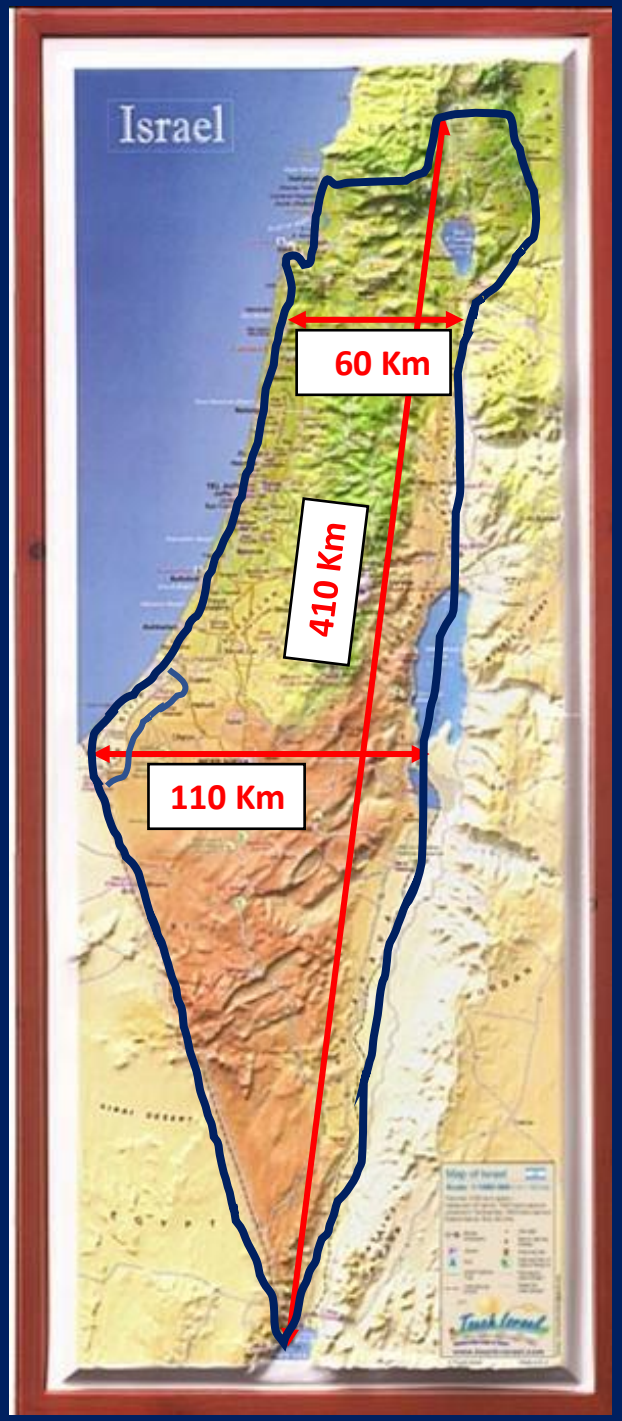
New development in Israeli avocado

Avocado Café – May 2023



North and Central Coast area

- Ann. Prec. – 500-800 mm
- Low ETO
- Heavy clay soils

Inner lowland

- Ann. Prec. – 350 – 500 mm
- Medium ETO
- Medium – heavy soils

Southern coast area

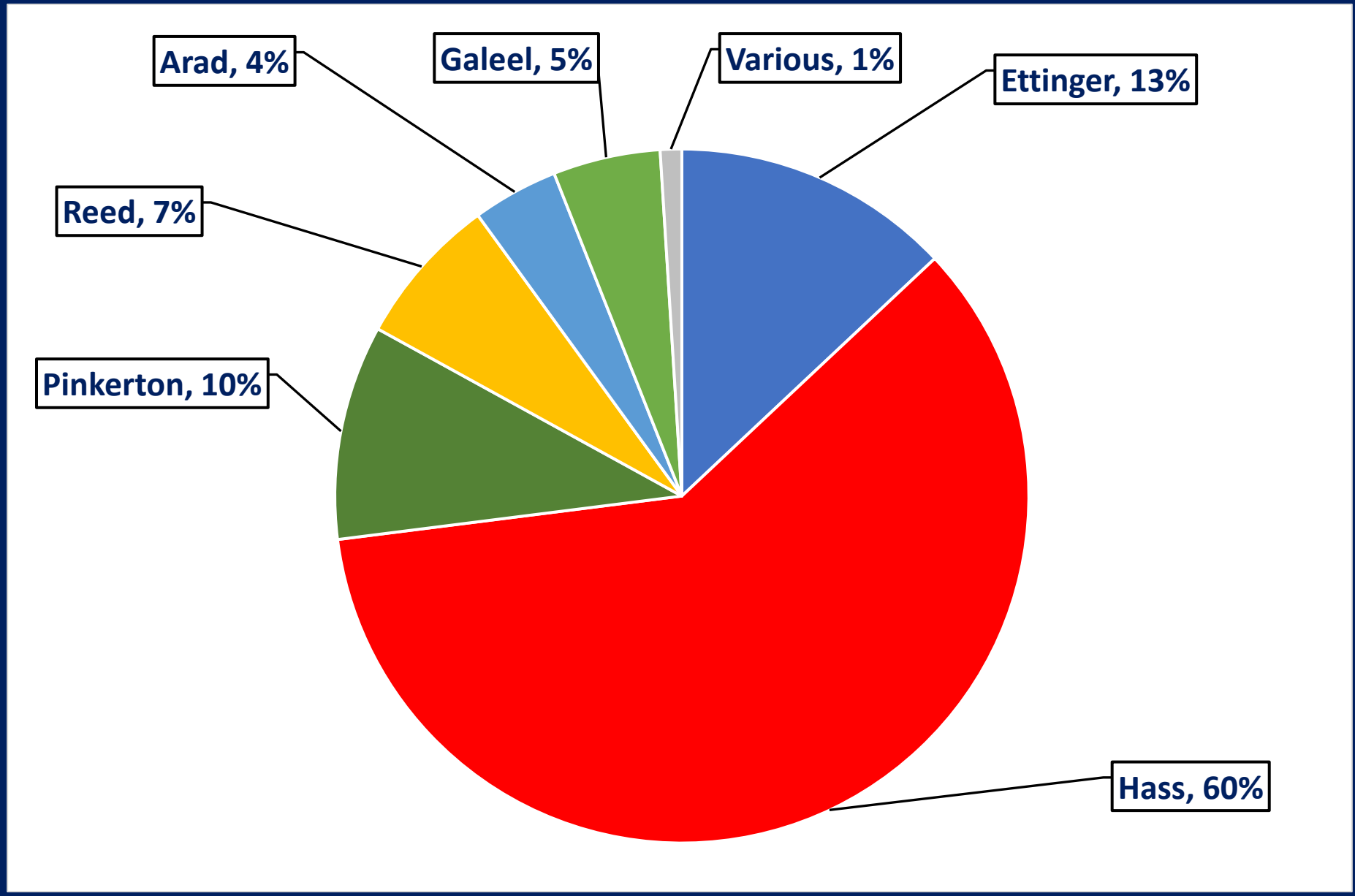
- Ann. Prec. – 50-200 mm
- Low ETO
- Sandy to light soils

Eastern Valleys

- Ann. Prec. – 350-500 mm
- High ETO
- Light and well drained soils

Total area 14,000 Ha.

