



# Impact on climate change on fruit and vegetables production and cooperatives in Italy, Spain and Greece

Civil dialogue  
group agricultural  
markets: F&V

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**copa**\***cogeca**  
european farmers      european agri-cooperatives



# Tomatoes – Italy: trends in production & yields

**Pomodoro – produzione conferita all'industria conserviera in Italia (in 1.000 kg)**

	2019	2020	2021	2022	2023	Var. 2023 vs 2022	2023 vs media 2020-22
<b>ITALIA</b>	4.801.990	5.174.550	6.063.444	5.476.496	5.403.840	-1,3%	-3,0%
<b>Bacino Nord</b>	2.370.087	2.750.403	3.094.768	2.884.888	2.798.312	-3,0%	-3,8%
<b>Bacino Centro-Sud</b>	2.431.903	2.424.147	2.968.676	2.591.608	2.605.528	0,5%	-2,1%
<b>Quota percentuale della superficie coltivata</b>							
<b>Bacino Nord</b>	49%	53%	51%	53%	52%		
<b>Bacino Centro-Sud</b>	51%	47%	49%	47%	48%		

Fonte: elaborazione ISMEA

**POMODORO DA INDUSTRIA - EVOLUZIONE RESA Ton/ha**

	anno	anno	anno	anno	anno	Var. %	Var. %
	2019	2020	2021	2022	2023	2023/2022	2023/2019-22
<b>Bacino Nord</b>	64,76	74,19	80,13	77,92	71,88	-7,75	-3,19
<b>Bacino Centro-Sud</b>	86,79	84,87	91,15	92,04	88,15	-4,23	-0,64

# Tomatoes–Italy: impact of climate change



## Effects on yields

- Yield decline in 2023
- Delay in transplanting (due to spring rains)
- Diseases such as downy mildew & alternaria

## Effects of extended high temperatures on the tomato crop (open air)

- Reduced plant growth
- Poor quality of the barriers with lower sugar content and altered skin colour
- Apical rots caused by lower calcium uptake from the soil

## Effects of humid condition on tomato crops (Greenhouse)

- increased vegetation
- wilting
- Sensitivity to cryptogamic attacks
- increased blossom drop, proliferation of insects, virus and bacterial attacks.

