

**TECHNICAL BULLETIN
NO. 238**

**GROSS MARGIN BUDGETS
FOR THE KATHERINE-DALY
REGION
1995-96**

Northern Territory Department of
Primary Industry and Fisheries

CROP GROSS MARGIN BUDGETS
FOR THE KATHERINE - DALY REGION
1995-96

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SUSTAINABLE AGRICULTURE

**THE DEPARTMENT OF PRIMARY INDUSTRY AND FISHERIES IS
COMMITTED TO THE PRINCIPLES AND PRACTICES OF
SUSTAINABLE AGRICULTURE**

Definition:

Sustainable agriculture is the use of practices and systems which maintain or enhance:

- the economic viability of agricultural production;
- the natural resource base; and
- other ecosystems which are influenced by agricultural activities.

Principles:

1. Agricultural productivity is sustained or enhanced over the long term.
2. Adverse impacts on the natural resource base of agricultural and associated ecosystems are ameliorated, minimised or avoided.
3. Harmful residues resulting from the use of chemicals for agriculture are minimised.
4. The nett social benefit (in both dollar and non-dollar terms) derived from agriculture is maximised.
5. Agricultural systems are sufficiently flexible to manage risks associated with the vagaries of climate and markets.

SUSTAINABLE AGRICULTURE IN THE NORTHERN TERRITORY

TABLE OF CONTENTS

	Page
1. INTRODUCTION AND SOME IMPORTANT NOTES	1
2. WHAT IS A GROSS MARGIN?	3
3. ACTIVITY GROSS MARGIN BUDGETS	
3.1 No-till Sorghum	4
3.2 No-till Maize	6
3.3 Sesame	8
3.4 A-Grade Mung Bean	10
3.5 Cavalcade Hay	12
3.6 Peanuts	14
3.6 Rice	16
 APPENDIX	
Appendix A Field Crops Yields: Historical Data	18
Appendix B Machinery Work Rates	19
Appendix C Machinery Operating Costs	20
Appendix D Farm Cost and Prices used in Budgets	21
Appendix E Acknowledgments	22

1. INTRODUCTION AND SOME IMPORTANT NOTES

The standardised gross margin budgets for the Katherine/Daly region are presented in this booklet. They are a guide to the costs and returns that can be expected if specific conditions (relating to climate, prices, management, etc.) prevail. If these conditions are not met, then the gross margin estimates can be wide of the mark. That doesn't mean we're wasting our time, though. For instance, the budgets can be looked at more closely to see how variations in yields and prices affect cropping returns. They can also be used as a basis for assessing the risk associated with planting a certain crop measured in dollar terms. *In any case, farmers are encouraged to prepare gross margin estimates based on their own situation, experience, and expectations since these are likely to be different from those assumed in the standardised budgets.*

Standardised gross margin (GM) budgets provide a benchmark for comparing farm specific gross margins (eg. you can compare your GM for sorghum against the 'standardised GM' budget for sorghum) and are useful for comparing the profitability of different crops (eg. maize vs sorghum).

GM analysis is a simplified budgeting technique since it ignores overhead costs. Overhead costs can be safely ignored, however, if comparing activities of a similar nature (eg. no-till maize vs no-till sorghum) that use existing farm plant and equipment. If new capital equipment is required (eg. installation of irrigation equipment, purchase of minimum tillage equipment, purchase of livestock) or if activities are not of a similar nature (eg. fattening steers vs no-till maize), then more complicated budgeting is required. Contact the DPIF for further information.

Once the techniques of farm budgeting have been mastered, they become second nature in evaluating the uncertain outcomes that a farmer faces. Budgeting after all, is merely attaching dollar values to those decisions that need to be made during the production process. Very few people in the farming game today are in a position where they don't need to keep a close eye on their finances.

Some Comments on the Standardised Budgets

- (a) Not all machinery costs are included in the gross margins. Only repairs and maintenance costs to machinery plus fuel and oil costs are included. All other costs, including depreciation, interest, provision of shelter, operators labour and insurance costs are treated as overhead costs. The ability to cover this latter group of costs is usually measured by preparing a whole farm budget.

