

Income & Cost Budgets

Winter Crops – 2019



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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INSIGHT

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INCOME & COST BUDGETS FOR WINTER CROPS - 2019 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.

Historically, the Protein Research Foundation (PRF), Grain South Africa (GSA), the Bureau for Food and Agricultural Policy (BFAP) and agribusinesses have published their individual cost of production budgets which focusses on summer- and winter crops produced in South Africa's key agro-ecological zones, both under dryland- and irrigation cultivation. Given the existing activities associated within the organisations and the extent of the coverage of South African agricultural production, these initiatives are once again integrated to compile the 2019 winter crop budgets.

It is acknowledged that regional variation will occur and that estimates 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

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Area coverage

Table 1 and Table 2 indicates the area of coverage and include the dryland and irrigated crops. The source of data and collaborators are also presented. The collaborators 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
Southern Cape		
Caledon	Wheat, Barley, Canola, Oats & Lupines	Overberg Agri, GSA & BFAP
Bredasdorp	Wheat, Barley, Canola, Oats & Lupines	Overberg Agri, GSA & BFAP
Swellendam/Heidelberg	Wheat, Barley, Canola, Oats & Lupines	SSK, GSA & BFAP
Riversdal/Albertina	Wheat, Barley, Canola, Oats & Lupines	SSK, GSA & BFAP
Western Cape		
Southern Swartland	Wheat & Canola	Kaap Agri, Overberg Agri, GSA & BFAP
Moorreesburg, Malmesbury & Porterville	Wheat, Canola & Oats	Kaap Agri, Overberg Agri, GSA & BFAP
Darling-vlakte – Hopefield (Sandveld)	Wheat, Canola & Lupines	Kaap Agri, Overberg Agri, GSA & BFAP
Rooi Karoo	Wheat & Canola	Kaap Agri, Overberg Agri, GSA & BFAP
Free State		
Eastern Free State	Wheat	GSA / VKB / BFAP / Individual Farmers
Central Free State	Wheat	GSA / VKB / BFAP / Individual Farmers

Table 1.2: Area coverage: Irrigation

Area	Irrigated Crops	Source & Collaborators
Northern Cape		
GWK Area	Wheat, Barley & Canola	GWK, GSA & BFAP
Free State		
Eastern Free State	Wheat	GSA / VKB / BFAP / Individual Farmers
Limpopo		
Britz / Northam / Koedoeskop	Wheat & Barley	GSA, Obaro & BFAP

Yield Assumptions

Figure 1 and Figure 2 reports the yield assumptions for dryland and irrigated crops. The yield assumptions represents target yields which were determined in a round table discussion which are based on the 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 respective target yields based on their location and potential. Table 1.3 illustrates descriptive statistics for yield trends and projections over the period from 2005-2020.

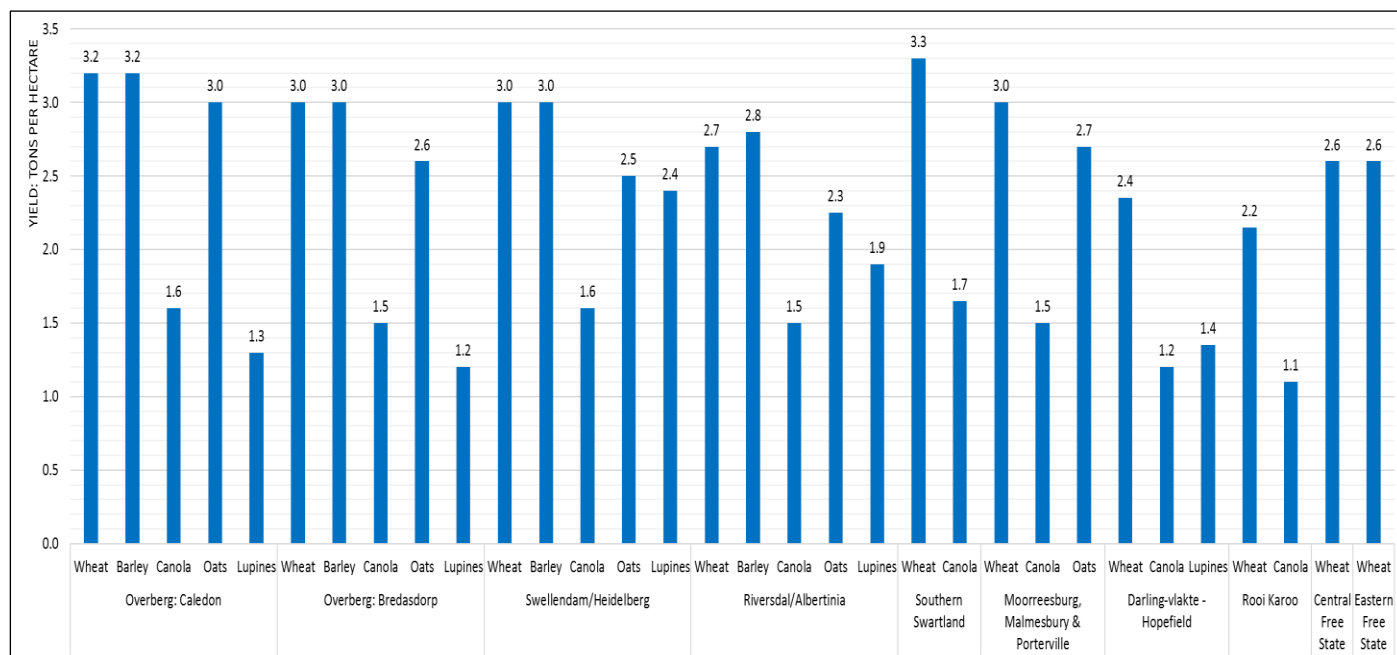


Figure 1.1: Dryland winter crop yield assumptions

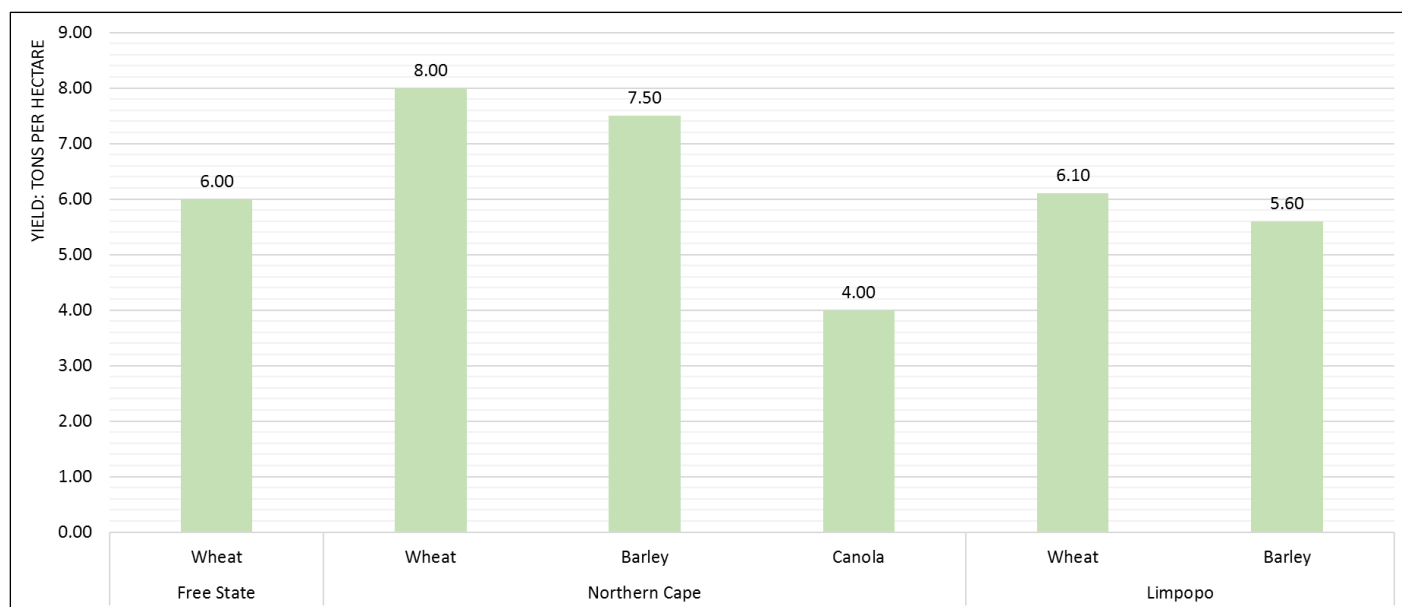


Figure 1.2: Irrigated winter crops yield assumptions

Table 1.3: Industry yield trends & projections: 2005-2025

	Wheat: Winter area	Wheat: Summer area	Wheat: Irrigation	Barley: Winter area	Barley: Summer area	Canola
Mean	2.57	2.43	6.13	2.77	6.21	1.27
3-year average: 2015-2017	2.65	2.37	6.89	3.36	6.45	1.37
5-year average: 2013-2017	2.62	2.59	6.63	3.25	6.23	1.33
Minimum	1.80	1.53	5.27	1.95	5.19	0.90
Median	2.50	2.42	6.13	2.88	6.33	1.20
Maximum	3.40	3.53	7.15	3.65	7.12	1.85

Source: BFAP, 2019

Crop Price Assumptions

Annually, the Bureau for Food and Agricultural Policy (BFAP) presents an outlook of agricultural production, consumption, prices and trade in South Africa over a 10-year period. The information presented is based on assumptions about a range of economic, technological, environmental, political, institutional, and social factors. The outlook is generated by the BFAP system of models. A number of critical assumptions have to be made for baseline projections. One of the most important assumptions is that normal weather conditions will prevail in Southern Africa and around the world; therefore, yields grow constantly over the baseline as technology improves. Assumptions regarding the outlook of macroeconomic conditions 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. Once the critical assumptions are captured in the BFAP system of models, the Outlook for all commodities is simulated within a closed system of equations. This implies that, for example, any shocks in the grain sector are transmitted to the livestock sector and vice versa. Therefore, for each commodity, important components of supply and demand are identified, after which an equilibrium is established through balance sheet principles by equalling total demand to total supply.

Figure 3 illustrates the commodity price assumptions for wheat, barley and canola that were used as base price for the winter crop budgets for the 2019 production season. Table 1.4 illustrates the standard deduction

from the base SAFEX price as presented in Figure 1.3. 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.

Table 1.4: Deductions from SAFEX price to derive a farm gate price per region

	Wheat	Barley	Canola
SAFEX / Derived Price: 2019	X	X (adjusted with price link)	X
- transport differential	X	X	X (for selective regions)
- grade differential (B1, B2, B3 & UT)	Based on historic averages	Standard B1	-
- silo, handling & administration costs	X	X	-
- statutory levies	X	X	X
+ price premiums	-	X	Back payment calculated at 10% of derived price

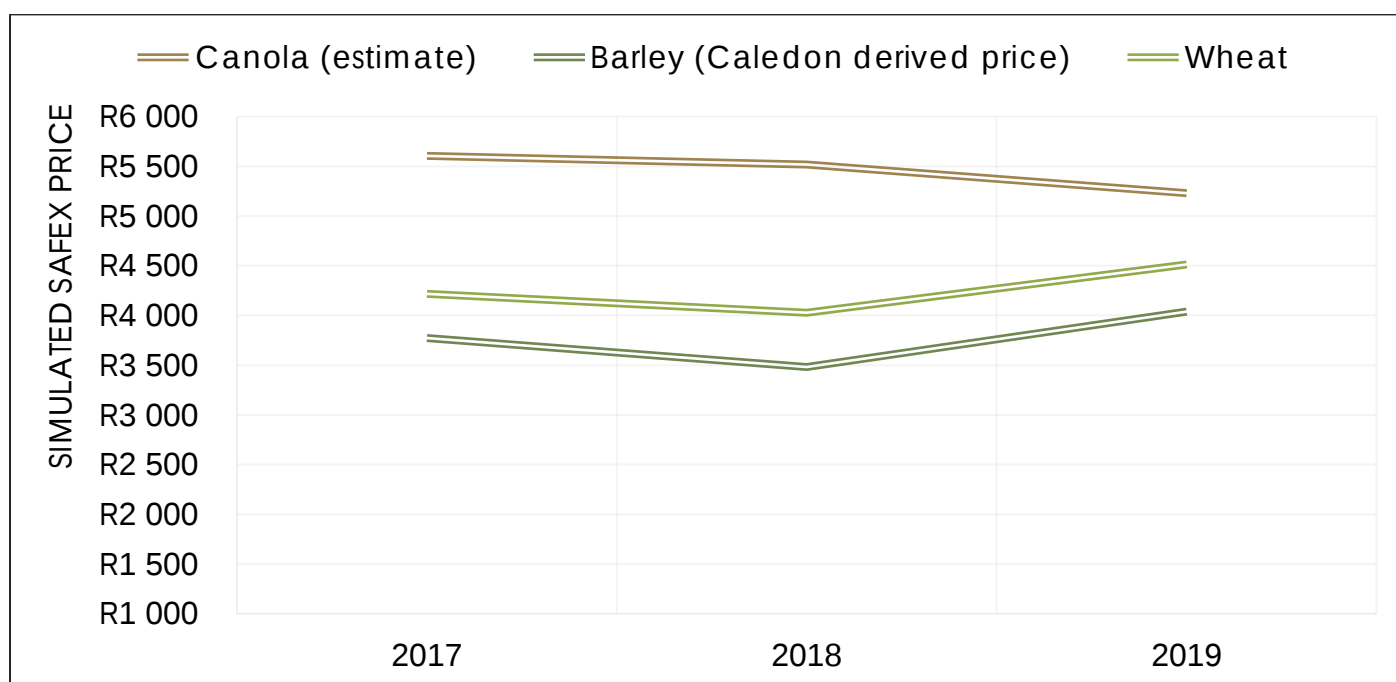


Figure 1.3: BFAP average annual commodity price projections: 2016-2019

Source: BFAP, 2019

Key Input Cost Trends

Figure 1.4 illustrates the cost trends for fuel, urea, MAP and potassium chloride over the period from January 2017 to February 2019. The cost for nitrogen, phosphates and potassium have reported a decreasing trend since roughly November 2018. The same trend was observed for fuel, however, the projection for 2019 (average) remains higher opposed to the February 2019 price. The average cost of MAP in 2019 is also projected higher compared to February 2019 levels. Persistent uncertainty in the macro-economic environment could entail continuous volatility in the Rand / USD exchange rate, which could impact the cost of imported inputs such as fuel, fertilisers, chemicals and machinery / implements.

