

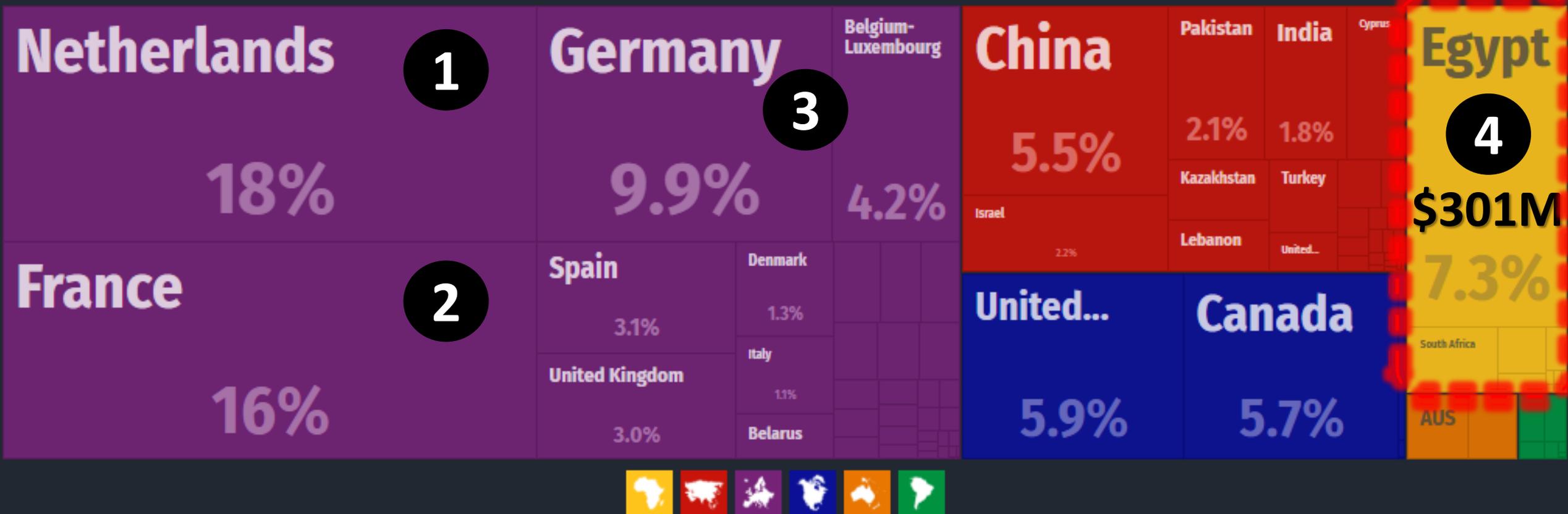
# Establishment and Maintenance of Pest Free Areas in Egypt: case study on Potato Brown Rot Disease





