



Alpaca Enterprise Budgeting Software

**A report for the Rural Industries Research
and Development Corporation**

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Rural Industry Developments

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Foreword

It is reasonable to say that the Australian Alpaca industry began as a speculative investment industry in the late 1980's. The industry grew rapidly and attracted investment from people with diverse backgrounds and during the speculative phase of the industry economics of scale mattered little, nor did production costs because of the very high sale price of stock.

Over the last three to four years the speculative phase of the industry has begun to wane and increasingly, new investment in the industry and individual enterprise profitability is determined by careful consideration of economies of scale, production costs, management practices and farm gate sale price for the industry's major commodity, fibre.

This project was initiated to develop a software budgeting program tool that would allow producers and investors to objectively assess enterprise profitability and examine the likely financial consequences of major management decisions.

For the Australian Alpaca industry to grow and expand, it is important that all producers stay in the industry and this program will be an invaluable tool in assisting and assessing likely outcome of management practices.

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This report, a new addition to RIRDC's diverse range of over 600 research publications, forms part of our New Animals Products R&D program, which aims to accelerate the development of viable new animal industries

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Peter Core
Managing Director
Rural Industries Research and Development Corporation

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The project's principal researcher also gratefully acknowledges the small group of industry and government people who assisted with testing and evaluation of the software.

Contents

- Foreword iii
- Acknowledgments iv
- Contents v
- Executive Summary vi
- 1. Introduction..... 1
- 2. Objectives.....2
- 3. Methodology2
- 4. Results.....3
- 5. Discussion4
 - Features4
 - The Budgeting System4
 - The Application.....4
 - Operating Environment4
 - Program Outputs4
 - Sensitivity Analyses.....5
 - The Program5
 - Limits of Gross Margin Budgeting5
- 6. Implications.....6
- 7. Recommendations.....6
- 8. Bibliography/References7
- 9. Appendices.....8
 - Appendix 18
 - Appendix 213

Executive Summary

The first alpacas to be imported into Australia, arrived in Sydney in November 1858, were imported by Charles Ledger. Ledger imported the animals despite strong opposition from indigenous South American Indians and local governments in South America.

Despite early success with the importation, Ledger encountered many political difficulties, including opposition from the merino lobby in Australia that prevented him from achieving his reported aim of Australia being the only country commercially producing alpaca wool. The enterprise gradually became less viable through lack of government financial support until remaining animals were sold at auction or given away to farms and zoos.

More Alpaca arrived in Australia in 1982 from Alaska and regular imports followed from Chile via New Zealand after 1986. It is estimated there are more than 30,000 Alpaca in Australia today.

While the current contribution of the Alpaca industry to the Australian economy is relatively small, there is a potential for its value to increase. Potential benefits to Australia from Alpaca farming include the export of breeding stock to the USA, UK, Canada and New Zealand and in the long term production of high quality fibre and its processing into high quality textiles and yarn for export. There is also a less obvious potential to export genetically superior stock and technology back to Chile and other South American countries.

The Australian Alpaca Association (AAA) was formed in July 1990 following a 1988 importation of alpacas.

Expansion of the industry in Australia from 1996 has been based on speculative returns to investment for animal sales suggested by entrepreneurs although, underlying most of the interest in Alpaca production in Australia is the belief that a fibre growing industry will be profitable in Australia, possibly in association with a textile industry.

Herds are run in much the same manner as sheep. The average fibre production of Australian animals (which originated from Chile) is already almost double that reported from Chile.

Generally accepted estimates of the current Australian industry are that about 70 to 80% of the animals are owned by 20 to 30% of the owners.

As the Australian alpaca industry evolves from its speculative investment phase toward a stable industry based on the commercially profitable production of fibre, the industry generally and small enterprises especially, must objectively determine management styles, specialisation or production systems that are most likely to be commercially profitable in the future.

Further, alpaca industry groups are committed to encouraging people involved in traditional animal production industries to consider diversification partially or wholly into alpaca fibre production. Decisions on whether to diversify into alpaca production must increasingly be made by objective assessment of the relative profitability of alpaca enterprises compared with animal production systems in which producers are currently engaged.

The project's principal researcher has investigated the economics of alpaca production and presented papers on alpaca enterprise economics at many national and state industry conferences and seminars.

Over about five years, a spreadsheet model was developed to assist economic assessments and estimates. Various groups expressed an interest in the program for personal use, but the spreadsheet model had not been developed in a user-friendly format. The model has been developed by this project into stand-alone software that provides:

- (i) Alpaca farmers with a means of objective assessment of alternative management strategies on enterprise profitability and of the sensitivity of enterprise outcome to changes in production cost and income parameters;
- (ii) Lending institutions, joint investors and other groups with a tool that will allow objective assessment of likely establishment costs and estimated returns from alpaca enterprises and;
- (iii) Potential investors with an ability to objectively consider economic data and assess any financial risks associated with investment in alpaca production.

