A Model and Tool for Table Grapes Profitability and Financial Sustainability Analyses

SATI
August 2019
BFAP Group’s analytical approach

Integration & presentation

Consumer Economics

Rural Development

Value Chain Analytics

Data Science

Commodity Markets and Foresight

Farm Level Economics

Land Use and Natural Resources

BFAP
DATA DRIVEN INSIGHT

INTELLIGENCE
Market & Business
Spatial Contextualization
IMPACT & Insights
OPERATIONAL
Monitoring & Management
Performance: Agricultural GDP

Growth Periods:
- International factors:
  - New level for international prices – Biofuel & China Economy
  - Consecutive droughts in USA & low stocks
- Domestically:
  - Sustained investment & export driven expansion

Weak periods:
- Global recession
- Domestic weather & animal disease impacts

Going forward:
- Short term global support?
- Business as usual vs. accelerated growth
Subsector Performance

5 year average share

- Maize
- Sugar cane
- Wheat
- Soybeans
- Other Field Crops
- Deciduous Fruit
- Citrus Fruit
- Vegetables
- Other Horticulture
- Cattle
- Milk
- Poultry

Subsector Performance: Gross Production Value

Index (2000 = 100)

Year:
- 2000
- 2002
- 2004
- 2006
- 2008
- 2010
- 2012
- 2014
- 2016
- 2018
- 2020
- 2022
- 2024
- 2026
- 2028

Legend:
- Field Crops
- Animal Products
- Horticulture
- Agriculture
High-growth industries are on track

Gross Value of Agricultural Production: 2014-2018

Source: DAFF, 2019

5-year growth: 10.33%

Average share in total agricultural Gross Value of Production

Source: DAFF, 2019
Fruit: Performance across industries

Gross Value of Agricultural Production

- Table Grapes: 15%
- Oranges: 24%
- Pears: 14%
- Lemons & Limes: 8%
- Naartjies: 8%
- Blue Berries: 3%
- Apricots: 3%
- Avocados (Avos): 3%
- Plums: 2%
- Mangoes: 15%
- Other: 2%
- Peaches: 3%
- Strawberries: 10%
- Cherries: 6%
- Quinces: 4%

Gross Production Value

Avg annual growth (5 yrs)
Fruit demand overview

Exports still primary driver of expansion

- Competition for natural resources
- Competition from South America

### Thousand tonnes

<table>
<thead>
<tr>
<th></th>
<th>Avg 2016-2018</th>
<th>2028</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pears</td>
<td>400</td>
<td>400</td>
</tr>
<tr>
<td>Table Grapes</td>
<td>300</td>
<td>330</td>
</tr>
<tr>
<td>Peaches &amp; Nectarines</td>
<td>200</td>
<td>190</td>
</tr>
<tr>
<td>Plums</td>
<td>100</td>
<td>90</td>
</tr>
<tr>
<td>Apricots</td>
<td>50</td>
<td>45</td>
</tr>
</tbody>
</table>

- Exports
- Processed & Dried
- Local Fresh Markets
SA’s performance in global export markets

Capturing a growing share of global market

Chart showing the percentage growth of Citrus, Grapes, and Pomefruit exports from 2001 to 2018.
Planted area is projected to expand by 7%, resulting in a production expansion of 10% over the period

Slower expansion due to
- Water, land, margins

9% increase projected in export volumes over the period of outlook

Increasing competition for market share from southern hemisphere competitors (Chile and Peru)

Domestic demand is projected to increase by 14% (small base) by 2028
Table grape age distribution change over time

- **0-3**: Non-bearing increased substantially and then plateaued
- **4-9**: Knock-on effect from dramatic change in non-bearing
- **10-15**: Decline possibly due to changes in consumer preferences – earlier replacement
- **16+**: Expansion in new establishments and earlier than expected lifting of 10-15 year old vines led to increasing volume of older, productive vines.
Real Table Grape Prices

