



# Impact of climate change on seed potato production

## UNECE

Geneva – 26-28 March 2024



01

# Summary of the Rapporteur's meeting

## Presentation “*Climate change : adaptation challenges for potato production in France and Western Europe*”.

Brest, October 2023



# Climate change : what has already changed ?

## The findings and evidence

Europe is warming faster than the world.

Europe is warming around +4°C / century since 50 years

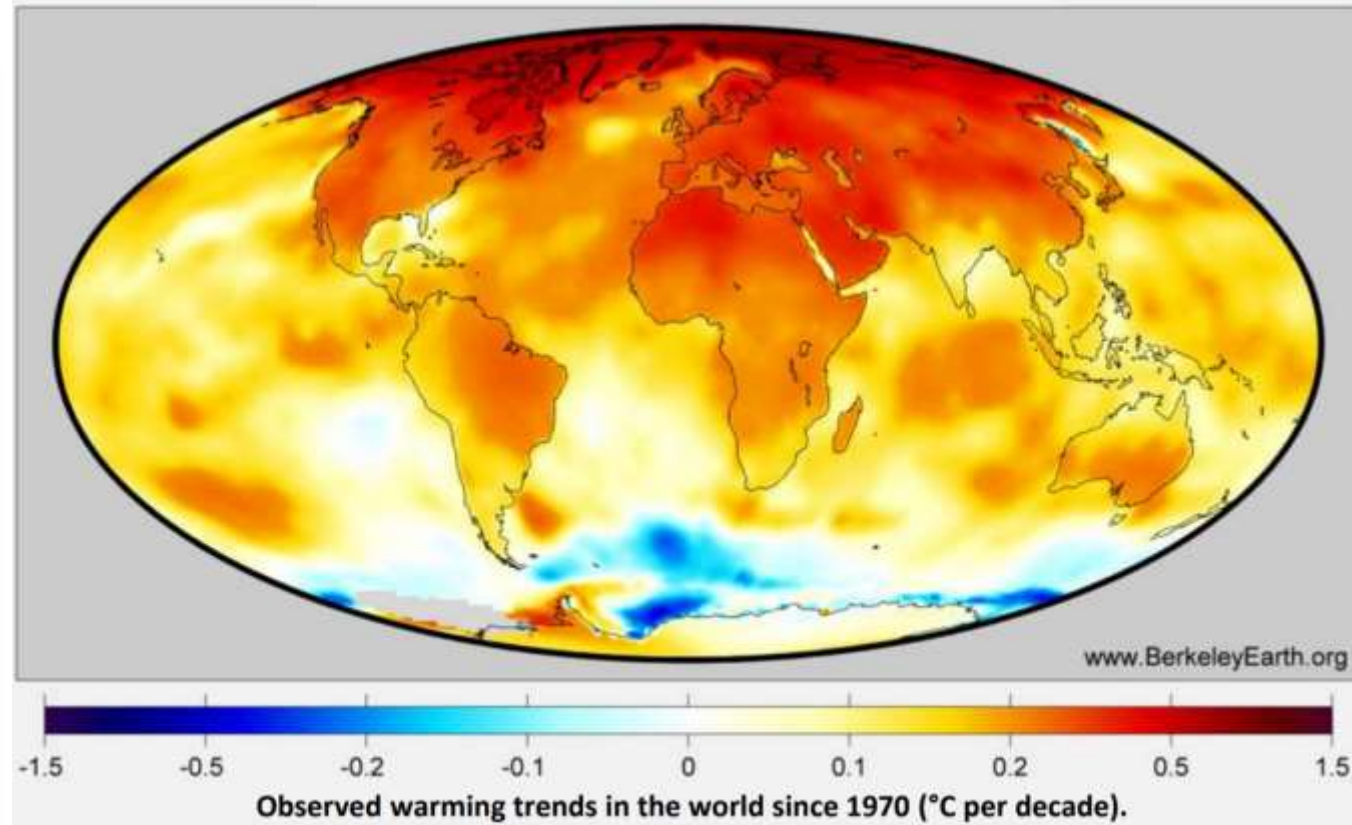
Hot days (Temp.  $\geq 25^{\circ}\text{C}$ ) per year have almost doubled since 1959

Heat waves : multiplied by 4 since 1947.

Frost days (TN  $\leq 0^{\circ}\text{C}$ ) per year have almost halved since 1947.

Annual rainfall trends : related to location but are increasing in the world as a whole. Wetter in northern Europe, dryer in the south (but almost steady in Europe as a whole).

Potential evapotranspiration : increasing wherever you are.



