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日本熱帯農業学会第124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：京都大学吉田キャンパス北部構内
（農学部総合館）

2018年9月29日，30日

日本熱帯農業学会第 124 回講演会プログラム

第1日　9月29日（土）

開始時刻	座長	研究発表〔発表 12 分，質疑応答 3 分〕◎印は学生優秀発表賞審査対象 第 1 会場（2 階 W214 講義室）	座長	第 2 会場（3 階 W306 講義室）
9 : 00	鴨下顕彦〈東京大〉	◎ 1. 温帯産ダイズ品種の長日処理を施した熱帯環境下での群落機能評価―収量および外観品質― *長崎裕一[1]・Andy Saryoko[2]・Ian Surya Fitra[3]・Firdaus Puja Santana[3]・Iskandar Lubis[3]・本間香貴[4]・白岩立彦[1]（[1]京都大学大学院農学研究科・[2]インドネシア農業研究開発機関,・[3]ボゴール農科大学・[4]東北大学大学院農学研究科）	パチャキルバビル〈東京農大〉	◎ 13. Identification and molecular characterization of rice sheath rot complex disease in Ethiopia *Wubneh Ambachew[1,2], Keriichi Motohashi[2], Keiko T. Natsuaki[2] ([1]Graduate School of Agriculture, Tokyo University of Agriculture, [2]Ethiopian Institute of Agricultural Research, Fogera National Rice Research and Training Center)
9 : 15		◎ 2. ウガンダ東部における異なる時期の土壌水分ストレスが陸稲栽培品種の収量性に及ぼす影響 *斉藤雄介[1]・倉内伸幸[1]・加藤太[1]・佐々木大[1]・宮本輝尚[2]・吉野稔[2]（[1]日本大学大学院・[2]国際協力機構専門家）		◎14. Effect of Seed Priming on Germination and Physiological Response of Hot Pepper (*Capsicum annuum*) under Drought Stress Condition *Mohammad Mustafa Haris, N. Terada, A. Sanada, H. Gemma and K. Koshio (Graduate School of Agriculture, Tokyo University of Agriculture)
9 : 30		◎ 3. Applicability of photosynthesis efficiency for successful prediction of near-isogenic lines rice (*Oryza sativa* L.) to different planting densities. *Melkamu Tafere[1,2], Kenji Irie[2] ([1]Ethiopian Institute of Agricultural Research, Fogera National Rice Research and Training Center, [2]Graduate School of Agriculture, Tokyo University of Agriculture)	福田聖子〈日本大〉	◎ 15. Field Study on Production, Trade and Post-Harvest Handling of Tomato Fruit in Eastern Region of Afghanistan *Gulbuddin Gulab[1], Saidajan Attiq Abdiani[2], Naoki Terada[1], Atsushi Sanada[1], Hiroshi Gemma[1] and Kaihei Koshio[1] ([1]Graduate School of Agriculture, Tokyo University of Agriculture, [2]Nangarhar University, Faculty of Agriculture)
9 : 45		◎ 4. Response of groundnut (*Arachis hypogaea* L.) varieties to drought stress *Chukwunonso. S.A. Ezeah [1,2], Kenji Irie[2] and Pachakkil Babil[2] ([1]Nigeria's Federal Ministry of Agriculture and Rural Development, [2]Tokyo University of Agriculture)		◎ 16. タンザニア連合共和国モロゴロ州におけるトマト栽培と収穫後技術における現状と課題に関する事例調査 *乗松諒・真田篤史・弦間洋・小塩海平（東京農業大学大学院農学研究科）
10 : 00	森塚直樹〈京都大〉	◎ 5. On-farm manipulation of variety, water and N management to improve rice production in coastal zone of Red River Delta, Vietnam *Phan Luyen[1,2], Akihiko Kamoshita[1] ([1]Asian Natural Environmental Science Center, University of Tokyo, [2]Graduate School of Agricultural and Life Sciences, University of Tokyo)	神崎真哉〈近畿大〉	◎ 17.　ジャボチカバ・サバラの果実肥大および種子発達様式 *大穂清隆・真田篤史・篠原 卓・小塩海平・弦間 洋（東京農業大学大学院農学研究科）