Variety Distribution

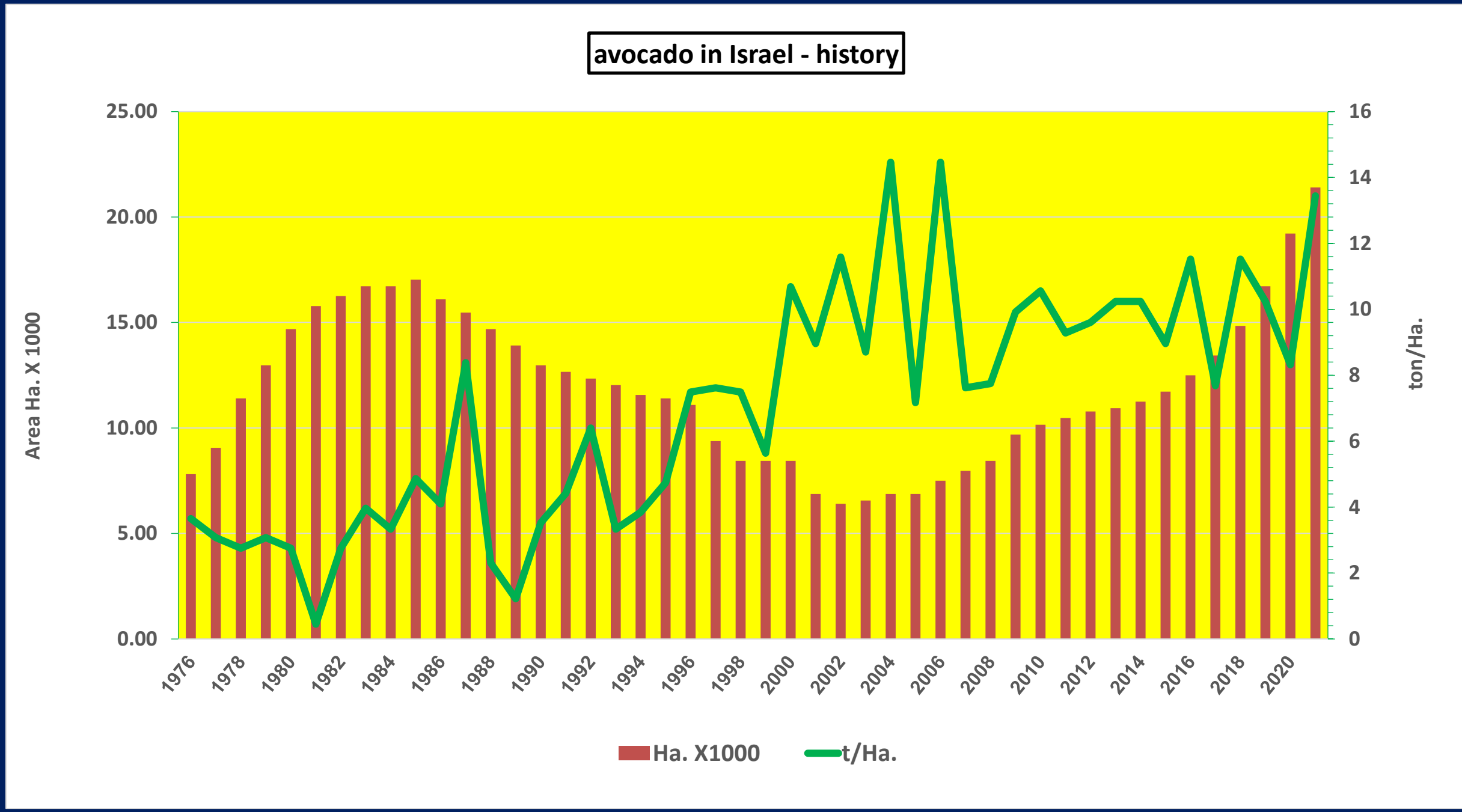


Production:

Season	Total (ton)	Export (ton)	Export %
2020/21	96,000	58,000	60%
2021/22	230,000	130,000	57%
2022/23	135,000	84,000	62%

Domestic consumption: 7 – 10 Kg/Capita/Year

Export market: Europe


avocado in Israel - history
Area Ha. X 1000
ton/Ha.
25.00
20.00
15.00
10.00
5.00
0.00
16
14
12
10
8
6
4
2
0
1976
1978
1980
1982
1984
1986
1988
1990
1992
1994
1996
1998
2000
2002
2004
2006
2008
2010
2012
2014
2016
2018
2020
Ha. X1000
t/Ha.

Irrigation

Facts

- Water source of 95% 0f the Avocado orchards – recycled water

- Salinity - Chloride concentration
  2000 – 2010 – 270 – 320 ppm
  2010 – 2018 – 240 – 280 ppm
  present - 180 – 250 ppm (supply of desalinated water to the urban population)

