

JSTA 日本熱帯農業学会

# 熱帯農業研究

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日本熱帯農業学会第126回講演会

- I. 研究発表講演要旨
- 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：アトールエメラルド宮古島（講演会）  
沖縄県宮古島市マティダ市民劇場  
（シンポジウム）

**2019年11月23日, 24日**



10:45	樋口 浩和・京大	8	パッションフルーツにおける花粉発芽の耐暑性の品種間差 松田大志 ら 国際農研熱帯島嶼研究拠点	近藤 友大・宮崎 大	18	◎ Effects of relative humidity on freshness of tomato fruit stored under high-temperature conditions Gulbuddin Gulab et al. Tokyo University of Agriculture
11:00		9	鹿児島県におけるアーモンドの発芽および開花特性 香西直子 ら 鹿児島大学 他		19	◎ Effects of Low-Pressure Storage on Shelf Life and Quality of Tomato Mohammad Eshaq Rasekh et al. Tokyo University of Agriculture
11:15		10	受粉源となる花粉稔性がナツメヤシの着果、収量および品質に及ぼす影響 寺田順紀 ら 東京農業大学			
11:45 - 12:30	<p style="text-align: center;">ポスターセッション（艦の間 2階）</p> <ol style="list-style-type: none"> <li>◎ サブサハラ・アフリカ半乾燥地域における乾燥に対応した栽培技術—ケニア東部キツイ郡を事例に— 桐山大輝 ら 東京農業大学</li> <li>◎ Nutrition improvement through agrodiversity in rural areas of Kenya -Stimulating use of local food resources in Africa to improve nutrition and livelihoods- Madoka Kishino et al. Tokyo University of Agriculture et al.</li> <li>ピタヤ (<i>Hylocereus undatus</i>) 花粉の長期保存に関する研究～保存方法の検討と果実品質～ 東江真梨子 ら 玉川大学</li> <li>パクロブトラゾール処理がパッションフルーツの開花、結実および果実形質に及ぼす影響 島田温史 ら 玉川大学 他</li> <li>Depopulation and Abandoning Farming Problem as a Global Issue: Burmese and Bhutanese Scholars' Experience in Japan, July-August 2019 Akamatsu Y. et al. Kyoto Univeristy et al.</li> <li>島ニンジンの最適栽植密度および根の無機成分における系統間差異 砂川春樹 ら 中城村役場 他</li> <li>農業高校におけるESD実践—カカオを教材として— 安部由香子 ら 東京農業大学</li> </ol>					
12:30	昼休み					
13:30 - 17:30	<p style="text-align: center;">公開シンポジウム（沖縄県宮古島市マティダ市民劇場）</p> <p style="text-align: center;">「九州および南西諸島地域における気候変動に対応する熱帯農業研究」</p> <p style="text-align: right;">司会 菊野日出彦（東京農業大学）</p> <p>学会長挨拶：学会長 縄田栄治氏</p> <p>来賓挨拶：宮古島市 市長 下地敏彦氏</p> <p>・「近年の降雨パターンの変化が農地に及ぼす影響—速報—」</p> <p style="text-align: right;">鈴木伸治氏（東京農業大学）</p>					

	<p>・「干ばつ耐性向上をめざした稲の根系改良の試みと今後の展望」 宇賀優作氏 (国立研究開発法人 農業・食品産業技術総合研究機構)</p> <p>・「近縁遺伝資源を利用したサトウキビ改良の取り組み」 寺島義文氏 (国際農林水産業研究センター)</p> <p>・「気候変動が九州および南西諸島地域における果樹生産に及ぼす影響」 山本雅史氏 (鹿児島大学)</p> <p>パネルディスカッション</p>
18:00 - 20:00	懇親会・学生優秀発表賞授賞式 (ホテルアトールエメラルド宮古島2階・櫓艦の間)

11月24日(日)