# Future climate : what to expect ?

## Projections for the coming 30 years

Warming is going to pursue, at least 30 years

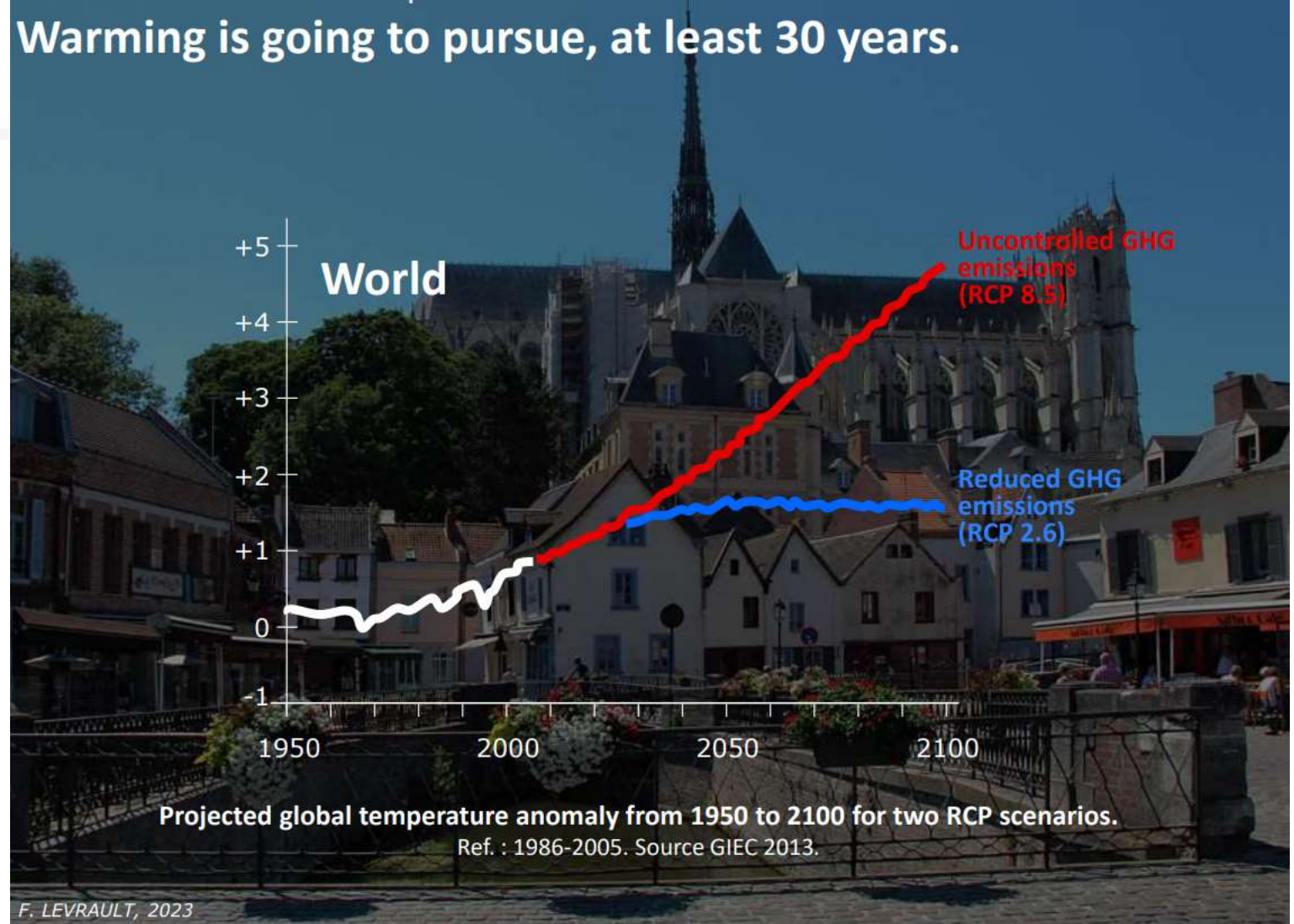
Warming will still be substantial

Hot days will become more frequent.

Frost days will become rare.

More differences between seasonal rainfall.

Evapotranspiration (Eto) : growing for the 4 seasons.





# Future climate : A few issues for an adaptation strategy



## Future challenges for potato growing

Cold needs for potatoes conservation.

Erosion when heavy rain on bare soils.

Water demand during vegetation period.

Risks of physiological blockings (due to the increasing number of hot days per year).

Future summers : hotter for sure, but dryer or wetter ?

In NW Europe, warming is more concerning for potato growing than water stress is.

→ Recommend to make projections at local scale to better understand future climate and think to adaptation solutions



# 02

## Summary of the Rapporteur's meeting

Outcomes of the discussion between  
the participants

Brest, October 2023



# Participants' contributions

## Many different potential impacts

### Impacts due to warming

More energy needed for cooling in potato storages due to warmer autumn

Impact on dormancy

Increased risk of physiological blocking on hot days

Non-adaptation of many varieties to high temperatures

Warmer winters, disease and insects do not die during winter

More difficult work for staff in fields, including inspectors, when hot weather

### Impacts due to water

Erosion, heavy rain on potato field

Increased need for watering during growing season

Increased water stress

Increased rain, impact on potato quality

Enough ground water?

