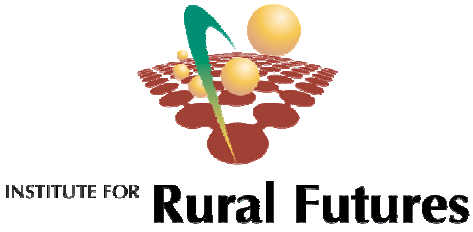

FURRACABAD FARM CLUSTER PROJECT

Final Report

Graham Marshall

Institute for Rural Futures
The University of New England
Armidale, Australia

for

the Glen Innes Natural Resources Advisory Committee

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FOREWORD

The concept of a 'farm cluster' for farmers in the Glen Innes region arose from the innovative thinking of members of Furracabad Landcare Group who wished to improve their economic and social environment. Their intention was to cooperate in some more formal way than had been feasible as a landcare group. The core of this report is the story of the development of that initial concept, through an extensive feasibility study, and finally into a workable template for cooperative farming at whatever level of cooperation might suit the participants. A number of syndication scenarios emerged in the feasibility study and are outlined in the report.

The steps to investigate ways of cooperating began at Landcare meetings during the 1980s. A grant from the Commonwealth Department of Transport and Regional Services provided funds for professional help to conduct a feasibility study, beginning with an audit of the physical and human resources which were available within the landcare group, and ending with a financial analysis of the probable economic outcome of syndication.

The original expectation was that the final outcome of the study would be the establishment of a formal cluster group of farms. However, for numerous reasons, some of which are discussed in the report, the formation of a syndicate of the original participants has not yet happened. Turning over the management of one's farm in exchange for some perceived but not yet realised advantages is a large step for most landowners. There are family needs which take time to consider. One needs to make assessments about how much can you rely on the judgement of the other participants. There needs to be some general commonality in regard to resource base concerns. The idea of sharing management decisions rather than making one's own decisions needs careful consideration; and so on. All these considerations take much more time to resolve than was anticipated in the original project. Nevertheless, the exercise has been a vital first step in the process, and has provided an important foundation for the formation of cooperative farming operations.

The report covers the three fundamental requirements of a successful farming business enterprise: effective economic outcomes, long term resource base maintenance, and the social needs of participants. A template for a business plan and organisational arrangements is included as an attachment. A theoretical analysis of economic outcomes is also provided.

Farming people are inherently independent and will naturally take some time to make such fundamental changes to their operations as proposed through syndication. Yet if syndication can be made to work successfully, the potential economic, environmental and social benefits are very substantial. This report is an early stepping stone in the pathway towards such a change. For those who might contemplate a change in their local or regional farming structure, it makes fascinating reading.

R. Desmond FitzGerald
Chairman,
Glen Innes Natural Resources Advisory Committee.

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On behalf of the Glen Innes Natural Resources Advisory Committee (GLENRAC), I would like to acknowledge the generous financial support provided to this project by the Commonwealth Department of Transport and Regional Services through its Regional Assistance Programme.

We would like also to extend our sincere appreciation to all the landholders who agreed to be interviewed for this project, attended the project meetings and otherwise helped to make the project a success.

1. INTRODUCTION

The aim of this project has been to "develop an innovative way of managing a collective group of farms and in doing so create new ways to use human, natural, built and community resources to provide a more enriched environment for the stakeholders". This "innovative way" was to involve "a syndicate of farms all managed under one entity to achieve efficiencies and develop better employment, social and economic conditions for the stakeholders and the surrounding community".

The progress made in realising this aim is discussed in this Final Project Report. The report consists of eight sections. The background to the project is discussed in section 2. Details of how the project was designed and funded are provided in section 3. Project achievements in relation to the project aim and design are documented in sections 4 and 5. A business plan and set of operating guidelines for a hypothetical farm syndicate (or 'cluster') is discussed in section 6. Some key lessons emerging from the project are shared in section 7. Finally, in section 8, conclusions from the project are presented.

2. PROJECT BACKGROUND

2.1 The demise of communally-organised agriculture

The land law system introduced to Australia at the time of colonial settlement was inherited from the English system. At this time, the English system was in the midst of a land reform process known as 'enclosure' that occurred primarily between 1750 and 1830. This process involved the displacement of a 'traditional' agricultural land system focussed on subsistence and organised in communally-administered open fields with a 'modern' system that reorganised those fields into multiple consolidated land holdings managed by individual households (with collective rights and responsibilities in respect of land administration transferred from communities to the state) (Williamson, Brunckhorst, and Kelly 2003).

The traditional system demanded rigid adherence by community members to a common system of land husbandry. This system "was no handicap on enterprise during the long time in which the husbandsman's art was more or less static" (Orwin and Orwin 1967 p. 171). The mouldboard plough was already used widely, "but otherwise their technique was simple and there was a common fund of knowledge which led every one to pursue the same system of farming" (ibid. p. 170). And the lack of markets for commercial production meant that there was no reason for individual households to produce more than their subsistence needs.

Communally-managed agriculture was thus well-suited to the conditions of its time. But times changed. The industrial revolution brought rapid advance in farming techniques from the middle of the 18th century, as well as an increasing urban population creating a market for commercial agriculture. The traditional system was unable to respond fast enough to these changed conditions, given that "the pace of change was that of the slowest" (ibid. p. 62). It could not satisfy the drive of individuals to exploit the new techniques in order to enrich themselves through commercial farming, nor the collective imperative to feed urban people.

2.2 The problem of environmental externalities from agriculture

Australia thus came to inherit an individualistic system of agricultural land proprietorship. But times continued to change. Gradually, the collective imperative of satisfying the nation's material needs came to be joined by other important imperatives. Perhaps the most urgent of these has been the need to stem the negative externalities that farmers have come to impose on each other and the rest of society through over-using the natural environment as a 'source' of inputs for its production processes and as a 'sink' for wastes from these processes. This need led to significant state regulation of how individuals use agricultural land. However, this centralised regulatory approach has proved difficult to enforce given the problems of monitoring agricultural land use and farmers' vehement political opposition to attempts by the state to erode their individual liberties.

As a result, collective efforts to deal with the environmental externalities of agriculture have relied increasingly over the last two decades on communally-organised processes, as exemplified by the 'community-based' programs of Landcare and integrated catchment management (ICM). This is significant historically, since it became an article of faith in the late 19th century that fostering progress meant minimising communal (taken as synonymous with parochial and irrational) involvement in collective decision-making processes and maximising instead the involvement of scientifically-trained professionals (Batie 1989).

2.3 Decline of agricultural and rural communities

The collective imperative of satisfying the social needs of farmers has also increased in urgency over recent decades. Enclosure meant that economies of scale could be pursued through individual land parcels being bought up and consolidated into larger units. The consequent continuing increases in labour productivity resulted in agricultural landscapes becoming ever more sparsely settled and, therefore, socially isolated.

These problems have been exacerbated by the effects more generally of our society (like many others) having pursued progress along the lines characterised in the previous section. With collective decision-making to be left in professional hands as far as possible, the ideal citizen became someone for whom scientific values overrode traditional values and who was prepared to forego engagement with the problems faced by his or her local community.

