Alliance

Bioversity International

CIAT
International Center for Tropical Agriculture
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ACIAR AGB-2018-172

Objective 2 & 4.2

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Final Review

October 2023, Tay Ninh, Vietnam

CGIAR

Bioversity International and the International Center for Tropical Agriculture (CIAT) are CGIAR Research Centers.
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Lao agronomy team

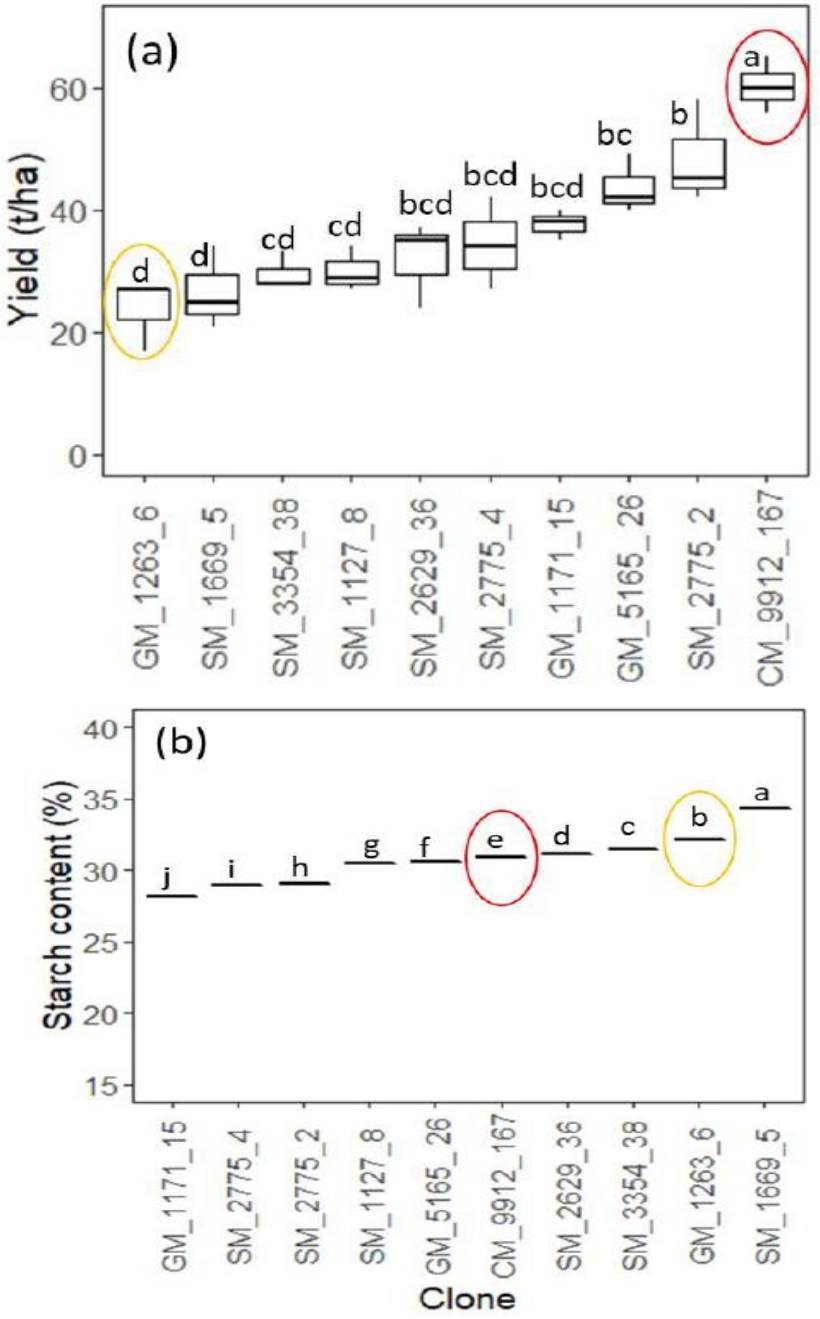
New Clone: 39 Genotypes

- New CIAT Clone: 39 genotypes from Vietnam early 2018 for evaluation in Laos, especially plant type, fresh root yield and starch content
- Season 2019-20, continued planting 39 genotypes for evaluation similar objective.
- After two years, we selected 10 better genotypes (good plant type, high yield, high starch content)

Note: The first and second years, did not analyze data

Screening for yield and starch content of 10 selected clones derived from breeding program of CIAT