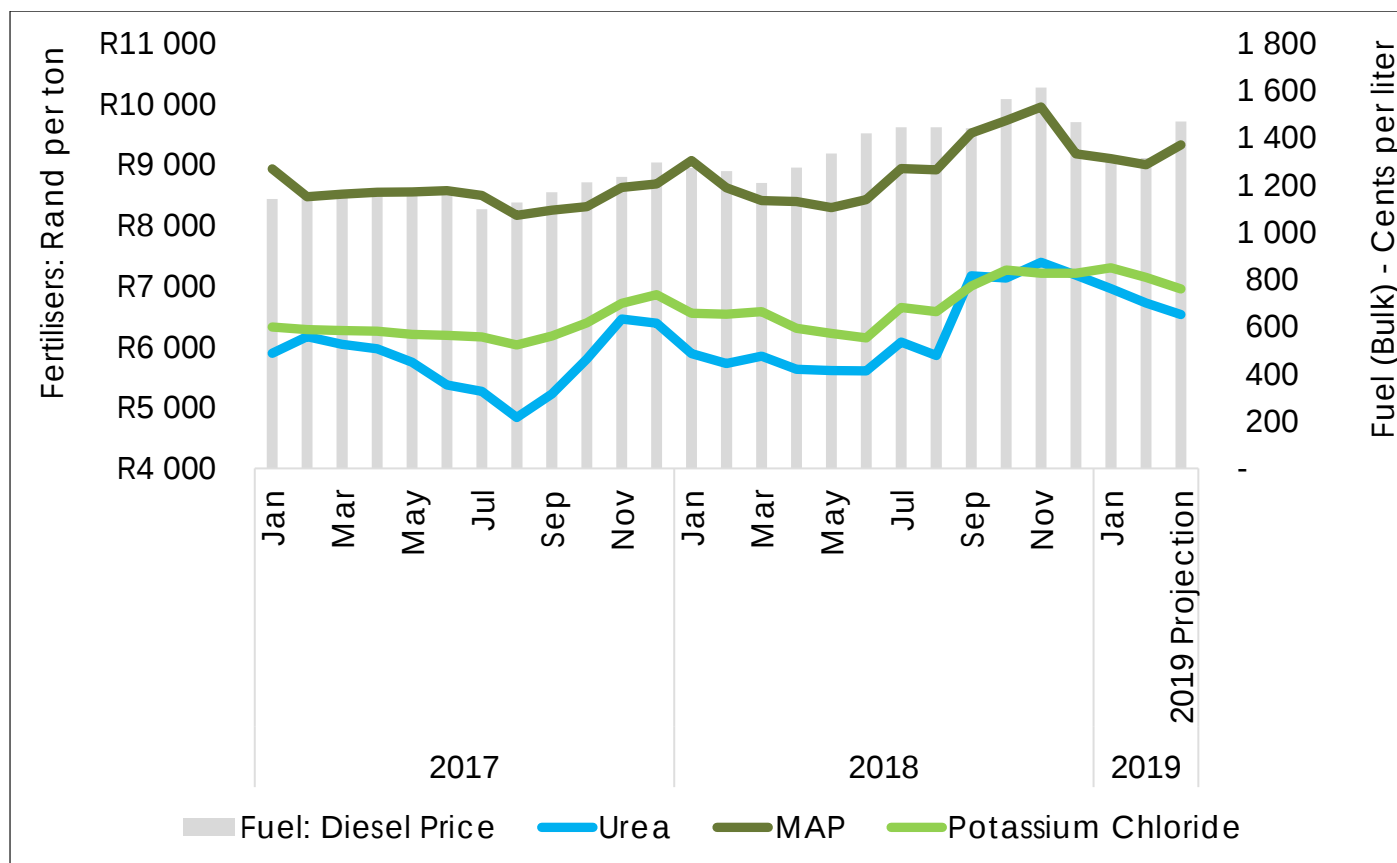


Figure 1.4: Fertiliser & fuel cost trends: January 2017 to February 2019 & 2019 projections

Source: Grain SA & BFAP, April 2019

INCOME & COST BUDGETS – DRYLAND PRODUCTION REGION

Southern Cape: Caledon

Table 2.1: Income & cost budgets for wheat, barley, canola, oats & lupines for Southern Cape (Caledon region) - Dryland

Southern Cape: Caledon						
Crop		Wheat	Barley	Canola	Oats	Lupines
Production System		Dryland	Dryland	Dryland	Dryland	Dryland
1) INCOME						
Yield: Deterministic	T/HA	3.20	3.20	1.75	3.00	1.30
SAFEX SIMULATED / DERIVED PRICE: 2019	R/TON	R4 513	R4 513	R5 230	R3 144	R3 250
Total deductions	R/TON	R751	R633	R85	R5	R5
- Transport differential	R/TON	R580	R580	R80	R-	R-
- Grade differential	R/TON	R64	R-	R-	R-	R-
- Marketing, handling & statutory levies	R/TON	R107	R53	R5	R-	R-
Price premiums / Canola back-payment (10% of contracted price)	R/TON	R-	R75	R523	R-	R-
Net Farm Gate Price	R/TON	R3 762	R3 837	R5 668	R3 139	R3 245
GROSS INCOME	R/HA	R12 037	R12 277	R9 920	R9 418	R4 219
2) VARIABLE EXPENDITURES						
Contracting	R/HA	R-	R-	R-	R-	R-
Crop insurance	R/HA	R34	R41	R33	R31	R14
Fertilizer	R/HA	R2 668	R2 516	R2 295	R2 271	R477
Lime	R/HA	R110	R110	R110	R110	R110
Seed	R/HA	R696	R587	R1 006	R400	R970
Fuel	R/HA	R794	R764	R705	R779	R720
Herbicide	R/HA	R681	R708	R817	R423	R720
Insecticide	R/HA	R170	R192	R619	R139	R174
Fungicides	R/HA	R689	R895	R415	R588	R395
Marketing costs	R/HA	R37	R47	R13	R-	R-
Repairs and maintenance	R/HA	R730	R744	R639	R715	R670
Casual labour	R/HA	R7	R7	R7	R7	R7
Aerial spray	R/HA	R-	R-	R-	R-	R-
Other expenditure	R/HA	R126	R120	R110	R93	R93
TOTAL VARIABLE EXPENDITURE	R/HA	R6 741	R6 730	R6 769	R5 556	R4 349
TOTAL VARIABLE EXPENDITURE	R/TON	R2 107	R2 103	R3 868	R1 852	R3 345
3.1) GROSS MARGIN:	R/HA	R5 296	R5 547	R3 150	R3 862	-R130
3.2) GROSS MARGIN:	R/TON	R1 655	R1 733	R1 800	R1 287	-R100
Break-even yield	T/HA	1.79	1.75	1.19	1.77	1.34
Break-even price	R/TON	R2 107	R2 103	R3 868	R1 852	R3 345

Source: Overberg Agri, GSA & BFAP, April 2019

Gross Margin Comparison BASELINE: Overberg - Caledon

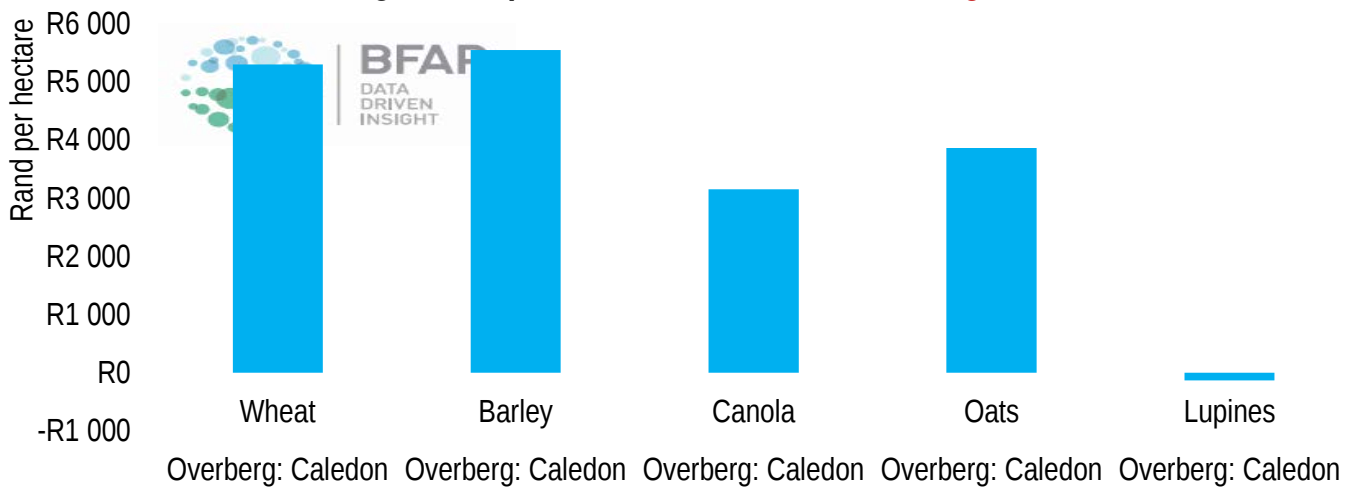


Figure 2.1: Gross margin comparison – Baseline: Southern Cape: Caledon region

WHEAT SENSITIVITY ANALYSIS (GROSS MARGIN PER HECTARE): OVERBERG - CALEDON

		YIELD (T/HA)													
PRODUCERS PRICE		2.25		2.50		3.00		3.20		3.50		3.75		4.00	
R2 762	-R	527	R	163	R	1 544	R	2 096	R	2 925	R	3 615	R	4 306	
R3 012	R	35	R	788	R	2 294	R	2 896	R	3 800	R	4 553	R	5 306	
R3 262	R	598	R	1 413	R	3 044	R	3 696	R	4 675	R	5 490	R	6 306	
R3 512	R	1 160	R	2 038	R	3 794	R	4 496	R	5 550	R	6 428	R	7 306	
R3 762	R	1 723	R	2 663	R	4 544	R	5 296	R	6 425	R	7 365	R	8 306	
R4 012	R	2 285	R	3 288	R	5 294	R	6 096	R	7 300	R	8 303	R	9 306	
R4 262	R	2 848	R	3 913	R	6 044	R	6 896	R	8 175	R	9 240	R	10 306	
R4 512	R	3 410	R	4 538	R	6 794	R	7 696	R	9 050	R	10 178	R	11 306	
R4 762	R	3 973	R	5 163	R	7 544	R	8 496	R	9 925	R	11 115	R	12 306	

BARLEY SENSITIVITY ANALYSIS (GROSS MARGIN PER HECTARE): OVERBERG - CALEDON

		YIELD (T/HA)													
PRODUCERS PRICE		2.25		2.50		3.00		3.20		3.50		3.75		4.00	
R2 837	-R	348	R	362	R	1 780	R	2 347	R	3 198	R	3 907	R	4 616	
R3 087	R	215	R	987	R	2 530	R	3 147	R	4 073	R	4 845	R	5 616	
R3 337	R	777	R	1 612	R	3 280	R	3 947	R	4 948	R	5 782	R	6 616	
R3 587	R	1 340	R	2 237	R	4 030	R	4 747	R	5 823	R	6 720	R	7 616	
R3 837	R	1 902	R	2 862	R	4 780	R	5 547	R	6 698	R	7 657	R	8 616	
R4 087	R	2 465	R	3 487	R	5 530	R	6 347	R	7 573	R	8 595	R	9 616	
R4 337	R	3 027	R	4 112	R	6 280	R	7 147	R	8 448	R	9 532	R	10 616	
R4 587	R	3 590	R	4 737	R	7 030	R	7 947	R	9 323	R	10 470	R	11 616	
R4 837	R	4 152	R	5 362	R	7 780	R	8 747	R	10 198	R	11 407	R	12 616	

CANOLA SENSITIVITY ANALYSIS (GROSS MARGIN PER HECTARE): OVERBERG - CALEDON

		YIELD (T/HA)													
PRODUCERS PRICE		1.00		1.25		1.50		1.75		2.00		2.50		2.75	
R4 668	-R	2 101	-R	934	R	233	R	1 400	R	2 567	R	4 901	R	6 069	
R4 918	-R	1 851	-R	621	R	608	R	1 838	R	3 067	R	5 526	R	6 756	
R5 168	-R	1 601	-R	309	R	983	R	2 275	R	3 567	R	6 151	R	7 444	
R5 418	-R	1 351	R	4	R	1 358	R	2 713	R	4 067	R	6 776	R	8 131	
R5 668	-R	1 101	R	316	R	1 733	R	3 150	R	4 567	R	7 401	R	8 819	
R5 918	-R	851	R	629	R	2 108	R	3 588	R	5 067	R	8 026	R	9 506	
R6 168	-R	601	R	941	R	2 483	R	4 025	R	5 567	R	8 651	R	10 194	
R6 418	-R	351	R	1 254	R	2 858	R	4 463	R	6 067	R	9 276	R	10 881	
R6 668	-R	101	R	1 566	R	3 233	R	4 900	R	6 567	R	9 901	R	11 569	

CANOLA MARGIN ABOVE / BELOW WHEAT (GROSS MARGIN PER HECTARE): OVERBERG - CALEDON											
	YIELD		PRICE (R/TON)								
	R	4 918	R	5 168	R	5 418	R	5 668	R	5 918	R
0.75	-R	8 377	-R	8 190	-R	8 002	-R	7 815	-R	7 627	-R
1.00	-R	7 147	-R	6 897	-R	6 647	-R	6 397	-R	6 147	-R
1.25	-R	5 918	-R	5 605	-R	5 293	-R	4 980	-R	4 668	-R
1.50	-R	4 688	-R	4 313	-R	3 938	-R	3 563	-R	3 188	-R
1.75	-R	3 459	-R	3 021	-R	2 584	-R	2 146	-R	1 709	-R
2.00	-R	2 229	-R	1 729	-R	1 229	-R	729	-R	229	R
2.50	R	230	R	855	R	1 480	R	2 105	R	2 730	R
2.75	R	1 460	R	2 147	R	2 835	R	3 522	R	4 210	R
3.00	R	2 689	R	3 439	R	4 189	R	4 939	R	5 689	R

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.
- The cost of fuel includes pre-harvest and harvesting costs with the assumption that own machinery is used.
- The costs for wheat, barley & oats seeds reflect a combination of own- and purchased seed.
- It is important to note that overhead costs are not included and should be accounted for. Overhead costs such as interest on production loans, labour, management and administration will vary to a large extent from producer to producer. Producers will therefore have to deduct the farm business' overhead cost from the gross margins as stipulated in the tables and figures to calculate the net income per crop.