To be sure, there were obvious advantages for citizens from this arrangement due to the reduced demands it placed on their scarce time. The disadvantages have been more insidious. They have arisen in part from forfeiting opportunities that had typically been taken for granted: opportunities to find meaning and fulfilment in the process of serving one's community, and to meet and form relationships with other community members. They have arisen too from the ongoing displacement of local and other traditional values – that help individuals find a place in their local society and act collectively – by materialistic and other scientific values. While displacement of traditional values has given individuals greater freedom to find their own moral direction, too often this has been a case of 'more rope to hang one's self with' (contributing to emotional disorders and self-destructive and socially-harmful behaviours).

While the kinds of disadvantages discussed here were of little concern at the time of colonial settlement of Australia, they are implicated increasingly by the kinds of social problems associated with continuing decline in our agricultural and other rural communities (Williamson, Brunckhorst, and Kelly 2003). They are highlighted too by the eagerness with which many farmers have embraced the opportunities presented by Landcare and other community-based programs to come together in solving shared problems in accordance with their own local values and knowledge.

2.3 Escalating farm adjustment pressures

In addition, the never-ending pressures on farmers to 'get big (to offset declining terms of trade with increased economies of scale) or get out' have led some to question the economics of continuing to operate their businesses individualistically. Adjusting to declining terms of trade by purchasing additional parcels of land entails economic risk for farmers to the extent that it uses up limited capital that they could otherwise use to buffer shocks to farm business performance (e.g., arising from climate and market variability). Typically, they do not enjoy the luxury of being able to buy new land gradually in order to contain this economic risk. Suitable land tends to come onto the market sporadically, and often in parcels larger and more costly than prudent risk management would recommend purchasing.

A strategy adopted by some farmers to circumvent this type of risk has involved foregoing individual pursuit of economies of scale, and opting instead to *share* in the economies of scale available from combining their land with that of other farmers to form a communally-operated unit. For farmers choosing this path in response to 'the problem of agricultural adjustment', the social rewards of working together with other farmers have often also been important (Powell et al. c1982).

2.4 Obstacles to adoption of communally-organised agriculture

Interest in this approach is not new. Powell et al. (c1982) reported on three Australian cases of communal farming (referred to as 'fully-integrated group farming'), and provided advice to others interested in adopting this approach. Davies and Brownscombe (1978) also offered advice regarding this approach (referred to as 'whole farm syndication'). The focus of these studies was primarily economic, with some attention paid to the social aspects of adopting the communal approach.

Despite the interest of agriculture departments during the late 1970s and early 1980s in promoting this approach, its uptake has remained low. The reasons given by Powell et al. (c1982 pp. 5-6) for the low adoption of a few decades ago included:

a. "The shortage of experts on group farming is acute and few people have the expertise to identify individuals who would like to join groups, undertake a feasibility study and establish the group. To date, a few consultants have been active in this regard along with some crusading farmers."

b. "There are considerable logistical problems of finding a suitable partner or partners within a manageable distance of each other. Coupled with the fear of making a bad choice of partners, this is a major impediment to many farmers joining groups."

c. "The appearance of widespread adjustment problems in Australian agriculture is relatively recent. Group farming is likely to be a response to dissatisfaction with the current situation, in an income sense at least, and perhaps also in terms of non-economic objectives. Australian farmers have earned relatively high incomes in the past."

d. "Although many farmers have heard of group farming, there is no widespread understanding of it in Australia. Few farmers have a clear understanding of both the advantages and disadvantages."

Additional reasons for low adoption given by Davies and Brownscombe (1978 p. 10) were:

e. "Many farmers will never consider syndication because of the loss of independence they believe will occur."

f. "The rules and regulations necessary for the operation of a well-run syndicate will be unacceptable to some farmers".

All these reasons seem as pertinent now as they were then, except reason (c). Certainly, the problem of agricultural adjustment can no longer be regarded as arising recently. Farmers have had the opportunity of more than two decades of mounting adjustment pressures since then to consider how they might deal with them more robustly in the future.

2.5 The 'Tilbuster experiment'

The last half-decade or so has witnessed a resurgence of interest in the benefits of communal farming systems. This resurgence seems to have been motivated at least in part by experiences in communally-organised processes of environmental and natural resource management.

The 'Tilbuster Commons' Project provides a good example. The proponents of this project recognised the potential advantages of communally-organised ('community-based') processes for dealing with environmental externalities. However, their experience of existing processes of this kind operating locally (e.g., via Landcare groups) was that they were "piecemeal, fragmented and small in scale" and, together with the processes operating regionally (e.g., via ICM committees), produced "ill-defined and unenforceable rules" and thus unsatisfactory levels of compliance with the decisions made in those processes (Williamson, Brunckhorst, and Kelly 2003). They sought to explore whether these weaknesses of existing community-based environmental programs could be overcome through communally-organised agriculture. They did so by running an 'experiment' in one sub-catchment: the Tilbuster Valley about 15 kilometres north of Armidale in the New England Tablelands of New South Wales.

The idea of the project was to combine four adjacent farms in the valley (with a total area of 1,300 hectares or 3,100 acres), together covering most of its area, into a 'common property resource system' (CPRS). The private owners of the farms contributed their land (while retaining their individual land titles), livestock, infrastructure and labour into the CPRS, with the combined resources managed collectively by the entire group as a single enterprise. In January 2001, the CPRS was instituted formally as a private

company (Williamson, Brunckhorst, and Kelly 2003). Although the company became responsible for a landscape of a scale that a Landcare group might otherwise have taken environmental responsibility for, its structure gave it scope to develop enforceable rules through which compliance by co-owners (referred to as 'commoners') with agreed integrated solutions could be assured.

This scope arose from the company, as organised along CPRS lines, providing a vehicle for integrating the environmental interests of the commoners with their social and economic interests. Their agreed environmental interests and values could be translated formally into the constitution or working rules of the company. Their shared environmental values would also influence the informal decisions required day-to-day in running a farm business. Compliance with the constitution and working rules could be enforced by imposing the corresponding formally-agreed sanctions for non-compliance, while compliance with informal collective decisions could be assured in most cases on the basis of mutual trust reinforced by the peer pressure at work in a small group.

Notwithstanding the original focus of the Tilbuster commoners on the environmental benefits of joining forces, they also have enjoyed significant social and economic benefits. These include economies of scale from pooling land, productivity gains and personal satisfaction of working in teams, increased innovativeness as a result of commoners sharing the associated risks, and greater opportunities for families to get away and enjoy a real holiday (Williamson, Brunckhorst, and Kelly 2003).

2.6 The Furracabad Valley experience

The present project serves as a further example of interest in forming a communal farming system evolving out of experiences in local-community-based natural resource management. The project concept evolved from the Furracabad Landcare Group having worked together successfully for over a decade in enhancing the environmental sustainability of the Furracabad Valley. This valley is located approximately 5-7 kilometres south west of Glen Innes in the New England Tablelands. It consists of about 25-30 farms, varying in size from 50 to 1,500 hectares.

The accomplishments of the landcare group in respect of environmental sustainability led its members to consider how they might use the platform for local collective action they had established to pursue the social and economic sustainability of agriculture in their valley as well. They were concerned in particular with the ongoing implications of the agricultural adjustment problem for not only their valley but for the surrounding district, including its urban centre (Glen Innes) upon which they depend for services.

