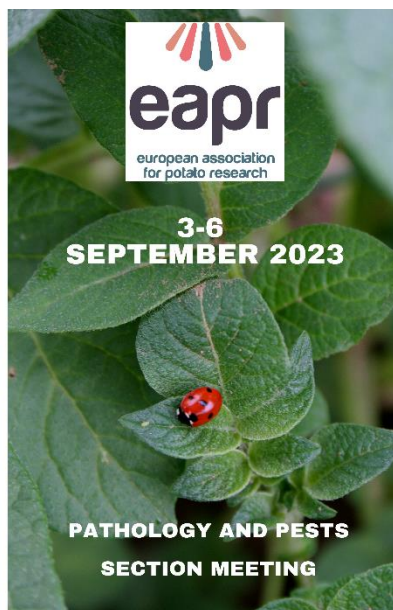




EAPR Pathology & Pests Section Meeting

3rd to 6th September 2023 – Arras – France

**Dealing with potato pathogens & pests in a context
of global change**



Welcome and opening adress

RESEARCH CHALLENGES FOR SEED POTATO PRODUCTION

Bernard Quéré (FN3PT/inov3PT, France)



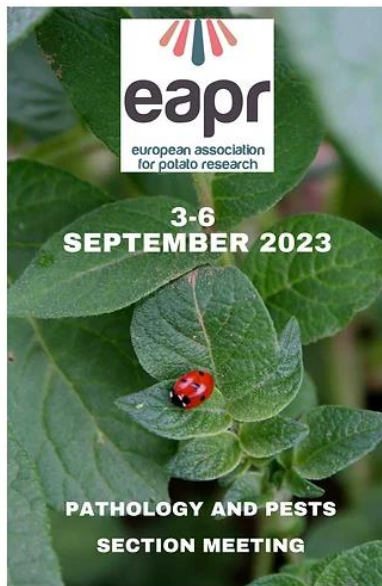
inov3PT
SEED POTATO
FOR THE FUTURE

RESEARCH CHALLENGES FOR SEED POTATO PRODUCTION

EAPR, PATHOLOGY AND PESTS SECTION MEETING



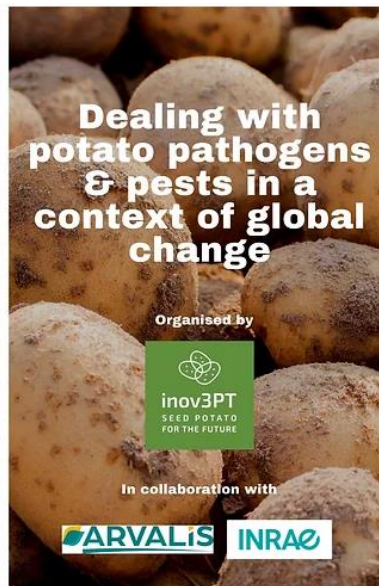
ARRAS, FRANCE



eapr