The fuel, oil, and repair and maintenance bill was calculated as an average of 10,000 rated hours of use from tractors purchased new and 1,200 - 2,400 rated hours use from new implements. This is merely a simple accounting technique. Individual growers should have a better idea of their own fuel, oil, repairs and maintenance costs. Actual machinery running costs for a particular farm may be much higher if old, worn-out equipment is used.

Fuel cost have been budgeted at 40¢/L. This is net of the NT government tax rebate and the customs and excise rebate for on-farm use.

- (b) Seeding rates will vary, depending on the weight of seed, germination percentage and individual's sowing practices.
- (c) Fertiliser rates should be varied with the nutrient status of the soil and particular crop requirements. Ask your district agronomist if you need advice on this matter.

The NT fertiliser freight subsidy for 1995-96 has been approved at \$95.00/ tonne or actual freight cost (whichever is lower). Claims should be submitted before 31 August 1996. The minimum claim is for 2 tonnes, the maximum is 300 tonnes per producer.

- (d) Herbicide and pesticide application rates vary with climate, incidence of insects, etc. It is illegal to use any herbicide or pesticide that is not registered for use in the NT and to use registered chemical contrary to their label specifications. Contact the DPIF for further information if required.
- (e) The NT Grain Marketing Board has grain storage, grading and marketing facilities at Katherine and a storage facility at Douglas-Daly. The functions of the Board are to acquire, process, treat, market and generally deal with commodities grown or produced in the NT and to administer the Marketing Scheme for commodities declared and vested in the Board. The crops currently declared and vested in the Board are grain sorghum and maize. The Board announces indicative prices for most crops prior to the beginning of the cropping season. Payment for vested crops is made in instalments. The first advance, based on the indicative price, is paid soon after delivery and the final adjustment, including interest charges, is paid when the grain is sold.
- (f) Trade names are used in this publication solely for the purpose of providing specific information. Mention of a registered trade name does not constitute a guarantee or warranty of the product by DPIF, nor does it endorse the product over brand names not mentioned. Trade names have been included because producers seem to identify more readily with these than with chemical names.
- (g) Costs and Returns may not add up exactly due to rounding of numbers.

2. WHAT IS A GROSS MARGIN?

A gross margin is the difference between gross income and total variable costs for a farm activity.

The total gross margin for a farm is the sum of all individual activity gross margins.

Gross Income can be measured by total receipts received from the sales of produce plus the value of any retained output.

Variable Costs (also known as running costs). As the name implies, these costs vary with the size of farm activities. For example, if the area sown to sorghum is increased from 200 hectares to 400 hectares then roughly twice the amount of seed and fertiliser will be required. Other variable costs include: fuel, oil and repair and maintenance to machinery; casual labour costs; weed and pest control; harvesting and marketing costs. Variable costs are distinct from overhead costs.

Farm Activity refers to the particular method employed in producing a commodity. For example, zero tillage maize and conventional tillage maize are two different farm activities. Both, however, are described by the more general expression of a maize enterprise.

Overhead Costs (or fixed costs). These costs are difficult to avoid each year and are unlikely to vary with changes in the levels of different farm activities, unless some capital expenditure is required for these changes to occur. Overhead costs include the wages of permanent workers, living expenses of the family, finance costs, insurance, telephone, replacement of buildings and machines, business expenses, rates and land taxes. Overhead costs plus variable costs represent total costs.

The relationship between the total gross margin and farm overhead costs provide a useful guide when computed on a per hectare basis. The average gross margin per hectare should be greater than the average overheads per hectare for the farm to make money.

Gross margins alone do not provide a basis for farm planning. Crop rotations, demands on farm labour, finance, risk and other constraints need to be considered in the context of farm objectives. Gross margins are simply the most commonly used, first-step, budgeting technique.

