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Session chairpersons and symposium speakers

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JIRCAS
JAPAN INTERNATIONAL RESEARCH CENTER FOR AGRICULTURAL SCIENCES

Promoting an Active Role for Female Researchers -Activities of the new program titled “Initiative for Realizing Diversity in the Research Environment”-

In addition to promoting joint research activities in developing areas, JIRCAS has been showing leadership in fostering human resources and achieving gender equality. JIRCAS has been collaborating with other institutions to support women for scientific advancement and, in line with its medium- to long-term goals for five years starting from FY 2016, it has taken active steps by appointing young female researchers, promoting more female researchers to managerial posts, and increasing employee awareness of work-life balance issues.

JIRCAS has recently adopted the new program titled “Initiative for Realizing Diversity in the Research Environment.” The program seeks to promote an active role for female researchers, and is supported by funds from Japan’s Ministry of Education, Culture, Sports, Science and Technology (MEXT) for the ‘Development of Human Resources in Science and Technology.’

Under the program, JIRCAS, along with other institutions, established and are now jointly operating a support system for female researchers, with the Tokyo University of Agriculture and Technology as representative institution. We are leading and expanding the female researchers’ network in order to improve the research environment and enable female researchers to develop their career by sharing information through internet and jointly organized symposiums. At JIRCAS, we have our own action plan, which include strategies such as assigning research assistants to support female researchers with young children, holding seminars for career building and for work-life balance and innovation, promoting international joint research, and supporting presentations at international symposiums.

We have conducted a seminar on work-life balance at JIRCAS as one of the activities under this program. At the seminar, the lecturer presented the current status and the reasons why women lag behind men in terms of participation in social activities in Japan, and discussed the enforcement of the Japanese government’s policy to support women. We reached the conclusion that it is important to recognize and take each person’s condition into account, and deal with the issues flexibly at the individual level and at the institutional level as well.

We support international collaborative research by holding the annual JIRCAS International Symposium and accordingly, the main theme for this year was “Promoting an Active Role for Female Researchers in Agriculture, Food, and Nutrition.” This issue of JIRCAS Newsletter summarizes the keynote lectures, session presentations, and general discussion of the symposium.

In this symposium, we comprehensively exchanged ideas on agriculture, food, and nutrition. We also took advantage of this occasion to introduce the outputs of our research and discuss how to promote international collaborative research based on global needs. We believe that the symposium was also a good opportunity to express our support for the expansion of female researchers’ global activities. JIRCAS will continue to collaborate with domestic partners and international organizations to promote an active role for female researchers.

Masayoshi Saito
Director
Research Planning and Partnership Division

Keynote Speeches

Three keynote speeches were delivered at the 2017 JIRCAS International Symposium, themed “Promoting an Active Role for Female Researchers in Agriculture, Food, and Nutrition Research.”

The first speech, titled “Why the World Needs More Women Scientists for a Food-secure Future,” was given by Dr. Ismahane Elouafi, director general of the International Center for Biosaline Agriculture (ICBA). Dr. Elouafi was ranked among the 20 Most Influential Women in Science in the Islamic World under the Shapers category (Muslim Science, 2014), and listed among the World’s 100 Most Powerful Arab Women in the Science category (CEO-Middle East Magazine, 2014).

Dr. Elouafi began her speech by emphasizing the necessity of increasing food production and how hunger will continue as a consequence of climate change. She pointed out that we should learn from the “Green Revolution” experience to achieve Goal 2 (End hunger, achieve food security and improved nutrition and promote sustainable agriculture) of the Sustainable Development Goals (SDGs); however, she noted that investments for agricultural R&D in low-income countries are less than in middle-income ones including China, Brazil, and India.

Next, she mentioned that smallholder farms provide up to 80% of food consumed in the developing world and that female farmers play important roles in this regard. The problem, however, is that women have less access to productive resources than men. She said that only 15% of the world’s extension agents are women, and only 5% of female farmers benefit from extension services. To solve such problems, she recommended that the proportion of women among researchers be increased, and that the work arrangements or working environment should allow women to improve their chances of success in the workplace.

Programs are indispensable toward realizing the abovementioned measures in developing areas, and ICBA has been implementing several programs in response. Comments by female researchers who have joined ICBA's programs for postdoctoral fellows or interns were introduced by video, and some of them can be browsed at ICBA's website (http://www.biosaline.org/content/capacity-building).

Chair: Kunihiro Doi (JIRCAS)

On the other hand, the “Tamkeen” program (“enablement and empowerment” in Arabic), which helps in building and improving the skills and capacities of a new generation of young Arab women scientists and leaders, was introduced toward the end of her speech. The proportion of female researchers in the Middle East and North Africa (MENA) is the lowest (17%) in the world; it is thus expected that the program will improve the current situation.

Research activities on agriculture, food and nutrition were the focus in this symposium. We are all aware that the human body could not produce basic nutrients for survival. Thus, we have been taking them from various fauna and flora since the dawn of human history.

