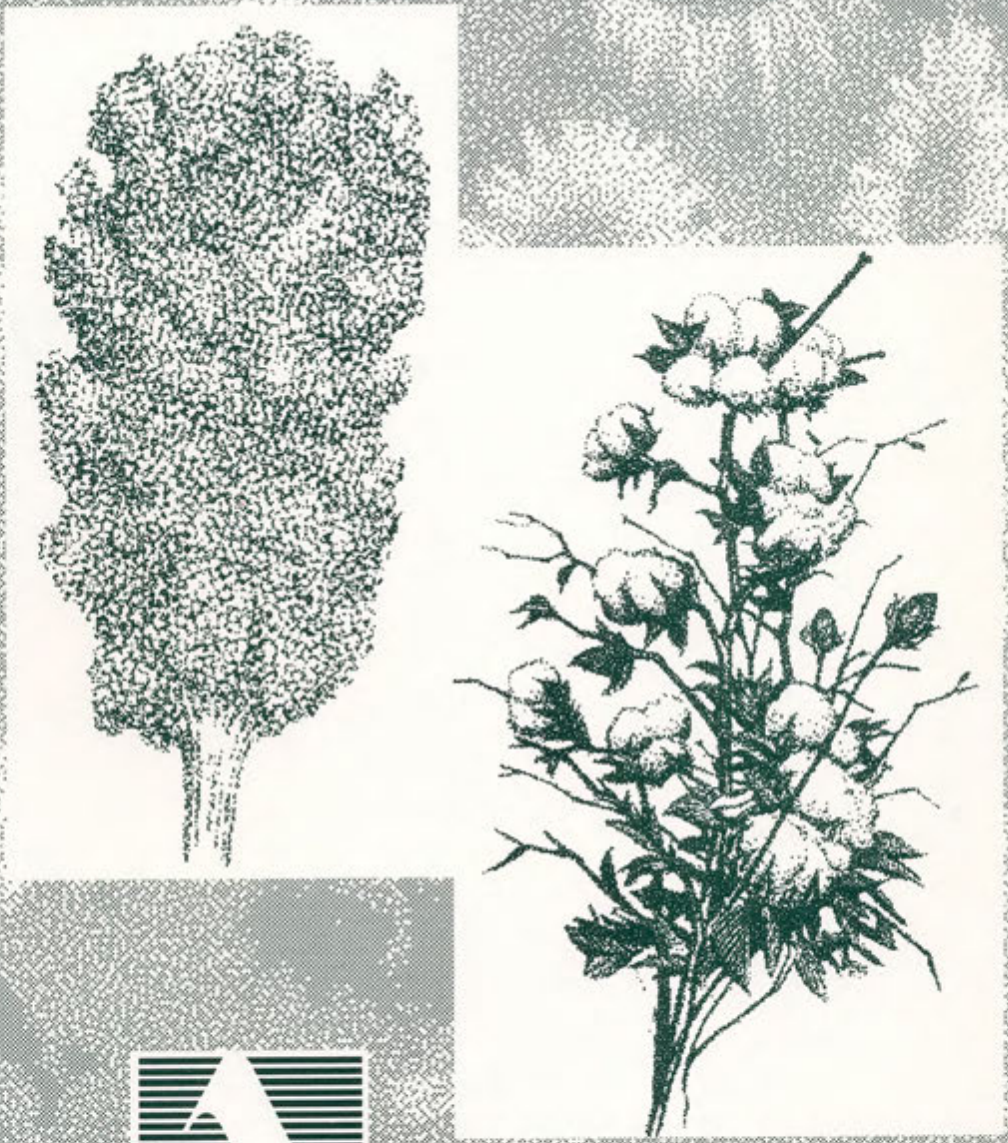
Agdex 100/10

Summer crop budget handbook 1994

Ian Patrick
Economist, Farm Management
Gunnedah



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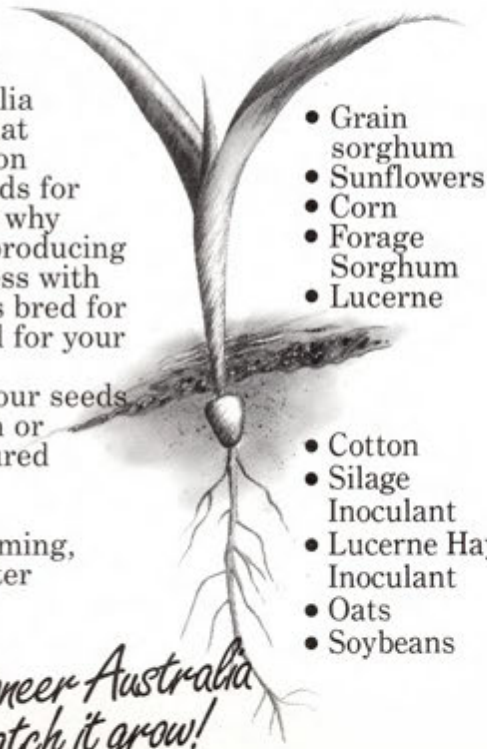

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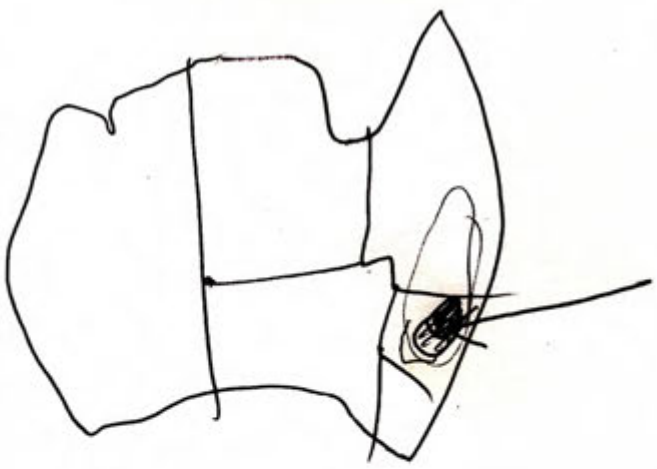
NSW AGRICULTURE
NEW ENGLAND, HUNTER AND METROPOLITAN REGION

SUMMER CROP BUDGET HANDBOOK, 1994

NORTHERN NSW

Compiled by:

Ian Patrick, Economist, Gunnedah



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ACKNOWLEDGMENTS

This budget handbook provides a guide to the costs and returns associated with major summer crop enterprises in the New England and North West of NSW. This region covers: The Northern Tablelands, North West Slopes, Liverpool Plains, North West Plains and the Upper Hunter.

However the agricultural production in each of these areas is not homogeneous, therefore it is difficult to compile budgets which represent the whole of each area. Consequently it must be stressed that **the gross margin budgets are only presented as a guide.**

The information in this book has been prepared and revised with the assistance of NSW Agriculture advisory staff, namely:

Mr John Kneipp, Program Leader (Grain Products), Gunnedah
Mr Dick Benson, Program Leader (Market Intelligence Unit), Orange
Mr Gus Shaw, Program Leader (Cotton), Narrabri
Mr Tony Dale, District Agronomist, Gunnedah
Mr Paul Castor, District Agronomist, West Moree
Mr Chris Cole, District Agronomist, East Moree
Mr Bob McGufficke, District Agronomist, Inverell
Mr Rob Eveleigh, District Agronomist, Narrabri
Mr Deane Zimmermann, Irrigation Officer, Tamworth

Cover design by: Mr Dean Morris, Publications Officer, Tocal

In addition the price and input information was kindly provided by pastoral houses, stock and station agents, agricultural contractors, machinery dealers and seed, grain, chemical and fertiliser merchants. Without their co-operation it would not be possible to calculate up to date budgets.

Ian Patrick
Economist

GUNNEDAH

August 1994

SECTION 1: INTRODUCTION

Gross margins: definition and use

What is a Gross Margin?

The type of budget used is a gross margin. A gross margin can be defined as the gross income from an enterprise less the variable costs incurred in achieving it.

Variable costs are those costs directly attributable to an enterprise and which vary in proportion to the size of an enterprise. For example, if the area of sorghum sown doubles, then the variable costs associated with growing it, such as seed, chemicals, and fertilisers, will also roughly double.

The gross margin is not gross profit because it does not include fixed or overhead costs such as depreciation, interest payments, rates, or permanent labour which have to be met regardless of enterprise size.

Gross margins are generally quoted per unit of the most limiting resource: eg land, irrigation water, capital or labour. It is common for crop gross margins to be quoted on a per hectare basis.

How Can Gross Margins be Used?

The calculation of a gross margin is the essential first step in farm budgeting and planning. It enables you to directly compare the relative profitability of similar enterprises and consequently, provides a starting point to deciding or altering the farms overall enterprise mix.

Gross margins can be used to analyse actual enterprise performance. Comparing your own gross margins with standards for the district is a worthwhile exercise. Major differences may be explained by particular farm characteristics but may also indicate areas where significant improvements can be made.

Use Gross Margins Carefully!

Gross margins need to be used carefully when using them as a guide to deciding on the farms overall enterprise mix. Because overhead costs are excluded, it is advisable to only make comparisons of gross margins between enterprises which use similar resources. For example, wheat and barley are considered to be similar enterprises because both are winter crops, use the same land and have similar machinery and equipment requirements.

If major changes are being considered, more comprehensive budgeting techniques are required to indicate the real profitability situation. Given below is a brief summary of factors which gross margins fail to take account of and which need to be considered when contemplating major enterprise change:

i) Resource requirements

It firstly must be established whether there is sufficient land, labour and capital to implement the desired change. The suggested most profitable enterprise mix must be technically feasible in terms of the whole farm. eg. if you are considering another crop, have you the expertise to grow it? Is it suitable to your area or soil type? Does the crop fit in with the farms labour availability? Does specialist machinery have to be purchased?

ii) Technical efficiency of current enterprises

Before any change is undertaken, have a look at the performance of the current enterprises run on the farm. Is there scope for returns to be improved through adoption of new techniques or better management. eg introduction of legume crops in the rotation to provide a disease break and improve soil nitrogen levels for following cereal crops.

iii) Risk

Different enterprises will have different levels of associated production and price risk which need to be taken account of when deciding on enterprise mix. For example, some crops involve more production risk than others due to susceptibility to insect pests. Other crops may receive widely fluctuating prices from season to season, and consequently, involve substantial price risk.

In addition, in terms of the whole farm, thought should be given to spreading risks through strategies such as diversification. ie. "not putting all your eggs in the one basket".

iv) Cashflow

A comparison of gross margin figures alone does not include the particular time period involved in reaching steady state production (for non-annual crops). For example, tree crop industries may provide an attractive return only after a number of years of development.

v) Personal preferences

A gross margin figure does not indicate the nature of the work nor its appeal to the prospective producer.

About this book

Use Budgets as Guide Only

This handbook presents crop gross margin budgets which are intended to provided a guide to the relative profitability and an indication of management operations involved in different cropping enterprises.

These budgets are calculated using:

- obtainable crop yields for the region that are consistent with the operations given,
- forecast product prices,
- current costs of production,
- technical information supplied from District Agronomists

The degree to which these budgets reflect actual crop returns will be influenced not only by general factors common to all farms, such as prices and seasonal conditions, but also by the individual farm characteristics such as soil type, crop rotation, management etc.

Consequently, it is strongly recommended that the budgets be used as a GUIDE ONLY and should be changed to take account of movements in crop prices, changes in seasonal conditions and individual farm characteristics.

Each budget is comprised of the following sections:

Gross Margin Budget

The gross margin budget section provides a summary of income and variable costs for the particular crop and a blank section for the grower to enter individual farm figures.

Sensitivity Budget - Effect of Yield and Price on Gross Margin

This allows the grower to look at the effect on gross margin per hectare of variations in seasonal and market conditions impacting on both yield and price. The figure enclosed in the box represents the original gross margin under base yield and price assumptions. All other gross margin figures located in the table are based on the same management operations but with different combinations of both yield and prices.

Sensitivity Chart - Effect of Yield and Price on Gross Margin

The chart graphically represents variations in gross margins based on a selection of yield and price combinations given in the sensitivity budget.

Calendar of Operations

This section provides technical details on application rates and timing for various inputs used in crop management operations and, in addition, the cost of and the time involved in such operations.

Agronomic Information

Growing and crop management comments provide the grower with important additional technical information to analyse the suitability of that particular crop to the individual farm.

* Thanks to Jason Crean (Economist, Market Intelligence Unit, Orange) for the above information.

Developing a marketing strategy

All of the following should be considered before or at planting

To be successful at marketing growers need to be well informed and follow a strategy that will enable them to achieve their marketing objective.

This marketing objective should focus on obtaining a price which returns an acceptable profit, not by necessarily attempting to pick the top of the market.

To achieve this objective it is necessary to develop a marketing strategy. The following points highlight factors which should be considered in developing your strategy.

What crop to plant

Deciding which crop is planted should be based on long term market potential rather than simply what happened last season. The area of each crop grown in a particular year should be more a matter of fine tuning rather than drastic response to short term market signals.

Know your costs

Costs which must be identified are:

- production costs, for example fertiliser
- marketing costs, for example freight and handling, commissions
- overhead costs, for example labour, machinery overheads.

Unless you know how much it costs to grow a crop how can you know whether you are selling for a profit?

Develop a gross margin

This will use your production costs identified in the step above and incorporate expected crop returns. To do this you must know the demand for your crop. This may include domestic or export demand for either stock feed or human consumption. You also need to know what alternatives are available, what is happening in these markets and at what price level substitution will occur.

Source market information

You need to be able to constantly have a feel for where the market is heading and why. Weekly price data, ABARE reports, subscriptions to newsletters such as FarMarCo, local agents and weekly papers and journals are all useful sources of information.

Establish target prices

These are prices at which you believe profits are satisfactory and at which you are prepared to begin selling the crop. Be realistic. In some years prices at their peak will not cover costs. Target prices will need to be adjusted to minimise losses rather than maximise profits.

Follow the market

Follow prices at least on a week to week basis. Make sure you are aware of historical between-season price movements. For instance, the international wheat market is usually weaker in June-September, when the US crop is being harvested. In contrast the canola price is highest during this same period.

Understand the relationship between grain prices, for instance the way in which legumes are priced on a protein basis and feed grains on an energy basis.

When to sell

Your marketing strategy should take into account anticipated production, market expectation and cash flow requirements. the selling options available include:

- forward sales
- cash price at harvest
- storing to take advantage of potential price increases
- combination of these

Understand contracts

There are a range of contracts available. These include firm price and firm tonnage, Guaranteed Minimum Price (GMP) and for on-farm storage. make sure you understand the legal obligations of contracts and what is expected of both the buyer and the seller. Evaluate the outcomes and possible actions if the price moves up or down or your crop is not as good as anticipated.

Who's who in the market

Make sure you know who the buyers are so you can move quickly when its time to sell. Check their ability pay.

The day you make the decision to plant is the day you start marketing the crop.

SECTION 2.

NORTH WEST SLOPES

AND

LIVERPOOL PLAINS

DRYLAND SUMMER CROPS 1994

DRYLAND GRAIN SORGHUM

North West Slopes **Summer 1994/95**

1.GROSS MARGIN BUDGET:

	Standard Budget $/Ha	Your Budget $/Ha
INCOME:		
3.75 tonnes/Ha at $125.00 /tonne (on farm).....	$468.75	
A. TOTAL INCOME $/Ha:	**$468.75**	
VARIABLE COSTS: see opposite page for details		
Cultivation.....	$23.40	
Sowing.....	$15.90	
Fertilizer & application.....	$53.30	
Herbicide & application.....	$19.37	
Insecticide & application.....	$19.60	
Levies.....	$5.63	
Harvesting.....	$4.99	
B. TOTAL VARIABLE COSTS $/Ha:	**$142.19**	
C. GROSS MARGIN (A-B) $/Ha:	**$326.56**	

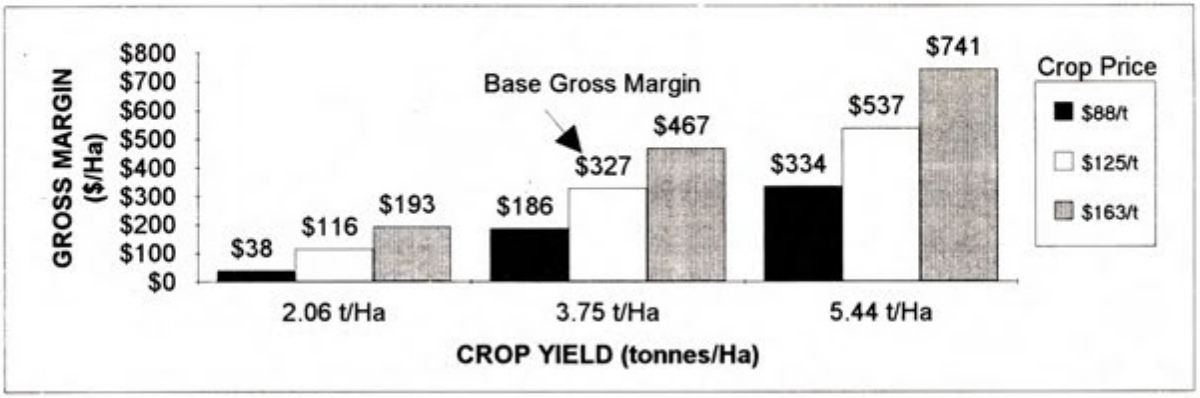
2. EFFECT OF YIELD AND PRICE ON GROSS MARGIN PER HECTARE:

(A)SENSITIVITY TABLE

YIELD tonnes/Ha	On Farm Price $88 /t	$106 /t	**$125 /t**	$144 /t	$163 /t
2.06	$38	$77	$116	$154	$193
2.63	$87	$137	$186	$235	$284
3.19	$137	$196	$256	$316	$376
3.75	$186	$256	**$326.56**	$397	$467
4.31	$235	$316	$397	$478	$559
4.88	$284	$376	$467	$559	$650
5.44	$334	$436	$537	$639	$741

Gross Margin ($/Ha)

(B)SENSITIVITY GRAPH



DRYLAND GRAIN SORGHUM

North West Slopes **Summer 1994/95**

CALENDAR OF OPERATIONS:

Operation	Month	Machinery hrs /Ha	Machinery Cost $/hour	Machinery Total $/Ha	Inputs Rate/Ha	Inputs Cost $	Inputs Total $/Ha	**Total Cost $/Ha**
Cultivation - chisel plough	Jan	0.26	33.80	8.89				**8.89**
Cultivation - chisel plough	May	0.26	33.80	8.89				**8.89**
Cultivation - scarify	Aug	0.17	32.55	5.61				**5.61**
Fertiliser - Urea	Sep	with above			130 kg	0.41	53.30	**53.30**
Herbicide - ground spray	Oct	0.08	27.22	2.27				**2.27**
Herbicide - Atrazine	Oct	with above			3.6 L	4.75	17.10	**17.10**
Sowing - planter	Nov	0.19	31.22	6.00				**6.00**
Sowing - seed	Nov	with above			2.3 kg	4.40	9.90	**9.90**
Insecticide - chlorpyrifos	Nov	with above			0.75 L	20.40	15.30	**15.30**
Aerial Spray (contract) *	Jan			7.00				**1.75**
Insect. - chlorpyrifos (25% area) *	Jan	with above			0.5 L	20.40	10.20	**2.55**
Harvest	Mar	0.19	26.57	4.99				**4.99**
Grains Board Levy				1.50 /t				**5.63**

AGRONOMIC NOTES:

- sow when soil temperature is maintaining 16 - 18 degrees C.

*Chlorpyrifos may be needed every 4 years, thus 25 % of area, to control midge in susceptible hybrids.

Use of a particular brand name does NOT imply recommendation of that brand by NSW Agriculture.

LABOUR REQUIREMENTS:

- labour is not costed in this budget. If labour costs $12.50 /hr, total labour cost would be $18.16, reducing the gross margin to $308.40 /ha.