### Impacts due to climate change (in general)

Increased extreme weather conditions, Dryness and hot weather in spring

Changes during growing season, New timing in growth, Changes of planting time

Impact on diseases, pests, weeds : New insects and weeds, new virus strains, potato blight, 'old' pests return, ...

More defects, misshapen and damaged tubers

More uncertainties during inspections (stressed plants difficult to inspect)

Increased costs for farmer

Impact on insurances for farmers

Changes in farming practices, Sustainable agri.

Political influencing

Plant breeding and new genomic techniques

→ *More negative impacts than positive ?*



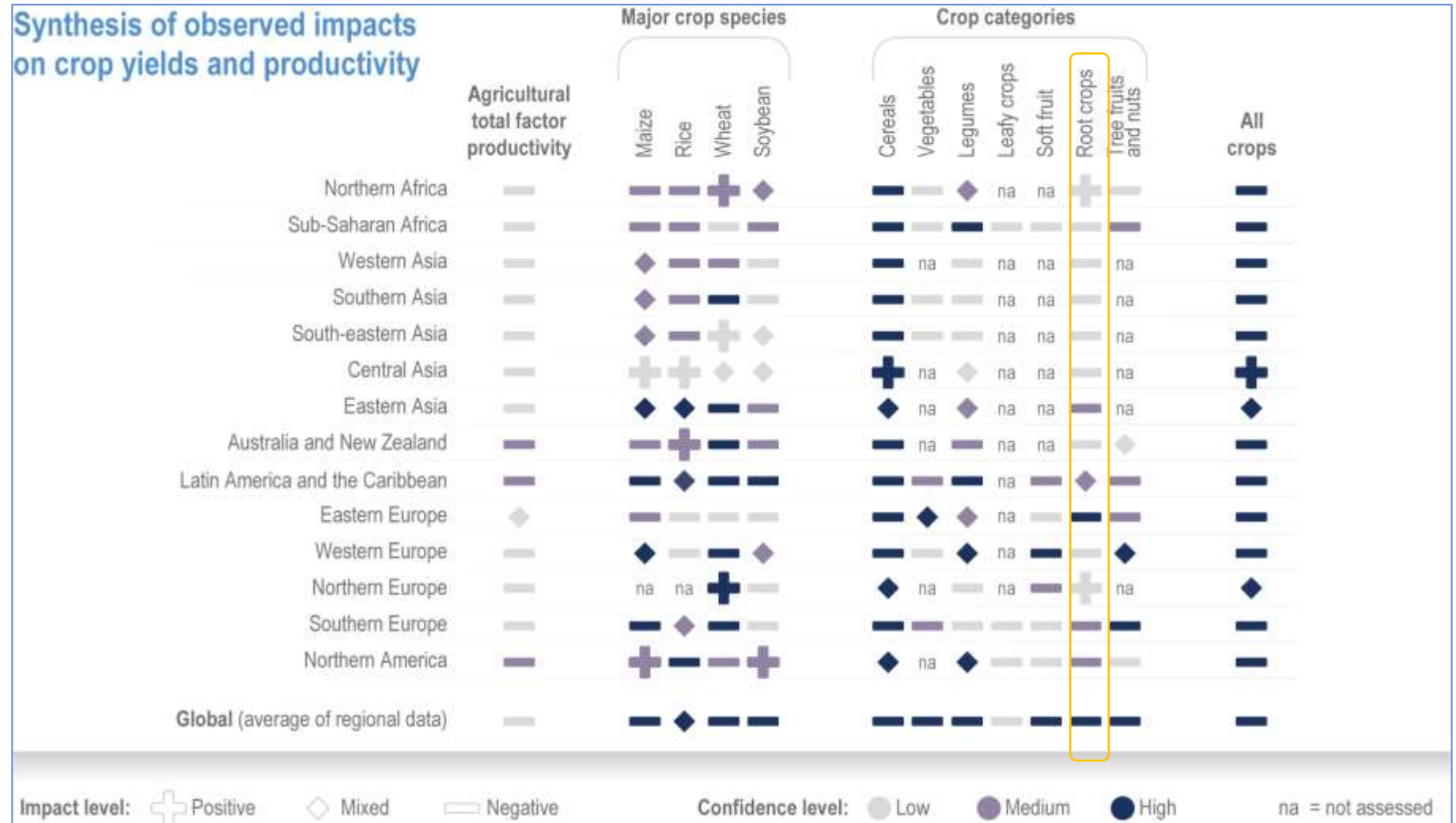
## Some findings in the literature :

“Global climate change is causing notable shifts in the environmental suitability of the main regions involved in potato cultivation and has, thus, changed the production potential of potatoes.”

“Projected potato yields will decline by the end of the century due to climate change, but impacts and impact uncertainties will vary across regions.”

Potential expansion of pests (Potato blight, Colorado beetle, fall armyworm...).

“Pest risk analysis activities need to be intensified at national, regional and international levels and climate-change aspects need to be included in the assessment of pest risk.” (IPPC)





# 03

## Climate change :

Should it be a major concern for the UNECE seed potato standard ?



## How to continue the work on this topic ?