Driven by this concern, they completed a 'Farming for the Future' program offered by NSW Agriculture in order to improve their skills in business planning. The program highlighted in particular the economies of scale that the smaller farms were missing out on. Nevertheless, the view was formed that all farms in the valley could gain economically if they were to pool their resources into a single communally-managed operation and share the resulting economies of scale. Compared with the alternative of some farmers buying others out in order to capture these economies for themselves, it was anticipated that the communal approach would strengthen valley's social fabric.

3. THE FURRACABAD FARM CLUSTER: GETTING FROM IDEA TO INVESTIGATION

A preliminary meeting was held in May 2000 to focus the concept they had in mind. The meeting was joined by the Farming for the Future facilitator and a private consultant who shared insights from three cooperative farming ventures that he had been involved with (machinery and ram breeding syndicates). As foreshadowed in the Introduction to this report, the project concept agreed to at the meeting was "a syndicate of farms all managed under one entity to achieve efficiencies and develop better employment, social and economic conditions for the stakeholders and the surrounding community".

It was agreed also at this meeting that the project would require professional support and a staged consultation process to enable the participating farmers to understand and cope with the changes entailed by implementation of the concept. As the application for project funding explained, "Farmers have traditionally operated in management isolation, making their own decisions and rarely having to make joint decisions that directly influence their financial future. It is here that the greatest challenge lies in ensuring that stakeholders fully understand the concept and the impact on them". As mentioned in section 2.4, at least one previous study had identified lack of available expertise to facilitate 'fully-integrated group farming', as well as ignorance among farmers of what it entails, as formidable obstacles to its adoption. It was decided to apply for external project funding because the smaller farmers interested in participating were not in a position to share the costs of the project including those of professional support.

Accordingly, a funding application was submitted in May 2001 to the Regional Assistance Programme administered by the Commonwealth Department of Transport and Regional Services. The application was approved in early 2002. In the meantime, the concept terminology had evolved from the 'Furracabad Farm Syndicate' to the 'Furracabad Farm Cluster'. The outcome envisaged by the project's completion was that the syndicate (i.e., cluster) would be operating commercially. In order to have reached that stage, a business plan would have been developed and signed off, and an appropriate structure and operating guidelines agreed to.

The project methodology comprised the following steps, each involving active consultation with the farmers participating in the project:

1. Undertake a 'resource audit' to indicate the potential gains from forming a farm cluster.

2. Outline a structure for implementing the farm cluster concept and identify the likely gains under that structure for interested farmers.

3. Develop the farm cluster concept to the stage of a business plan.

4. Obtain acceptance of the business plan by a 'critical mass' of farmers.

5. Achieve sign-off from these farmers on proceeding to establish a farm cluster as a commercial entity in accordance with the business plan and detailed operating guidelines.

A Project Steering Committee was established to oversee the application of this methodology. The members of this committee were Robert Dulhunty (landholder in the Furracabad Valley, and vice Chairman of the Glen Innes Natural Resources Advisory Committee (GLENRAC)), Doug Kenane (secretary of GLENRAC), Simon Fritsch (consultant with Agripath Services) and the author of this report (as project director with the Institute of Rural Futures, University of New England).

Achievements in respect of the project methodology are discussed in sections 4 and 5.

4. THE RESOURCE AUDIT

4.1 Background

The first step of the project methodology involved an 'audit' of the resources available to the stakeholders in order to identify the potential of a farm cluster arrangement to bring about resource utilisation more in line with stakeholders' goals. For a number of reasons including drought, the resource audit did not commence until February 2003. In the meantime, the circumstances of a number of the farmers originally interested in the cluster concept had changed significantly. While exploring the potential for economic and social benefits arising from greater cooperation between farm businesses remained of considerable interest to these farmers, the original concept of pooling their land under a single entity was no longer feasible for them, at least within the short to medium term. As a result, it was decided that the focus of the resource audit would be broadened to consider any form of cooperation between farm businesses located in or near the Furracabad Valley with the potential to yield social, economic and environmental benefits to participating businesses and their surrounding region.

The purpose in this section of the final project report is to outline the resource audit process, provide details of the farm businesses interviewed, discuss the main types of inter-business cooperation for economic and social benefit identified in the interviews, summarise interviewees' attitudes to these options and, finally, offer some suggestions consistent with these attitudes for progressing inter-business cooperation between the participants in this project.

4.2 The resource audit process

The question of how the resource audit would proceed was discussed at a meeting held at the offices of the Glen Innes Natural Resource Advisory Committee (GLENRAC, located within the Glen Innes premises of the then NSW Department of Land and Water Conservation), now the Department of Planning, Infrastructure and Natural Resources) in Glen Innes on the 4th February 2003. Representatives from all nine farm businesses listed in the project funding application were invited to this meeting, aside from one business whose owner had since left the district. Six of these businesses were represented at the meeting. The meeting was attended also by Doug Kenane, the Executive Officer of GLENRAC, and by the author of this report.

It was decided at the meeting that the resource audit process should extend beyond the property owners originally listed in the project funding application to any other landholders in and around the Furracabad Valley with an interest in the farm cluster

concept. In order to make this wider population aware of the project concept, it was agreed that a circular outlining the concept and project would be distributed. The list of property owners to receive this circular was compiled by Rob Dulhunty in consultation with Doug Kenane and a representative of one other farm business listed in the project finding application. A copy of the circular can be found in Attachment A of Marshall (2003).

In order to further increase understanding of and participation in the project, it was decided also at this meeting to hold a field day at the Tilbuster Commons. It was expected that farmers would learn more effectively about the project concept from listening to other farmers with relevant practical experience. This field day was held on 21st March 2003. It was publicised via a flyer posted to the extended list of property owners mentioned above and through an advertisement placed in the local newspaper. The field day was attended by four property owners from the Glen Innes area.

The resource audit was undertaken through face-to-face interviews. The property owners originally listed in the project funding application were presumed to have sufficient understanding of the project for me to approach them directly in arranging interviews. The property owners added to the original list were approached in the first instance by Rob Dulhunty who gave a brief description of the project and ascertained whether they had sufficient interest in it to warrant me approaching them to arrange an interview. An interview schedule was developed to structure questioning within each interview and prompt discussion of key issues.

Eighteen interviews were conducted in total. The duration of the interviews varied from one hour to three and a half hours. The interviews were mostly conducted in interviewee's homes, or else in their workplaces (if working off-farm) or in farm buildings. The first part of each interview, prior to commencing the questions included in the interview schedule, consisted of discussing the project concept and answering any initial queries they raised. This turned out to be a very important role of the interviews in many cases, with quite a few of the interviewees bringing to the interview only a vague, or else overly narrow, understanding of the project.

4.3 Details of the farm businesses interviewed

Key details of the 18 farm businesses interviewed are presented in Table 1. The names of the farmers interviewed are withheld for reasons of confidentiality. Considerable additional detail was obtained on each business in the resource audit interviews in respect of the resources that they have on hand and might be prepared to contribute to a farm cluster. Resources for which details were obtained included: natural assets (land, water, wildlife, scenery, etc.), human-made assets (buildings and structures, machinery and equipment, etc.), livestock, human resources (management, family and non-family labour, etc.), and social resources (e.g., networks, trust, leadership, etc.). This information would be used in developing the business plan for the farm cluster if the project were to proceed that far.