european association
for potato research

3-6
SEPTEMBER 2023

**PATHOLOGY AND PESTS
SECTION MEETING**



**Dealing with
potato pathogens
& pests in a
context of global
change**

Organised by



inov3PT
SEED POTATO
FOR THE FUTURE

In collaboration with

ARVALiS **INRAE**



04/09/2023

RECHERCHE – DEVELOPPEMENT – INNOVATION DES PRODUCTEURS DE PLANTS DE POMME DE TERRE

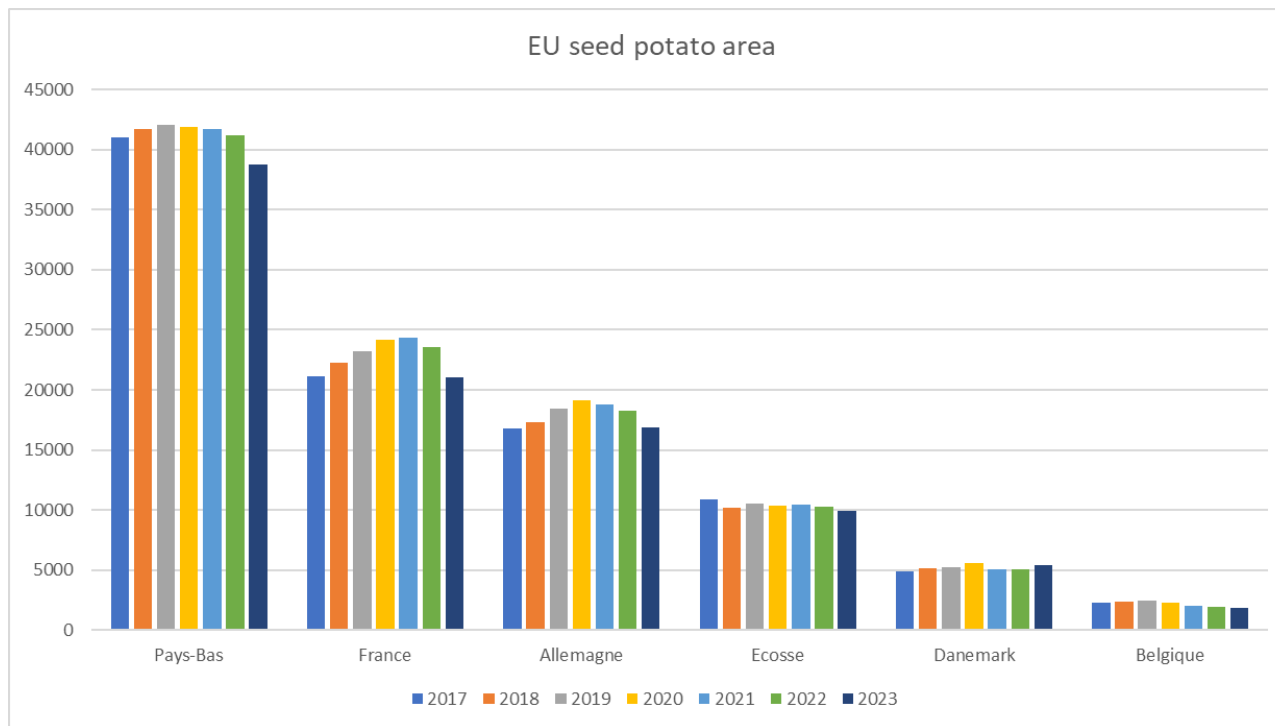
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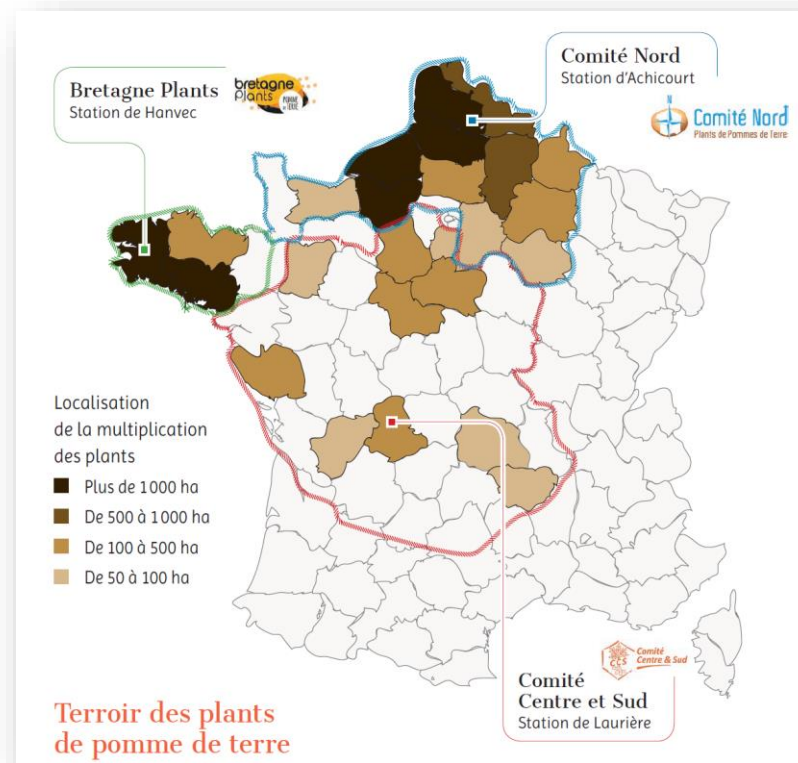
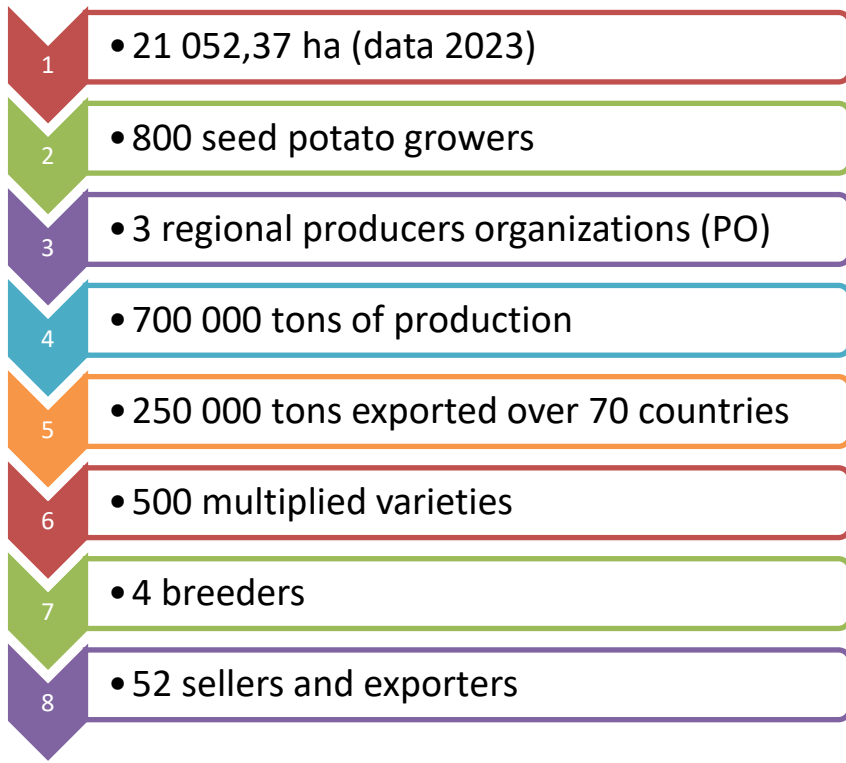
FRENCH SEED POTATO SECTOR

