How to climate proof a farming business

Decline in food production over the next 50 years | 16% worldwide | 28% in Africa

Due to unpredictable weather conditions over the next 60 years

50% increase in energy demand | 40% increase in water demand

Climate smart agriculture

Increased productivity | Enhance resilience | Reduced Emissions

Remember the Four Betters:

- Better Production
- Better Nutrition
- Better Environment
- Better Life for all, leaving no one behind

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MAKE IT or BREAK IT

Respect the 6 P’s

PRIOR – Early Consideration

PROPER – Comprehensive and Detailed

PLANNING – Structured process

PREVENTS – Risk mitigation

POOR – Avoiding Substandard outcomes

PERFORMANCE – Achieving Desired Results

Planning for change

Adapting to climate change in the Western Cape

DECREASE IN RAINFALL

- **Save water** with rain tanks, grey water use, catchment management plans and regulations
- **Limit development** in and near wetlands, lakes and rivers

INCREASE IN COASTAL IMPACTS

- **Protect dunes and estuaries** along our coastline
- Push development setback lines **further inland**
- **Limit coastal development**

INCREASED SEVERITY OF DROUGHT

- **Save water** with rain tanks, grey water use, catchment management plans and regulations
- **Limit development** in and near wetlands, lakes and rivers

FEWER COLD AND FROST DAYS

- **Research climate resilient farming**
- **Consult W.C. Govt Dept. of Agric.** and other relevant institutions

HIGHER AVERAGE TEMPERATURE

- Prepare for and **understand impacts of heat stress** and how to cope
- Diseases spread faster and further in warmer weather – Model and **prepare for the highest risk diseases**

INCREASED FIRE RISK

- Form **community-based firefighters**
- Set up **early warning systems** eg. church bells

INCREASED INTENSITY OF EXTREME EVENTS

- **Prepare for floods**
- Mainstream climate change thinking into **urban planning, and building design**, e.g. wind effects coastal setback lines and floodlines
- Know your **disaster management plans** and how to implement them

INCREASE IN FLOODING AND STORM SURGES

- **Prepare for climate change** impacts on livelihoods and economies linked to the **marine and coastal sector**

A HEALTHY ENVIRONMENT BUFFERS ECOSYSTEMS

- **Restore degraded environments**
- **Remove alien vegetation**
- **Protect biodiversity corridors**

Today’s preparation…tomorrow’s success

Why should we start thinking Climate Smart on fruit production.

- Customer requirement.
- Universal quality standards for Club varieties.
- Early color development and fruit maturity.
- Storage and shelf life.
- Reduce use of fertilizers and chemicals.
- Sustainable production and consistent quality.

WATER

CLIMATE

SOIL

GENETICS

ESG
ENVIRONMENT
SOCIAL
GOVERNANCE

TOOLS IN HAND

WATER

Water Balance

- Total available water.
- Evaporation losses.
- Reserve capacity.
- Additional resources.

Cultivar spread

- Early varieties: January
- Late varieties: April
- Net income per cubic meter water use per hectare

