

## China, IRRI cooperate to improve rice production

China is probably the world's oldest — and is today the world's largest — producer and consumer of rice. Recent archeological findings indicate that rice cultivation in China began about 7,000 years ago. China grows about 35% of the world's rice. Almost 50% of China's total grain production is rice.

China has played an important role in IRRI programs since the Institute's establishment in the early 1960s. Chinese scientists were among the original IRRI staff. The semidwarfing gene essential to the development of IRRI rice varieties — and most semidwarfs bred by national rice improvement programs — came from Dee-geo-woo-gen, a short rice variety that probably originated in Fujian, China. Dee-geo-woo-gen made the breeding of management-responsive indica rices possible.

Cooperative relationships between IRRI and agricultural research organizations in the People's Republic of China (PROC) expanded significantly with the signing of a new Memorandum of Agreement for Scientific and Technical Cooperation between IRRI and the Chinese Academy of Agricultural Mechanization Sciences (CAAMS), reports Dr. M. S. Swaminathan, IRRI director general, who visited China 14-26 August 1982.

The agreement complements a 1979 Memorandum with the Chinese Academy of Agricultural Sciences (CAAS). The memoranda provide for cooperative research projects and the exchange of scientists, visits, study and training scholarships, rice genetic materials, and literature.

IRRI scientists have visited China every year since Dr. A. U. Khan, IRRI agricultural engineer, and Dr. N. C. Brady, former IRRI director general,



Dr. M. S. Swaminathan, IRRI director general, and Chinese Vice Premier Wan Li discussed cooperative research at a meeting in China 17 August 1982. IRRI and the People's Republic of China recently signed a new Memorandum of Agreement for Scientific and Technical Cooperation between IRRI and the Chinese Academy of Agricultural Mechanization Sciences.

first visited in 1974. The first team of IRRI scientists visited in 1976. The team report, *Rice research and production in China: an IRRI team's view*, is available from IRRI.

CAAS Plant Breeder Lin Shih-Cheng has served on the IRRI Board of Trustees since 1978. The IRRI Board met in China in 1979.

### *Cooperation in Genetic Evaluation and Utilization (GEU)*

A Chinese National Rice Research Institute is being planned near Hangzhou, Zhejiang Province, in eastern China. Guidelines for the Institute were based on recommendations of a 1980 CAAS-IRRI study team.

China is establishing a modern genetic resources laboratory near Beijing to provide long-term seed storage for crop varieties threatened with extinction. Dr.

Swaminathan discussed the urgency of collecting all of China's rice germplasm with CAAS President Lu-Liang-shu and Vice President Ren Zhi in Beijing.

"The CAAS leaders rightly emphasized that we will fail in our duty to humanity and to the farmers of the 21st century if we do not immediately collect and conserve the vast genetic resources of rice in China," Dr. Swaminathan said. "Many irreplaceable Chinese rice varieties, like those elsewhere, are threatened with extinction because of disturbance of their original habitats and widespread replacement with new, high-yielding strains and hybrids. China therefore encourages farmers to collect rice genetic materials by using a reward system."

Other examples of China-IRRI cooperation in GEU are:

- The Institute of Crop Germplasm

Resources in Beijing recently deposited the seeds of 500 varieties from Jiangsu Province in the IRRI germplasm bank, adding to the seeds of more than 2,000 Chinese varieties already available to scientists worldwide.

- China leads the world in cultivating  $F_1$  hybrid rice varieties, which yield 20 to 30% higher than the best conventionally bred varieties. Seed production was considered a major constraint to the development and spread of hybrid rice, but production teams in China produce seed yields of 1 to 2 t/ha. As a result, China grows more than 6 million ha of hybrid rice today.
- IRRI and CAAS cooperate to develop new varieties of  $F_1$  hybrid rice, and have cosponsored two hybrid rice training courses attended by scientists from 11 Asian countries. The courses were held at IRRI and in Hunan Province, where Chinese scientists developed the first hybrid rices for large-scale production.
- Most hybrid rice varieties in China are progeny of crosses of Chinese male-sterile parents and IR26, IR24, or IR30.
- The following IRRI cultivars have been named as varieties and are grown commercially in China: IR28, IR26, IR24, IR8, IR837-36, IR1561-228-3-3, and IR2061-464-2-4-5.
- Seeds of the early maturing Kwang Chang Ai were given to Dr. Brady in 1974. IRRI plant breeders crossed IR28 with Kwang Chang Ai. A progeny line, IR9752-71-3-2, matures in less than 100 days — 5 to 10 days earlier than IR36.
- The Institute of Genetics of the Chinese Academy of Sciences, and IRRI jointly held a 1981 workshop on the Potential of Cell and Tissue Culture Techniques in the Improvement of Cereals in Beijing. Science Press (Beijing) and IRRI are copublishing an English edition of the proceedings.
- Genetic engineering to combine desirable traits of rice with nitrogen-fixing properties of other plants is

among research areas in which the Institute of Genetics and IRRI plan to cooperate.

- IRRI and the Shanghai AAS are investigating anther culture techniques through which pollen grains can be cloned to produce new varieties in a single generation.
- In 1979, IRRI and CAAS cosponsored the first International Rice Testing Program (IRTP) monitoring tour in China, and the International Workshop on Rice Improvement in China and Other Asian Countries. Proceedings were copublished in Chinese and English.
- Today, CAAS and its provincial affiliates actively participate in the IRTP.

#### *Cooperation in nutrient efficiency*

- The International Workshop and Training Course on Nitrogen Management was sponsored by the Fuzhou AAS, the International Fertilizer Development Center, and IRRI in April-May 1982. Fujian scientists, who pioneered in ball fertilizer application and the manufacture of machines to facilitate its use, shared their experience with scientists and manufacturers from 10 countries.
- CAAS coordinates nationwide trials of the International Network on Soil Fertility and Fertilizer Evaluation for Rice (INSFFER).
- As leading users of organic matter in rice production, Chinese scientists suggested an international conference on "Organic Matter and Rice," held at IRRI in September 1982. The conference was attended

by 52 foreign participants; 14 were from China.

#### *Farm machinery*

- CAAMS and IRRI engineers adapted a Chinese reaper-windrower to attach to the IRRI power tiller in 1981. The designs are available to manufacturers in developing nations.
- Future cooperation with CAAMS will emphasize the development of agricultural implements for small farmers in rice-based cropping systems, including hand pumps, rice processing equipment, and animal-drawn implements.

#### *Training*

- Seventy-seven Chinese scholars have participated in IRRI education and training courses; 13 have studied for advanced degrees at the University of the Philippines at Los Baños, conducting thesis research at IRRI.

#### *Information dissemination*

- The first IARC Book Exhibition, which featured about 500 books, periodicals, films, and slide sets published by 12 international agricultural research centers, was held in Beijing, Sian, and Ch'angsha in May 1982. Cosponsors were IRRI and the China National Publications Import and Export Corporation.
- Nine IRRI books are copublished in Chinese. IRRI publications are regularly sent to about 130 libraries and 100 individuals in China.

The following new IRRI publications are available from Information Services Department, The International Rice Research Institute, P.O. Box 933, Manila, Philippines:

An adventure in applied science: a history of the International Rice Research Institute;  
A plan for IRRI's third decade;  
Drought resistance in crops with emphasis on rice;  
Evaluating technology for new farming

systems: case studies from Philippine rice farms;  
Evolution of the gene rotation concept for rice blast control;  
International bibliography of rice research (1981 supplement);  
Proceedings of the 1981 international deepwater rice workshop;  
Report of a workshop on cropping systems research in Asia; and  
Rice tissue culture planning conference.

## IRRI gets new IBM computer

IBM is helping IRRI take another step forward in computer technology.

IBM Philippines is providing IRRI scientists the use of an IBM 4331 computer system, computer software, and systems engineering assistance for the next 4 years to help IRRI expand computer-based research.

IRRI will maintain the computer, provide facilities, and pay employee training expenses, according to an agreement signed 31 August by Dr. M. S. Swaminathan, IRRI director general, and Carl G. Symon, IBM Philippines president and general manager.

The new system is expected to help:

- expand the rice germplasm and breeding data banks;
- develop simulation models to assist in socioeconomic, engineering, cropping systems, and other research areas;
- create a data bank of field survey information and records gathered from farmers;
- develop a literature search system for the IRRI library and documentation center; and
- allow IRRI scientists to run systems analysis and do mathematical programming.

"IBM is providing us a start in inter-

active computer technology," said Dr. Edwin C. Price, member of the IRRI computer needs committee. "The IBM 4331 is a big computer with versatility to allow us to create a system to meet our unique needs."

The system, to be operational in early 1983, will have display terminals, low speed printer terminals for specialized needs such as library literature search, and high speed printers for general use. All equipment will be in the Laboratory and Training-Conference Center building. The computer has the capacity for about 18 terminals.

"The IBM 4331, IRRI's first in-house, large-scale computer, emphasizes the interactive mode," said Dr. Kwanchai A. Gomez, member of the IRRI computer needs committee, "which will give us instant information access."

The computer is designed to interact with microcomputers and minicomputers — a feature that will increase system potential and maximize the efficiency of small computers already being used in several IRRI departments, according to Gomez.

The IBM 4331 is designed to allow on-line manipulation of data stored in the system. IRRI uses, and will continue to use, the Agricultural Resource Center

(ARC) computer, a time-sharing batch system, for certain types of data processing. The ARC computer, an IBM system 370 model 135, was donated by IBM in 1977 for use by the Los Baños agricultural research complex, which includes IRRI.

