



RAAN MERISTEM

A BREED APART



Dr. Oshry Markovich Head of R&D

Avocado Rootstock from Tissue Culture

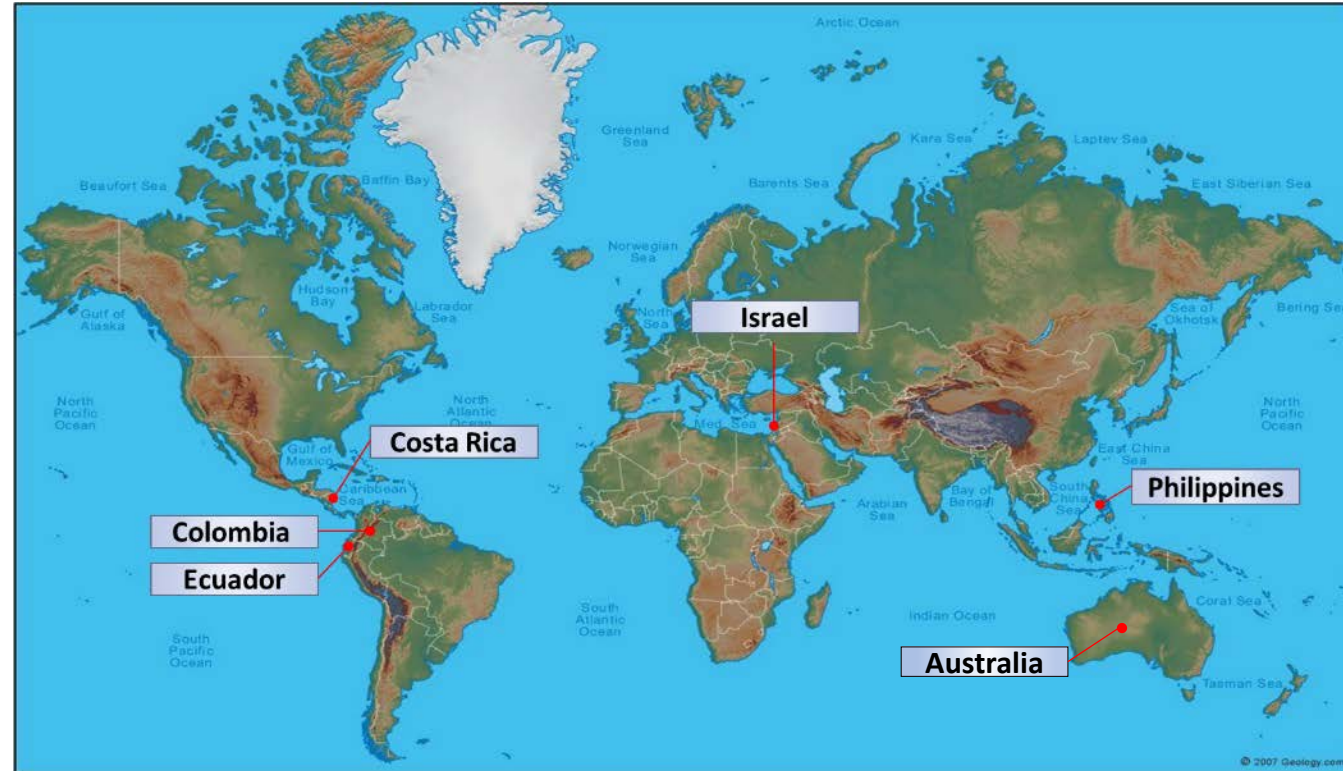
04/04/2023

Profile and products

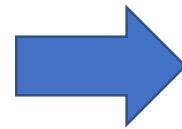
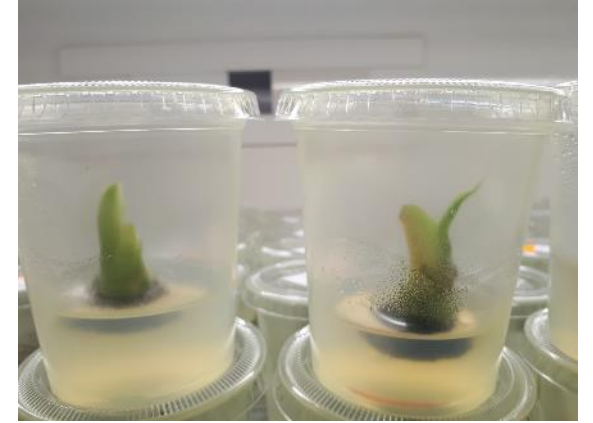
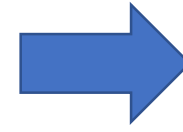
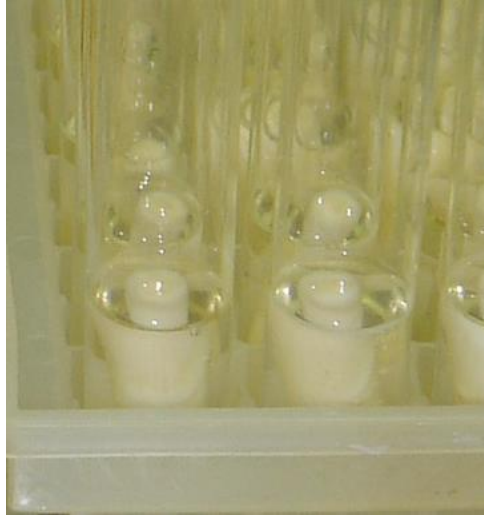
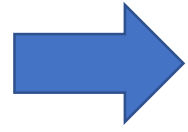
Company's ID

