

# The Community of Practices “Concept applied to rice production in the Mekong Region: Quick conversion of popular rice varieties with emphasis on drought, salinity and grain quality improvement



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## Objectives:

- Development of backcross introgression lines coupled with marker-assisted selection.
- Validation of converted materials for traits incorporated, yield and other agronomic characteristics in target locations.

Technology and information transferred to participating countries through workshops and trainings

A photograph of two water buffaloes standing in a shallow pond. The water is calm, reflecting the surrounding greenery and the buffaloes themselves. The background shows a dense line of trees and foliage under a clear sky. The overall scene is peaceful and rural.

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## Target countries and rice varieties:

### Mekong Region:

Thailand – **IR57514**, a widely adapted cultivar in the Mekong Region due to tolerance to flooding and drought but lacks of good rice quality traits.

Laos – **Thadokham 1 (TDK1)**, a glutinous rice variety grown in large rice planting areas in Laos but is non aromatic.

Myanmar – **IR53936**, a high yielding variety targeted for salinity tolerance. Manawthukha, a high yielding variety targeted for aroma.

Cambodia – **CAR3** is a drought tolerant variety but lacks aroma and rice quality traits.

A background image showing two water buffaloes wading through a shallow rice paddy field. The water is clear, reflecting the surrounding greenery and the buffaloes. The scene is set in a rural, agricultural landscape.

# Outputs

- Capacity building in
  - Human resources
  - Molecular markers
  - Phenotyping protocols
  - Laboratory protocols
  - Training materials
- Advanced breeding materials
  - IR57514 + aroma and cooking quality
  - TDK1 + aroma + submergence
  - CAR3 + aroma and cooking quality
  - IR53936 + salt tolerance  
Manawthukha + aroma and cooking quality

[http://dna.kps.ku.ac.th/mas\\_gcp](http://dna.kps.ku.ac.th/mas_gcp)

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HOME

Organizing Unit  
Participating institutes

COMMUNITY OF PRACTICES

Written by Jonaliza Slangliw  
Workshop, 05 February 2007

CHINA  
Guangxi Province  
Yunnan Province

MYANMAR

LAOS

THAILAND

CAMBODIA

VIETNAM

Community of Practices

Home - Workshop - Workshop in RGDU - May 21-31, 2007 - Result - Result

MENU

Workshop

Workshop in RGDU

- May 21-31, 2007
- October 2007
- April 2008

Workshop onsite  
On Target Field Evaluation

RESULT

By Jonaliza Slangliw, on ๒๕, 08 กันยายน 2007 **NEW**

Views: 10

Published in: May 21-31, 2007, Result

Result 1  
CARDI's Result

Result 2  
IAFRI's Result

Result 3  
DAR's Result

Home - Workshop - Workshop in RGDU - May 21-31, 2007 - Result - Result

DNA ISOLATION-MYA

By Administrator, on ๒๕, 08 กันยายน 2007

Views: 1

Published in: August 2007 at BAR, Video

The Community of Practices  
Concept Applied to Rice Production in the Mekong Region: Qualitative Conversion of Popular Rice Varieties with Emphasis on Drought Tolerance and Grain Quality Improvement

Cambodian Group

Breeding Program of  
Salt Tolerance Rice using Marker  
Assisted Selection in Myanmar

Tin Tin Myint & Thida  
Department of Agricultural Research (DAR)  
Myanmar  
21-30 May 2007

The community of practices  
applied to rice production in the Mekong  
region: quick conversion of popular rice varieties with  
emphasis on drought, salinity and grain quality  
improvement