Table 1: Details of the farm businesses interviewed for the resource audit

Farm business interviewed	Total area owned (acres)	Main enterprises
1	25	Cattle fattening
2	2000	Self-replacing Merino flock, cattle breeding and fattening, opportunity trading of cows & steers
3	260	n.a. (property is leased out)
4	103	Cattle fattening
5	3,200	Cropping, steer fattening, commercial Merino breeding, Merino stud
6	110	Contract breeding of horses
7	992	Buy and fatten cattle.
8	601	Self-replacing Merino flock.
9	403	Buy and fatten heifers, buy cows with calf at foot, Merino ewes for fat lambs, opportunity buying of store lambs
10	3,550	Soybean, oats and maize cropping, self-replacing Merino flock, cross-bred ewes for fat lambs, cattle breeding
11	1,500	Self-replacing Merino ewes, 1st-cross ewes, and breeding/growing cattle
12	785	Cattle fattening, opportunity sheep trading
13	1,220	Fattening and breeding cattle.
14	2,200	Cattle breeding and fattening, Poll Dorset Stud
15	299	n.a. (property is leased out)
16	704	Cattle breeding and fattening
17	763	Cattle (mainly weaners), oats/clover hay production
18	157	Oats/clover hay production, superfine wool, phalaris grass seed

4.4 Interviewees' comments on the farm cluster option

4.4.1 Details of the option

There is no single best way of establishing and running such an option. The best way in the case of the farm businesses participating in this project can only be determined on the basis of their unique social, economic and environmental circumstances. Some idea of the flexibility that exists in establishing and running a farm cluster of this kind can be gained from the range of case studies discussed in chapter 7 of the book *Group Farming* (Powell et al. c1982). The basic idea involves a number of farm businesses agreeing to establish some kind of joint organisational entity that would manage the lands owned by the businesses as if it were a single property. The businesses would agree at the outset on a 'constitution' for the farm cluster, which would cover such issues as selection procedures for directors of the entity, rights and responsibilities of the directors, rules for apportioning profits, procedures for conflict resolution, procedures for selecting management and labour, and so on.

A business plan for the farm cluster would be developed collectively by the participating businesses. This would identify the enterprise mix to be established and run by the farm cluster over the agreed period for which the land owned by participating businesses is to be leased to the farm cluster. This business plan would determine which of the land and non-land assets owned by the participating businesses would be of value to the farm cluster.

On the basis of the business plan, the farm cluster would negotiate with participating individual farm businesses how they would be remunerated for the assets needed to put the plan into action. Each of the participating businesses would retain private ownership of their land, but would agree to lease some or all of their land to the farm cluster for an agreed period according to an agreed scheme of remuneration (e.g., with lease rates related to an independent assessment the carrying capacity of the land to be leased, with additional allowances for existing fixtures such as buildings and stockyards required to run the business plan). It would also be possible for the farm cluster to acquire and assume ownership of land in its own right unless that was ruled out in its constitution.

The farm cluster would also remunerate individual businesses for the non-land assets that it acquired from them, such as livestock, machinery and other plant/equipment. It may be most practical for the farm cluster to purchase *all* the non-land assets owned by individual businesses, other than those that they wish to retain for reasons unrelated to the farm cluster's business plan, and keep those assets consonant with the business plan and sell the remaining assets – whether or not the assets are retained by the farm cluster, the businesses originally owning them would be remunerated according to market value.

Persons involved in the participating businesses could be employed by the farm cluster in return for agreed rates of remuneration (e.g., based on market rates). However, the farm cluster need not be obligated to employ all these persons or be restricted to employing persons involved in the participating businesses. The farm cluster may also engage a range of outside services including those provided by accountants, solicitors, stock agents and consultants. It might also be more economical for the farm cluster to acquire some types of labour and machinery services (e.g., shearing and hay-making) by way of outside contractors.

4.4.2 Advantages of the option

The economic advantages of the farm cluster option arise from the economies of scale it offers its prospective members. It allows them to pool their land parcels into a single farming operation closer to the scale at which their goals can be realised most efficiently. The social advantages of the option arise from the scope it offers for this optimal scale to be achieved without farmers buying their neighbours out and consequently losing at least some social interaction with, and support from, them. These social advantages stem from the willingness of the individual farmers involved to cooperate in sharing the available economies of scale instead of competing to capture as large a share of them as possible. Although the advantages of the farm cluster option all revolve around economies of scale, a variety of such economies were identified by the farmers interviewed during the resource audit. These different types are discussed below.

a. Pooling land under a single entity offers agricultural productivity gains to the extent that there are production synergies between the land parcels that are pooled. These synergies can arise from the parcels 'supplementing' or

'complementing' each other. Land parcels supplement one another when they share similar characteristics that allow production efficiencies or market advantages from expanding an existing activity (e.g., sheep breeding). They complement one another when pooling them establishes sufficient areas of land with different characteristics that specialisation of land use becomes possible. Whereas each individual farmer might currently undertake both sheep breeding and sheep growing activities on their separate land parcels, for instance, amalgamating the parcels may produce large enough areas with a comparative advantage in each activity that it becomes feasible to limit breeding and growing, respectively, to the land with a comparative advantage in it. Whereas the scale economies from pooling supplementary land parcels will require the parcels to be reasonably close to one another (e.g., so that the sheep involved in a breeding activity can easily be grazed on the pooled land parcel), the accessibility of complementary parcels to each other will be less important (e.g., since transfers of livestock between sheep breeding and growing activities occur relatively infrequently).

b. Pooling the land of different farm business might also offer important non-agricultural productivity advantages. This may occur as a result of supplementation of land suitable for a particular non-agricultural land use (e.g., ecotourism) such that the total area available for that use becomes sufficient to pursue that use on a commercial basis. Non-agricultural commercial land uses of this kind that were mentioned in interviews included farmstays, wildlife tours, hunting and fishing, fossicking, tearooms, and conference/convention facilities. Pooling land provides for a more extensive and diverse landscape and ecosystem to be enjoyed by farm-stayers or eco-tourists. It provides for a greater variety of suitable sites for cabins and other facilities and thus better prospects for realising economies of scale in running and marketing such facilities. The establishment of a pooled workforce under this option may, by allowing greater scope for specialisation of labour, free up time that could be allocated to such non-agricultural activities (e.g., one person with suitable aptitude could focus their time on taking bookings for and managing the farmstays).

c. The farm cluster option can provide sufficient scale to realise productivity and personal benefits from specialisation of labour more generally. To the extent that the skills, temperaments and interests of members of the farm cluster differ, the scope for each member to spend more time on activities suited to them and at which they enjoy a comparative advantage will make for a more productive and happier group. Davies and Brownscombe (1978) observed that labour specialisation may particularly pay dividends if it improves the quality of record-keeping and otherwise makes for more systematic decision-making.

