

Joint Exploration for Collection of Rice Germplasm in Thailand

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Introduction

Thailand is one of the richest countries in terms of genetic diversity of rice germplasm. In 1981 the National Rice Seed Storage Laboratory for Genetic Resources of Thailand was established in the Pathum Thani Rice Research Center. More than 18,000 accessions are currently preserved in this laboratory and about 500 accessions from foreign countries and Thailand are added to the collections every year. In 1986 an exploration for the collection of rice and vegetable germplasm was conducted in Northeast and North Thailand under the collaborative program between Japan and Thailand (HAMAMURA and SASAKI 1986 ; ASHIZAWA 1986). During this exploration 113 accessions of rice and 130 of vegetables were collected. The objective of the present exploration is to collect upland rice varieties from the northern and central parts of Thailand.

Methods

As shown in Table 1, the present exploration was divided into the following four phases with the assistance of the Thai counterparts ;

Phase 1 from Nov. 1 to Nov. 3 (Bangkok to Phrae) with Mr. Songkran CHITRAKON, Pathum Thani Rice Research Center.

Phase 2 from Nov. 4 to Nov. 10 (Phrae to Chiang Mai) with Mr. Suthep WANGNAI, Phrae Rice Research Center.

Phase 3 from Nov. 12 to Nov. 18 (Chiang Mai to Lampang) with Mr. Prakasit MUANGMOOL and Mr. Wichai KUMCHOMPOO, San Pa Tong Experiment Station.

Phase 4 from Nov. 19 to Nov. 24 (Lampang to Bangkok) with Ms. Orpin WATANESK, Chai Nat Experiment Station.

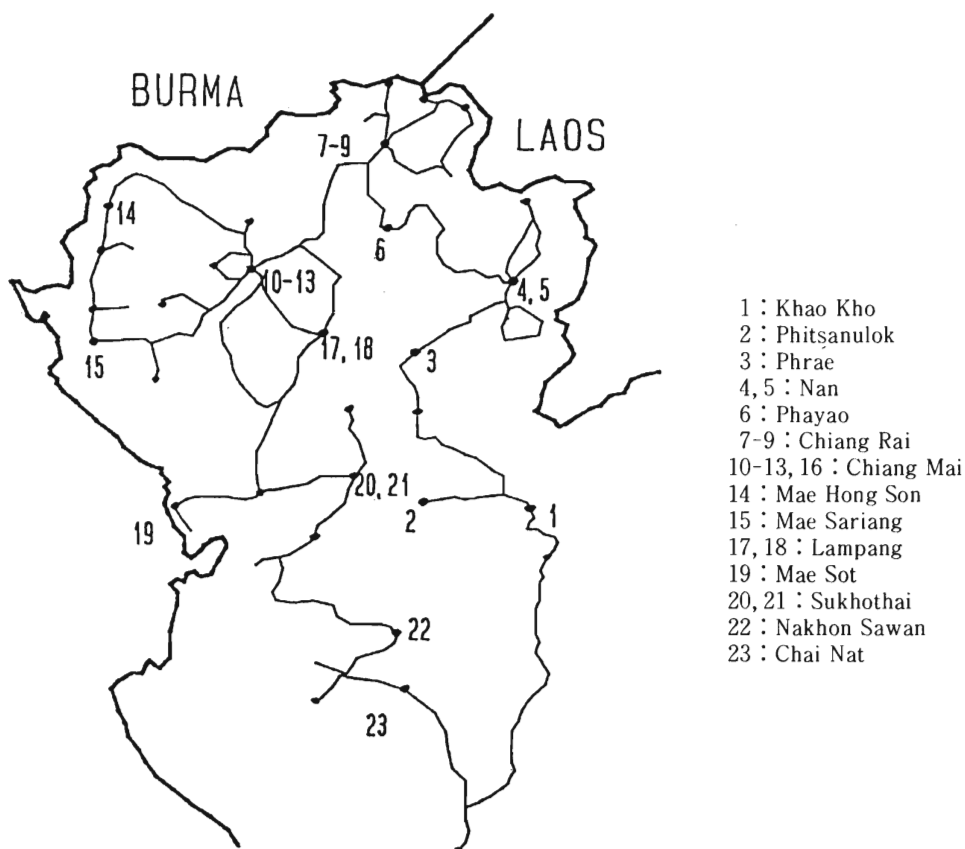
Results and Discussion

We collected 210 accessions, including 100 accessions of lowland rice, 91 of upland rice and

19 of wild species. Each accession was collected from one population. When various types of grain color or shape were observed in one population, we collected panicles from such plants non-randomly. Their passport data are shown in the list of collected materials.

During phase 1, in the Khao Kho district, Pechabun province we collected several upland rice varieties with white rachis that are characteristic of old varieties. We found *Oryza granulata* in Thung Salent Luang National Park which was at the flowering stage and a small amount of seeds was obtained. In the rain-fed paddy fields, either tobacco, soybean, garlic or small onion is cultivated after harvest of early rice varieties such as "RD 6", "San Pah Tawng Daw", etc. This cropping system is now being rapidly disseminated to the irrigated area.

During phase 2, in Phrae province only a few upland varieties were collected. In the western part of Mae Chan near Chiang Rai, however, we collected many upland varieties with the assistance of a guide from the Hill Tribe Center of Mae Chan.



Bangkok Oct. 29-30. Nov. 24-30

Fig. 1. Route map of the exploration

Table 1. Itinerary of “Joint Exploration of Rice in Thailand, 1990”