In summary a software program called 'The Alpaca Farm Budgeting System' has been developed by this project.

The software allows users to examine the likely economic performance of an enterprise and helps determine what changes may be needed for a product based enterprise to be successful. It provides users with an ability to assess the profitability of specialised production within the ostrich industry (wether production, breeding enterprise, etc).

The program provides several sensitivity analyses that will allow users to assess change to estimated economic performance resulting from upward or downward changes in returns, production or specific costs. Sensitivity assessments are used to assist the assessment of risk.

1. Introduction

The Australian Alpaca industry is rapidly changing from a speculative investor-based industry to a commercial product-based industry. It is attempting to encourage people involved in traditional animal production industries to consider diversification into alpaca production.

Early investment in the alpaca industry was often based on opportunities for speculative returns from sale of breeding stock with only limited research of: production capabilities; likely production costs; and farm gate returns from the sale of fibre. Attraction of new investment to the alpaca industry encouragement of already in the industry to expand is only likely to be successful if those encouraging new investment and expansion are able to objectively demonstrate realistic returns from commercial fibre production.

During the speculation phase of the industry, while income is principally sourced from sale of livestock, small enterprises have remained profitable. As the industry progresses towards a truly commodity production based industry, small enterprises are less likely to remain profitable. As there was no standard objective method of assessing future profitability of small commercial production based enterprises at the time of investment, the uneconomic nature of small enterprises is only likely to be realised by experience.

Decisions on whether to diversify into alpaca production or consider expansion of existing enterprises must include considerations of:

- (i) Practical issues related to animal production and husbandry;
- (ii) Issues related to processing and product packaging and marketing; and
- (iii) Relative profitability of alpaca enterprises compared with animal production systems in which producers are currently engaged.

There have been papers provided to industry on the economics of alpaca farming. Papers and their estimates are based on the writers' experience of the industry, their understanding of economics and approach to budget preparation. It appears that there are no computer programs available for economic assessment of Alpaca enterprises.

Over a period of about five years, Chris Tuckwell from Rural Industry Developments developed several spreadsheets models to provide a basis for the preparation of papers on the economics of alpaca production presented to various national and state conferences.

Various groups expressed an interest and accessing the program and in developing new programs for individual use. Development of the spreadsheet program into a stand-alone program would eliminate the need for groups to develop similar programs and program development would provide industry with a standard format for assessment of enterprise economics.

The spreadsheet program was not developed as a saleable program (not user friendly) and computer spreadsheet programs are not generally suitable for sale. Users must first purchase the software to run the spreadsheet, and operators can easily and inadvertently change critical formulae within the spreadsheet and affect its operation.

2. Objectives

Objectives of the project were to provide:

- (i) Alpaca farmers with a means of objective assessment of alternative management strategies on enterprise profitability and of the sensitivity of enterprises outcome to changes in production cost and income parameters;
- (ii) Lending institutions, joint investors and other groups with a tool that will allow objective assessment of likely establishment costs and estimated returns from ostrich enterprises.

The project aimed to produce budgeting software that would allow users to examine the likely economic performance of an enterprise and help determine what changes may be needed for a product based enterprise to be successful. Software produced would provide users with an ability to assess the profitability of specialised production within the alpaca industry (breeding enterprises, wether only enterprises, etc).

It was expected that the software would reinforce to owners that small enterprises are likely to be uneconomic in a future commercial environment and give them an opportunity to expand, specialise or leave the industry without significant loss.

The program's development aimed to provide several sensitivity analyses that would allow users to assess changes to estimated economic performance resulting from upward or downward changes in returns, production or specific costs. Sensitivity assessments are used to assist the assessment of risk.

3. Methodology

The project's principal researcher previously developed a set of complex interactive spreadsheets to undertake economic assessment of ostrich enterprises. The spreadsheets were developed over about five years for the preparation of conference papers on the economics of ostrich farming, and for use by the researcher in general consultancy work.

The spreadsheet model was not developed in a format that is easily used by others and the interactive calculations mean it is slow and complicated to use. Other difficulties associated with spreadsheet models include: (i) potential users need to first purchase an expensive spreadsheet program; and (ii) operators can easily and inadvertently change critical formulae within the spreadsheet and affect its operation.

A software engineering specialist (Mr Raymond Kennington of Programming Solutions) was contracted to develop a program that incorporates the spreadsheets as a self-executing program that is easy to use and recalculates quickly.