d. The increased scope for specialisation of labour can also increase the potential for children and senior individuals to contribute to the success of a farm business. Despite any loss of strength or vitality, people can continue to make valuable contributions as they age by sharing their knowledge and experience (perhaps as a director of the cluster) as well as by taking on some of the less strenuous tasks. The farm cluster option offers an alternative to leasing land on a one-to-one basis as a way of senior people staying on the farm after winding back their commitments to physical work. It offers the advantage over one-to-one leasing of allowing senior people to semi-retire – insofar it allows them to

maintain an active role in strategic and operational decision-making pertaining to their own land (as well as the remaining land run by the cluster) and in sharing their knowledge and experience with others involved in the cluster. Any greater variety of activities (including non-agricultural activities) carried out by a cluster might also be expected to broaden the opportunities for children to find a productive niche in the work life of the cluster. The greater variety of mentors for children in a cluster arrangement can also broaden the opportunities for children to develop the kinds of agricultural and other skills that they would need to find work in the district as an adult, either within the cluster or elsewhere.

e. The farm cluster option can provide sufficient scale to permit fuller utilisation of permanent labour. As Powell et al. (c1982 p. 94) found: "The difficulties in recruiting skilled casual labour for important seasonal tasks encourage some farmers to employ permanent labour, even though full-time assistance is not required all year round". Joining different farm businesses into a single entity expands the scope to include activities (agricultural and non-agricultural) that soak up seasonal surplus capacity in permanent labour and thus reduce labour costs per unit of overall output. Powell et al. (ibid.) found that some group farming ventures had achieved cost savings of about six percent through making fuller use of permanent labour. To the extent that skilled and experienced permanent labour is often in short supply as well, fuller utilisation of this labour is even more valuable.

f. By leading to formation of a larger labour pool than any individual business would have at their disposal, the option provides for greater flexibility in matching the size and composition of labour teams to the demands of particular tasks. For instance, some tasks that can be done easily and quickly if a team of two is readily available can be disproportionately more difficult and slow if only a single person can be found to do them.

g. By increasing the size of the labour pool, the costs associated with satisfying accreditation and other quality control requirements, occupational health and safety requirements and so on might be reduced per employee through scale economies. For instance, it might not take much more effort to train two new employees than it does to train one.

h. Forming a larger labour pool might also provide scale economies in the training of farm apprentices. The demands on any one worker to provide hands-on experience to an apprentice would be reduced, and the apprentice might be expected to obtain a higher-quality training experience as a result of learning from workers who, because of the greater scope for specialisation of labour, are more skilled in performing their assigned functions than would be workers in a smaller operation who would tend more to be 'jacks-of-all-trades'.

i. The greater scope the option affords for working in teams can foster learning and innovation by increasing opportunities for 'bouncing ideas around'. Davies and Brownscombe (1978 p. 9) remarked accordingly that "it is likely that a group will be able to draw on more experience and more ideas than will an individual. Some existing syndicates consider this to be the most important advantage". Greater teamwork can also offer important psychological and social benefits through increasing the possibilities for sharing with peers the emotional highs

and lows associated with successes and failures. Teamwork can also motivate individuals who do not want to let the team down or who do not want to be outshone by their peers.

j. Working as part of a larger team offers team members greater scope for taking time off due to the potential for coordinating individuals' work rosters over a week and over a year so that they are able to take time off at weekends (or at least during each week) and annual vacations. One person interviewed observed that marital breakdown has become a major cause of farm business failure, and consequently that it now must be regarded poor business management to not take sufficient time off work to spend with one's spouse. Working within a team can also relieve the pressure on individuals to 'soldier on' when they should take time off for health reasons. Moreover, it can provide greater opportunities for individuals to ease off their work commitments as they grow older in order to 'semi-retire' and pursue additional interests.

k. Pooling of land through a farm cluster arrangement provides opportunities to reduce business risk for cluster members in at least two ways. First, their income will be derived across a wider and more diverse landscape the total production from which will depend less on single climatic (e.g., flood, drought, frost, etc.) or other natural events (e.g., fire, weed infestations, soil salinisation, etc.) than would their smaller and less diverse individual holdings. Second, the pooling of land provides greater opportunities for diversifying the enterprise mix beyond that possible for any individual farm business. To the extent that enterprises differ in their susceptibility to particular natural phenomena (e.g., frost), production risk can be reduced through enterprise diversification. To the extent that prices for the outputs of different enterprises do not rise and fall in unison, moreover, price risk can also be reduced through enterprise diversification.

l. The farm cluster option also allows the farm businesses joining it to share the risks of innovation. Trying out innovative opportunities often requires a minimum scale of investment that can expose individual businesses to a level of financial risk they are unwilling to bear. Such opportunities may include trying new technologies, starting new enterprises, adopting new marketing strategies, or purchasing additional land. Spreading the required investment across a number of businesses can reduce their respective risks sufficiently that they become willing jointly to take the punt when they would not have done so as individuals. As Davies and Brownscombe (1978 p. 9) observed in relation to land acquisition, "land is mostly offered as a whole farm unit rather than as smaller blocks. The price of a farm is often so high that an individual farmer cannot raise the capital required to purchase it. In these circumstances, members of a syndicate may be jointly able to afford the capital and so expand".

m. The farm cluster option can provide for sufficient scale of operation to own larger and more up-to-date items of machinery and plant that the individual businesses could otherwise afford only to make use of via contractors. Aside from the contracting costs avoided as a result, ownership can be expected also to provide productivity benefits through enabling greater timeliness of machinery operations. In addition, there may be opportunities for the farm cluster to offer contract services to other farm businesses using these larger and more up-to-date machinery items.

n. The farm cluster option can also permit fuller utilisation of machinery owned by members of the farm cluster, thus spreading the fixed costs (e.g., depreciation, insurance, etc.) associated with this ownership over a significantly greater level of production.

o. The increased scale of business associated with forming a farm cluster can strengthen market power in purchasing inputs and services and thereby reduce the prices paid for these inputs and services. To the extent that input and service suppliers are more anxious to win the trade of larger customers, and their transaction costs of dealing with larger customers are lower per unit of input or service, they will be more inclined to offer discounts to a farm cluster. This argument applies whether we are talking about seed, fertiliser, fuel, sprays, drenches and the like; particular kinds of livestock purchased for breeding or fattening; administrative and professional services such as those offered by accountants, solicitors, financial advisors, consultants and so on; and contract machinery services such as involved in hay-making.

p. For similar reasons, the increased scale of business associated with forming a farm cluster can also strengthen market power in selling outputs from the business and thereby increase the prices received for them. If the volume and reliability of supply from the business is sufficient, it may even be possible to further increase the farm-gate prices received by 'cutting out the middleman'. If the scale of output is sufficiently high, a further option is to add value to that output through engaging in some degree of processing and/or marketing.

4.4.3 Disadvantages of the option

Disadvantages of the farm cluster option that were identified by the farmers interviewed include:

q. Loss of independence arising from having to fit in with a collectively-determined business plan. As noted in section 2.4, the rules needed for a smoothly-running farm syndicate tend to rub against the grain of 'rugged individualism' in Australian agriculture.

r. Becoming more dependent on others. A sentiment expressed a number of times was "I'd rather make my own mistakes than have others make them for me". This sentiment may be partly due to fear of making a poor choice of farmers to partner in a cluster arrangement, but is likely due also to an ingrained ethos of self-reliance that would persist even if this fear was removed.

s. Loss of personal identification with what is produced and with one's own land. Increased specialisation of labour within a farm cluster means that it becomes more difficult for any individual to claim sole responsibility for the quality or quantity of what the entity produces. As one person interviewed commented, "I wouldn't be able to stand there at the saleyards and point to a pen of sheep that I could say was mine". Even though the parcels of land pooled under the farm cluster would remain under private ownership, the fact that each parcel would be worked, and its use decided, collectively meant for some persons interviewed that the pride they take in the condition of their land would somehow be lessened.