![Graph showing real table grape prices from 2008 to 2028 with three line graphs representing local price on fresh produce markets, net export realisation price, and dried price.]
Table grapes local versus exports

- Real (inflation adjusted) prices lower over outlook
- 3% growth in real prices on domestic fresh markets up until 2028
- Nominal value of exports is projected to increase by 58% in 10 years to approach the R9.6bn mark
- Value of the local market expected to expand by 95% to surpass R550m by 2028

<table>
<thead>
<tr>
<th>Year</th>
<th>Local Nominal Value (LHS)</th>
<th>Export Nominal Value (LHS)</th>
<th>Real net export realisation price (RHS)</th>
<th>Real local price (RHS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011</td>
<td>2000</td>
<td>14000</td>
<td>10000</td>
<td>12000</td>
</tr>
<tr>
<td>2013</td>
<td>4000</td>
<td>16000</td>
<td>12000</td>
<td>15000</td>
</tr>
<tr>
<td>2015</td>
<td>6000</td>
<td>18000</td>
<td>14000</td>
<td>18000</td>
</tr>
<tr>
<td>2017</td>
<td>8000</td>
<td>20000</td>
<td>16000</td>
<td>21000</td>
</tr>
<tr>
<td>2019</td>
<td>10000</td>
<td>22000</td>
<td>18000</td>
<td>24000</td>
</tr>
<tr>
<td>2021</td>
<td>12000</td>
<td>24000</td>
<td>20000</td>
<td>27000</td>
</tr>
<tr>
<td>2023</td>
<td>14000</td>
<td>26000</td>
<td>22000</td>
<td>30000</td>
</tr>
<tr>
<td>2025</td>
<td>16000</td>
<td>28000</td>
<td>24000</td>
<td>33000</td>
</tr>
<tr>
<td>2027</td>
<td>18000</td>
<td>30000</td>
<td>26000</td>
<td>36000</td>
</tr>
</tbody>
</table>

Nominal Market Value (R million) vs. Price (R/ton)
<table>
<thead>
<tr>
<th>Fruit type</th>
<th>Share of production exported (%)</th>
<th>EU &amp; UK Combined Share of exports (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oranges</td>
<td>74%</td>
<td>40%</td>
</tr>
<tr>
<td>Soft Citrus</td>
<td>68%</td>
<td>54%</td>
</tr>
<tr>
<td>Grapefruit</td>
<td>67%</td>
<td>43%</td>
</tr>
<tr>
<td>Lemons &amp; Limes</td>
<td>67%</td>
<td>38%</td>
</tr>
<tr>
<td><strong>Table grapes</strong></td>
<td><strong>88%</strong></td>
<td><strong>76%</strong></td>
</tr>
<tr>
<td>Plums</td>
<td>77%</td>
<td>74%</td>
</tr>
<tr>
<td>Blueberries</td>
<td>71%</td>
<td>95%</td>
</tr>
<tr>
<td>Avocado</td>
<td>53%</td>
<td>95%</td>
</tr>
<tr>
<td>Nectarines</td>
<td>34%</td>
<td>80%</td>
</tr>
</tbody>
</table>
Table grapes exports

- Shift away from traditional markets such as the EU with additional cartons
- Shift towards UAE, Saudi Arabia, Hong Kong, China, Malaysia, Thailand, Russia, USA and Canada
- Access to new lucrative markets will have to be expanded
- Position in existing market space not to be compromised by access to new markets
Perspectives on export prices

Average export price vs. Unit value of trade (SARS)
The BFAP farm-level FinSim model for table grapes is based on:

- 56 ha under table grapes production
- Establishment cost were calculated at R 423 720 per hectare (netting cheaper than in WC and drainage not standard)
- Production cost per hectare amounts to R 388 226 per hectare (including packaging material and allocation of overheads to production hectares)
- Fixed assets and moveable assets were allocated accordingly to the production unit’s requirements to service the investment, along with its operational activities