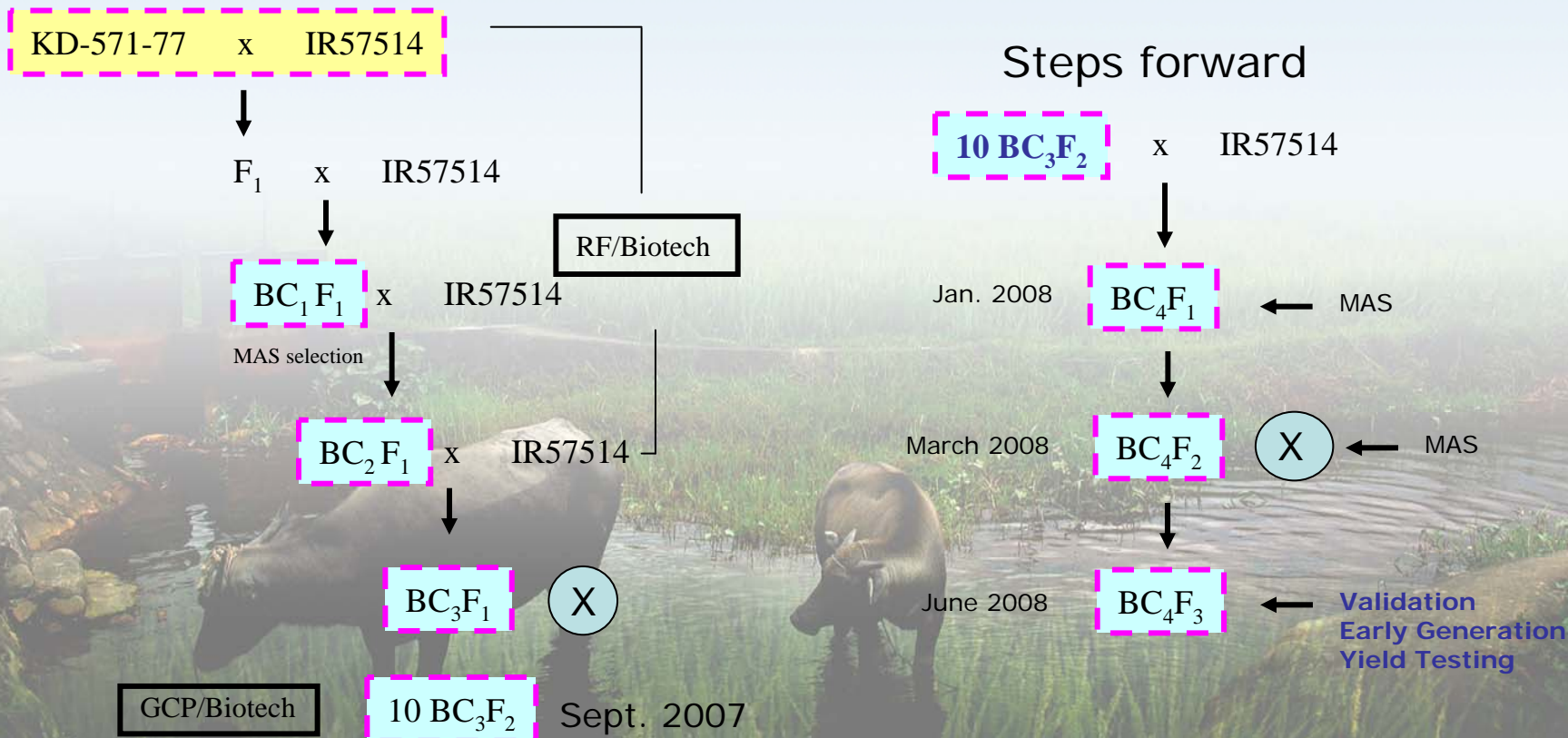
Report

Department of TDK 1 for Aroma and Cooking Quality  
Traits using Marker-assisted Selection

# Breeding Outputs

Thailand: RGDU and UBN aim to improve IR57514 to be aromatic and with good cooking qualities. IR57514 is a widely adapted cultivar in the Mekong Region due to tolerance to flooding and drought.

