

The background features abstract, overlapping green geometric shapes, primarily triangles and polygons, in various shades of green, creating a modern and dynamic visual effect.

Climate change impacts on plant health in Tonga/Pacific Islands





Tonga in 60 seconds

- ▶ Constitutional Monarchy - HM King Tupou 6 and Queen Nanase Tupou
- ▶ 100,000 people - 70% on main island Tongatapu
- ▶ 169 islands, 36 inhabited
- ▶ Economic sectors -

Tourism



Fisheries



Agriculture



agriculture

- ▶ Affects 90% livelihoods in the Pacific Islands
- ▶ 15-20% Tonga's economy
- ▶ Food security, Health, Trade
- ▶ Traditional crops: root crops taro, yams, cassava, sweet potato

Traditional Rootcrops



Taro (*Colocasia esculenta*)



Yams (*Discorea alata*)

Traditional Rootcrops

Cassava (*Manihot esculenta*)



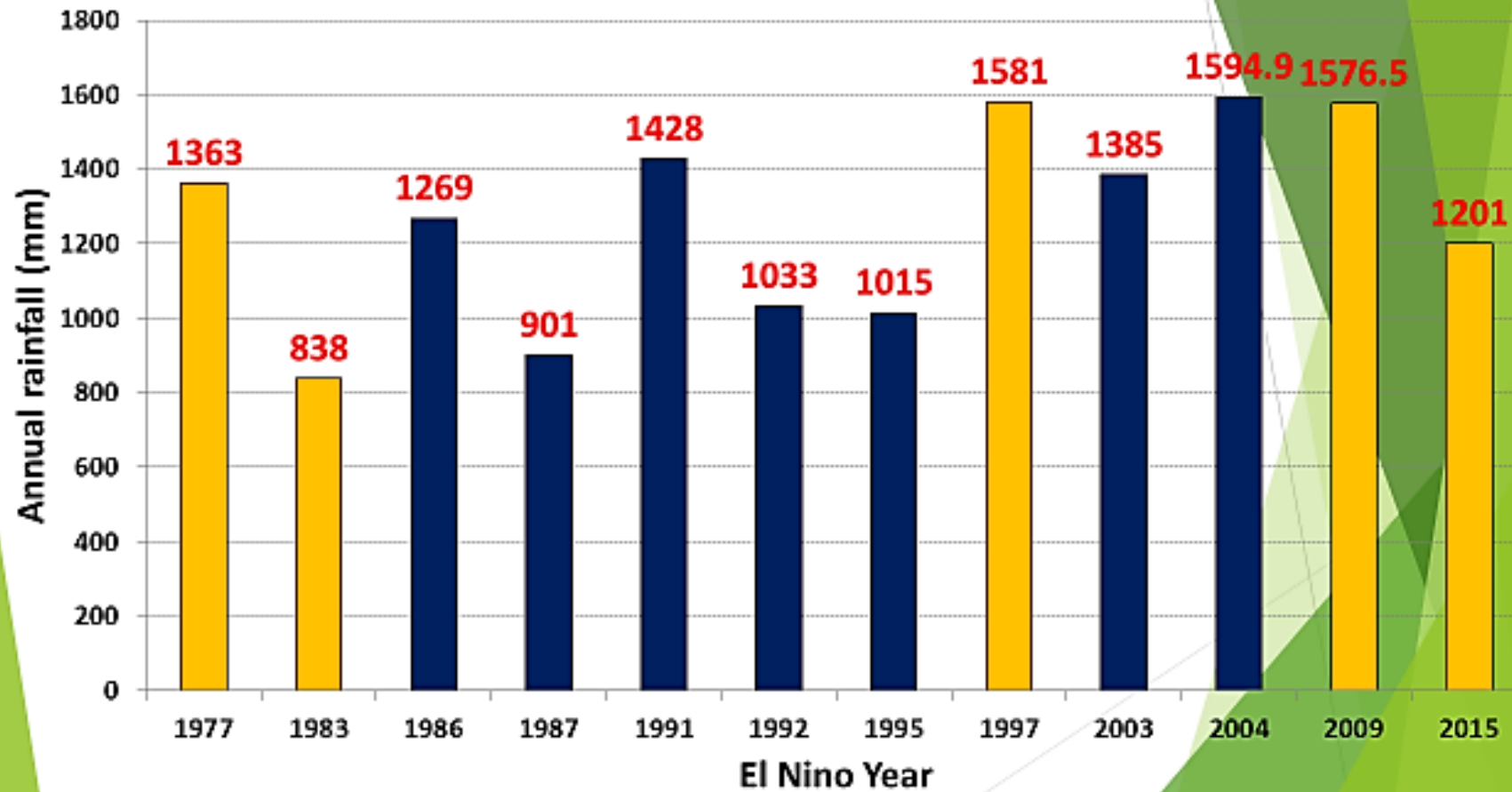
Sweet Potato - *Ipomea batatas*



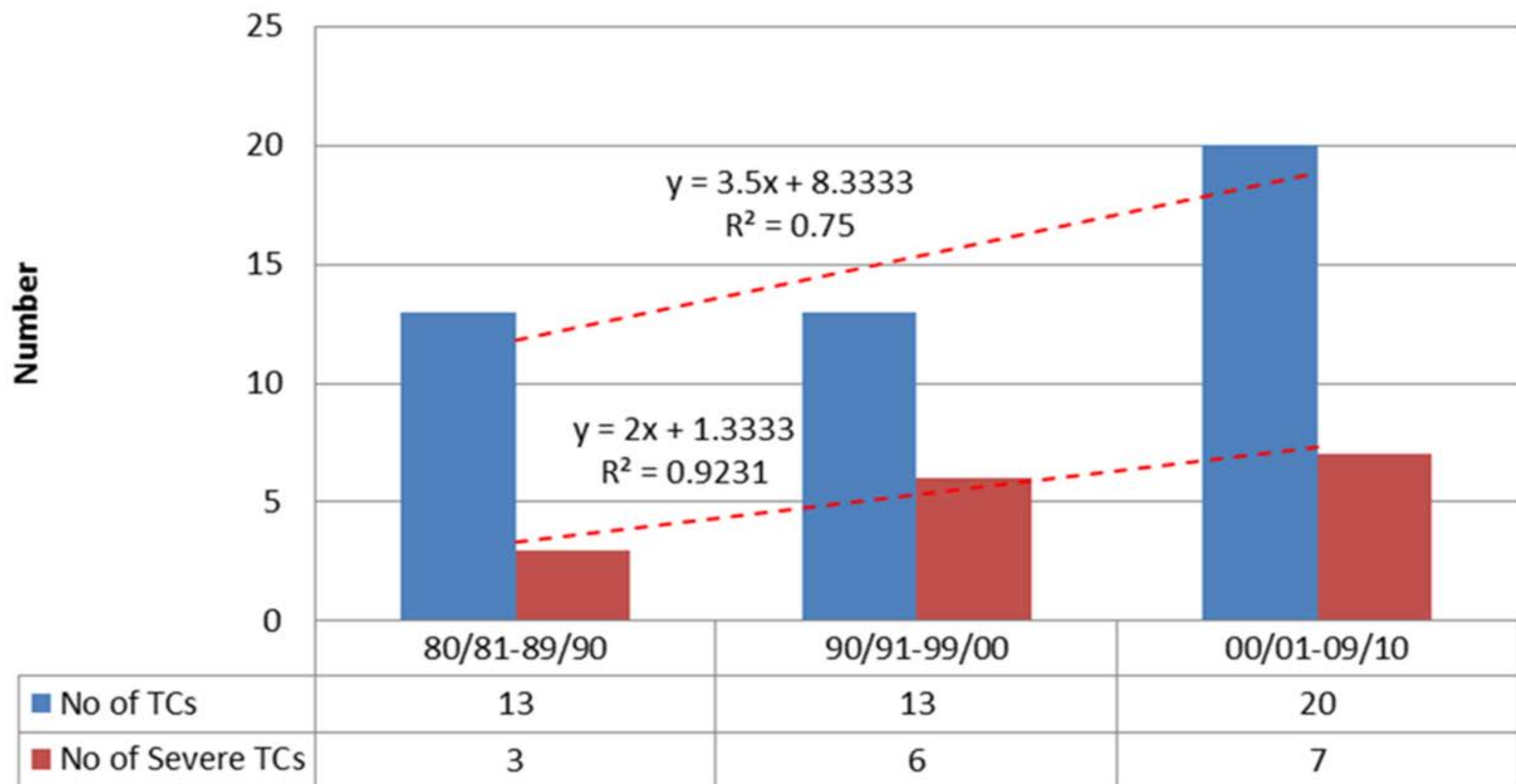
Climate change related incidents:

- Types of climate change activities-cyclones, el nino, heavy rain - flooding, rising sea levels, rising temperatures
- Cyclones - increasing severity, intensity and frequency
- El nino - prolonged drought

Nuku'alofa droughts vs El Nino types



No of Tropical Cyclones that have affected Tonga by decade



Impacts on pests and disease