Irrigation system & nets

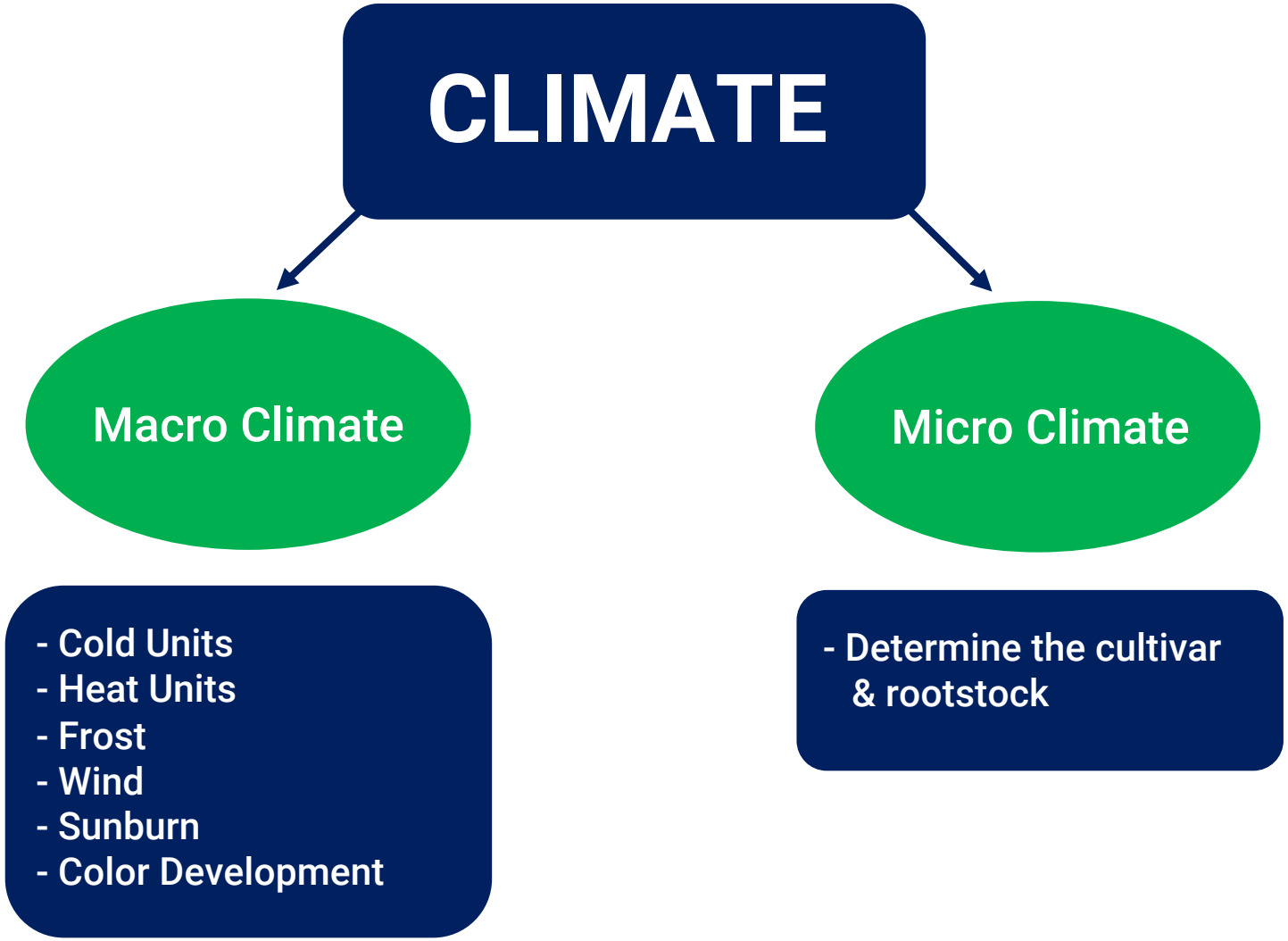
- Savings
- Nets 10%
- Drip irrigation 30%