A number of the persons interviewed who identified disadvantages of the farm cluster option along the lines of (q), (r) and (s) acknowledged that the option was a good one in principle but that they were too set in their ways to make the attitudinal changes that it required from them.

t. Reduced motivation to work hard in order to 'get ahead'. One person observed that farmers when young are typically motivated to work hard and long in order to get their property functioning as productively as possible, and that they tend to ease off as they grow older and the material needs of their families diminish. This person observed accordingly that there would be less reason for young farmers to work hard and long for a farm cluster if the benefits of working harder and longer were shared by everyone. Conversely, the observation was made that the farm cluster arrangement would be quite suitable for those farmers who were ready to ease off to some extent. These observations point to the need to devise labour remuneration arrangements for a farm cluster that adequately reflect differences in the levels of effort that individuals put in.

u. Risk that the farm cluster will not employ one's labour so one will be worse off as a result. If a farmer's land is committed to the cluster for some years ahead but he or she is not confident that the cluster will continue to employ him or her over that period, this may discourage him or her from joining the cluster (particularly if the individual's alternative employment prospects are poor). A further concern was that someone specialising in a particular enterprise, say sheep breeding, may be made redundant if the directors of the farm cluster decided to wind down that enterprise.

Davies and Brownscombe (1978 p. 11) identified another potential disadvantage of farm syndication (i.e., cluster) arrangements as follows: "With whole farm syndicates there can be complaints that farmers tend to be away from their own farms for longer periods, work is more formalised and a farmer is less able to attend to a household chore or go to town in the middle of the week. Unless communications are good, wives can have less idea of the overall management". These possible domestic disadvantages of a cluster arrangement for farmers' marital relationships would need to be weighed up on a case-by-case basis against the advantage identified earlier of farmers getting increased opportunities to spend time away from the farm with their spouses.

4.5 Interviewees' ideas and comments about alternatives to the farm cluster option

While virtually all the farmers interviewed acknowledged the farm cluster option to be a good idea in principle, and considered the project useful and important, for most the option was "too much, too soon". In a few of these instances, changes in family or other circumstances had become a further obstacle to participating in the option. In some cases, farmers interviewed stated plainly that they could not see themselves fitting in comfortably with this option.

In nearly all cases, however, there was significant interest in exploring simpler forms of cross-boundary cooperation for mutual benefit. In some cases, the interviewees could not imagine that their participation in these simpler forms of cooperation would give them the confidence to eventually embrace the farm cluster option. Nevertheless, in

most cases there was some optimism that success with simpler forms of cooperation would provide a platform of working together from which evolution into the farm cluster option could realistically occur in the medium term. One person interviewed was sceptical of this "slowly, slowly" strategy, believing that farmers would soon content themselves with any simpler forms of cooperation put in place and lose sight of the more ambitious vision upon which this project was instigated.

The simpler alternatives to the farm cluster option that were identified by persons interviewed are listed below, together with comments made about these alternatives.

4.5.1 Buying group for farm inputs

Virtually all the farmers interviewed expressed interest in this option. The option basically involves one or more persons taking responsibility for obtaining from all other interested persons their requirements for farm inputs (e.g., seed, fertiliser, fuel, sprays, veterinary chemicals, etc.) over a specified period (a year was commonly mentioned), calculating from these the total group requirements, asking input suppliers to provide quotations for the overall requirements, and selecting the supplier that best fulfils the pricing and other (e.g., delivery) criteria of the group. Someone would also need to be prepared to take delivery of the order, storing the inputs appropriately, and administering their distribution to group members. This concept could be applicable also to the purchase of livestock (e.g., weaners for growing out), although the logistics of coordinating orders, taking delivery and administering distribution would likely be more demanding.

The *advantages* of this option identified by the farmers interviewed are basically those given as advantage (o) for the farm cluster option.

The *problems or disadvantages* associated with this option that were identified by the farmers interviewed include:

- The responsibilities associated with running the buying group can be time-consuming. Unless any one individual obtains sufficient benefits from the group to make it worthwhile taking on these responsibilities, it may be necessary to reward in some way the person who does accept the responsibilities (e.g., allowing him or her to pay a lower price for inputs than other group members pay).

- Some coordination of individual members' orders may be required to obtain the full benefits of bulk buying (e.g., ordering the same brand where multiple brands of the generic input exist).

- Whilst a buying group can provide clear economic benefits through cost savings, it is less obvious that it would provide social benefits, at least in terms of promoting social interaction between group members.

Davies and Brownscombe (1978 p. 95) referred to this option as a 'buying syndicate'. They observed that syndicates of this kind had been formed to seek discounts on inputs such as fuel, wool packs, drenches and agricultural and veterinary chemicals. They noted that while there had been some failures, others had been outstandingly successful. Powell et. al (c1982) remarked more soberly that the savings from buying syndicates tend

"to be rated more highly than they should be. The administrative time required to save the last cent on input prices should not be under-estimated. In the main, the advantages enjoyed by a group farm tend to be no greater than those available to any enterprising farmer who seeks out discount houses as suppliers of goods on a cash basis".

4.5.2 Buying group for business services

This option is a variant of the one just discussed. In this case, the 'inputs' to be bulk-purchased would be farm business services such as provided by secretarial and book-keeping services, accountants, solicitors, financial advisors, veterinarians, agronomic consultants, and so on. Basically, it would involve someone taking on the responsibility of ascertaining from prospective group members their requirements for the service/s to be targeted, calculating the aggregate requirements for that service (or services), asking prospective providers of those services to provide quotations for those aggregate requirements, and selecting the supplier/s that best satisfy the group's selection criteria.

The *advantages* of this option identified by farmers interviewed overlap those given as advantage (o) for the farm cluster option. An additional advantage identified by one person interviewed is:

- Use in common of an accountant or solicitor or even an agronomic adviser can lead to a level of mutual trust in such individuals by group members that may empower such professionals to play a key role in facilitating evolution of the group into a farm cluster if and when group members begin to consider this option more seriously.

The *problems or disadvantages* associated with this option that were identified by farmers interviewed include:

- Trust in the competency and confidentiality of business advisors such as accountants and solicitors can be as or more important for some people than the competitiveness of their pricing. In addition, considerable loyalty can exist in ties between farmers and the likes of accountants and solicitors due to longstanding dealings. For confidentiality-safeguard reasons, moreover, some farm businesses favour using accountancy and legal services provided from outside their own town. These 'non-price' considerations might pose a significant obstacle to some of the persons interviewed taking up this option, at least in relation to accountancy and legal services.

- The group may need to exercise some pressure at times to ensure that members do actually utilise the business services for which agreements exist, or else any discounts on fees stated in these agreements may be forfeited.