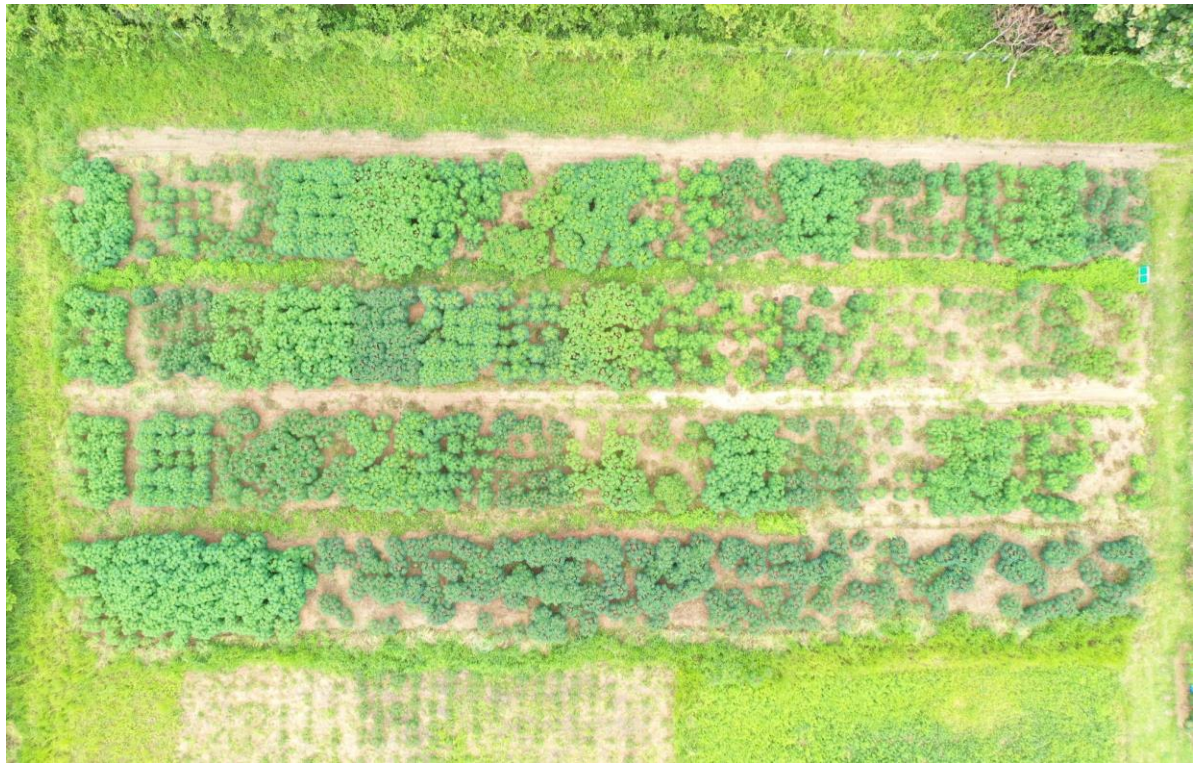
- Continued third year for yield trial in the season 2021-22 with 10 new clones. The trial with three replications.
- The result showed CM9912-167 in the red circle got highest yield and high starch content. And SM 1669-5 in the yellow circle got highest starch content and lowest root yield
- End season, selected 6 best root yield and starch content



Multilocation trial with CMD resistant and CIAT clone in comparison with current popular varieties

In the season 2022-23, the multilocation trial started in two locations:

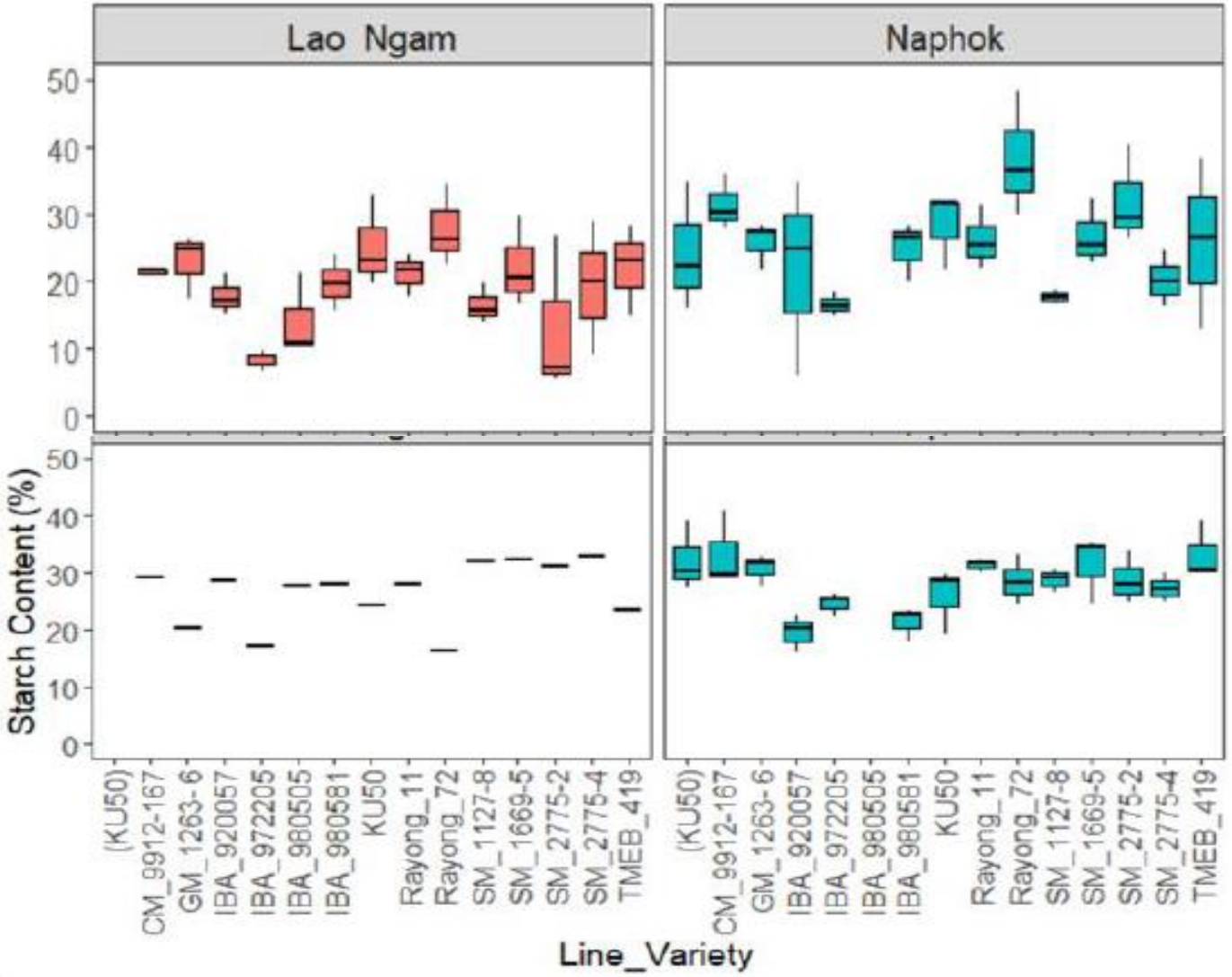
- 14 varieties (6 CIAT clones, 5 varieties from IITA, and popular variety KU50, Rayong 11 and Rayong 72)
- Comparing on root yield and starch content
- Two Locations:
  - One at Naphok (NAFRI research center, central Laos)
  - One at Lao Ngam district, Salavanh province, southern Laos



Multilocation trial with CMD resistant and CIAT clone in comparison with current popular varieties

The result of yield difference

- Rayong 72 showed highest yield in both locations
- SM2775-4 got highest starch content in Lao Ngam but CM9912-167 got highest starch content in Naphok



Continue multilocation trial of exotic varieties with CMD resistant and CIAT advanced clone in comparison with current popular varieties

In 2023-24, continue more multilocation trials to **five** locations

- Two trials in the south of Laos (LaoNgam district, Salavanh province and Thateng district, Sekong province)
- Two trials in the central of Laos (Sanakham district, Vientiane province and Bolikhan district, Bolikhamxay province)
- One trial at Naphok, NAFRI research center

All trials are on going now

Section of CMD resistance clones in Lao PDR

- Season 2020-21, received a total of ~4200 true seeds from 32 unique crosses were imported to Vientiane from Hawaii (NextGen cassava project). Germinated seeds were plant at Naphok.
- F1 - Total 493 clones planted to the field
- F1C1 - Season 2021-22, selected 98 clones from 493 clones and plating to the field for plant type, root yield and starch content evaluation and + 4 commercial varieties

Section of CMD resistance clones in Lao PDR - continue

- From F1C1 (2021-22), selected 32 clones from the 98 using MAS and plant type.
- PYT - Season 2022-23, using 32 clones + 4 commercial checks
- Two location (one at Naphok, NAFRI research center, Central Laos) and one at DAFO station in Thateng district, Sekong province, Southern Laos)

These trials are on going to be harvested early 2024

The core collection plants

- Total core collection plants from tissue culture are 86 lines (clones)
- Total plants from 86 lines are 921 plants
- Maintaining in the field for future experiments to identify sources of resistance to CWBD
- Cuttings in disease screen house for inoculation trials.

Conclusion

Some genotypes the yield very different between year some year high yield, but some year got low yield.

Some genotypes depend on planting method, planting in line got low yield, but for yield trial got high yield. And some genotypes the yield depend on location:

- CM9912-167 had low yield in season 2018-19 and 2019-20, because ten plants in one line but for yield trial got highest yield and high starch content in season 2021-22 and 2022-23
- SM 2775-2 got high yield in Naphok (central of Laos) but low yield in Lao Ngam (the south of Laos)
- SM 2775-4 got low yield in Naphok (central of Laos) but high yield in Lao Ngam (the south of Laos)
- TMEB419 has high yield and high starch content, but susceptible to CWBD
- IBA972205 and IBA980505 have more branching, bad plant type
- IBA972205 low yield and starch content

Thanks

Australian Government

Australian Centre for International Agricultural Research

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