Date	Itinerary and Route	Note
Oct.29	Tokyo-Bangkok	TG641
Oct.30	Bangkok	TARC, PRRC
Oct.31	Bangkok-Pathum.Thani-Bangkok	DOA, RRI, Japanese Embassy meeting with the counterparts
Nov. 1	Bangkok-Saraburi-Phatthana Nikhom-Chai Badan-Petchabun-Khao Kho	
Nov. 2	Khao Kho-Wang Thong-Phitsanulok	
Nov. 3	Phitsanulok-Wang Thong-Nakhon Thai-Uttaradit-Den Chai-Phrae	
Nov. 4	Phrae-Rong Kwang-Wiang Sa-Na Noi-Wiang Sa-Nan	
Nov. 5	Nan-Tha Wang Pha-Thung Chang-Pua-Pua-Sila Phet-Nan	
Nov. 6	Nan-Chiang Muan-Pong-Chun-Payao	
Nov. 7	Payao-Mae Chai-Phan-Chiang Rai-Mae Chan-Mae Sai-Chiang Rai	
Nov. 8	Chiang Rai-Thoeng-Chiang Khong-Chiang Rai	
Nov. 9	Chiang Rai-Mae Chan-Huai Ya No-Chiang Saen-Mae Sai-Chiang Rai	
Nov.10	Chiang Rai-Mae Suai-Wiang Pa Pao-Chiang Mai	
Nov.11	Chiang Mai	seed cleaning,
Nov.12	Chiang Mai-Hang Dong-Samoeng-Mae Rem-Mae Taeng-Chiang Mai	
Nov.13	Chiang Mai-San Pa Tong-Chom Thong-Mae Chaen-Chiang Mai	
Nov.14	Chiang Mai-Mae Taeng-Pai-Mae Hong Son	
Nov.15	Mae Hong Son-Khum Yuam-Mae La Noi-Mae Sariang	
Nov.16	Mae Sariang-Mae Sanam-Om Koi-Hot-Chiang Mai	
Nov.17	Chiang Mai-Lamphun-Ban Hong-Li-Thoen-Lampang	
Nov.18	Lampang-Chae Hom-Thung Bom-Pang Haen-Chiang Mai-Lampang	
Nov.19	Lampang-Tak-Mae Sot	
Nov.20	Mae Sot-Tak-Sukhothai	
Nov.21	Sukhothai-Sawan Khalok-Si Satchanalai-Thung Saliam-Sukhothai	
Nov.22	Sukhothai-Phran Kratai-Kamphaeng Phet-Kariang Nam Khieo-Lat Yao-Nakhon Sawan	
Nov.23	Nakhon Sawan-Thap Than-Nong Chang-Ban Rai-Wat Sing-Chai Nat	
Nov.24	Chai Nat-Sing Buri-Ayuttaya-Bangkok	
Nov.25	Bangkok	fulfil passport data,
Nov.26	Bangkok-Pathum Thani-Bangkok	seed cleaning
Nov.27	Bangkok-Pathum Thani-Bangkok	-do-
Nov.28	Bangkok-Pathum Thani-Bangkok	-do-
Nov.29	Bangkok	final meeting and submitting the report to DOA
Nov.30	Bangkok-Tokyo	

TARC : Tropical Agriculture Research Center Thailand Office

PRRC : Pathum Thani Rice Research Center

DOA : Department of Agriculture

RRI : Rice Research Institute

During the phase 3, on the way to Mae Chaem, we collected native varieties cultivated by the Karen hill tribe. These people usually cultivate lowland rice in rain-fed paddy fields. On the way to Mae Sariang from Mae Hong Son we found many upland rice fields. Most of them, however, were already harvested and only some panicles were collected.

During phase 4, we collected lowland rice varieties, most of them being medium to late maturing varieties. From Tak to Mae Sot district we had the opportunity to collect upland rice varieties. In Ban Rai district we also collected upland rice varieties. These accessions were collected in the area at the lowest elevation during the present exploration. Several wild species of rice occurred in shallow swamps along roadsides from Nakhon Sawan to Chai Nat. Most of them were at the onset of the flowering stage and we collected a small amount of seeds. At Non Thaburi near Bangkok, we found *Oryza officinalis* and *O. ridleyi*. Seed setting of *O. ridleyi* is usually very low but we were able to collect some seeds.

We divided the collected materials into two equal parts. One half was added to the collection of the National Rice Seed Laboratory for Genetic Resources of Thailand, Pathum Thani Rice Research Center. The other was brought to the National Institute of Agrobiological Resources, Japan for evaluation and multiplication.

General Comments

With the great efforts of the counterparts, the exploration trip was smooth as silk in Thailand.

When we approached to the Thai farmers, saying “Sawatdi Krap” with our hands in front of noses, they were always very kind everywhere, returning greetings in the same way. And they gladly offered us the seeds whenever we asked for. To return our good will for their kindness, we gave some seeds of vegetables and flowers from Japan. The vegetable seeds were acceptable to them but the flower seeds were not. We hope the vegetable seeds will be a good help to their farming some day.

“Khoop Khum Krap !” to all the farmers that were friendly kind and cooperative.

Acknowledgements

We wish to express our deepest thanks to Dr. Amphol SENANARONG, Deputy Director-General of the Department of Agriculture, Ministry of Agriculture and Cooperatives, and Mr. Chai PRACHACHAT, Director of the Rice Research Institute, Department of Agriculture for giving us the permission to collect the materials and for the suggestions for the present joint exploration. We also thank to Mr. Suthep WANGNAI, Phae Rice Research Center, Mr. Prakasit MUANGMOOL and Mr. Wichai KUMCHOMPOO, San Pa Tong Rice Experiment Station, and Ms. Orpin WATANESK, Chai Nat Rice Experiment Station for their assistance. We are also grateful to Dr.

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Literature Cited

ASHIZAWA, M. 1986 Collection of vegetable germplasm in Thailand. National Institute of Agrobiological Resources (ed.) Annual Report on Exploration and Introduction of Plant Genetic Resources. 3 : 176-181.

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タイにおける稲遺伝資源の共同探索導入

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要約

タイはイネの遺伝資源が世界で最も豊富な国の一つと考えられていて、野生稲、浮き稲、陸稲、水稲等の変異が多様である。1981年タイ国立稲遺伝資源研究施設が、日本の援助によって設立され、現在1800点余のコレクションを維持している。タイ農業局はさらに国内の稲遺伝資源を収集することに積極的である。

1986年熱帯農業研究センターの浜村邦夫氏と宮城県古川農業試験場の佐々木武彦氏によって探索導入がなされ、113品種系統が収集された。そこで今回は主にタイ北部および中央部を集中的に探索した。

探索旅程は4つの工程に分けられ、それぞれにタイ側から共同研究者が参加した。すなわち、第1フェイス（バンコックからプレーまで、11.01-11.03）ではパトタニ稲研究センターのソクラン・チトゥラコン氏が、第2フェイス（プレーからチェンマイまで、11.04-11.10）ではプレー稲研究センターのステップワンナイ氏が、第3フェイス（チェンマイからランバンまで、11.12-11.18）ではサンパトン試験場のフラカシット・ムアナムル氏とウィチャイ・クムチョムプー氏が、第4フェイス（ランバンからバンコックまで、11.19-11.24）ではチャイナート試験場のオルピン・ワタネスク嬢が、我々と共に収集作業に当たった。

旅行はバンコックを機転にタイ中央部および北部を殆どくまなく陸路を走破した。その結果、水稲100点、陸稲91点、野生稲19点、計210点（穂別系統を含めると331点）を収集することができた。これらの種子は、二分され、一方はパトタニ稲研究センターのジーンバンクに収められ、もう一方は、農業生物資源研究所植物探索導入研究チームに持ち込まれ、隔離栽培される予定である。

