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Developing economic models for South African blueberries

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28 May 2021

BerriesZA Symposium

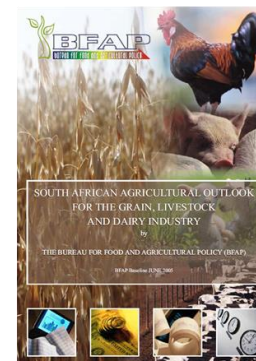
Introduction

- 1) Quick overview of BFAP
- 2) Latest developments in the fruit sector
Berries in perspective
- 3) Development of economic models
Sector model
Farm model
- 4) Concluding remarks

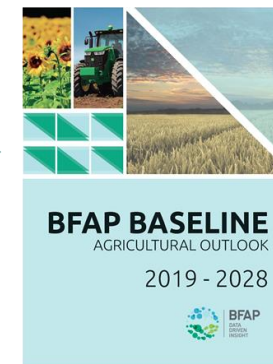
- We are excited to start this journey with the berry industry
- BFAP is already working with a number fruit sectors
 - citrus; table grapes; pome & stone fruit; sub-trop; nuts; dried fruit
- Engagements at a high policy and planning level
 - Africa Footprint
 - Agriculture & Agro-processing Master Plan (16 value chain Deep-dives)
 - DTIC, NDA, NAMC, Presidency
- Partnerships (FAPRI, FAO, OECD, BER & ReNAPRI)
- Multidisciplinary Team
 - Economists, Data science, Engineers, Crop modelers



2005 – 15 commodities



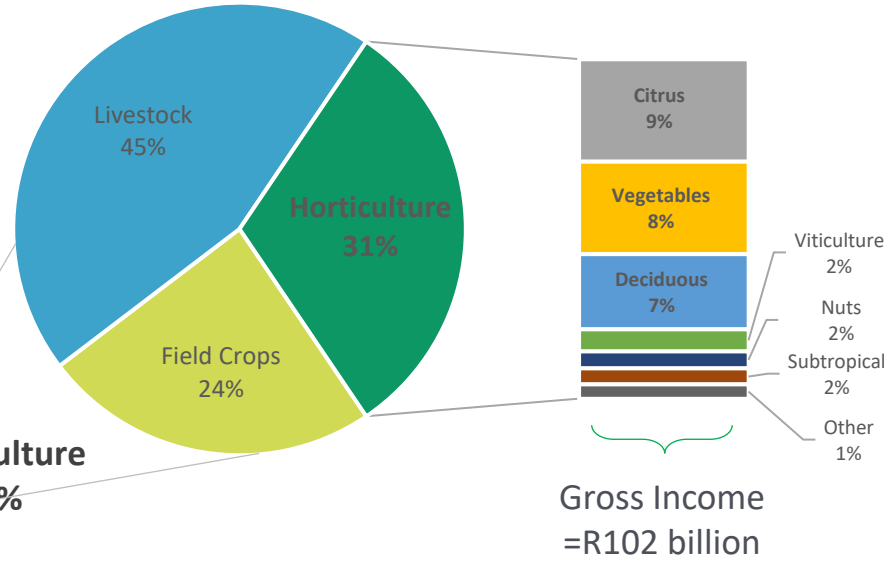
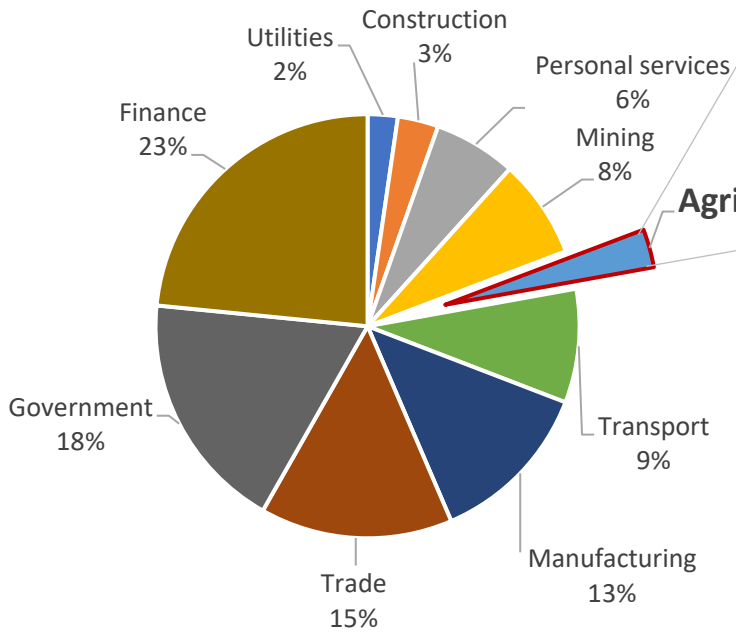
2019 – 40+ commodities



