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Grain SA

Summer Crop Scenario Planning

2023/24 Production Season

Released: October 2023

Realities that will influence the Outlook

Ongoing economic pressure with ample downside risk

- Tighter monetary policy weighing on growth prospects
- Inflation is slowing – but sensitive to further shocks
- China's recovery is slow – real estate problems remain unresolved
- Structural challenges remain in SA – consumer spending power under increasing pressure

Changes international trade environment?

- COVID-19 accentuated focus on self sufficiency
- Numerous trade restrictions imposed through recent crisis
- Increasing prevalence of non-tariff barriers

Ongoing war in Ukraine raises uncertainty

- Immediate impact on energy and fertiliser costs has subsided
- Black Sea Grain Initiative enabled trade and brought stability to markets but has not been renewed, creating uncertainty in product flows from the region
- Medium term productive capacity in Ukraine uncertain – increases risks associated with other events

Weather conditions will bring volatility

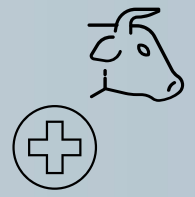
- Affected rate of supply response
- Projections for strong El Nino in 2023/24 – impacts differently around the world – drier in SA
- Long term climate impacts – extreme weather more frequent

South Africa facing numerous challenges that inhibit competitiveness

Port and logistics

Service delivery challenges

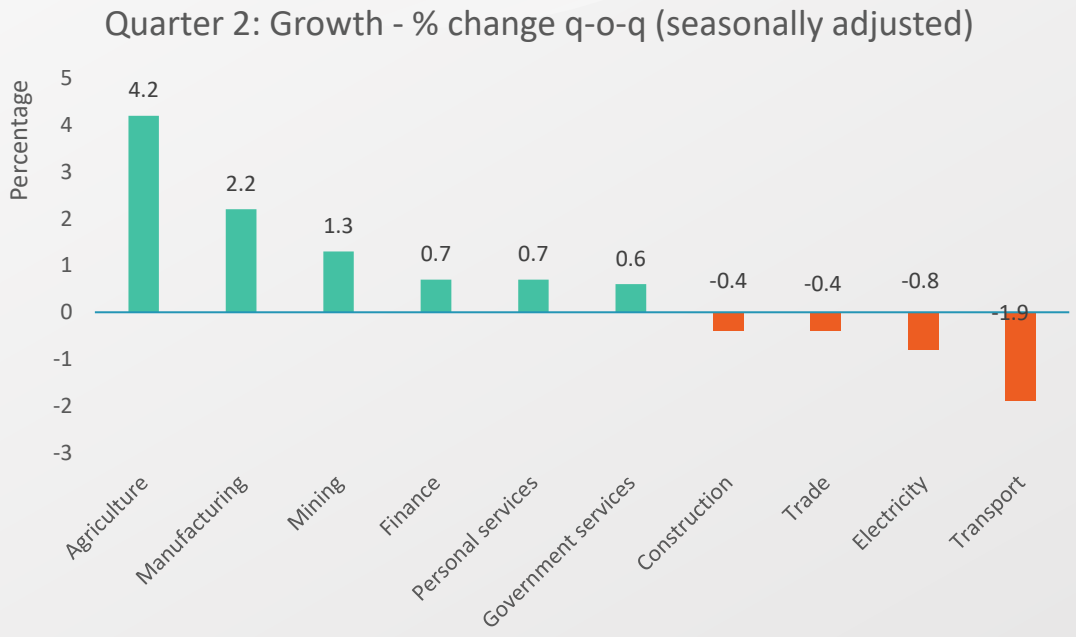
Eskom



Animal Health & Biosecurity

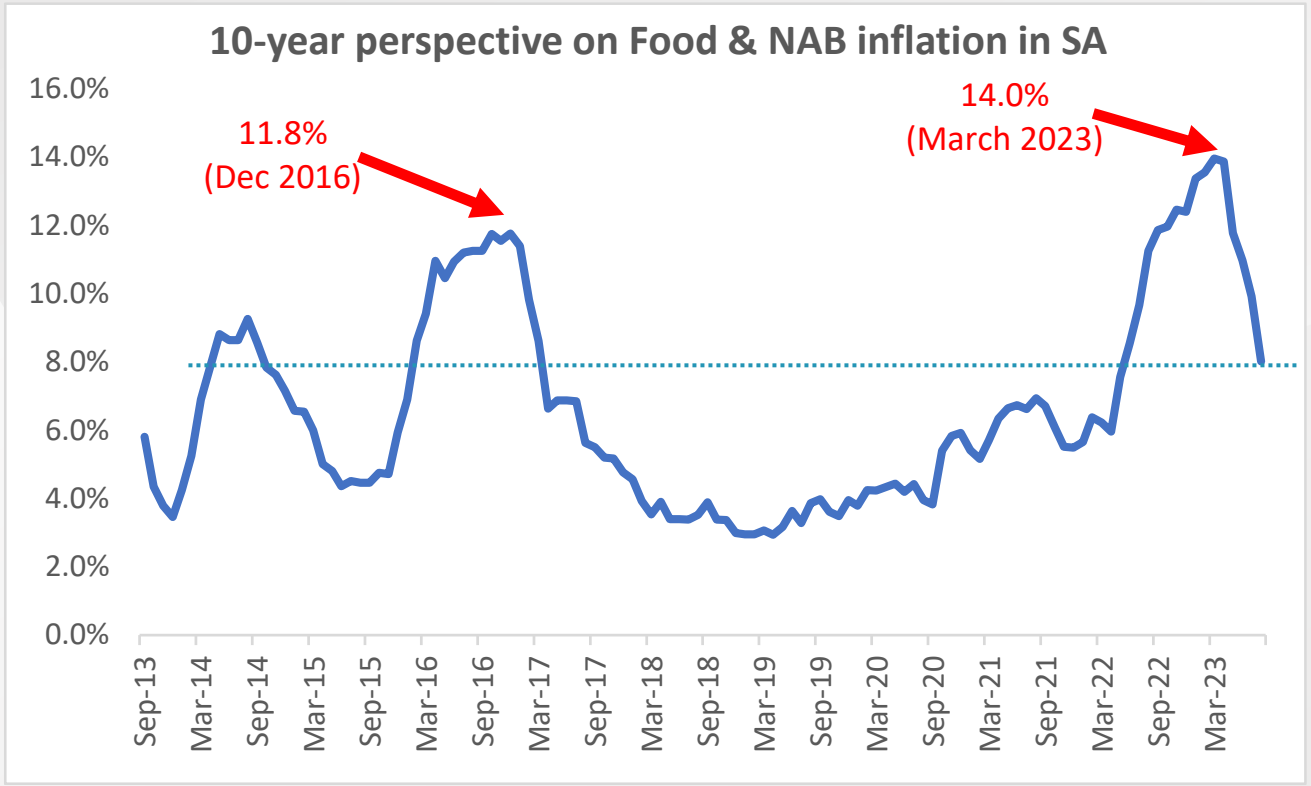
Macro-economic assumptions: South Africa

	2019	2020	2021	2022	2023 Proj.	2024 Proj.	2025 Proj.
Real GDP Growth (%)	0.3	-6.0	4.7	1.9	0.6	1.1	1.8
CPI (%)	4.1	3.3	4.6	6.9	5.9	4.9	4.5
Prime Interest Rate (%)	10.1	7.9	7.0	8.6	11.8	10.5	10.5
Exchange Rate (ZAR / USD)	14.55	16.46	14.35	16.43	18.47	17.63	17.44
Brent Crude Oil (USD / Barrel)	64.7	42.8	70.8	99.11	83.0	81.0	77.0



- Multiple structural challenges in SA economy
- Global environment strained – less supportive
- Global policy still restrictive and financing costs high
- Recessionary risks remain in US and EU
- China's recovery still a concern
- Inflationary risk in SA rising again?
  - Fuel
  - Electricity
  - Food prices?

SA Food inflation



Thrifty Healthy Food Basket (THFB)

Aug 2023

R3 524/  **/month**

(+7.8% y-o-y / +R344)

(-0.8% m-o-m / -R28)

30.7% Food Exp Share

Food group:	**YoY inflation June to Aug 2023:**
Vegetables	+18.6%
Sugar-rich foods	+17.9
Dairy, eggs	+13.5%
Grains	+12.8%
Fish	+8.9%
NAB	+8.5%
Meat	+5.0%

Low YOY inflation or deflation on:

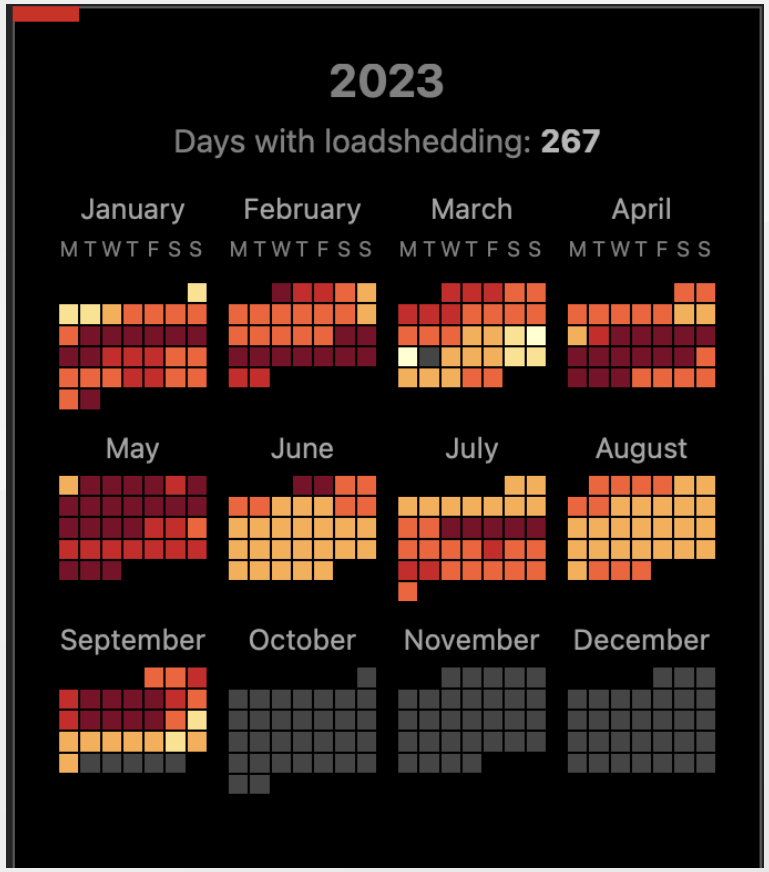
+2.4% Fruit

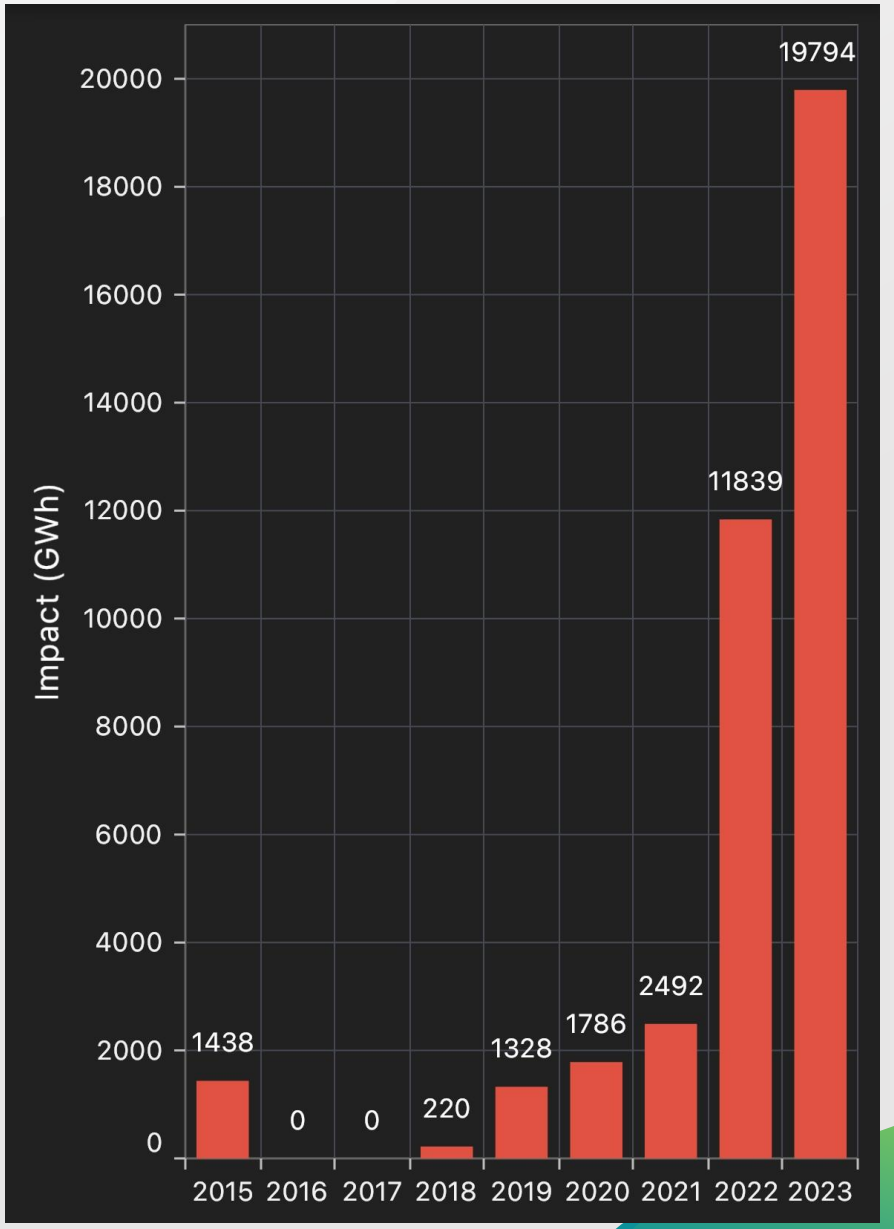
-12.0% Oils, fats

Loadshedding: 2023 status quo

2023 loadshedding worse than the last eight years combined

- Maintenance in summer will increase, but should not necessarily increase loadshedding as demand drops and other units are expected to return online
- Eskom expects industrial demand to increase in the summer months, effectively resulting in the intensity of loadshedding in summer to be “unknown”
- Eskom hoping that the planned return of four Kusile generation units, Medupi unit 4 and a Koeberg unit would materialise as it would improve supply availability



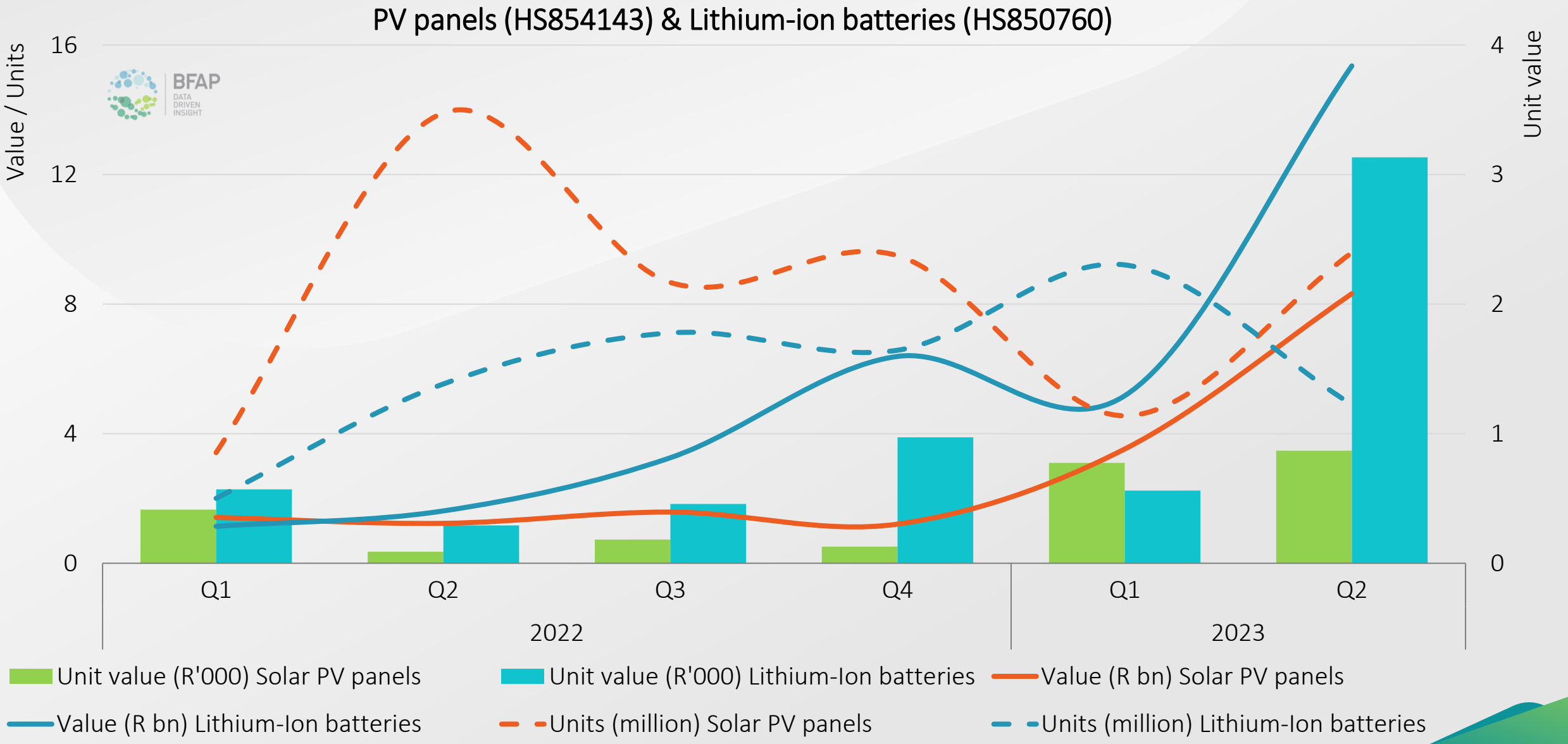


STAGES	0	1	2	3	4	5	6	TOTAL DAYS
2022	207.7 DAYS	7.9 DAYS	58.0 DAYS	26.9 DAYS	43.8 DAYS	12.4 DAYS	8.3 DAYS	157.3 DAYS
2023	30.8 DAYS	22.5 DAYS	19.0 DAYS	58.0 DAYS	73.9 DAYS	21.6 DAYS	41.5 DAYS	236.5 DAYS

Sources: The Outlier, 2023, EskomSePush, 2023, Loadshedding Notifier, 2023, Pillay, 2023

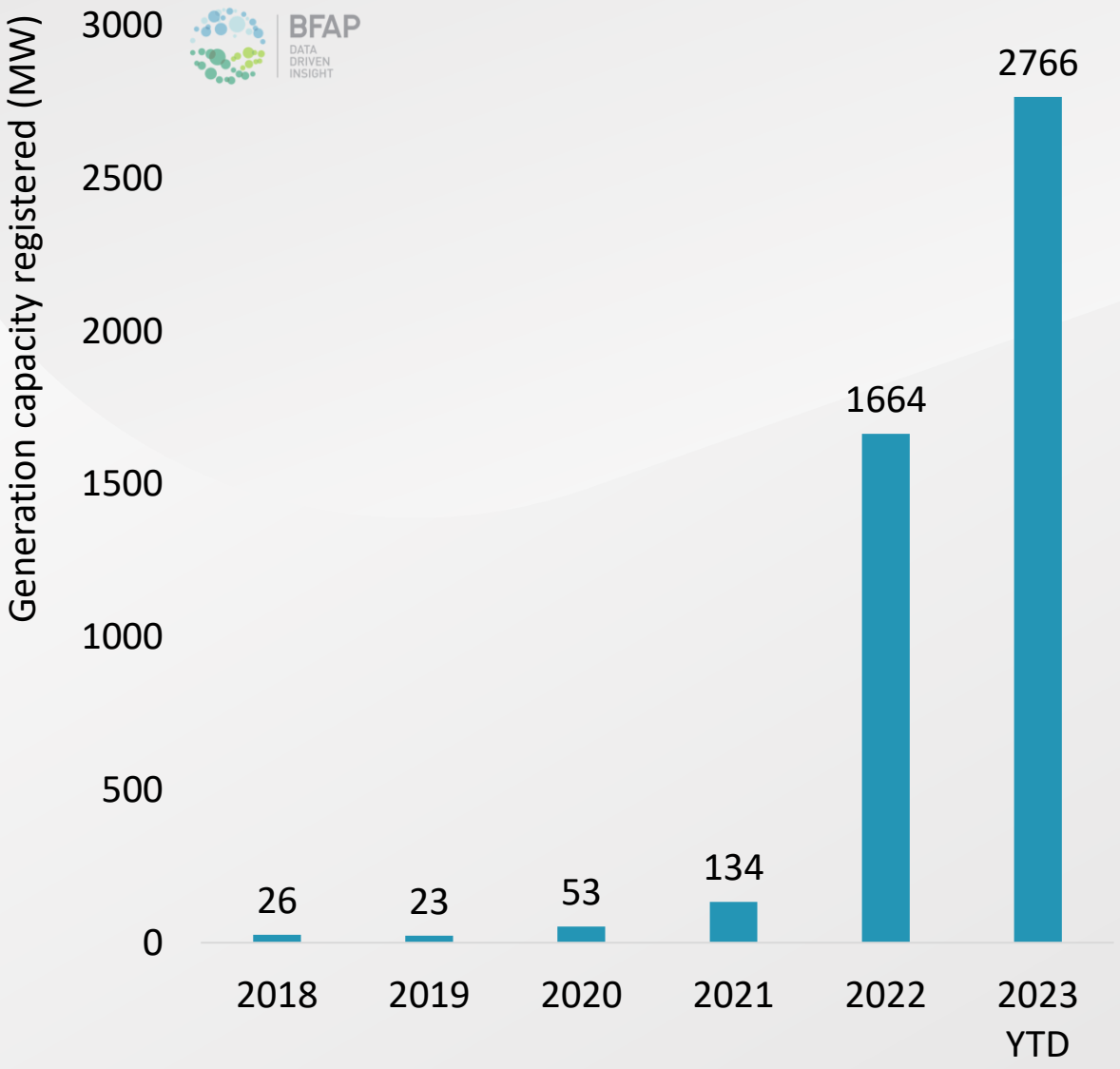
Mitigation of loadshedding impact

Rate and cost of PV panel and lithium-ion batteries imports rapidly rising

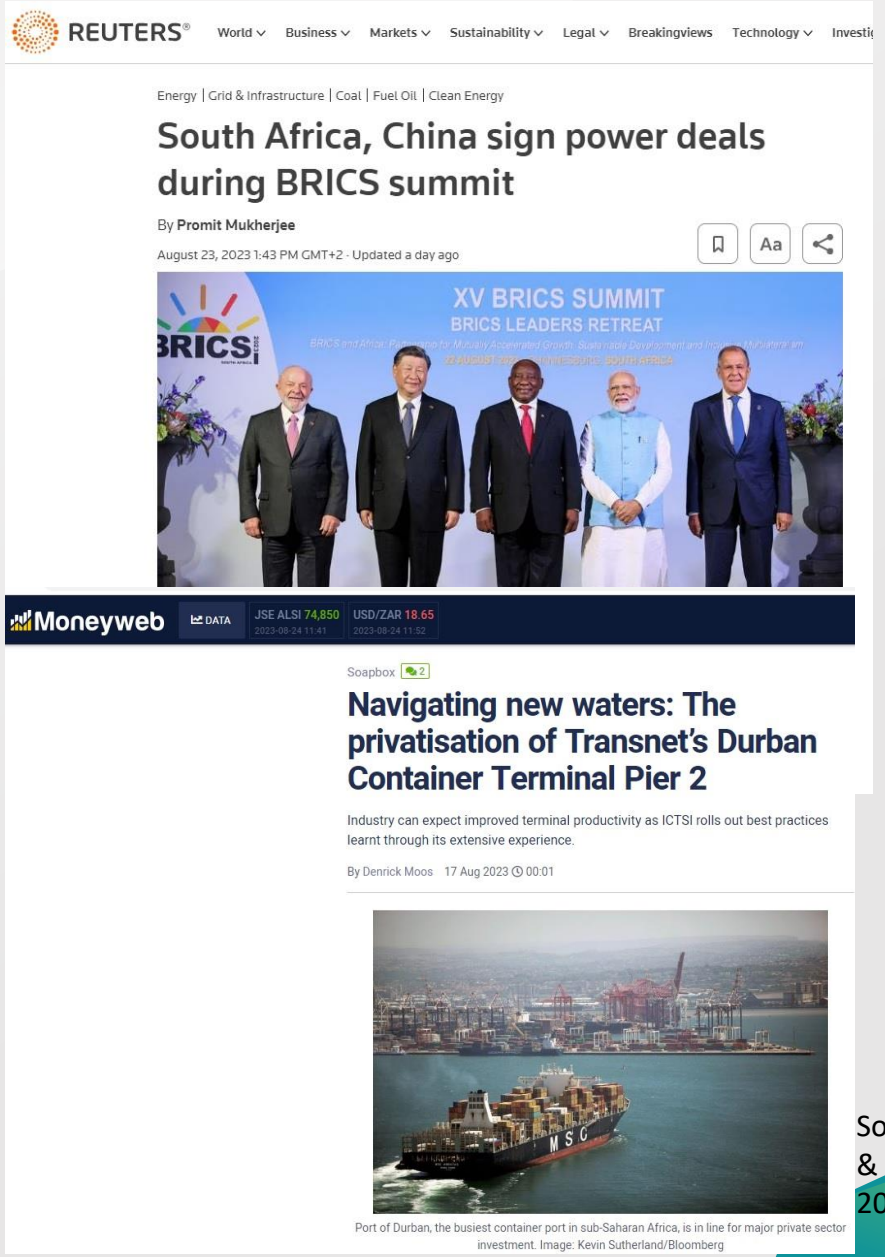


Sources: ITC, 2023

Renewable energy project registrations surging



Source: BER, Nersa, 2023



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South Africa, China sign power deals during BRICS summit

By **Promit Mukherjee**

August 23, 2023 1:43 PM GMT+2 · Updated a day ago

Moneyweb DATA JSE ALSI 74,850 USD/ZAR 18.65

Soapbox

Navigating new waters: The privatisation of Transnet's Durban Container Terminal Pier 2

Industry can expect improved terminal productivity as ICTSI rolls out best practices learnt through its extensive experience.

By Denrick Moos 17 Aug 2023 00:01

Port of Durban, the busiest container port in sub-Saharan Africa, is in line for major private sector investment. Image: Kevin Sutherland/Bloomberg

Source: Reuters & Moneyweb, 2023

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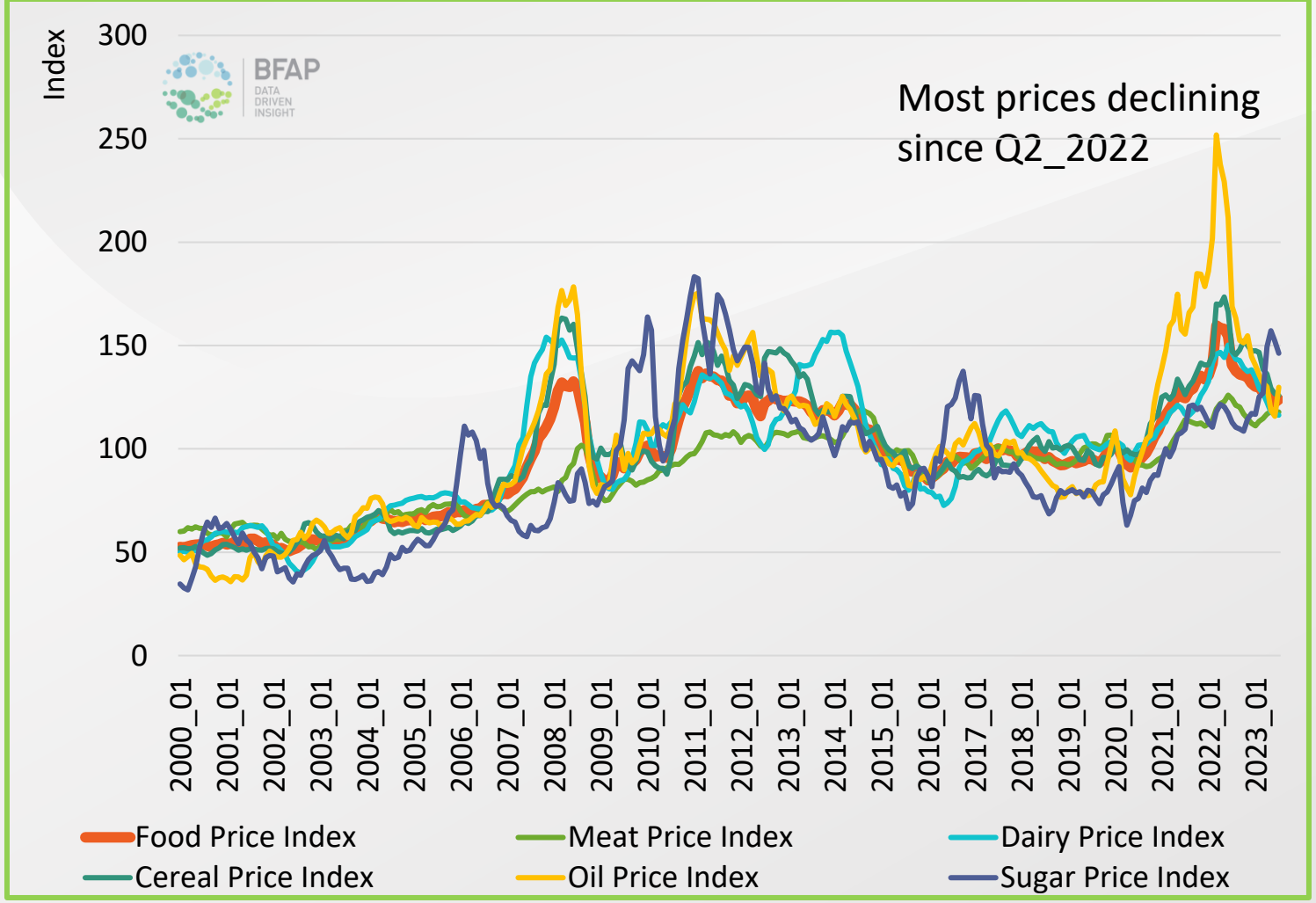
International market overview

Globally, agricultural prices have declined

Markets still uncertain as weather impacted on supply response

FAO Food Price Index



Source: Compiled from FAO, Sept 2023

Many uncertainties remain

Current market drivers

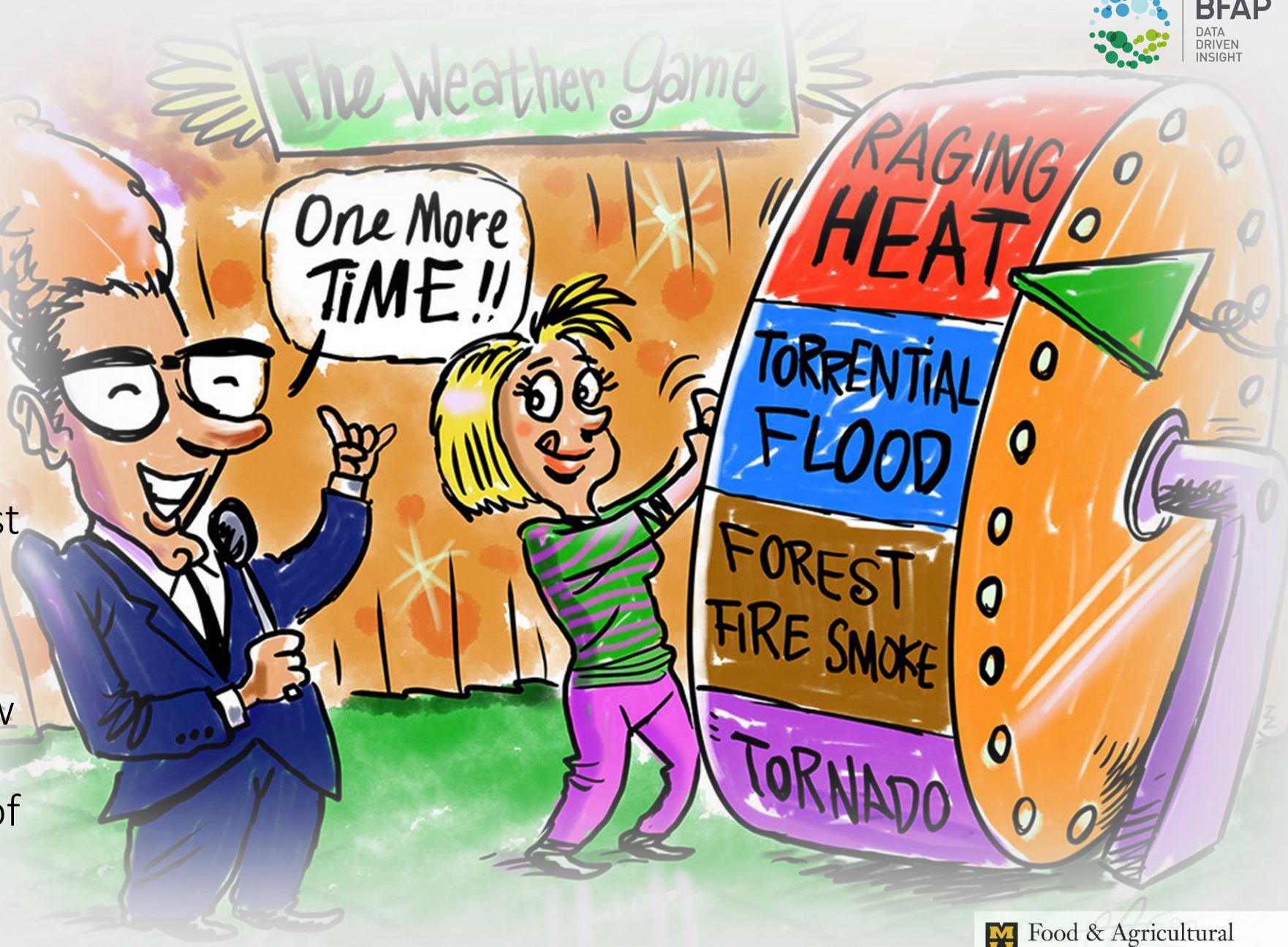
Weather:

U.S., some areas have seen drought risk fall.