収集旅程を Table 1 に、走破したルートを Fig. 1 に示す。

共同研究者の多大なる尽力により、「絹のように滑らかに」探索旅行を終えることができた。今後これらの収集品がその特性評価試験を経て、有効利用されることを願うものであるが、このような情報を日本タイ両国で分かちあうことも共同探索事業の重要な任務の一つと考える。

我々が接したタイの農民は皆親切で、喜んで種子を提供してくれた。彼らの親切と協力に心から感謝する次第である。

Table 2. LIST OF COLLECTED MATERIALS (JOINT EXPLORATION OF RICE IN THAILAND,
作物種 : *Oryza*

Collection No.	Date Month	Genus & Species	Cultivar or local name	Sample P/In ¹⁾	Status ²⁾	Locality (Prov. Vill., km) & Altitude (m)	Crop season
1	Nov. 1	<i>O. sativa</i>	KHAO DAWK MALI 105	P		KOKSALUNG, PHAT THANA NIKHOM, LOP BURI, 80m	W
2	"	<i>O. nivara</i>		"	①	CHAI BADRI, LOP BURI, 80m	
3	"	<i>O. sativa</i>	unknown	"	③	BAN RAHUL, CHAISAMOTOD, BUNK, SAMPAN, PHETCHABUN, 100m	W
4	"	"	NIAW DAM	"	"	PAIKHWANG, NONG PHAI, PHETCHABUN, 130m	"
5	"	"	unknown	"	"	RIMSIMUANG, KHAO RHO, PHETCNABUV, 185m	"
6	Nov. 2	"	KHAO MOK	"	"	TUNG SAMOR, KHAC KHO, PHETCNABUV, 670m	"
7	"	"	KHAO PANGAH	"	"	KHEK NOI, KHAOKHO, PHETCHABUN, 700m	"
8	"	"	NIAW DAM	"	"	"	"
9	"	"	NIAW LAI	"	"	"	"
10	"	"	JAO DAM	"	"	"	"
11	"	"	KHAO DAM	"	"	"	"
12	"	"	unknown	"	"	KHEK YAI, NAKHON THAI, PHITSANULOK, 460m	"
13	"	"	KONE DAENG	"	"	"	"
14	"	"	PLEUK KHAO	"	"	BAN YAENG, NAKHON THAI PHITSANULOK, 410m	"
15	"	<i>O. granulata</i>		"	①	Thung Salaeng Luang National Park 380m	
16	"	<i>O. sativa</i>	LON YUNG	"	③	BAN YAEKG, NAKHON THAI PHITSANULOK, 350m	W
17	"	"	PLASIW KHAO	"	"	"	"
18	"	<i>O. nivara</i>		"	①	near WANG THONG cross, 68m	
19	Nov. 3	<i>O. sativa</i>	unknown	"	③	BAN YAENG, NAKHON THAI PHITSANULOK 265m	W
20	"	"	BEUA NAM	"	"	"	"

注) 作物種別に仕訳し, 収集品個表から整理してブロック体で記入する。1) Sample : P は集団, In は
3) Topography : ①swamp ②flood plain ③plain level ④undulating ⑤hilly ⑥mountainous ⑦others.

1990)

Cultural practice	Usage	Diseases & pests	Topography ³⁾	Site ⁴⁾	Drainage ⁵⁾	(現地主要特性データ)	Notes Name & address, etc.
low			③	①	②		recommended variety
			①	♪	④		
low			③	♪	②	brown striped hull, round grain	
♪			♪	♪	①	purple hull, waxy	
up			④	②	♪	long grain	
♪			♪	♪	②	cold tolerant, round grain	
♪			⑤	♪	①	long grain	
♪			♪	♪	♪	early, purple pericarp, waxy	
♪			♪	♪	♪	long big grain	
♪			♪	♪	♪	black hull	
♪			♪	♪	♪	nonwaxy	
♪			④	♪	♪	brown hull, draught tolerant good tillering	
♪			♪	♪	♪	brown hull, long grain	
♪			♪	♪	♪	long grain	
			⑥	♪	②		ゲンリーパー滝の上流
low			③	①	♪	long grain, good cooking quality	
up			—	—	—	very early, waxy	
			①	①	④		
up			④	②	①	white yellow hull, long grain	
♪			♪	♪	♪		水ぎらいの意

個体採取, 2) Status : ①wild ②weedy ③landrace ④improved ⑤breeder's line ⑥others.

4) Site : ①level ②slope ③summit ④depression. 5) Drainage : ①poor ②moderate ③good ④excessive

Collection No.	Date Month	Genus & Species	Cultivar or local name	Sample P/In ¹⁾	Status ²⁾	Locality (Prov. Vill., km) & Altitude (m)	Crop season
21	Nov. 3	<i>O. sativa</i>	BEUA NAM	P	③	BAN YAENG, NAKHON THAI PHITSANULOK, 265m	W
22	〃	〃	unknown	〃	〃	NONG KATAO, NAKHON THAI PHITSANULOK, 260m	〃
23	〃	〃	MAGOK DAENG	〃	〃	〃 200m	〃
24	〃	〃	HAWM TUNG	〃	〃	〃 200m	〃
25	〃	<i>O. nivara</i> ?		〃	①	〃 180m	
26	〃	<i>O. sativa</i>	KHITOM	〃	③	BAN PHRAO, NAKHON THAI PHITSANULOK, 185m	W
27	〃	〃	KHAO TIA (RD 2 ?)	〃	〃	BANF DAENG, CHATRAKAN PHITSANULOK, 190m	〃
28	〃	〃	unknown	〃	〃	KHON SONG SALUNG, CHATRAKAN PHITSANULOK, 190m	〃
29	〃	〃	KHAO PAMAH	〃	〃	BAN DAN NAHKHAM, MUANG, UTTRADIT, 110m	〃
30	Nov. 4	〃	KHAO GUM	〃	〃	MAI DIN DAN, KIAWGWANG WIANG SA, NAN, 200m	〃
31	〃	〃	RD 8	〃	④	〃 200m	〃
32	〃	〃	SAN PAH TAWNG DAW	〃	③	〃 205m	〃
33	〃	〃	unknown	〃	—	2km from WIANG SA toward, NA NOI, 220m	〃
34	〃	〃	unknown	In	③	BAN DONCHAI, NA NOI, NA NOI, NAN, 290m	〃
35	〃	〃	DAW MUEY	P	〃	〃 290m	〃
36	〃	〃	LUONG DAM	〃	〃	〃 290m	〃
37	〃	〃	LUONG DAM	〃	〃	BAN MAI, SISAKET, NA NOI, NAN, 285m	〃
38	〃	〃	unknown	〃	〃	BAN NALAP, NA NOI, NA NOI, NAN, 290m	〃
39	〃	〃	unknown	〃	〃	BAN SALA, SATHAN, NA NOI, NAN, 325m	〃
40	Nov. 5	〃	SEULAO	〃	〃	BAN PHA SING, MUANG NAN, 230m	〃

注) 作物種別に仕訳し、収集品個表から整理してブロック体で記入する。1) Sample : P は集団, In は
3) Topography : ①swamp ②flood plain ③plain level ④undulating ⑤hilly ⑥mountainous ⑦others.