Southern Cape: Bredasdorp

Table 2.2: Income & cost budgets for wheat, barley, canola, oats & lupines for Southern Cape (Bredasdorp region) - Dryland

Southern Cape: Bredasdorp						
Crop		Wheat	Barley	Canola	Oats	Lupines
Production System		Dryland	Dryland	Dryland	Dryland	Dryland
1) INCOME						
Yield: Deterministic	T/HA	3.00	3.00	1.65	2.60	1.20
SAFEX SIMULATED / DERIVED PRICE: 2019	R/TON	R4 513	R4 513	R5 230	R3 144	R3 250
Total deductions	R/TON	R751	R633	R80	R5	R-
- Transport differential	R/TON	R580	R580	R75	R-	R-
- Grade differential	R/TON	R64	R-	R-	R-	R-
- Marketing, handling & statutory levies	R/TON	R107	R53	R5	R5	R5
Price premiums / Canola back-payment (10% of contracted price)	R/TON	R-	R75	R523	R-	R-
Net Farm Gate Price	R/TON	R3 762	R3 837	R5 673	R3 144	R3 250
GROSS INCOME	R/HA	R11 285	R11 510	R9 361	R8 174	R3 900
2) VARIABLE EXPENDITURES						
Contracting	R/HA	R-	R-	R-	R-	R-
Crop insurance	R/HA	R37	R38	R31	R27	R13
Fertilizer	R/HA	R2 183	R2 081	R2 272	R1 506	R1 080
Lime	R/HA	R86	R86	R86	R86	R86
Seed	R/HA	R645	R544	R946	R407	R834
Fuel	R/HA	R809	R823	R756	R801	R782
Herbicide	R/HA	R839	R720	R719	R451	R564
Insecticide	R/HA	R340	R418	R215	R122	R301
Fungicides	R/HA	R777	R942	R517	R526	R218
Marketing costs	R/HA	R37	R47	R13	R-	R-
Repairs and maintenance	R/HA	R748	R769	R695	R775	R753
Casual labour	R/HA	R7	R7	R7	R7	R7
Aerial spray	R/HA	R-	R-	R-	R-	R-
Other expenditure	R/HA	R111	R113	R106	R95	R95
TOTAL VARIABLE EXPENDITURE	R/HA	R6 620	R6 586	R6 362	R4 802	R4 731
TOTAL VARIABLE EXPENDITURE	R/TON	R2 207	R2 195	R3 856	R1 847	R3 943
3.1) GROSS MARGIN:	R/HA	R4 665	R4 923	R2 999	R3 372	-R831
3.2) GROSS MARGIN:	R/TON	R1 555	R1 641	R1 818	R1 297	-R693
Break-even yield	T/HA	1.76	1.72	1.12	1.53	1.46
Break-even price	R/TON	R2 207	R2 195	R3 856	R1 847	R3 943

Source: Overberg Agri, GSA & BFAP, April 2019

Gross Margin Comparison BASELINE: Overberg - Bredasdorp

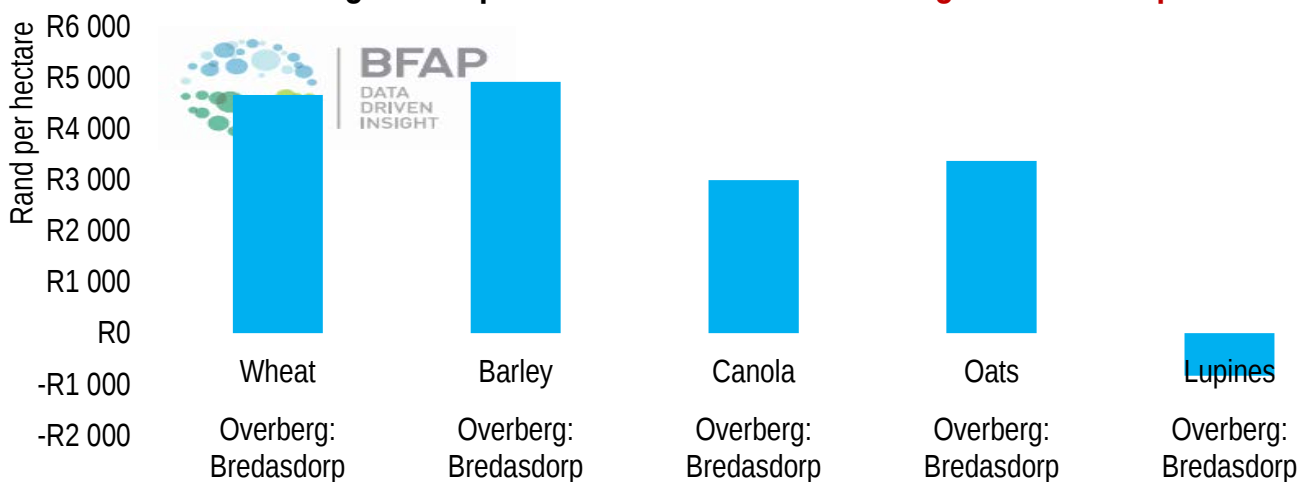


Figure 2.2: Gross margin comparison – Baseline: Southern Cape: Bredasdorp region

WHEAT SENSITIVITY ANALYSIS (GROSS MARGIN PER HECTARE): OVERBERG - BREDASDORP

		YIELD (T/HA)													
PRODUCERS PRICE		2.25		2.50		2.75		3.00		3.25		3.50		3.75	
R2 762	-R	406	R	285	R	975	R	1 665	R	2 356	R	3 046	R	3 737	
R3 012	R	157	R	910	R	1 662	R	2 415	R	3 168	R	3 921	R	4 674	
R3 262	R	719	R	1 535	R	2 350	R	3 165	R	3 981	R	4 796	R	5 612	
R3 512	R	1 282	R	2 160	R	3 037	R	3 915	R	4 793	R	5 671	R	6 549	
R3 762	R	1 844	R	2 785	R	3 725	R	4 665	R	5 606	R	6 546	R	7 487	
R4 012	R	2 407	R	3 410	R	4 412	R	5 415	R	6 418	R	7 421	R	8 424	
R4 262	R	2 969	R	4 035	R	5 100	R	6 165	R	7 231	R	8 296	R	9 362	
R4 512	R	3 532	R	4 660	R	5 787	R	6 915	R	8 043	R	9 171	R	10 299	
R4 762	R	4 094	R	5 285	R	6 475	R	7 665	R	8 856	R	10 046	R	11 237	

BARLEY SENSITIVITY ANALYSIS (GROSS MARGIN PER HECTARE): OVERBERG - BREDASDORP

		YIELD (T/HA)													
PRODUCERS PRICE		2.25		2.50		2.75		3.00		3.25		3.50		3.75	
R2 837	-R	204	R	505	R	1 214	R	1 923	R	2 632	R	3 341	R	4 051	
R3 087	R	358	R	1 130	R	1 902	R	2 673	R	3 445	R	4 216	R	4 988	
R3 337	R	921	R	1 755	R	2 589	R	3 423	R	4 257	R	5 091	R	5 926	
R3 587	R	1 483	R	2 380	R	3 277	R	4 173	R	5 070	R	5 966	R	6 863	
R3 837	R	2 046	R	3 005	R	3 964	R	4 923	R	5 882	R	6 841	R	7 801	
R4 087	R	2 608	R	3 630	R	4 652	R	5 673	R	6 695	R	7 716	R	8 738	
R4 337	R	3 171	R	4 255	R	5 339	R	6 423	R	7 507	R	8 591	R	9 676	
R4 587	R	3 733	R	4 880	R	6 027	R	7 173	R	8 320	R	9 466	R	10 613	
R4 837	R	4 296	R	5 505	R	6 714	R	7 923	R	9 132	R	10 341	R	11 551	

CANOLA SENSITIVITY ANALYSIS (GROSS MARGIN PER HECTARE): OVERBERG - BREDASDORP

		YIELD PRICE (R/TON)													
		1.00		1.25		1.50		1.65		1.75		2.00		2.25	
R4 673	-R	1 689	-R	520	R	648	R	1 349	R	1 816	R	2 985	R	4 153	
R4 923	-R	1 439	-R	208	R	1 023	R	1 762	R	2 254	R	3 485	R	4 716	
R5 173	-R	1 189	R	105	R	1 398	R	2 174	R	2 691	R	3 985	R	5 278	
R5 423	-R	939	R	417	R	1 773	R	2 587	R	3 129	R	4 485	R	5 841	
R5 673	-R	689	R	730	R	2 148	R	2 999	R	3 566	R	4 985	R	6 403	
R5 923	-R	439	R	1 042	R	2 523	R	3 412	R	4 004	R	5 485	R	6 966	
R6 173	-R	189	R	1 355	R	2 898	R	3 824	R	4 441	R	5 985	R	7 528	
R6 423	R	61	R	1 667	R	3 273	R	4 237	R	4 879	R	6 485	R	8 091	
R6 673	R	311	R	1 980	R	3 648	R	4 649	R	5 316	R	6 985	R	8 653	

CANOLA MARGIN ABOVE / BELOW WHEAT (GROSS MARGIN PER HECTARE): OVERBERG - BREDASDORP											
	YIELD PRICE (R/TON)										
	R	4 923	R	5 173	R	5 423	R	5 673	R	5 923	R
0.75	-R	7 335	-R	7 147	-R	6 960	-R	6 772	-R	6 585	-R
1.00	-R	6 104	-R	5 854	-R	5 604	-R	5 354	-R	5 104	-R
1.25	-R	4 873	-R	4 561	-R	4 248	-R	3 936	-R	3 623	-R
1.50	-R	3 642	-R	3 267	-R	2 892	-R	2 517	-R	2 142	-R
1.65	-R	2 904	-R	2 491	-R	2 079	-R	1 666	-R	1 254	-R
1.75	-R	2 411	-R	1 974	-R	1 536	-R	1 099	-R	661	-R
2.00	-R	1 181	-R	681	-R	181	R	319	R	819	R
2.25	R	50	R	613	R	1 175	R	1 738	R	2 300	R
2.50	R	1 281	R	1 906	R	2 531	R	3 156	R	3 781	R

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.
- The cost of fuel includes pre-harvest and harvesting costs with the assumption that own machinery is used.
- The costs for wheat, barley & oats seeds reflect a combination of own- and purchased seed.
- It is important to note that overhead costs are not included and should be accounted for. Overhead costs such as interest on production loans, labour, management and administration will vary to a large extent from producer to producer. Producers will therefore have to deduct the farm business' overhead cost from the gross margins as stipulated in the tables and figures to calculate the net income per crop.