Key figures - Leading position of France

EU SEED POTATO PRODUCTION



FRENCH SEED POTATO PRODUCTION





FN3PT AND inov3PT PRESENTATION

Strong involvement of the French seed potato growers

MISSIONS OF THE FN3PT/OP

- Technical and economical support to growers
- CNVS and tissue culture production
- Contract with CA for inspection and sampling 17020
- Approved labs for official analyses 17025
- Exportation support (France Plants)
- Traceability and computerized system
- Technical Institute qualified by the French Ministry – inov3PT



APPROVED LABORATORIES

- **A network of approved laboratories (ISO 17025 and approved by the Ministry)**

Comité Nord
Station d'Achicourt



Bretagne-Plants
Station Hanvec



Comité Centre-et-Sud
Station de Laurière



- **A national coordination: FN3PT animation and follow-up of the laboratories, computer system, R&D**



Every year :

- 70 000 analyses to check the absence of Potato Cyst Nematodes
- 2 millions of ELISA tests for virus
- 2x 15 000 analyses for quarantine bacteria
- 1 500 analyses of microbiology



> Seed potato testing

NEW VARIETIES BREEDING

- **3 breeding stations belonging to the seed potato growers**

Bretagne Plants
Les stations de création variétale

**Station de création variétale
de Kerloï - Ploudaniel**



Comité Nord
Les stations de création variétale

**Station de recherche
de Bretteville du Grand Caux**

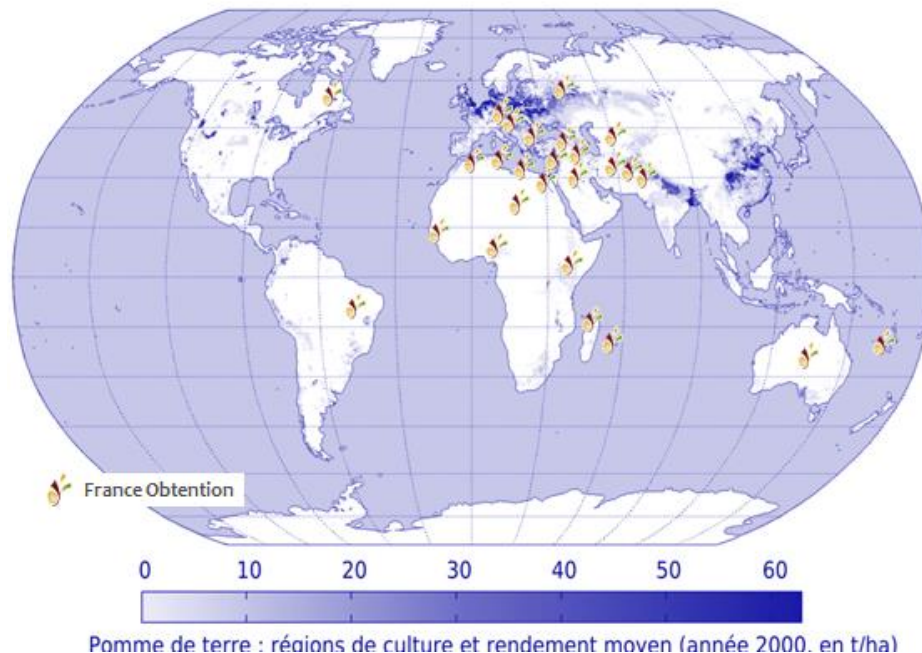


Grocep
Les stations de création variétale

**Station de création variétale
de Lavergne LAURIERE (87)**



- Experimentations
- Field days
- Workshops
- Training
- Delegations
- International trade
- Expertise
- Etc.



3 MAIN THEMATICS and 4 CROSS-CUTTING OBJECTIVES



Strengthening the health of certified seed potatoes

Supporting breeding of resistant and adapted cultivars



Developing integrated and agroecological management of seed potato crops

Developing and transferring innovative solutions, and improving their impact



Fostering anticipation and providing expertise and scientific and technical support



Expanding skills and multidisciplinary approaches to meet the new challenges



Reinforcing our partnership and developing new collaborations

6 programmes - teams



Viruses



**Regulated
pests &
diseases +
emergencies**



Blackleg



**Potato
tuber
blemishes +
Pythiums**



**Genetics
and
support to
potato
breeding**



Biocontrol

Locations and partnership of our research activities



Fédération Nationale des Producteurs de Plants de Pomme de Terre

Innovation des Producteurs de Plants de Pomme de Terre

Ploudaniel
Ploudaniel



Hanvec



Le Rheu



Angers



Laurière



Paris

Paris

Gif-sur-Yvette



Amiens



Achicourt

Achicourt

Research partners
With inov3PT staff



Le Rheu (35)- Ploudaniel(29)



Centre de Ressources Régionales en Biologie Moléculaire

Amiens (80)



Gif-sur-Yvette (91)