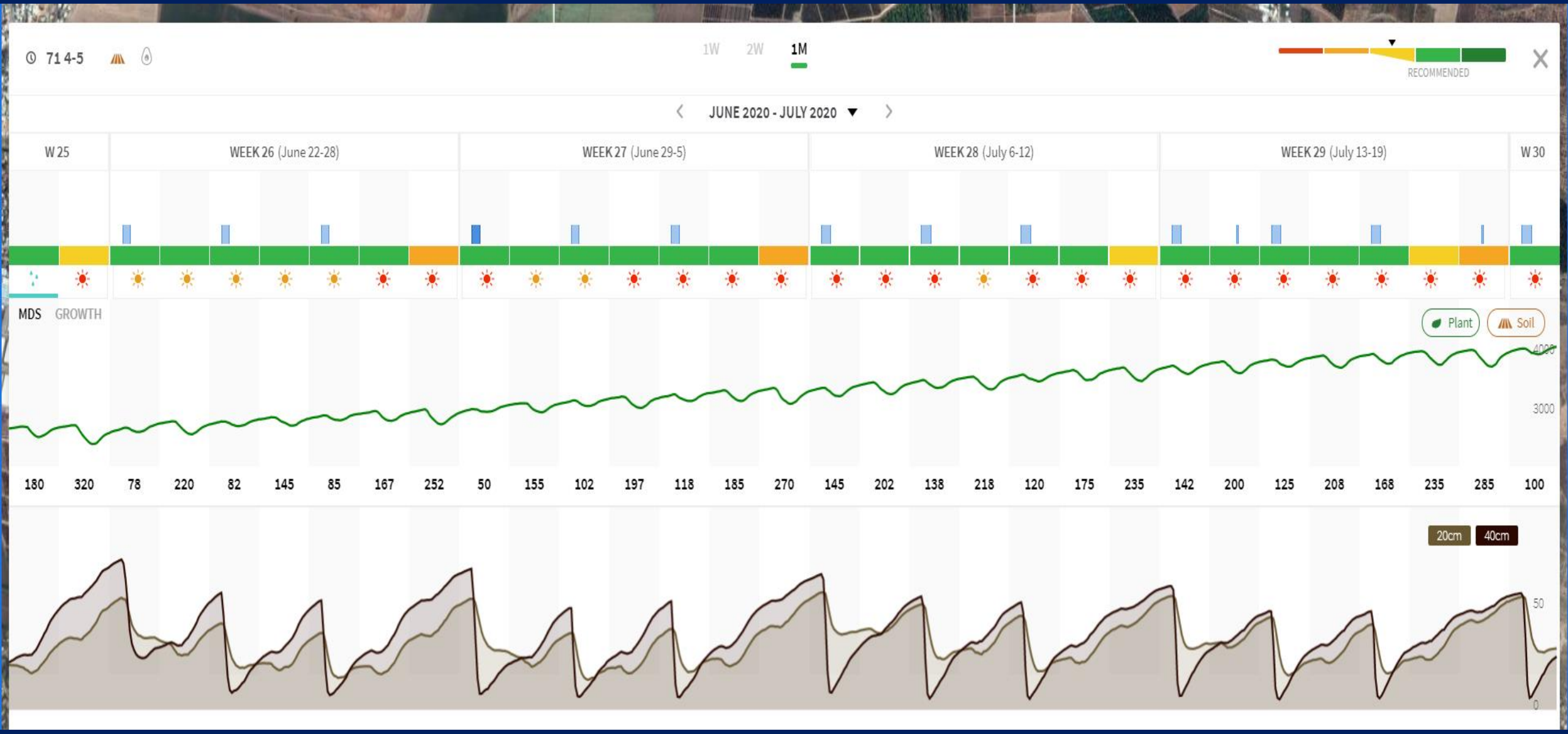
- West Indian rootstocks

Common Irrigation practice

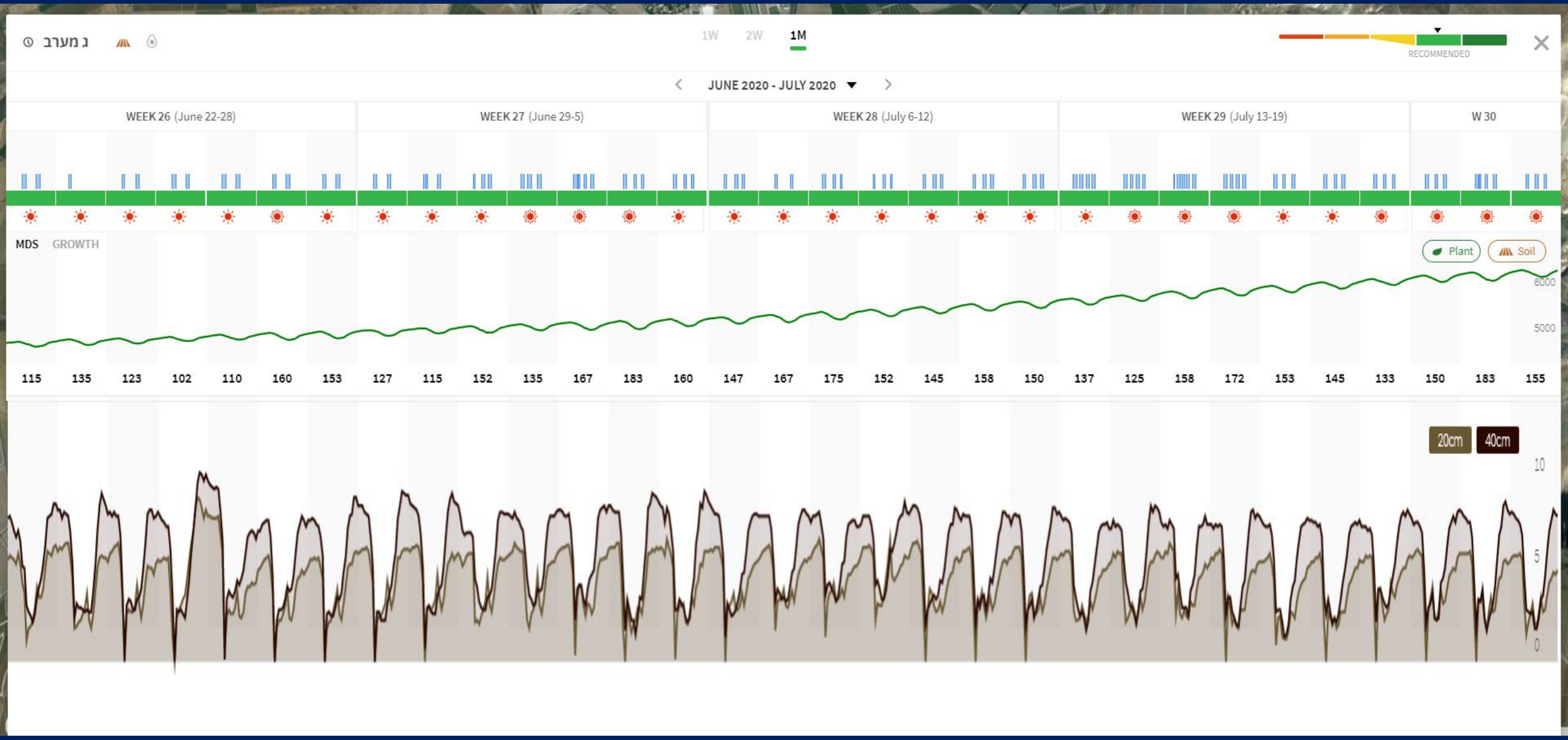
- Drip irrigation
- Monitoring based on soil and plant parameters:
  Soil – Tensiometers
  Plant – Dendrometers – trunk contraction