Berries in Context



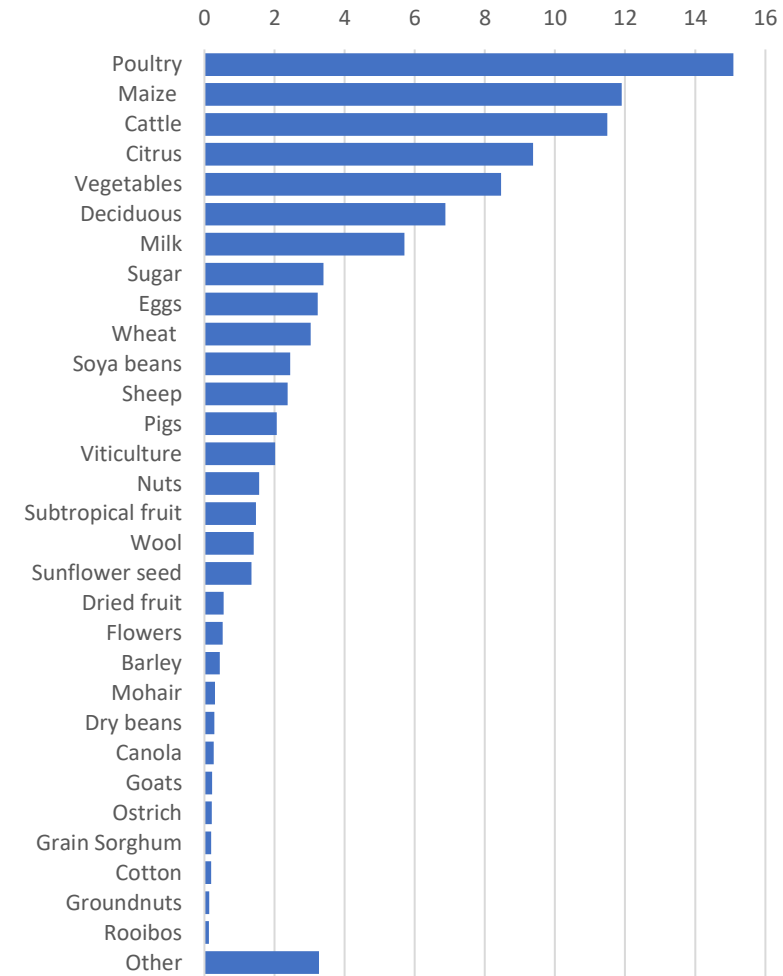
RSA GDP 2020



Berries (blue, rasp & black)
Est = R1.8 billion
0.54% of Agriculture

DALRRD
Other berries??
5535 Tons
R758 million

Contribution to Income (%)





Chapter 6: An integrated and inclusive rural economy

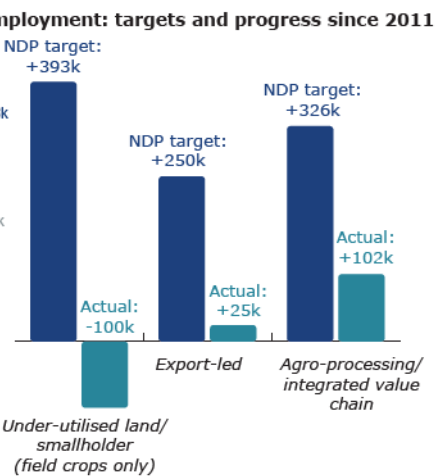
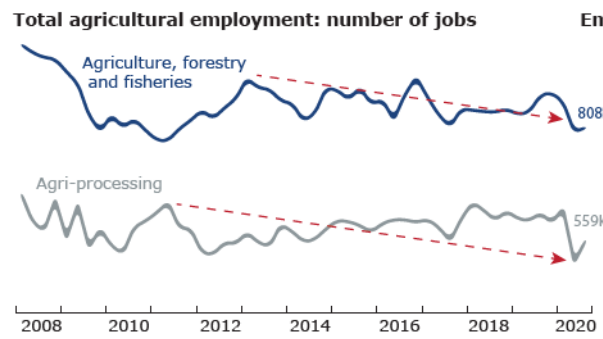
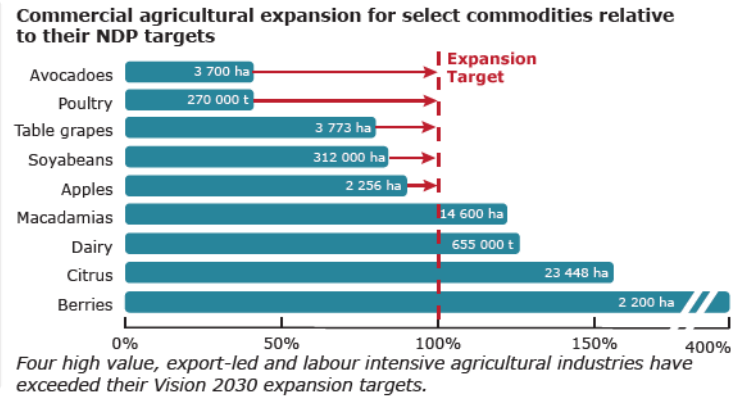
Economic transformation and job creation also needs to extend to rural areas. Issues related to agriculture, agro-processing, job creation and land reform are central to achieving an integrated and inclusive rural economy. Two key outcomes are (1) to expand agriculture, and (2) to ensure meaningful land reform. It is encouraging that the gross value of agricultural production has increased by 44% since 2010.

Growth in gross value of production since 2010¹

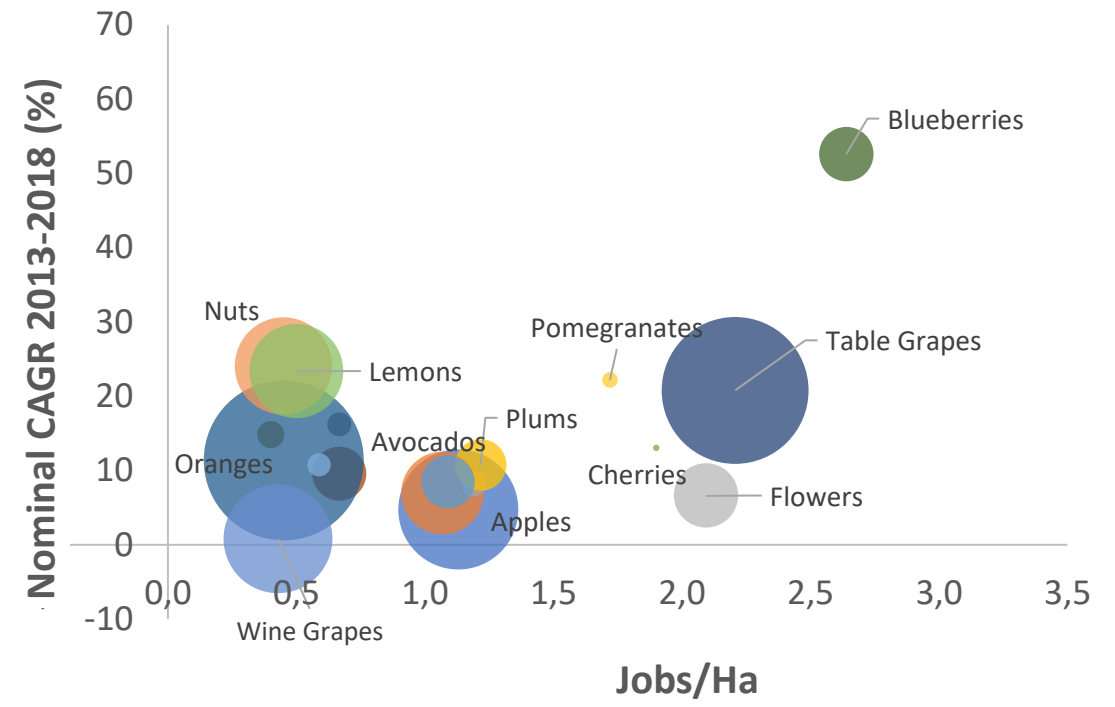
Agriculture	44%
Horticulture	70%
Animal products	43%
Field crops	22%
Agro-processing	13%

