Introduction de cultivars de *Dioscorea alata* du Pacifique

D. Filloux, D. Cornet, V. Lebot et Ph. Vernier - CIRAD

- Justification
  - *D. alata* est une espèce plus *rustique* que *D. rotundata.*
  - Sa culture est en expansion au Bénin en raison de la baisse de fertilité des SdC (15% au CentreBénin/> 5% au Nord) (raccourcissement des jachères)
  - Base génétique étroite en Afrique de l'Ouest
  - Dans le Pacifique au contraire forte diversité

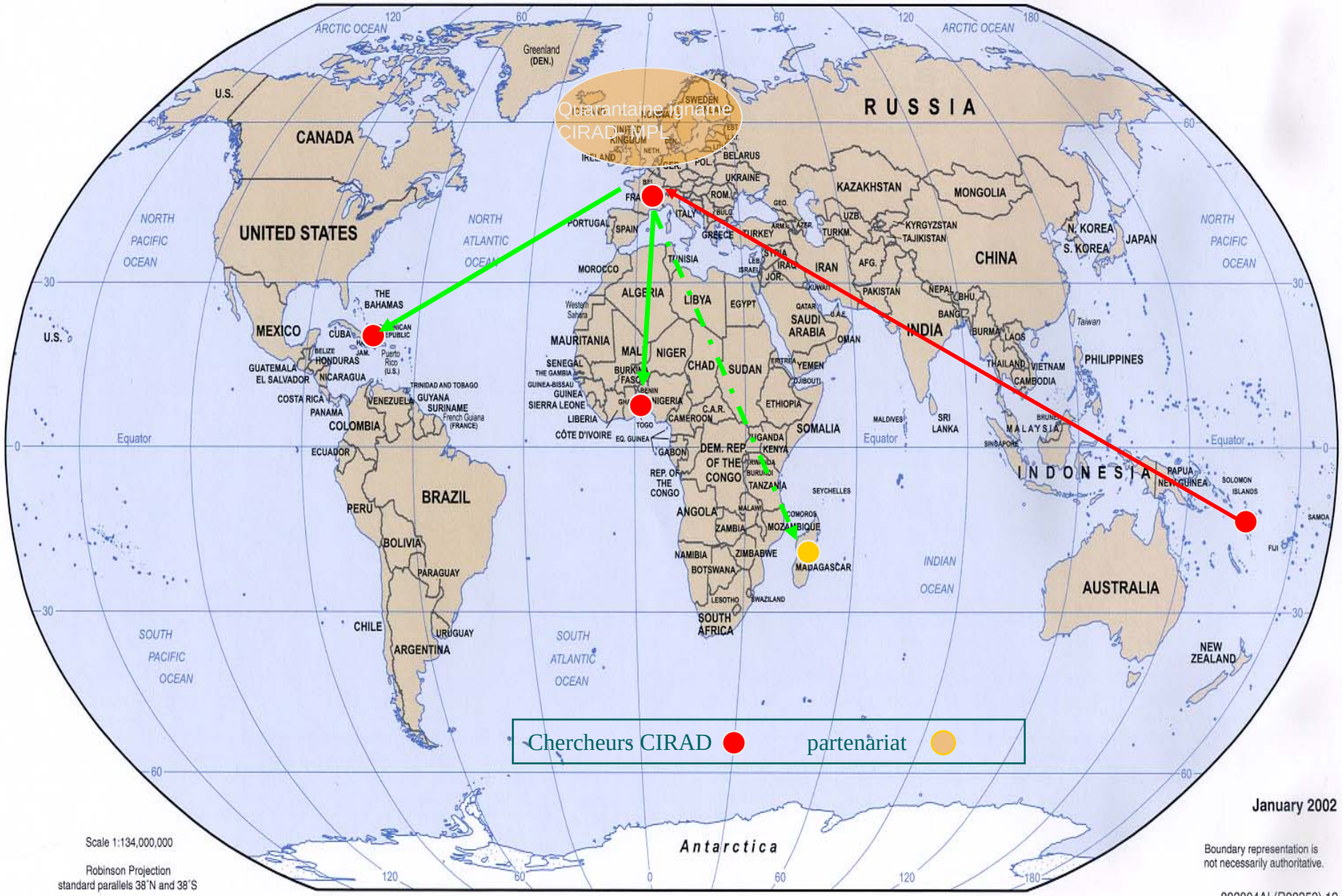
conditions

- Introduire du matériel végétal sain (virus)
  - CIV indexée et assainis
- Avoir l'accord du (des pays) d'origine pour transférer les RG
  - Signature d'un MTA (Material transfert agreement –accord de transfert de biomatériel) selon TI - FAO