Program development included the development of on-line help to assist users to become familiar with the program. The program was designed to allow future development and upgrading as necessary should funding be available.

The new program was tested against the spreadsheet model for accuracy and evaluated by selected industry participants. The completed software has been advertised and promoted in appropriate alpaca industry press.

Training have been organised in association with Australian Alpaca Association, and particularly at it national conference, to demonstrate and promote the software.

4. Results

The first draft of the program was completed in November 1999 and made available to selected industry and state government representatives for examination and comment.

All first time users were generally happy with the program, but all suggested had some worthwhile amendments. Where possible, the amendments to the program were made prior to its first release and demonstration at the Australian Alpaca Association's National Conference in August 2000. Two examples of amendments made are:

- (i) The provision of an ability to purchase replacement breeders rather than limiting users to an option of breeding replacements (breed them on farm) and;
- (ii) A small screen message that more clearly provided directions to begin using the program once after it has been loaded by the user.

The program is now complete. It has been tested with cooperator properties and against the original spreadsheet models with positive results.

The final program called 'The Alpaca Farm Budgeting System' provides much greater flexibility than original spreadsheet models and allows many more varied analyses of performance.

5. Discussion

The Alpaca Farm Budgeting System (AFBS) provides the alpaca industry with a farm budgeting tool that exceeds the objectives of this project.

Features

- A stand-alone budgeting system.
- Designed and produced to enable ostrich farmers to better understand and assess the relative economics and profitability of different enterprises and management practices.
- Budget modelling tools within spreadsheets.
- A windows interface that facilitates the comparative effects of pairs of input variables through sensitivity analysis.
- On-line help sequenced to read like a book from beginning to end.
- Context specified help for major areas of the program (F1 key).
- The combination of budgeting flexibility and the variable sensitivity analyses provides those involved in alpaca production with an invaluable budgeting tool.

The Budgeting System

The system follows standard Gross Margining Budgeting principles.

Users can decide whether to use interest on capital expenditure as part of enterprise expenses.

The program provides two separate production systems: Breeder and Wether enterprises.

The flexible nature of the program gives users an ability to easily model their own enterprise and assess the likely influence of production, income and expense parameter changes.

The Application

The application provides a control mechanism for manipulating the data in the system.

Through the use of the keyboard and/or mouse a user can manipulate as many farming models as disk space provides.

It contains most, if not all, of the most important financial considerations for farming alpaca.

Operating Environment

Runs on PC-compatible computers using Windows 95, Windows 98, Windows 2000 and Windows NT operating systems.

Program Outputs

Summary report - A one-page budget summary of income, expense parameters and several measures of enterprise profitability.

Workings report - A detailed account of production, cost and expense parameters for the enterprise.

Comments report - This is information on major assumptions used in the preparation of the budget.

A fictitious example of these reports for a Breeding Enterprise that breeds its own replacements is provided in the appendix 1. In appendix 2 several sensitivity reports, using the same parameters, for this fictitious enterprise are provided.

Sensitivity Analyses

The program offers users the ability to examine the sensitivity of major economic parameters to a wide range of input parameters that affect economic performance.

Sensitivity reports allow users to quickly assess the influence of small or large changes in important management, production, income or cost parameters.

In particular they can be used to assess the range of likely economic outcomes for an enterprise that is dependent on inputs over which a manager has limited control. For example the price of supplementary feed used.

Sensitivity analyses can be used to consider worst, most likely and best enterprise outcomes as influenced by parameters most likely to affect profitability - a type of risk assessment.

The Program

This alpaca enterprise budgeting program is a tool designed to help producers, consultants, financial institutions and Government Departments make objective decisions about the economics of alpaca farming.

The program has been developed in good faith as a useful tool that can assist alpaca enterprise economic management decision-making. Rural Industry Developments Pty Ltd believes that program outcomes provide users with good information that can assist decision-making.

However, management decisions should not be based solely on the results of this program.

Limits of Gross Margin Budgeting

As AFBS is based on gross margin budgeting principles, it is worthwhile to explain some limits of gross margin budgeting for economic analysis. Gross margin budgets are only meant to provide a predictive estimate of outcome from a particular enterprise.

There are NO right answers.

Outcomes are based on income, expense and production parameters used for any particular situation.

The usefulness of gross margin budgets is directly related to accuracy and completeness of information used to prepare the budgets.

Gross margin budgets take no account of market demand for products produced by any enterprise. The budgets predict enterprise returns based on the assumption that products can be sold at a given price.

Only relative outcomes of alternate strategies should be compared as actual outcomes vary according to income, expense and production parameters used in preparing budgets. Production is also based on average performance and actual performance of individuals may vary widely.