Growth in volume of production since 2010¹

Agriculture	19%
Horticulture	23%
Animal products	21%
Field crops	12%
Agro-processing	n/a



Progress in terms of creating new employment opportunities focusing on smallholder and land-reform farms and under-utilised farmland, exports and agro-food value chains has been low: there was a decline in employment in the agricultural sector until 2011, and a net gain of only 27 000 jobs created since 2011.

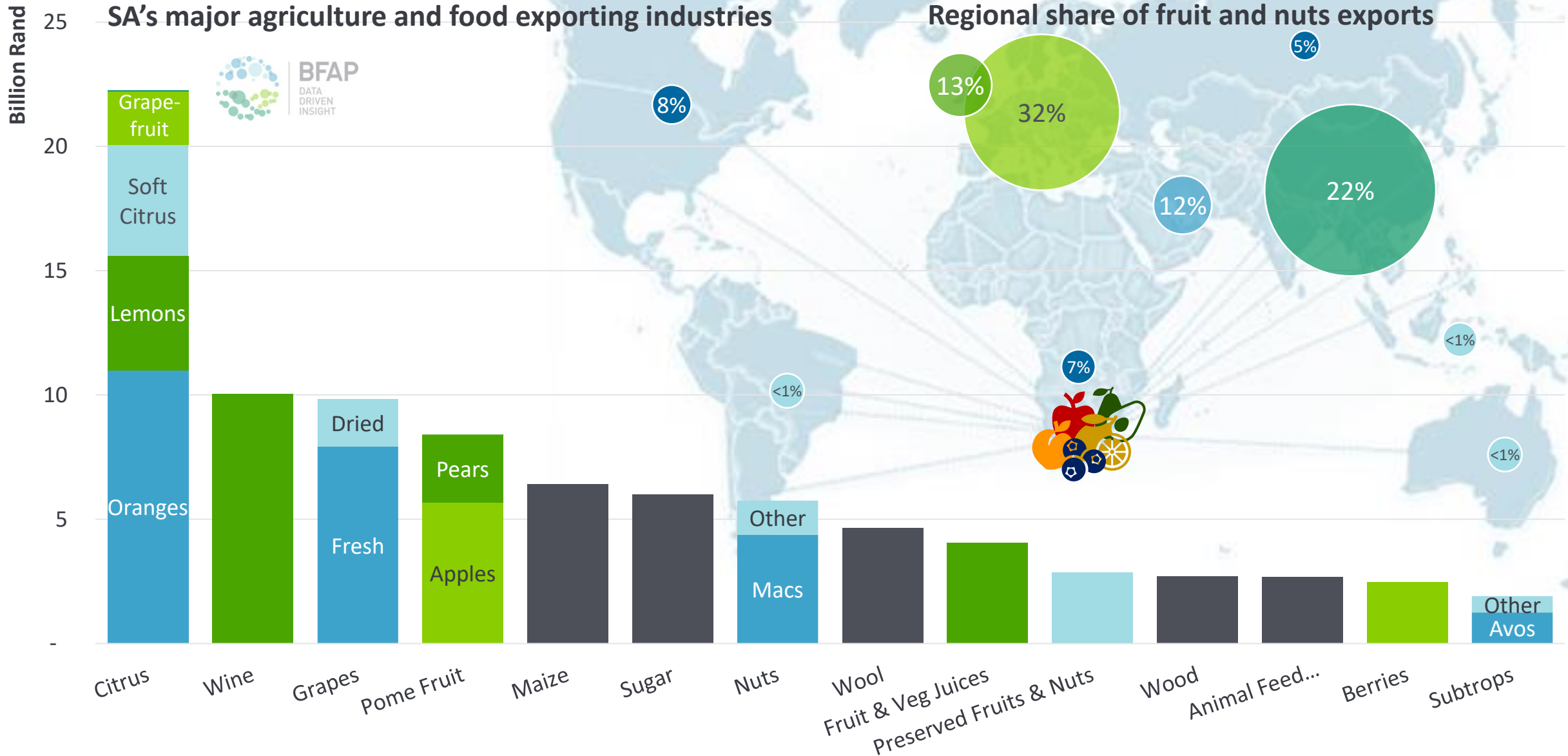


Contextualising SA Fruit and Nut Exports

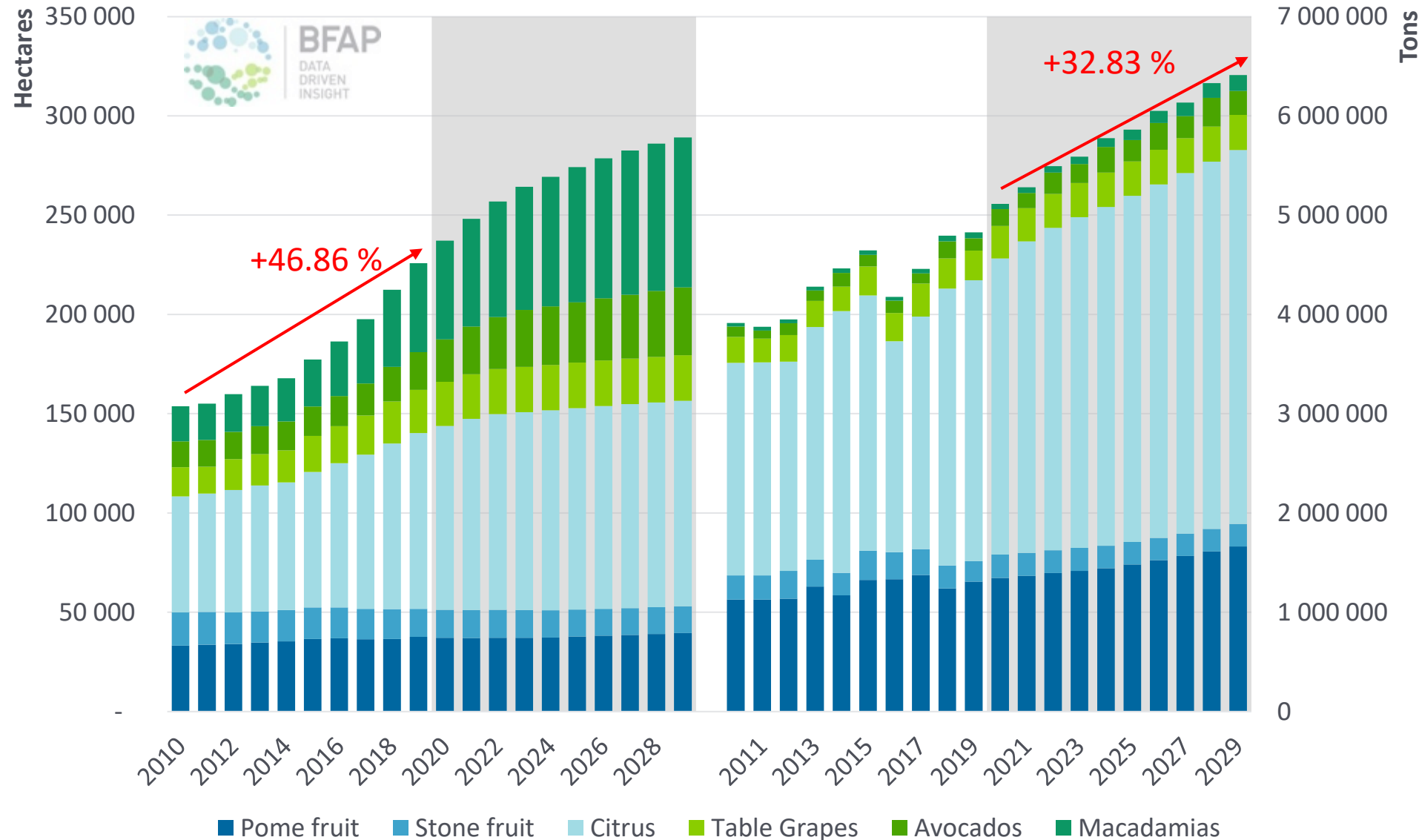
Important contributor to Ag Exports; Relative distribution by region of HS08 Edible Fruit and Nuts



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Area expansion and delayed production growth



Expansion of fruit production: 2019 to 2030