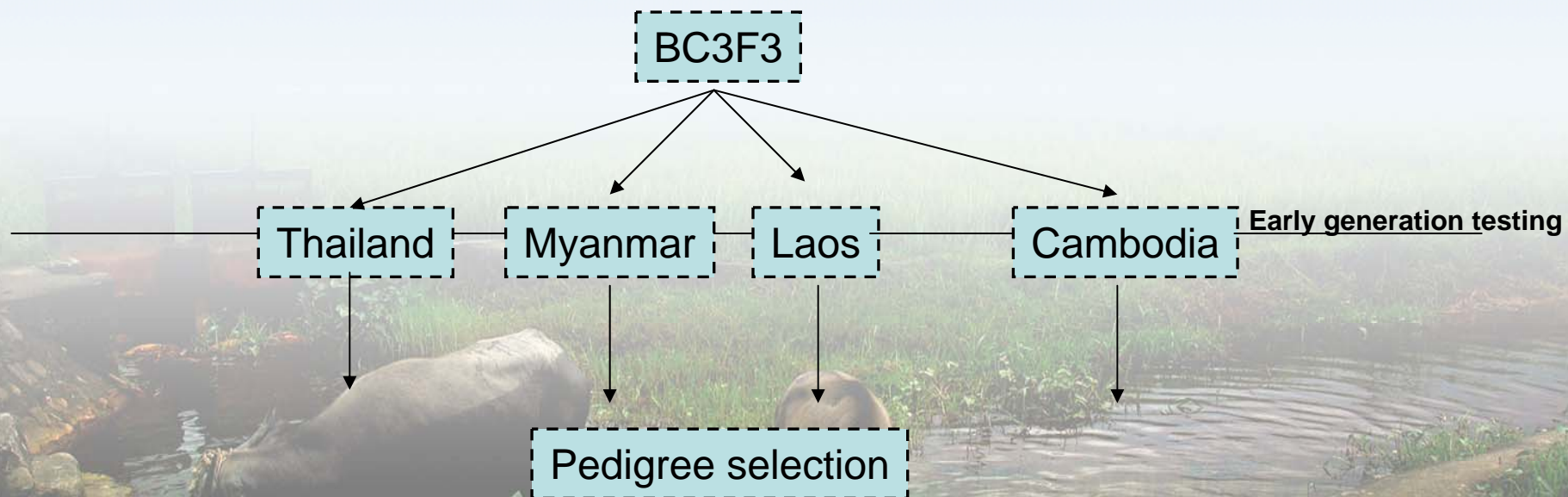
## Breeding Scheme for Cooking Qualities



# Breeding Outputs

Improved IR57514 (aromatic and good cooking qualities) will be used as Breeding material to strengthening the collaboration in the Mekong region

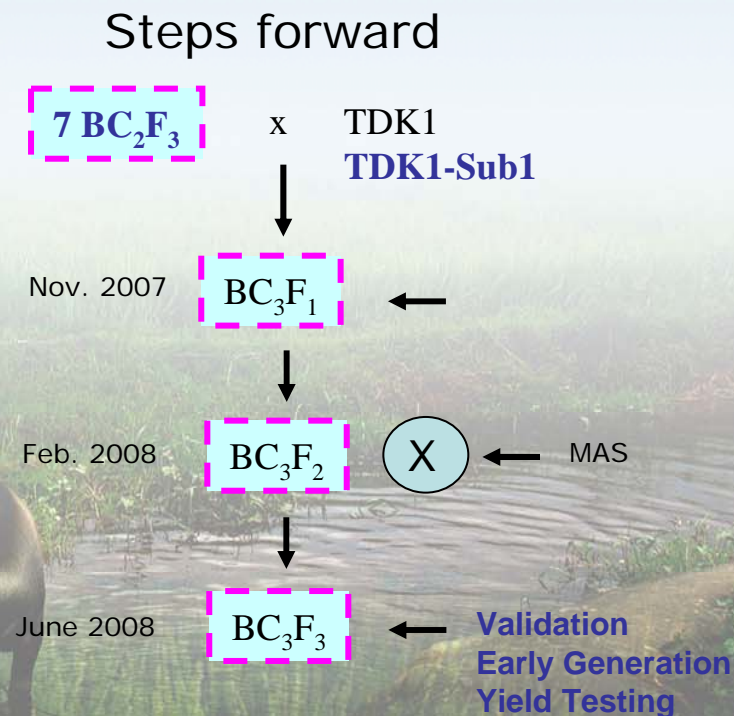
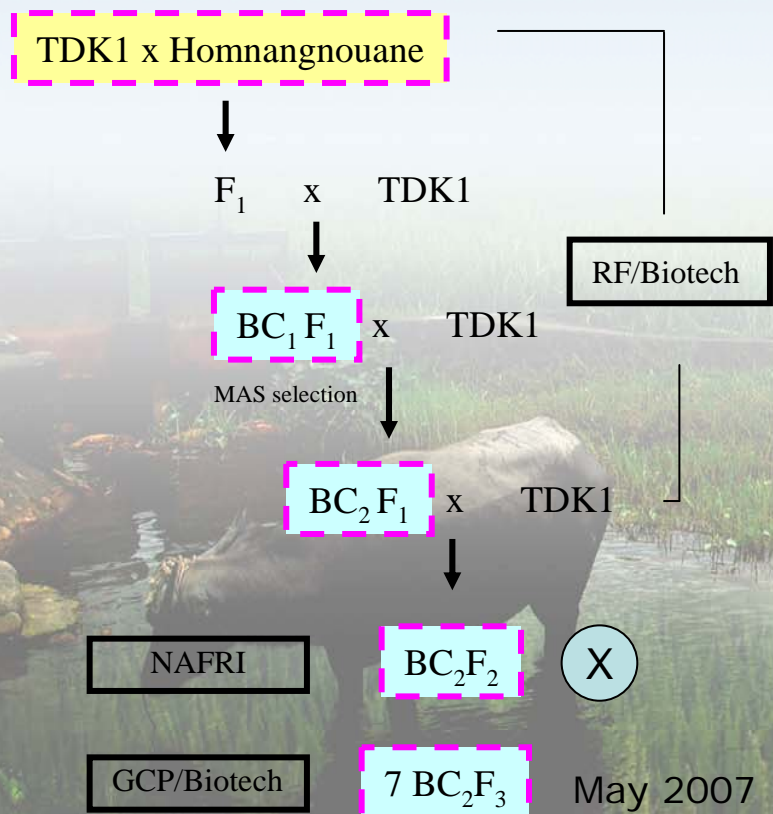
IR57514 is a widely adapted cultivar in the Mekong Region due to tolerance to flooding and drought.