6. Implications

The likely implications of the user of this software by industry include:

1. Objective assessment of the future of current enterprise to allow consideration of appropriate changes that will improve future, commercial enterprise profitability.
2. Encouragement of new investment in the industry based on an objective assessment of likely performance of an enterprise with associated risk assessment.
3. An opportunity to carefully analyse likely economic outcomes from changes in enterprise management practices.
4. A standardised method of comparing enterprise performance between different geographical locations.

Like all industries, the long-term commercial profitability of the Australian Alpaca industry relies on the cost effective production, processing and marketing of its products. Profitable livestock production in Australia is significantly influenced by economics of scale (particularly with respect to labour costs). This software will encourage the development and expansion of the alpaca industry on the basis of objective assessment of profitability of enterprises within it.

7. Recommendations

Any further development of the program would require extra funding, so until the program is used widely it is unlikely that a future expense can be justified.

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9. Appendices

APPENDIX 1 Example: Summary Output – 1 page

ALPACA BREEDING HERD

Number of breeding females	20	Enterprise Gross Margin	\$4,772.65
Total DSE's	38	Gross Margin per Ha	\$1,909.06
Stocking rate (DSE/Ha)	15.0	Gross Margin per DSE	\$127.14
Grazing area available (Ha)	2.5	Gross Margin per Female	\$238.63

INCOME

Fibre Production	49.7	kilograms	[ave price	\$53.13per kg]	\$2,642
Animal Sales	6.7	females	[ave price	\$14,758per head]	\$99,439
	0.0	males	[ave price	\$0per head]	\$0
	7.2	wethers	[ave price	\$500per head]	\$3,620

TOTAL INCOME \$105,700

EXPENSES

Capital Interest Costs					
Breeding Stock	\$349,788	value	@	10.0%	\$34,979
Infra structure	\$100,000	value	@	10.0%	\$10,000
Shearing					
Shearing	20	females	@	\$3.50 per head	\$70
	0	males	@	\$5.60 per head	\$0
	0	wethers	@	\$5.60 per head	\$0
	5	weaners	@	\$3.50 per head	\$18
	0	sires	@	\$5.60 per head	\$0
Shed labour	0.3	days	@	\$87.06 per day	\$22
Superannuation (on ordinary wages only)			@	3.0% of wages	\$3
Work Cover (includes super + o'time etc)			@	7.5% of total	\$7
Fibre Marketing + Handling costs			@	5.0% of fibre value	\$132
Plastic Packs	55	packs	@	\$1.00 per pack	\$55
Shed sundries	25	alpaca	@	\$0.18 per head	\$5
Veterinary					
Drench	25	alpaca	@	\$1.00 per head	\$25
Vaccinate	55	alpaca	@	\$0.13 per head	\$7
T/Elements	0	alpaca	@	\$0.67 per head	\$0
Dipping	0	alpaca	@	\$1.00 per head	\$0
Vitamin D	5	alpaca	@	\$1.00 per head	\$5
Vet fees	33	alpaca	@	\$150.00 per head	\$4,978
Cria marking	7	wether cria	@	\$0.00 per head	\$0
Livestock purchases	0.0	sires	@	\$20,000 per head	\$0
	0	adult females	@	\$18,000 per head	\$0
	0	yearling females	@	\$15,000 per head	\$0
	0	weaner females	@	\$10,000 per head	\$0
Sire service fees	20	females	@	\$1,000 per head	\$20,000
Freight for sales	14	animals	@	\$50.00 per head	\$699
	49.73	kgs of fibre	@	\$0.10 per kilogram	\$5
Stock selling charges	\$99,439	total sale value	@	0.0% of sale value	\$0
Hand Feeding					
Hay	2.7	tonnes	@	\$75.00 per tonne	\$203
Grain	2.2	tonnes	@	\$110.00 per tonne	\$242
Other	0.0	tonnes	@	\$0.00 per tonne	\$0
Management Labour					
manager/supervisor	0.10	person(s)	@	\$32,000 per year	\$3,200
casual staff	0.00	person(s)	@	\$20,000 per year	\$0
Oncosts			@	20.0% of wages bill	\$640
Fertiliser	0.0	tonnes	@	\$0.00 per tonne	\$0
	0.0	tonnes	@	\$0.00 per tonne	\$0
	0.0	tonnes	@	\$0.00 per tonne	\$0
Pasture renovation	0.0	hectares	@	\$0.00 per hectare	\$0
Pasture irrigation	0.0	hectares	@	\$0.00 per hectare	\$0
Other expenses					
Other 1	20	breeding females	@	\$0.00 per female	\$0
Other 2	5	weaned animals	@	\$0.00 per cria weaned	\$0
Other 3	5	weaned animals	@	\$0.00 per cria weaned	\$0
Other 4		annual cost	@	\$0.00 per year	\$0
Other 5		annual cost	@	\$0.00 per year	\$0
Livestock insurance	\$410,598	value	@	\$40.00 per \$1,000	\$16,424
Water	38	DSE's	@	\$1.00 per DSE	\$38
Repairs and maintenance			@	5.0% total expenses	\$4,586
Contingency expenses			@	5.0% total expenses	\$4,586

