



**CFPN**  
trial

## Potassium and cassava storage root development



When

2014, 2016 and 2017



Crop

Cassava (*Manihot esculenta*)



Soil type

60L pots with perlite



Where

Experimental greenhouse,  
Gilat Research Center, Israel



Measurements

- Levels of soluble carbohydrates and starch in leaves
- Dry root yield
- Number of storage roots per plant

## Objective

To define cassava's response to potassium (K), the concentration that optimizes yield and to show the indirect mechanisms by which K improves root yield.

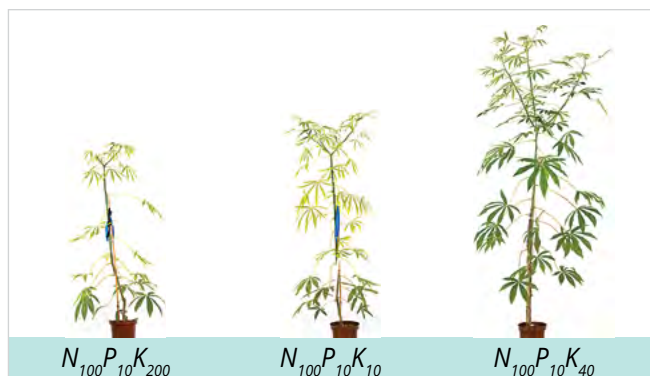
## Treatments

Potassium, at 10, 40, 70, 100, 150 and 200 mg/L per liter pot, was applied through manual irrigation. In the first 4 weeks after transplanting, irrigation was 8 L per week then increased by 1 L every week. The treatments were replicated four times in a completely randomized design.

## Results

The best response of cassava to K fertigation was obtained with K application of 150mg/L (See Fig. 3). Potassium indirectly enhances root yield of cassava by:

- Decreasing soluble carbohydrates and starch in the leaves and translocating them for bulking up the storage roots (Fig.1)
- Influencing positively the concentration of starter metabolites (glucose and glycerol)
- Improving the number of storage roots (Fig. 2 and 3)



## Further reading

Omondi, J.O., Lazarovitch, N., Rachmilevitch, S., Kukew, T., Yermiyahu, U. and Yasuor, H. (2020), Potassium and storage root development: focusing on photosynthesis, metabolites and soluble carbohydrates in cassava. *Physiol Plantarum*, 169: 169-178. <https://doi.org/10.1111/pl.13060>.

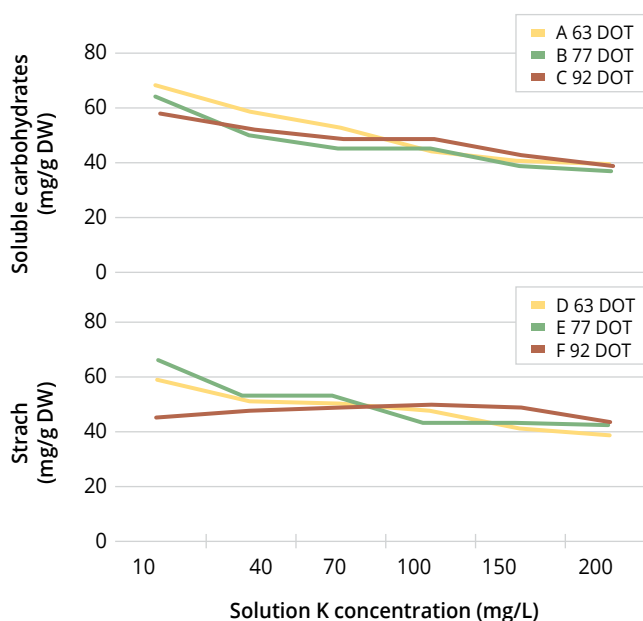


Fig. 1. Soluble carbohydrates (A, B and C) and starch (D, E and F) levels in the leaf of cassava as influenced by K solution concentration at different growth stages measured in dry weight (DW) at days of treatment (DOT).

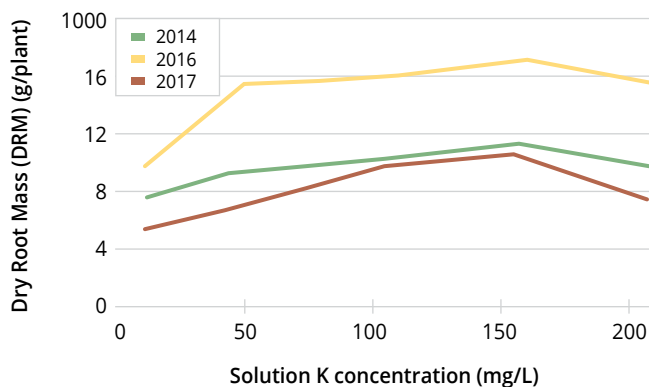


Fig. 2. Effect of K solution concentration on dry root yield.

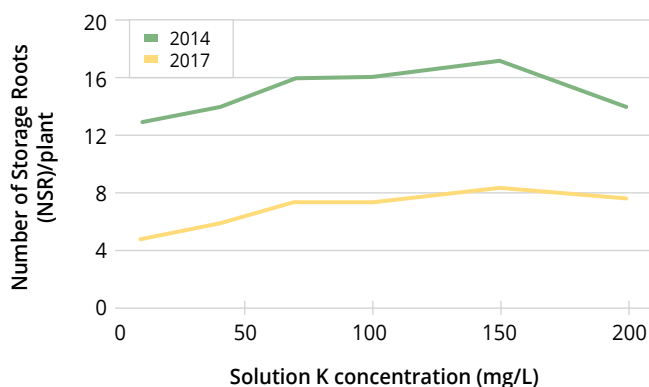


Fig. 3 Effect of K solution concentration on number of storage roots per cassava plant.