

# La ricerca in 3 minuti | Giornata verde del dottorato @DISTAL multicampus



*Skills for sustainable, resilient, and socially fair communities*



9

June

2023

3-11 June 2023

**#EUGreenWeek  
PARTNER EVENT**

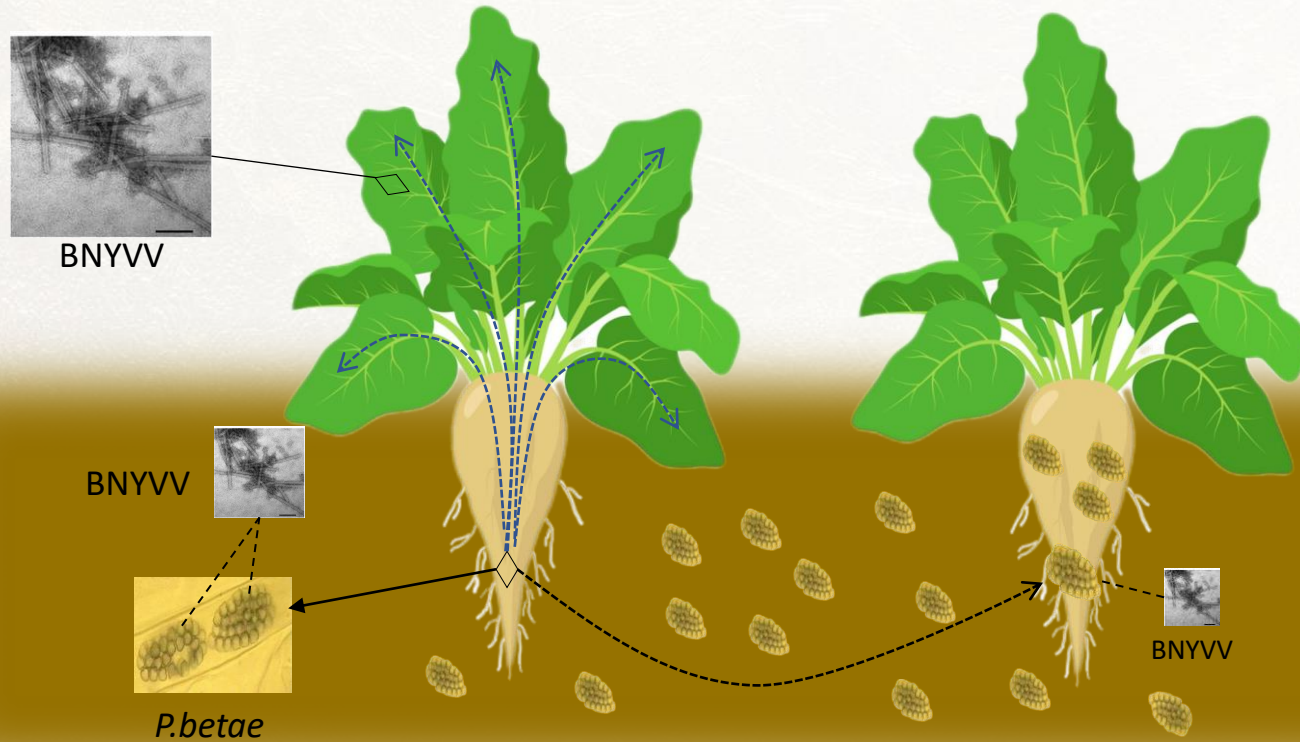


ALMA MATER STUDIORUM  
UNIVERSITÀ DI BOLOGNA  
DIPARTIMENTO DI  
SCIENZE E TECNOLOGIE AGRO-ALIMENTARI

# Study the genome integrity of BNYVV to inspire sustainable practice to control *Rhizomania*

supervisor: Prof. Claudio Ratti

- Background and Objectives



Rhizomania

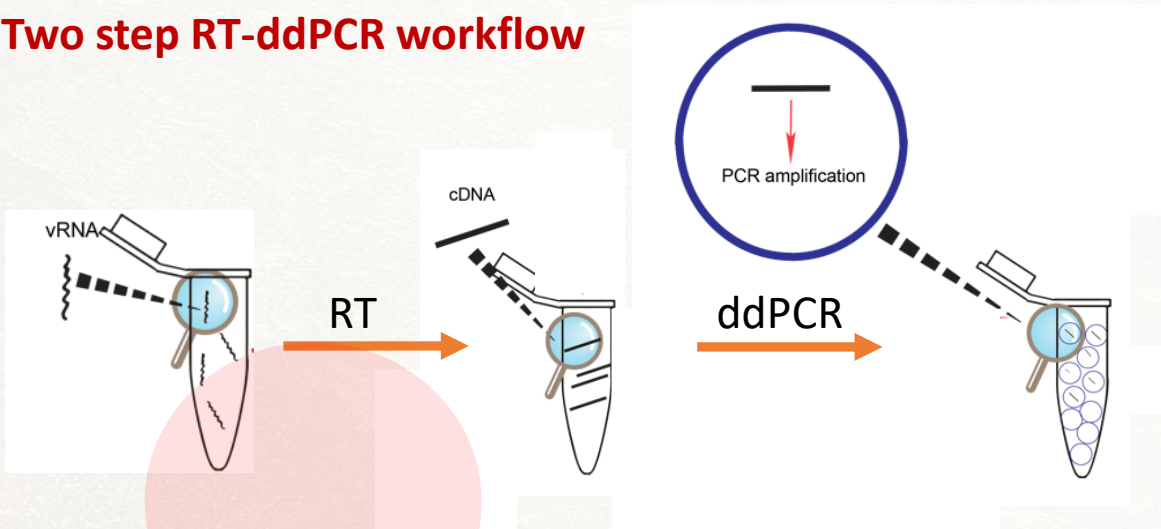


Analyze the **genome formula** of BNYVV during host infection and vector transmission.

Investigate the mechanism of BNYVV **genome integrity preservation** during host infection and vector transmission.

# • Experimental approach and main results

## Two step RT-ddPCR workflow



Dual step RT-ddPCR critical point: the equimolar target RNA/cDNA conversion

- ✓ Here, we investigated the genome formula (GF) of BNYVV in different organs and hosts.  
Local host : *Chenopodium quinoa*  
Systemic hosts : *Spinacia oleracea*  
*Beta macrocarpa*  
*Beta vulgaris* (with and without *P.betae*)
- ✓ Moreover, the BNYVV GF was characterized in the two forms of *P. betae* life cycle, zoospores and resting spores.

- Results showed that some viral gene segments accumulate at low frequency, whereas others dominate.
- BNYVV segment copy numbers change according to the type of host and organ infected.
- Moreover, the virus seems to reach a dedicated set-point genome formula also within its vector.



- **Future prospects**



BNYVV replicates in *P. betae*.



How BNYVV preserve its genome integrity during host infection and acquisition by the vector.