# Top world exporters of potato (2017)

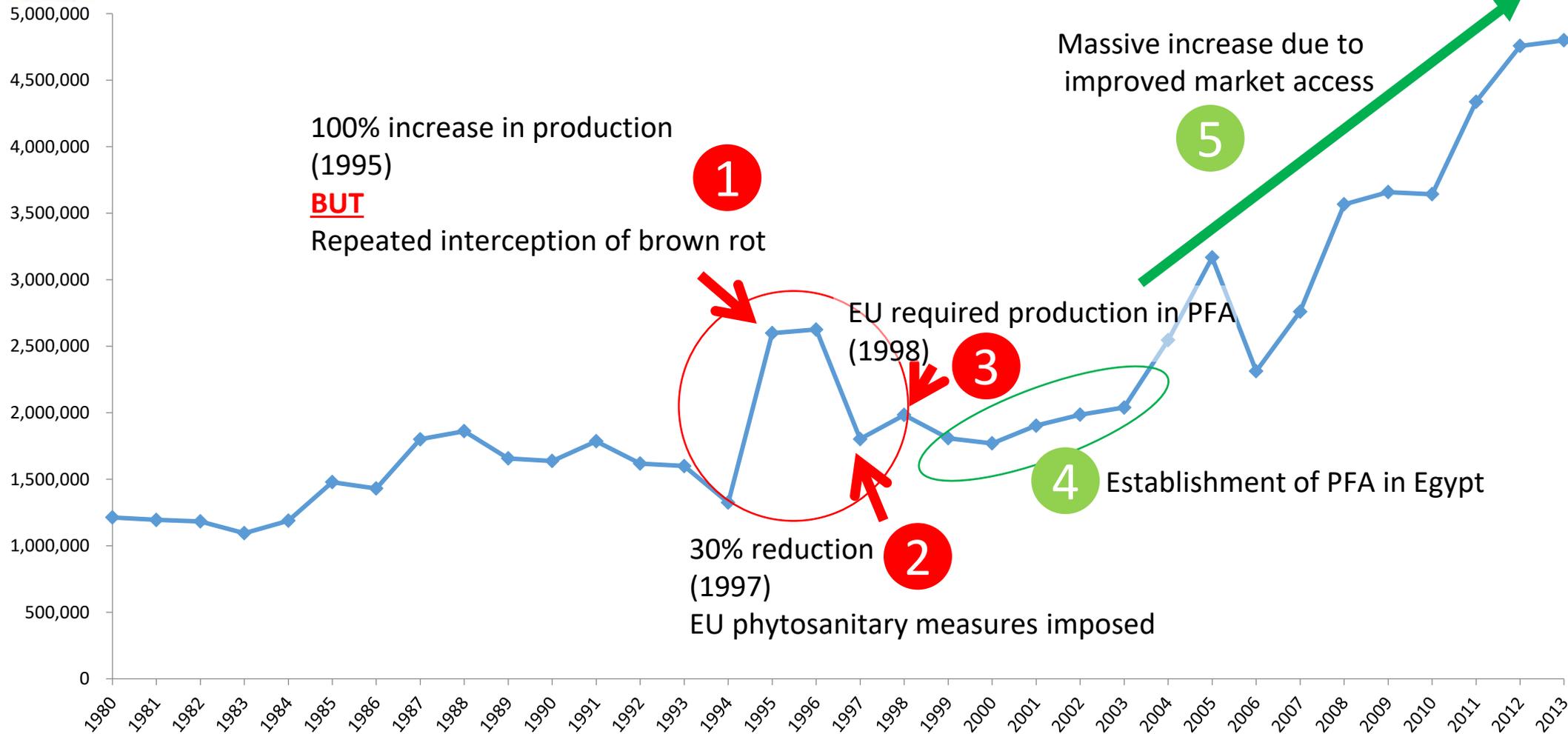
TOTAL: \$4.14B



Source: The observatory of Economic Complexity (2019) <https://oec.world/en/>



# Potato production in Egypt 1980-2013





Technical and Financial support from trade partners (EU)  
“Potato Brown Rot Project PBRP, Phase I&II” from 1997 to 2006 with total investments of 2.5M USD



More than 50  
interception cases

Interceptions  
continued

Interceptions  
continued

Interceptions  
decreased

Interceptions  
significantly decreased

1996

1997

1998

1999

2000

EU commission decision  
96/301/EC

- Qualified areas “where pest not known to occur”
- Recognition
- Field inspection
- Laboratory testing
- Traceability system
- Limitation to entry points
- Prior notification

EU commission decision  
98/503/EC  
PFA according to ISPM#4  
Areas “where pest known  
not to occur” confirmed by  
official survey and  
monitoring procedures



Interceptions significantly decreased

No or rare interceptions

**2001**

**2005**

**2006**

**2011**

PFA establishment and maintenance system is improving

PFA system matured

Ease of the additional requirements



# Potato Brown Rot Project PBRP, Phase I&II

## 1997 to 2006



Department  
for Environment  
Food & Rural Affairs



Netherlands Food and Consumer  
Product Safety Authority  
*Ministry of Agriculture,  
Nature and Food Quality*



Liberté • Égalité • Fraternité  
RÉPUBLIQUE FRANÇAISE

MINISTÈRE  
DE L'AGRICULTURE  
DE L'AGROALIMENTAIRE  
ET DE LA FORÊT



federal public service  
**HEALTH, FOOD CHAIN SAFETY  
AND ENVIRONMENT**





# Establish of PFA for potato brown rot

## INITIATION



## Studies on



### Pest identify

- What is the pest race/biovar/biotype?
- Is it different from European and other strains?
- What is the genetic diversity of the pest in Egypt?

3 Master thesis

1 PhD thesis

3 scientific articles



### Pest biology, epidemiology and diagnosis

- What is the survival ability of the pest and possible eradication or control techniques
- Host range?
- Alternative hosts?
- Role of infected seed tuber and irrigation water in disease cycle?

1 PhD

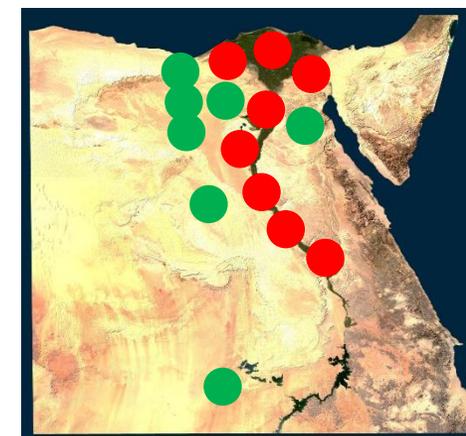
2 Master degrees

2 scientific articles



### Pest distribution in Egypt

- Specific surveys including sampling from all potato growing areas, water courses and possible alternative hosts





# Establish of PFA for potato brown rot

## FEASIBILITY

Is it **cost effective** to eradicate the disease from the main production areas in Delta and Valley of Nile?