Cultural practice	Usage	Diseases & pests	Topography ³⁾	Site ⁴⁾	Drainage ⁵⁾	(現地主要特性データ)	Notes Name & address, etc.
up			④	②	①		
〃			〃	〃	〃	medium maturity	
〃			〃	〃	〃	nonwaxy. yellow brown hull	
〃			〃	〃	〃	good flavour	
			①	①	④		
low			③	〃	②	purple hull	
〃			—	—	—	waxy ?	collected after harvest
〃			③	①	②	nonwaxy CL 160cm, PL 26cm	
〃			〃	〃	〃	very early, dark brown hull	ビルマの意
〃			〃	〃	〃	purple hull, waxy, purple pericarp	
〃			〃	〃	〃		Mr. DET CHANAPIT
〃			〃	〃	①	brown striped hull, early, waxy	Mr. EON RIANG SOY KUM
〃			〃	〃	②		
〃			〃	〃	〃	mixture 10 panicles	
〃			〃	〃	〃	waxy	
〃			①	〃	〃	brown hull	
〃			③	〃	〃	medium maturing brown-centered hull	
〃			〃	〃	〃	very early	鳥害
〃			〃	〃	〃	purple hull, internode and leaf, waxy	
up			⑤	②	①		

個体採取, 2) Status : ①wild ②weedy ③landrace ④improved ⑤breeder's line ⑥others.

4) Site : ①level ②slope ③summit ④depression. 5) Drainage : ①poor ②moderate ③good ④excessive

Collection No.	Date Month	Genus & Species	Cultivar or local name	Sample P/In ¹⁾	Status ²⁾	Locality (Prov. Vill., km) & Altitude (m)	Crop season
41-1	Nov. 5	<i>O. sativa</i>	PHRAE	In	③	PHASING, BOA, MUANG, NAN, 230m	W
-2	〃	〃	HAO	〃	〃	〃	〃
-3	〃	〃	SIU LAO	〃	〃	〃	〃
-4	〃	〃	SIU LAO	〃	〃	〃	〃
-5	〃	〃	SIU SAN PAH TAWNG	〃	〃	〃	〃
42	〃	〃	DAW MALAE	P	〃	PONG NONG, TANCHUM THA WANG PHA, NAN, 220m	〃
43	〃	〃	DAW NOG	〃	〃	NONG MUENG, PHA KWANG THA WANG PHA, NAN, 230m	〃
44	〃	〃	DAW GWIAN	〃	〃	HANM3, PATOA, THA WANG PHA, NAN, 240m	〃
45	〃	〃	DAW KHIAN	〃	〃	〃	〃
46	〃	〃	DAW MALET	〃	〃	HAN2, PATOA THA WANG PHA, NAN, 270m	〃
47-1-5	〃	〃	GAB OIL	In	〃	GAM, PUA, PUA, NAN, 280m	〃
48	〃	〃	JAN	P	〃	〃	〃
49	〃	〃	MUEY NAWNG -62 M	〃	④	NAMKA, PRAYAGAW PUA, NAN, 300m	〃
50	〃	〃	DAW MOG	〃	③	PATONG M3, SILAPHET, PUA, NAN, 350m	〃
51	〃	〃	DAW FUN	〃	〃	SOPYANG, PA LEO LAUNG, SUNTISOOG, NAN, 305m	〃
52	Nov. 6	〃	unknown	〃	〃	SONG KHWAE, SNIAN MUANG, NAN, 260m	〃
53	〃	〃	unknown	In	〃	〃 270m	〃
54	〃	〃	unknown	P	〃	〃 270m	〃
55	〃	〃	CHAW PEE	〃	〃	SONG KHWAE, SNIAN MUANG, NAN 560m	〃
56	〃	〃	KHAO GUM	〃	〃	BAN PHAET, CHANG MUAN, PHAYAO,	〃

注) 作物種別に仕訳し、収集品個表から整理してブロック体で記入する。1) Sample : P は集団, In は
3) Topography : ①swamp ②flood plain ③plain level ④undulating ⑤hilly ⑥mountainous ⑦others.

Cultural practice	Usage	Diseases & pests	Topography ³⁾	Site ⁴⁾	Drainage ⁵⁾	(現地主要特性データ)	Notes Name & address, etc.
up			⑤	②	①		
〃			〃	〃	〃		
〃			〃	〃	〃		
〃			〃	〃	〃		
〃			〃	〃	〃		
low			③	①	②	early	
〃			〃	〃	〃	big grain, draught tolerant	
〃			〃	〃	〃		
〃			〃	〃	〃	medium maturity	
〃			〃	〃	〃	soft waxy	
〃			〃	〃	〃		
〃			〃	〃	〃	waxy	recommended var.
〃			〃	〃	〃	grass hopper resistant, cold tolerant, G. M. resistant	
〃			〃	〃	〃	good eating quality, LGM* resistant early	(*leaf gall midge)
〃			〃	〃	〃	very early, waxy, draught resistant	
up			⑤	②	①	long grain	
〃			〃	〃	〃	purple hull, waxy, small short round grain	1 panicle
〃			〃	〃	〃	short height, long panicle, red hull	
〃			〃	〃	〃	white rachis, nonwaxy, purple apiculus	
low			③	①	②	purple hull, internode, leaf wax	

個体採取, 2) Status : ①wild ②weedy ③landrace ④improved ⑤breeder's line ⑥others.