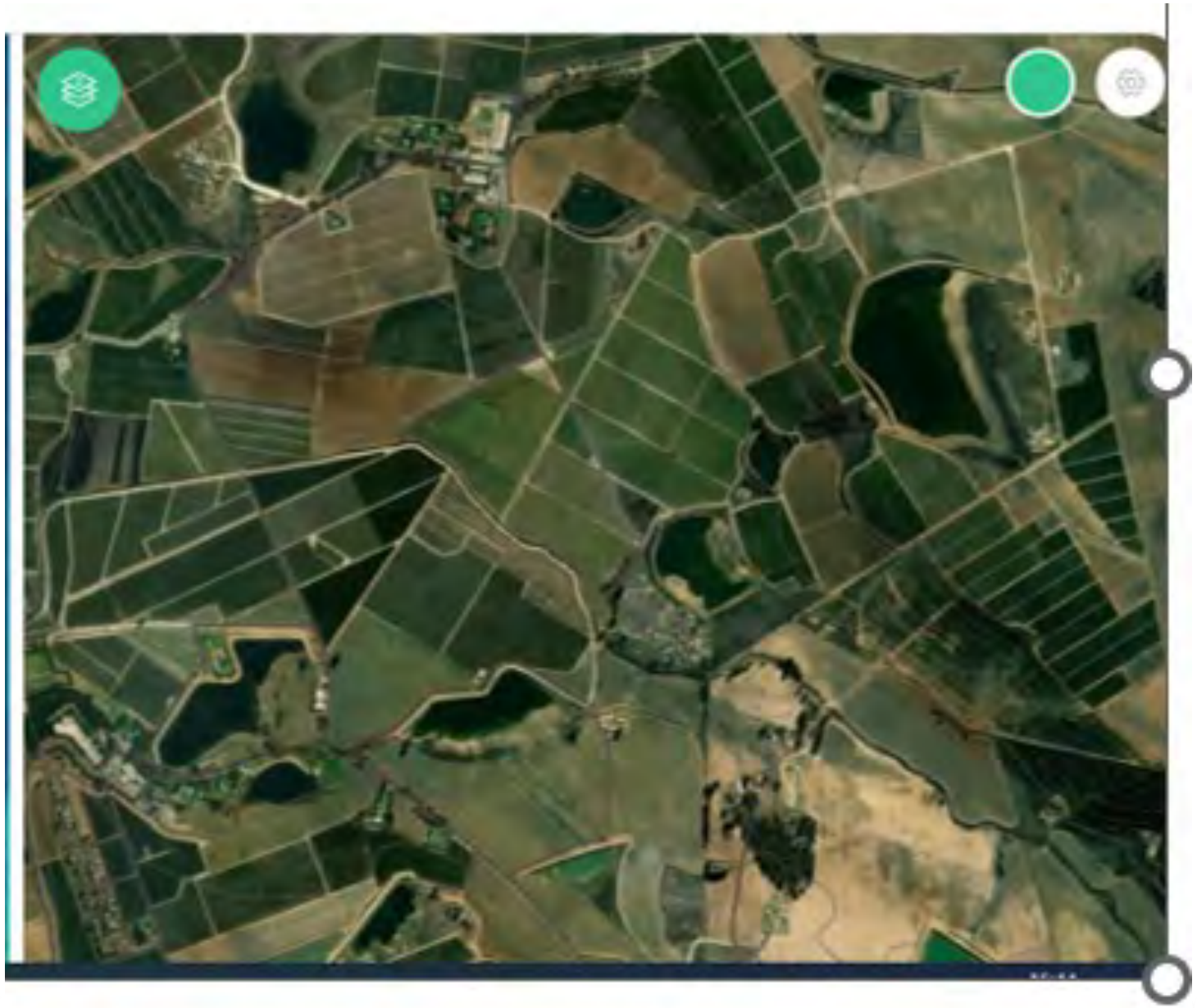
WATER

Waterrequirement for cultivar	Micro irrigation	Micro irrigation plus nets 10% savings	Drip irrigation 30% savings
Early harvest cultivars	5 000	4 500	3 500