GROSS MARGIN BUDGET

ENTERPRISE NAME: Zero-Till Sorghum
 ENTERPRISE UNIT: 1 hectare

REGION: Douglas/Daly
 DATE: October 1995

INCOME		\$/ha	Your Estimate
Yield	2.70 t/ha @ \$220/tonne	594	
Other Income			
- Fertiliser Subsidy	275 kg @ \$95/tonne	26	
- Agistment	1 head/ha @ \$1.50/head/week for 17 weeks	26	
A. TOTAL INCOME		646	
VARIABLE COSTS			
Land Preparation			
Control Grazing			
1 Knock Down Spray (RoundupCT)	2 L/ha @ \$12.00/L	24	
1 application	9.36 ha/h @ \$15.48/h	2	
Sowing			
Seed	8 kg/ha @ \$4.25/kg	34	
Sowing Operation	4.2 ha/h @ \$16.08/h	4	
Fertilisers			
NPKS (19-10-0-13)	150 kg/ha @ \$549/tonne	82	
Urea	75 kg/ha @ \$607/tonne	46	
Muriate of Potash (MOP)	50 kg/ha @ \$482/tonne	24	
2 application (pre-planting)	7.2 ha/h @ \$14.48/h	4	
1 application (post-planting)	7.2 ha/h @ \$14.48/h	2	
Weed Control			
Atrazine	3 L/ha @ \$5.60/L	17	
1 application	9.36 ha/h @ \$15.48/h	2	
Harvesting			
Heading	3.15 ha/h @ \$76.45/h	24	
Marketing			
Freight to Depot	@ \$10/tonne	27	
Handling charges	@ \$12/tonne	32	
B. TOTAL VARIABLE COSTS		324	
C. GROSS MARGIN PER HECTARE (A-B)		322	

Sensitivity of Sorghum Gross Margin (\$/ha) to Varying Yields and Prices

Price	Yield (tonnes per hectare)					
(\$/t)	1.5	2.0	2.5	2.7	3.0	3.5
125	-58	-7	45	66	96	148
175	17	93	170	201	246	323
220	84	183	282	322	381	480
235	107	213	320	363	426	533
285	182	313	445	498	576	708
335	257	413	570	633	726	883

Breakeven Analysis (Gross Margin Breakeven)

Breakeven Yield at a price of \$220/tonne = 1.07 t/ha

Breakeven Price at a yield of 2.7 t/ha = \$100.74/tonne

GROSS MARGIN BUDGET

ENTERPRISE NAME: Zero-Till Maize

REGION: Douglas/Daly

ENTERPRISE UNIT: 1 hectare

DATE: October 1995

INCOME		\$/ha	Your Estimate
Yield	3 t/ha @ \$245/tonne	735	
Other Income			
- Fertiliser Subsidy	300 kg @ \$95/tonne	29	
- Agistment	1 head/ha @ \$1.50/head/week for 17 weeks	26	
A. TOTAL INCOME		789	
VARIABLE COSTS			
Land Preparation			
Control Grazing			
1 Knock Down Spray (RoundupCT)	2 L/ha @ \$12.00/L	24	
1 application	9.36 ha/h @ \$15.48/h	2	
Sowing			
Seed (Hycorn 90)	17 kg/ha @ \$7.00/kg	119	
Sowing Operation	4.2 ha/h @ \$16.08/h	4	
Fertilisers			
NPKS (19-10-0-13)	150 kg/ha @ \$549/tonne	82	
Urea	150 kg/ha @ \$607/tonne	91	
1 application (pre-planting)	7.2 ha/h @ \$14.48/h	2	
1 application (post-planting)	7.2 ha/h @ \$14.48/h	2	
Weed Control			
Atrazine	3 L/ha @ \$5.60/L	17	
Dual	2 L/ha @ \$1800/L	36	
1 application (post-planting)	9.36 ha/h @ \$14.44/h	2	
Harvesting			
Heading (own harvester)	2.1 ha/h @ \$76.45/h	36	
Marketing			
Freight to Depot	@ \$10/tonne	30	
Handling charges	@ \$12/tonne	36	
B. TOTAL VARIABLE COSTS		483	
C. GROSS MARGIN PER HECTARE (A-B)		306	

Sensitivity of Maize Gross Margin (\$/ha) to Varying Yields and Prices

Price	Yield (tonnes per hectare)					
(\$/t)	1.5	2.0	2.5	3.0	3.5	4.0
220	-66	33	132	231	330	429
245	-28	83	195	306	418	529
280	24	153	282	411	540	669
340	114	273	432	591	750	909
400	204	393	582	771	960	1149
460	294	513	732	951	1170	1389

Breakeven Analysis (Gross Margin Breakeven)