4.5.3 Labour pool

This option involves the establishment of a distinct legal entity (akin to a co-operative) that would contract labour, business (e.g., book-keeping or accounting) or other (e.g., contract machinery) services on behalf of a group of farm businesses interested in making uses of those persons or businesses contracted. These parties could be contracted to the 'labour pool' on a full-time, part-time or even casual basis. The labour and services contracted by the labour pool could be sourced from the families of the

participating farm businesses (thus offering them new avenues for income generation and social interaction) as well as from 'outsiders'.

Related to advantage (e) listed in relation to the farm cluster option, the labour pool option would generate benefits to a group through enabling fuller utilisation of the restricted supply of skilled and experienced farm labour (and sometimes administrative and professional staff) available within a district. Businesses currently relying on contractors or unskilled/inexperienced casual labour as a result of being unable to find satisfactory part- or full-time employees gain the opportunity to utilise skilled and experienced labour that is under-utilised by other businesses. A related advantage of the labour pool concept, at least for those businesses currently under-utilising the farm labour on their payroll, is that it would allow the costs of any remaining under-utilisation to be shared with other businesses.

Advantages (f), (g), (h) and (j) discussed in relation to the farm cluster option apply also to the labour pool option. Advantage (i) might also apply to a lesser extent.

A further advantage of the labour pool option mentioned by a few farmers is:

- The option would offer an ideal avenue for employing labour or contracting services to undertake tasks that need to be performed in a coordinated way across individual property boundaries in order to be effective. Such tasks include weed control (at least for weed species that spread easily across boundaries), control of feral animals (e.g., foxes, rabbits and pigs) or excessive populations of native animals (e.g., kangaroos), tree planting and riparian zone restoration.

Powell et al. (c1982) found that the labour pool idea (which they called 'labour sharing') to be particularly relevant for dairy farming. This type of farming enterprise uses labour every day of the year. Reliable casual labour is often difficult to find when it is needed. Consequently, the individual dairy farmer typically finds it difficult to take time off for weekends and annual holidays, or even for sickness. They found that dairy farmers using this option tend to do so by establishing a company or co-operative to employ the labour. They found that a challenge in this arrangement is to ensure that the labour employed is used throughout the year. One solution to this challenge was to employ a small permanent staff but to keep 'on the books' the names of other self-employed or part-time workers who could be called upon when the need arose. They discovered that labour sharing co-operatives were particularly widespread in the dairying regions of the Netherlands. They found that half the members of co-operatives were not making regular use of the service but looked upon membership as a kind of insurance for illness or injury.

4.5.4 Selling group for farm outputs

There was less interest in the selling group option (called a 'marketing syndicate' by Davies and Brownscombe (1978)) than was the case for the buying group for farm inputs. The interest expressed was solely in relation to selling livestock and livestock products. Basically, the option involves one or more persons taking responsibility for obtaining from all interested persons their planned schedule for disposal of their livestock and livestock products over a specified period (a year was commonly mentioned), calculating from these schedules the aggregate schedule of planned disposals over that period, asking prospective purchasers (e.g., processors) to provide quotations

for the overall requirements, and selecting the purchaser that best fulfils the pricing and other selection criteria of the group. Someone would also need to be prepared to collect the supplies of livestock and livestock products from each farm business according to the agreed schedule and organise delivery of the pooled shipment according to the purchaser's specifications. An alternative to asking prospective purchasers to provide quotations on the basis of a detailed schedule of deliveries that was mentioned by some persons interviewed is to hold a series of on-farm sales to which prospective purchasers would be invited.

Advantage (p) discussed in relation to the farm cluster option potentially applies to this option as well. However, a particular challenge with realising this potential advantage lies in locating a sufficient number of businesses whose livestock enterprises are sufficiently similar to make it possible for their outputs to be sold on the basis of demonstrating consistent quality. A related challenge involves ensuring that the similar livestock enterprises of the different businesses are sufficiently coordinated to make it possible to satisfy purchasers' demands for a reasonably constant, or at least reliable, supply over a year.

The incentive for members of a livestock selling group to comply fully with the terms of what they have mutually agreed to supply could reasonably be expected to be weaker than would be the case for members of a farm cluster entering a selling agreement with a purchaser of livestock or livestock products. This is because the members of the farm cluster would share a common financial motive (i.e., maximising the profits for the joint entity) whereas the members of a selling group would be interested primarily in maximising their own profits. Where scope exists for members of a selling group to share in the price advantages enjoyed by the group without complying fully with what the group expects of them (e.g., timely delivery of a specified quantity and quality of livestock to a central location prior to transportation to the purchaser), then we might expect individuals' compliance with the selling-group option to be less reliable than with the farm cluster option.

4.5.5 Machinery syndicate

This option involves the purchase of one or more expensive items of machinery by a group of farm businesses rather than by individual businesses. It enables fuller utilisation of these items than individual businesses would achieve, and thus reduced costs per unit of output by virtue of spreading fixed costs of ownership (e.g., insurance, maintenance, depreciation, interest payments) over a larger scale of production. The fuller utilisation can create further benefits through leading to more regular replacement and, thus, access by members to machines that are on average newer and more 'up-to-date'.

A formal machinery syndicate involves establishing a separate legal entity responsible for purchasing and maintaining machinery items, regulating their use by syndicate members, and raising from members their agreed contributions towards purchase, maintenance and other relevant costs. One person interviewed observed, however, that in his experience machinery-sharing arrangements by farmers typically worked less formally than the type of arrangement just outlined. He commented that if such arrangements could not work simply on the basis of trust then they were likely doomed from the outset.

The machinery syndicate option seeks to replicate advantages (m) and (n) identified in relation to the farm cluster option. For basically the same reasons discussed in relation

to the selling group option, the prospects of a machinery syndicate realising as great an advantage from inter-farm cooperation (here in respect of machinery ownership) as could be achieved from the farm cluster option are limited by the lesser commonality of motivation in the former case. More to the point, there is less common motivation in the case of a machinery syndicate (the members of which are focussed still on maximising their own distinct interests) to take good care of machinery items than there would be in the case of a farm cluster (where members' interests are aligned with those of the cluster insofar as their own profits are linked directly with those of the cluster).

This challenge for machinery syndicates was highlighted by a number of the persons interviewed. Suggestions for facing this challenge included:

- Appoint a syndicate member with mechanical expertise to become responsible for checking that machinery items are returned in the condition in which they were despatched. Where damage reasonably attributable is detected, the repair costs could be assigned to the person responsible.

- Restrict the operation of particular machinery items to nominated persons with the required skills and experience. Other syndicate members wanting to make use of particular items would consequently remunerate the syndicate as if a contract machinery service had been provided.

Davies and Brownscombe (1978) observed that formalised farming machinery syndicates had been established for types of machines including the following: tractors, tillage equipment, scoops, wool presses, hay making equipment, rock pickers, bulldozers, rippers, fertilizer spreaders, seed graders, and harvesters. They concluded that the success of a syndicate for a particular item of machinery depends on:

(i) Frequency of use. If the machine is regularly used by all syndicate members, the problems of collecting it and the chances of different members wanting it at the same time will be greater.

(ii) The urgency of the task. It is harder to successfully share machines when timeliness of operation is critical. Powell et al. (c1982) found accordingly that syndication of non-seasonal machinery presents the least timeliness problems.