Europe, dryness across Europe, drought in south east

South America, El Nino will impact crops

Ukraine, no way to know how war will play out, and likely that production and export of grain to be disrupted for some time



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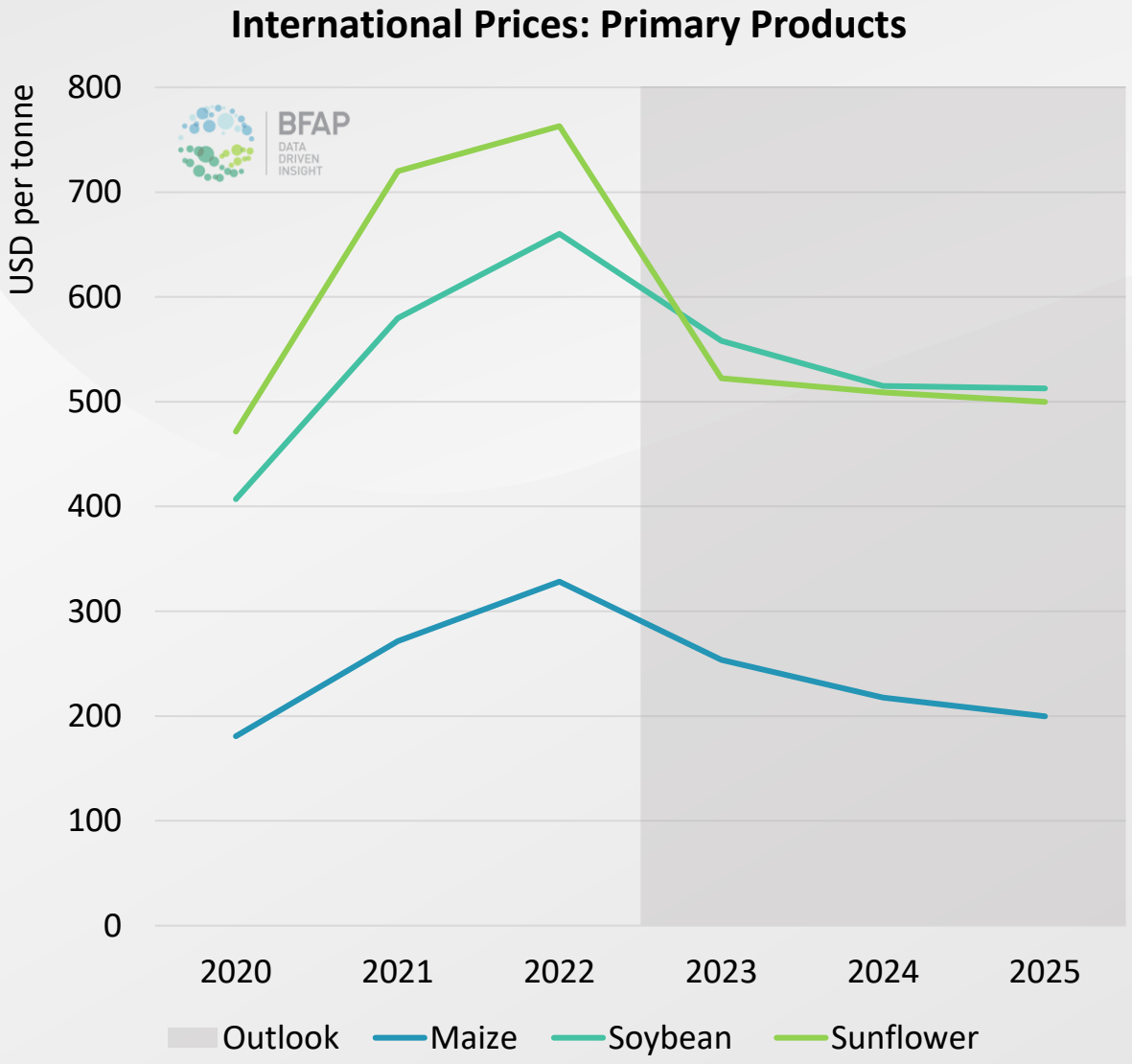
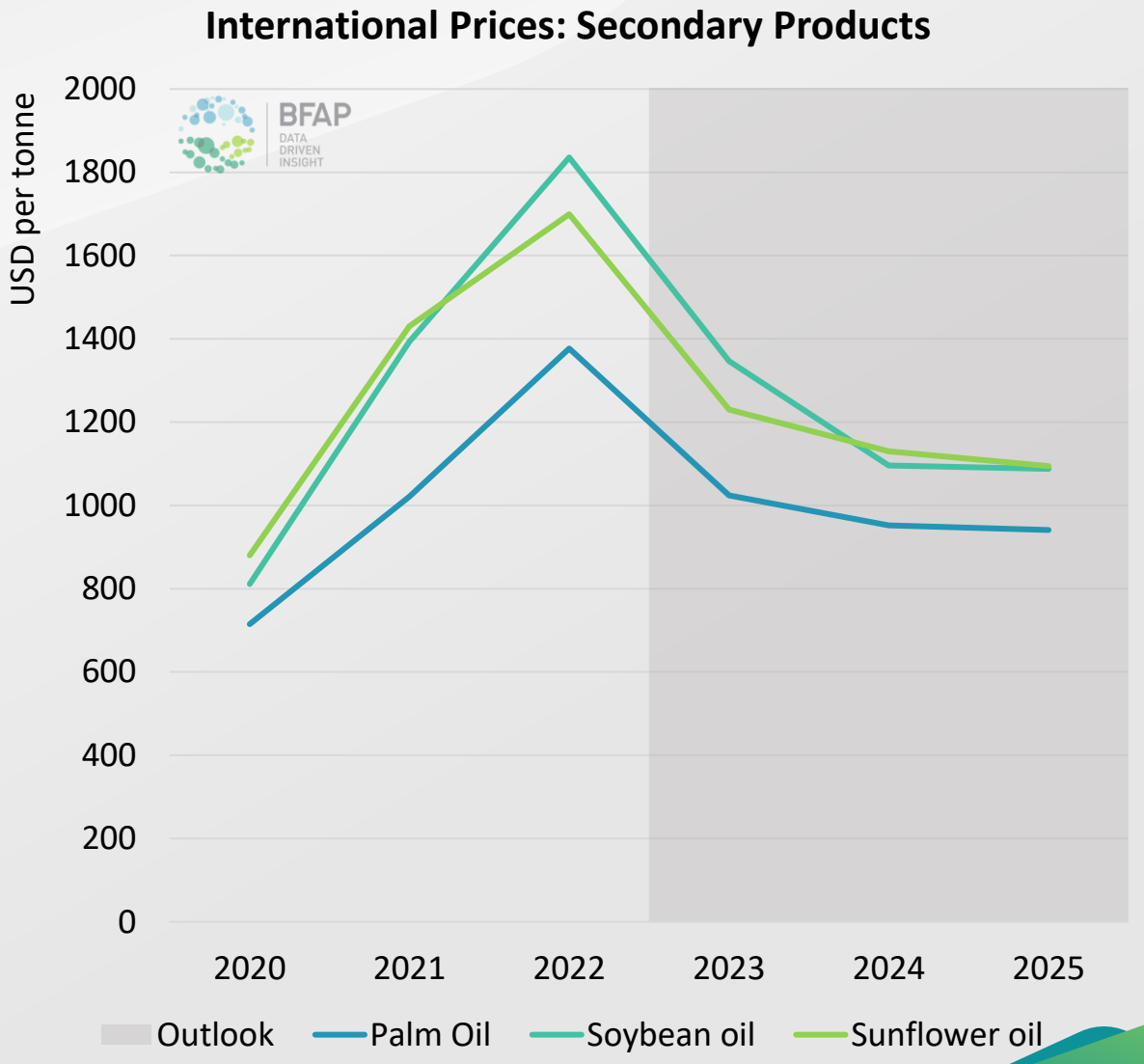
Food & Agricultural Policy Research Institute
University of Missouri

World prices are still expected to decline





Source: BFAP & FAPRI, 2023

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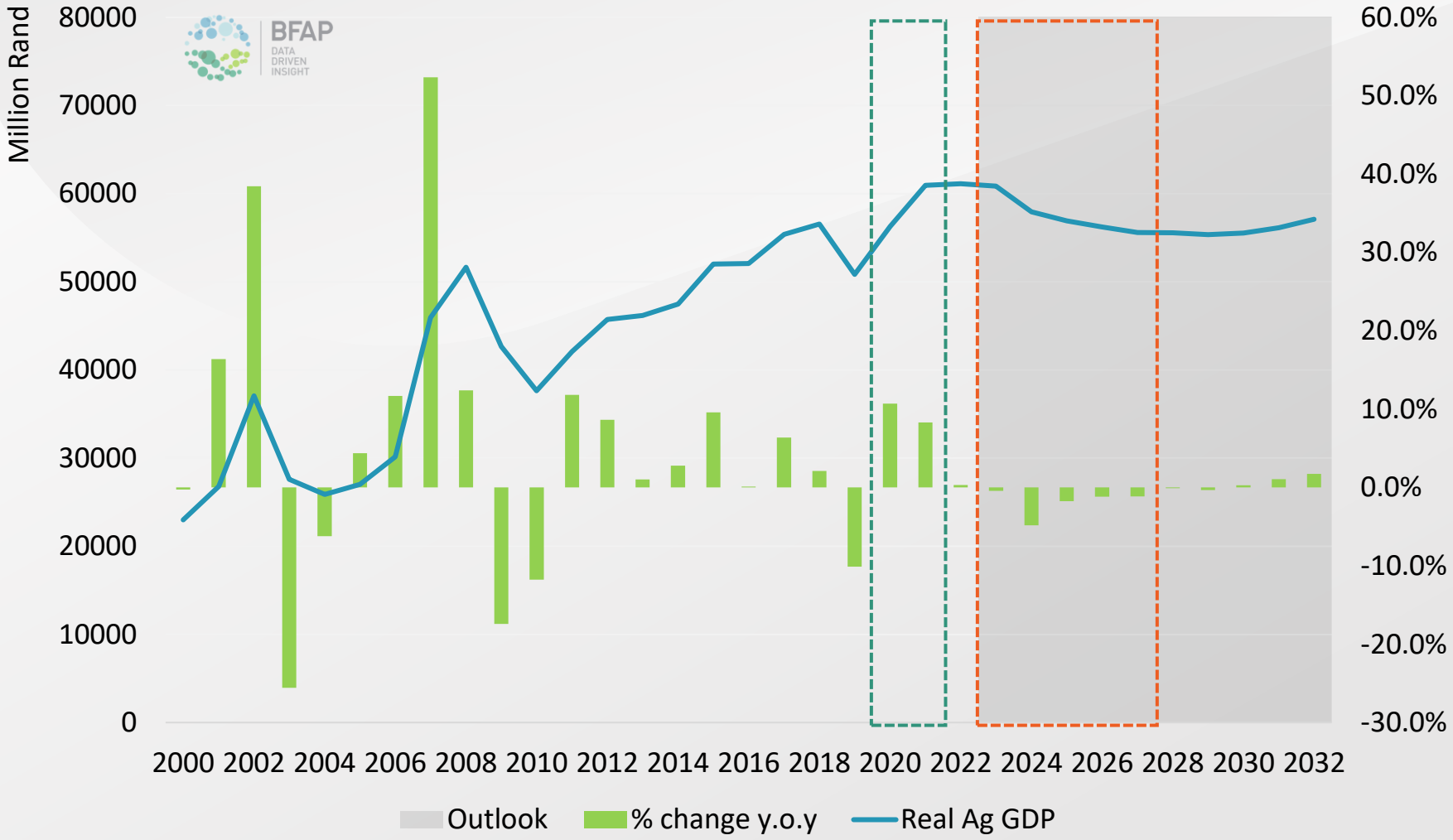
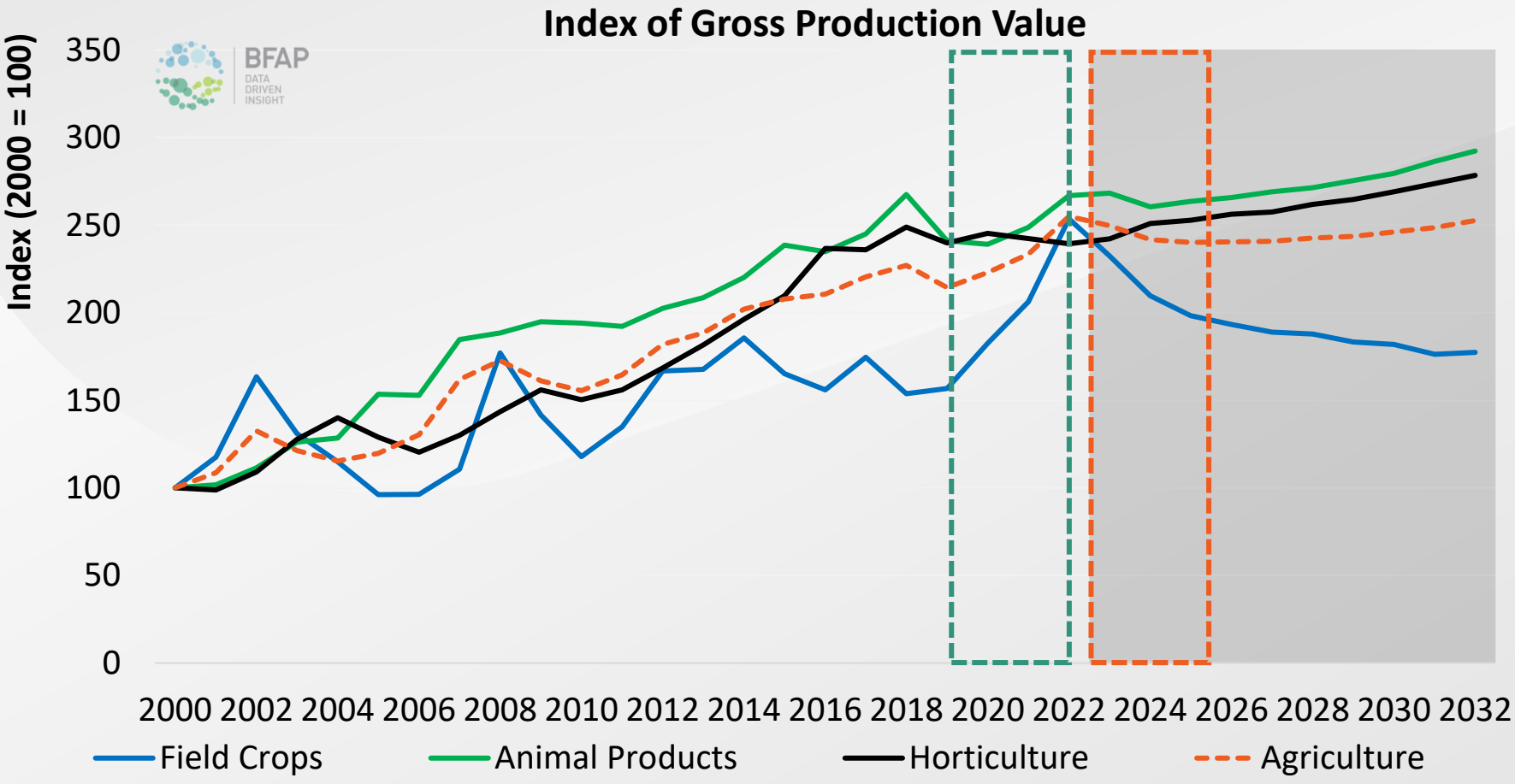
Outlook for South African Agriculture

Baseline: Consolidation in Agric. performance



- Loadshedding
- Weak consumer demand
- Declining prices
- Infrastructure
- Service delivery
- Ports & logistics

Agricultural performance under increasing pressure

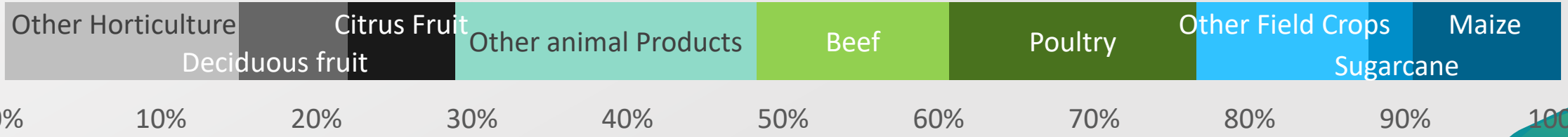


Weak domestic demand & biosecurity challenges affecting exports

Price pressure, market access & logistical challenges

Declining prices, El Nino impact? Productivity critical…

Composition of Gross Agricultural Production Value



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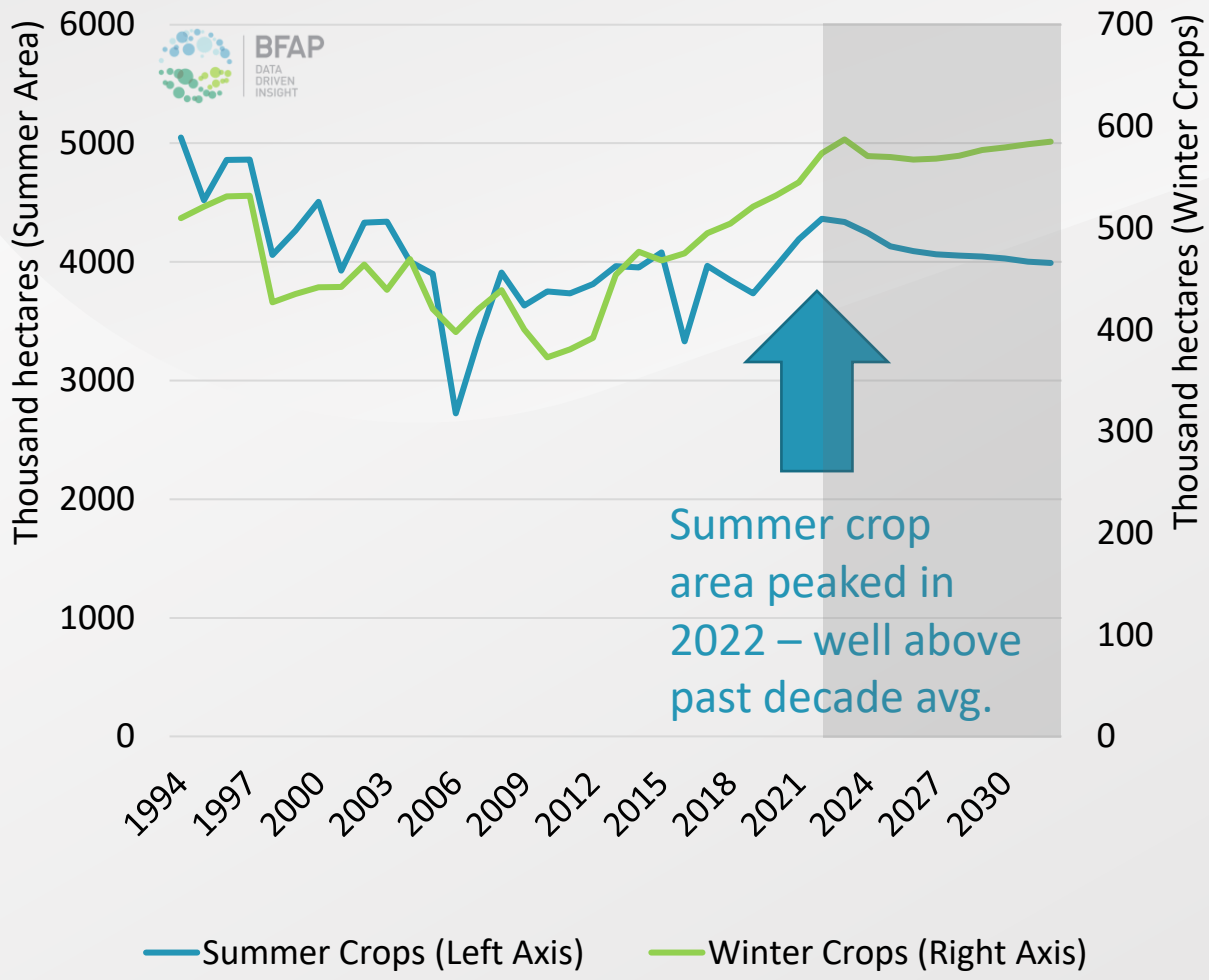
Outlook for South African Field Crops

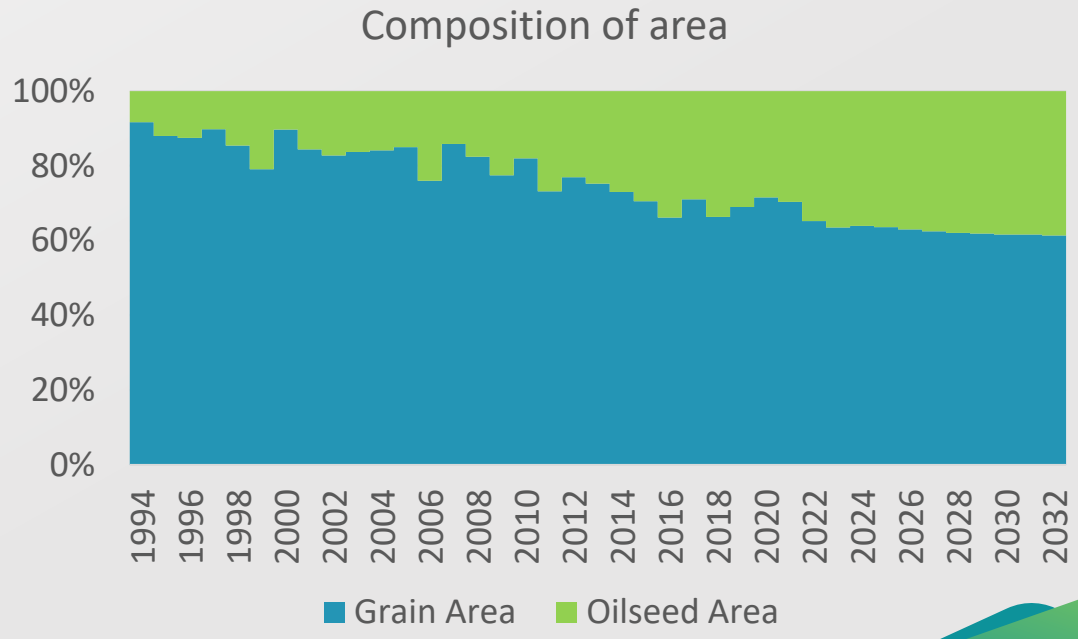
High prices induced area expansion

Some consolidation expected - oilseeds accounting for an ever-increasing share of total area



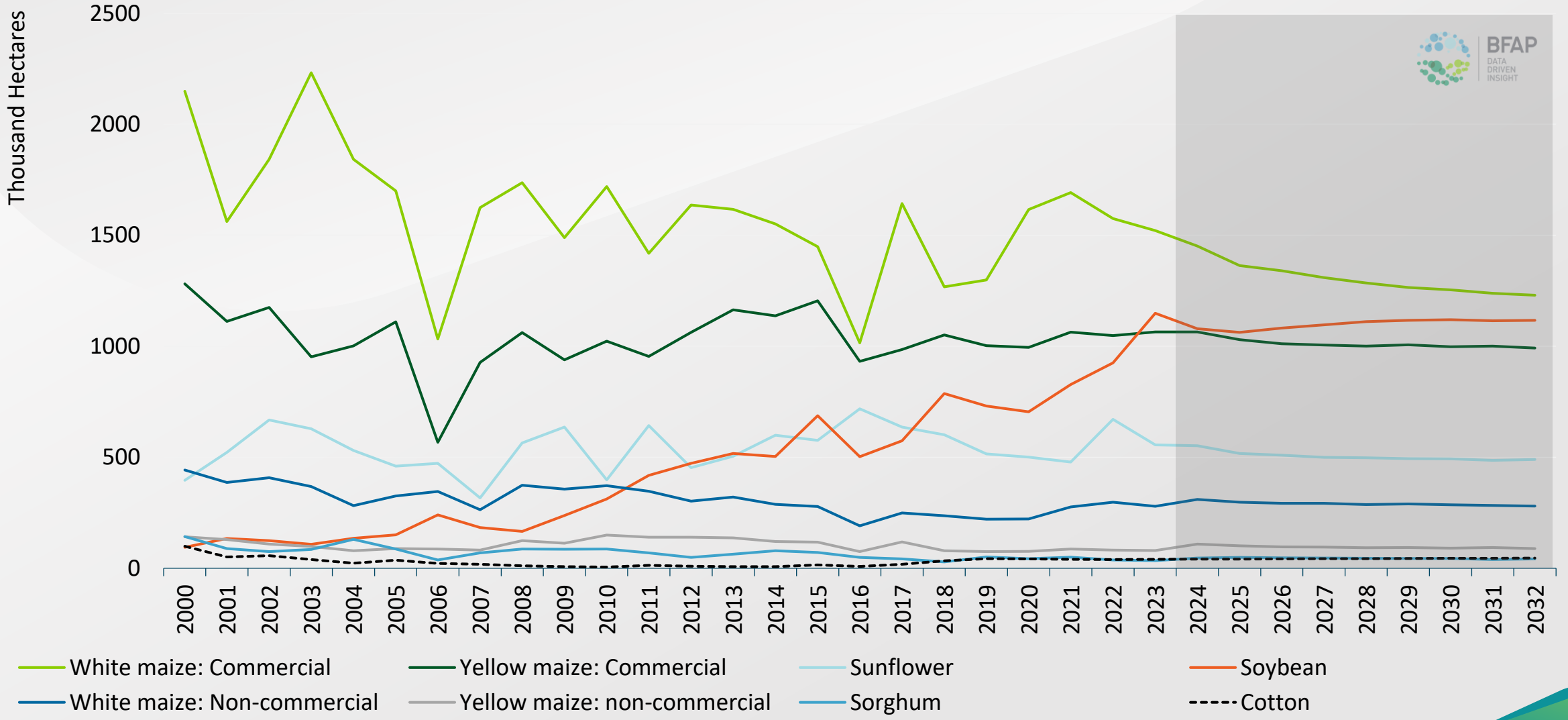
Why the shift to oilseeds?

Oilseeds increasingly attractive due to favourable relative price, demand for vegetable oil for human consumption and biodiesel (globally), demand for animal feed



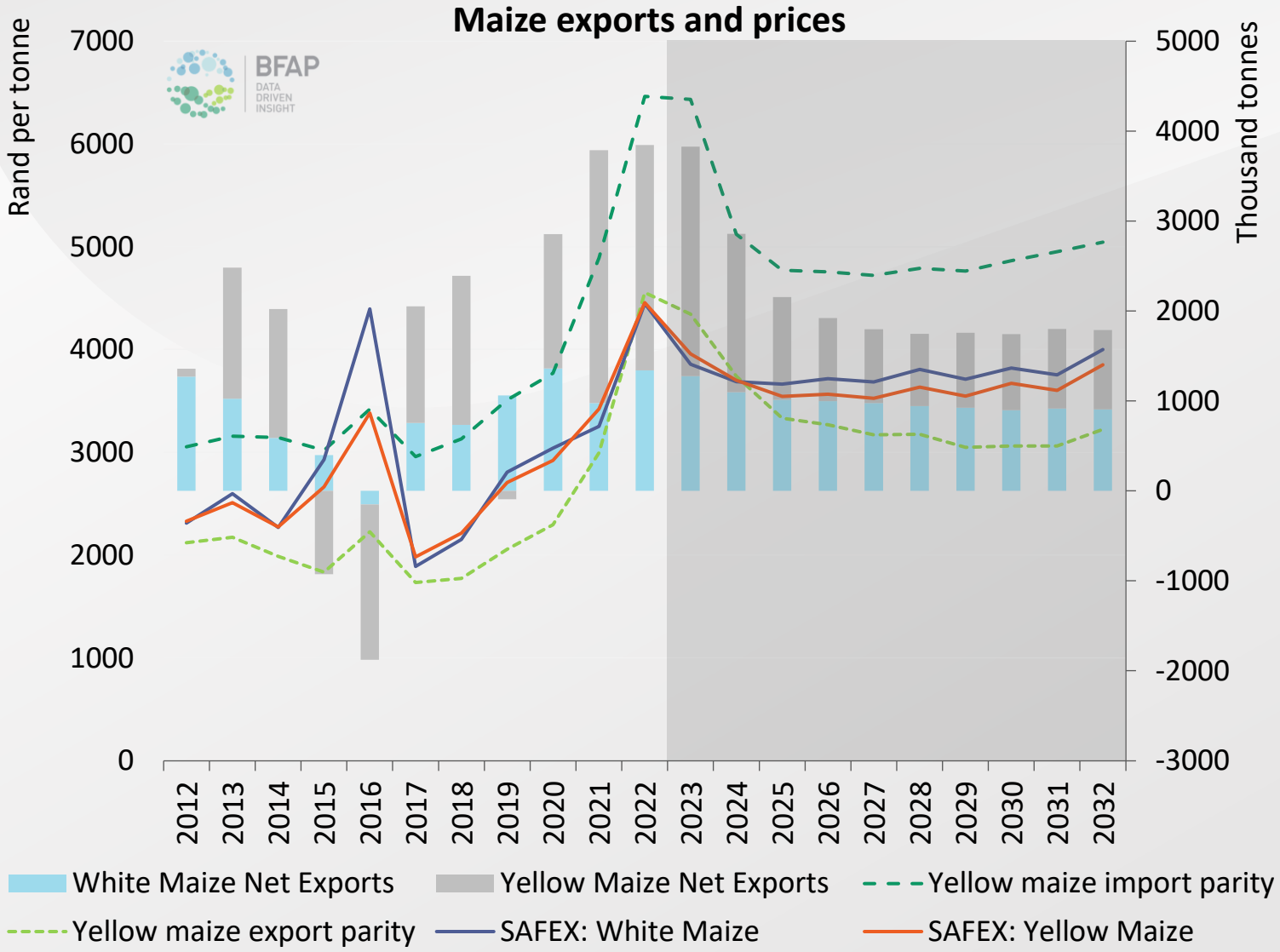
Summer crop area mix

Soybean area exceeded yellow maize in 2023



Maize market balance

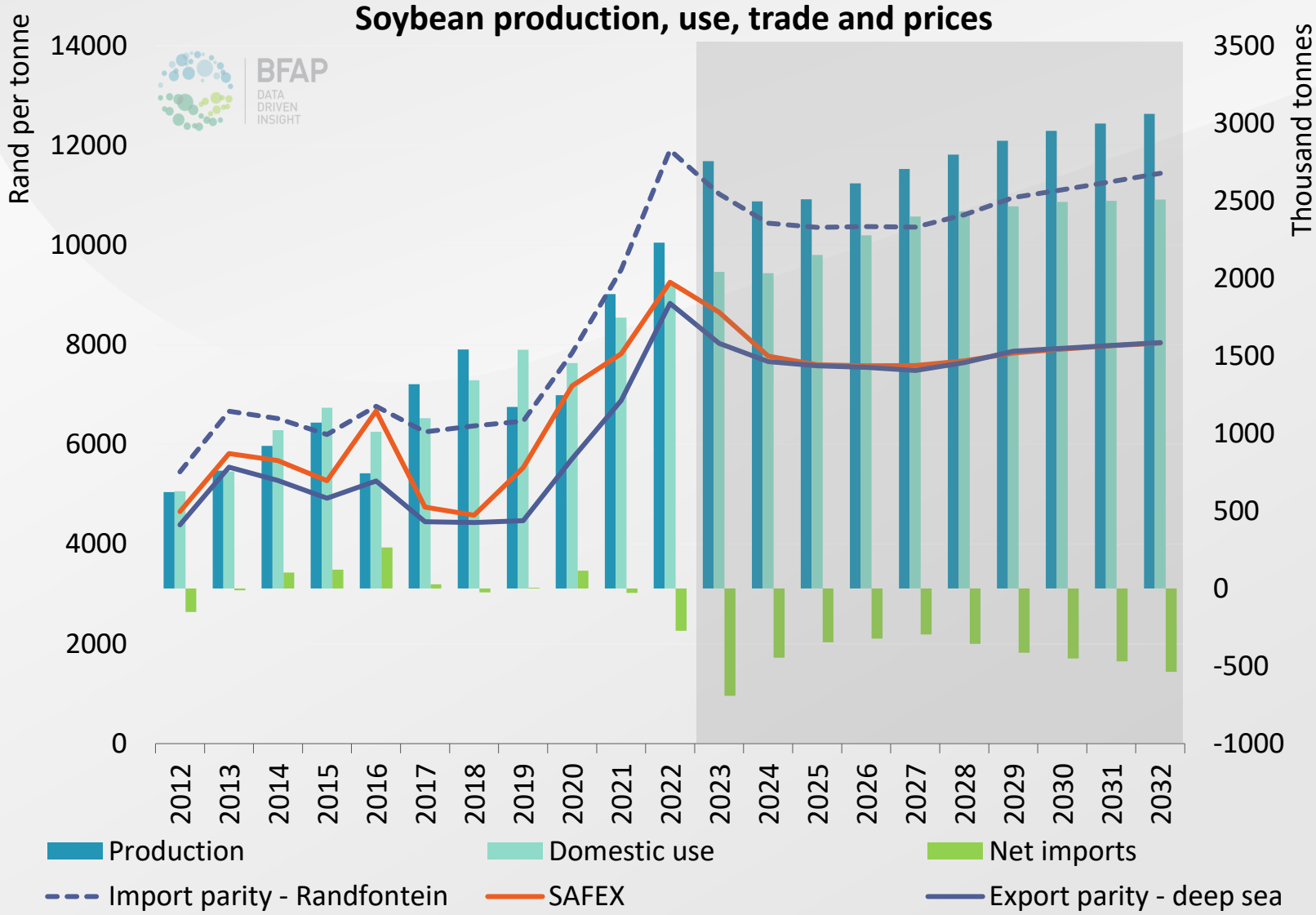
As yields normalise, smaller share of total crop exported



The baseline is based on the assumption of normal weather conditions – with rainfall in line with average historic levels – consequently production levels decline from 2024 onwards, as the sector moves from the exceptional yields attained in the recent past to more normal levels. Area also consolidates somewhat as prices decline – particularly for white maize. This implies that long run equilibrium prices trade marginally higher than export parity as calculated form the reef, more in line with levels that use the Eastern Free State as basis – thus exports will occur from markets closer to port. It should be noted that in years of good weather, export levels will likely be substantially higher than in the baseline, reflecting typical volatility around the baseline trend – which is in essence an average outcome.

Soybeans continue to grow

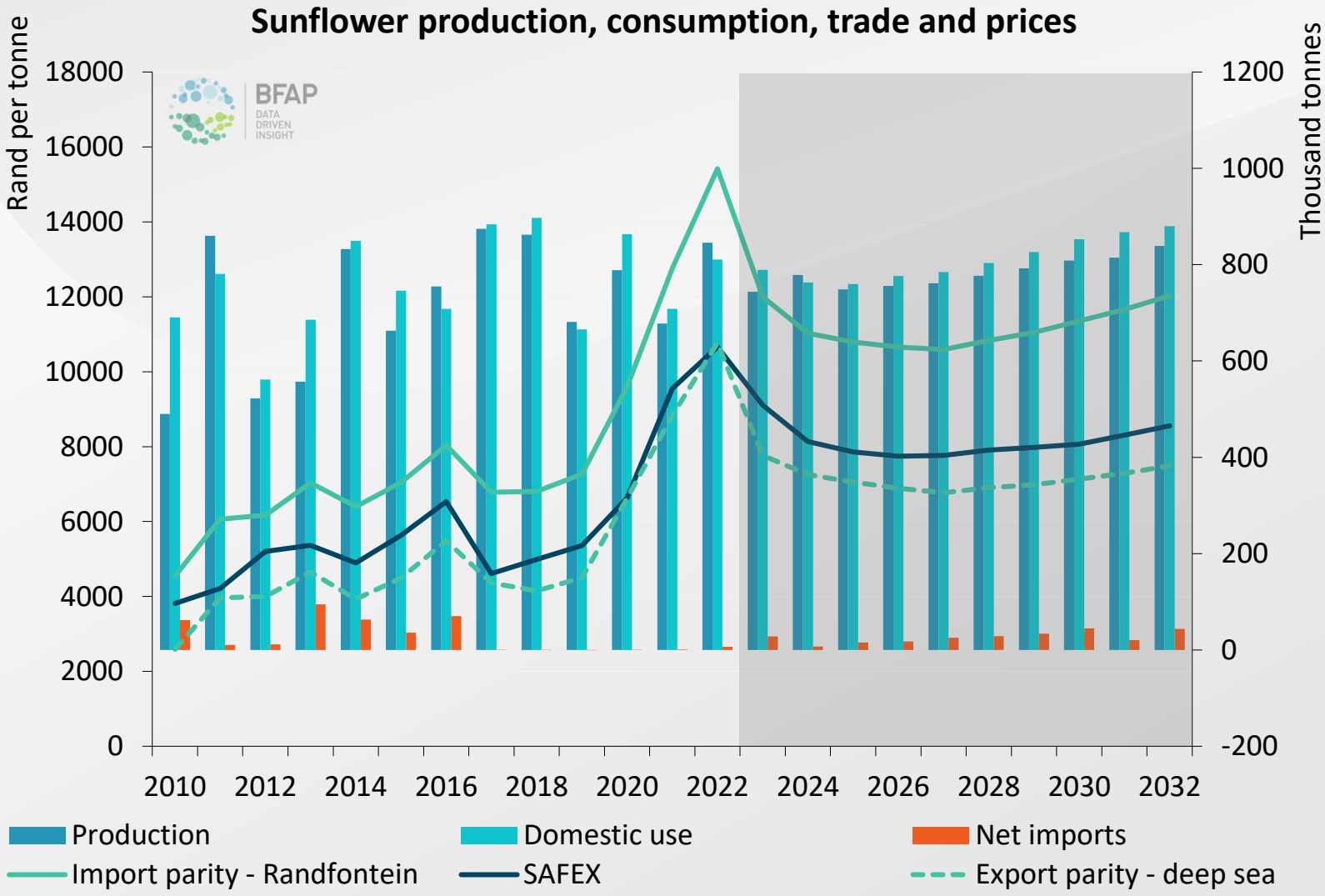
SA now a surplus producer, resulting in export parity based prices



South African soybean production growth is a remarkable success story in agriculture and has accelerated sharply in recent years. This follows the introduction of new varieties, that have performed exceptionally well, particularly in the Western parts of the country – where most of the area expansion of the past 3 years occurred. Production gains have also pushed crush volumes higher, resulting in a substantial discount for domestic oilcake relative to imports, and most imported oilcake has been replaced with domestic products. Nevertheless, SA still has a surplus beans and will likely remain a net exporter over the course of the outlook, resulting in prices based on export parity levels.

Sunflower production has stagnated

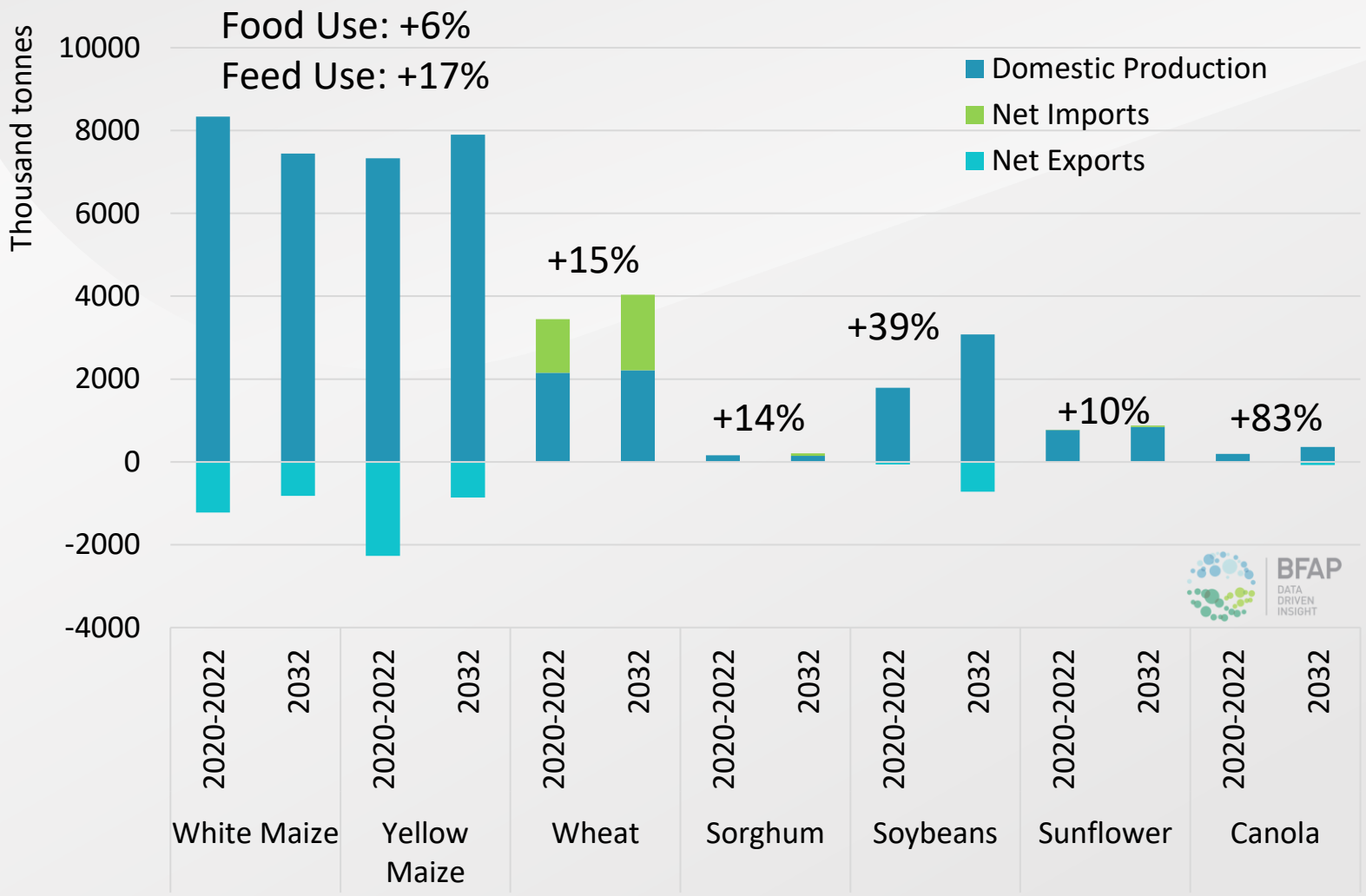
Finely balanced market with limited international trade requirement



The high rainfall conditions of the past 3 years have not allowed sunflower production to shine – this crop comes into its own in drier years, due to its drought tolerant capabilities. Producers are also increasingly challenges by Sclerotiania, which is expensive to control, resulting in a shift to soybeans. Given the smaller crop in 2023, prices remain above export parity – in line with longer term equilibrium, which tends to be between export parity and the price derived from sunflower products such as oil and protein meal. The sunflower market is finely balanced and when prices do decline to export parity, producers tend to reduce area, supporting the longer term equilibrium above export parity levels.

