# DOA PROJECT

## Research and Development on Sweet Potato in Thailand


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**Department of Agriculture (DOA)**


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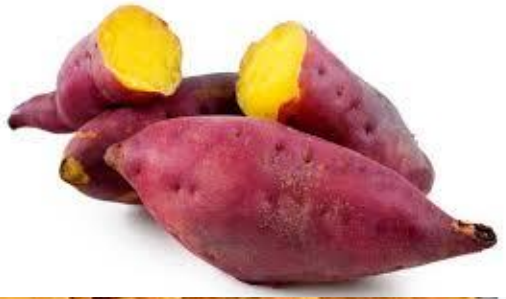
**AVRDC Research and Training Station ESEA**
**Kamphaeng Saen, Nakhon Pathom, Thailand**

# Introduction

## Sweet Potato



- sweet potato (*Ipomoea batatas* L.) the 7th most important food crop in the world.
- More than a billion people worldwide consume sweet potato and global total crop production exceeds 127 million tons.

Source: The Wikimedia Foundation, 2015

Sweet potato roots

| Scientific classification | |
|---|---|
| Kingdom: | Plantae |
| (unranked): | Angiosperms |
| (unranked): | Eudicots |
| (unranked): | Asterids |
| Order: | Solanales |
| Family: | Convolvulaceae |
| Genus: | *Ipomoea* |
| Species: | ***I. batatas*** |

**Binomial name**

***Ipomoea batatas***

(L.) Lam.

# Introduction

- Sweet potatoes have a valuable nutrition as follows

Micro nutrition: Starch, Sugars, Fat and Protein

Minerals: Calcium, Iron, Magnesium, Manganese Etc.

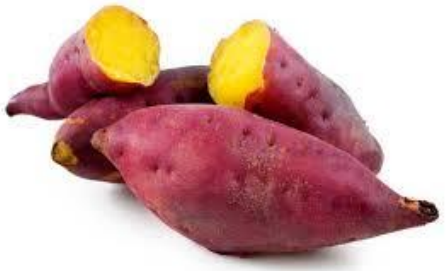
-Sweet potatoes have abundant antioxidants in storage root flesh as follows

- Orange flesh: Beta carotene

- Purple flesh: Anthocyanin

- Sweet potatoes can be grown in various environment and can be adapted well .

Source: The Wikimedia Foundation, 2015



# Utilization of sweet potato in Thailand

# Sweet Potato Products in Thailand

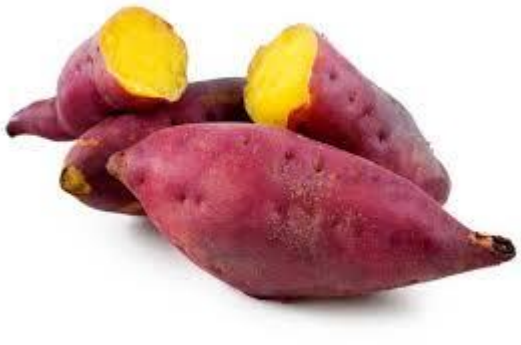
# Sweet Potato Products in Thailand

# Sweet Potato Products in Thailand



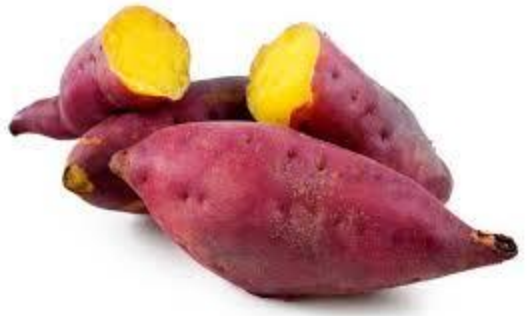

# Problems of sweet potato production in Thailand

- Lack of good varieties for consumption and processing. That can be suitable for each area.
- Low yield due to was destroyed by pesticides.
- Poor quality such as Flavor, Excessive fiber in storage root flesh.



