pressured by deadlines. As our products move closer to large-scale field testing and commercialization, ABSPII will partner with extension agents to promote awareness of these new products among farmers.

ABSPII also offers spokesperson training to scientists and project managers in which we present some of the key elements of communicating risk:

- Understanding how and where stakeholders get their information.
- Understanding stakeholders' knowledge of the benefits and risks of agricultural biotechnology, and addressing misconceptions.
- Developing open and transparent policy and communication activities. (Stakeholders are more likely to accept new technology if they trust the officials who introduce it and are satisfied that adequate testing and safeguards are in place.)
- Managing expectations. (Each new agricultural biotechnology product provides a new form of resistance against a specific pest or stress. Stakeholders need to understand that the new technology is not a panacea, but only an additional tool to be integrated into existing agricultural practices.)

ABSPII is committed to expanding the body of knowledge related to communication and agricultural biotechnology. We have commissioned a small survey of media coverage of agricultural biotechnology in several South Asian newspapers, including opinion-leading English language dailies in India, the Philippines, Thailand, Malaysia, Indonesia and Bangladesh. This is not an exhaustive study, but it will give us a first glimpse into the kind of information that is presented to the public through mainstream media sources. Preliminary results from this study will be released in spring 2006.

ABSPII has also supported doctoral research on understanding risk communication issues related to the use of fruit and shoot borer-resistant (FSBR) eggplant (using Bt technology) in India. Results from this study will benefit policy makers as they communicate the risks and benefits of using FSBR-eggplant. More generally, understanding reliable indicators on how biotechnology is viewed will help ABSPII and its partner countries to better utilize the technology.

Do Drought Tolerant Rice and Salinity Tolerant Rice Offer a Panacea for Indian Farmers Farming in Fragile Environments?

By Dr. C Ramasamy, former vice-chancellor, TNAU, India &
Dr. K.N.Selvaraj, Agricultural Economist, TNAU, India

Breeding varieties for resistance/tolerance to biotic and abiotic stresses as well as for improved nutritional qualities is particularly important to meet the challenges rising from population growth and environmental and health safety cautions. Under ABSPII, attempts are being made to generate drought-tolerant and salinity-tolerant rice varieties for the farmers of these fragile environments to realize higher returns from rice production. This is a right step forward because in the recent years rice productivity has come to near stagnation and the marginal growth rates in productivity of rice have not shown further improvement even in the irrigated areas due to technological stagnation.

Rice environments in India are extremely diverse. Of the over 40 million ha of harvested rice area, 45 percent are irrigated, about 33 percent are rain-fed lowland, 15 percent are rain-fed upland, and 7 percent are flood-prone.

Since the major portion (55 percent) of the area under rice in India is rain-fed, production is strongly tied to the distribution of rainfall. In some of the states, erratic rainfall leads to drought during the vegetative period, but later on the crop may be damaged by submergence due to high rainfall.

Because of rainfall aberrations, lack of high yielding varieties and lower rate of their adoption, average yield is about 50 percent higher in irrigated ecosystem than in the rain-fed ecosystem. Irrigated north and south zones together account for 39 percent of the area under rice in the country, which is slightly less than the eastern zone but in terms of production these two zones together contribute over 50 percent, which is almost one-and-half times more than that of Eastern India due to a distinct yield edge. Rain-fed Eastern zone accounts for over 40 percent and 35 percent of the total rice area and total rice production in the country respectively. Rain-fed upland, just one half of the rain-fed lowland area, produces less than one fifth of it. Rice productivity in most of the states in Eastern Zone is less than 2 tonnes per ha except West Bengal.

Around 50 percent of the total irrigated area in the country is now dependent on groundwater and 60 percent of irrigated food production depends on irrigation from groundwater wells. Studies revealed that declining water levels could lead to a 25 percent drop in harvests in the near future. Currently, over 10 percent of blocks, classified by the Central Ground Water Board, have been identified as 'overexploited' blocks, where the exploitation beyond the critical level, have been growing at a rate of 5.5 percent every year. Further, about 36 percent of blocks in the country will be on the critical list by the year 2017.

Over exploitation of ground water resources causes water tables to fall, while in others it leads to a rise in water table and salinity problems. Overmining of ground water induces saline water intrusion into aquifers in coastal areas resulting in deterioration of water quality. The problem of salinity is increasing at an alarming rate due to water scarcity and over exploitation of groundwater. In India, 63.23 lakh hectares is affected by salinity and it accounts for 4.43 percent of the net cropped area. In such a situation, less water consuming rice technology would enable the farmers to go for a large-scale adoption and such a breakthrough would also conserve groundwater from over-exploitation and salinity.

Technological change, wide spread adoption of modern varieties and infrastructure, especially irrigation, are the important factors that contributed significantly to achieving rapid growth in the agriculture sector, particularly rice production over the past 35 years, resulting a decline in poverty level. The trend increase in agriculture has shown the trickle down effect in minimizing incidence of rural poverty. Years of rapid growth coincided with reduction in poverty and the incidence of poverty recorded notable decline. The agriculture sector, with predominantly small and marginal farmers, is not only the main source of income in rural areas but the scale of non-agricultural income generating activities in rural areas almost certainly depends on the level of agricultural production. Rice is the major source of income (60 percent of the total income in the case of Tamil Nadu) in these fragile environments even during the drought period and per capita income is less than the state average (Rs. 19141 at current prices). Therefore, any increase in agricultural production per capita increases per capita income of the farmers. However, agricultural and economic growth has not adequately benefited the disadvantaged regions. Evidence shows that the incidence, depth and severity of poverty were substantially lower in the technologically developed regions (irrigated ecosystems) because drought is one of the main causes of food insecurity and the scale and intensity of food scarcity have been exacerbated by natural disasters. Most major droughts in India have been followed by recession. Annual Gross Domestic Product (GDP) growth was negative in 1957-58, 1965-66, 1972-73 and 1979-80.