Surplus expected for maize & oilseeds

Strong growth in oilseed processing to replace product imports

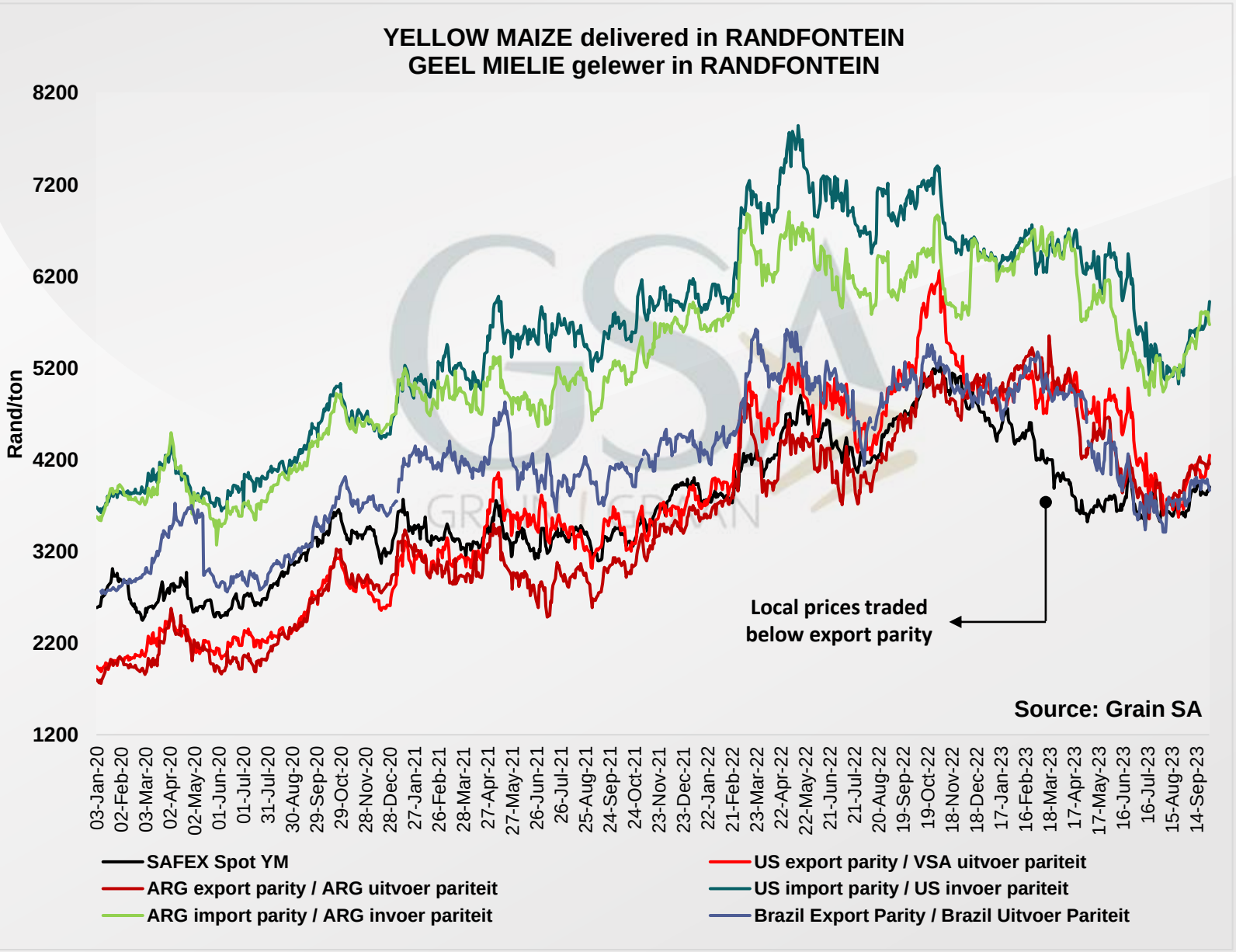


Short term demand for food staple is strong – medium term demand from animal feeds

Surplus maize and oilseeds support competitiveness of livestock sectors

Significant import replacement for oilseed products – some oilcake exports into region…

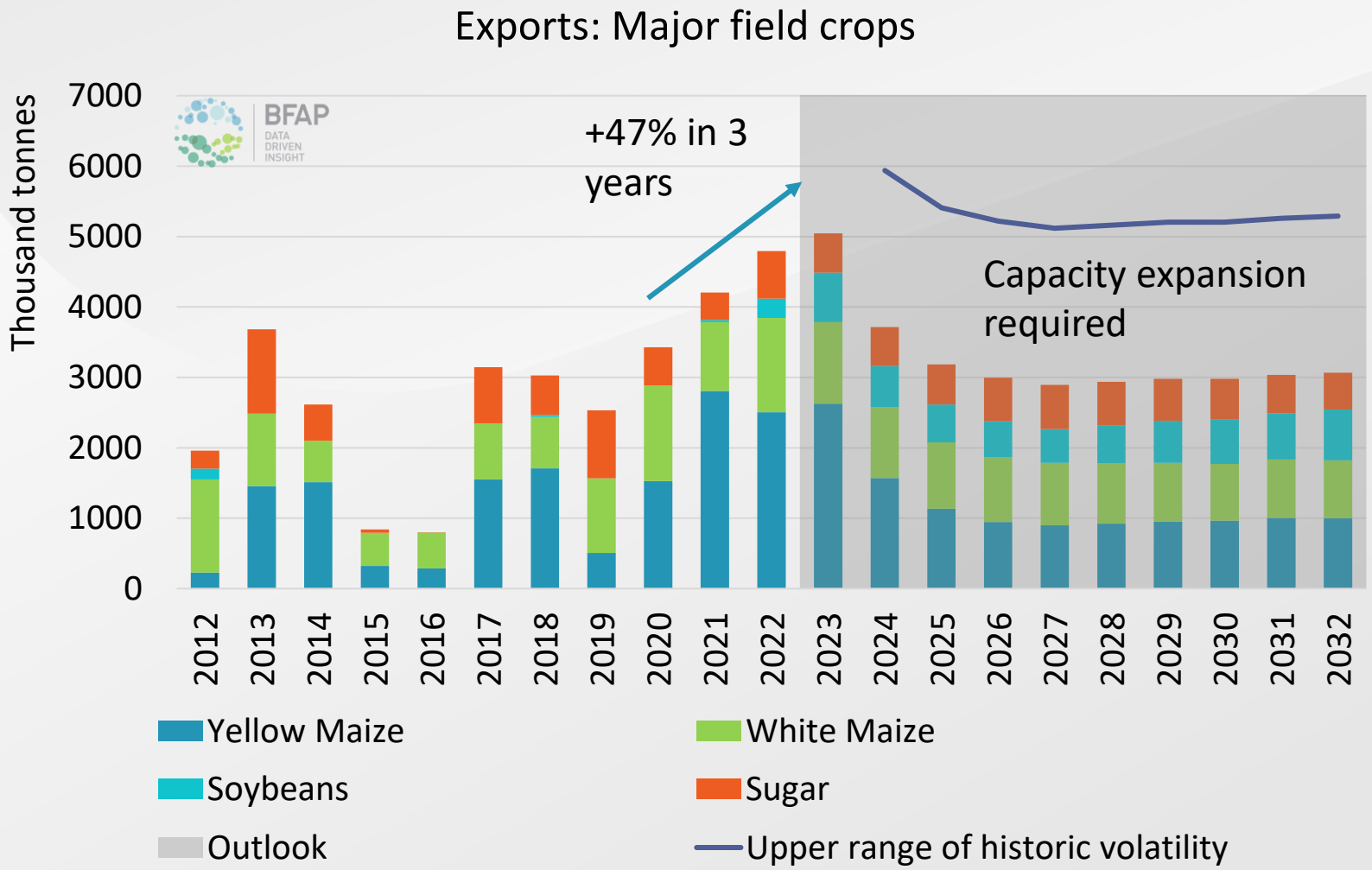
Maize prices treaded below export parity for extended periods in 2023



Theoretically, one would expect prices to trade at export parity in surplus years, yet over the first 6 months of 2023, maize prices traded well below export parity levels. Historically, this has been evident for short periods, which resulted in large export volumes being cleared from the market and a subsequent price recovery. The extended period of below export parity levels in 2023 may well be indicative limitations in moving products through the port, particularly in Durban, due to capacity and / or operational issues. The strong surplus of both maize and soybeans contributed to this situation, as exporters were often forced to prioritise slots for maize or soybeans. Unless capacity is expanded and operational issues resolved, good rainfall years will continue to result in backlogs and lower prices in future.

Significant export volumes over outlook

Port capacity & efficiency will be critical – capacity needs expansion to handle volumes



Baseline export volumes depict situation in normal year – weather conditions can result in much higher volume in any given year

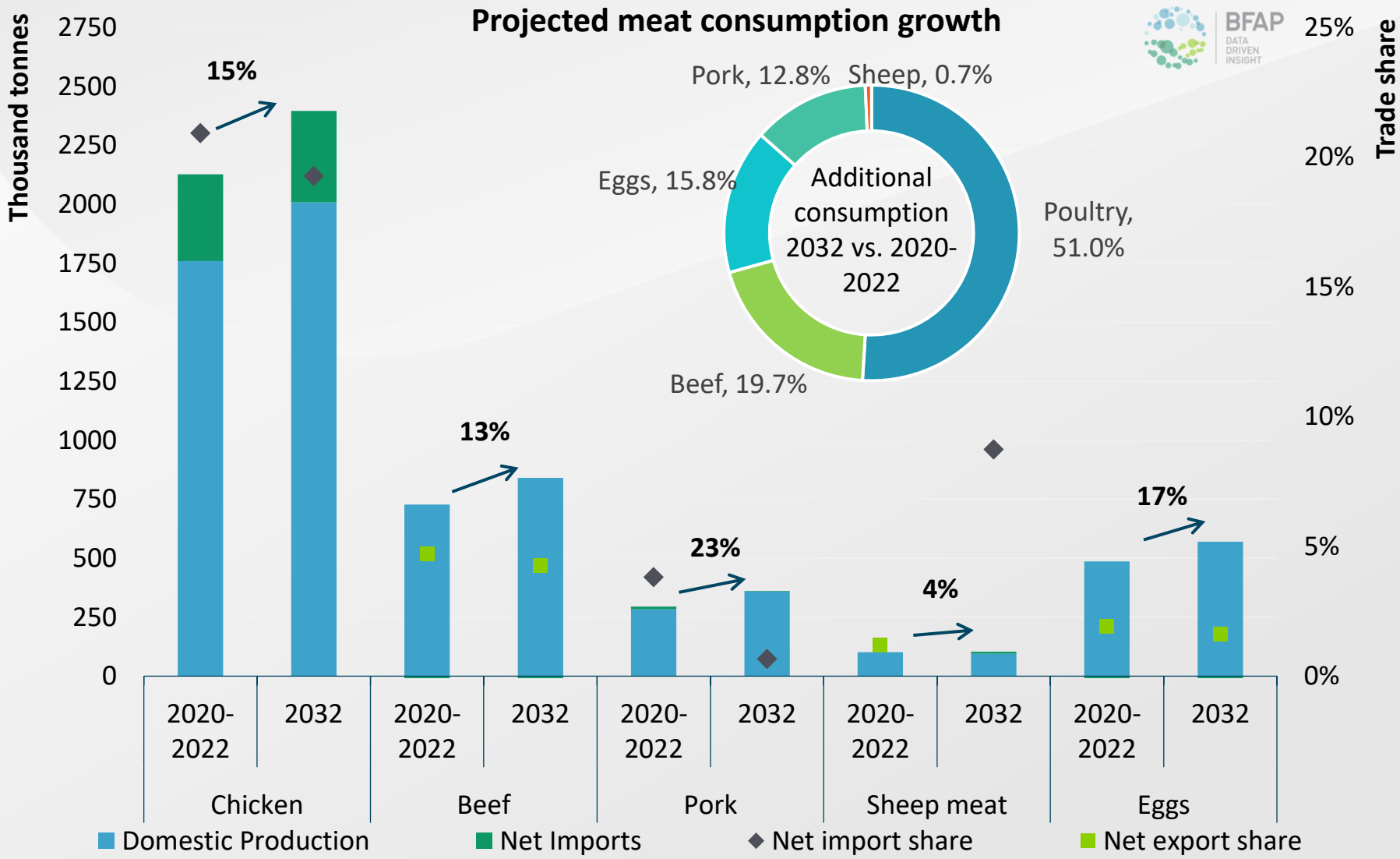
Port capacity and efficiency is critical to move projected volumes – Jan-Aug 2023 – maize avg. R530 below export parity

DBN

Considering yield variations, the upper bound of historic yield volatility results in higher export volumes over the outlook than evidenced in the past few years – thus capacity considerations are critical

Prospects for livestock production growth are dependant on biosecurity environment

Production growth can exceed consumption if imports are replaced or exports grow



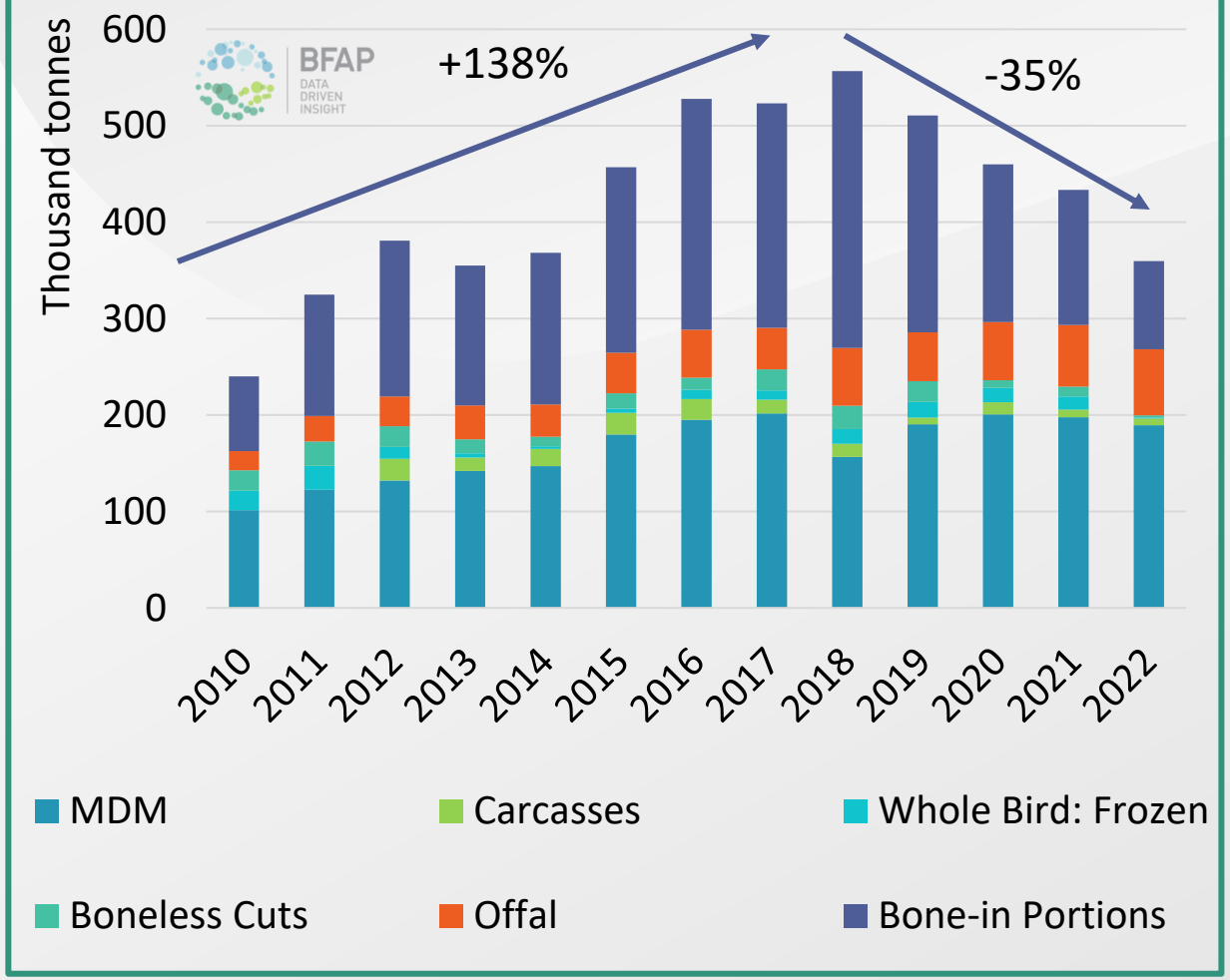
Strong orientation to domestic market – vulnerable to weak consumer spending

Affordability & value for money are key considerations – carcass optimization critical

Increasing need to focus on global markets to generate growth – animal health critical…

Chicken production has replaced substantial imports following poultry masterplan signature

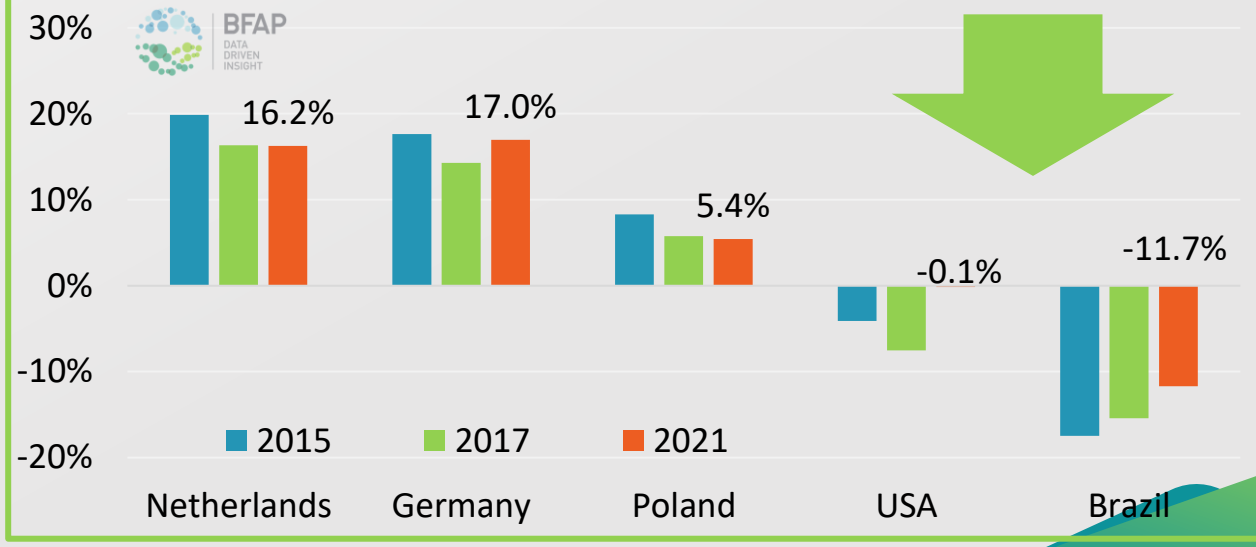
Chicken imports have declined substantially



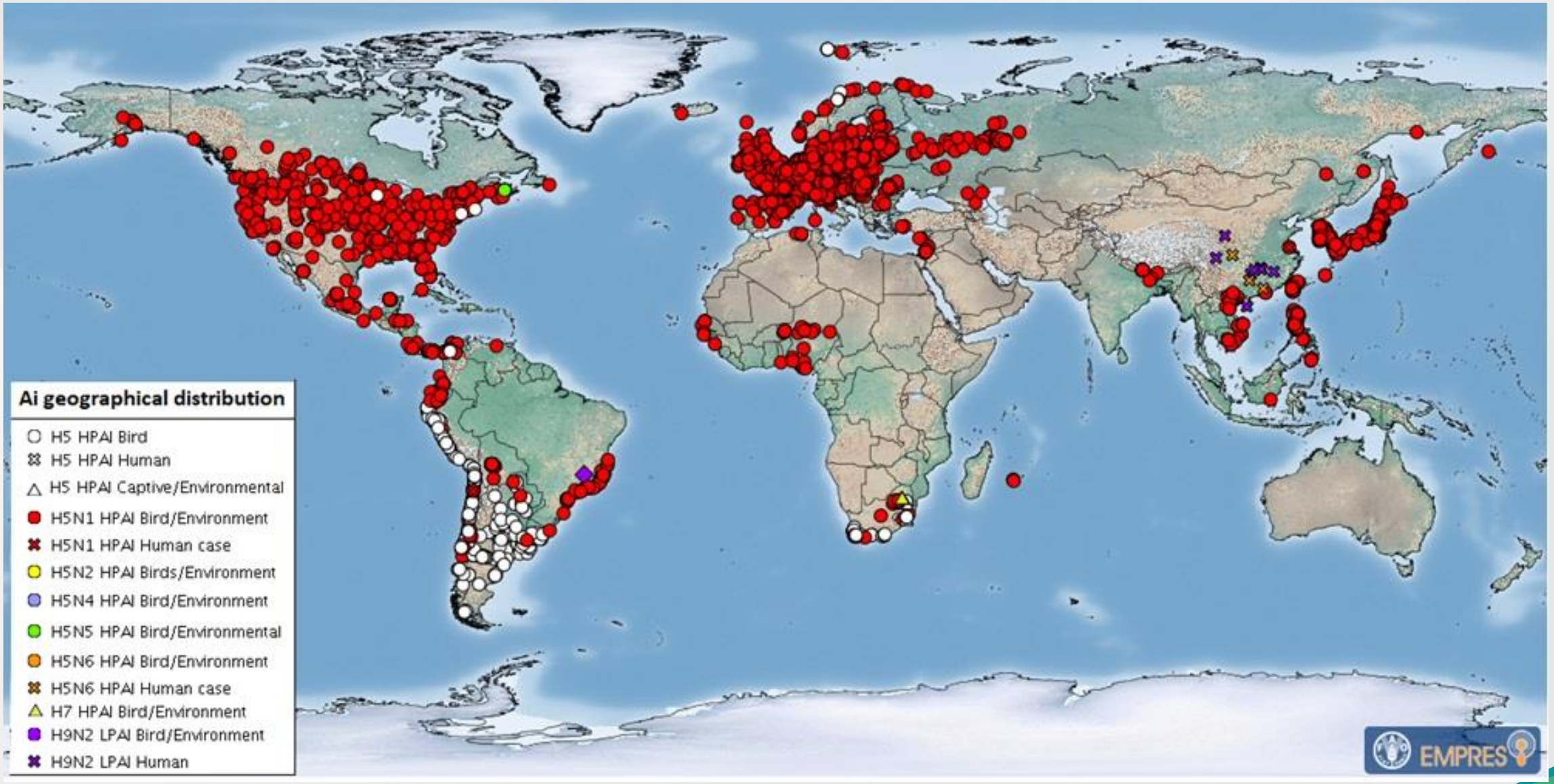
Number of factors have contributed to the decline:

- HPAI in a number of exporting countries – EU
- Various import tariff interventions
- Effect of COVID-19 and logistical challenges
- Depreciation in Rand and increasing freight rates
- **Improved relative competitiveness and growth in production – despite multiple challenges**

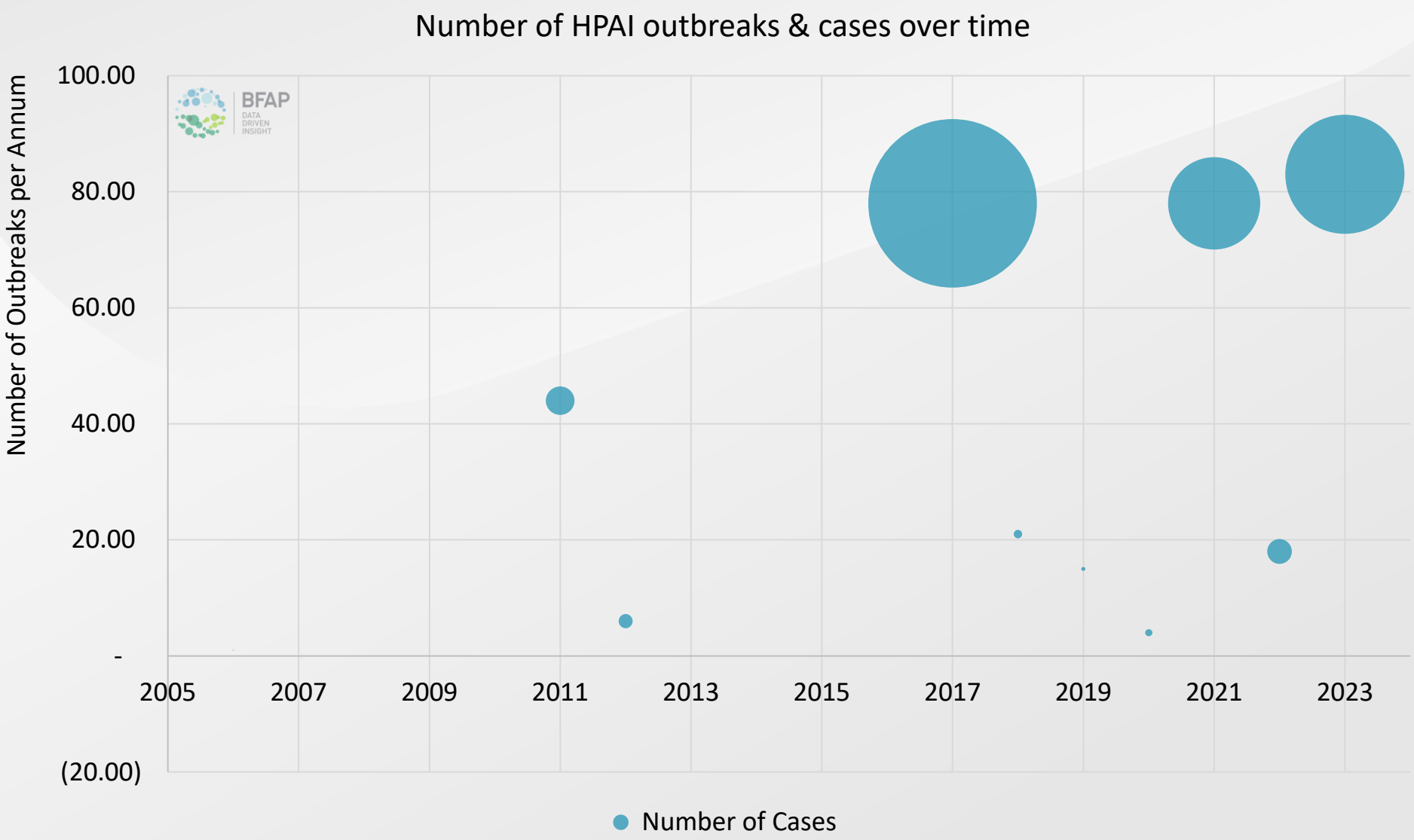
Cost of production relative to South Africa



However, current HPAI outbreak is a major challenge that could reverse some of the gains in import replacement



HPAI has spread rapidly – ultimate impacts depends on when its contained



Early October 2023:

More than 5 mil commercial layer hens culled – more than 20% of the total layer flock

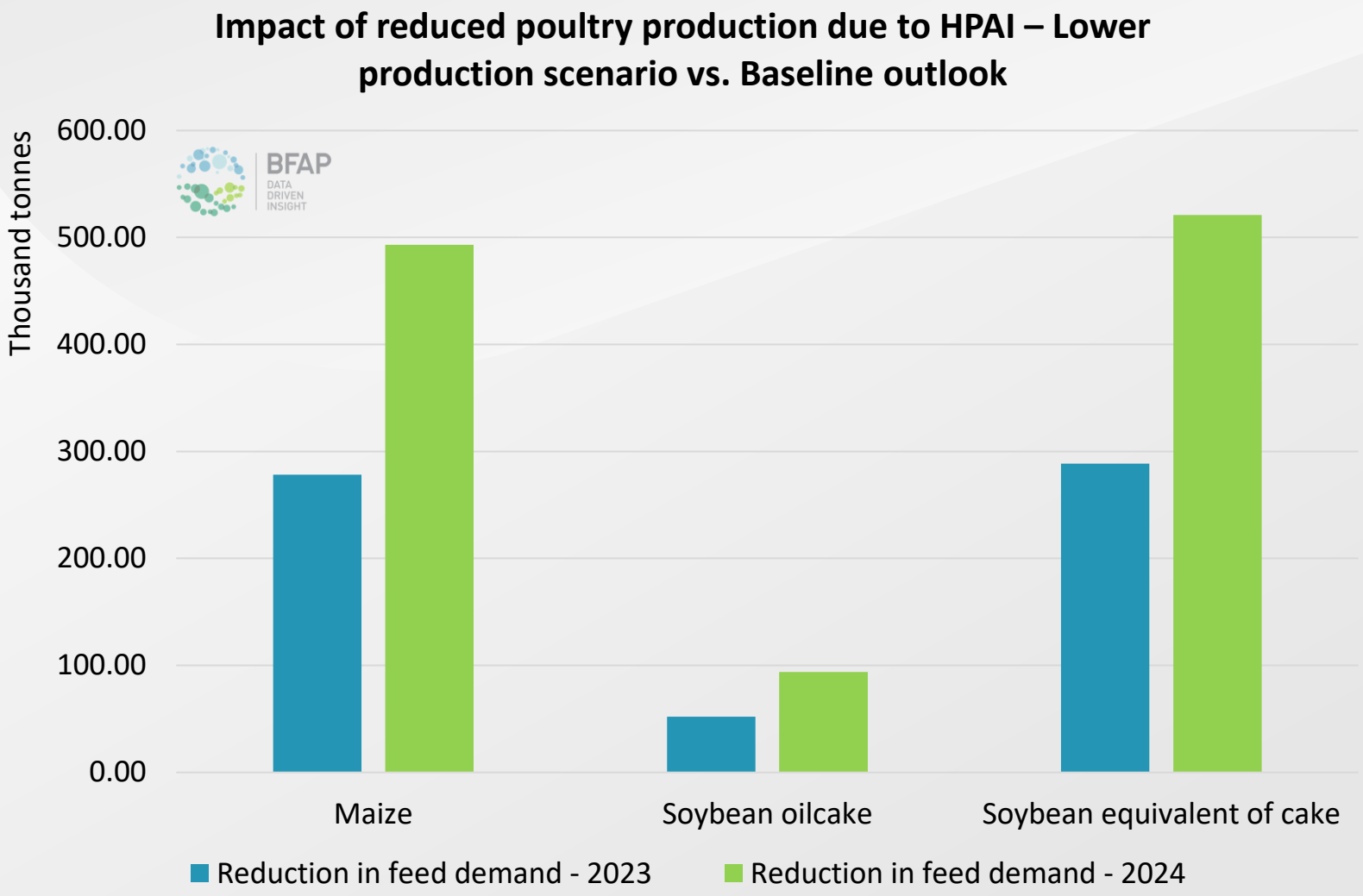
More than 2.5 million broiler breeder hens culled – around 30% of the total broiler breeder flock

Vaccine imports on order –> 2-6 months – current strain to be manufactured

Source: OIE, 2023

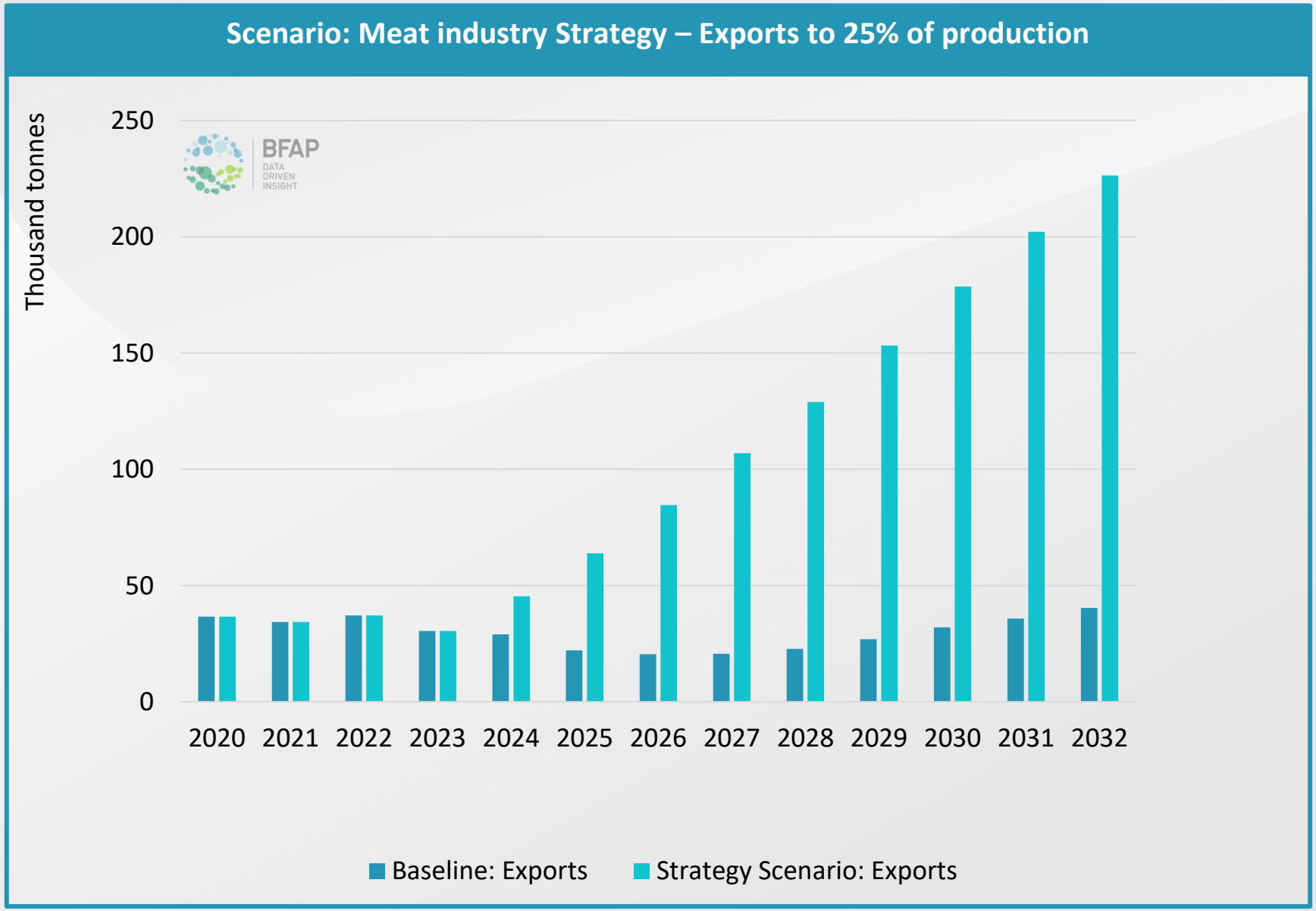
Growth in livestock sectors influence demand for animal feed

Impact of HPAI on chicken productive capacity could be severe



- Any scenarios with respect to the current HPAI outbreak are highly uncertain – as the spread has not been fully contained
- Current simulations are based on the assumption of a 30% reduction in production in Q4 of 2023 as well as Q1 of 2024, with gradual restocking through Q2 2024 and Q3 2024 to reach full productive capacity again by Q4 of 2024
- A faster rate of restock, enabled by efficient vaccination imports and dissemination will reduce the impact, while substantially wider spread will increase it
- The impact is greater in 2024 given that the 2023 impact is concentrated in the fourth quarter of the year, whereas 2024 impact is through 3 quarters

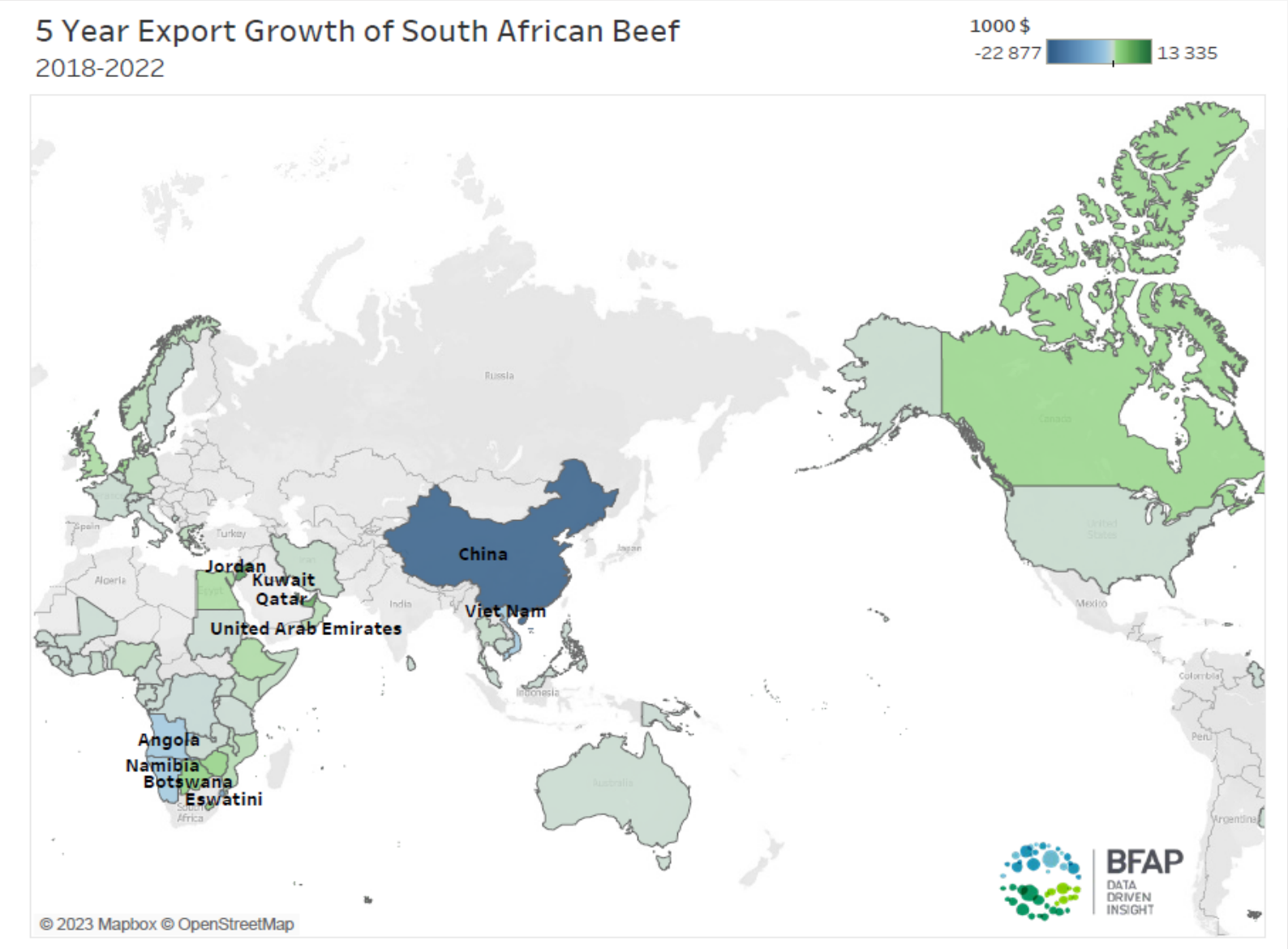
Beef export strategy, aligned with AAMP, points to substantial export led growth potential



Subsequent to the agriculture and agro processing masterplan, the red meat industry embarked on the development of an industry wide strategy to put it on a path to realising the opportunities highlighted in the AAMP. Part of this strategy involves expanded market access, improved biosecurity measures and increased weaner calf intake from more productive small scale farmers, to grow exports to 25% of domestic production compared to current levels of below 5%. While ambitious, this strategy could unlock substantial additional value in the export market, with remaining cuts delivered affordably to domestic consumers, presenting an inclusive growth path.

