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日本熱帯農業学会第123回講演会プログラム

第1日 3月10日 (土)

⊗: 学生優秀発表賞審査対象

第1日 3月10日 (土)			
研究発表 (発表時間12分, 質疑応答3分)			
第1会場(502教室)		第2会場(512教室)	
座長	講演題目	座長	講演題目
9:00 -9:15	1. Morphological, Physiological and Biochemical Response of 'Irwin' Mango (<i>Mangifera indica</i> L.) to Drought and Flooding *Bryan Apacionado・A. Sanada・K. Koshio・H. Gemma (Department of International Agricultural Development, Tokyo University of Agriculture) ⊗		17. Risk of early infection of Rice yellow mottle virus shown by inoculation experiments to rice varieties in Uganda *Patrick Jacob ODONGO ^{1,4} ・Kojima Nobuoki ² ・Tatsushi Tsuboi ³ ・Godfrey Asea ¹ ・Keiko T. Natsuaki ⁴ (¹ National Crops Resources Research Institute-Uganda・ ² Appropriate Agriculture International Co.,Ltd・ ³ Japan International Cooperation Agency・ ⁴ Graduate School of Agriculture, Tokyo University of Agriculture) ⊗
9:15 -9:30	2. マンゴーの果肉崩壊を抑制する新しい施肥管理技術 *森田悠介・樋口浩和 (京都大学農学研究科) ⊗	入江憲治 (東京農業大学)	18. タンザニア・ニャサ湖畔における小規模稲作灌漑システムの展開 *瞿黄祺・伊谷樹一 (京都大学大学院アジア・アフリカ地域研究研究科) ⊗
9:30 -9:45	3. 鉢吊り下げ型整枝法によるパッションフルーツの生理応答と開花結実 *飯田康仁・樋口浩和 (京大院農) ⊗		19. 耐塩性の異なるダイズ品種での葉・茎・根のミネラル蓄積の違い *藤井佳祐・樋口浩和 (京大院農学研究科) ⊗
9:45 -10:00	4. COMPARISION OF FOREST MANAGEMENT PRACTICES AND OIL PRODUCTION OF ANDIROBA (<i>Carapa guianensis</i>) AND TSUBAKI (<i>Camellia japonica</i>) *Fernanda Braga TEIXEIRA・Satoshi Yoshino・Takayoshi SATO (Department of Forest Science, Graduate School, Tokyo University of Agriculture) ⊗		20. Effects of organic and inorganic fertilizers on nitrogen mineralization and greenhouse gas production in paddy soil under two water regimes *Kyu Kyu Hmwe・Z. Wang・M. Yashima・K. Inubushi (Graduate School of Horticulture, Chiba University) ⊗
10:00 -10:15	5. 東アジアおよび東南アジアにおけるトウモロコシ (<i>Zea mays</i> L.) の伝播経路とモチ系統の起源 *三井崇史・奥本裕・坂本正弘・縄田栄治 (京大院農学研究科) ⊗		21. ウガンダにおける高収量品種NERICA4の生育特性 *松本健資 ¹ ・吉野稔 ² ・小島伸幾 ² ・宮本輝尚 ² ・坂上潤一 ¹ (¹ 鹿児島大学大学院・ ² 国際協力機構専門家) ⊗

