CLIMATE CHANGE IN INDIA: WHAT DO WE KNOW AND HOW?

TREES, CLIMATE AND CITIZEN SCIENCE

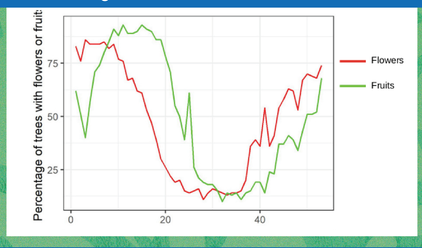
Climate change is a real and urgent issue that often feels distant to many people. However, the impact of climate change is right in our own backyards! As you might have noticed, trees undergo changes with seasons. These changes closely mirror trends in climate. In trees, the timing of leafing, flowering, and fruiting is intricately linked to factors like temperature, rainfall and sunlight. These environmental factors will become more unpredictable as climate change continues.

SeasonWatch, an all-India citizen science project, monitors the seasonality of common tree species using information contributed by the general public. With over 6,80,000 observations on more than 1,40,000 trees, SeasonWatch provides insights into how temperature, rainfall, soil moisture and urbanization affect trees.

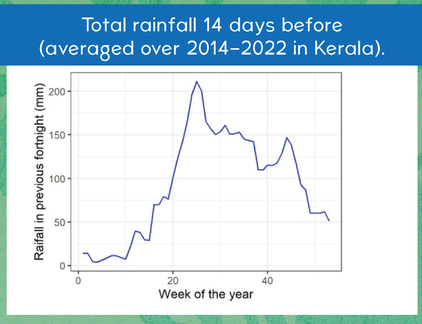


Rujuta Vinod (via India Biodiversity Portal)

Variation in percentage of Mango trees flowering (red) or fruiting (green) (averaged over 2014–2022 in Kerala).



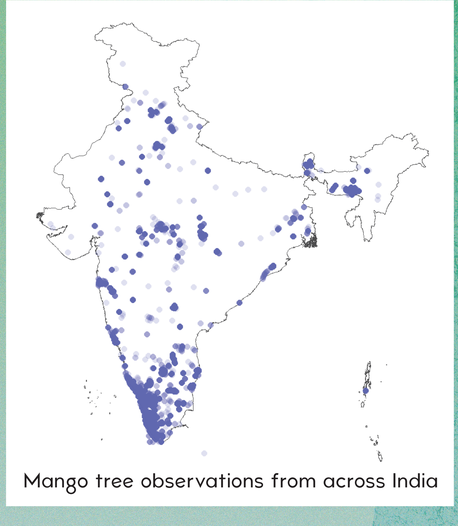
Total rainfall 14 days before (averaged over 2014–2022 in Kerala).



Peak in flowering occurs when there has been low rainfall in the previous 14 days.

Data from SeasonWatch about Mango trees in Kerala shows that these trees flower more after a 14 day period of less rain (in January–March) and fruit more during the rainy season. Changes in rainfall frequency and magnitude can impact flowering and fruiting, potentially altering the availability of Mango. Such shifts could disrupt pollinator life cycles and pollination, leading to lower fruit production and economic losses.

By contributing to public databases like SeasonWatch, you can help understand and address the local impacts of climate change in our surroundings.



Mango tree observations from across India

CONTRIBUTOR

Geetha Ramaswami,
Nature Conservation Foundation

REFERENCES

Using citizen science to build baseline data on tropical tree phenology, 2021. Geetha Ramaswami and others. Current Science.

Environmental correlates of tree reproductive phenology in a tropical state of India - insights from a citizen science project, 2023. Krishna Anujan and others. bioRxiv.

SeasonWatch

Poster series designed by Radha Sunder

@IMScChennai @SciSabha #SatS2024

This series was curated for
The Institute of Mathematical Sciences
Science at the Sabha 2024

CC BY NC