Agriculture is one of the most efficient methods by which essential nutrients are obtained. Today, we recognize agriculture as a kind of industry, and that most agricultural researchers have been paying attention to improving productivity and crop tolerance under severe cultivation conditions.

In Japan, the divide between farmlands and consumers has been growing, and both farmers and consumers have tended to forget each other’s significance. On the other hand, the international community has focused on nutrition

improvement, which has been acknowledged as a key issue in the development of society and economy. For instance, since the 2012 London Olympic and Paralympic Games, every government hosting the Olympics and Paralympics has been promoting nutrition improvement, and Japan, being the host of Tokyo Olympics and Paralympics in 2020, is expected to follow suit.

We, therefore, recognize the necessity for mutual understanding and collaboration among researchers in the field of agriculture, food, and nutrition.

Ismahane Elouafi (Director General, International Center for Biosaline Agriculture)

The next two speeches provided good opportunities for agricultural researchers, who are apt to see things from the viewpoint of crop productivity or farmer's economy, to think anew about the contribution of agricultural products to human health.

Dr. Howarth Bouis is the former director of HarvestPlus (2003-2016), and he coordinated an interdisciplinary effort to breed and disseminate micronutrient-rich staple food crops to reduce mineral and vitamin deficiencies among malnourished populations. For this biofortification work, he along with his colleagues were awarded the 2016 World Food Prize.

He began his speech, titled “Biofortification and Agriculture’s Primary Role to Provide Nutritious Diets for National Health,” by asking the attendees: “Which is more important, health or income?”

According to Dr. Bouis, micronutrients like vitamin A, iron, and zinc are deficient in developing countries. Biofortification addresses this issue through nutrient enrichment of the most commonly consumed crops (staple foods) by low-income families.

He said that when nutrition is taken from agricultural products, the effect of food price increase should be considered. For instance, when food prices increase, people tend to spend more on staple food but less on vegetables or meat. This causes nutritional imbalance.

Consequently, the concept of obtaining essential nutrients from staple food was conceived and realized. For example, vitamin A-rich orange maize was developed. This orange maize is highly productive and tastes almost the same as white maize. Consumption of orange maize increased after distributing information that the orange maize contains more vitamin A than white maize but is selling at the same price. One major advantage of biofortified crops, therefore, is its cost-effectiveness because the production cost is the same as for existing varieties.

Biofortified crops have been released in 30 countries and will be distributed in 55 countries in the next five years. Efficacy trials of biofortified crops have been commissioned by HarvestPlus, and there is already sufficient and positive published evidence for iron and provitamin A, leading biofortification to be recognized as a tool to improve nutrition.

Quoting the words of Sir Albert Howard in the book, “The Soil and Health: A Study of Organic Agriculture,” he emphasized toward the end of his lecture that work on subjects like nutrition should be done by experts in an integrated way rather than in a compartmentalized manner.

He ended his speech the same way he started it, by again asking the audience: “Which is more important, health or income?”

Howarth Bouis (Founding Director of HarvestPlus, International Food Policy Research Institute)

The third keynote speaker was Professor Noriko Sudo of Ochanomizu University, Japan, with her presentation titled "The Importance of Women's Nutrition for Next Generation's Health and Community Development." Dr. Sudo did dietary assessments in Sri Lanka, Nepal, Bangladesh, Lao PDR, Indonesia, and Rwanda. She is a registered dietitian nutritionist specializing in public health nutrition, and is a member of the Board of Directors of the Japanese Disaster Food Academy.

Dr. Sudo started her speech by noting that malnutrition in the womb and between birth and age 2 years has largely irreversible consequences. She narrated that malnutrition in the "first 1000 days" damages a child's physical growth, impairs a child's mental development, and weakens the immune system. It also causes disruption of organ development and the endocrine environment. Fetal undernutrition is associated with increased risk of metabolic syndrome and non-communicable diseases in later life.

She stated further that the coexistence of undernutrition or micronutrient deficiencies and signs of overnutrition is called "the double burden of malnutrition." For example, in Japan, nearly 30% of adult males are overweight/obese and 22% of females in their 20's have body mass index (BMI) <18.5 kg/m^2 (i.e., underweight).

She also advised that it is important for a woman and (for her baby's health) that she is well nourished before becoming pregnant. Although more nutrition is necessary for women in developing countries, in some cultures and traditional societies, women (as well as girls and young children) eat after male family members or eat less of the expensive and nutritious foods such as meat. It is therefore important for researchers to know the status and role of women in the family. Nutritionists have to visit their homes and kitchens, and be in close contact with mothers. For this purpose, female researchers are more acceptable than male ones among mothers.

Dr. Sudo concluded her speech by pointing out that husbands, partners, mothers-in-law, and other relatives should understand that improving the health, nutrition, and education of women who are responsible for feeding and caring for their households is beneficial for the entire family and the community.

