

# Introducción a los Grupos de trabajo I y II: Impacto y adaptación

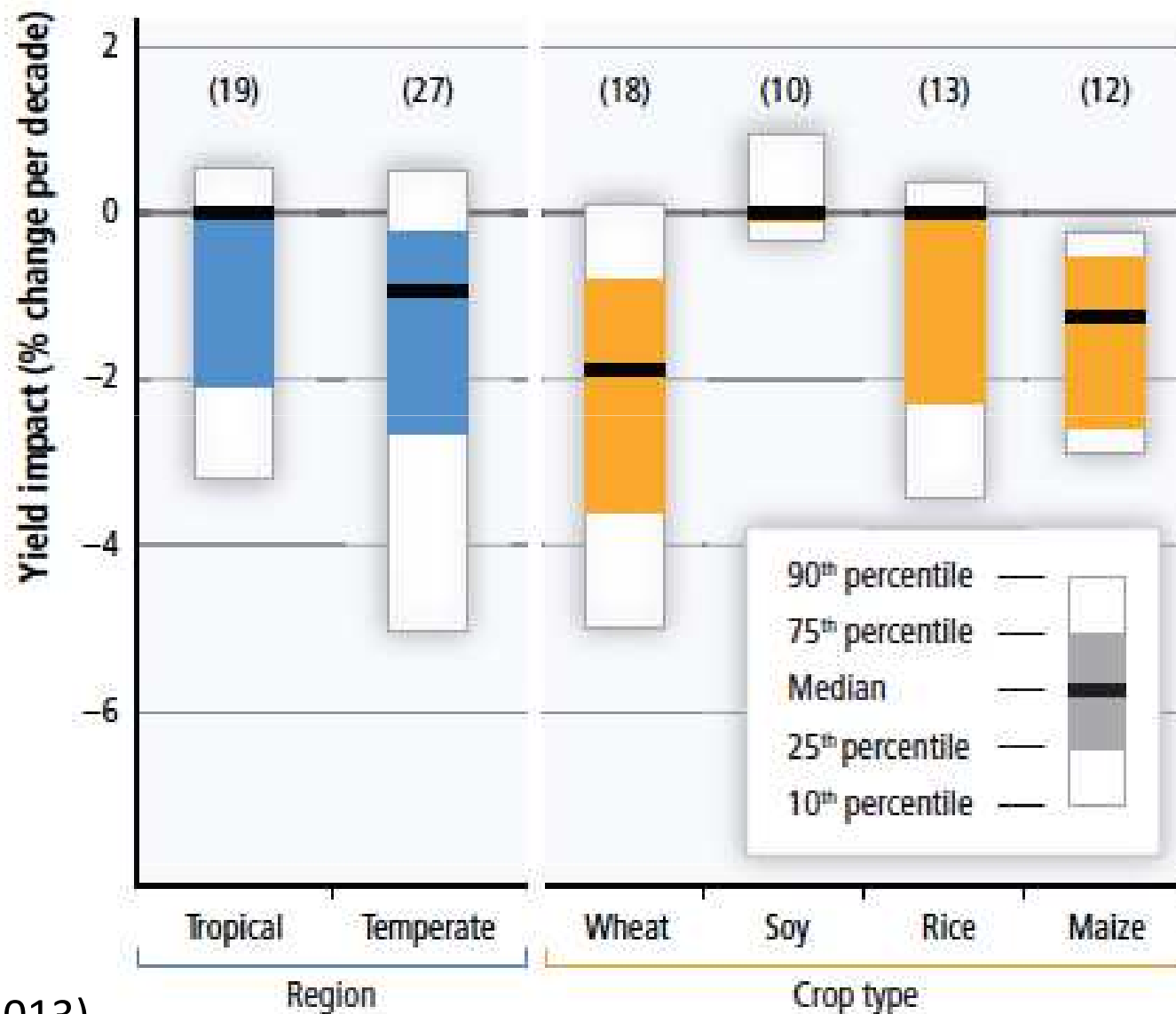
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Madrid**