Late harvest kultivars	8 000	7 200	5 600

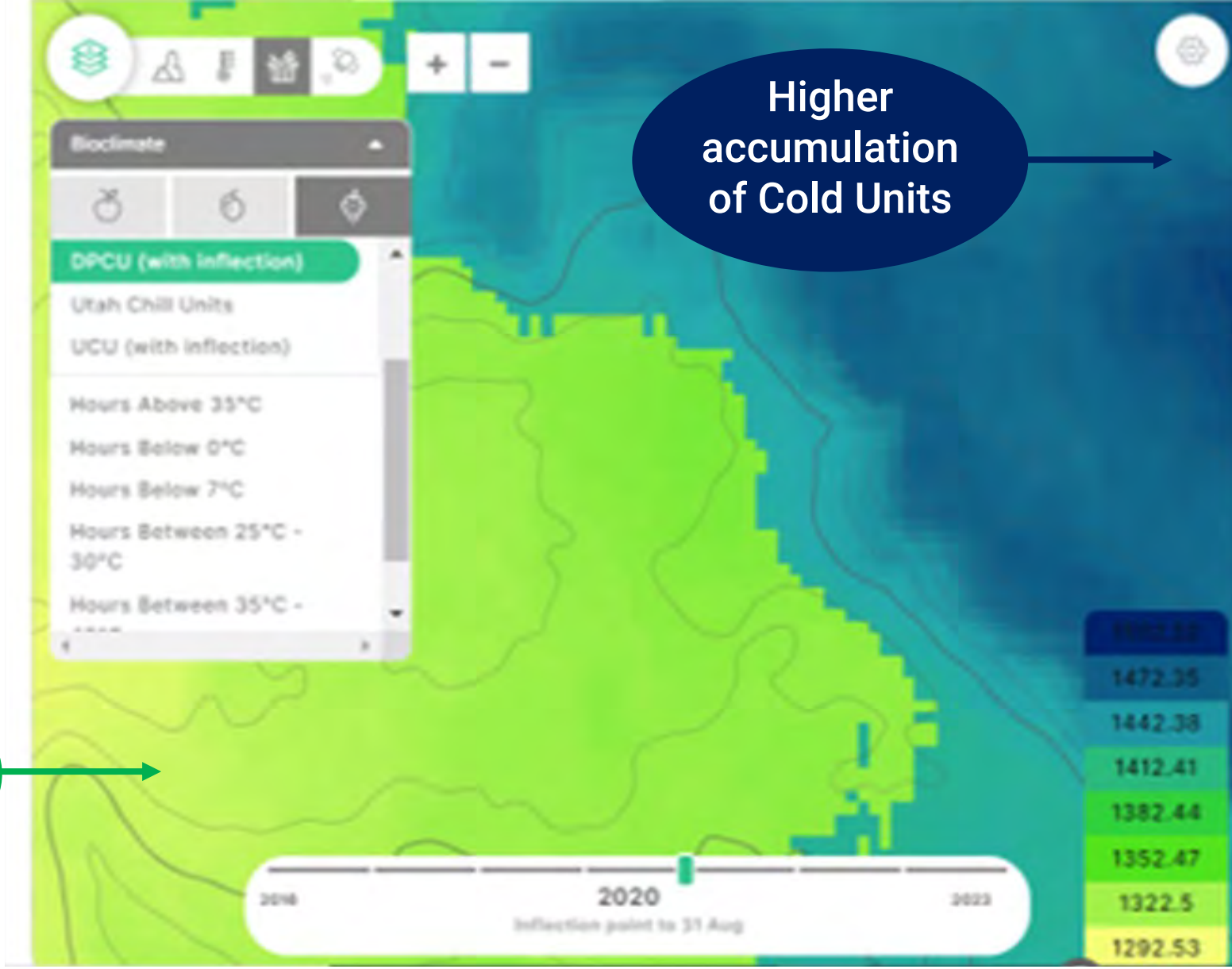
Plantable hectares			
100% Early cultivars planted	16	18	23
50% Early and 50% late cultivars planted	12	14	18
100% Late cultivars planted	10	11	14

