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# Creating new varieties in yam (*D. alata*): from abiotic and biotic identified constraints to new cultivated hybrid variety.

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## 1. Issue and aims

Despite an important nutritive, economic and socio-cultural value of yam in tropics or more specifically in Antilles, this crop is affected by strong constraints resulting in a regression of cultivated surfaces.

Major agronomic constraints as cited by producers themselves are phytosanitary concerns, weed control and water availability in some area, but also the availability of more diverse quality seeds.

Because of a lack of certified pesticide and herbicide in yam farming and with the current trend to reduce the use of synthetic inputs, breeding programmes may solve these new challenges to improve yam crops. The issue at stake is to create yam varieties from various species that are adapted to different agro-pedo-climatic farming zones, resistant to diseases (anthracnose, curvularia, viruses) and appealing to consumers tastes.

## 2. Description and results

Facing these challenges, INRA created a Biological Resource Center with a collection of over 500 clones from different species :

- *alata* (igname blanche),
- *cayenensis* (igname jaune),
- *cayenensis rotundata* (grosse caille),
- *trifida* (cousse couche),
- *bulbifera* (adon),
- *esculenta* (pas possible)

from different geographical origins (New Caledonia, South America, Caribbean area, Nigeria, Ivory Coast, collection from Porto Rico).

### A direct use is possible...

Clones from this collection can be used directly for production after field evaluations. So was the case of Bélep, Kinabayo and Oriental varieties which were suggested to producers because they were resistant to anthracnose. This strategy is still amenable especially for species like *esculenta* and *bulbifera*.

## Variety Creation

Clones from the collection may also be used in breeding programmes to create new varieties.

## 3. Limits and perspectives

Perspectives Hybrids that are selected with producers as participative selection will be multiplied and put at producers' disposal. Hybrids from *alata* and *rotundata* from new breeding programmes are currently at the pre-selection phase at INRA.



Female flowers



Male flowers



Seeds



Breeding offspring



Tubers from hybrids



## Adapting selection criteria

Selection criteria given known crop constraints

COMMON CRITERIA		SPECIES	SPECIFIC CRITERIA
Yield	Quantity, Regularity	<i>alata</i>	Resistance to anthracnose
Soil Cover	Quantity, Growth	<i>cayenensis-rotundata</i>	Tolerance to viruses
Tuber quality	Taste Flesh colour Shape Cooking behaviour		Tolerance to curvularia

### Hybrid cultivated in Guadeloupe :

**Boutou** (good productivity, vigour, late, taste that is appreciated but flesh is coloured, producing bulbils, resistant to anthracnose).

### Hybrids under evaluation in Guadeloupe :

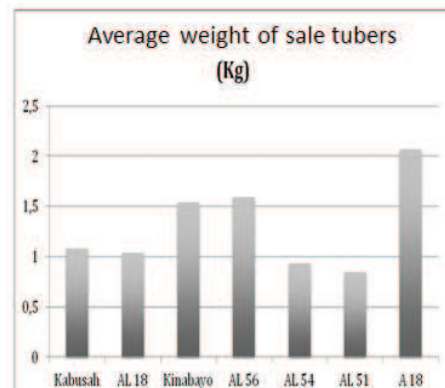
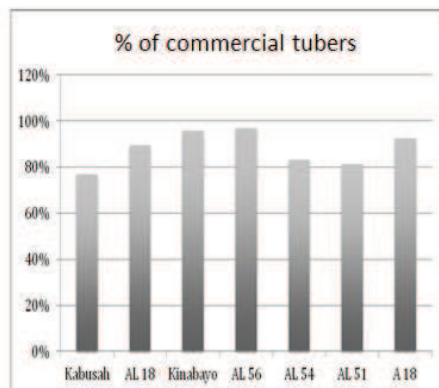
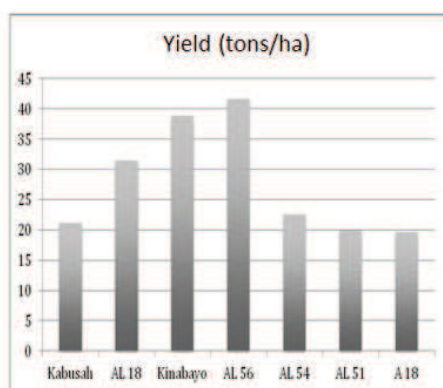
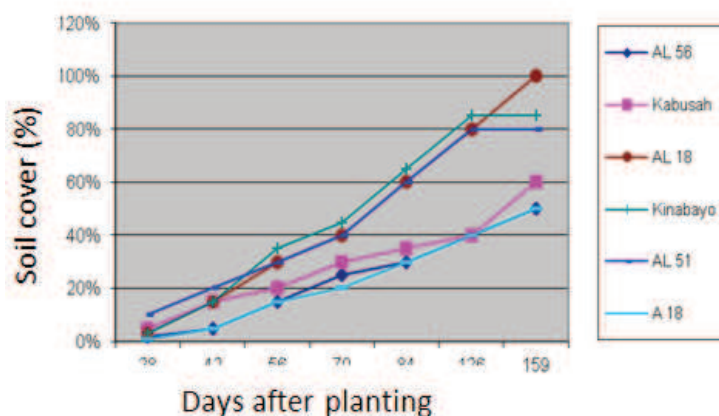
Tested at least four years in multiple locations in collaboration with the Agriculture Chamber.

4 hybrids from *alata* and 2 from *rotundata* were evaluated for their soil cover ability and yield.



Variety trial at Anse Bertrand, 4 months after planting

#### D. Alata cover evolution



## Perspectives

Hybrids that are selected with participative choice will be multiplied and put at producers' disposal.

Hybrids from *alata* and *rotundata* from new breeding programmes are currently at the pre-selection phase at INRA.



# Journ'ïames 2012

## Technical day on yam

September, 25 - INRA Duclos, Petit-Bourg

October, 2 - CFPPA Petit-Canal

### *Proceedings*