10:15 -10:30	遠城道雄 (鹿児島大学)	6. ネパール中等教育における農業課程導入の現状と課題-コパン地区を事例として- *安達一喜 ¹ ・Sirjana Kafle ² ・倉田祐輔 ¹ ・根本和洋 ¹ ・浜野充 ¹ (¹ 信州大学農学部・ ² AST Foundation) ㊦	及川洋征 (東京農工大学)	22. ベトナムにおけるドクダミ栽培とその利用 *古橋牧子 ¹ ・Nguyen Kim Dua ² ・Tran Thanh Men ² ・Dai Thi Xuan Trang ² ・小坂康之 ¹ (¹ 京都大学大学院アジア・アフリカ地域研究研究科・ ² カントー大学自然科学学部) ㊦
10:30 -10:45		7. ミクロネシア連邦ポンペイ州ピンゲラップ島における長期間にわたる食事調査結果 山本宗立 (鹿児島大学国際島嶼教育研究センター)		23. トウガラシ果実の辛み成分含量の種間経時的変化 *小森健太・加治屋勝子・坂上潤一 (鹿児島大学大学院農学研究科) ㊦
10:45 -11:00		8. キリマンジャロ山伝統農業におけるバナナ栽培と人々の暮らし *一ノ瀬侑理 ¹ ・久保亮介 ² ・Method Kilasara ³ ・舟川晋也 ¹ (¹ 京大院地球環境・ ² 名大農学国際協力・ ³ ソコイネ農業大)		24. Exploration of Plant Genetic Resources in Eastern Cambodia *KURUMADA, Shohei ¹ ・SEANG Layheng ² ・Kanami HATAKEYAMA ¹ ・SAKHAN Sophany ² ・Kenichi MATSUSHIMA ³ (¹ Grad. Sch. Sci. Tech., Shinshu Univ.・ ² CARDI, Cambodia・ ³ Inst. Agric. Acad. Assy. Fac., Shinshu Univ.) ㊦
11:00 -11:15		9. Farmers' Initiative Technologies in Rice Production after Green Revolution in Bangladesh *Muhammad Salim ¹ ・Kazuo Ando ² ・Haruo Uchida ² (¹ Bangladesh Agricultural University (Currently CSEAS, Kyoto Univ.)・ ² CSEAS, Kyoto University)		25. カンボジアの農村部における豚と豚肉の流通構造の解明と価格決定力の検討 *酒井佑大 ¹ ・谷頭子 ¹ ・伊藤香純 ² ・浜野充 ¹ (¹ 信州大学農学部・ ² 名古屋大学農学国際教育協力研究センター) ㊦
ポスター発表 (504教室 11:15 ~12:15)				
昼休み (12:15 ~13:15)				
総会 (521教室 13:15 ~13:45)				
議事 イ. 平成29年度事業報告 ロ. 平成29年度決算報告 ハ. 平成29年度会計監査報告 ニ. 平成30年度事業計画案 ホ. 平成30年度予算案 ヘ. その他				
日本熱帯農業学会学会賞奨励賞受賞式 (13:45 ~13:55)				
受賞記念講演 (521教室 14:00~14:40)				
奨励賞 NTCインターナショナル株式会社 久保田亜希 エジプト、ナイルデルタにおける節水栽培・食料増産のための間作の効果とその技術開発				
休憩 (14:45 ~15:00)				
公開シンポジウム (521教室 15:00~16:30) 講演テーマ: SDGs達成に向けた熱帯農業における日本の新しい農業開発協力の姿を求めて 西村美彦「これまでの熱帯農業における我が国の技術協力の経験と将来」 睦好絵美子「SDGsに向けた熱帯農業におけるJICAの取り組み」 田中章久「農業分野におけるJICAボランティアの取り組み」 町田堅一「民間企業の熱帯農業への展開」				
休憩 (16:30~16:45)				
懇親会 (Restaurant KEYAKI 17:00~19:00)				

Farmers' Initiative Technologies in Rice Production after Green Revolution in Bangladesh

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Key Words: Farmers' Initiative Technologies, Rice production

Green Revolution, Bangladesh.

Introduction

Bangladesh is a deltaic country located in South Asia, with a relatively small land area (147,570 km²) but with the 8th largest world population (161 million) and high population density (1252 km⁻²). Bangladesh also suffers from periodic natural calamities such as drought, flooding and cyclones. Due to its location in a delta, climate change and associated sea level rise is expected to increase risk of flooding and salinization of agricultural lands, especially near its southern coast.

With this given condition, rice is the life in Bangladesh. It is the staple for food for the people, the largest component of the country's agricultural sector, and is the main stay of the rural economy:

- Rice contributes 51% of the agricultural sector's portion of the national gross domestic product (GDP); by itself, rice contributes 17% to the national GDP.
- Rice supplies 71% of the total calories and 51% of the protein in a typical Bangladeshi diet.
- About 75% of the total cropped area and more than 80% of the total irrigated area are planted to rice.
- Rice accounts for about 40% of all employment. The rural and urban poor spend up to 60% of their income on rice.

According to the medium variant UN projection of 2015, Bangladesh' population will further increase to 186 and 202 million by the years 2030 and 2050, respectively. Therefore, rice production needs to be increased to a great extent to maintain the food security in the country.

