

Income & Cost Budgets

Summer Crops – 2022/23

A joint initiative between the
Bureau for Food and Agricultural Policy (BFAP)
and the
Protein Research Foundation (PRF)
and the
Oil & Protein Seeds Development Trust /
Oilseeds Advisory Committee
and
Grain South Africa

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INCOME & COST BUDGETS FOR SUMMER CROPS – 2022/23 SEASON

Foreword

The Protein Research Foundation (PRF) strives to make a significant contribution to the promotion of local production of protein on a sustainable basis, in order to satisfy the growing demand for protein for animal production purposes as well as the optimal utilisation thereof, which will lead to an increase in the standard of living of all people in the Republic of South Africa. The main objectives of the Protein Research Foundation (PRF) are to replace imported protein used in animal feed with locally produced protein and to encourage the better utilisation of this protein. The objectives are promoted through research funding and technology transfer.

The collaboration between the Protein Research Foundation (PRF), Grain South Africa, the Bureau for Food and Agricultural Policy (BFAP) and many agribusinesses across South Africa's key producing regions creates the benefit to leverage upon each organisation's ground-level expertise, as well as valuable resources in the field of production systems and commodity enterprise budgets. The purpose of this report is to present regional commodity enterprise budgets for the 2022/23 summer crop season.

It is acknowledged that intra-regional variation will occur and that enterprise budgets will differ from farm to farm. Whilst every care has been taken in preparing this report, it is advised to adjust the estimates according to the farm's respective location, yield potential, cultivation system and/or strategies.

Disclaimer

The views expressed in this document reflect those of BFAP and do not constitute any specific advice as to decisions or actions that should be taken. Whilst every care has been taken in preparing this document, no representation, warranty, or undertaking (expressed or implied) is given and no responsibility or liability is accepted by BFAP as to the accuracy or completeness of the information contained herein. In addition, BFAP accepts no responsibility or liability for any damages of whatsoever nature which any person may suffer as a result of any decision or action taken on the basis of the information contained herein. All opinions and estimates contained in this report may be changed after publication at any time without notice

Area coverage

Table 1.1 and Table 1.2 provides an overview of the area of coverage for dryland and irrigated summer crops in South Africa's key agro-ecological producing regions. The coordinators of this initiative are sincerely grateful for the interaction and assistance with data, knowledge and other inputs from each organisation, agribusiness and farmers.

Table 1.1: Area coverage: Dryland

Area	Dryland Crops	Source & Collaborators
KwaZulu-Natal		
Bloedrivier	Maize & Soybeans	GSA / BFAP / Individual Farmers
Mpumalanga		
Middelburg / Trichardt	Maize, Soybeans & Grain Sorghum	GSA / BFAP / Individual Farmers
Ermelo	Maize & Soybeans	GSA / BFAP / Individual Farmers
Eastern Free State		
Reitz region	Maize, soybeans, sunflower & dry beans	GSA / VKB / BFAP / Individual Farmers
Northern Free State		
Northern Free State – Water table soils / higher potential	Maize	GSA / Senwes / BFAP
Northern Free State – Normal potential	Maize	GSA / Senwes / BFAP
Northern Free State	Maize, soybeans, sunflower, ground nuts & grain sorghum	GSA / Senwes / BFAP
North West		
Koster	Maize, soybeans & sunflower	GSA / NWK / BFAP / Individual Farmers
Lichtenburg	Maize, soybeans, sunflower & ground nuts	GSA / NWK / BFAP / Individual Farmers

Table 1.2: Area coverage: Irrigation

Area	Irrigated Crops	Source & Collaborators
Northern Cape		
GWK Area	Maize, soybeans, ground nuts & sunflower	GWK, GSA & BFAP
KwaZulu-Natal		
Bergville	Maize & soybeans	GSA & Individual Farmers
North West		
Brits / Northam / Koedoeskop	Maize, soybeans, sunflower & sorghum	GSA, NWK & Individual Farmers
Limpopo		
Loskop Irrigation Scheme	Maize & Soybeans	GSA & Individual Farmers

Yield Assumptions

Figure 1.1 and Figure 1.2 indicate the yield assumptions for dryland and irrigated crops. These assumptions represent target yields which were formulated in round table discussions. These levels are based on crop potential in the respective regions, historic trends and expert opinions. It is important to note that intra-regional variations will occur, and it is recommended that producers adjust their target yields based on their location and potential.

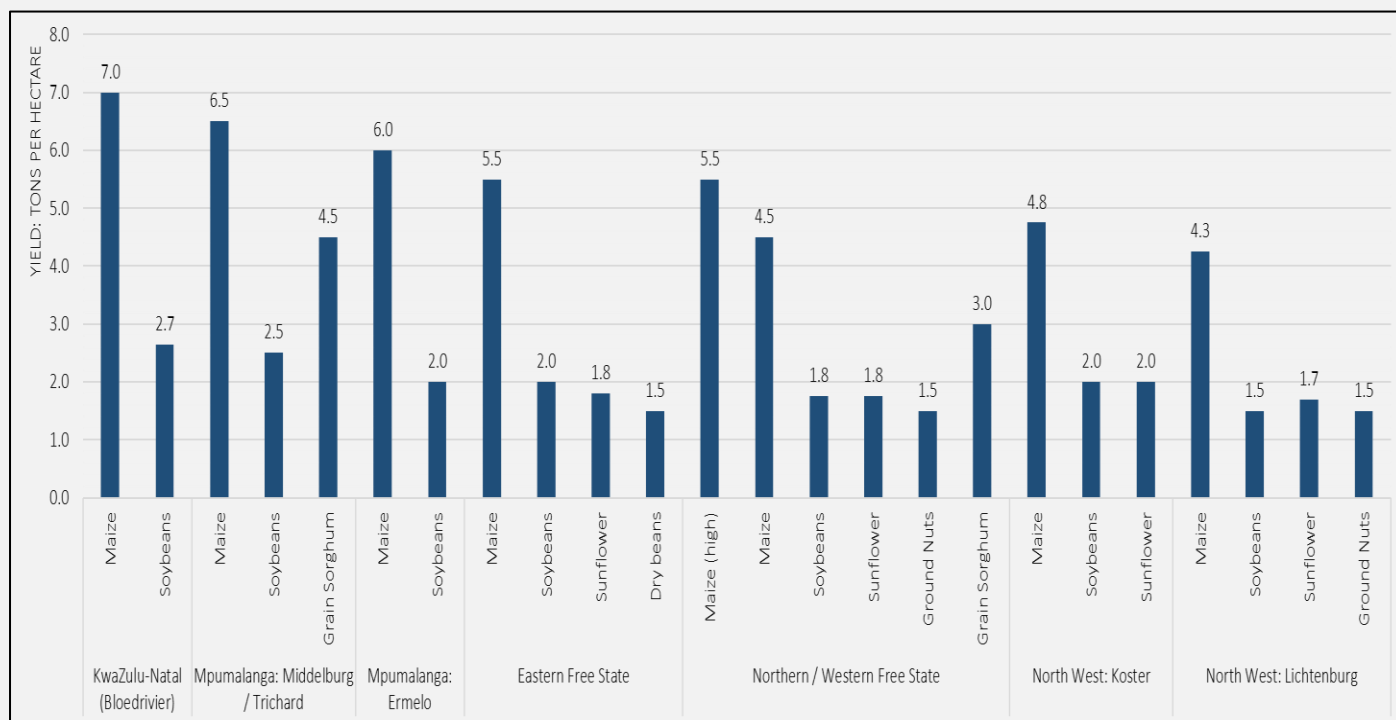


Figure 1.1: Dryland crops yield assumptions

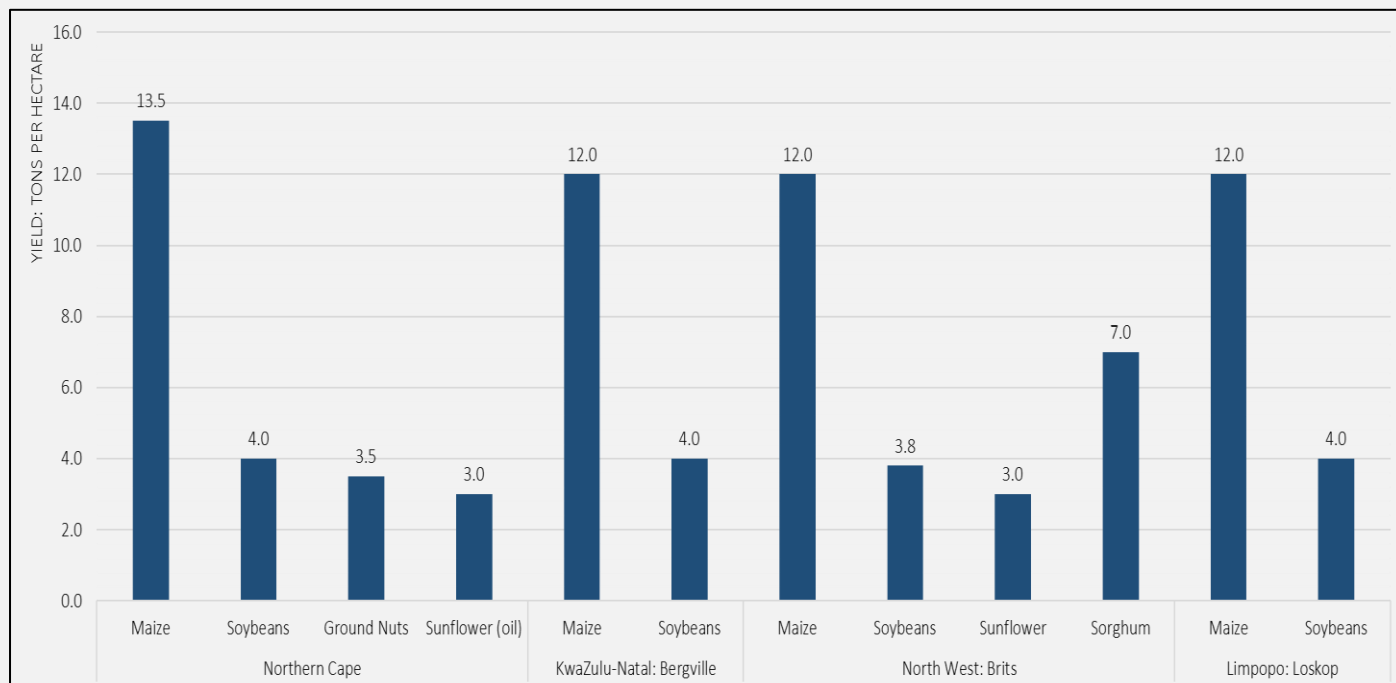


Figure 1.2: Irrigated crops yield assumptions

Crop Price Assumptions

Annually, the Bureau for Food and Agricultural Policy (BFAP) presents a baseline outlook for agricultural production, consumption, prices and trade in South Africa over a 10-year horizon. The outlook is generated within the BFAP system of models and is based on a coherent set of assumptions about a range of economic, technological, environmental, political, institutional, and social factors. Of the range of critical assumptions underpinning the baseline projections, one of the most important is that stable weather conditions will prevail in Southern Africa and around the world; therefore, yields grow constantly over the baseline as technology improves. Consequently, it does not represent a forecast, but rather a single plausible future outcome, based on fundamental factors underpinning markets. It presents a future equilibrium and a benchmark against which further analysis can be measured and understood.

Assumptions related to the future macro-economic environment are based on a combination of projections developed by the International Monetary Fund (IMF), the World Bank and the Bureau for Economic Research (BER) at Stellenbosch University. Baseline projections for world commodity markets were generated by FAPRI at the University of Missouri, as well as the Food and Agriculture Association (FAO) of the United Nations. Once these critical assumptions are captured in the BFAP system of models, the Outlook for all commodities is simulated within a closed system of equations. This captures the interlinkages between sectors and, for example, any shocks in the grain sector are transmitted to the livestock sector and vice versa. For each commodity, important components of supply and demand are identified, after which an equilibrium is established through balance sheet principles by equating total demand to total supply.

Figure 1.3 illustrates the key commodity price assumptions for white maize, yellow maize, sorghum, sunflower and soybeans that were used in the summer crop budgets for the 2022/23 production season. Further deductions were made to calculate a farm gate price for each agro-ecological producing region. The sensitivity analysis in the respective crop budgets makes provision for variation in price and yield and indicates the gross margin under each price and yield combination.

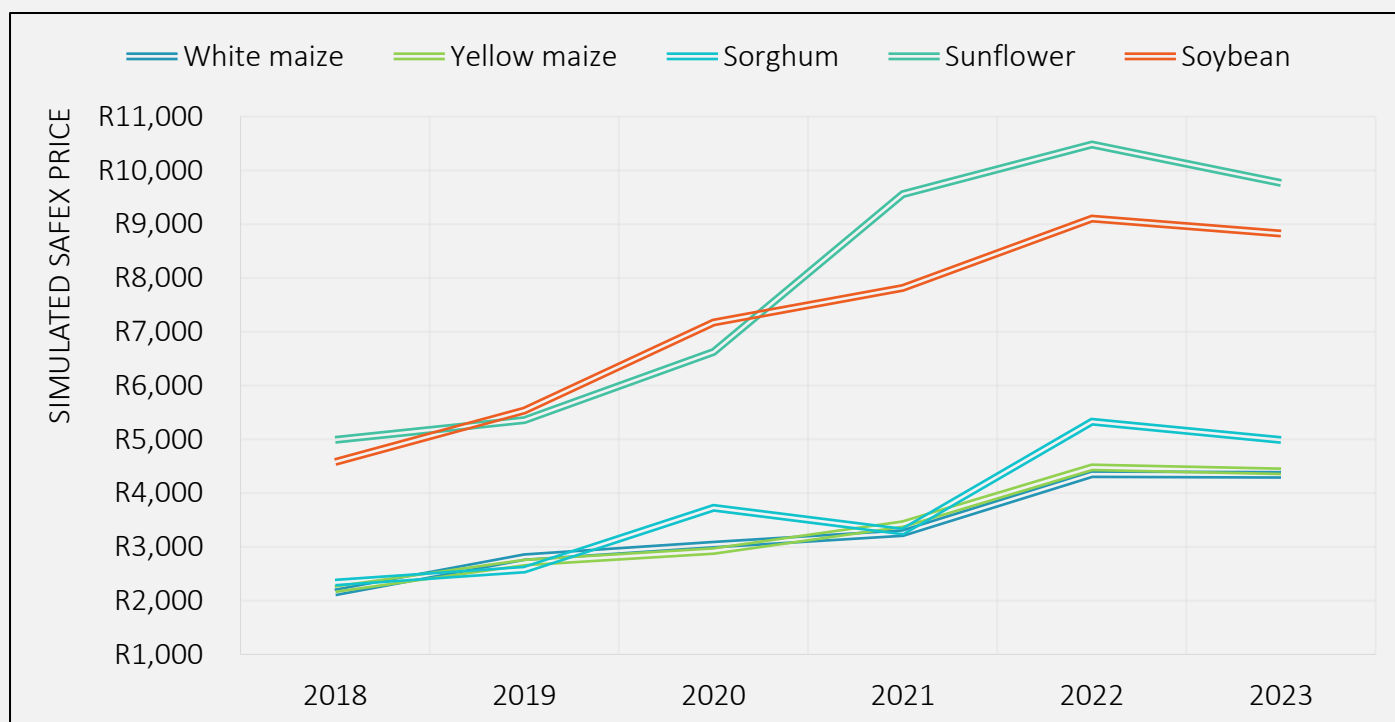


Figure 1.3: BFAP average annual commodity price projections: 2018-2023

Source: BFAP, October 2022

Key Input Cost Trends

Figure 1.4 illustrates the cost trends for fuel and fertilisers over the period from January 2020 to September 2022. The Covid-19 pandemic disrupted the fertiliser supply chain, increasing the price during 2021. In February 2022 Russia invaded Ukraine, creating even more instability in fuel and fertiliser supply and prices. The Covid-19 pandemic and the war created a perfect storm that increased shipping delays and costs, commodity prices, energy, fertiliser and fuel costs, and put domestic and international spending power under pressure. When comparing September 2021 to September 2022 input costs trends, the weighted average fertiliser price (combination between nitrogen, phosphorus and potassium) has indicated a year-on-year increase of 57% for the above-mentioned period, with nitrogen increasing by 58% (urea = 60% and LAN28 = 55%), MAP by 39% and potassium by 69% (Grain SA, 2022). The fuel price increased by 55% from September 2021 to September 2022.

Some hope appeared as the local fuel, potassium chloride and MAP prices started to decrease in July 2022, however, the Urea and LAN prices have once again indicated an increase in September. Furthermore, the international fuel price started increasing at the end of September 2022, which could indicate towards a local fuel price increase, as the local prices have been lagging behind the international prices and did not change at the same rate. The input costs remain highly volatile due to global dynamics like OPEC production cuts, the energy crisis in Europe, and domestic factors such as a weakening in Rand/dollar exchange rate and demand and supply dynamics.

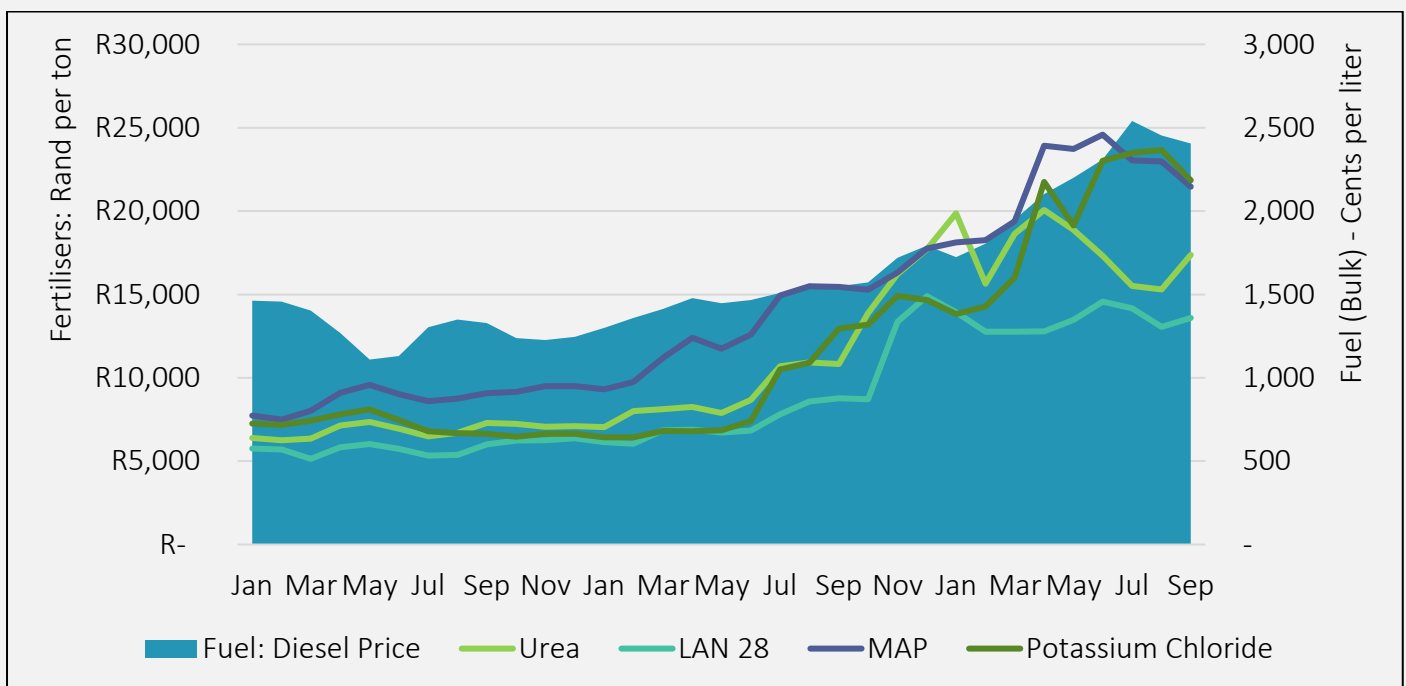


Figure 1.4: Fertiliser & fuel cost trends: January 2020 to September 2022

Source: Grain SA, October 2022

Figure 1.5 presents an overview of the average year-on-year percentage changes for key agricultural inputs from 2020 to 2021, and from 2021 to an estimate for 2022. The rise in the cost of agricultural inputs remains a concern, with almost all costs recording higher percentage changes from 2021 to 2022 compared to the disrupted COVID era between 2020 to 2021. Fuel cost is expected to increase by 49%, compared to only 17% last year (average across the entire year from January to December). The weighted cost for fertiliser (a combination between nitrogen, phosphorus and potassium) is projected to increase by 66% in 2022 relative to 2021, with urea, LAN28 and MAP projected to increase by 63%, 63% and 57% respectively. Potassium is expected to increase significantly more compared to 2021, with a projection of 102%. Herbicides are

projected to increase by 37%, and administered costs such as wages and electricity only have a 7% and 10% projected increase, lower compared to the previous season.