MACHINERY ASSUMPTIONS:

Tractor: pto power: 130 kW (146 HP)

machinery costs refer to variable costs of: fuel, oil, filters, tyres, batteries and repairs.

DRYLAND GRAIN SORGHUM (NO TILL)

North West Slopes **Summer 1994/95**

1.GROSS MARGIN BUDGET:

	Standard Budget $/Ha	Your Budget $/Ha
INCOME:		
4.25 tonnes/Ha at $125.00 /tonne (on farm)	$531.25	
A. TOTAL INCOME $/Ha:	**$531.25**	
VARIABLE COSTS: see opposite page for details		
Cultivation	$0.00	
Sowing	$15.90	
Fertilizer & application	$57.40	
Herbicide & application	$59.57	
Insecticide & application	$19.60	
Harvesting	$4.99	
Levies	$6.38	
B. TOTAL VARIABLE COSTS $/Ha:	**$163.84**	
C. GROSS MARGIN (A-B) $/Ha:	**$367.41**	

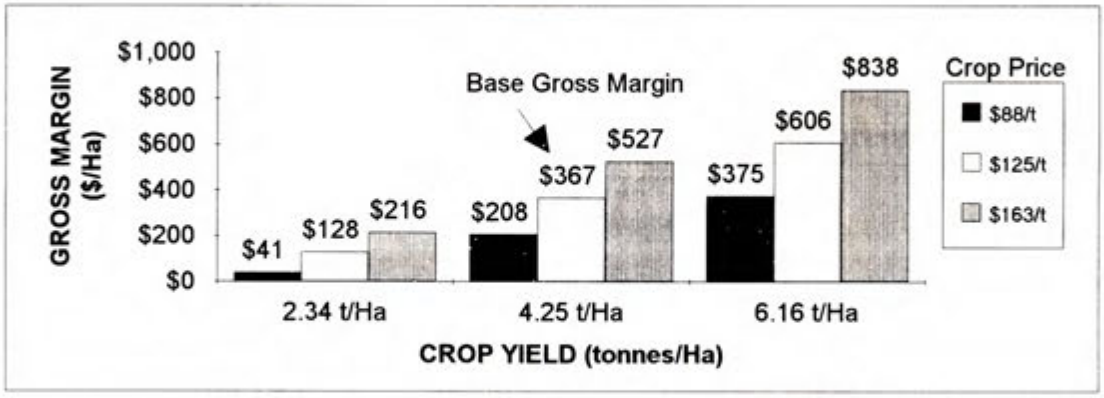
2. EFFECT OF YIELD AND PRICE ON GROSS MARGIN PER HECTARE:

(A)SENSITIVITY TABLE

YIELD tonnes/Ha	On Farm Price $88 /t	$106 /t	**$125 /t**	$144 /t	$163 /t
2.34	$41	$85	$128	$172	$216
2.98	$96	$152	$208	$264	$320
3.61	$152	$220	$288	$355	$423
4.25	$208	$288	**$367.41**	$447	$527
4.89	$264	$355	$447	$539	$630
5.53	$320	$423	$527	$630	$734
6.16	$375	$491	$606	$722	$838

Gross Margin ($/Ha)

(B)SENSITIVITY GRAPH



DRYLAND GRAIN SORGHUM (NO TILL)

North West Slopes **Summer 1994/95**

CALENDAR OF OPERATIONS:

		Machinery			Inputs			Total
			Cost	Total		Cost	Total	Cost
Operation	Month	hrs /Ha	$/hour	$/Ha	Rate/Ha	$	$/Ha	$/Ha
Herbicide - ground spray	Jan	0.08	27.22	2.27				**2.27**
Herbicide - Roundup CT(R)	Jan	with above			1.2 L	11.25	13.50	**13.50**
Herbicide - ground spray	Apr	0.08	27.22	2.27				**2.27**
Herbicide - Roundup CT(R)	Apr	with above			1.0 L	11.25	11.25	**11.25**
Herbicide - ground spray	Jun	0.08	27.22	2.27				**2.27**
Herbicide - Atrazine	Jun	with above			4.0 L	4.75	19.00	**19.00**
Herbicide - ground spray	Sep	0.08	27.22	2.27				**2.27**
Herbicide - Roundup CT(R)	Sep	with above			0.6 L	11.25	6.75	**6.75**
Sowing - with a planter	Nov	0.19	31.22	6.00				**6.00**
Sowing - seed	Nov	with above			2.3 kg	4.40	9.90	**9.90**
Fertiliser - Urea	Nov	with above			140 kg	0.41	57.40	**57.40**
Insecticide - chlorpyrifos	Nov	with above			0.75 L	20.40	15.30	**15.30**
Aerial Spray (contract)*	Jan			7.00				**1.75**
Insect. - chlorpyrifos (25% area)*	Jan	with above			0.5 L	20.40	10.20	**2.55**
Harvest	Apr	0.19	26.57	4.99				**4.99**
Grains Board Levy				1.50 /t				**6.38**

AGRONOMIC NOTES:

- No-Till sorghum requires a high level of management and greater input of herbicide and fertiliser.

*Chlorpyrifos may be needed every 4 years, thus 25 % of area, to control midge in susceptible hybrids.

Use of a particular brand name does NOT imply recommendation of that brand by NSW Agriculture.

LABOUR REQUIREMENTS:

- labour is not costed in this budget. If labour costs $12.50 /hr, total labour cost would be $11.15, reducing the gross margin to $356.26 /ha.

MACHINERY ASSUMPTIONS:

Tractor: pto power: 130 kW (146 HP)

machinery costs refer to variable costs of: fuel, oil, filters, tyres, batteries and repairs.

DRYLAND SUNFLOWERS

North West Slopes **Summer 1994/95**

1.GROSS MARGIN BUDGET:

	Standard Budget $/Ha	Your Budget $/Ha
INCOME:		
1.60 tonnes/Ha at $300.00 /tonne (on farm)	$480.00	
A. TOTAL INCOME $/Ha:	**$480.00**	
VARIABLE COSTS: see opposite page for details		
Cultivation	$26.80	
Sowing	$22.00	
Fertilizer & application	$34.85	
Herbicide & application	$11.55	
Insecticide & application	$20.67	
Harvesting	$4.99	
Levies	$7.20	
B. TOTAL VARIABLE COSTS $/Ha:	**$128.07**	
C. GROSS MARGIN (A-B) $/Ha:	**$351.93**	

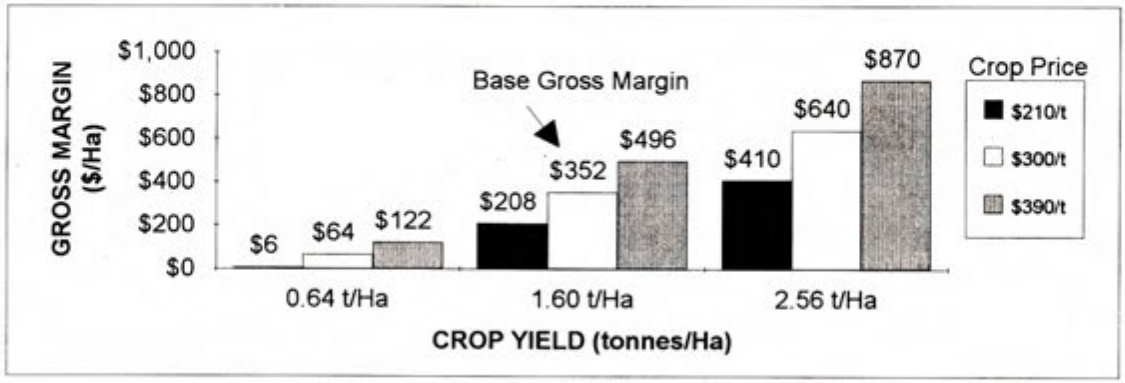
2. EFFECT OF YIELD AND PRICE ON GROSS MARGIN PER HECTARE:

(A)SENSITIVITY TABLE

YIELD tonnes/Ha	On Farm Price $210 /t	$255 /t	**$300 /t**	$345 /t	$390 /t
0.64	$6	$35	$64	$93	$122
0.96	$74	$117	$160	$203	$246
1.28	$141	$198	$256	$314	$371
1.60	$208	$280	**$351.93**	$424	$496
1.92	$275	$362	$448	$534	$621
2.24	$342	$443	$544	$645	$746
2.56	$410	$525	$640	$755	$870

Gross Margin ($/Ha)

(B)SENSITIVITY GRAPH



DRYLAND SUNFLOWERS

North West Slopes **Summer 1994/95**

CALENDAR OF OPERATIONS:

Operation	Month	Machinery hrs /Ha	Machinery Cost $/hour	Machinery Total $/Ha	Inputs Rate/Ha	Inputs Cost $	Inputs Total $/Ha	**Total Cost $/Ha**
Cultivation - chisel plough	Feb	0.26	33.80	8.89				**8.89**
Cultivation - chisel plough	Jun	0.26	33.80	8.89				**8.89**
Cultivation - scarify	Jul	0.17	32.55	5.61				**5.61**
Cultivation - wideline	Sep	0.10	33.35	3.40				**3.40**
Fertiliser - urea	Sep	with above			85 kg	0.41	34.85	**34.85**
Herbicide - trifluralin	Sep	with above			2.10 L	5.50	11.55	**11.55**
Sowing - planter	Sep	0.19	31.22	6.00				**6.00**
Sowing - sunflower seed	Sep	with above			2.5 kg	6.40	16.00	**16.00**
Insecticide - chlorpyrifos	Nov	with above			0.75 L	20.40	15.30	**15.30**
Insecticide - aerial spray	Dec	contract		7.00				**1.75**
Insecticide - endosulfan	Dec	with above			2.10 L	6.90	14.49	**3.62**
Harvest	Mar	0.19	26.57	4.99				**4.99**
Grains Board Levy				1.50 /t				**2.40**
Research Levy				1% of farm gate price				**4.80**

AGRONOMIC NOTES:

Sowing Time: early spring sowings allow crops to flower before high temperatures produce heat stress.

Endosulfan may be needed every 4 years, thus 25 % of area, to control Rutherglen bugs or heliothis.

Use of a particular brand name does NOT imply recommendation of that brand by NSW Agriculture.

LABOUR REQUIREMENTS:

Labour: - labour is not costed in this budget. If labour costs $12.50 /hr, total labour cost would be $18.45, reducing the gross margin to $333.48 /ha.

MACHINERY ASSUMPTIONS:

Tractor: pto power: 130 kW (146 HP)
machinery costs refer to variable costs of: fuel, oil, filters, tyres, batteries and repairs.

DRYLAND MAIZE (No-Till)

North West Slopes - Liverpool Plains **Summer 1994/95**

1.GROSS MARGIN BUDGET:

	Standard Budget $/Ha	Your Budget $/Ha
INCOME:		
4.50 tonnes/Ha at $160.00 /tonne (on farm)	$720.00	
A. TOTAL INCOME $/Ha:	**$720.00**	
VARIABLE COSTS: see opposite page for details		
Cultivation	$0.00	
Sowing	$91.80	
Fertilizer & application	$66.37	
Herbicide & application	$59.57	
Insecticide & application	$13.43	
Harvesting	$4.99	
Levies	$6.75	
B. TOTAL VARIABLE COSTS $/Ha:	**$242.92**	
C. GROSS MARGIN (A-B) $/Ha:	**$477.08**	

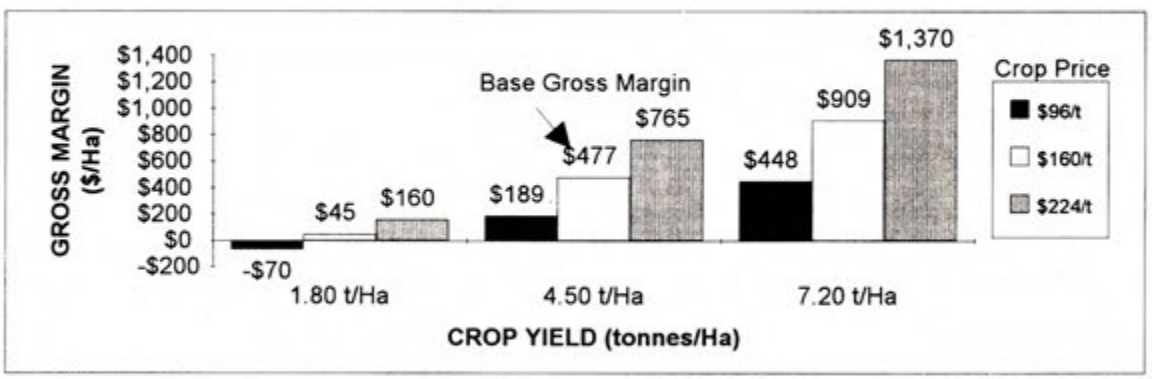
2. EFFECT OF YIELD AND PRICE ON GROSS MARGIN PER HECTARE:

(A)SENSITIVITY TABLE

YIELD	On Farm Price				
tonnes/Ha	$96 /t	$128 /t	**$160 /t**	$192 /t	$224 /t
1.80	-$70	-$13	$45	$103	$160
2.70	$16	$103	$189	$275	$362
3.60	$103	$218	$333	$448	$563
4.50	$189	$333	**$477.08**	$621	$765
5.40	$275	$448	$621	$794	$967
6.30	$362	$563	$765	$967	$1,168
7.20	$448	$679	$909	$1,139	$1,370

Gross Margin ($/Ha)

(B)SENSITIVITY GRAPH



DRYLAND MAIZE (No-Till)

North West Slopes - Liverpool Plains **Summer 1994/95**

CALENDAR OF OPERATIONS:

Operation	Month	Machinery hrs /Ha	Machinery Cost $/hour	Machinery Total $/Ha	Inputs Rate/Ha	Inputs Cost $	Inputs Total $/Ha	Total Cost $/Ha
Herbicide - ground spray	Jan	0.08	27.22	2.27				**2.27**
Herbicide - Roundup CT(R)	Jan	with above			1.2 L	11.25	13.50	**13.50**
Herbicide - ground spray	Apr	0.08	27.22	2.27				**2.27**
Herbicide - Roundup CT(R)	Apr	with above			1.0 L	11.25	11.25	**11.25**
Herbicide - ground spray	Jun	0.08	27.22	2.27				**2.27**
Herbicide - Atrazine	Jun	with above			4.0 L	4.75	19.00	**19.00**
Herbicide - ground spray	Sep	0.08	27.22	2.27				**2.27**
Herbicide - Roundup CT(R)	Sep	with above			0.6 L	11.25	6.75	**6.75**
Sowing - with a planter	Oct	0.19	31.22	6.00				**6.00**
Sowing	Oct	with above			15.0 kg	5.72	85.80	**85.80**
Fertiliser - Urea	Oct	with above			150 kg	0.41	61.50	**61.50**
Insecticide - Counter(R)	Oct	with above			1.7 kg	7.90	13.43	**13.43**
Fertiliser - ground spray	Nov	0.08	27.22	2.27				**2.27**
Zinc Sulphate Heptahydrate foliar	Nov	with above			2.0 kg	1.30	2.60	**2.60**
Harvest	Apr	0.19 #	26.57	4.99				**4.99**
Grains Board Levy				1.50 /t				**6.75**

AGRONOMIC NOTES:

Sowing: - Maize can be sown from October onwards.

- Dryland maize should only be grown in the most favourable slopes areas or where higher than average district sorghum yields are consistently achieved.

Insects: - Counter is used as 18cm band, 2-3 cm below the surface and 3-5 cm above the seed for wireworm control at sowing.

Use of a particular brand name does NOT imply recommendation of that brand by NSW Agriculture.

LABOUR REQUIREMENTS:

- labour is not costed in this budget. If labour costs $12.50 /hr, total labour cost would be $12.45, reducing the gross margin to $464.63 /ha.

MACHINERY ASSUMPTIONS:

Tractor: pto power: 130 kW (146 HP)

machinery costs refer to variable costs of: fuel, oil, filters, tyres, batteries and repairs.

harvest requires a corn front. The costs of owning and running a corn front are not included in this budget.

DRYLAND SOYBEANS

North West Slopes **Summer 1994/95**

1.GROSS MARGIN BUDGET:

	Standard Budget $/Ha	Your Budget $/Ha
INCOME:		
1.0 tonnes/Ha at $360.00 /tonne	$360.00	
A. TOTAL INCOME $/Ha:	**$360.00**	
VARIABLE COSTS: see opposite page for details		
Cultivation	$32.42	
Sowing	$27.22	
Fertilizer & application	$19.20	
Herbicide & application	$13.82	
Insecticide & application	$27.00	
Harvesting	$4.99	
Levies	$5.10	
B. TOTAL VARIABLE COSTS $/Ha:	**$129.75**	
C. GROSS MARGIN (A-B) $/Ha:	**$230.25**	

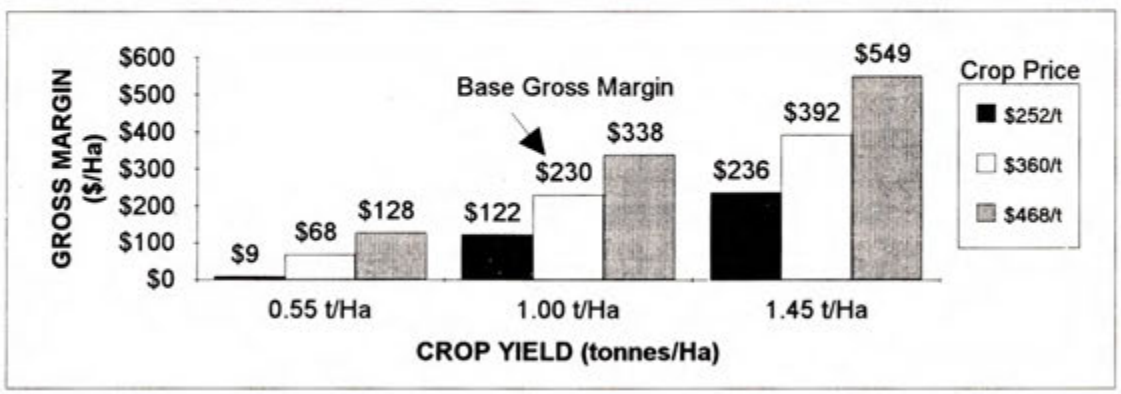
2. EFFECT OF YIELD AND PRICE ON GROSS MARGIN PER HECTARE:

(A)SENSITIVITY TABLE

YIELD tonnes/Ha	Price $252 /t	$306 /t	**$360 /t**	$414 /t	$468 /t
0.55	$9	$39	$68	$98	$128
0.70	$47	$84	$122	$160	$198
0.85	$84	$130	$176	$222	$268
1.00	$122	$176	**$230.25**	$284	$338
1.15	$160	$222	$284	$346	$408
1.30	$198	$268	$338	$408	$479
1.45	$236	$314	$392	$471	$549

Gross Margin ($/Ha)

(B)SENSITIVITY GRAPH



DRYLAND SOYBEANS

North West Slopes **Summer 1994/95**

CALENDAR OF OPERATIONS:

Operation	Month	Machinery hrs /Ha	Machinery Cost $/hour	Machinery Total $/Ha	Inputs Rate/Ha	Inputs Cost $	Inputs Total $/Ha	**Total Cost $/Ha**
Cultivation - chisel plough	Jan	0.26	33.80	8.89				**8.89**
Cultivation - chisel plough	May	0.26	33.80	8.89				**8.89**
Cultivation - scarify	Aug	0.17	32.55	5.61				**5.61**
Cultivation - scarify	Sep	0.17	32.55	5.61				**5.61**
Cultivation - wideline	Nov	0.10	33.35	3.40				**3.40**
Fertiliser - super	Nov	with above			80 kg	0.24	19.20	**19.20**
Herbicide - ground spray	Nov	0.08	27.22	2.27				**2.27**
Herbicide - trifluralin	Nov	with above			2.1 L	5.50	11.55	**11.55**
Sowing - planter	Dec	0.11	48.01	5.22				**5.22**
Sowing	Dec	with above			20 kg	1.10	22.00	**22.00**
Insecticide - aerial spray	Feb	contract		7.00				**7.00**
Insecticide - deltamethrin ULV	Feb	with above			2.5 L	8.00	20.00	**20.00**
Harvest	Mar	0.19	26.57	4.99				**4.99**
Grains Board Levy				1.50 /t				**1.50**
Research Levy				1% of farm gate price				**3.60**

AGRONOMIC NOTES:

- Dryland soybeans can be a risky crop to grow. Sow only in most favoured areas of the slopes on full sub-soil moisture profiles.
- Deltamethrin for green vegetable bug control
- Avoid excessive cultivation leading up to sowing in the early summer months.
- Crops that have poor grain prospects at flowering can be turned into good quality hay.