Netto income per cubic meter of water used			
R100,000 per hectare @8,000 cubic meter water use per hectare	R 12.50	R 13.89	R 17.86
R150,000 per hectare @8,000 cubic meter water use per hectare	R 18.75	R 20.83	R 26.78


CLIMATE
Macro Climate
Micro Climate
- Cold Units
- Heat Units
- Frost
- Wind
- Sunburn
- Color Development
- Determine the cultivar & rootstock



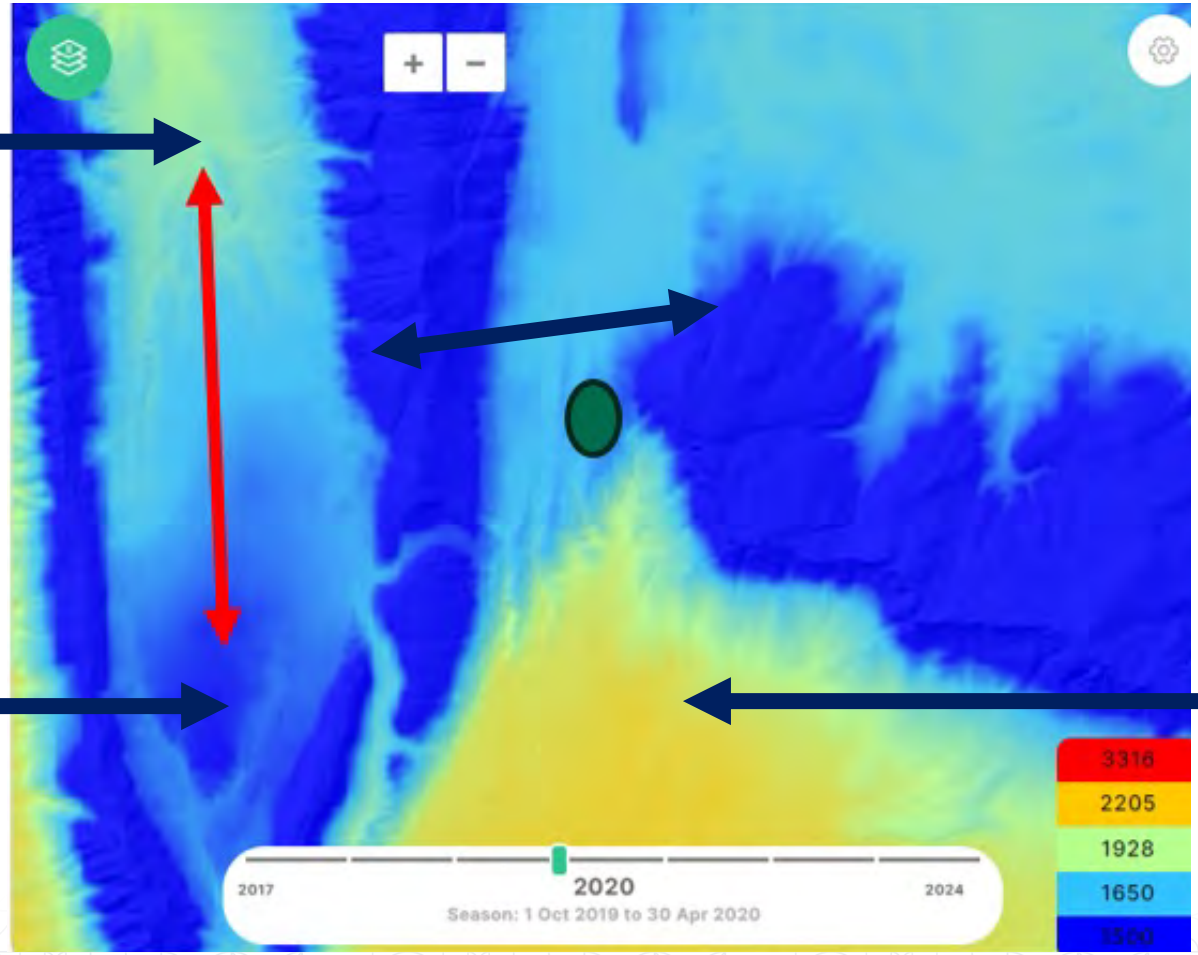
Variation of cold units on a farm



Compare sites to determine the right micro climate for a variety – Heat Units

More heat units in the North of the valley

Less units heat units in the south of the valley



Comparable sites

Highest accumulation of heat units

SOIL

- Proper soil classification
- Soil potential determine variety and rootstock

- Soil type determine drainage
- Drainage determine the row orientation
- Get rid of excess water as soon as possible

SOIL

Soiltype and potential

- Proper soil classification
- Soil potential determine variety and rootstock
- Irrigation system