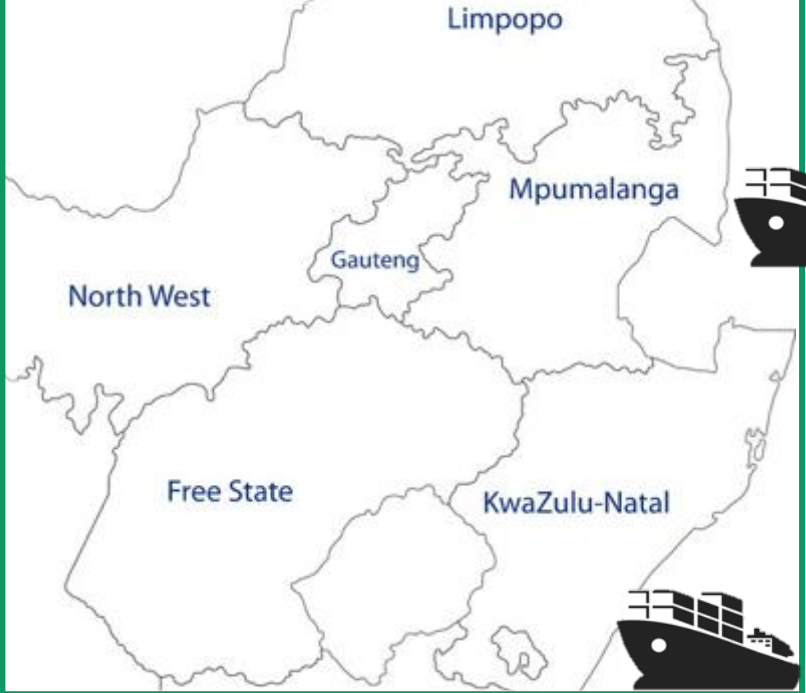


Production area, opportunities and closest harbour:

Share of fruit area in 2019: 46.7%
Opportunity for expansion: +



Share of fruit area in 2019: 37.7%
Opportunity for expansion: +++



Share of fruit area in 2019: 15.6%
Opportunity for expansion: ++



Commodity	Export cartons	Equivalent carton size
Apples	46 820 538	12.50kg
Pears	19 867 736	12.50kg
Peaches & Nectarines	8 436 348	2.50kg
Plums & Prunes	13 206 183	5.25kg
Apricots	463 205	4.75kg
Oranges	104 243 172	15.00kg
Soft Citrus	26 525 132	15.00kg
Grapefruit	13 797 912	17.00kg
Lemons & Limes	35 359 328	15.00kg
Table Grapes	69 460 043	4.50kg
Avocados	45 384 123	4.00kg
Total – 2030	383 563 721	

↑ +46.9%

Total – 2019	261 056 483	
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Summary: Top-up effect of gaining new market access