Irrigation monitoring

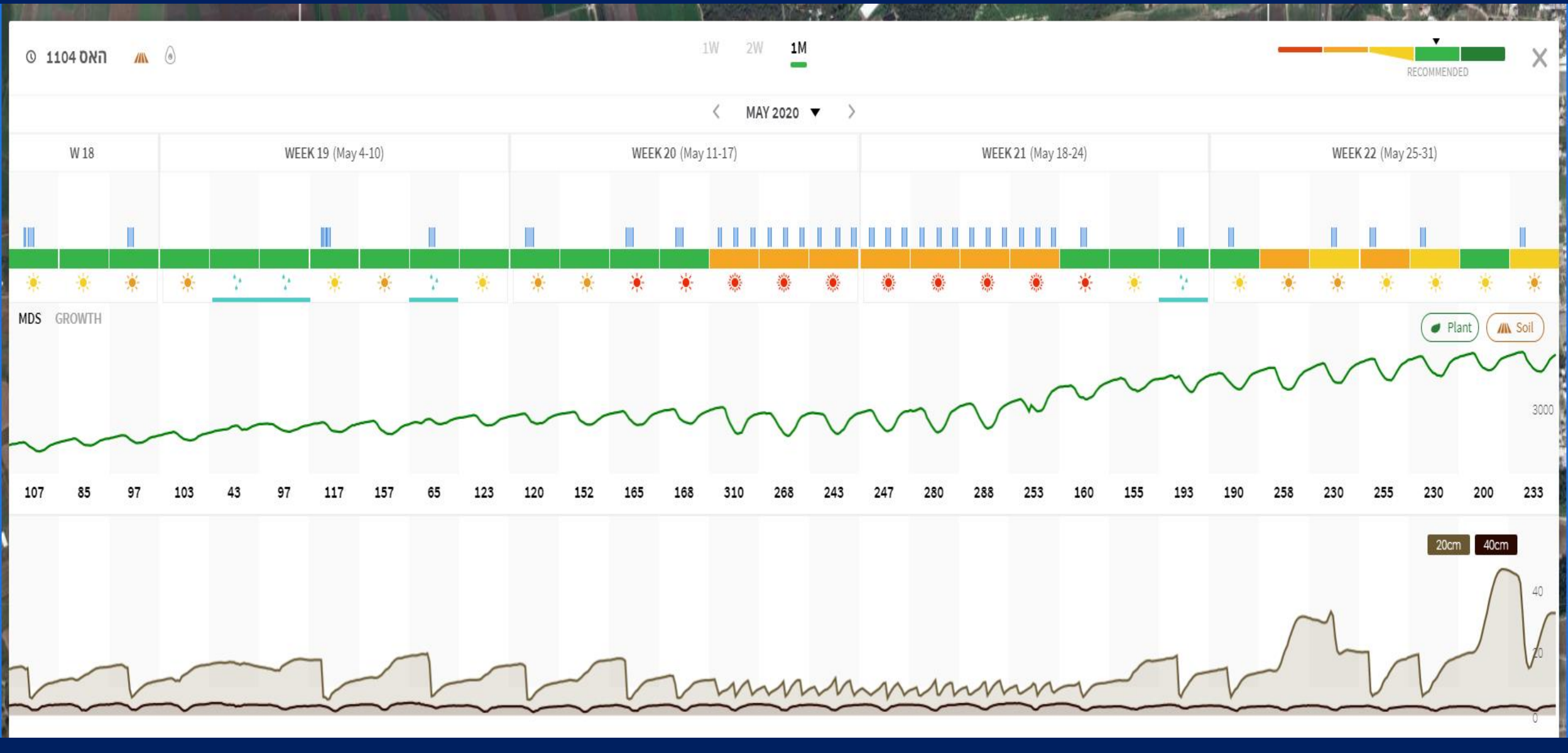
Clay soil

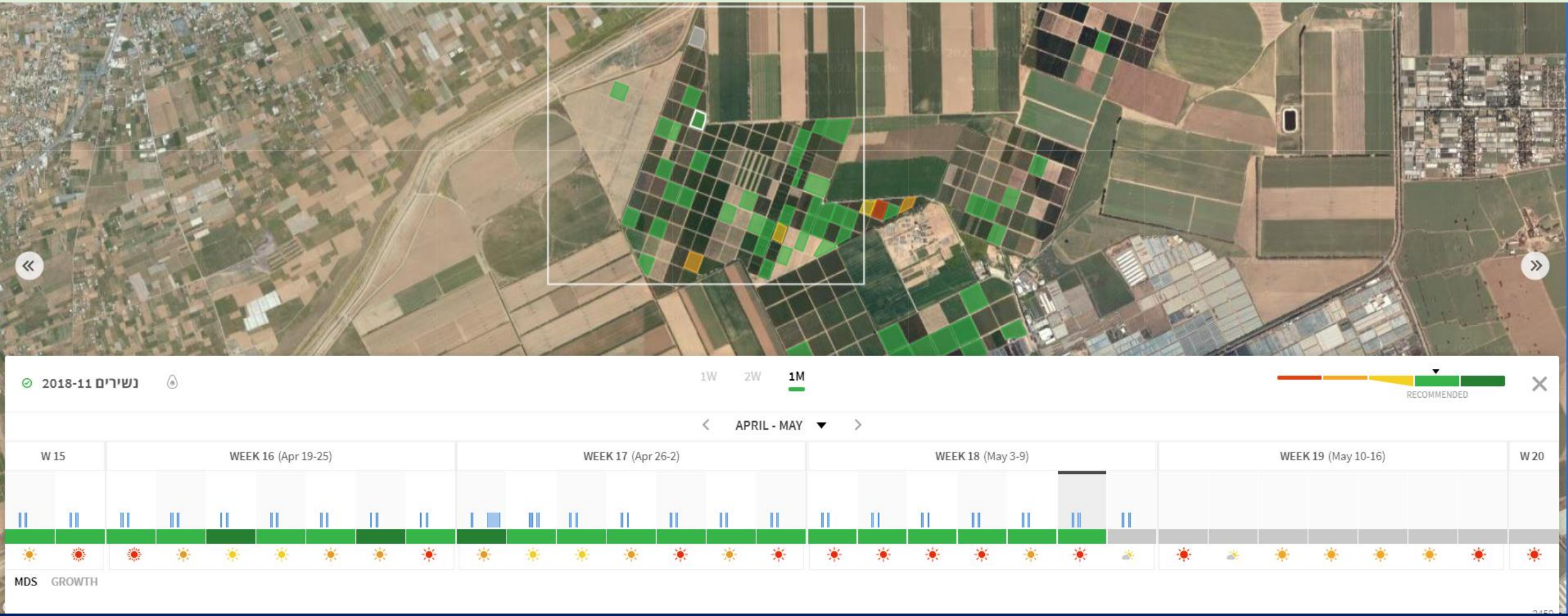

1W
2W
1M
RECOMMENDED
JUNE 2020 - JULY 2020
W 25
WEEK 26 (June 22-28)
WEEK 27 (June 29-5)
WEEK 28 (July 6-12)
WEEK 29 (July 13-19)
W 30
MDS
GROWTH
Plant
Soil
3000
180 320 78 220 82 145 85 167 252 50 155 102 197 118 185 270 145 202 138 218 120 175 235 142 200 125 208 168 235 285 100
20cm
40cm
50
0