Initial installation of the 4331 and software costs borne by IRRI will be about \$100,000, according to Paul A. Cooper, acting director of administration.

Acquisition of the computer is the result of several years of talks between Hugh T. Murphy, IRRI director of administration, and Antonio R. Serna, staff services manager for IBM Philippines.

## IRRI receives King Baudouin Award

The Consultative Group on International Agriculture (CGIAR) has honored IRRI and IRRI rice improvement programs with the first biennial King Baudouin International Agricultural Research Award.

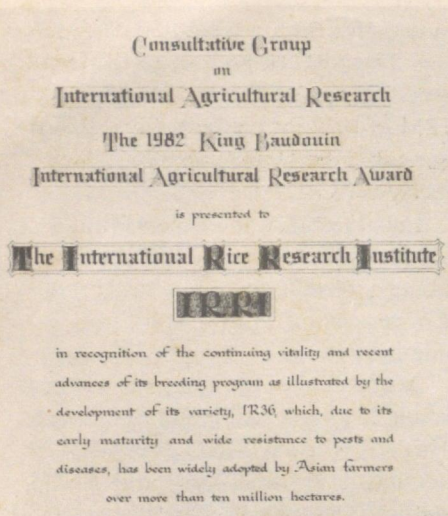
The award, presented during CGIAR Centers' Week in Washington, D. C., recognizes the vitality and recent advances of the IRRI rice breeding program, and singles out the successful IRRI variety IR36.



Dr. M. S. Swaminathan, IRRI director general, (l) and Carl G. Symon, president and general manager, IBM Philippines, sign the agreement that gives IRRI use of an IBM 4331 computer system for the next 4 years.



Dr. Guy Camus, chairman of the Technical Advisory Committee (TAC) of the CGIAR, presents Dr. M. S. Swaminathan, IRRI director general, with the 1982 King Baudouin International Agricultural Research Award.



IR36 was bred by a multidisciplinary Genetic Evaluation and Utilization team of plant breeders, entomologists, pathologists, agronomists, and scientists belonging to other disciplines and evaluated worldwide through the International Rice Testing Program. It is therefore an outstanding example of the value of interdisciplinary and interinstitutional collaboration.

The award was initiated by investing \$50,000 the CGIAR received when it was awarded the King Baudouin International Development Prize in 1980. IRRI received a scroll and a cash award to be used by the Director General to publicize IR36 and other IRRI rice varieties.

The CGIAR was organized in 1971 to

bring together countries, public and private institutions, international and regional organizations, and representatives from developing countries to support a network of international agricultural centers and programs.

Research supported by the CGIAR emphasizes aspects of food production in developing countries that are not adequately covered by other research facilities.

The CGIAR concept has successfully mobilized 34 donors to provide about \$140 million (1981) in support of 13 international centers and programs. Each year donor representatives meet in autumn, during Centers' Week, to announce pledges for the succeeding year.

Philippine President Ferdinand E. Marcos and First Lady and Minister of Human Settlements Imelda R. Marcos visited IRRI 16 October 1982 to celebrate World Food Day. They toured the IRRI experimental farm before the President and IRRI Director General Dr. M. S. Swaminathan spoke at the World Food Day convocation. During the ceremony, Dr. Robert F. Chandler, Jr., first IRRI director general, presented Marcos with a leather-bound copy of Chandler's book, *An adventure in applied science: a history of the International Rice Research Institute*.



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## Two IRRI scientists awarded Japan's top science prize

**T**wo IRRI scientists received the 1987 Japan Prize for their roles in the development of improved semidwarf varieties that launched the "Green Revolution" in rice farming. Sharing the Prize were Dr. Henry M. Beachell, former IRRI plant breeder, and Dr. Gurdev S. Khush, currently head of IRRI's Plant Breeding Department.

The Prize — patterned "in the tradition of the Nobel Prize" — is Japan's most prestigious. The award was given on 14 April in Tokyo in the presence of Japan's Crown Prince Akihito and Crown Princess Michiko, Prime Minister Yasuhiro Nakasone, and foreign dignitaries. On 15 April, Emperor Hirohito received the rice scientists at the Imperial Palace.

Today, about 500 semidwarf rices are grown on 70 million hectares — about 55% of the Third World's rice

land. Their yield increase alone feeds at least a third of a billion people. About 150 of the varieties were bred at IRRI, and IRRI materials served as "genetic building blocks" for most of the others.

Beachell, who joined IRRI in 1963, was honored for his work on IR8, the first semidwarf rice variety to be widely grown in the tropics. Khush joined IRRI in 1967 and led the effort that developed IR36, which became the most widely grown variety — of any crop — the world has ever known. By 1983, IR36 was planted on 11 million hectares in Asia, Africa, and Latin America.

Beachell played a key role in the selection of IR8, which IRRI released in late 1966 from a cross of Dee-geo-woo-gen, a dwarf rice from China with Peta, a vigorous Indonesian variety. IR8 had a short,

stiff straw that enabled it to yield heavily without falling over. Its insensitivity to daylength meant that farmers could grow it around the world. With good management, IR8 yielded 4 to 5 tons per hectare on irrigated farms; traditional varieties yielded 1 or 2 tons. The increased farm productivity that followed in the wake of IR8 gave rise to the term "Green Revolution."

"But IR8 had several problems," Beachell points out. "It was susceptible to diseases and insects, and in some countries its grain appearance and eating quality were considered inferior to those of traditional varieties."

IR36 was developed, under Khush's leadership, from crosses involving 13 parents from 6 countries. It was evaluated cooperatively by scientists at IRRI and in national agricultural programs across Asia. IR36 was first



Dr. Henry M. Beachell (right) and Dr. Robert F. Chandler, IRRI's first director, inspecting experimental rice lines in IRRI fields during the mid-1960s.



Dr. Gurdev S. Khush making crosses of rice varieties. About 3,000 crosses per year are made at IRRI. Scientists in national rice improvement programs evaluate progeny experimental lines. They can release the best as local farm varieties, under any name, or may cross them with local varieties to combine the most desirable traits of each.

named as a farm variety in 1976 in the Philippines, and then released by national agencies throughout the developing world.

The popularity of IR36 was largely due to its genetic resistance to a dozen insects and diseases, which decreased farmers' dependence on pesticides.

IR36 also has resistance to environmental stresses such as drought and nitrogen-deficient soils. IR36 matures in about 105 days in contrast to 130 days for IR8 and 150-170 days for traditional varieties. Its slender grains are generally considered superior to those of most earlier semidwarfs. IR36 has been especially popular in the Philippines, Vietnam, Indonesia, India, Malaysia, Kampuchea, Laos, Bangladesh, and Sri Lanka.

"The greatest difficulty in the development of IR36 was incorporating resistance to grassy stunt, a virus disease to which all domesticated rice varieties were susceptible," Khush recalls. Scientists in India collected seeds of a wild rice, *Oryza nivara*, which they sent to IRRI. There it was found resistant to grassy stunt; its resistance genes were crossbred into IR36.

Beachell, born in Nebraska, USA in 1906, was a rice breeder for 30 years with the U.S. Department of Agriculture at Beaumont, Texas, before he joined IRRI. From 1972 to 1982, Beachell worked with an IRRI project at the Central Research Institute for Food Crops in Indonesia. He is now a plant breeder with Farm of Texas Co., Alvin, Texas.

Khush was born in 1935 in Punjab, India. He was a geneticist at the University of California, Davis before coming to IRRI.

Beachell and Khush were the first awardees in agricultural science to receive the Japan Prize. The Science and Technology Foundation of Japan initiated the Prize in 1985 to recognize persons who have "served the cause of peace and prosperity for mankind through original and outstanding achievements in science and technology."

The other 1987 Japan Prize went to Dr. Theodore H. Maiman, President

of Maiman Associates in California.

In 1960 Maiman developed the world's first laser, triggering a new technology that revolutionized such fields as physics, medical science, and telecommunications.

Each Japan Prize carries a cash award of ¥50 million (about US\$350,000). The 1987 awardees were chosen from 510 top names in science nominated by fellow scientists from around the world.

## AID and U.S. National Research Council honor IRRI, CIMMYT for contributions to science

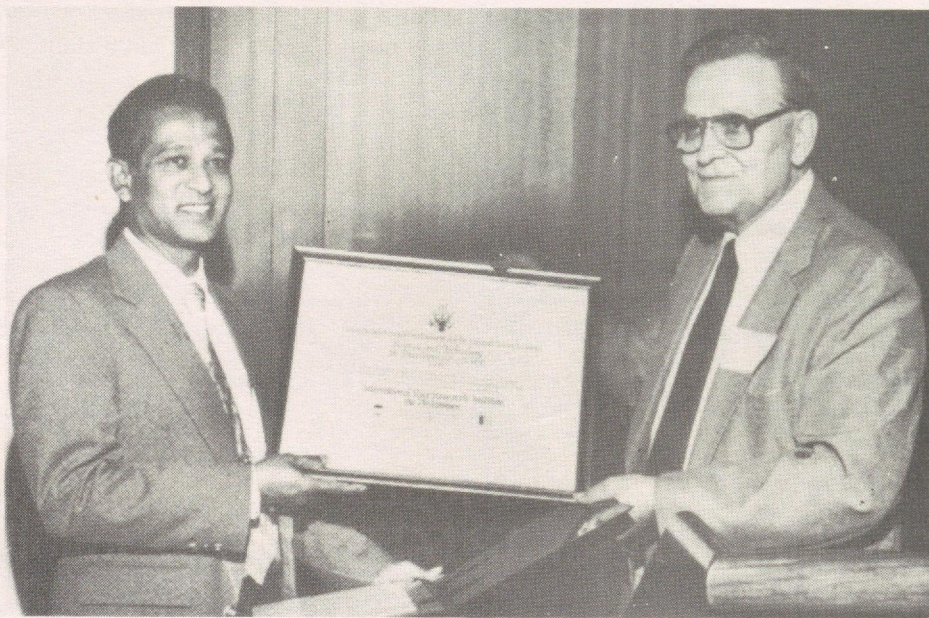
The U.S. Agency for International Development (AID), and National Research Council presented their joint Science and Technology Development Award to IRRI and its sister center, the International Center for Maize and Wheat Improvement (CIMMYT), in June in Washington, D.C.