Noriko Sudo (Associate Professor, Ochanomizu University)

Kunihiro Doi
Director
Research Strategy Office

Session 1: Food and Nutrition Research by Female Researchers

For this session, four female speakers were invited to present their research activities related to food and nutrition.

Chair: Naoko Oka (JIRCAS)

First, Dr. Mrittuka Basu, a JSPS-UNU postdoctoral research fellow at the United Nations University-Institute for the Advanced Study of Sustainability, gave a presentation on indigenous foods focusing on South Asia. She discussed the global status of food security and malnutrition, and highlighted the current situation in South Asia. She showed that hunger levels are “alarming” in Afghanistan, Pakistan, and India, with Afghanistan and India among the top ten countries with severe hidden hunger levels. She argued that food insecurity is a consequence of economic system reforms, urbanization, globalization, and trade liberalization, etc. On the other hand, she praised indigenous foods as diverse, rich sources of nutrition, and indigenous food systems as a treasure box of knowledge that contributes to well-being and health as well as environmental sustainability. Additionally, she presented her survey results showing that rural people utilize locally available food as an adaptation measure in water-stress situations. Nevertheless, research related to indigenous food in South Asia is far from satisfactory, and she stressed that further exploration and conservation is necessary. In conclusion, she pointed out that documenting indigenous food systems and quantifying nutrient composition to accumulate scientific knowledge is essential toward ensuring their future availability and utilization for resource-poor rural communities.

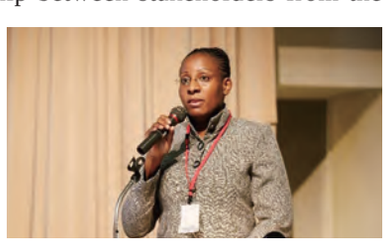

Mrittika Basu (Postdoctoral Fellow, JSPS-UNU)

Next, Dr. Sakiko Shiratori, JIRCAS researcher, presented JIRCAS’s strategies in relation to nutrition issues. Her report is summarized in the next article (page 7).

Dr. Felamboahangy Rasoarahona, vice president of the Researchers’ Platform for the Fight against Malnutrition in Madagascar/ Scaling Up Nutrition (SUN) Movement, was the third speaker. She gave an overview of the food and nutrition and gender equity situation in Madagascar. She emphasized that despite the significant role of women in agricultural activities and in the food security of the household, they are generally at a disadvantage relative to men, in terms of access to and control over resources and the means of production, and that this gender inequity has a negative effect to the nutrition situation in households. To change this situation, she explained efforts that have been taken towards “promoting women for food security” such as utilizing *Moringa oleifera* to support nutrition improvement and at the same time, generate income and educate women to enhance their cooking skills. She concluded her lecture by pointing out that promoting women is one solution to the fight against malnutrition, and that an approach favouring men's positive commitment to children and women will have a multiplier effect.


Felamboahangy Henintsoa Rasoarahona (Vice-President, Researchers Platform for the Fight against Malnutrition, Madagascar)

The final speaker, Dr. Mercy Lung’aho, is a research scientist of the International Center for Tropical Agriculture (CIAT) at its regional office in Nairobi, Kenya. After introducing CIAT and its activities in Africa to the audience, she remarked that more research is needed to generate evidence of the impact of agricultural intervention to nutrition and health. A number of evidence on what works in nutrition was presented. For example, by taking iron-biofortified beans, the iron status of women of reproductive age who tend to develop anemia during pregnancy was improved, or that their cognitive performance was enhanced. Another example was the bean-based school lunch introduced in Antananarivo, Madagascar, which increased school attendance and weight gain in children who tend to have malnutrition due to monotonous, rice-based diets. Finally, she emphasized the importance of partnership between stakeholders from the household level to regional level including private sectors, policy makers, NGOs, etc., and the need to ensure consumers to have better access to more nutritious food.


Mercy Lung’aho (Research Scientist, International Center for Tropical Agriculture)

Naoko Oka
Senior Researcher
Rural Development Division

JIRCAS's Approaches to Nutrition: Through International Agricultural and Food Research

Nutritional issues are among the highest-priority global challenges, and these concerns have been rapidly drawing international attention in recent years. Agriculture, food, and nutrition are closely interrelated. Agriculture produces food, which is the main source of nutrition. In addition, people suffering from undernutrition are likely smallholder farmers in developing countries. We believe that agricultural and food research can, and should, contribute to the nutritional improvement of consumers.

JIRCAS covers a broad range of food and agricultural research in developing regions. Until recently, the main approach of JIRCAS toward nutrition had been to increase food supply by increasing productivity. While the importance of increase in productivity has not diminished, productivity increase alone does not necessarily lead to nutritional improvement, which shows how complex the nutritional issues are. Various factors lie behind this complexity: food availability, market access, seasonality, lack of money, lack of nutritional knowledge, intrahousehold allocation, and some cultural reasons, among others. In its current Fourth Medium- to Long-term Plan (FY 2016-2020), JIRCAS is striving to address nutritional issues by taking factors beyond productivity into consideration and focusing on whole food systems including production, processing, distribution, and consumption.

