Agronomic Trials and Demonstrations in Lao PDR: preliminary result and discussion

Mid-Term review
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Australian Government
Australian Centre for International Agricultural Research

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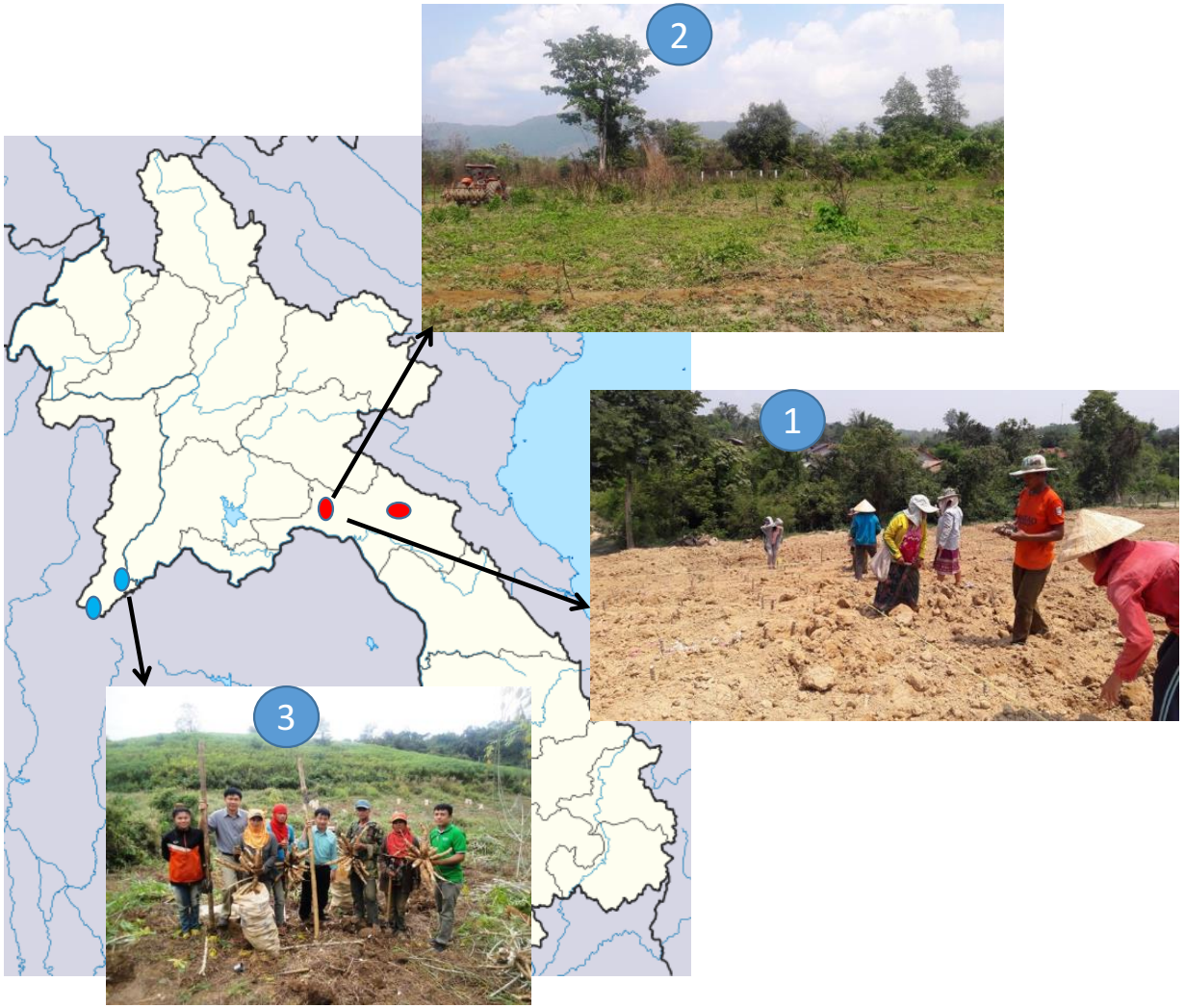
Introduction

- Location of trials
- Current trials and purpose
- Preliminary discussion – trials not harvested yet
- Constraints and opportunities
- Plans for 2018

Trial sites

- Two province: (Xayaburi and Bolikhamxay)
- Four sites:

- **Bolikhamxay**: (1) Bolikhan and (2)Viengthong
- **Xayabulri**: (3) Paklay and (4) Kheanthao