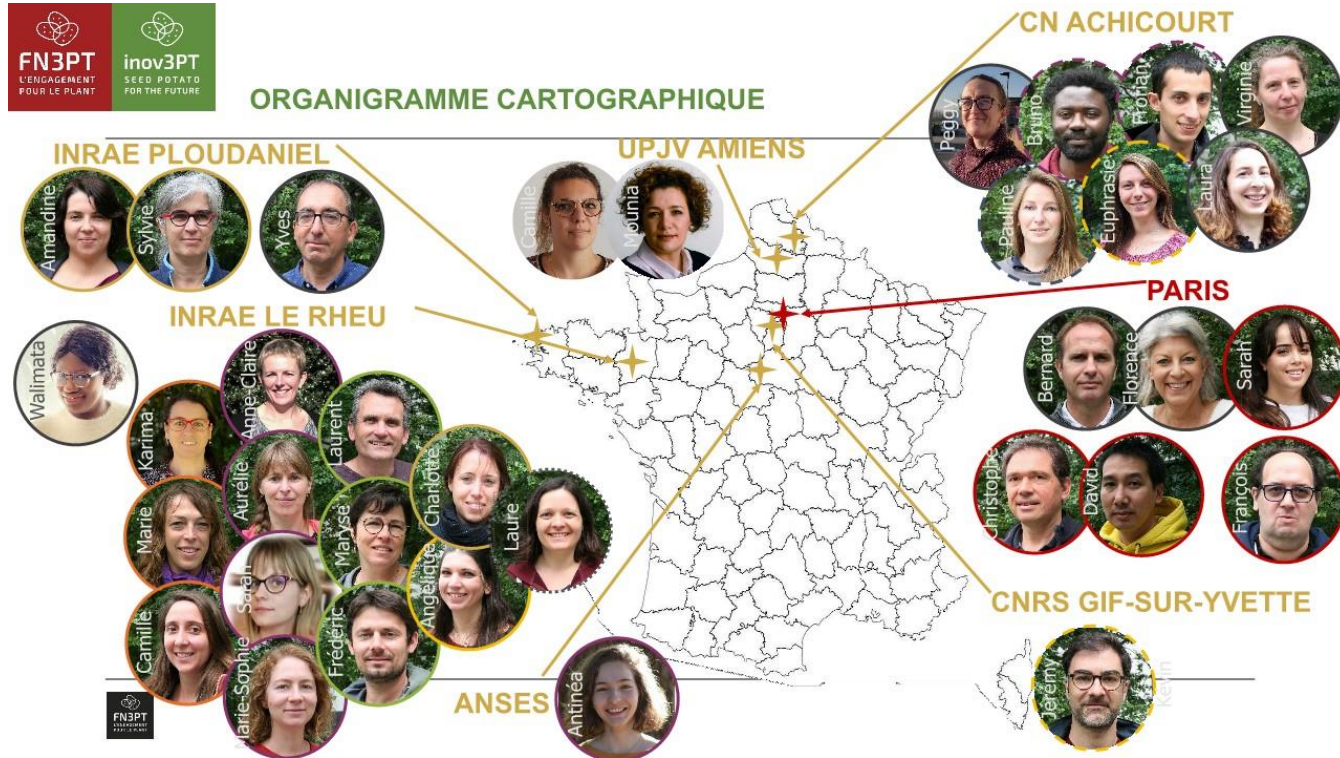


Angers (49)