- Founded in 1974
- 6 branched worldwide - *Israel, Costa Rica, Ecuador, Colombia, Philippines & Australia*
- 300+ employees (~80 in Israel)
- Globally renowned in breeding and propagation of tropical and subtropical crops
- Largest supplier in the world of tissue culture In-vitro banana plants
- IP – Plant and utility patents
- Experts in virus cleaning, androgenic cultures, genetic engineering, cell suspensions
- World experts in *IN VITRO* Biology

Rahan Global Distribution



Banana propagation



Rahan Products

Deciduous

Persimmons

Grapes

Apples

Nectarine

Peach

Pears

Plum

kiwi

Other crops

Stevia

Sweet potatoes

Blueberry

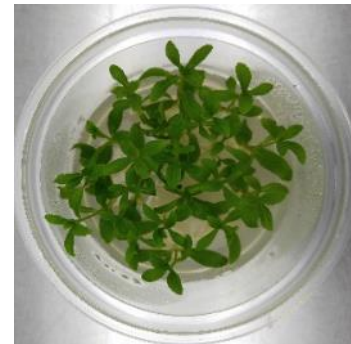
Cannabis

Tropical

Banana

Pineapples

Avocado



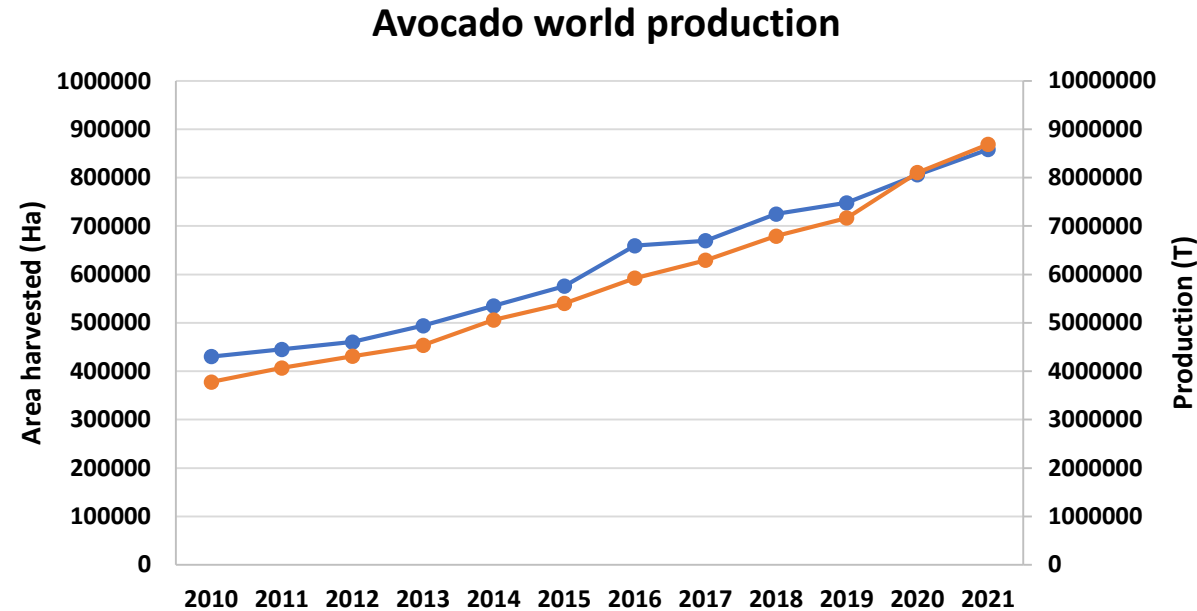
Avocado rootstock propagation via tissue culture

In recent years there is a significant increase in demand for avocado

One of the limiting factor in the industry is the dependence on seeds for rootstock



Another limitation is the difficulties in VC grafting



Food and Agriculture Organization of the United Nations. (1997). FAOSTAT statistical database.