Dry land technologies are still inadequate to get small and marginal farmers out of the poverty trap in dry land regions due high climatic risk. It is evident from various studies that the intensity of salinity is higher when the rainfall distribution is poor. Land degradation due to salinity is also a major risk factor for long-term food security. Consequent to the adverse effect of salinity on rice production, rice productivity tended to decline in these degraded lands. Decline in rice yields is also due to cutbacks in resource allocation resulting from salt and water stresses. Studies conducted across the states in India show that yield loss due to drought ranges from 17 to 37 percent and 33 to 57 percent due to salinity. Evidences indicated that rice yields decreased by 12 percent for every unit (dSm-1) increase in EC above 3.0 dSm-1 while EC value of 6 -10 dSm-1 is associated with a 50 percent decrease in yield. Even though technologies are available to restore the productivity of these degraded lands, there is a poor adoption of technologies by the farmers. Hence, development and commercialization of DST technologies for water limiting and saline and alkaline soils hold a great promise for the prosperity of agriculture particularly rice production.

Ex ante analysis of development and commercialization of DST in rice, conducted as a part of ABSPII, has shown that adoption of a transgenic drought-tolerant rice variety would bring additional benefit to farmers to the tune of 29 percent per hectare despite increase in cost of seeds by 84 percent. Similarly, in the case of salinity tolerance, the additional benefit would be about 42 percent in spite of higher seed cost. As rice production forms the major source of income in these water limiting and fragile environments, considerable potential exists for reducing poverty due to realization of higher levels of income by adoption of transgenic technology. Since genetic engineering could improve the crops resistant to water stress and soil adversity like salinity, there would be a very high rate of adoption for this new technology among the farmers in the years to come. In India a large-scale application of this technology is expected as the significant progress made in biotechnology is seen from the developed economies.

The Protection of Plant Varieties & Farmers Rights Act, 2001 (PPV& FR Act) to Stimulate Growth of Seed Industry in India

The Protection of Plant Varieties & Farmers Rights Act, 2001 (PPV& FR Act) has been enacted to fulfill India's obligation under Agreement on Trade Related Aspects of Intellectual Property Rights (TRIPs) of World Trade Organization as also to stimulate investment in research and

development of new plant varieties which will facilitate the growth of the seed industry and ensure the availability of high quality seeds to farmers. The Protection of Plant Varieties & Farmers' Rights Act, 2001 provides for the establishment of an effective system for the protection of plant breeders' rights.

Below is the press release from the Government of India

Press Information Bureau Government Of India

Centre Issues Notification On Protection Of Plant Variety & Farmers Rights Authority

New Delhi, Kartika 20, 1927 November 11, 2005

The Protection of Plant Variety & Farmers' Rights (PPV&FR) Authority has come into being with the enforcement of the Act, 2001, and the Rules framed there under. A notification to this effect was issued today by the Department of Agriculture & Cooperation. The Authority would now regulate all matters pertaining to plants and seeds varieties of the country and would act as the national registry for documentation, indexing and cataloguing of all flora of the country, including extant varieties, farmers' varieties and land races. The Authority will also be registering new varieties thereby protecting the breeders' rights, inclusive of both farmers and the industry.

The Authority represents the interests of a wide spectrum of stakeholders, which include the scientific community, farmers' organizations, women, tribal entities and State and Central Government as also the State Agricultural Universities.

The PPV&FR Authority is a major step forward in stimulating investment in the agricultural seed and plant sector and would greatly encourage development of new plant varieties. It will protect the interests and rights of farmers and the farming community and recognize their contribution to the selection and preservation of traditional varieties. The Authority also has the mandate to administer the National Gene Fund which ill help conserve and protect our plant genetic resources/biodiversity.

The PPV&FR Authority is presently functioning out of the premises of National Agricultural Science Centre at Pusa, New Delhi, and is headed by Dr. S Nagarajan, recently appointed as its chairman.

Contact Us

India Office:
Sathguru Management Consultants Pvt. Ltd.
Plot No. 15, Hindi Nagar, Punjagutta,
Hyderabad, India - 500 034
Phone: +91(040) 2335 6975, 2335 6507, 2335 0586,
5561 2352, 5578 6148, 556 62190
Fax: +91(040) 2335 4042
Email: vijay@sathguru.com
Website: www.sathguru.com

US Office:
Agricultural Biotechnology Support Project II
International Programs, 213 Rice Hall
Cornell University,
Ithaca, New York 14853
USA Phone: +1.607.255.6357
Fax: +1.607.255.8186
Email: alm62@cornell.edu

Bangladesh Office:
Dr Gour Pada Das
Country Coordinator, ABSPII
House 18, Road 4, Sector 4, Uttara Dhaka, Bangladesh
Phone: +88-02-8913064
Fax: +88-02-8913064 ext 124
Email: absp2bd@cimmytbd.org
gpdas@agni.com

USAID FROM THE AMERICAN PEOPLE

Cornell University College of Agriculture and Life Sciences

Sathguru