Exports have declined in recent past

Foot and Mouth Disease impacting on ability to trade with certain partners – inducing shifts in flows



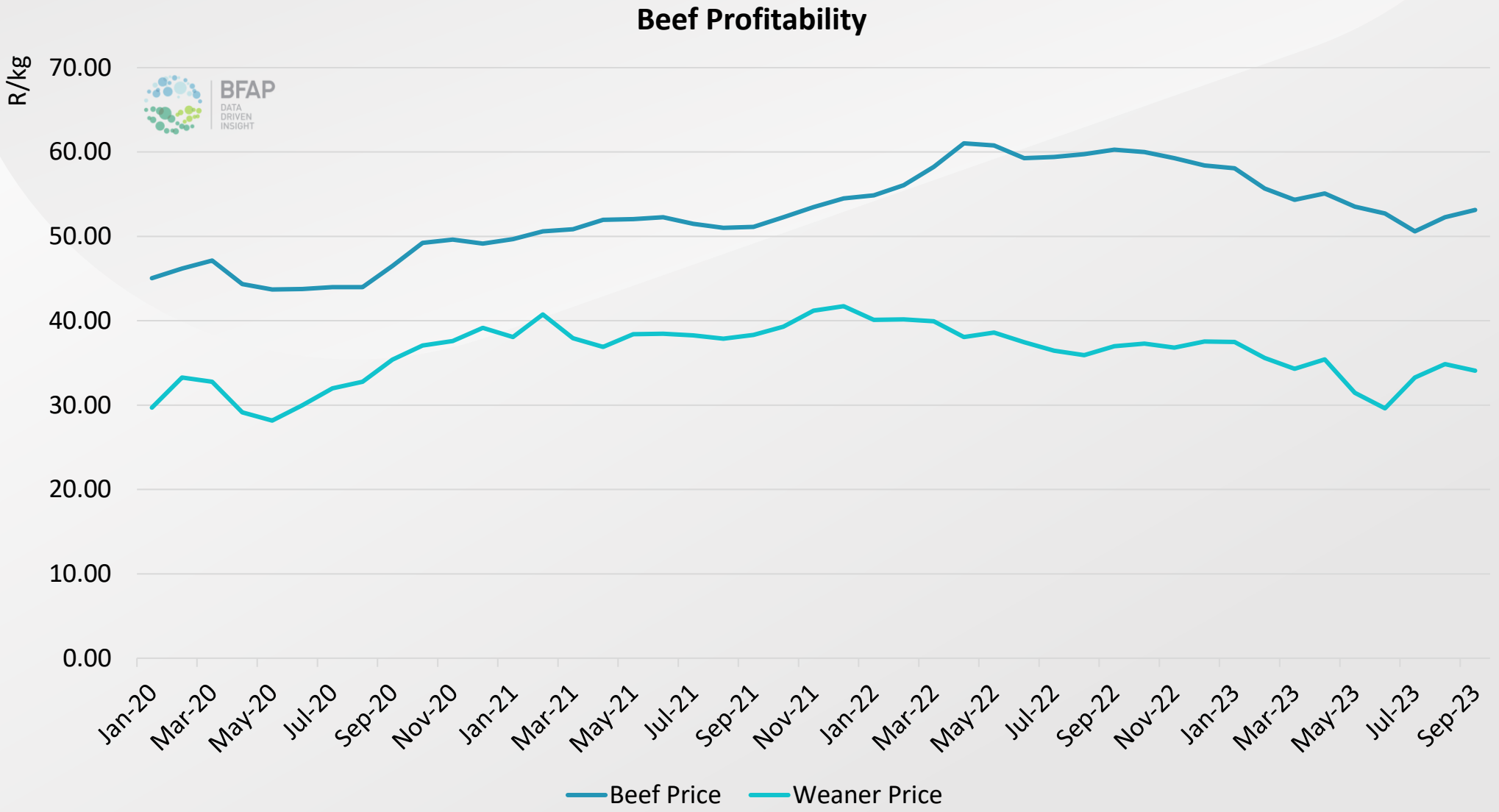
FMD cases have become more frequent and more widespread – control is critical – but its 1 of many problematic diseases that constrain inclusive growth, reduce productivity and limits export market avenues

Biggest reduction to China, which banned imports from SA following FMD outbreak

Some additional volumes to Middle east, but product mix is different

Neighbouring, as well as other industries also impacted

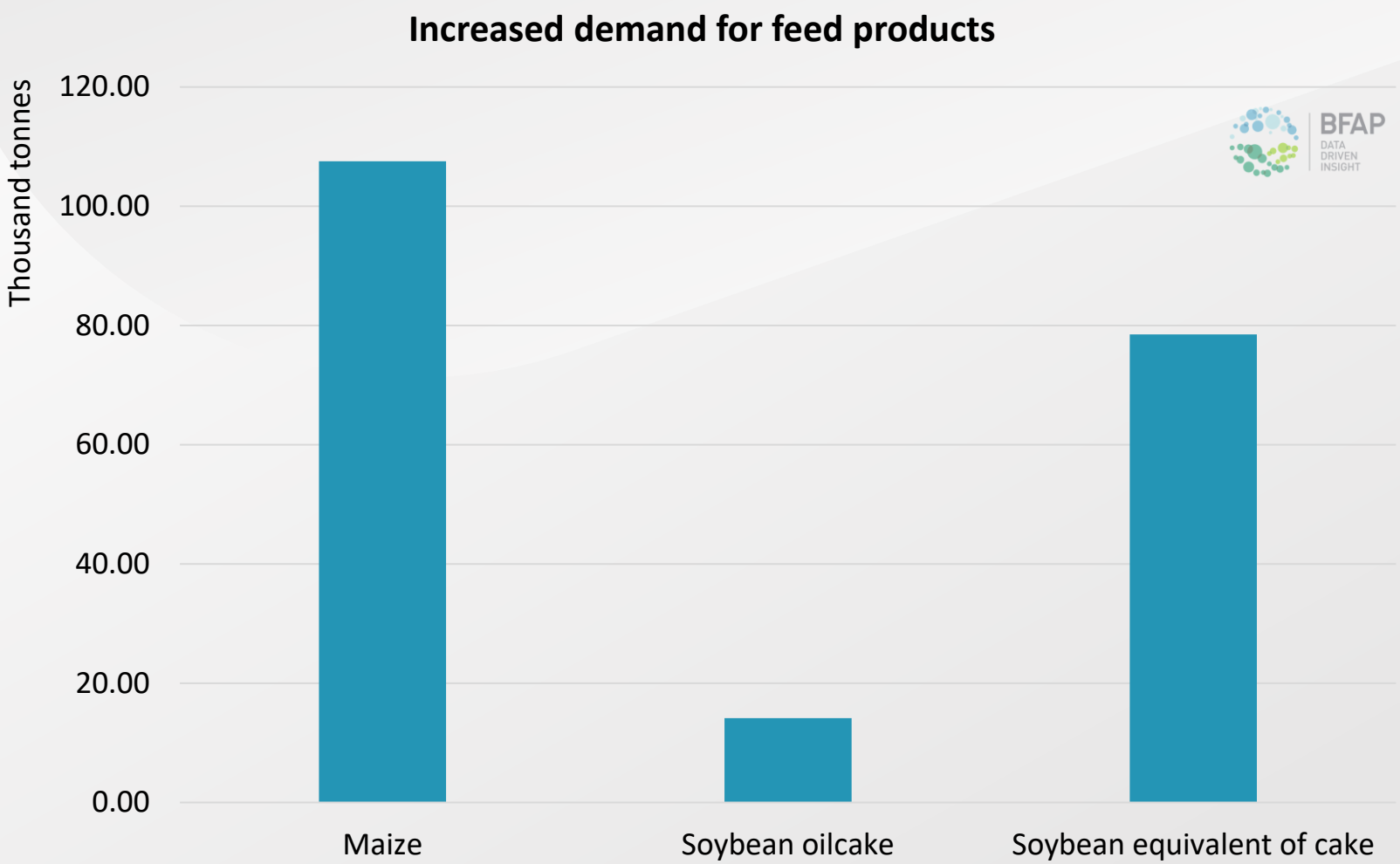
New market access in the pipeline and seasonal stocking could support calf prices



Development of export protocols take time, so while agreement has been reached to enable trade, processes must be followed before it can practically occur – hence a time lag is likely before trade starts to flow

Growth in livestock sectors influence demand for animal feed

Biosecurity is a critical enabler of livestock export growth



- If the envisioned growth from the red meat industry strategy can be achieved, improved beef prices and improved productivity amongst smaller cow-calf operations would enable substantial production growth in the feedlot system – leading to increased demand for animal feed products
- Impact of beef sector grain is less than poultry, due to more limited use of maize grain and soybean oilcake in beef rations compared to poultry – beef sector draws more heavily on roughage
- Additional growth in poultry exports could result in a greater additional demand for maize grain and soybean oilcake in animal feed.

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Farm-level Inputs

Rapid decline in energy and input costs, but also lower commodity prices

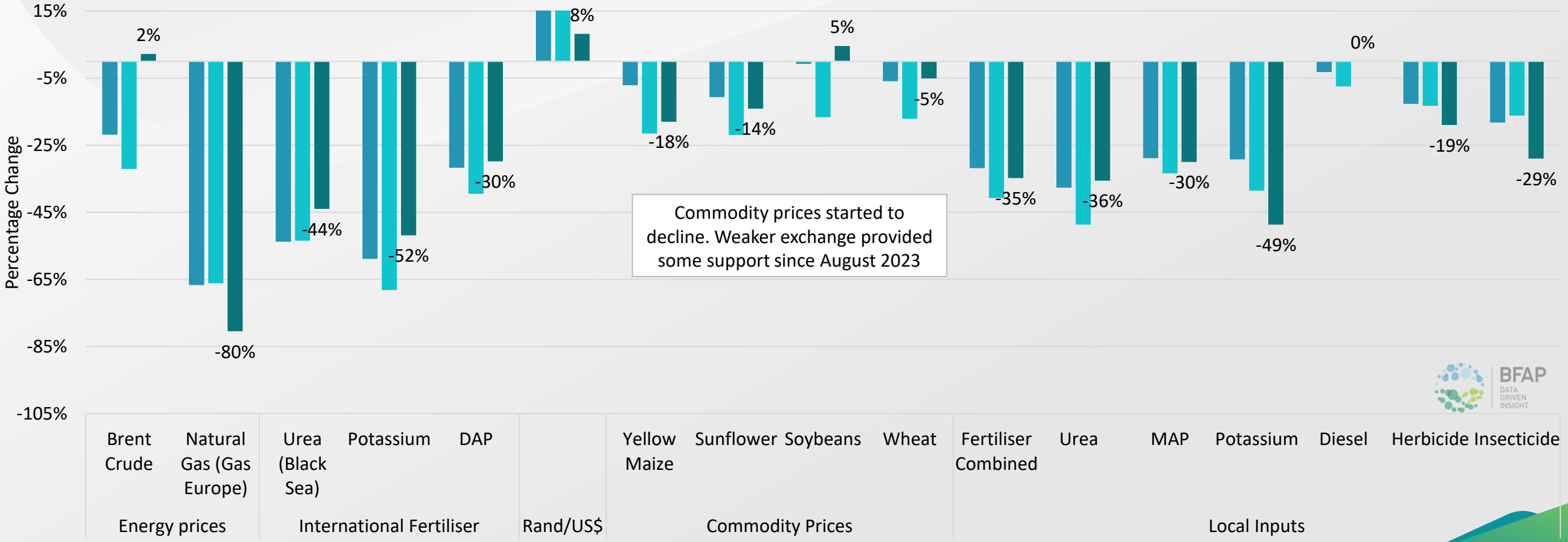
Uncertainty & volatility remain

Higher energy costs in Aug/Sep 23; lower in first week of Oct

Pre-Israel war: $83/b
Post: $89/b

Factors to monitor over the short term: Middle East escalation; US Fed rate hike decision; interest rate; ability of interest rates to cool down inflation, economic growth / recession & exchange rate implications

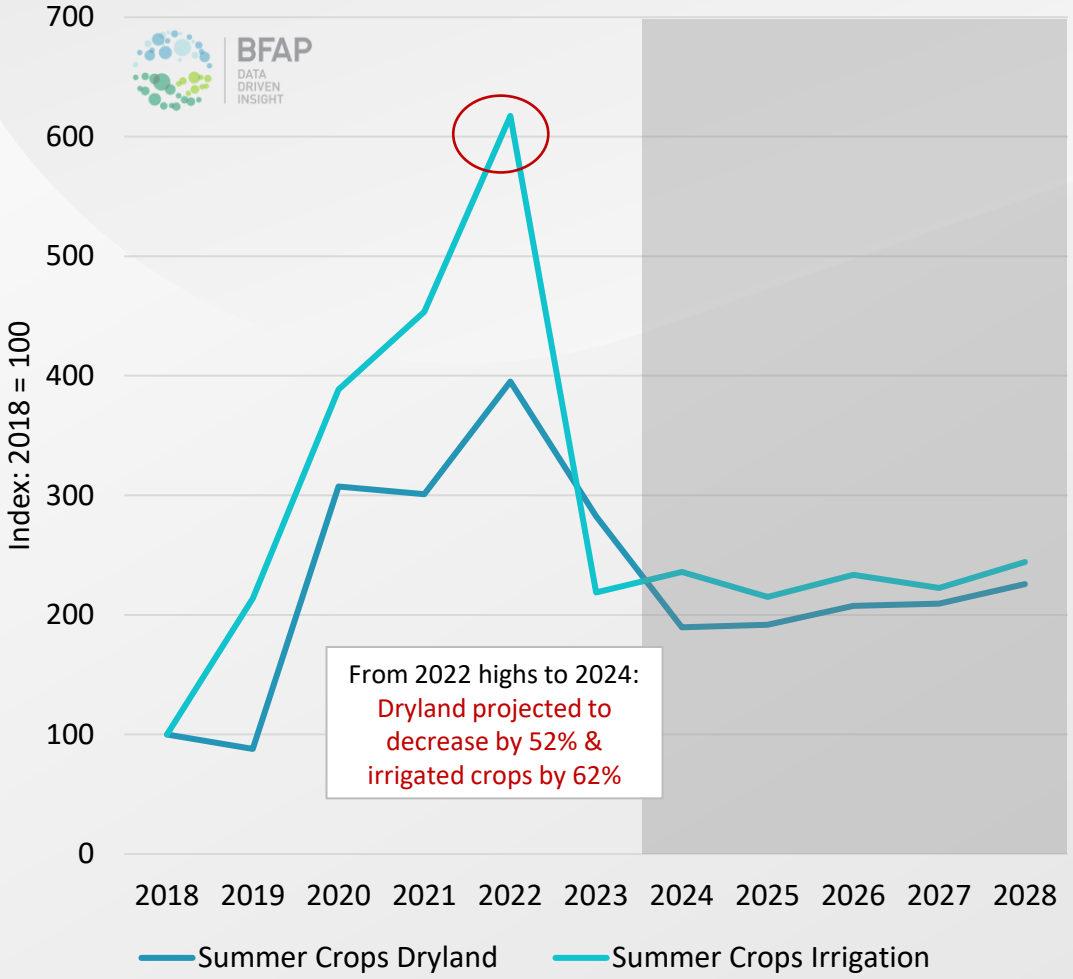
- Nitrogen product prices higher compared to May 2023
- Weaker Exchange rate slowed declines in local inputs



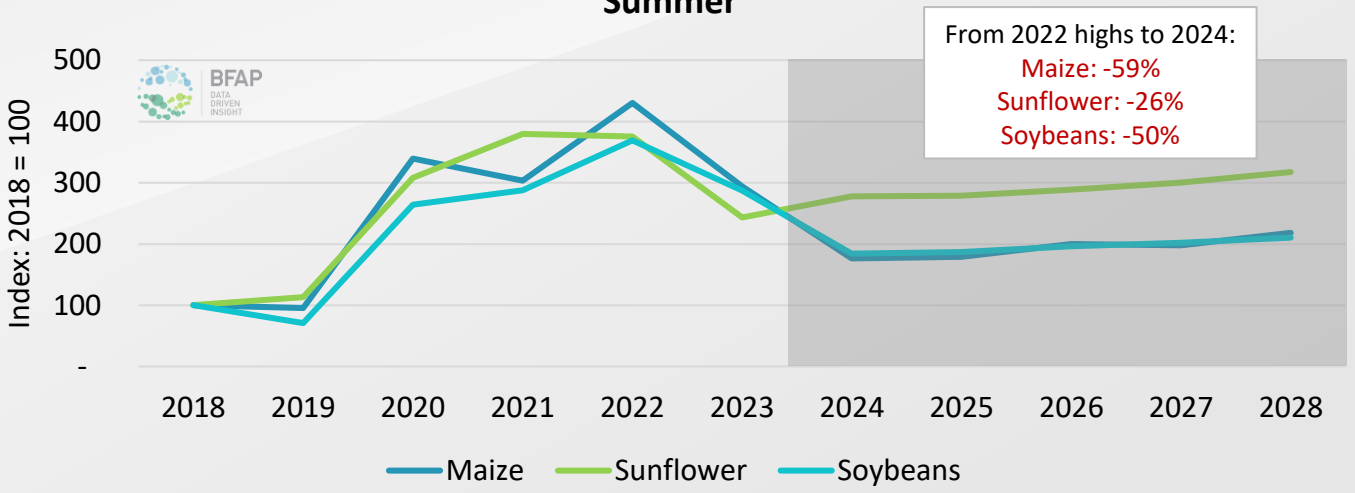
Source: World Bank, Grain SA & BFAP, 2023

Gross margins for summer crops: Declines between 52% - 62% projected from 2022 to 2024 (dryland & irrigation), underpinned by lower output prices

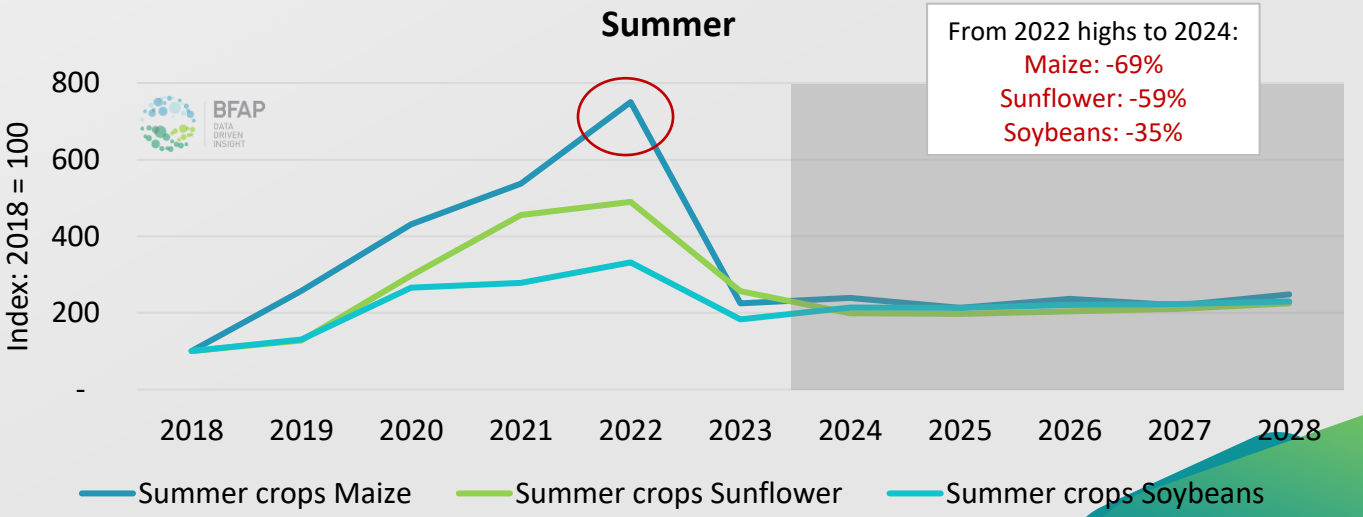
Gross margin index: Summer crops
Weighted average across 6 crops in 7 agro-ecological dryland producing regions & 4 crops in irrigated regions



Gross margin index: Dryland crops
Summer



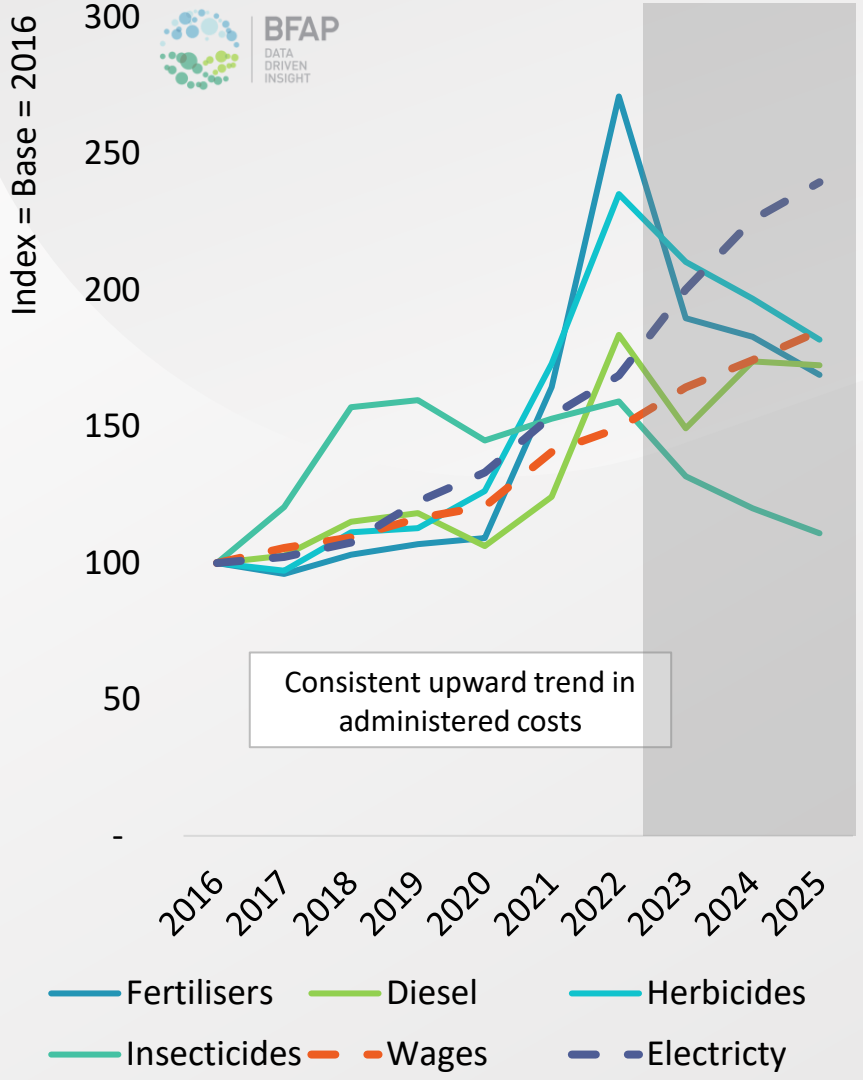
Gross margin index: Irrigated crops
Summer



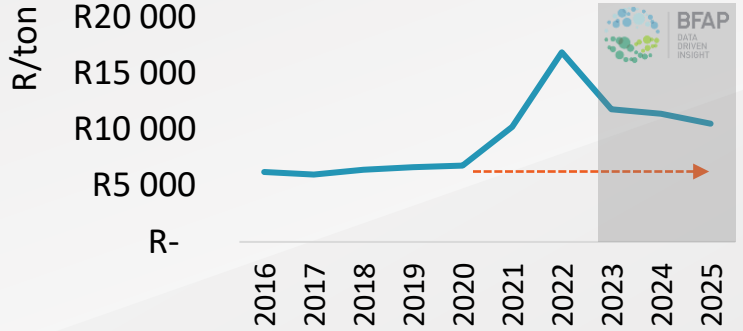
Although declines observed in recent months, costs remain well above pre-2020

Fertilisers = 90% higher & herbicides = 105% higher

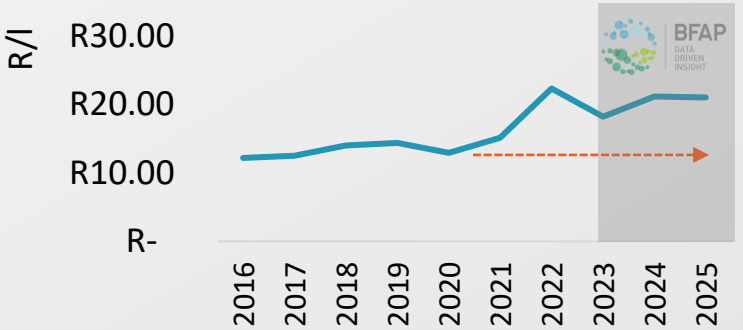
Input cost indices: 2016 - 2025 (proj)



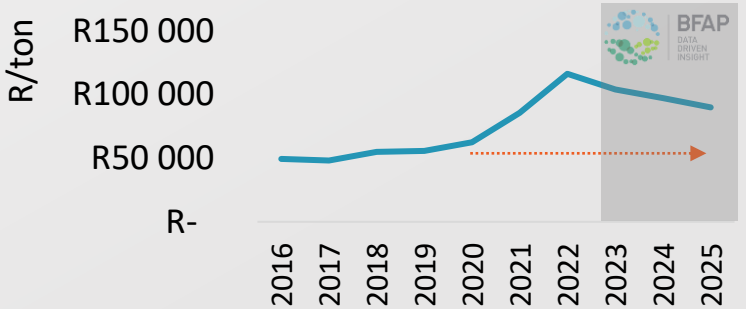
Fertiliser cost trend



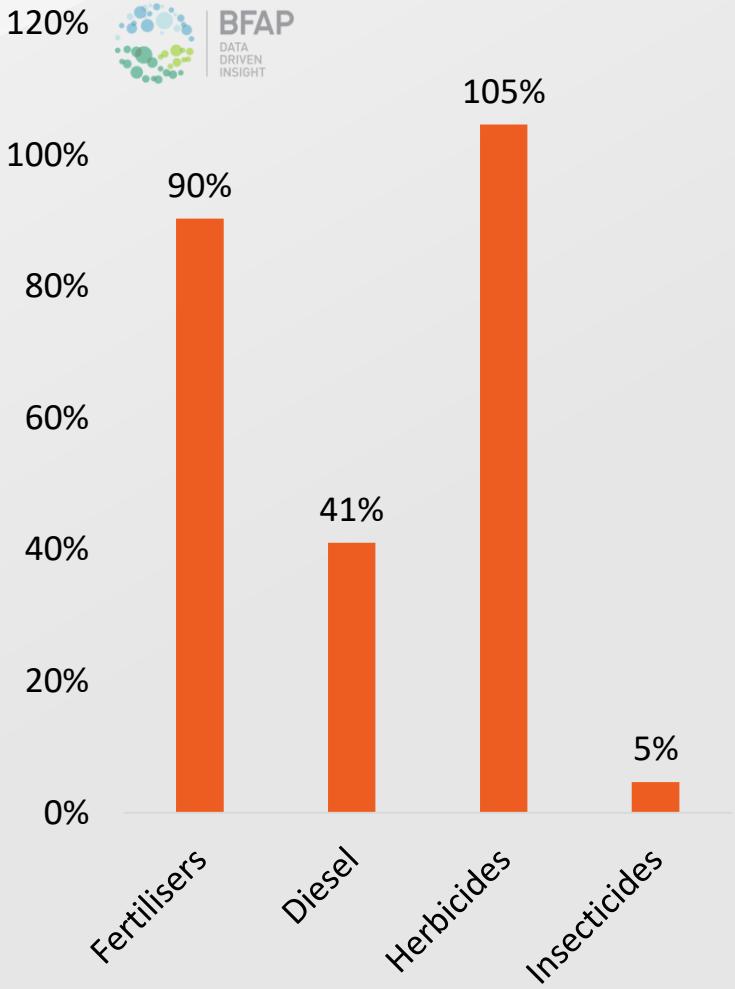
Diesel cost trend



Herbicides cost trend



2023 vs. avg from 2016 - 2018



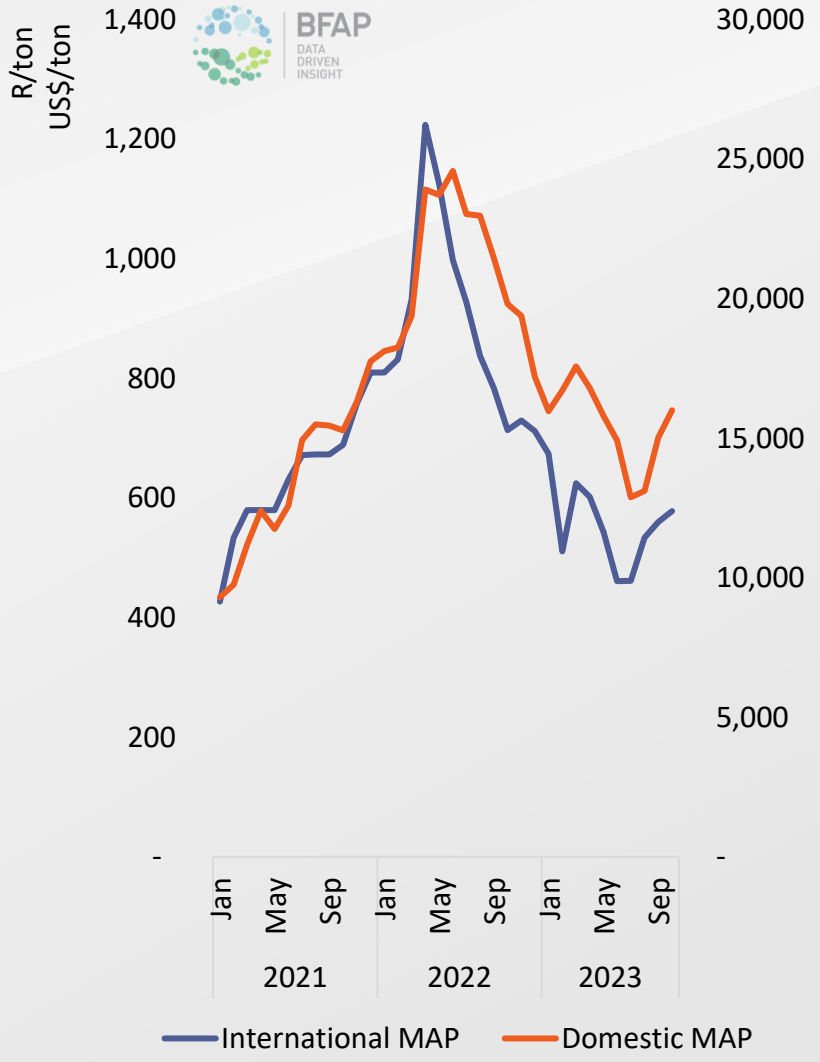
Source: World Bank, Grain SA & BFAP, 2023

Fertiliser cost trends: International vs. domestic

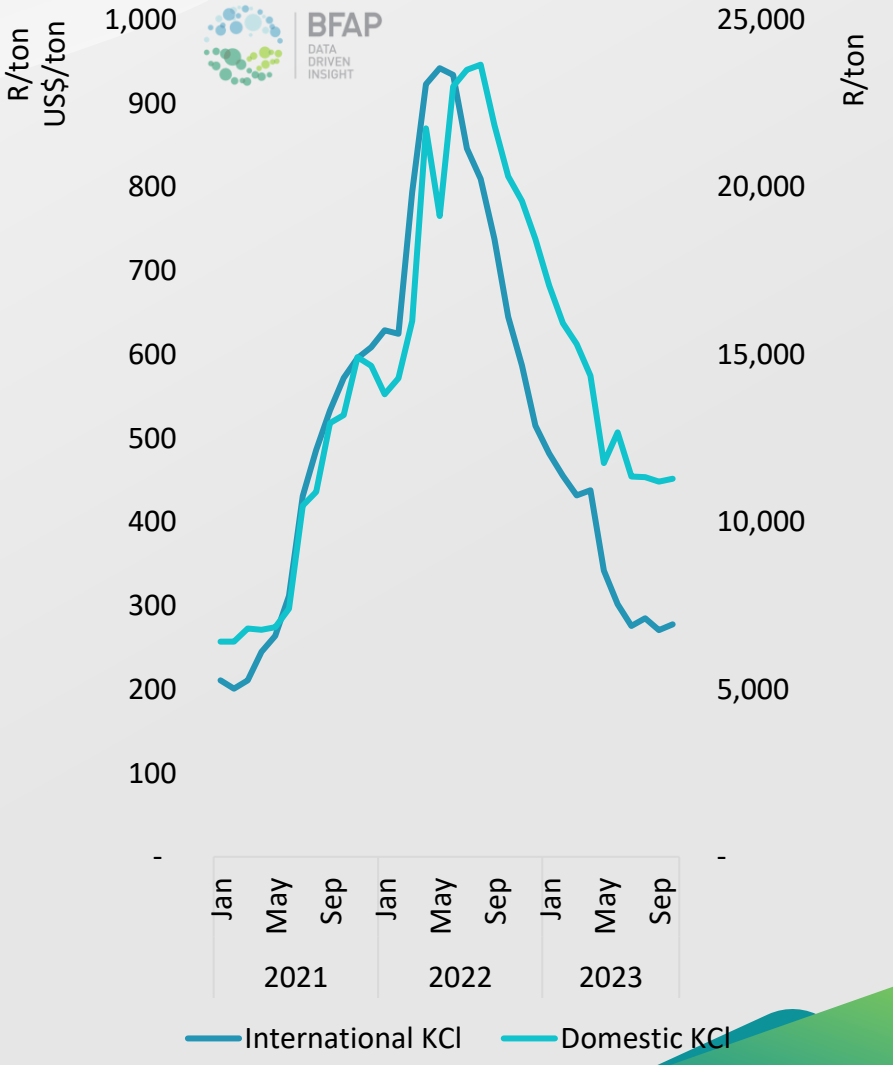
Local prices follow the same trend as international prices, but international prices have decreased at a faster rate (exchange rate driven)