4) Site : ①level ②slope ③summit ④depression. 5) Drainage : ①poor ②moderate ③good ④excessive

Collection No.	Date Month	Genus & Species	Cultivar or local name	Sample P/In ¹⁾	Status ²⁾	Locality (Prov. Vill., km) & Altitude (m)	Crop season
57	Nov. 6	<i>O. sativa</i>	DAW MA MAUY	P	③	HAUYRAI, SA, CHANG MUAN, PHAYAO 295m	W
58	〃	〃	BASMATI No. 1	〃	④	THAT KHING KAENG, CHUN, CHUN, PHAYAO 440m	〃
59	〃	<i>O. nivara</i> ?		〃	①	〃 430m	
60	Nov. 7	<i>O. sativa</i>	unknown	〃	③	PONG KLUA, MAE PUM MUANG, PHAYAO, 390m	W
61	〃	〃	KHAO GUM	〃	〃	〃 390m	〃
62	〃	<i>O. nivara</i>		〃	①	RONG KHU, MAE PUM MUANG, PHAYAO, 395m	
63	〃	<i>O. sativa</i>	unknown	〃	③	PA FAEK TAI, PA FAEK, MAE CHAI, PHAYAO, 410m	W
64	〃	〃	KHAO GUM	〃	〃	NONG PEARG, ROB WIANG, MUANG, CHIANG RAI, 430m	〃
65	Nov. 8	〃	RD 12 ? (RD 2 suspect)	〃	〃	PONG PURE, HUAYSAK, MUANG, CHIANG RAI, 400m	〃
66	〃	<i>O. nivara</i>		〃	①	〃 400m	
67	〃	<i>O. sativa</i>	PAH MEUD	〃	③	CHAM BON, HUAY SAK MUANG, CHIANG RAI 415m	W
68	〃	〃	KHAO GUM	〃	〃	PAMUN, PLONG, THOENG, CHIANG RAI 390m	〃
69	〃	〃	unknown	〃	〃	DAEN MUANG, YUANG CHIANG KHAM, PAYAO 410m	〃
70	〃	〃	DAW-E-HE	〃	〃	KHRUNG, KHRUNG, CHIANG KLONG CHIANG RAI 415m	〃
71	〃	〃	SAN PAH TAWNG DAW	〃	〃	〃 405m	〃
72	〃	〃	CHAO DANG	〃	〃	HOE CHANG ROD, PONGNOL, MAE CHAN, CHIANG RAI, 540m	〃
73	〃	〃	CHAO KHAO	〃	〃	〃 540m	〃
74	〃	〃	CHAO KHAO	〃	〃	〃 540m	〃
75-1-7	〃	〃	KHAO CHAO	In	〃	〃 550m	〃
76-1-11	Nov. 9	〃	SUPEE MAE CHAN	〃	〃	PA NIENG, PA SANG, MAE CHAN, CHIANG RAI, 450m	〃

注) 作物種別に仕訳し、収集品個表から整理してブロック体で記入する。1) Sample : Pは集団, Inは
3) Topography : ①swamp ②flood plain ③plain level ④undulating ⑤hilly ⑥mountainous ⑦others.

Cultural practice	Usage	Diseases & pests	Topography ³⁾	Site ⁴⁾	Drainage ⁵⁾	(現地主要特性データ)	Notes Name & address, etc.
low			③	①	②	dark brown hull, early	
〃			〃	〃	〃		
—			①	〃	④		
low			③	〃	②	red pericarp, in RD 15 field	
〃			〃	〃	〃	purple rice, waxy	
—			①	〃	④		
low			③	〃	②	red pericarp, long grain	
〃			〃	〃	〃	purple rice, waxy	
〃			〃	〃	〃	waxy, sterile hull : purple	
—			①	〃	④		
low			③	〃	②	soft eating quality, high yield, round grain, purple sterile hull	
〃			〃	〃	〃	purple, waxy	
〃			〃	〃	〃	red pericarp, in RD15 field	
〃			〃	〃	〃	brown striped hull	
〃			〃	〃	〃	early, waxy	
up			⑤	②	①	nonwaxy, red-brown hull	Hmong (Meo) tribe
〃			〃	〃	〃		
〃			〃	〃	〃	brown tipped hull	
〃			〃	〃	〃	nonwaxy	7 panicles
〃			〃	〃	〃		11 panicles

個体採取, 2) Status : ①wild ②weedy ③landrace ④improved ⑤breeder's line ⑥others.

4) Site : ①level ②slope ③summit ④depression. 5) Drainage : ①poor ②moderate ③good ④excessive

Collection No.	Date Month	Genus & Species	Cultivar or local name	Sample P/In ¹⁾	Status ²⁾	Locality (Prov. Vill., km) & Altitude (m)	Crop season
77-1-5	Nov. 9	<i>O. sativa</i>	unknown	In	③	PA NIENG, PASANG, MAE CHAN, CHIANG RAI, 450m	W
78	〃	〃	unknown	P	〃	YAO NI KOM, PASANG, MAE CHAN, CHIANG RAI 490m	〃
79	〃	〃	unknown	〃	〃	E GOA SAN SOOG, PA SANG, MAE CHAN, CHIANG RAI, 540m	〃
80	〃	〃	unknown	〃	〃	PANG POOLEAY, PA SANG, MAE CHAN, CHIANG RAI 510m	〃
81-1-10	〃	〃	unknown mixture	In	〃	PADUA, PASANG, MAE CHAN, CHIANG RAI, 530m	〃
82-1-3	〃	〃	unknown mixture	〃	〃	〃 580m	〃
83	〃	〃	PRAE DAM	P	〃	PA MIANG, PASANG MAE CHAN, CHIANG RAI 490m	〃
84	Nov. 10	〃	LUEY	〃	〃	SAN MAFAEN, TAKLA, MAE SUAI, CHIANG RAI 430m	〃
85	〃	〃	unknown	〃	〃	PA HIANG, TAKLA, MAE SUAI, CHIANG RAI 420m	〃
86	〃	〃	unknown	〃	〃	〃 485m	〃
87-1-3	〃	〃	unknown	In	〃	〃 470m	〃
88-1-6	〃	〃	unknown	〃	〃	〃 470m	〃
89	〃	〃	BASMATI No. 2	P	④	SUNTON, SUNSALEE, WIANG PA PAO, CHIANG RAI 450m	〃
90-1-5	〃	〃	PA WAENG	In	③	〃 450m	〃
91	〃	〃	DAW LEUANG	P	〃	NONG BUA, MAE CHEDI, WIANG PA PAO, CHIANG RAI, 500m	〃
92	Nov. 12	〃	MUEY NAWNG	〃	〃	MAE HA, BAN PONG, HANG DONG, CHIANG MAI 445m	〃
93	〃	〃	KHAO HAO	〃	〃	〃 600m	〃
94-1-10	〃	〃	unknown	In	〃	9km to SAMOENG 730m	〃
95	〃	〃	KHAO KHAO	P	〃	MAE SAB, SOUTH SAMOENG, SAMOENG, CHIANG MAI 520m	〃
96	〃	〃	unknown	〃	〃	PANGDA, SAMOENG, SAMOENG, CHIANG MAI 960m	〃

注) 作物種別に仕訳し、収集品個表から整理してブロック体で記入する。1) Sample : P は集団, In は
3) Topography : ①swamp ②flood plain ③plain level ④undulating ⑤hilly ⑥mountainous ⑦others.