Processus

- Séléctionner des RG dans la zone d'origine
- Projet Inco SPYN Cirad et SNRA (V. Lebot et al)
- Transfert des RG à la quarantaine igname à MPL
- indexation et assainissement (D. Filloux)
- Transfert et acclimatation dans le pays receveur (D. cornet et IITA)
- X et évaluation (Inrab)

Transfert et quarantaine sur l'igname au CIRAD



Recommandations FAO-IBPGR pour l'échange international d'ignames saines

- Nématodes
- Cochenilles
- Charençons
- Anthracnose

Nématicide + Insecticide + Fongicide et culture *in vitro*

- Virus :
  - YMV
  - YMMV (= DaV)
  - DBV
  - DLV
  - CMV
  - (ChYNMV)

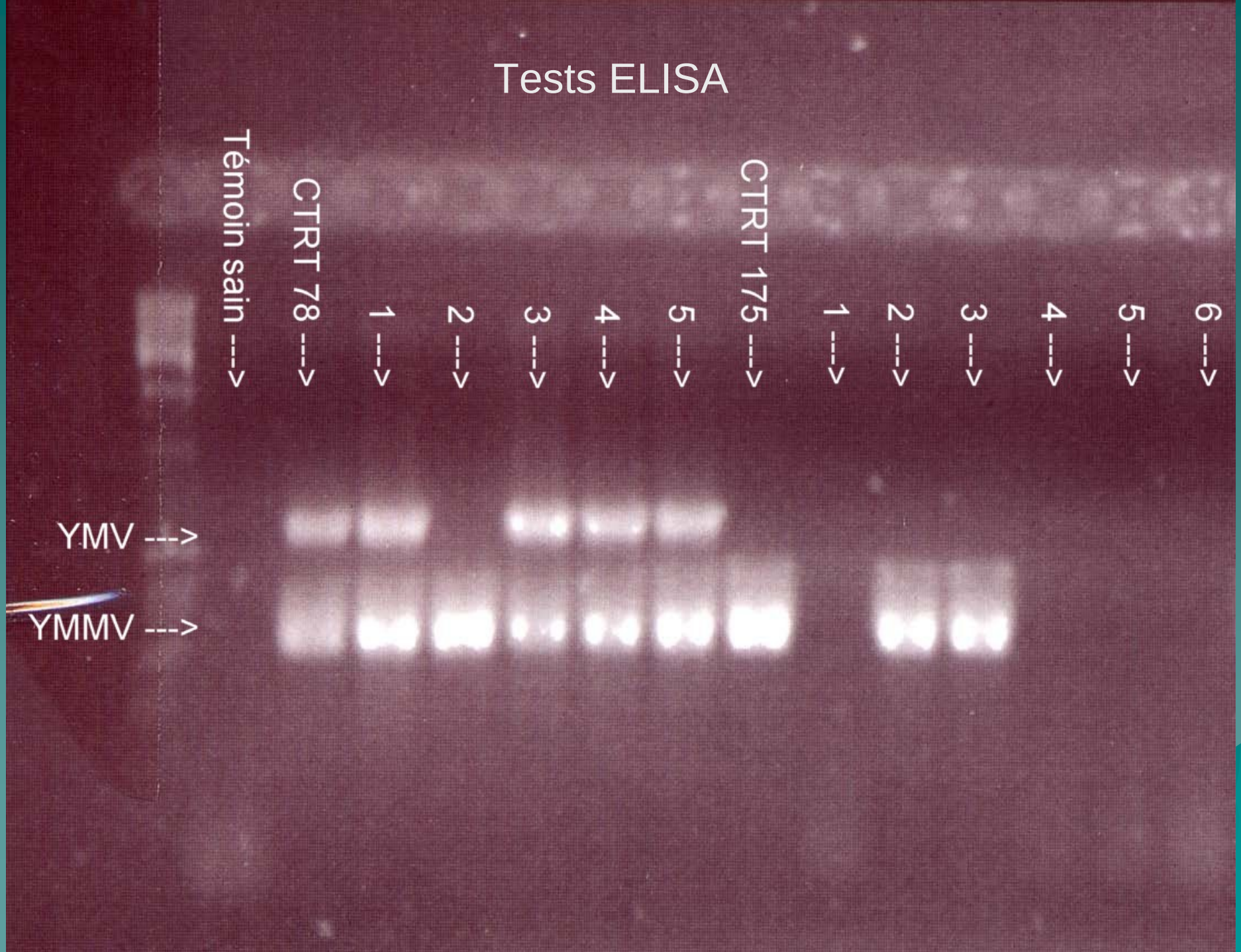
Culture de méristèmes *in vitro* + autres techniques associées

