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# 熱帯農業研究

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日本熱帯農業学会第120回講演会

- I. 研究発表要旨
- II. ポスターセッション要旨
- III. 公開シンポジウム要旨



会場：鹿児島大学農学部郡元キャンパス  
農・獣医共通棟

2016年10月8日, 9日

# 日本熱帯農業学会第120回講演会プログラム

第1日 10月8日(土) 研究発表(発表12分, 質疑応答3分) 太字は学生優秀発表賞審査対象

開始時刻	座長	第1会場 (農・獣医共通棟201講義室)	座長	第2会場 (農・獣医共通棟203講義室)
9:00	菊野日出彦 (東京農大)	1. アグロイノキュレーションによるタバコへの <i>Ageratum yellow vein virus</i> 接種法の確立. *本間鹿波 <sup>1</sup> ・田中三菜美 <sup>1</sup> ・田中友理 <sup>2</sup> ・Elly KESUMAWATI <sup>3</sup> ・神崎真哉 <sup>1</sup> ・小枝壮太 <sup>1</sup> ( <sup>1</sup> 近畿大農学 研究科・ <sup>2</sup> 京大農学研究科・ <sup>3</sup> シアクアラ大学農)	勘米良祥多 (鹿大)	13. 国内に栽植されたアボカドの古い木を探索して環境 適応性と栽培可能地域を推定する. 樋口浩和・*下野祐依(京大院農学研究所)
9:15		2. キャッサバ植物体の表層及び組織内に分布する 真菌相の分析. *西村 涼 <sup>1</sup> ・佐藤宏樹 <sup>1</sup> ・竹内祐子 <sup>1</sup> ・遠藤力也 <sup>2</sup> ・ Jirawat SANITCHON <sup>3</sup> ・細田榮治 <sup>1</sup> ( <sup>1</sup> 京大院農学研 究科・ <sup>2</sup> 理化学研究所バイオリソースセンター・ <sup>3</sup> Khon Kaen Univ.)		14. 土壌pHがパッションフルーツの果実品質・葉内ミネ ラル含量・栄養生長および生理反応に及ぼす影響. *庭山翔太 <sup>1</sup> ・樋口浩和(京大院農学研究所)
9:30		3. 半乾燥熱帯アフリカにおいて水分条件と耕作 年数がトウジンビエの生育に与える影響. *中島健吾 <sup>1</sup> ・今中紳介 <sup>1</sup> ・岡田健太郎 <sup>1</sup> ・真常仁志 <sup>1,2</sup> ・舟川晋也 <sup>1,2</sup> ( <sup>1</sup> 京大院農学研究科・ <sup>2</sup> 京大院地 球環境学堂)		15. 鉢吊り下げ型整枝法におけるパッションフルーツの 水ストレスと開花数の関係性. *飯田康仁 <sup>1</sup> ・庭山翔太 <sup>2</sup> ・藤井佳祐 <sup>1</sup> ・樋口浩和 <sup>2</sup> ・橋本真帆 <sup>3</sup> ・須崎徳高 <sup>3</sup> ・市ノ木山浩道 <sup>3</sup> ( <sup>1</sup> 京大農・ <sup>2</sup> 京大院農・ <sup>3</sup> 三重県農業研究所)
9:45		4. ナミビア国におけるイネ-トウジンビエ混作栽 培:作物の水源と生理に及ぼす湿害ストレスの影 響. *渡邊芳倫 <sup>1</sup> ・Fisseha ITANNA <sup>2</sup> ・泉泰 弘 <sup>3</sup> ・Simon K. AWALA <sup>2</sup> ・飯嶋盛雄 <sup>4</sup> ( <sup>1</sup> 近大農・ <sup>2</sup> Faculty of Agriculture and Natural Resources, University of Namibia・ <sup>3</sup> 滋賀県大環境科学・ <sup>4</sup> JST/ JICA, SATREPS)		16. 沖繩におけるレモングラス( <i>Cymbopogon citratus</i> )の栽 培に関する研究. *宮城利佳 <sup>1</sup> ・M. A. ホサイン <sup>2</sup> ・赤嶺 光 <sup>2</sup> ・内田理貴哉 <sup>1</sup> ・鈴 木千裕 <sup>1</sup> ・M. S. I. MAJUMDER <sup>1</sup> ( <sup>1</sup> 琉大院農学研究科・ <sup>2</sup> 琉大農)