# Tomates – Italy: compensation tools



## EU level

- Regulation (EU) 2023/1465
- Regulations 1619/2023 and 1620/2023

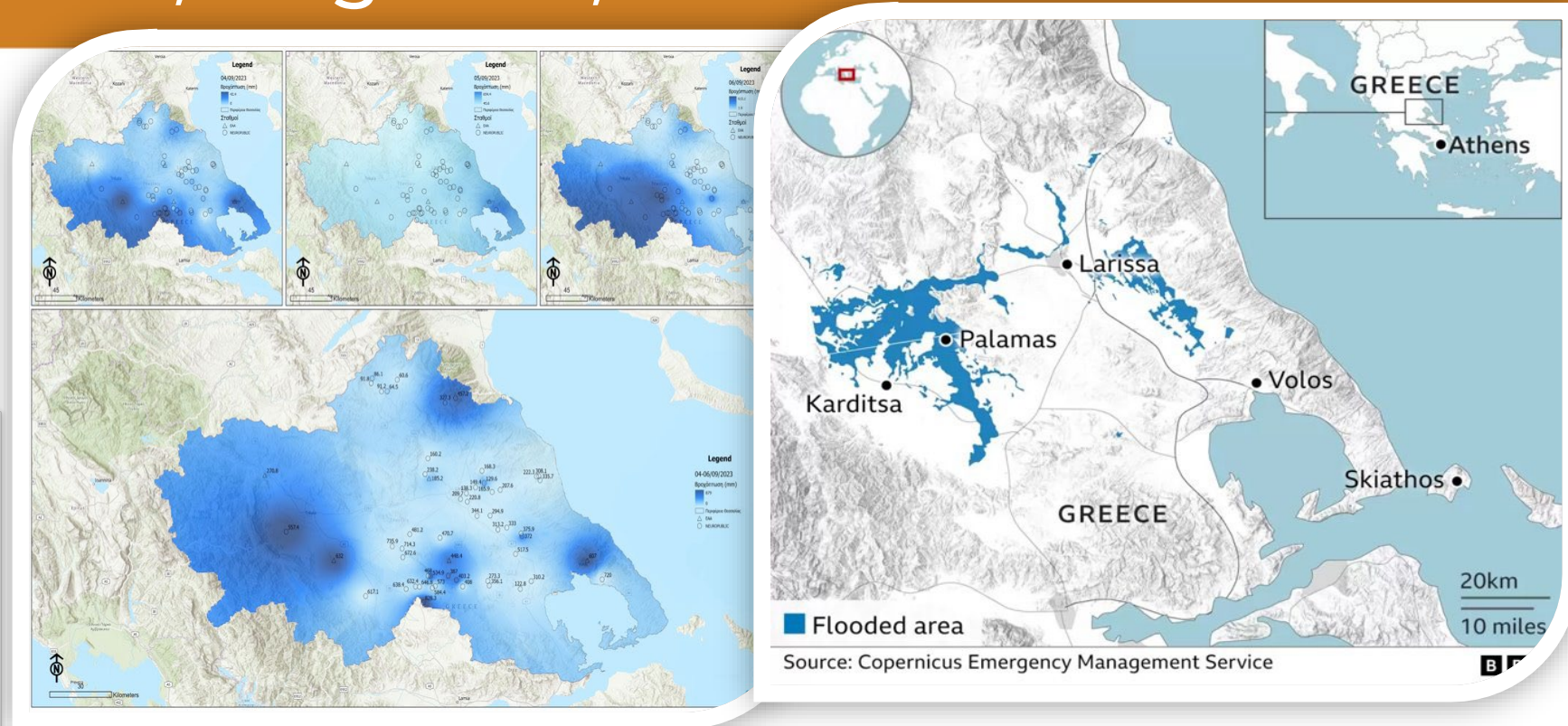
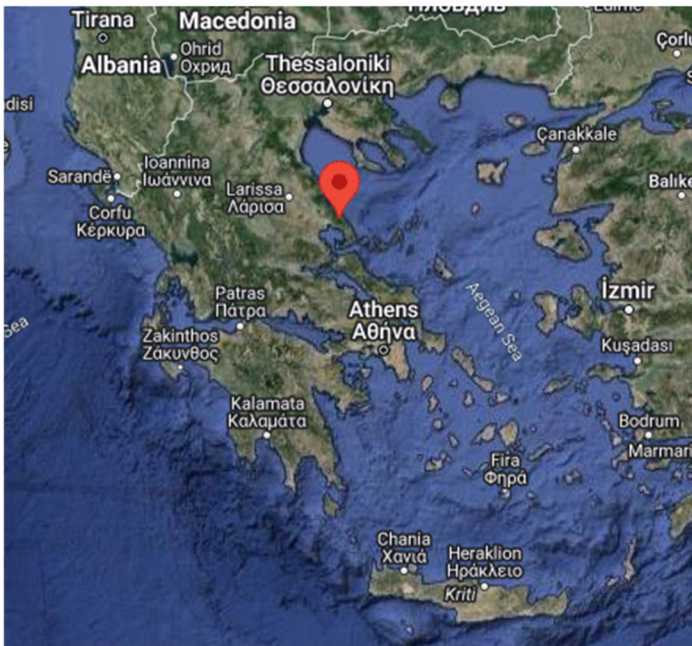
## National level

- Decree 61/2023 (Flood Decree)
- Decree No. 0315386 of 06/16/2023 (derogations to to Pac Aid, coupled aid and PO operational programs.)
- Decree No. 594120 of 25.10.2023 (allocation of 100 mln through the crisis reserve and related national co-financing - spring 2023 flood events)
- Legislative Decree 102/2004 (national Solidarity Fund Puglia region)



# Case: A.C. of Zagora-Pilio Zagora Pelion, Magnesia, Greece

Phenomenon:  
Floods  
Sept.2023



POs encountered 3 major disasters

1. Losses of fruit on the trees
2. Damages to plant capital as fields flooded
3. Extensive damages to road infrastructure

# Case: A.C. of Zagora-Pilio

## Zagora Pelion, Magnesia, Greece

The Agricultural Cooperative of Zagora-Pilio has a turnover of 20.579.000€ (2018) and about 702 PDO apple producers

- \* Phenomenon occurred during harvest, resulting in 30% production loss.