Sandy soil – Pulse irrigation



Irrigation during heat wave




נשירים 2018-11
1W
2W
1M
RECOMMENDED
APRIL - MAY
W 15
WEEK 16 (Apr 19-25)
WEEK 17 (Apr 26-2)
WEEK 18 (May 3-9)
WEEK 19 (May 10-16)
W 20
MDS
GROWTH

Irrigation R&D

previous researches

- Dripper capacities
- Intervals
- Wetting area and wetting depth
- Timing
- Irrigation during winter
- Monitoring methods

Present time – No research

Nutrition

Common Nutrition practices

- Applying nutrients during summer (irrigation season)
- Nutrition program based on single leaf analysis – International standards
  Macro: N – 200-300 Kg/Ha. P – 2o-60 Kg/Ha. K – 0 – 100 Kg/Ha.
  Micro: Fe/Zn – 20 – 60 Kg/Ha. (Chelates)

Nutrition - R&D

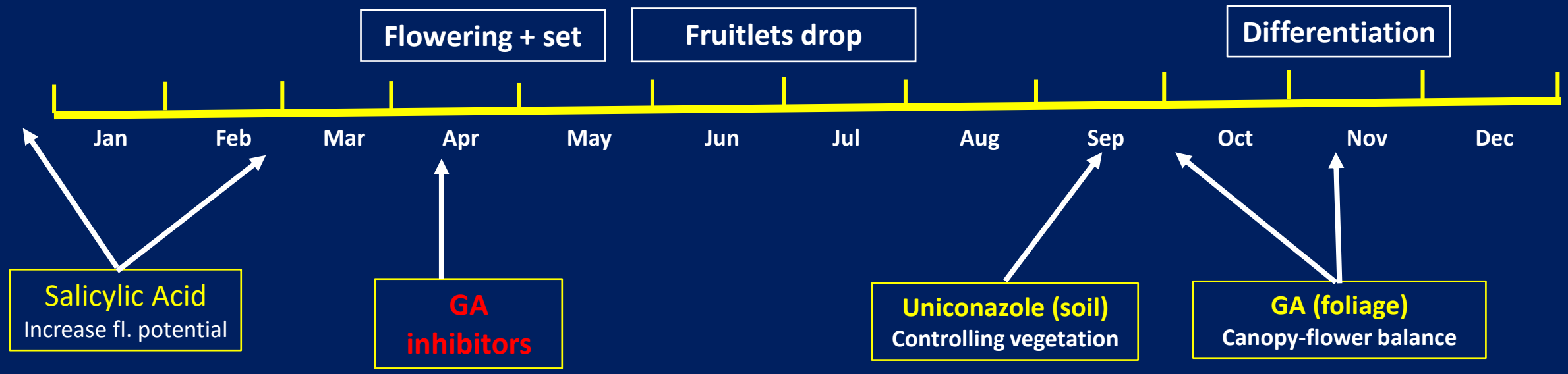
- Application of fertilizers throughout the year.
- Testing high levels of N and P - Re evaluation of the existing standards

Application of Plant Growth Regulators to improve productivity

Common Practice

- Application of GA inhibitors (Uniconazole) to prevent competition during flowering and set

P G R– R & D



Pollination

Common Practice

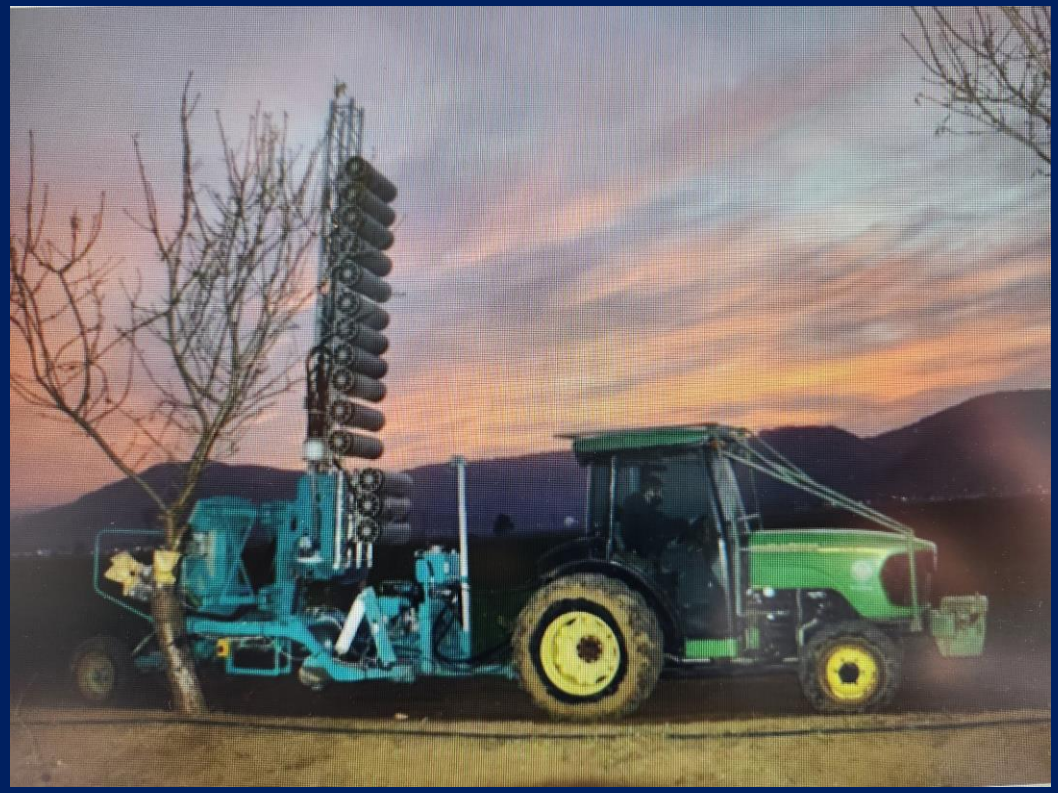
- Honey bees – 5 hives per Ha.