Dr. N.C. Brady, senior assistant administrator, AID, read the award citation at a special dinner during the Symposium on Science and Technology for Development. Brady cited the two international agricultural research centers for having "mobilized scientific talent from both advanced and less developed countries [and]

carried out the research and training that made possible the 'green revolution' in Asia and Latin America" and for continuing to "serve as stellar examples of the successful application of science and technology to the most vexing problem of the world's poorest people . . . an adequate food supply."

AID has been the major donor to the 13 centers sponsored by the Consultative Group on International Agricultural Research.

Accepting the award in behalf of IRRI was Dr. Surajit K. De Datta, IRRI principal scientist and head, Agronomy Department. De Datta, during his 23 years of agronomy research, has worked under all of



Dr. S.K. De Datta (left) accepts, on behalf of IRRI, the Science and Technology Development Award from Dr. N.C. Brady.

IRRI's leaders. He pointed out that, during its first decade, IRRI changed the structure of the rice plant and, jointly with national programs, developed associated technology to raise the yield potential of rice. "As a result, Asia changed from a region of food scarcity to a region of food sufficiency," De Datta said.

During the 1970s, IRRI expanded its research mandate beyond irrigated and shallow rainfed areas and, through the Genetic Evaluation and Utilization program, began to focus more on deepwater and upland rice and problem soils. De Datta pointed out IRRI's greatly expanded program of genetic conservation and termed the N.C. Brady Laboratory, IRRI's gene bank, "a historic landmark that houses the building blocks for seeds of the future."

In the 1980s, IRRI initiated research programs on farm income and employment, the role of women in rice farming systems, and the "forward edge of science" — the use of biotechnology and wide crossing techniques to solve difficult production problems and overcome genetic barriers, De Datta said.

Although rice production has generally kept up with population growth, De Datta warned that it "might not be able to keep up with the projected need, a 3% increase in the 1980s and another 2.1% in the 1990s". He stressed that "the need for production technology that will help increase yield per crop and cropping intensity with less cash-dependent technology is urgent."

"IRRI and other international centers are fortunate to have gene banks that safely house seeds of food crops for future recombinations," De Datta said, but "the conservation and improvement of other resources, such as soil, have not received equal attention. For example, 25,000 million tons of topsoil are lost annually from the world's crop land. We must address greater attention to the sustainability of production systems if soil health is to be maintained and food security for the future safeguarded."

## End of hunger in Africa achievable by end of century: Obasanjo

**H**unger can be ended in Africa by the year 2000. That was the message of one of Africa's leading political thinkers in a 10 April speech to diplomats, development experts, and scientific researchers.

Delivering the second annual Arturo Tanco Memorial Lecture at IRRI was General Olusegun Obasanjo, the former Nigerian Head of State who engineered Nigeria's transition to civilian democracy in the late 1970s. Even now, he said, Africa probably grows enough food to feed itself — if the 30% of its food production that is spoiled each year could be saved through improved and timely harvesting and effective storage.

The Tanco Memorial Lecture is sponsored by The Hunger Project, an international organization of more than 5.1 million individuals committed to the end of the persistence of hunger by the year 2000.

Obasanjo said Africa is poised for action to eliminate the problems that have hampered success in increasing agricultural production. "After 25

years of independence," he said, "Africans must learn from their mistakes and be able to eradicate hunger from the continent by the end of this century. I believe that this objective is achievable."

"Although self-sufficiency in food production in most of Africa is still some way off, many African nations now recognize that the way out is to assign the highest priority to agriculture as a powerful instrument for increasing employment and income," he said.

"The complex problems in African agriculture must be considered, not in terms of short-term solutions, but in a long-term context. Programs for future agricultural development must include active participation of rural producers, freer access to commodity markets, and environmentally sensitive agricultural policies," he said.

The challenge facing African agriculture, Obasanjo continued, is to double the growth rate of agricultural production over the remaining years of this century to keep up with



Chris Tanco (center), son of the late Arturo Tanco, Jr., visits with Gen. Olusegun Obasanjo, former Nigerian head of state, and Joan Holmes, executive director of the Hunger Project. Obasanjo earlier had delivered the second annual Tanco Memorial Lecture at the International Rice Research Institute. The Hunger Project sponsors the Tanco Memorial Lecture series. Arturo R. Tanco, Jr. was Philippine Minister of Agriculture and Food, and served on the IRRI Board of Trustees, from 1971 to 1984.

Africa's high rates of population growth.

"Unless population control is given serious attention, increases in agricultural production will always lag behind population growth. The issue of cultural or religious inhibition or resistance to population control must be tackled by African leaders and no one else," he said.

Turning to government policies in Africa, Obasanjo said greater emphasis should be placed on freeing the market, with the state moving away from a controlling function to more of a service role — providing roads, transport systems, and research and agricultural extension services needed to support food production and distribution.

"There is now a growing recognition in many African countries that the proliferation of

quasi-governmental agencies, commodity boards, and government-controlled cooperatives has been a major source of inefficiency and a serious obstacle to agricultural progress," he said.

"There is the need for more decentralization . . . It is not enough for governments to increase the prices of food and export crops to stimulate production. Steps must be taken to ensure competitive markets."

Obasanjo also emphasized the critical role that women, the primary



Gen. Olusegun Obasanjo, former Nigerian head of state, delivered the second annual Tanco Memorial Lecture at IRRRI on Friday, 10 April 1987. At a barrio fiesta in his honor after his address, Obasanjo was interviewed by children of the IRRRI international staff. From left are Ben Bloom, Raj De Datta, Rafat Bhuiyan, and Abe Garrity, who publish the *Timely Times*, a newspaper written by them and distributed to IRRRI staff members.

food producers in Africa, play in the economic development of the continent. "In planning the future of agricultural development, the role of women must be given the utmost and genuine attention," he said. Government policies must include providing improved general education for women and bringing them into the main stream of development planning and programming.

The Hunger Project established the

Tanco Lecture as a tribute to the late Arturo R. Tanco Jr., who served as Philippine Minister of Agriculture and Food from 1971 to 1984. He was vice chairman of the Food and Agriculture Organization's Governing Council (1975-77) and served two terms as president of the UN World Food Council (1977-81). Tanco was vice chairman of the IRRRI Board of Trustees from 1974 to 1984.

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## Monitoring work essential element in IRTP success

"Data generated by the IRTP nurseries are the foundation of the International Rice Testing Program (IRTP) network; our monitoring program adds a human

element that greatly strengthens what we build on that foundation," says Dr. V. Seshu Durvasula, IRRI plant breeder and IRTP coordinator.

IRTP monitoring work began in 1975. It brings together rice scientists from network countries to visit and discuss nurseries, collaborative research, and other rice research of mutual interest.

### IRRI trustees name new director general

The IRRI Board of Trustees recently named Dr. M. S. Swaminathan of India as IRRI's fourth director general. He will join IRRI in mid-April 1982, replacing Dr. N. C. Brady who resigned in May 1981.

Dr. Swaminathan is a member (Agriculture) of the Planning Commission, Government of India. He also serves as president and chairman of the Board of Trustees of the International Federation of Agricultural Research Systems for Development, an organization dedicated to strengthening and gaining international support for agricultural research and training systems in developing nations. He has served as secretary, Ministry of Agriculture, Government of India; director general, Indian Council of Agricultural Research; cytogeneticist

and director of the Indian Agricultural Research Institute; and plant breeder, Central Rice Research Institute, India.

Dr. Swaminathan earned his PhD degree from the University of Cambridge, UK, in 1952. He has honorary doctorates from 14 universities — the most recent from the Technical University of Berlin, Federal Republic of Germany.

Dr. Swaminathan has served as chairman of The United Nations Advisory Committee on Science and Technology for Development and independent chairman of the Food and Agriculture Organization Council. He is recognized as either fellow or honorary fellow of the Royal Society of London (UK), the U. S. National Academy of

*Continued on next page*

"The monitoring program has helped improve the management of IRTP trials and has encouraged cooperating scientists to put their best rices into regional and international tests," Durvasula notes. "Since the start of IRTP, more than 200 rice scientists on 36 tours have visited 130 rice research stations in 32 countries on 4 continents. The tours also included hundreds of colleagues at the national level.

"Many tours have been followed by planning sessions or workshops. But at a "so what" session after every tour ideas to strengthen IRTP develop and research leads are generated. Participation at these small meetings differs greatly from that at our big annual planning meeting during the International Rice Research Conference at IRRI. In the small informal monitoring tour sessions everyone feels free to put forth problems and ideas for discussion. But at the big formal meeting many national scientists hesitate to speak out," Durvasula says.