Baseline 2030 vs. additional value created through the implementation of the AAMP (preliminary)

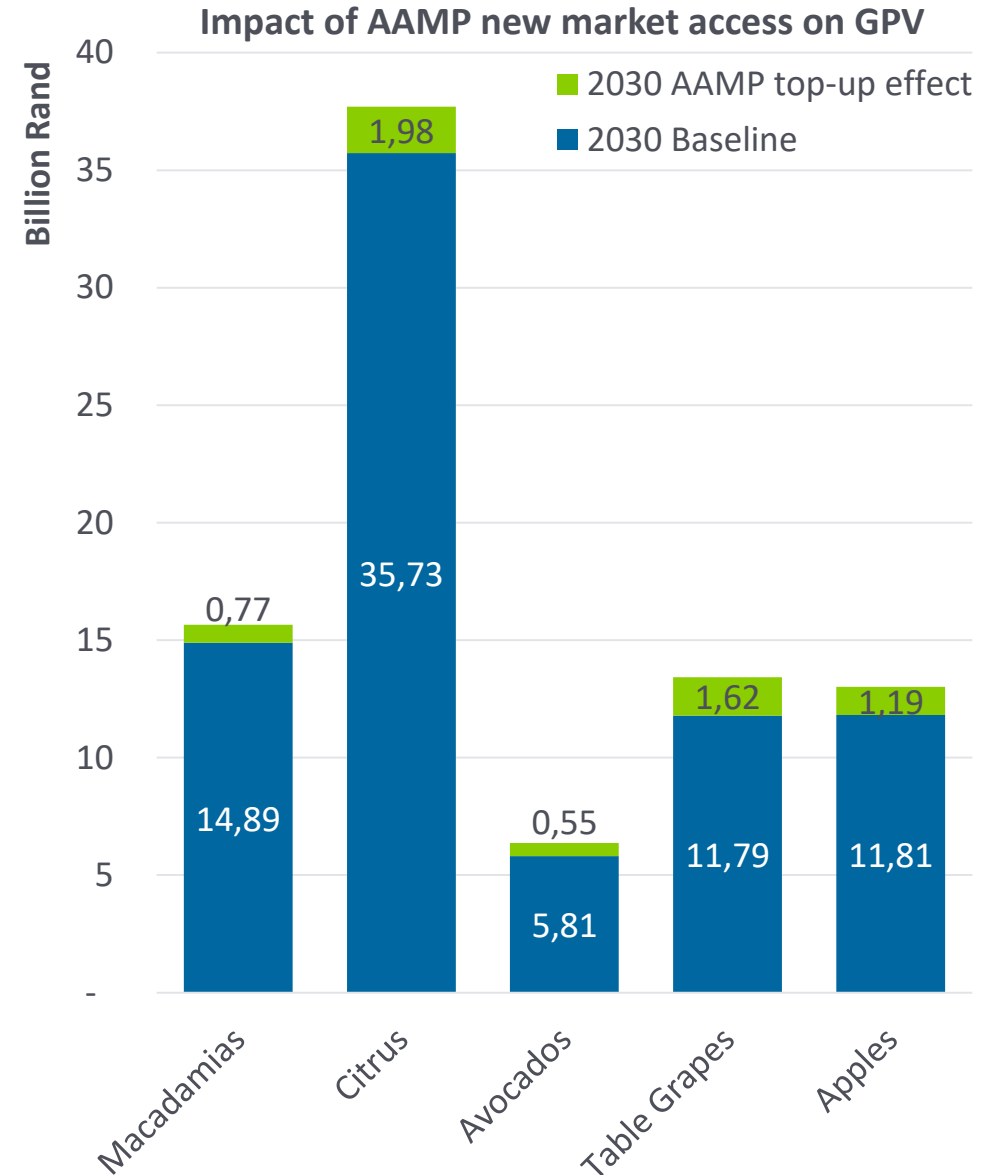


Nominal impact of AAMP on top of Baseline 2030 – summary table

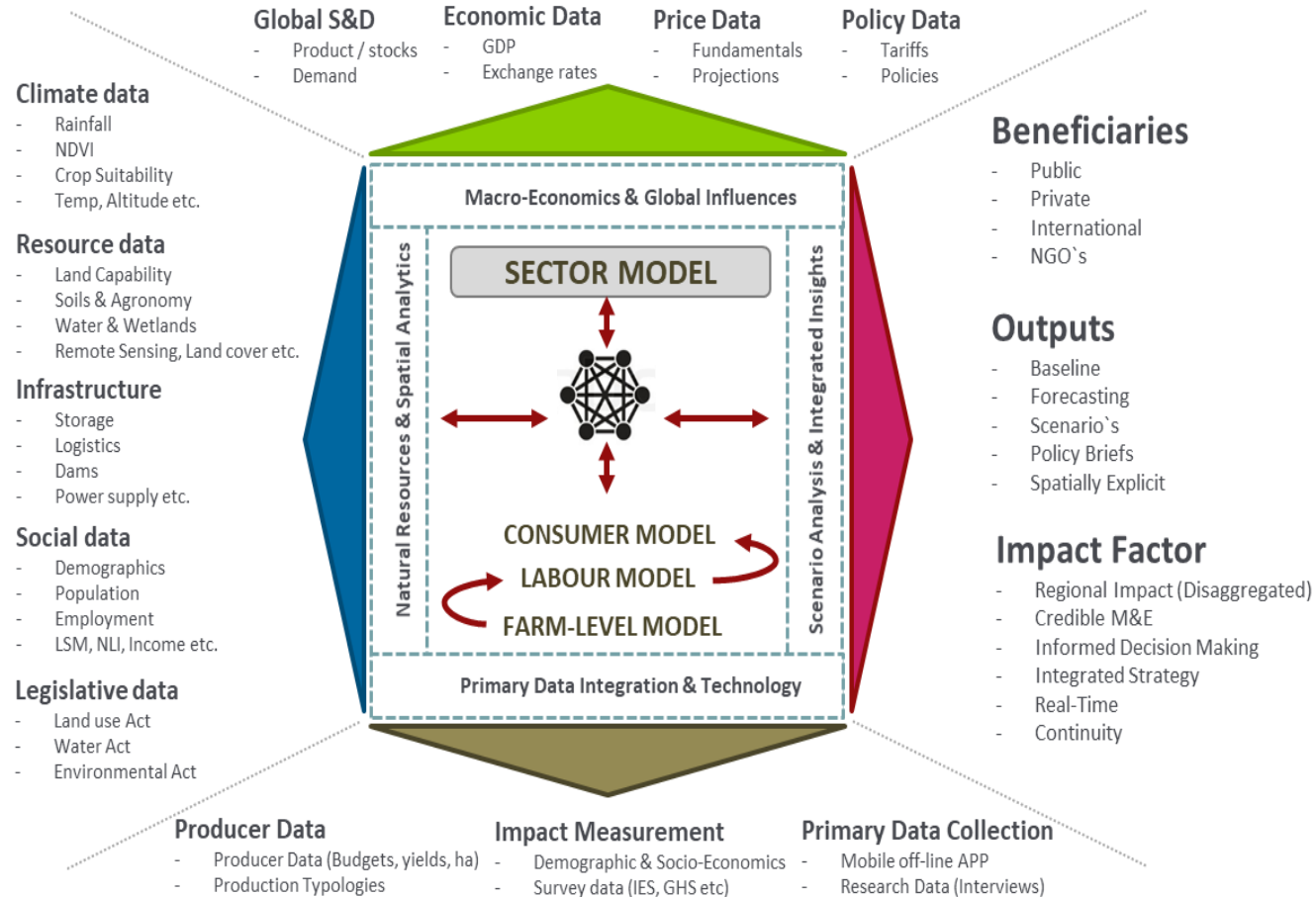


	2030 Baseline	2030 Baseline with AAMP impact	Top-up effect of AAMP by 2030
Macadamias	14 888 993 434	15 659 757 317	770 763 884
Citrus	35 731 175 327	37 709 651 868	1 978 476 540
Avocados	5 814 637 685	6 368 998 445	554 360 760
Table Grapes	11 793 552 223	13 415 836 448	1 622 284 225
Apples	11 813 728 862	13 007 943 858	1 194 214 996
Total	80 042 087 531	86 162 187 937	6 120 100 406

- In nominal terms, the 2030 Baseline value for these 5 commodities/commodity groupings are expected to top R80 billion.
- By opening new strategic international markets and gaining traction in those markets through the implementation of the AAMP, the value of these exports could surpass R86 billion in 2030.
- This top-up effect of over R6 billion is the result of
 - An increased production volume,
 - More fresh produce exports,