# Breeding Outputs

Laos: Glutinous rice is highly consumed in Laos, thus **NAFRI** pays attention to improve aroma in **TDK1** which is a well accepted rice variety to consumers, using **Homnangnouan** as the donor in MAS-backcrossing method.

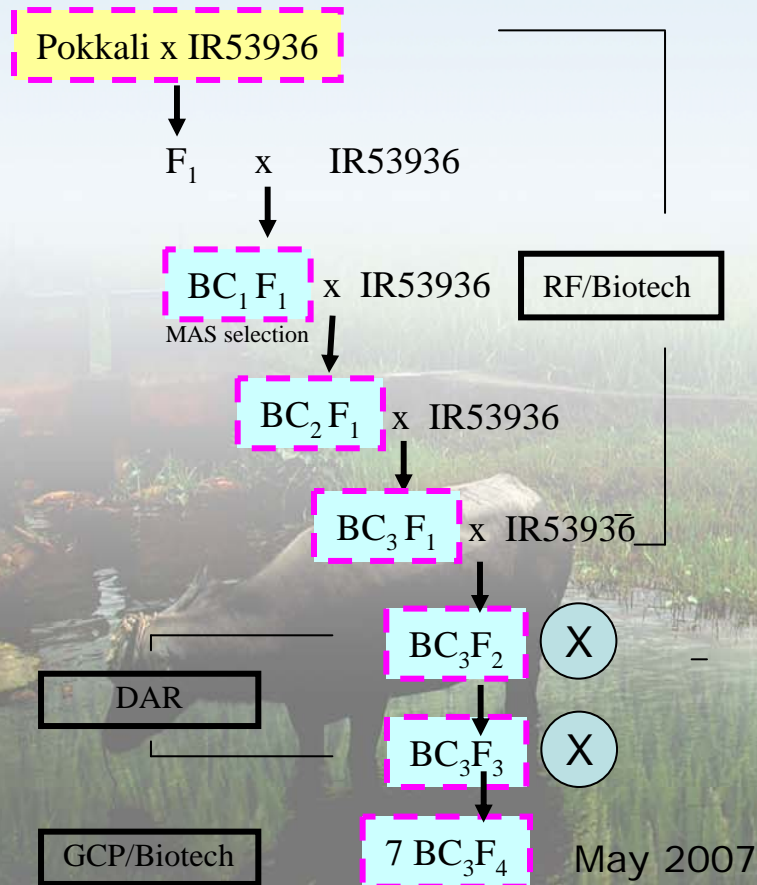
## Breeding Scheme for Cooking Qualities