A report of each monitoring tour and workshop goes to all cooperating scientists in the network. "Essentially, every network scientist knows what is happening throughout the network as a result of our tour, workshop, and reporting system," Durvasula observes.

IRTP was conceived in 1975 when a small group of rice scientists pointed to a critical need for sharing of the world's best rices among national and international programs. The network was established in April with funding from



Dr. Swaminathan (second from left) joined IRRI administrators in January for discussions with a Quinquennial Review team, which had made a detailed study of IRRI research progress. From the left are Drs. M. R. Vega, acting director general; D. J. Greenland, deputy director general; M. D. Pathak, director for research and training coordination; H. T. Murphy, director for administration; and F. M. Salacup, controller.



A 1981 monitoring tour group checks the performance of dryland (upland) rices at Ikenne, Nigeria. From the left are V. Seshu Durvasula, IRTP coordinator, IRRI; Y. Effron, plant breeder, International Institute of Tropical Agriculture (IITA); Kaung Zan, IRRI liaison scientist for Africa; and K. Alluri, IITA agronomist.

the United Nations Development Programme. By 1980 the network involved more than 800 active rice scientists in some 80 countries. Nearly every rice research station in the world has either planted an IRTP trial or has tested rices that were originally distributed within the network.

IRTP's objectives are to:

- make the world's best rice available to rice scientists for their direct use as varieties or for crosses within breeding programs;
- provide all rice scientists an opportunity to test their advanced breeding lines over a wide range of environments;
- identify rice varieties with broad resistance to major diseases, insects, and other stresses;
- monitor and assess the genetic vari-

ation of pathogens and insects;

- serve as a center for the exchange of information on the interaction between varietal characteristics and the diverse rice-growing environments in the world; and
- promote interaction among the world's rice scientists.

Dr. Harold Kauffman, IRRI plant pathologist and joint coordinator of IRTP from its start, comments: "An international network for rice varietal testing was an idea whose time had come. The testing of advanced lines and varieties was a natural first step in network activities. The IRTP has now provided a successful framework and operational concept on which a wide range of cooperative varietal improvement activities can be added."

#### New DG continued

Sciences, the All-Union Academy of Agricultural Science (USSR), and other societies. He also holds the prestigious Meghnad Saha Medal given by the Indian National Science Academy.

In 1971, he received the Ramon Mag-saysay Award in the Philippines for his contributions to agriculture as scientist and educator.

The new director general has published more than 200 research articles in scientific journals and has guided more than 50 students through their PhD research.

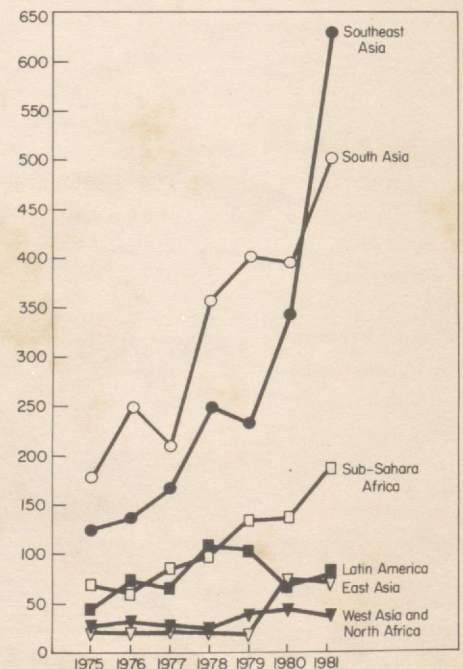
Dr. Swaminathan served in 1971-76 as vice chairman of the Technical Advisory Committee of the Consultative Group on International Agricultural Research (CGIAR), a group of donor agencies dedicated to the improvement of agriculture in developing nations. He was trustee of the International Maize and Wheat Improvement Center (CIMMYT) 1972-78 and has been a trustee of the International Crops Research Institute of the Semi-Arid Tropics (ICRISAT) since 1972.

Kauffman left IRRI in December 1981 to direct the International Soybean Program at the University of Illinois, Urbana-Champaign, USA.

#### Making germplasm available

Keys to making the best germplasm available around the world were forming the nurseries and getting them into the hands of cooperators. Nurseries were developed for tests in diverse environments. The best traditional rices and breeding materials from participating national and international programs went into the nurseries.

Twelve types of international nursery sets went out in 1975 — 35% of the entries from national nomination, 49% from IRRI's breeding program, and 16% from the IRRI germplasm bank. By 1980, national programs submitted more than 50% of the entries, an indication of the growing awareness of the benefits of international cooperation.



1. Distribution of IRTP nurseries to various rice-growing regions of the world. For Latin America additional regional nurseries are distributed from CIAT.



Harold E. Kauffman (left) and V. Seshu Durvasula (right), joint coordinators of the International Rice Testing Program, go over a master field book of IRTP nurseries with Hank M. Beachell, rice breeder with the Cooperative Central Research Institute for Food Crops-IRRI program in Indonesia. The master field book is computer-generated and provides cooperators with ready information on all entries in IRTP nurseries.

**Table 1. IRTP had 12 test nurseries in the network in 1975. These expanded to 14 regular nurseries and 21 special screening sets within 6 years.**

	Regular <sup>a</sup>	Special screening set
<i>Target environment</i>		
Irrigated	IRYN-VE IRYN-E IRYN-M IRYN-L	
Rainfed	IURYN IRLRYN	
<i>Observational</i>		
Irrigated	IRON	Arid region
Rainfed	IURON (dryland) IRLRON-E (wetland) IRLRON-L (wetland)	Flood tolerance Medium deepwater Floating Tidal swamp
<i>Stress screening</i>		
Temperature	IRCTN (cold)	Heat tolerance
Soil	IRSATON (salinity & alkalinity)	Iron toxicity Acid sulfate Peat soils Acid upland
Diseases	IRBN (blast)	Blast - horizontal Leaf scald Bacterial blight Tungro Ragged stunt Cercospora Sheath rot Brown spot
Insects	IRBPHN (brown planthopper)	Leaffolder Gall midge Yellow stem borer

<sup>a</sup>VE = very early, E = early, M = medium, L = late.

During its first year of operation, IRTP distributed almost 82,000 seed packets in 457 nursery sets — mostly to Asian countries. By 1980, the number of nurseries distributed had tripled (Fig. 1) and distribution was worldwide. In addition, the 12 nurseries had increased to 20 by 1980. In 1981 the nurseries were reorganized to include 14 regular trials and 21 special screening sets (Table 1).

IRTP nurseries are distributed and tested in Latin America in collaboration with the International Center of Tropical Agriculture (CIAT), and in Africa in collaboration with the International Institute of Tropical Agriculture (IITA) and the West African Rice Development Association (WARDA).

### Building blocks and new varieties

The Genetic Evaluation and Utilization (GEU) program founded by IRRI in 1974 provided interdisciplinary teams for varietal improvement research at IRRI. IRTP, formed at almost the same time, provides intercountry collaboration for the GEU teams.

From the IRTP nurseries each rice scientist can choose what he likes from among the improved rices nominated to the nurseries annually. Many rices, identified locally as the nurseries are observed and scored, become parents — building blocks for improved rices — in national breeding efforts.

Time savings are an important dividend for network scientists. Improved germplasm taken from an IRTP nursery can save as much as 5 years. Savings of financial resources and manpower are also significant.

Rices that do well in an IRTP yield nursery usually go into national tests to see if the quality and performance meet local needs. If they do, the next step is release of a new variety to farmers.

More than 30 entries in IRTP nurseries have been released as varieties in more than 20 countries since 1975 (Table 2). These varieties are grown on several million hectares of rice land worldwide.

### Research leads

The hundreds of thousands of rices tested at hundreds of sites in the IRTP network have increased knowledge

Table 2. Entries originating from IRTP nurseries that have been released as varieties in national programs.

Region or country	Designation	Origin	Name given
<i>Southeast Asia</i>			
Burma	BG90-2	Sri Lanka	Sinthini
	BR51-91-6	Bangladesh	Sintheingi
	IR34	IRRI	Sinshwethwe
	BKN6986-108-3	IRRI/Thailand	Yenet-1
	BKN6986-167	IRRI/Thailand	Yenet-2
	Pelita 1-1	Indonesia	Palethwe
Indonesia	C22	Philippines	Yar-1
	KN96	Indonesia	Yar-2
	IR26	IRRI	PB26
	IR28	IRRI	PB28
	IR30	IRRI	PB30
	IR32	IRRI	PB32
	IR34	IRRI	PB34
	IR36	IRRI	PB36
IR38	IRRI	PB38	
IR2307-747	IRRI	PB42	
Vietnam	IR2071-625-1	IRRI	NH 3A
	Jaya	India	
	Pelita 1-1	Indonesia	
	Biplab	Bangladesh	
	IR2307-247-2-2-3	IRRI	Nong nghiep 6A
	IR2823-309-5-6	IRRI	Nong nghiep 28
IR2707-115-3	IRRI	Nong nghiep 38	
Philippines	KN-1b-361-1-8-6-10	Indonesia	RP KN-2
<i>South Asia</i>			
Bangladesh	IR2061-214-3-8-2	IRRI	BR6
	IR2053-57-3-1	IRRI	BR7
India*	BR51-46-C1	Bangladesh	—
	IR30	IRRI	IR30
	IR34	IRRI	IR34
	IR36	IRRI	IR36
	Intan	Philippines	Intan
Nepal	BG90-2	Sri Lanka	Janaki
	IET2935	India	Durga
	IR2061-628-1-6-4-3	IRRI	Lagami
	IR2071-134-6-4	IRRI	Sabitri
<i>West Asia &amp; N. Africa</i>			
Sudan	IR2053-206-1-3-6	IRRI	—
<i>Sub-Sahara Africa</i>			
Ivory Coast	Jaya	India	—
	IR2058-78-1-3-2-3	IRRI	—
Mali	IET2855	India	—
	IR269-26-3-3-3	IRRI	—
	IR1529-680-3	IRRI	—
	Jaya	India	—
Niger	IR1529-680-3	IRRI	—
Senegal	Jaya	India	—
Sierra Leone	Cica 4//IR665/Tetep	CIAT	ROK 11
	Cica 4//IR665/Tetep	CIAT	ROK 12
Upper Volta	IR1529-680-3	IRRI	—
	Vijaya	India	—
<i>Latin America</i>			
Belize	Cica 8	CIAT/ICA	Cica 8
Bolivia	IR1529-430-3	IRRI	Saavedra V5
Cuba	IR1529-430-3	IRRI	IR1529
Guatemala	Cica 8	CIAT/ICA	ICTA Virginia
Honduras	Cica 8	CIAT/ICA	Cica 8
Panama	Cica 8	CIAT/ICA	Cica 8
Paraguay	Cica 8	CIAT/ICA	Adelaide 1

\*Named in certain states.