- Soil fumigation
- Soil solarization
- Steam sterilization
- Water decontamination

**High cost**

**Low effectiveness**

**Escape the disease**

**Establish the PFA in new areas where no potato or any other hosts were cultivated**



**Feasible**



# Establish of PFA for potato brown rot

## PROGRAMME PLANNING



Establishment of new dedicated facilities for implementation of the activities

Upgrading laboratories and introduction of high-throughput technologies  
Immunofluorescent staining and PCR

Hiring new staff

Triple number of technical staff

Training

(in-country and abroad) of 8 inspectors and 6 laboratory staff



**In addition to**

Meeting g with stakeholder (growers, exporters, researchers, ...) to discuss and convince them to support the programme



# Establish of PFA for potato brown rot

## PROGRAMME PLANNING



### Legislative and regulatory framework

12 Ministerial decrees were issued

Giving authorities to inspectors

Prohibit cultivation of any host plant – other than potato - in PFA

Establish quarantine system for PFA

Establish sustainable financial support for the programme





# Establish of PFA for potato brown rot

## PROGRAMME PLANNING



### Financial resources

Collection of fees from growers on surface area of registered as PFA

Collection of fees from exporters on amount of potato tested and exported

**The fees are revised and may be raised after consultation with stakeholder**





# Establish of PFA for potato brown rot

## ESTABLISHMENT



### Application from grower

#### Requirements!!!

- Never cultivated before by any known host of the pathogen
- Irrigated from ground water, or canal that was proved to be free from the pathogen (only one canal “ElNoubaria”)

### Declaration from the grower to follow the quarantine requirements

- No soil is transported to the PFA from outside the PFA
- No cultivation of any hosts other than potato
- Seed potato is tested and found free from the pathogen
- No organic fertilizers (compost) is used before tested in the laboratory
- Machinery is dedicated and not used in non-PFA or shall undergo decontamination under the supervision of the NPPO





# Establish of PFA for potato brown rot

## ESTABLISHMENT



**Samples from new PFA soil, irrigation water, weeds are tested in laboratory**

**The area is identified by GPS coordinates, and coded for traceability (the PFA unit shall not be less than 20 ha)**

**Amount of certified pathogen-free seeds are registered**

**Planting of seeds are only done under the supervision of NPPO**

**NPPO inspectors are allowed to inspect the area any time of the year**

**Harvesting can only be done under the supervision of NPPO**

**Field inspection is performed during the growing season, and random samples are taken for laboratory testing**





# Establish of PFA for potato brown rot

## ESTABLISHMENT



Harvested potato are transported under the supervision of NPPO to registered packing-houses (only to handle potato from PFA)

Harvested potato are labelled by unique code (for traceability) and divided into lots (20-25 tones)

From each lot, 200 tubers are sampled and sent for laboratory diagnosis against latent “symptomless” infections



**Declaration of PFA**

*Central Administration of Plant Quarantine  
Egypt*



# Establish of PFA for potato brown rot

## ESTABLISHMENT



**Declaration of PFA is only done after the first production cycle has passed through the previous procedures**

**For the PFA that has passed the whole procedures in the previous production cycles, they are declared as PFA as soon as they pass the maintenance requirements every year**



# Establish of PFA for potato brown rot **ESTABLISHMENT**



List of declared PFA is communicated with trade partners (importing countries) through the NPPO contact points



PFA are recognized by trade partners





# Establish of PFA for potato brown rot

## MAINTENANCE



**Annual sampling from soil, irrigation water and weeds (including left over or volunteer potato tubers) during off-season period**

**All procedures including field inspection, supervising planting and harvesting, laboratory testing against latent infection are performed for all production cycles in the PFA**





# Establish of PFA for potato brown rot

## MAINTENANCE



### Contingency plan



**If during the production cycles, the growers performed any action against the quarantine measures imposed on PFA, the PFA is suspended from 1 to 3 years depending on investigations**

**If during the checks and laboratory testing is was provide that any PFA was contaminated by the pathogen, the area is delisted and not allowed for re-register for 3 to 5 years, and upon more intensive sampling plan**



# Establish of PFA for potato brown rot

## MAINTENANCE



## Auditing and system review



Every year, specialized committee hold a meeting to review the system

The committee has members from NPPO and other governmental organization, in addition to research centers

In some cases, auditing visits can be performed by NPPO of the importing countries, and submit their report for the Egyptian NPPO, which use the output to improve the system

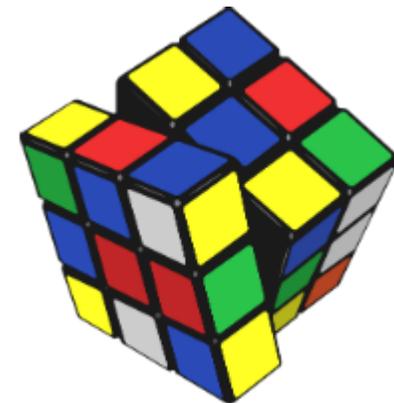


# Establish of PFA for potato brown rot

## Challenges and opportunities for improvement

**the current system has targeted medium- and large-scale producers, while small-scale potato farmers have no access to international markets**

**the current funding system does not include periodical review of the fees**



# Thank You

**Ahmed Hussien**

Central Administration of Plant Quarantine

Ministry of Agriculture and Land

Reclamation

Egypt

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