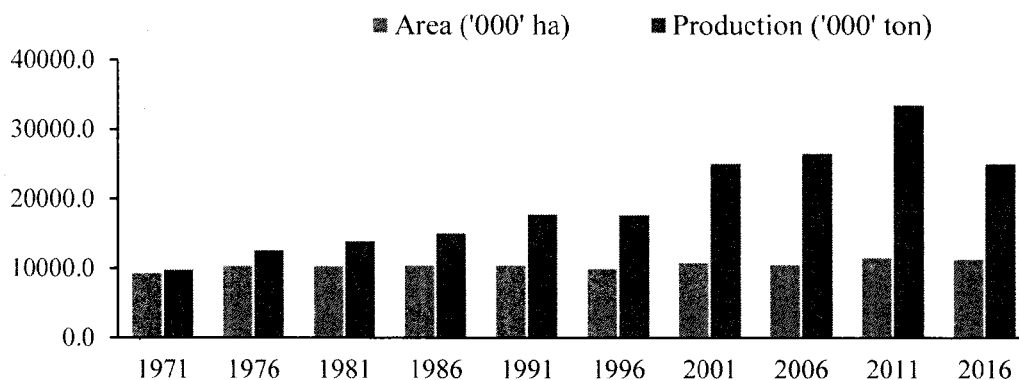


Fig. 1. Total area and production of rice in Bangladesh over 4 decades

Agricultural Modernization and Cultivation of Rice in Bangladesh

At the beginning of the Green Revolution in the late 1960s modern varieties of rice were introduced in a number of developing countries that were struggling to overcome food deficits, including Bangladesh. The area under rice production in Bangladesh since independence in 1971 has been, to date, almost static while production has been increasing over the past four decades. Rice production more than tripled but progress has been slowing down (Fig.1). The yield plateau of rice must be overcome by revamping agricultural research. The country has achieved self-sufficiency in rice production to feed its 161 million people. This yield increase has been attributed to the farmers' initiative technologies through adoption of MV rice production technologies which may be represented under the following four headings:

I). Development of suitable variety in different AEZs:

With the inception of Bangladesh Rice Research Institute, it developed so far about 70 modern rice variety suitable for cultivating in different agro ecological regions of Bangladesh. BRRI, Bangladesh Institute of Nuclear Agriculture and Bangladesh Agricultural University developed MV rice varieties cover about 80% rice area which accounts 91% of the total rice production in Bangladesh. Rest 20% of the rice area is covered by local rice varieties and by imported hybrid rice.

II). Fertilizer management technology (USG/ Gooti urea, LCC):

Use of balanced fertilization is a must to obtain good yield in rice. By using Urea Super Granule 80-100 kg urea ha⁻¹ can be saved by which farmers become economically benefitted. Use of LCC (leaf color chart) ensures application of right amount of urea fertilizer to be applied to rice plant in right time. Consequently, the amount and cost of urea can be minimized and the efficiency of urea utilization becomes more. Results show that by using LCC 20-25% urea can be saved.

III) Water saving technology and Direct seeding:

In alternate wetting and drying (AWD) system, the field is irrigated with enough water to flood the paddy field for 3-5 days, and, as the water soaks into the soil, the surface is then allowed to dry for 2-4 days before getting re-flooded. The field is re-flooded to a standing water layer of 5 cm when the ground water is 15-20 cm below the soil surface. AWD cycles are continued up to one week before flowering (50-60 days after transplanting), and a standing water layer of 5 cm is kept at flowering until harvest.

Direct seeding: Several experiments conducted at Bangladesh Rice Research Institute clearly demonstrated that irrespective of rice varieties, direct seeding using Drum Seeder has out yielded the conventional transplanted rice by 15-20%.

IV) System of Rice Intensification (SRI):

SRI, originated in Madagascar is an integrated approach of all management practices to increase yield of rice. The system shows that alternative management practices, creating optimal growing conditions for plants, can bring out previously untapped genetic potential. It shows great promise to the substantial increase of the irrigated rice yield, its average yield is around 8.0 t ha⁻¹ which is twice more than world average 3.6 t ha⁻¹.

Conclusion

In rice growing countries of mainland Southeast Asia, food self-sufficiency has almost accomplished. The Government does not extend modern technologies as vigorously as they did before. Nowadays farmers can select agricultural technologies of their own. This means that recent technological development varies significantly from one country to another having regional diversity. Long-term trend of rice production shows that the dominant factor in growth is rice yield, stimulated by Farmers' Initiative Technologies in Rice Production, particularly in using modern variety, fertilizer and irrigation technology.