Urea

MAP



Potassium

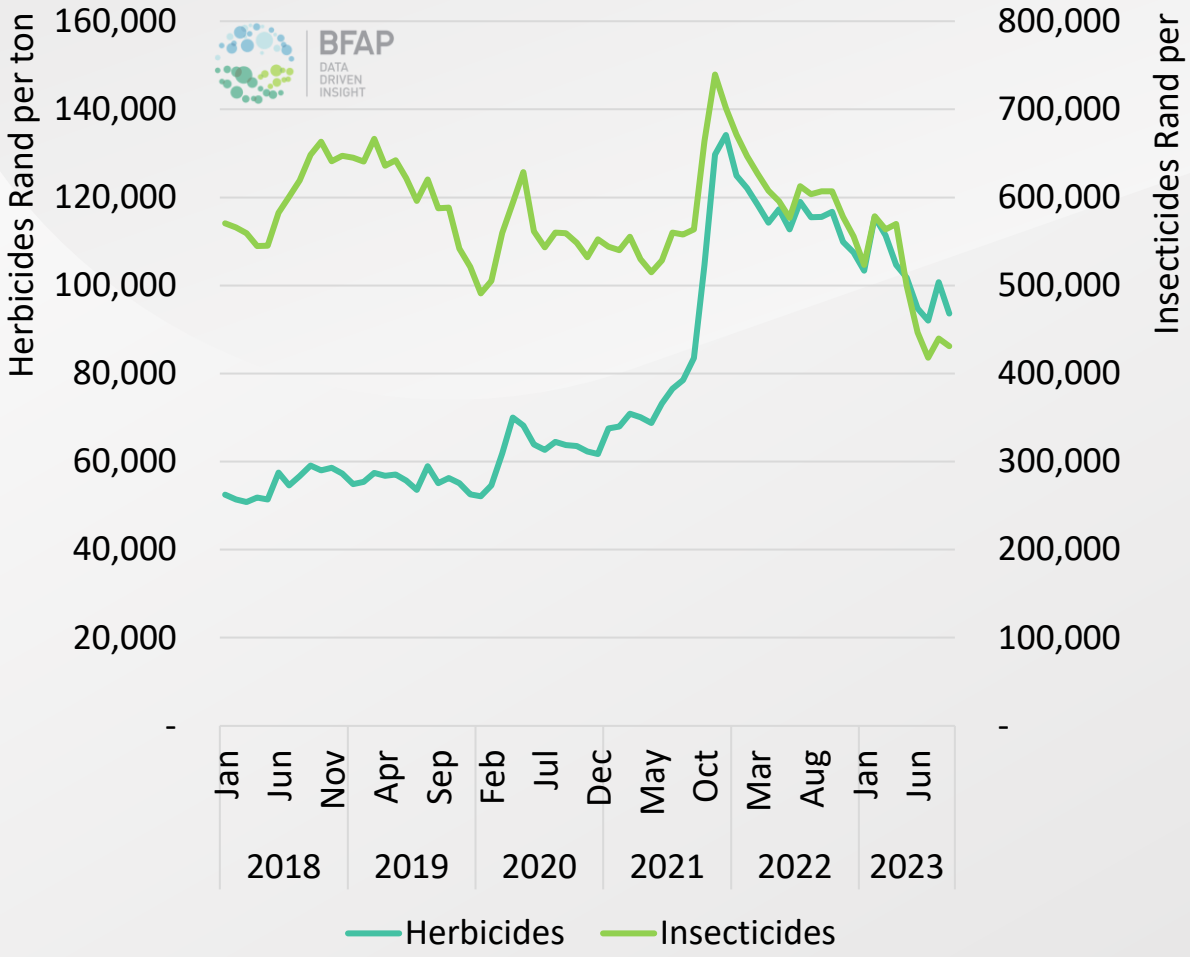


Source: Grain SA & BFAP, 2022

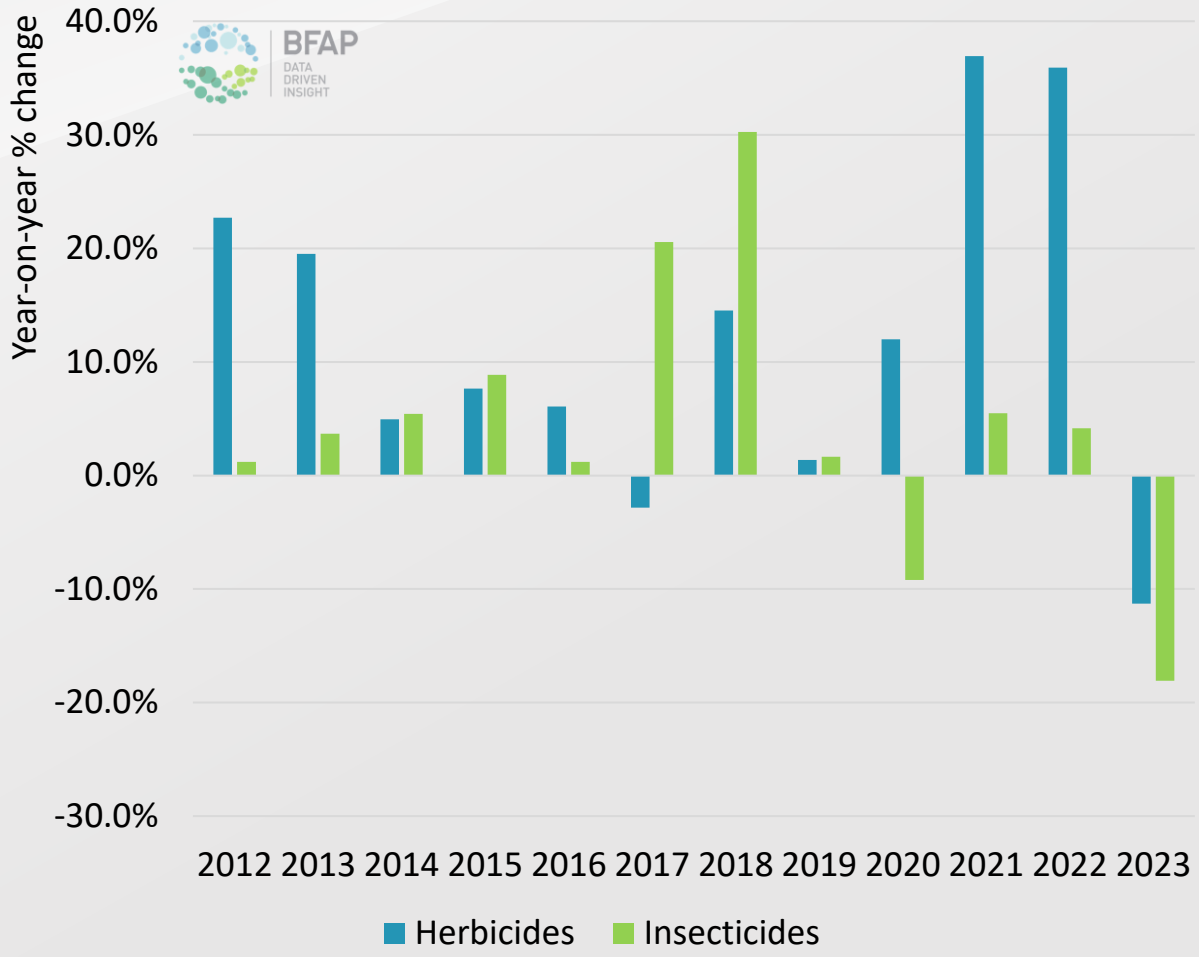
Chemical cost change

Herbicides & insecticides continued downward price trend since December 2021

Domestic plant protection chemicals cost trend



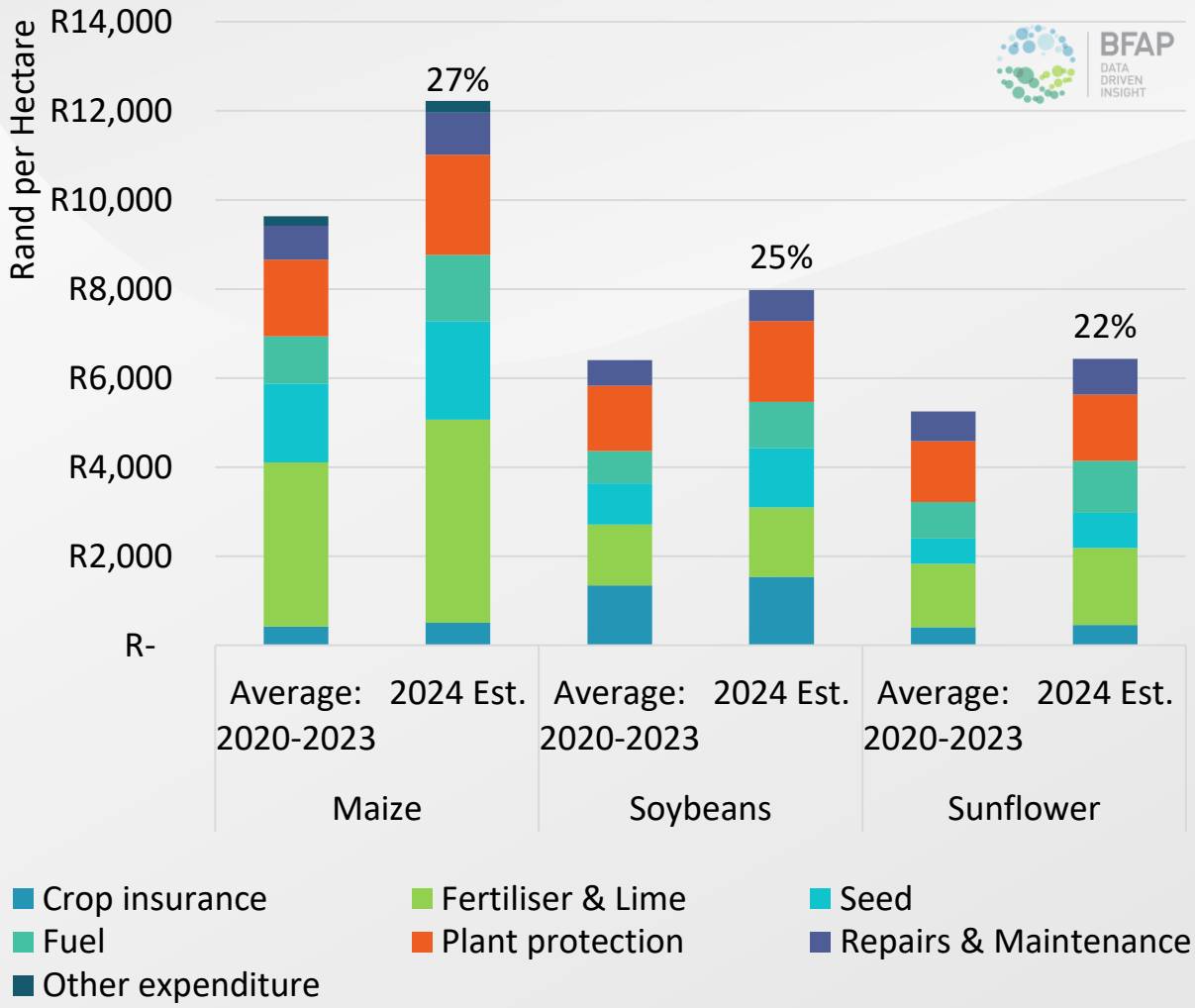
Chemicals year-on-year % change



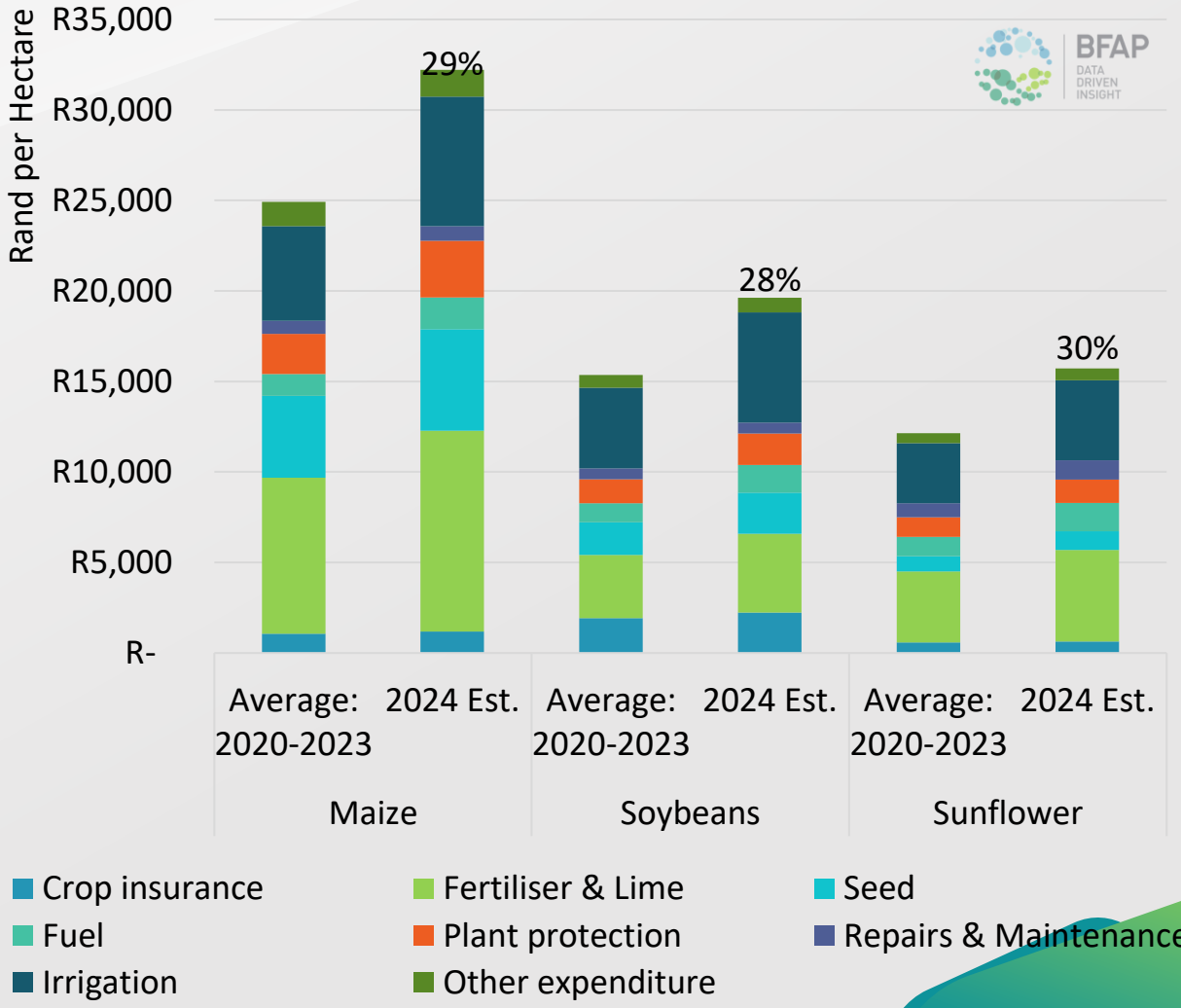
Source: Grain SA

Despite declining input costs since 2022, direct expenditures are still expected to be higher in 2024 compared to 2020-2023 levels

Dryland: Direct Expenditure per Hectare



Irrigation: Direct Expenditure per Hectare



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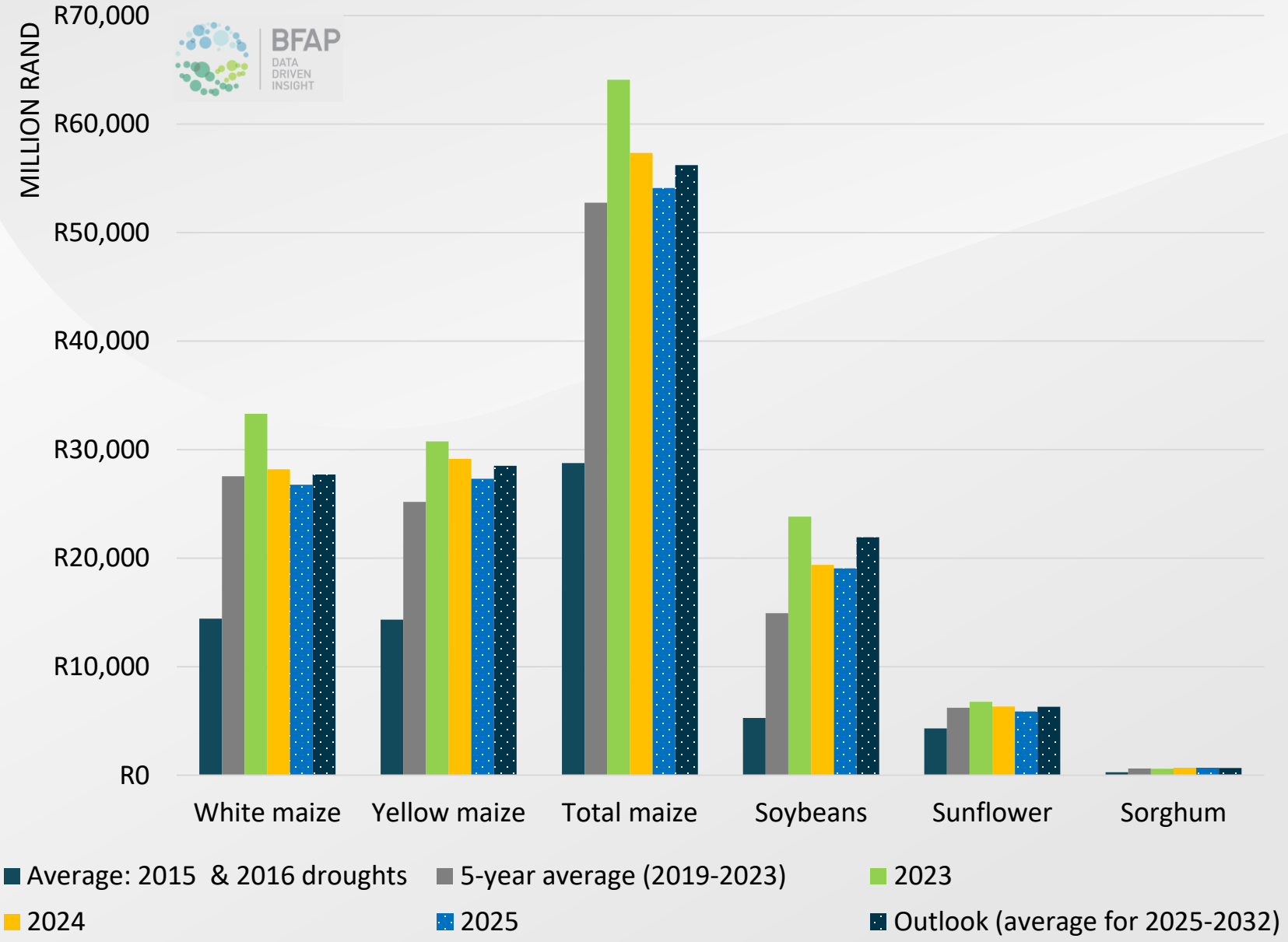
Industry & Farm-level Profitability

Gross production value – Summer crops

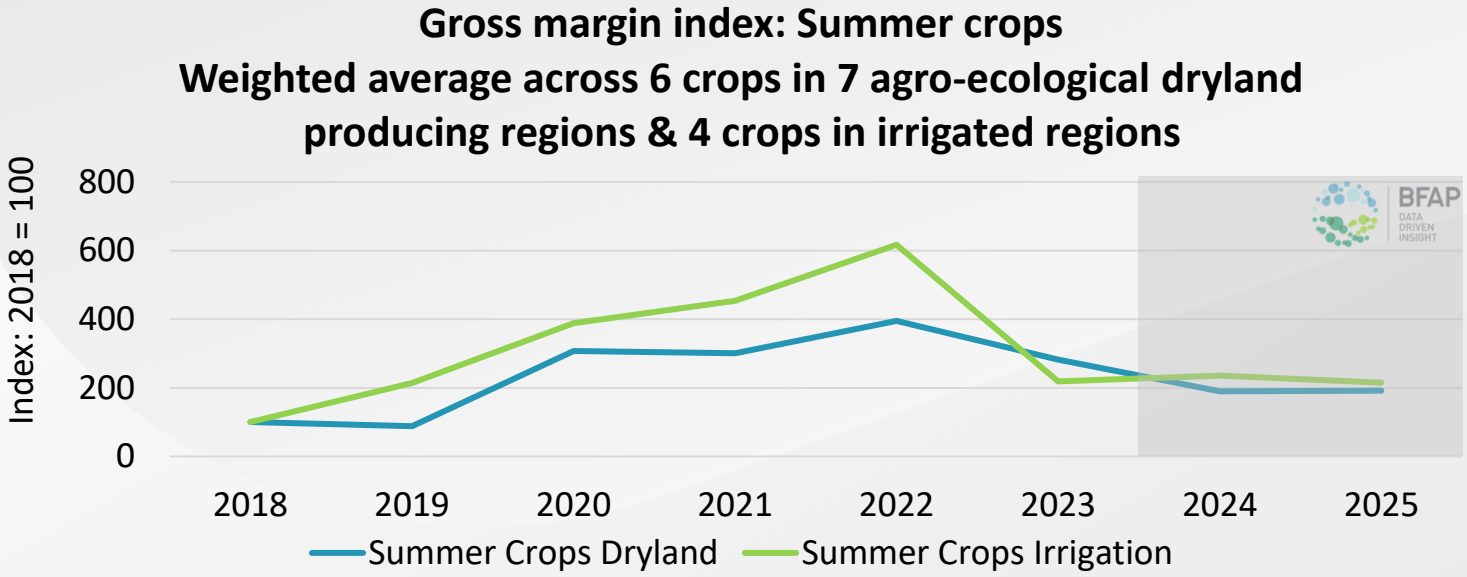
Total GPV in 2023 for listed crops amounted R95.3b, 37% higher than 2019-2022 levels

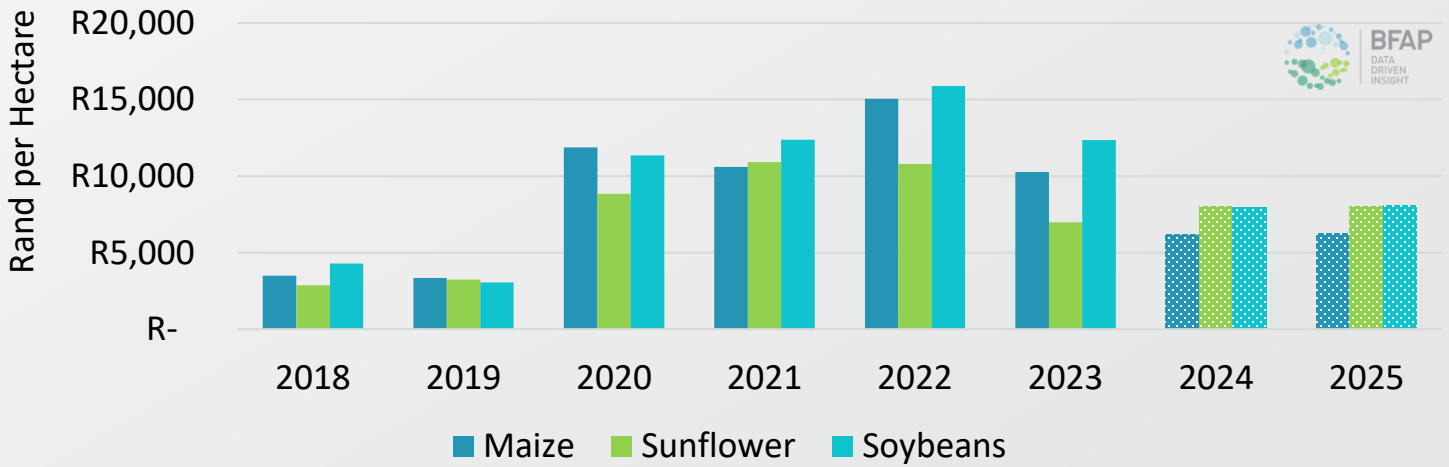


- Gross production value (GPV): Total area of summer crops multiplied by national average yield multiplied by SAFEX price (no costs deducted).
- Total GPV in 2023 for maize, soybeans, sunflower & sorghum amounted R95.3b, an increase of R26b (37%) from 2019-2022 levels.
- GPV in 2024 projected to decline by 12% due to lower commodity prices and yields shifting back to trend.
- Maize projected to decline by 11% / R6.7b from 2023 to 2024.
- Soybean & sunflower GPV projected to decline by 19% and 6% respectively from 2023 to 2024.

Farm-level Profitability: Gross Margins

Dryland & irrigated gross margin index & average by crop type: 2018 - 2025





Gross Margin Approach:

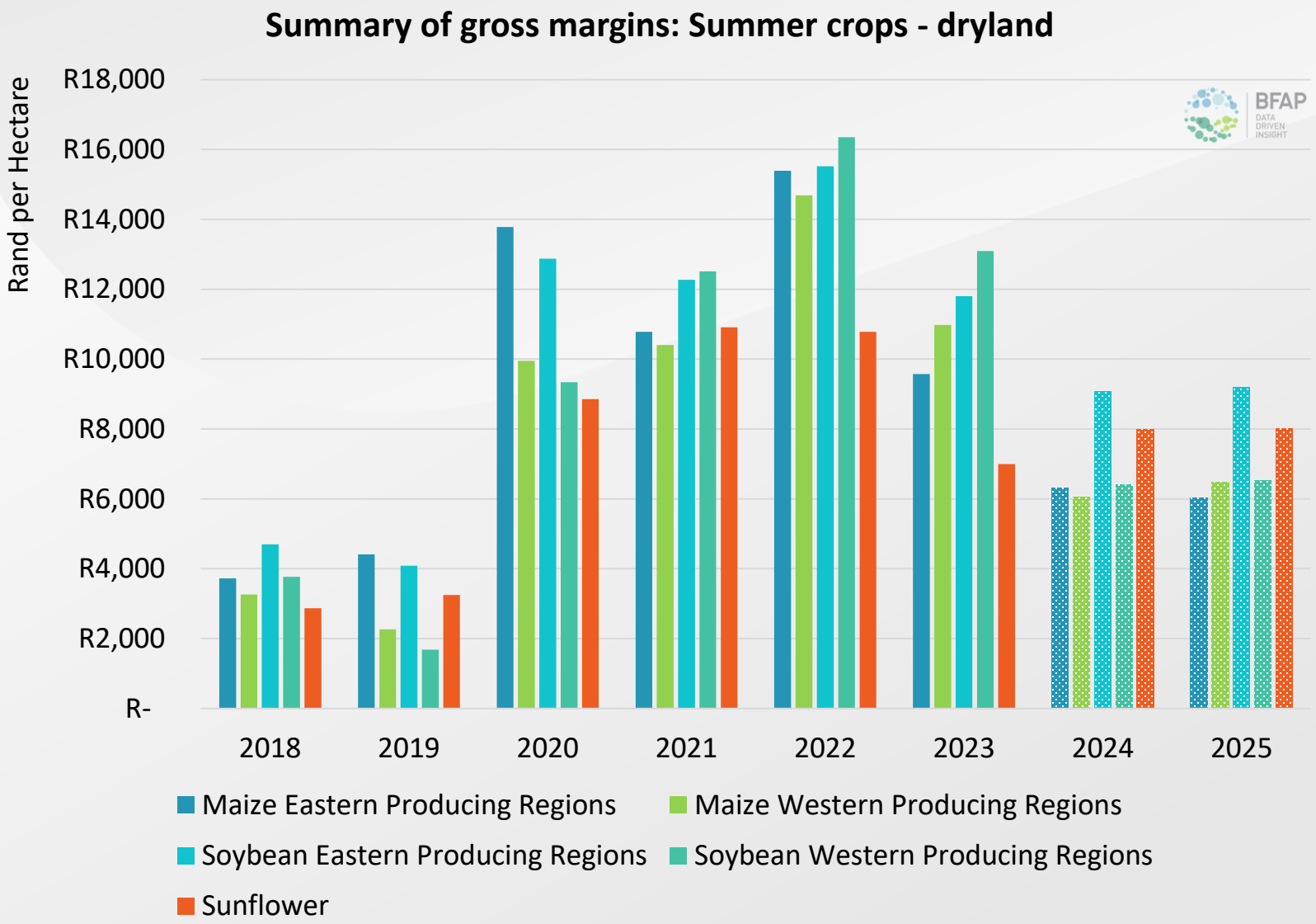
- Gross margins account for all direct expenditure & illustrate the remaining available cash to cover overhead expenditure & owner remuneration
- 2018-2022: Actual yield & price accounted for
- 2023: estimates are based on preliminary updates on yield performance during the 2022/23 harvesting season & year-to-date commodity price trends
- 2024 & 2025 projections are based on trend yields, simulated commodity prices & cost inflation indices

Gross Margin Analysis:

- Relative to 2023, dryland gross margins are projected to decline slightly for the projected 2023/24 production season, while irrigation gross margins are expected to increase slightly (assuming trend yields and higher input costs).
- In 2024 and 2025, summer irrigated crops are expected to outperform dryland crops, as in 2018 to 2022.
- Oilseeds are projected to outperform maize in 2024 & 2025.
- Maize and soybean gross margins are expected to decline by 27% and 28% respectively, while sunflower gross margins are expected to increase by 9%, given the yield, cost and price assumptions.
- Margins are expected to be lower than the gross margins in 2020 to 2023, but higher than 2018 and 2019. Uncertainty remains regarding the forecasted El Nino and its effect on yields.
- It is important to note that the presented gross margins will differ/vary significantly based on the timing when producers have purchased agricultural inputs (fertilisers, fuel & chemicals)

Farm-level Profitability: Gross Margins

Regional: Dryland producing regions: 2018 - 2025



- The figure illustrates the historical and projected average summer dryland gross margins, assuming trend yields and normal rainfall.
- All gross margins (except for sunflower) are expected to decrease in the two coming seasons due to lower crop prices.
- For the 2023/24 production season dryland gross margins are expected to change as follows:
  - Maize in the Eastern Production Region: -34%
  - Maize in the Western Production Region: -45%
  - Soybeans in the Eastern Production Region: -23%
  - Soybeans in the Western Production Region: -51%
  - Sunflower: 14%
- Maize and soybean gross margins in the western production region are expected to decrease more than the gross margins in the eastern production region.
- Lower projected prices and yields moving back to longer-term trends are underpinning lower projected margins in 2024.

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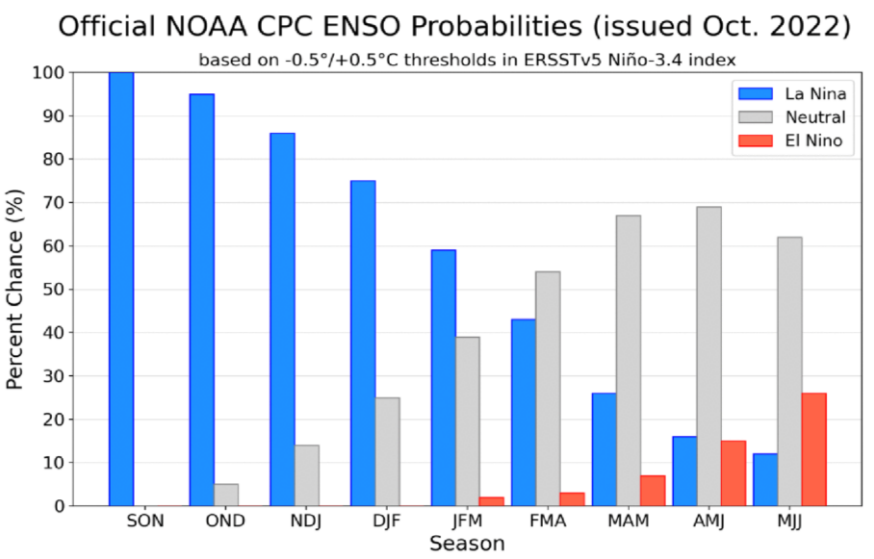
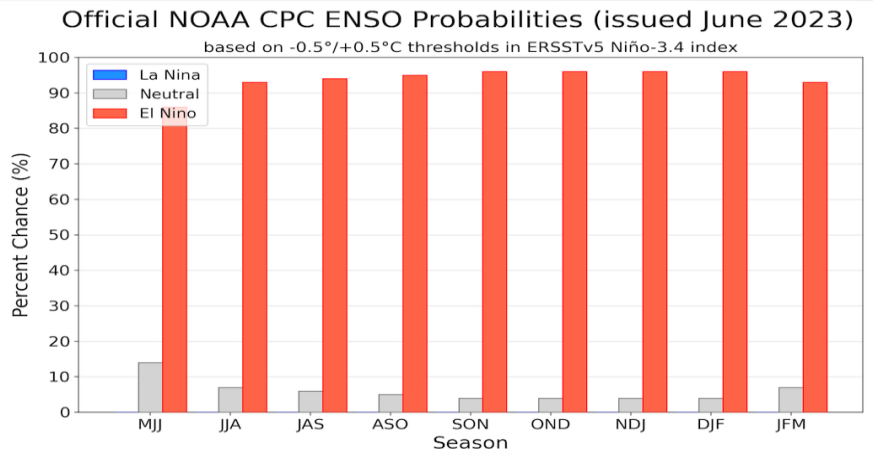
Weather Volatility

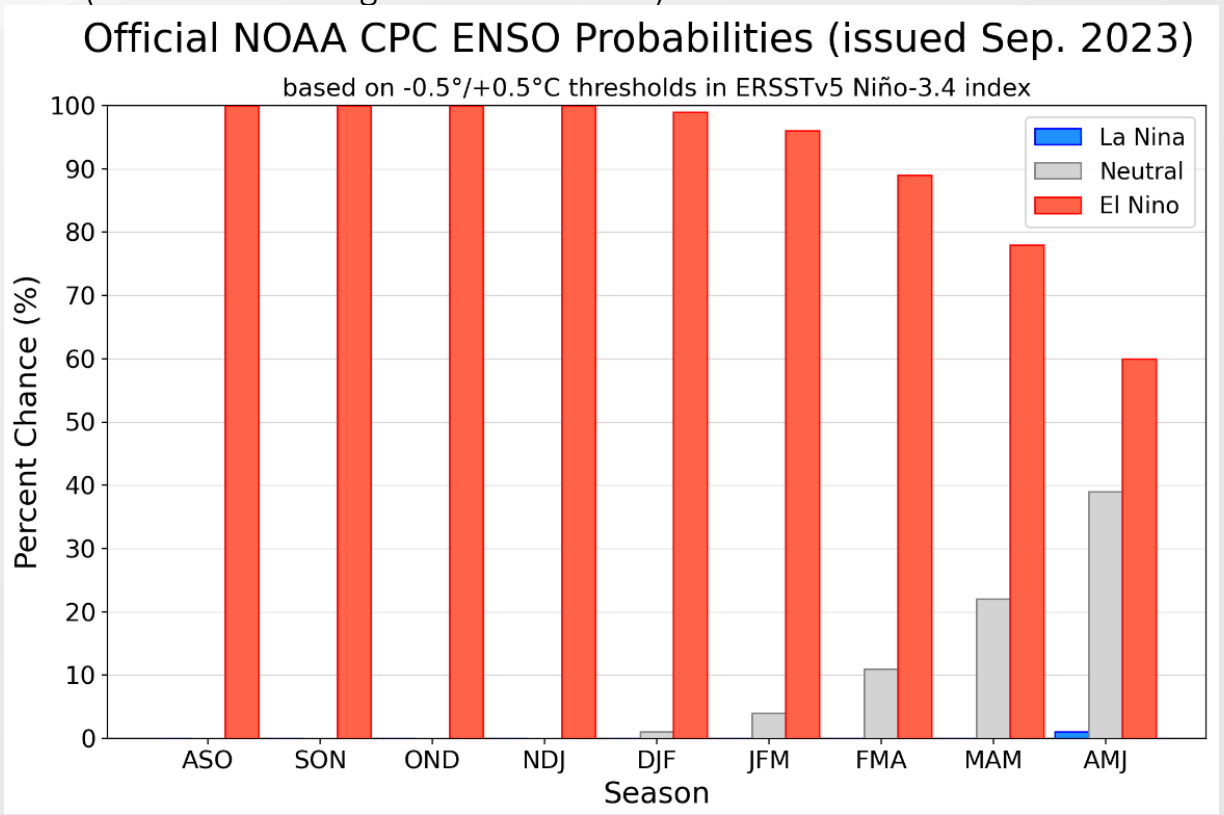
El-Nino Probability: September 2023 ENSO update:

El-Nino to continue throughout summer season with rising neutral probability starting in February 2024





- El Niño is favoured through Northern Hemisphere winter 2023-24, with chances exceeding 95% through January-March 2024
- Equatorial sea surface temperatures (SSTs) are above average across the central and eastern Pacific Ocean. The tropical Pacific atmospheric anomalies are consistent with El Niño.
- The majority of models indicate El Niño will persist through the Northern Hemisphere spring 2024.
- At its peak (November January), nearly all models suggest a moderate to strong El Niño (ONI values at or greater than 1.0ºC).