10:00	入江憲治 (東京農大)	5. Evaluation on panicle structure of global rice genetic resources toward the Green Revolution in Tanzania. *Kei SATO <sup>1,2</sup> ・Agnes A. KAPINGU <sup>1</sup> ・Habai R. MASUNGA <sup>1</sup> ( <sup>1</sup> Agricultural Research Institute- Ukiriguru, Tanzania, <sup>2</sup> Research Faculty of Agriculture, Hokkaido Univ.)	鮫島啓彰 (名大)	17. 沖繩におけるいくつかの熱帯マメ科作物の生育特性, バイオマス生産および栄養状態について. *M. S. I. マジウムダル <sup>1</sup> ・M. A. ホサイン <sup>2</sup> ・赤嶺 光 <sup>2</sup> ・宮 城利佳 <sup>1</sup> ・内田理貴哉 <sup>1</sup> (琉大農学研究科・琉大農)
10:15		6. アジアイネ( <i>Oryza sativa</i> )を遺伝的背景にも つオーストラリア野生イネ <i>O. meridionalis</i> のイン トログレッションラインの開発. *植木真輝 <sup>1</sup> ・門田健太郎 <sup>2</sup> ・田浦 悟 <sup>3</sup> ・石川隆二 <sup>4</sup> ・ 佐藤雅志 <sup>5</sup> ・一谷勝之 <sup>2</sup> ( <sup>1</sup> 鹿大院農・ <sup>2</sup> 鹿大農・ <sup>3</sup> 鹿 大遺伝子・ <sup>4</sup> 弘前大農学生命・ <sup>5</sup> 東北大院農)		18. 沖繩におけるハンダマの栽培に関する研究 *内田理貴哉 <sup>1</sup> ・Md. Amzad HOSSAIN <sup>2</sup> ・仲村一郎 <sup>2</sup> ・宮城利佳 <sup>1</sup> ・鈴木千裕 <sup>1</sup> ・Majumder Md. Sagirui ISLAM <sup>2</sup> ( <sup>1</sup> 琉大農 学研究科・ <sup>2</sup> 琉大農)
10:30		7. イネ白葉枯病抵抗性突然変異系統XMGの抵抗性 遺伝子 <i>xa20</i> のマッピング. *川口裕輝 <sup>1</sup> ・一谷勝之 <sup>2</sup> ・Constantine BUSUNG <sup>3</sup> ・ 田浦 悟 <sup>4</sup> ( <sup>1</sup> 鹿大院農・ <sup>2</sup> 鹿大農・ <sup>3</sup> 鹿大連大・ <sup>4</sup> 鹿 大遺伝子)		19. ヘアリーベッチ(緑肥)とカリウム施肥がウコン ( <i>Curcuma longa</i> L.)の生育, 収量および品質に及ぼす影響. *鈴木千裕 <sup>1</sup> ・Md. Amzad HOSSAIN <sup>2</sup> ・仲村一郎 <sup>2</sup> ・田中千盛 <sup>2</sup> ・ 宮城利佳 <sup>1</sup> ・内田理貴哉 <sup>1</sup> ( <sup>1</sup> 琉大院農学研究科・ <sup>2</sup> 琉大農)