### Current Situation:

- \* Producers still recovering.
- \* Organization's exports unaffected; alternative transportation methods found.
- \* Prices unaffected; absorbed any increases.
- \* Challenges in road infrastructure for heavy vehicles persist.
- \* Some fields abandoned or destroyed due to sloping soils, reducing cultivated land.
- \* Producers received satisfactory advance payment from ELGA, but not all losses compensated.
- \* Major concern: damage to irrigation networks.
- \* Significant apprehension of recurring event before full recovery, considered probable.





# PO of Agricultural Cooperative of Episkopi “Alexandros”, Episkopi, Imathia, Greece

Phenomenon:  
Frost  
Spring 2023

- \* Spring frost inflicted damage on early varieties of peaches, apricots, and cherries.
- \* Unseasonal rainfall during the flowering period resulted in incomplete pollination of stone fruits, leading to fruit loss.
- \* Following the rains during fruit set, the remaining production faced challenges as the fruit did not exhibit normal growth.
- \* Recurring rainfall, had further consequences on the quality and characteristics of the fruit.
- \* Continuous hailstorms also contributed to rot and infections, which progressively affected cultivation over time.
- \* Significant damage was observed in early varieties of stone fruits, mid-early and late varieties maintained high quality.
- \* Producers experienced a 30% loss in production.
- \* Producers are awaiting compensation from the Hellenic Agricultural Insurance Organization (ELGA)

Producers confront such phenomena approximately every two years and are actively seeking solutions.



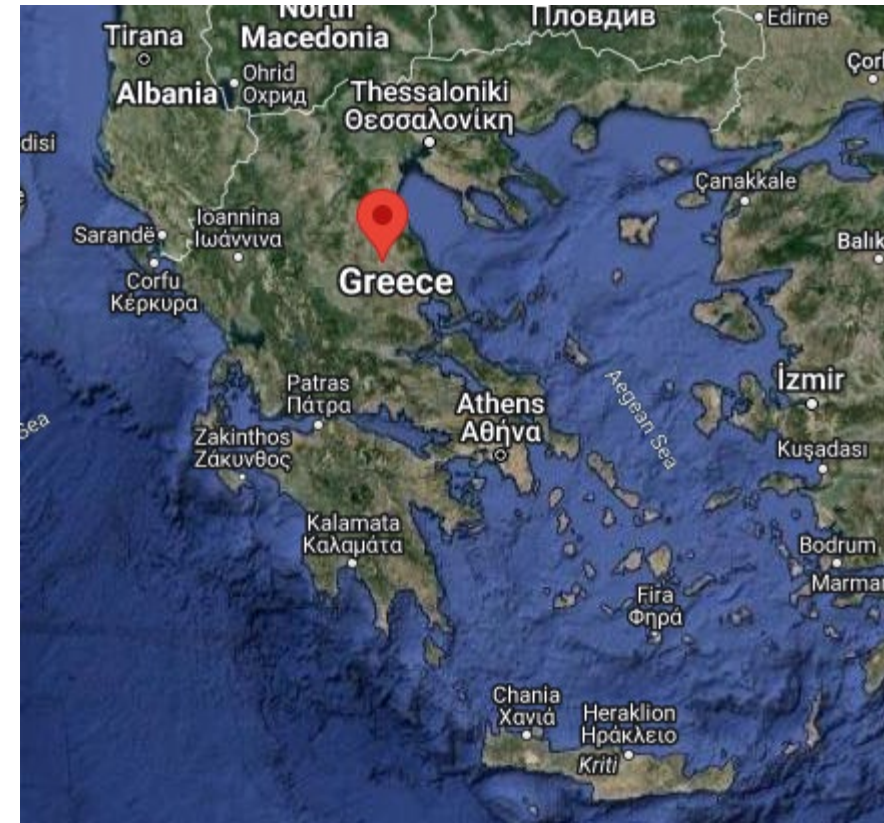
# Organization of Industrial Tomato Producers "THESTO"- Farsala, Larissa, Thessaly

