

LUCERNE: Establishment (Flood Irrigated - Border Check)

Irrigated Winter - 2009

Murray Valley &
Murrumbidgee Valley

1. GROSS MARGIN BUDGET:

INCOME:

5.0 t/ha @	\$350 /tonne ON FARM
3.0 t/ha @	\$250 /tonne ON FARM
8.0 t/ha @	\$313 /tonne ON FARM *

(4 cuts @ 2 t/ha/cut)

Standard Budget \$/ha	Your Budget \$/ha
\$1,750	
\$750	

A. TOTAL INCOME \$/ha:

\$2,500

VARIABLE COSTS:

See following page for detail

Cultivation.....	\$75
Sowing.....	\$117
Fertiliser.....	\$267
Fungicide.....	\$6
Herbicide.....	\$53
Insecticide.....	\$15
Mow, rake and bale.....	\$640
Cartage & stacking.....	\$384
Irrigation.....	\$294
B. TOTAL VARIABLE COSTS \$/ha:	\$1,851

C. GROSS MARGIN (A-B) \$/ha:

\$649

D. GROSS MARGIN \$/ML:*

\$81

* Note. The method of calculation of gross margin per ML for the Murrumbidgee budgets varies because of the difficulty of identifying an alternative dryland alternative on specialist flood irrigated land. It is recommended where farmers can identify a dryland alternative that they subtract the gross margin of the dryland alternative from the gross margin of the irrigated crop and then divide by the number of ML. This will give a better indication of the contribution the irrigation water has made to increasing returns.

SENSITIVITY TABLES

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

YIELD tonnes/ha	ON FARM PRICE (\$/tonne)					Gross Margin (\$/ha)
	\$213 /t	\$263 /t	\$313 /t	\$413 /t	\$513 /t	
5.00	-\$597	-\$347	-\$97	\$403	\$903	
6.00	-\$448	-\$148	\$152	\$752	\$1352	
7.00	-\$300	\$50	\$400	\$1100	\$1800	
8.00	-\$151	\$249	\$649	\$1449	\$2249	←
9.00	-\$3	\$447	\$897	\$1797	\$2697	
10.00	\$146	\$646	\$1146	\$2146	\$3146	
11.00	\$294	\$844	\$1394	\$2494	\$3594	

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CALENDAR OF OPERATIONS:		Machinery			Inputs			Total Cost
Operation	Month	hrs/ha	Cost \$/hour	Total \$/ha	Rate/ha	Cost \$	Total \$/ha	\$/ha
Plough	Dec	0.22	\$48.80	\$10.89				\$10.89
Off-set disc	Jan	0.35	\$42.85	\$14.88				\$14.88
Scarify	Feb/Mar	0.17	\$45.05	\$7.71				\$7.71
Pre-emergent weed spray (<i>eg. trifluralin</i>)	Apr	contract		\$10.00	1.70 L/ha	\$8.45/L	\$14.37	\$24.37
Harrow (x 2)		0.17	\$62.38	\$20.97				\$41.94
Sow	Apr/May	0.17	\$62.38	\$10.48	12kg/ha	\$8.80/kg	\$105.60	\$116.08
Seed inoculation		with above			12kg/ha	\$0.05/kg	\$0.60	\$0.60
Fungicide seed treatment (eg. Metalaxyl)		with above			150 mL/100kg seed	\$0.32/mL	\$5.80	\$5.80
Phosphorus fertiliser (<i>eg. single super</i>)		with above			300kg/ha	\$0.890/kg	\$267.00	\$267.00
Insect & mite spray (<i>eg. Boom spray bifenthrin</i>)	May	contract		\$10.00	0.10 L/ha	\$54.66/L	\$5.47	\$15.47
Broadleaf weed spray (<i>eg. 2,4- DB</i>)	May/June	contract		\$10.00	2.10 L/ha	\$8.70/kg	\$18.27	\$28.27
Mowing and baling	Oct-Apr	contract	320.00	bales/ha @	2.00 \$/bale			\$640.00
Cartage & stacking	Oct-Apr	contract	320.00	bales/ha @	1.20 \$/bale			\$384.00
Irrigation*	Sep - Mar				8.0ML/ha	\$36.78/ML	\$294.20	\$294.20