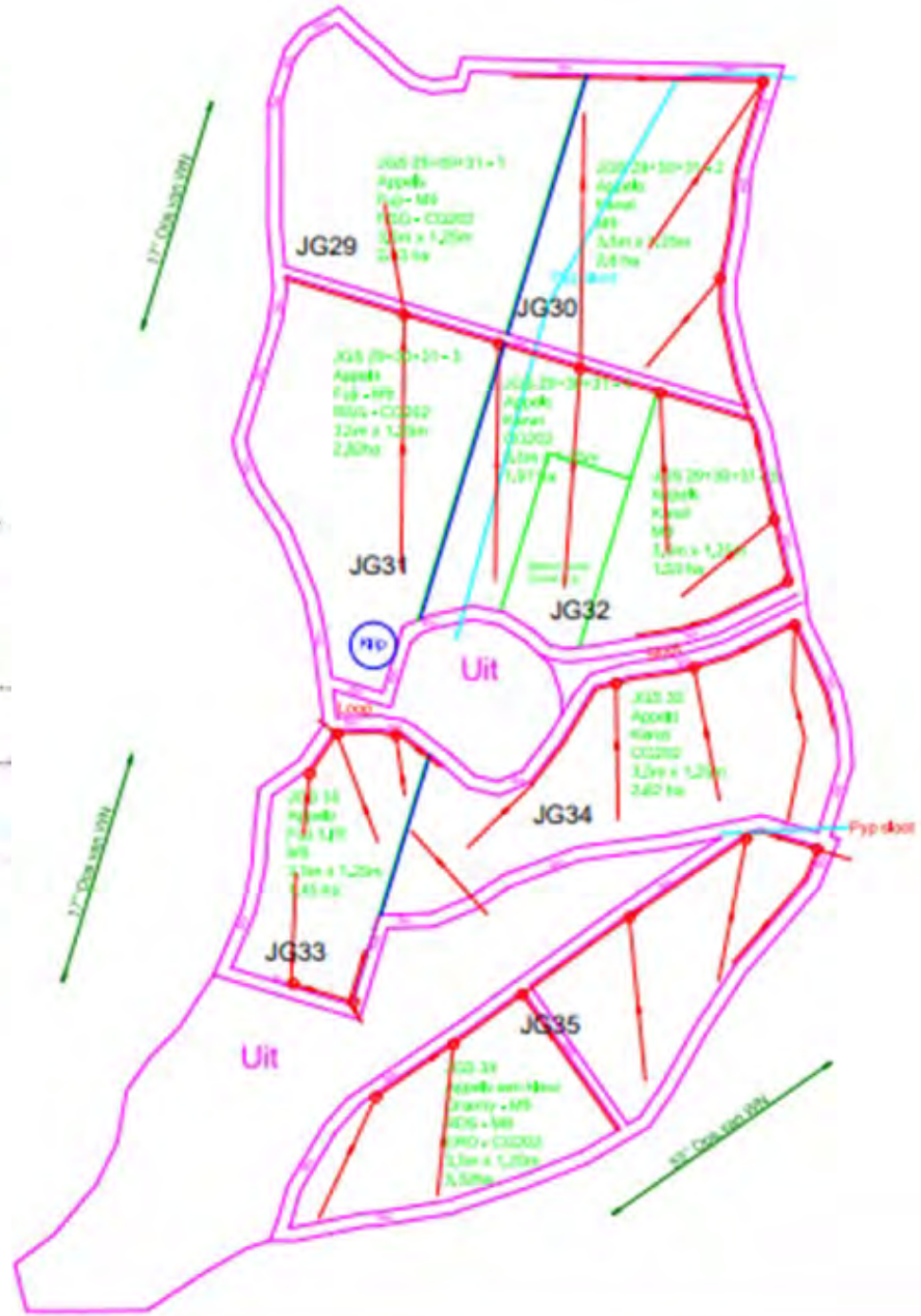
Drainage

- Soil type determine drainage
- Drainage determine the row orientation
- Get rid of excess water as soon as possible

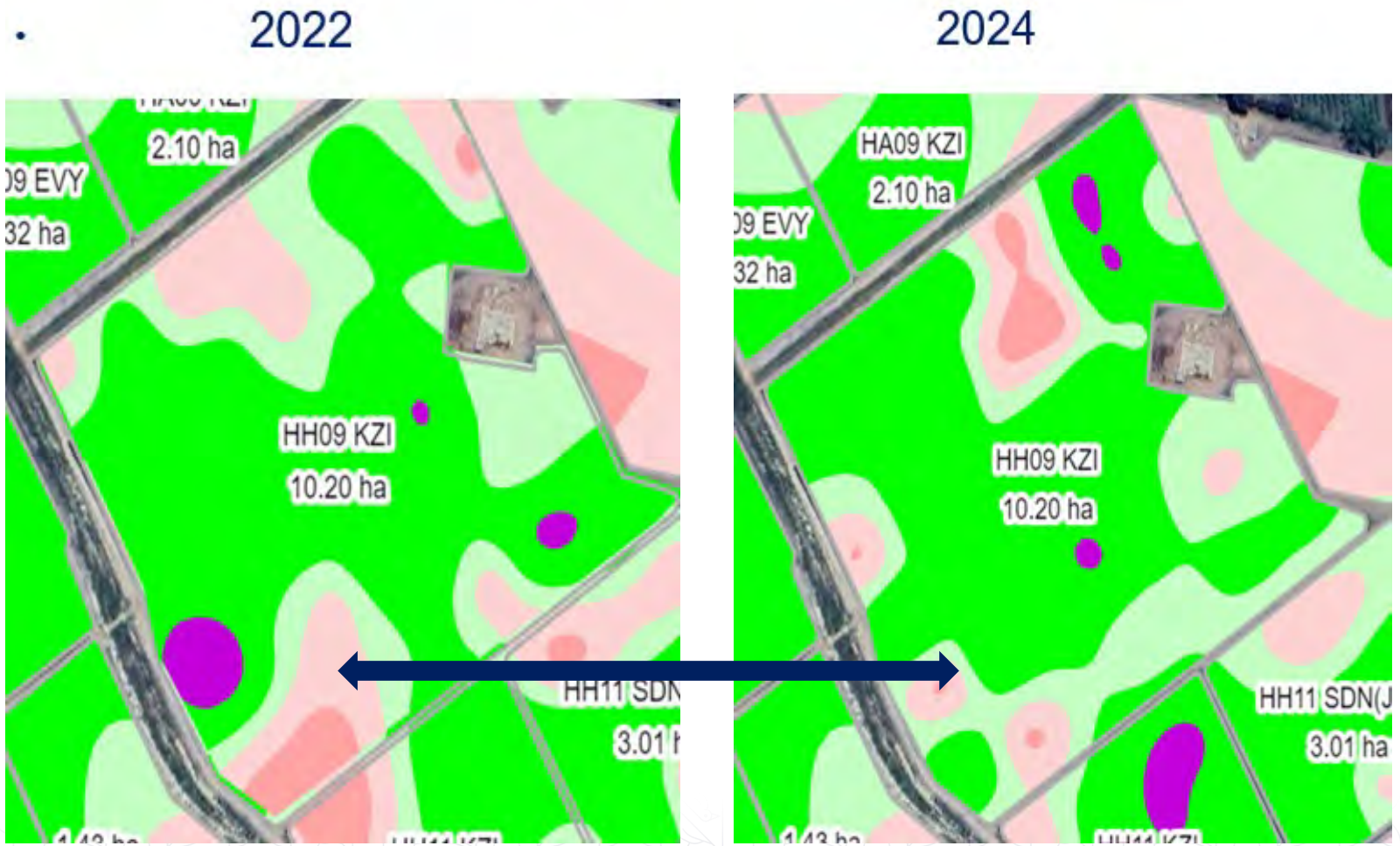
Soil health

- Compos
- Mulch
- Grid soil sampling
- Variable rate application of lime and fertilizers

Soil potential, block layout and drainage



Precision soil samples, tree insights and variable rate application.