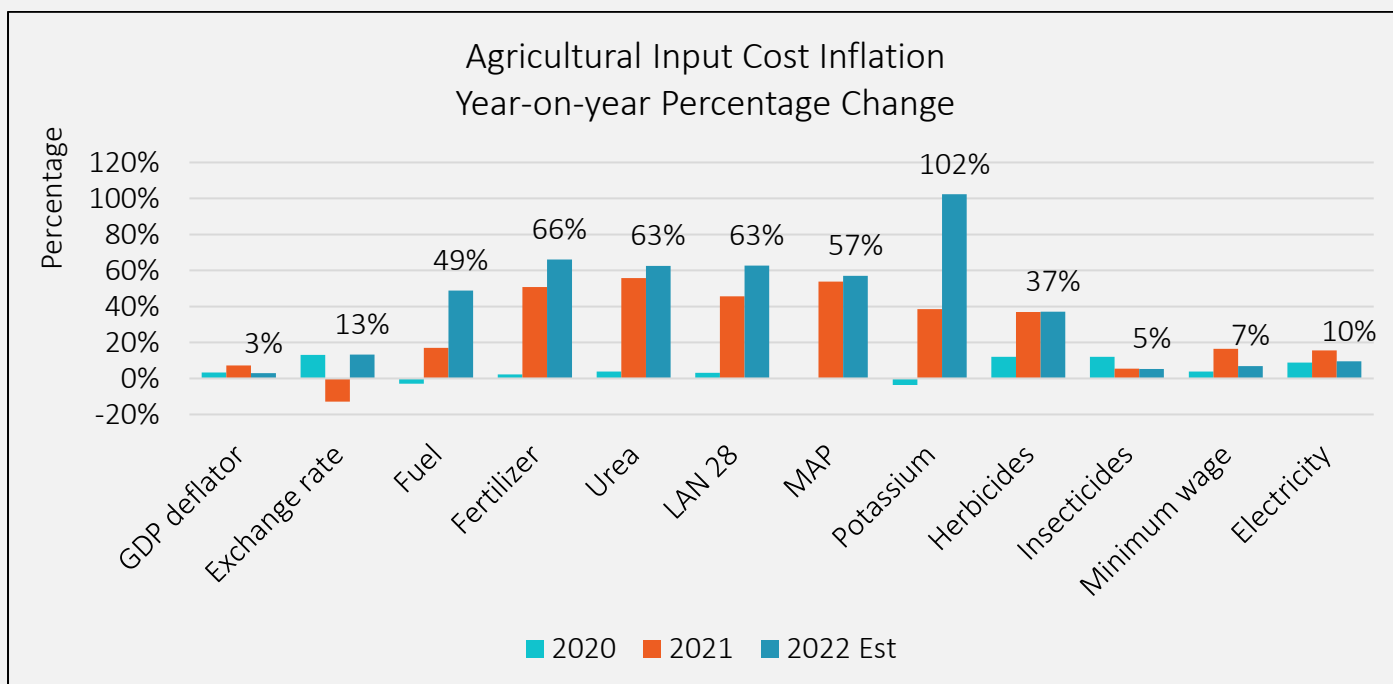


Figure 1.5: Agricultural input cost inflation: Year-on-year percentage change from 2020 – 2022

Source: BFAP & GSA, October 2022

With the ongoing war between Russia and Ukraine and the world struggling to return to normal after the Covid-19 pandemic, there exists a large degree of uncertainty in global commodity markets. Farmers carry the risk of buying inputs at high costs and potentially selling their harvest at a lower crop price in 2023. The figure below illustrates the potential effect of a 10% and 20% crop price decrease, assuming accelerated normalisation in commodity markets. If the price decreases by 10%, the eastern production region's gross margin will decrease by R2,500 (28%), while the western region will decrease by R1,900 (23%).

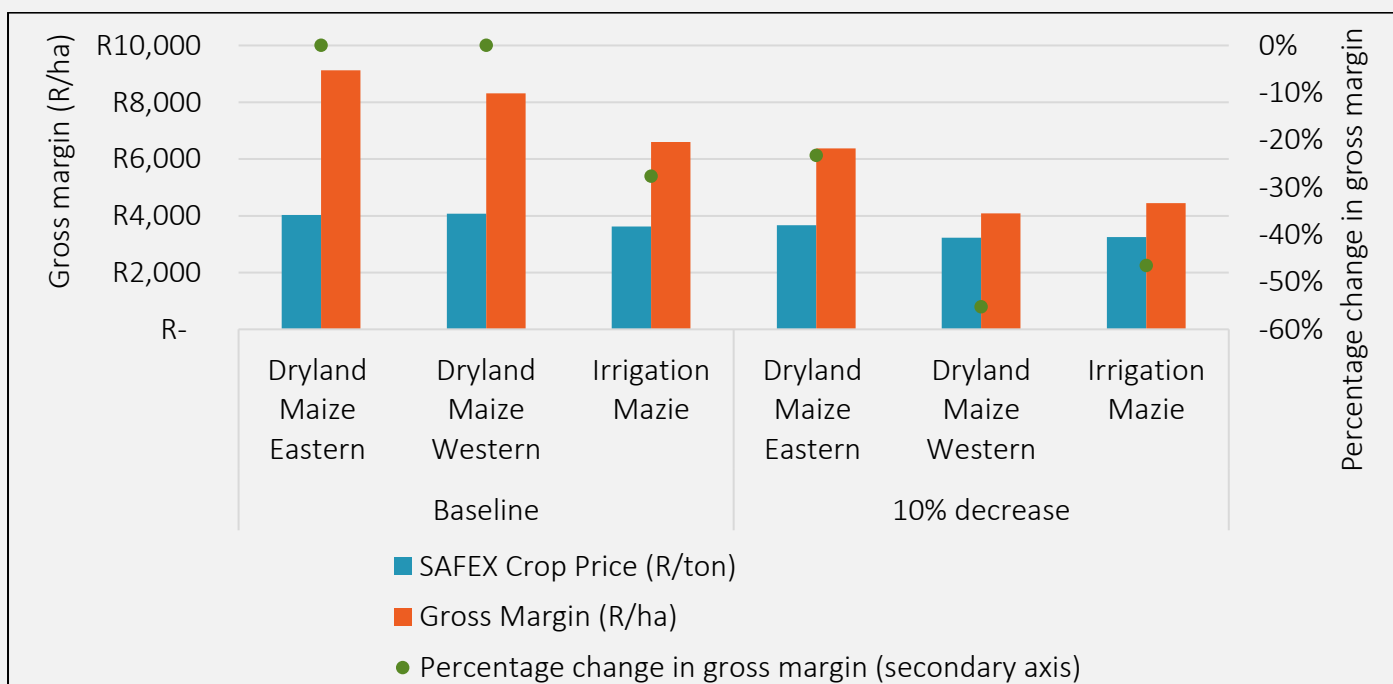


Figure 1.6: Scenario: Gross margin impact in the event of lower 2023 maize prices

Source: BFAP, October 2022

Methodology, Approach & Definitions

- ❖ A standard operating procedure was used across all crops and regions for generating the cost and income budgets for the 2022/23 production season.
- ❖ Deterministic or target yields were based on industry discussions which refers to a yield that should be obtained given a normal production season with normal weather in the respective agro-ecological production regions.
- ❖ The farm gate price for each crop was calculated by deducting transport differential, grade differential, handling fees, commission and levies (statutory for seed breeding and technology) from the simulated SAFEX price. For white- and yellow maize, industry averages for grade discounts were used to calculate grade differentials.
- ❖ The gross production value is then calculated by multiplying the yield with the farm gate price.
- ❖ The direct costs are calculated by multiplying the cost per unit by the estimated quantity of input use or application rate.
- ❖ For the majority of the crops, it was assumed that own machinery was used, except for speciality operations that is coupled with economies of scale. In such cases, a contracting cost item was allocated. For all crops, provision was made for hail insurance.
- ❖ Fertiliser and lime application will vary significantly in regions and across crops, however, an attempt was made to follow a standardised approach across the regions. Micro-elements and foliar feed for selective crops are included in the total fertiliser cost.
- ❖ The price for fertiliser nutrients (N, P & K) was calculated by using a weighted approach that accounts for 1. variation in discounts received from suppliers and 2. the time period when fertilisers were purchased.
- ❖ Fuel consumption is based on the prevalence production system in each region.
- ❖ For plant protection, herbicide, insecticide and fungicides are accounted for based on interaction with industry experts and producers. For instance, in certain regions provision was made for fungicide sprays, but for others where the practise is not common, fungicides were excluded from plant protection costs.
- ❖ Repairs and maintenance costs are calculated based on the production system operations.
- ❖ For seed, an assumption was made in terms of the majority of crop type area that is cultivated in each region. For instance, the cost of maize seed in Northern-Natal, Mpumalanga and Eastern Free State is based on the assumption that the majority of the area under maize cultivation is yellow maize whereas for the western producing regions, white maize was assumed. An average seed price across various seed companies was used for 1) conventional seeds and 2) GM-technology. The cost of seed per hectare is calculated by multiplying the cost per unit (either kilograms or plant population) by the application rate per hectare. For selective crops, seed treatment was included where relevant. For predominantly oilseeds production, the seed application rate was sub-divided according to own and purchased seed. For own seed use, a cost was also allocated which is based on a realistic crop price (hence, opportunity cost) and seed preparation costs such as sifting and treatment.
- ❖ For irrigated crops, the cost of water and electricity was calculated according to typical irrigation application rates at their respective regional costs per millimetre. For instance, variations will occur in the cost for water in areas where predominantly boreholes are used compared to irrigation/water scheme areas.
- ❖ The gross margin was calculated by subtracting the direct cost from the gross production value.

2022/23 INCOME & COST BUDGETS – DRYLAND PRODUCTION REGIONS

KwaZulu-Natal

Table 2.1: Income & cost budgets for maize & soybeans for KwaZulu-Natal (Bloedrivier Region) – Dryland

KwaZulu-Natal: Bloedrivier			
Crop		Maize	Soybeans
Production System		Dryland	Dryland
1) INCOME			
Yield: Deterministic	T/HA	7.00	2.65
SAFEX SIMULATED PRICE / PRODUCER PRICE: 2023	R/TON	R4,442	R8,836
Total deductions	R/TON	R468	R310
- Transport differential	R/TON	R390	R196
- Grade differential	R/TON	R18	R-
- Handling & commission	R/TON	R60	R59
- Seed breeding & technology levy	R/TON	R-	R55
Price premiums	R/TON	R-	R-
Net Farm Gate Price	R/TON	R3,975	R8,526
GROSS INCOME	R/HA	R27,824	R22,594
2) VARIABLE EXPENDITURES			
Contracting	R/HA	R-	R-
Crop insurance	R/HA	R1,057	R2,756
Fertilizer	R/HA	R7,969	R3,753
Lime	R/HA	R655	R-
Seed	R/HA	R3,242	R1,404
Fuel	R/HA	R1,378	R836
Herbicide	R/HA	R1,672	R1,564
Insecticide/Fungicide	R/HA	R1,011	R443
Marketing costs	R/HA	R-	R-
Repairs and maintenance	R/HA	R734	R466
Casual labour	R/HA	R309	R-
Aerial spray	R/HA	R-	R-
Other expenditure	R/HA	R-	R-
TOTAL VARIABLE EXPENDITURE	R/HA	R18,026	R11,221
TOTAL VARIABLE EXPENDITURE	R/TON	R2,575	R4,234
3.1) GROSS MARGIN:	R/HA	R9,799	R11,373
3.2) GROSS MARGIN:	R/TON	R1,400	R4,292
BREAK-EVEN YIELD	T/HA	4.53	1.32
BREAK-EVEN PRICE	R/TON	R2,575	R4,234

Source: BFAP, GSA & Individual Farmers, 2022

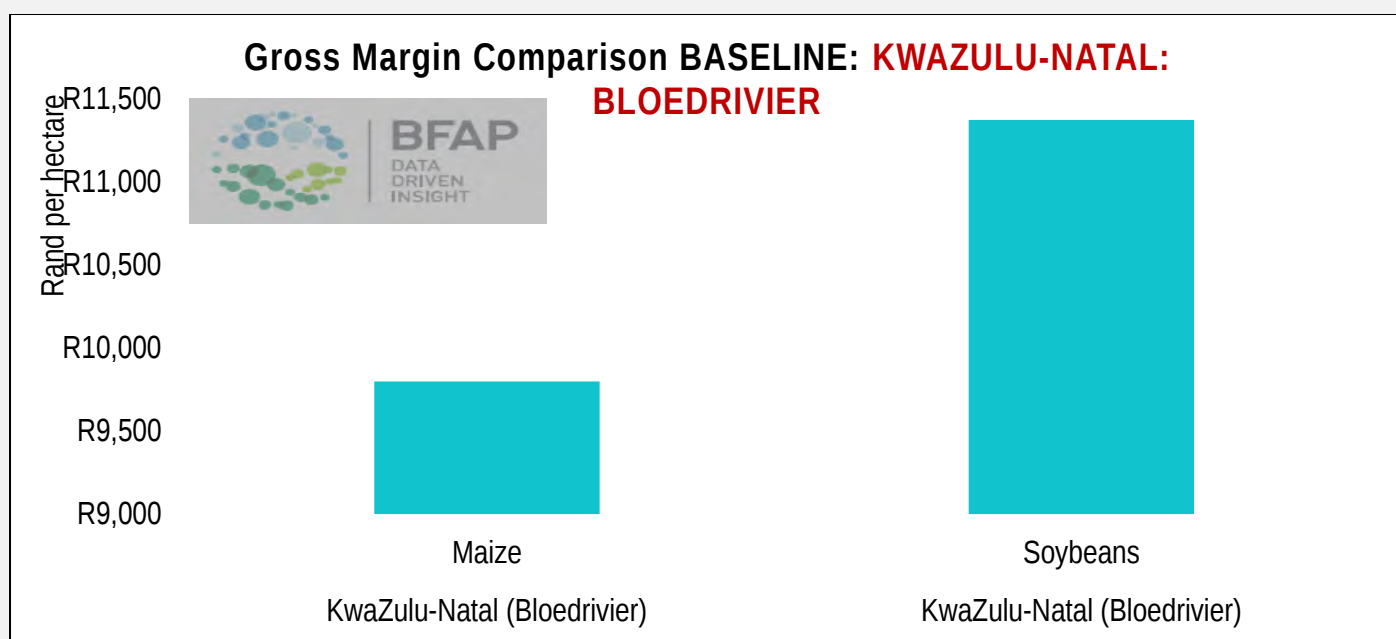


Figure 2.1: Gross margin comparison – Baseline: KwaZulu-Natal (Bloedrivier Region)

MAIZE SENSITIVITY ANALYSIS (GROSS MARGIN PER HECTARE): KWAZULU-NATAL: BLOEDRIVIER

PRODUCERS YIELD (T/HA)															
PRICE		5.50		6.00		6.50		7.00		7.50		8.00		8.50	
R3,575	R	1,636	R	3,424	R	5,211	R	6,999	R	8,786	R	10,574	R	12,361	
R3,675	R	2,186	R	4,024	R	5,861	R	7,699	R	9,536	R	11,374	R	13,211	
R3,775	R	2,736	R	4,624	R	6,511	R	8,399	R	10,286	R	12,174	R	14,061	
R3,875	R	3,286	R	5,224	R	7,161	R	9,099	R	11,036	R	12,974	R	14,911	
R3,975	R	3,836	R	5,824	R	7,811	R	9,799	R	11,786	R	13,774	R	15,761	
R4,075	R	4,386	R	6,424	R	8,461	R	10,499	R	12,536	R	14,574	R	16,611	
R4,175	R	4,936	R	7,024	R	9,111	R	11,199	R	13,286	R	15,374	R	17,461	
R4,275	R	5,486	R	7,624	R	9,761	R	11,899	R	14,036	R	16,174	R	18,311	
R4,375	R	6,036	R	8,224	R	10,411	R	12,599	R	14,786	R	16,974	R	19,161	

SOYBEANS SENSITIVITY ANALYSIS (GROSS MARGIN PER HECTARE): KWAZULU-NATAL: BLOEDRIVIER

PRODUCERS YIELD (T/HA)															
PRICE		1.80		2.05		2.30		2.65		3.00		3.25		3.50	
R8,126	R	3,406	R	5,437	R	7,469	R	10,313	R	13,157	R	15,188	R	17,220	
R8,226	R	3,586	R	5,642	R	7,699	R	10,578	R	13,457	R	15,513	R	17,570	
R8,326	R	3,766	R	5,847	R	7,929	R	10,843	R	13,757	R	15,838	R	17,920	
R8,426	R	3,946	R	6,052	R	8,159	R	11,108	R	14,057	R	16,163	R	18,270	
R8,526	R	4,126	R	6,257	R	8,389	R	11,373	R	14,357	R	16,488	R	18,620	
R8,626	R	4,306	R	6,462	R	8,619	R	11,638	R	14,657	R	16,813	R	18,970	
R8,726	R	4,486	R	6,667	R	8,849	R	11,903	R	14,957	R	17,138	R	19,320	
R8,826	R	4,666	R	6,872	R	9,079	R	12,168	R	15,257	R	17,463	R	19,670	
R8,926	R	4,846	R	7,077	R	9,309	R	12,433	R	15,557	R	17,788	R	20,020	

SOYBEANS MARGIN ABOVE / BELOW MAIZE (GROSS MARGIN PER HECTARE): KWAZULU-NATAL: BLOEDRIVIER

PRICE (R/TON)														
YIELD	R	8,226	R	8,326	R	8,426	R	8,526	R	8,626	R	8,726	R	8,826
1.65	-R	7,447	-R	7,282	-R	7,117	-R	6,952	-R	6,787	-R	6,622	-R	6,457
1.90	-R	5,390	-R	5,200	-R	5,010	-R	4,820	-R	4,630	-R	4,440	-R	4,250
2.15	-R	3,334	-R	3,119	-R	2,904	-R	2,689	-R	2,474	-R	2,259	-R	2,044
2.40	-R	1,277	-R	1,037	-R	797	-R	557	-R	317	-R	77	R	163
2.65	R	779	R	1,044	R	1,309	R	1,574	R	1,839	R	2,104	R	2,369
2.90	R	2,836	R	3,126	R	3,416	R	3,706	R	3,996	R	4,286	R	4,576
3.15	R	4,892	R	5,207	R	5,522	R	5,837	R	6,152	R	6,467	R	6,782
3.40	R	6,948	R	7,288	R	7,628	R	7,968	R	8,308	R	8,648	R	8,988
3.65	R	9,005	R	9,370	R	9,735	R	10,100	R	10,465	R	10,830	R	11,195

Notes:

- The cost items reflect the input allocation based on the target yield for the respective crops.
- Although some expenditure items are zero, it is reflected in the budgets to allow for individual inclusion.
- Fertiliser assumptions (kg/ha): Maize N:P:K – 130:25:35. Soybeans N:P:K – 25:18:36.
- Other macro- & microelements such as calcium, magnesium and zinc are included in the fertiliser costs.
- The cost of fuel includes pre-harvest and harvesting costs with the assumption that own machinery is used.
- The cost for soybean seed reflects a combination of own- and purchased seed.
- There will be large fluctuations for insurance cost (hail) based on the associated risk in respective areas. It is advised that producers adjust this cost based on their individual premiums.
- It is important to note that overhead costs are not included and should be accounted for.