AGRONOMIC NOTES:	See NSW DPI publications: "Lucerne for Pasture and Fodder" "Irrigated Lucerne" and "Weed Control in Lucerne and Pastures"
Prices	<ul style="list-style-type: none"> - Domestic hay prices fluctuate widely depending on supply and demand. - Prices are estimated and GST-exclusive. Prices during years of abundance range between \$150 -250/tonne. - During drought years prices may rise to \$300-600/ t. Prices used here reflect the current drought. - Higher prices are generally achieved during early winter. Good storage helps to achieve better prices. - prices based on small bales - price per bale basis (between \$6-8 /bale). Small bales often receive higher returns than larger bales. Larger bales are cheaper to bale and transport.
Rotation	<ul style="list-style-type: none"> - Expected stand life 3 - 5 years for hay production. Lucerne fixes nitrogen for use by subsequent crops. - Don't sow lucerne after lucerne. Rotate with cereals to avoid insect & disease problems.
Layouts	<ul style="list-style-type: none"> - Good layouts with slopes of 1:750 - 1:1000 are preferred for flood irrigation to avoid waterlogging and to achieve good yields.
Varieties	<ul style="list-style-type: none"> - Use adapted, root-rot resistant varieties (Semi-dormant to highly winter active).
Inoculation	<ul style="list-style-type: none"> - Inoculate lucerne with correct strain of rhizobia (AL) to ensure good nodulation for nitrogen fixation (or buy pretreated seed which may increase cost).
Weed Control	<ul style="list-style-type: none"> - Pre-emergent herbicide controls grasses and wireweed during establishment. - Post-emergent herbicide applied for broadleaf weed control (2,4-DB is used in this budget but other options are available. See Weed Control in Lucerne and Pastures 2007, NSW DPI.
Disease Control	<ul style="list-style-type: none"> - Variety root rot resistance is crucial for flood irrigation.
Insect Control	<ul style="list-style-type: none"> - Seedlings are very susceptible to insect damage, particularly earth mites (RLEM, BOM) and aphids. - Regularly monitor establishing crops and take necessary remedial action. - Consider seed treatment or preventative bare earth sprays in high risk situations.
Production	<ul style="list-style-type: none"> - Assume four cuts are made during the first season. Assume that 1 tonne = 40 small square 25kg bales. - Assume 5 t is good quality and 3 t is downgraded by weather, weed, etc.
Fertiliser	<ul style="list-style-type: none"> - Lime should be incorporated 3 months before sowing, if soil pH < 5.2 (CaCl₂). This cost is not included in the budget. - Phosphorus fertiliser banded beneath the seed at sowing helps establishment and early growth. - Molybdenum super at sowing aids nodulation. Apply gypsum to sodic or crusting soils to improve soil permeability, reduce crusting and improve establishment.
Irrigation	<ul style="list-style-type: none"> -*The budget uses MIA total water costs based on 50% allocation. - Irrigation cost includes the variable cost and fixed water costs of \$19.18/ML. - Water costs used in the MIA budgets are based on 2008-09 prices. - For prices in other areas and districts, refer to the water prices section.
Risk	<ul style="list-style-type: none"> - The production of good quality Lucerne hay involves significant risk due to weather and price fluctuations which potential growers should take into account. Thus some of hay is at a lower price.
Machinery	<ul style="list-style-type: none"> - Machinery costs include variable costs only for the tractor and implements. Two tractors: of 57 kW (76 HP) PTO and 63 kW (86 HP) engine; and of 130 kW (175 HP) PTO and 146 kW (196 HP) engine are assumed.
Economics	<ul style="list-style-type: none"> - These gross margins are only a guide. They do not include overhead costs or GST. - Input and crop prices are correct at the time of writing (March 2009). Market uncertainty makes estimation of future pricing impractical. - Cost of establishment should be spread over life of the stand