What we did and why

- Variety assessment – 7 varieties (4 locations)
  - Farmers have little knowledge of varieties they are growing
  - Performance varies in different location
  - Develop models for dissemination well adapted varieties
- Nutrient management – 6 treatments (4 locations) -
  - No farmers currently using fertiliser.
  - Demonstrate the economic returns of fertiliser treatments,
  - Risk analysis
  - Work with Government and industry to promote robust recommendation
  - Promote the development of easy to use fertiliser blends (or import from Thailand)
- Intercropping – 4 intercropping systems (1 location)
  - Diversify income sources
  - Control erosion

What varieties were used

	7 Varieties
1	Kasetsart 50 (KU 50)
2	Rayong 9 (R9)
3	Rayong 11 (R11)
4	Rayong 72 (R72)
5	KM 140
6	KM 21-12
7	Current planting variety by local farmers

KU 50

R11

Fertiliser treatments

Treatment	Actual fertilizer application (kg ha^{-1})			
	Urea (46-0-0)	TSP (00-42-00)	KCL	Manure
Control (00N-00P-00K)	-	-	-	-
NP low rate without K (40N-10P-0K)	87.00	54.60	-	-
Balanced NPK low rate (40N-10P-40K)	87.00	54.60	80.30	-
Balanced NPK low rate (40N-10P-40K)+Manure (5 t/ha)	87.00	54.60	80.30	5,000
Available fertilizer in local market (15-15-15) at 40N-40P_2O_5-40K_2O	266.65			-
Balanced NPK high rate (80 N-20P-80K)	173.90	109.10	160.60	-

Commonly used on rice and available in markets

Compound

Urea

TSP

KCL

Difficult to obtain in local markets

Intercropping

- We conducted one site at the farmer field in Paklay site (no.3)

Cassava: Rayong 72
Experimental design: RCBD
Replication: 3 reps.
Spacing:
- Cassava : 1.2m x 0.8m
- Associated crops: 0.3m x 0.3 m (planted at the middle of rows of cassava)
- Plot size: 5m x 6m=30 m^2

	Treatments
1	Cassava monoculture
2	Cassava + mungbean
3	Cassava + peanut
4	Cassava + yard long bean

Preliminary observation and discussion



Intercropping

- **ACIAR LARF activity**
  - Cassava intercropping conducted in 2016-17.
  - Linked with ACIAR project with project support
  - Trial site in Kheanthao

Treatment	Legumes	cassava yield	Total yield
	t ha^{-1}	t ha^{-1}	t ha^{-1}
Cassava only	-	19.8	19.8
Cassava +Mung bean	0.83	21.3	22.13
Cassava+Peanut	0.71	25.5	26.21
Cassava+Soy bean	0	24.7	24.7

- **ACIAR value chain project**
  - Did not get data of legumes due to crop failure
  - Low germination of legumes due to high rainfall
  - Pest injection during flowering stage
  - Farmer need to try again in 2018 as the remains some interest

Preliminary assessment of genetic impact

- Witches broom (CWB)
- Bacteria bright (CBB)

- KU 50 showed more symptom than other
- Infected planted in farmer fields were observation