Mpumalanga

Table 2.2: Income & cost budgets for maize, soybeans & grain sorghum for Mpumalanga - Dryland

Middelburg / Trichardt					Ermelo	
Crop		Maize	Soybeans	Grain Sorghum	Maize	Soybeans
Production System		Dryland	Dryland	Dryland	Dryland	Dryland
1) INCOME						
Yield: Deterministic	T/HA	6.50	2.50	4.50	6.00	2.00
SAFEX SIMULATED PRICE / PRODUCER PRICE: 2023	R/TON	R4,442	R8,836	R4,986	R4,442	R8,836
Total deductions	R/TON	R357	R252	R63	R412	R279
- Transport differential	R/TON	R279	R138	R-	R334	R165
- Grade differential	R/TON	R18	R-	R-	R18	R-
- Handling & commission	R/TON	R60	R59	R63	R60	R59
- Seed breeding & technology levy	R/TON	R-	R55	R-	R-	R55
Price premiums	R/TON	R-	R-	R-	R-	R-
Net Farm Gate Price	R/TON	R4,086	R8,584	R4,923	R4,031	R8,557
GROSS INCOME	R/HA	R26,559	R21,460	R22,154	R24,186	R17,114
2) VARIABLE EXPENDITURES						
Contracting	R/HA	R-	R-	R-	R-	R-
Crop insurance	R/HA	R1,009	R1,760	R665	R919	R1,403
Fertilizer	R/HA	R7,157	R2,335	R4,208	R6,827	R2,114
Lime	R/HA	R655	R-	R655	R655	R-
Seed	R/HA	R2,918	R1,204	R700	R2,594	R1,103
Fuel	R/HA	R1,568	R836	R1,290	R1,335	R809
Herbicide	R/HA	R1,462	R1,610	R1,326	R1,567	R1,562
Insecticide/Fungicide	R/HA	R1,011	R443	R716	R1,011	R421
Marketing costs	R/HA	R-	R-	R-	R-	R-
Repairs and maintenance	R/HA	R777	R660	R723	R773	R654
Casual labour	R/HA	R287	R-	R102	R265	R-
Aerial spray	R/HA	R-	R-	R-	R-	R-
Other expenditure	R/HA	R-	R-	R-	R-	R-
TOTAL VARIABLE EXPENDITURE	R/HA	R16,843	R8,846	R10,384	R15,946	R8,067
TOTAL VARIABLE EXPENDITURE	R/TON	R2,591	R3,538	R2,308	R2,658	R4,034
3.1) GROSS MARGIN:	R/HA	R9,715	R12,614	R11,770	R8,240	R9,047
3.2) GROSS MARGIN:	R/TON	R1,495	R5,045	R2,616	R1,373	R4,523
BREAK-EVEN YIELD	T/HA	4.12	1.03	2.11	3.96	0.94
BREAK-EVEN PRICE	R/TON	R2,591	R3,538	R2,308	R2,658	R4,034

Source: BFAP, GSA & Individual Farmers, 2022

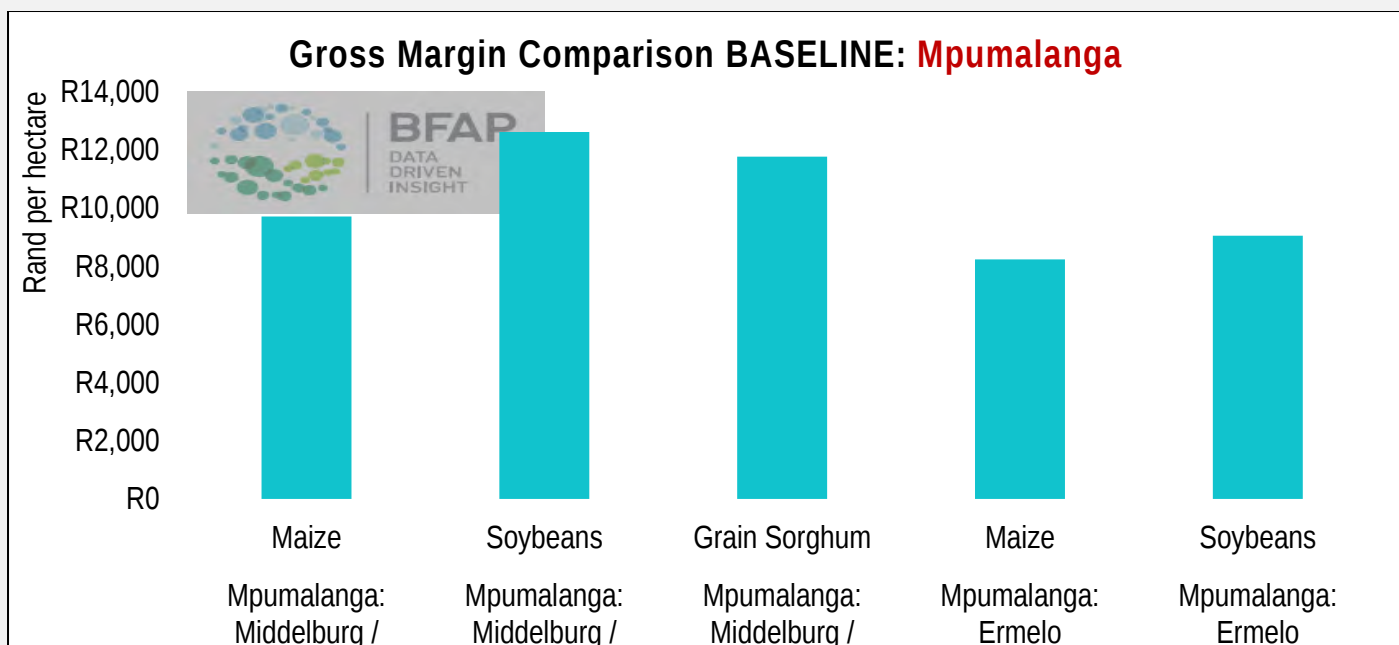


Figure 2.2: Gross margin comparison – Baseline: Mpumalanga

MAIZE SENSITIVITY ANALYSIS (GROSS MARGIN PER HECTARE): MPUMALANGA: MIDDELBURG / TRICHARD									
PRODUCERS YIELD (T/HA)									
PRICE	5.00	5.50	6.00	6.50	7.00	7.50	8.00		
R3,686	R 1,586	R 3,429	R 5,272	R 7,115	R 8,958	R 10,801	R 12,644		
R3,786	R 2,086	R 3,979	R 5,872	R 7,765	R 9,658	R 11,551	R 13,444		
R3,886	R 2,586	R 4,529	R 6,472	R 8,415	R 10,358	R 12,301	R 14,244		
R3,986	R 3,086	R 5,079	R 7,072	R 9,065	R 11,058	R 13,051	R 15,044		
R4,086	R 3,586	R 5,629	R 7,672	R 9,715	R 11,758	R 13,801	R 15,844		
R4,186	R 4,086	R 6,179	R 8,272	R 10,365	R 12,458	R 14,551	R 16,644		
R4,286	R 4,586	R 6,729	R 8,872	R 11,015	R 13,158	R 15,301	R 17,444		
R4,386	R 5,086	R 7,279	R 9,472	R 11,665	R 13,858	R 16,051	R 18,244		
R4,486	R 5,586	R 7,829	R 10,072	R 12,315	R 14,558	R 16,801	R 19,044		

SOYBEANS SENSITIVITY ANALYSIS (GROSS MARGIN PER HECTARE): MPUMALANGA: MIDDELBURG / TRICHARD									
PRODUCERS YIELD (T/HA)									
PRICE	1.75	2.00	2.25	2.50	2.75	3.00	3.25		
R8,184	R 5,476	R 7,522	R 9,568	R 11,614	R 13,660	R 15,706	R 17,751		
R8,284	R 5,651	R 7,722	R 9,793	R 11,864	R 13,935	R 16,006	R 18,076		
R8,384	R 5,826	R 7,922	R 10,018	R 12,114	R 14,210	R 16,306	R 18,401		
R8,484	R 6,001	R 8,122	R 10,243	R 12,364	R 14,485	R 16,606	R 18,726		
R8,584	R 6,176	R 8,322	R 10,468	R 12,614	R 14,760	R 16,906	R 19,051		
R8,684	R 6,351	R 8,522	R 10,693	R 12,864	R 15,035	R 17,206	R 19,376		
R8,784	R 6,526	R 8,722	R 10,918	R 13,114	R 15,310	R 17,506	R 19,701		
R8,884	R 6,701	R 8,922	R 11,143	R 13,364	R 15,585	R 17,806	R 20,026		
R8,984	R 6,876	R 9,122	R 11,368	R 13,614	R 15,860	R 18,106	R 20,351		

MAIZE SENSITIVITY ANALYSIS (GROSS MARGIN PER HECTARE): MPUMALANGA: ERMELO

PRODUCERS YIELD (T/HA)															
PRICE		4.50		5.00		5.50		6.00		6.50		7.00		7.50	
R3,631	R	393	R	2,209	R	4,024	R	5,840	R	7,655	R	9,471	R	11,286	
R3,731	R	843	R	2,709	R	4,574	R	6,440	R	8,305	R	10,171	R	12,036	
R3,831	R	1,293	R	3,209	R	5,124	R	7,040	R	8,955	R	10,871	R	12,786	
R3,931	R	1,743	R	3,709	R	5,674	R	7,640	R	9,605	R	11,571	R	13,536	
R4,031	R	2,193	R	4,209	R	6,224	R	8,240	R	10,255	R	12,271	R	14,286	
R4,131	R	2,643	R	4,709	R	6,774	R	8,840	R	10,905	R	12,971	R	15,036	
R4,231	R	3,093	R	5,209	R	7,324	R	9,440	R	11,555	R	13,671	R	15,786	
R4,331	R	3,543	R	5,709	R	7,874	R	10,040	R	12,205	R	14,371	R	16,536	
R4,431	R	3,993	R	6,209	R	8,424	R	10,640	R	12,855	R	15,071	R	17,286	

SOYBEANS SENSITIVITY ANALYSIS (GROSS MARGIN PER HECTARE): MPUMALANGA: ERMELO

PRODUCERS YIELD (T/HA)															
PRICE		1.25		1.50		1.75		2.00		2.25		2.50		2.75	
R8,157	R	2,129	R	4,168	R	6,207	R	8,247	R	10,286	R	12,325	R	14,364	
R8,257	R	2,254	R	4,318	R	6,382	R	8,447	R	10,511	R	12,575	R	14,639	
R8,357	R	2,379	R	4,468	R	6,557	R	8,647	R	10,736	R	12,825	R	14,914	
R8,457	R	2,504	R	4,618	R	6,732	R	8,847	R	10,961	R	13,075	R	15,189	
R8,557	R	2,629	R	4,768	R	6,907	R	9,047	R	11,186	R	13,325	R	15,464	
R8,657	R	2,754	R	4,918	R	7,082	R	9,247	R	11,411	R	13,575	R	15,739	
R8,757	R	2,879	R	5,068	R	7,257	R	9,447	R	11,636	R	13,825	R	16,014	
R8,857	R	3,004	R	5,218	R	7,432	R	9,647	R	11,861	R	14,075	R	16,289	
R8,957	R	3,129	R	5,368	R	7,607	R	9,847	R	12,086	R	14,325	R	16,564	

SOYBEANS MARGIN ABOVE / BELOW MAIZE (GROSS MARGIN PER HECTARE): MPUMALANGA: MIDDELBURG / TRICHARD

PRICE (R/TON)														
YIELD	R	8,284	R	8,384	R	8,484	R	8,584	R	8,684	R	8,784	R	8,884
1.50	-R	6,136	-R	5,986	-R	5,836	-R	5,686	-R	5,536	-R	5,386	-R	5,236
1.75	-R	4,065	-R	3,890	-R	3,715	-R	3,540	-R	3,365	-R	3,190	-R	3,015
2.00	-R	1,994	-R	1,794	-R	1,594	-R	1,394	-R	1,194	-R	994	-R	794
2.25	R	77	R	302	R	527	R	752	R	977	R	1,202	R	1,427
2.50	R	2,148	R	2,398	R	2,648	R	2,898	R	3,148	R	3,398	R	3,648
2.75	R	4,219	R	4,494	R	4,769	R	5,044	R	5,319	R	5,594	R	5,869
3.00	R	6,290	R	6,590	R	6,890	R	7,190	R	7,490	R	7,790	R	8,090
3.25	R	8,361	R	8,686	R	9,011	R	9,336	R	9,661	R	9,986	R	10,311
3.50	R	10,432	R	10,782	R	11,132	R	11,482	R	11,832	R	12,182	R	12,532

SOYBEANS MARGIN ABOVE / BELOW MAIZE (GROSS MARGIN PER HECTARE): MPUMALANGA: ERMELO

PRICE (R/TON)														
YIELD	R	8,257	R	8,357	R	8,457	R	8,557	R	8,657	R	8,757	R	8,857
1.00	-R	8,050	-R	7,950	-R	7,850	-R	7,750	-R	7,650	-R	7,550	-R	7,450
1.25	-R	5,986	-R	5,861	-R	5,736	-R	5,611	-R	5,486	-R	5,361	-R	5,236
1.50	-R	3,922	-R	3,772	-R	3,622	-R	3,472	-R	3,322	-R	3,172	-R	3,022
1.75	-R	1,857	-R	1,682	-R	1,507	-R	1,332	-R	1,157	-R	982	-R	807
2.00	R	207	R	407	R	607	R	807	R	1,007	R	1,207	R	1,407
2.25	R	2,271	R	2,496	R	2,721	R	2,946	R	3,171	R	3,396	R	3,621
2.50	R	4,335	R	4,585	R	4,835	R	5,085	R	5,335	R	5,585	R	5,835
2.75	R	6,400	R	6,675	R	6,950	R	7,225	R	7,500	R	7,775	R	8,050
3.00	R	8,464	R	8,764	R	9,064	R	9,364	R	9,664	R	9,964	R	10,264

Notes:

- The cost items reflect the input allocation based on the target yield for the respective crops.
- Although some expenditure items are zero, it is reflected in the budgets to allow for individual inclusion.
- Fertiliser assumptions (kg/ha): Maize (Middelburg/Trichard) N:P:K – 120:21:30. Soybeans (Middelburg/Trichard) N:P:K – 10:14:20. Grain sorghum N:P:K – 85:10:11. Maize (Ermelo) N:P:K – 111:21:30. Soybeans (Ermelo) N:P:K – 10:12:18.
- Other macro- & microelements such as calcium, magnesium and zinc are included in the fertiliser costs.
- The cost of fuel includes pre-harvest and harvesting costs with the assumption that own machinery is used.
- The cost for soybean seed reflects a combination of own- and purchased seed.
- There will be large fluctuations for insurance cost (hail) based on the associated risk in respective areas. It is advised that producers adjust this cost based on their individual premiums.
- It is important to note that overhead costs are not included and should be accounted for.

Eastern Free State

Table 2.3: Income & cost budgets for maize, soybeans, sunflower & dry beans for Eastern Free State - Dryland

Eastern Free State					
Crop		Maize	Soybeans	Sunflower	Dry beans
Production System		Dryland	Dryland	Dryland	Dryland
1) INCOME					
Yield: Deterministic	T/HA	5.50	2.00	1.80	1.50
SAFEX SIMULATED PRICE / PRODUCER PRICE: 2023	R/TON	R4,442	R8,836	R9,787	R20,718
Total deductions	R/TON	R416	R285	R345	R516
- Transport differential	R/TON	R338	R167	R252	R-
- Grade differential	R/TON	R18	R-	R-	R-
- Handling & commission	R/TON	R60	R63	R93	R516
- Seed breeding & technology levy	R/TON	R-	R55	R-	R-
Price premiums	R/TON	R-	R-	R-	R-
Net Farm Gate Price	R/TON	R4,027	R8,551	R9,442	R20,202
GROSS INCOME	R/HA	R22,148	R17,102	R16,995	R30,304
2) VARIABLE EXPENDITURES					
Contracting	R/HA	R-	R-	R-	R1,318
Crop insurance	R/HA	R797	R1,915	R731	R2,939
Fertilizer	R/HA	R5,536	R2,408	R2,289	R3,461
Lime	R/HA	R617	R-	R-	R524
Seed	R/HA	R1,816	R1,204	R743	R3,960
Fuel	R/HA	R1,416	R1,119	R1,071	R980
Herbicide	R/HA	R1,275	R1,137	R1,293	R1,243
Insecticide/Fungicide	R/HA	R708	R250	R284	R1,955
Marketing costs	R/HA	R-	R-	R-	R-
Repairs and maintenance	R/HA	R1,036	R833	R838	R626
Casual labour	R/HA	R243	R-	R-	R2,000
Aerial spray	R/HA	R-	R-	R-	R-
Other expenditure	R/HA	R-	R-	R-	R120
TOTAL VARIABLE EXPENDITURE	R/HA	R13,443	R8,865	R7,250	R19,126
TOTAL VARIABLE EXPENDITURE	R/TON	R2,444	R4,433	R4,028	R12,751
3.1) GROSS MARGIN:					
3.2) GROSS MARGIN:	R/HA	R8,705	R8,237	R9,745	R11,177
	R/TON	R1,583	R4,118	R5,414	R7,452
BREAK-EVEN YIELD					
BREAK-EVEN PRICE	T/HA	3.34	1.04	0.77	0.95
	R/TON	R2,444	R4,433	R4,028	R12,751

Source: BFAP, GSA, VKB & Individual Farmers, 2022

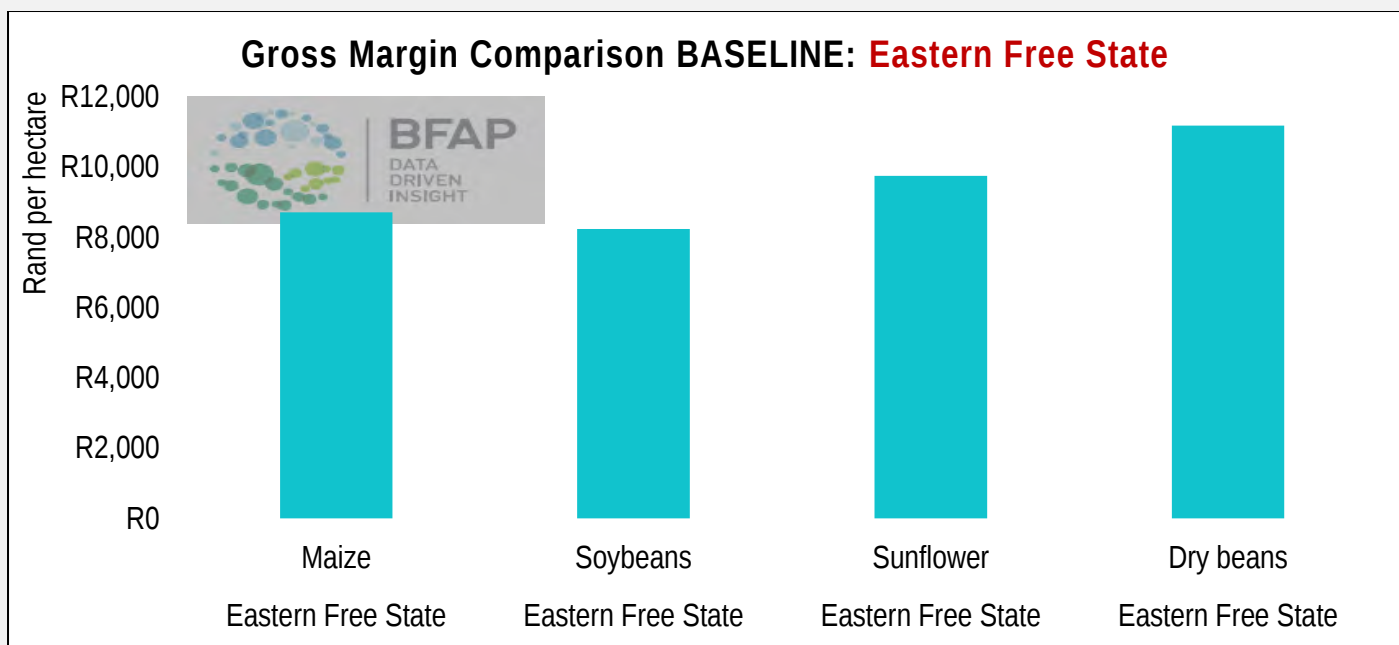


Figure 2.3: Gross margin comparison – Baseline: Eastern Free State

MAIZE SENSITIVITY ANALYSIS (GROSS MARGIN PER HECTARE): EASTERN FREE STATE

		PRODUCERS YIELD (T/HA)									
PRICE		4.00		4.50		5.00		5.50		6.00	
R3,627	R	1,064	R	2,878	R	4,691	R	6,505	R	8,318	R
R3,727	R	1,464	R	3,328	R	5,191	R	7,055	R	8,918	R
R3,827	R	1,864	R	3,778	R	5,691	R	7,605	R	9,518	R
R3,927	R	2,264	R	4,228	R	6,191	R	8,155	R	10,118	R
R4,027	R	2,664	R	4,678	R	6,691	R	8,705	R	10,718	R
R4,127	R	3,064	R	5,128	R	7,191	R	9,255	R	11,318	R
R4,227	R	3,464	R	5,578	R	7,691	R	9,805	R	11,918	R
R4,327	R	3,864	R	6,028	R	8,191	R	10,355	R	12,518	R
R4,427	R	4,264	R	6,478	R	8,691	R	10,905	R	13,118	R