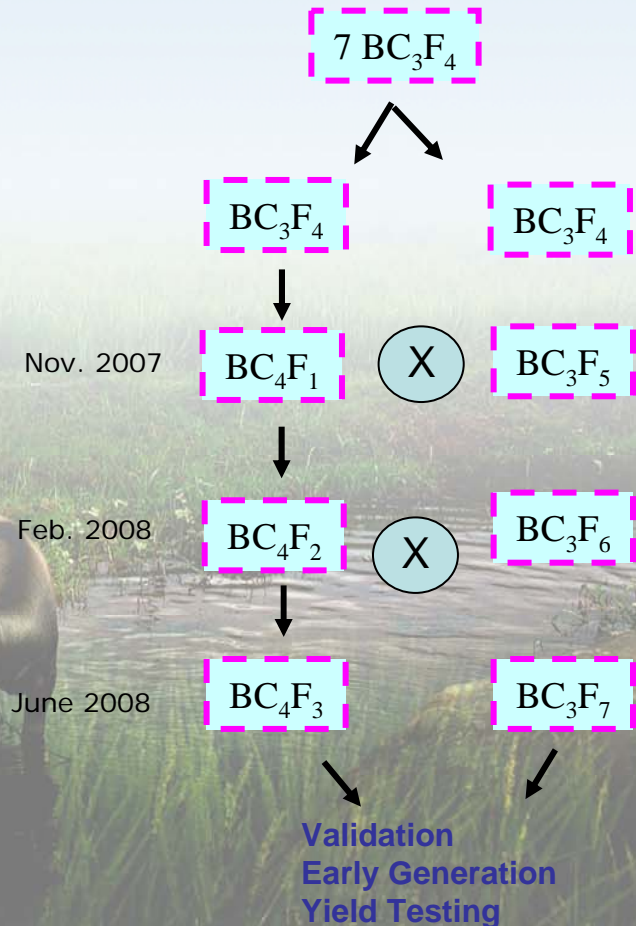
# Breeding Outputs

Myanmar: **DAR** targeted to improve salinity tolerance of **IR53936** by transferring salinity gene from **Pokkali**. IR53936 is a high yielding variety occupying 394,452 ha of rice planting area in Myanmar.