Phenomena:

1. Unpredictable precipitation
2. Heatwave
3. Flood 2023

Industrial tomato cultivation faced moderate challenges in 2022-2023, but these challenges had a cumulative impact throughout the year:

- \* Prolonged attacks from downy mildew (*Phytophthora infestans*) due to heavy rainfall and humidity in May and June.
- \* Prolonged heatwave during the summer period.
- \* Floods from storms Daniel and Elias in the autumn.
- \* Downy mildew affected 2000 stremmata, resulting in reduced production.
- \* ELGA does not provide compensation > secondary damage, producers seek a change in policy.





# Organization of Industrial Tomato Producers "THESTO"- Farsala, Larissa, Thessaly

- \* July 13, 2023, soil temperature in the Thessaly plain reached approximately 55°C.
- \* Extreme temperatures destroyed fruit development and fruit set, leading to further production reductions.
- \* Flooding affected 2,500 to 3,000 stremmata out of 19,500 stremmata, particularly impacting late varieties.
- \* An estimated 30,000 tons of product were lost.
- \* Around 10% of producers were affected several experiencing degraded quality and some facing complete crop loss.
- \* Some fields remain flooded despite the subsequent dry spell.
- \* ELGA provided a prepayment to producers; the assessment of the disasters is still ongoing.
- \* Producers and processing units in the area suffered equipment losses

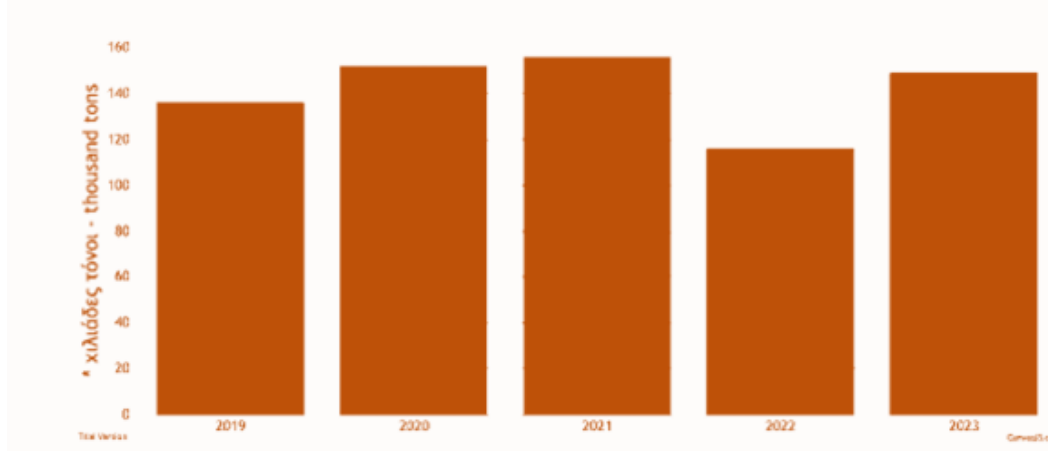


Fig. 1 Evolution of production of the Producer Organization THESTO (<https://www.thessto.gr/>)

Notable shift of producers towards tomato cultivation from other crops such as cotton and maize in the region, resulting in a 4,500-stremmata increase in cultivation areas.