Southern Cape: Swellendam/Heidelberg

Table 2.3: Income & cost budgets for wheat, barley, canola, oats & lupines for Southern Cape (Swellendam/Heidelberg) - Dryland

Southern Cape: Swellendam/Heidelberg						
Crop		Wheat	Barley	Canola	Oats	Lupines
Production System		Dryland	Dryland	Dryland	Dryland	Dryland
1) INCOME						
Yield: Deterministic	T/HA	3.00	3.00	1.65	2.50	1.80
SAFEX SIMULATED / DERIVED PRICE: 2019	R/TON	R4 513	R4 513	R5 230	R3 144	R3 250
Total deductions	R/TON	R751	R633	R5	R5	R5
- Transport differential	R/TON	R580	R580	R-	R-	R-
- Grade differential	R/TON	R64	R-	R-	R-	R-
- Marketing, handling & statutory levies	R/TON	R107	R53	R5	R5	R5
Price premiums / Canola back-payment (10% of contracted price)	R/TON	R-	R75	R523	R-	R-
Net Farm Gate Price	R/TON	R3 762	R3 837	R5 748	R3 144	R3 250
GROSS INCOME	R/HA	R11 285	R11 510	R9 485	R7 860	R5 850
2) VARIABLE EXPENDITURES						
Contracting	R/HA	R-	R-	R-	R-	R-
Crop insurance	R/HA	R32	R38	R31	R26	R19
Fertilizer	R/HA	R1 821	R1 735	R1 882	R1 312	R1 009
Lime	R/HA	R107	R107	R107	R107	R107
Seed	R/HA	R897	R417	R629	R464	R984
Fuel	R/HA	R522	R533	R533	R521	R499
Herbicide	R/HA	R1 154	R959	R671	R468	R819
Insecticide	R/HA	R195	R233	R658	R143	R112
Fungicides	R/HA	R555	R1 047	R284	R527	R181
Marketing costs	R/HA	R37	R47	R13	R-	R-
Repairs and maintenance	R/HA	R657	R696	R634	R579	R579
Casual labour	R/HA	R7	R7	R7	R7	R7
Aerial spray	R/HA	R-	R-	R-	R-	R-
Other expenditure	R/HA	R-	R-	R-	R-	R-
TOTAL VARIABLE EXPENDITURE	R/HA	R5 983	R5 818	R5 447	R4 154	R4 316
TOTAL VARIABLE EXPENDITURE	R/TON	R1 994	R1 939	R3 301	R1 662	R2 398
3.1) GROSS MARGIN:	R/HA	R5 302	R5 691	R4 038	R3 706	R1 534
3.2) GROSS MARGIN:	R/TON	R1 767	R1 897	R2 447	R1 482	R852
Break-even yield	T/HA	1.59	1.52	0.95	1.32	1.33
Break-even price	R/TON	R1 994	R1 939	R3 301	R1 662	R2 398

Source: SSK, GSA & BFAP, April 2019

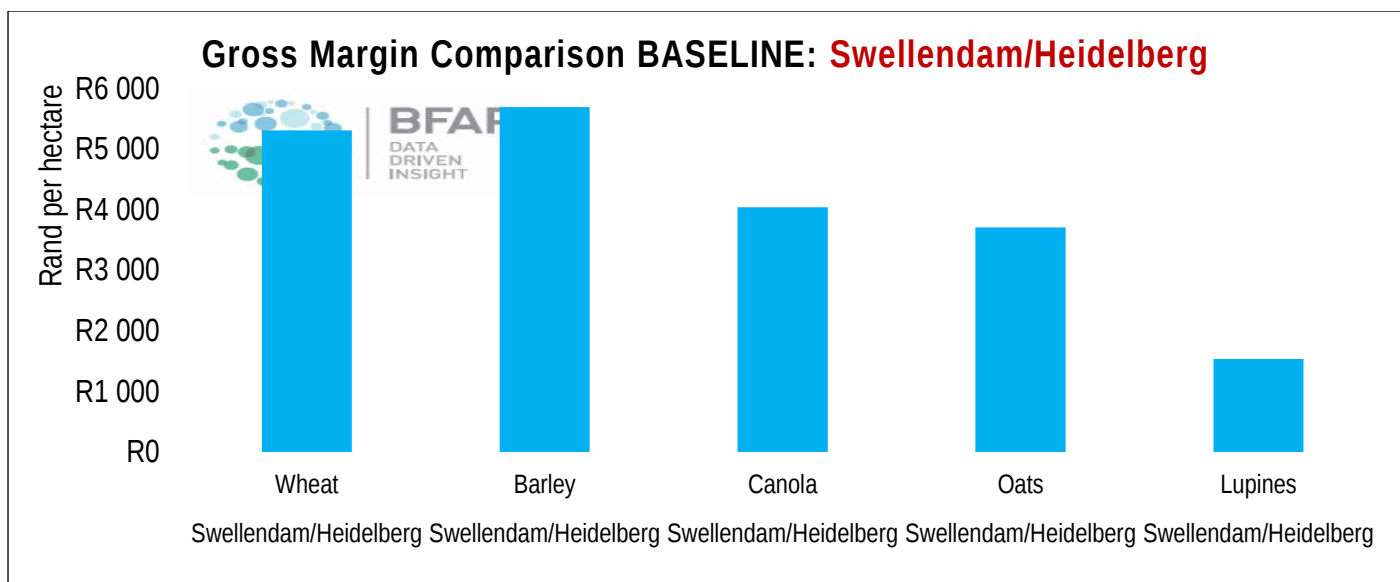


Figure 2.3: Gross margin comparison – Baseline: Southern Cape: Swellendam/Heidelberg

WHEAT SENSITIVITY ANALYSIS (GROSS MARGIN PER HECTARE): SWELLENDAM/HEIDELBERG												
		YIELD (T/HA)										
PRODUCERS PRICE		2.25	2.50	2.75	3.00	3.25	3.50	3.75				
R2 762	R	231	R 921	R 1 612	R 2 302	R 2 992	R 3 683	R 4 373				
R3 012	R	793	R 1 546	R 2 299	R 3 052	R 3 805	R 4 558	R 5 311				
R3 262	R	1 356	R 2 171	R 2 987	R 3 802	R 4 617	R 5 433	R 6 248				
R3 512	R	1 918	R 2 796	R 3 674	R 4 552	R 5 430	R 6 308	R 7 186				
R3 762	R	2 481	R 3 421	R 4 362	R 5 302	R 6 242	R 7 183	R 8 123				
R4 012	R	3 043	R 4 046	R 5 049	R 6 052	R 7 055	R 8 058	R 9 061				
R4 262	R	3 606	R 4 671	R 5 737	R 6 802	R 7 867	R 8 933	R 9 998				
R4 512	R	4 168	R 5 296	R 6 424	R 7 552	R 8 680	R 9 808	R 10 936				
R4 762	R	4 731	R 5 921	R 7 112	R 8 302	R 9 492	R 10 683	R 11 873				

BARLEY SENSITIVITY ANALYSIS (GROSS MARGIN PER HECTARE): SWELLENDAM/HEIDELBERG												
		YIELD (T/HA)										
PRODUCERS PRICE		2.25	2.50	2.75	3.00	3.25	3.50	3.75				
R2 837	R	564	R 1 273	R 1 982	R 2 691	R 3 400	R 4 110	R 4 819				
R3 087	R	1 126	R 1 898	R 2 670	R 3 441	R 4 213	R 4 985	R 5 756				
R3 337	R	1 689	R 2 523	R 3 357	R 4 191	R 5 025	R 5 860	R 6 694				
R3 587	R	2 251	R 3 148	R 4 045	R 4 941	R 5 838	R 6 735	R 7 631				
R3 837	R	2 814	R 3 773	R 4 732	R 5 691	R 6 650	R 7 610	R 8 569				
R4 087	R	3 376	R 4 398	R 5 420	R 6 441	R 7 463	R 8 485	R 9 506				
R4 337	R	3 939	R 5 023	R 6 107	R 7 191	R 8 275	R 9 360	R 10 444				
R4 587	R	4 501	R 5 648	R 6 795	R 7 941	R 9 088	R 10 235	R 11 381				
R4 837	R	5 064	R 6 273	R 7 482	R 8 691	R 9 900	R 11 110	R 12 319				

CANOLA SENSITIVITY ANALYSIS (GROSS MARGIN PER HECTARE): SWELLENDAM/HEIDELBERG												
		YIELD PRICE (R/TON)										
		1.00	1.25	1.50	1.65	2.00	2.25	2.50				
R4 748	-R	699	R 488	R 1 675	R 2 388	R 4 050	R 5 237	R 6 424				
R4 998	-R	449	R 801	R 2 050	R 2 800	R 4 550	R 5 799	R 7 049				
R5 248	-R	199	R 1 113	R 2 425	R 3 213	R 5 050	R 6 362	R 7 674				
R5 498	R	51	R 1 426	R 2 800	R 3 625	R 5 550	R 6 924	R 8 299				
R5 748	R	301	R 1 738	R 3 175	R 4 038	R 6 050	R 7 487	R 8 924				
R5 998	R	551	R 2 051	R 3 550	R 4 450	R 6 550	R 8 049	R 9 549				
R6 248	R	801	R 2 363	R 3 925	R 4 863	R 7 050	R 8 612	R 10 174				
R6 498	R	1 051	R 2 676	R 4 300	R 5 275	R 7 550	R 9 174	R 10 799				
R6 748	R	1 301	R 2 988	R 4 675	R 5 688	R 8 050	R 9 737	R 11 424				

CANOLA MARGIN ABOVE / BELOW WHEAT (GROSS MARGIN PER HECTARE): SWELLENDAM/HEIDELBERG											
YIELD	PRICE (R/TON)										
	R	4 998	R	5 248	R	5 498	R	5 748	R	5 998	R
0.75	-R	7 000	-R	6 813	-R	6 625	-R	6 438	-R	6 250	-R
1.00	-R	5 751	-R	5 501	-R	5 251	-R	5 001	-R	4 751	-R
1.25	-R	4 501	-R	4 189	-R	3 876	-R	3 564	-R	3 251	-R
1.50	-R	3 252	-R	2 877	-R	2 502	-R	2 127	-R	1 752	-R
1.65	-R	2 502	-R	2 089	-R	1 677	-R	1 264	-R	852	-R
2.00	-R	752	-R	252	R	248	R	748	R	1 248	R
2.25	R	497	R	1 060	R	1 622	R	2 185	R	2 747	R
2.50	R	1 747	R	2 372	R	2 997	R	3 622	R	4 247	R
2.75	R	2 996	R	3 684	R	4 371	R	5 059	R	5 746	R

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.
- The cost of fuel includes pre-harvest and harvesting costs with the assumption that own machinery is used.
- The costs for wheat, barley & oats seeds reflect a combination of own- and purchased seed.
- It is important to note that overhead costs are not included and should be accounted for. Overhead costs such as interest on production loans, labour, management and administration will vary to a large extent from producer to producer. Producers will therefore have to deduct the farm business' overhead cost from the gross margins as stipulated in the tables and figures to calculate the net income per crop.

Southern Cape: Riversdal/Albertinia

Table 2.4: Income & cost budgets for wheat, barley, canola, oats & lupines for Southern Cape (Riversdal/Albertinia) - Dryland

Southern Cape: Riversdal/Albertinia						
Crop		Wheat	Barley	Canola	Oats	Lupines
Production System		Dryland	Dryland	Dryland	Dryland	Dryland
1) INCOME						
Yield: Deterministic	T/HA	2.70	2.80	1.50	2.20	1.50
SAFEX SIMULATED / DERIVED PRICE: 2019	R/TON	R4 513	R4 513	R5 230	R3 144	R3 250
Total deductions	R/TON	R751	R633	R135	R5	R5
- Transport differential	R/TON	R580	R580	R130	R-	R-
- Grade differential	R/TON	R64	R-	R-	R-	R-
- Marketing, handling & statutory levies	R/TON	R107	R53	R5	R5	R5
Price premiums / Canola back-payment (10% of contracted price)	R/TON	R-	R75	R523	R-	R-
Net Farm Gate Price	R/TON	R3 762	R3 837	R5 618	R3 139	R3 245
GROSS INCOME	R/HA	R10 157	R10 742	R8 427	R6 906	R4 868
2) VARIABLE EXPENDITURES						
Contracting	R/HA	R-	R-	R-	R-	R-
Crop insurance	R/HA	R28	R35	R28	R23	R16
Fertilizer	R/HA	R1 299	R1 299	R1 734	R1 049	R662
Lime	R/HA	R107	R107	R107	R107	R107
Seed	R/HA	R833	R400	R629	R371	R984
Fuel	R/HA	R522	R533	R533	R521	R499
Herbicide	R/HA	R1 154	R959	R671	R468	R819
Insecticide	R/HA	R195	R233	R658	R143	R112
Fungicides	R/HA	R555	R1 047	R284	R527	R181
Marketing costs	R/HA	R37	R47	R13	R-	R-
Repairs and maintenance	R/HA	R657	R696	R634	R579	R579
Casual labour	R/HA	R7	R7	R7	R7	R7
Aerial spray	R/HA	R-	R-	R-	R-	R-
Other expenditure	R/HA	R-	R-	R-	R-	R-
TOTAL VARIABLE EXPENDITURE	R/HA	R5 394	R5 363	R5 296	R3 795	R3 966
TOTAL VARIABLE EXPENDITURE	R/TON	R1 998	R1 915	R3 531	R1 725	R2 644
3.1) GROSS MARGIN:	R/HA	R4 763	R5 379	R3 132	R3 111	R902
3.2) GROSS MARGIN:	R/TON	R1 764	R1 921	R2 088	R1 414	R601
Break-even yield	T/HA	1.43	1.40	0.94	1.21	1.22
Break-even price	R/TON	R1 998	R1 915	R3 531	R1 725	R2 644

Source: SSK, GSA & BFAP, April 2019

Gross Margin Comparison BASELINE: Riversdal/Albertinia

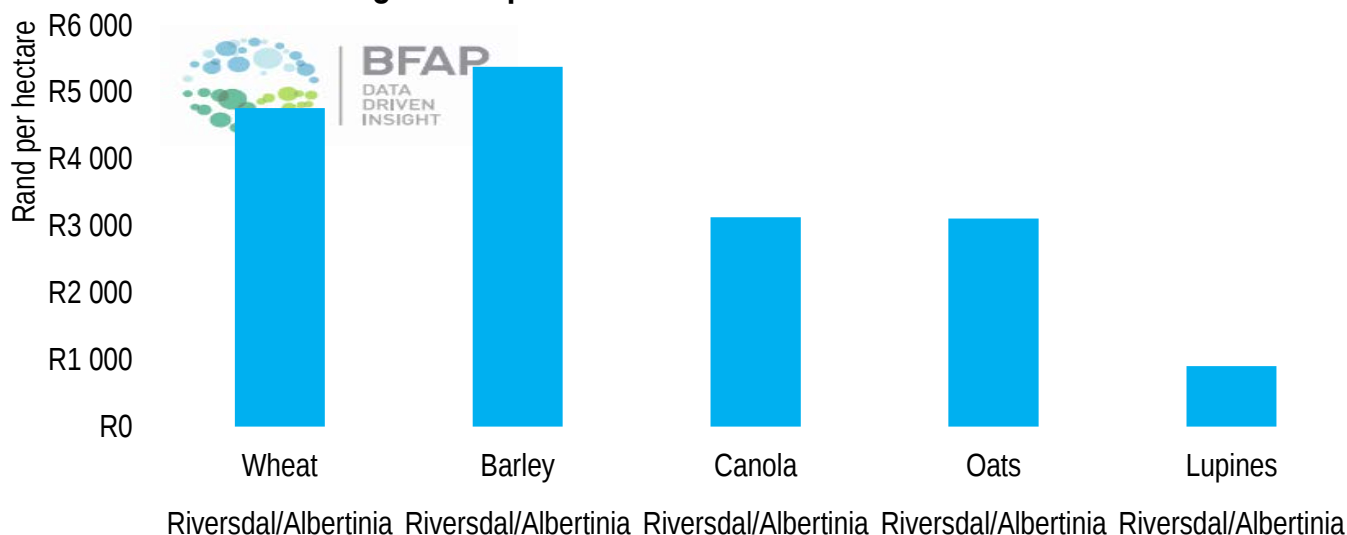


Figure 2.4: Gross margin comparison – Baseline: Southern Cape: Riversdal/Albertinia

