

Irrigation water allocation improvements in Spain

Elías Fereres

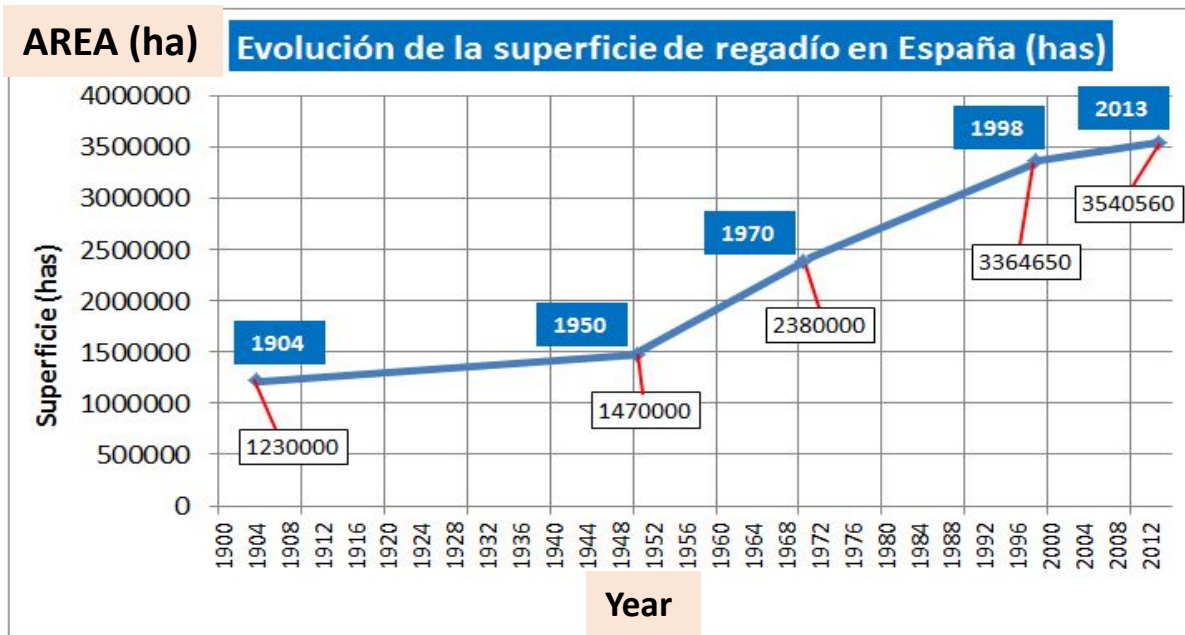
IAS-CSIC & University of Cordoba





IRRIGATION DEVELOPMENT IN SPAIN

IN THE SECOND HALF OF THE 20TH CENTURY, IRRIGATION AREA WAS DOUBLED AND IT CONTINUED TO INCREASE INTO THE 21ST CENTURY (today 3.7-3.8 Mha)



Hydrologic basin water authorities (since a century ago)



- Demand expansion in some basins is creating tensions
- *Water scarcity situations more common in the East and South*

Variable economic water productivity:

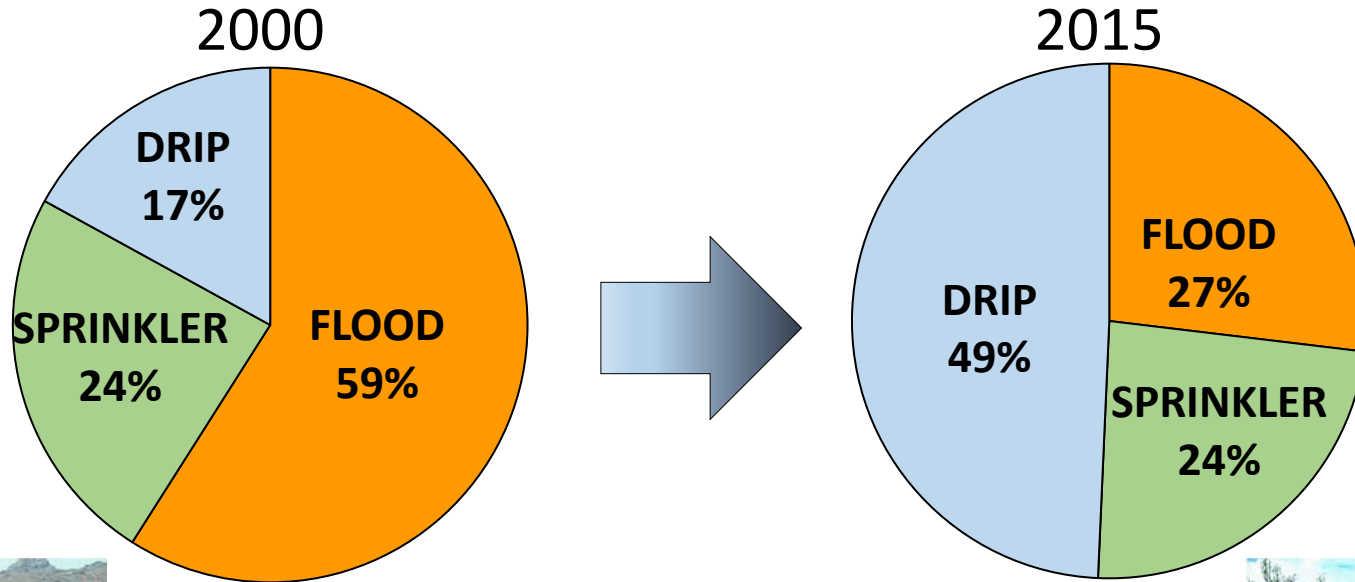
- 0.2 €/m³ (maize),
- 1-2 €/m³ (olive, cítrus),
- 10-20 €/m³ (greenhouses)