3 growers organisations



FN3PT and inov3PT TEAM



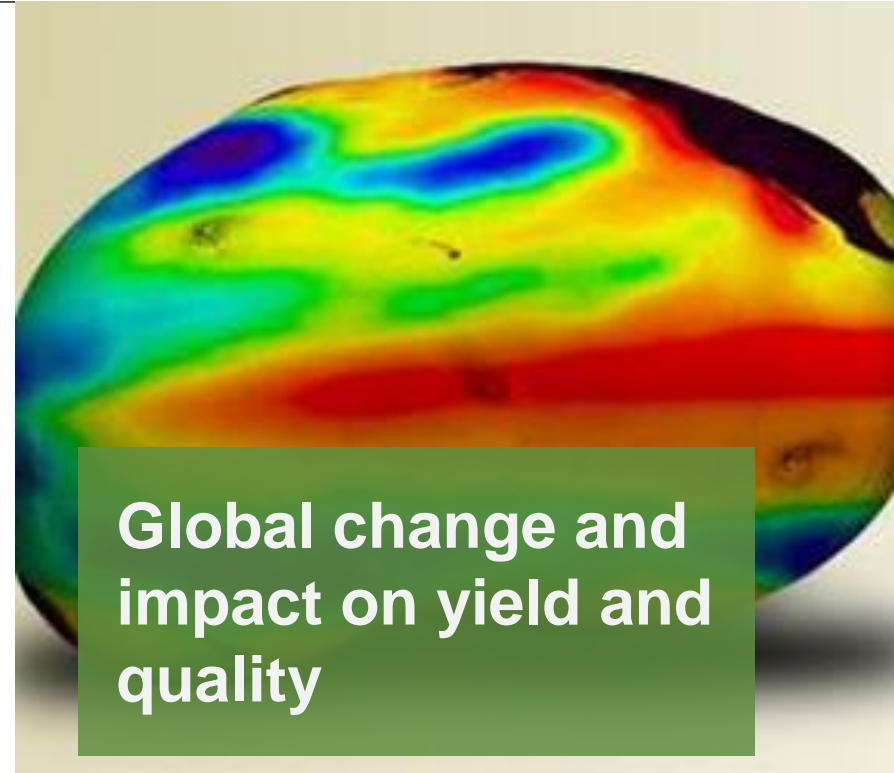


CONTEXT OF THE SEED POTATO PRODUCTION

*Global changes, regulation framework,
economic constraints.*

GLOBAL CHANGE

- Heat and drought in 2022, average yield 28,5 T/ha of certified seeds (vs 30,8 T/ha in 21/22)
- Drought before planting, then cold temperature and rain in 2023, rejection due to low emergence (372,88 ha rejected in 2023 vs 56,19 in 2022)
- High pressure of aphids and leafhoppers with elevated temperatures (cf 2020)
- Faster lifecycle for wireworms
- Some damages due to *alternaria* on tubers
- Etc.



REGULATION FRAMEWORK

- EU Plant Health legislation, EU Plant Reproductive Material legislation (under discussion), EU official control legislation, deregulation of some diseases
- NGT legislation (under discussion)
- Green deal, farm to fork, biodiversity and related legislations (SUR, Nature restoration, Organic). Legally binding targets reducing the use and risk of chemical pesticides by 50% by the year 2030. But 20% losses in yield (WUR impact study on SUR)