WHEAT SENSITIVITY ANALYSIS (GROSS MARGIN PER HECTARE): RIVERSDAL/ALBERTINIA															
		YIELD (T/HA)													
PRODUCERS PRICE		2.00		2.25		2.50		2.70		3.00		3.25		3.50	
R2 762	R	130	R	820	R	1 510	R	2 063	R	2 891	R	3 582	R	4 272	
R3 012	R	630	R	1 383	R	2 135	R	2 738	R	3 641	R	4 394	R	5 147	
R3 262	R	1 130	R	1 945	R	2 760	R	3 413	R	4 391	R	5 207	R	6 022	
R3 512	R	1 630	R	2 508	R	3 385	R	4 088	R	5 141	R	6 019	R	6 897	
R3 762	R	2 130	R	3 070	R	4 010	R	4 763	R	5 891	R	6 832	R	7 772	
R4 012	R	2 630	R	3 633	R	4 635	R	5 438	R	6 641	R	7 644	R	8 647	
R4 262	R	3 130	R	4 195	R	5 260	R	6 113	R	7 391	R	8 457	R	9 522	
R4 512	R	3 630	R	4 758	R	5 885	R	6 788	R	8 141	R	9 269	R	10 397	
R4 762	R	4 130	R	5 320	R	6 510	R	7 463	R	8 891	R	10 082	R	11 272	

BARLEY SENSITIVITY ANALYSIS (GROSS MARGIN PER HECTARE): RIVERSDAL/ALBERTINIA															
		YIELD (T/HA)													
PRODUCERS PRICE		2.00		2.25		2.50		2.80		3.00		3.25		3.50	
R2 837	R	310	R	1 019	R	1 728	R	2 579	R	3 147	R	3 856	R	4 565	
R3 087	R	810	R	1 582	R	2 353	R	3 279	R	3 897	R	4 668	R	5 440	
R3 337	R	1 310	R	2 144	R	2 978	R	3 979	R	4 647	R	5 481	R	6 315	
R3 587	R	1 810	R	2 707	R	3 603	R	4 679	R	5 397	R	6 293	R	7 190	
R3 837	R	2 310	R	3 269	R	4 228	R	5 379	R	6 147	R	7 106	R	8 065	
R4 087	R	2 810	R	3 832	R	4 853	R	6 079	R	6 897	R	7 918	R	8 940	
R4 337	R	3 310	R	4 394	R	5 478	R	6 779	R	7 647	R	8 731	R	9 815	
R4 587	R	3 810	R	4 957	R	6 103	R	7 479	R	8 397	R	9 543	R	10 690	
R4 837	R	4 310	R	5 519	R	6 728	R	8 179	R	9 147	R	10 356	R	11 565	

CANOLA SENSITIVITY ANALYSIS (GROSS MARGIN PER HECTARE): RIVERSDAL/ALBERTINIA															
		YIELD (T/HA)													
PRODUCERS PRICE		0.75		1.00		1.25		1.50		1.75		2.00		2.25	
R4 618	-R	1832	-R	678	R	477	R	1632	R	2786	R	3941	R	5095	
R4 868	-R	1645	-R	428	R	790	R	2007	R	3224	R	4441	R	5658	
R5 118	-R	1457	-R	178	R	1102	R	2382	R	3661	R	4941	R	6220	
R5 368	-R	1270	R	72	R	1415	R	2757	R	4099	R	5441	R	6783	
R5 618	-R	1082	R	322	R	1727	R	3132	R	4536	R	5941	R	7345	
R5 868	-R	895	R	572	R	2040	R	3507	R	4974	R	6441	R	7908	
R6 118	-R	707	R	822	R	2352	R	3882	R	5411	R	6941	R	8470	
R6 368	-R	520	R	1072	R	2665	R	4257	R	5849	R	7441	R	9033	
R6 618	-R	332	R	1322	R	2977	R	4632	R	6286	R	7941	R	9595	

CANOLA MARGIN ABOVE / BELOW WHEAT (GROSS MARGIN PER HECTARE): RIVERSDAL/ALBERTINIA										
YIELD PRICE (R/TON)										
	R	4 868	R	5 118	R	5 368	R	5 618	R	5 868
0.50	-R	7 624	-R	7 499	-R	7 374	-R	7 249	-R	7 124
0.75	-R	6 407	-R	6 220	-R	6 032	-R	5 845	-R	5 657
1.00	-R	5 190	-R	4 940	-R	4 690	-R	4 440	-R	4 190
1.25	-R	3 973	-R	3 661	-R	3 348	-R	3 036	-R	2 723
1.50	-R	2 756	-R	2 381	-R	2 006	-R	1 631	-R	1 256
1.75	-R	1 539	-R	1 102	-R	664	-R	227	R	211
2.00	-R	322	R	178	R	678	R	1 178	R	1 678
2.25	R	895	R	1 458	R	2 020	R	2 583	R	3 145
2.50	R	2 112	R	2 737	R	3 362	R	3 987	R	4 612

Notes:

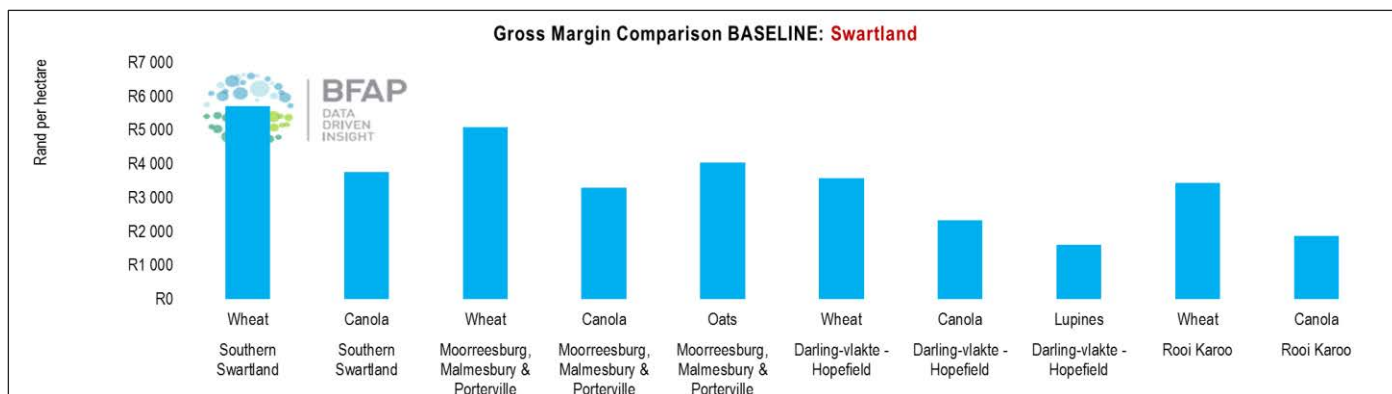
- The cost items reflect the input allocation based on the target yield for the respective crops.
- Although some expenditure items are zero, it is reflected in the budgets to allow for individual inclusion.
- The cost of fuel includes pre-harvest and harvesting costs with the assumption that own machinery is used.
- The costs for wheat, barley & oats seeds reflect a combination of own- and purchased seed.
- It is important to note that overhead costs are not included and should be accounted for. Overhead costs such as interest on production loans, labour, management and administration will vary to a large extent from producer to producer. Producers will therefore have to deduct the farm business' overhead cost from the gross margins as stipulated in the tables and figures to calculate the net income per crop.

Western Cape: Southern Swartland

Table 2.5: Income & cost budgets for wheat & canola for Southern Swartland - Dryland

Southern Swartland			
Crop		Wheat	Canola
Production System		Dryland	Dryland
1) INCOME			
Yield: Deterministic	T/HA	3.30	1.65
SAFEX SIMULATED / DERIVED PRICE: 2019	R/TON	R4 513	R5 230
Total deductions	R/TON	R751	R5
- Transport differential	R/TON	R580	R-
- Grade differential	R/TON	R64	R-
- Marketing, handling & statutory levies	R/TON	R107	R5
Price premiums / Canola back-payment (10% of contracted price)	R/TON	R-	R523
Net Farm Gate Price	R/TON	R3 762	R5 748
GROSS INCOME	R/HA	R12 414	R9 485
2) VARIABLE EXPENDITURES			
Contracting	R/HA	R-	R-
Crop insurance	R/HA	R35	R31
Fertilizer	R/HA	R2 742	R2 498
Lime	R/HA	R180	R180
Seed	R/HA	R668	R880
Fuel	R/HA	R528	R404
Herbicide	R/HA	R995	R565
Insecticide	R/HA	R105	R131
Fungicides	R/HA	R554	R272
Marketing costs	R/HA	R37	R13
Repairs and maintenance	R/HA	R757	R658
Casual labour	R/HA	R7	R7
Aerial spray	R/HA	R-	R-
Other expenditure	R/HA	R90	R90
TOTAL VARIABLE EXPENDITURE	R/HA	R6 697	R5 728
TOTAL VARIABLE EXPENDITURE	R/TON	R2 029	R3 472
3.1) GROSS MARGIN:	R/HA	R5 717	R3 756
3.2) GROSS MARGIN:	R/TON	R1 732	R2 277
Break-even yield	T/HA	1.78	1.00
Break-even price	R/HA	R2 029	R3 472

Source: Kaap Agri, Overberg Agri, GSA & BFAP, April 2019



WHEAT SENSITIVITY ANALYSIS (GROSS MARGIN PER HECTARE): SOUTHERN SWARTLAND															
		YIELD (T/HA)													
PRODUCERS PRICE		2.50		2.75		3.00		3.30		3.50		3.75		4.00	
	R2 762	R	207	R	898	R	1 588	R	2 417	R	2 969	R	3 659	R	4 350
	R3 012	R	832	R	1 585	R	2 338	R	3 242	R	3 844	R	4 597	R	5 350
	R3 262	R	1 457	R	2 273	R	3 088	R	4 067	R	4 719	R	5 534	R	6 350
	R3 512	R	2 082	R	2 960	R	3 838	R	4 892	R	5 594	R	6 472	R	7 350
	R3 762	R	2 707	R	3 648	R	4 588	R	5 717	R	6 469	R	7 409	R	8 350
	R4 012	R	3 332	R	4 335	R	5 338	R	6 542	R	7 344	R	8 347	R	9 350
	R4 262	R	3 957	R	5 023	R	6 088	R	7 367	R	8 219	R	9 284	R	10 350
	R4 512	R	4 582	R	5 710	R	6 838	R	8 192	R	9 094	R	10 222	R	11 350
	R4 762	R	5 207	R	6 398	R	7 588	R	9 017	R	9 969	R	11 159	R	12 350

Notes:

Western Cape: Moorreesburg, Malmesbury & Porterville

Table 2.6: Income & cost budgets for wheat, canola & oats for Moorreesburg, Malmesbury & Porterville - Dryland

Moorreesburg, Malmesbury & Porterville				
Crop		Wheat	Canola	Oats
Production System		Dryland	Dryland	Dryland
1) INCOME				
Yield: Deterministic	T/HA	3.00	1.50	2.70
SAFEX SIMULATED / DERIVED PRICE: 2019	R/TON	R4 513	R5 230	R3 144
Total deductions	R/TON	R751	R5	R5
- Transport differential	R/TON	R580	R-	R-
- Grade differential	R/TON	R64	R-	R-
- Marketing, handling & statutory levies	R/TON	R107	R5	R-
Price premiums / Canola back-payment (10% of contracted price)	R/TON	R-	R523	R5
Net Farm Gate Price	R/TON	R3 762	R5 748	R3 139
GROSS INCOME	R/HA	R11 285	R8 622	R8 476
2) VARIABLE EXPENDITURES				
Contracting	R/HA	R-	R-	R-
Crop insurance	R/HA	R32	R28	R28
Fertilizer	R/HA	R2 446	R2 220	R1 747
Lime	R/HA	R149	R148	R148
Seed	R/HA	R637	R754	R398
Fuel	R/HA	R519	R448	R488
Herbicide	R/HA	R994	R565	R419
Insecticide	R/HA	R105	R131	R83
Fungicides	R/HA	R438	R272	R302
Marketing costs	R/HA	R37	R13	R37
Repairs and maintenance	R/HA	R750	R658	R694
Casual labour	R/HA	R7	R7	R7
Aerial spray	R/HA	R-	R-	R-
Other expenditure	R/HA	R90	R90	R90
TOTAL VARIABLE EXPENDITURE	R/HA	R6 204	R5 333	R4 440
TOTAL VARIABLE EXPENDITURE	R/TON	R2 068	R3 556	R1 644
3.1) GROSS MARGIN:	R/HA	R5 082	R3 289	R4 036
3.2) GROSS MARGIN:	R/TON	R1 694	R2 193	R1 495
Break-even yield	T/HA	1.65	0.93	1.41
Break-even price	R/TON	R2 068	R3 556	R1 644

Source: Kaap Agri, Overberg Agri, GSA & BFAP, April 2019

Western Cape: Darling-vlakte – Hopefield

Table 2.7: Income & cost budgets for wheat, canola & lupines for Darling-vlakte – Hopefield (Sandveld region)
- Dryland