10:45	8. カンボジア西部地域より収集したトウガラシ ( <i>Capsicum</i> spp.) 遺伝資源の評価. * 島山佳奈実 <sup>1</sup> ・松島憲一 <sup>2</sup> ・松永 啓 <sup>3</sup> ・友岡憲彦 <sup>4</sup> ・Sakhan SOPHANY <sup>5</sup> ・朴 永俊 <sup>6</sup> ・根本和洋 <sup>7</sup> ・南 峰夫 <sup>1</sup> (信大院理工(農)・ <sup>2</sup> 信大学院農・ <sup>3</sup> 農研機構野菜花き部門・ <sup>4</sup> 農研機構遺伝資源セ・ <sup>5</sup> CARDI Cambodia・ <sup>6</sup> 信大農)	20. 耐塩性の異なるダイズ品種間でのカリウム施与量の違いが塩ストレス下の栄養成長に及ぼす影響. * 藤井佳樹 <sup>1</sup> ・樋口浩和 <sup>1</sup> ・Md. Abdul KARIM <sup>2</sup> (1 京大院農学研究科・ <sup>2</sup> BSMRAU Bangladesh)
11:00	9. インドネシアのトウガラシ生産圃場におけるベゴモウイルスの感染状況. * 小枝士太 <sup>1</sup> ・田中友理 <sup>2</sup> ・本間鹿波 <sup>1</sup> ・Elly KESUMAWATI <sup>3</sup> ・Sabaruddin ZAKARIA <sup>3</sup> (1 近大農学研究科・ <sup>2</sup> 京大農学研究科・ <sup>3</sup> シアクアラ大学農)	21. 耐乾性の異なるサトウキビ2品種の混植が地下部形成に与える影響. * 寶川拓生 <sup>1,2</sup> ・渡邊健太 <sup>1,2</sup> ・Dinh Thai HOANG <sup>1,2</sup> ・川満芳信 <sup>1</sup> (1 琉大農・ <sup>2</sup> 鹿大院連合農学研究科)
11:15	10. Depopulation and abandoning farming problem as a global issue: Bhutanese scholars' comparative experience in Japan, summer 2016. * Kazuo ANDO <sup>1</sup> , Yoshio AKAMATSU <sup>1</sup> , Haruo UCHIDA <sup>1</sup> , Sumjay TSHERING <sup>2</sup> , Pema CHODEN <sup>2</sup> , Tenzin WANGCHUK <sup>2</sup> (1 CSEAS, Kyoto Univ., 2 Sherubtse College, Royal Univ. of Bhutan)	22. 灌漑水中塩濃度がサトウキビの生育および糖度に与える影響. * 渡邊健太 <sup>1,2</sup> ・寶川拓生 <sup>1,2</sup> ・川満芳信 <sup>1</sup> (1 琉大農・ <sup>2</sup> 鹿児島連大)
11:30	11. ネパール中部地区で収集されたアマランサス・トウガラシ遺伝資源. * 根本和洋 <sup>1</sup> ・松島憲一 <sup>1</sup> ・B. K. JOSHI <sup>2</sup> ・H. K. GHIMIRE <sup>3</sup> ・須田元輝 <sup>3</sup> ・島山佳奈実 <sup>3</sup> (1 信大学院農・ <sup>2</sup> ネパール農業研究評議会 ジーンバンク・ <sup>3</sup> 信大院理工(農))	23. サトウキビの土壌水分ストレスに伴うガス交換速度の変化. * 中原麻衣 <sup>1,2</sup> ・寶川拓生 <sup>1,2</sup> ・渡邊健太 <sup>1,2</sup> ・Dinh T. HOANG <sup>1,2</sup> ・川満芳信 <sup>1</sup> (1 琉大農・ <sup>2</sup> 鹿大院連合農学)
11:45	12. Effect of 1-MCP on ethylene regulation and quality of tomato cv. Red Ore. * Dawlat Shah POYESH, Mustafa HARIS, Naoki TERADA, Atsushi SANADA, Hiroshi GEMMA, and Kaihei KOSHIO (Tokyo Univ. of Agriculture)	24. 絶滅の危機に直面する沖縄の在来作物. * 高江洲賢文・玉城盛俊・砂川春樹 (沖縄県農業研究センター)
12:00 ~ 13:00	ポスター発表 (101講義室西)	
13:00 ~ 14:00	昼休み	
14:00 ~ 17:30	<p>公開シンポジウム (101 講義室)</p> <p>講演テーマ: アジアからアフリカへ緑の革命は起こされるのか?</p> <ul style="list-style-type: none"> <li>・アジアの灌漑開発の経験をアフリカに活かすーフィリピン・ブサオ小規模灌漑システムの成功要因 角田宇子氏 (亜細亜大学)</li> <li>・ネリカはサブサハラ・アフリカで普及するか、ウガンダの経験から 西牧隆士氏 (JAICAF)</li> <li>・アフリカ産低品位リン鉱石の活用ーアフリカ肥料革命の実現に向けてー 中村智史氏 (JIRCAS)</li> <li>・アフリカにおける緑の革命には孤児作物 (Orphan Crop) 研究がカギになる 志和地弘信氏 (東京農業大学)</li> <li>・東南アジアの農業技術をサブサハラアフリカへ適応させるには</li> </ul>	