NOAA Climate, September 2023

El-Nino Intensity: Comparing 2015, 2016 and 2023 Sep predictions

Latest prediction similar to 2015/16 June prediction

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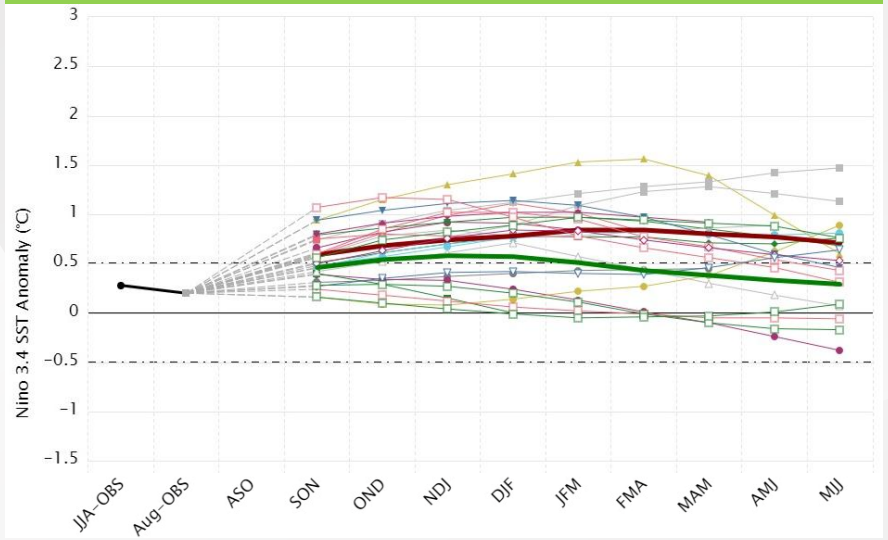
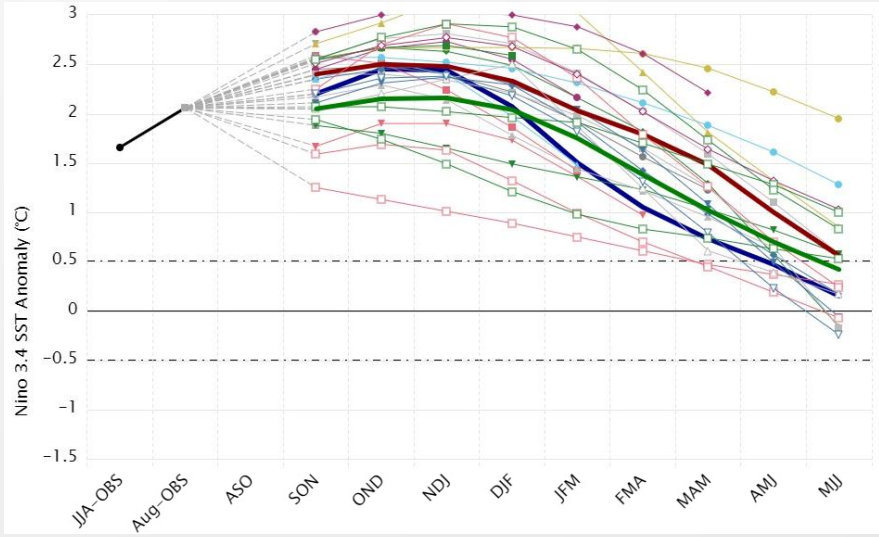
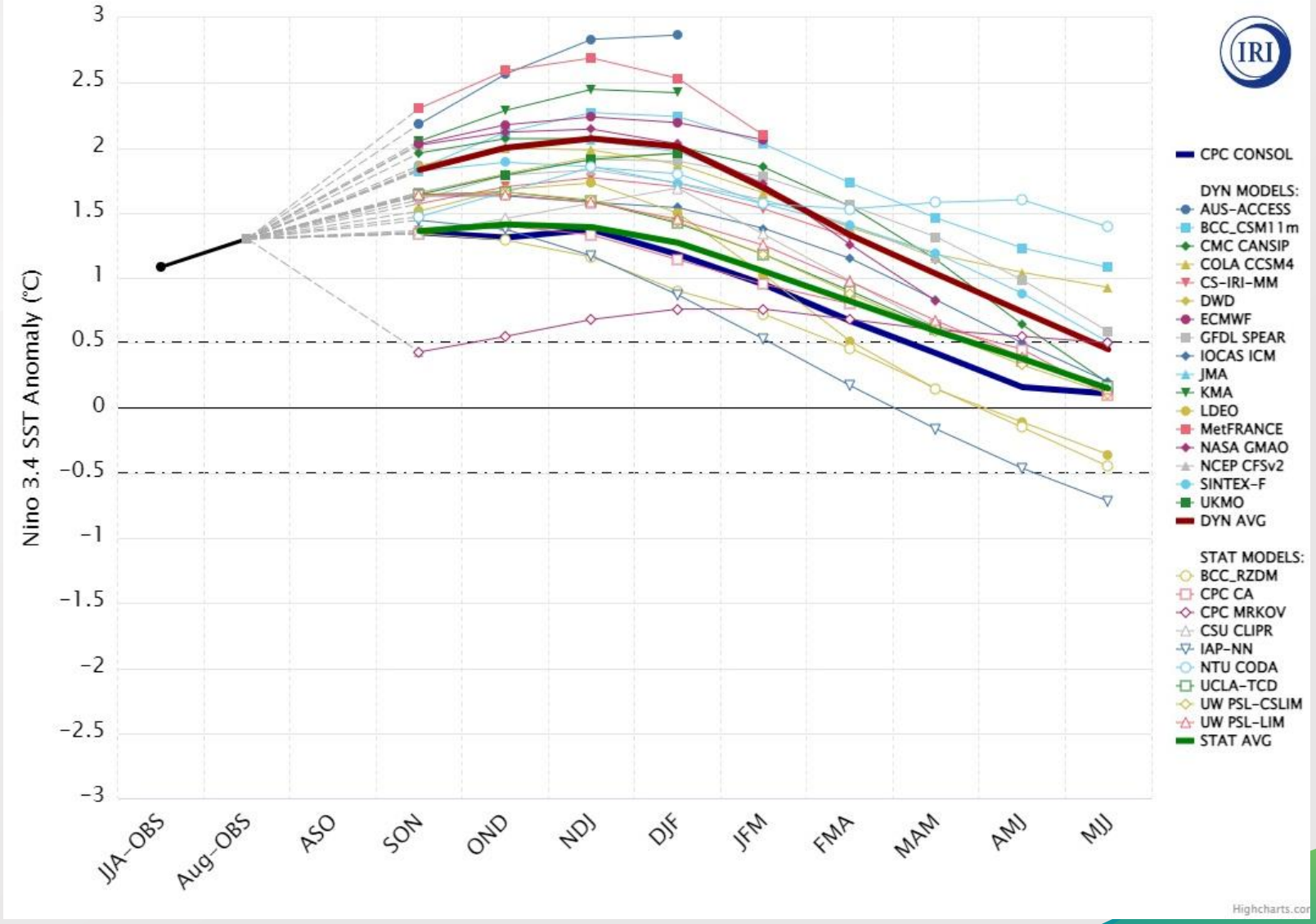
Model Prediction of ENSO from September 2014



Model Prediction of ENSO from September 2015

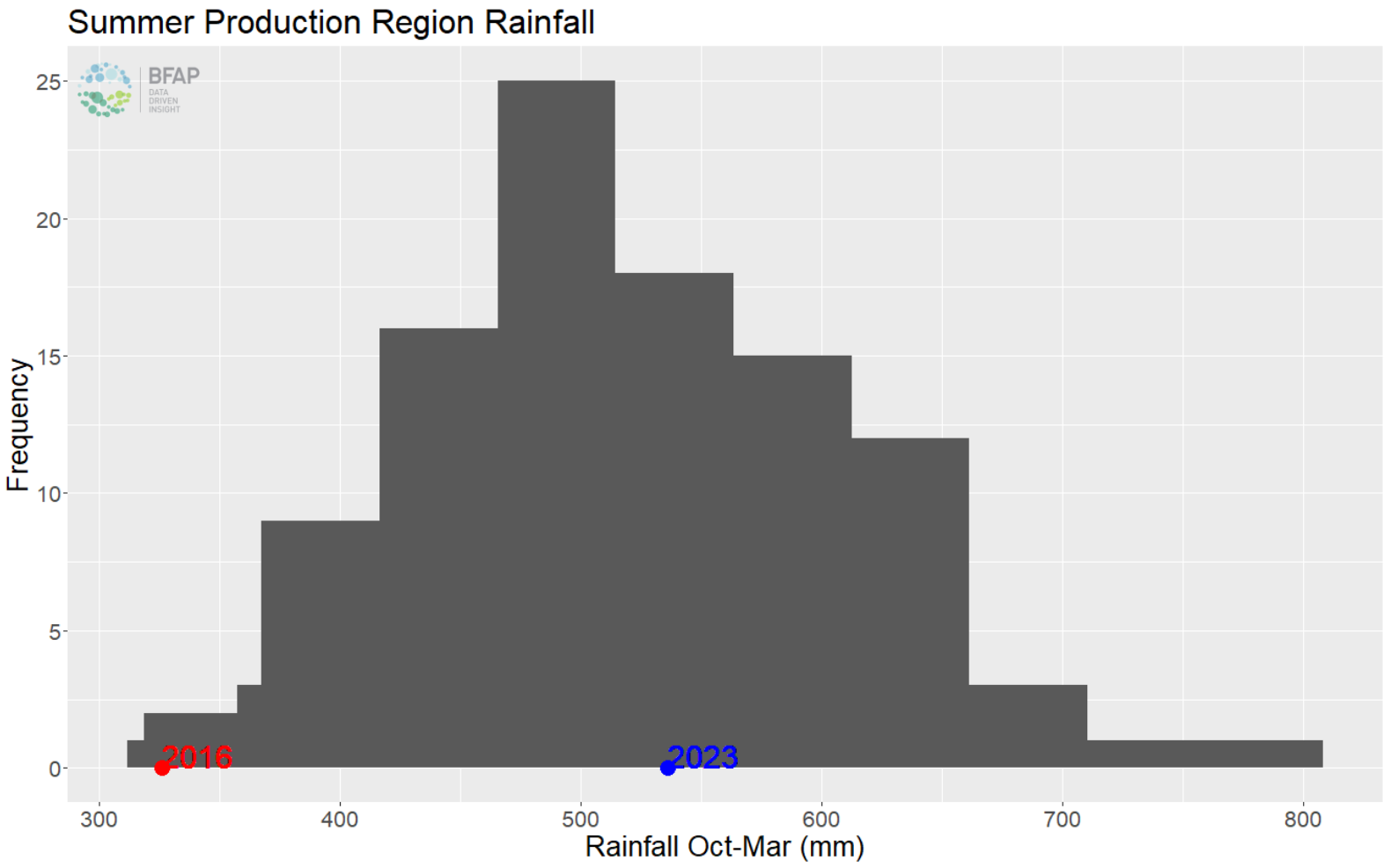


Model Prediction of ENSO from September 2023



Long term summer rainfall analysis (Oct – Mar)

Overall mean of 518mm per annum with large variations in the last 10 years.

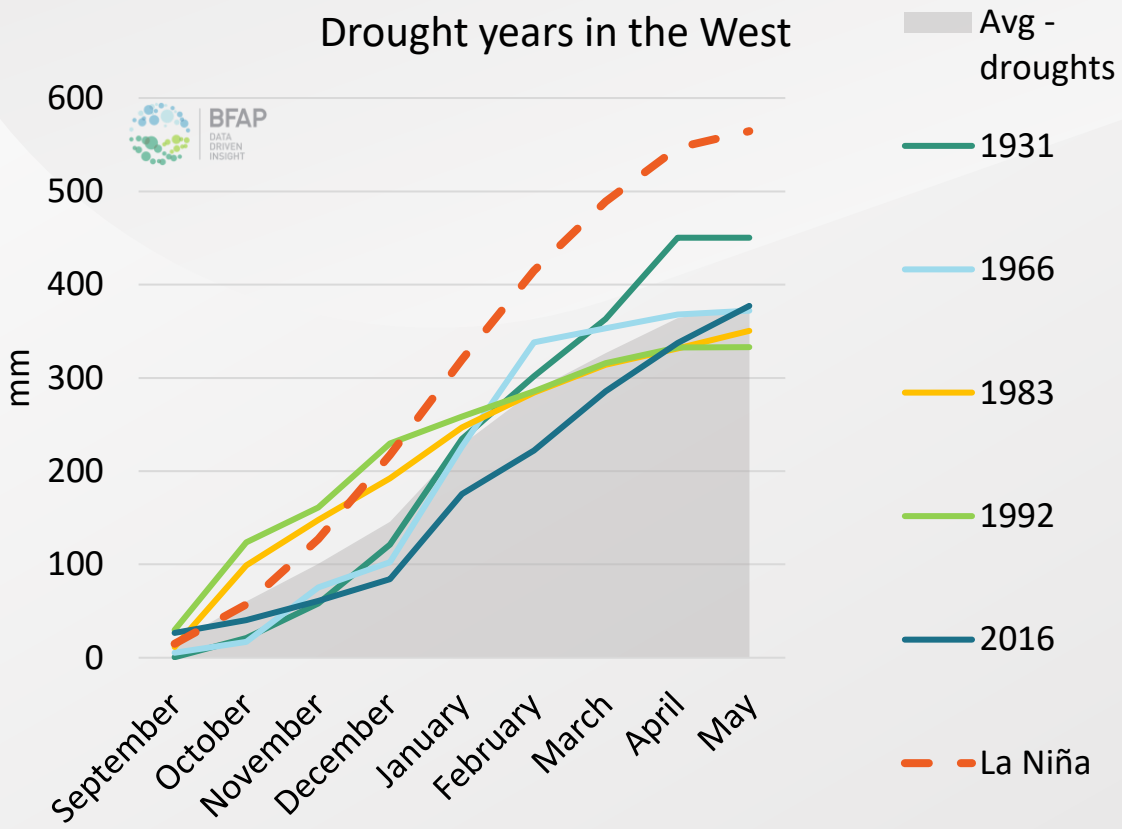


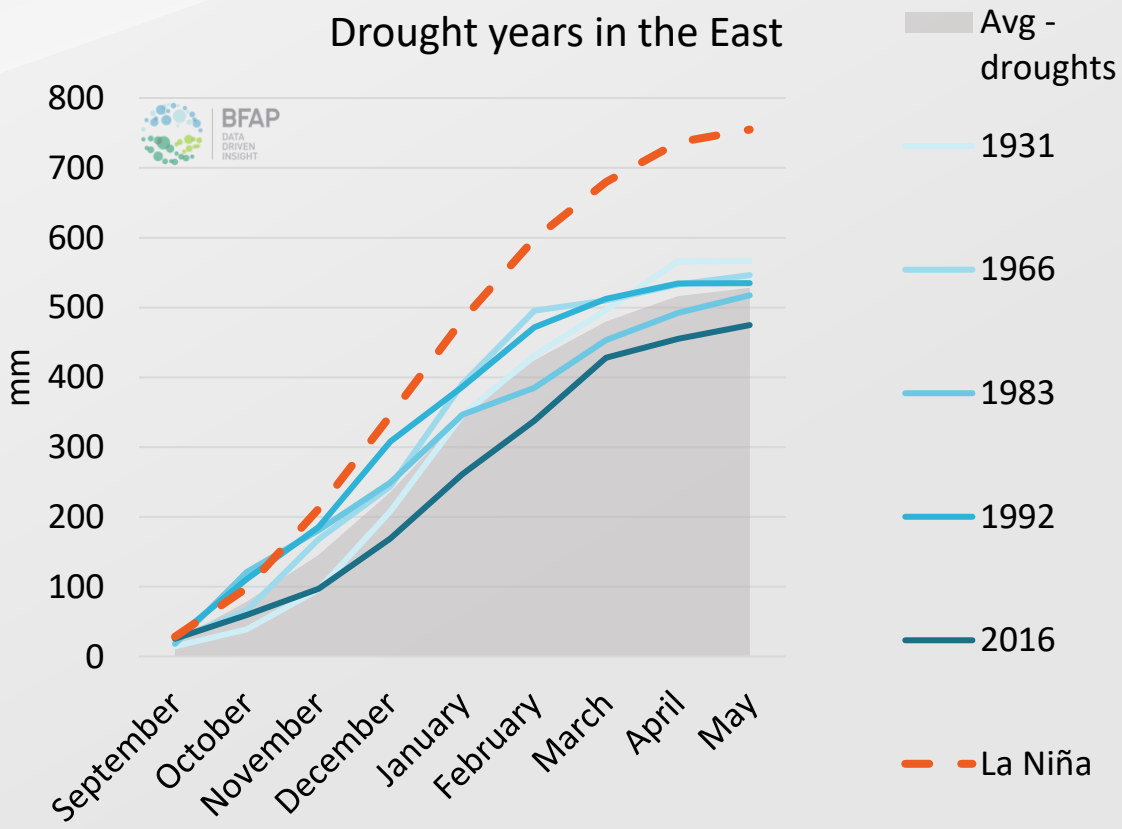
- While 2023 was classified as a La Nina year, the total rainfall for the summer production region was 536mm. That is only 3.5% above the long-term average.
- Total rainfall in the 2016 El Nino year was only 326mm, 37% below the long-term average.

Source: BFAP & WeatherSA

Cumulative rainfall – West more volatile

- The average rainfall in drought years is just below 400mm
- The monthly distribution of rain is more volatile in the West than in the East
- In 2016, the rainfall lagged until December
- In 1983 and 1992 South Africa had a wet early season, followed by a drought



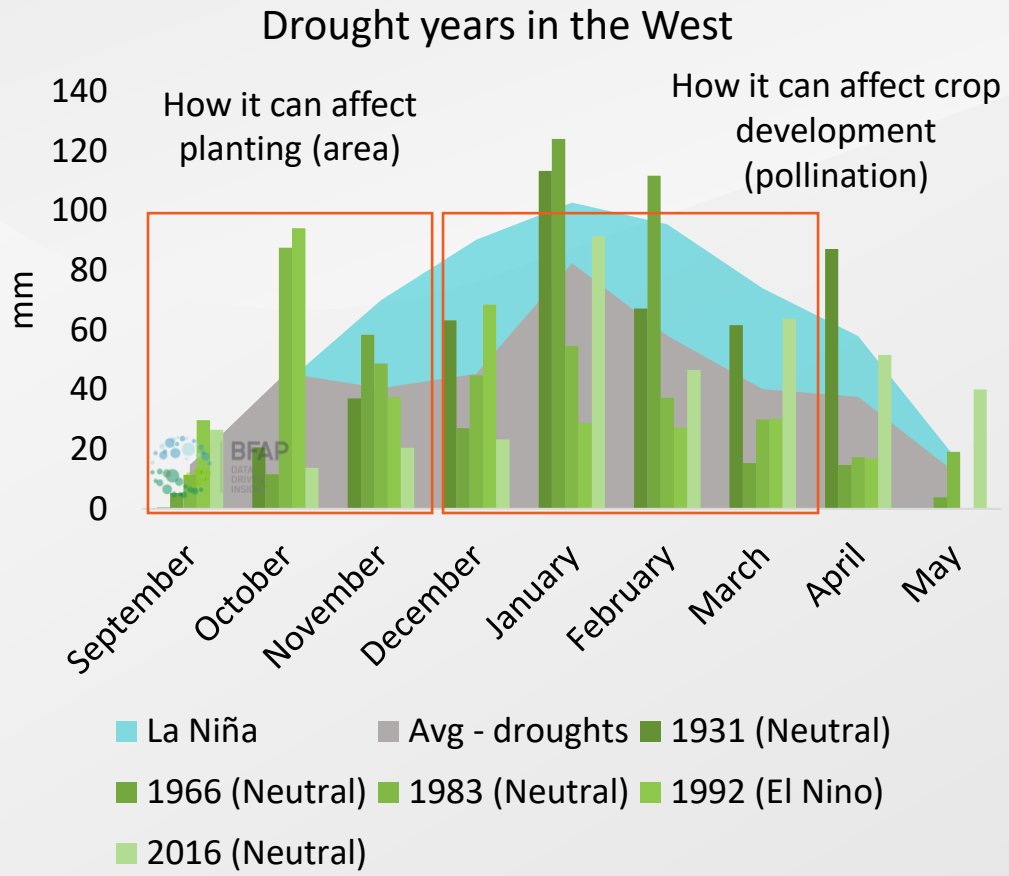


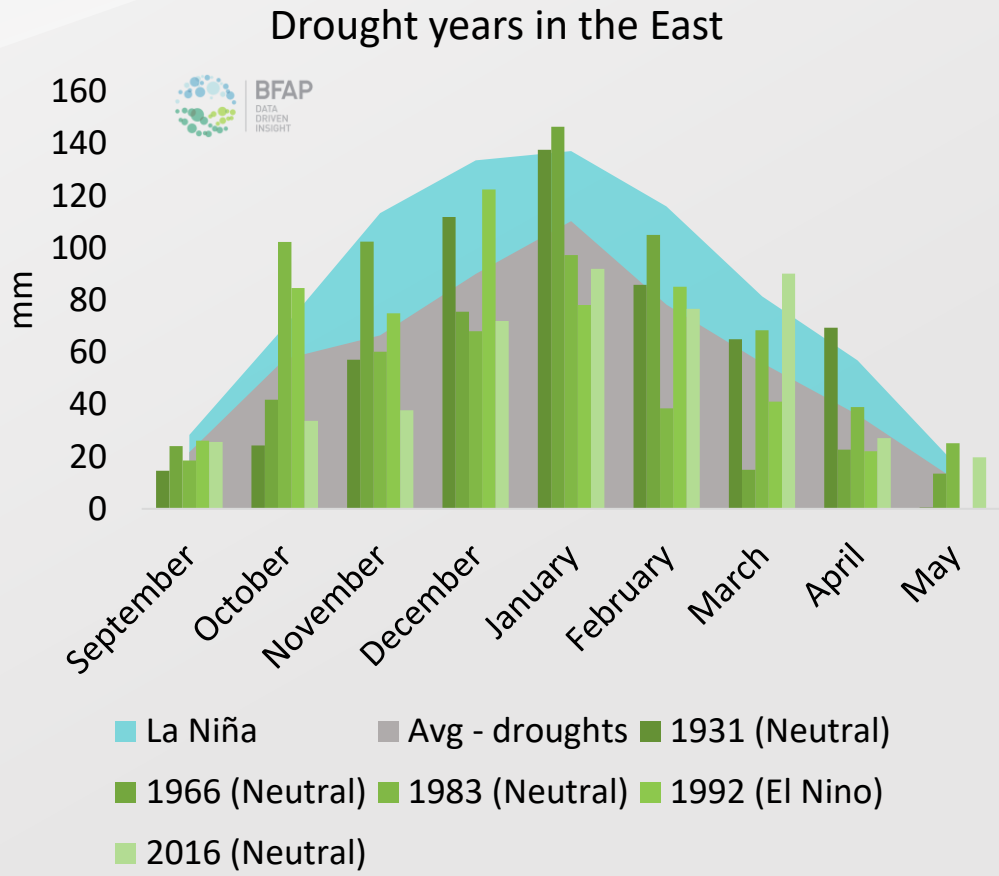
Source: BFAP & WeatherSA

Cumulative rainfall – West more volatile

Comparing previous droughts:

- In some of the drought years, October was wetter than even in La Nina years
- November & December were generally drier
- The remainder of the season has mixed results



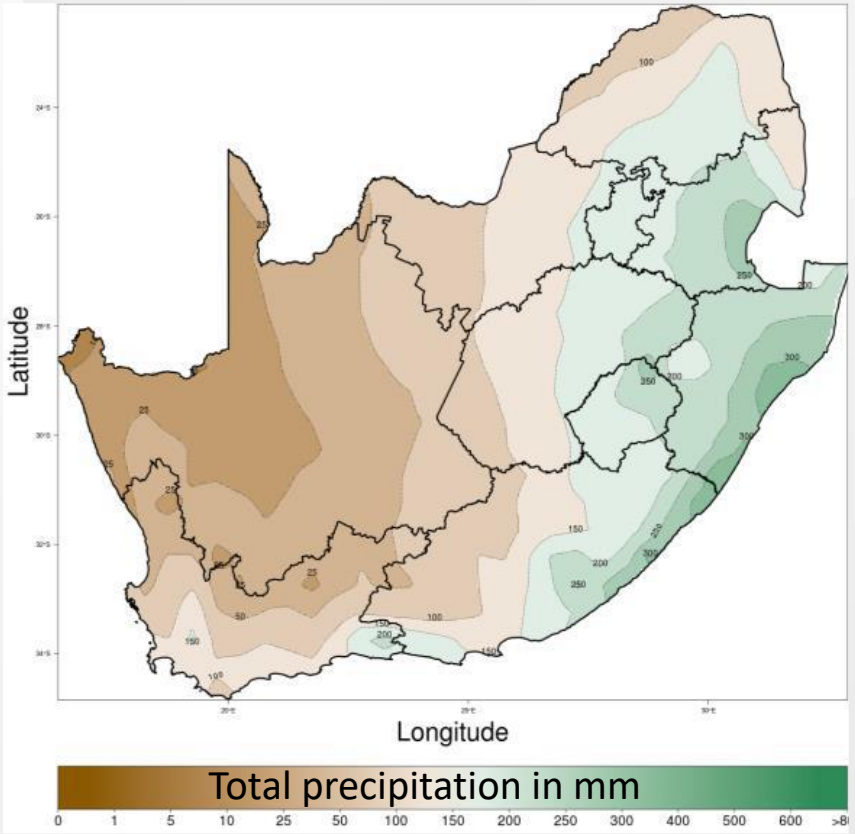


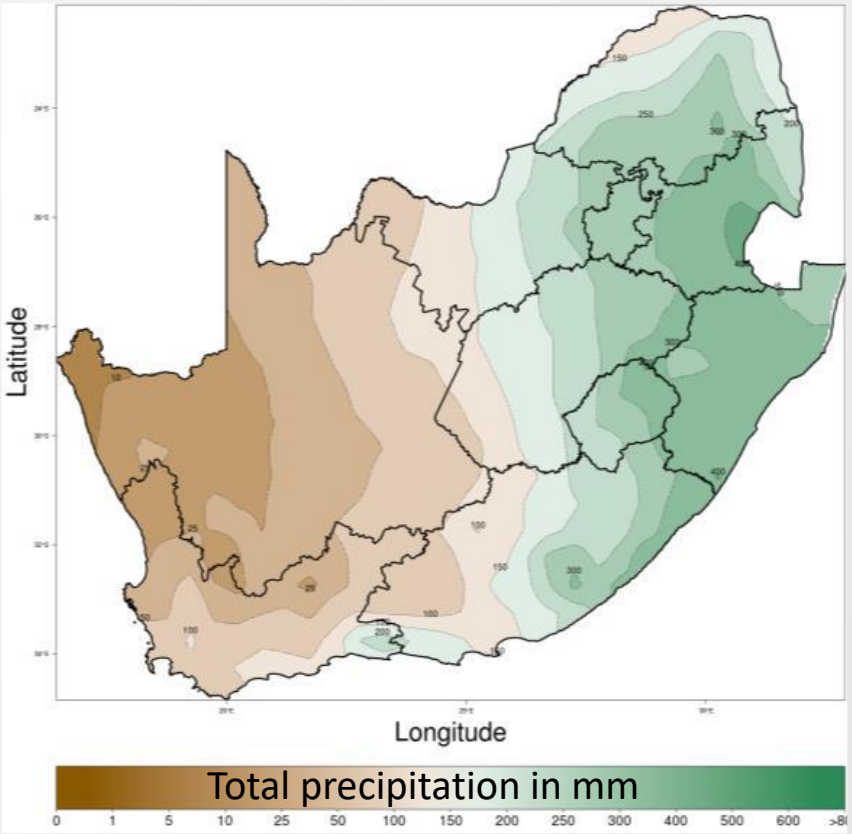
Source: BFAP & WeatherSA

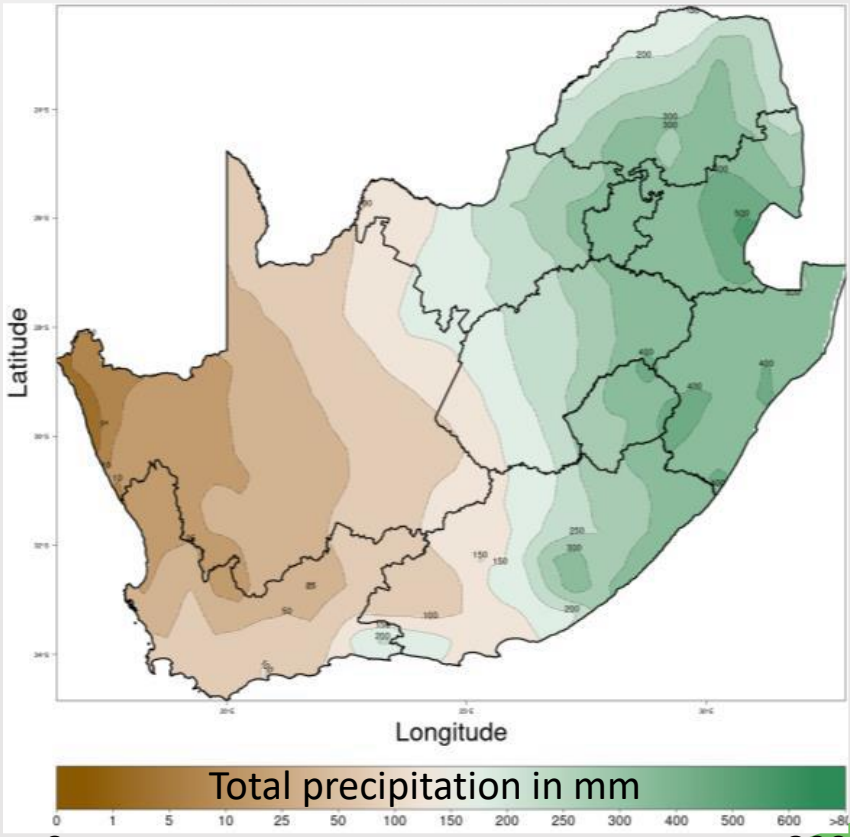
Weather SA seasonal forecast: September 2023 – January 2024

Above normal / wet conditions projected for most of Western- & Southern Cape; rest of country drier

September -**October**- November 2023	October -**November** December 2023	November -**December**- January 2024





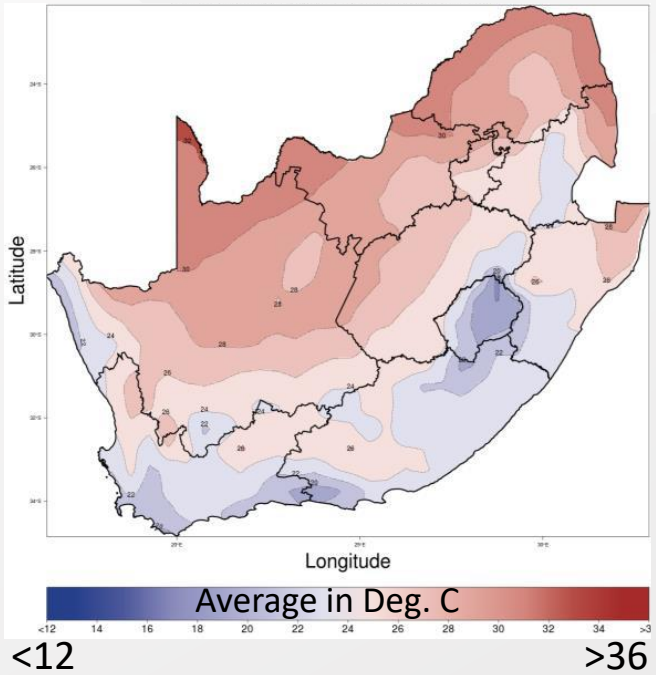


Weather SA seasonal forecast: June 2023 – October 2023

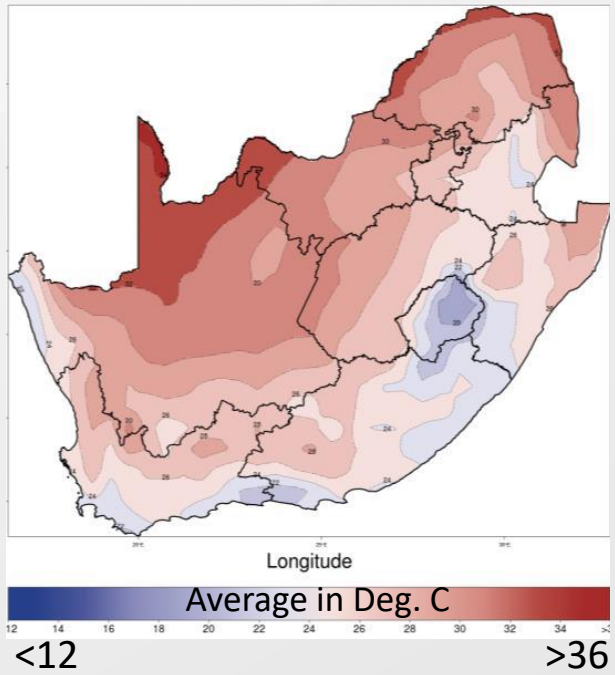
Minimum and maximum temperatures are expected to be mostly above-normal countrywide for the forecast period.