Use of a particular brand name does NOT imply recommendation of that brand by NSW Agriculture.

LABOUR REQUIREMENTS:

- labour is not costed in this budget. If labour costs $12.50 /hr, total labour cost would be $21.14, reducing the gross margin to $209.11 /ha.

MACHINERY ASSUMPTIONS:

Tractor: pto power: 130 kW (146 HP)

machinery costs refer to variable costs of: fuel, oil, filters, tyres, batteries and repairs.

DRYLAND COWPEAS (POONA)

North West Slopes **Summer 1994/95**

1.GROSS MARGIN BUDGET:

		Standard Budget $/Ha	Your Budget $/Ha
INCOME:			
Yield 0.80 tonnes/Ha			
0.64 tonnes/Ha at	$500.00 /tonne (clean seed)	$320.00	
0.16 tonnes/Ha at	$100.00 /tonne (gradings)	$16.00	
A. TOTAL INCOME $/Ha:		**$336.00**	
VARIABLE COSTS:			
see opposite page for details			
Cultivation		$32.42	
Sowing		$17.30	
Fertilizer & application		$19.20	
Herbicide & application		$13.82	
Insecticide & application		$27.00	
Harvesting		$4.99	
Levies		$0.96	
Cartage, grading & bagging		$59.20	
B. TOTAL VARIABLE COSTS $/Ha:		**$174.89**	
C. GROSS MARGIN (A-B) $/Ha:		**$161.11**	

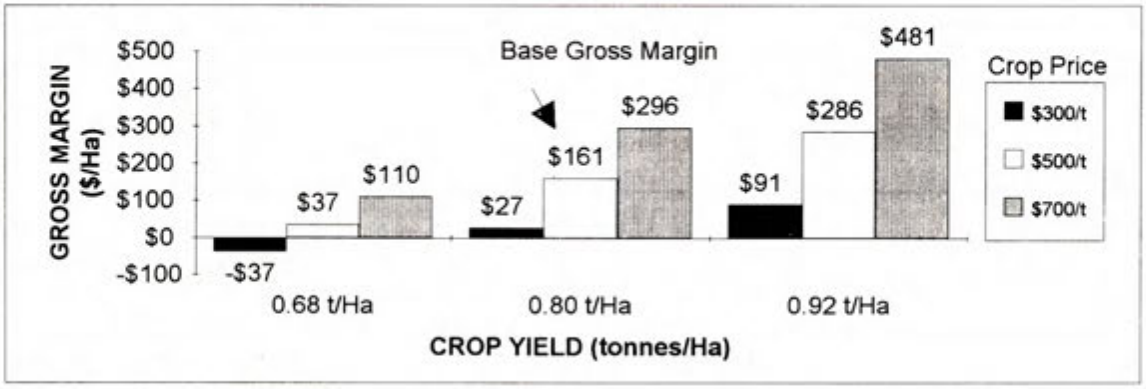
2. EFFECT OF YIELD AND PRICE ON GROSS MARGIN PER HECTARE:

(A)SENSITIVITY TABLE

YIELD t/Ha. gradings	clean seed	Graded & Bagged Price $60 /t	$80 /t	**$100 /t**	$120 /t	$140 /t
		$300 /t	$400 /t	**$500 /t**	$600 /t	$700 /t
0.09	0.35	-$37	$0	$37	$74	$110
0.11	0.45	-$16	$31	$78	$125	$172
0.14	0.54	$5	$62	$120	$177	$234
0.16	**0.64**	$27	$94	**$161.11**	$228	$296
0.18	0.74	$48	$125	$203	$280	$357
0.21	0.83	$69	$157	$244	$332	$419
0.23	0.93	$91	$188	$286	$383	$481

Gross Margin ($/Ha)

(B)SENSITIVITY GRAPH



DRYLAND COWPEAS (POONA)

North West Slopes **Summer 1994/95**

CALENDAR OF OPERATIONS:

Operation	Month	Machinery hrs /Ha	Machinery Cost $/hour	Machinery Total $/Ha	Inputs Rate/Ha	Inputs Cost $	Inputs Total $/Ha	**Total Cost $/Ha**
Cultivation - chisel plough	Jan	0.26	33.80	8.89				**8.89**
Cultivation - chisel plough	May	0.26	33.80	8.89				**8.89**
Cultivation - scarify	Aug	0.17	32.55	5.61				**5.61**
Cultivation - scarify	Sep	0.17	32.55	5.61				**5.61**
Cultivation - wideline	Nov	0.10	33.35	3.40				**3.40**
Fertiliser - super	Nov	with above			80 kg	0.24	19.20	**19.20**
Herbicide - ground spray	Nov	0.08	27.22	2.27				**2.27**
Herbicide - trifluralin	Oct	with above			2.1 L	5.50	11.55	**11.55**
Sowing - planter	Dec	0.19	31.22	6.00				**6.00**
Sowing - seed	Dec	with above			10 kg	1.10	11.00	**11.00**
Seed Inoculation	Dec	with above			$3.00	/100kg of seed		**0.30**
Insecticide - aerial spray	Mar	contract		7.00				**7.00**
Insecticide - deltamethrin ULV Deci:	Mar	with above			2.5 L	8.00	20.00	**20.00**
Harvest	Mar	0.19	26.57	4.99				**4.99**
Grains Board Levy				1.50 /t				**0.96**
Cartage, grading & bagging	May	contract		74.00				**59.20**

AGRONOMIC NOTES:

- deltamethrin for green bug control

Use of a particular brand name does NOT imply recommendation of that brand by NSW Agriculture.

PRICE:

- accurate price prediction is difficult as price can vary greatly with supply and demand.
- grading losses vary substantially and depend upon harvesting management.
- cleaning and grading rates may vary with the quantity produced.
- the price provided is delivered to the grader on a clean seed basis.

LABOUR REQUIREMENTS:

- labour is not costed in this budget. If labour costs $12.50 /hr, total labour cost would be $22.45, reducing the gross margin to $138.66 /ha.

MACHINERY ASSUMPTIONS:

Tractor: pto power: 130 kW (146 HP)
machinery costs refer to variable costs of: fuel, oil, filters, tyres, batteries and repairs.

DRYLAND MUNGBEANS

North West Slopes **Summer 1994/95**

1.GROSS MARGIN BUDGET:

	Standard Budget $/Ha	Your Budget $/Ha
INCOME:		
Yield 0.70 tonnes/Ha		
0.56 tonnes/Ha at $600.00 /tonne (clean seed)	$336.00	
0.14 tonnes/Ha at $120.00 /tonne (gradings)	$16.80	
A. TOTAL INCOME $/Ha:	**$352.80**	
VARIABLE COSTS:		
see opposite page for details		
Cultivation	$26.80	
Sowing	$26.00	
Fertilizer & application	$19.20	
Herbicide & application	$13.82	
Insecticide & application	$27.00	
Harvesting	$4.99	
Levies	$0.84	
Cartage, grading & bagging	$51.80	
B. TOTAL VARIABLE COSTS $/Ha:	**$170.46**	
C. GROSS MARGIN (A-B) $/Ha:	**$182.34**	

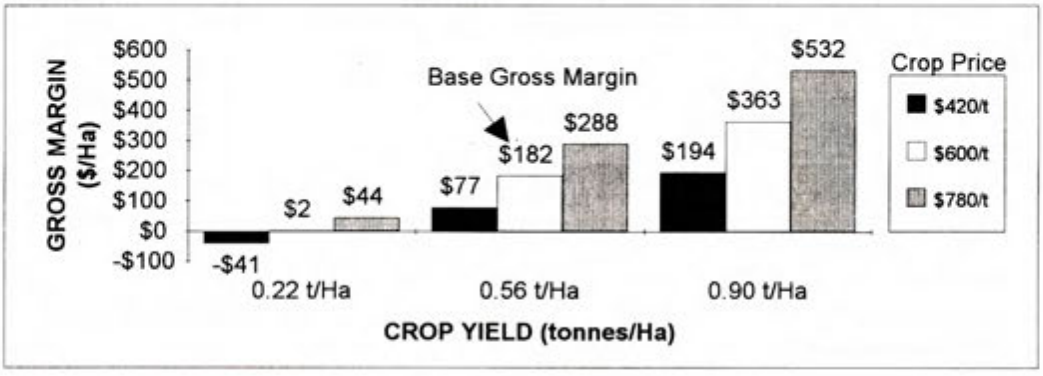
2. EFFECT OF YIELD AND PRICE ON GROSS MARGIN PER HECTARE:

(A)SENSITIVITY TABLE

YIELD t/Ha. gradings	clean seed	Graded & Bagged Price $84 /t $420 /t	$102 /t $510 /t	**$120 /t $600 /t**	$138 /t $690 /t	$156 /t $780 /t
0.06	0.22	-$41	-$19	$2	$23	$44
0.08	0.34	-$2	$30	$62	$94	$125
0.11	0.45	$37	$80	$122	$164	$207
0.14	**0.56**	$77	$129	**$182.34**	$235	$288
0.17	0.67	$116	$179	$243	$306	$370
0.20	0.78	$155	$229	$303	$377	$451
0.22	0.90	$194	$278	$363	$448	$532

Gross Margin ($/Ha)

(B)SENSITIVITY GRAPH



DRYLAND MUNGBEANS

North West Slopes **Summer 1994/95**

CALENDAR OF OPERATIONS:

Operation	Month	Machinery hrs /Ha	Machinery Cost $/hour	Machinery Total $/Ha	Inputs Rate/Ha	Inputs Cost $	Inputs Total $/Ha	Total Cost $/Ha
Cultivation - chisel plough	Jun	0.26	33.80	8.89				**8.89**
Cultivation - chisel plough	Aug	0.26	33.80	8.89				**8.89**
Cultivation - scarify	Sep	0.17	32.55	5.61				**5.61**
Cultivation - wideline	Nov	0.10	33.35	3.40				**3.40**
Fertiliser - super	Nov	with above			80 kg	0.24	19.20	**19.20**
Herbicide - ground spray	Nov	0.08	27.22	2.27				**2.27**
Herbicide - trifluralin	Nov	with above			2.1 L	5.50	11.55	**11.55**
Sowing - planter	Dec	0.19	31.22	6.00				**6.00**
Sowing - mungbeans & inoculant	Dec	with above			20 kg	1.00	20.00	**20.00**
Insecticide - aerial spray	Feb	contract		7.00				**7.00**
Insecticide - deltamethrin ULV Dec	Mar	with above			2.5 L	8.00	20.00	**20.00**
Harvest	Mar	0.19	26.57	4.99				**4.99**
Grains Board Levy				1.50 /t				**0.84**
Cartage, grading & bagging	May	contract		74.00				**51.80**

AGRONOMIC NOTES:

- Mungbeans can be an ideal opportunity double crop following winter cereals. Soil moisture profiles must be replenished if satisfactory yields of high quality beans are to be produced.
- Good weed control is essential.
- deltamethrin for green vegetable bug control

Use of a particular brand name does NOT imply recommendation of that brand by NSW Agriculture.

LABOUR REQUIREMENTS:

- labour is not costed in this budget. If labour costs $12.50 /hr, total labour cost would be $19.76, reducing the gross margin to $32.04 /ha.

MACHINERY ASSUMPTIONS:

Tractor: pto power: 130 kW (146 HP)
machinery costs refer to variable costs of: fuel, oil, filters, tyres, batteries and repairs.

DRYLAND COTTON (SOLID PLANT)

North West Slopes - Liverpool Plains **Summer 1994/95**

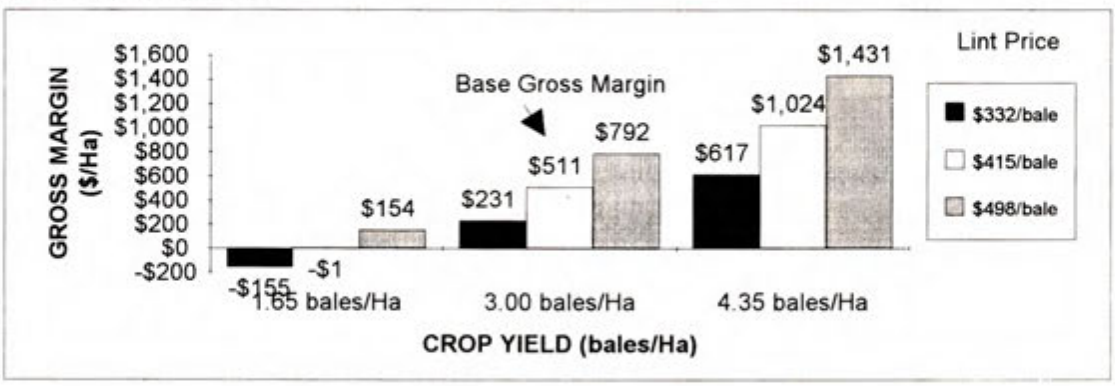
1.GROSS MARGIN BUDGET:

					Standard Budget $/Ha	Your Budget $/Ha
INCOME:						
Lint:	3.0	bales/Ha at	$415.00	/bale (at gin)	$1,245.00	
Seed:	1.0	tonnes/Ha at	$160.00	/tonnes (at gin)	$158.40	
				A. TOTAL INCOME $/Ha:	**$1,403.40**	
VARIABLE COSTS:						
see opposite page for details						
				Cultivation	$56.45	
				Sowing	$27.40	
				Crop insurance	$45.00	
				Fertilizer & application	$32.80	
				Herbicide & application	$112.58	
				Insecticide & application	$252.70	
				Contract harvesting	$100.00	
				Cartage to gin	$76.76	
				Ginning charges	$180.00	
				ACF and Research Levy	$8.25	
				B. TOTAL VARIABLE COSTS $/Ha:	**$891.95**	
				C. GROSS MARGIN (A-B) $/Ha:	**$511.45**	

2. EFFECT OF YIELD AND PRICE ON GROSS MARGIN PER HECTARE: SENSITIVITY TABLE

	At Gin Price					
YIELD	$332 /bale	$374 /bale	**$415 /bale**	$457 /bale	$498 /bale	Lint price
bales/Ha	$128/t	$144/t	**$160/t**	$176/t	$192/t	Seed price
1.65	-$155	-$78	-$1	$76	$154	
2.10	-$27	$72	$170	$268	$366	Gross
2.55	$102	$221	$341	$460	$579	Margin
3.00	$231	$371	**$511**	$652	$792	($/Ha)
3.45	$359	$521	$682	$844	$1,005	
3.90	$488	$671	$853	$1,035	$1,218	
4.35	$617	$820	$1,024	$1,227	$1,431	

SENSITIVITY GRAPH



DRYLAND COTTON (SOLID PLANT)

North West Slopes - Liverpool Plains **Summer 1994/95**

CALENDAR OF OPERATIONS:

Operation	Month	Machinery hrs /Ha	Machinery Cost $/hour	Machinery Total $/Ha	Inputs Rate/Ha	Inputs Band Width	Inputs Cost $	Inputs Total $/Ha	Total Cost $/Ha
Cultivation - chisel plough	Jan	0.26	33.80	8.89					**8.89**
Cultivation - chisel plough	Apr	0.26	33.80	8.89					**8.89**
Cultivation - scarifier	June	0.17	32.55	5.61					**5.61**
Herbicide - Roundup ground spray	Aug	0.08	27.22	2.27	0.7 L	100%	11.25	7.88	**10.14**
Cultivation - harrow	Sep	0.10	33.35	3.40					**3.40**
Herbicide - trifluralin ground spray	Sep	with above			2.1 L	100%	5.50	11.55	**11.55**
Crop insurance	Oct								**45.00**
Planting - precision planter	Oct	0.19	31.22	6.00					**6.00**
Planting - seed	Oct	with above			10 kg	100%	2.14	21.40	**21.40**
Urea incorporation	Oct	with above			80 kg	100%	0.41	32.80	**32.80**
Herbicide - cotogard ground spray	Oct	with above			3.0 L	40%	12.35	14.82	**14.82**
Herbicide - dual ground spray	Oct	with above			2.0 L	40%	17.40	13.92	**13.92**
Insecticide - chlorpyrifos	Oct	with above			0.5 L	100%	20.40	10.20	**10.20**
Insecticide - endosulfan ground	Oct	0.08	27.22	2.27	2.1 L	30%	6.90	4.35	**6.61**
Cultivation - inter-row	Oct	0.16	30.88	4.83					**4.83**
Insecticide - endosulfan ground	Nov	0.08	27.22	2.27	1.5 L	40%	6.90	4.14	**6.41**
Insecticide - BT (Dipel)	Nov	with above			1.5 L	40%	12.50	7.50	**7.50**
Cultivation - chipping casual labour	Nov	contract		20.00					**20.00**
Insecticide - BT (Dipel)	Nov	0.08	27.22	2.27	3.0 L	40%	12.50	15.00	**17.27**
Cultivation - inter-row	Dec	0.16	30.88	4.83					**4.83**
Insecticide - endosulfan ground	Dec	0.08	27.22	2.27	1.5 L	50%	27.10	20.33	**22.59**
Insecticide - BT (Dipel)	Dec	with above			1.5 L	50%	12.50	9.38	**9.38**
Insecticide - endosulfan ground	Dec	0.08	27.22	2.27	2.1 L	60%	6.90	8.69	**10.96**
Insecticide - endosulfan ground	Dec	0.08	27.22	2.27	2.1 L	75%	6.90	10.87	**13.14**
Insecticide - pyrethroid ground	Jan	0.08	27.22	2.27	0.7 L	100%	8.00	5.60	**7.87**
Insecticide - BT (Dipel)	Jan	with above			1.5 L	100%	12.50	18.75	**18.75**
Insecticide - pyrethroid ground	Jan	0.08	27.22	2.27	0.7 L	100%	8.00	5.60	**7.87**
Insecticide - PBO (1000g/L)	Jan	with above			0.3 L	100%	39.50	12.64	**12.64**
Insecticide - curacron ground	Jan	0.08	27.22	2.27	3.5 L	100%	13.50	47.25	**49.52**
Insecticide - helix	Feb	contract		7.00	2.5 L	100%	18.00	45.00	**52.00**
Herbicide - thidiazuron defol. (Dropp)	Apr	contract		7.00	0.125 kg	100%	230.00	28.75	**35.75**
Herbicide - crop oil defoliant	Apr	with above			2.0 L	100%	2.00	4.00	**4.00**
Herbicide - salt defoliant	Apr	contract		7.00	14.0 L	100%	1.10	15.40	**22.40**
Contract stripper picking and module building	May	contract		$100/hr @ 1.0 hrs/Ha					**100.00**
Contract cartage to gin	May	contract		$180/module @17 bales/module					**31.76**
Ginning charges	May	contract		$60 /bale					**180.00**
Consultant	May	contract							**45.00**
ACF levy and Research levy	May	contract		$2.75 /bale					**8.25**
								TOTAL COSTS:	**891.95**

NOTES:

INSECTS:

- chlorpyrifos has been applied as an in-furrow spray for wire worm control.
- a soft approach to early insect control has been used to maintain predators. Insect control costs are more expensive per spray but some reduction in the number of sprays used is expected.
- PBO and Dipel have been tank mixed with the pyrethroid sprays to control resistant heliothisis.