Stremmata = 1,000 square meter

# CITRUS – Spanish case

Spain: Climate change. Consequences in citrus. Decrease in production and the knock-on effects

- \* The drought and extreme climatic conditions recorded in 2023 have been decisive for the bad results, mainly due to the lack of **water availability**, the **abnormally high temperatures** recorded during the flowering and fruit setting phases, and the **heat waves** in later stages that have required irrigation restrictions in some regions.
- \* **Production of 5.75 million tons of citrus fruits in the 2023/2024 campaign. 14.4% below the average of the last five campaigns.**
- \* Lower production leads to **job losses** linked to production itself, eliminate direct jobs in handling, preparation, packaging and marketing, decrease business volume and value including exports, impact on the transport sector
- \* **Ecological impact** due to the abandonment and degradation of hectares of surface today key for the absorption of hundreds of thousands of tons of CO<sub>2</sub>, among others.

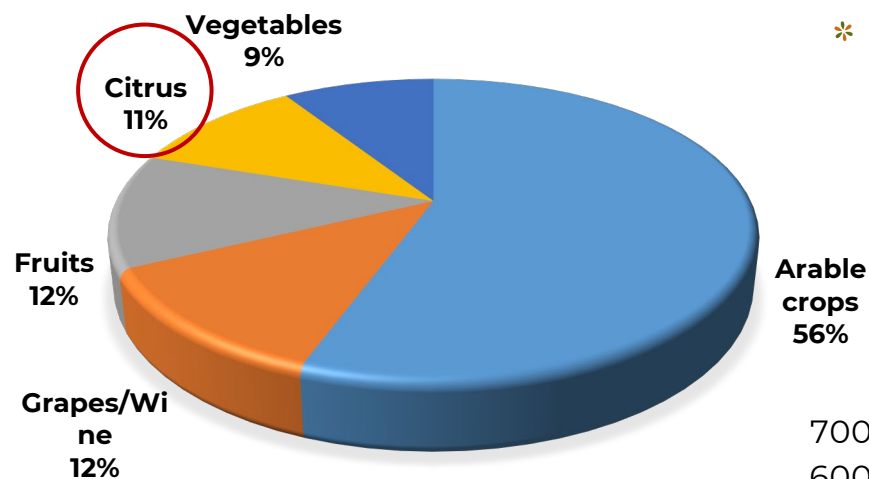




# CITRUS – Spanish case

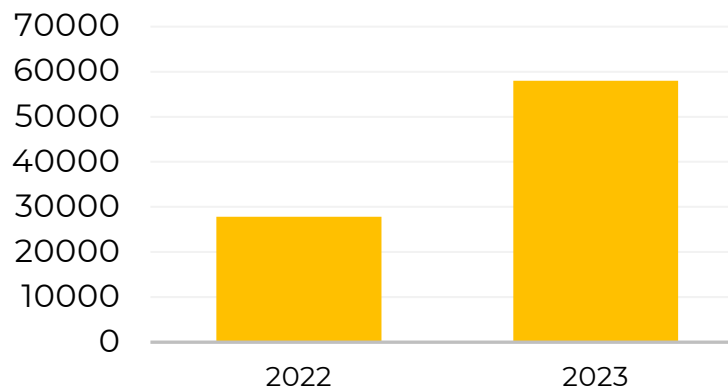
## Damage assessment

DAMAGES BY CROP. 2023. SPAIN



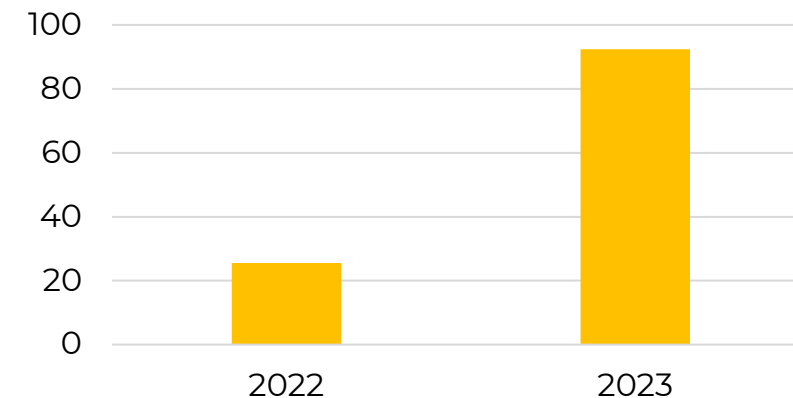
- \* Citrus area in Spain: 306,703 hectares. Insured area 122,496 hectares (2023) (approx 40 %)
- \* The area damaged in Spain due to the different risks that have occurred amounts to 27,804 hectares of citrus trees in 2022. (compensation € 25.54 million) In 2023 it amounted to 57,956 hectares. (€ 92.42 million) In the Valencian Community, more than 11,000 accidents were declared).