IRTP nurseries start at IRRI, data recorded by cooperators flow back to IRRI for processing, and reports are rapidly printed to give all cooperators information on performance of all nurseries everywhere. Toribio Ebron, IRRI senior research assistant and Frisco Malaban, research aide, IRTP, check seed stocks for the preparation of nurseries.

Data assembled from nursery reports from all parts of the world are keypunched for analysis and preparation of reports by computer.



V. T. John and K. Satyanarayana (above), All India Coordinated Rice Improvement Program, work on an IRTP nursery report. The cooperator is the key to the success of IRTP. He must get the nursery planted, record data on plant traits, stresses, and pest damage, and send reports to IRRI. The cooperator also watches for outstanding rices in the national rice improvement program that can be nominated for IRTP nurseries.

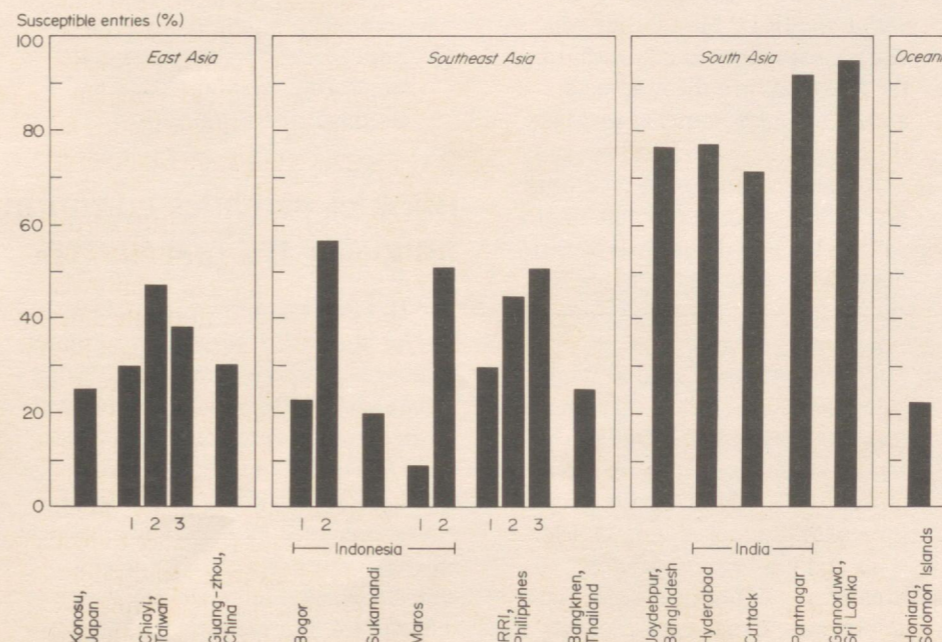
IRTP technicians make a careful check of each nursery just before it is shipped to a cooperator.

IRTP's Rosario Dychangco, IRRI research assistant for IRTP data management, follows up IRTP report printing with Ed Rufon, IRRI senior printing supervisor.



about how new rices respond to biological, physical, and chemical stresses. Many significant research leads have originated from the IRTP program. From them, cooperating scientists have developed breeding strategies to overcome many constraints.

• **Brown planthopper (BPH).** From the BPH nursery (IRBPHN), biotypes of the insect in South Asia were found to be distinctly different from those in East Asia and Southeast Asia (Fig. 2). Therefore, researchers breeding for BPH resistance in South Asia had to rely primarily on local materials and local screening. Recently, donors with genes for resistance to biotypes in all regions were identified in IRTP nurseries, thus laying the foundation for an in-depth collaborative project among Asia's scien-



2. Susceptible entries at different test sites of the 1978 International Rice Brown Planthopper Nursery. 1, 2, and 3 refer to biotypes 1, 2, and 3. The distinction of the South Asian brown planthopper biotype is evident from the proportion of susceptible entries.

tists working on BPH.

- **Gall midge.** Differential reactions of gall midge nursery entries tested over several years clearly indicate biotypic differences among different countries as well as within countries. Five varietal groups have shown distinct reactions to gall midge biotypes in India, Indonesia, China, Sri Lanka, and Thailand. The Thailand biotype seems distinct from the rest, with only one of five sources (Eswarakora) showing resistance. All five are resistant at Hyderabad, India.
- **Blast.** Blast, the most destructive rice disease, has wide genetic variability. Evaluation of rice germplasm in the International Rice Blast Nursery (IRBN) against many blast races at many sites has identi-

fied several varieties that have resistance to a wide spectrum of the races. The intensified research on the genetic interaction of the host and pathogen stimulated by the trial results is aimed at putting resistance breeding programs on a sound genetic basis. Likewise, work to develop improved international differentials has been accelerated to assist in the breeding effort and to monitor the dynamics of pathogen populations.

- **Temperature stress.** IRTP genetic materials have been tested at sites with a wide range of environments — from desert areas where temperatures surpass 50° C to mountainous areas at elevations up to 2,300 m where growing season temperatures ranged between 15° and 25° C. Tests have also been made at latitudes ranging from 35° South to 41° North. Germplasm with tolerance for the temperature extremes and day length variation has been identified and is being used in many breeding programs. Collaborative studies on the mechanism of this tolerance have been initiated.
- **Problem soil stresses.** The IRTP nurseries are grown in all types of soils and several varieties with some tolerance for adverse soils have been found. Rice scientists have begun to use some of those in breeding programs. Soil scientists, agronomists, and breeders have expressed interest in establishing a network to collaboratively study the mechanism of such tolerance. Genetic tolerance for adverse soils will greatly reduce costs where the need for soil amendments can be reduced. It will also help bring added land into rice production.

#### **Benefits to national research programs**

Each country in the IRTP network gains its own type of benefits.

- **Indonesia.** Since 1975, Indonesia has tested more than 150 sets of IRTP nurseries. Indonesian scientists identified varieties, such as IR36, IR42, and similar lines, which performed well and had resistance

to the BPH biotype devastating their rice crop. The IRTP-introduced rices are now grown on more than 60% of the rice area in Indonesia. Production increases from 15 million tons in 1975 to nearly 20 million tons in 1979-80 are a result of the new varieties and associated technology.

Many Indonesian varieties and breeding lines nominated to the IRTP trials have performed well in several African and Latin American countries and two have been released as varieties (Table 2).

- **Vietnam.** Through testing of 75 IRTP nurseries sent to Vietnam, Vietnamese scientists have identified high yielding varieties with resistance to BPH. Several varieties have been released and are grown widely in southern Vietnam where rice production has now stabilized. Varieties for the rainfed wetland and dryland areas in Vietnam's Central highlands and for the north, where temperature extremes limit production, have also been identified from the IRTP trials.
- **Korea.** In 1978, a serious outbreak of blast disease drastically reduced production. To develop a gene rotation system as the major strategy for controlling blast, promising breeding material and donor varieties were grown in selected areas within the IRTP blast testing network for response to new races of the fungus. When the new races appear in Korea, varieties that have the required resistance will be ready.

Korean scientists pioneered work on cold tolerance in rice and, jointly with IRRI, tested hundreds of varieties and breeding lines for cold tolerance, a trait required in several rice growing areas.

- **Bangladesh.** More than 100 Bangladesh varieties and breeding lines have been tested in the IRTP network. Several varieties nominated from Bangladesh have been top performers in medium-duration yield trials and have tolerance for a broad array of insect, disease, and soil stresses. Bangladesh scientists

have evaluated several hundred IRTP trials in the country's diverse rice ecosystems. Two varieties have been released and many of the best materials have been put into their breeding program.

#### **IRTP's future**

The IRTP network has fostered a sense of community among the world's rice scientists. This strong base of cooperation ultimately will help in finding solutions to the many problems still blocking sustained high rice productivity. IRTP entered its phase II in 1981. It will:

- Continue organization of appropriate target-environment and stress nurseries as dictated by needs and recommendations of cooperating scientists and countries.
- Focus on regional nurseries.
- Initiate rice-weather studies.
- Increase the follow-up of IRTP results in developing breeding strategies.
- Effectively utilize "hot spots" for different stresses in screening observational nurseries.
- Continue monitoring pathotype and biotype variation relative to major diseases and insects.
- Increase communication through diversification of reports to meet the needs of different regions and rice cultures.
- Continue promotion of interaction among rice scientists through the monitoring program, planning meetings, and workshops.