DEFOLIANT:

- Dropp (R) has been used as the primary defoliant. Good conditions are required to get the best performance from Dropp (R).

Use of a particular brand name does NOT imply recommendation of that brand by NSW Agriculture.

MANAGEMENT:

- this budget is for a long fallow following a winter cereal crop.
- dryland cotton sometimes receives a price discount due to stable length and trash content. An average discount of $25/bale has been used in this budget.

LABOUR REQUIREMENTS:

Labour:

- labour is not costed in this budget. If labour costs $12.50 /hr, total labour cost would be $33.42, reducing the gross margin to $478.03 /ha.

MACHINERY ASSUMPTIONS:

Tractor:

pto power: 130 kW (146 HP)
machinery costs refer to variable costs of: fuel, oil, filters, tyres, batteries and repairs.

NORTH WEST PLAINS

DRYLAND SUMMER CROPS

1994

DRYLAND GRAIN SORGHUM

North West Plains **Summer 1994/95**

1.GROSS MARGIN BUDGET:

	Standard Budget $/Ha	Your Budget $/Ha
INCOME:		
2.1 tonnes/Ha at $125.00 /tonne (on farm)	$262.50	
A. TOTAL INCOME $/Ha:	**$262.50**	
VARIABLE COSTS: see opposite page for details		
Cultivation	$19.38	
Sowing	$15.92	
Fertilizer & application	$0.00	
Herbicide & application	$30.49	
Insecticide & application	$4.30	
Harvesting	$5.18	
Levies	$3.15	
B. TOTAL VARIABLE COSTS $/Ha:	**$78.43**	
C. GROSS MARGIN (A-B) $/Ha:	**$184.07**	

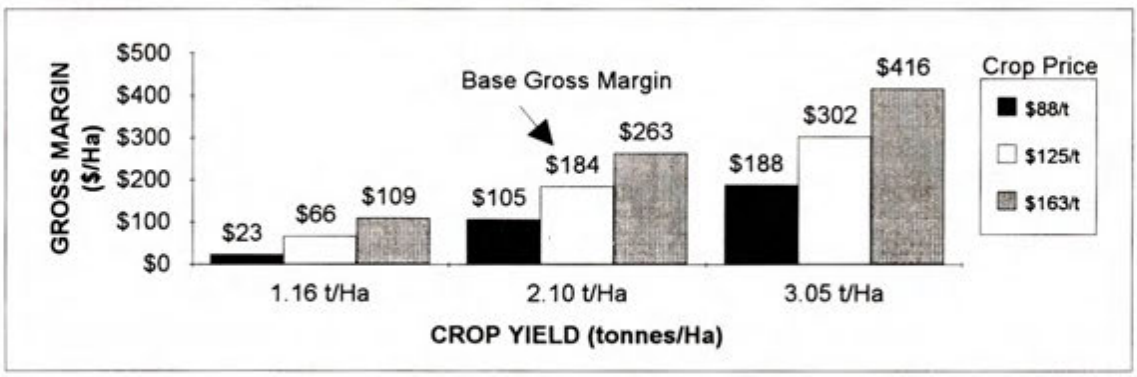
2. EFFECT OF YIELD AND PRICE ON GROSS MARGIN PER HECTARE:

(A)SENSITIVITY TABLE

YIELD tonnes/Ha	On Farm Price $88 /t	$106 /t	**$125 /t**	$144 /t	$163 /t
1.16	$23	$44	$66	$88	$109
1.47	$50	$78	$105	$133	$160
1.79	$78	$111	$145	$178	$212
2.10	$105	$145	**$184.07**	$223	$263
2.42	$133	$178	$223	$269	$314
2.73	$160	$212	$263	$314	$365
3.05	$188	$245	$302	$359	$416

Gross Margin ($/Ha)

(B)SENSITIVITY GRAPH



DRYLAND GRAIN SORGHUM

North West Plains **Summer 1994/95**

CALENDAR OF OPERATIONS:

Operation	Month	Machinery hrs /Ha	Machinery Cost $/hour	Machinery Total $/Ha	Inputs Rate/Ha	Inputs Cost $	Inputs Total $/Ha	**Total Cost $/Ha**
Cultivation - chisel plough	Jan	0.13	45.78	5.96				**5.96**
Cultivation - chisel plough	May	0.13	45.78	5.96				**5.96**
Cultivation - scarify	Aug	0.09	43.85	3.73				**3.73**
Cultivation - scarify	Sep	0.09	43.85	3.73				**3.73**
Herbicide - Roundup CT (R)	Sep	0.07	40.46	3.00	0.7 L	11.25	7.88	**10.87**
Herbicide - Atrazine	Oct	0.07	40.46	3.00	3.5 L	4.75	16.63	**19.62**
Sowing - with a combine	Oct	0.10	59.75	6.02				**6.02**
Sowing - sorghum seed	Oct	with above			2.25 kg	4.40	9.90	**9.90**
Aerial Spray (contract)	Jan			7.00				**1.75**
Insect. - chlorpyrifos (25% area)	Jan				0.5 L	20.40	10.20	**2.55**
Harvest	Feb	0.16	32.66	5.18				**5.18**
Grains Board Levy				1.50 /t				**3.15**

NOTES:

- review the need for some nitrogen fertiliser in higher rainfall or more favoured parts of the plains

- in most plains environments soil temperatures will probably be warm enough for sorghum sowing to commence in late September. Early sowings are justified if conditions suit.

*Chlorpyrifos may be needed every 4 years, thus 25 % of area, to control midge.

Use of a particular brand name does NOT imply recommendation of that brand by NSW Agriculture.

LABOUR REQUIREMENTS:

- labour is not costed in this budget. If labour costs $12.50 /hr, total labour cost would be $13.10, reducing the gross margin to $170.97 /ha.

MACHINERY ASSUMPTIONS:

Tractor: 4wd, 250 KW engine (335hp)

machinery costs refer to variable costs of: fuel, oil, filters, tyres, batteries and repairs.

DRYLAND GRAIN SORGHUM (NO TILL)

North West Plains **Summer 1994/95**

1.GROSS MARGIN BUDGET:

	Standard Budget $/Ha	Your Budget $/Ha
INCOME:		
2.8 tonnes/Ha at $125.00 /tonne (on farm)	$350.00	
A. TOTAL INCOME $/Ha:	**$350.00**	
VARIABLE COSTS: (see opposite page for details)		
Cultivation	$0.00	
Sowing	$15.92	
Fertilizer & application	$0.00	
Herbicide & application	$48.74	
Insecticide & application	$4.30	
Harvesting	$5.18	
Levies	$4.20	
B. TOTAL VARIABLE COSTS $/Ha:	**$78.35**	
C. GROSS MARGIN (A-B) $/Ha:	**$271.65**	

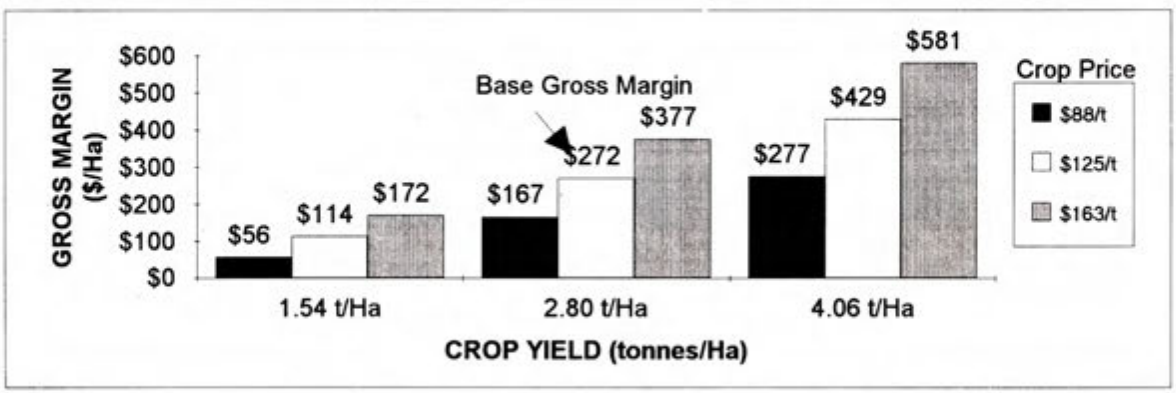
2. EFFECT OF YIELD AND PRICE ON GROSS MARGIN PER HECTARE:

(A)SENSITIVITY TABLE

YIELD	On Farm Price				
tonnes/Ha	$88 /t	$106 /t	**$125 /t**	$144 /t	$163 /t
1.54	$56	$85	$114	$143	$172
1.96	$93	$130	$167	$203	$240
2.38	$130	$175	$219	$264	$308
2.80	$167	$219	**$271.65**	$324	$377
3.22	$203	$264	$324	$385	$445
3.64	$240	$308	$377	$445	$513
4.06	$277	$353	$429	$505	$581

Gross Margin ($/Ha)

(B)SENSITIVITY GRAPH



DRYLAND GRAIN SORGHUM (NO TILL)

North West Plains **Summer 1994/95**

CALENDAR OF OPERATIONS:

Operation	Month	Machinery hrs /Ha	Machinery Cost $/hour	Machinery Total $/Ha	Inputs Rate/Ha	Inputs Cost $	Inputs Total $/Ha	**Total Cost $/Ha**
Herbicide - Roundup CT (R)	Dec	0.07	40.46	3.00	1.0 L	11.25	11.25	**14.25**
Herbicide - Atrazine	Jan	0.07	40.46	3.00	3.0 L	4.75	14.25	**17.25**
Herbicide - Atrazine	May	0.07	40.46	3.00	3.0 L	4.75	14.25	**17.25**
Sowing	Oct	0.10	59.75	6.02				**6.02**
Sowing - sorghum seed	Oct	with above			2.25 kg	4.40	9.90	**9.90**
Aerial Spray (contract)	Jan			7.00				**1.75**
Insect. - chlorpyrifos (25% area)	Jan				0.5 L	20.40	10.20	**2.55**
Harvest	Mar	0.16	32.66	5.18				**5.18**
Grains Board Levy				1.50 /t				**4.20**

NOTES:

- no fertiliser inputs have been included in this budget. Fertiliser may be necessary where nutrient deficiencies are known to exist.

*Chlorpyrifos may be needed every 4 years, thus 25 % of area, to control midge.

Use of a particular brand name does NOT imply recommendation of that brand by NSW Agriculture.

LABOUR REQUIREMENTS:

- labour is not costed in this budget. If labour costs $12.50 /hr, total labour cost would be $7.53, reducing the gross margin to $264.12 /ha.

MACHINERY ASSUMPTIONS:

Tractor: 4wd, 250 KW engine (335hp)

machinery costs refer to variable costs of: fuel, oil, filters, tyres, batteries and repairs.

DRYLAND SUNFLOWERS

North West Plains **Summer 1994/95**

1.GROSS MARGIN BUDGET:

		Standard Budget $/Ha	Your Budget $/Ha
INCOME:			
0.8 tonnes/Ha at	$300.00 /tonne (on farm)	$240.00	
	A. TOTAL INCOME $/Ha:	**$240.00**	
VARIABLE COSTS:			
see opposite page for details			
	Cultivation	$19.38	
	Sowing	$18.82	
	Fertilizer & application	$0.00	
	Herbicide & application	$22.42	
	Insecticide & application	$6.45	
	Harvesting	$5.18	
	Levies	$3.60	
	B. TOTAL VARIABLE COSTS $/Ha:	**$75.85**	
	C. GROSS MARGIN (A-B) $/Ha:	**$164.15**	

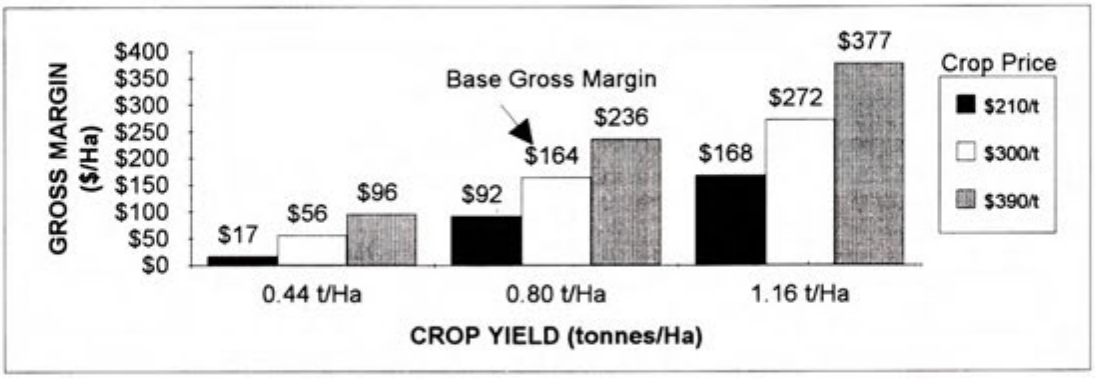
2. EFFECT OF YIELD AND PRICE ON GROSS MARGIN PER HECTARE:

(A)SENSITIVITY TABLE

YIELD	On Farm Price				
tonnes/Ha	$210 /t	$255 /t	**$300 /t**	$345 /t	$390 /t
0.44	$17	$36	$56	$76	$96
0.56	$42	$67	$92	$117	$143
0.68	$67	$98	$128	$159	$189
0.80	$92	$128	**$164.15**	$200	$236
0.92	$117	$159	$200	$242	$283
1.04	$143	$189	$236	$283	$330
1.16	$168	$220	$272	$324	$377

Gross Margin ($/Ha)

(B)SENSITIVITY GRAPH



DRYLAND SUNFLOWERS

North West Plains **Summer 1994/95**

CALENDAR OF OPERATIONS:

Operation	Month	Machinery hrs /Ha	Machinery Cost $/hour	Machinery Total $/Ha	Inputs Rate/Ha	Inputs Cost $	Inputs Total $/Ha	**Total Cost $/Ha**
Cultivation - chisel plough	Feb	0.13	45.78	5.96				**5.96**
Cultivation - chisel plough	Jun	0.13	45.78	5.96				**5.96**
Cultivation - scarify	Jul	0.09	43.85	3.73				**3.73**
Herbicide - Roundup CT	Aug	0.07	40.46	3.00	0.70 L	11.25	7.88	**10.87**
Cultivation - wideline	Sep	0.09	43.85	3.73				**3.73**
Herbicide - trifluralin	Sep	with above			2.10 L	5.50	11.55	**11.55**
Sowing	Sep	0.10	59.75	6.02				**6.02**
Sowing - sunflower seed	Sep	with above			2.0 kg	6.40	12.80	**12.80**
Insecticide - aerial spray (30% of area)	Dec	contract		7.00				**2.10**
Insecticide - endosulfan (30% of area)	Dec	with above			2.10 L	6.90	14.49	**4.35**
Harvest	Mar	0.16	32.66	5.18				**5.18**
Grains Board Levy				1.50 /t				**1.20**
Research Levy					1% of farm gate price			**2.40**

AGRONOMIC NOTES:

- Early spring sowings allow crops to flower before high temperatures produce heat stress.

Use of a particular brand name does NOT imply recommendation of that brand by NSW Agriculture.

LABOUR REQUIREMENTS:

- labour is not costed in this budget. If labour costs $12.50 /hr, total labour cost would be $11.94, reducing the gross margin to $152.21 /ha.

MACHINERY ASSUMPTIONS:

Tractor: 4wd, 250 KW engine (335hp)

machinery costs refer to variable costs of: fuel, oil, filters, tyres, batteries and repairs.

DRYLAND COTTON (SKIP ROW)

North West Plains **Summer 1994/95**

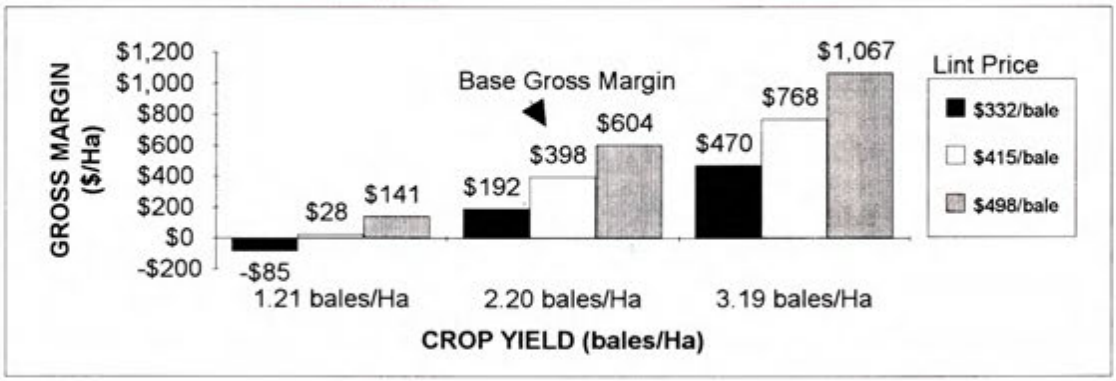
1.GROSS MARGIN BUDGET:

					Standard Budget $/Ha	Your Budget $/Ha
INCOME:						
Lint:	2.20	bales/Ha at	$415.00	/bale (at gin)	$913.00	
Seed:	0.73	tonnes/Ha at	$160.00	/tonne (at gin)	$116.16	
				A. TOTAL INCOME $/Ha:	**$1,029.16**	
VARIABLE COSTS: see opposite page for details						
				Cultivation	$56.45	
				Sowing	$17.47	
				Crop insurance	$20.00	
				Fertilizer & application	$16.48	
				Herbicide & application	$53.55	
				Insecticide & application	$193.87	
				Contract harvesting	$67.00	
				Cartage to gin	$68.29	
				Ginning charges	$132.00	
				ACF and Research Levy	$6.05	
				B. TOTAL VARIABLE COSTS $/Ha:	**$631.18**	
				C. GROSS MARGIN (A-B) $/Ha:	**$397.98**	

2. EFFECT OF YIELD AND PRICE ON GROSS MARGIN PER HECTARE: SENSITIVITY TABLE

	At Gin Price					
YIELD	$332 /bale	$374 /bale	**$415 /bale**	$457 /bale	$498 /bale	**Lint price**
bales/Ha	$128/t	$144/t	**$160/t**	$176/t	$192/t	**Seed price**
1.21	-$85	-$29	$28	$84	$141	
1.54	$7	$79	$151	$223	$295	**Gross**
1.87	$100	$187	$275	$362	$450	**Margin**
2.20	$192	$295	**$398**	$501	$604	**($/Ha)**
2.53	$285	$403	$521	$640	$758	
2.86	$377	$511	$645	$779	$912	
3.19	$470	$619	$768	$917	$1,067	

SENSITIVITY GRAPH



DRYLAND COTTON (SKIP ROW)

North West Plains **Summer 1994/95**

CALENDAR OF OPERATIONS:

Operation	Month	Machinery hrs /Ha	Machinery Cost $/hour	Machinery Total $/Ha	Inputs Rate/Ha	Inputs Band Width	Inputs Cost $	Inputs Total $/Ha	Total Cost $/Ha
Cultivation - chisel plough	Jan	0.26	33.80	8.89					**8.89**
Cultivation - chisel plough	Apr	0.26	33.80	8.89					**8.89**
Cultivation - scarifier	June	0.17	32.55	5.61					**5.61**
Herbicide - Roundup ground spray	Aug	0.08	27.22	2.27	0.7 L	100%	11.25	7.88	**10.14**
Cultivation - harrow	Sep	0.10	33.35	3.40					**3.40**
Herbicide - trifluralin ground spray	Sep	with above			2.1 L	100%	5.50	11.55	**11.55**
Crop insurance	Oct								**20.00**
Planting - precision planter	Oct	0.19	31.22	6.00					**6.00**
Planting - seed *	Oct	with above			8 kg	100%	2.14	11.47	**11.47**
Urea application *	Oct	with above			60 kg	100%	0.41	16.48	**16.48**
Herbicide - cotogard ground spray *	Oct	with above			3.0 L	40%	12.35	9.93	**9.93**
Herbicide - dual ground spray *	Oct	with above			2.0 L	40%	17.40	9.33	**9.33**
Insecticide - chlorpyrifos *	Oct	with above			0.5 L	20%	20.40	1.37	**1.37**
Insecticide - endosulfan ground *	Oct	0.08	27.22	2.27	2.1 L	30%	6.90	2.91	**5.18**
Cultivation - inter-row	Oct	0.16	30.88	4.83					**4.83**
Insecticide - endosulfan ground *	Nov	0.08	27.22	2.27	2.1 L	40%	6.90	3.88	**6.15**
Insecticide - BT (Dipel) *	Nov	with above			3.0 L	40%	12.50	10.05	**10.05**
Cultivation - chipping casual labour	Nov	contract		20.00					**20.00**
Insecticide - BT (Dipel) *	Nov	0.08	27.22	2.27	3.0 L	40%	12.50	10.05	**12.32**
Cultivation - inter-row	Nov	0.16	30.88	4.83					**4.83**
Insecticide - endosulfan ground *	Dec	0.08	27.22	2.27	1.5 L	50%	27.10	13.62	**15.89**
Insecticide - BT (Dipel) *	Dec	with above			1.5 L	50%	12.50	6.28	**6.28**
Insecticide - endosulfan ground *	Dec	0.08	27.22	2.27	2.1 L	60%	6.90	5.82	**8.09**
Insecticide - endosulfan ground *	Dec	0.08	27.22	2.27	2.1 L	75%	6.90	7.28	**9.55**
Insecticide - pyrethroid ground *	Jan	0.08	27.22	2.27	0.7 L	100%	8.00	3.75	**6.02**
Insecticide - BT (Dipel) *	Jan	with above			1.5 L	100%	12.50	12.56	**12.56**
Insecticide - pyrethroid ground *	Jan	0.08	27.22	2.27	0.7 L	100%	8.00	3.75	**6.02**
Insecticide - PBO (1000g/L) *	Jan	with above			0.3 L	100%	39.50	8.47	**8.47**
Insecticide - curacron ground *	Jan	0.08	27.22	2.27	3.5 L	100%	13.50	31.66	**33.93**
Insecticide - helix	Feb	contract		7.00	2.5 L	100%	18.00	45.00	**52.00**
Defoliant - Sprayseed ground *	Mar	0.08	27.22	2.27	2.0 L	100%	7.40	9.92	**12.18**
Defoliant - wetter *	Mar	with above			0.13 L	100%	5.00	0.42	**0.42**
Contract stripper picking and module building *	April	contract		$100/hr @ 0.67 hrs/Ha					**67.00**
Contract cartage to gin	May	contract		$180/module @17 bales/module					**23.29**
Ginning charges	May	contract		$60.00 /bale					**132.00**
Consultant	May	contract							**45.00**
ACF levy and Research levy	May	contract		$2.75 /bale					**6.05**
								TOTAL COSTS:	**631.18**

NOTES:

INSECTS:

- chlorpyrifos has been applied as an in-furrow spray for wire worm control.
- a soft approach to early insect control has been used to maintain predators. Insect control costs are more expensive per spray but some reduction in the number of sprays used is expected.
- PBO and Dipel have been tank mixed with the pyrethroid sprays to control resistant heliothisis.

Use of a particular brand name does NOT imply recommendation of that brand by NSW Agriculture.

MANAGEMENT:

- this budget is for a long fallow following a winter cereal crop.
- skip row allows significant cost savings to be made during the growing season and at harvest.

* these costs are discounted for inclusion in the skip row system

- dryland cotton sometimes receives a price discount due to stable length and trash content. An average discount of $25/bale has been used in this budget.

LABOUR REQUIREMENTS:

- labour is not costed in this budget. If labour costs $12.50 /hr, total labour cost would be $34.72, reducing the gross margin to $363.26 /ha.

MACHINERY ASSUMPTIONS:

Tractor: pto power: 130 kW (146 HP)
machinery costs refer to variable costs of: fuel, oil, filters, tyres, batteries and repairs.

SECTION 3.

IRRIGATED SUMMER CROPS

1994

IRRIGATED SORGHUM

North West Slopes and Plains **Summer 1994/95**

1. GROSS MARGIN BUDGET:

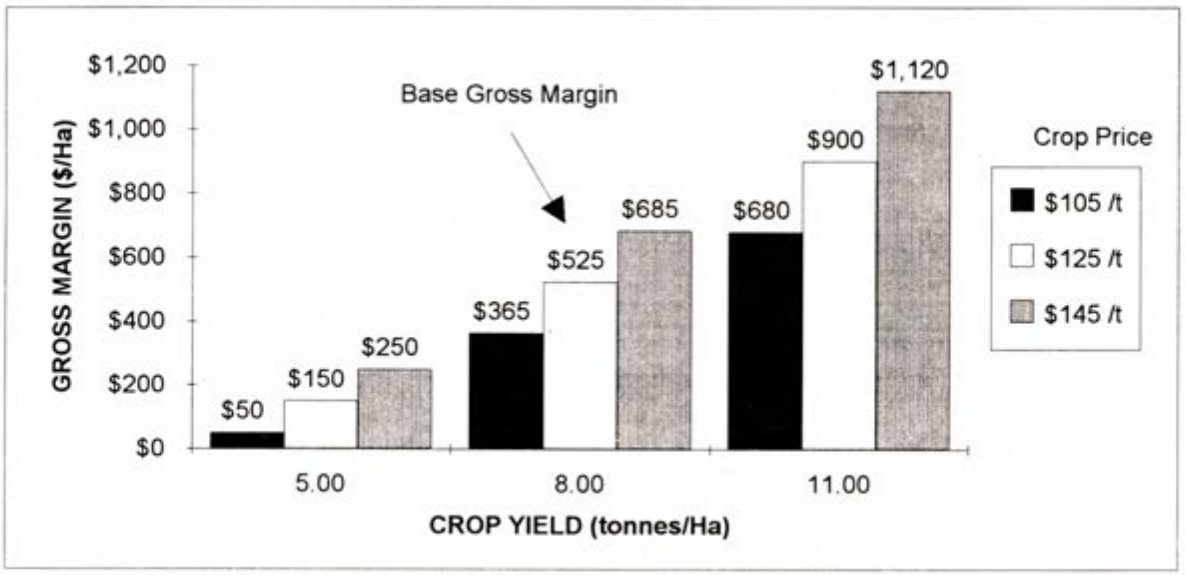
	Standard Budget $/ha	Your Budget $/ha
INCOME:		
8.0 tonnes/Ha at $125.00 /tonne (on farm)	$1,000.00	
A. TOTAL INCOME $/Ha:	**$1,000.00**	
VARIABLE COSTS:		
see opposite page for detail		
Cultivation and Sowing	$86.71	
Fertilizer	$172.69	
Herbicide	$19.37	
Insecticide	$24.40	
Irrigation	$155.00	
Harvest-Own Plant	$4.99	
Levies	$12.00	
B. TOTAL VARIABLE COSTS $/Ha:	**$475.16**	
C. GROSS MARGIN (A-B) $/Ha:	**$524.84**	

2. EFFECT OF YIELD AND PRICE ON GROSS MARGIN PER HECTARE:

(A) SENSITIVITY TABLE

YIELD	On Farm Price				
tonnes/Ha	$105 /t	$115 /t	**$125 /t**	$135 /t	$145 /t
5.00	$50	$100	$150	$200	$250
6.00	$155	$215	$275	$335	$395
7.00	$260	$330	$400	$470	$540
8.00	$365	$445	**$525**	$605	$685
9.00	$470	$560	$650	$740	$830
10.00	$575	$675	$775	$875	$975
11.00	$680	$790	$900	$1,010	$1,120

(B) SENSITIVITY GRAPH



IRRIGATED SORGHUM

North West Slopes and Plains **Summer 1994/95**

CALENDAR OF OPERATIONS:

Operation	Month	Machinery hrs/Ha	Machinery Cost $/hour	Machinery Total $/Ha	Inputs Rate/Ha	Inputs Cost $	Inputs Total $/Ha	Total Cost $/Ha
Slash	May	0.26	33.80	8.89				**8.89**
Cultivate - chisel	May	0.26	33.80	8.89				**8.89**
Cultivate - scarifier	Jun	0.17	32.55	5.61				**5.61**
Hill-Up (or Bed)	Aug	0.26	32.22	8.48				**8.48**
Cult & Fertilize -Urea	Sep	0.16	33.55	5.24	325 kg	0.41	133.25	**138.49**
Fertilize -Zinc *	Sep	contract		42.00	30 kg	1.50	45.00	**17.40**
Herbicide - Atrazine	Sep	0.08	27.22	2.27	3.6 L	4.75	17.10	**19.37**
Channel maintenance	Sep							**30.00**
Pre-Irrigate	Oct				1.4 Ml	25.00	35.00	**35.00**
Sow with Planter	Oct	0.19	31.22	6.00				**6.00**
Seed	Oct	with above			10 kg	4.40	44.00	**44.00**
Fertiliser - Starterfos	Oct	with above			40 kg	0.42	16.80	**16.80**
Insecticide - Counter (R)	Oct	with above			2 kg	7.90	15.80	**15.80**
Inter-row cultivate	Nov	0.16	30.88	4.83				**4.83**
Irrigate	Dec				1.2 Ml	25.00	30.00	**30.00**
Irrigate	Jan				1.2 Ml	25.00	30.00	**30.00**
Irrigate	Jan				1.2 Ml	25.00	30.00	**30.00**
Insecticide - Chlorpyrifos #	Jan	contract		7.00	0.5 L	20.40	10.20	**8.60**
Irrigation equip. repairs and maintenance at			$1.10/Ml					**5.50**
Harvest - own plant	Mar	0.19	26.57	4.99				**4.99**
Grains Board Levy				1.50 /t				**12.00**

AGRONOMIC NOTES:

- * Sorghum is sensitive to zinc deficiency. Zinc treatment should be included where necessary, in this example zinc is applied 1 year in 5
- # Chlorpyrifos (Lorsban R) is applied 1 year in 2 to control midge in susceptible hybrids

Use of a particular brand name does NOT imply recommendation of that brand by NSW Agriculture.

LABOUR REQUIREMENTS:

- labour is not costed in this budget. If labour costs $12.50 /hr, total labour cost would be $27.16, reducing the gross margin to $497.68 /ha.

MACHINERY ASSUMPTIONS:

Tractor: pto power: 130 kW (146 HP)
machinery costs refer to variable costs of: fuel, oil, filters, tyres, batteries and repairs.

IRRIGATION:

Water pumping costs: calculated using a flood/furrow system with diesel powered pumping from a bore with a 36m drawdown level.

Water requirements 5.0Ml/Ha is sufficient to adequately irrigate sorghum 4 out of 5 years.

IRRIGATED SUNFLOWERS (Summer Plant)

North West Slopes and Plains **Summer 1994/95**

1. GROSS MARGIN BUDGET:

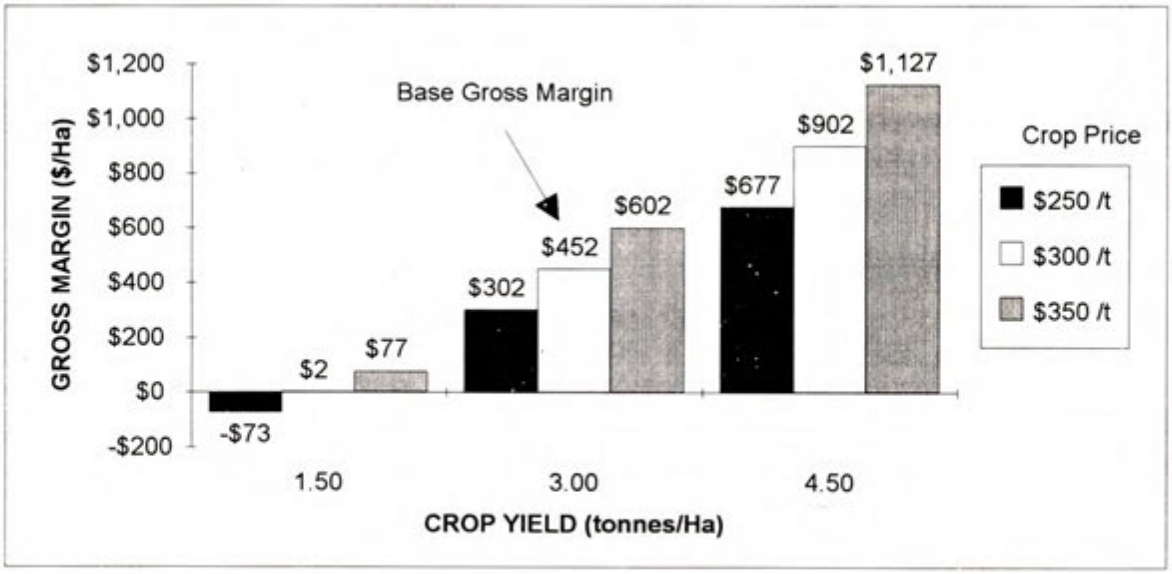
	Standard Budget $/ha	Your Budget $/ha
INCOME:		
3.0 tonnes/Ha at $300.00 /tonne (on farm)	$900.00	
A. TOTAL INCOME $/Ha:	**$900.00**	
VARIABLE COSTS:		
see opposite page for detail		
Cultivation and Sowing	$74.34	
Fertilizer	$123.40	
Herbicide	$13.82	
Insecticide	$57.83	
Irrigation	$160.50	
Levies	$13.50	
Harvest-Own Plant	$4.99	
B. TOTAL VARIABLE COSTS $/Ha:	**$448.37**	
C. GROSS MARGIN (A-B) $/Ha:	**$451.63**	

2. EFFECT OF YIELD AND PRICE ON GROSS MARGIN PER HECTARE:

(A) SENSITIVITY TABLE

YIELD	On Farm Price				
tonnes/Ha	$250 /t	$275 /t	**$300 /t**	$325 /t	$350 /t
1.50	-$73	-$36	$2	$39	$77
2.00	$52	$102	$152	$202	$252
2.50	$177	$239	$302	$364	$427
3.00	$302	$377	**$452**	$527	$602
3.50	$427	$514	$602	$689	$777
4.00	$552	$652	$752	$852	$952
4.50	$677	$789	$902	$1,014	$1,127

(B) SENSITIVITY GRAPH



IRRIGATED SUNFLOWERS (Summer Plant)

North West Slopes and Plains **Summer 1994/95**

CALENDAR OF OPERATIONS:

Operation	Month	Machinery hrs/Ha	Machinery Cost $/hour	Machinery Total $/Ha	Inputs Rate/Ha	Inputs Cost $	Inputs Total $/Ha	Total Cost $/Ha
Cultivate - chisel	May	0.26	33.80	8.89				**8.89**
Cultivate - chisel	Jul	0.26	33.80	8.89				**8.89**
Hill-Up (or Bed)	Aug	0.26	32.22	8.48				**8.48**
Fertilize - Urea	Aug	with above			260 kg	0.41	106.60	**106.60**
Cultivate	Nov	0.16	33.55	5.24				**5.24**
Herbicide - Triflualin	Dec	0.08	27.22	2.27	2.1 L	5.50	11.55	**13.82**
Fertiliser - Starterfos	Dec	with above			40 kg	0.42	16.80	**16.80**
Channel maintenance	Dec							**30.00**
Pre-Irrigate	Dec				1.5 Ml	25.00	37.50	**37.50**
Sow with Planter	Jan	0.19	31.22	6.00				**6.00**
Seed	Jan	with above			5 kg	6.40	32.00	**32.00**
Insecticide - chlorpyrifos	Jan	with above			0.75 L	20.40	3.83	**3.83**
Inter-row cultivate	Feb	0.16	30.88	4.83				**4.83**
Irrigate	Feb				1.2 Ml	25.00	30.00	**30.00**
Irrigate	Mar				1.2 Ml	25.00	30.00	**30.00**
Irrigate	Mar				1.1 Ml	25.00	27.50	**27.50**
Insecticide - deltamethrin ULV	Mar	contract		7.00	2.50 L	8.00	20.00	**54.00**
Irrigation equip. repairs and maintenance at			$1.10/Ml					**5.50**
Harvest - own plant	May	0.19	26.57	4.99				**4.99**
Grains Board Levy				1.50 /t				**4.50**
Research Levy				1% of farm gate price				**9.00**

AGRONOMIC NOTES:

- Deltamethrin is applied 1 year in 4 to control Rutherglen bugs
- Spring sown sunflower are likely to have higher water requirements, up to 7.5 Ml/Ha.

Use of a particular brand name does NOT imply recommendation of that brand by NSW Agriculture.

LABOUR REQUIREMENTS:

- labour is not costed in this budget. If labour costs $12.50 /hr, total labour cost would be $24.46, reducing the gross margin to $427.17 /ha.

MACHINERY ASSUMPTIONS:

Tractor: pto power: 130 kW (146 HP)
machinery costs refer to variable costs of: fuel, oil, filters, tyres, batteries and repairs.

IRRIGATION:

Water pumping costs: calculated using a flood/furrow system with diesel powered pumping from a bore with a 36m drawdown level.

Water requirements: 5.0Ml/Ha is sufficient to adequately irrigate sunflowers 4 out of 5 years.