## Breeding Scheme for Salinity Tolerance



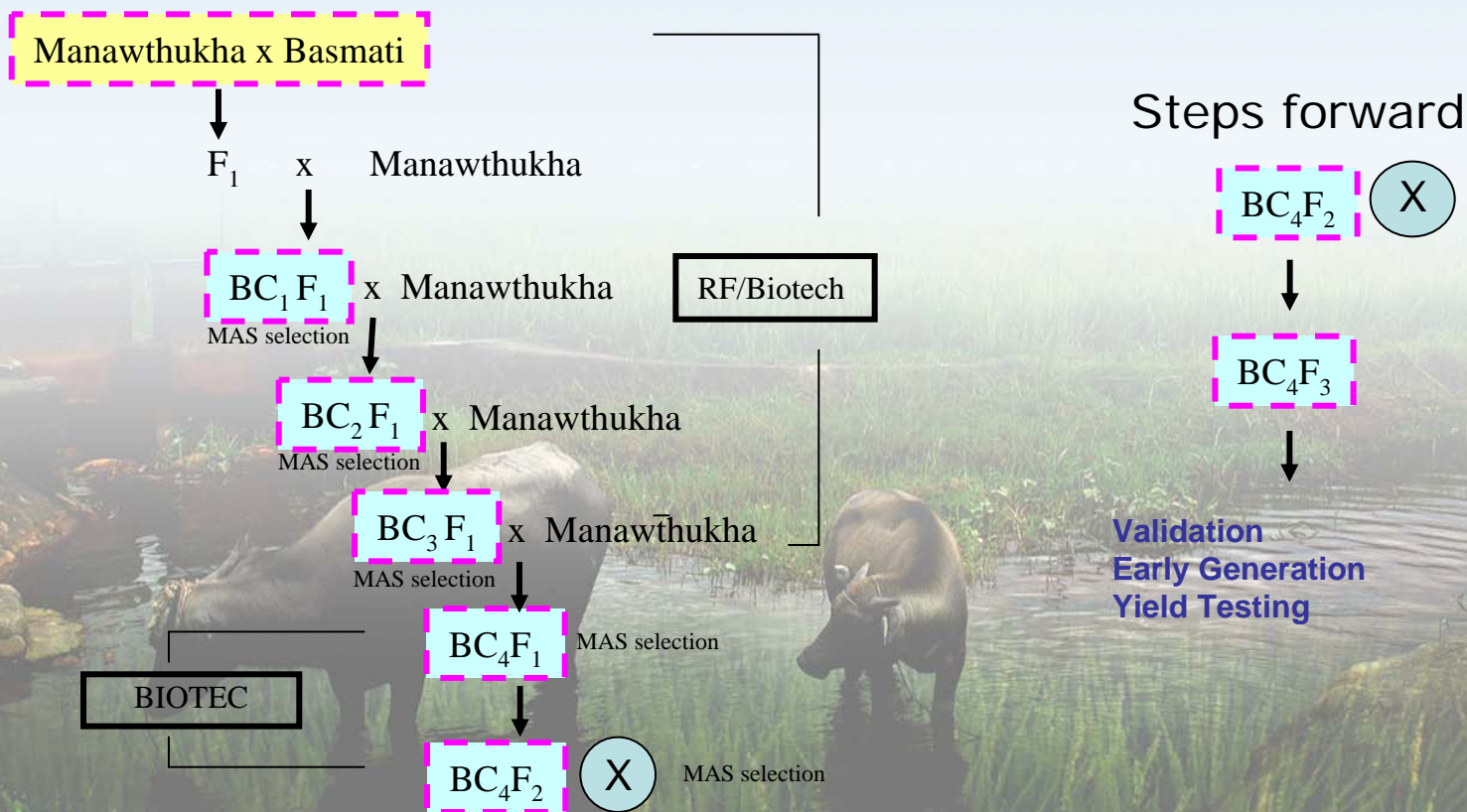
## Steps forward



# Breeding Outputs

Myanmar: **DAR** targeted to improve rice quality of **Manawthukha** by transferring rice quality genes from **Basmati**. Manawthukha is planted in 22% of rice planting area in Myanmar but this variety lacks aroma.