Cultural practice	Usage	Diseases & pests	Topography ³⁾	Site ⁴⁾	Drainage ⁵⁾	(現地主要特性データ)	Notes Name & address, etc.
up			⑤	②	①		5 panicles
〃			〃	〃	〃	glabrous leaf (gl), nonwaxy	
〃			〃	〃	〃	glabrous leaf	
〃			〃	〃	〃	big grain, purple apiculus, pubescent leaf	
〃			〃	〃	〃		10 panicles
〃			〃	〃	〃	glabrous leaf	3 panicles
〃			〃	〃	〃	glabrous leaf, waxy	
low			③	①	②	purple striped hull, round grain	
〃			〃	〃	〃	good eating quality	
up			⑤	②	①		
〃			〃	〃	〃		3 panicles
〃			〃	〃	〃		6 panicles
low			③	①	②		BASMATI No. 1→ No. 4 tall→short
〃			〃	〃	〃		5 panicles
〃			〃	〃	〃	yellow hull	
〃			〃	〃	〃	soft eating quality, GM resistant	recommended var.
up			⑤	②	①	fine grain, brown hull, red pericarp	
〃			〃	〃	〃	がけくずれのま下	10 panicles Hmong tribe (Meo)
low			③	①	②	resemble to Muey Naung	
up			⑤	②	①	purple striped hull, pubescent leaf nonwaxy	Hmong tribe (Meo)

個体採取, 2) Status : ①wild ②weedy ③landrace ④improved ⑤breeder's line ⑥others.

4) Site : ①level ②slope ③summit ④depression. 5) Drainage : ①poor ②moderate ③good ④excessive

Collection No.	Date Month	Genus & Species	Cultivar or local name	Sample P/In ¹⁾	Status ²⁾	Locality (Prov. Vill., km) & Altitude (m)	Crop season
97-1-5	Nov. 12	<i>O. sativa</i>	BLEIYO	In	③	BUEK JAN, PONG YAENG, MAE RIM, CHIANG MAI 1030m	W
98	〃	〃	MUEY NAWNG	P	〃	PONG YANG NAI, PONG YANG, MAE RIM, CHIANG MAI 750m	〃
99	〃	<i>O. granulata</i>		〃	①	Northern Botanical Garden MAE SA 600m	
100	〃	<i>O. sativa</i>	unknown	〃	③	MAE KACHAN, INTAKIN MAE TAENG, CHIANG MAI 380m	W
101-1-6	Nov. 13	〃	KHAO METYAI	In	〃	MAE KA LOA, BANLUEANG, CHOM THUNG, CHIANG MAI 920m	〃
102-1-3	〃	〃	KHAO YAO (BUE PATAO)	〃	〃	〃 930m	〃
103-1-3	〃	〃	KHAO METYAI	〃	〃	〃 940m	〃
104	〃	〃	MUEY NAWNG	P	〃	BA TAUR, CHANG KERNG, MAE CHAEM, CHIANG, MAI 450m	〃
105	〃	〃	KHAO PONG KRAI	〃	〃		
106	〃	〃	JAO HAW	〃	〃		
107	〃	〃	NAM ROO DUM	〃	〃		
108	Nov. 14	〃	unknown	〃	〃	TAPA, PAPAE, MAE TAENG, CHIANG MAI 510m	W
109	〃	〃	KHAO LUEANG	〃	〃	MAE NAM KHAM, PAPAE, MAE TAENG, CHIANG MAI 700m	〃
110	〃	〃	KHAO LAI DANG	〃	〃	MAE LAO, PAPAE, MAE TAENG, CHIANG MAI 620m	〃
111-1-3	〃	〃	HEVY POOLING	In	〃	MAE PING NOI, MAE HEE, PAI, MAE HONG SON 450m	〃
112	〃	〃	KHAO LUEANG	P	〃	〃 460m	〃
113-1-4	〃	〃	KHAO PLUANG (KHAO PAE)	In	〃	HUEYPOO, WIANG TAI, PAI, MAE HONG SON 480m	〃
114	〃	〃	KHAO GUM	P	〃	PAK TANG-SAI NGHAM, MAE NATERNG, PAI MAE HONG SON 645m	〃
115	〃	〃	unknown	〃	〃	PAN PAEK, MAE NA TERNG PAI, MAE HONG SON 800m	〃
116	〃	〃	unknown	〃	〃	〃 800m	〃

注) 作物種別に仕訳し、収集品個表から整理してブロック体で記入する。1) Sample : Pは集団, Inは
3) Topography : ①swamp ②flood plain ③plain level ④undulating ⑤hilly ⑥mountainous ⑦others.

Cultural practice	Usage	Diseases & pests	Topography ³⁾	Site ⁴⁾	Drainage ⁵⁾	(現地主要特性データ)	Notes Name & address, etc.
up			⑤	②	①	glabrous leaf	Hmong tribe (Meo)
low			③	①	③		
—			④	②	①	Royal Forest Department	
up			③	①	〃	waxy, red & white pericarp mixture in front of "Intakin Gene Conservation"	
low			〃	〃	②	nonwaxy, big round grain, good eating quality	6 panicles Mr. NAIGA (Karen tribe)
〃			〃	〃	〃	nonwaxy, long grain	3 panicles Mr. SOADEE (Karen)
〃			〃	〃	〃	big grain	3 panicles Mrs. LIPAE (Karen)
〃			〃	〃	〃		Mr. SUK TANANDAI
up						Introduction from SAN PA TONG Rice Experiment Station	recommended var.
〃						〃	〃
〃						〃	〃
〃			⑤	②	①	brown striped hull, waxy, red pericarp	
〃			〃	〃	〃	mixture	Mr. MA PANGTA
〃			〃	〃	〃	waxy, red hull, good eating quality	Mr. TA KAM-UT-NUM
low			③	①	③	nonwaxy, purple striped hull	3 panicles Mr. BOON-TAM KUEYKAMFOO
〃			〃	〃	〃	waxy, good flavour, brown striped hull	〃
〃			〃	〃	②	waxy, brown striped hull	Mr. CHATLI YODNIPAN
〃			〃	〃	〃	purple hull, waxy	Mr. KHAM PUAN
up			⑤	②	①		Lahu tribe
〃			〃	〃	〃	brown striped hull, red pericarp, waxy	

個体採取, 2) Status : ①wild ②weedy ③landrace ④improved ⑤breeder's line ⑥others.