IRRIGATED SOYBEAN

North West Slopes and Plains **Summer 1994/95**

1. GROSS MARGIN BUDGET:

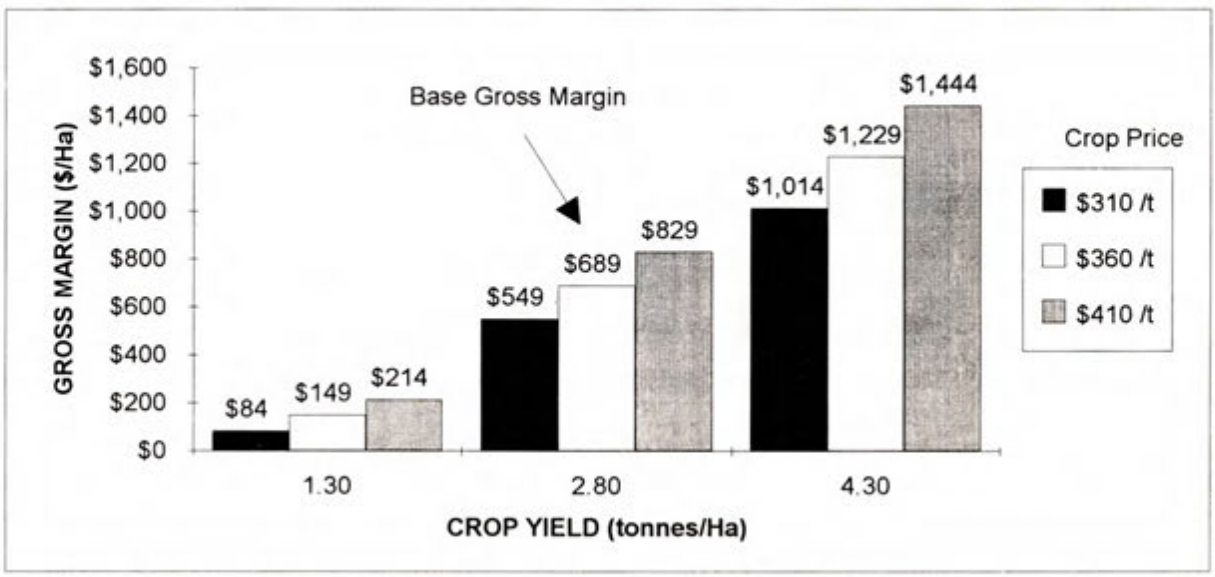
	Standard Budget $/ha	Your Budget $/ha
INCOME:		
2.8 tonnes/Ha at $360.00 /tonne (on farm)	$1,008.00	
A. TOTAL INCOME $/Ha:	**$1,008.00**	
VARIABLE COSTS:		
see opposite page for detail		
Cultivation and Sowing	$105.36	
Fertilizer	$49.88	
Herbicide	$20.64	
Insecticide	$27.00	
Irrigation	$97.34	
Levies	$14.28	
Harvest-Own Plant	$4.99	
B. TOTAL VARIABLE COSTS $/Ha:	**$319.49**	
C. GROSS MARGIN (A-B) $/Ha:	**$688.51**	

2. EFFECT OF YIELD AND PRICE ON GROSS MARGIN PER HECTARE:

(A) SENSITIVITY TABLE

YIELD	On Farm Price				
tonnes/Ha	$310 /t	$335 /t	**$360 /t**	$385 /t	$410 /t
1.30	$84	$116	$149	$181	$214
1.80	$239	$284	$329	$374	$419
2.30	$394	$451	$509	$566	$624
2.80	$549	$619	**$689**	$759	$829
3.30	$704	$786	$869	$951	$1,034
3.80	$859	$954	$1,049	$1,144	$1,239
4.30	$1,014	$1,121	$1,229	$1,336	$1,444

(B) SENSITIVITY GRAPH



IRRIGATED SOYBEAN

North West Slopes and Plains **Summer 1994/95**

CALENDAR OF OPERATIONS:

Operation	Month	Machinery hrs/Ha	Machinery Cost $/hour	Machinery Total $/Ha	Inputs Rate/Ha	Inputs Cost $	Inputs Total $/Ha	Total Cost $/Ha
Cultivate - chisel	May	0.26	33.80	8.89				**8.89**
Cultivate - chisel	Jun	0.26	33.80	8.89				**8.89**
Hill-Up & Fert. (Super)	Aug	0.26	32.22	8.48	100 kg	0.24	24.00	**32.48**
Fertilize - Zinc *	Aug	contract		42.00	30 kg	1.50	45.00	**17.40**
Cultivate	Oct	0.16	33.55	5.24				**5.24**
Spray and incorporate	Nov	0.16	33.55	5.24				**5.24**
Herbicide - Trifluralin	Nov	with above			2.8 L	5.50	15.40	**15.40**
Channel maintenance	Nov							**30.00**
Pre-Irrigate	Nov				1.4 Ml	8.52	11.93	**11.93**
Sow with Planter	Dec	0.19	31.22	6.00				**6.00**
Seed	Dec	with above			65 kg	1.10	71.50	**71.50**
Inter-row cultivate	Jan	0.16	30.88	4.83				**4.83**
Irrigate	Jan				1.0 Ml	8.52	8.52	**8.52**
Irrigate	Jan				1.2 Ml	8.52	10.22	**10.22**
Irrigate	Feb				1.2 Ml	8.52	10.22	**10.22**
Irrigate	Feb				1.2 Ml	8.52	10.22	**10.22**
Insecticide - deltamethrin ULV	Feb	contract		7.00	2.5 L	8.00	20.00	**27.00**
Irrigate	Mar				1.0 Ml	8.52	8.52	**8.52**
Irrigation equip. repairs and maintenance at			$1.10/Ml					**7.70**
Harvest - own plant	Apr	0.19	26.57	4.99				**4.99**
Grains Board Levy				1.50 /t				**4.20**
Research Levy				1% of farm gate price				**10.08**

AGRONOMIC NOTES:

- * Soybean is sensitive to zinc deficiency. Zinc treatment should be included where necessary, in this example zinc is applied 1 year in 5
- deltamethrin is used for green vegetable bug control.

Use of a particular brand name does NOT imply recommendation of that brand by NSW Agriculture.

LABOUR REQUIREMENTS:

- labour is not costed in this budget. If labour costs $12.50 /hr, total labour cost would be $25.60, reducing the gross margin to $662.91 /ha.

MACHINERY ASSUMPTIONS:

Tractor: pto power: 130 kW (146 HP)
machinery costs refer to variable costs of: fuel, oil, filters, tyres, batteries and repairs.

IRRIGATION:

Water pumping costs: calculated using a flood/furrow system with diesel powered pumping from the river with a 36 metre drawdown level.

Water requirements 7.0Ml/Ha is sufficient to adequately irrigate soybeans 4 out of 5 years.

IRRIGATED MAIZE

North West Slopes and Plains **Summer 1994/95**

1. GROSS MARGIN BUDGET:

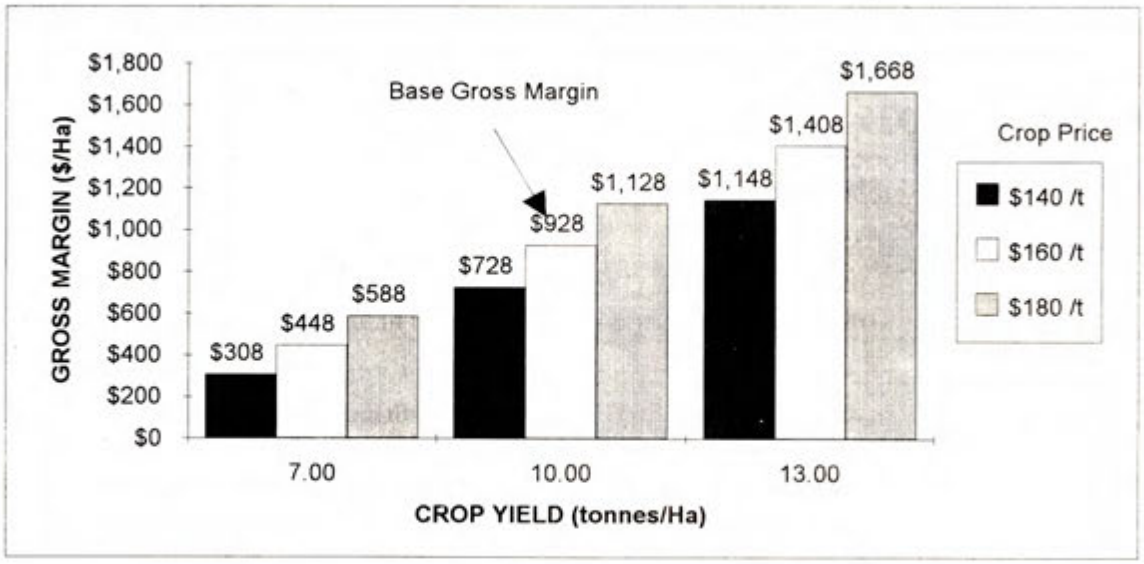
	Standard Budget $/ha	Your Budget $/ha
INCOME:		
10.00 tonnes/Ha at $160.00 /tonne (on farm)	$1,600.00	
A. TOTAL INCOME $/Ha:	**$1,600.00**	
VARIABLE COSTS:		
see opposite page for detail		
Cultivation and Sowing	$185.71	
Fertilizer	$221.99	
Herbicide	$49.97	
Insecticide	$15.80	
Irrigation	$178.75	
Harvest-Own Plant	$4.99	
Levies	$15.00	
B. TOTAL VARIABLE COSTS $/Ha:	**$672.21**	
C. GROSS MARGIN (A-B) $/Ha:	**$927.79**	

2. EFFECT OF YIELD AND PRICE ON GROSS MARGIN PER HECTARE:

(A) SENSITIVITY TABLE

YIELD	On Farm Price				
tonnes/Ha	$140 /t	$150 /t	**$160 /t**	$170 /t	$180 /t
7.00	$308	$378	$448	$518	$588
8.00	$448	$528	$608	$688	$768
9.00	$588	$678	$768	$858	$948
10.00	$728	$828	**$928**	$1,028	$1,128
11.00	$868	$978	$1,088	$1,198	$1,308
12.00	$1,008	$1,128	$1,248	$1,368	$1,488
13.00	$1,148	$1,278	$1,408	$1,538	$1,668

(B) SENSITIVITY GRAPH



IRRIGATED MAIZE

North West Slopes and Plains **Summer 1994/95**

CALENDAR OF OPERATIONS:

Operation	Month	Machinery hrs/Ha	Machinery Cost $/hour	Machinery Total $/Ha	Inputs Rate/Ha	Inputs Cost $	Inputs Total $/Ha	**Total Cost $/Ha**
Slash	May	0.26	33.80	8.89				**8.89**
Cultivate - chisel	Jun	0.26	33.80	8.89				**8.89**
Cultivate - scarifier	Jul	0.17	32.55	5.61				**5.61**
Hill-Up (or Bed)	Aug	0.26	32.22	8.48				**8.48**
Cult & Fertilize -Urea	Sep	0.16	33.55	5.24	435 kg	0.41	178.35	**183.59**
Fertilize - Zinc *	Sep	contract		42.00	30 kg	1.50	45.00	**17.40**
Channel Maintenance	Sep							**30.00**
Pre-Irrigate	Sep				1.40 Ml	25.00	35.00	**35.00**
Sow with Planter	Oct	0.19	31.22	6.00				**6.00**
Seed	Oct	with above			25 kg	5.72	143.00	**143.00**
Fertiliser - Starterfos	Oct	with above			50 kg	0.42	21.00	**21.00**
Insecticide - Counter (R)	Oct	with above			2 kg	7.90	15.80	**15.80**
Herbicide - Primextra	Oct	0.08	27.22	2.27	5.30 L	9.00	47.70	**49.97**
Inter-row cultivate	Nov	0.16	30.88	4.83				**4.83**
Irrigate	Dec				1.00 Ml	25.00	25.00	**25.00**
Irrigate	Dec				1.25 Ml	25.00	31.25	**31.25**
Irrigate	Jan				1.25 Ml	25.00	31.25	**31.25**
Irrigate	Jan				1.25 Ml	25.00	31.25	**31.25**
Irrigate	Feb				1.00 Ml	25.00	25.00	**25.00**
Irrigation equip, repairs and maintenance at			$1.10/Ml					**7.70**
Harvest - own plant	Apr	0.19	26.57	4.99				**4.99**
Grains Board Levy				1.50 /t				**15.00**

AGRONOMIC NOTES:

Sowing Time: - Maize can be sown from October onwards.

Weeds: - Spray with Primextra (R) for grass and broadleaf control.

Use of a particular brand name does NOT imply recommendation of that brand by NSW Agriculture.

- * Maize is sensitive to zinc deficiency. Zinc treatment should be included where necessary in this example zinc is applied 1 year in 5

LABOUR REQUIREMENTS:

- labour is not costed in this budget. If labour costs $12.50 /hr, total labour cost would be $27.16, reducing the gross margin to $900.63 /ha.

MACHINERY ASSUMPTIONS:

Tractor: pto power: 130 kW (146 HP)

machinery costs refer to variable costs of: fuel, oil, filters, tyres, batteries and repairs. maize requires a corn front. Ownership or running costs are not included in this budget.

IRRIGATION:

Water pumping costs: calculated using a flood/furrow system with diesel powered pumping from a bore with a 36m drawdown level.

Water requirements 7.0Ml/Ha is sufficient to adequately irrigate maize 4 out of 5 years.

IRRIGATED COTTON

North West Slopes and Plains **Summer 1994/95**

1.GROSS MARGIN BUDGET:

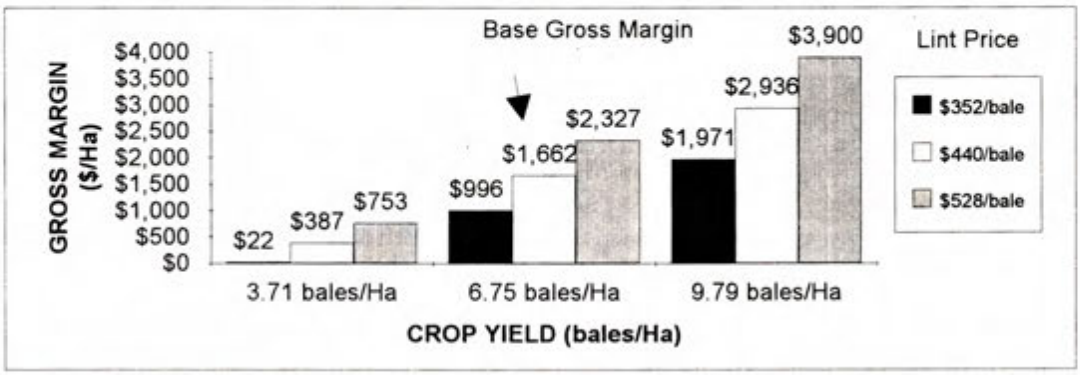
				Standard Budget $/Ha	Your Budget $/Ha
INCOME:					
6.75	bales/Ha at	$440.00	/bale (at gin)	$2,970.00	
2.23	tonnes/Ha at	$160.00	/tonne (at gin)	$356.40	
			A. TOTAL INCOME $/Ha:	**$3,326.40**	
VARIABLE COSTS: see opposite page for details					
			Cultivation	$42.95	
			Sowing	$38.10	
			Crop insurance	$55.00	
			Fertilizer & application	$84.00	
			Herbicide & application	$155.22	
			Insecticide & application	$339.34	
			Irrigation	$68.16	
			Contract harvesting	$300.00	
			Cartage to gin	$71.47	
			Ginning charges	$405.00	
			ACF and Research Levy	$18.56	
			Other	$87.00	
			B. TOTAL VARIABLE COSTS $/Ha:	**$1,664.81**	
			C. GROSS MARGIN (A-B) $/Ha:	**$1,661.59**	

2. EFFECT OF YIELD AND PRICE ON GROSS MARGIN PER HECTARE:

SENSITIVITY TABLE

YIELD bales/Ha	At Gin Price $352 /bale $128/t	$396 /bale $144/t	**$440 /bale $160/t**	$484 /bale $176/t	$528 /bale $192/t	Lint price / Seed price
3.71	$22	$205	$387	$570	$753	
4.73	$346	$579	$812	$1,045	$1,278	Gross
5.74	$671	$954	$1,237	$1,520	$1,802	Margin
6.75	$996	$1,329	**$1,662**	$1,994	$2,327	($/Ha)
7.76	$1,321	$1,704	$2,086	$2,469	$2,851	
8.78	$1,646	$2,079	$2,511	$2,943	$3,376	
9.79	$1,971	$2,453	$2,936	$3,418	$3,900	

SENSITIVITY GRAPH



IRRIGATED COTTON

North West Slopes and Plains **Summer 1994/95**

CALENDAR OF OPERATIONS:

Operation	Month	Machinery			Inputs				Total Cost $/Ha
		hrs /Ha	Cost $/hour	Total $/Ha	Rate/Ha	Band Width	Cost $	Total $/Ha	
Stalk pull and mulch	May	contract							**61.75**
Middlebusting	May	0.26	32.22	8.48					**8.48**
Fertiliser - anhydrous ammonia	May	with above			140KgN	100%	0.60	84.00	**84.00**
Herbicide - Roundup ground spray	Jun	0.08	27.22	2.27	1.0 L	100%	11.25	11.25	**13.52**
Herbicide - Roundup ground spray	Aug	0.08	27.22	2.27	1.0 L	100%	11.25	11.25	**13.52**
Pre irrigate	Sep				2.0 Ml	100%	8.52	17.04	**17.04**
Herbicide - trifluralin ground spray	Oct	0.08	27.22	2.27	2.8 L	100%	5.50	15.40	**17.67**
Crop insurance	Oct								**55.00**
Planting - precision planter	Oct	0.19	31.22	6.00					**6.00**
Planting - seed	Sep	with above			15 kg	100%	2.14	32.10	**32.10**
Herbicide - diuron ground spray	Sep	with above			2.0 L	100%	12.26	24.52	**24.52**
Insecticide - endosulfan ground spray	Oct	0.08	27.22	2.27	2.1 L	30%	6.90	4.35	**6.61**
Insecticide - BT (Dipel)	Nov	0.08	27.22	2.27	3.0 L	40%	12.50	15.00	**17.27**
Cultivation - interrow	Nov	0.16	30.88	4.83					**4.83**
Cultivation - chipping casual labour	Nov	contract		20.00					**20.00**
Insecticide - endosulfan ground spray	Nov	0.08	27.22	2.27	1.5 L	40%	6.90	4.14	**6.41**
Insecticide - BT (Dipel)	Nov	with above			1.5 L	40%	12.50	7.50	**7.50**
Cultivation - interrow	Dec	0.16	30.88	4.83					**4.83**
Insecticide - endosulfan ULV air	Dec	contract		7.00	3.0 L	100%	4.75	14.25	**21.25**
Insecticide - endosulfan ULV air	Dec	contract		7.00	3.0 L	100%	4.75	14.25	**21.25**
Insecticide - endosulfan ULV air	Dec	contract		7.00	3.0 L	100%	4.75	14.25	**21.25**
Insecticide - Larvin air	Dec	with above			1.0 L	100%	27.10	27.10	**27.10**
Irrigate	Dec				1.2 Ml	100%	8.52	10.22	**10.22**
Irrigate	Jan				1.2 Ml	100%	8.52	10.22	**10.22**
Cultivation - interrow	Jan	0.16	30.88	4.83					**4.83**
Insecticide - pyrethroid aerial	Jan	contract		7.00	0.7 L	100%	8.00	5.60	**12.60**
Insecticide - pyrethroid aerial	Jan	contract		7.00	0.7 L	100%	8.00	5.60	**12.60**
Insecticide - BT (Dipel)	Jan	with above			2.0 L	100%	12.50	25.00	**25.00**
Insecticide - Curacron	Feb	contract		7.00	3.5 L	100%	13.50	47.25	**54.25**
Insecticide - Curacron	Feb	contract		7.00	3.5 L	100%	13.50	47.25	**54.25**
Insecticide - Helix	Feb	contract		7.00	2.5 L	100%	18.00	45.00	**52.00**
Irrigate	Feb				1.2 Ml	100%	8.52	10.22	**10.22**
Irrigate	Feb				1.2 Ml	100%	8.52	10.22	**10.22**
Irrigate	Mar				1.2 Ml	100%	8.52	10.22	**10.22**
Herbicide - thidiazuron defol. (Dropp)	Mar	contract		7.00	0.2 L	100%	230.00	46.00	**53.00**
Herbicide - crop oil defoliant	Mar	with above			2.0 L	100%	2.00	4.00	**4.00**
Herbicide - salt defoliant	Mar	contract		7.00	20.0 L	100%	1.10	22.00	**29.00**
Contract picking & module building	May	contract		$200/hr @ 1.5 hrs/Ha					**300.00**
Contract cartage to gin	May	contract		$180/module @17 bales/module					**71.47**
Ginning charges	May	contract		$65/bale					**405.00**
Consultant	May	contract							**45.00**
Sterilising channels	May	contract							**30.00**
Contract delving and pushing	May	contract							**12.00**
ACF levy and Research levy	May	contract		$3/bale					**18.56**
								TOTAL COSTS:	**1664.81**

NOTES:

INSECTS:

- a soft approach to early insect control has been used to minimise the need to control secondary pests such as mites. The costs of these sprays is more expensive than conventional insecticides
- PBO and Dipel have been tank mixed with the pyrethroid sprays to control resistant heliothis.

HERBICIDES:

- fallow herbicides have been substituted for cultivation during the winter to avoid compaction.

Use of a particular brand name does NOT imply recommendation of that brand by NSW Agriculture.

MANAGEMENT:

- this budget is typical of "back to back" cotton assuming the cotton crop is in a 2 year cotton 1 year wheat rotation.

LABOUR REQUIREMENTS:

- labour is not costed in this budget. If labour costs $12.50 /hr, total labour cost would be $22.25, reducing the gross margin to $1,639.34 /ha. this still does not include labour required to irrigate.

MACHINERY ASSUMPTIONS:

Tractor: pto power: 130 kW (146 HP)
machinery costs refer to variable costs of: fuel, oil, filters, tyres, batteries and repairs.

IRRIGATION:

Water pumping costs: calculated using a flood/furrow system with diesel powered pumping from the river with a 36 metre drawdown level.

Water requirements: 8.0Ml/Ha is sufficient to adequately irrigate cotton 4 out of 5 years. This assumes no useful rainfall during the growing season.