Breakeven Yield at a price of \$245/tonne = 1.63 t/ha

Breakeven Price at a yield of 3 t/ha = \$142.92/tonne

GROSS MARGIN BUDGET

ENTERPRISE NAME: Sesame

REGION: Douglas/Daly

ENTERPRISE UNIT: 1 hectare

DATE: October 1995

INCOME		\$/ha	Your Estimate
Yield	0.6 t/ha @ \$1150/tonne	690	
Other Income -Fertiliser Subsidy	225 kg @ \$95/tonne	21	
A. TOTAL INCOME		711	
VARIABLE COSTS			
Land Preparation			
Control Grazing			
1 Knock - Down Spray (RoundupCT)	2 L/ha @ \$12.00/L	24	
1 application	9.36 ha/h @ \$15.48/h	2	
Sowing			
Seed	4 kg/ha @ \$1.90 kg	8	
Sowing Operation	3.84 ha/h @ \$15.80/h	4	
Fertilisers			
NPKS (19-13-0-9)	155 kg/ha @ \$567/tonne	88	
Urea	70 kg/ha @ \$607/tonne	42	
Muriate of Potash (MOP)	50 kg/ha @ \$482/tonne	24	
1 application (pre-planting)	7.2 ha/h @ \$14.48/h	2	
Pest Control			
Endosulfan	1 L/ha @ \$9.15/L	9	
1 aerial application	1 h/ha @ \$15.00/h	15	
Desiccation			
Reglone	2 L/ha @ \$14.50/L	29	
1 aerial application	1 h/ha @ \$15.00/h	15	
Harvesting			
Heading (own harvester)	2.10 ha/h @ \$76.45/h	36	
Marketing			
Clean & Grade	@ \$50/tonne	30	
Bag	@ \$25/tonne	15	
Freight to Depot	@ \$25/tonne	15	
Handling charges	@ \$12/tonne	7	
B. TOTAL VARIABLE COSTS		366	
C. GROSS MARGIN PER HECTARE (A-B)		346	

Sensitivity of Sesame Gross Margin (\$/ha) to Varying Yields and Prices

Price	Yield (tonnes per hectare)				
(\$/t)	0.2	0.35	0.6	1.0	1.5
700	-159	-71	76	311	605
800	-139	-36	136	411	755
900	-119	-1	196	511	905
1000	-99	34	256	611	1055
1100	-79	69	316	711	1205
1150	-69	86	346	761	1280
1500	1	209	556	1111	1805

Breakeven Analysis (Gross Margin Breakeven)

Breakeven Yield at a price of \$1150/tonne = 0.27 t/ha

Breakeven Price at a yield of 0.6 t/ha = \$573.72/tonne

GROSS MARGIN BUDGET

ENTERPRISE NAME: Zero-till A Grade Mung Beans

REGION: Douglas/Daly

ENTERPRISE UNIT: 1 hectare

DATE: October 1995

INCOME		\$/ha	Your Estimate
Yield			
Grade A	0.80 t/ha @ \$565/tonne	452	
Splits	0.20 t/ha @ \$220/tonne	44	
Other Income			
- Fertiliser Subsidy	200 kg @ \$95/tonne	24	
A. TOTAL INCOME		520	
VARIABLE COSTS			
Land Preparation			
Control Grazing			
1 knock down spray	2 L/ha @ \$12.00/L	24	
(RToundupCT)			
1 application	9.36 ha/h @ \$15.48/h	2	
Sowing			
Seed (Putland)	15 kg/ha @ \$1.75/kg	26	
Sowing Operation	3.84 ha/h @ \$15.80/h	4	
Fertilisers			
Superphosphate	200 kg/ha @ \$361/tonne	72	
Muriate of Potash (MOP)	50 kg/ha @ \$482/tonne	24	
1 application (pre-planting)	7.2 ha/h @ \$14.48/h	2	
Pest Control			
Thiodan	2 L/ha @ \$9.20/L	18	
1 aerial application	@ \$25/ha	25	
Harvesting			
Heading (own harvester)	2.10 ha/h @ \$76.45/h	36	
Marketing			
Clean & Grade	@ \$40/tonne	40	
Bag	@ \$25/tonne	25	
Cartage to Depot (Kath)	@ \$25/tonne	25	
Handling charges	@ \$12/tonne	12	
B. TOTAL VARIABLE COSTS		366	
C. GROSS MARGIN PER HECTARE (A-B)		184	