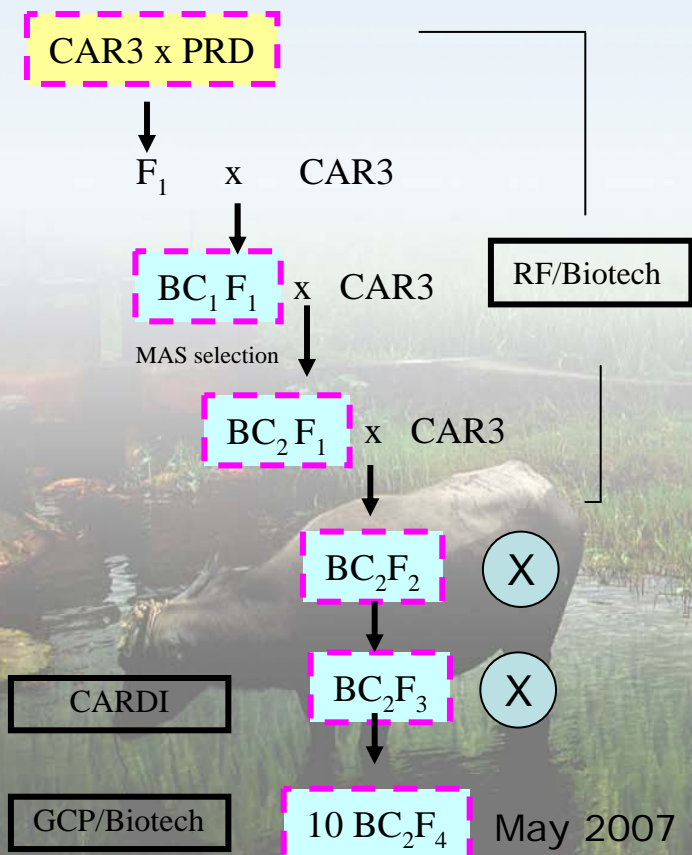
## Breeding Scheme for Rice Quality



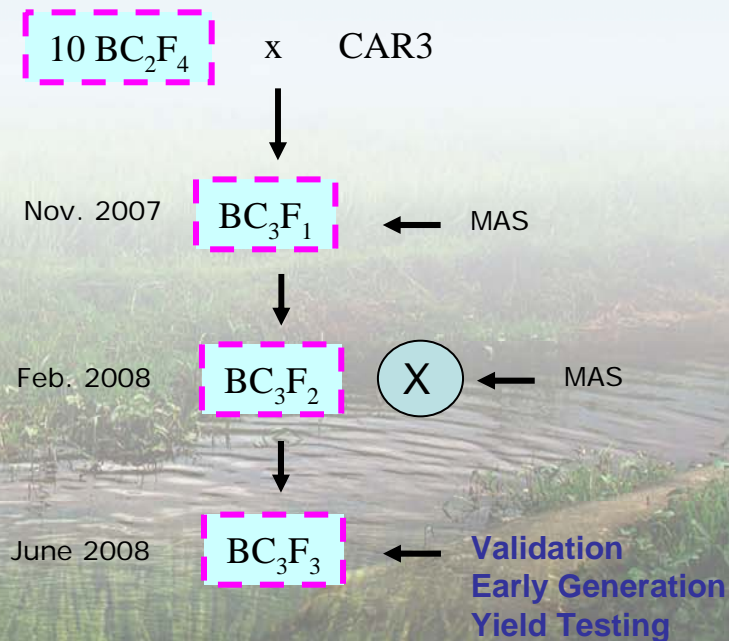
# Breeding Outputs

Cambodia: **CARDI** would like to improve cooking qualities such as aroma, amylose content (AC) and gel consistency (GC) of **CAR3** variety which is known as a drought tolerant rice.