SOYBEANS SENSITIVITY ANALYSIS (GROSS MARGIN PER HECTARE): EASTERN FREE STATE

		PRODUCERS YIELD (T/HA)									
PRICE		1.25		1.50		1.75		2.00		2.25	
R8,151	R	1,324	R	3,361	R	5,399	R	7,437	R	9,474	R
R8,251	R	1,449	R	3,511	R	5,574	R	7,637	R	9,699	R
R8,351	R	1,574	R	3,661	R	5,749	R	7,837	R	9,924	R
R8,451	R	1,699	R	3,811	R	5,924	R	8,037	R	10,149	R
R8,551	R	1,824	R	3,961	R	6,099	R	8,237	R	10,374	R
R8,651	R	1,949	R	4,111	R	6,274	R	8,437	R	10,599	R
R8,751	R	2,074	R	4,261	R	6,449	R	8,637	R	10,824	R
R8,851	R	2,199	R	4,411	R	6,624	R	8,837	R	11,049	R
R8,951	R	2,324	R	4,561	R	6,799	R	9,037	R	11,274	R

SUNFLOWER SENSITIVITY ANALYSIS (GROSS MARGIN PER HECTARE): EASTERN FREE STATE

PRODUCERS YIELD (T/HA)															
PRICE		1.00		1.25		1.50		1.80		2.00		2.25		2.50	
R9,042	R	1,792	R	4,052	R	6,312	R	9,025	R	10,833	R	13,094	R	15,354	
R9,142	R	1,892	R	4,177	R	6,462	R	9,205	R	11,033	R	13,319	R	15,604	
R9,242	R	1,992	R	4,302	R	6,612	R	9,385	R	11,233	R	13,544	R	15,854	
R9,342	R	2,092	R	4,427	R	6,762	R	9,565	R	11,433	R	13,769	R	16,104	
R9,442	R	2,192	R	4,552	R	6,912	R	9,745	R	11,633	R	13,994	R	16,354	
R9,542	R	2,292	R	4,677	R	7,062	R	9,925	R	11,833	R	14,219	R	16,604	
R9,642	R	2,392	R	4,802	R	7,212	R	10,105	R	12,033	R	14,444	R	16,854	
R9,742	R	2,492	R	4,927	R	7,362	R	10,285	R	12,233	R	14,669	R	17,104	
R9,842	R	2,592	R	5,052	R	7,512	R	10,465	R	12,433	R	14,894	R	17,354	

SOYBEANS MARGIN ABOVE / BELOW MAIZE (GROSS MARGIN PER HECTARE): EASTERN FREE STATE

PRICE (R/TON)														
YIELD	R	8,251	R	8,351	R	8,451	R	8,551	R	8,651	R	8,751	R	8,851
1.00	-R	9,319	-R	9,219	-R	9,119	-R	9,019	-R	8,919	-R	8,819	-R	8,719
1.25	-R	7,256	-R	7,131	-R	7,006	-R	6,881	-R	6,756	-R	6,631	-R	6,506
1.50	-R	5,193	-R	5,043	-R	4,893	-R	4,743	-R	4,593	-R	4,443	-R	4,293
1.75	-R	3,131	-R	2,956	-R	2,781	-R	2,606	-R	2,431	-R	2,256	-R	2,081
2.00	-R	1,068	-R	868	-R	668	-R	468	-R	268	-R	68	R	132
2.25	R	995	R	1,220	R	1,445	R	1,670	R	1,895	R	2,120	R	2,345
2.50	R	3,057	R	3,307	R	3,557	R	3,807	R	4,057	R	4,307	R	4,557
2.75	R	5,120	R	5,395	R	5,670	R	5,945	R	6,220	R	6,495	R	6,770
3.00	R	7,183	R	7,483	R	7,783	R	8,083	R	8,383	R	8,683	R	8,983

Notes:

- The cost items reflect the input allocation based on the target yield for the respective crops.
- Although some expenditure items are zero, it is reflected in the budgets to allow for individual inclusion.
- Fertiliser assumptions (kg/ha): Maize N:P:K – 83:26:13. Soybeans N:P:K – 10:15:20. Sunflower N:P:K – 35:8:8. Dry beans N:P:K – 40:15:20.
- Other macro- & microelements such as calcium, magnesium and zinc are included in the fertiliser costs.
- The cost of fuel includes pre-harvest and harvesting costs with the assumption that own machinery is used.
- The cost for soybean seed reflects a combination of own- and purchased seed.
- There will be large fluctuations for insurance cost (hail) based on the associated risk in respective areas. It is advised that producers adjust this cost based on their individual premiums.
- It is important to note that overhead costs are not included and should be accounted for.

Northern Free State

Table 2.4: Income & cost budgets for maize, soybeans, sunflower, ground nuts & grain sorghum for Western / Northern Free State - Dryland

Area		Western / Northern Free State					
Crop		Maize: Higher potential	Maize: Normal potential	Soybean	Sun- flower	Ground Nuts	Grain Sorghum
Production System		Dryland	Dryland	Dryland	Dryland	Dryland	Dryland
1) INCOME							
Yield: Deterministic	T/HA	5.50	4.50	1.75	1.75	1.50	3.00
SAFEX SIMULATED PRICE / PRODUCER PRICE: 2023	R/TON	R4,442	R4,396	R8,836	R9,787	R12,457	R4,986
Total deductions	R/TON	R408	R345	R279	R423	R63	R63
- Transport differential	R/TON	R327	R257	R161	R263	R-	R-
- Grade differential	R/TON	R18	R25	R-	R-	R-	R-
- Handling & commission	R/TON	R63	R63	R63	R100	R63	R63
- Seed breeding & technology levy	R/TON	R-	R-	R55	R60	R-	R-
Price premiums	R/TON	R-	R-	R-	R-	R-	R-
Net Farm Gate Price	R/TON	R4,035	R4,051	R8,557	R9,363	R12,394	R4,923
GROSS INCOME	R/HA	R22,192	R18,228	R14,975	R16,386	R18,592	R14,769
2) VARIABLE EXPENDITURES							
Contracting	R/HA	R-	R-	R-	R-	R-	R-
Crop insurance	R/HA	R244	R201	R734	R460	R291	R473
Fertilizer	R/HA	R5,246	R4,076	R1,594	R2,593	R2,381	R3,839
Lime	R/HA	R299	R299	R-	R-	R165	R174
Seed	R/HA	R1,491	R1,171	R923	R562	R2,066	R350
Fuel	R/HA	R1,467	R1,454	R1,039	R1,133	R1,996	R1,349
Herbicide	R/HA	R1,046	R1,172	R1,513	R1,079	R1,430	R1,043
Insecticide/Fungicide	R/HA	R967	R967	R250	R346	R971	R686
Marketing costs	R/HA	R-	R-	R-	R-	R-	R-
Repairs and maintenance	R/HA	R934	R928	R790	R733	R934	R778
Casual labour	R/HA	R243	R199	R-	R-	R498	R68
Aerial spray	R/HA	R-	R-	R-	R-	R-	R-
Other expenditure	R/HA	R-	R-	R-	R-	R350	R-
TOTAL VARIABLE EXPENDITURE	R/HA	R11,937	R10,467	R6,842	R6,904	R11,081	R8,760
TOTAL VARIABLE EXPENDITURE	R/TON	R2,170	R2,326	R3,910	R3,945	R7,387	R2,920
3.1) GROSS MARGIN:	R/HA	R10,255	R7,761	R8,133	R9,482	R7,510	R6,009
3.2) GROSS MARGIN:	R/TON	R1,865	R1,725	R4,647	R5,418	R5,007	R2,003
BREAK-EVEN YIELD	T/HA	2.96	2.58	0.80	0.74	0.89	1.78
BREAK-EVEN PRICE	R/TON	R2,170	R2,326	R3,910	R3,945	R7,387	R2,920

Source: BFAP, GSA & Senwes, 2022

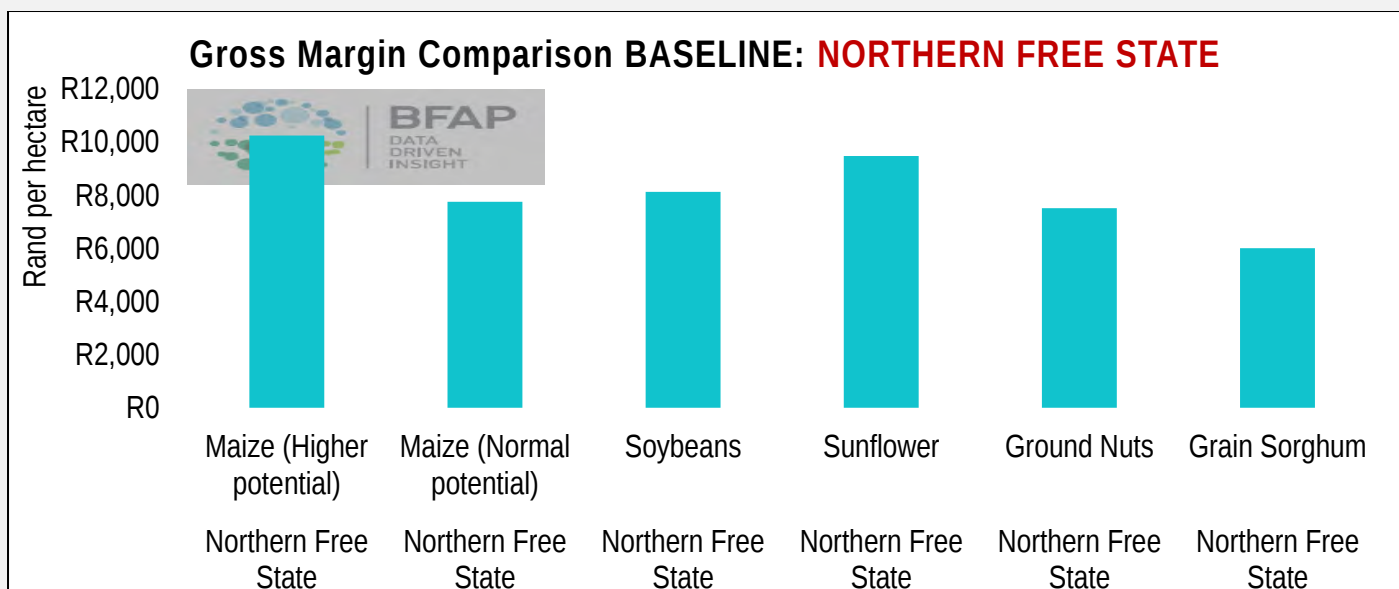


Figure 2.4: Gross margin comparison – Baseline: Western / Northern Free State

MAIZE SENSITIVITY ANALYSIS (GROSS MARGIN PER HECTARE): NORTHERN FREE STATE HIGHER POTENTIAL SOILS

PRODUCERS YIELD (T/HA)															
PRICE		4.00		4.50		5.00		5.50		6.00		6.50		7.00	
R3,635	R	2,603	R	4,420	R	6,238	R	8,055	R	9,873	R	11,690	R	13,508	
R3,735	R	3,003	R	4,870	R	6,738	R	8,605	R	10,473	R	12,340	R	14,208	
R3,835	R	3,403	R	5,320	R	7,238	R	9,155	R	11,073	R	12,990	R	14,908	
R3,935	R	3,803	R	5,770	R	7,738	R	9,705	R	11,673	R	13,640	R	15,608	
R4,035	R	4,203	R	6,220	R	8,238	R	10,255	R	12,273	R	14,290	R	16,308	
R4,135	R	4,603	R	6,670	R	8,738	R	10,805	R	12,873	R	14,940	R	17,008	
R4,235	R	5,003	R	7,120	R	9,238	R	11,355	R	13,473	R	15,590	R	17,708	
R4,335	R	5,403	R	7,570	R	9,738	R	11,905	R	14,073	R	16,240	R	18,408	
R4,435	R	5,803	R	8,020	R	10,238	R	12,455	R	14,673	R	16,890	R	19,108	

SOYBEANS SENSITIVITY ANALYSIS (GROSS MARGIN PER HECTARE): NORTHERN FREE STATE NORMAL POTENTIAL SOILS

PRODUCERS YIELD (T/HA)															
PRICE		1.00		1.25		1.50		1.75		2.00		2.25		2.50	
R8,157	R	1,315	R	3,354	R	5,394	R	7,433	R	9,472	R	11,511	R	13,550	
R8,257	R	1,415	R	3,479	R	5,544	R	7,608	R	9,672	R	11,736	R	13,800	
R8,357	R	1,515	R	3,604	R	5,694	R	7,783	R	9,872	R	11,961	R	14,050	
R8,457	R	1,615	R	3,729	R	5,844	R	7,958	R	10,072	R	12,186	R	14,300	
R8,557	R	1,715	R	3,854	R	5,994	R	8,133	R	10,272	R	12,411	R	14,550	
R8,657	R	1,815	R	3,979	R	6,144	R	8,308	R	10,472	R	12,636	R	14,800	
R8,757	R	1,915	R	4,104	R	6,294	R	8,483	R	10,672	R	12,861	R	15,050	
R8,857	R	2,015	R	4,229	R	6,444	R	8,658	R	10,872	R	13,086	R	15,300	
R8,957	R	2,115	R	4,354	R	6,594	R	8,833	R	11,072	R	13,311	R	15,550	

SUNFLOWER SENSITIVITY ANALYSIS (GROSS MARGIN PER HECTARE): NORTHERN FREE STATE

PRODUCERS YIELD (T/HA)															
PRICE		1.00		1.25		1.50		1.75		2.00		2.25		2.50	
R8,963	R	2,060	R	4,300	R	6,541	R	8,782	R	11,023	R	13,264	R	15,505	
R9,063	R	2,160	R	4,425	R	6,691	R	8,957	R	11,223	R	13,489	R	15,755	
R9,163	R	2,260	R	4,550	R	6,841	R	9,132	R	11,423	R	13,714	R	16,005	
R9,263	R	2,360	R	4,675	R	6,991	R	9,307	R	11,623	R	13,939	R	16,255	
R9,363	R	2,460	R	4,800	R	7,141	R	9,482	R	11,823	R	14,164	R	16,505	
R9,463	R	2,560	R	4,925	R	7,291	R	9,657	R	12,023	R	14,389	R	16,755	
R9,563	R	2,660	R	5,050	R	7,441	R	9,832	R	12,223	R	14,614	R	17,005	
R9,663	R	2,760	R	5,175	R	7,591	R	10,007	R	12,423	R	14,839	R	17,255	
R9,763	R	2,860	R	5,300	R	7,741	R	10,182	R	12,623	R	15,064	R	17,505	

GROUND NUTS SENSITIVITY ANALYSIS (GROSS MARGIN PER HECTARE): NORTHERN FREE STATE

PRODUCERS YIELD (T/HA)															
PRICE		0.75		1.00		1.25		1.50		1.75		2.00		2.25	
R11,994	-R	1,410	R	1,813	R	5,037	R	8,260	R	11,484	R	14,708	R	17,931	
R12,094	-R	1,335	R	1,913	R	5,162	R	8,410	R	11,659	R	14,908	R	18,156	
R12,194	-R	1,260	R	2,013	R	5,287	R	8,560	R	11,834	R	15,108	R	18,381	
R12,294	-R	1,185	R	2,113	R	5,412	R	8,710	R	12,009	R	15,308	R	18,606	
R12,394	-R	1,110	R	2,213	R	5,537	R	8,860	R	12,184	R	15,508	R	18,831	
R12,494	-R	1,035	R	2,313	R	5,662	R	9,010	R	12,359	R	15,708	R	19,056	
R12,594	-R	960	R	2,413	R	5,787	R	9,160	R	12,534	R	15,908	R	19,281	
R12,694	-R	885	R	2,513	R	5,912	R	9,310	R	12,709	R	16,108	R	19,506	
R12,794	-R	810	R	2,613	R	6,037	R	9,460	R	12,884	R	16,308	R	19,731	

SOYBEANS MARGIN ABOVE / BELOW MAIZE (GROSS MARGIN PER HECTARE): NORTHERN FREE STATE

PRICE (R/TON)														
YIELD	R	8,257	R	8,357	R	8,457	R	8,557	R	8,657	R	8,757	R	8,857
0.75	-R	10,904	-R	10,829	-R	10,754	-R	10,679	-R	10,604	-R	10,529	-R	10,454
1.00	-R	8,840	-R	8,740	-R	8,640	-R	8,540	-R	8,440	-R	8,340	-R	8,240
1.25	-R	6,776	-R	6,651	-R	6,526	-R	6,401	-R	6,276	-R	6,151	-R	6,026
1.50	-R	4,712	-R	4,562	-R	4,412	-R	4,262	-R	4,112	-R	3,962	-R	3,812
1.75	-R	2,648	-R	2,473	-R	2,298	-R	2,123	-R	1,948	-R	1,773	-R	1,598
2.00	-R	583	-R	383	-R	183	R	17	R	217	R	417	R	617
2.25	R	1,481	R	1,706	R	1,931	R	2,156	R	2,381	R	2,606	R	2,831
2.50	R	3,545	R	3,795	R	4,045	R	4,295	R	4,545	R	4,795	R	5,045
2.75	R	5,609	R	5,884	R	6,159	R	6,434	R	6,709	R	6,984	R	7,259

Notes:

- The Northern Free State high potential maize budget represents the cultivation of yellow maize under high potential conditions such as water table soils.
- Farm gate price for ground nuts is calculated according to assumptions based on the share of the crop that is graded according to selection grade (40/50-60/70 & 70/80), diverse and crush (human & oil).
- The cost items reflect the input allocation based on the target yield for the respective crops.
- Although some expenditure items are zero, it is reflected in the budgets to allow for individual inclusion.
- Fertiliser assumptions (kg/ha): Maize (higher potential) N:P:K – 92:16:14. Maize (normal potential) N:P:K – 70:15:7. Soybeans N:P:K – 10:10:10. Sunflower N:P:K – 45:7:10. Ground Nuts N:P:K – 15:15:15. Grain Sorghum N:P:K – 69:14:8.
- Other macro- & microelements such as calcium, magnesium and zinc are included in the fertiliser costs.
- The cost of fuel includes pre-harvest and harvesting costs with the assumption that own machinery is used.
- The cost for soybean seed reflects a combination of own- and purchased seed.
- There will be large fluctuations for insurance cost (hail) based on the associated risk in respective areas. It is advised that producers adjust this cost based on their individual premiums.
- It is important to note that overhead costs are not included and should be accounted for.