**Sensitivity of A Grade Mung Beans Gross Margin (\$/ha) to Varying Yields and Prices
(assuming 80% B Grade & 20% Splits and A Grade Price + \$220/tonne for Splits)**

Price	Yield (tonnes per hectare)						
(\$/t)	0.5	0.8	1.0	1.5	2.0	2.5	3.0
400	-79	-1	52	183	314	445	576
500	-39	63	132	303	474	645	816
565	-13	105	184	381	578	775	972
600	1	127	212	423	634	845	1056
700	41	191	292	543	794	1045	1296
800	57	231	348	639	930	1221	1512
900	121	319	452	783	1114	1445	1776
1000	161	383	532	903	1274	1645	2016

Breakeven Analysis (Gross Margin Breakeven)

Breakeven Yield at the Grade A price of \$565/tonne = 0.53 t/ha

Breakeven Price at a yield of 1.0 t/ha = \$335.48/tonne Grade A Mung Beans

GROSS MARGIN BUDGET

ENTERPRISE NAME: Cavalcade Hay

REGION: Douglas/Daly

ENTERPRISE UNIT: 1 hectare

DATE: October 1995

INCOME		\$/ha	Your Estimate
Yield	7.00 t/ha @ \$150/tonne	1050	
Other Income -Fertiliser Subsidy	250 kg @ \$95/tonne	24	
A. TOTAL INCOME		1074	
VARIABLE COSTS			
Land Preparation			
1 Disc Ploughing	4.48 ha/h @ \$29.22/h	7	
2 Cultivation	6.30 ha/h @ \$29.47/h	9	
Sowing			
Seed	10 kg/ha @ \$9.00/kg	90	
Sowing Operation	3.84 ha/h @ \$15.80/h	4	
Fertilisers			
Super + Cu + Mo + Zn (10)	200 kg/ha @ \$434/tonne	87	
Muriate of Potash (MOP)	50 kg/ha @ \$482/tonne	24	
2 applications (pre-planting)	7.2 ha/h @ \$14.48/h	4	
Weed Control			
Treflan (pre sowing)	2 L/ha @ \$7.00/L	14	
Basagran (post sowing)	2 L/ha @ \$28.00/L	56	
2 application	9.36 ha/h @ \$15.48/h	3	
Harvesting			
Mow/Condition	0.84 ha/h @ \$20.74/h	25	
Round Baling	0.58 ha/h @ \$20.99/h	36	
Wrapping	4 bale/t @ \$1.08/bale	30	
B. TOTAL VARIABLE COSTS		390	
C. GROSS MARGIN PER HECTARE (A-B)		684	

Sensitivity of Cavalcade Hay Gross Margin (\$/ha) to Varying Yields and Prices

Price	Yield (tonnes per hectare)					
(\$/t)	4.0	5.0	6.0	7.0	8.0	9.0
130	167	293	418	544	670	796
140	207	343	478	614	750	886
150	247	393	538	684	830	976
160	287	443	598	754	910	1066
170	327	493	658	824	990	1156

Breakeven Analysis (Gross Margin Breakeven)

Breakeven Yield at a price of \$150/tonne = 2.30 t/ha

Breakeven Price at a yield of 7 t/ha = \$52.26/tonne

NOTE: This gross margin relates to first time cultivation. In subsequent cultivations the cost of production will be lower.