# Objective

- **To develop the new Sweet potato varieties which will be suitable for each areas.**
- **To improve the new varieties in order to high yield, good flavor for consumption.**



# Operations

**The process of sweet potato varieties breeding,**
**Department of Agriculture's process consist of 6 steps.**

varieties collection — Step 1

Hybridization and selection — Step 2

Testing varieties in station — Step 3

Compare preliminary varieties — Step 4

Testing varieties in farmer fields — Step

Offering a new variety to the cultivators — Step 6

# Operations

## Step 1: Varieties collection (2010- present)

**Methods**

1. Survey potato varieties grown in different areas
2. The species planted in plots
3. Characterization recorded by International Plant Genetic Resources Institute (IPGRI).
4. Classified Characterization

# Methods

# Results

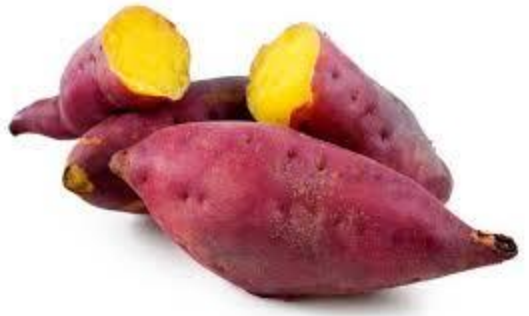
**Step 1:** Varieties collection

Phichit Agricultural Research and Development Center has collected 431 sweet potato species from both domestic and foreign country.

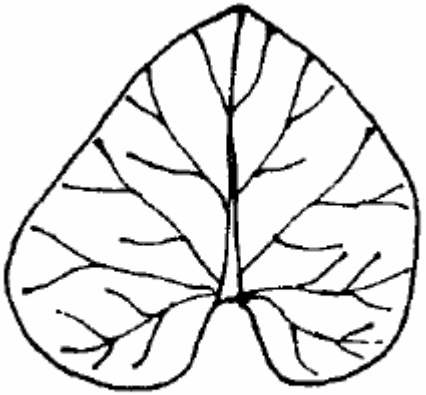
Those sweet potatoes were recorded 27 characteristics follows IPGRI' s handbook.

(today, I am going to take 3 traits as follows)

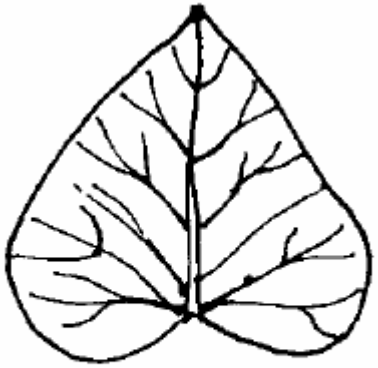
1. Leaf shape
2. Storage root shape
3. Storage root flesh color