**IMPACTOS Y ADAPTACIÓN AL CAMBIO CLIMÁTICO  
EN EL SECTOR DE LOS CULTIVOS HERBÁCEOS E  
INDUSTRIALES**

CENEAM, Valsaín (Segovia), 4-5 de abril de 2018

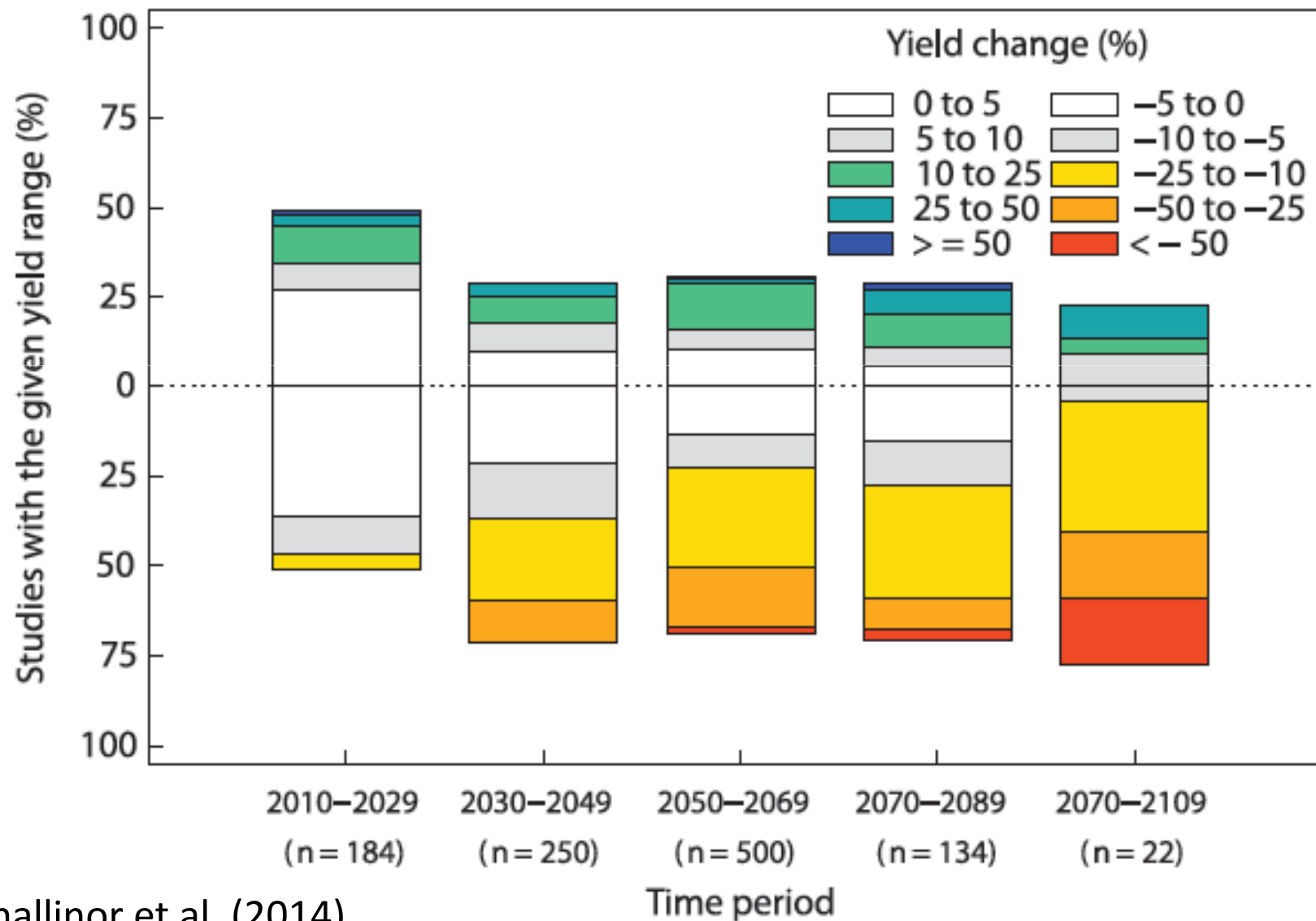
Organiza: LIFE-SHARA en colaboración con la SG Cultivos  
Herbáceos, Industriales y Aceite de Oliva