Several nutrition-related projects are ongoing in JIRCAS, and I introduced three of them during my session presentation. The first project is an evaluation of global food supply-demand and nutritional balance (J. Furuya). Using a global food supply-demand foresight model incorporating the effect of climate change (world food model), he makes a long-term outlook for changes in food supply-demand and corresponding nutritional supply-demand. The world food model has been continuously refined. Currently, it simulates future supply-demand for major crops and animal products for more than 140 countries and regions. The estimated food supply-demand is then converted into each nutrient supply, including micronutrient supply, and compared to its requirement.

The second project, which aims to improve stable nutritional supply through utilization of local food resources, is a regional-level research in semi-mountainous villages of Lao PDR (K. Hasada, Y. Fujita, and J. Marui). This project focuses on animal protein, identified as a key nutrient in a preliminary study. Local people get animal protein from their own livestock, from markets, and from nature. It is anticipated that there are low protein-intake periods for some people due to seasonal unavailability of animal protein sources. The research team explores two things: a) the factors causing differences among households in animal protein intake, and b) how to compensate for the period of low-protein intake. They evaluate local people's actual intake of animal-source protein by dietary recording and close monitoring. In addition, they aim to propose a way for securing a stable nutritional supply throughout the year by applying food processing technologies, which they developed themselves, that allow local people to process more varieties of animal sources or to maintain the quality of processed food.

The third project, which I am involved in, is a mixture of macro- and micro-analysis of nutritional situation in Madagascar. From national-level food supply data, we evaluate the excess or deficiency of nutrients and identify each food category's contribution to the nutrient intake. We also collect information on food consumption and anthropometry by conducting household interview surveys. Combining these results, we would like to know what the problems are and what we can practically contribute to nutritional improvement there.

These are only part of what we do at JIRCAS. JIRCAS addresses nutritional issues through research and technology development, and conducts socioeconomic surveys in many countries and regions. We are also aligned with the Initiative for Food and Nutrition Security in Africa (IFNA) and the Nutrition Japan Public-Private Platform (NJPPP). We will continue our efforts to contribute to nutritional improvement for more years to come.

Sakiko Shiratori
Researcher
Research Strategy Office

Session 2: General Discussion

Chair: Fumika Sen (JIRCAS)

Among the development goals specified by the UN, the most important ones are to eliminate poverty and hunger, and to ensure healthy lives. For developing countries, food and nutrition issues must be solved. Women play a major role in agricultural production and family life in developing countries. On the other hand, it is also true that female researchers in the field of agriculture, food, and nutrition are still scarce, especially for those who are involved in developing country issues.

The diversity issue in the research arena has inspired many innovative attempts, and by having both male and female researchers in food and nutritional research, and in agricultural research in general, we have already seen very positive effects. Here, I will summarize the discussion on the role of female researchers.

What are the things that can stimulate a female researcher with a PhD to continue her research? As a researcher and research manager, Dr. Ismahane Elouafi specified those as passion and self-esteem towards your research, knowing your strengths and weaknesses, and being persistent. Also, to provide women equal opportunities in research as to men is very important. Thus, any obstacles that prevent equal opportunities should be identified and minimized.

Nutrition community per se is already dominated by women. Dr. Howarth Bouis pointed out that female scientists participating in his research projects tend to be more attracted to biofortification research than some men. As a female researcher, Dr. Noriko Sudo has been doing a lot of nutritional research in developing countries, and she emphasized merits and precautions for female researchers doing fieldwork. Women in developing countries often dislike contact with men. Hence, it is easier for female researchers to carry out food and nutritional investigations; when doing so, it is important to show local women appreciation and respect. In addition, to ensure safety, the research team should also include male researchers.

In order to solve various issues in developing countries, we need to engage in research with passion regardless of gender. However, female researchers are bound up with strong social demands as mothers and housewives. In order for them to work comfortably and successfully, support not only from their families but also from society and various communities is critical.

Recently, JIRCAS has adopted a new program named “Initiative for Realizing Diversity in the Research Environment.” The program seeks to promote an active role for female researchers, and is supported by funds from Japan’s Ministry of Education, Culture, Sports, Science and Technology for the ‘Development of Human Resources in Science and Technology.’ At present, the ratio of female researchers at JIRCAS has reached 13% as a result of active recruiting efforts in the past 2 to 3 years. Along with the rising trend in the number of female researchers, we expect to see inspirational works in agricultural, food, and nutritional fields in the near future.

