

CLIMATE DETECTIVES 2021-2022

The loss of red gold in Campania

Those of 2H

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RESEARCH QUESTION

We want to define how climate change has reduced tomatoes production, especially the production of San Marzano tomato.

SUMMARY OF PROJECT

The project wants to demonstrate how the climate change has made the production of tomatos, especially the production of San Marzano tomato reduce due to the BER (Blossom End Rot).

The San Marzan tomato DOP, is an excellence product for its versatility and organoleptic characteristics. In last thirty years due to its physiopathy which makes it unusable, farmers in Campania don't invest on its production, considered as a retribution source for the agricultural sector.

Our investigation wants to understand if the abiotic factors which characterize this physiopathy, have been limited in years and if we can think about a returne to the full agricultural production of our product, or if these characteristics will remain and will cause still damages to the production.



FIG.1 Healthy San Marzano tomatoes



FIG.2 Healthy San Marzano tomatoes with BER

Census of the Campania Region and the Province of Naples

| Prov. Napoli | Totale Seminativi | | Ortive in coltivazione di pieno campo | | | |
|--------------|-------------------|------------|---------------------------------------|------------|--------------------|------------|
| | Aziende | Superficie | Pomodoro mensa | | Pomodoro industria | |
| | Aziende | Superficie | Aziende | Superficie | Aziende | Superficie |
| | 42 | 543 | 148 | 704,00 | 467 | 294,00 |

Numero di aziende e relativa superficie investita , in ettari.

| Coltivazioni | Azienda | | Variazioni assolute | Variazioni % | Superficie | |
|--------------|---------|--------|---------------------|--------------|------------|---------|
| | 2010 | 2000 | | | 2010 | 2000 |
| Ortive | 3.892 | 18.164 | -14.272 | -78,6 | 3.832,9 | 5.280,0 |

MAIN RESULTS

Investigations has concerned the collection and the analisys of temperature datas and rainfalls in the period of "June-July" in last thirty years.

At first we have looked for previous works about causes of this physiopathy (... "the lack of water from the moment of flowering of the first bunch to the moment of harvest it determines in the 'San Marzano' Tomatoes the maximum percentage of fruits with apical rot ... " Phytopathologia Mediterranea 1976 .) Unione Fitopatologica Mediterranea.

We wanted to identify the variations of parameters which may have influenced in a concrete way our problem.

Our investigation in thirty years since 1991 to 2021 has had the following results:

The maximum average temperature, in the period when the San Marzano tomato starts its production, have bring back a constant increase in last twenty years, as we can see in figura 3.

The total rainfalls are considerably decreased, especially in last ten years with months of full rainfalls at 0mm as we can see in figura 4.

As we can see, the tendence lines of figura 3 and figura 4, show that temperature in next years will increase and there will be less rainfalls. All of this is contributing for a less production of tomatoes.

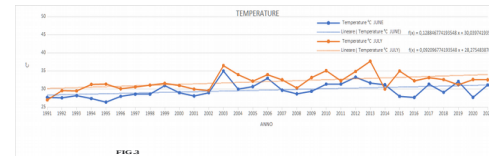


FIG.3

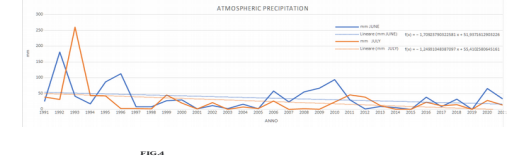


FIG.4

ACTIONS TO HELP LESSEN TO THE PROBLEM

From Temperature and rainfalls variatios which there have been in last years, we can deduce that human is destroying an essential heritage for our comfort, because tomato and the San Marzano tomato, with its organoleptic properties, can help us to keep our body healthy.

The possible way for to ensuring tomato still as a excellance product and for producing again tomato in all Campania, is to reduce green gases with a decrease of the CO2 emissions, so a smart use of all materials from industrial processes.

As in summer periods there is an increase of the use of air conditioner machines, we need to arrange in advice our houses with heating and cooling systems using green energy from photovoltaic cells and wind power.