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## **Booklet provides common language for rice scorers**

The IRTP's *Standard Evaluation System for Rice* (SES) provides a common language for International Rice Testing Program (IRTP) cooperators as well as for rice scientists anywhere who must score rice traits, stresses, or pest damage.

All scoring of rices grown in IRTP nurseries is done by SES. The numerical score gives all users of IRTP data a clear understanding of what was seen in the test plot. For example, any scientist

27  
**Sheath blight (ShB)**  
 Causal agent: *Rhizoctonia solani*  
 Symptoms: Grayish-green lesions may enlarge and coalesce with other lesions, mostly on lower leaf sheaths, but occasionally on the leaves.

At growth stage: 5-9  
 (lowland conditions)

SCALE

- 0 No incidence
- 1 Lesions limited to lower 1/4 of leaf sheath area
- 3 Lesions present on lower 1/2 of leaf sheath area
- 5 Lesions present on more than 1/2 of leaf sheath area. Slight infection on lower (3rd or 4th) leaves
- 7 Lesions present on more than 3/4 of leaf sheath. Severe infection on upper leaves (flag and 2nd leaf)
- 9 Lesions reaching top of tillers, severe infection on all leaves and some plants killed

28  
**Sheath rot (ShR)**  
 Causal agent: *Acrocyndrium oryzae*  
 Symptoms: Oblong or irregular brown to grey lesions on the leaf sheath near panicle; sometimes coalescing to prevent emergence of panicle.

At growth stage: 7-9

SCALE (Tillers affected)

- 0 No incidence
- 1 Less than 1%
- 3 1-5%
- 5 6-25%
- 7 26-50%
- 9 51-100%

This page from the SES booklet shows the 0-9 scoring system for sheath blight and sheath rot.

anywhere who sees a score of 3 for sheath blight will immediately know that sheath blight lesions were present on the lower 1/2 of the leaf sheath area. The number scores — in a 0-9 range — allow rapid computerization of data from IRTP nurseries around the world. That, in turn, provides rapid reporting



These IRTP nursery reports are sent to all cooperators within a few months after analysis of data at IRRI. Anyone interested in the results of any nursery may obtain a report from IRTP at IRRI.

of test nursery results (see photo).

Scientists also use the SES booklet as a common language for reporting research data elsewhere. The SES was developed in 1975 and revised in 1980 based on suggestions from users. The 44-page booklet (second edition) is available free at IRTP, IRRI.

The combination of rapid submission of data by IRTP network scientists and computerized handling of all data at Los Baños allows rapid reporting. Color-coded nursery reports are sent to all cooperators within a few months after their data are received by IRRI's data processors.

## Vega to head weed society

Marcos R. Vega, IRRI's acting director general, recently became president-elect of the International Weed Science Society.

Dr. Vega was weed scientist at the University of the Philippines, Los Baños, before joining IRRI in March 1972 as assistant director. He became IRRI's assistant director for training in 1974 and director for training in 1976. He was named deputy director general in 1978 and became acting director general in June 1981 when Director General N. C. Brady resigned (see Brady story on page 8).

While serving as an IRRI administrator Dr. Vega has maintained his interest and involvement in weed science. He will assume the duties of International Weed Science Society president at the annual meeting of the society in September 1983.



IRRI Acting Director General M. R. Vega (left) reviews field research with scientists at IRRI.

## IRRI laboratory given Brady name

The IRRI Board of Trustees recently named IRRI's Rice Genetic Resources Laboratory the N. C. Brady Laboratory, in recognition of the former director general's contributions to the improvement of the lives of hundreds of millions of the world's farmers and urban dwellers.

Dr. Brady served as IRRI director general from 1973 to 1981. In June 1981, he joined the United States Agency for International Development, Washington D. C., as senior assistant administrator, Bureau of Science and Technology.

Dr. C. C. Gray III, chairman of the IRRI Board, said in the dedication statement: "Soon after Dr. Brady assumed duties as IRRI director general in 1973, he recognized the need for a facility appropriate for the conservation and utilization of the world's rice germplasm and set out to secure for IRRI and the world the finest and most functionally useful genetic resources center anywhere."

The two-story Brady Laboratory, built in 1977, is the hub of the Genetic Evaluation and Utilization (GEU) program, a worldwide effort through which multidisciplinary IRRI teams work with scientists in Asia, Africa, and Latin America to develop improved rices. Brady Laboratory houses the germplasm bank, Plant Breeding Department, International Rice Testing Pro-



C. C. Gray III, chairman, IRRI Board of Trustees (left), reads the plaque at the N. C. Brady Laboratory to honor Brady for his contribution to mankind. At right are Brady and IRRI trustees H. K. Pande (India), and Ing. Sadikin, S. W. (Indonesia).



Dr. and Mrs. Brady remove the cover from the new nameplate at the N. C. Brady Laboratory.

gram, and Agricultural Economics Department.

The seeds of more than 50,000 rice varieties are preserved in cold storage in Brady Laboratory. Many seeds are of traditional varieties that have adapted over centuries to tolerate stresses such as drought, deep water, or local diseases

and insects. Wide-scale farmer adoption of modern varieties threaten such rices with extinction. IRRI coordinates a worldwide program to collect and preserve these irreplaceable rices. Seed samples in the long-term storage rooms are expected to remain viable for more than 75 years.

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**The IRRI Reporter**  
International Rice Research Institute  
P. O. Box 933, Manila, Philippines

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Please send IRRI any change of address promptly to assure continued receipt of *IRRI Reporter*.

## Hepatitis Alert On

IRRI recently received a document from the US Embassy Medical Unit about the dreaded disease called Hepatitis.

There are three types of Hepatitis which have already been identified. These are Hepatitis A (previously called Infectious Hepatitis), Non-A Non-B Hepatitis and Hepatitis B (previously called Serum Hepatitis). All types attack the liver and are considered serious illnesses. Types A and B are highly prevalent in the Philippines while the incidence of Non-A Non-B is still unknown.

Hepatitis A is transmitted by the fecal-oral route, that is, the virus enters the body through food, water and utensils contaminated by the feces of an infected person. It can be prevented by the periodic injection of immune serum globulin (gamma globulin) every four or six months.

Non-A Non-B Hepatitis is spread primarily through blood transfusion. There is no specific test of prevention of this disease.

The virus responsible for Hepatitis B is present in all body fluids of infected persons. It is transmitted by blood transfusion, by skin or mucus membrane puncture by infected needles or instruments, by sexual contact and during childbirth. In developing countries like the Philippines, the last mode of transmission is the most significant. An effective and safe vaccine has been developed which provides complete protection against infection with the Hepatitis B virus. Persons who belong to the following risk groups are advised to have themselves immunized against Hepatitis B:

Health care personnel

Those living with people who suffered or are suffering from Hepatitis B

Those having intimate sexual relations with people from areas where Hepatitis B is prevalent

Homosexually active males

continued on p. 7

## Pupunta Ka Ba Sa IRRI Clinic?

Tulad ng isang sinehang maganda ang palabas, laging pinipilahan ang IRRI Medical Clinic. Ang mga sumusunod ay ilang mga tanong at sagot ukol sa operasyon ng Clinic na inaasahan ng Ugnayan na makatutulong sa mga kawani at makakapagpabawas ng hindi pagkakaunawaan.

### Ano ang pangunahing gawain ng IRRI Medical Clinic?

*Ang IRRI Medical Clinic ay magdudulot ng dagliang lunas sa mga kasong emergency na magaganap sa loob ng Institute.*

### Sinu-sino ang maaaring magpagamot sa IRRI Medical Clinic?

*Ang Clinic ay bukas para sa mga regular na empleyado, mga scholars, trainees at, kung kinakailangan, mga panauhin ng Institute. Maaari ring magpagamot sa Clinic ang mga hindi regular na empleyado ng IRRI sa oras ng emergency.*

### Anong oras bukas ang Clinic?

*Bukas ang Clinic mula 7:00 ng umaga hanggang 5:00 ng hapon, mula Lunes hanggang Biyernes, maliban na lamang kung non-working holidays. Maaaring magpakonsulta sa doktor mula 9:00 ng umaga hanggang 12:00 ng tanghali at 2:00 ng hapon hanggang 5:00 ng hapon. Ginagawa ang annual medical examination ng mga regular na kawani araw-araw, mula 8:00 ng umaga hanggang 9:00 ng umaga at 1:00 ng hapon hanggang 2:00 ng hapon.*

### Sinu-sino ang mga tauhan ng Clinic?

*Ang Clinic ay may dalawang doktor (isa sa umaga, isa sa hapon), dalawang nurse (salitan ng araw), at dalawang medical technologists. Magkakaroon din ng x-ray technician sa sandaling dumating ang bagong x-ray machine.*

### Anu-anong serbisyo ang ibinibigay ng Clinic?

*Nagbibigay ang Clinic ng pangunang konsultasyon, pangunang paggagamot, pangunang lunas (first aid) at unang dosage ng gamot. Ang gamot na ibinibigay ng Clinic nang walang bayad ay para lamang sa unang 24 oras at yaon lamang na kasama sa available stocks nito. Ang sumusunod na dosage at ang mga gamot na wala sa Clinic ay*