Normalised establishment distribution

20 year production life cycle

Variety distribution vary between different farms
On current cultivars and current prices

Peru supply to European markets will continue to create price problems for early table grapes, but the expectation is that producer will reorganise themselves within different export markets

Based on August 2019 sector model projections

As netting becomes more and more the standard, the establishment costs increase substantially
Hex River prototype FinSim

The BFAP farm-level FinSim model for table grapes is based on:

- 42 ha under table grapes production
- Establishment cost were calculated at R 612 015 per hectare (including nets and drainage)
- Production cost per hectare amounts to R 384 467 per hectare (including packaging material and allocation of overheads to production hectares)
- Fixed assets and moveable assets were allocated accordingly to the production unit’s requirements to service the investment, along with its operational activities

- Normalised establishment distribution
- 20 year production life cycle
- Variety distribution vary between different farms
Hex River prototype: Net Farm Income/ha

- On current cultivars and current prices
- Crimson the steadfast money maker for this area
- Based on August 2019 sector model projections
- As netting becomes more and more the standard, the establishment costs increase substantially
The BFAP farm-level FinSim model for table grapes is based on:

- 45 ha under table grapes production
- Establishment cost were calculated at R 518 271 per hectare (netting and drainage not standard)
- Production cost per hectare amounts to R 374 734 per hectare (including packaging material and allocation of overheads to production hectares)
- Fixed assets and moveable assets were allocated accordingly to the production unit’s requirements to service the investment, along with its operational activities

Normalised establishment distribution

20 year production life cycle

Variety distribution vary between different farms

<table>
<thead>
<tr>
<th>TABLE GRAPE VARIETY</th>
<th>HA</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crimson Seedless</td>
<td>13,5</td>
<td>30%</td>
</tr>
<tr>
<td>Thompson Seedless</td>
<td>6</td>
<td>13%</td>
</tr>
<tr>
<td>Autumn Crisp</td>
<td>7,2</td>
<td>16%</td>
</tr>
<tr>
<td>Adora</td>
<td>6,2</td>
<td>14%</td>
</tr>
<tr>
<td>Scarlotta</td>
<td>4,2</td>
<td>9%</td>
</tr>
<tr>
<td>Sable</td>
<td>4,9</td>
<td>11%</td>
</tr>
<tr>
<td>Midnight</td>
<td>3</td>
<td>7%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>45</td>
<td>100%</td>
</tr>
</tbody>
</table>

Breakdown of production costs/ha

- LABOUR 42%
- FERTILIZER 6%
- PACKAGING & MARKETING 31%
- CHEMICALS 6%
- FUEL & ELECTRICITY 8%
- REPAIRS & DIVERSE 3%
- MANAGEMENT 4%
Berg River prototype: Net Farm Income/ha

- On current cultivars and current prices
- Slightly higher labour cost per hectare and more variation in productive land than Hex negatively impacts NFI
- Based on August 2019 sector model projections
- As netting become more and more the standard, the cost in establishment increase substantially
Table grape scenarios
August 2019
Impact of Exchange Rate: Nominal Prices

Value/carton - Euro (lhs)  
Value/carton - Rand (rhs)
Exchange rate scenario: Export Prices

- Baseline Exchange Rate
  2019: R14.24 (annual avg.)

- Scenario Exchange Rate
  in 2019: R15.50 (annual avg.)

- Depreciation Scenario vs. Baseline of 8.8% - retained for entire outlook
Scenario results at farm-level

Orange River NFI R/ha.

- % change in NFI
- Orange River NFI R/ha.
- Orange River Scenario

Year: 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028

NFI R/ha:
- 20,000
- 40,000
- 60,000
- 80,000
- 100,000
- 120,000
- 140,000
- 160,000
- 180,000
Scenario results at farm-level

Hex River NFI R/ha.

% change in NFI

NFI R/ha

2019 2020 2021 2022 2023 2024 2025 2026 2027 2028

% change  Hex River  Hex River Scenario
Scenario results at farm-level

Berg River NFI R/ha.

