Tissue Culture Facility, the future?

Charmaine Stander
August 2021
Who is Tissue Culture Facility : TCF ?
Where is TCF?

Bernheim, R45, Paarl
What is tissue culture?

- Tissue culture is a **global/growing trend**.
- Most rapidly growing area of **Biotechnology** with a wide range of applications.
- Tissue culture is a term used for collection of techniques used to **maintain or grow plant cells, tissues or organs under sterile conditions on a nutrient growth medium** of a known composition.
- It is used to **produce clones** of a plant in a method known as **micropropagation**.
Why micropropagation?

- **Cost effective** production.

- Production is not depending on **season** or weather conditions.

- Supply of **virus and disease-free** plant material.

- Plants are **uniform** and more **vigor**ous.
Uniformity
Why does the fruit industry need a TC lab?

- **Rapid increase** of clonal rootstocks.
- **Supply** of clonal rootstocks to commercial nurseries.
- **Shortages** in rootstocks and cultivars can be managed better depending on circumstances.
- **The cost of imported** *in vitro* material is expensive.
- **A phyto-sanitary accredited facility** will create opportunity to export quarantine plant material to neighboring countries and at the same time a quarantine station for importing plant material.
The micropropagation process...

- Need a sterile environment
- Healthy mother plant
- DNA analyses
- Initiation of material
- Optimized medium recipe/protocol
- Multiplication
  - Repeated multiplication of material and transfer to fresh medium
- Rooting
- Hardening off
  - Systematic process out of high humidity
- Outgrowth
Motherplant
- DNA analyzed
- Certified
Hardened off plantlet
Hardening off and Outgrowth
Some of the rootstock cultivars to be supplied ...

- **Apple**
  - CG202, CG210, CG213, CG214, CG778, CG890, CG969
- **Stone fruit**
  - Atlas, Viking, Flordaguard, GF677, Marianna
- **Cherries**
  - Maxima14
- **Grapevine**
  - 143B, RS3, Paulsen, Ramsey
Operational

• **Phase 1 (July 2020 – July 2021):** Building of facility (tunnels & TC facility), R&D TC Protocols.

• **Phase 2 (2022 – 2026):** Next 3 growing tunnels, first commercial production.

• **JOBS created:** 2021 = 10 personnel with full project = ± 45 jobs.
June 2021
Who let things happen at TCF?
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Thank you!

For any more information or questions:
charmaine@tissue-culture.co.za
www.tissue-culture.co.za