Darling-vlakte – Hopefield (Sandveld region)				
Crop		Wheat	Canola	Lupines
Production System		Dryland	Dryland	Dryland
1) INCOME				
Yield: Deterministic	T/HA	2.35	1.20	1.35
SAFEX SIMULATED / DERIVED PRICE: 2019	R/TON	R4 513	R5 230	R3 250
Total deductions	R/TON	R751	R5	R5
- Transport differential	R/TON	R580	R-	R-
- Grade differential	R/TON	R64	R-	R-
- Marketing, handling & statutory levies	R/TON	R107	R5	R5
Price premiums / Canola back-payment (10% of contracted price)	R/TON	R-	R523	R-
Net Farm Gate Price	R/TON	R3 762	R5 748	R3 245
GROSS INCOME	R/HA	R8 840	R6 898	R4 381
2) VARIABLE EXPENDITURES				
Contracting	R/HA	R-	R-	R-
Crop insurance	R/HA	R25	R23	R14
Fertilizer	R/HA	R2 062	R1 942	R459
Lime	R/HA	R122	R148	R144
Seed	R/HA	R577	R754	R582
Fuel	R/HA	R529	R375	R380
Herbicide	R/HA	R846	R444	R518
Insecticide	R/HA	R105	R188	R72
Fungicides	R/HA	R269	R99	R86
Marketing costs	R/HA	R37	R13	R-
Repairs and maintenance	R/HA	R596	R476	R505
Casual labour	R/HA	R7	R7	R7
Aerial spray	R/HA	R-	R-	R-
Other expenditure	R/HA	R90	R90	R-
TOTAL VARIABLE EXPENDITURE	R/HA	R5 264	R4 557	R2 768
TOTAL VARIABLE EXPENDITURE	R/TON	R2 240	R3 798	R2 050
3.1) GROSS MARGIN:	R/HA	R3 576	R2 341	R1 613
3.2) GROSS MARGIN:	R/TON	R1 522	R1 950	R1 195
Break-even yield	T/HA	1.40	0.79	0.85
Break-even price	R/TON	R2 240	R3 798	R2 050

Source: Kaap Agri, Overberg Agri, GSA & BFAP, April 2019

Western Cape: Rooi Karoo

Table 2.8: Income & cost budgets for wheat & canola for Rooi Karoo - Dryland

Rooi Karoo			
Crop		Wheat	Canola
Production System		Dryland	Dryland
1) INCOME			
Yield: Deterministic	T/HA	2.15	1.10
SAFEX SIMULATED / DERIVED PRICE: 2019	R/TON	R4 513	R5 230
Total deductions	R/TON	R751	R5
- Transport differential	R/TON	R580	R-
- Grade differential	R/TON	R64	R-
- Marketing, handling & statutory levies	R/TON	R107	R5
Price premiums / Canola back-payment (10% of contracted price)	R/TON	R-	R523
Net Farm Gate Price	R/TON	R3 762	R5 748
GROSS INCOME	R/HA	R8 088	R6 323
2) VARIABLE EXPENDITURES			
Contracting	R/HA	R-	R-
Crop insurance	R/HA	R23	R21
Fertilizer	R/HA	R1 572	R1 693
Lime	R/HA	R133	R180
Seed	R/HA	R546	R880
Fuel	R/HA	R501	R405
Herbicide	R/HA	R772	R444
Insecticide	R/HA	R105	R188
Fungicides	R/HA	R269	R99
Marketing costs	R/HA	R37	R13
Repairs and maintenance	R/HA	R591	R516
Casual labour	R/HA	R7	R7
Aerial spray	R/HA	R-	R-
Other expenditure	R/HA	R90	R-
TOTAL VARIABLE EXPENDITURE	R/HA	R4 645	R4 445
TOTAL VARIABLE EXPENDITURE	R/TON	R2 161	R4 041
3.1) GROSS MARGIN:	R/HA	R3 442	R1 878
3.2) GROSS MARGIN:	R/TON	R1 601	R1 707
Break-even yield	T/HA	1.23	0.77
Break-even price	R/TON	R2 161	R4 041

Source: Kaap Agri, Overberg Agri, GSA & BFAP, April 2019

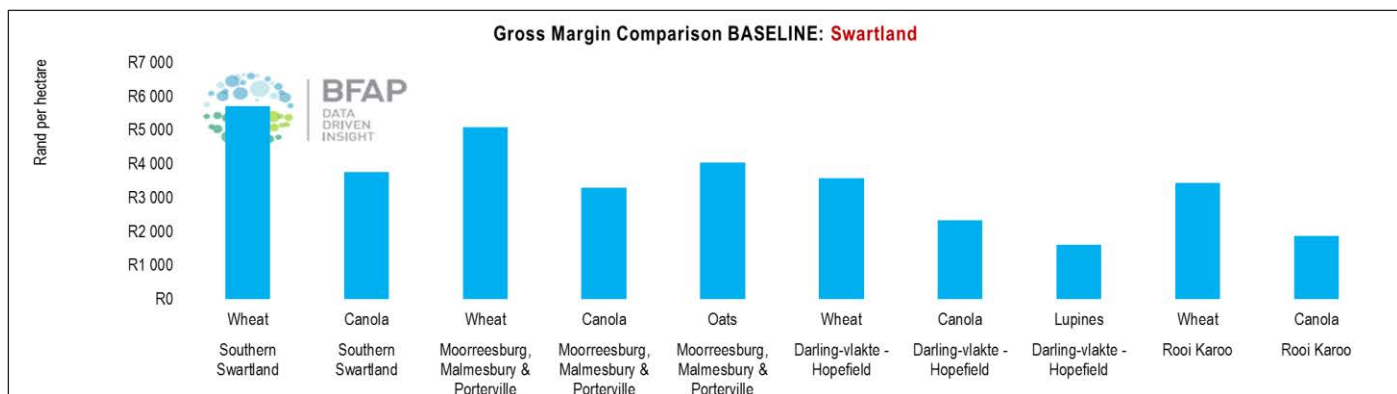


Figure 2.8: Gross margin comparison – Baseline: Swartland

WHEAT SENSITIVITY ANALYSIS (GROSS MARGIN PER HECTARE): ROOI KAROO										
YIELD (T/HA)										
PRODUCERS PRICE	1.50	1.75	2.00	2.15	2.25	2.50	2.75			
R2 762	R 503	R 188	R 878	R 1 292	R 1 569	R 2 259	R 2 949			
R3 012	R 128	R 625	R 1 378	R 1 830	R 2 131	R 2 884	R 3 637			
R3 262	R 247	R 1 063	R 1 878	R 2 367	R 2 694	R 3 509	R 4 324			
R3 512	R 622	R 1 500	R 2 378	R 2 905	R 3 256	R 4 134	R 5 012			
R3 762	R 997	R 1 938	R 2 878	R 3 442	R 3 819	R 4 759	R 5 699			
R4 012	R 1 372	R 2 375	R 3 378	R 3 980	R 4 381	R 5 384	R 6 387			
R4 262	R 1 747	R 2 813	R 3 878	R 4 517	R 4 944	R 5 909	R 6 874			
R4 512	R 2 122	R 3 250	R 4 378	R 5 055	R 5 506	R 6 534	R 7 562			
R4 762	R 2 497	R 3 688	R 4 878	R 5 592	R 6 069	R 7 259	R 8 449			

CANOLA SENSITIVITY ANALYSIS (GROSS MARGIN PER HECTARE): ROOI KAROO										
YIELD (T/HA)										
PRODUCERS PRICE	0.50	0.75	1.00	1.10	1.25	1.50	1.75			
R4 748	R 2 071	R 884	R 303	R 778	R 1 490	R 2 678	R 3 865			
R4 998	R 1 946	R 696	R 553	R 1 053	R 1 803	R 3 053	R 4 302			
R5 248	R 1 821	R 509	R 803	R 1 328	R 2 115	R 3 428	R 4 740			
R5 498	R 1 696	R 321	R 1 053	R 1 603	R 2 428	R 3 803	R 5 177			
R5 748	R 1 571	R 134	R 1 303	R 1 878	R 2 740	R 4 178	R 5 615			
R5 998	R 1 446	R 54	R 1 553	R 2 153	R 3 053	R 4 553	R 6 052			
R6 248	R 1 321	R 241	R 1 803	R 2 428	R 3 365	R 4 928	R 6 490			
R6 498	R 1 196	R 429	R 2 053	R 2 703	R 3 678	R 5 303	R 6 927			
R6 748	R 1 071	R 616	R 2 303	R 2 978	R 3 990	R 5 678	R 7 365			

CANOLA MARGIN ABOVE / BELOW WHEAT (GROSS MARGIN PER HECTARE): ROOI KAROO										
YIELD PRICE (R/TON)										
	R 4 998	R 5 248	R 5 498	R 5 748	R 5 998	R 6 248	R 6 498			
0.25	R 6 638	R 6 575	R 6 513	R 6 450	R 6 388	R 6 325	R 6 263			
0.50	R 5 388	R 5 263	R 5 138	R 5 013	R 4 888	R 4 763	R 4 638			
0.75	R 4 139	R 3 951	R 3 764	R 3 576	R 3 389	R 3 201	R 3 014			
1.00	R 2 889	R 2 639	R 2 389	R 2 139	R 1 889	R 1 639	R 1 389			
1.10	R 2 389	R 2 114	R 1 839	R 1 564	R 1 289	R 1 014	R 739			
1.25	R 1 639	R 1 327	R 1 014	R 702	R 389	R 77	R 236			
1.50	R 390	R 15	R 360	R 735	R 1 110	R 1 485	R 1 860			
1.75	R 860	R 1 297	R 1 735	R 2 172	R 2 610	R 3 047	R 3 485			
2.00	R 2 109	R 2 609	R 3 109	R 3 609	R 4 109	R 4 609	R 5 109			

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.
- The cost of fuel includes pre-harvest and harvesting costs with the assumption that own machinery is used.
- The costs for wheat, barley & oats seeds reflect a combination of own- and purchased seed.
- It is important to note that overhead costs are not included and should be accounted for. Overhead costs such as interest on production loans, labour, management and administration will vary to a large extent from producer to producer. Producers will therefore have to deduct the farm business' overhead cost from the gross margins as stipulated in the tables and figures to calculate the net income per crop.

Free State

Table 2.9: Income & cost budgets for wheat for Eastern & Central Free State - Dryland

		Eastern Free State	Central Free State
Crop		Wheat	Wheat
Production System		Dryland	Dryland
1) INCOME			
Yield: Deterministic	T/HA	2.50	2.50
SAFEX SIMULATED / DERIVED PRICE: 2019	R/TON	R4 513	R4 513
Total deductions	R/TON	R459	R454
- Transport differential	R/TON	R288	R283
- Grade differential	R/TON	R64	R64
- Marketing, handling & statutory levies	R/TON	R107	R107
Price premiums / Canola back-payment (10% of contracted price)	R/TON	R-	R-
Net Farm Gate Price	R/TON	R4 054	R4 059
GROSS INCOME	R/HA	R10 134	R10 147
2) VARIABLE EXPENDITURES			
Contracting	R/HA	R788	R788
Crop insurance	R/HA	R811	R639
Fertilizer	R/HA	R1 719	R1 719
Lime	R/HA	R580	R580
Seed	R/HA	R396	R396
Fuel	R/HA	R872	R872
Herbicide	R/HA	R297	R297
Insecticide	R/HA	R152	R152
Fungicides	R/HA	R-	R-
Marketing costs	R/HA	R105	R105
Repairs and maintenance	R/HA	R562	R562
Casual labour	R/HA	R-	R-
Aerial spray	R/HA	R-	R-
Other expenditure	R/HA	R-	R-
TOTAL VARIABLE EXPENDITURE	R/HA	R6 282	R6 110
TOTAL VARIABLE EXPENDITURE	R/TON	R2 513	R2 444
3.1) GROSS MARGIN:	R/HA	R3 853	R4 037
3.2) GROSS MARGIN:	R/TON	R1 541	R1 615
Break-even yield	T/HA	1.55	1.51
Break-even price	R/TON	R2 513	R2 444

Source: VKB, GSA & BFAP, April 2019

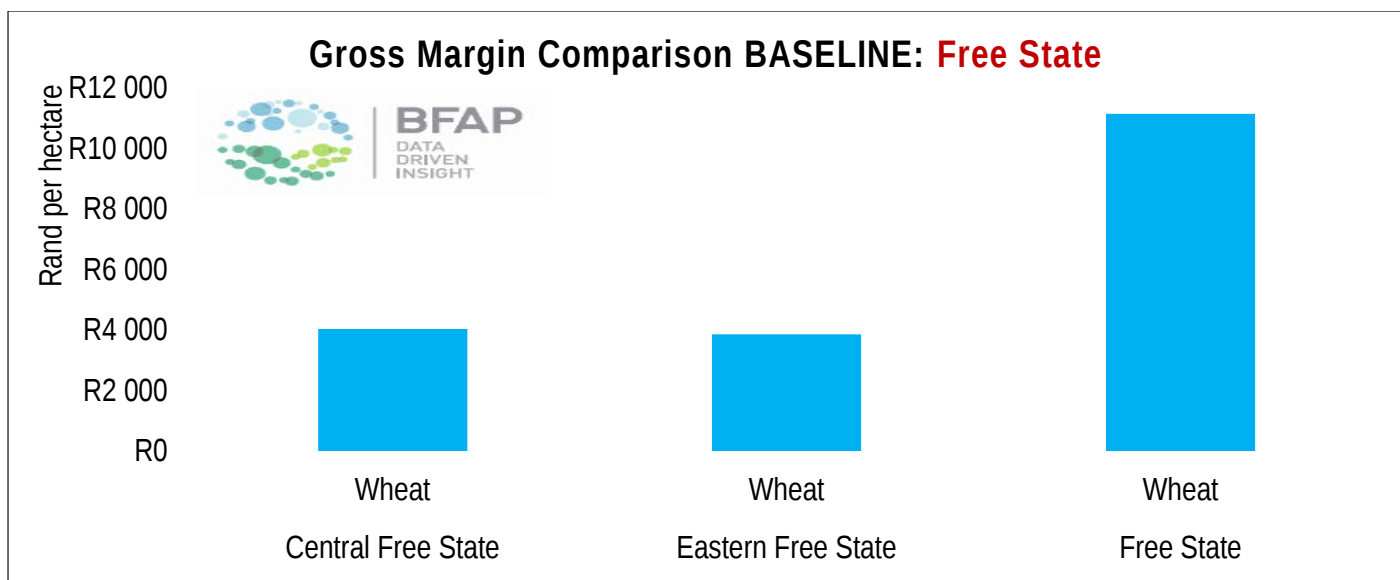


Figure 2.9: Gross margin comparison – Baseline: Free State (Eastern & Central regions)