Pollination - R & D

- Robotic Hives

- **Bumble bees**

- **Future project – artificial pollination**



Planting distances, Pruning, Orchard design

Common practice

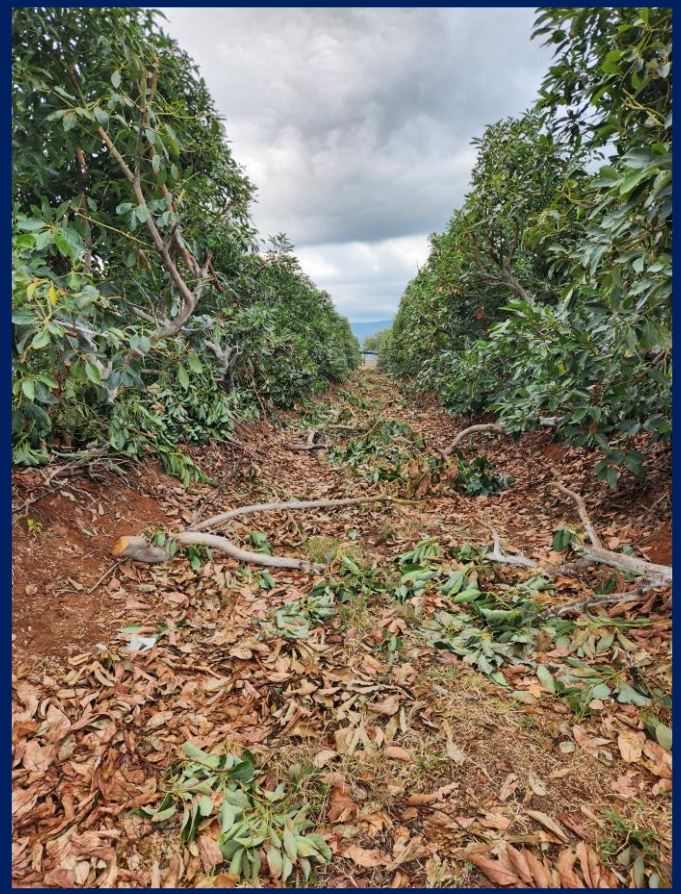
- Planting distances – 6 X 3, 6 X 4
- Pruning protocols – None

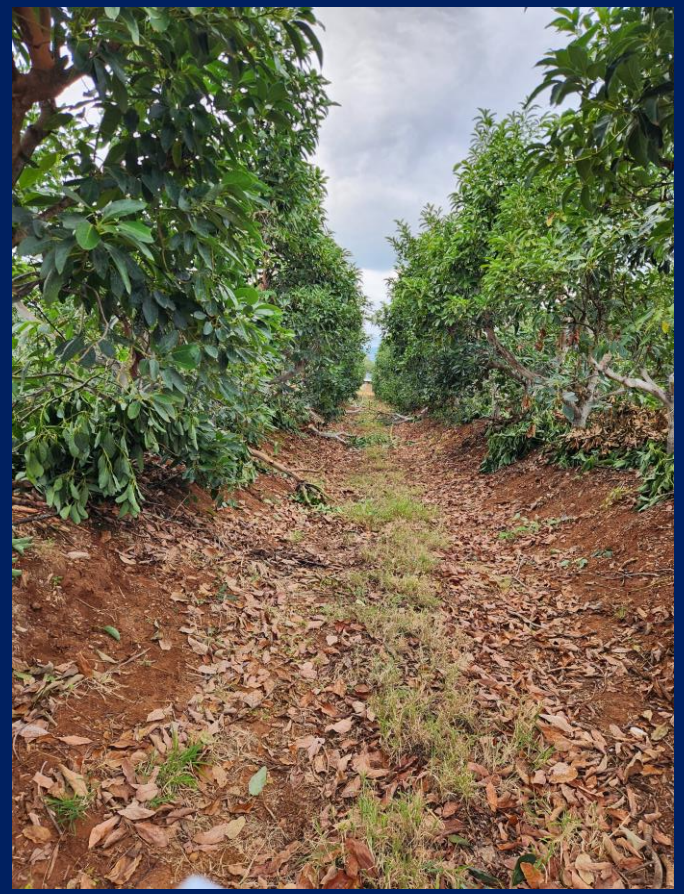
Principals:

- Optimal light penetration to all parts of the tree
- constant re-juvination of the trees