Les techniques de diagnostic

Spécificité
Sensibilité
–
+

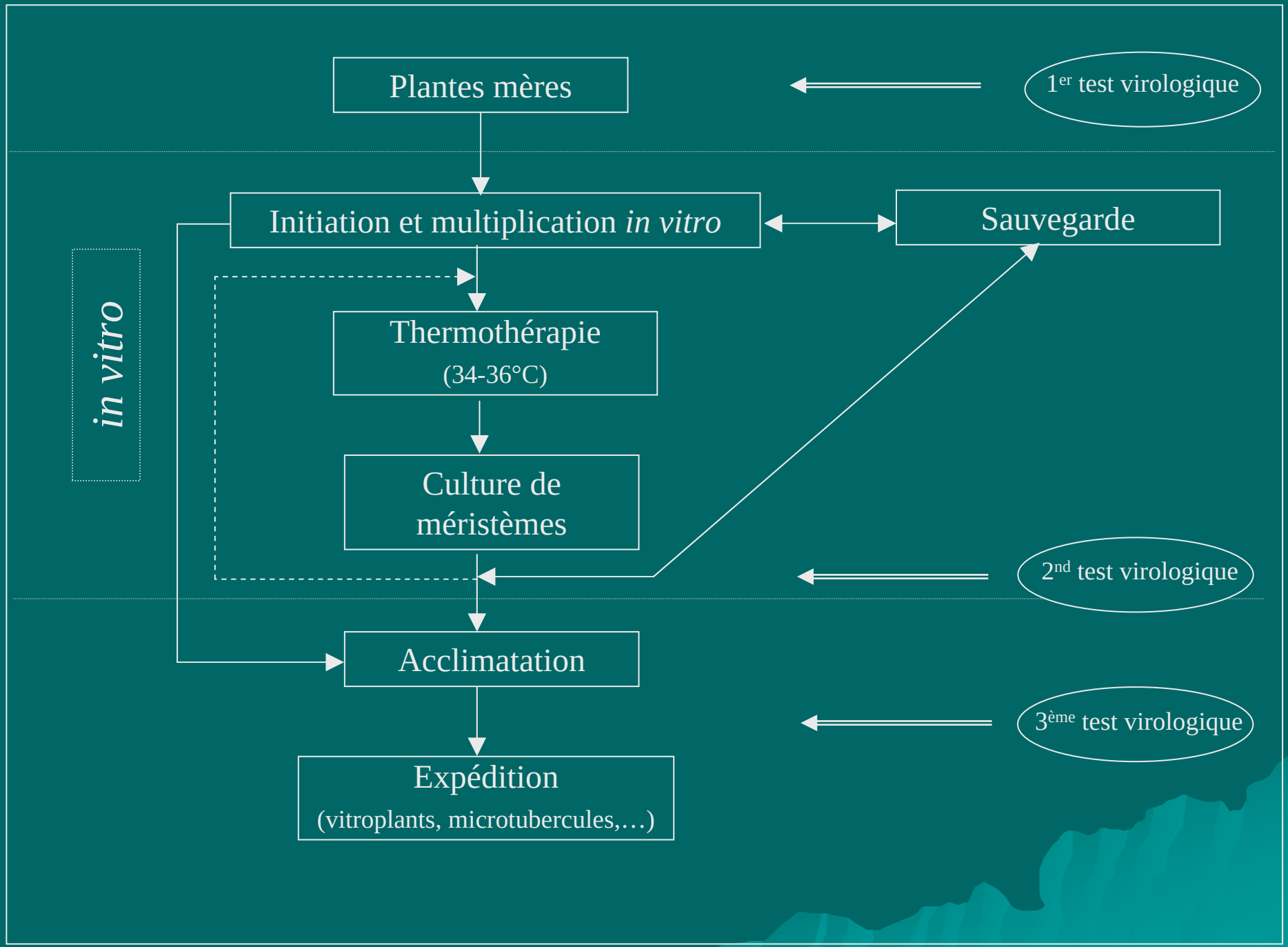
- Symptôme
- Microscopie électronique
- Sérologie : - Elisa
  - Immuno-empreinte
  - ...
- Moléculaire : - PCR et RT-PCR
  - ...
- Séro-moléculaire : - IC-PCR et IC-RT-PCR
  - ...
- ...