# Observed Impacts 1960-2013



# Projected Impacts 2010-2100

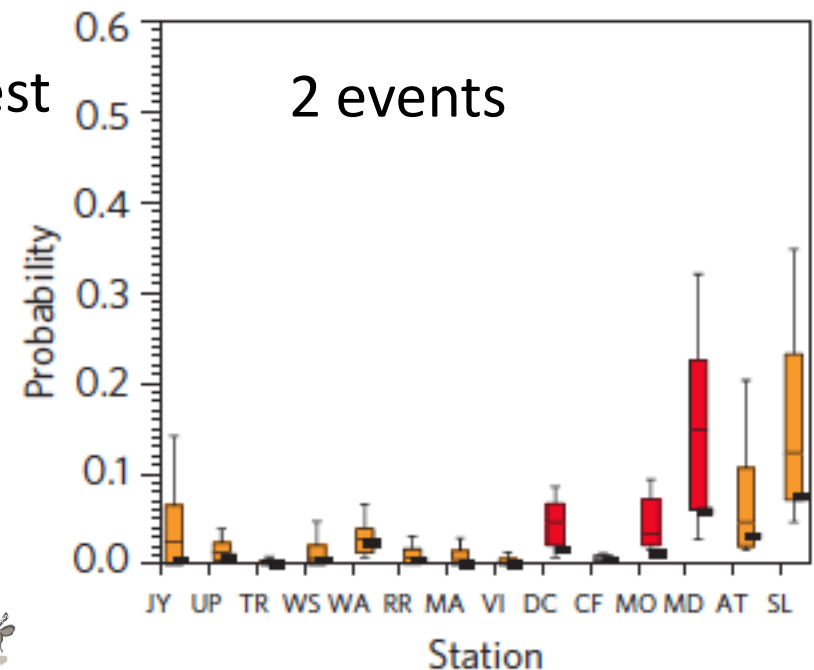
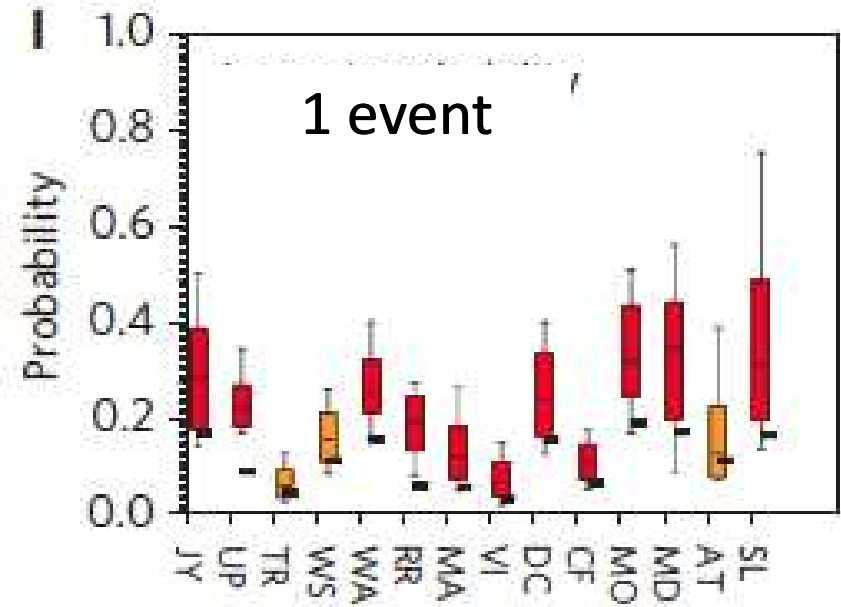
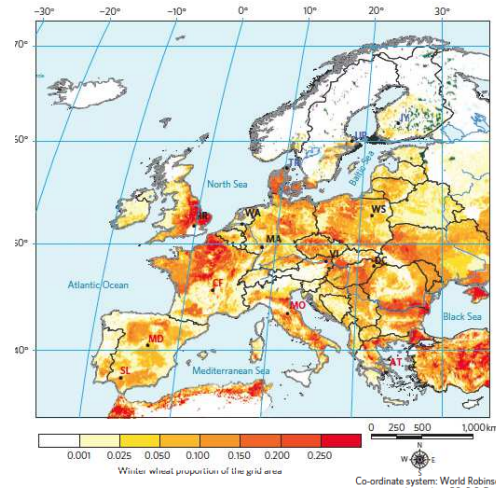
Projection consensus (20-year bins)