More uniform soil pH

GENETICS

Rootstocks

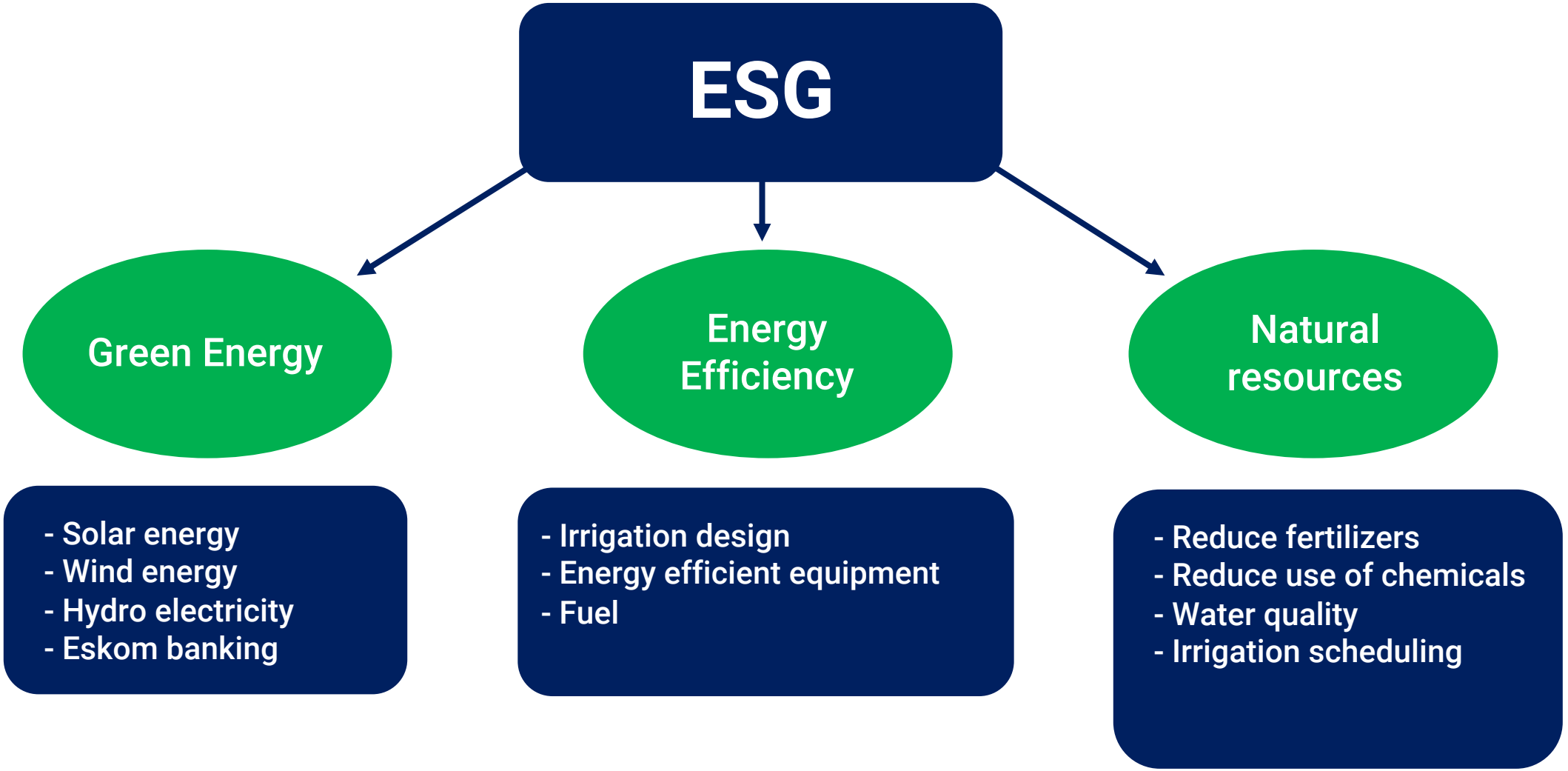
- Cold requirements
- Vigor
- Resistant or tolerant to replant and diseases
- Resistant or tolerant to insects and nematodes
- Adaptable to different soil types
- Nutrient uptake
- Breeding of new rootstocks

Breeding programs

- Breeding of new varieties
- Hot Climate Breeding Programs for better color in the warm regions and less sunburn.
- Resistance to diseases
- Proper evaluations before commercial plantings

Mutations

- Better fruit size
- Better color and early color development
- Early ripening mutations