WHEAT SENSITIVITY ANALYSIS (GROSS MARGIN PER HECTARE): EASTERN FREE STATE															
		YIELD (T/HA)													
PRODUCERS PRICE		1.75		2.00		2.25		2.50		2.75		3.00		3.25	
R3 054	-R	938	-R	174	R	589	R	1 353	R	2 116	R	2 879	R	3 643	
R3 304	-R	500	R	326	R	1 152	R	1 978	R	2 804	R	3 629	R	4 455	
R3 554	-R	63	R	826	R	1 714	R	2 603	R	3 491	R	4 379	R	5 268	
R3 804	R	375	R	1 326	R	2 277	R	3 228	R	4 179	R	5 129	R	6 080	
R4 054	R	812	R	1 826	R	2 839	R	3 853	R	4 866	R	5 879	R	6 893	
R4 304	R	1 250	R	2 326	R	3 402	R	4 478	R	5 554	R	6 629	R	7 705	
R4 554	R	1 687	R	2 826	R	3 964	R	5 103	R	6 241	R	7 379	R	8 518	
R4 804	R	2 125	R	3 326	R	4 527	R	5 728	R	6 929	R	8 129	R	9 330	
R5 054	R	2 562	R	3 826	R	5 089	R	6 353	R	7 616	R	8 879	R	10 143	

WHEAT SENSITIVITY ANALYSIS (GROSS MARGIN PER HECTARE): CENTRAL FREE STATE															
		YIELD (T/HA)													
PRODUCERS PRICE		1.75		2.00		2.25		2.50		2.75		3.00		3.25	
R3 059	-R	757	R	7	R	772	R	1 537	R	2 301	R	3 066	R	3 831	
R3 309	-R	320	R	507	R	1 334	R	2 162	R	2 989	R	3 816	R	4 643	
R3 559	R	118	R	1 007	R	1 897	R	2 787	R	3 676	R	4 566	R	5 456	
R3 809	R	555	R	1 507	R	2 459	R	3 412	R	4 364	R	5 316	R	6 268	
R4 059	R	993	R	2 007	R	3 022	R	4 037	R	5 051	R	6 066	R	7 081	
R4 309	R	1 430	R	2 507	R	3 584	R	4 662	R	5 739	R	6 816	R	7 893	
R4 559	R	1 868	R	3 007	R	4 147	R	5 287	R	6 426	R	7 566	R	8 706	
R4 809	R	2 305	R	3 507	R	4 709	R	5 912	R	7 114	R	8 316	R	9 518	
R5 059	R	2 743	R	4 007	R	5 272	R	6 537	R	7 801	R	9 066	R	10 331	

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.
- The cost of fuel includes pre-harvest and harvesting costs with the assumption that own machinery is used.
- The costs for wheat, barley & oats seeds reflect a combination of own- and purchased seed.
- It is important to note that overhead costs are not included and should be accounted for. Overhead costs such as interest on production loans, labour, management and administration will vary to a large extent from producer to producer. Producers will therefore have to deduct the farm business' overhead cost from the gross margins as stipulated in the tables and figures to calculate the net income per crop.

INCOME & COST BUDGETS – IRRIGATION

Northern Cape

Table 3.1: Income & cost budgets for wheat, barley & canola for Northern Cape - Irrigation

Northern Cape: Irrigation				
Area				
Crop		Wheat	Barley	Canola
Production System		Irrigation	Irrigation	Irrigation
1) INCOME				
Yield: Deterministic	T/HA	8.00	7.50	4.00
SAFEX SIMULATED PRICE / PRODUCER PRICE: 2019	R/TON	R4 513	R4 513	R5 230
Total deductions	R/TON	R645	R520	R135
- Transport differential	R/TON	R467	R467	R130
- Grade differential	R/TON	R72	R-	R-
- Marketing, handling & statutory levies	R/TON	R107	R53	R5
Price premiums / Canola back- payment (10% of contracted price)	R/TON	R-	R75	R523
Net Farm Gate Price	R/TON	R3 867	R3 825	R5 618
GROSS INCOME	R/HA	R30 939	R28 686	R22 473
2) VARIABLE EXPENDITURES				
Contracting	R/HA	R1 300	R1 300	R1 300
Crop insurance	R/HA	R2 506	R2 324	R899
Fertilizer	R/HA	R8 956	R7 237	R4 629
Lime	R/HA	R1 307	R1 307	R-
Seed	R/HA	R1 461	R1 472	R684
Fuel	R/HA	R882	R883	R882
Herbicide	R/HA	R270	R270	R1 370
Insecticide	R/HA	R1 096	R173	R630
Fungicides	R/HA	R-	R184	R1 369
Marketing costs	R/HA	R-	R-	R-
Repairs and maintenance	R/HA	R642	R642	R642
Casual labour	R/HA	R-	R-	R-
Irrigation: Water	R/HA	R912	R866	R866
Irrigation: Electricity	R/HA	R2 742	R2 605	R2 605
Aerial spray	R/HA	R-	R-	R-
Other expenditure: Scheduling / Irrigation Equipment R&M	R/HA	R532	R532	R532
TOTAL VARIABLE EXPENDITURE	R/HA	R22 605	R20 818	R16 007
TOTAL VARIABLE EXPENDITURE	R/TON	R2 826	R2 776	R4 002
3.1) GROSS MARGIN:	R/HA	R8 334	R7 867	R6 467
3.2) GROSS MARGIN:	R/TON	R1 042	R1 049	R1 617
Break-even yield	T/HA	5.85	5.44	2.85
Break-even price	R/TON	R2 826	R2 776	R4 002

Source: GWK, GSA & BFAP, April 2019

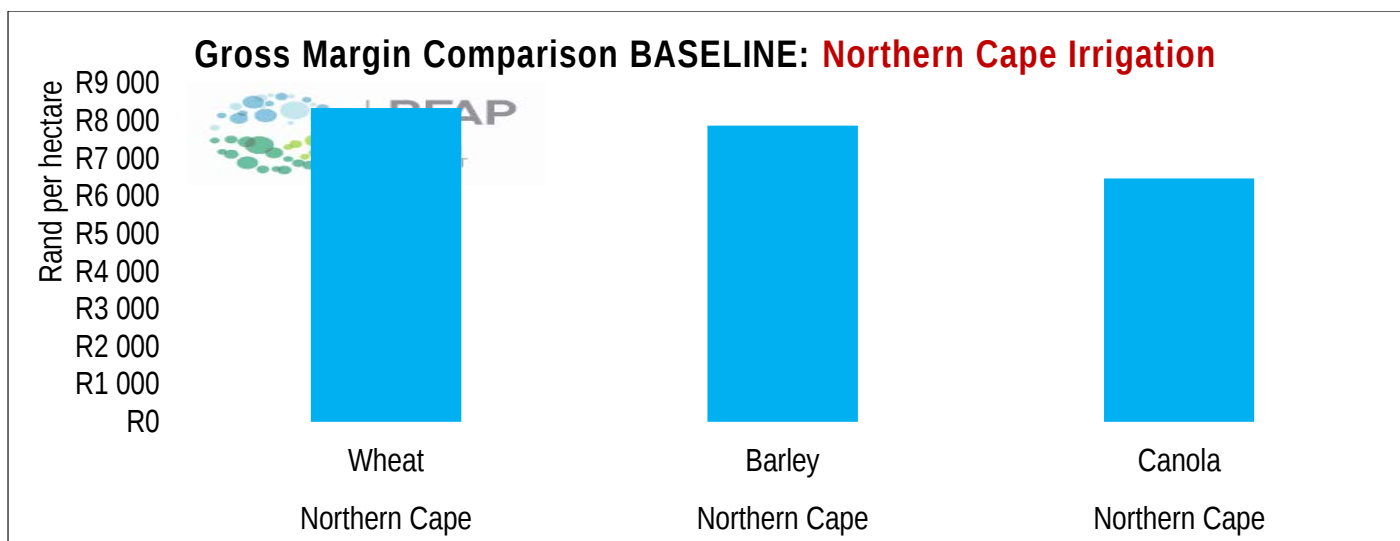


Figure 3.1: Gross margin comparison – Baseline: Northern Cape Irrigation

WHEAT SENSITIVITY ANALYSIS (GROSS MARGIN PER HECTARE): NORTHERN CAPE - IRRIGATION										
		YIELD (T/HA)								
PRODUCERS PRICE		7.25	7.50	7.75	8.00	8.25	8.50	8.75		
R2 867	-R	1 816.62	-R	1 100	-R	383	R	334	R	1 051
R3 117	-R	4	R	775	R	1 555	R	2 334	R	3 113
R3 367	R	1 808	R	2 650	R	3 492	R	4 334	R	5 176
R3 617	R	3 621	R	4 525	R	5 430	R	6 334	R	7 238
R3 867	R	5 433	R	6 400	R	7 367	R	8 334	R	9 301
R4 117	R	7 246	R	8 275	R	9 305	R	10 334	R	11 363
R4 367	R	9 058	R	10 150	R	11 242	R	12 334	R	13 426
R4 617	R	10 871	R	12 025	R	13 180	R	14 334	R	15 488
R4 867	R	12 683	R	13 900	R	15 117	R	16 334	R	17 551

BARLEY SENSITIVITY ANALYSIS (GROSS MARGIN PER HECTARE): NORTHERN CAPE - IRRIGATION										
		YIELD (T/HA)								
PRODUCERS PRICE		6.75	7.00	7.25	7.50	7.75	8.00	8.25		
R2 825	-R	1 751	-R	1 045	-R	339	R	367	R	1 074
R3 075	-R	64	R	705	R	1 474	R	2 242	R	3 011
R3 325	R	1 624	R	2 455	R	3 286	R	4 117	R	4 949
R3 575	R	3 311	R	4 205	R	5 099	R	5 992	R	6 886
R3 825	R	4 999	R	5 955	R	6 911	R	7 867	R	8 824
R4 075	R	6 686	R	7 705	R	8 724	R	9 742	R	10 761
R4 325	R	8 374	R	9 455	R	10 536	R	11 617	R	12 699
R4 575	R	10 061	R	11 205	R	12 349	R	13 492	R	14 636
R4 825	R	11 749	R	12 955	R	14 161	R	15 367	R	16 574

CANOLA SENSITIVITY ANALYSIS (GROSS MARGIN PER HECTARE): NORTHERN CAPE - IRRIGATION										
		YIELD (T/HA)								
PRODUCERS PRICE		3.25	3.50	3.75	4.00	4.25	4.50	4.75		
R4 618	-R	997	R	157	R	1 312	R	2 467	R	3 621
R4 868	-R	185	R	1 032	R	2 249	R	3 467	R	4 684
R5 118	R	628	R	1 907	R	3 187	R	4 467	R	5 746
R5 368	R	1 440	R	2 782	R	4 124	R	5 467	R	6 809
R5 618	R	2 253	R	3 657	R	5 062	R	6 467	R	7 871
R5 868	R	3 065	R	4 532	R	5 999	R	7 467	R	8 934
R6 118	R	3 878	R	5 407	R	6 937	R	8 467	R	9 996
R6 368	R	4 690	R	6 282	R	7 874	R	9 467	R	11 059
R6 618	R	5 503	R	7 157	R	8 812	R	10 467	R	12 121

CANOLA MARGIN ABOVE / BELOW WHEAT (GROSS MARGIN PER HECTARE): NORTHERN CAPE - IRRIGATION											
	YIELD PRICE (R/TON)										
	R	4 868	R	5 118	R	5 368	R	5 618	R	5 868	R
3.00	-R	9 736	-R	8 986	-R	8 236	-R	7 486	-R	6 736	-R
3.25	-R	8 519	-R	7 706	-R	6 894	-R	6 081	-R	5 269	-R
3.50	-R	7 302	-R	6 427	-R	5 552	-R	4 677	-R	3 802	-R
3.75	-R	6 084	-R	5 147	-R	4 209	-R	3 272	-R	2 334	-R
4.00	-R	4 867	-R	3 867	-R	2 867	-R	1 867	-R	867	R
4.25	-R	3 650	-R	2 588	-R	1 525	-R	463	R	600	R
4.50	-R	2 433	-R	1 308	-R	183	R	942	R	2 067	R
4.75	-R	1 216	-R	29	R	1 159	R	2 346	R	3 534	R
5.00	R	1	R	1 251	R	2 501	R	3 751	R	5 001	R

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.
- The cost of fuel includes pre-harvest and harvesting costs with the assumption that own machinery is used.
- The costs for wheat, barley & oats seeds reflect a combination of own- and purchased seed.
- It is important to note that overhead costs are not included and should be accounted for. Overhead costs such as interest on production loans, labour, management and administration will vary to a large extent from producer to producer. Producers will therefore have to deduct the farm business' overhead cost from the gross margins as stipulated in the tables and figures to calculate the net income per crop.