Panelists: Ismahane Elouafi, Howarth Bouis, and Noriko Sudo

Fumika Sen (Chien Hsiaoping)
Sub-Project Leader
Social Sciences Division

JIRCAS International Symposium 2017 Promoting an Active Role for Female Researchers in Agriculture, Food, and Nutrition Research

Date: November 2, 2017
Venue: U Thant International Conference Hall, United Nations University, Tokyo, Japan

Program

◆Opening Ceremony

＊Opening Remarks

Masa Iwanaga (President, JIRCAS)

＊Welcome Address

Tomohiro Bessho (Director General, Agriculture, Forestry and Fisheries Research Council Secretariat, Ministry of Agriculture, Forestry and Fisheries (MAFF))

Kazuhiko Takemoto (Director, Institute for the Advanced Study of Sustainability, United Nations University (UNU-IAS))

◆Keynote Speeches

Chair: Kunihiro Doi (Director, Research Strategy Office, JIRCAS)

Why the World Needs More Women Scientists for a Food-Secure Future

Ismahane Elouafi (Director General, International Center for Biosaline Agriculture (ICBA))

Biofortification and Agriculture's Primary Role to Provide Nutritious Diets for National Health

Howarth Bouis (Founding Director of HarvestPlus, International Food Policy Research Institute (IFPRI))

The Importance of Women's Nutrition for the Next Generation's Health and Community Development

Noriko Sudo (Associate Professor, Ochanomizu University)

◆Session 1: Food and Nutrition Research by Female Researchers

Chair: Naoko Oka (Senior Researcher, Rural Development Division, JIRCAS)

Indigenous Foods and their Nutritional Value: Evidences from South Asia

Mrittika Basu (Postdoctoral Fellow, JSPS-UNU)

JIRCAS's Approaches to Nutrition: Through International Agricultural and Food Research

Sakiko Shiratori (Researcher, Research Strategy Office, JIRCAS)

The Importance of Gender in Strengthening Food and Nutritional Resilience of Households in Madagascar

Felamboahangy Henintsoa Rasoarahona (Vice-President, Researchers Platform for the Fight against Malnutrition, Madagascar)

Linking Agriculture to Nutrition: The Role of Beans

Mercy Lung'aho (Research Scientist, International Center for Tropical Agriculture (CIAT))

◆Session 2: Panel Discussion

Moderator: Fumika Sen (Sub-Project Leader, Social Sciences Division, JIRCAS)

Panelists: Ismahane Elouafi, Howarth Bouis, and Noriko Sudo

◆Closing Session

＊Closing Remarks

Osamu Koyama (Vice-President, JIRCAS)

International Renewable Energy Agency (IRENA)

The International Renewable Energy Agency (IRENA) is a relatively new international organization (established in 2011) headquartered in Abu Dhabi, the capital of the United Arab Emirates (UAE). The UAE is the 8th largest oil-producing state in the world, and it has shown a strong desire to assume a leadership role by supporting and hosting IRENA. IRENA's Innovation Technology Centre (IITC), meanwhile, is located in Bonn, Germany.

Made up of 190 member countries including 37 undergoing the accession process, IRENA promotes the widespread adoption and sustainable use of all forms of renewable energy, including wind, solar, and ocean energy, hydropower, geothermal, and bioenergy. IRENA supports its member countries to adopt policies in their transition to a future that promotes renewable energy investment. It also facilitates knowledge sharing and provides practical and technology transfer tools to accelerate the execution of renewable energy investments.

IRENA is still less noted in Japan; however, it is becoming well known globally and gaining importance. For example, it plays a part in the deployment of renewable energy, which is an important climate change mitigation measure to meet the target set by the Paris Agreement (enacted in 2016) and to ensure access to affordable, reliable, sustainable, and modern energy for all (as stated in Goal 7 of the Sustainable Development Goals or SDGs). As the renewable energy sector continues to show promise and grow further worldwide, the reports and publications of IRENA likewise attract great attention internationally.

IRENA and JIRCAS signed a Memorandum of Understanding (MOU) on 13 March 2013 to cooperate in activities that would contribute to promoting sustainable bioenergy development. IRENA has 150 officers in total (100 in Abu Dhabi and 50 in Bonn IITC). JIRCAS contributes by deploying a researcher to IITC on a long-term basis. Under JIRCAS's 3rd Medium-term Plan (FY 2011-2015), the JIRCAS researcher to IITC analyzed and published "Global Bioenergy Supply and Demand Projection: A Working Paper for REmap" in 2015. In supporting bioenergy initiatives, the promotion of research and technology development toward bioenergy production (using agro-wood residues and wastes in order not to disturb food production and forest conservation) is indispensable. Therefore, under JIRCAS's 4th Medium- to Long-term Plan (FY 2016-2020), two regional reports, titled "Biofuel Potential in Southeast Asia: Raising Food Yield, Reducing Waste and Utilizing Residues" and "Biofuel Potential in Sub-Saharan Africa: Raising Food Yield, Reducing Waste and Utilizing Residues," were published in 2017 based respectively on the analysis of agro- and wood-residues and wastes of Indonesia, Malaysia, the Philippines, Thailand and Vietnam for SE Asia, and that of Ghana, Mozambique, Nigeria, South Africa and Uganda for Sub-Saharan Africa.