# Rainfed wheat

## Extreme events in Europe

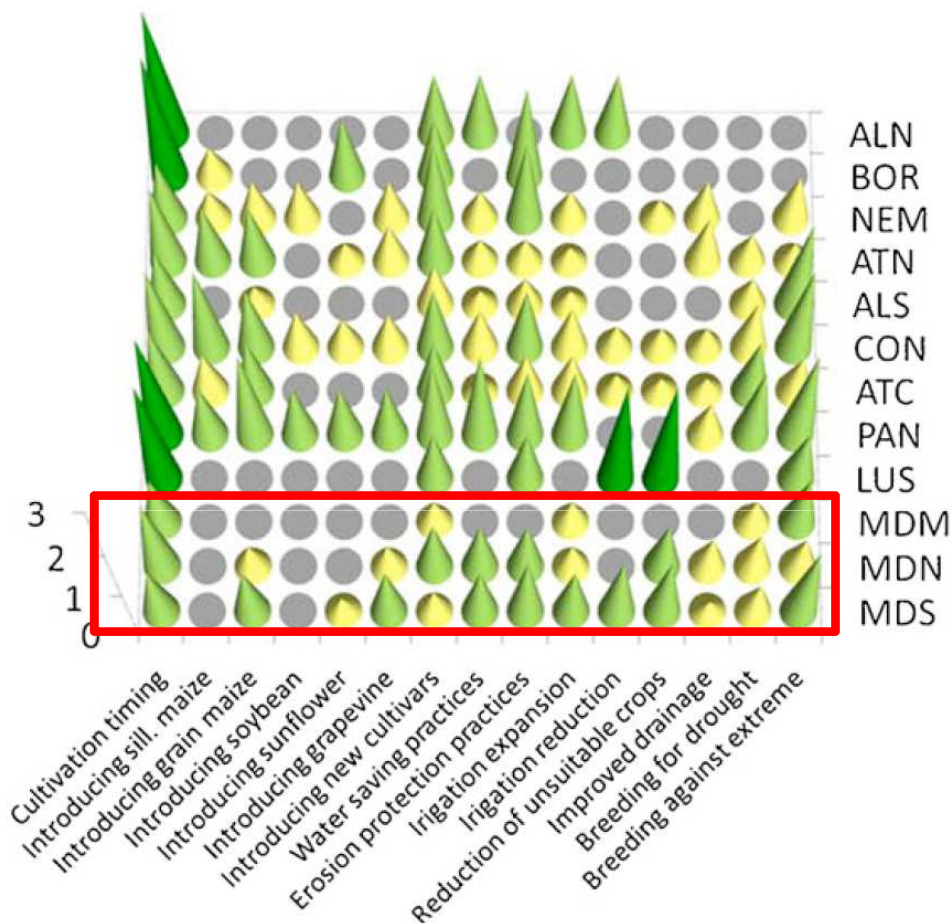
- Frost stress
- Water logging
- Heat waves
- Drought
- Adverse conditions at sowing and harvest
- For early, standard, late cultivars
- At different phenological stages