4) Site : ①level ②slope ③summit ④depression. 5) Drainage : ①poor ②moderate ③good ④excessive

Collection No.	Date Month	Genus & Species	Cultivar or local name	Sample P/In ¹⁾	Status ²⁾	Locality (Prov. Vill., km) & Altitude (m)	Crop season
117	Nov. 14	<i>O. sativa</i>	unknown	P	③	PAN PAEK, MAENA TERNG PAI, MAE HONG SON 840m	W
118	〃	〃	KHAO NOI	〃	〃	NAMRIM, SOB PONG PANG MA PA, MAE HONGSON 860m	〃
119	〃	〃	KHAO NIAW PAENG	〃	〃	〃 880m	〃
120	〃	〃	KHAO NIAW DAM	〃	〃	〃 880m	〃
121	〃	〃	unknown	〃	〃	〃 860m	〃
122	〃	〃	PA BOO	〃	〃	〃 770m	〃
123	Nov. 15	〃	unknown	〃	〃	MAE KHUM SUK, HUA PON, KHUN YUAM, MAE HONG SON 850m	〃
124	〃	〃	unknown	〃	〃	〃 850m	〃
125-1-5	〃	〃	unknown	In	〃	〃 1060m	〃
126-1-6	〃	〃	unknown	〃	〃	〃 1040m	〃
127	〃	〃	unknown	P	〃	15 km west of MAE LA NOI 820m	〃
128	〃	〃	unknown	〃	〃	〃 820m	〃
129	〃	〃	NGHAW PIN	〃	〃	LAOOP, HUEY HOM MAE LA NOI, MAE HONG SON, 1070m	〃
130-1-5	〃	〃	BEU POLO	In	〃	HUEY MHARK NHUN, THA PA POOM, MAE LA NOI MAE HONG SON 840m	〃
131	Nov. 16	〃	unknown	P	〃	MAE HOR, MAE HOR, MAE SARIANG, MAE HONG SON 1040m	〃
132-1-4	〃	〃	BEU MEU	In	〃	DOI LUEIK, MAE HOR, MAE SARIANG, MAE HONG SON 1050m	〃
133	〃	〃	unknown	P	〃	HUEY KUNG, PA PONG, SOB MOEY, MAE HONG SON 1120m	〃
134	〃	〃	unknown	〃	〃	DOK DANG, BOH SALEE, HOT, CHIANG MAI 850m	〃
135-1-2	〃	〃	unknown	In	〃	〃 850m	〃
136	〃	〃	unknown	P	〃	〃 800m	〃

注) 作物種別に仕訳し、収集品個表から整理してブロック体で記入する。1) Sample : Pは集団, Inは
3) Topography : ①swamp ②flood plain ③plain level ④undulating ⑤hilly ⑥mountainous ⑦others.

Cultural practice	Usage	Diseases & pests	Topography ³⁾	Site ⁴⁾	Drainage ⁵⁾	(現地主要特性データ)	Notes Name & address, etc.
up			⑤	②	①		
〃			〃	〃	〃	nonwaxy, small round grain	Mr. DANG JAKE (Lahu tribe)
〃			〃	〃	〃	dark brown striped hull, waxy nonwaxy mixture	〃
〃			〃	〃	〃	dark purple striped hull, waxy	〃
〃			〃	〃	〃	bright yellow white hull	〃
〃			〃	〃	〃	nonwaxy	Mr. PIBUL SUWONG
〃			〃	〃	〃	large grain, nonwaxy	
〃			〃	〃	〃	small grain	
〃			〃	〃	〃		5 panicles Karen tribe
〃			〃	〃	〃		6 panicles Karen tribe
〃			〃	〃	〃	red pericarp, nonwaxy, brown hull, glabrous	
〃			〃	〃	〃	white hull, nonwaxy, glabrous	
low			③	①	②	nonwaxy	Mr. SUDCHAI KALYA- SAMPAN (Lua' tribe)
up			⑤	②	①	5 panicles	Mr. PAWABUA WICHEINKA- JHANG (Karen tribe)
〃			〃	〃	〃		Karen tribe
〃			〃	〃	〃		4 panicles Mr. POR
〃			〃	〃	〃		Karen tribe
〃			〃	〃	〃	glabrous	
〃			〃	〃	〃	〃	2 panicles
〃			〃	〃	〃	glabrous, red pericarp	

個体採取, 2) Status : ①wild ②weedy ③landrace ④improved ⑤breeder's line ⑥others.

4) Site : ①level ②slope ③summit ④depression. 5) Drainage : ①poor ②moderate ③good ④excessive

Collection No.	Date Month	Genus & Species	Cultivar or local name	Sample P/In ¹⁾	Status ²⁾	Locality (Prov. Vill., km) & Altitude (m)	Crop season
177	Nov. 22	<i>O. sativa spontanea</i> ?		P	②	THUNG LUANG, THUNG LUANG, KHIRI MAT SUKHOTHAI 5m	
178	"	<i>O. sativa</i>	KHAO MOH	"	③	" 5m	W
179	"	<i>O. nivara</i>		"	①	TA-NODE, TA-NODE, KHIRIMAT, SUKHOTHAI 5m	
180	"	"		"	"	THUNG MUANG, WANG TABAG, PHRAN KRATAI KAMPHAEN PHET 10m	
181	"	<i>O. rufipogon</i> ?		"	"	" 10m	
182	"	<i>O. nivara</i>		"	"	PHRAN KRATAI, " , " , KAMPHAENPMET 20m	
183	"	<i>O. sativa</i>	SI NUAN	"	③	MO DAENG, WANG THONG, MUANG, KAMPHAEN PHET 60m	W
184	"	"	CHANG LAHK	"	"	" 70m	"
185-1	"	"	KHAO PANG	"	"	KHLONG LAN, KHLONG LAN PATTANA KHLONG KHLUNG, KAMPHAEN PHET	"
185-2	"	"	KHAO PANG	"	"	" 100m	"
186	"	"	KAE PHONG BAEW	"	"	" 100m	"
187-1-3	"	"	KHAO POM PAMAH	In	"	PRAI SAWAN, PANG TAWAI, KLUNG KLUNG, KAMPHAEN PHET 100m	"
188-1-2	"	"	NIAW DAM	"	"	TALHUK, KHOINAM, KHAO CHON KAN, LAT YAO, NAKHON SAWAN, 80m	"
189	"	"	KHAO NIAW	P	"	" 70m	"
190	Nov. 23	<i>O. nivara</i>		"	①	NUENG TOOM, SAKAE KRANG, MUANG, UTHAI THANI -30m	"
191	"	<i>O. rufipogon</i> ?		"	"	" -30m	"
192	"	<i>O. sativa</i>	KHAO NIAW	"	③	DON KWANG, DON KWANG, MUANG, UTHAI THANI -20m	"
193	"	"	KHAO UBON	"	"	" -20m	"
194	"	"	HOM TAWNG	"	"	HUAIPLA KHAO, DON KWANG MOO-4 MUANG, UTHAITHANI -20m	"
195	"	<i>O. rufipogon</i>		"	①	" -20m	"