North West: Koster

Table 2.5: Income & cost budgets for maize, soybeans & sunflower for North West: Koster region - Dryland

Area		North West: Koster		
Crop		Maize	Soybeans	Sunflower
Production System		Dryland	Dryland	Dryland
1) INCOME				
Yield: Deterministic	T/HA	4.75	2.00	2.00
SAFEX SIMULATED PRICE / PRODUCER PRICE: 2023	R/TON	R4,396	R8,836	R9,787
Total deductions	R/TON	R269	R207	R292
- Transport differential	R/TON	R181	R89	R199
- Grade differential	R/TON	R25	R-	R-
- Handling & commission	R/TON	R63	R63	R-
- Seed breeding & technology levy	R/TON	R-	R55	R93
Price premiums	R/TON	R-	R-	R-
Net Farm Gate Price	R/TON	R4,127	R8,629	R9,495
GROSS INCOME	R/HA	R19,601	R17,258	R18,989
2) VARIABLE EXPENDITURES				
Contracting	R/HA	R-	R-	R-
Crop insurance	R/HA	R413	R1,932	R551
Fertilizer	R/HA	R4,721	R1,905	R2,678
Lime	R/HA	R339	R-	R-
Seed	R/HA	R1,118	R722	R650
Fuel	R/HA	R1,339	R1,098	R1,091
Herbicide	R/HA	R1,039	R1,411	R912
Insecticide/Fungicide	R/HA	R967	R256	R392
Marketing costs	R/HA	R-	R-	R-
Repairs and maintenance	R/HA	R947	R674	R841
Casual labour	R/HA	R210	R-	R-
Aerial spray	R/HA	R-	R-	R-
Other expenditure	R/HA	R-	R-	R-
TOTAL VARIABLE EXPENDITURE	R/HA	R11,093	R7,999	R7,116
TOTAL VARIABLE EXPENDITURE	R/TON	R2,335	R3,999	R3,558
3.1) GROSS MARGIN:				
	R/HA	R8,509	R9,259	R11,873
3.2) GROSS MARGIN:				
	R/TON	R1,791	R4,630	R5,936
BREAK-EVEN YIELD				
	T/HA	2.69	0.93	0.75
BREAK-EVEN PRICE				
	R/TON	R2,335	R3,999	R3,558

Source: BFAP, GSA, NWK & Individual Farmers, 2022

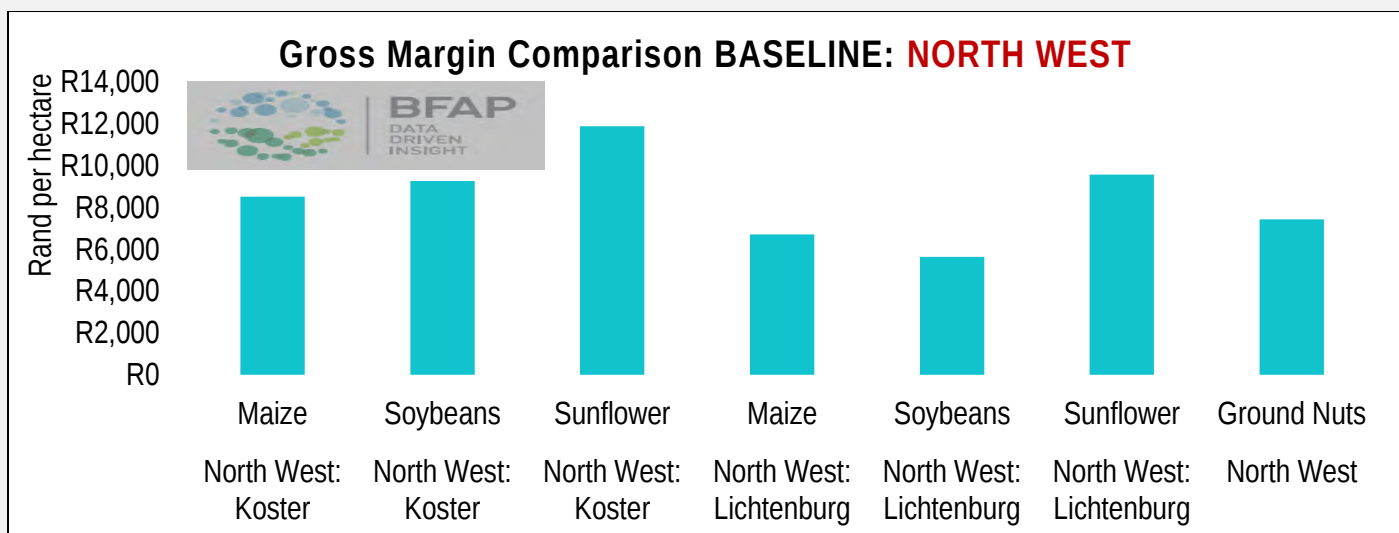


Figure 2.5: Gross margin comparison – Baseline: North West: Koster & Lichtenburg

MAIZE SENSITIVITY ANALYSIS (GROSS MARGIN PER HECTARE): NORTH WEST KOSTER										
PRODUCERS YIELD (T/HA)										
PRICE	3.25		3.75		4.25		4.75		5.25	
R3,727	R	1,019	R	2,882	R	4,745	R	6,609	R	8,472
R3,827	R	1,344	R	3,257	R	5,170	R	7,084	R	8,997
R3,927	R	1,669	R	3,632	R	5,595	R	7,559	R	9,522
R4,027	R	1,994	R	4,007	R	6,020	R	8,034	R	10,047
R4,127	R	2,319	R	4,382	R	6,445	R	8,509	R	10,572
R4,227	R	2,644	R	4,757	R	6,870	R	8,984	R	11,097
R4,327	R	2,969	R	5,132	R	7,295	R	9,459	R	11,622
R4,427	R	3,294	R	5,507	R	7,720	R	9,934	R	12,147
R4,527	R	3,619	R	5,882	R	8,145	R	10,409	R	12,672

SOYBEANS SENSITIVITY ANALYSIS (GROSS MARGIN PER HECTARE): NORTH WEST KOSTER										
PRODUCERS YIELD (T/HA)										
PRICE	1.25		1.50		1.75		2.00		2.25	
R8,229	R	2,287	R	4,345	R	6,402	R	8,459	R	10,516
R8,329	R	2,412	R	4,495	R	6,577	R	8,659	R	10,741
R8,429	R	2,537	R	4,645	R	6,752	R	8,859	R	10,966
R8,529	R	2,662	R	4,795	R	6,927	R	9,059	R	11,191
R8,629	R	2,787	R	4,945	R	7,102	R	9,259	R	11,416
R8,729	R	2,912	R	5,095	R	7,277	R	9,459	R	11,641
R8,829	R	3,037	R	5,245	R	7,452	R	9,659	R	11,866
R8,929	R	3,162	R	5,395	R	7,627	R	9,859	R	12,091
R9,029	R	3,287	R	5,545	R	7,802	R	10,059	R	12,316

SUNFLOWER SENSITIVITY ANALYSIS (GROSS MARGIN PER HECTARE): NORTH WEST KOSTER										
PRODUCERS YIELD (T/HA)										
PRICE	1.25		1.50		1.75		2.00		2.25	
R9,095	R	4,252	R	6,526	R	8,799	R	11,073	R	13,346
R9,195	R	4,377	R	6,676	R	8,974	R	11,273	R	13,571
R9,295	R	4,502	R	6,826	R	9,149	R	11,473	R	13,796
R9,395	R	4,627	R	6,976	R	9,324	R	11,673	R	14,021
R9,495	R	4,752	R	7,126	R	9,499	R	11,873	R	14,246
R9,595	R	4,877	R	7,276	R	9,674	R	12,073	R	14,471
R9,695	R	5,002	R	7,426	R	9,849	R	12,273	R	14,696
R9,795	R	5,127	R	7,576	R	10,024	R	12,473	R	14,921
R9,895	R	5,252	R	7,726	R	10,199	R	12,673	R	15,146

SOYBEANS MARGIN ABOVE / BELOW MAIZE (GROSS MARGIN PER HECTARE): NORTH WEST KOSTER

PRICE (R/TON)														
YIELD	R	8,329	R	8,429	R	8,529	R	8,629	R	8,729	R	8,829	R	8,929
1.00	-R	8,178	-R	8,078	-R	7,978	-R	7,878	-R	7,778	-R	7,678	-R	7,578
1.25	-R	6,096	-R	5,971	-R	5,846	-R	5,721	-R	5,596	-R	5,471	-R	5,346
1.50	-R	4,014	-R	3,864	-R	3,714	-R	3,564	-R	3,414	-R	3,264	-R	3,114
1.75	-R	1,932	-R	1,757	-R	1,582	-R	1,407	-R	1,232	-R	1,057	-R	882
2.00	R	150	R	350	R	550	R	750	R	950	R	1,150	R	1,350
2.25	R	2,233	R	2,458	R	2,683	R	2,908	R	3,133	R	3,358	R	3,583
2.50	R	4,315	R	4,565	R	4,815	R	5,065	R	5,315	R	5,565	R	5,815
2.75	R	6,397	R	6,672	R	6,947	R	7,222	R	7,497	R	7,772	R	8,047
3.00	R	8,479	R	8,779	R	9,079	R	9,379	R	9,679	R	9,979	R	10,279

Notes:

- The cost items reflect the input allocation based on the target yield for the respective crops.
- Although some expenditure items are zero, it is reflected in the budgets to allow for individual inclusion.
- Fertiliser assumptions (kg/ha): Maize N:P:K – 81:18:8. Soybeans N:P:K – 10:15:8. Sunflower N:P:K – 54:9:0.
- Other macro- & microelements such as calcium, magnesium and zinc are included in the fertiliser costs.
- The cost of fuel includes pre-harvest and harvesting costs with the assumption that own machinery is used.
- The cost for soybean seed reflects a combination of own- and purchased seed.
- There will be large fluctuations for insurance cost (hail) based on the associated risk in respective areas. It is advised that producers adjust this cost based on their individual premiums.
- It is important to note that overhead costs are not included and should be accounted for.

North West: Lichtenburg

Table 2.6: Income & cost budgets for maize, soybeans & sunflower for North West: Lichtenburg region - Dryland

Area		North West: Lichtenburg			
Crop		Maize	Soybeans	Sunflower	Ground Nuts
Production System		Dryland	Dryland	Dryland	Dryland
1) INCOME					
Yield: Deterministic	T/HA	4.25	1.50	1.70	1.50
SAFEX SIMULATED PRICE / PRODUCER PRICE: 2023	R/TON	R4,396	R8,836	R9,787	R12,457
Total deductions	R/TON	R329	R237	R339	R63
- Transport differential	R/TON	R241	R119	R246	R-
- Grade differential	R/TON	R25	R-	R-	R-
- Handling & commission	R/TON	R63	R63	R93	R63
- Seed breeding & technology levy	R/TON	R-	R55	R-	R-
Price premiums	R/TON	R-	R-	R-	R-
Net Farm Gate Price	R/TON	R4,067	R8,599	R9,448	R12,394
GROSS INCOME	R/HA	R17,283	R12,898	R16,061	R18,592
2) VARIABLE EXPENDITURES					
Contracting	R/HA	R-	R-	R-	R-
Crop insurance	R/HA	R260	R1,444	R451	R297
Fertilizer	R/HA	R4,257	R1,687	R2,182	R2,372
Lime	R/HA	R339	R-	R-	R187
Seed	R/HA	R1,011	R722	R650	R2,002
Fuel	R/HA	R1,321	R1,055	R1,073	R2,030
Herbicide	R/HA	R1,039	R1,411	R803	R1,228
Insecticide/Fungicide	R/HA	R967	R256	R392	R1,001
Marketing costs	R/HA	R-	R-	R-	R-
Repairs and maintenance	R/HA	R1,198	R681	R938	R1,230
Casual labour	R/HA	R188	R-	R-	R498
Aerial spray	R/HA	R-	R-	R-	R-
Other expenditure	R/HA	R-	R-	R-	R327
TOTAL VARIABLE EXPENDITURE	R/HA	R10,579	R7,256	R6,489	R11,173
TOTAL VARIABLE EXPENDITURE	R/TON	R2,489	R4,838	R3,817	R7,449
3.1) GROSS MARGIN:	R/HA	R6,704	R5,642	R9,572	R7,419
3.2) GROSS MARGIN:	R/TON	R1,577	R3,761	R5,630	R4,946
BREAK-EVEN YIELD	T/HA	2.60	0.84	0.69	0.90
BREAK-EVEN PRICE	R/TON	R2,489	R4,838	R3,817	R7,449

Source: BFAP, GSA, NWK & Individual Farmers, 2022

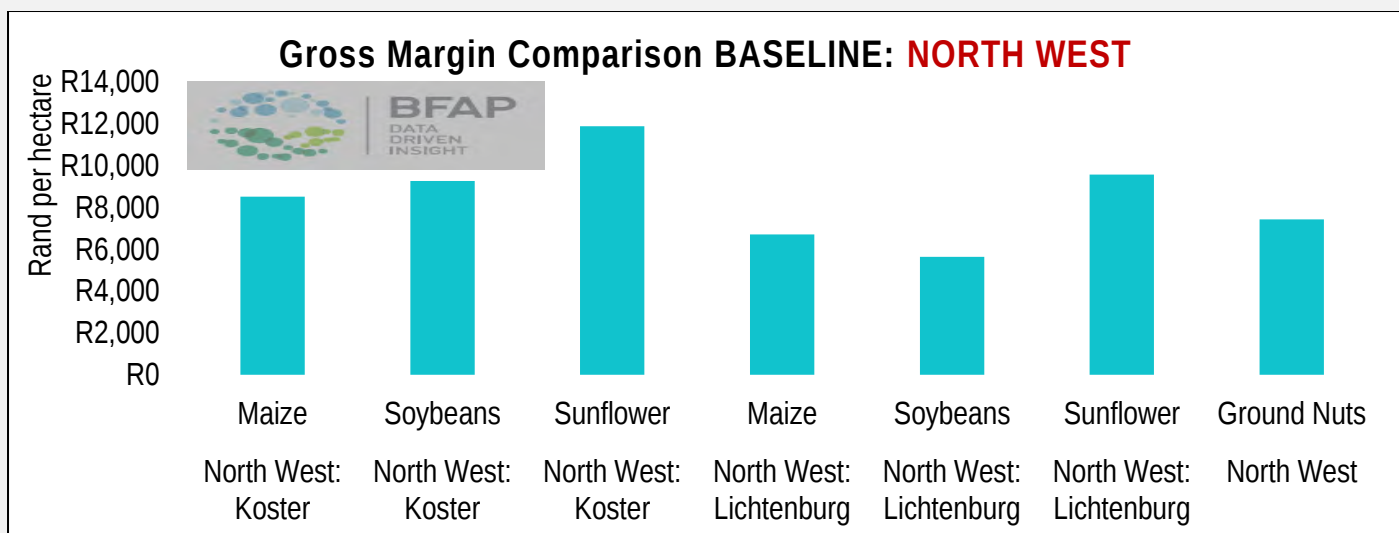


Figure 2.6: Gross margin comparison – Baseline: North West: Koster & Lichtenburg

MAIZE SENSITIVITY ANALYSIS (GROSS MARGIN PER HECTARE): NORTH WEST LICHTENBURG										
PRODUCERS YIELD (T/HA)										
PRICE	2.75	3.25	3.75	4.25	4.75	5.25	5.75			
R3,667	-R 496	R 1,338	R 3,171	R 5,004	R 6,838	R 8,671	R 10,504			
R3,767	-R 221	R 1,663	R 3,546	R 5,429	R 7,313	R 9,196	R 11,079			
R3,867	R 54	R 1,988	R 3,921	R 5,854	R 7,788	R 9,721	R 11,654			
R3,967	R 329	R 2,313	R 4,296	R 6,279	R 8,263	R 10,246	R 12,229			
R4,067	R 604	R 2,638	R 4,671	R 6,704	R 8,738	R 10,771	R 12,804			
R4,167	R 879	R 2,963	R 5,046	R 7,129	R 9,213	R 11,296	R 13,379			
R4,267	R 1,154	R 3,288	R 5,421	R 7,554	R 9,688	R 11,821	R 13,954			
R4,367	R 1,429	R 3,613	R 5,796	R 7,979	R 10,163	R 12,346	R 14,529			
R4,467	R 1,704	R 3,938	R 6,171	R 8,404	R 10,638	R 12,871	R 15,104			

SOYBEANS SENSITIVITY ANALYSIS (GROSS MARGIN PER HECTARE): NORTH WEST LICHTENBURG										
PRODUCERS YIELD (T/HA)										
PRICE	0.75	1.00	1.25	1.50	1.75	2.00	2.25			
R8,199	-R 1,107	R 942	R 2,992	R 5,042	R 7,092	R 9,141	R 11,191			
R8,299	-R 1,032	R 1,042	R 3,117	R 5,192	R 7,267	R 9,341	R 11,416			
R8,399	-R 957	R 1,142	R 3,242	R 5,342	R 7,442	R 9,541	R 11,641			
R8,499	-R 882	R 1,242	R 3,367	R 5,492	R 7,617	R 9,741	R 11,866			
R8,599	-R 807	R 1,342	R 3,492	R 5,642	R 7,792	R 9,941	R 12,091			
R8,699	-R 732	R 1,442	R 3,617	R 5,792	R 7,967	R 10,141	R 12,316			
R8,799	-R 657	R 1,542	R 3,742	R 5,942	R 8,142	R 10,341	R 12,541			
R8,899	-R 582	R 1,642	R 3,867	R 6,092	R 8,317	R 10,541	R 12,766			
R8,999	-R 507	R 1,742	R 3,992	R 6,242	R 8,492	R 10,741	R 12,991			

SUNFLOWER SENSITIVITY ANALYSIS (GROSS MARGIN PER HECTARE): NORTH WEST LICHTENBURG										
PRODUCERS YIELD (T/HA)										
PRICE	1.00	1.25	1.50	1.70	2.00	2.25	2.50			
R9,048	R 2,558	R 4,820	R 7,082	R 8,892	R 11,606	R 13,868	R 16,130			
R9,148	R 2,658	R 4,945	R 7,232	R 9,062	R 11,806	R 14,093	R 16,380			
R9,248	R 2,758	R 5,070	R 7,382	R 9,232	R 12,006	R 14,318	R 16,630			
R9,348	R 2,858	R 5,195	R 7,532	R 9,402	R 12,206	R 14,543	R 16,880			
R9,448	R 2,958	R 5,320	R 7,682	R 9,572	R 12,406	R 14,768	R 17,130			
R9,548	R 3,058	R 5,445	R 7,832	R 9,742	R 12,606	R 14,993	R 17,380			
R9,648	R 3,158	R 5,570	R 7,982	R 9,912	R 12,806	R 15,218	R 17,630			
R9,748	R 3,258	R 5,695	R 8,132	R 10,082	R 13,006	R 15,443	R 17,880			
R9,848	R 3,358	R 5,820	R 8,282	R 10,252	R 13,206	R 15,668	R 18,130			

GROUND NUTS SENSITIVITY ANALYSIS (GROSS MARGIN PER HECTARE): NORTH WEST

PRODUCERS YIELD (T/HA)															
PRICE		0.75		1.00		1.25		1.50		1.75		2.00		2.25	
R11,994	-R	1,502	R	1,721	R	4,945	R	8,169	R	11,392	R	14,616	R	17,839	
R12,094	-R	1,427	R	1,821	R	5,070	R	8,319	R	11,567	R	14,816	R	18,064	
R12,194	-R	1,352	R	1,921	R	5,195	R	8,469	R	11,742	R	15,016	R	18,289	
R12,294	-R	1,277	R	2,021	R	5,320	R	8,619	R	11,917	R	15,216	R	18,514	
R12,394	-R	1,202	R	2,121	R	5,445	R	8,769	R	12,092	R	15,416	R	18,739	
R12,494	-R	1,127	R	2,221	R	5,570	R	8,919	R	12,267	R	15,616	R	18,964	
R12,594	-R	1,052	R	2,321	R	5,695	R	9,069	R	12,442	R	15,816	R	19,189	
R12,694	-R	977	R	2,421	R	5,820	R	9,219	R	12,617	R	16,016	R	19,414	
R12,794	-R	902	R	2,521	R	5,945	R	9,369	R	12,792	R	16,216	R	19,639	

SOYBEANS MARGIN ABOVE / BELOW MAIZE (GROSS MARGIN PER HECTARE): NORTH WEST LICHTENBURG

PRICE (R/TON)														
YIELD	R	8,299	R	8,399	R	8,499	R	8,599	R	8,699	R	8,799	R	8,899
0.50	-R	9,811	-R	9,761	-R	9,711	-R	9,661	-R	9,611	-R	9,561	-R	9,511
0.75	-R	7,737	-R	7,662	-R	7,587	-R	7,512	-R	7,437	-R	7,362	-R	7,287
1.00	-R	5,662	-R	5,562	-R	5,462	-R	5,362	-R	5,262	-R	5,162	-R	5,062
1.25	-R	3,587	-R	3,462	-R	3,337	-R	3,212	-R	3,087	-R	2,962	-R	2,837
1.50	-R	1,512	-R	1,362	-R	1,212	-R	1,062	-R	912	-R	762	-R	612
1.75	R	562	R	737	R	912	R	1,087	R	1,262	R	1,437	R	1,612
2.00	R	2,637	R	2,837	R	3,037	R	3,237	R	3,437	R	3,637	R	3,837
2.25	R	4,712	R	4,937	R	5,162	R	5,387	R	5,612	R	5,837	R	6,062
2.50	R	6,787	R	7,037	R	7,287	R	7,537	R	7,787	R	8,037	R	8,287

Notes:

- Farm gate price for ground nuts is calculated according to assumptions based on the share of the crop that is graded according to selection grade (40/50-60/70 & 70/80), diverse and crush (human & oil).
- The cost items reflect the input allocation based on the target yield for the respective crops.
- Although some expenditure items are zero, it is reflected in the budgets to allow for individual inclusion.
- Fertiliser assumptions (kg/ha): Maize N:P:K – 72:16:8. Soybeans N:P:K – 10:12:8. Sunflower N:P:K – 40:9:0. Ground Nuts N:P:K – 15:15:15.
- Other macro- & microelements such as calcium, magnesium and zinc are included in the fertiliser costs.
- The cost of fuel includes pre-harvest and harvesting costs with the assumption that own machinery is used.
- The cost for soybean seed reflects a combination of own- and purchased seed.
- There will be large fluctuations for insurance cost (hail) based on the associated risk in respective areas. It is advised that producers adjust this cost based on their individual premiums.
- It is important to note that overhead costs are not included and should be accounted for.