10：15		◎ 6. Salinity impact on economic efficiency of rice and aquaculture production in Rang Dong and Nghia Binh communes, Nam Dinh, Vietnam *Phan Luyen[1,2], Takeshi Sakurai[2], Nguyen Yen[3], Akihiko Kamoshita[1] ([1]Asian Natural Environmental Science Center, University of Tokyo, [2]Graduate School of Agricultural and Life Sciences, University of Tokyo, [3]Faculty of Environmental Sciences, Vietnam National University of Agriculture)		◎ 18. 液肥の窒素濃度がパッションフルーツの生長、開花数、および葉分ミネラル含量におよぼす影響 *古賀翔硫・佐藤大輝・近藤友大 （宮崎大学地域資源創成学部）
10：30		◎7. Stand Structure and Above Ground Biomass of *Rhizophora* Forest in Lampi Marine National Park, Myanmar *Win Maung Aye, Shinya Takeda (Graduate School of Asian and African Area Studies, Kyoto University)		19. 塩水による湛水がパッションフルーツの生育および果実品質におよぼす影響 *近藤友大[1]・樋口浩和[2] （[1]宮崎大学地域資源創成学部・[2]京都大院農学研究科）
10：45	竹田晋也＜京都大＞	8 . Extension methodology in disseminating agricultural innovation among farmers in legumes-based farming system at Central Dry Zone of Myanmar *Nyein Nyein Htwe and Kay Thi Khaing (Yezin Agricultural University)	松田大志＜国際農研＞	20. 露地栽培パッションフルーツにおける挿し木時期と育苗用鉢の種類が苗質，収量および果実品質に及ぼす影響 *鈴木哲也・杉浦真由・新川猛 （岐阜農技セ）
11：00		9. Migration and Its Impact on Rural Livelihoods of Myanmar *Theingi Myint and Nandar Aye Chan (Yezin Agricultural University)		21. パッションフルーツの鉢吊り下げ式養液土耕栽培の実用性と生産上の課題 *須崎徳高・駒田達哉 （三重農研紀南果樹研究室）
11:15		10. Changing agriculture practice of Ayeyarwady region: A case study of Hinthada township *Myint Thida[1], Nwe Yin Min[2], Naw Paw Thaw Thaw[3], Win Thanda Oo[4] ([1]Hinthada University, [2]Pyay University, [3]Taungoo University, [4]Yangon University)		22. 人為的な低温処理時間がアボカドの耐寒性に及ぼす影響 *木﨑賢哉・内野浩二 （鹿児島県農業開発総合センター果樹・花き部）
11:30		11. Environmental and social impact of commercial mung bean [*Vigna radiata* (L.) Wilczek] production in Myanmar *Khin Lay Swe[1] and Kazuo Ando[2] ([1]FREDA, [2] CSEAS, Kyoto University)	近藤友大＜宮崎大＞	23. サラカヤシの受粉後の高温による受精阻害に関する解剖学的研究 *松田大志[1,2]・宮地尚樹[1]・岡部公則[1]・樋口浩和[1] （[1]京都大学院農学研究科・[2]現国際農研）
11:45		12. Black Gram Cultivation in Ayeyarwady Delta from the viewpoint of the comparison of the Bengal Delta: a case study in Maubin Township, Myanmar Kazuo Ando[1], Khin Lay Swe[2], Myint Thida[3], Haruo Uchida[1], Yoshio Akamatsu[1] ([1]CSEAS, Kyoto University, [2]FREDA, [3]Hinthada. University)		24. ランブータン花粉の溶液保存が花粉発芽率に及ぼす影響 *香西直子[1]・島田温史[1]・緒方達志[2] （[1]鹿児島大学農学部・[2]国際農林水産業研究センター熱帯・島嶼研究拠点）

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Environmental and social impact of commercial mung bean [*Vigna radiata* (L.) Wilczek] production in Myanmar

* Khin Lay Swe[1] and Kazuo Ando[2]

([1] Forest Resources Environmental Conservation and Development Association –FREDA, Yangon, Myanmar, [2] Department of Practice-oriented Area Studies, Center for South East Asian Studies, Kyoto University)

Introduction

With "open market policy" in 1990s in Myanmar, pulses area increased sharply and stands as the second most important crop. It covered 45, 34,000 hectares (21% of total sown areas) with an annual production of 59, 74,363 MT in 2015. Likewise, liberalization agricultural inputs' export and import led to a rapid increase in pesticides use. With government's encouragement of agricultural intensification to boost production, pesticides became an indispensable input for pulses growers to minimize yield losses. Due to its high export demand and economic return, mung bean (Pae-di-sein, in local language) is commercially produced in several regions of Myanmar.