- In France, ongoing discussion to find alternatives to reduce the use of plant protection products.
- Less plant protection products available for seed potatoes (only one against aphids and with restrictions). So, more and more pressure of diseases and pests (wireworms, Colorado beetle, etc.) + Resistance development to PPP
- More downgrading and rejections (3% average rejection now vs 1,6 in 14/15)



ECONOMICAL CONSTRAINTS

- Production costs increase for seed potato production (12 185 euros/ha in 2022 vs 9 500 euros/ha in 2018)
- Electricity, especially for cold storage (+280% from 2018 to 2023)
- Incomes (average 10 550 euros/ha in 2020) do not cover the charges
- Example of costs related to
 - Blackleg : 3 millions euros for 21/22 due to rejection
 - Wireworms : cf herein after

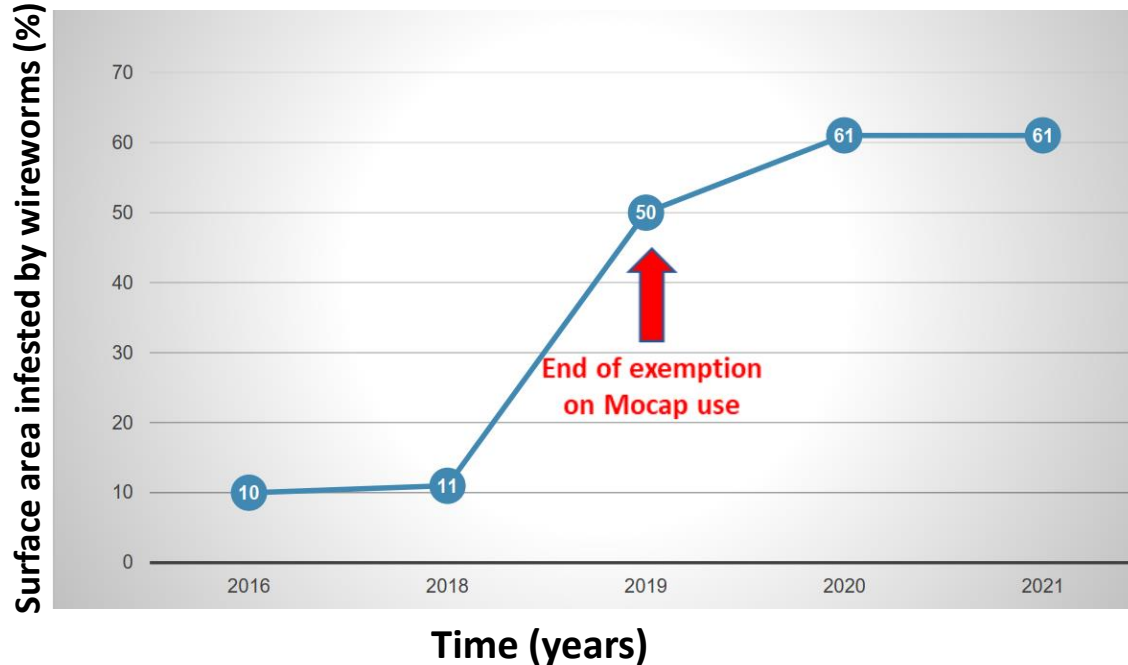
(source : FN3PT economic service)