2022/23 INCOME & COST BUDGETS – IRRIGATION

Northern Cape

Table 3.1: Income & cost budgets for maize, soybeans, ground nuts & sunflower (oil) for Northern Cape - Irrigation

Area		Northern Cape: Irrigation			
Crop		Maize	Soybeans	Ground Nuts	Sunflower
Production System		Irrigation	Irrigation	Irrigation	Irrigation
1) INCOME					
Yield: Deterministic	T/HA	13.50	4.00	3.50	3.00
SAFEX SIMULATED PRICE / PRODUCER PRICE: 2023	R/TON	R4,442	R8,836	R13,499	R9,787
Total deductions	R/TON	R505	R314	R63	R551
- Transport differential	R/TON	R429	R196	R-	R458
- Grade differential	R/TON	R13	R-	R-	R-
- Handling & commission	R/TON	R63	R63	R63	R93
- Seed breeding & technology levy	R/TON	R-	R55	R-	R-
Price premiums	R/TON	R-	R-	R-	R-
Net Farm Gate Price	R/TON	R3,938	R8,522	R14,936	R9,236
GROSS INCOME	R/HA	R53,162	R34,087	R53,774	R27,707
2) VARIABLE EXPENDITURES					
Contracting	R/HA	R1,100	R1,250	R3,520	R1,250
Crop insurance	R/HA	R532	R2,045	R538	R831
Fertilizer	R/HA	R18,012	R10,420	R13,759	R9,782
Lime	R/HA	R759	R-	R518	R-
Seed	R/HA	R5,836	R2,041	R3,874	R878
Fuel	R/HA	R1,387	R969	R1,512	R1,475
Herbicide	R/HA	R962	R925	R1,163	R882
Insecticide/Fungicide	R/HA	R3,192	R1,534	R4,011	R300
Marketing costs	R/HA	R-	R-	R-	R-
Repairs and maintenance	R/HA	R590	R276	R806	R845
Casual labour	R/HA	R596	R-	R209	R-
Aerial spray	R/HA	R500	R-	R-	R-
Irrigation Electricity	R/HA	R4,706	R4,706	R4,842	R3,342
Water	R/HA	R1,242	R1,242	R1,278	R882
Other expenditure: Scheduling / Irrigation Equipment R&M	R/HA	R839	R839	R2,960	R629
TOTAL VARIABLE EXPENDITURE	R/HA	R40,251	R26,247	R38,990	R21,096
TOTAL VARIABLE EXPENDITURE	R/TON	R2,982	R6,562	R11,140	R7,032
3.1) GROSS MARGIN:					
	R/HA	R12,911	R7,841	R14,784	R6,611
3.2) GROSS MARGIN:					
	R/TON	R956	R1,960	R4,224	R2,204
BREAK-EVEN YIELD					
	T/HA	10.22	3.08	2.61	2.28
BREAK-EVEN PRICE					
	R/TON	R2,982	R6,562	R11,140	R7,032

Source: BFAP, GSA & GWK, 2022

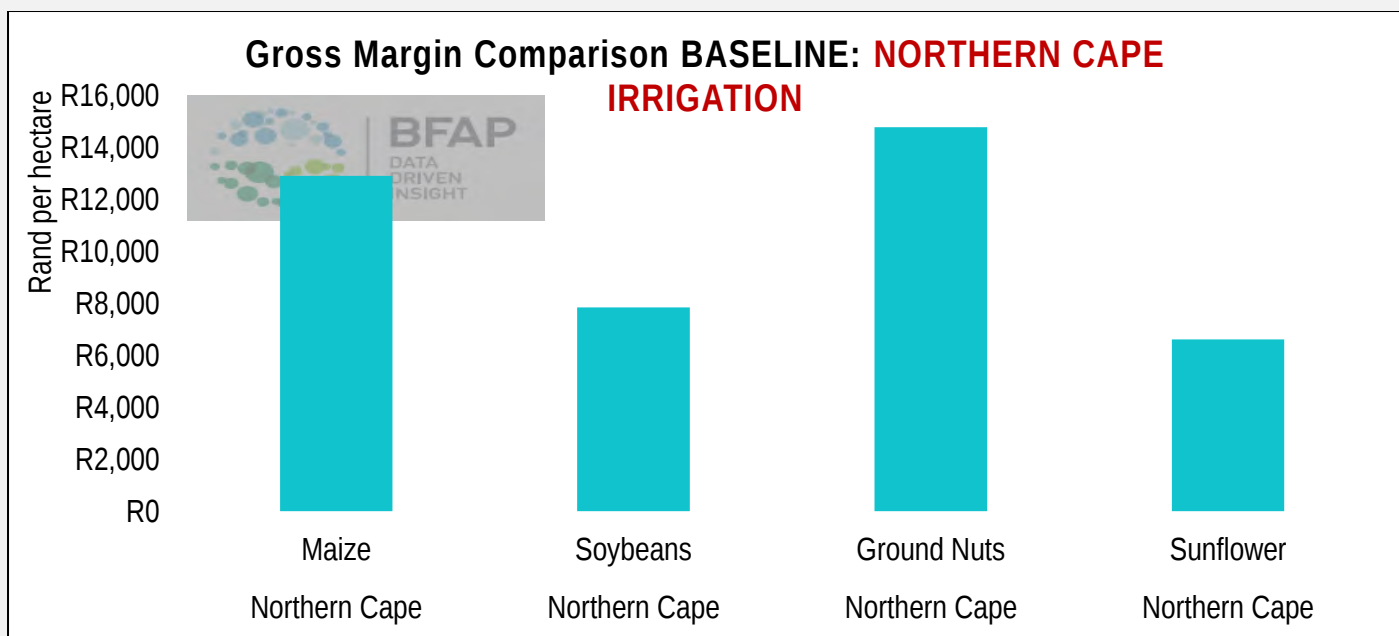


Figure 3.1: Gross margin comparison – Baseline: Northern Cape Irrigation

MAIZE SENSITIVITY ANALYSIS (GROSS MARGIN PER HECTARE): NORTHERN CAPE IRRIGATION															
PRODUCERS YIELD (T/HA)															
PRICE		12.00		12.50		13.00		13.50		14.00		14.50		15.00	
R3,538	R	2,204	R	3,973	R	5,742	R	7,511	R	9,280	R	11,048	R	12,817	
R3,638	R	3,404	R	5,223	R	7,042	R	8,861	R	10,680	R	12,498	R	14,317	
R3,738	R	4,604	R	6,473	R	8,342	R	10,211	R	12,080	R	13,948	R	15,817	
R3,838	R	5,804	R	7,723	R	9,642	R	11,561	R	13,480	R	15,398	R	17,317	
R3,938	R	7,004	R	8,973	R	10,942	R	12,911	R	14,880	R	16,848	R	18,817	
R4,038	R	8,204	R	10,223	R	12,242	R	14,261	R	16,280	R	18,298	R	20,317	
R4,138	R	9,404	R	11,473	R	13,542	R	15,611	R	17,680	R	19,748	R	21,817	
R4,238	R	10,604	R	12,723	R	14,842	R	16,961	R	19,080	R	21,198	R	23,317	
R4,338	R	11,804	R	13,973	R	16,142	R	18,311	R	20,480	R	22,648	R	24,817	

SOYBEANS SENSITIVITY ANALYSIS (GROSS MARGIN PER HECTARE): NORTHERN CAPE IRRIGATION															
PRODUCERS YIELD (T/HA)															
PRICE		3.25		3.50		3.75		4.00		4.25		4.50		4.75	
R8,122	R	149	R	2,180	R	4,210	R	6,241	R	8,271	R	10,302	R	12,332	
R8,222	R	474	R	2,530	R	4,585	R	6,641	R	8,696	R	10,752	R	12,807	
R8,322	R	799	R	2,880	R	4,960	R	7,041	R	9,121	R	11,202	R	13,282	
R8,422	R	1,124	R	3,230	R	5,335	R	7,441	R	9,546	R	11,652	R	13,757	
R8,522	R	1,449	R	3,580	R	5,710	R	7,841	R	9,971	R	12,102	R	14,232	
R8,622	R	1,774	R	3,930	R	6,085	R	8,241	R	10,396	R	12,552	R	14,707	
R8,722	R	2,099	R	4,280	R	6,460	R	8,641	R	10,821	R	13,002	R	15,182	
R8,822	R	2,424	R	4,630	R	6,835	R	9,041	R	11,246	R	13,452	R	15,657	
R8,922	R	2,749	R	4,980	R	7,210	R	9,441	R	11,671	R	13,902	R	16,132	

GROUND NUTS SENSITIVITY ANALYSIS (GROSS MARGIN PER HECTARE): NORTHERN CAPE IRRIGATION															
PRODUCERS YIELD (T/HA)															
PRICE		2.75		3.00		3.25		3.50		4.00		4.50		5.00	
R14,536	R	3,045	R	6,866	R	10,688	R	14,509	R	22,152	R	29,795	R	37,437	
R14,636	R	3,320	R	7,166	R	11,013	R	14,859	R	22,552	R	30,245	R	37,937	
R14,736	R	3,595	R	7,466	R	11,338	R	15,209	R	22,952	R	30,695	R	38,437	
R14,836	R	3,870	R	7,766	R	11,663	R	15,559	R	23,352	R	31,145	R	38,937	
R14,936	R	4,145	R	8,066	R	11,988	R	15,909	R	23,752	R	31,595	R	39,437	
R15,036	R	4,420	R	8,366	R	12,313	R	16,259	R	24,152	R	32,045	R	39,937	
R15,136	R	4,695	R	8,666	R	12,638	R	16,609	R	24,552	R	32,495	R	40,437	
R15,236	R	4,970	R	8,966	R	12,963	R	16,959	R	24,952	R	32,945	R	40,937	
R15,336	R	5,245	R	9,266	R	13,288	R	17,309	R	25,352	R	33,395	R	41,437	

SUNFLOWER OIL SENSITIVITY ANALYSIS (GROSS MARGIN PER HECTARE): NORTHERN CAPE IRRIGATION															
PRODUCERS YIELD (T/HA)															
PRICE		2.25		2.50		2.75		3.00		3.50		4.00		4.50	
R8,836	-R	1,216	R	993	R	3,202	R	5,411	R	9,829	R	14,247	R	18,664	
R8,936	-R	991	R	1,243	R	3,477	R	5,711	R	10,179	R	14,647	R	19,114	
R9,036	-R	766	R	1,493	R	3,752	R	6,011	R	10,529	R	15,047	R	19,564	
R9,136	-R	541	R	1,743	R	4,027	R	6,311	R	10,879	R	15,447	R	20,014	
R9,236	-R	316	R	1,993	R	4,302	R	6,611	R	11,229	R	15,847	R	20,464	
R9,336	-R	91	R	2,243	R	4,577	R	6,911	R	11,579	R	16,247	R	20,914	
R9,436	R	134	R	2,493	R	4,852	R	7,211	R	11,929	R	16,647	R	21,364	
R9,536	R	359	R	2,743	R	5,127	R	7,511	R	12,279	R	17,047	R	21,814	
R9,636	R	584	R	2,993	R	5,402	R	7,811	R	12,629	R	17,447	R	22,264	

SOYBEANS MARGIN ABOVE / BELOW MAIZE (GROSS MARGIN PER HECTARE): NORTHERN CAPE IRRIGATION														
PRICE (R/TON)														
YIELD	R	8,222	R	8,322	R	8,422	R	8,522	R	8,622	R	8,722	R	8,822
3.00	-R	14,492	-R	14,192	-R	13,892	-R	13,592	-R	13,292	-R	12,992	-R	12,692
3.25	-R	12,436	-R	12,111	-R	11,786	-R	11,461	-R	11,136	-R	10,811	-R	10,486
3.50	-R	10,381	-R	10,031	-R	9,681	-R	9,331	-R	8,981	-R	8,631	-R	8,281
3.75	-R	8,325	-R	7,950	-R	7,575	-R	7,200	-R	6,825	-R	6,450	-R	6,075
4.00	-R	6,270	-R	5,870	-R	5,470	-R	5,070	-R	4,670	-R	4,270	-R	3,870
4.25	-R	4,214	-R	3,789	-R	3,364	-R	2,939	-R	2,514	-R	2,089	-R	1,664
4.50	-R	2,159	-R	1,709	-R	1,259	-R	809	-R	359	R	91	R	541
4.75	-R	103	R	372	R	847	R	1,322	R	1,797	R	2,272	R	2,747
5.00	R	1,952	R	2,452	R	2,952	R	3,452	R	3,952	R	4,452	R	4,952

Notes:

- Farm gate price for ground nuts is calculated according to assumptions based on the share of the crop that is graded according to selection grade (40/50-60/70 & 70/80), diverse and crush (human & oil).
- The cost items reflect the input allocation based on the target yield for the respective crops.
- Although some expenditure items are zero, it is reflected in the budgets to allow for individual inclusion.
- Fertiliser assumptions (kg/ha): Maize N:P:K – 286:52:80. Soybeans N:P:K – 105:35:46. Ground nuts N:P:K – 160:45:60. Sunflower N:P:K – 100:30:50.
- Other macro- & microelements such as calcium, magnesium and zinc are included in the fertiliser costs.
- The cost of fuel includes pre-harvest and harvesting costs with the assumption that own machinery is used.
- The cost for soybean seed reflects a combination of own- and purchased seed.
- There will be large fluctuations for insurance cost (hail) based on the associated risk in respective areas. It is advised that producers adjust this cost based on their individual premiums.
- It is important to note that overhead costs are not included and should be accounted for.

KwaZulu-Natal: Bergville

Table 3.2: Income & cost budgets for maize & soybeans for KwaZulu-Natal: Berggrivier - Irrigation

Area		KwaZulu-Natal: Berggrivier	
Crop		Maize	Soybeans
Production System		Irrigation	Irrigation
1) INCOME			
Yield: Deterministic	T/HA	12.00	4.00
SAFEX SIMULATED PRICE / PRODUCER PRICE: 2023	R/TON	R4,442	R8,836
Total deductions	R/TON	R462	R310
- Transport differential	R/TON	R389	R196
- Grade differential	R/TON	R13	R-
- Handling & commission	R/TON	R60	R59
- Seed breeding & technology levy	R/TON	R-	R55
Price premiums	R/TON	R-	R-
Net Farm Gate Price	R/TON	R3,981	R8,526
GROSS INCOME	R/HA	R47,771	R34,103
2) VARIABLE EXPENDITURES			
Contracting	R/HA	R-	R-
Crop insurance	R/HA	R1,815	R4,161
Fertilizer	R/HA	R13,620	R4,867
Lime	R/HA	R655	R-
Seed	R/HA	R4,669	R1,956
Fuel	R/HA	R1,827	R1,838
Herbicide	R/HA	R1,596	R1,564
Insecticide/Fungicide	R/HA	R959	R390
Marketing costs	R/HA	R-	R-
Repairs and maintenance	R/HA	R858	R579
Casual labour	R/HA	R530	R-
Aerial spray	R/HA	R-	R-
Irrigation Electricity	R/HA	R2,749	R2,340
Water	R/HA	R1,604	R1,365
Other expenditure: Scheduling / Irrigation Equipment R&M	R/HA	R608	R534
TOTAL VARIABLE EXPENDITURE	R/HA	R31,489	R19,594
TOTAL VARIABLE EXPENDITURE	R/TON	R2,624	R4,899
3.1) GROSS MARGIN:	R/HA	R16,282	R14,509
3.2) GROSS MARGIN:	R/TON	R1,357	R3,627
BREAK-EVEN YIELD	T/HA	7.91	2.30
BREAK-EVEN PRICE	R/TON	R2,624	R4,899

Source: BFAP, GSA & Individual Farmers, 2022

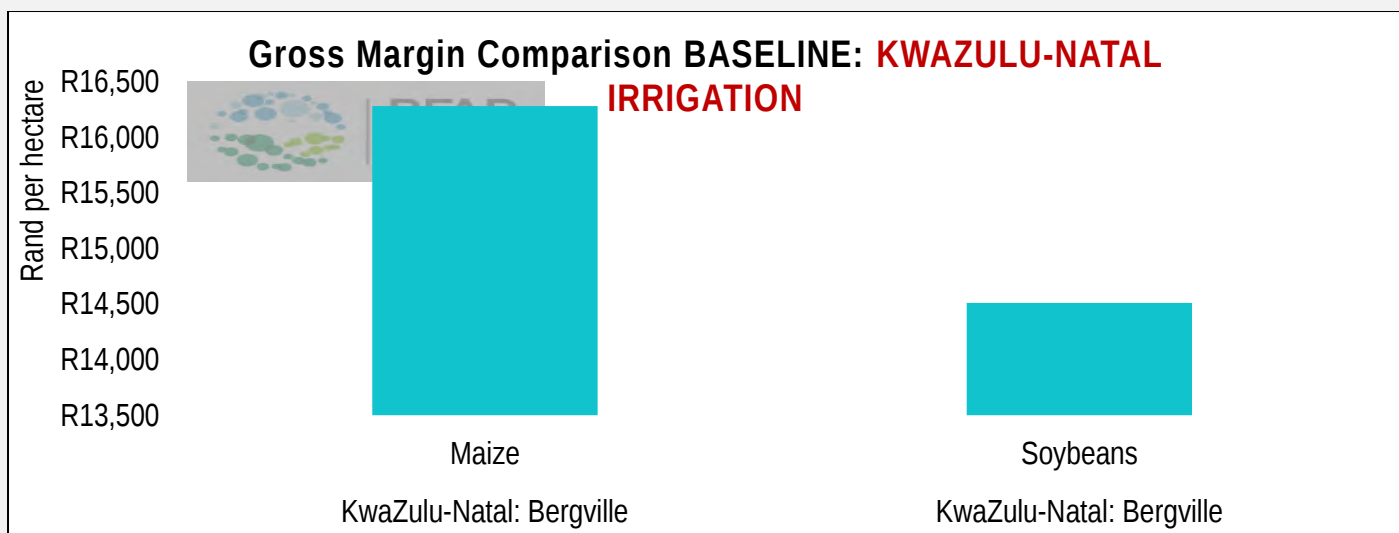


Figure 3.2: Gross margin comparison – Baseline: KwaZulu-Natal: Bergvriev

MAIZE SENSITIVITY ANALYSIS (GROSS MARGIN PER HECTARE): KWAZULU-NATAL:BERGVILLE										
PRODUCERS YIELD (T/HA)										
PRICE	10.50	11.00	11.50	12.00	12.50	13.00	13.50			
R3,581	R 6,111	R 7,901	R 9,691	R 11,482	R 13,272	R 15,063	R 16,853			
R3,681	R 7,161	R 9,001	R 10,841	R 12,682	R 14,522	R 16,363	R 18,203			
R3,781	R 8,211	R 10,101	R 11,991	R 13,882	R 15,772	R 17,663	R 19,553			
R3,881	R 9,261	R 11,201	R 13,141	R 15,082	R 17,022	R 18,963	R 20,903			
R3,981	R 10,311	R 12,301	R 14,291	R 16,282	R 18,272	R 20,263	R 22,253			
R4,081	R 11,361	R 13,401	R 15,441	R 17,482	R 19,522.36	R 21,563	R 23,603			
R4,181	R 12,411	R 14,501	R 16,591	R 18,682	R 20,772	R 22,863	R 24,953			
R4,281	R 13,461	R 15,601	R 17,741	R 19,882	R 22,022	R 24,163	R 26,303			
R4,381	R 14,511	R 16,701	R 18,891	R 21,082	R 23,272	R 25,463	R 27,653			