GROSS MARGIN BUDGET

ENTERPRISE NAME: Dryland/Rainfed Peanuts

REGION: Douglas/Daly

ENTERPRISE UNIT: 1 hectare

DATE: October 1995

INCOME		\$/ha	Your Estimate
Yield	2.75 t/ha @ \$600/tonne	1650	
Other income -Fertiliser Subsidy	610 kg @ \$95/tonne	58	
A. TOTAL INCOME		1708	
VARIABLE COSTS			
Land Preparation			
1 Disc Ploughing	4.48 ha/h @ \$29.22/h	7	
1 Chisel Ploughing	4.48 ha/h @ \$29.31/h	7	
1 Chisel Harrowing	4.48 ha/h @ \$31.07/h	7	
1 Harrowing	8.40 ha/h @ \$13.30/h	2	
Sowing			
Seed	100 kg/ha @ \$2.25/kg	225	
Sowing Operation	4.20 ha/h @ \$16.08/h	4	
Fertilisers			
Triple Super + 10% S	110 kg/ha @ \$572.00/t	63	
Gypsum	500 kg/ha @ \$282.06/t	141	
1 TSP application	7.20 ha/h @ \$14.48/h	2	
1 Gypsum application	7.20 ha/h @ \$14.48/h	2	
Inter - Row Cultivation	2.94 ha/h @ \$31.07/h	11	
Weed Control			
Treflan (control grasses)	2.00 L/ha @ \$7.00/L	14	
Basagran (broadleaf weeds)	2.00 ha/h @ \$28.00/L	56	
2 application	9.36 ha/h @ \$15.48/h	2	
Harvesting			
Cutting/digging/air drying	2.75 t/ha @ \$10.00/t	28	
Treshing (peanuts)	2.75 t/ha @ \$60.00/t	165	
Marketing			
Cartage to Kingaroy (Qld)	2.75 t/ha @ \$80.00/t	220	
B. TOTAL VARIABLE COSTS		953	
C. GROSS MARGIN PER HECTARE (A-B)		755	

Sensitivity of Peanuts Gross Margin (\$/ha) to Varying Yields and Prices

Price	Yield (tonnes per hectare)					
(\$/t)	1.5	2.0	2.5	2.75	3.0	3.5
500	42	217	392	480	567	742
550	117	317	517	617	717	917
600	192	417	642	755	867	1092
650	267	517	767	892	1017	1267
700	342	617	892	1030	1167	1442

Breakeven Analysis (Gross Margin Breakeven)

Breakeven Yield at a price of \$600/tonne = 1.07 t/ha

Breakeven Price at a yield of 2.75 t/ha = \$325.51/tonne

GROSS MARGIN BUDGET

ENTERPRISE NAME: Rice
ENTERPRISE UNIT: 1 hectare

REGION: Marrakai
DATE: October 1995

INCOME		\$/ha	Your Estimate
Yield	4.00 t/ha @ \$260/tonne	1040	
Other Income			
-Fertiliser Subsidy	300 kg @ \$95/tonne	29	
A. TOTAL INCOME		1069	
VARIABLE COSTS			
Land Preparation			
1 Disc Ploughing	4.48 ha/h @ \$29.22/h	7	
2 Cultivation	6.30 ha/h @ \$29.47/h	9	
1 Laser Levelling (assume one third of area levelled per year)	1 ha/h @ \$45.00/h	15	
Sowing			
Seed	100 kg/ha @ \$0.40/kg	40	
Sowing Operation	3.84 ha/h @ \$15.80/h	4	
Fertilisers			
Urea	200 kg/ha @ \$607/tonne	121	
Double Super + Zinc	100 kg/ha @ \$553/tonne	55	
1 application (with sowing)	3.84 ha/h @ \$15.80/h	4	
1 aerial application	1 ha @ \$25.00/ha	25	
Weed Control			
Propanil	8 L/ha @ \$9.20/L	74	
Saturn	2 L/ha @ \$13.00/L	26	
1 aerial application	1 ha @ \$15.00/ha	15	
Pest Control			
Ammunition (for birds)		10	
Allowance for insect Control		35	
Harvesting			
Contract Harvester	2.33 ha/h @ \$180/h	77	
Marketing			
Freight to Depot	@ \$25/tonne	100	
Handling charges	@ \$12/tonne	48	
B. TOTAL VARIABLE COSTS		666	
C. GROSS MARGIN PER HECTARE (A-B)		403	

Sensitivity of Rice Gross Margin (\$/ha) to Varying Yields and Prices

Price	Yield (tonnes per hectare)				
(\$/t)	1.0	2.0	3.0	4.0	5.0
210	-316	-143	30	203	376
220	-306	-123	60	243	426
230	-296	-103	90	283	476
240	-286	-83	120	323	526
250	-276	-63	150	363	576
260	-266	-43	180	403	626
270	-256	-23	210	443	676
280	-246	-3	240	483	726

Breakeven Analysis (Gross Margin Breakeven)

Breakeven Yield at a price of \$260/tonne = 2.19/ha

Breakeven Price at a yield of 40 t/ha = \$15.29/tonne

Note:

Hay can be made from rice stalks at a rate of 5 tonnes per ha.

The current price of rice hay is \$150/tonne with 5 bales per tonne.