% change in NFI

Berg River NFI R/ha.

2019 2020 2021 2022 2023 2024 2025 2026 2027 2028

NFI R/ha

% change

Berg River

Berg River Scenario
Scenario results at Orange River farm-level

The **what**: farm level testing of quality orientated production

The **why**: with packaging and labour being major cost drivers, how can we restructure ourselves to use less of it without negatively impacting NFI/ha.

The **how**: what will the testing change from the baseline

- Reduced overall quantity per hectare: 7% reduction
- Reduced overall labour per hectare: 7% reduction
- Higher pack-outs at packhouse level: 3% increase in exports and 3% less cellar/raisons
- Higher price per carton in export market: 3% increase in export price for higher quality/less claims

The **effect** on NFI/ha over the outlook period

Orange: R4700/ha increase with 3.95% less cartons exported per annum
Berg: R5100/ha increase with 3.87% less cartons exported per annum
Hex: R5800/ha increase with 3.64% less cartons exported per annum
In low profit years, the % change in NFI is higher. Almost always at least giving you an additional return equivalent to the bank savings interest rate.
In low profit years, the % change in NFI is higher.

Almost always at least giving you an additional return equivalent to the bank savings interest rate.

Slightly smaller impact than Orange River in percentage terms, because of smaller transport component in cost structure.
Scenario results at Hex River farm-level

• In low profit years, the % change in NFI is higher
• Almost always at least giving you an additional return equivalent to the bank savings interest rate
Application of BFAP including Table Grapes

- 2011 - National Development Plan 2030
- 2012 - De Doorns (Minimum wage)
- 2013 - Thailand (Market access closure)
- 2016 - Phakisa
- 2017 - Agricultural Workstream
- 2018 - Land Reform – expropriation without compensation
NDP matrix

High growth potential

Non-labour intensive <0.01 labour / ha
1. Sheep
2. Soya beans, Canola, Eggs
3. Poultry, Dairy, Pigs
4. Cattle

Labour Intensive >1.3 labour /ha
1. Yellow maize, Barley, Lucerne, Oats, Hay, Wool
2. Groundnuts, Sunflower, White maize, Wheat, Sorghum
3. Forestry, Tobacco, Apricots
4. Vegetables, Bananas, Peaches, Raisins

Table Grapes

Low growth potential

Macadamias, Avocados

Citrus, Apples, Pears

Sugar cane, Cotton

Wine, Nectarines

Pecan Nuts, White maize

Wool, Tobacco, Pecan Nuts

Pigs, Eggs, Poultry

Soya beans, Canola, Eggs

Sheep, Cattle

High growth potential

Non-labour intensive <0.01 labour / ha
1. Sheep
2. Soya beans, Canola, Eggs
3. Poultry, Dairy, Pigs
4. Cattle

Labour Intensive >1.3 labour /ha
1. Yellow maize, Barley, Lucerne, Oats, Hay, Wool
2. Groundnuts, Sunflower, White maize, Wheat, Sorghum
3. Forestry, Tobacco, Apricots
4. Vegetables, Bananas, Peaches, Raisins

Table Grapes

Low growth potential

Macadamias, Avocados

Citrus, Apples, Pears

Sugar cane, Cotton

Wine, Nectarines

Pecan Nuts, White maize

Wool, Tobacco, Pecan Nuts

Pigs, Eggs, Poultry

Soya beans, Canola, Eggs

Sheep, Cattle
Our vision: NDP’s score sheet

<table>
<thead>
<tr>
<th>NDP Target</th>
<th>Indicator</th>
</tr>
</thead>
<tbody>
<tr>
<td>Land reform</td>
<td>No</td>
</tr>
<tr>
<td>Jobs &amp; growth: High-value &amp; field crops, livestock</td>
<td>Yes</td>
</tr>
<tr>
<td>Jobs &amp; growth: Under-utilised land, homelands etc.</td>
<td>No</td>
</tr>
<tr>
<td>Jobs &amp; growth Agro – processing</td>
<td>Yes?</td>
</tr>
</tbody>
</table>