注) 作物種別に仕訳し、収集品個表から整理してブロック体で記入する。1) Sample : P は集団, In は
3) Topography : ①swamp ②flood plain ③plain level ④undulating ⑤hilly ⑥mountainous ⑦others.

Cultural practice	Usage	Diseases & pests	Topography ³⁾	Site ⁴⁾	Drainage ⁵⁾	(現地主要特性データ)	Notes Name & address, etc.
			③	①	③	long red awn, black hull, low seed set, wild rice in PINGAEW	Mr. DING SUATUNG
low			〃	〃	〃	brown striped hull, large panicle hard cooking quality	
			①	〃	④		
			〃	〃	〃		
			〃	〃	〃		
low			③	〃	〃	ball, large panicle	
〃			〃	〃	①	semi-shattering	
up			—	—	—		seeds from farmer Mr. TUEN WOOKWAY
〃			③	①	①	aromatic	seeds from field
〃			〃	〃	〃	aromatic, soft cooking quality, introduced from LAOS	Mr. SAN LUANG MIEN (Yao) tribe
low			〃	〃	②	waxy, flavour, large panicle	Mr. KAO SALAIPUM
〃			〃	〃	①	purple hull	Mr. RUAM TAMSUNTIA
〃			〃	〃	〃	waxy	
—			①	〃	②	early	
—			〃	〃	④	tall	
low			③	〃	①	waxy, introduced from TAPANHIN, PHICHIT	Mr. TAWEE WONGNAK
〃			〃	〃	②	medium maturity, hard cooking quality	Mrs. SARHAI CHANGKHETKAN
〃			〃	〃	①	long grain	Mr. TAWEEKARNTAI
—			①	〃	④	tall, white awn	

個体採取, 2) Status : ①wild ②weedy ③landrace ④improved ⑤breeder's line ⑥others.

4) Site : ①level ②slope ③summit ④depression. 5) Drainage : ①poor ②moderate ③good ④excessive

Collection No.	Date Month	Genus & Species	Cultivar or local name	Sample P/In ¹⁾	Status ²⁾	Locality (Prov. Vill., km) & Altitude (m)	Crop season
196	Nov. 23	<i>O. nivara</i>		P	①	HUAIPLAKHAO, DON KWANG MOO-4, MUANG, UTHAITHANI, -20m	
197	〃	<i>O. sativa</i>	PORN SAWAN	〃	③	NHONG KAE, NHONG KAE, MUANG, UTHAITHANI -20m	W
198	〃	〃	C-SI (C-4) (susp C 402)	〃	④	〃 -20m	〃
199	〃	〃	KHAO TAENG MO	〃	③	KHAONOI, NHONG MAKHA MUANG, UTHAI THANI 0m	〃
200	〃	〃	KHAO SA-MER	〃	〃	KHLONG PHO, TUNG-NA-THAI THAP THAN, UTHAITHANI 0m	〃
201	〃	〃	SAI-YUD	〃	〃	〃 0m	〃
202	〃	〃	LEUANG YAI 148	In	〃	HUAI PA POK, BANRAI BAN RAI, UTHAITHANI 150m	〃
203-1-4	〃	〃	LEUANG 1	〃	〃	HUAINAMBO, BANRAI BANRAI, UTHAITHANI 150m	〃
204	〃	〃	KHAO NIAW	P	〃	〃 150m	〃
205	〃	〃	KHAO FAIMAI	〃	〃	〃 160m	〃
206	〃	〃	KHAO KASET	〃	〃	NHONG MAMONG, NHONGMA-MONG, WATSING, CHAI NAT 40m	〃
207	〃	〃	HAAH RUANG	〃	〃	〃 40m	〃
208	〃	〃	PUANG PAYAWM	〃	〃	DONTOOM MOO-5, NHONG BUA, WATSING CHAINAT 20m	〃
209	Nov. 28	<i>O. officinalis</i>		〃	①	MUENG NONGTHABURI 20m	〃
210	〃	<i>O. ridleyi</i>		〃	〃	BAN KLUAI, NONGTHABURI 10m	〃

注) 作物種別に仕訳し, 収集品個表から整理してブロック体で記入する。1) Sample : P は集団, In は
3) Topography : ①swamp ②flood plain ③plain level ④undulating ⑤hilly ⑥mountainous ⑦others.

Cultural practice	Usage	Diseases & pests	Topography ³⁾	Site ⁴⁾	Drainage ⁵⁾	(現地主要特性データ)	Notes Name & address, etc.
—			①	①	④	short height	
low			③	〃	②	medium maturity, long grain	
〃			〃	〃	〃		Mr. PRATEEP INTASUWAN
〃			〃	〃	④	long grain, high milling recovery	Mrs. JAMRUN HATTABOON
〃			〃	〃	②	uniform growth	Mrs. NORI THONGLHUAE
〃			〃	〃	〃	dense compact panicle	Mr. LAI NAMAWAT
up			④	〃	①	brown hull, round grain, glabrous leaf (gl)	one panicle (recommended var.) Mrs. NARI BUNRAW
〃			〃	〃	〃		4 panicles Mr. AE CHAOPA
〃			〃	〃	〃	waxy	〃
〃			〃	〃	〃		Mrs. TONG KAEM
low			③	〃	③	tall, long grain	Mr. UBOL JOBSRI
〃			〃	〃	〃		Mr. TERM LAMPANBONG
〃			〃	〃	②	early, resistant to pests	Mr. THONGSA KWANTUEN
			①	〃	④		
			〃	〃	〃		

個体採取, 2) Status : ①wild ②weedy ③landrace ④improved ⑤breeder's line ⑥others.

4) Site : ①level ②slope ③summit ④depression. 5) Drainage : ①poor ②moderate ③good ④excessive