Maximum Temperatures

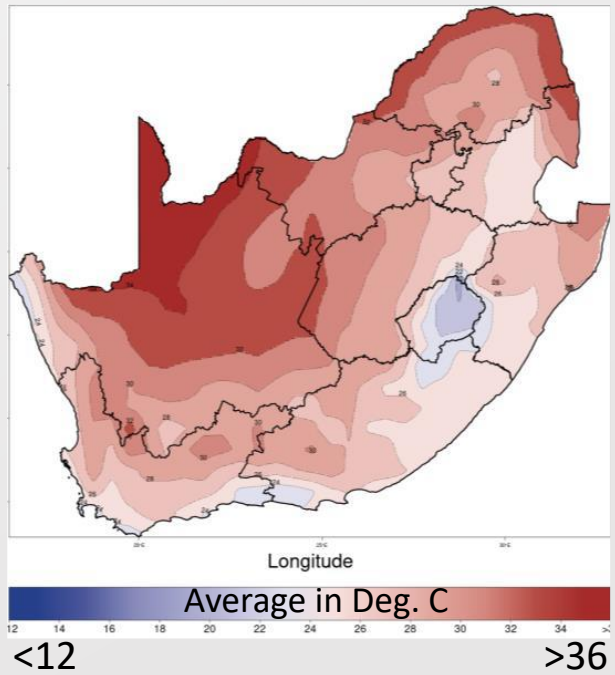
September -October- November 2023



October -November- December 2023

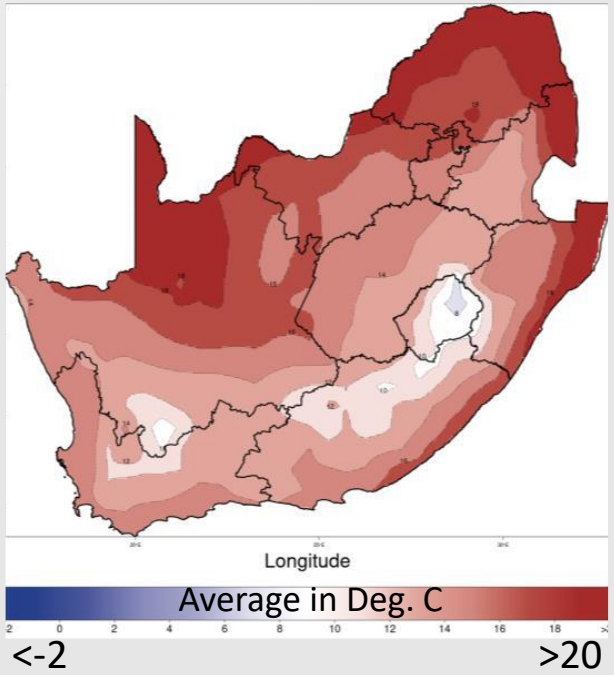


November -December- January 2024



Minimum Temperatures

November -December- January 2024



North West – BFAP Prototype farm overview & assumptions

Three representative regions: Low / marginal to normal potential to high

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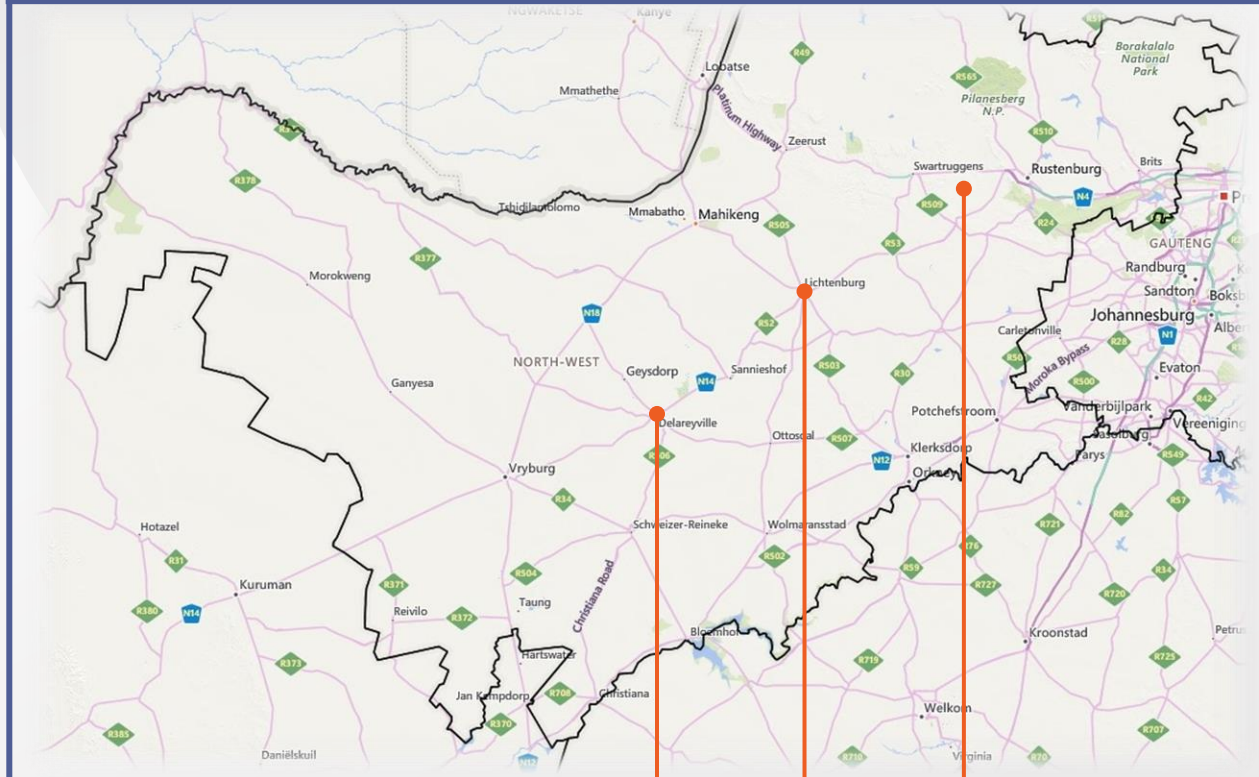
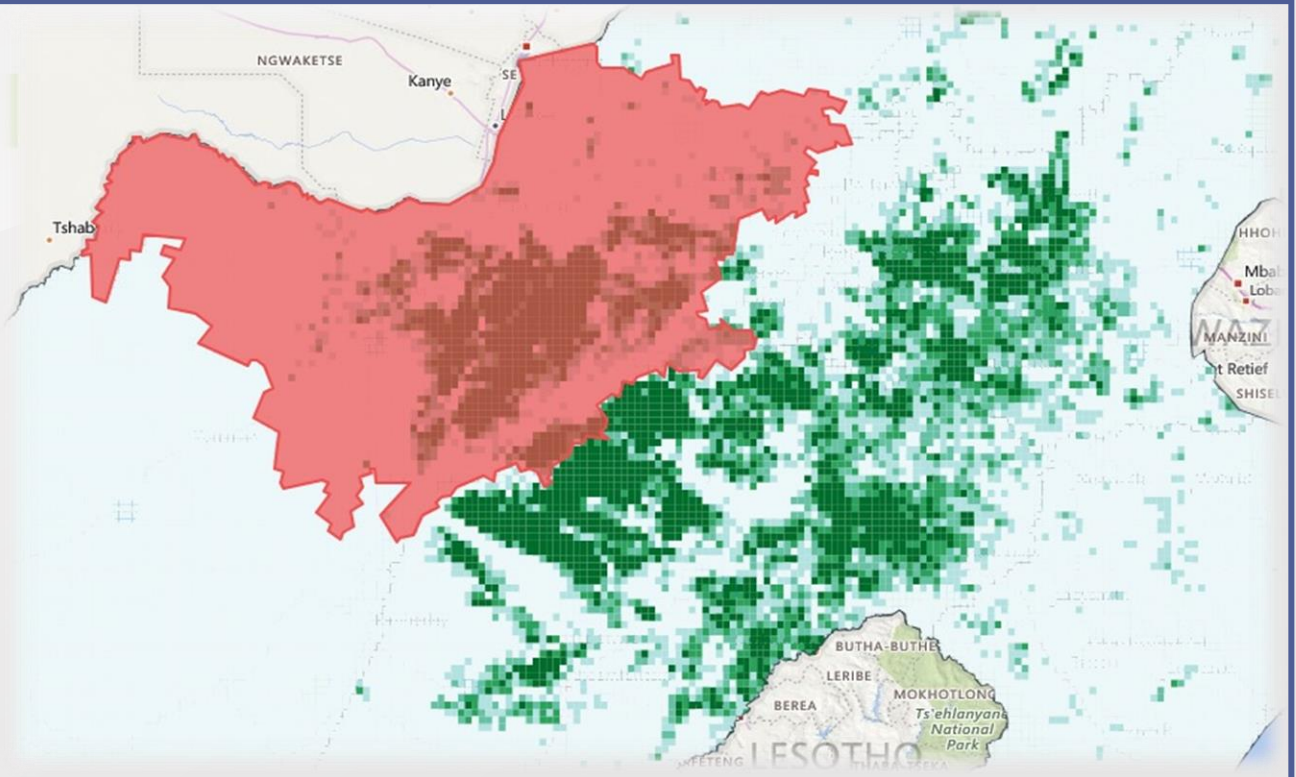
Prototype farm composition



Overview of dryland maize production



North West low / marginal: Western regions

- Maize yields: Normal to high vary between 4.4 – 5.4 t/ha
- Sunflower yields: Normal to high vary between 1.5 – 1.7 t/ha
- Farm size assumption: 1200 hectares of arable land

North West higher potential: Koster Highland:

- Maize yields: Normal to high vary between 5.1 – 6.3 t/ha
- Sunflower yields: Normal to high vary between 1.7 – 2.0 t/ha
- Farm size assumption: 1200 hectares of arable land

North West normal potential: Lichtenburg surroundings:

- Maize yields: Normal to high vary between 4.7 – 5.8 t/ha
- Sunflower yields: Normal to high vary between 1.7 – 1.9 t/ha
- Farm size assumption: 1200 hectares of arable land

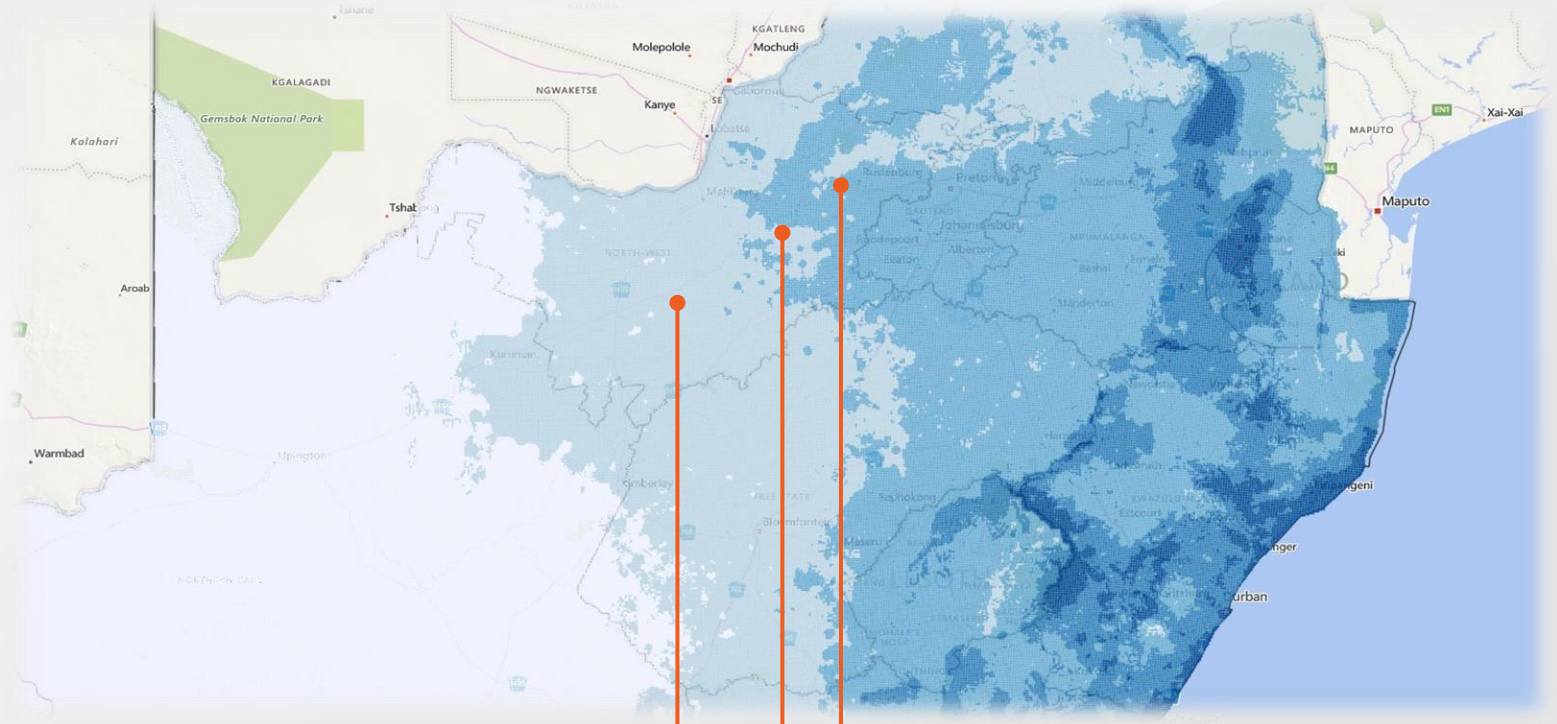
Source: Own analysis in collaboration with NWK & IVIS, 2023

North West – Prototype farm overview & assumptions

Three representative regions: Low / marginal to normal potential to high

- White: Below 300mm
- Light blue: between 300-550mm
- Darker blue above 550mm

Typical annual rainfall



North West low / marginal: Western regions

North West higher potential: Koster Highland

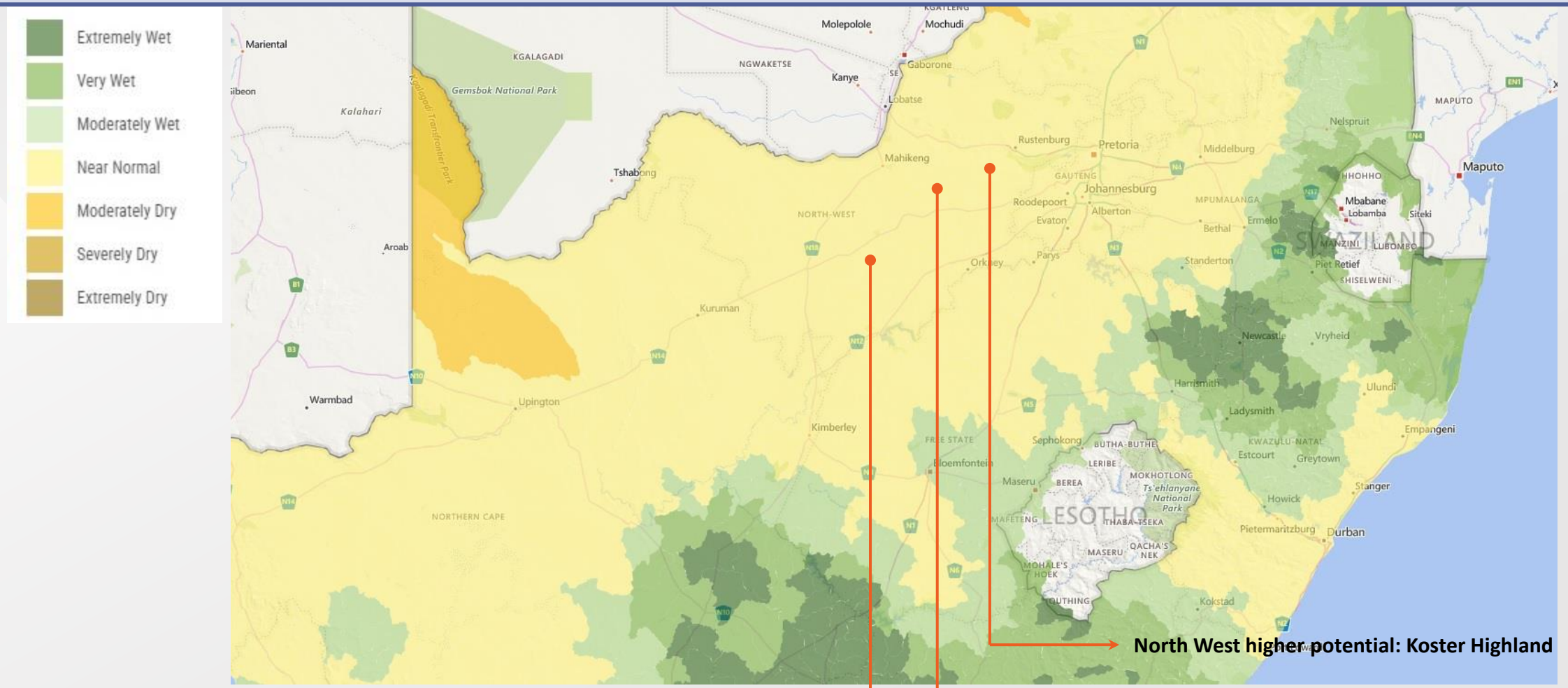
North West normal potential: Lichtenburg region

Source: IVIS, 2023

North West – Prototype farm overview & assumptions

Three representative regions: Low / marginal to normal potential to high

12-month SPI (Standard Precipitation Index)



Source: IVIS, 2023

North West – BFAP Farm Financial Simulation Models

Whole-farm approach: Enterprise performance + overhead structure

- Enterprise specifics: Area, yield, price & direct costs (maize, sunflower & fallow)

- Overhead inclusion:
  - Non-allocatable costs (labour, management, electricity, bank etc.)
  - Assets / liabilities
  - Asset replacement

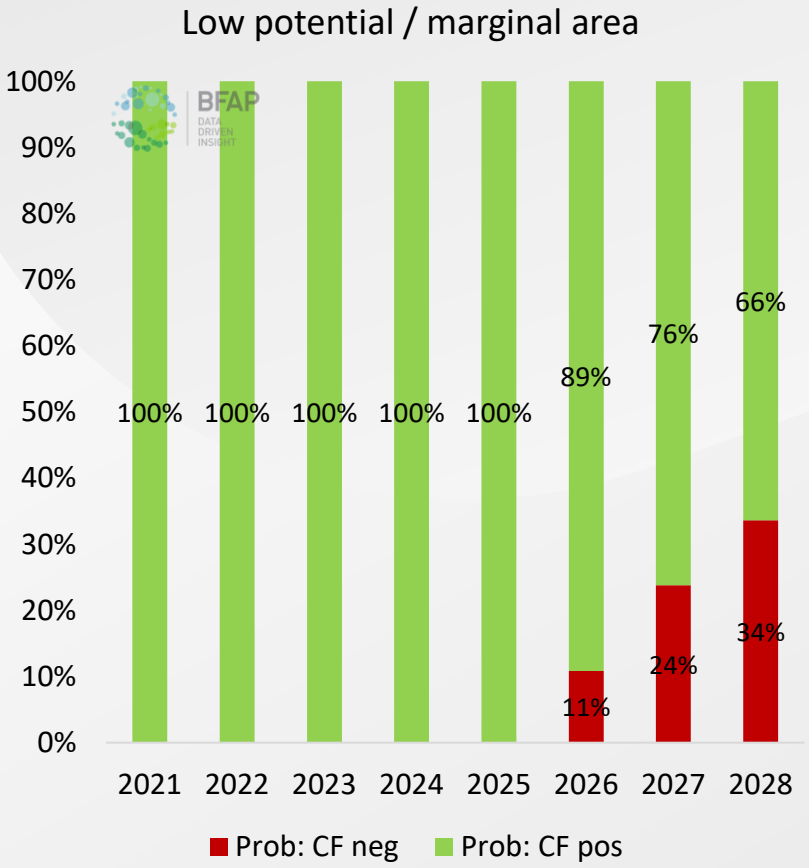
- Simulation results:
  - Farm gross margin
  - Net farm income (accounting for depreciation)
  - Cash flow
  - Return to family living

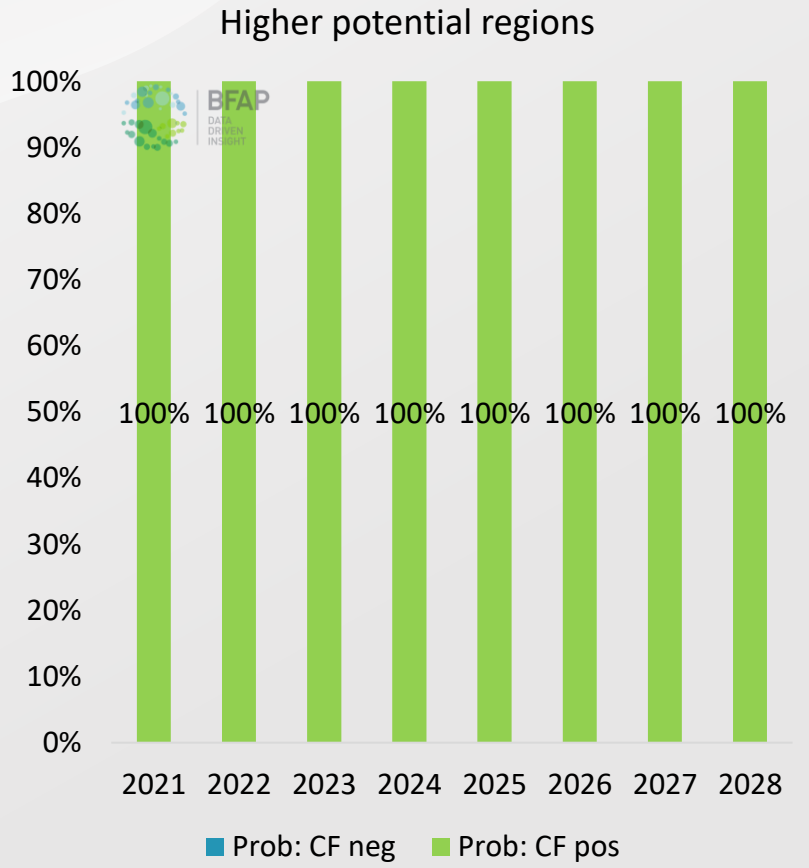
- Risk:
  - Stochastic modelling (accounting for past variation in yield, price & costs)
  - Model is simulated 500 times (500 different outcomes / combination)

- Type of questions:
  - Net farm income: Minimum, average & maximum simulated outcomes
  - Probability of generating a positive cash flow

North West – Cashflow simulation & probability outcomes

Generally favourable – Key assumption: Surpluses from 2021 – 2023 reinvested in farm





Context on cash flow probability:

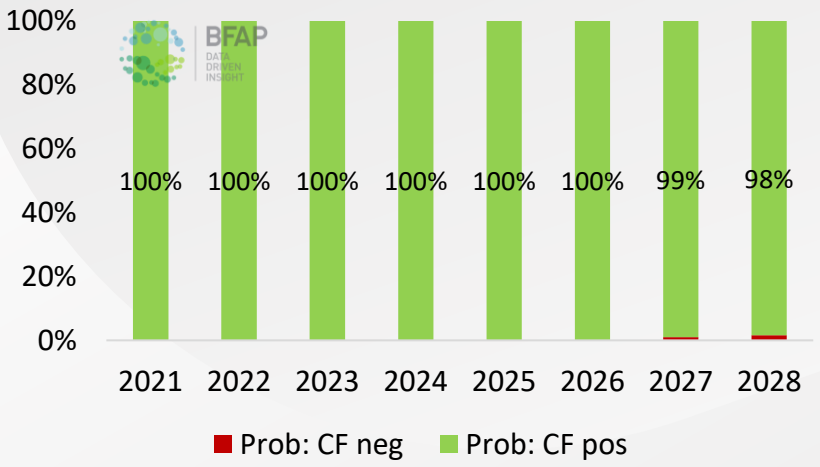
BFAP farm financial simulation models were used to introduce cash flow probabilities for coming seasons. The charts show the probability of cashflow being positive (green / above 0) & negative (red / below 0). It is key to note that the model assumes that any cash surpluses from previous years are reinvested into the farm. Cash surpluses refer to remaining cash balance after all costs, including overheads, depreciation, interest, instalments and family remuneration have been deducted.

Source: Own analysis in collaboration with NWK, 2023

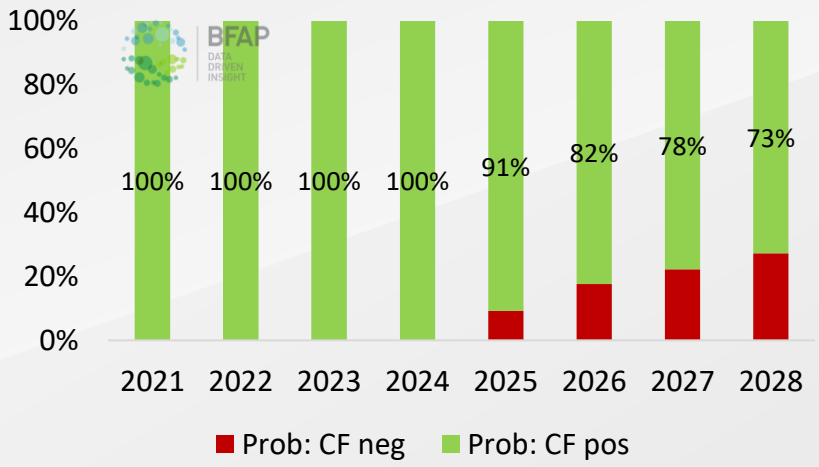
What happens if we introduce scenarios?

Outcome of cash withdrawal, asset replacement & drought

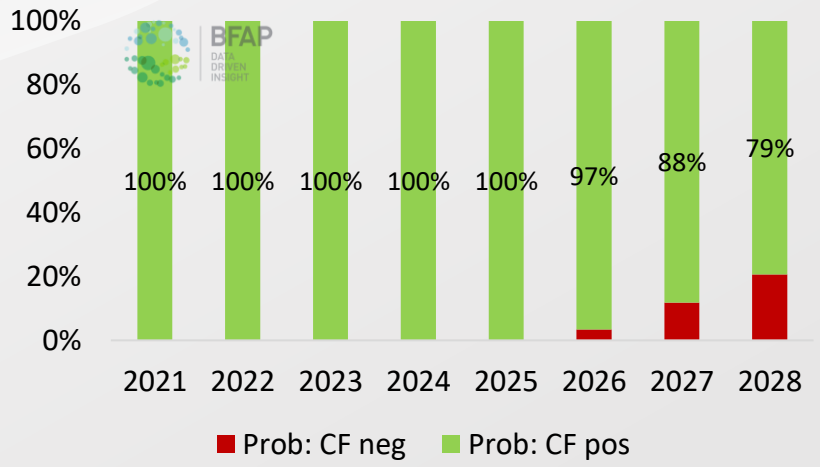
Baseline



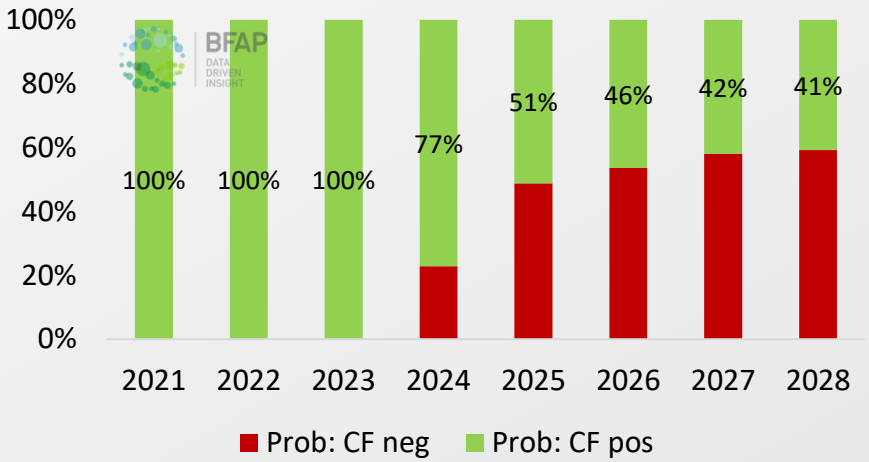
Cash surpluses from 2021 & 2022 withdrawn



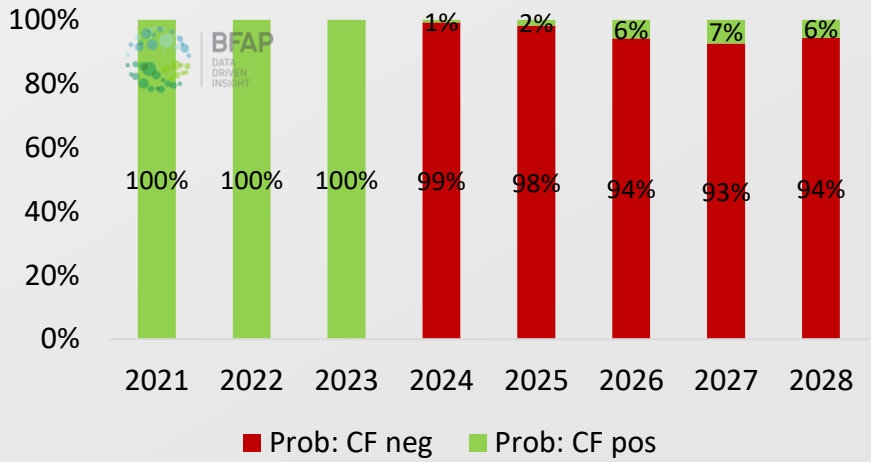
Accelerated asset replacement



2024 drought



Cash withdrawn + 2024 drought

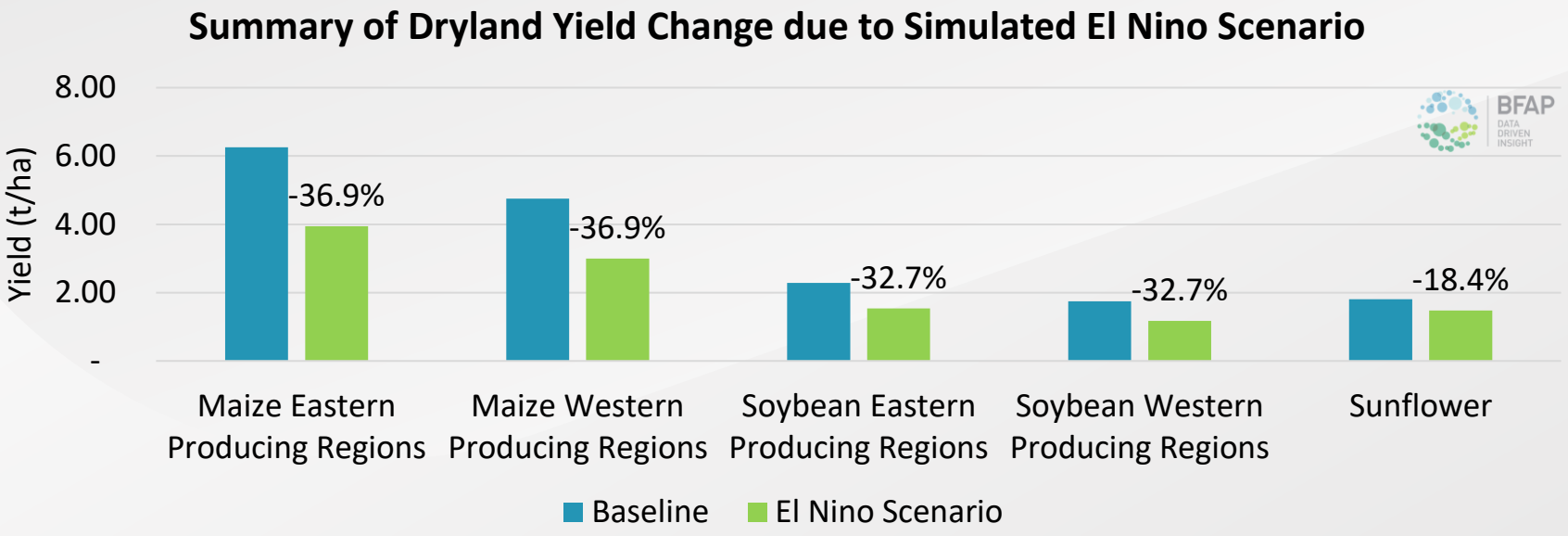


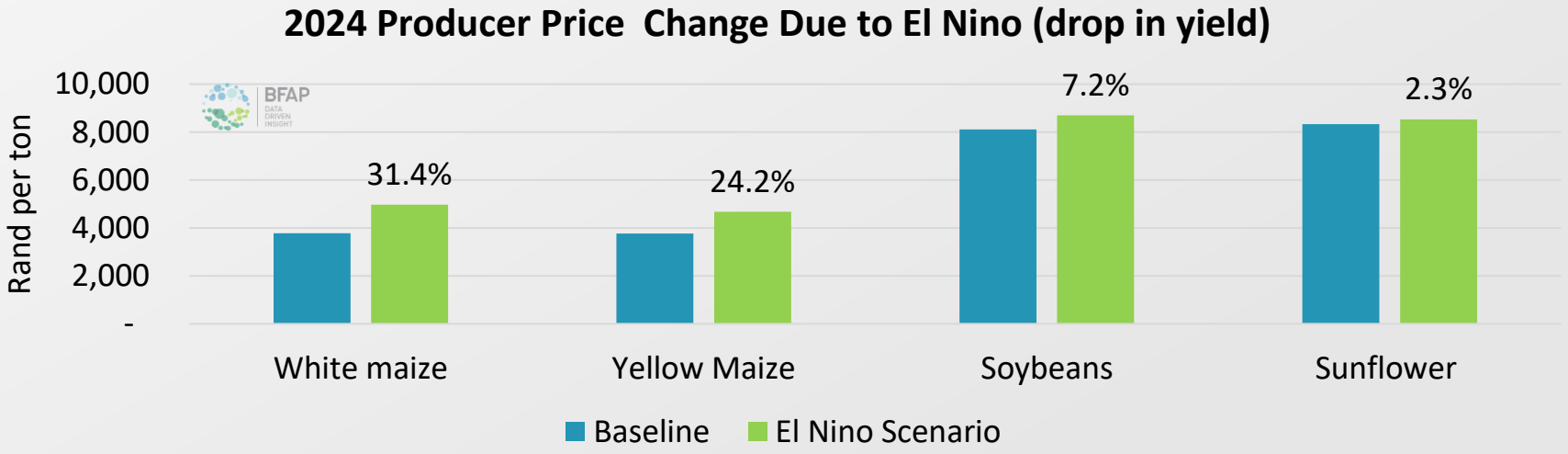
The objective of introducing scenarios is to showcase what could happen with cashflow probability & how it differs from the baseline once certain scenarios are introduced.

The scenario framework refers to the event if surpluses were not reinvested into the farm, if equipment & machinery were replaced at a faster rate, in the event of a drought and lastly, if a drought occurs and previous surpluses were not reinvested into the farm.

Source: Own analysis in collaboration with NWK, 2023

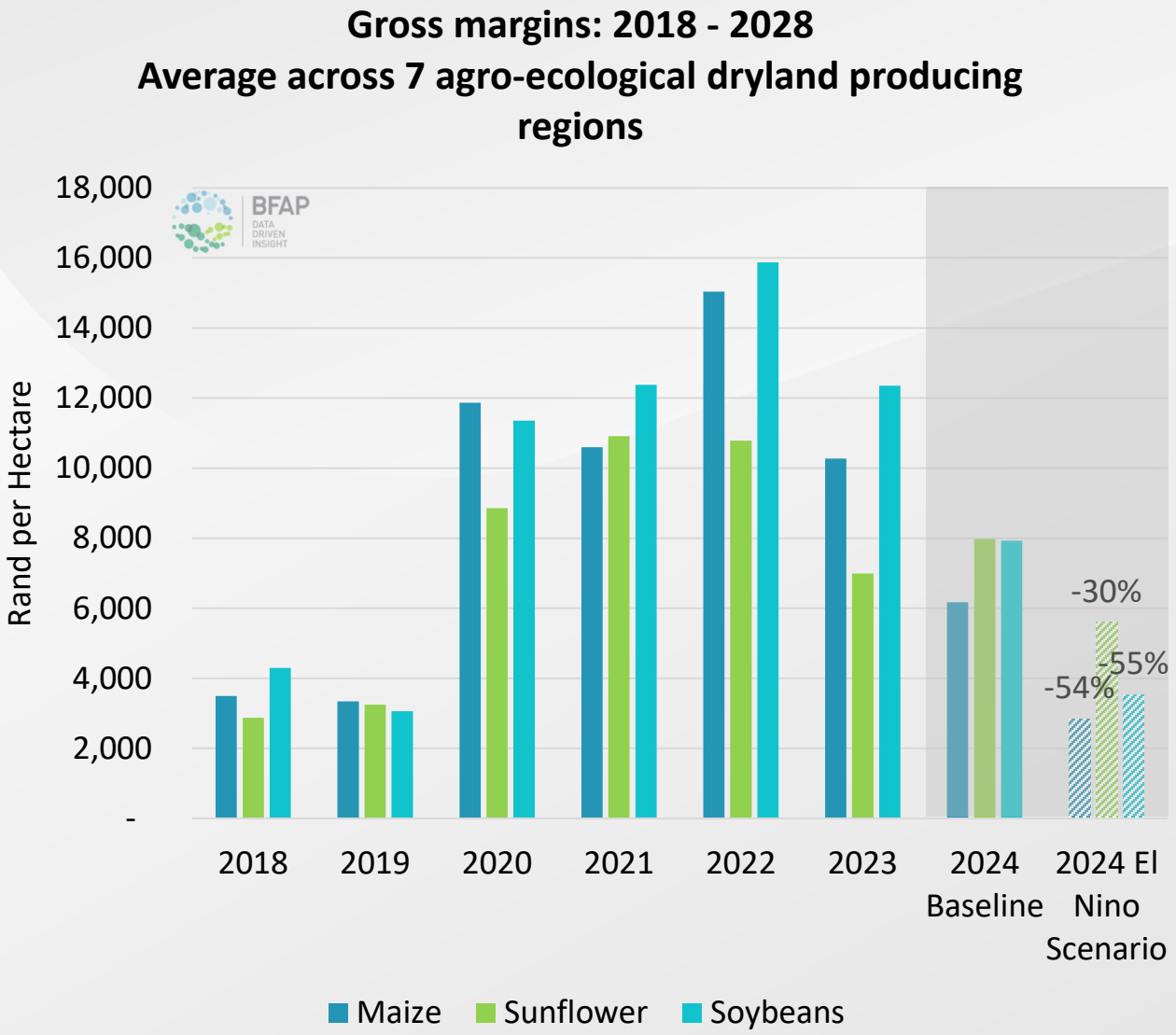
El Nino Scenario Simulation: Yield and Price Impact



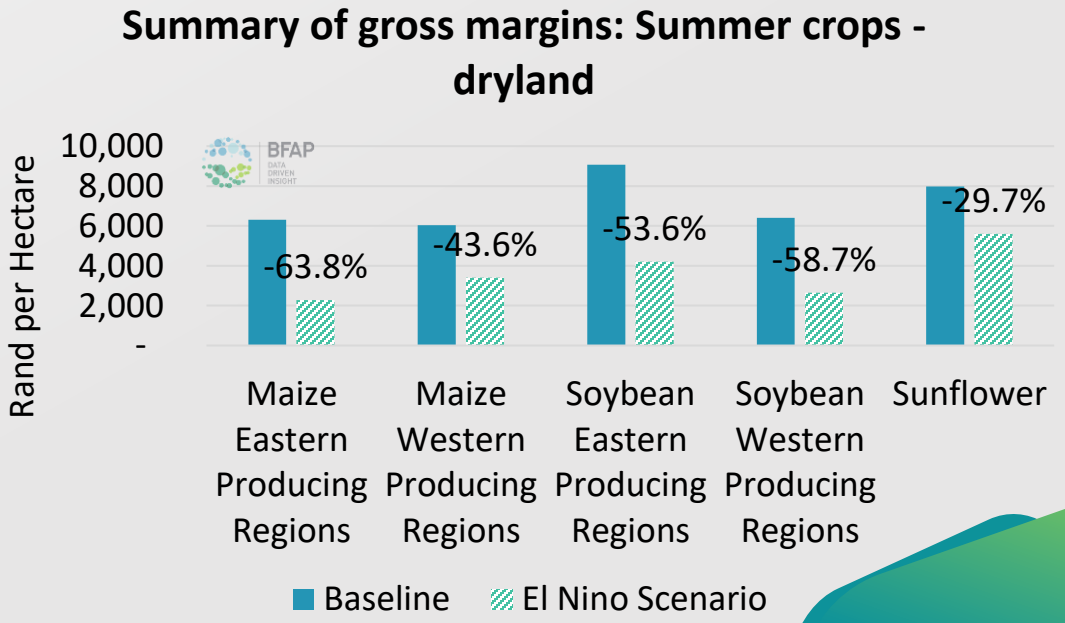


- The El Nino scenario assumed that the maize, sunflower and soybean yields dropped to the 2015 level (when a severe drought occurred in South Africa).
- In the simulation, the sunflower yield realised the lowest decrease, as sunflowers are typically more drought resistant relative to maize and soybeans. Consequently, the price change is also small.
- The white maize price increased by 31%, while the yellow maize price increased only by 24%.
- Under the scenario conditions, the soybean yield is 33% lower and the price 7% higher than the baseline.

El Nino Scenario Simulation: Gross Margin Impact



- The average gross margin change in 2024 due to the yield decline and price increase (caused by the El Nino simulation) for maize is on average 54%, for sunflower 30% and soybeans 55%.
- Eastern producing region's margins are worse affected by an El Nino scenario, due to the region's higher input approach and a higher expected price response in white maize relative to yellow.