SOYBEANS SENSITIVITY ANALYSIS (GROSS MARGIN PER HECTARE): KWAZULU-NATAL:BERGVILLE										
PRODUCERS YIELD (T/HA)										
PRICE	3.25	3.50	3.75	4.00	4.25	4.50	4.75			
R8,126	R 6,815	R 8,846	R 10,878	R 12,909	R 14,940	R 16,972	R 19,003			
R8,226	R 7,140	R 9,196	R 11,253	R 13,309	R 15,365	R 17,422	R 19,478			
R8,326	R 7,465	R 9,546	R 11,628	R 13,709	R 15,790	R 17,872	R 19,953			
R8,426	R 7,790	R 9,896	R 12,003	R 14,109	R 16,215	R 18,322	R 20,428			
R8,526	R 8,115	R 10,246	R 12,378	R 14,509	R 16,640	R 18,772	R 20,903			
R8,626	R 8,440	R 10,596	R 12,753	R 14,909	R 17,065	R 19,222	R 21,378			
R8,726	R 8,765	R 10,946	R 13,128	R 15,309	R 17,490	R 19,672	R 21,853			
R8,826	R 9,090	R 11,296	R 13,503	R 15,709	R 17,915	R 20,122	R 22,328			
R8,926	R 9,415	R 11,646	R 13,878	R 16,109	R 18,340	R 20,572	R 22,803			

SOYBEANS MARGIN ABOVE / BELOW MAIZE (GROSS MARGIN PER HECTARE): KWAZULU-NATAL:BERGVILLE										
PRICE (R/TON)										
YIELD	R 8,226	R 8,326	R 8,426	R 8,526	R 8,626	R 8,726	R 8,826			
3.00	-R 11,199	-R 10,899	-R 10,599	-R 10,299	-R 9,999	-R 9,699	-R 9,399			
3.25	-R 9,142	-R 8,817	-R 8,492	-R 8,167	-R 7,842	-R 7,517	-R 7,192			
3.50	-R 7,086	-R 6,736	-R 6,386	-R 6,036	-R 5,686	-R 5,336	-R 4,986			
3.75	-R 5,029	-R 4,654	-R 4,279	-R 3,904	-R 3,529	-R 3,154	-R 2,779			
4.00	-R 2,973	-R 2,573	-R 2,173	-R 1,773	-R 1,373	-R 973	-R 573			
4.25	-R 916	-R 491	-R 66	R 359	R 784	R 1,209	R 1,634			
4.50	R 1,140	R 1,590	R 2,040	R 2,490	R 2,940	R 3,390	R 3,840			
4.75	R 3,197	R 3,672	R 4,147	R 4,622	R 5,097	R 5,572	R 6,047			
5.00	R 5,253	R 5,753	R 6,253	R 6,753	R 7,253	R 7,753	R 8,253			

Notes:

- The cost items reflect the input allocation based on the target yield for the respective crops.
- Although some expenditure items are zero, it is reflected in the budgets to allow for individual inclusion.
- Fertiliser assumptions (kg/ha): Maize N:P:K – 212:49:56. Soybeans N:P:K – 20:36:40.
- Other macro- & microelements such as calcium, magnesium and zinc are included in the fertiliser costs.
- The cost of fuel includes pre-harvest and harvesting costs with the assumption that own machinery is used.
- The cost for soybean seed reflects a combination of own- and purchased seed.
- There will be large fluctuations for insurance cost (hail) based on the associated risk in respective areas. It is advised that producers adjust this cost based on their individual premiums.
- It is important to note that overhead costs are not included and should be accounted for.

North-West

Table 3.3: Income & cost budgets for maize, soybeans, sunflower & sorghum for North West: Brits region - Irrigation

Area		North West: Brits / Northam / Koedoeskop			
Crop		Maize	Soybeans	Sunflower	Sorghum
Production System		Irrigation	Irrigation	Irrigation	Irrigation
1) INCOME					
Yield: Deterministic	T/HA	12.00	3.80	3.00	7.00
SAFEX SIMULATED PRICE / PRODUCER PRICE: 2023	R/TON	R4,442	R8,836	R9,787	R4,986
Total deductions	R/TON	R243	R201	R290	R63
- Transport differential	R/TON	R167	R83	R190	R-
- Grade differential	R/TON	R13	R-	R-	R-
- Handling & commission	R/TON	R63	R63	R100	R63
- Seed breeding & technology levy	R/TON	R-	R55	R-	R-
Price premiums	R/TON	R-	R-	R-	R-
Net Farm Gate Price	R/TON	R4,200	R8,635	R9,497	R4,923
GROSS INCOME	R/HA	R50,399	R32,813	R28,490	R34,461
2) VARIABLE EXPENDITURES					
Contracting	R/HA	R883	R925	R-	R-
Crop insurance	R/HA	R1,714	R1,805	R684	R877
Fertilizer	R/HA	R13,806	R4,598	R4,169	R8,363
Lime	R/HA	R565	R-	R-	R367
Seed	R/HA	R4,539	R2,029	R963	R800
Fuel	R/HA	R1,672	R1,431	R1,418	R1,500
Herbicide	R/HA	R1,335	R650	R882	R1,213
Insecticide/Fungicide	R/HA	R840	R390	R392	R816
Marketing costs	R/HA	R-	R-	R-	R-
Repairs and maintenance	R/HA	R993	R893	R845	R579
Casual labour	R/HA	R530	R-	R-	R158
Aerial spray	R/HA	R-	R-	R-	R239
Irrigation Electricity	R/HA	R3,708	R3,034	R1,686	R2,360
Water	R/HA	R1,226	R1,003	R557	R780
Other expenditure: Scheduling / Irrigation Equipment R&M	R/HA	R692	R587	R377	R482
TOTAL VARIABLE EXPENDITURE	R/HA	R32,504	R17,345	R11,972	R18,535
TOTAL VARIABLE EXPENDITURE	R/TON	R2,709	R4,565	R3,991	R2,648
3.1) GROSS MARGIN:					
	R/HA	R17,895	R15,467	R16,517	R15,927
3.2) GROSS MARGIN:					
	R/TON	R1,491	R4,070	R5,506	R2,275
BREAK-EVEN YIELD					
	T/HA	7.74	2.01	1.26	3.76
BREAK-EVEN PRICE					
	R/TON	R2,709	R4,565	R3,991	R2,648

Source: BFAP, GSA, NWK & Individual Farmers, 2022

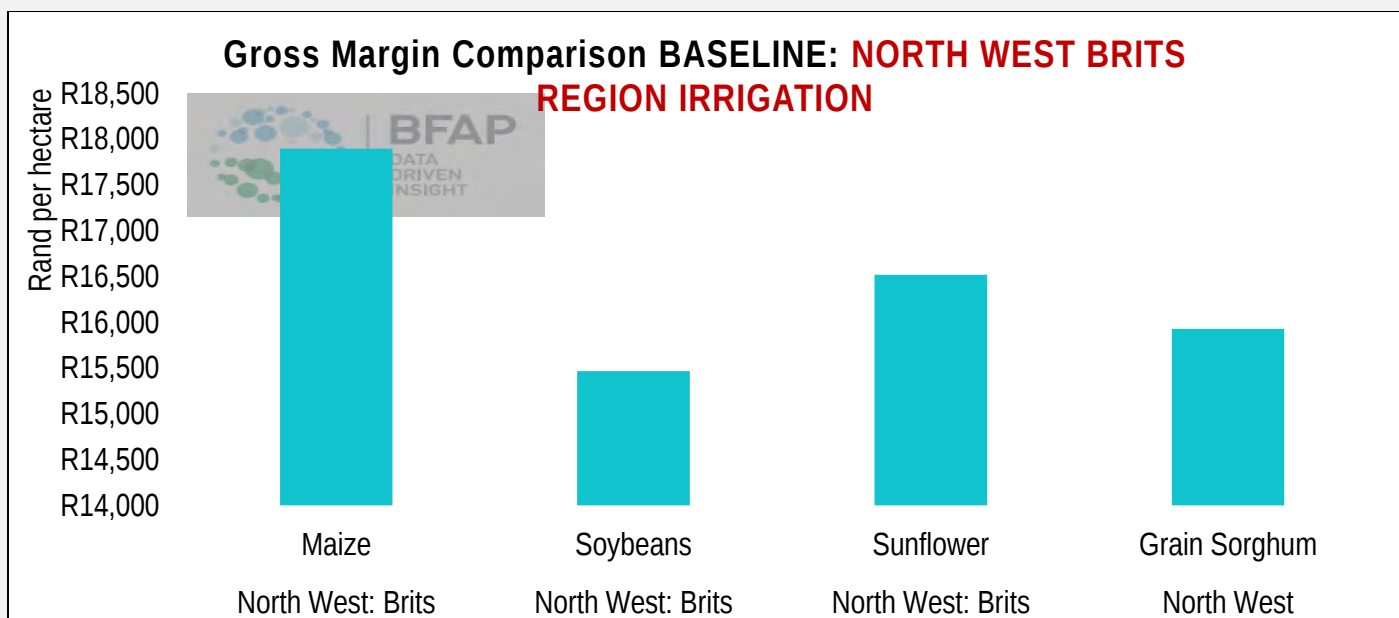


Figure 3.3: Gross margin comparison – Baseline: North West: Brits Region

MAIZE SENSITIVITY ANALYSIS (GROSS MARGIN PER HECTARE): NORTH WEST BRITS

PRODUCERS YIELD (T/HA)															
PRICE		10.50		11.00		11.50		12.00		12.50		13.00		13.50	
R3,800	R	7,395	R	9,295	R	11,195	R	13,095	R	14,995	R	16,895	R	18,795	
R3,900	R	8,445	R	10,395	R	12,345	R	14,295	R	16,245	R	18,195	R	20,145	
R4,000	R	9,495	R	11,495	R	13,495	R	15,495	R	17,495	R	19,495	R	21,495	
R4,100	R	10,545	R	12,595	R	14,645	R	16,695	R	18,745	R	20,795	R	22,845	
R4,200	R	11,595	R	13,695	R	15,795	R	17,895	R	19,995	R	22,095	R	24,195	
R4,300	R	12,645	R	14,795	R	16,945	R	19,095	R	21,244.72	R	23,395	R	25,545	
R4,400	R	13,695	R	15,895	R	18,095	R	20,295	R	22,495	R	24,695	R	26,895	
R4,500	R	14,745	R	16,995	R	19,245	R	21,495	R	23,745	R	25,995	R	28,245	
R4,600	R	15,795	R	18,095	R	20,395	R	22,695	R	24,995	R	27,295	R	29,595	

SOYBEANS SENSITIVITY ANALYSIS (GROSS MARGIN PER HECTARE): NORTH WEST BRITS

PRODUCERS YIELD (T/HA)															
PRICE		3.00		3.25		3.50		3.80		4.00		4.25		4.50	
R8,235	R	7,359	R	9,418	R	11,477	R	13,947	R	15,594	R	17,653	R	19,712	
R8,335	R	7,659	R	9,743	R	11,827	R	14,327	R	15,994	R	18,078	R	20,162	
R8,435	R	7,959	R	10,068	R	12,177	R	14,707	R	16,394	R	18,503	R	20,612	
R8,535	R	8,259	R	10,393	R	12,527	R	15,087	R	16,794	R	18,928	R	21,062	
R8,635	R	8,559	R	10,718	R	12,877	R	15,467	R	17,194	R	19,353	R	21,512	
R8,735	R	8,859	R	11,043	R	13,227	R	15,847	R	17,594	R	19,778	R	21,962	
R8,835	R	9,159	R	11,368	R	13,577	R	16,227	R	17,994	R	20,203	R	22,412	
R8,935	R	9,459	R	11,693	R	13,927	R	16,607	R	18,394	R	20,628	R	22,862	
R9,035	R	9,759	R	12,018	R	14,277	R	16,987	R	18,794	R	21,053	R	23,312	

SUNFLOWER SENSITIVITY ANALYSIS (GROSS MARGIN PER HECTARE): NORTH WEST BRITS

PRODUCERS YIELD (T/HA)															
PRICE		2.30		2.55		2.80		3.00		3.30		3.55		3.80	
R9,097	R	8,950	R	11,224	R	13,498	R	15,317	R	18,046	R	20,320	R	22,595	
R9,197	R	9,180	R	11,479	R	13,778	R	15,617	R	18,376	R	20,675	R	22,975	
R9,297	R	9,410	R	11,734	R	14,058	R	15,917	R	18,706	R	21,030	R	23,355	
R9,397	R	9,640	R	11,989	R	14,338	R	16,217	R	19,036	R	21,385	R	23,735	
R9,497	R	9,870	R	12,244	R	14,618	R	16,517	R	19,366	R	21,740	R	24,115	
R9,597	R	10,100	R	12,499	R	14,898	R	16,817	R	19,696	R	22,095	R	24,495	
R9,697	R	10,330	R	12,754	R	15,178	R	17,117	R	20,026	R	22,450	R	24,875	
R9,797	R	10,560	R	13,009	R	15,458	R	17,417	R	20,356	R	22,805	R	25,255	
R9,897	R	10,790	R	13,264	R	15,738	R	17,717	R	20,686	R	23,160	R	25,635	

SOYBEANS MARGIN ABOVE / BELOW MAIZE (GROSS MARGIN PER HECTARE): NORTH WEST BRITS

PRICE (R/TON)														
YIELD	R	8,335	R	8,435	R	8,535	R	8,635	R	8,735	R	8,835	R	8,935
2.75	-R	12,319	-R	12,044	-R	11,769	-R	11,494	-R	11,219	-R	10,944	-R	10,669
3.00	-R	10,235	-R	9,935	-R	9,635	-R	9,335	-R	9,035	-R	8,735	-R	8,435
3.25	-R	8,152	-R	7,827	-R	7,502	-R	7,177	-R	6,852	-R	6,527	-R	6,202
3.50	-R	6,068	-R	5,718	-R	5,368	-R	5,018	-R	4,668	-R	4,318	-R	3,968
3.80	-R	3,567	-R	3,187	-R	2,807	-R	2,427	-R	2,047	-R	1,667	-R	1,287
4.00	-R	1,900	-R	1,500	-R	1,100	-R	700	-R	300	R	100	R	500
4.25	R	183	R	608	R	1,033	R	1,458	R	1,883	R	2,308	R	2,733
4.50	R	2,267	R	2,717	R	3,167	R	3,617	R	4,067	R	4,517	R	4,967
4.75	R	4,351	R	4,826	R	5,301	R	5,776	R	6,251	R	6,726	R	7,201

Notes:

- The cost items reflect the input allocation based on the target yield for the respective crops.
- Although some expenditure items are zero, it is reflected in the budgets to allow for individual inclusion.
- Fertiliser assumptions (kg/ha): Maize N:P:K – 240:42:48. Soybeans N:P:K – 14:36:42. Sunflower N:P:K – 60:15:24. Grain sorghum N:P:K – 140:25:28.
- Other macro- & microelements such as calcium, magnesium and zinc are included in the fertiliser costs.
- The cost of fuel includes pre-harvest and harvesting costs with the assumption that own machinery is used.
- The cost for soybean seed reflects a combination of own- and purchased seed.
- There will be large fluctuations for insurance cost (hail) based on the associated risk in respective areas. It is advised that producers adjust this cost based on their individual premiums.
- It is important to note that overhead costs are not included and should be accounted for.

Table 3.4: Income & cost budgets for maize & soybeans for Limpopo: Loskop region - Irrigation

Area		Limpopo: Loskop	
Crop		Maize	Soybeans
Production System		Irrigation	Irrigation
1) INCOME			
Yield: Deterministic	T/HA	12.00	4.00
SAFEX SIMULATED PRICE / PRODUCER PRICE: 2023	R/TON	R4,442	R8,836
Total deductions	R/TON	R375	R266
- Transport differential	R/TON	R299	R148
- Grade differential	R/TON	R13	R-
- Handling & commission	R/TON	R63	R63
- Seed breeding & technology levy	R/TON	R-	R55
Price premiums	R/TON	R-	R-
Net Farm Gate Price	R/TON	R4,068	R8,570
GROSS INCOME	R/HA	R48,815	R34,279
2) VARIABLE EXPENDITURES			
Contracting	R/HA	R883	R925
Crop insurance	R/HA	R1,660	R1,885
Fertilizer	R/HA	R13,806	R4,986
Lime	R/HA	R719	R-
Seed	R/HA	R4,539	R2,029
Fuel	R/HA	R1,672	R1,431
Herbicide	R/HA	R1,335	R650
Insecticide/Fungicide	R/HA	R771	R390
Marketing costs	R/HA	R-	R-
Repairs and maintenance	R/HA	R699	R579
Casual labour	R/HA	R530	R-
Aerial spray	R/HA	R-	R-
Irrigation Electricity	R/HA	R4,450	R3,203
Water	R/HA	R1,472	R1,059
Other expenditure: Scheduling / Irrigation Equipment R&M	R/HA	R807	R613
TOTAL VARIABLE EXPENDITURE	R/HA	R33,343	R17,751
TOTAL VARIABLE EXPENDITURE	R/TON	R2,779	R4,438
3.1) GROSS MARGIN:	R/HA	R15,472	R16,529
3.2) GROSS MARGIN:	R/TON	R1,289	R4,132
BREAK-EVEN YIELD	T/HA	8.20	2.07
BREAK-EVEN PRICE	R/TON	R2,779	R4,438

Source: BFAP, GSA & Individual Farmers, 2022

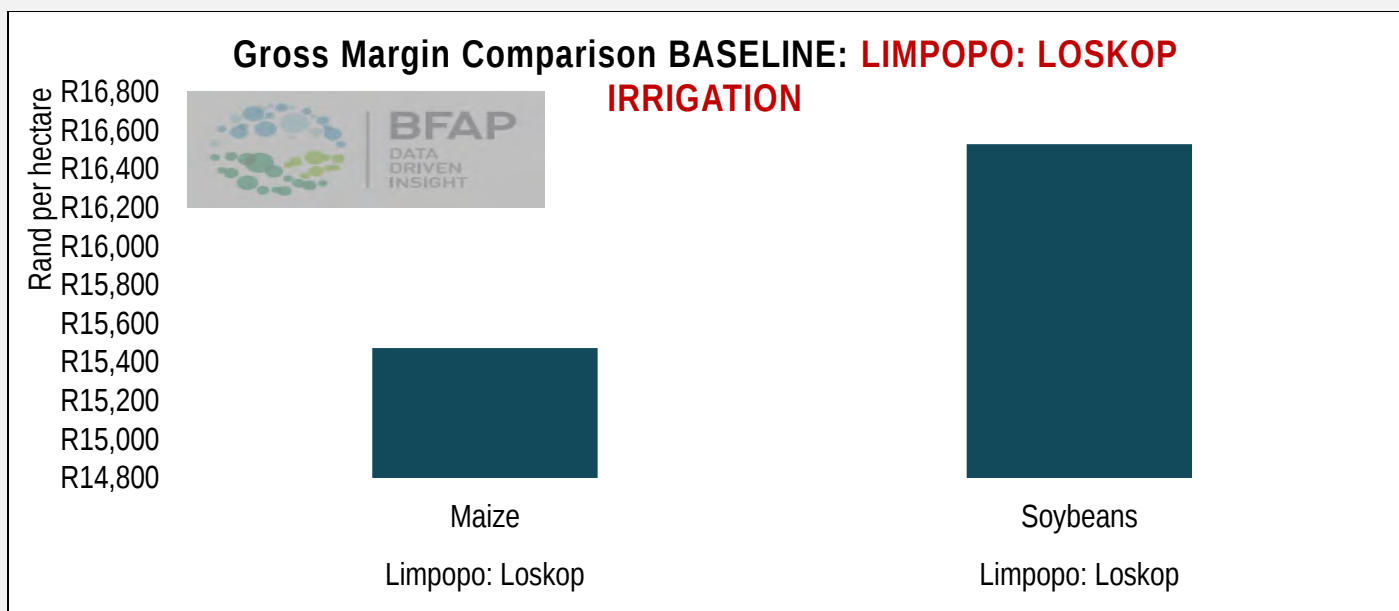


Figure 3.4: Gross margin comparison – Baseline: Limpopo: Loskop Region

MAIZE SENSITIVITY ANALYSIS (GROSS MARGIN PER HECTARE): LOSKOP AREA

PRODUCERS YIELD (T/HA)															
PRICE		10.50		11.00		11.50		12.00		12.50		13.00		13.50	
R3,668	R	5,170	R	7,004	R	8,838	R	10,672	R	12,506	R	14,340	R	16,174	
R3,768	R	6,220	R	8,104	R	9,988	R	11,872	R	13,756	R	15,640	R	17,524	
R3,868	R	7,270	R	9,204	R	11,138	R	13,072	R	15,006	R	16,940	R	18,874	
R3,968	R	8,320	R	10,304	R	12,288	R	14,272	R	16,256	R	18,240	R	20,224	
R4,068	R	9,370	R	11,404	R	13,438	R	15,472	R	17,506	R	19,540	R	21,574	
R4,168	R	10,420	R	12,504	R	14,588	R	16,672	R	18,756	R	20,840	R	22,924	
R4,268	R	11,470	R	13,604	R	15,738	R	17,872	R	20,006	R	22,140	R	24,274	
R4,368	R	12,520	R	14,704	R	16,888	R	19,072	R	21,256	R	23,440	R	25,624	
R4,468	R	13,570	R	15,804	R	18,038	R	20,272	R	22,506	R	24,740	R	26,974	