SECTION 4: INPUT ASSUMPTIONS

CROP PRICES @ 8-Aug-94

These prices were obtained from the Marketing Intelligence Unit of NSW Agriculture.
At the date above they were regarded as likely prices for next season.
You should use a price in your gross margins which you are comfortable with.

CROP	On farm price Used in gross margins	
Sorghum	$125.00	/tonne
Sunflower	$300.00	/tonne
Cotton	$440.00	/bale
Cotton Seed	$160.00	/tonne
Maize	$160.00	/tonne
Soybean	$360.00	/tonne
Cowpeas (Poona)	$500.00	/tonne
Mungbeans (Berken)	$600.00	/tonne

SEED PRICES

SEED	Purchase from seed grower in bags $/kg	Methyl cellulose gum + inoculum $/kg	Price in Budgets $/kg
Sorghum	$4.40		$4.40
Sunflower	$6.40		$6.40
Cotton (Q/A/S/P)	$2.14		$2.14
Maize	$5.72		$5.72
Soybean (Manark,Warrigal)	$1.00	$10.00/100kg seed	$1.10
Cowpeas (Poona,Coloona)	$1.00	$10.00/100kg seed	$1.10
Mungbeans (Berken)	$1.00	$10.00/100kg seed	$1.00

HERBICIDES

Brand Name	Chemical Name	Price	Unit
Ally	Ally	$1.43	/gm
Avadex BW	Tiallete	$11.75	/litre
Atrazine	Atrazine	$4.75	/litre
Bladex	Atrazine	$14.00	/litre
Cotogard	Fluometuron+prometryn	$12.35	/litre
Daconate 80	MSMA	$10.95	/litre
D-C-Tron Crop Oil	Petroleum Oil	$2.00	/litre
Diurex 900	Diuron	$12.26	/litre
Dual	Metachlor	$17.40	/litre
Fusilade	Fluazifop	$61.40	/litre
Garlon 600	Triclopyr	$65.00	/litre
Gesagard	Prometryn	$15.25	/litre
Glean	Chlorsulfuron	$0.92	/gm
Grasp	Tralkoxydim	$21.20	/litre
Harmony M	Thifen.+Metasulfuron	$0.33	/gm
Hoegrass	Diciofop methyl	$23.00	/litre
Lontrel L	Clopyralid	$50.00	/litre
MCPA 500	MCPA amine	$5.35	/litre
Primextra	Metachlor+Atrazine	$9.00	/litre
Puma S	Fenoxaprop-ethyl	$61.25	/litre
Roundup CT	Glyphosate	$11.25	/litre
Roundup	Glyphosate	$10.25	/litre
Sertin	Sethoxydin	$30.60	/litre
Simatox 50 flocol	Simazine	$5.20	/litre
Sprayseed	Paraquat + Diquat	$7.50	/litre
Treflan	Trifluralin	$5.50	/litre
Verdict	Haloxyfop	$34.15	/litre
24D Amine	24D Amine 50%	$5.50	/litre
24D Ester	24D Ester	$10.10	/litre
24DB	24DB	$9.05	/litre

DEFOLIANTS

Brand Name	Chemical Name	Price	Unit
Agral 600	Wetting agent	$5.00	/litre
Accelerate	Endothal	$12.00	/litre
Catapult	Oleyl alcohol etc	$7.00	/litre
Dropp	Thidiazuron	$230.00	/kg
Harvade	Dimethipin	$50.00	/litre
Lane Leafex	Sodium chlorate	$1.10	/litre
Sprayseed	Paraquat+Diquat	$7.40	/litre
Prep	Ethephon	$22.00	/litre

INSECTICIDES

Brand Name	Chemical Name	Price	Unit
BT	Bacillus thuringiensis	$12.50	/litre
Counter (150g)	Terbufos	$7.90	/kg
Curacron	Profenofos	$13.50	/litre
Dominex ULV	Alpha-cypermethrin	$5.86	/litre
Deltamethrin	Decis	$8.00	/litre
Endosulfan ULV	Endosulfan	$4.75	/litre
Endosulfan EC	Endosulfan	$6.90	/litre
Folimat 800	Omethoate	$33.00	/litre
Hallmark 10 ULV	Esfenvalerate	$6.15	/litre
Helix	Chlorfluazuron	$18.00	/litre
Karate	Lambdacyhalothin	$70.00	/litre
Lannate L	Methomyl	$17.00	/litre
Larvin LV	Thiodicarb	$27.10	/litre
Larvin 375	Thiodicarb	$32.80	/litre
LeMat	Omethoate	$55.00	/litre
Lorsban	Chlorpyrifos	$20.40	/litre
Malathian 50	Maldison 50%	$7.20	/litre
Metasystox	Demeton-S-Methyl	$32.15	/litre
Parathion	Parathion-Methyl	$13.50	/litre
PBO	Piperonyl butoxide	$39.50	/litre
Pirimor	Pirimicarb	$36.80	/kg
Predator	Chlorpyrifos	$11.50	/litre
Rogor	Dimethoate	$7.70	/litre
Sumicidan	Fenvalerate	$18.50	/litre
Thiodan EC	Endosulfan	$8.20	/litre
Thiodan ULV	Endosulfan	$5.50	/litre

MISCELLANEOUS COTTON COSTS

Chipping; casual labour	$20.00	/hectare
Ginning charges	$60.00	/bale
ACF and research levy	$2.75	/bale
Contract cartage to gin	$180.00	/module
Contract picking and module building	$200.00	/hour
Contract stripping	$100.00	/hectare
Consultant	$45.00	/hectare
Contract ripping	$45.00	/hectare
Contract pull and mulch	$61.75	/hectare
Contract delving and pushing	$12.00	/hectare
Contract zinc application	$42.00	/hectare
PIX (Mepquat)	$5.00	/litre

OTHER IRRIGATION COSTS

Water pumping costs (bore)	$25.00	/megalitre
Water pumping costs (river)	$6.00	/megalitre
Water charges	$2.52	/megalitre
Irrigation equipment repairs & maintenance	$1.10	/megalitre
Channel maintenance	$30.00	/hectare

FERTILIZERS

Name	Price in bags	Unit	% element analysis N nitrogen	P phosphorous	K potassium	S sulphur	Zn zinc
PHOSPHORUS							
Single super	$0.24	/Kg		8.8		11	
Single super +MO 0.02%	$0.28	/Kg		8.8		11	
Trifos	$0.52	/Kg		20.7		1.3	
COMPOUNDS							
Starter 12 - Starterfos	$0.42	/Kg	10	21.9		2	
Starter DAP	$0.49	/Kg	18	20		2	
Starter 15	$0.49	/Kg	13.9	12.7		11	
Greentop	$0.38	/Kg	17.5	4.9		18.6	
Grower 11	$0.47	/Kg	9.4	14.2	9.3	5	
NITROGEN							
Urea (granular)	$0.41	/Kg	46				
Nitram	$0.41	/Kg	34				
Sulphate of ammonia	$0.33	/Kg	21			24	
Gran am	$0.38	/Kg	20			24	
Anhydrous ammonia	$0.60	/Kg	82				
POTASSIUM							
Muriate of Potash	$0.44	/Kg			50		
ZINC							
Zinc Oxide	$1.50	/Kg					75
Zinc Sulphate Heptahydrate	$1.30	/Kg					24

DIESEL FUEL PRICES

Below is an example of how the on farm diesel price used in these budgets is derived for this region, for those holding a State Diesel Fuel Tax exemption form.

Forms for both the Commonwealth rebate and the State exemption should be available at your local fuel depot. However they can be obtained by writing to (or phoning):

STATE EXEMPTION FORM
Office of State Revenue
Client Service Division
Postal Bag 5215
Parramatta 2150 NSW

PHONE: (02) 689 6507

COMMONWEALTH REBATE
Diesel fuel rebate section
GPO Box 470
Sydney 2001 NSW

PHONE: (02) 213 2000

Calculation of the on farm diesel price:	**$/litre**
POST LESSE PRICE:	0.647
FREIGHT	0.028
MARGIN	0.003
GROSS PRICE (BOWSER PRICE):	0.705
LESS STATE REBATE	0.0657
LESS FEDERAL REBATE	0.24
ON FARM DIESEL PRICE:	**0.3993**

GUIDE TO TRACTOR AND IMPLEMENT COSTS

57 KW PTO (76 HP) AND 63 KW ENGINE (86 HP)

Example tractor : John Deere 6300 (57 kW pto) + air cond +front wheel assist

Replacement:	$61,000	list price no trade	Yearly work:	800 hrs/yr	
Trade-in price:	45%of new =	$27,450	Age at trade-in:	5000 hrs =	6.25 years
Interest rate:	15%				

Tractor Overhead Costs	per year cost	per hour cost	
Depreciation = ($61000-$27450)/6.25 =	$5,368	$5,368 /800hrs/yr=	$6.71
Interest = (($61000+$27450)/2)*15% =	$6,634	$6,634 /800hrs/yr=	$8.29
Insurance =(($10/$1000)*($61000+$27450)/2) =	$442	$442 /800hrs/yr=	$0.55
		Tractor Overhead Costs:	**$15.56/hr**

Tractor Variable Costs

Item	No.	Cost	Use	Variable Costs Summary		
Diesel fuel		$0.40/L	15 L/hr	FUEL:	$5.99/hr	
Engine oil		$2.36/L	10L/250hrs			
Transmission oil		$2.36/L	100L/1200hrs	OIL:	$0.29/hr	
Air filter - inner	1	$77/filter	500 hrs/filter			
Air filter - outer	1	$56/filter	500 hrs/filter			
Fuel filter	1	$13/filter	500 hrs/filter			
Hydraulic oil filter	1	$32/filter	500 hrs/filter			
Oil filter	1	$7/filter	250 hrs/filter			
Transmission filter	1	$9/filter	500 hrs/filter	FILTERS:	$0.25/hr	
Tyres large 18.4*34	2	$720/tyre	3500 hrs/tyre			
Tyres small 13.6*24	2		3500 hrs/tyre	TYRES:	$0.41/hr	
Tubes - large	2	$79/tube	6000 hrs/tube			
Tubes - small	2		6000 hrs/tube	TUBES:	$0.03/hr	
Batteries	2	$108/battery	3yrs/battery	BATTERIES:	$0.09/hr	
Repairs		3%of new	tractor price/yr	REPAIRS:	$2.29/hr	
				Tractor Variable Costs:		**$9.34/hr**

TOTAL Tractor Costs per hour: **$24.90/hr**

(Based on 800 hours work per year)

Example Implements:

	(a)New price	(b)Trade-in 35% of new	(c)Work hours/yr	(d)Trade-in age
Disc plough: 3.0m width; 8km/hr; 2ha/hr	$14,000	$4,900	200	9 years
Scarifier: 3.7m width; 8km/hr; 2.4ha/hr	$15,000	$5,250	250	9 years
Combine: 5m width; 10km/hr; 2.5ha/hr	$31,500	$11,025	150	9 years
Spray unit: 12.2m width; 10km/hr; 9.8ha/hr	$11,500	$4,025	150	9 years

Implement	Overhead Costs (e)Depreciation (a-b)/d	(f) Interest ((a+b)/2)X15%	Variable Cost (g)Repair $/yr 5% of new price	**Variable cost/hour g/c**	**Yearly Cost (h) e+f+g**	**Hourly Cost h/c**
Disc plough	$1,011	$1,418	$700	**$3.50**	$3,129	**$15.64**
Scarifier	$1,083	$1,519	$750	**$3.00**	$3,352	**$13.41**
Combine	$2,275	$3,189	$1,575	**$10.50**	$7,039	**$46.93**
Spray unit	$831	$1,164	$575	**$3.83**	$2,570	**$17.13**

ıctor and Implement Combinations	**Variable Costs used in budgets (based on hours/yr work as above)**	**Speed**
Tractor + Disc plough:	**$12.84/hr**	**0.50 hrs/Ha**
Tractor + Scarifier	**$12.34/hr**	**0.42 hrs/Ha**
Tractor + Combine:	**$19.84/hr**	**0.40 hrs/Ha**
Tractor + Spray unit:	**$13.18/hr**	**0.10 hrs/Ha**

GUIDE TO TRACTOR AND IMPLEMENT COSTS

70 KW PTO (94 HP) AND 82 KW ENGINE (110 HP)
Example tractor : Case IH 5140 (70 kW pto) 2wd + air cond.cab

New price: $81,000 — Yearly work: 800 hrs/yr
Trade-in price: 45%of new = $36,450 — Age at trade-in: 5000 hrs = 6.25 years
Interest rate: 15%

Tractor Overhead Costs	per year cost	per hour cost	
Depreciation = ($81000-$36450)/6.25 =	$7,128	$7,128 /800hrs/yr=	$8.91
Interest = (($81000+$36450)/2)*15% =	$8,809	$8,809 /800hrs/yr=	$11.01
Insurance =(($10/$1000)*($81000+$36450)/2) =	$587	$587 /800hrs/yr=	$0.73
		Tractor Overhead Costs:	**$20.66/hr**

Tractor Variable Costs

Item	No.	Cost	Use	Variable Costs Summary	
Diesel fuel		$0.40/L	19 L/hr	FUEL:	$7.43/hr
Engine oil		$2.60/L	15L/250hrs		
Transmission oil		$2.86/L	76L/1000hrs	OIL:	$0.37/hr
Air filter - inner	1	$68/filter	500 hrs/filter		
Air filter - outer	1	$57/filter	500 hrs/filter		
Fuel filter	1	$34/filter	500 hrs/filter		
Hydraulic oil filter	1	$81/filter	1000 hrs/filter		
Oil filter	1	$13/filter	250 hrs/filter		
Trans.oil filter	1	$52/filter	1000 hrs/filter		
Transmission filter	1	$22/filter	1000 hrs/filter	FILTERS:	$0.41/hr
Tyres large23.1*30	2	$990/tyre	3500 hrs/tyre		
Tyres small 11*16	2	$220/tyre	3500 hrs/tyre	TYRES:	$0.69/hr
Tubes - large	2	$135/tube	6000 hrs/tube		
Tubes - small	2	$25/tube	6000 hrs/tube	TUBES:	$0.05/hr
Batteries	2	$140/battery	3yrs/battery	BATTERIES:	$0.12/hr
Repairs		3%of new	tractor price/yr	REPAIRS:	$3.04/hr
				Tractor Variable Costs:	**$12.11/hr**

TOTAL Tractor Costs per hour: **$32.76/hr**

(Based on 800 hours work per year)

Example Implements:

	(a)New price	(b)Trade-in 35% of new	(c)Work hours/yr	(d)Trade-in age
Disc plough: 4m width; 8km/hr; 2.4ha/hr	$16,000	$5,600	200	9 years
Scarifier: 4.1m width; 8km/hr; 2.9ha/hr	$15,000	$5,250	250	9 years
Wideline: 7.78m width; 10km/hr; 6.2ha/hr	$24,250	$8,488	250	9 years
Combine: 5m width; 10km/hr; 3.2ha/hr	$31,500	$11,025	150	9 years
Spray unit: 12.2m width; 10km/hr; 9.8ha/hr	$12,000	$4,200	150	9 years

Implement	Overhead Costs (e)Depreciation (a-b)/d	(f) Interest ((a+b)/2)X15%	Variable Costs (g)Repair $/yr 5% of new price	**Variable cost/hour g/c**	Yearly Cost (h) e+f+g	**Hourly Cost h/c**
Disc plough	$1,156	$1,620	$800	**$4.00**	$3,576	**$17.88**
Scarifier	$1,083	$1,519	$750	**$3.00**	$3,352	**$13.41**
Wideline	$1,751	$2,455	$1,213	**$4.85**	$5,419	**$21.68**
Combine	$2,275	$3,189	$1,575	**$10.50**	$7,039	**$46.93**
Spray unit	$867	$1,215	$600	**$4.00**	$2,682	**$17.88**

:tor and Implement Combinations	**Variable Costs used in budgets (based on hours/yr work as above)**	**Speeds**
Tractor + Disc plough:	**$16.11/hr**	**0.42 hrs/Ha**
Tractor + Scarifier	**$15.11/hr**	**0.34 hrs/Ha**
Tractor + Wideline:	**$16.96/hr**	**0.16 hrs/Ha**
Tractor + Combine:	**$22.61/hr**	**0.31 hrs/Ha**
Tractor + Spray unit:	**$16.11/hr**	**0.08 hrs/Ha**

GUIDE TO TRACTOR AND IMPLEMENT COSTS

130 KW PTO (175 HP) AND 146 KW ENGINE (196 HP)

Example tractor : John Deere 4760 (130 kW pto) linkage tractor fwd + cab + air cond+ front wheel assist

New price:	$115,000	no trade	Yearly work:	800 hrs/yr	
Trade-in price:	45%of new =	$51,750	Age at trade-in:	5000 hrs =	6.25 years
Interest rate:	15%				

Tractor Overhead Costs	**per year cost**	**per hour cost**	
Depreciation = ($115000-$51750)/6.25 =	$10,120	$10,120 /800hrs/yr=	$12.65
Interest = (($115000+$51750)/2)*15% =	$12,506	$12,506 /800hrs/yr=	$15.63
Insurance =(($10/$1000)*($115000+$51750)/2) =	$834	$834 /800hrs/yr=	$1.04
		Tractor Overhead Costs:	**$29.33/hr**

Tractor Variable Costs

Item	No.	Cost	Use	Variable Costs Summary		
Diesel fuel		$0.40/L	36 L/hr	FUEL:	$14.40/hr	
Engine oil		$2.29/L	21L/200hrs			
Transmission oil		$2.37/L	122L/1000hrs	OIL:	$0.53/hr	
Air filter - inner	1	$60/filter	800 hrs/filter			
Air filter - outer	1	$135/filter	800 hrs/filter			
Fuel filter	1	$15/filter	400 hrs/filter			
Hydraulic oil filter	1	$50/filter	400 hrs/filter			
Oil filter	1	$20/filter	400 hrs/filter			
Transmission filter	1	$8/filter	1000 hrs/filter			
Transmission oil filter	1	$38/filter	1000 hrs/filter	FILTERS:	$0.33/hr	
Tyres- large 24.5*32	4	$2,500/tyre	3000 hrs/tyre			
Tyres- small 16.9 * 28	2	$250/tyre	1500 hrs/tyre	TYRES:	$3.67/hr	
Tubes - large	4	$255/tube	6000 hrs/tube			
Tubes - small	2	$30/tube	3000 hrs/tube	TUBES:	$0.19/hr	
Batteries	2	$140/battery	3yrs/battery	BATTERIES:	$0.12/hr	
Repairs		3%of new	tractor price/yr	REPAIRS:	$4.31/hr	
				Tractor Variable Costs:		**$23.55/hr**
				TOTAL Tractor Costs per hour:		**$52.87/hr**
				(Based on 800 hours work per year)		

Example Implements:	(a)New price	(b)Trade-in 35% of new	(c)Work hours/yr	(d)Trade-in age
Chisel plough: 7m wide;8km/hr;3.8ha/hr	$41,000	$14,350	200	9 years
Scarifier: 9m wide; 8km/hr;5.8ha/hr	$45,000	$15,750	250	9 years
Wideline: 12.2m wide; 10km/hr;9.8ha/hr	$49,000	$17,150	250	9 years
Air seeder+harrows:14.1m,10km/hr; 9.2ha/hr	$73,370	$25,680	150	9 years
Spray unit: 12.2m width; 10km/hr; 9.2ha/hr	$11,000	$3,850	150	9 years
Rolling cultivator: 8.0m width; 10km/hr; 6.4ha/hr;	$20,000	$7,000	100	9 years
Interrow cultivator: 8.0m width: 10km/hr; 6.4ha/hr;	$22,000	$7,700	150	9 years
Middle busting rig: 8.0m width: 6km/hr: 3.8ha/hr;	$26,000	$9,100	150	9 years
Planter: 8.0m width: 8km/hr: 10km/hr: 5.2ha/hr;	$23,000	$8,050	150	9 years
Header: 7.6 m width: 10km/hr; 5.32ha/hr				