開始時刻	第一会場 漲水 A (2階)			第二会場 漲水 B (2階)		
	座長	番号	講演題目	座長	番号	講演題目
9:00	根本和洋・信州大	20	インドネシア・マルク州における檳榔利用 山本宗立ら 鹿児島大学 他	大前英・国際農研	27	Waterlogging Induced Changes in Morpho-Physiology of Soybean Hossain Md. Saddam et al. Bangabandhu SMR Agricultural University et al.
9:15		21	ブルキナファソ中央台地に自生するアンドロポゴンの利用実態 團晴行ら 国際農林水産業研究センター 他		28	Household Survey on Rice-Black Gram Cropping System in Maubin Township, Ayeyarwady Delta in Myanmar Kazuo Ando et al. Kyoto University et al.
9:30		22	ミャンマー・バゴー山地カレン焼畑システムでのムカゴコンニャク ( <i>Amorphophallus bulbifer</i> ) 採集の持続可能性 竹田晋也ら 京都大学 他		29	タンザニアの灌漑水田における節水稲作技術の開発に向けた取り組み 森 恒樹ら 東京農工大学 他
9:45	佐々木大・日大	23	沖縄県産ピタヤ品種の変遷に関する現地調査 柳澤俊介ら 京都大学	加藤太・日大	30	ブルキナファソ農牧林における土壌保全効果の高い低灌木群落の被覆機能について 竹中浩一ら 国際農林水産業研究センター 他
10:00		24	マラウイ高地におけるリンゴ栽培の導入と普及 -中部州デッサ県を事例に- 福田聖子ら 日本大学 他		31	部分耕起と有機物マルチの組み合わせが土壌侵食及びサトイモの生育に及ぼす影響 大前英ら 国際農林水産業研究センター 他

**Household Survey on Rice-Black Gram Cropping System in Maubin Township, Ayeyarwady Delta in Myanmar**

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, Khin Aye Mu<sup>4</sup>, Soe Win<sup>3</sup>, Haruo Uchida<sup>1</sup>

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**Key words:** Black Gram, Monsoon Rice cultivating, Ayeyarwady Delta, Maubin, Myanmar

**Introduction**

The production and exports of Pulses have remarkably increased after the liberalization of agricultural marketing in 1987 (Fujita and Okamoto, 2006). In 2016, Agricultural products (crops, commented by Ando) occupy only 11% of the total export amount; 81% of total agricultural exported products were pulses (including beans, commented by Ando) and that of rice was 8% in terms of absolute values in USD (CENTRAL STATISTICAL ORGANIZATION, 2016:389). Swe (Swe 2018) reported the general production and trade of “Myanmar Beans and Pulses Update 2018” as follows;

“General Background: Beans and pulses in Myanmar are normally grown immediately after the harvest of the main rice crop in the delta region (lower parts of Myanmar) and are grown as a monsoon crop in the central plain areas and Shan State (East part of country). About 70 percent of all pulses are grown during the winter season, with yields ranging between 1.0 -1.3 MT/hectare. Black Matpe (Black gram), Green gram and Toorwhole (Pigeon beans) accounted for 70-75 percent of total bean and pulse production, and are the main kinds of exported beans and pulses. About 80-90 percent of total Toorwhole production and 60-70 percent of total Black Matpe is exported to India and the domestic wholesale prices depend almost entirely on India’s demand. Another exported bean, the green gram (Mung bean), has more extended markets such as China, Vietnam, Malaysia, Bangladesh, India, Indonesia and EU countries”

“Consumption: Myanmar consumption of beans and pulses in MY 2017/18 and 2018/19 is estimated to grow 1 percent as a result of more use in feed mixes, and government initiatives to promote increased consumption of surplus beans and pulses.”

In our study villages in Moubin Township, Ayeyarwady Delta, the farmers are also giving the priority to Rice-Black Gram based cropping systems. In this previous annual conferences, we have reported the farmers’ initiative local technologies to enable the extension of Rice-Black Gram Cropping System in the floodplain of Ayeyarwady Delta. This presentation, accordingly, aims to examine the above mentioned general description on Rice-Black Gram Cropping System quantitatively with conducting the household survey at the two villages namely Ywathitsu Village (Y village) of Ngargyigayat Village Tract and Payargon Village (P village) of Yayle Village Tract in Maubin Township. We express our deep thankfulness to the villagers of two villages, Agricultural Offices in Maubin Township for their kind cooperation to us and also our Special thankfulness must go to Dr Khin Lay Swe, ex-Pro-Rector, YAU Ms. Swe Zin Aye, Maubin Univ for keeping interviewing data when we have conducted the group discussion survey at Y village on Sep. 2, 2019.