Avocado rootstock propagation via tissue culture

The advantages of tissue culture rootstocks

- **Eliminating the dependence on seeds**
- **Rootstocks derived from tissue culture are healthy and free from fungal diseases and Bacteria**
- **Large quantity of rootstocks can be produced in a short time regardless of the season**
- **Rootstocks from tissue culture are of the highest quality because the mother plants can be selected and from them produce thousands of high quality and genetically uniform plants**
- **Eliminating the need for double grafting in the vegetative rootstock with significantly shorten the process**

Avocado rootstock propagation via tissue culture

Introduction of plant material into culture

Vegetative rootstocks: VC65, VC804, VC256

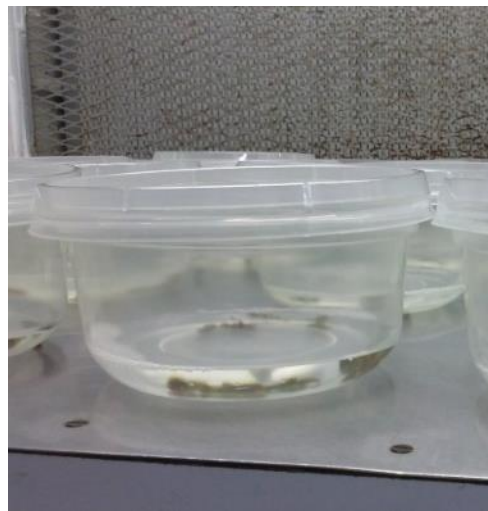


**seeds rootstocks: Degania 117, Shiler, Ashdot 17, Fairchild
Degania 62**



Avocado rootstock propagation via tissue culture

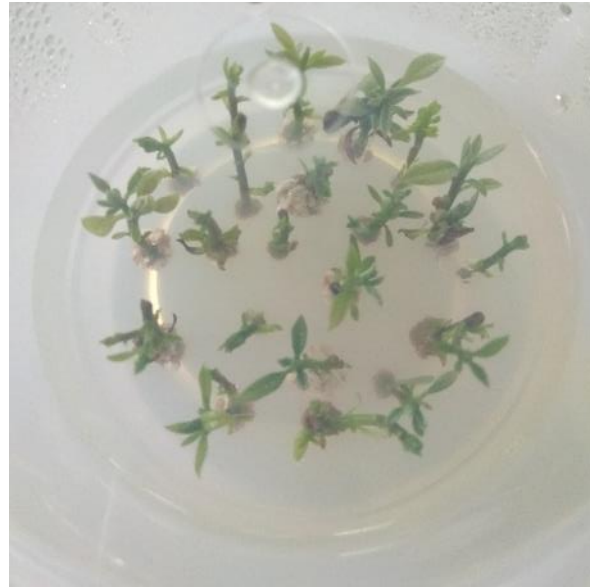
Introduction of plant material into culture



Avocado rootstock propagation via tissue culture

Development of the propagation protocol

We control all growing stages via changing the hormonal balance in the growing medium



Avocado rootstock propagation via tissue culture

Development of the propagation protocol

The propagation medium is not the same between the different rootstocks and for each one we have found the best medium



Avocado rootstock propagation via tissue culture

Development of the rooting protocol



Avocado rootstock propagation via tissue culture

Hardening protocol (acclimzation)



Avocado rootstock propagation via tissue culture

Growing in the nursery



Avocado rootstock propagation via tissue culture

Growing in the nursery



Avocado rootstock propagation via tissue culture

Ready for grafting



Avocado rootstock propagation via tissue culture

Ready for grafting



Grafting



Grafted Avocados on T.C rootstock



Avocados on T.C rootstock ready for planting in the plantation



Planting in the plantations

**First field trial – may 2020 Gesher-Haziv
Has on Dganya117 T.C rootstocks**



Planting in the plantations

September 2020



June 2021



Planting in the plantations

March 2022



Commercial plots 2021

- **During July 2021, thousands of avocado seedlings were planted in 12 commercial plots across the country**
- **The varieties that were planted: Haas, Pinkerton, Ettinger and BL grafted on T.C rootstock**
- **We continuously monitor and collect data from these plantations**



Commercial plots - Western Galilee
Feb 2023



**Commercial plots - Niram
December 2022**



Field trial –Gesher-Haziv

Feb 2023



Avocado tissue culture rootstock are going to revolutionize the Avocado industry as it happened in all other crops in tissue culture

Now that we have the protocol for Avocado tissue culture it open the door for crop improvement using T.C tools

Rahan Meristem R&D team




Western Galilee Growers

Professional Avocado reference






RAHANMERISTEM

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