TOTAL EXPENSES \$100,928

Example: Workings Output – Page 1

PRODUCTION DATA

Stocking rate (DSE/Ha)	15.0
Total DSE's	38
Grazing area (hectares)	2.5
Herd death rate	2%
Age female breeders culled (yrs)	10.5
Number of females mated annually	20
Percent females service mated	100%
Average weaning rate maidens	60%
Average weaning rate adults	75%

Sire percentage at mating	0%
% sire replacements bought annually	0.0%
% sire replacements bred annually	0.0%

Purchased sires

Age at purchase	0.0
Age first used	0.0
Years used	0.0

Bred sires

Age first used	0.0
Years used	0.0

REPRODUCTION and CULLING RATES

Age Group (years)	Reproduction and Culling Rates		
	Females	Males	Wethers
0.5	30%	0%	100%
1	30%	0%	0%
2	27%	0%	0%
3	0%	0%	0%
4	0%	0%	0%
5	0%	0%	0%
6	0%	0%	0%
7	0%	0%	0%
8	30%	0%	0%
9	50%	100%	0%
10	100%	0%	0%
11	0%	0%	0%
12	0%	0%	0%
13	0%	0%	0%

HERD STRUCTURE

Age Group (years)	Herd Structure		
	Females	Males	Wethers
0.5	5.1	0.0	0.0
1	3.5	0.0	0.0
2	2.5	0.0	0.0
3	2.4	0.0	0.0
4	2.4	0.0	0.0
5	2.3	0.0	0.0
6	2.3	0.0	0.0
7	2.3	0.0	0.0
8	1.6	0.0	0.0
9	0.8	0.0	0.0
10	0.0	0.0	0.0
11	0.0	0.0	0.0
12	0.0	0.0	0.0
13	0.0	0.0	0.0

SIRES ON PROPERTY

Source	Number	Age first used	Years kept
Purchased sires	0.00	3.5	5.0
Property bred	0.00	2.5	5.0

WETHERS ON PROPERTY

Percentage of male off spring castrated	100%
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AVERAGE ANNUAL SALES

	Number	Price (\$/hd)	Total (\$)
adult females	3.1	\$18,000	\$55,373
female yearlings (12 to 24 months)	1.5	\$15,000	\$22,348
adult males	0.0	\$15,000	\$0
male yearlings (12 to 24 months)	0.0	\$12,000	\$0
adult wethers	0.0	\$800	\$0
wether yearlings (12 to 24 months)	0.0	\$600	\$0
female weaners (up to 12 months)	2.2	\$10,000	\$21,718
male weaners (up to 12 months)	0.0	\$6,000	\$0
wether weaners (up to 12 months)	7.2	\$500	\$3,620
cull sires	0.0	\$15,000	\$0
TOTAL	14.0		\$103,058

AVERAGE ANNUAL PURCHASES

	Number	Price (\$/hd)	Total (\$)
Females			
Purchased at 0.5 years of age	0.0	\$18,000	\$0
Purchased at 1.0 years of age	0.0	\$15,000	\$0
Purchased at 2.0 years of age	0.0	\$10,000	\$0
Purchased at 3.0 years of age	0.0	\$10,000	\$0
Purchased at 4.0 years of age	0.0	\$10,000	\$0
Purchased at 5.0 years of age	0.0	\$10,000	\$0
Purchased at 6.0 years of age	0.0	\$10,000	\$0
Purchased at 7.0 years of age	0.0	\$10,000	\$0
Purchased at 8.0 years of age	0.0	\$10,000	\$0
Purchased at 9.0 years of age	0.0	\$10,000	\$0
Purchased at 10.0 years of age	0.0	\$10,000	\$0
Purchased at 11.0 years of age	0.0	\$10,000	\$0
Purchased at 12.0 years of age	0.0	\$10,000	\$0
Purchased at 13.0 years of age	0.0	\$10,000	\$0
sires			
Total	0.0		\$0