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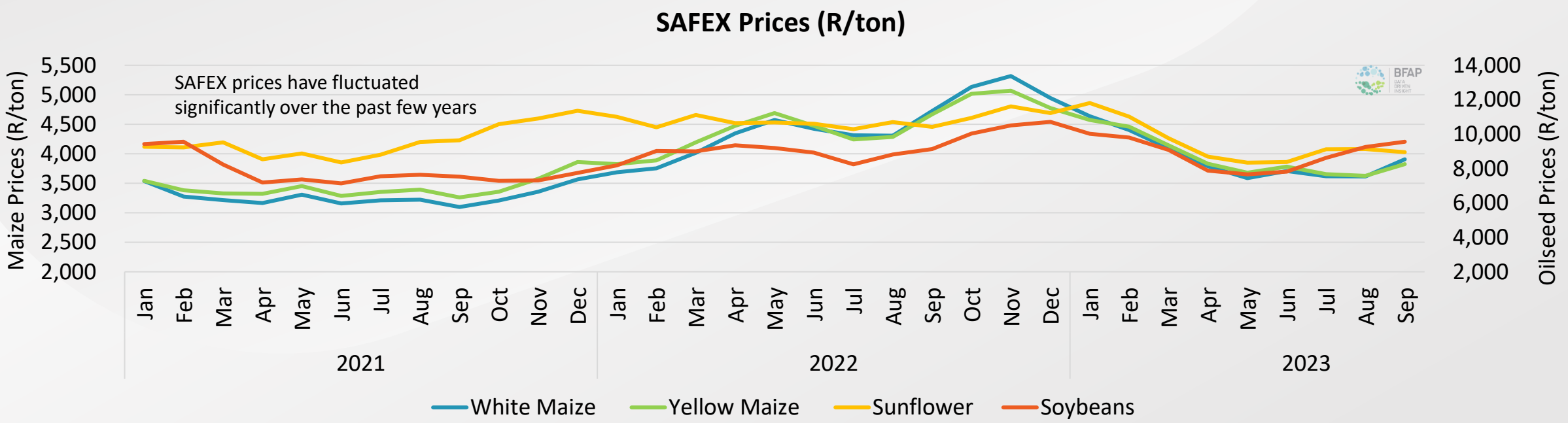
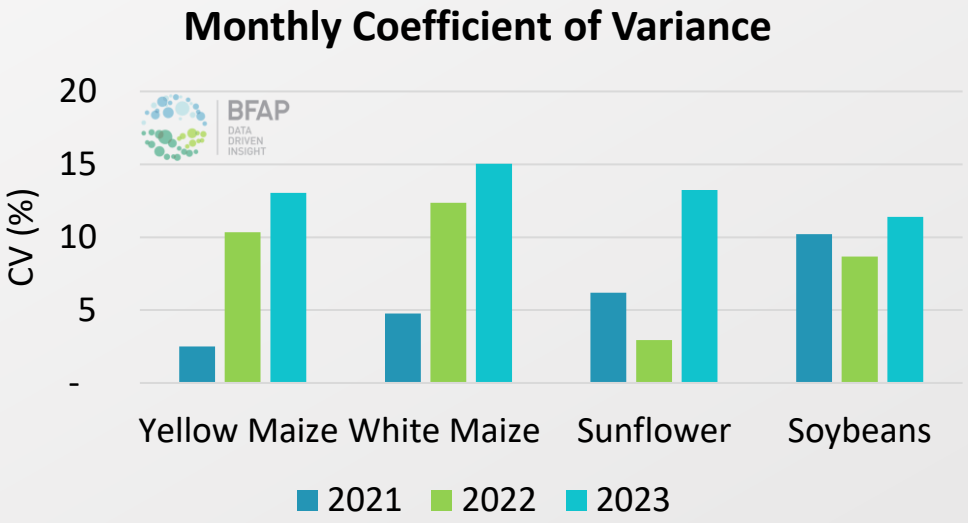
Crop Price Analysis

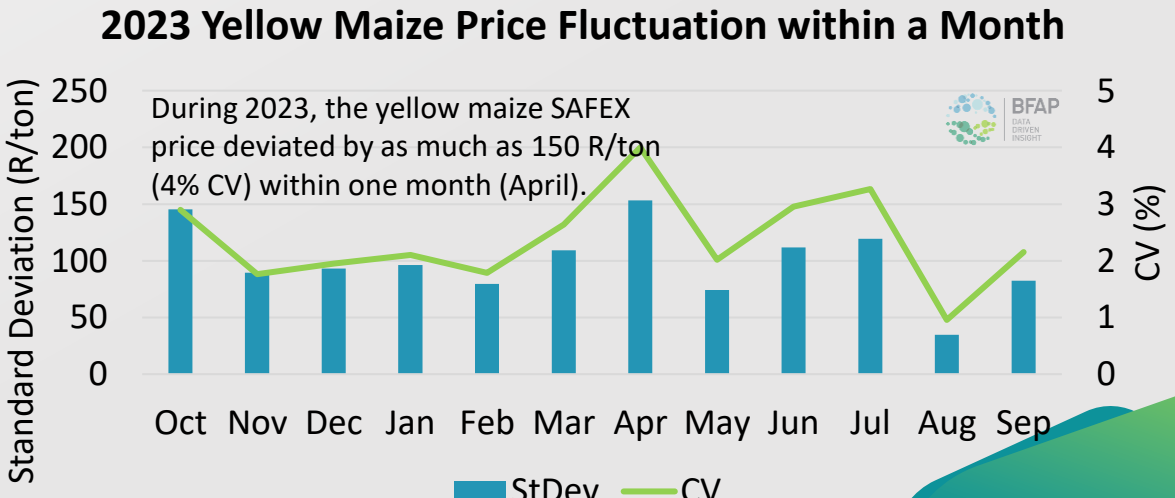
Historic SAFEX Crop Price Fluctuation



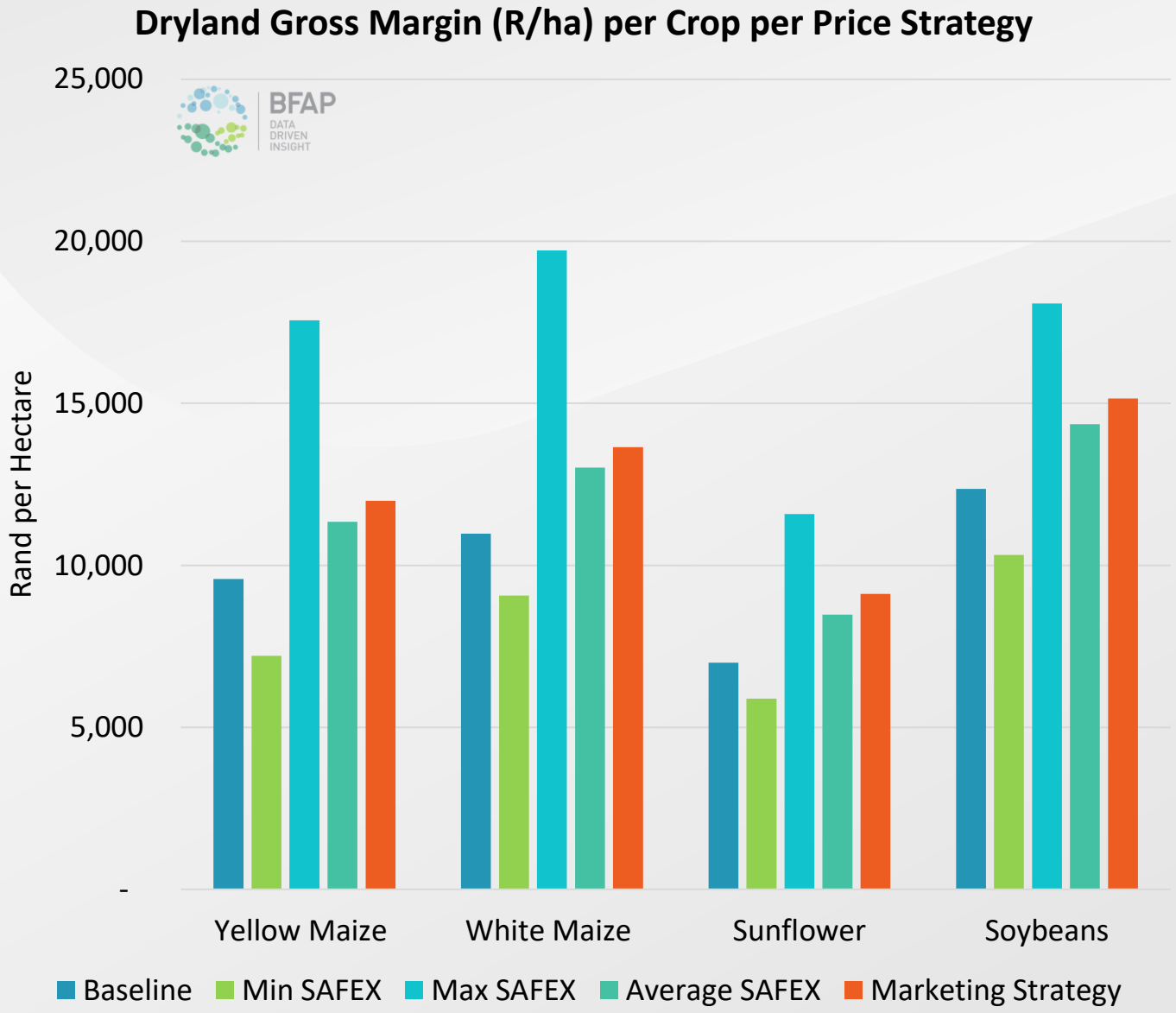


Over the last 3 years, the SAFEX price degree of dispersion (coefficient of variance) from one month to the next, was the highest in 2023.

White maize had the highest coefficient of variance in 2023, while the price of oilseeds (especially soybeans) had the highest volatility in 2021



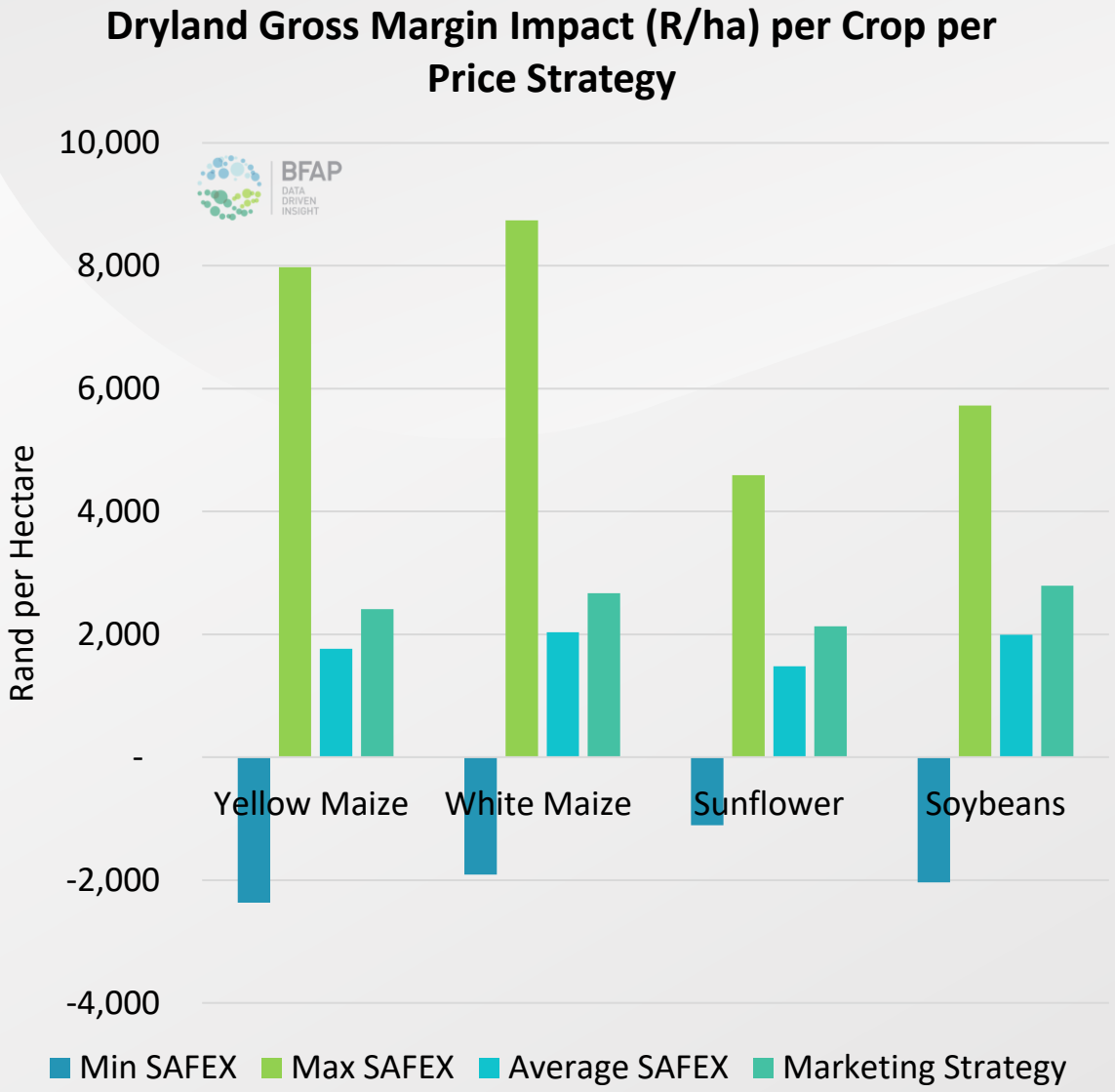
Impact of Pricing Strategy (due to fluctuating SAFEX prices) on Dryland Gross Margins per Commodity



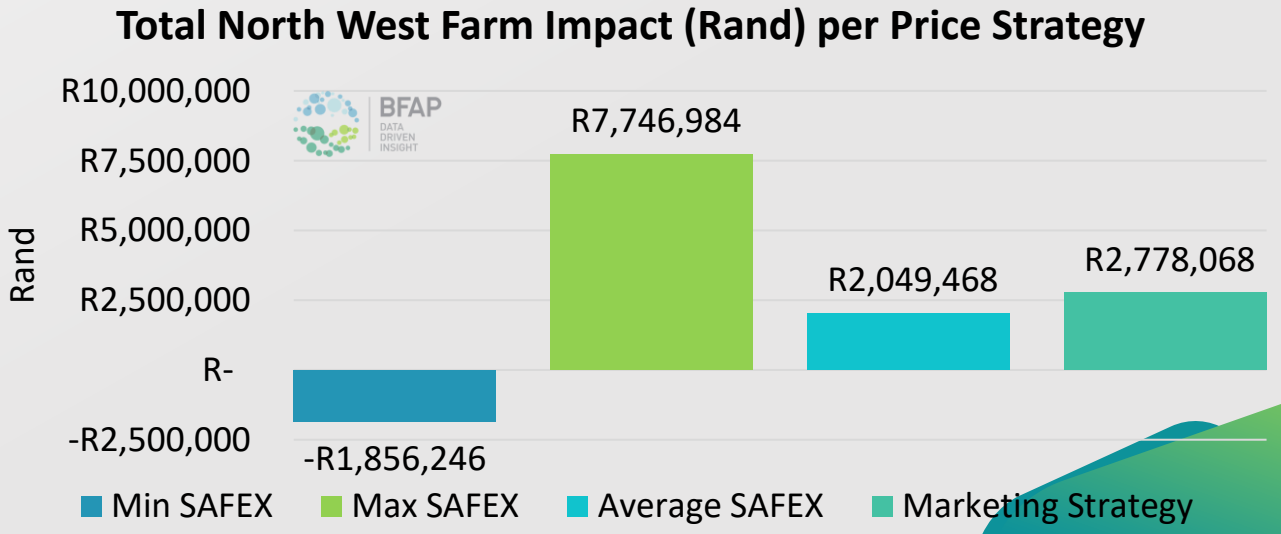
- The scenarios illustrate the gross margin (R/ha) impact for 2023, assuming that the harvest was sold under different crop price conditions (keeping yield and cost constant):
  - Minimum 2023 SAFEX Price over the marketing period
  - Maximum 2023 SAFEX Price over the marketing period
  - Average 2023 SAFEX Price over the marketing period
  - Marketing Strategy Price: selling 1/3 in November to December, 1/3 February to March, and 1/3 in July 2023
- As expected, the scenarios show that selling the entire crop at the maximum SAFEX price yielded the highest gross margin, and selling at the minimum SAFEX price yielded the lowest gross margin.
- Selling the harvest at the average SAFEX price resulted in a higher gross margin than the baseline, across all commodities.
- And selling according to the marketing strategy, could potentially give an even higher gross margin.
- Due to higher yields realised under irrigation production, the price impact is higher on irrigation gross margins per hectare .

2023 SAFEX Price Assumptions	Yellow Maize	White Maize	Sunflower	Soybeans
Baseline	R 3,958	R 3,900	R 9,016	R 8,461
Min SAFEX	R 3,411	R 3,589	R 8,342	R 7,660
Max SAFEX	R 5,070	R 5,320	R 11,812	R 10,716
Average SAFEX	R 4,169	R 4,232	R 9,923	R 9,252
Marketing Strategy	R 4,294	R 4,333	R 10,312	R 9,561

Impact of Pricing Strategy (due to fluctuating SAFEX prices) on a Typical North West Farm (1100ha)



- The figure to the left illustrates the difference in gross margin per hectare between the Baseline and Scenarios.
- Similar to the coefficient of variance in 2023 (where maize prices had the highest coefficient of variance), the maize gross margin impact is also the highest for the minimum and maximum SAFEX price scenarios.
- However, soybeans realised the highest gross margin impact given the average SAFEX price and marketing strategy scenarios.
- Assuming that a North West farm cultivates 1100 hectares, 55% white maize, 30% sunflower and 15% soybeans, the impact of the price strategy can range from negative R1.9 million to positive R7.7 million (illustrated below).



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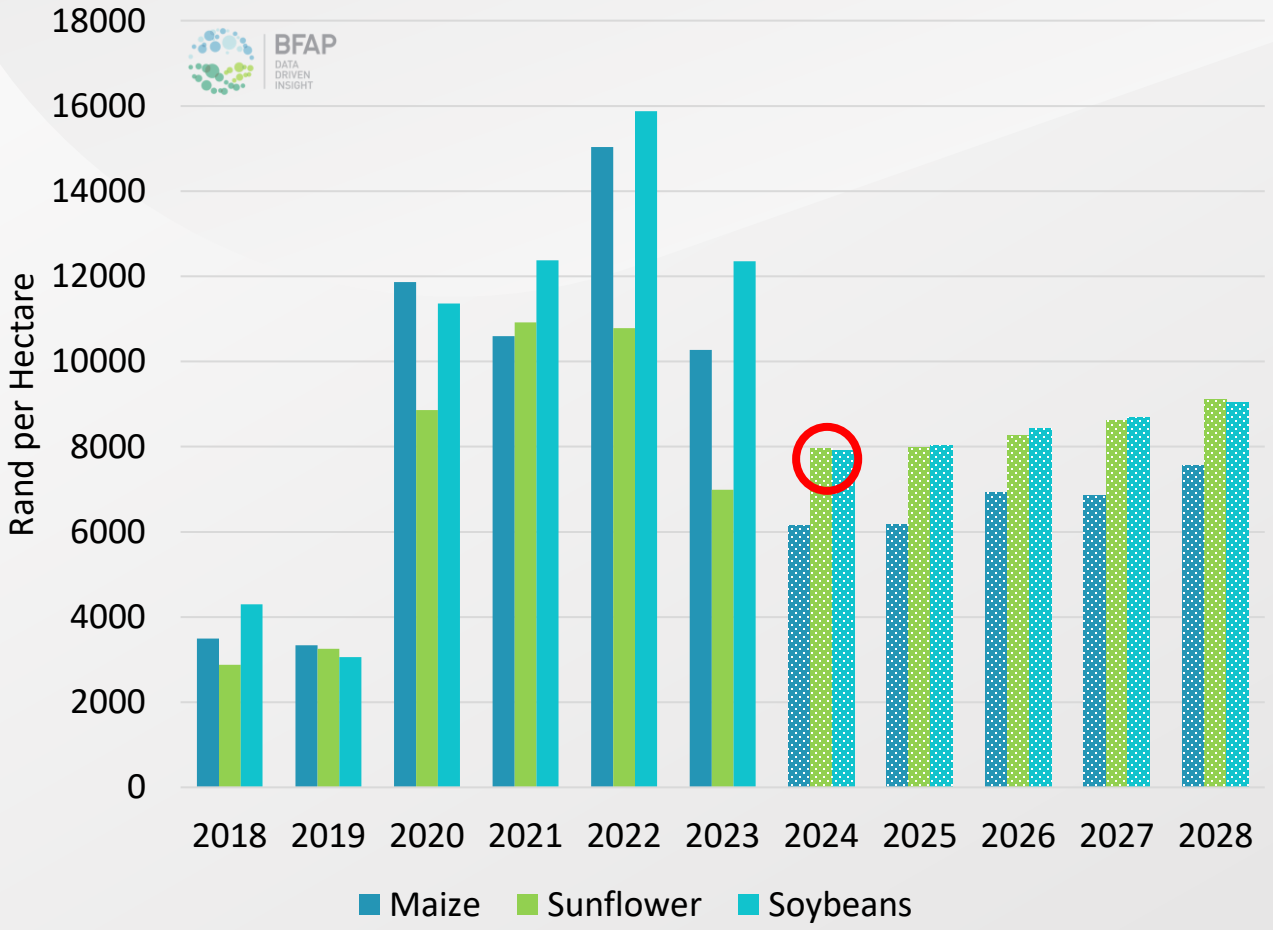
Sunflower Competitiveness

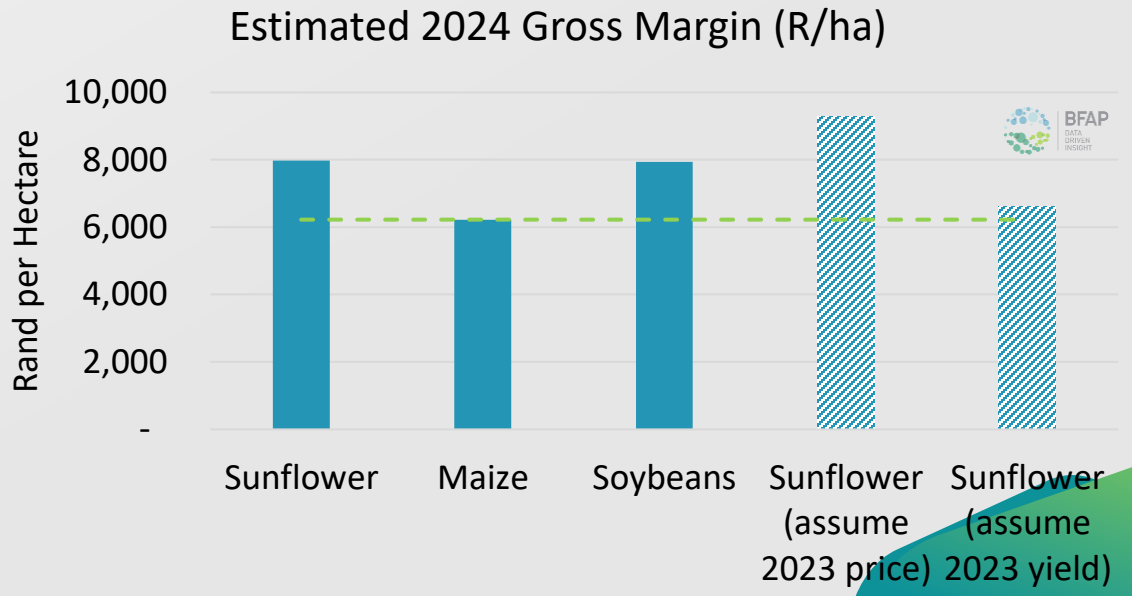
Sunflower margins less competitive since 2018

Lower obtained yields compared to trend / target

Gross margins: 2018 - 2028
Average across 7 agro-ecological dryland producing regions

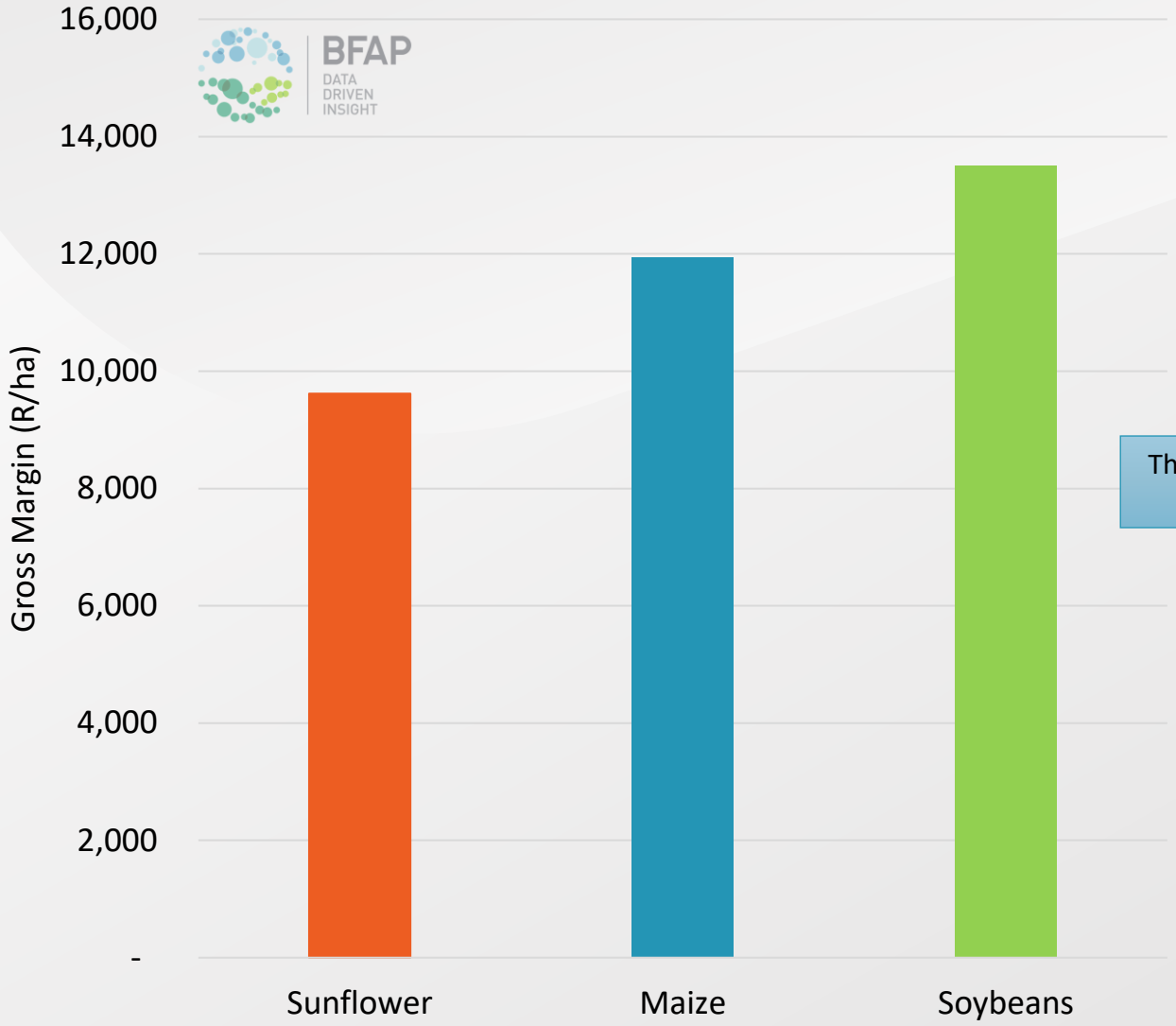


- Except for 2019, sunflower gross margins were outperformed by maize & soybeans, driven mainly by lower yields compared to targets.
- For 2024, trend / target yields were assumed & under these conditions, gross margin of sunflower will outperform maize & equal soybeans.
- Given that price and yield are uncertain, the figure below compares the 2024 gross margin for sunflowers if:
  - the sunflower price follows similar levels as seen in 2023
  - if yield underperforms (same as 2023)
- If the sunflower yield for 2024 is at the same level as in 2023, the average sunflower gross margin will be lower than the average soybean gross margin, but still higher than the average maize gross margin (across all production regions).

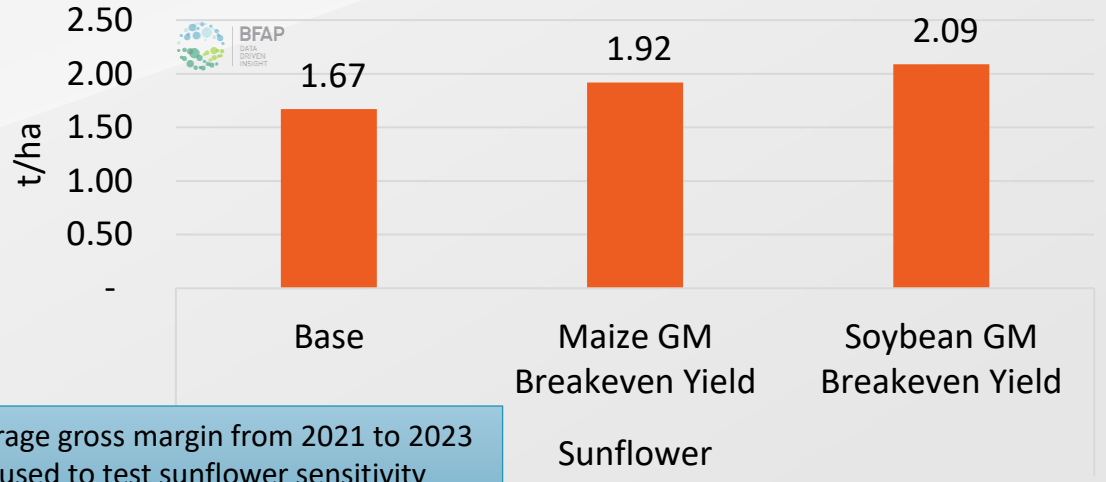


What is required from sunflower price & yield to compete against maize & soybeans?

Average Gross Margin (2021-2023) Across All Regions

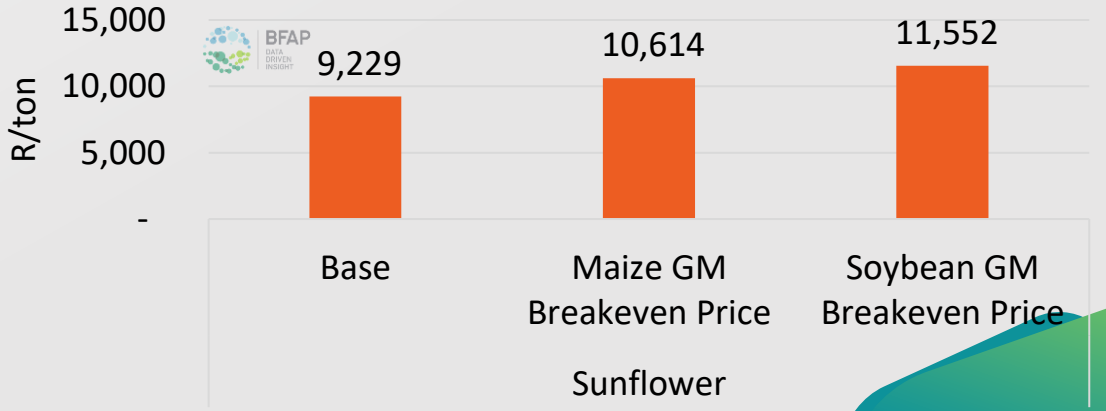


Required Yield to match Sunflower with Maize and Soybean Gross Margin



The average gross margin from 2021 to 2023 was used to test sunflower sensitivity

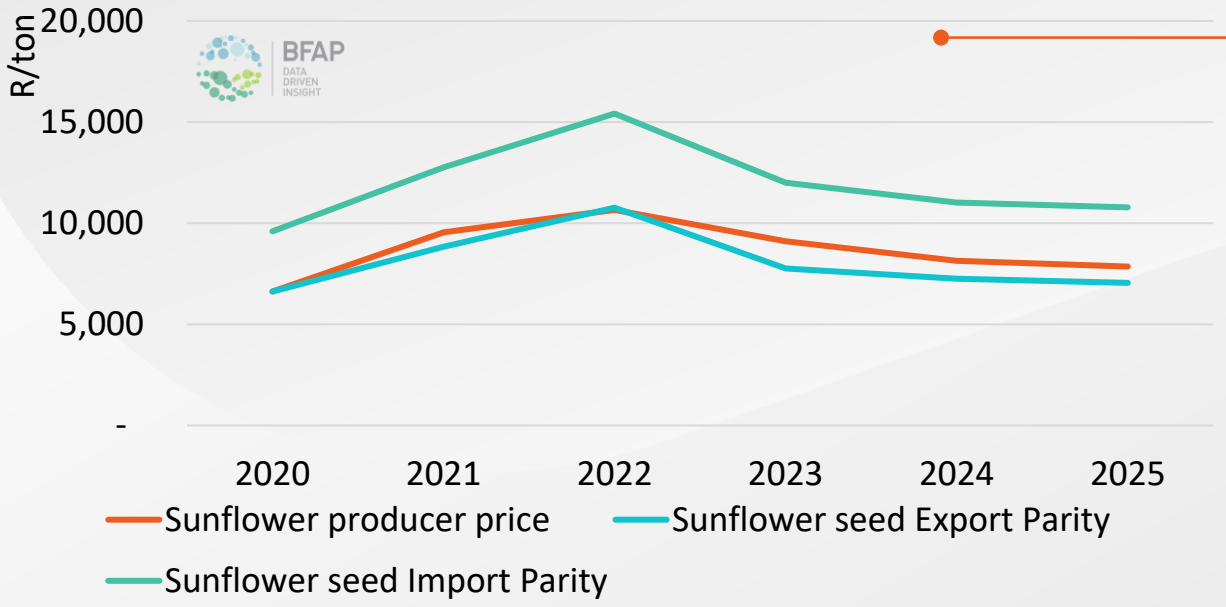
Required Price to match Sunflower with Maize and Soybean Gross Margin



Potential price impact if sunflower industry expands

Expected that price levels will be capped at export parity; what is the impact on producer margins?

Sunflower parity prices



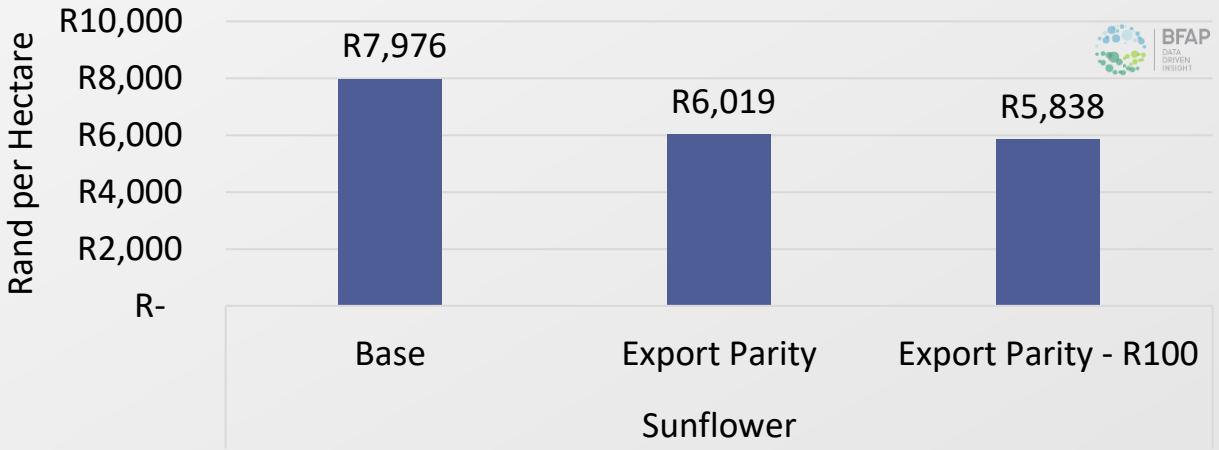
Sunflower parity prices:

- 2020 to 2022: Local prices traded close to export parity
- 2023 to 2025:
  - Local prices projected to shift away from export parity.
  - Difference between local & export parity: Between R800-R1000/ton.

Impact on gross margin @ sunflower export parity & below:

- Assumed area & production expand followed by price levels shifting to export parity or lower than export parity.
- Gross margin of sunflower will decrease between 25-27%.

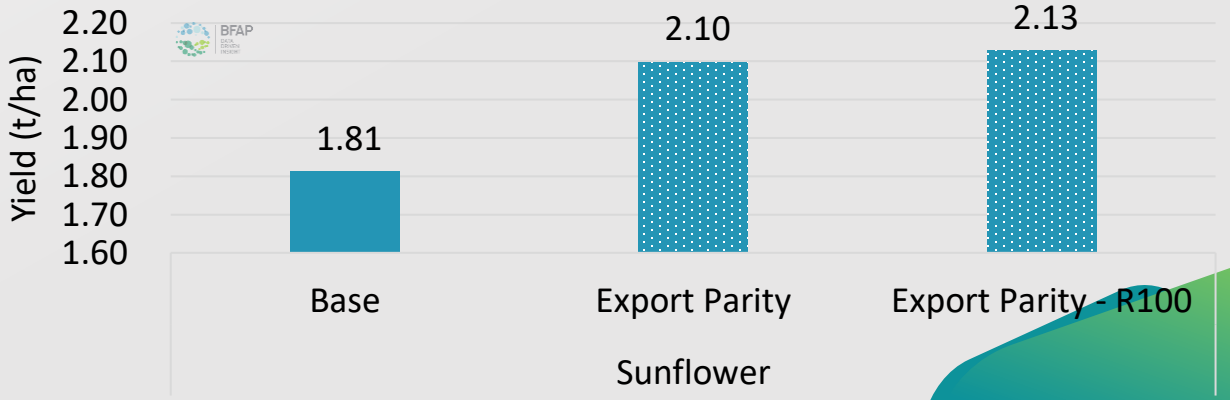
Sunflower projected gross margin: 2024



Required yield response rate to match baseline gross margin at export parity:

- Yield will have to increase from 1.8t/ha to 2.1t/ha.

Required yield to maintain similar gross margin at export parity price levels



Thank you

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