**Methodology**

The Y and P villages are located in the typical flood plain of Ayeyarwady Delta. The villagers generally classified the rice fields into three groups namely High Land, Middle land and Low Land. Rice is grown in all the lands by rain-fed during the rainy season. In the high and middle land, a ridge between rice fields must be required to keep rain or flooded water. The ridge is not so important in the low land to keep water because of flooding. Black gram is generally grown after rice during the dry season. Three methodologies namely *Htun pe*, *Khote pone*, and *Yelite* are applied generally according to three groups of the rice fields based on elevation, respectively ( These methodologies were reported in our previous presentation). The interviewing survey and the general socioeconomic household questionnaire survey, the intensive rice-black gram based cropping system questionnaire household survey and the follow-up survey were conducted in the two villages in September, November, December 2018

and September & October 2019 respectively. Questionnaires were distributed to 57 households (70 percent of the total household) in Ywathitsu Village and 81 households (84 percent of the total household) in Payagon Village. The following agronomic characteristics of rice-black gram cropping system were investigated; main variety name of rice and black gram which each household grew, cultivated acreage of rice & black gram, the yield of main varieties of rice & black gram, their growing days & period, planting & land preparation methodologies of rice field.

### Result and Discussion

49 households and 26 households of the general household survey of each village were farmers' household (household head or household member is farmer). 46 households of 49 farmers' households in P village and 26 farmers' households in Y village cultivated Rice and Black Gram (Green Gram was cultivated in few fields) in 2018. The intensive Rice-Black Gram cropping system questionnaire household survey was conducted for these Black Gram cultivators' household. The cropping system of 2000 was also surveyed in the questionnaire. All the surveyed farmers' households cultivated Black Gram in 2000, too. In Table 1 shows some agronomic characteristics of the Rice-Black Gram cropping system in the study villages. The drastic difference has occurred in the rice planting method, main rice varieties and land preparation method in monsoon rice cultivation between 2000 and 2018. Change has happened in the Black Gram planting method, too. Monsoon rice used to be transplanted in the inundated rice field. However, at this moment, the rice is generally broadcasting or drill sowing by "Seeder" (Photo 1), which has been introduced in the villages since a few years ago. The rice varieties have changed from long/medium (150-140 days) growing varieties to medium/short (135-120 days) growing varieties. It may be because of the broadcasting method and increasing of the Htu pe method in Black Gram sowing. Land preparation is not applied for Khote pone and Yaelite. Htu pe field is ploughed and harrowed for land preparation. The germinated rice seed is used for Seeder-drill sowing. At this moment, the hand tractor and the tractor are used instead of the cow. These machines are usually owned by an individual farmer. Combine harvester is also used for rice harvesting at rental basis. It may be noticed that these agronomic changes can make Black Gram as an export-oriented main cash crop in

Ayeyarwady Delta. The farmers of the study villages informed us that they do not eat it for home consumption.

Table 1 Some Agronomic Characteristics of Rice-Black Gram Cropping System in Two Villages in Maubin Township Ayeyarwady Delta in Myanmar (Unit: HH No)

Study Village Name		Ywathitsu		Payagon	
Year		2000	2018	2000	2018
Rainy Season' Rice	Transplant	24	2	5	6
Planting Method	Broadcasting	0	22	44	43
Main Rice Varieties	Shwewartun	8	0	14	0
	Sinthukha	1	14	2	31
	Medome	0	1	0	0
	Taungpan	1	3	3	0
	Manawthukha	2	0	3	16
	Aemahta	4	1	6	0
	Kyawzayya	4	0	4	0
	Ngwesuchin/Hnansu	2	0	1	0
	Swarnar	0	1	2	0
	Taungpyan	1	3	3	0
	Nankhar	3	1	0	0
	Ayeyarmin	0	0	8	0
	Yakyaw	0	0	2	1
Main Dry Season	Black Gram	24	24	24	24
Black Gram's	Htun pe	7	10	11	23
Planting Method	Khote pone	15	8	36	15
	Yaelite	2	6	2	11
Land Preparation	Cow	24	0	49	0
Method	Hand Tractor	0	16	0	38
	Tractor	0	8	0	11

Source) Authors' Field Works

Note) HH No. in Main Rice Varieties must be re-checked and will be corrected in the conference presentation.



Photo 1 "Broadcasting" rice seed by Seeder drill sowing Operation in Ywathitsu Village, 2019 (by Mr. Ko Zaw)

### Reference

- Fujita, Koichi and Okamoto, Ikuko 2006 Agricultural Policies and Development of Myanmar's Agricultural Sector: An Overview, Discussion Paper No..63, Institute of Development CENTRAL STATISTICAL ORGANIZATION, 2017, 2016 MYANMAR STATISTICAL YEARBOOK ([https://seadelt.net/Asset/Source/Document\\_ID-341\\_No-01.pdf](https://seadelt.net/Asset/Source/Document_ID-341_No-01.pdf))  
 Swe Mon Aung, 2018, Myanmar Beans and Pulses Update 2018, GAIN Report Number: BM 8021, USDA Foreign Agricultural Service Global Agricultural Information Network.

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