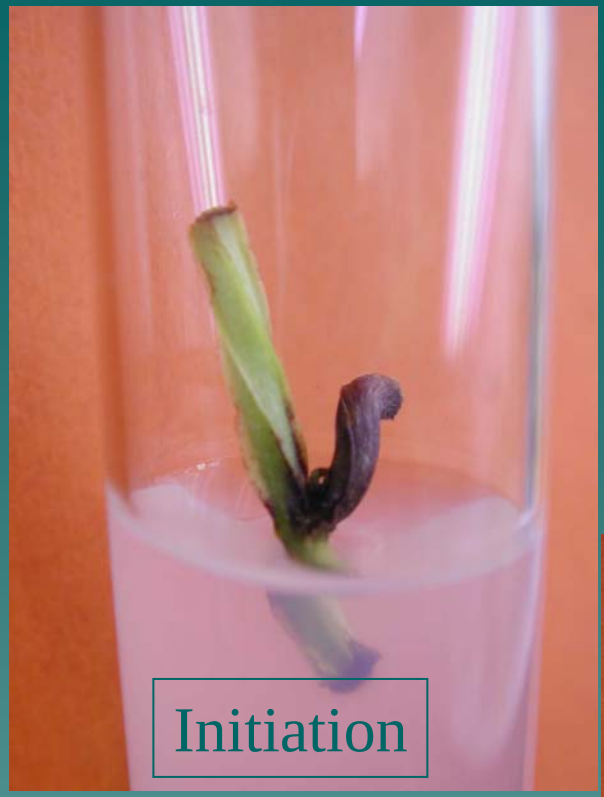
Tests ELISA



Les techniques d'assainissement

- **Culture de méristème**
- **Thermothérapie**
- Chimiothérapie
- Microgreffage
- Electrothérapie
- Cryothérapie
- ARN interférant ?...