# Leaf shape



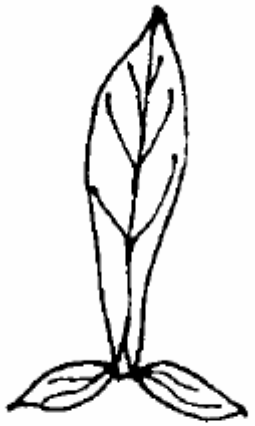
3 Cordate



4 Triangular

5 Hastate

6 Lobed



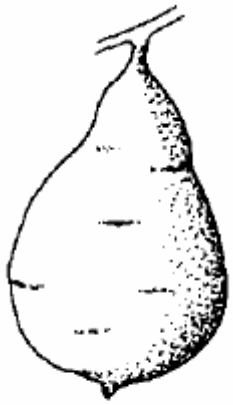
7 Almost divided

# Immature leave color

# Storage root shape

2 Round elliptic

3 Elliptic



4 Ovate

5 Obovate

8 Long elliptic

# Storage root flesh color

# Flower shape of sweet potato






# The characteristics of sweet potato varieties which collected in PTC.

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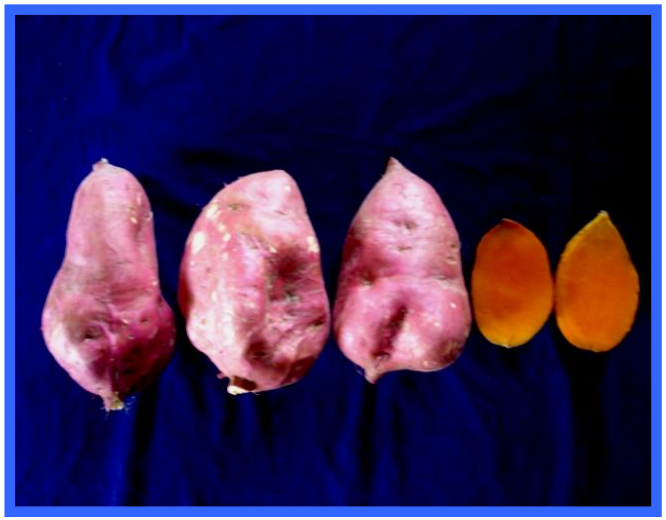

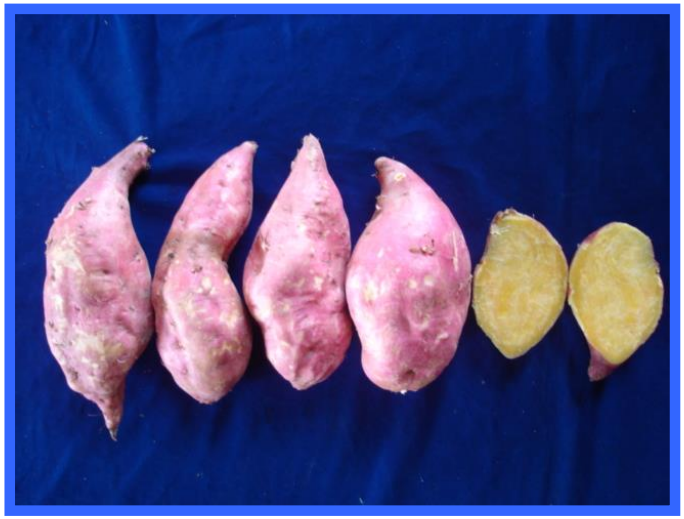

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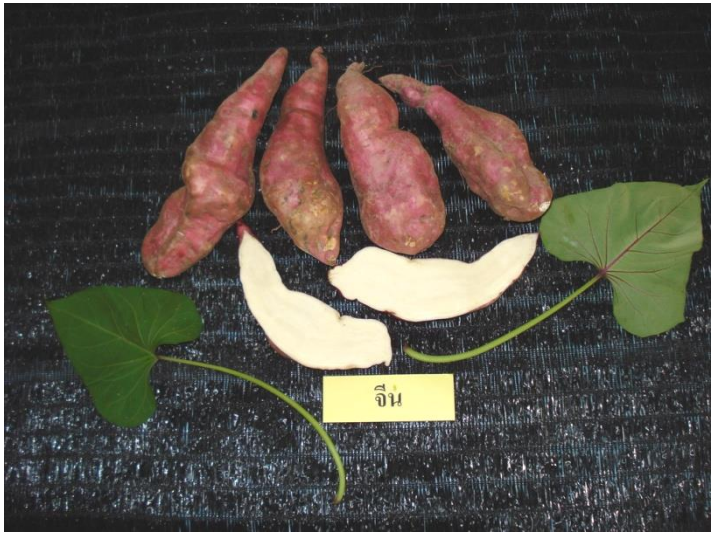

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65-3

พจ.00184

พจ.0090

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พจ.00113

พจ.0038

พจ.00249

พจ.00235

พจ.00161

พจ.00195

พจ.00207

223-3

พจ. 298-14

พจ.00288

พจ.00285

พจ.294-16

พจ.00115

พจ.03

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# Operations

**Step 2:** Hybridization and selection (**December, 2015)**

**Methods**

1. Select sweet potato varieties collected in order to convert a breeder.
2. Breeding
3. Grow F1 plant
4. Select good characteristics.