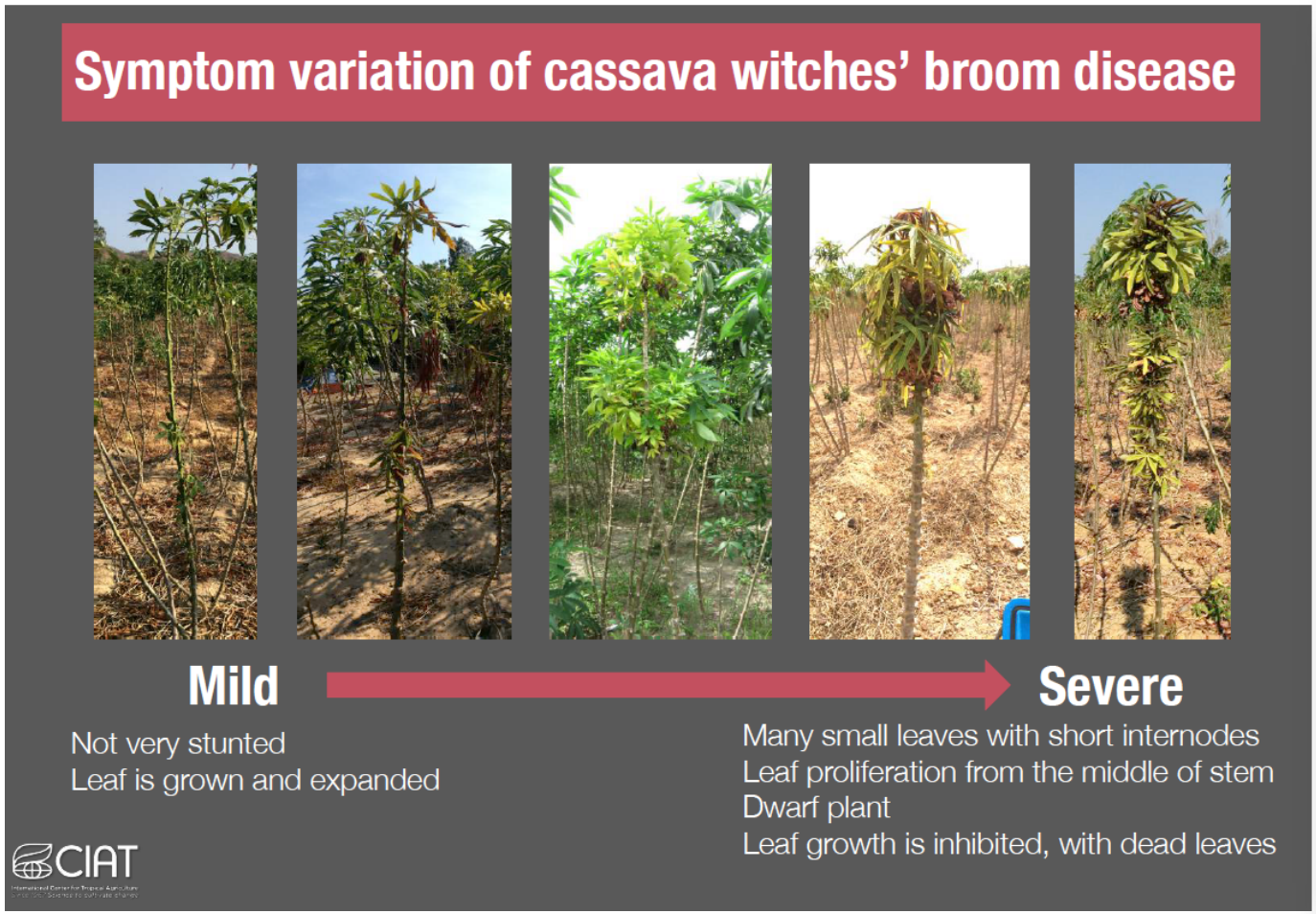
KU50

Rayong11

Preliminary assessment of soil management

- Trials established on land with low fertility after several years of production
- Symptoms more evident in low and zero treatments
- Plan to monitor incidence and severity during harvest

Monitoring witches broom



Challenges and constraints

- Disease – cassava witches broom
- Interest from private sector and previous relationship with farmers
  - Own farmers money, not trusted by farmers
- Availability of fertiliser in Districts or Province markets
  - Need to purchase from Thailand
- Soil fertility declining
- Lack of cleaned planting material
- Farmers lack of knowledge: Soil fertility management, pest-diseases management and suitable variety.

Opportunities and new ideas

- Demonstration on soil fertility management and enhance access to suitable fertiliser
  - Link with MOIC and private sector
- Evaluation of new clones at ARC
  - Assess promising lines with farmers later in the project after initial screening
- Demonstration of disease management
  - More systematic evaluation and demonstrations established.
- Developing systems and markets for accessing clean planting material
  - Need for clean source as current material in trials in high risk
- Developing extension material in conjunction with trader brochures

Plans for linking with value chain actors

- Who are the stakeholders
  - Starch factories, Chip factories, traders, DAFO, MOIC

- Current activities and partnerships
  - Limited formal arrangements with private sector with plans to involve them in upcoming field days
  - Factories and traders have acted as key informants, show interest, but not commit resources yet.

- Plans for 2018
  - Field day during harvest of existing trials
  - Meeting with DAFO, MOIC, Factories, Farmer leaders at District/Province level
  - Central policy dialogue in 2018 and include non project province stakeholders

  - Identify key traders with interest to establish trials and multiplication sites
  - Primary clonal selection of 39 accessions.
  - Study tour to Thailand
  - Distribute handbook and posters for farmers

Thank you

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