Plantes mères
1er test virologique
Initiation et multiplication in vitro
Sauvegarde
in vitro
Thermothérapie
(34-36°C)
Culture de méristèmes
2nd test virologique
Acclimatation
3ème test virologique
Expédition
(vitroplants, microtubercules,…)



Initiation

Croissance

Multiplication


Thermothérapie


Méristèmes


Acclimatation

MTA

MATERIAL TRANSFER AGREEMENT

1. The Parties to this Agreement, dated..... are:

(i) Department of Agriculture and Rural Development (**DARD**), PMB 040, Port Vila, Republic of Vanuatu, as legal holder of the Biological Material.

(ii) L'Institut National des Recherches Agricoles du Bénin (**INRAB**), 01 BP 884, Cotonou, Bénin , as the recipient of the Biological Material.

2. The Biological Material covered by this Agreement is known by **DARD** as *Dioscorea alata* cultivars is listed in annex 1. For the purpose of this Agreement this Biological Material includes any di... information to the Biological Material.

3. The Biological Material is being supplied to **INRAB** solely to be used for research within l... laboratories and experimental plantings in Benin.

4. The Biological Material remains the property of **DARD** at all times and will not be provide... other person or parties without the express consent of **DARD** with the restriction that INR... transfer the Biological material to farmers in the Republic of Benin. .

5. **INRAB** will fully acknowledge the source of the Biological Material in any publication arisi... studies in which the Biological Material is referred to and will notify **DARD** of any such publici...

6. **INRAB** agrees not to seek any form of intellectual property protection on the Biological Ma... parts thereof. For products or results derived from research using the Biological Material, **INR**... act to ensure that the protection of any rights to the Invention is not destroyed nor endangered... of disclosure or any other route and shall bring this to the immediate attention of **DARD**. **INRA**... not pursue intellectual property rights protection without the express agreement of **DARD. DAR**... all time, retain the right to use any such products or results derived from research using the Bi... Material.

7. In case of commercialisation of either the Biological Material, its products or results deriv... research using the Biological Material, **INRAB** is required to negotiate an equitable benefit ... agreement with **DARD**, in accordance with the Convention on Biological Diversity. This c... through payments, training assistance, technology transfer or other forms of collaboration.

8. **INRAB** will handle the Biological Material in compliance with all national and internation... regulations and guidelines which may be applicable at the time of use.

9. The phytosanitory condition of the accession is warranted only if and as described in the a... phytosanitory certificate. **DARD** makes no warranties as to the safety or title of the material, n... the accuracy or correctness of any passport or other data provided with the accession. Neith... **DARD** make any warranties as to the quality, availability or purity of the Biological accession. ... assumes full responsibility for complying with France quarantine/biosafety regulations and rul... import or release of genetic material.

10. The Biological Material will only be handled by those with sufficient skill, knowledge, exp... and ability applicable to the Biological Material. **DARD** and its employees cannot be liable for a... damage, claim or any other liability which may arise from the use of the Biological Material... nature of this Agreement, howsoever caused.

11. **DARD** assumes full responsibility for complying with national and international regulations concerning access to genetic resources in its country and concerning export of those genetic resources.

12. **DARD** can provide neither assurance nor warranty that the Biological Material or its use is free from patent and other intellectual property rights.

13. In the event that **INRAB** fails to comply with the conditions and provisions of this Agreement, **INRAB** shall immediately return the Biological Material to **DARD** and destroy any copies of the Biological Material which may have been made in the course of the work.

14. All dispute arising out or in connection with the present contract, and which shall not be settled amicably between the parties, within a period of three (3) months after its birth, shall be settled by the most diligent party at the courts of **Vanuatu** national laws.