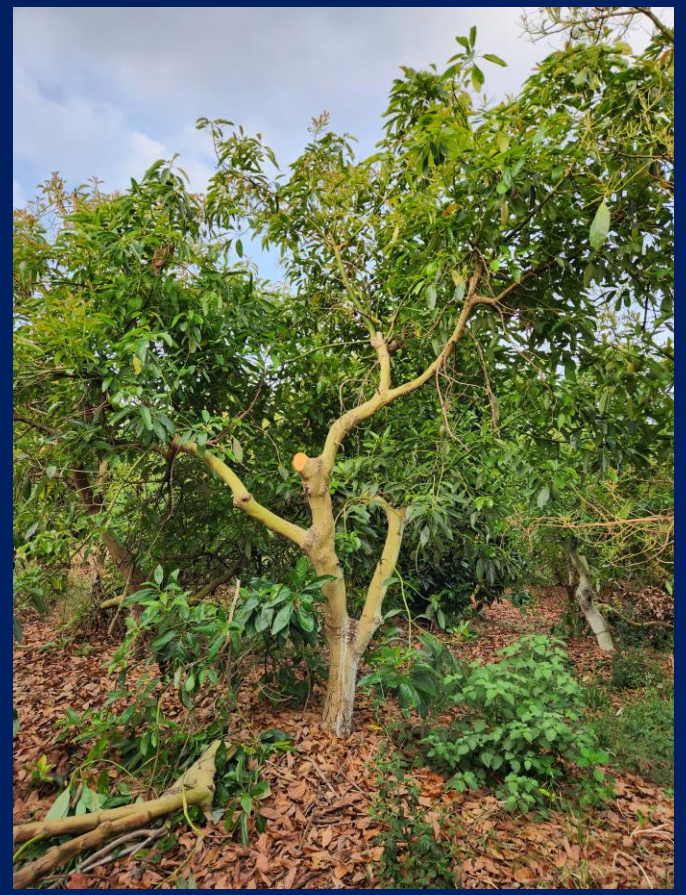
Pruning - R & D –

None





“ V “ Pruning



Re - Juvination

Post Harvest

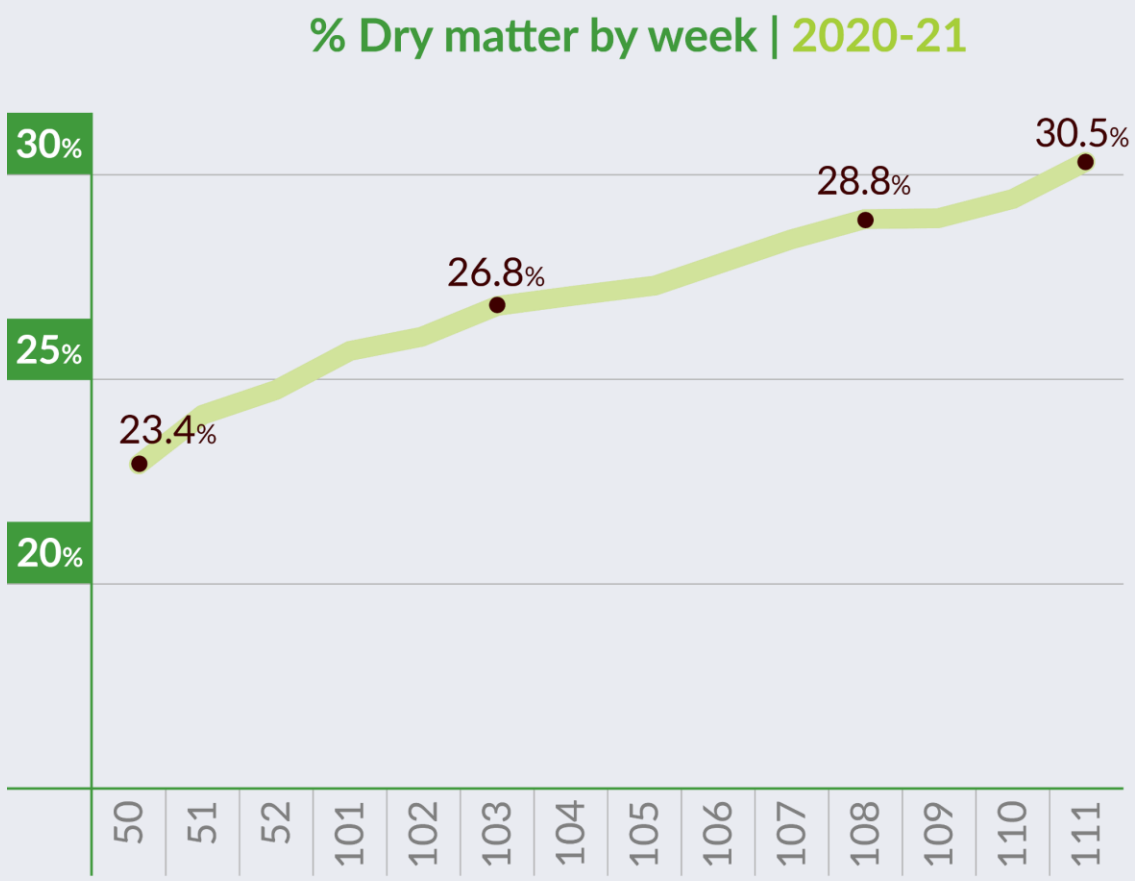
Common Practice

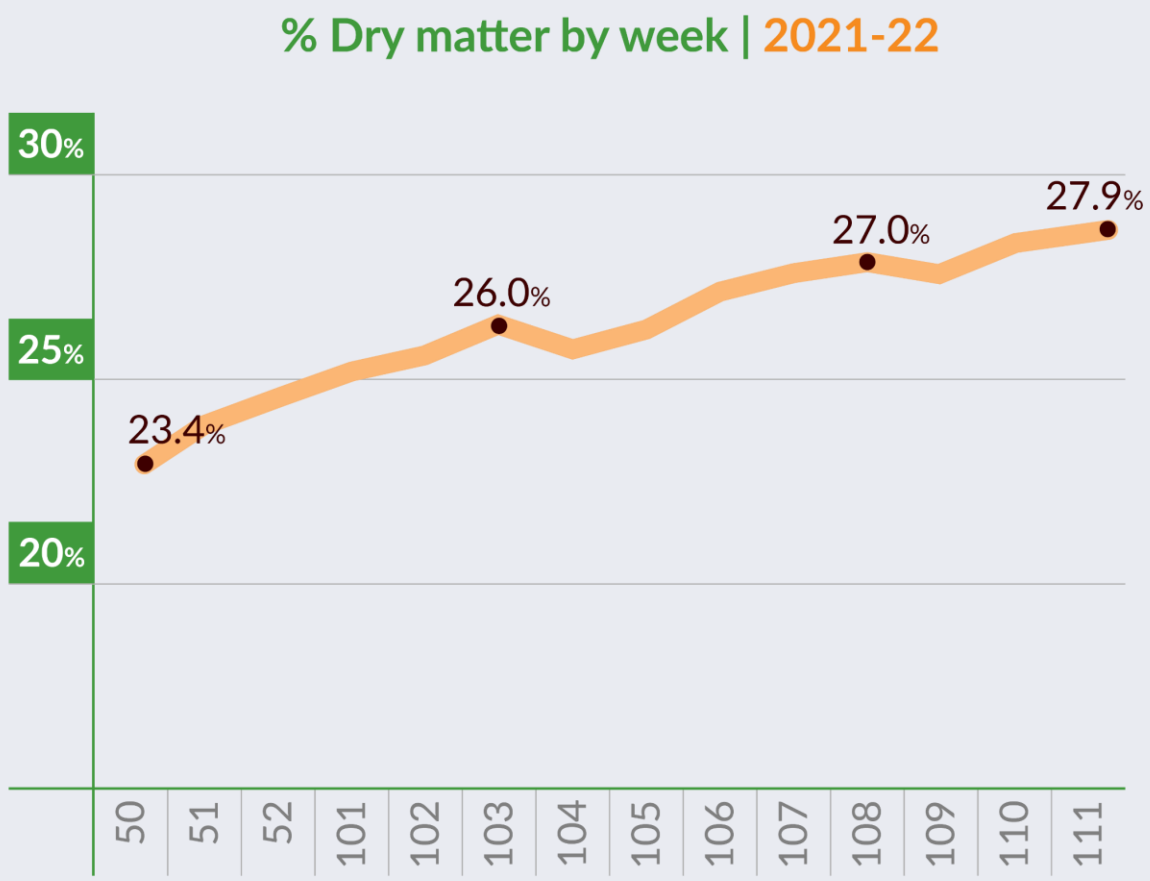
- **Main Destination - West and East Europe (Shipment period – 2-3 weeks)**
- **Means :**
  - **Cooling conditions (4 – 7 °C)**
  - **MA containers - Modified Atmosphere**
  - **1-MCP (Green – skin varieties)**

Post Harvest – R & D

- Target – East - Japan, China, India 6 – 7 weeks
- Graduate change of the temperature regime – Climatization
- Adjustment of MA conditions for the duration of the storage period
- Managing harvest according to Dry Matter contact