STOCK VALUE AND DSE RATE

	Number	Value /head	Live weight		Ave Live Wt (Kgs)	DSE rating
			Start of year	End of year		
adult females	17	\$18,000	60	60	60	1.7
female yearlings (12 to 24 months)	3	\$15,000	40	50	45	1.4
adult males	0	\$16,000	65	65	65	1.8
male yearlings (12 to 24 months)	0	\$12,000	40	50	45	1.4
adult wethers	0	\$600	65	65	65	1.2
wether yearlings (12 to 24 months)	0	\$500	40	50	45	0.8
female weaners (up to 12 months)	5	\$12,000	30	40	35	0.6
male weaners (up to 12 months)	0	\$12,000	38	42	40	0.6
wether weaners (up to 12 months)	0	\$12,000	38	40	39	0.7
sires	0.0	\$22,000	70	70	70	1.9
TOTAL	25	\$410,598				37.5

Example: Workings Output – Page 2

STOCK HEALTH REQUIREMENTS

	Number	Number of times			
		Drench	Vaccination	T/Elements	Dipping
adult females	17	1	2	0	0
adult males	3	1	2	0	0
adult wethers	0	1	2	0	0
female yearlings	0	1	2	0	0
male yearlings	0	1	2	0	0
wether yearlings	0	1	2	0	0
weaners	5	1	3	0	0
sires	0.0	1	2	0	0
TOTAL	25	25	55	0	0

PASTURE REQUIREMENTS

FERTILISER	Cost/Tonne	Application rate (kg/Ha)	% of property treated (%)	Area treated (Ha)	Volume used (Tonnes)	Total cost (\$)
Type 1	\$0.00	0.0	0.0%	0.0	0.0	\$0
Type 2	\$0.00	0.0	0.0%	0.0	0.0	\$0
Type 3	\$0.00	0.0	0.0%	0.0	0.0	\$0

PASTURE RENOVATION	Cost/Ha	% of property treated (%)	Area treated (Ha)	Total cost (\$)
	\$0.00	0.0%	0.0	\$0

PASTURE IRRIGATION	Cost/watering (\$/Ha)	Number of waterings	% of property treated (%)	Area treated (Ha)	Total cost (\$)
Permanent pasture	\$0.00	0.0	0.0%	0.0	\$0
Other pasture	\$0.00	0.0	0.0%	0.0	\$0

LABOUR REQUIREMENTS FOR A SELF REPLACING ENTERPRISE

CLASS OF STOCK MANAGED	Labour Unit	No managed per person	Months per year
Breeding females and their progeny until weaning	Female	250	12
Weaners from weaning until 12 months of age	Animal	300	6
Wether males	Wether	1000	12
Sires	Sire	600	12

AVERAGE FLEECE PRODUCTION

Alpaca Class	Number	Kg greasy per hd	Washing yield (%)	Kg clean per hd	Ave Price \$/Kg	Return \$/hd
adult females	17	2.4	90%	2.2	\$42.70	\$92.23
female yearlings	3	2.0	90%	1.8	\$63.15	\$113.67
adult males	0	3.5	90%	0.0	\$42.70	\$0.00
male yearlings	0	3.0	90%	0.0	\$63.15	\$0.00
adult wethers	0	3.6	90%	0.0	\$42.70	\$0.00
wether yearlings	0	3.2	90%	0.0	\$63.15	\$0.00
weaners	5	1.7	90%	1.5	\$93.40	\$142.90
sires	0.0	3.5	90%	0.0	\$42.70	\$0.00
TOTAL	25			49.7		\$2,642

HAY FEEDING

Alpaca Class	Number Fed	Cost (\$/T)	Kg per week	Weeks Fed	Total (\$)
adult females	17	\$75.00	4.0	30	\$149
female yearlings	3	\$75.00	4.0	30	\$31
adult males	0	\$75.00	6.0	30	\$0
male yearlings	0	\$75.00	5.0	30	\$0
adult wethers	0	\$75.00	6.0	30	\$0
wether yearlings	0	\$75.00	5.0	30	\$0
weaners	5	\$75.00	2.0	30	\$23
sires	0.0	\$75.00	6.0	30	\$0

GRAIN FEEDING

Alpaca Class	Number Fed	Cost (\$/T)	Kg per week	Weeks Fed	Total (\$)
adult females	17	\$110.00	5.0	20	\$183
female yearlings	3	\$110.00	5.0	20	\$37
adult males	0	\$110.00	3.0	20	\$0
male yearlings	0	\$110.00	3.0	20	\$0
adult wethers	0	\$110.00	3.0	20	\$0
wether yearlings	0	\$110.00	3.0	20	\$0
weaners	5	\$110.00	2.0	20	\$22
sires	0.0	\$110.00	5.0	20	\$0