Date ..... 18 Avril 2006

Dr David ARODOKUN
Directeur Général

For **INRAB**

ANNEX 1: list of the Biological Material covered by this Agreement

N°	ID	species	Local Name	Island of origin	Village of origin
1	VU019a	*D. alata*	*n.a.*	Malakula	Brenwe
2	VU024a	*D. alata*	*Tepuva*	Efate	Mele
3	VU026a	*D. alata*	*Dam masis*	Malakula	Brenwe
4	VU028a	*D. alata*	*n.a.*	Efate	Tagabe
5	VU047a	*D. alata*	*Malingova*	Maewo	Narovorovo
6	VU231a	*D. alata*	*n.a.*	Efate	Tagabe
7	VU373a	*D. alata*	*Buhgi toa*	Ambae	Waisala
8	VU402a	*D. alata*	*Raranaeolo*	Santo	Fanafo
9	VU408a	*D. alata*	*Manioc*	Santo	Fanafo
10	VU423a	*D. alata*	*Manlakon*	Pentecost	Marteli
11	VU434a	*D. alata*	*Pili*	Santo	Viorloko
12	VU443a	*D. alata*	*Viraiji*	Santo	Ipayato
13	VU444a	*D. alata*	*Tamate ajuju*	Santo	Malovira
14	VU454a	*D. alata*	*Mere*	Santo	Natuy
15	VU472a	*D. alata*	*Tepuna*	Efate	Mele
16	VU474a	*D. alata*	*Tumas*	Efate	Mele
17	VU487a	*D. alata*	*Nusamu*	Efate	Mele
18	VU491a	*D. alata*	*Riprip*	Santo	Fanafo
19	VU495a	*D. alata*	*Malakula*	Santo	Fanafo
20	VU497a	*D. alata*	*Ragir red*	Santo	Fanafo
21	VU503a	*D. alata*	*Suk*	Santo	Fanafo
22	VU520a	*D. alata*	*Salomon*	Malakula	Unmet
23	VU528a	*D. alata*	*Tacharamivar*	Malakula	Dravai
24	VU534a	*D. alata*	*Naharto*	Malakula	Losinwe
25	VU540a	*D. alata*	*Behenzen*	Malakula	Losinwe
26	VU551a	*D. alata*	*Mombri*	Malakula	Lavalsal
27	VU554a	*D. alata*	*Letslets masis*	Malakula	Tenbul Orap
28	VU556a	*D. alata*	*Red tumas*	Malakula	Santa Maria
29	VU564a	*D. alata*	*Mendrovar*	Malakula	Dravai
30	VU567a	*D. alata*	*Homb*	Malakula	Orap
31	VU573a	*D. alata*	*Betmel*	Malakula	Orap
32	VU579a	*D. alata*	*Letslets nambas*	Malakula	Orap
33	VU590a	*D. alata*	*Makila*	Malakula	Lavalsal
34	VU603a	*D. alata*	*n.a.*	Malakula	n.a.
35	VU605a	*D. alata*	*Natevetev*	Tongariki	Tongariki
36	VU613a	*D. alata*	*Tabaom*	Ambrym	Wilit
37	VU618n	*D. alata*	*Braswaea*	Ambrym	Wilit
38	VU639a	*D. alata*	*Malalaghi*	Pentecost	Lolbuavatu
39	VU666n	*D. alata*	*Riprip,stron*	Maewo	Marino
40	VU677a	*D. alata*	*Nowaneum*	Tanna	Imanaka
41	VU678a	*D. alata*	*Rostuan*	Tanna	Imanaka
42	VU679a	*D. alata*	*Nowanao*	Tanna	Imanaka
43	VU684a	*D. alata*	*Selemnu*	Tanna	Imanaka
44	VU688a	*D. alata*	*Kahut*	Tanna	Imanaka
45	VU689a	*D. alata*	*Ifit*	Tanna	Imanaka
46	VU696a	*D. alata*	*Nonimanaka*	Tanna	Imanaka
47	VU703a	*D. alata*	*Katipanaum*	Tanna	Imanaka
48	VU705a	*D. alata*	*Nouwigo*	Tanna	Imanaka
49	VU706a	*D. alata*	*Rosapin*	Tanna	Imanaka
50	VU730a	*D. alata*	*Ross*	Erromango	Ipota
51	VU735a	*D. alata*	*Noplon*	Erromango	Ipota
52	VU750a	*D. alata*	*Wanora,man*	Aneityum	Anelcuhat
53	VU751a	*D. alata*	*Ross*	Aneityum	Anelcuhat
54	VU753a	*D. alata*	*Wanora,wo*	Aneityum	Anelcuhat
55	VU754a	*D. alata*	*Noulelcae*	Aneityum	Anelcuhat
56	VU755a	*D. alata*	*Intejegan*	Aneityum	Anelcuhat
57	VU757a	*D. alata*	*Narouvanu*	Aneityum	Anelcuhat
58	VU760a	*D. alata*	*Nureangda*	Aneityum	Anelcuhat