*dapat nang bilhin ng kawaning hindi kasali sa Health Maintenance Organization (HMO) Program ng Institute. Ang mga kasapi sa HMO ay patutunguhin ng doktor ng Clinic sa Los Banos Doctors' Hospital kung saan sila lalapatan ng patuloy na lunas at bibigyan ng karagdagang gamot. Ang mga hindi kasali sa HMO ay maaari namang magtungo sa iba pang manggagamot upang magpakonsulta at magpagamot. Ang gastos ng pagpapakonsulta at pagpagagamot na ito ay sasagutin naman ng angkop na group insurance plan ng Institute ayon sa mga limitasyon nito.*

**Maaari bang pumunta na lang nang direktso sa Clinic ang kawaning masama ang pakiramdam?**

*Dapat munang ipaalam ng kawani na siya ay pupunta sa Clinic sa kanyang Department Head o sa kinatawan nito sa pamamagitan ng pagpapapirma sa mga nabanggit ng referral slip. Hindi na kinakailangan pang mag-file muna siya ng sick leave. Pagkatapos ng konsultasyon at paggagamot, isusulat ng nurse o ng doktor kung ano ang sakit ng kawani at kung kailangan niyang mag-file ng sick leave at umuwi upang magpahinga o tumuloy sa ospital, o kung maaari na siyang magbalik sa gawain. Dapat munang ibalik ng kawani ang referral slip na sinulatan ng nurse o doktor sa kanyang Department Head o sa kinatawan nito. Hindi na kinakailangan pa ang referral slip sa mga kasong emergency bagamat maaari ring hilingin ng mga tauhan ng Clinic na mag-submit nito ang kawani matapos siyang gamutin.*

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## EDITORIAL

## ILANG TUNTUNING EDITORYAL

Sa Ugnayan Volume 3, Number 5 (Jan-Feb 1986), tinalakay at inilathala mga tuntuning sinusunod ng ating pahayagan. Dahilan sa mainit na u ng censorship at malayang pamamahayag na sumasaklaw hindi l. n. sa IRRI kundi sa buong Pilipinas na rin, muling ipinahahayag ng Ugnayan sa IRRI ang mga tuntuning editoryal (editorial policy) nito.

- a. Ang Ugnayan sa IRRI ay magsisilbing gamit pang-komunikasyon ng mga tauhan ng IRRI. Sa pinakasimple at pinakamagandang paraan, ihahatid nito sa mga taga-IRRI ang mga balita at kuru-kuro ukol sa mga pangyayaring nagaganap sa loob at labas ng Institute.
- b. Magiging daan ito para sa makasining at mapanlikhang pamamahayag sa pamamagitan ng regular na features at literary sections at ng taunang Katha.
- k. Hanggang maaari, magiging objective ang Ugnayan sa pagtalakay sa mga isyu. Bibigyan nito ng pagkilala ang dapat kilalanin at mamumuna ng may kabuluhan. Hindi kailanman pagagamit ito upang purihin ang hindi dapat purihin, pulaan ang di dapat pulaan o pagsilbihan ang hindi makatarungan at hindi makatotohanang interes ng isang indibiduwal o grupo ng mga indibiduwal.
- d. Tatanggap ang Ugnayan ng anumang makabuluhang kontribusyon, positibo o negatibo, mula sa sinumang taga-IRRI. Gayunpaman, ang paglalathala nito ay nasa pasiya ng patnugutan. Hindi kailanman magiging dahilan ng hindi pagkalathala ng anumang artikulo ang antas o uri ng gawain ng nagpadala.
- e. Ang mga kontribusyon sa Ugnayan ay magtataglay ng pangalan ng nagpadala. Kaugnay nito, may pananagutan ang sumulat na tumugon at humarap sa anumang reaksiyon o ideyang magiging bunga ng kanyang artikulo.
- g. Sisikapin ng Ugnayan na maging mataas ang uri ng editoryal at teknikal na antas nito sa lahat ng oras.
- h. Katungkulan at karapatan ng patnugot na pagpasiyahan kung ano ang maaari at hindi maaaring mailathala sa Ugnayan. Katungkulan din niyang ipatupad ang mga tuntuning ito.

## WE OUGHT TO KNOW

Rudy Reyes

## Blast That Fungus!

The yearly performance evaluation rating period is over. Now the yearly ranting period starts.

-o0o-

To sign or not to sign, that is the question.

-o0o-

Not only does the PER serve to gauge the performance of the subordinate, it also reflects the supervisory competence of the supervisor. It is incumbent upon the supervisor to constantly remind his subordinates about their performance, especially when he feels that their performance is wavering, and to

continued on p. 6

## TAPIK SA BALIKAT

Nards Lopez

## Ay, Peste!

Ang pagtuklas sa mga uri ng palay na malaki ang dulot na ani at uyot, resistensiya sa sakit, hayop, ng at iba pang sakit at peste ay kabila sa pananaliksik na isinasagawa ng IRRI. Kaya nga kapag may kausap tayong magsasaka, agad na itatanong ng mga ito kung ano ang bagong tuklas na variety natin.

Kapansin pansin at nakababahala tuloy ang paglaganap ng sakit ng palay katulad ng tungro dito mismo sa IRRI. Batid natin na nakasalalay sa pagpili ng tumpak na variety ang mga eksperimento. Kung sakali at hindi resistant ang variety na iyong naitanim, sira na ang experiment. Ang nakapagtataka lang ay kung bakit napakadaling mawala ang resistensiya ng mga IRRI varieties? Halimbawa, sa demonstration plots ng Plant Breeding department, mapupuna na 22 sa 30 IRRI varieties ay naapektuhan ng tungro. Kabilang dito ang IR 64 na masasabing bago pa rin.

Marahil ay kailangang bigyan ng masusing pag-aaral ang insect population sa IRRI. Naniniwala ako na mayroon tayong kakayahan na mag-predict ng possible damage ayon sa population count.

Milyon ang ginagastos natin sa mga gamot subalit mayroon pa ring mga damage. Ano kaya ang dahilan? Ang ginagamit kaya nating mga gamot ay siyang pinakamabisa laban sa mga hayop na namiminsala? Ang atin kayang pamamaraan ng pagbobomba ng gamot ay tumpak? Ang spraying equipment kaya at ang dosage na ginagamit ay tama? Ang mga katanungang ito at iba pa ay kailangang mabigyan ng kasagutan sa dahilang ang pagkakaroon ng isang maresistensiyang binhi at mahusay na pamamaraan sa pagsugpo ng mga peste at sakit ay ilan lamang sa mga basic requirements ng mahusay na ani.

Kailangan bang magkaroon ng zoning para mabigyan ng tumpak na proteksiyon ang mga importanteng experiment? Bagaman at ito ay nababatid na ng mga kinaaukulan, minarapat ng pitak na ito na isatinig ang pag-ala-ala sa mga pangyayaring nagaganap.

continued on p. 7

## LETTERS TO THE EDITOR

## Of Deliveries, Professional Samples and Professional Fees

On September 12, 1987, my wife gave birth to a healthy baby boy through no delivery and stayed at the Los Banos Doctors' Hospital for only one day. For this, we were charged P5,600.

A month ago, my sister delivered a healthy baby at the St. Luke's Medical Center in Quezon City and stayed there for two days. They did not have insurance but were charged P2,000 only as per OR Nos. 491148G and 491149G.

With this in mind, I talked to the Obstetrician/Gynecologist and the cashier of LBDH. Our bill was subsequently reduced by P1,100. I was told that the Ob-Gyn reduced her Professional Fee by P300 and that the Medical Records Keeper named Liza Ornido made computational mistakes.

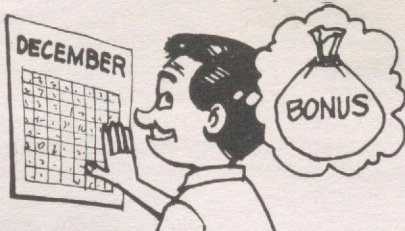
The rest of the bill was for medication, the costs of which I found staggering.

For instance, the mark-up on drugs was either 50% (according to the station nurse) or 25% (according to the cashiers). Whatever it was, one type of medicine given to us before checking out, (which we returned) cost P310. The same drug at Mercury Drug costs only P110.

One bottle of multivitamins charged to our account (P35) had a "Professional Sample Not For Sale" mark which was deliberately erased and pasted over with a blank label. I wrote the drug manufacturer and they confirmed that such samples are given to the doctors for free.

I am enrolled under the Major Medical Insurance Program and I eventually had to pay P1,494 on installment basis.

Ric F. Capistrano  
Soil Chemistry



This is a comment requested by Mr. Bourquein to a letter dated September 28, 1987 of one of your employees, Ric Capistrano, addressed to the Editor of Ugnayan sa IRR1.

This will be a point by point reply to the contents of the said letter.

1. Bill for one day, normal delivery was P5,600.

Comment: The initial bill was tentatively set at P5,623.25 on September 13, 1987, as computed by the medical records keeper and not by the cashier - a matter known to Mr. Capistrano who was requested to return for an adjustment of his bill when the cashier reports for duty.

The differences between the original bill of P5,623.25 and the adjusted bill of P4,511.25 are as follows:

a. Obstetrician's professional fee - The original bill was P2,100 on the supposition by the medical records keeper that the maximum allowable amount under the Major Medical Insurance (MMI) of P2,100 should be charged in spite of the fact that the Obstetrician forwarded a bill of P1,200 only.

The adjusted bill reflects the true bill of the Obstetrician of P1,200 only.

b. Medicine - The bill got reduced from P1,398.25 to P1,236.25 traceable to P162.00 of leftover drugs which were returned on the date of discharge. The billing error of P35 is traceable to the lack of knowledge of our new staff nurse in the Nursery who had included it in the bill when it should have been a starter dose. However, as of Sept. 25, 1987, in our weekly review of promissory notes, it was already deducted from the total bill even without Mr. Capistrano's asking for it.