 - Decreasing the dependency on existing markets (and the risk of flooding those markets which will negatively impact price), and
 - Improving the net export realisation per ton by supplying higher paying markets
- If the access to markets could be established and SA could gain the modelled market share, the Gross Production Value of Citrus will increase by almost R 2 billion by 2030, with positive impact on Table Grapes (+R1.62bn), Apples (+R1.19bn), Macadamias (+R0.77bn), and Avocados (+R0.55bn).



Analytical Framework



BerriesZA: 2021-2022

Farm-Level Model

- Cost structure of typical farms covering various agricultural commodities in various regions & countries
- Benchmarking farm costs, competitiveness & potential
- Financial simulation of farm production budgets, and scenario analysis of farm profitability

Partial Equilibrium Model

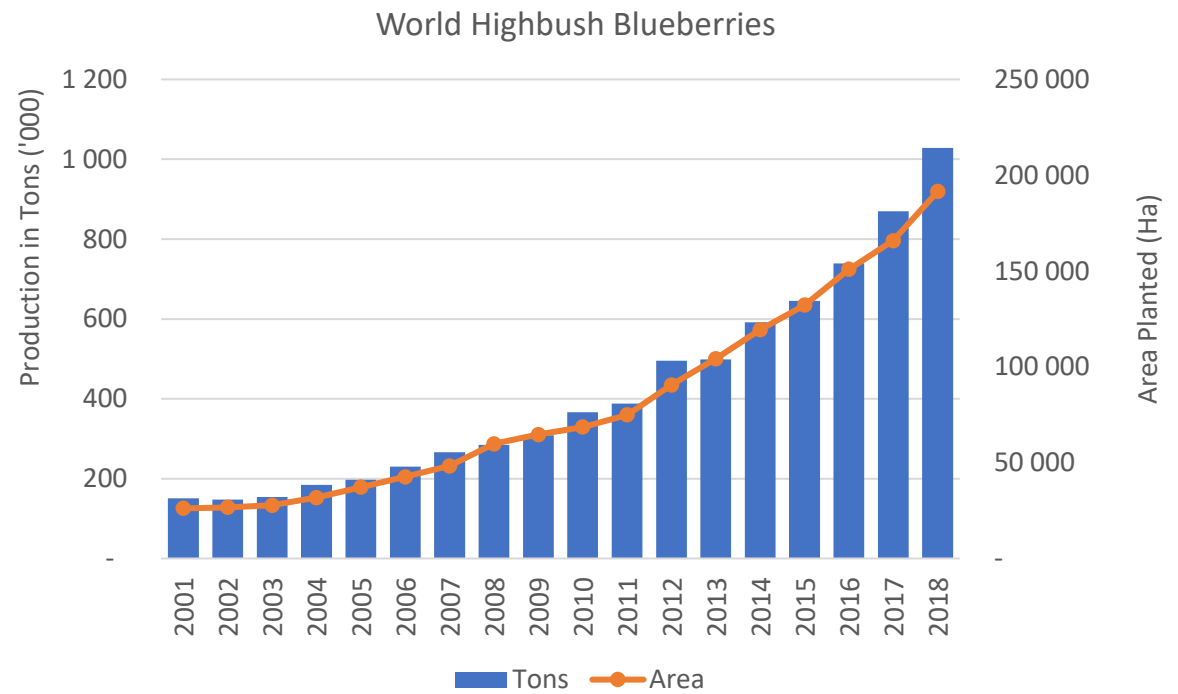
- National model covering various agricultural products
- Dynamic assessment of market equilibrium and product flow (future demand, supply, trade, domestic and parity prices)
- Market competitiveness & potential