## Step 2: Hybridization and selection
## (this step will be conducting in December, 2015)

**Selected criteria**

1. Yield over 12,500 kg / ha.
2. Good quality for consumers.
3. less fiber.
4. good growth and good adaptation in abusive environments.

# Operations

sweet potato varieties breeding and selection

# Operations

sweet potato varieties breeding and selection






# Operations

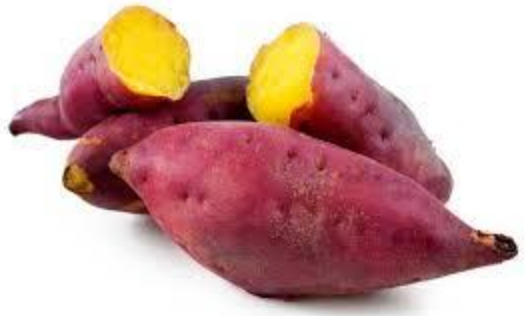
Purple sweet potato varieties breeding and selection






# Output

- To get the new sweet potato varieties both purple and orange flesh with high yield and good quality.
- To provide the new varieties to sweet potato grower.



# Knowledge gained from AVRDC





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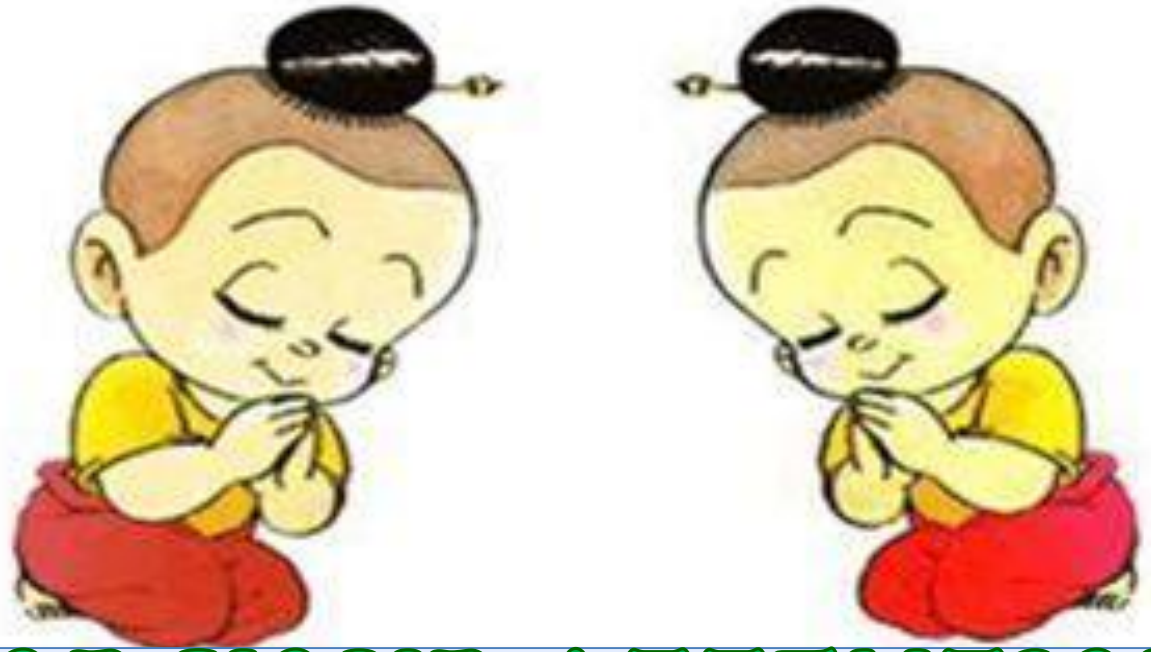
DOCKERS

Thank You



# FOR YOUR ATTENTION

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