

APPROACH

Cascade hydroponic systems:

Reuse of drainages of a primary crop to fertigate one or more secondary crops with higher salinity tolerance.

The nutritional needs of the secondary crop are fully covered by the drainages of the primary crop, hence no additional water and fertilisers are required.



100% drainage reuse after pH adjusting

OBJECTIVE

Drainage solution from a hydroponic cucumber (donor) crop derived and reused to fully fertigate a hydroponic melon (receiver) crop), minimizing the costs and the environmental impact



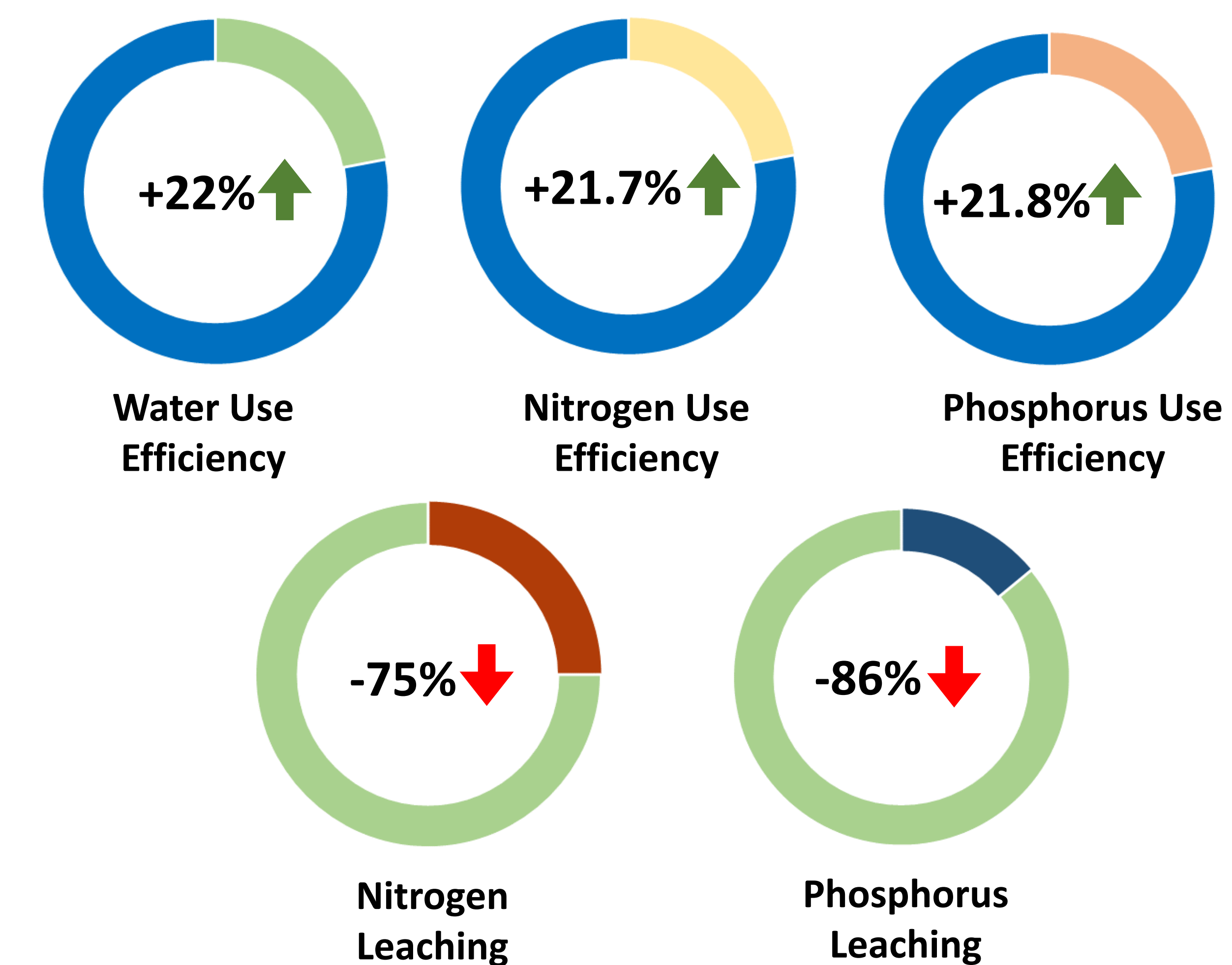
MATERIALS AND METHODS

✓ 2 high-tech greenhouses (400m²) for *Cucumis sativus* cv. Columbia

✓ 1 low-tech greenhouse compartment (160m²) for *Cucumis melo* cv. Masada x TZ 148 F1

❖ **Melon Control Treatment:**
Crop irrigation with a standard solution for hydroponic melon crops

❖ **Melon Cascade Treatment:**
Crop irrigation with 100% drainages from the cucumber crop (pH correction)



✓ No differences in the productivity of the standard melon crop (9.9 kg m⁻²) with the cascade melon crop (9.8 kg m⁻²)

✓ A cultivation ratio of 3:1 is imperative to satisfy the nutritional demands of one square meter of the secondary crop in relation to the primary crop.

✓ Cascade cropping systems provide the opportunity, even for low-tech infrastructures, to mitigate water and nutrient runoff while simultaneously maximizing the resources efficiency.