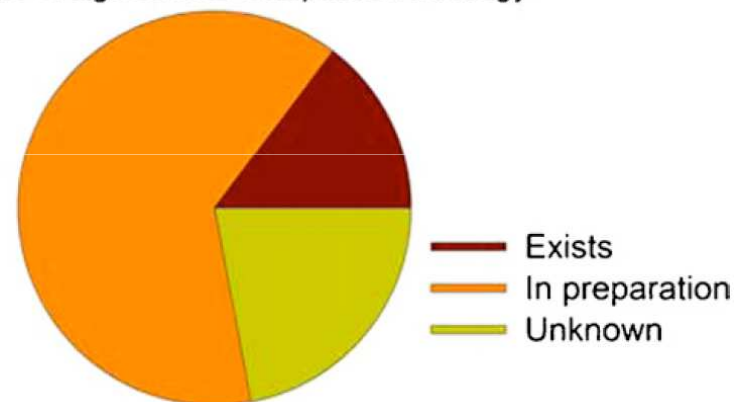
Trnka, Rötter, Ruiz-Ramos et al. (2014) Nature CC



# Observed Adaptation



Status of agricultural adaptation strategy



Olesen et al. (2011)

Extent of observed adoption of adaptation options:

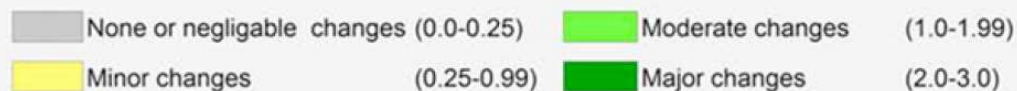
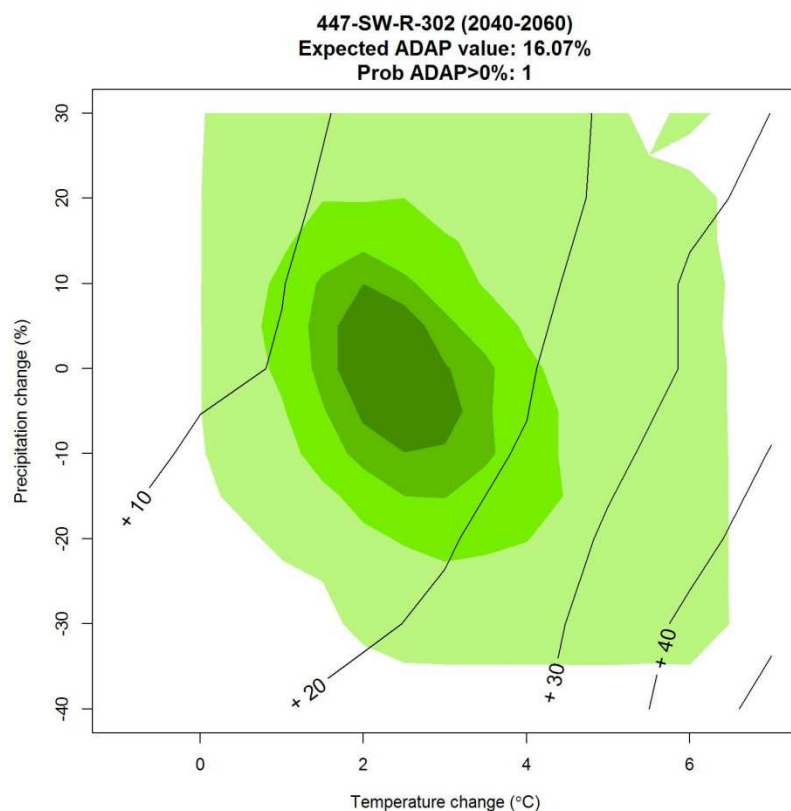


Fig. 6. Observed adaptation responses as reported by respondents for individual environmental zones.

# Adaptation: What is the most likely future?

## Adaptation: spring wheat



## Probabilistic assessment

- Impact & Adaptation response surfaces
- Likelihood of being above/below a threshold of yield
- The threshold can be set by stakeholders

Ruiz-Ramos et al. (2017); Ferrise et al. (2017)