ESG
Green Energy
Energy Efficiency
Natural resources
- Solar energy
- Wind energy
- Hydro electricity
- Eskom banking
- Irrigation design
- Energy efficient equipment
- Fuel
- Reduce fertilizers
- Reduce use of chemicals
- Water quality
- Irrigation scheduling

Tools in Hand

Terraclim – Terroir

Frost Fans

Nets

- Protection against hail, sunburn.
- Reduce water use
- Reduce wind factor
- Micro Climate
- Increase Class 1 pack outs

Improve color

- Reflective mulch – tree architecture
- Defoliating machine – tree architecture

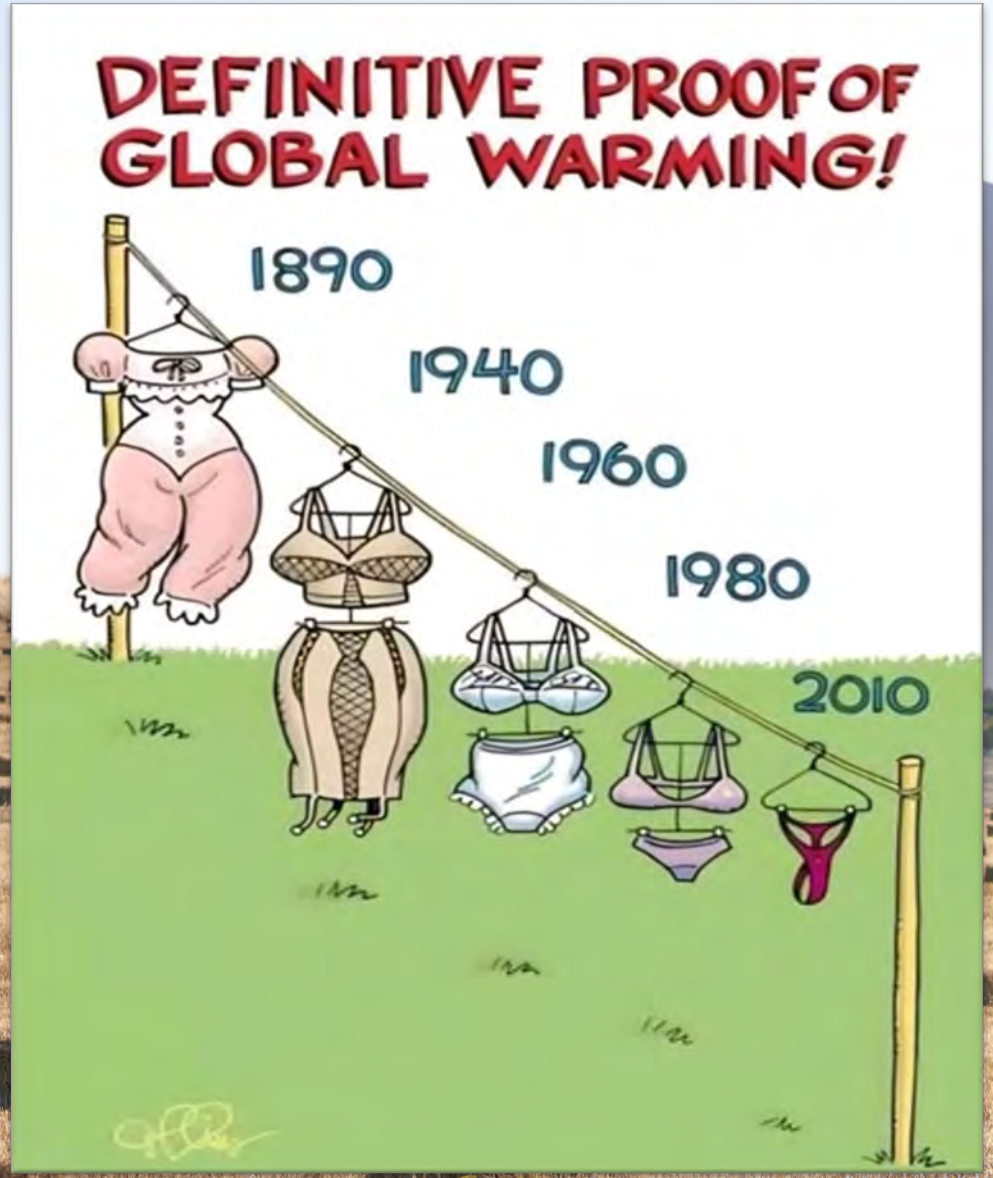
Irrigation

- Water efficient systems
- Forecasting models

Genetics

- Rootstocks
- Cultivars

THANK YOU FOR YOUR TIME



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