Implement	Overhead Costs (e)Depreciation (a-b)/d	(f) Interest ((a+b)/2)X15%	Variable Costs (g)Repair $/yr 5% of new price	**Variable cost/hour g/c**	(h)Total cost/year e+f+g	**Total cost/hour h/c**
Chisel plough	$2,961	$4,151	$2,050	**$10.25**	$9,162	**$45.81**
Scarifier	$3,250	$4,556	$2,250	**$9.00**	$10,056	**$40.23**
Wideline	$3,539	$4,961	$2,450	**$9.80**	$10,950	**$43.80**
Combine	$5,299	$7,429	$3,669	**$24.46**	$16,396	**$109.31**
Spray unit	$794	$1,114	$550	**$3.67**	$2,458	**$16.39**
Rolling cultivator	$1,444	$2,025	$1,000	**$10.00**	$4,469	**$44.69**
Inter-row cultivator	$1,589	$2,228	$1,100	**$7.33**	$4,916	**$32.78**
Bed renovator	$1,878	$2,633	$1,300	**$8.67**	$5,810	**$38.74**
Planter	$1,661	$2,329	$1,150	**$7.67**	$5,140	**$34.27**

GUIDE TO HEADER COSTS

JD 9400 7.6 metre front

Variable Costs

Fuel:	18 L/hr	at $0.40/litre	$7.20
Oil and Filters:		Various change periods	$0.47
Repairs and Maint.	2%	of new price per 200 hrs	$18.90
		Total Variable Costs per Hour	**$26.57**

Overhead Costs

Header: new price	$189,000	delivered		
	20%	repl. value at 10 years		
	200	hours worked per year		
Depreciation:			$15,120	
Interest:	11.50%	of mean value of $113,400	$13,041	
Insurance:	6.92	per $1,000 on average value	$785	
		Total per 200 hours	$28,946	
		Total Overhead Costs per Hour		**$144.73**

Total Overhead and Operating Costs	**$171.30**

VARIABLE COSTS USED IN BUDGET

(based on hours/yr work as above)

	Cost	Speed
Tractor +Chisel Plough:	**$33.80/hr**	**0.26 hrs/Ha**
Tractor + Scarifier:	**$32.55/hr**	**0.17 hrs/Ha**
Tractor + Wideline:	**$33.35/hr**	**0.10 hrs/Ha**
Tractor + Air seeder + Harrows:	**$48.01/hr**	**0.11 hrs/Ha**
Tractor + Spray unit:	**$27.22/hr**	**0.08 hrs/Ha**
Tractor + Rolling cultivator:	**$33.55/hr**	**0.16 hrs/Ha**
Tractor + Inter-row cultivator:	**$30.88/hr**	**0.16 hrs/Ha**
Tractor + Bed renovator:	**$32.22/hr**	**0.26 hrs/Ha**
Tractor + Planter:	**$31.22/hr**	**0.19 hrs/Ha**
Header:	**$26.57/hr**	**0.19 hrs/Ha**

GUIDE TO TRACTOR AND IMPLEMENT COSTS

4wd, 250 KW ENGINE (335 HP)
Example tractor : Case IH 9270

New price: $177,740
Trade-in price: 45%of new = $79,983
Interest rate: 15%

Yearly work: 800 hrs/yr
Age at trade-in: 5000 hrs = 6.25 years

Tractor Overhead Costs	**per year cost**	**per hour cost**	
Depreciation = ($177740-$79983)/6.25 =	$15,641	$15,641 /800hrs/yr=	$19.55
Interest = (($177740+$79983)/2)*15% =	$19,329	$19,329 /800hrs/yr=	$24.16
Insurance =(($10/$1000)*($177740+$79983)/2) =	$1,289	$1,289 /800hrs/yr=	$1.61
		Tractor Overhead Costs:	**$45.32/hr**

Tractor Variable Costs

Item	No.	Cost	Use	Variable Costs Summary		
Diesel fuel		$0.40/L	46 L/hr	FUEL:	$18.40/hr	
Engine oil		$2.29/L	42L/250hrs			
Transmission oil		$2.37/L	122L/1200hrs	OIL:	$0.62/hr	
Air filter-inner	1	$58/filter	200 hrs/filter			
Air filter-outer	1	$167/filter	200 hrs/filter			
Fuel filter	1	$48/filter	200 hrs/filter			
Hydraulic oil filter	1	$50/filter	200 hrs/filter			
Oil filter	1	$20/filter	200 hrs/filter			
Transmission filter	1	$8/filter	200 hrs/filter			
Trans. oil filter	1	$38/filter	200 hrs/filter	FILTERS:	$1.11/hr	
Tyres - large	8	$2,500/tyre	2500 hrs/tyre			
Tyres - small	0	$0/tyre	2500 hrs/tyre	TYRES:	$8.00/hr	
Tubes - large	8	$300/tube	6000 hrs/tube			
Tubes - small	0	$0/tube	6000 hrs/tube	TUBES:	$0.40/hr	
Batteries	1	$200/battery	2000hrs/battery	BATTERIES:	$0.10/hr	
Repairs		3%of new	tractor price/yr	REPAIRS:	$6.67/hr	
				Tractor Variable Costs:		**$35.30/hr**
				TOTAL Tractor Costs per hour:		**$80.62/hr**

(Based on 800 hours work per year)

Example Implements:

	(a)New price	(b)Trade-in 35% of new	(c)Work hours/yr	(d)Trade-in age
Offset Disc: 10.2m wide; 7ha/hr	$41,915	$14,670	200	9 years
Chisel plough: 10.70m wide; 7.28ha/hr	$48,814	$17,085	200	9 years
Cultivator: 15.8m wide; 12ha/hr	$42,750	$14,963	250	9 years
Air seeder: 14.1m wide, 9.92ha/hr	$73,370	$25,680	150	9 years
Spray unit: 18m wide; 13.45ha/hr	$15,475	$5,416	150	9 years
Header: 9m wide; 6.3ha/hr				

Implement	Overhead Costs (e)Depreciation (a-b)/d	(f) Interest ((a+b)/2)X15%	Variable Costs (g)Repair $/yr 3% of new price	**Variable cost/hour g/c**	(h)Total cost/year e+f+g	**Total cost/hour h/c**
Offset Disc	$3,027	$4,244	$2,096	**$10.48**	$9,367	**$46.83**
Chisel plough	$3,525	$4,942	$2,441	**$12.20**	$10,909	**$54.54**
Cultivator	$3,088	$4,328	$2,138	**$8.55**	$9,553	**$38.21**
Air seeder	$5,299	$7,429	$3,669	**$24.46**	$16,396	**$109.31**
Spray unit	$1,118	$1,567	$774	**$5.16**	$3,458	**$23.05**

GUIDE TO HEADER COSTS

Case IH 1688 (axial flow) 9.0 metre front

Variable Costs

Fuel:	30 L/hr	at $0.40/litre	$12.00
Oil and Filters:		Various change periods	$0.53
Repairs and Maint.	2%	of new price per 200 hrs	$20.13
		Total Variable Costs per Hour	**$32.66**

Overhead Costs

Header: new price	$201,260	delivered		
	20%	repl. value at 10 years		
	200	hours worked per year		
Depreciation:			$16,101	
Interest:	11.50%	of mean value of	$120,756	$13,887
Insurance:	6.92	per $1,000 on average value		$836
		Total per 200 hours		$30,823
		Total Overhead Costs per Hour		**$154.12**

Total Overhead and Operating Costs	**$186.77**

VARIABLE COSTS USED IN BUDGET

(based on hours/yr work as above)

	Cost	Speed
Tractor + Offset Disc:	**$45.78/hr**	**0.13 hrs/Ha**
Tractor + Chisel Plough:	**$47.50/hr**	**0.14 hrs/Ha**
Tractor + Cultivator:	**$43.85/hr**	**0.09 hrs/Ha**
Tractor + Air seeder:	**$59.75/hr**	**0.10 hrs/Ha**
Tractor + Spray unit:	**$40.46/hr**	**0.07 hrs/Ha**
Header:	**$32.66/hr**	**0.16 hrs/Ha**

NSW Agriculture & Fisheries
IRRIGATION MANAGEMENT SERVICE - TAMWORTH

PUMP EFFICIENCY

This is the amount of usable work done by the pump as a percentage (%) of power delivered to the pump shaft and is determined by the pump manufacturer under factory testing.

Pumps with a reduced efficiency of 20% have a 25% increase in power usage.

HOW TO CALCULATE THE EFFICIENCY OF YOUR PUMP

1. Record the pumping rate from your flow meter: - litres per secod.
2. Record kilowatts of electrical energy from your eletricity meter as described by the leaflet on Electrical Energy Costs
3. Record the operational pressure reading from the pump pressure gauge.
4. Measure the suction lift in metres (vertical distance between the pumping water level and the pump).
5. Calculate pump efficiency.

$$Pe = \frac{.98 \times Q \times H}{kW \times Me \times Df}$$

Pe = pump efficiency as a %
Q = pump discharge in litres/sec
H = total pump head in metres
kW = electrical kilowatts
Me = motor efficiency as a decimal (from manufacturer's sheets)
22-55 kW output: use 0.90
75 kW and over: use 0.92
Df = drive factor = $\frac{100 - \text{estimated drive loss \%}}{100}$
(Drive loss examples: V-belt 7%, flat belt 12%, gear 5%)

CALCULATIONS	EXAMPLE		YOUR PUMP
1. Pump rate: litres per second	Q	30	
2. Electrical Energy from Page No. 5	kW	55	
3. Pressure gauge: 1025 kPa x 0.102	m	104.55	
4. Suction lift.	m	4	
Total Head	H	108.55	
5. Motor Efficiency 60 kW motor.	Me	0.92	
6. Transmission: vee belt Pump efficiency Pe = $\frac{0.98 \times Q \times H}{kW \times Me \times Df}$	Df Pe	0.93 $\frac{.96 \times 30 \times 108.55}{55 \times 0.92 \times 0.93}$ 66%	_____

NOTE : Compare Pe on your pump curve to determine efficiency loss from wear and tear.

: Accurate measurement of pumping rate Q is required for specific assessment of pump efficiency and performance.

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ELECTRICAL ENERGY COSTS

NAME ..... ADDRESS .....

IRRIGATION SYSTEM : SPRAYLINE .....TRAVELLING SPRINKLER/BOOM.....FLOOD.....

HOW TO MONITOR ENERGY COSTS OF YOUR ELECTRICALLY DRIVEN IRRIGATION PUMP:

1. Record pumping rate from your flow meter: = litres per second
2. Record kilowatts of electrical energy from your electricity meter:
   - R = Revs/kWh as marked on meter
   - M = Multiplier as marked on meter
   - N = Number of disc revolutions
   - T = Time of test in seconds (use stop watch)

Calculate electrical kilowatt hours per Megalitre of water pumped = kWh/Ml

EXAMPLE	YOUR READINGS
Flow rate from flow meter = 30 litres per second	_____ = litres per second
Electricity meter R = Revs/kWh as marked on meter = 266.6 M = Multiplier as marked on meter = 40 N = Number of disc revolutions = 10 T = 98 seconds	R = _____ M = _____ N = _____ T = _____
Then 1. kW (Electricity)	**YOUR CALCULATION**
$= \frac{N \times 3600 \times M}{R \times T}$	$= \frac{N \times 3600 \times M}{R \times T}$
$= \frac{10 \times 3600 \times 40}{266.6 \times 98}$ = 55 kW (Electrical)	$= \frac{\quad \times 3600 \times \quad}{\times}$ = _____ kW (Electrical)
2. PUMP CALIBRATION	**YOUR CALCULATION**
$= \frac{\text{kW (Electrical)}}{\text{Flow rate} \times 0.0036}$ $= \frac{55}{30 \times 0.0036}$ = 509 kWh/Ml	$= \frac{\text{kW (Electrical)}}{\text{Flow rate} \times 0.0036}$ $= \frac{\quad}{\quad \times 0.0036}$ = _____ **kWh/Ml**
3. ELECTRICAL COST	**YOUR ELECTRICAL COST**
Average "time of use" tariff (example attached) = 9.55 cents per unit. $ per Megalitre = 509 x $0.0955 = $ 48.60	Average "time of use" tariff (example attached) = ... cents per unit. **$ per Megalitre** = ... x ..... = $.....

NOTE: Three(3) phase units may have a single polyphase meter or three(3) meters (one for each phase). In the latter case each meter is to be read and the individual kW's totalled.

* : Monitor your energy costs regularly to determine any significant change in operation to indicate pump maintenance.

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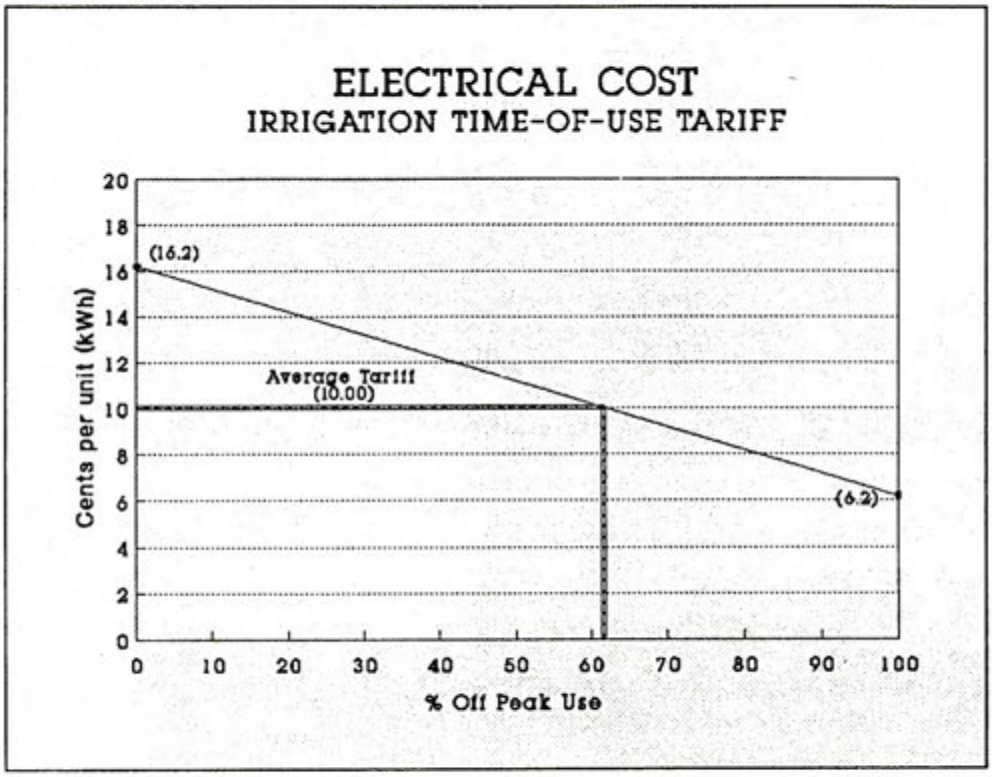

i. 7.00am - 10.00pm Working week days @ 16.20 cents per unit.

ii. All other times including weekends and public holidays @ 6.20 cents per unit.

Consider 20 hours per day per week

i.e.	Total off peak time	=	85 hours
	Total on peak time	=	55 hours
	Total pumping time per week	=	140 hours

$$\% \text{ of off peak use} = \frac{85}{140} \times \frac{100}{1} = 60.7\%$$

Read from graph average tariff = 10.00 cents per unit.

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DIESEL ENGINE ENERGY COSTS

NAME ..... ADDRESS .....

IRRIGATION SYSTEM : SPRAYLINE .....TRAVELLING SPRINKLER/BOOM.....FLOOD.....

HOW TO MONITOR ENERGY COSTS OF YOUR DIESEL ENGINE DRIVEN IRRIGATION PUMP:

1. Record pumping rate from your flow meter: = litres per second
2. Record volume of distillate used over a fixed period: = litres per hour
3. Determine : litres of distillate used per megalitre of water pumped
   = litres per megalitre
4. Calculate : Energy cost = $..... per megalitre

EXAMPLE	YOUR READINGS
Pumping rate from flow meter = 30 litres per second **Q**	Pumping rate from flow meter _____ = litres per second **Q**
Time to pump 1 Megalitre $= \frac{10^6}{Q \times 3600}$ $= \frac{1000000}{30 \times 3600}$ = 9.3 hours **A**	Time to pump 1 Megalitre $= \frac{10^6}{Q \times 3600}$ $= \frac{1000000}{..... \times 3600}$ = ... hours **A**
DIESEL ENGINE	**YOUR CALCULATION**
Time monitored = 100 hours = H Fuel usage = 1530 litres = L Litres per hour = $\frac{L}{H}$ = $\frac{1530}{100}$ = 15.3 **B**	_____ = hours H _____ = litres L Litres per hour = $\frac{L}{H}$ = _____ = **B**
Litres of distillate per Megalitre = A x B = 9.3 x 15.3 = 142 litres/Ml **C**	Litres of distillate per Megalitre = A x B = ... x ..... = ...litres/Ml **C**
DISTILLATE COST	**YOUR DISTILLATE COST**
Nett on Farm cost of 40 cents per litre = 40 cents **D** = $ 0.40 $ per Megalitre = C x D = 142 x 0.40 = $ 56.80	Nett on Farm costs of ..... cents per litre = ... cents **D** = $..... $ per Megalitre = C x D = ... x ..... = $ _____

NOTE : Monitor your energy costs regularly to determine any significant change in operation to indicate pump wear.

TABLE 3

IRRIGATION ENERGY COSTS																		
Installation	Cost/Ha	Assumed Pumping Head T.D.H. (metres)					Pumping Costs $ per Megalitre											
Irrigation System	$	Static Lift	Pipe Friction	Hose Loss	Operating Pressure	Total Head T.D.H.(Metres)	Electricity Cost per kWh @ cents = $						Diesel Cost per litre @ cents = $					
							4	6	8	10	12	14	30	35	40	45	50	55
Flood Furrow (River)	500-1000	10				10	1.85	2.80	3.70	4.60	5.55	6.50	3.90	4.60	5.20	5.90	6.50	7.20
Flood Furrow (Bore)	1200-1500	40	5			45	8.30	12.50	16.60	20.80	24.90	29.10	17.60	20.50	23.50	26.40	29.40	32.30
Pivot or Linear move low pressure	1500-2500	20	10		10	40	7.40	11.10	14.80	18.50	22.15	25.80	15.70	18.30	20.90	23.50	26.10	28.70
Drip/Jet spray	3000-5000	25	15		10	50	9.20	13.85	18.50	23.10	27.70	32.30	19.60	22.80	26.10	29.30	32.60	35.90
Spray (River)	1500-2500	10	15		30	55	10.20	15.20	20.30	25.40	30.50	35.50	21.50	25.10	28.70	32.30	35.90	39.50
Spray (Bore)	1800-3000	20	15		30	65	12.00	18.00	24.00	30.00	36.00	42.00	25.40	29.70	33.90	38.20	42.40	46.60
Traveller (River) Medium Pressure	2000-2500	30	15	10	30	85	15.70	23.50	31.40	39.20	47.10	54.90	33.30	38.80	44.40	49.90	55.40	61.00
Traveller (Bore) Medium Pressure	1800-2800	35	15	10	30	90	16.60	24.90	33.20	41.50	49.80	58.10	35.20	41.10	47.00	52.80	58.70	64.60
Traveller High Pressure	1800-2500	30	15	15	60	120	22.10	33.20	44.30	55.40	66.40	77.50	47.00	54.80	62.60	70.40	78.30	86.10

NOTE :

Assumed pump efficiency = 70%
Assumed fuel consumption = 220 g/kWh = 0.26 litre/kWh
Derating factors: Electric 14% : Diesel 20%
Diesel cost per litre as nett on farm cost
The above schedule is to be used only as a guide. Each pumping installation should be individually assessed.

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