Example: Workings Output – Page 3

OTHER FEEDING

Alpaca Class	Number Fed	Cost (\$/T)	Kg per week	Weeks Fed	Total (\$)
adult females	17	\$0.00	0.0	0	\$0
female yearlings	3	\$0.00	0.0	0	\$0
adult males	0	\$0.00	0.0	0	\$0
male yearlings	0	\$0.00	0.0	0	\$0
adult wethers	0	\$0.00	0.0	0	\$0
wether yearlings	0	\$0.00	0.0	0	\$0
weaners	5	\$0.00	0.0	0	\$0
sires	0.0	\$0.00	0.0	0	\$0

COMMENTS:

Adult Fibre Prices

Fibre Colour	F.D. (micron)	Fibre grade	Price (\$/kg)	% of clip
white	0.0	saddle	\$80.00	5%
brown	0.0	saddle	\$60.00	5%
grey	0.0	saddle	\$80.00	25%
black	0.0	saddle	\$80.00	5%
fawn	0.0	saddle	\$100.00	10%
other	0.0	saddle	\$0.00	0%
other	0.0	saddle	\$0.00	0%
other	0.0	saddle	\$0.00	0%
other	0.0	saddle	\$0.00	0%
bellies		bellies	\$5.00	20%
necks		necks	\$5.00	8%
skirtings		legs etc	\$5.00	16%
Stain			\$5.00	1%
Cott			\$5.00	5%
Percentage of fleece which is spinning quality				50%

Yearling Fibre Prices

Fibre Colour	F.D. (micron)	Fibre grade	Price (\$/kg)	% of clip
white	0.0	saddle	\$80.00	5%
brown	0.0	saddle	\$60.00	10%
grey	0.0	saddle	\$80.00	30%
black	0.0	saddle	\$80.00	10%
fawn	0.0	saddle	\$100.00	20%
other	0.0	saddle	\$0.00	0%
other	0.0	saddle	\$0.00	0%
other	0.0	saddle	\$0.00	0%
other	0.0	saddle	\$0.00	0%
bellies		bellies	\$5.00	8%
necks		necks	\$5.00	5%
skirtings		legs etc	\$5.00	2%
Stain			\$5.00	5%
Cott			\$5.00	5%
Percentage of fleece which is spinning quality				75%

Weaner Fibre Prices

Fibre Colour	F.D. (micron)	Fibre grade	Price (\$/kg)	% of clip
white	0.0	saddle	\$100.00	10%
brown	0.0	saddle	\$80.00	10%
grey	0.0	saddle	\$100.00	35%
black	0.0	saddle	\$100.00	10%
fawn	0.0	saddle	\$120.00	25%
other	0.0	saddle	\$0.00	0%
other	0.0	saddle	\$0.00	0%
other	0.0	saddle	\$0.00	0%
other	0.0	saddle	\$0.00	0%
bellies		bellies	\$5.00	5%
necks		necks	\$5.00	3%
skirtings		legs etc	\$5.00	2%
Stain			\$5.00	0%
Cott			\$5.00	0%
Percentage of fleece which is spinning quality				90%

Example: Comments Output – Page 1

Establishment costs

This model's only attempt to take account of establishment costs, interest repayments and other fixed costs is to allow users to: (i) nominate an interest rate cost for capital invested in livestock; (ii) nominate a value of investment in infra structure, and, (iii) nominate an interest rate cost for capital invested in infra structure.

Repairs and maintenance costs

Repairs and maintenance costs are calculated as a percentage of all other enterprise expenses.

Contingency costs

Contingency costs attempt to consider other unforeseen expenses that may occur during the year. They are calculated as a percentage of all other costs (including repairs and maintenance). This value can be left at zero if a user is confident that all expenses are satisfactorily covered in other areas of the program.

Other expenses

The other expenses option allows for enterprise costs specific to a particular production system to be entered.

Shearing

Shearing costs are likely to vary between individual contractors. The model assumes crias are shorn before sale.

Superannuation and Work Cover

The expenses shown in the gross margin relate only to shearing.

Sire Use

Where sires are purchased and used, the model assumes they are first used @ 2 years of age

DSE Ratings

DSE ratings are based on the maintenance feed requirements of a 2 year old, 45 Kg live weight Merino wether with a body condition score of 2. Alpaca DSE ratings are based on limited knowledge of energy requirements for each stage of production.

Animal Sales

The model assumes alpacas are all sold after shearing

Growth

The model assumes weaned crias grow at an average rate of 200 gms per day.

Fibre Packs

The model assumes an average of 1 plastic bag is required for storage and transportation of each fleece.