Table 3.2: Income & cost budgets for wheat & barley for Limpopo - Irrigation

Area		Limpopo: Irrigation	
Crop		Wheat	Barley
Production System		Irrigation	Irrigation
1) INCOME			
Yield: Deterministic	T/HA	6.10	5.60
SAFEX SIMULATED PRICE / PRODUCER PRICE: 2019	R/TON	R4 513	R4 513
Total deductions	R/TON	R395	R270
- Transport differential	R/TON	R217	R217
- Grade differential	R/TON	R72	R-
- Marketing, handling & statutory levies	R/TON	R107	R53
Price premiums / Canola back- payment (10% of contracted price)	R/TON	R-	R75
Net Farm Gate Price	R/TON	R4 117	R4 060
GROSS INCOME	R/HA	R25 116	R22 735
2) VARIABLE EXPENDITURES			
Contracting	R/HA	R-	R-
Crop insurance	R/HA	R1 808	R1 546
Fertilizer	R/HA	R5 645	R5 167
Lime	R/HA	R653	R653
Seed	R/HA	R930	R1 288
Fuel	R/HA	R882	R883
Herbicide	R/HA	R175	R260
Insecticide	R/HA	R708	R710
Fungicides	R/HA	R-	R-
Marketing costs	R/HA	R-	R-
Repairs and maintenance	R/HA	R512	R536
Casual labour	R/HA	R-	R-
Irrigation: Water	R/HA	R836	R760
Irrigation: Electricity	R/HA	R2 514	R2 285
Aerial spray	R/HA	R-	R-
Other expenditure: Scheduling / Irrigation Equipment R&M	R/HA	R511	R465
TOTAL VARIABLE EXPENDITURE	R/HA	R15 175	R14 553
TOTAL VARIABLE EXPENDITURE	R/TON	R2 488	R2 599
3.1) GROSS MARGIN:	R/HA	R9 941	R8 181
3.2) GROSS MARGIN:	R/TON	R1 630	R1 461
Break-even yield	T/HA	3.69	3.58
Break-even price	R/TON	R2 488	R2 599

Source: GSA, BFAP & Obaro, April 2019

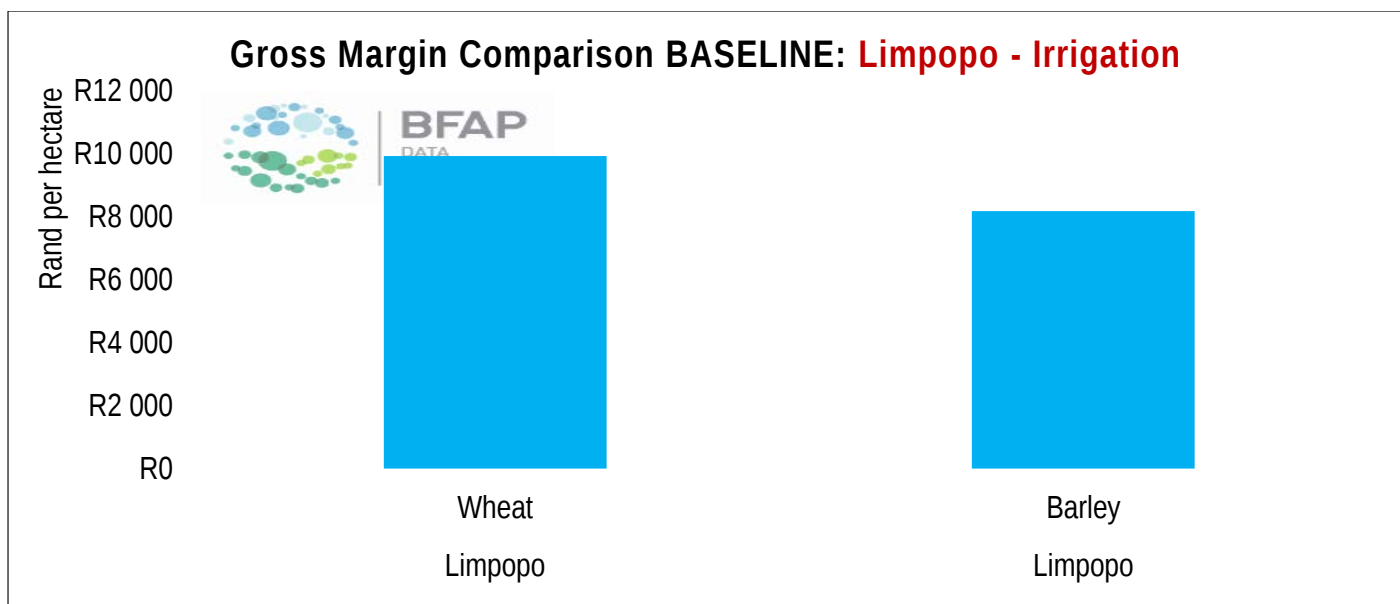


Figure 3.2: Gross margin comparison – Baseline: Limpopo Irrigation

WHEAT SENSITIVITY ANALYSIS (GROSS MARGIN PER HECTARE): LIMPOPO - IRRIGATION												
		YIELD (T/HA)										
PRODUCERS PRICE		5.50		5.75		6.00		6.10		6.25		6.50
R3 117	R	1 970	R	2 750	R	3 529	R	3 841	R	4 308	R	5 088
R3 367	R	3 345	R	4 187	R	5 029	R	5 366	R	5 871	R	6 713
R3 617	R	4 720	R	5 625	R	6 529	R	6 891	R	7 433	R	8 338
R3 867	R	6 095	R	7 062	R	8 029	R	8 416	R	8 996	R	9 963
R4 117	R	7 470	R	8 500	R	9 529	R	9 941	R	10 558	R	11 588
R4 367	R	8 845	R	9 937	R	11 029	R	11 466	R	12 121	R	13 213
R4 617	R	10 220	R	11 375	R	12 529	R	12 991	R	13 683	R	14 838
R4 867	R	11 595	R	12 812	R	14 029	R	14 516	R	15 246	R	16 463
R5 117	R	12 970	R	14 250	R	15 529	R	16 041	R	16 808	R	18 088

BARLEY SENSITIVITY ANALYSIS (GROSS MARGIN PER HECTARE): LIMPOPO - IRRIGATION												
		YIELD (T/HA)										
PRODUCERS PRICE		5.00		5.25		5.50		5.60		6.00		6.25
R3 060	R	746	R	1 511	R	2 275	R	2 581	R	3 805	R	4 570
R3 310	R	1 996	R	2 823	R	3 650	R	3 981	R	5 305	R	6 133
R3 560	R	3 246	R	4 136	R	5 025	R	5 381	R	6 805	R	7 695
R3 810	R	4 496	R	5 448	R	6 400	R	6 781	R	8 305	R	9 258
R4 060	R	5 746	R	6 761	R	7 775	R	8 181	R	9 805	R	10 820
R4 310	R	6 996	R	8 073	R	9 150	R	9 581	R	11 305	R	12 383
R4 560	R	8 246	R	9 386	R	10 525	R	10 981	R	12 805	R	13 945
R4 810	R	9 496	R	10 698	R	11 900	R	12 381	R	14 305	R	15 508
R5 060	R	10 746	R	12 011	R	13 275	R	13 781	R	15 805	R	17 070

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.
- The cost of fuel includes pre-harvest and harvesting costs with the assumption that own machinery is used.
- The costs for wheat, barley & oats seeds reflect a combination of own- and purchased seed.
- It is important to note that overhead costs are not included and should be accounted for. Overhead costs such as interest on production loans, labour, management and administration will vary to a large extent from producer to producer. Producers will therefore have to deduct the farm business' overhead cost from the gross margins as stipulated in the tables and figures to calculate the net income per crop.

Eastern Free State

Table 3.3: Income & cost budgets for wheat for Eastern Free State - Irrigation

Area		Eastern Free State: Irrigation
Crop		Wheat
Production System		Irrigation
1) INCOME		
Yield: Deterministic	T/HA	6.00
SAFEX SIMULATED PRICE / PRODUCER PRICE: 2019	R/TON	R4 513
Total deductions	R/TON	R459
- Transport differential	R/TON	R288
- Grade differential	R/TON	R64
- Marketing, handling & statutory levies	R/TON	R107
Price premiums / Canola back-payment (10% of contracted price)	R/TON	R-
Net Farm Gate Price	R/TON	R4 054
GROSS INCOME	R/HA	R24 322
2) VARIABLE EXPENDITURES		
Contracting	R/HA	R1 138
Crop insurance	R/HA	R1 946
Fertilizer	R/HA	R4 841
Lime	R/HA	R580
Seed	R/HA	R1 800
Fuel	R/HA	R736
Herbicide	R/HA	R149
Insecticide	R/HA	R286
Fungicides	R/HA	R-
Marketing costs	R/HA	R546
Repairs and maintenance	R/HA	R919
Casual labour	R/HA	R231
Irrigation: Water	R/HA	R563
Irrigation: Electricity	R/HA	R1 841
Aerial spray	R/HA	R-
Other expenditure: Scheduling / Irrigation Equipment R&M	R/HA	R-
TOTAL VARIABLE EXPENDITURE	R/HA	R13 172
TOTAL VARIABLE EXPENDITURE	R/TON	R2 195
3.1) GROSS MARGIN:	R/HA	R11 151
3.2) GROSS MARGIN:	R/TON	R1 858
Break-even yield	T/HA	3.25
Break-even price	R/TON	R2 195

Source: VKB, GSA & BFAP, April 2019

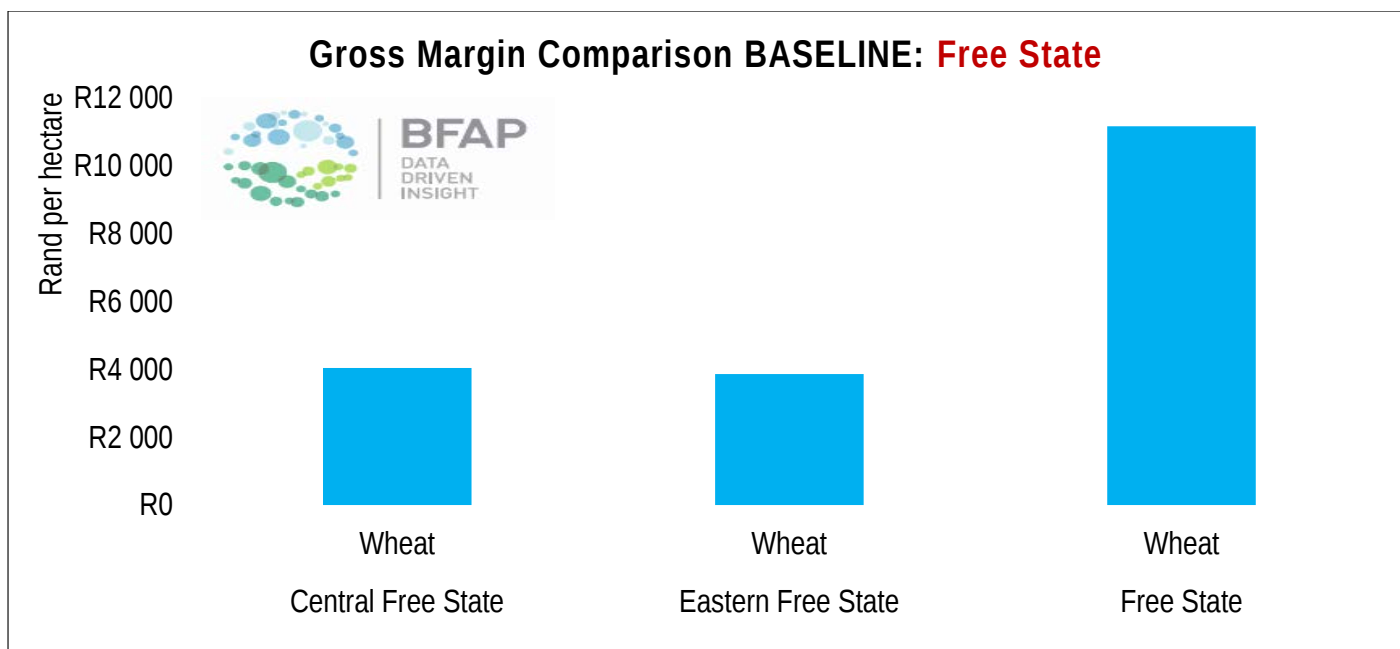


Figure 3.3: Gross margin comparison – Baseline: Limpopo Irrigation

WHEAT SENSITIVITY ANALYSIS (GROSS MARGIN PER HECTARE): FREE STATE IRRIGATION											
		YIELD (T/HA)									
PRODUCERS PRICE		5.25	5.50	5.75	6.00	6.25	6.50	6.75			
R3 054	R	2 860	R 3 624	R 4 387	R 5 151	R 5 914	R 6 677	R 7 441			
R3 304	R	4 173	R 4 999	R 5 825	R 6 651	R 7 477	R 8 302	R 9 128			
R3 554	R	5 485	R 6 374	R 7 262	R 8 151	R 9 039	R 9 927	R 10 816			
R3 804	R	6 798	R 7 749	R 8 700	R 9 651	R 10 602	R 11 552	R 12 503			
R4 054	R	8 110	R 9 124	R 10 137	R 11 151	R 12 164	R 13 177	R 14 191			
R4 304	R	9 423	R 10 499	R 11 575	R 12 651	R 13 727	R 14 802	R 15 878			
R4 554	R	10 735	R 11 874	R 13 012	R 14 151	R 15 289	R 16 427	R 17 566			
R4 804	R	12 048	R 13 249	R 14 450	R 15 651	R 16 852	R 18 052	R 19 253			
R5 054	R	13 360	R 14 624	R 15 887	R 17 151	R 18 414	R 19 677	R 20 941			

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.
- The cost of fuel includes pre-harvest and harvesting costs with the assumption that own machinery is used.
- The costs for wheat, barley & oats seeds reflect a combination of own- and purchased seed.
- It is important to note that overhead costs are not included and should be accounted for. Overhead costs such as interest on production loans, labour, management and administration will vary to a large extent from producer to producer. Producers will therefore have to deduct the farm business' overhead cost from the gross margins as stipulated in the tables and figures to calculate the net income per crop.