Questions on the
profitability of the
production

Evolution of wireworm pest situation within the French seed potato sector

Affected area (%): Case study – Brittany, France (source : Bretagne Plants)



Certified seed production 2021

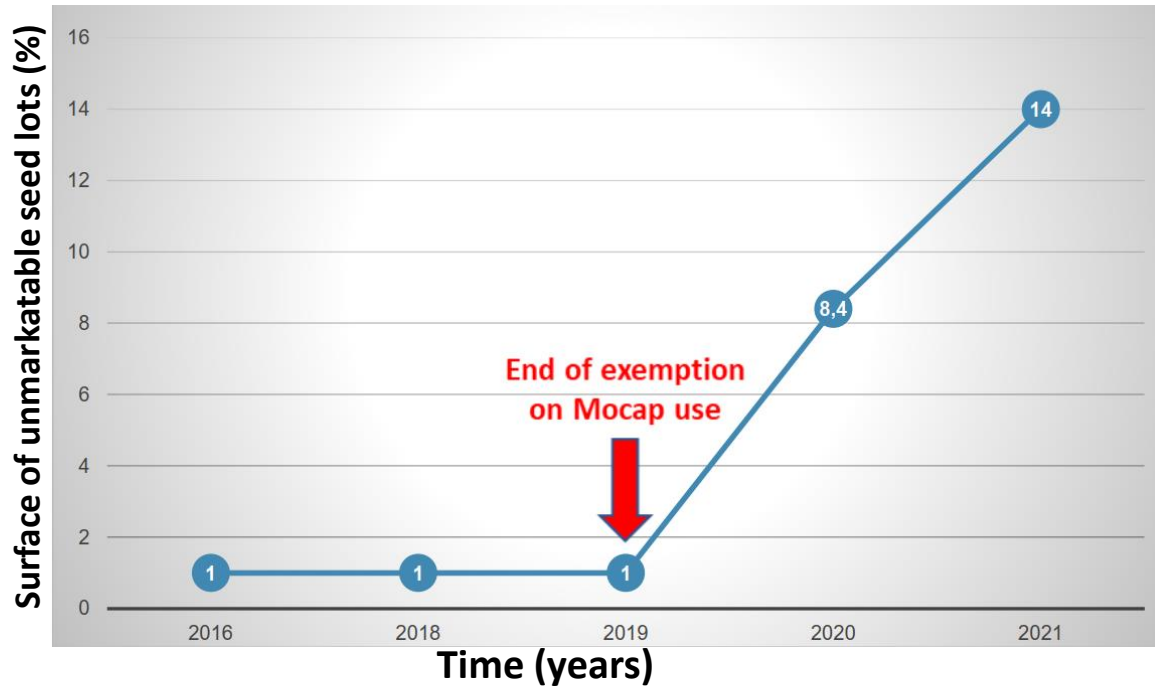
6 772 ha (4130 ha impacted)

215 000 tons of seeds +
(73 000 tons over size)

260 growers

Evolution of wireworm pest situation within the French seed potato sector

Not marketable area (%): Case study – Brittany, France (source : Bretagne Plants)