奥田延幸 (香川大)

大前英 (国際農研)

## Depopulation and Abandoning Farming Problem as a Global Issue: Bhutanese Scholars' Comparative Experience in Japan, Summer 2016.

Kazuo Ando<sup>1</sup>, Yoshio Akamatsu<sup>1</sup>, Haruo Uchida<sup>1</sup>, Sumjay Tshering<sup>2</sup>, Pema Choden<sup>2</sup>, Tenzin Wangchuk<sup>2</sup> (1 : CSEAS, Kyoto University, 2 : Sherubtse College, Royal University of Bhutan)

Key Words : Depopulation, Abandoning Farming Problem, Global Issue, Bhutan, Comparative View  
グローバルイシューとしての過疎と離農問題

安藤和雄・赤松芳郎・内田晴夫・スムジェ ツェリン・ペマ チョデン・テンジン ワンチュク:  
キーワード：過疎、離農問題、グローバルイシュー、比較の視点

### Introduction

The problem of depopulation and abandoning farming is a serious issue in rural Japan, particularly, in the villages located in mountainous areas and islands. This problem has first surfaced in 1960s when rapid economic growth and industrial development had occurred, and this problem has been gradually recognized as an un-avoidable socio-economic phenomenon with economic development of a nation. It has been generally believed that an appropriate approach for depopulation and abandoning farming is to minimize unbalanced economic development between urban and rural areas. However, the attempt aiming to minimize the gap of economic development is, even at present, not successful at the national

Tab 1 PRA Schedule from Jul 23 to Aug 6, 2016 by Bhutanese Scholars

Date	Activities
23-Jul	Arrival at Japan(Kansai) and meeting at CSEAS, Kyoto Univ.
24-Jul	Field excursion to Miyazu City, Kyoto Pref.
25-Jul	Fieldwork in Shimoseya, Kamiseya and Kigo village, Miyazu City
26-Jul	Fieldwork in Shimoseya and secondary data collection at city office
27-Jul	Fieldwork in Kamiseya village
28-Jul	Field excursion to Tango peninsula
29-Jul	Courtesy call on Miyazu city office
30-Jul	Field excursion to Miyama, Nantan City, Kyoto Pref.
31-Jul	Field observation in Miyama and participation in orientation of Chii Community Development Association
1-Aug	Visiting folk museum in Kita village and field excursion to Nara
2-Aug	Participation in cultural exchange program in Misaki community, Moriyama City, Shiga Pref.
3-Aug	Field excursion to Hiroshima
4-Aug	Participation in International Workshop "International Workshop on Area Studies on Himalaya and Bhutan" and Wrap-Up Meeting of PRA at CSEAS, Kyoto Univ.
5-Aug	Participation in Joint study seminar at CSEAS, Kyoto Univ.
6-Aug	Departure from Japan(Kansai)

level. The same recognition and approach for the problem is also becoming common in other developing Asian countries facing depopulation and abandoning farming with "an epidemic" market globalization, such as Bangladesh, Bhutan, Myanmar and Laos. Is it really un-avoidable phenomenon and un-overcoming problem by human kind? As increasing CO<sub>2</sub> emission has resulted in global warming problem before human kind knew it, the problem of depopulation and abandoning farming has a potential to become serious threat to sustainable

existence of human kind. We do not have any confirmed approach in spite of socio-economic approach and thus we expect individual practical device of people understanding this problem as own problem by "awareness of the person concerned". When this problem becomes global issue like global warming, not all but some people would try to challenge to break the common sense such as an un-avoidable problem. For this purpose, we have conducted the mutual enlightenment practice-oriented area studies since 2013 particularly between Bhutan and Japan. In the summer of 2016, the five Bhutanese scholars of Sherubtse College including the co-presenters of this paper were invited to conduct the comparative study between Bhutan and Japan. This study program is supported by Kyoto Prefectural Govt. and Miyazu-City govt. with "HITO MACHI HITO CAMPUS" program, Kyoto Univ. CHINOKYOTEN Program, JSPS KAKEN (Type A, headed by ANDO), "the Future Development Funding Program of