In these reports and in many international conferences, the epochal outcomes of the researches on bioenergy production systems using cassava pulp and oil palm trunks, among others, by distinct JIRCAS researchers have been made public and globally channeled through IRENA publications, which have also been enabled through general funding from the Ministry of Agriculture, Forestry and Fisheries (MAFF) of Japan.

Yasuko Inoue
Research Strategy Office

Safisana Biogas Plant in June 2017 (Tema, Ghana)

FAO GBEP Workshop in June 2017 (Accra, Ghana)

JIRCAS TODAY

○ 2017 Japan International Award for Young Agricultural Researchers

JIRCAS, in cooperation with the Agriculture, Forestry and Fisheries Research Council (AFFRC) Secretariat, presented the Japan International Award for Young Agricultural Researchers for the 11th consecutive year. The award recognizes and honors young foreign researchers (under 40 years of age) who are highly recommended by their institutes, and whose outstanding achievements promote research and development of agricultural, forestry, fishery and other related industries in developing regions. The 2017 commendation ceremony was held last November 2 at the U Thant International Conference Hall, United Nations University (UNU) in Tokyo.

The awardees and guests were welcomed by Mr. Yoshio Kobayashi, chairman of the AFFRC. Congratulatory remarks were delivered by Dr. Yuko Harayama, Executive Member, Council for Science, Technology and Innovation, Cabinet Office, Japan; Dr. Kazuhiko Takemoto, Director, Institute for the Advanced Study of Sustainability, United Nations University; and Mr. Takeo Shibusawa, Deputy Director General, Rural Development Department, Japan International Cooperation Agency (JICA). The selection process was explained by Dr. Kiyoaki Maruyama, chairperson of the Selection Committee. Mr. Kobayashi and Dr. Masa Iwanaga, president of JIRCAS, presented the prizes.

The selection process was conducted by a seven-member selection committee through a document review, with the chairman of the AFFRC determining three winners from among 17 candidates. Each awardee received a testimonial and a monetary prize of 5,000 US dollars.

Remarks by Mr. Yoshio Kobayashi

Congratulatory Remarks by Dr. Yuko Harayama

Congratulatory Remarks by Dr. Kazuhiko Takemoto

Congratulatory Remarks by Mr. Takao Shibusawa

Selection Process Report by Dr. Kiyoaki Maruyama

Presentation of Prizes by Mr. Yoshio Kobayashi and Dr. Masa Iwanaga

Awardees, members of the selection committee, and other officials

The 2017 awardees and their research achievements are as follows:

◆ Plant-pathogen system biology and biotechnological approaches for plant disease management

Awardee: Dr. Chandra Siddaiah NAYAKA
Nationality: India
Institute: University of Mysore
Outline of Research Achievements:

Dr. Nayaka has worked as Seed Health Scientist in the prestigious Asian Seed Health Centre at the University of Mysore in India. He successfully developed novel molecular probes for the rapid and accurate detection of seed-borne pathogens (SBPs) (patent filed). More than 1000 partial genome sequences for SBPs from Asian region have been deposited in NCBI, DDBJ, and EMBL, and the phylogenetic diversity have been studied. Monoclonal antibody and lateral flow based assays were developed for rapid detection of mycotoxins from agricultural/food & feed samples (patent filed).

He currently works as Principal Scientist and Principal Investigator at the Department of Studies in Biotechnology, University of Mysore under the Indian Council of Agricultural Research (ICAR), and he is responsible for the research work titled "Genome-wide analysis of *Sclerospora graminicola* and *Magnoporthe grisea*, the causal agent of downy mildew and blast disease of pearl millet, respectively, and characterization of effector candidates." Furthermore, his research group has, for the first time, sequenced the full length genome of a highly virulent strain of biotrophic S. graminicola. This will help toward elucidating the evolutionary pattern and the *in-silico* prediction and annotation of the gene space and promoters of *S. graminicola*, with the aim of studying pathogenicity-related genes, secondary metabolism, hormone production, and evolution of RxLR–dEER crinklers and RxLR-like effectors and their canonical motif. This in turn will help in understanding the host-pathogen interaction and defense system in host plants, and be used in assisting breeding efforts for durable host resistance.

◆ Dairy researches on production performances and health of dairy cows, livelihoods of local farmers and environmental concerns

Awardee: Dr. Min AUNG
Nationality: Republic of the Union of Myanmar
Institute: University of Veterinary Science (Myanmar)
Outline of Research Achievements:

Albizia saman pods (ASP), abundantly available in Myanmar, were used as a replacement for commercial concentrate (up to 15%), and its effect on methane production, feed intake, milk yield and feed cost effectiveness of lactating dairy cows were studied. As a result, decreased methane production from feed fermentation and increased feed intake and milk yield were achieved. Moreover, feed cost was also reduced by 81 kyats (¥8) per kg of milk.