% DRY MATTER IN THE HASS COLTIVAR





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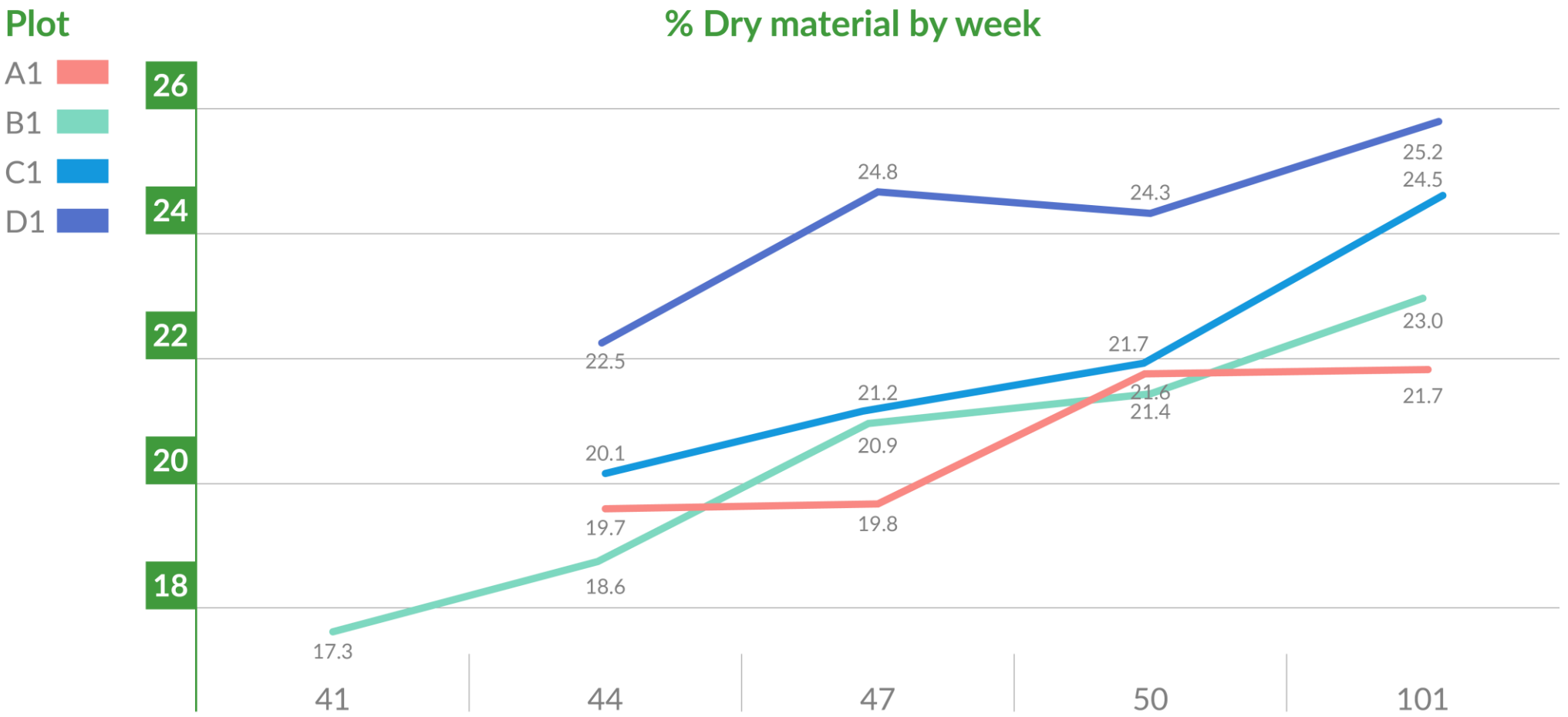
DRY MATTER TESTING PER PLOT - YAD HANNA PLANTATION



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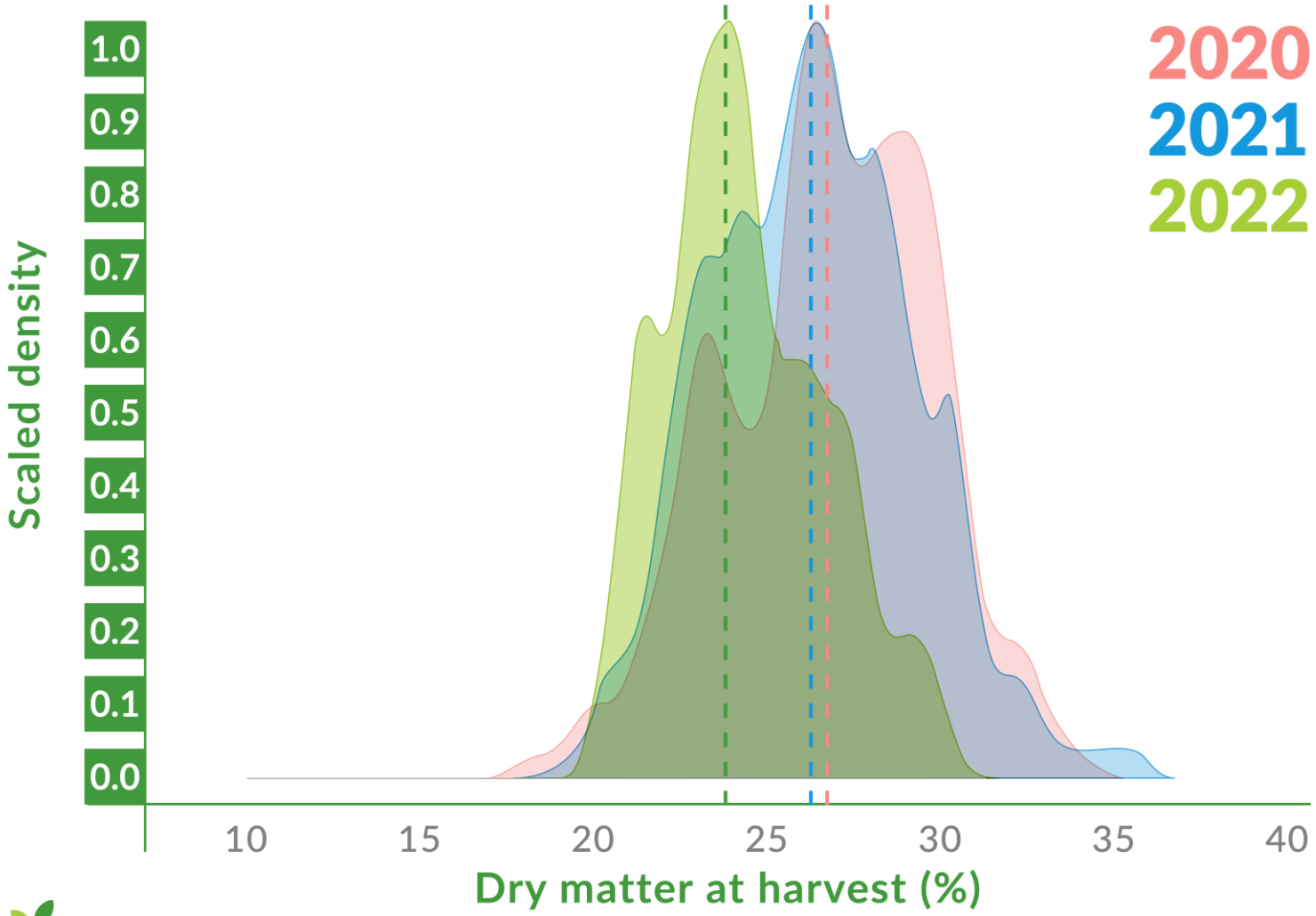
DISTRIBUTION OF DRY MATTER PERCENTAGES AT HARVEST



Season	Mean(%)	SD (%)
2020	26.86 A	3.08
2021	26.47 B	3.08
2022	24.36 C	2.41

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THANK YOU