## Breeding Scheme for Cooking Qualities

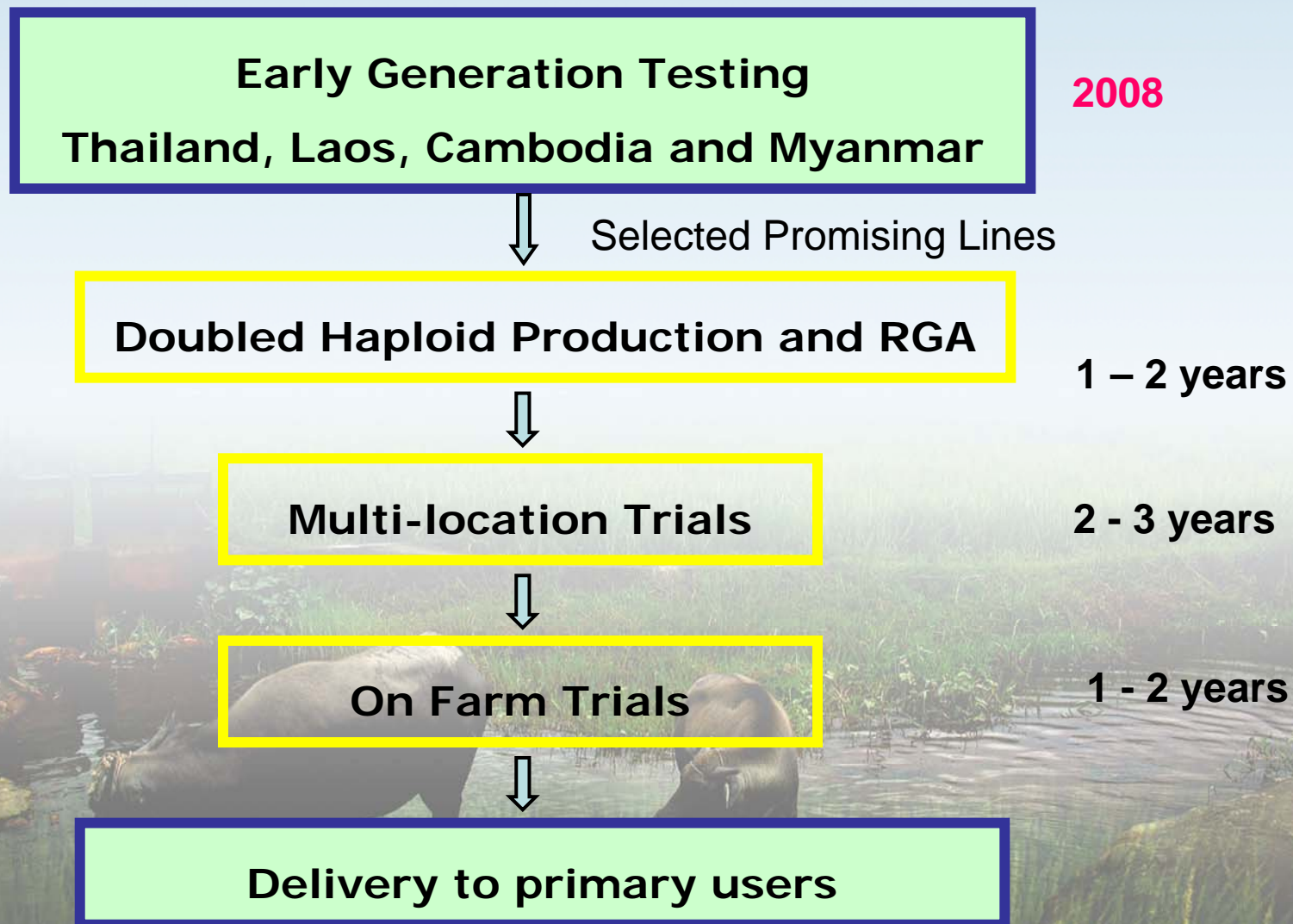


## Steps forward



# Research Plans

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# Transfer Plan to Primary Users

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## Improved IR57514

- Validation experiments for target traits
- Adaptation and yield trials in Thailand, Laos, Cambodia and Myanmar through cooperation with breeders in national agricultural research stations in each country.
- Conduct farmers' participatory testing to best assess the product quality and acceptance to final users.



# Constraints to plans of transfer

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- **Adoption of new variety by local farmers in each regions.**
- **Seed production (long term).**
- **Source of seed distribution (long term).**



# Transfer Plan to Primary Users:

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## Improved TDK1

- Validation experiments for target traits
- Adaptation and yield trials in Laos to be facilitated by breeders of NAFRI.
- Conduct farmers' participatory testing to best assess the product quality and acceptance to final users.



TDK 1

# Constraints to plans of transfer

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- Primary Users lack of knowledge to use improved varieties
- In general they have experience for using local varieties
- Lack of the company to produce the seed for farmer
- The farmers lack of credit to buy the fertilizer or the seed or others.



# Transfer Plan to Primary Users:

## Improved IR53936 and Manawthukha

- Validation experiments for target traits
- Adaptation and yield trials in Myanmar to be facilitated by breeders of DAR.
- Conduct farmers' participatory testing to best assess the product quality and acceptance to final users.



IR53936



Manawthukha

# Constraints to plans of transfer

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# Transfer Plan to Primary Users:

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## Improved CAR3

- **Validation experiments for target traits**
- **Adaptation and yield trials in Cambodia to be facilitated by breeders of CARDI .**
- **Conduct farmers' participatory testing to best assess the product quality and acceptance to final users.**
- **Basic seed production of promising lines or released varieties by CARDI**
- **Farmers could get seed of improved variety through on-farm adaptive trial, or**
- **Local seed company will multiply and distribute to farmers**



**CAR3**

## Constraints to plans of transfer

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- More efforts shall be made to raise the awareness of the new technology/variety
- Seed of improved varieties may become impure immediately when improper handling of post-harvest product
- Seed produced and distributed by seed company may not be affordable by many poor farmers



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**Thank you**