2. Mr. Capistrano's sister paid

P2,000 only for a delivery involving two days confinement at St. Luke's Hospital.

Comment: What Mr. Capistrano failed to state were the following:

a. Her sister is a St. Luke's Hospital employee, being the Operating Room Head Nurse of that Hospital (this information was gathered from Mrs. Capistrano during her follow-up examination).

b. The sister of Mr. Capistrano was presumably not charged fees by her Anesthesiologist, her Obstetrician and her Pediatrician.

c. Obviously the P2,000 was paid for room charges, medicines, Delivery Room fee and laboratory which must have been at a discount considering that the sister is a St. Luke's Hospital employee.

I have a patient who recently delivered at St. Luke's Hospital and her bill was P6,500.

By way of comparison, Los Banos Doctors' Hospital charges for delivery cases of its employees but their bill hardly goes beyond P800.00. Hence, the P2,000 paid by Capistrano's sister is even excessive from the viewpoint of Los Banos Doctors' Hospital standards.

3. The OB-Gyne reduced her professional fee by P300.00.

Comment: This is not true. The professional fee has been and still is P1,200.

The rest of the computation was corrected by the cashier after she went over the tentative original bill prepared by the medical records keeper.

4. Mark-up on Drugs is 50%

Comment: The mark-up ranged from 25% to 40% of the cost of

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## PEOPLE, DEPARTMENTS, ETC.

## Excuse Me, But . . .

Many of us, especially those who work in the field, sweat a lot. While this a natural bodily function, we occasionally find that general sweating is caused by some disorder such as obesity, toxic goiter, an allergy, an exhausting illness or an abnormality of the nervous system. When excessive sweating occurs at night, some diseases such as tuberculosis or undulant fever may be the cause.

Body odor is not caused by sweat at all, however, but by the ever-present bacteria of the skin breaking down the odorless secretion from the glands as it forms on your skin. Odor results when the perspiration mixes with these natural bacteria and the decomposed material is allowed to stay there.

Here are some basic tips on how to control body odor:

*Personal cleanliness and regular bathing is the first step towards controlling both bacterial growth on the skin and body odor.*

*A shower in which you use plenty of warm, running water provides the best method of cleansing. If you rub yourself well after a bath, fresh oil will flow from the oil glands to keep your skin soft and smooth.*

*Try to wear clothing which lets air circulate and perspiration evaporate, rather than accumulate on your skin.*

*Another step is to harness scientific inventiveness and use a commercial preparation. This can either try to impede bacterial action or actually reduce the secretion of perspiration.*

*Perfumes and colognes are cooling, harmless and pleasant. Deodorants and deodorant soaps are useful in simply controlling odor, but they don't remove bacteria. A deodorant preparation is no substitute for personal cleanliness.*

*Anti - perspirants are*



*intended to impede bacterial action and cut down the secretion of perspiration. No anti-perspirant will completely stop perspiration, for to stop it completely would result in serious skin disorders.*

*Allow deodorants or anti-perspirants to dry before you put on your clothes to prevent stains on clothes.*

*You can generally get sound advice from your chemist*

*or doctor on the best types to use.*

*It is also good to watch your diet. Some highly spiced foods accent body odor.*

*Some people are more concerned with profuse sweating of hands and feet. If this is related to emotional stress, then control of the tension will slow down the sweating. If you have excessive perspiration problems, have a word with your doctor.*

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continuously encourage them to perform even better. There is, therefore, little doubt, if we consider that the supervisor supposedly does this duty, that the subordinates indeed performed satisfactorily.

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The very nationalistic conviction of the UPLB-Multisectoral Forum in their paper about alleged high risk research at IRRI is commendable. However, the allegation that the seeming silence of the Filipino employees of the Institute in the face of this alleged high risk research is an indication of "their ignorance as to the consequences to their own country of what they are doing", as well as an indication that Filipino employees allow themselves to be cowed by PD 1620 is a misconception born of immaturity. While admittedly there are risks involved in this type of research, there is no cause to be melodramatically alarmed since adequate precautionary measures were imposed since the beginning of the said research. Besides, it is common

agreement that the experiment is necessary. As rice blast is a major disease of rice in rainfed upland areas, rice scientists would find it difficult to bear the thought that they could have done something but did not do anything. The sin of omission is as bad as the sin of commission.

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The paper also pictures IRRI as supposedly being able to ignore certain legal restrictions thru PD 1620. The paper goes as far as stating that an employee "could be unceremoniously kicked out and the poor employees could not even appeal to the Department of Labor because of the immunity clause." There has however, not yet been any instance where IRRI used PD 1620 against any Institute employee. As a matter of fact, IRRI's immunity has always been waived in all cases with the DOLE involving dismissed employees. The matter of waiving IRRI's immunity in cases of appeal by dismissed employees with the DOLE has been demanded by

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## Swaminathan is first laureate of General Foods World Food Prize

**T**he first General Foods World Food Prize was presented to M. S. Swaminathan, director general, IRRI, in ceremonies at the Smithsonian Institution in Washington, D.C., on 6 Oct 1987.

James L. Ferguson, chairman of the Executive Committee of General Foods Corp., presented the prize, which consists of a \$200,000 cash award and a commemorative sculpture.

The prize was conceived by Norman E. Borlaug, 1970 Nobel Peace Prize laureate, to recognize, encourage, and reward outstanding individual achievement in improving and increasing the world food supply. Another purpose of the prize is to attract talented, creative, and dedicated

young people to careers in the complex and challenging systems of food and agriculture. It is financed by the General Foods Fund, Inc., a foundation funded by General Foods.

Swaminathan announced that he would use the cash award to foster farmer-scientist partnerships to develop an integrated approach to biological and social engineering applied to technological development and diffusion under small-farm conditions.

### Commendation letters

Many of the world's scientific and political leaders sent commendation messages. Several of them are excerpted here.

"Dr. M. S. Swaminathan . . . is a living legend. . . His contributions to agricultural science . . . have made an indelible mark on food production in India and elsewhere in the developing world. By any standards, he will go into the annals of history as a world scientist of rare distinction. . ."

— Javier Perez de Cuellar  
Secretary General, United Nations

"This award recognizes what many in the global food and agricultural community have known for a long time—that your efforts have made a dramatic and lasting impact on improving world food supply. . . You can be proud of these accomplishments as well as the dignity and self-reliance



M. S. Swaminathan, director general, IRRI, receives the General Foods World Food Prize from James L. Ferguson, chairman, Executive Committee of General Foods Corp., at ceremonies in Washington, D.C. on 6 October 1987. Swaminathan is the first recipient of the prize, which recognizes individual achievement in improving and increasing the world food supply.



M. S. Swaminathan, first laureate of the General Foods World Food Prize (extreme right) posed for this picture with administrators of the prize before the award ceremonies. From left are James L. Ferguson, chairman, Executive Committee of General Foods Corp.; Al Clausi, chairman, Council of Advisers of the prize; Norman E. Borlaug, 1970 Nobel Peace Prize laureate, who conceived the World Food Prize; and Swaminathan. The General Foods World Food Prize is funded by the General Foods Foundation, a philanthropic foundation financed by General Foods Corp.

you have helped to bring to the people you have served. . . .”

— Ronald Reagan  
President, United State of America

“Of all the problems which the people of our world must tackle, none is more fundamental than insuring adequate food supplies. . . . To make a difference in the world’s capacity to feed itself is indeed an awesome accomplishment. . . . I am especially glad that this recognition comes when you are still actively at work. . . . May your efforts continue to be as productive and vital as they have [been] to the present.”

— Frank Press  
President, US National  
Academy of Sciences

“You certainly merit this award because of your great enthusiasm and engagement for the cause of improving the situation of the poor.”

— Dieter Bommer  
Chairman, German Council for Tropical  
and Subtropical Agricultural Research

### NAST honors Swaminathan

On 6 November, the National Academy of Science and Technology of the Philippines (NAST) held a special convocation to honor Swaminathan as the first laureate of the World Food Prize.

The convocation was held at the Philippine Council for Agriculture, Forestry, and Natural Resources Research and Development in Los Baños.

## Golden Heart Award to MSS



Philippine President Corazon C. Aquino presented the Golden Heart Presidential Award to Dr. M. S. Swaminathan, director general, IRRI, on 10 November 1987 in a special ceremony at Malacañang Palace. Among the achievements President Aquino cited were Swaminathan’s role in strengthening IRRI as a source of knowledge and expertise to further agricultural science, his support in the establishment of the Philippine Rice Research Institute, the initiation of Technology Transfer Workshops for the exchange of ideas and information between the Philippine Department of Agriculture and IRRI, and the expansion of IRRI’s capacity for upstream research to bring the fruits of recent advances in science and technology to Asian rice farmers.

## Swaminathan Hall dedicated

The IRRI Board of Trustees has named the Training and Technology Transfer Center as M. S. Swaminathan Hall, in honor of IRRI’s director general from 1982 to 1988. The Trustees also established a special fund in honor of Swaminathan to provide fellowships to scholars to work on technologies for women farmers and farm laborers. From left are Mina Swaminathan, Swaminathan, Prof. Kenzo Hemmi, chairman, IRRI Board of Trustees, and Carlos G. Dominguez, Philippine Secretary of Agriculture and vice-chairman of the IRRI Board.