Weaning

The model assumes an average weaning age of 6 months

Age descriptions

The model uses the following age descriptions: Cria - from birth to six months; Weaners - from weaning to 12 months; Yearlings or Tuis - from 12 to 24 months; Adults - more than 24 months; Maiden females - from 12 to 24 months

CONTRIBUTION OF COST FACTORS

Item	Percentage of total expenses
Interest on breeding stock investment	34.7%
interest on infrastructure investment	9.9%
Shearing	0.3%
Veterinary	5.0%
Sire purchase	0.0%
Breeder service fees	19.8%
Freight	0.7%
Stock selling charges	0.0%
Supplementary feed	0.4%
Management labour	3.8%
Fertiliser	0.0%
Pasture renovation	0.0%
Pasture irrigation	0.0%
Other 1	0.0%
Other 2	0.0%
Other 3	0.0%
Other 4	0.0%
Other 5	0.0%
Insurance	16.3%
Stock water	0.0%
Repairs and maintenance	4.5%
Contingency	4.5%

APPENDIX 2 Example sensitivity analysis – Page 1

Effect of changing sale price for live animals and size of the female breeding herd.

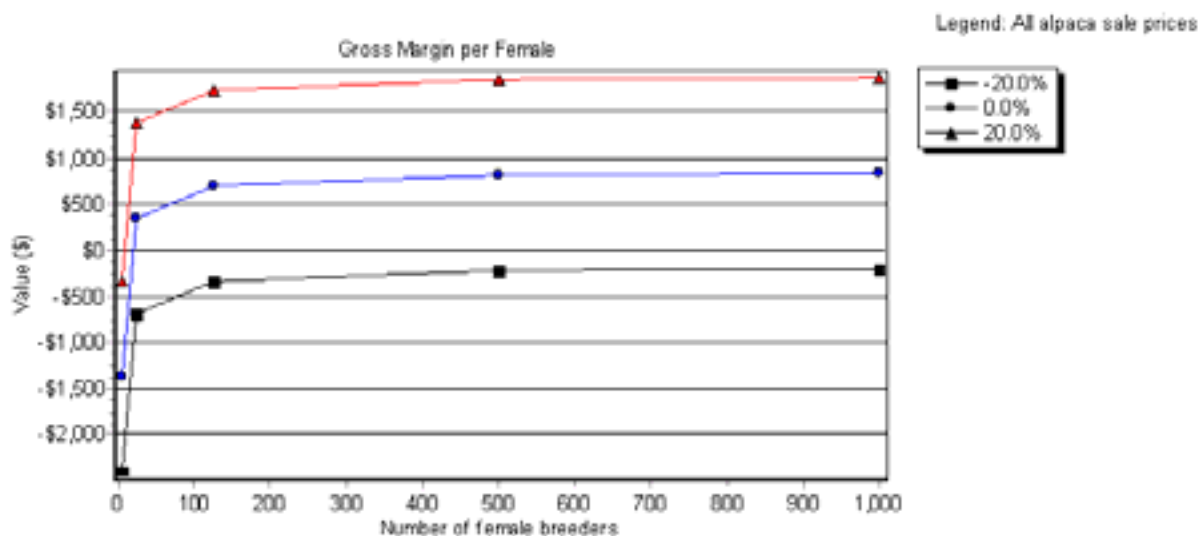
Gross Margin per Female

30/06/2000

All alpaca sale prices

Number of female breeders

	-20.0%	-10.0%	-5.0%	0.0%	5.0%	10.0%	20.0%
5	-\$2,401	-\$1,885	-\$1,628	-\$1,370	-\$1,112	-\$855	-\$339
25	-\$673	-\$158	\$99	\$357	\$615	\$872	\$1,388
125	-\$325	\$191	\$448	\$706	\$964	\$1,221	\$1,737
500	-\$212	\$303	\$561	\$819	\$1,076	\$1,334	\$1,849
1000	-\$185	\$330	\$588	\$845	\$1,103	\$1,361	\$1,876



Example sensitivity analyses – Page 2

Effect of the cost of breeders service fees and the size of the female breeding herd.

Enterprise Gross Margin

30/06/2000

Breeder service fees

		\$250	\$500	\$750	\$1,000	\$1,250	\$1,500	\$2,000
Number of female breeders	5	-\$2,725	-\$4,100	-\$5,475	-\$6,850	-\$8,225	-\$9,600	-\$12,350
	25	\$29,553	\$22,678	\$15,803	\$8,928	\$2,053	-\$4,822	-\$18,572
	125	\$191,367	\$156,992	\$122,617	\$88,242	\$53,867	\$19,492	-\$49,258
	500	\$821,759	\$684,259	\$546,759	\$409,259	\$271,759	\$134,259	-\$140,741
	1000	\$1,670,363	\$1,395,363	\$1,120,363	\$845,363	\$570,363	\$295,363	-\$254,637