IRRIGATION MODERNIZATION PLAN IN SPAIN (2002-2015)

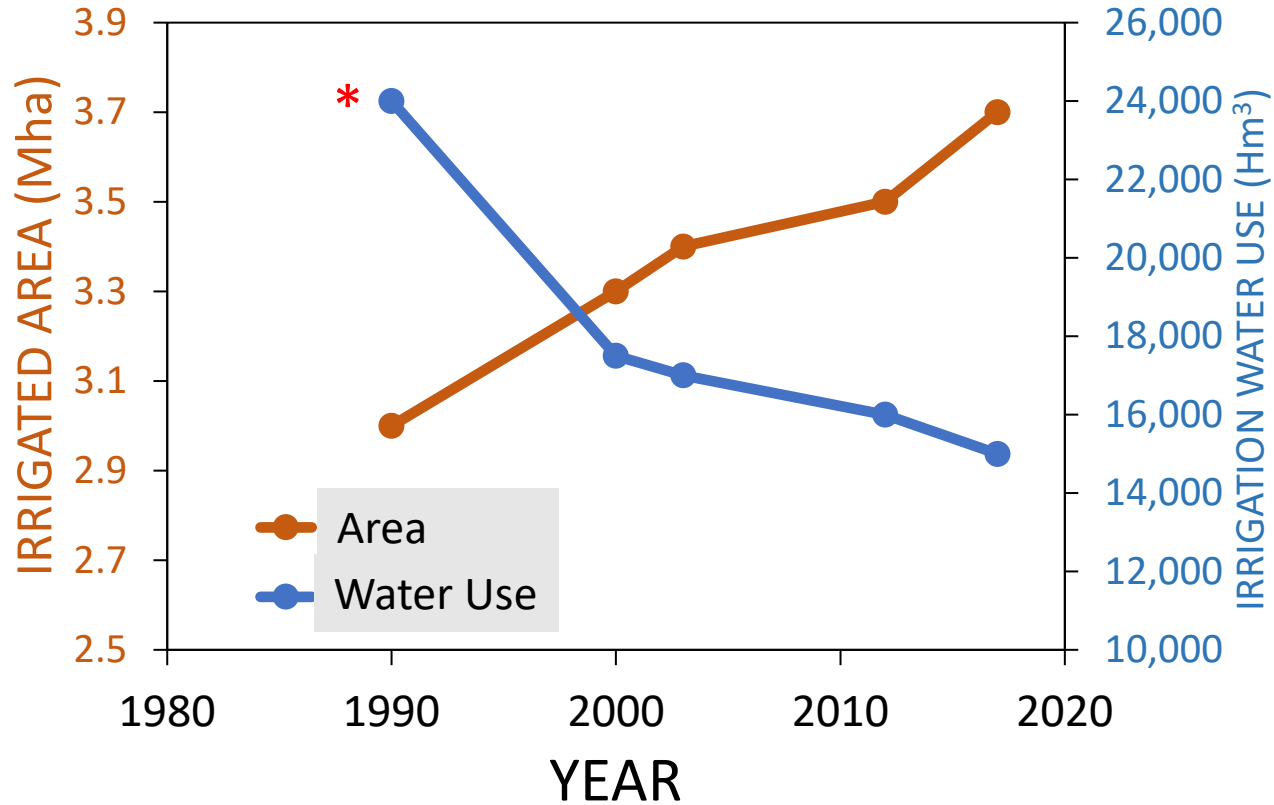


- **FROM OPEN CHANNELS TO PRESSURIZED NETWORKS (more energy)**
- **CHANGES IN IRRIGATION METHODS AND CROPPING PATTERNS**
- **GREATER EFFICIENCY; but, net water savings??**

IRRIGATION MODERNIZATION



TRENDS IN AREA AND WATER USE



A COMPARISON BETWEEN SPAIN AND CALIFORNIA

	España	California
Average precipitation (mm)	662	545
Dam storage capacity (Hm ³)	56.000	63.000
Inter-basin transfers (Hm ³)	600	17.500
Water diverted for irrigation (Hm³)	15.000	40.700
Irrigated area (Mha)	3,7	3,6
Applied water (m ³ /ha)	4.100	11.000

Adaptado de Berbel & Esteban (2019)



Roughly, two good rainfall years every ten years have been sufficient to meet demand until now; what about in the future??

THANK YOU