According to the result of a survey concerning dairy production systems and local feed resources in central Myanmar, 18 months of calving interval, 11.5 kg of milk/cow/day, less artificial insemination practice (23%), and abortion cases (7%) were observed. The agricultural by-products and crop residues, which have notable nutritive and feeding values, were commonly used as basal feeds for dairy cows. Thus, the returns from dairy farming could be maximized with the proper combination of factors in the agriculture sector; however, improving the current practice of artificial insemination is required to maximize the production of dairy cows in central Myanmar.

The dietary supplementation of yeast cell wall (YCW) increased milk and milk component yields and feed efficiency of early lactating dairy cows. The somatic cell count was reduced by 50%, thereby improving udder health. Moreover, it had a positive effect on energy metabolism and nutrient utilization. For the immune function of dairy cows,

T cell receptors, cytotoxic T cells, and cytokines such as IL8, CCL2, CCL3 and CCR2 were increased. Thus, YCW supplementation activated the function of monocytes and macrophages, thereby enhancing phagocytosis activity.

◆ Development of innovative approaches to enable small-holder farmers of South Asia to achieve gains in productivity and profitability through use of cutting edge Information & Communication Technologies to guide application of site-specific nutrient and crop management options

Awardee: Dr. Sheetal SHARMA
Nationality: India
Institute: International Rice Research Institute (IRRI)
Outline of Research Achievements:

In South Asia, traditional blanket recommendations for soil fertility management do not consider the huge variability among fields of smallholder farmers in terms of soil type, farm management, and other aspects. Future gains in productivity and input use efficiency will therefore require soil and crop management technologies that are more knowledge-intensive and tailored to the specific characteristics of individual farms and fields. Sheetal Sharma and her team worked to translate and transfer the science of site-specific nutrient management and tools developed at IRRI HQ to developing countries through innovative approaches to reap the benefits at a large scale. She played a central role in conceptualizing and designing the *Crop Manager for India*, an ICT tool that provides nutrient recommendations to farmers. She also collected the desired data through strategic and adapted research, and the tools were further developed and evaluated by establishing strategic partnerships.

These concentrated efforts resulted in the development of two versions of *Crop Manager for India*. Documented evidence demonstrates that *Crop Manager* for Odisha improved rice productivity by 0.5-0.8 t/ha and increased net added benefit by USD104-155/ha per season over farmers' practice. Likewise, *Crop Manager* for Bihar improved rice and wheat yield by 0.7 and 0.3 t/ha, respectively, and resulted to a net added benefit of USD 147/ha per season in rice and USD 63/ha per season in wheat over farmers' practice. *Crop Manager for India* is the result of a joint effort between IRRI and national partners under the National Mission for Sustainable Agriculture by the Department of Agriculture, Cooperation & Farmers Welfare, Ministry of Agriculture & Farmers Welfare. Forging partnerships and enhancing the capacity of various stakeholders have provided more than 30,000 farmers with *Crop Manager* recommendations. Furthermore, Sharma and her team aim to bring the benefits of *Crop Manager* to about 1 million small-scale farmers by the end of 2020.

Winners and family members

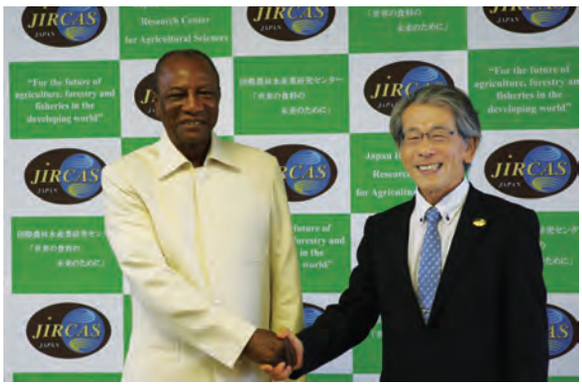
○ President of the Republic of Guinea visits JIRCAS

H.E. Professor Alpha Condé, president of the Republic of Guinea, visited JIRCAS on June 19, 2017 during his official trip to Japan.

Dr. Masa Iwanaga, president of JIRCAS, had previously held talks with President Condé at the latter's invitation when they attended TICAD VI in the Republic of Kenya in August 2016.

During their visit, President Condé together with H.E. Jacqueline Marthe Sultan, minister of Agriculture; H.E. Senkoun Sylla, ambassador to Japan; H.E. Hisanobu Hasama, ambassador of Japan to the Republic of Guinea; and other delegation members engaged in a discussion with President Iwanaga and other JIRCAS researchers. At the meeting, President Condé expressed his interest to pursue research collaborations with JIRCAS particularly on rice, fisheries, and livestock production.

After the discussion, President Condé and members of his delegation viewed display materials on JIRCAS's Food Security in Africa Project and toured the indoor shrimp



President Alpha Condé of the Republic of Guinea and JIRCAS President Masa Iwanaga

Group discussion

President Condé listens to explanation about the rice varieties on display

Group photo

cultivation laboratory so that the delegation can gather more concrete ideas about possible research collaborations with JIRCAS.