Methodology

A survey assessment was carried out in 2018 in Kayan and Thongwa Townships (Yangon Region), Minbu and Magway Townships (Magway Region), the largest mung bean areas of the country, to find out major challenges of production and to highlight the need for research and extension services for sustainable production. Focus Group Discussion and secondary data collection of government concerned departments were undertaken. For household survey, seven villages were selected from each Region, and twenty sample household farmers from each village: total sample respondents numbers were 280. Survey data were emphasized on crop production practices, impact of extreme climates, farmers' coping strategies, land holdings, economic return, and etc.

Results and discussion

Comparing two Regions, Kayan and Thongwa respondent farmers used more chemical fertilizers and fewer use of FYM since these townships have fewer number of cattle. The reverse was true for Minbu and Magway farmers. Eight percent of Kayan and 4% of Thongwa respondents used FYM, while 48% of Minbu and 80% of Magway farmers applied FYM (Table 1). Kayan and Thongwa farmers noticed that their fields were less productive than about ten years ago. It agrees with a general concept that, more use chemical fertilizers with less use of organic manure for a long time damages soil structure and productivity. For pesticide application in Kayan / Thongwa, no farmers applied less than three times during a crop cycle. Spraying more than five times were done by 87% and 93% of Kayan and Thongwa while 38% and 6% of Minbu and Magway, respectively. It means that Kayan and Thongwa farmers used more pesticides than did the Minbu / Magway farmers. In Kayan / Thongwa, mung bean is a commercial mono-cropping after a monsoon rice harvest for several decades. Commercial crop cultivation of a same crop in large fields for successive years highly favours to pest and disease infestation. On a contrary, Minbu / Magway farmers follow a multiple cropping system, mix-crop, intercrop or crop rotation with sesame, peanut and cotton, which well suppress pest and disease occurrence.

Regarding with production constraints, more than 80% farmers perceived that weather was the most important limiting factor (Table 2). More farmers in Kayan and Thongwa found the "high input" as a constraint, consistent with that Kayan and Thongwa farmers used more input (Chemical fertilizers, pesticides) than did the Minbu and Magway farmers. Fourteen percent of Kayan respondents and 8% of Thongwa expressed "the poor soil quality", while no farmers in Minbu and Magway thought their lands were degraded. Mung bean is a highly susceptible crop to pests and diseases so that farmers practice injudicious application of pesticides to avoid crop damage. It can create a potential disaster risk – dangers caused by farming industries.

A study was also conducted in 2008 for assessing economic, health, and environmental effects of pesticide use in mung bean production in Khayan - Thongwa area. It was found that highly hazardous chemicals, including the banned pesticides were widely used. It revealed a higher probability of pesticide poisoning with the increasing number of years of pesticide use. The probabilities ranged from 54 % when a farmer has used pesticides for five years to 76 % for 30 years. Ninety five percent hired applicators experienced pesticide poisoning, such as headaches, dizziness, vomiting, coughing, and stomach pain. It is well observed that farmers are enjoying a considerable profit although mung bean prices fluctuated in some years, depending on the foreign markets. More family income enhanced the improvement in livelihood, education, village infrastructures, communication facilities, and so on. In spite of these, their environment will be degrading due to the unsustainable production system. Improper use of pesticides will surely pollute the environment, damage the land, air and water quality and adversely impact on human health at present and will be worse in immediate future.

Conclusion

Farmers use pesticides as a risk minimizing tool without knowing the true cost to society and the environment. Pesticide residues, weakness of protection techniques, lack of knowledge about proper pesticide management (safe handling and storage, optimal decision on spraying, and etc.) and scarcity of adequately trained manpower are constraining factors in pulses production. Integrated Pest Management (IPM), Good Agriculture Practices (GAP) and Climate Smart Agriculture (CSA) strategies are required to apply urgently in these production areas. IPM technology should be incorporated into the Disaster Risk Reduction management programs to provide health, education, social and livelihood activities in order to make a better living condition for these communities. This findings will enable policy makers to develop sustainable crop production plans, particularly in pulses commercial production areas of Myanmar.

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