Kyoto University Research Coordination Alliance” and Kyoto Univ. ZENGAKUKEIHI. We are very thankful to the villagers and the local government officials in Miyazu, Miyama and Moriyama.

### Methodology

The survey was conducted from July 23 to Aug 6, 2016 using PRA (Participatory Rural Appraisal) by five members from Sherubtse College: Dr. Tenzin Wangchuk, Mr. Sunjay Tshering, Ms. Pema Choden, Mr. Ngawang Tenzin and Ms. Rinchen Kelzang Wangmo. The schedule of PRA is given in Tab 1. Ando and Akamatsu participated in the survey as a facilitator and a translator. Ms. Mihoko Watanabe, Doshisha Univ. escorted Bhutanese members to the study sites and supported their survey. The daily impressed experiences were recorded as three key words by each participant with ranking: first, second and third (if necessary, more). Each key word was explained by one fact or experience through that day’s PRA. Three ranks were used for easy identification by a participant with a key word. At presentation of each key word at the wrap-up meeting of PRA, each participant explained a ranked key word by their own experience or fact at the site. One time appearance of each key word scored one point. To integrate their experiences, each key word were summed up and the final rank was given on the basis of gained score (Tab 2). The analysis of experience through PRA was done by the “Social Software” developed for mutual understanding between practitioner and aid-organization in international aid program or Ranking Score Method (Modified KJ methods).

### Result and Discussion

The result of the wrap-up meeting is given in Tab 2. The problem of depopulation and abandoning farming was very serious in Kamiseya, Miyazu. Only four houses existed in the Kigo community and all families was migrant from urban to rural (I-turn). The original villagers have already migrated to the

Tab 2 Score of key word of impression at visited places by Bhutanese scholars in 2016 Summer

Place Name [score]	Miyazu	Miyama	Moriyama	Nara	Hiroshima	Total Impression
Rank 1st	Depopulation[6]	Culture[4]	Interaction among People (Happy kids)[6]	World Heritage[5]	Museum[6]	GNH[6]
Rank 2nd	Abandoned House/Land[4]	CHII Development Association[4]	Cultural Exchange[5]	Women’s University [4]	Dome[4]	Depopulation[4]
Rank 3rd	Japanese Manner and Etiquette[4]	Tourism[3]		Tourism[4]	International Community People[2]	Japanese Manner and Etiquette[4]
Rank 4th	Stress of Urban Life[1]	Heritage[3]		Urban City[1]		Stress of Urban Life[1]
Rank 5th	Festival[1]	I-turn[1]				

Note of Key Word)GNH:Gross National Happiness, World Heritage:TODAJI Temple, Museum: HIROSHIMA Peace Museum, Dome:HIROSHIMA Atomic Bomb Dome, I-turn:Migrant from Urban to Rural

urban areas, mostly to Yosano-cho. The most farmland have been abandoned, with very few people living, who

are mostly elderly, despite availability of modern facilities in the village. The Kita community of Miyama was a successful in green tourism, famous for traditional thatched roof farmhouses. The members participated in the re-vitalizing village communities program, focusing on primary school level students such as “overseas studies program” from urban to rural of Chii Development Association and Okawa River Summer Free Research Laboratory Program of Misaki autonomous resident association of Misaki community, Moriyama. It may be noted that The GNH approach is conceptually excellent but practically difficult in Bhutan. In conclusion, through PRA in Kyoto and Shiga, the Bhutanese members observed practical GNH programs being implemented in rural areas of Japan, while recognizing that problem of depopulation and abandoning farming existed in Japan, similar to Bhutan. The “awareness of the person concerned” has hopefully emerged among the members.

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