1) Blueberry Sector Model



The development of the sector model

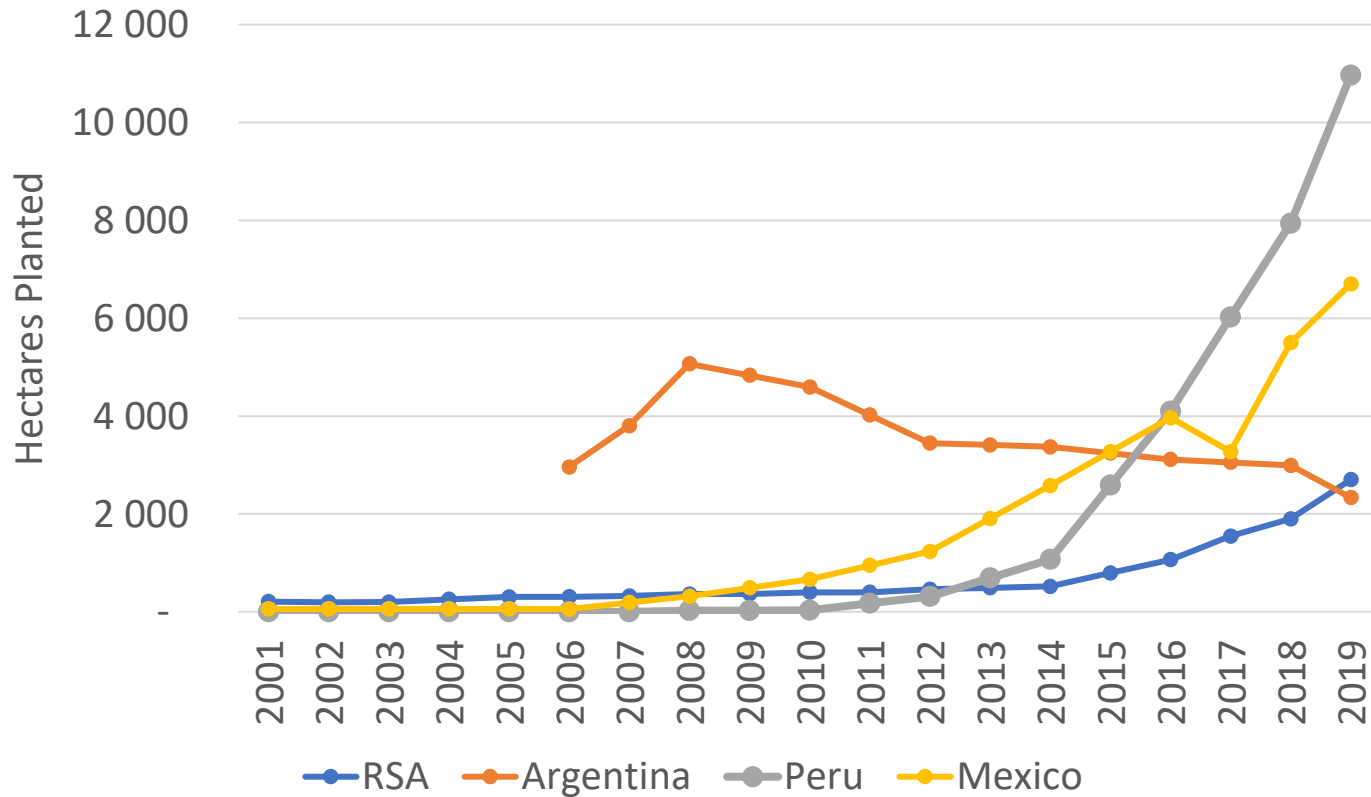
- Link latest macro-economic projections (world prices, trade policy, population, exchange & interest rates, CPI, consumer dynamics & GDP growth, input costs etc.)
- World blueberry production
 - Area planted, yields, trade
- RSA blueberry production
 - Location, yields, area planted, prices, pack-outs
 - Market segments, cost from farm to market, RSA trade dynamics.
 - Develop elasticities and equations
- Model testing & refinements
 - Run industry-informed scenarios (Price or demand shock, market access, Peru growth)
 - 10-year projection for the industry