○ Director General of SDGC/A visits JIRCAS

Dr. Belay Begashaw, director general of the Sustainable Development Goals Center for Africa (SDGC/A), visited JIRCAS on October 25, 2017 during his official trip to Japan.

The SDGC/A is an international organization that supports governments, civil society, businesses, and academic institutions in achieving the Sustainable Development Goals (SDGs) in Africa. It was established in July 2017 in Kigali, Rwanda.

Dr. Begashaw together with SDGC/A staff, Ms. Ashley Hufft, Senior Strategic Advisor & General Counsel; Mr. Pascal Gasheja, Director of Corporate Services; Ms. Sarah Lawan, Lead Manager, Program Partnerships and Innovations; and Ms. Lina Henao, SDGs Advisor of Monitoring and Evaluation Specialist, engaged in a discussion with Dr. Masa Iwanaga, president of JIRCAS, and other JIRCAS researchers. At the meeting, Dr. Begashaw commended the wide range of

Dr. Belay Begashaw, SDGC/A Director General and Dr. Masa Iwanaga, JIRCAS President

Discussion between SDGC/A and JIRCAS staff

research activities by JIRCAS, and he expressed interest in the research topics particularly those on climate change, plant pest, and disease control. Finally, JIRCAS and SDGC/A agreed to continue to exchange information on matters concerning the aforementioned fields.

○ JIRCAS President Masa Iwanaga takes over as new chair of the Global Research Alliance on Agricultural Greenhouse Gases (GRA)

The Global Research Alliance on Agricultural Greenhouse Gases was launched in 2011 and has 48 member countries as of August 2017. GRA is focused on research that will contribute to food production without growing greenhouse gas emissions.

On August 29-30, 2017, the 7th GRA Council Meeting was held at Tsukuba International Congress Center (Epochal Tsukuba), Tsukuba City, Ibaraki, Japan. At the opening session of the council, the role of GRA chair was officially handed over from Mexico, the former chair, to Japan, which was represented by Dr. Masa Iwanaga, president of JIRCAS. He then took over as new chair of GRA and led the two-day council meeting.

Dr. Iwanaga, the new chair of GRA, at the council meeting

The 7th GRA Council Meeting

○ JIRCAS-NARO International Symposium on "Agricultural Greenhouse Gas Mitigation"

JIRCAS and NARO jointly held an international symposium on “Agricultural Greenhouse Gas Mitigation” at Tsukuba International Congress Center on 31 August 2017. The symposium was held in conjunction with the GRA Council Meeting, which was held in advance in Tsukuba, Japan.

Dr. Masa Iwanaga, President of JIRCAS, opened the symposium by expressing his deep appreciation to all 218 participants, including guests from Asia, Africa, and other regions of the world, and describing the background and objectives of the symposium. Mr. Tomohiro Bessho, Director General of the Research Council’s Secretariat, the Ministry of Agriculture, Forestry and Fisheries (MAFF), Japan, then delivered a welcome address to all the participants and introduced recent contributions of MAFF to international research activities on agricultural greenhouse mitigation.

The first keynote speech, entitled “Climate Change and Agriculture: from Challenges to Solutions,” was delivered by Dr. Jean-Francois Soussana, Vice-President of the French National Institute for Agricultural Research (INRA). The second keynote speech, entitled “More Food without Growing Greenhouse Gas Emissions” was delivered by Dr. Kazuyuki Yagi, Research Manager for Climate Change of the National Institute for Agro-Environmental Sciences (NIAES), NARO, Japan, with the lecture showing a clear picture of GRA.

The keynote lectures were followed by thematic sessions. Speakers from Japan, Asia, and Latin America presented their research activities and achievements in mitigating greenhouse gas emissions, chiefly methane, from livestock and paddy rice fields. On cropland, studies on soil carbon sequestration as well as methane and nitrous oxide (N_2O) gas emissions in Japan were shown, and a unique concept called ‘genetic mitigation’ of greenhouse gas emissions was presented. Then, valuable learning experiences from greenhouse gas inventory studies in Asia, and the integration and dissemination of mitigation technologies in Sub-Saharan Africa, were introduced.

The symposium was concluded by Dr. Akira Hasebe, Vice-President of NARO, with words of appreciation to all speakers and chairs. He also emphasized the high importance of accelerating research on greenhouse gas mitigation from agriculture through the GRA Network and the initiative of Japan, which was officially designated as new Chair Country at the Council Meeting.

Opening address by Dr. Iwanaga, President of JIRCAS

Welcome address by Mr. Bessho, Director General of the Agriculture Forestry and Fisheries Research Council's Secretariat, MAFF, Japan

Keynote speech by Dr. Soussana of the French National Institute for Agricultural Research (INRA)

Keynote speech by Dr. Yagi, Research Manager for Climate Change, NIAES, NARO, Japan

Closing remarks by Dr. Hasebe, Vice-President, NARO, Japan

A group photo of all symposium participants

JIRCAS Mail Magazine (English) Registration Guidance

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