- ▶ Pest out breaks
- ▶ Transboundary movement
- ▶ Intra country movements.

Cyclone Ian – Ha'apai Islands



Spiralling whitefly (*Aleurodicus dispersus*)



Eretmocerus



Encarsia formosa



Lacewing

El nino 2015 - prolonged drought



Pink Wax Scale
(*Ceroplastes rubens*)



Anicetus
beneficus



Chilicorus sp.

White peach scale -cassava (*Pseudaulacaspis pentagona*)



Impacts.

- ▶ Stressed plants
- ▶ Pest outbreaks - due to minimal or absence of natural enemies
- ▶ Huge decline in production of taro and yam
- ▶ Huge decline in exports -taro,yam

Transboundary movement: Taro leaf blight (*Phytophthora colocasiae*)



Myrtle rust (*Austropuccinia psidii*)- New Zealand



<http://www.mpi.govt.nz/protection-and-response/responding/alerts/myrtle-rust/>

Fungi attacks plants belonging to Myrtaceae family. Evidence supports wind deposited from Australia.

Trans-boundary movement/domestic movement

- ▶ Loss of a crop
- ▶ Loss of a major staple crop
- ▶ Ceased all trade of a major commodity
- ▶ Loss of major market for **fresh** commodity
- ▶ NZ - threat to all members of myrtaceae family

Domestic (intra) movement: PNG - Malaria

Actions required

- ▶ Need to address CC impacts at the community level
- ▶ Healthy Plants for a sustainable planet
- ▶ International Year of Plant Health 2020

Malo aupito