Blueberry Sector Model

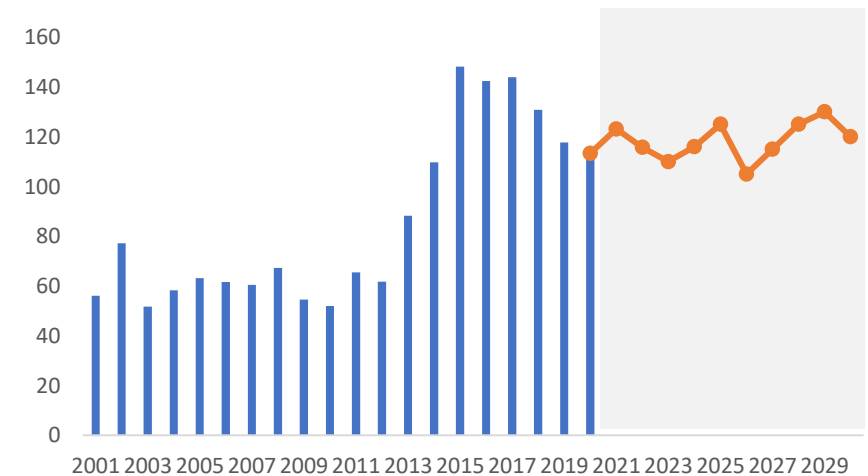


South Africa performance in context



The development of the sector model

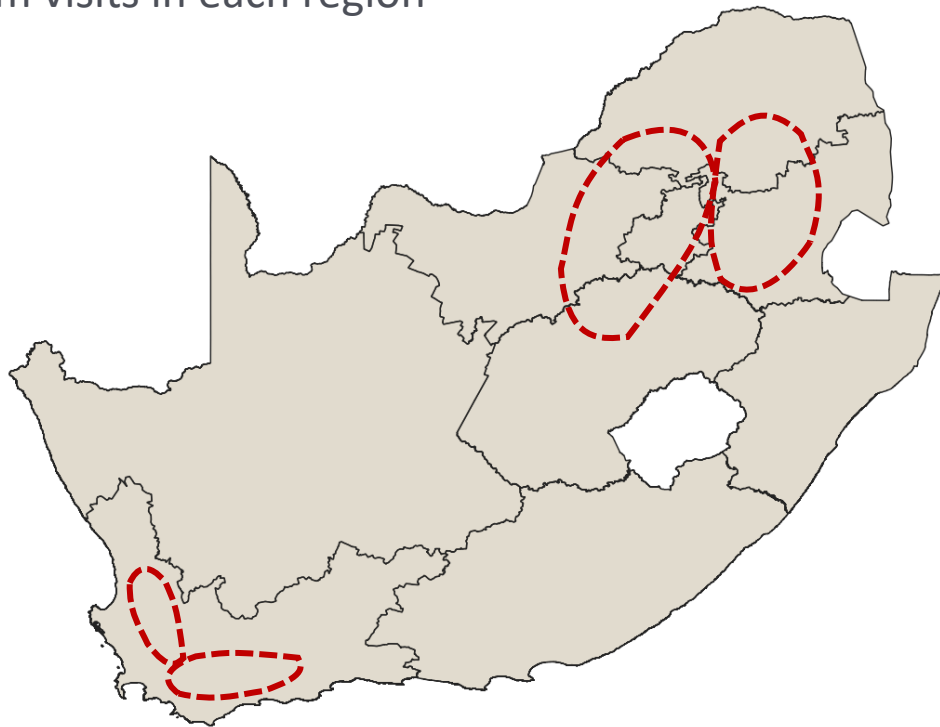
- 10-year outlook based on macro indicators
- Supply and demand
- Factors affecting RSA prices
- Policy impacts/trade



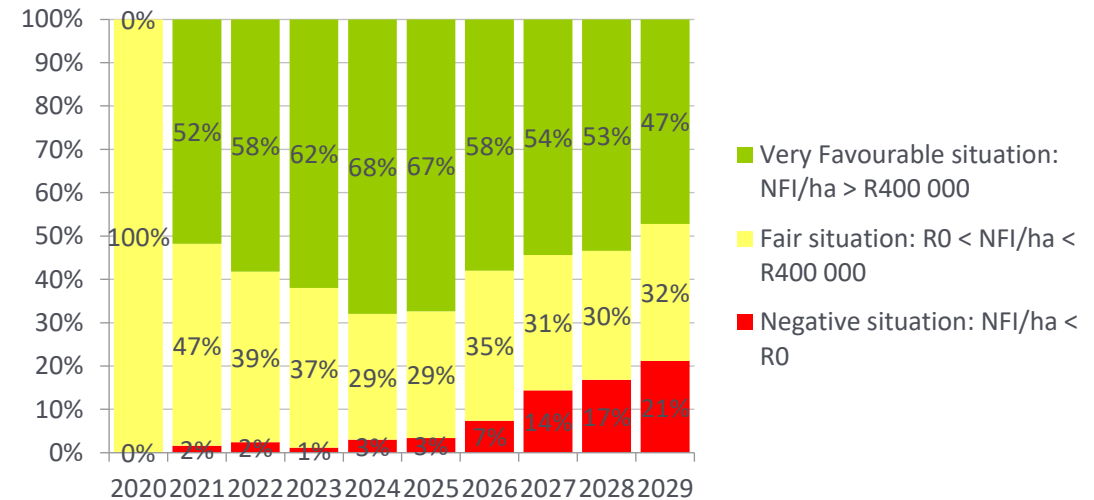
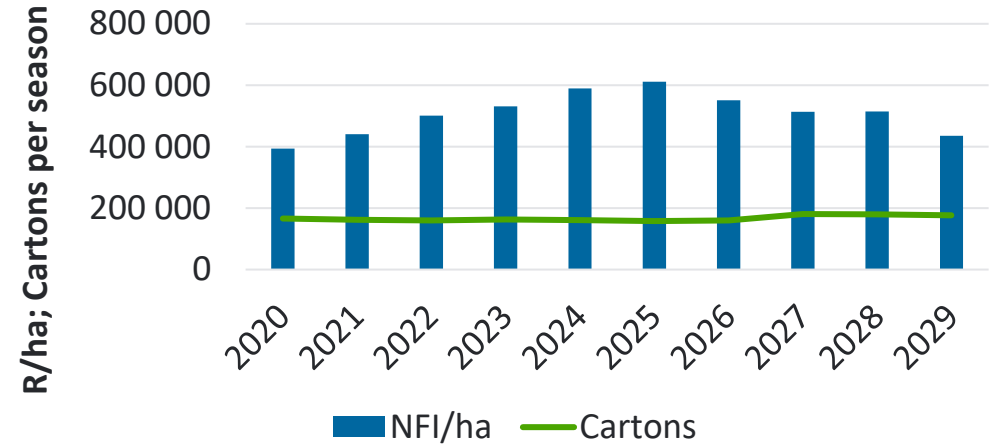
2) Blueberry Farm Model

Prototype whole-farm financial simulation (FinSim) budgeting model

- Regional Representation
- Highveld, Lowveld and Western Cape (2)
- 3-7 Farm visits in each region



NFI/ha & Cartons per season



Concluding Remarks



- We're excited to start this journey with BerriesZA and would please ask for your participation
- The development of these models are critical for improved decision-making and correct policy formulation
- A model is only as good as the data that feeds into it, and we hope that these models add value to the industry
- We would welcome any feedback or suggestions of possible scenarios you are thinking about



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Thank you

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