The contract rate to mow/rake/roll (round bales) is \$14/bale.

Appendix A: Field Crop Yields Douglas-Daly: Historical Data

GRAIN SORGHUM

Areas Sown, Commercial and Test Yields by Season

Year	85/86	86/87	87/88	88/89	89/90	90/91	91/92	92/93	93/94	94/95
Area Sown (ha)	992	2335	1845	2382	2590	1207	1085	990	508	246
Commercial Yield/ Area Sown (t/ha)	1.80	1.60	2.10	1.80	1.30	1.98	2.33	1.77	2.10	1.10
Test Yield/ Test Area Sown	4.10	-	5.10	5.20	5.40	5.20	6.69	3.70	4.30	2.30

MAIZE

Areas Sown, Commercial and Test Yields by Season

Year	85/86	86/87	87/88	88/89	89/90	90/91	91/92	92/93	93/94	94/95
Area Sown (ha)	1701	1100	1740	310	380	85	145	114	80	70
Commercial Yield/ Area Sown (t/ha)	0.80	1.50	0.70	1.80	0.45	1.74	1.94	1.41	3.00	2.90
Test Yield/ Test Area Sown	2.90	2.40	4.00	3.30	1.70	3.80	4.98	4.40	4.40	4.90

SESAME

Areas Sown, Commercial and Test Yields by Season

Year	85/86	86/87	87/88	88/89	89/90	90/91	91/92	92/93	93/94	94/95
Area Sown (ha)	145	480	585	602	205	370	158	30	50	60
Commercial Yield/ Area Sown (t/ha)	0.80	0.20	0.40	0.20	0.23	1.09	0.32	0.62	0.43	0.48
Test Yield/ Test Area Sown	-	0.70	1.20	0.80	0.30	1.00	1.00	-	0.85	0.85

MUNG BEANS

Areas Sown, Commercial and Test Yields by Season

Year	85/86	86/87	87/88	88/89	89/90	90/91	91/92	92/93	93/94	94/95
Area Sown (ha)	264	63	238	311	0	10	40	46	40	-
Commercial Yield/ Area Sown (t/ha)	0.40	-	0.80	0.70	NA	1.10	1.05	0.59	0.39	-
Test Yield/ Test Area Sown	1.20	-	1.30	1.00	0.25	1.10	1.80	0.90	-	-

Appendix B: Machinery Work Rates

Operation	Implement	Tractor Details		Implement Details			Field Eff. %	Work Rate ha/h
		PTO (KW)	Price (\$)	Width (m)	Price (\$)	Speed (kph)		
Ploughing	Offset Discs	145	146000	8	49000	8.0	70	4.48
Chisel Ploughing	Chisel Plough	145	146000	8	50000	8.0	70	4.48
Cultivation	Cultivator	145	146000	10	52000	9.0	70	6.30
Harrowing	Harrows	66	75000	12	15000	10.0	70	8.40
Sowing	Combine	66	75000	6	29000	8.0	80	3.84
Sowing	Row Crop Planter	66	75000	6	43000	10.0	70	4.20
Spreading	Spreader	66	75000	10	11500	12.0	60	7.20
Spraying	Boom Spray	66	75000	12	15500	12.0	65	9.36
Harvesting	Header (sorghum)			6	205000	7.0	75	3.15
Harvesting	Header (Maize, Sesame etc)			6	205000	5.0	70	2.10
Harvesting Hay	Mower/Conditioner	66	75000	2.8	33000	4.0	75	0.84
Baling Hay	Baler	66	75000	3.2	34000	3.0	60	0.58
		A	B	C	D	E	F	

Notes

$$\text{Work Rate (ha/h)} = \frac{\text{Width} \times \text{Speed} \times \text{Field efficiency (\%)}}{1000}$$

Appendix C:

Machinery Operating Costs

Implement	Fuel (\$/L)	Repairs & Maint. Prop. of Price		Expected Life		Fuel Used (L/h)	Fuel & Oil (\$/h)	Repairs & Maint.		Total Operating Cost (\$/h)
		Tractor (%)	Implement (%)	Tractor (h)	Implement (h)			Tractor (\$/h)	Implement (\$/h)	
Offset Discs	0.40	72	20	10000	2400	33	14.63	10.51	4.08	29.22
Chisel Plough	0.40	72	20	10000	2400	33	14.63	10.51	4.17	29.31
Cultivator	0.40	72	20	10000	2400	33	14.63	10.51	4.33	29.47
Harrows	0.40	72	20	10000	2400	15	6.65	5.40	1.25	13.30
Combine Planter	0.4	72	20	10000	2400	18	7.98	5.40	2.42	15.80
Row Crop Planter	0.40	72	20	10000	2400	16	7.09	5.40	3.58	16.08
Spreader	0.40	72	30	10000	1200	14	6.21	5.40	2.88	14.48
Boom Spray	0.40	72	30	10000	1200	14	6.21	5.40	3.88	15.48
Header (sorghum)	0.40	72	50	10000	1800	44	19.51	-	56.94	76.45
Header (Maize, sesame etc)	0.40	72	50	10000	1800	44	19.51	-	56.94	76.45
Mower/Conditioner	0.40	72	30	10000	1200	16	7.09	5.40	8.25	20.74
Baler	0.40	72	30	10000	1200	16	7.09	5.40	8.50	20.99

G H I J K L M N O P

Notes

1. Columns F and P provide estimates used in the standardised GM budgets.

2. Reductions in field operating efficiency occur due to; turning at the end of a paddock, failure to use full implement width, time taken to load seed and fertiliser, unloading of harvested crops, minor adjustments and repairs and lubrication whilst in the field.

3. Actual header speed and efficiency will vary for each crop.

4. The fuel price is calculated net of fuel rebates.

5. R&M costs are expressed as a percentage of the new purchase price.

6. $M = 1.1 G \cdot L$

$N = (A \cdot H) / (J \cdot 100)$

$O = (C \cdot I) / (K \cdot 100)$

$P = M + N + O$

Appendix D

Farm Costs And Prices Used In Budgets

Fertiliser	
Muriate of Potash (MOP)	\$482/t
Urea	\$607/t
Superphosphate	\$361/t
Double Superphosphate	\$497/t
Double Super + Zinc	\$553/t
Super + Cu + Mo + Zn (10)	\$434/t
NPKS (19-10-0-13)	\$549/t
NPKS (19-13-0-9)	\$567/t
Gypsum	\$282.06/tonne
Herbicide	
Treflan	\$7.00/L
Atrazine	\$5.60/L
Dual	\$18.00/L
Roundup CT	\$12.00/L
Basagran	\$28.00/L
Saturn	\$13.00/L
Propanil	\$8.20/L
Insecticide	
Bravo	\$15.80/L
Endosulfan	\$9.15/L
Thiodan	\$9.20/L
Aerial Spraying	\$15/ha
Desiccants	
Reglone	\$14.50/L
Seed	
Sorghum	\$4.25/kg
Maize (Hycorn 90)	\$7.00/kg
Sesame	\$1.90/kg
Mung Beans (Putland)	\$1.75/kg
Calvacade Hay	\$9.00/kg
Rice	\$0.40/kg
Peanuts	\$2.25/kg
Contracts	
Cleaning & grading	\$40.00/t
- Mung Beans	\$50.00/t
- Sesame	\$25.00/t
Bagging	\$10.00/t
Cartage	\$25.00/t
Cartage (Katherine)	\$25.00/ha
Aerial Spraying	\$180.00/h
Harvesting	\$12.00/t
Handling Charges	
Other	
Bale wrap	\$1.08/bale
Fertiliser subsidy	\$95.00/t
Diesel fuel	75 cents/L
Comm. diesel rebate	32.7 cents/L
NT diesel rebate	2 cents/L
Laser Levelling	\$45.00/h
Produce Price	
Mung Beans - Grade 'A'	\$565/t
Mung Beans - Splits	\$220/t
Sorghum	\$220/t
Maize	\$245/t
Sesame	\$1,150/t
Cavalcade Hay	\$150/t
Rice	\$260/t
Expected Yield	
Mung Beans	1.00 t/ha
Mung Beans - Splits	20%
Sorghum	2.70 t/ha
Maize	3.00 t/ha
Sesame	0.60 t/ha
Cavalcade Hay	7.00 t/ha
Rice	4.00 t/ha
Peanuts	\$2.75 t/hd
Miscellaneous	
Agistment	\$1.50/hd/week and 1 AE/ha

Appendix D:

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