Dans le cadre du projet TCP FAO Igname Benin

Introduction de variétés de D. alata originaires du Pacifique

18 mai, **83 vitroplants** d'igname représentant **42 cvs** différents de D. alata en provenance de la collection SPYN ont été réceptionnés par D. Cornet à la station IITA de Cotonou

20 vitroplants étaient morts suite aux conditions de transport (milieu liquéfié).
Après 4 jours **63 vitroplants** restant en chambre d'acclimatation ont été transplantés.
Sur ces 63 vitroplants, 25 sont mort pendant l'acclimatation. Le 23 juin les 38 plantules survivantes en pot tuteuré ont été transplantées dans des conteneurs plus grands et laissées en serre insectproof.

Liste des **28 cvs survivants fin juillet**. Il y a 10 doublons.(

No	Var	No	Var	No	Var
3	VU 705A	22	VU 643A	51	VU 750A
4	VU 554A	25	VU 605A	54	VU 047A
5	VU 705A	27	VU 408A	57	VU 408A
7	VU 551A	28	VU 534A	58	VU 590A
9	VU 751A	29	VU 760A	63	VU 753A
10	VU 231A	33	VU 443A	66	VU 520A
11	VU 573A	34	VU 751A	71	VU 495A
14	VU 551A	40	VU 753A	72	VU 754A
15	VU 750A	43	VU 472A	73	VU 534A
16	VU 443A	45	VU 231A	75	VU 573A
17	VU 755A	47	VU 755A		
18	VU 689A	49	VU 028A	21	VU 497A stade 1 feuille
20	VU 679A	50	VU 684A	61	

Tubercules de 16 cvs récoltés fin 2006

No Pot	Nbr Tub	Poids	Code SPYN	Island	Village	*Name*
25	4	1	VU605a	Tongariki	Tongariki	*Natevetev*
45	2	2	VU231a	Efate	Tagabe	*n.a.*
7	2	4	VU551a	Malakula	Lavalsal	*Mombri*
66	2	4	VU520a	Malakula	Unmet	*Salomon*
34	4	4	VU751a	Aneityum	Anelcuhat	*Ross*
63	2	5	VU753a	Aneityum	Anelcuhat	*Wanora,wo*
6	3	5	VU730a	Erromango	Ipota	*Ross*
49	6	5	VU028a	Efate	Tagabe	*n.a.*
29	7	5	VU760a	Aneityum	Anelcuhat	*Nureangda*
57	1	6	VU408a	Santo	Fanafo	*Manioc*
15	2	6	VU750a	Aneityum	Anelcuhat	*Wanora,man*
27	6	10	VU408a	Santo	Fanafo	*Manioc*
51	4	12	VU750a	Aneityum	Anelcuhat	*Wanora,man*
3	6	12	VU705a	Tanna	Imanaka	*Nouwigo*
72	3	13	VU754a	Aneityum	Anelcuhat	*Noulelcae*
18	6	13	VU689a	Tanna	Imanaka	*Ifit*

La suite

- En 2007
  - Poursuite de la x des 16 cvs sauvés
  - Réintroduction depuis MPL des cvs perdus en 2006
  - Introduction de nouveaux cvs (prévus au MTA)
- 2008-2009 : X du MV par l'Inrab
- 20010-2012 : évaluation du matériel

MERCI DE VOTRE ATTENTION