SOYBEANS SENSITIVITY ANALYSIS (GROSS MARGIN PER HECTARE): LIMPOPO: LOSKOP AREA

PRODUCERS YIELD (T/HA)															
PRICE		3.25		3.50		3.75		4.00		4.25		4.50		4.75	
R8,170	R	8,801	R	10,844	R	12,886	R	14,929	R	16,971	R	19,014	R	21,056	
R8,270	R	9,126	R	11,194	R	13,261	R	15,329	R	17,396	R	19,464	R	21,531	
R8,370	R	9,451	R	11,544	R	13,636	R	15,729	R	17,821	R	19,914	R	22,006	
R8,470	R	9,776	R	11,894	R	14,011	R	16,129	R	18,246	R	20,364	R	22,481	
R8,570	R	10,101	R	12,244	R	14,386	R	16,529	R	18,671	R	20,814	R	22,956	
R8,670	R	10,426	R	12,594	R	14,761	R	16,929	R	19,096	R	21,264	R	23,431	
R8,770	R	10,751	R	12,944	R	15,136	R	17,329	R	19,521	R	21,714	R	23,906	
R8,870	R	11,076	R	13,294	R	15,511	R	17,729	R	19,946	R	22,164	R	24,381	
R8,970	R	11,401	R	13,644	R	15,886	R	18,129	R	20,371	R	22,614	R	24,856	

SOYBEANS MARGIN ABOVE / BELOW MAIZE (GROSS MARGIN PER HECTARE): LIMPOPO: LOSKOP AREA

PRICE (R/TON)															
YIELD		8,270		8,370		8,470		8,570		8,670		8,770		8,870	
3.00	-R	8,413	-R	8,113	-R	7,813	-R	7,513	-R	7,213	-R	6,913	-R	6,613	
3.25	-R	6,346	-R	6,021	-R	5,696	-R	5,371	-R	5,046	-R	4,721	-R	4,396	
3.50	-R	4,278	-R	3,928	-R	3,578	-R	3,228	-R	2,878	-R	2,528	-R	2,178	
3.75	-R	2,211	-R	1,836	-R	1,461	-R	1,086	-R	711	-R	336	R	39	
4.00	-R	143	R	257	R	657	R	1,057	R	1,457	R	1,857	R	2,257	
4.25	R	1,924	R	2,349	R	2,774	R	3,199	R	3,624	R	4,049	R	4,474	
4.50	R	3,992	R	4,442	R	4,892	R	5,342	R	5,792	R	6,242	R	6,692	
4.75	R	6,059	R	6,534	R	7,009	R	7,484	R	7,959	R	8,434	R	8,909	
5.00	R	8,126	R	8,626	R	9,126	R	9,626	R	10,126	R	10,626	R	11,126	

Notes:

- The cost items reflect the input allocation based on the target yield for the respective crops.
- Although some expenditure items are zero, it is reflected in the budgets to allow for individual inclusion.
- Fertiliser assumptions (kg/ha): Maize N:P:K – 240:42:48. Soybeans N:P:K – 14:38:45.
- Other macro- & microelements such as calcium, magnesium and zinc are included in the fertiliser costs.
- The cost of fuel includes pre-harvest and harvesting costs with the assumption that own machinery is used.
- The cost for soybean seed reflects a combination of own- and purchased seed.
- There will be large fluctuations for insurance cost (hail) based on the associated risk in respective areas. It is advised that producers adjust this cost based on their individual premiums.
- It is important to note that overhead costs are not included and should be accounted for.

Summary: 2022/23 Income & Cost Budgets

Figures 4.1 - 4.4 provide a summary of the gross margin performance of dryland and irrigated crops over the period from 2018 (adjusted to account for actual yields and crop prices) to 2024 (2023 and 2024 are projected).

Across the 24 dryland crops in 7 agro-ecological regions, an average gross margin of R9,106 per hectare is projected for the 2022/23 production season, approximately 35% lower compared to the 2021/22 realised production season, however still higher than in the 2017/18 and 2018/19 production seasons. The decrease from 2021/22 is mainly due to significant increases in input costs. Important to note is that the gross margins only consider direct costs and exclude overhead costs. Assuming trend yields, the dryland maize gross margin is expected to decrease overall by 34% and sunflower by 30% from 2021/22 to 2022/23. The dry beans gross margin is the only crop expected to increase due to a significant price increase and higher expected yield than last season.

For the 2022/23 production season, it is projected that on average soybean gross margins will decrease from 2021/22 levels by approximately 41%, with the western production region experiencing a higher decrease of 52% compared to 32% in the east. The wet season resulted in dryland soybeans obtaining above-average yields in 2021/22, which are projected to return to normal in the coming season. The return to trend yields is the main contributor to the high dryland soybean gross margin decrease for the 2022/23 season, compared to irrigation (which achieved average yields). Soybean gross margins under irrigation are expected to only decrease by 13% in 2022/23. The lower fertiliser application rate for soybeans is giving them an advantage, as the gross margin under irrigation for maize and sunflower are expected to decrease at higher levels of 45% and 41% respectively. Overall, crops under irrigation are expected to perform poorer than last year.

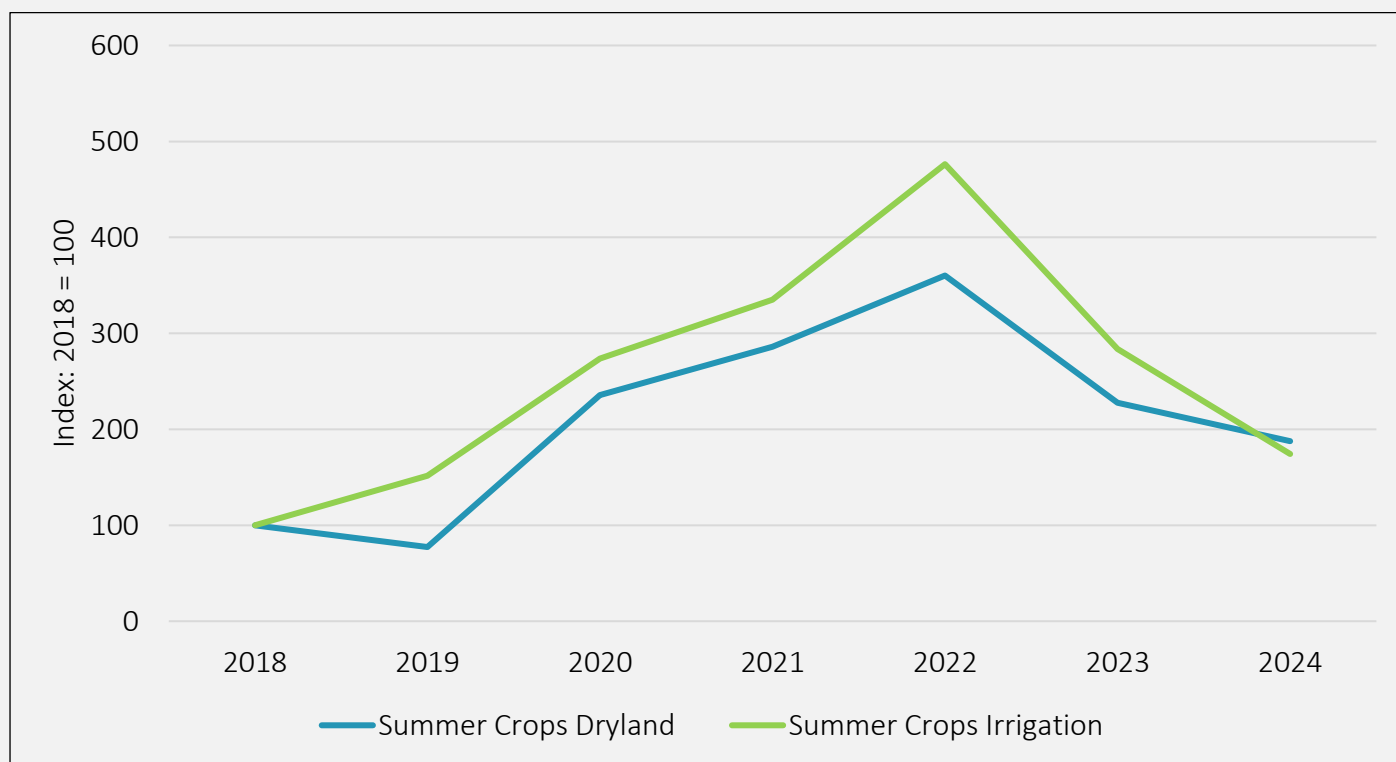


Figure 4.1: Gross margin index between dryland & irrigated summer crops: 2018-2024

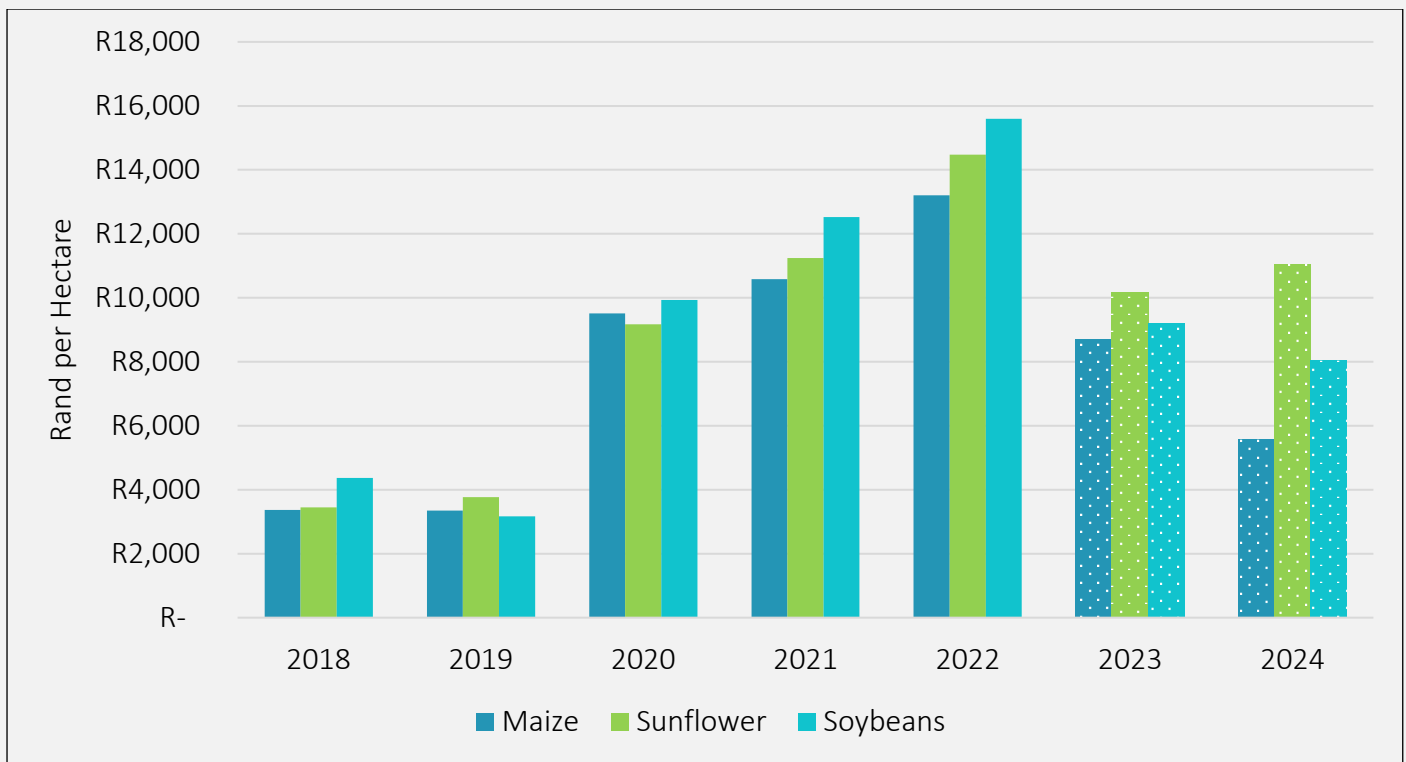


Figure 4.2: Dryland - **Deterministic** gross margin average by crop type: 2018-2024

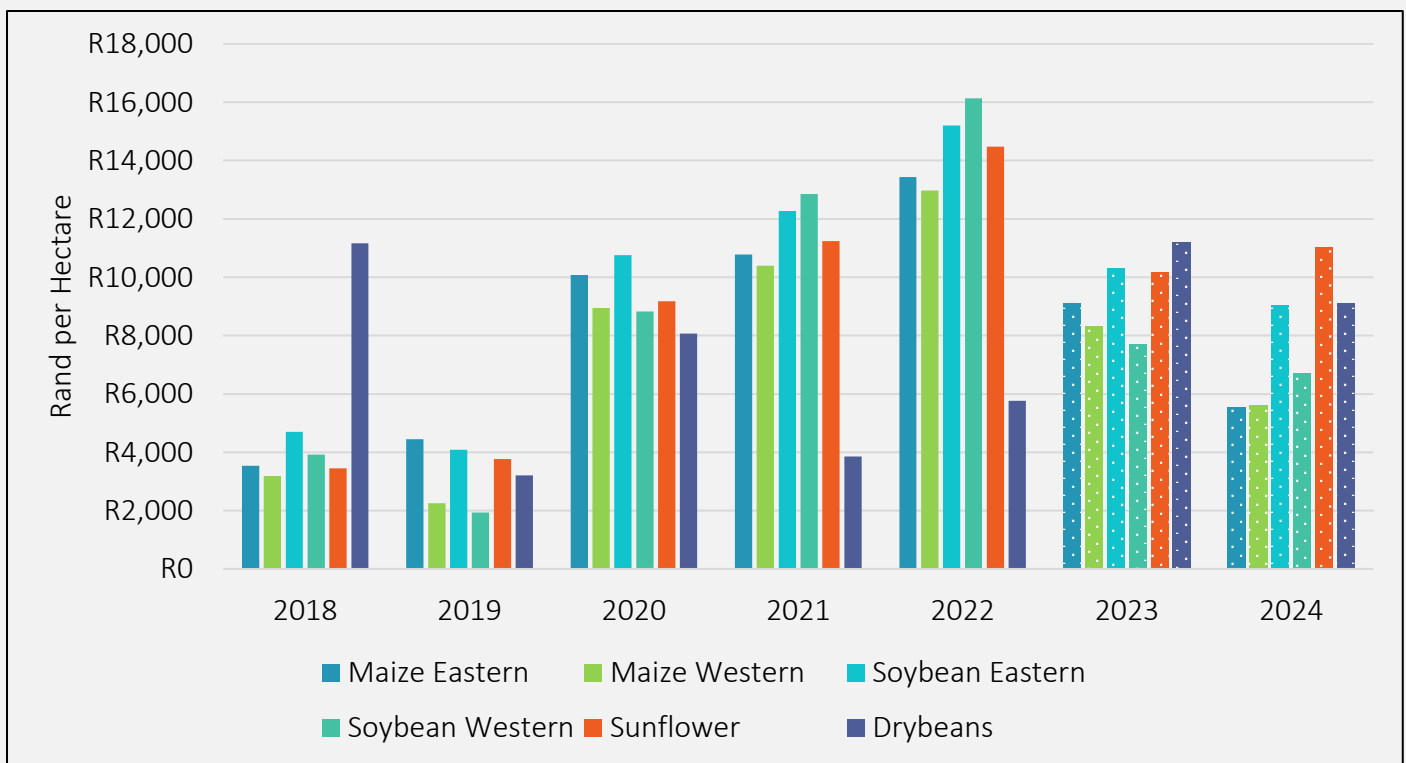


Figure 4.3: Dryland - **Deterministic** gross margin average by key producing region: 2018-2024

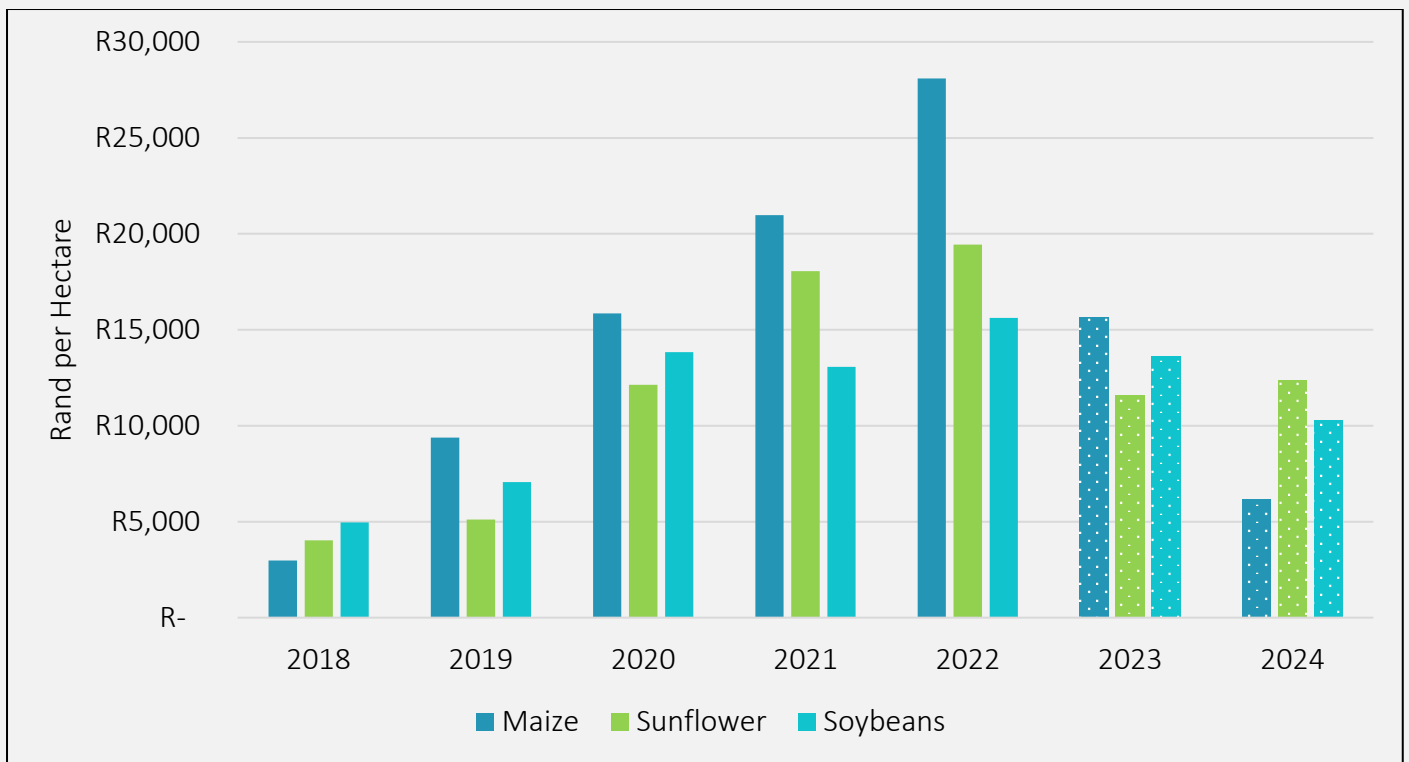


Figure 4.4: Irrigation - **Deterministic** gross margin average by crop type: 2018-2024