Irrigation expansion of 142 000 ha NOT 500 000 ha
Employment in agriculture

Still a significant gap to NDP target

Total 2008
1.58 million

Total 2012
1.36 million

Total 2019
1.46 million

Total 2030
2 million

Source: Stats SA, 2019
### Application of BFAP system – agri workstream (2016)

<table>
<thead>
<tr>
<th></th>
<th>Apples</th>
<th>Table Grapes</th>
<th>White Wine</th>
<th>Citrus</th>
<th>Avocados</th>
<th>Macadamias</th>
<th>Pecans</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>WAS savings</strong></td>
<td>3,000</td>
<td></td>
<td></td>
<td>9,000</td>
<td>3,000</td>
<td>4,700</td>
<td>7,300</td>
<td>27,000</td>
</tr>
<tr>
<td><strong>Brandvlei</strong></td>
<td></td>
<td>1,000</td>
<td>500</td>
<td>2,000</td>
<td></td>
<td></td>
<td></td>
<td>3,500</td>
</tr>
<tr>
<td><strong>ClanWilliam</strong></td>
<td></td>
<td>1,000</td>
<td>500</td>
<td>2,500</td>
<td></td>
<td></td>
<td></td>
<td>4,000</td>
</tr>
<tr>
<td><strong>Total expansion</strong></td>
<td>3,000</td>
<td>2,000</td>
<td>1,000</td>
<td>13,500</td>
<td>3,000</td>
<td>4,700</td>
<td>7,300</td>
<td>34,500</td>
</tr>
</tbody>
</table>
Irrigation efficiency (WC)

<table>
<thead>
<tr>
<th></th>
<th>Orchard</th>
<th>Vegetable</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Shadenetting</td>
<td>Tunnels</td>
</tr>
<tr>
<td>Shadenetting</td>
<td>2%</td>
<td>43%</td>
</tr>
<tr>
<td>Tunnels</td>
<td>291%</td>
<td>-</td>
</tr>
</tbody>
</table>

- 2013:
  - Shadenetting: 559
  - Tunnels: 130

- 2017:
  - Shadenetting: 2,185
  - Tunnels: 186

*Source: WCDoA 2013 & 2017 Flyover data*
Application of BFAP system Land Reform (May 2018)

- Decrease of 34.72% with Low Road (non-transparent land reform policies)
- Economic and political uncertainty
- Business and industry confidence

SA Table grape industry outlook: Production volume

Production (Tonn)
One size does NOT fit all!
Net revenue per hectare (National 5-year averages)
• Overview of complex nature of land reform & clear description of failures, corruption, lack of clear plan etc. over past 2 decades

• Mixed tenure model: a continuum of rights from freehold and communal as well as multilevel ownership arrangements....... the report acknowledges the importance of property rights.

• Various tenure systems, description of beneficiaries (acknowledging categories ranging from household, small scale to large-scale farmers) and the variety of demand for land, urban land reform etc.

• Acknowledgement of lack of accurate data and the desperate need for a comprehensive land audit.

• Proactive and targeted commodity and area-based approaches with production capacity informed by agro ecological and land use analysis and the establishment of a land reform fund.

• Challenges with EWC, Land Ceilings and lack of clear strategy on under-utilised resources

Jobs (index: 1 to 10)

Growth (index: 1 to 10)

- High-value labour-intensive export
- Secondary jobs - informal value chains
- Emerging producers
- Non-labour intensive commercial crops & livestock
- Secondary jobs - formal value chains
- Smallholder subsistence producer
- Land reform & under-utilised land

Data Driven Insight
Land value contrast: R1000 / ha vs. R1 mil / ha
Thank you

Acknowledge SATI financial support

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www.bfap.co.za