Certified seed production 2021

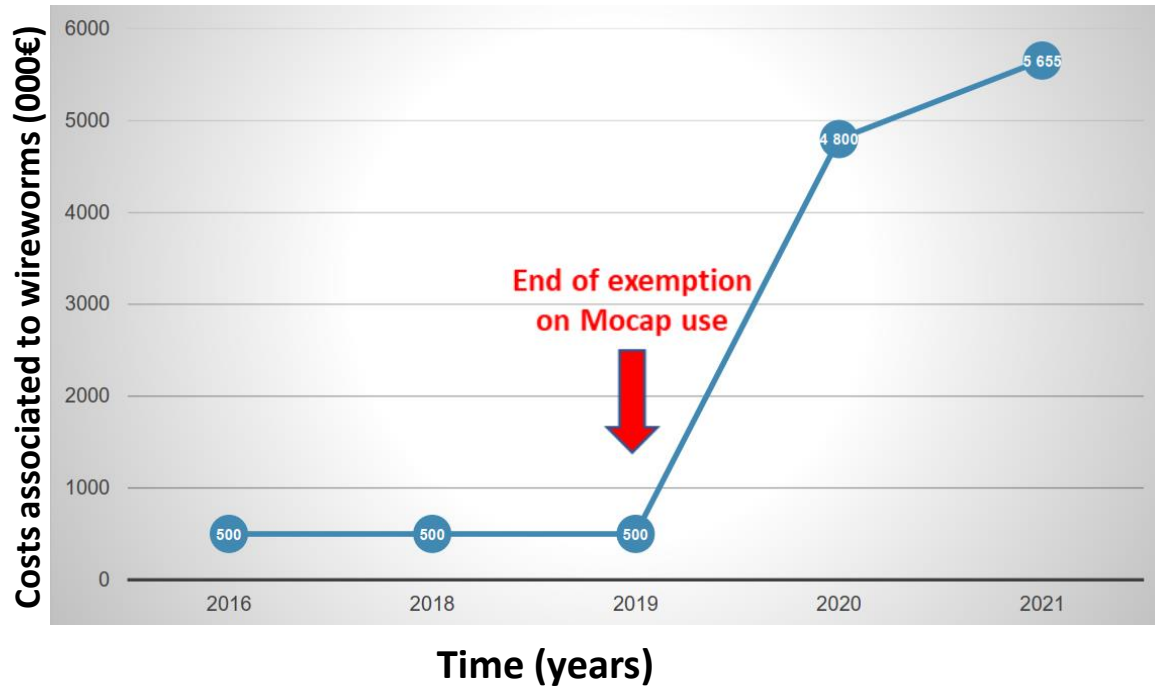
6 772 ha (**948 ha impacted**)

215 000 tons of seeds +
(73 000 tons over size)

260 growers

Evolution of wireworm pest situation within the French seed potato sector

Economic impact (000€): Case study – Brittany, France (source : Bretagne Plants)



Certified seed production 2021

6 772 ha

215 000 tons of seeds
(73 000 tons over size)

260 growers



CHALLENGES ADDRESSED TO THE POTATO RESEARCH

New production models to continue producing seed potatoes.

MANY CHALLENGES FOR POTATO RESEARCH

- Understand and anticipate the epidemiology (importance of the « epidemio-surveillance » - monitoring)
- Develop solutions of bio-control and others ways to fight against pests and diseases
- Anticipate the emergences or re-emergences (wireworms, phytoplasma, colorado beetle, etc.)
- Continue to develop efficient and modern detection tools (field pcr?)
- Rely on system approaches
- Microbiota - soil, plant, tubers
- Consider plant health in the broad sense (not only phytosanitary)
- Interaction genotypes, environnement, pests and diseases
- Climate modelisation
- *And many other challenges ...*



Seed potato growers (and potato growers) need a strong research (and results) to reinvent their production models

THANK YOU FOR YOUR ATTENTION AND FOR ATTENDING THIS CONGRESS
THANK TO THE PARTNERS and inov3PT TEAMS INVOLVED IN THE ORGANIZATION
AND ESPECIALLY KARIMA AND VIRGINIE

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