Citrus: Spanish damaged surfaces (ha)



Increase: 108, 4 %

Citrus: Compensation for damages (M€)



Increase: 262,13 %

# CITRUS – Spanish case

Entry schedule of new citrus pests (2000-2022)

**Anatrachyntis badia** (first observed in Alicante (Comunidad Valenciana) in 2002.

**Eutetranychus orientalis** first observed in 2001 in Málaga province (Andalucía); now present in Andalucía, Murcia and south of Comunidad Valenciana.

**Trioza erytreae** (first found in 2002 in Las Palmas, Gran Canaria (Islas Canarias).

**Toxoptera citricidus** : first found in 2002 in Asturias; now present in Asturias, Cantabria, Galicia, País Vasco.

**Unaspis yanonensis** : first observed in 2003 in the province of Girona (Cataluña)



***Coccus pseudomagnoliarum***

2002 C. Valenciana  
2018 Andalucía



***Penthimiola bella***

2012 Portugal  
2020 Spain



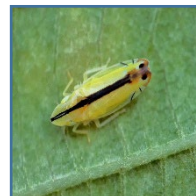
***Delottococcus aberiae***

2009 C. Valenciana  
2019 Cataluña



***Pezothrips kellyanus***

2007 C. Valenciana  
2015 Andalucía



***Sophonia Orientalis***

2018 Málaga  
2020 Portugal



***Scirtothrips dorsalis***

2016 C. Valenciana  
2016 Canarias  
2019 Andalucía  
2020 Murcia



***Chaetanaphotrips orchidi***

2016 Cataluña  
2017 C. Valenciana  
2019 Andalucía  
2023 Murcia

***Scirtothrips aurantii***

2021 Andalucía



Source: ASAJA compilation



# Risks for EU citrus



*Trioza eritreae*  
HLB vector



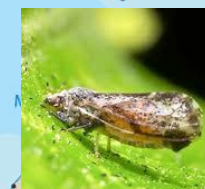
*Bactrocera dorsalis*



*Anoplophora chinensis*



*Thaumatotibia leucotreta*



*Diaphorina citri*  
HLB vector



*Phyllosticta citricarpa*



*Bactrocera zonata*

*Scirtothrips aurantii*  
*Scirtothrips dorsalis*



*Xylella fastidiosa*



# Suggested adaptation measures

- \* Many **damages caused by climate change are excluded from citrus insurance guarantees.** In the current circumstances, it should be studied how to compensate for these losses, **which are going to become more and more frequent**
  - \* Increasing of the co-financing rate of expenses incurred for the interventions need to face natural disasters
  - \* Provision compensation through operational programs for the benefit of farms affected by disasters
- \* **Support efficient irrigation systems**
  - \* Reduction of administrative burdens for financing investments in irrigation facilities (i.e. by partially derogating from the requirements of Article 11 of EU Reg. 126/2022)
  - \* Increasing of the types of interventions that can be financed by operational programs for water-saving measures (drip irrigation)
- \* **Increasing integrated crop protection means**
  - \* Promotion of active crop defense systems and additional resources for insurance policies raising the co-financing rate of these interventions
  - \* Select and test new plant reproductive material for example citrus rootstocks which have a potential tolerance to HLB and more extreme climate patterns in the Mediterranean region







Thank you for your attention!



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