(iii) Ease of transport. In order that a machine can be easily shared, it must be transportable between syndicate members' farms.

(iv) Initial cost. Inexpensive machines are not worth syndicating, since the savings from sharing the initial cost will be outweighed by the time taken in drawing up an agreement and any inconveniences caused by sharing the machine.

(v) Ease of maintenance and operation. The less complicated the machine, the easier will it be to draft suitable working rules.

Powell et al. (c1982) compiled a useful checklist of issues to be considered in establishing a machinery syndicate.

4.6 Summary of interviewees' attitudes to the various options

The attitudes of the farmers interviewed to the options discussed in sections 4.4 and 4.5 are roughly categorised in Table 2. The attitudinal categories used are 'unlikely interest (in the option)', 'possible interest' and 'strong interest'. The frequency with which the group of interviewees' expressed each attitude in relation to each option is shown in Table 3.

Table 2: Interviewees' attitudes to the options identified

Farm business interviewed	Option (Key: ○ unlikely interest; ● possible interest; ●● strong interest; n.d. not discussed)						Preferred role/s in any group arrangement	Other comments
	(1) Farm cluster	(2) Buying group for farm inputs	(3) Buying group for business services	(4) Labour pool	(5) Selling group for farm outputs	(6) Machinery syndicate		
1	○	●●	○	●●	●●	●	Offering livestock marketing advice as a stock agent. His wife might be interested in contributing to tourism options.	Feels his land is too small to be worth joining to cluster.
2	○	●●	●●	n.d.	●●	●	He cannot see himself as part of a cluster arrangement.	Keen on sharing an accountant. He would insist on operating any machinery he contributed to a machinery syndicate.
3	●●	○	○	●	○	○	Husband: contribute to office administration and general farm work. Wife: Enjoys general farm work, including woolshed.	They are enthusiastic about the project but cannot now contribute their land for various reasons. They are keen to participate through sharing their labour, skills, and experience.

Person/s interviewed	Option (Key: ○ unlikely interest; ● possible interest; ●● strong interest; n.d. not discussed)						Preferred role/s in any group arrangement	Other comments
	(1) Farm cluster	(2) Buying group for farm inputs	(3) Buying group for business services	(4) Labour pool	(5) Selling group for farm outputs	(6) Machinery syndicate		
4	●	●●	●	●	●●	●	Not sure, but both are interested in exploring how they might participate in a cluster arrangement.	Not interested in joining cluster initially, but are interested in small-scale herb production and might consider joining cluster if this helps to get scale economies in this enterprise. Would consider joining a combined farmstay arrangement once herb enterprise gets going.
5	●●	●●	●●	●●	●●	●●	Husband: Strategic management; Wife: talents as an organiser.	
6	●	●●	○	●●	○	○	He could imagine contributing professional skills to cluster or labour pool, perhaps giving discounts to cluster in return for loyalty.	Unique nature of his animal breeding business makes it difficult to join his land to a cluster.

Person/s interviewed	Option (Key: ○ unlikely interest; ● possible interest; ●● strong interest; n.d. not discussed)						Preferred role/s in any group arrangement	Other comments
	(1) Farm cluster	(2) Buying group for farm inputs	(3) Buying group for business services	(4) Labour pool	(5) Selling group for farm outputs	(6) Machinery syndicate		
7	●●	●●	●	●●	●●	●	Would like to focus on livestock and machinery work.	He would be keen for Option 1 if could get commitment of 5-6 thousand acres. He favours progressing to Option 1 immediately rather than via buying group etc. Commented that his property would be good for ecotourism, but would leave it to others to run any accommodation on his land.
8	○	●●	●	●●	○	○	He is most interested now in the motivational and learning benefits of working as a team, such as in a labour-bartering group.	He's in favour of starting with something simple like a buying group. There are locations on his land that would make for good eco-farmstays. Would only enter a cluster if it had an environmental commitment. He has been in a buying group before and could share experience

Person/s interviewed	Option (Key: ○ unlikely interest; ● possible interest; ●● strong interest; n.d. not discussed)						Preferred role/s in any group arrangement	Other comments
	(1) Farm cluster	(2) Buying group for farm inputs	(3) Buying group for business services	(4) Labour pool	(5) Selling group for farm outputs	(6) Machinery syndicate		
9	●	●●	●●	n.d.	●	○	Husband: Open-minded but prefer management/ supervision. Wife: Book-keeping, ecotourism.	They are hoping to spend more time away from farm, so attracted to Option 1 partly for this reason. They see an advantage in starting simple (eg, bulk buying) and building on that.
10	○	●●	●●	●●	●●	●●	Indirectly perhaps by participating in labour pool, buying group, and sharing an accountant.	He likes to do his own thing, and doesn't lack scale, but sees particular potential in the labour pool, buying group and sharing accountants that don't require proximity. Sees potential in his backcountry for ecotourism.
11	○	●	●	●	○	●	No direct role anticipated at this stage.	Main current interest is in learning from other farmers

Person/s interviewed	Option (Key: ○ unlikely interest; ● possible interest; ●● strong interest; n.d. not discussed)						Preferred role/s in any group arrangement	Other comments
	(1) Farm cluster	(2) Buying group for farm inputs	(3) Buying group for business services	(4) Labour pool	(5) Selling group for farm outputs	(6) Machinery syndicate		
12	○	●●	●	○	●	●	No direct role anticipated at this stage.	They want to be able to be able to spend more time away from the farm. The husband likes to do his own thing, make his own mistakes. They've had previous successful experience with sharing machinery, which they'd be pleased to tell others about. They'd be keen on more opportunities to interact and learn from other farmers.
13	○	●●	●●	●●	●	●	He'd be interested in contributing his knowledge about machinery to helping run a machinery syndicate.	He's getting older, so interested in more time off, but probably too much an individualist to join Option 1. His land has potential for ecotourism. He believes that sharing a solicitor and/or accountant put such professionals in a mutually-trusted position to facilitate further forms of cooperation.

Person/s interviewed	Option (Key: ○ unlikely interest; ● possible interest; ●● strong interest; n.d. not discussed)						Preferred role/s in any group arrangement	Other comments
	(1) Farm cluster	(2) Buying group for farm inputs	(3) Buying group for business services	(4) Labour pool	(5) Selling group for farm outputs	(6) Machinery syndicate		
14	○	●●	●	●●	●●	●●		He's in favour of starting simply (eg, labour pool) and perhaps building to cluster from there. He can't see how he could integrate his sheep breeding stud within a cluster arrangement (quarantine issues). He suggested a cluster arrangement might get off ground easier if it involved joint purchasing of new land rather than leasing existing land (issues of maintaining family heritage). He's interested in the motivational/learning benefits of working as a team.
15	●	○	○	○	○	○	No role envisaged, other than possibly leasing land to the cluster.	Their land is leased out, but could terminate lease within a year if wanted to. The chance of extra income from joining cluster *might* interest them. But there is a chance that son might return to farm.
16	●●	●●	●●	●●	●●	●●	Skills in livestock marketing.	He sees important benefits for group approaches in promoting behaviour change.

Person/s interviewed	Option (Key: ○ unlikely interest; ● possible interest; ●● strong interest; n.d. not discussed)						Preferred role/s in any group arrangement	Other comments
	(1) Farm cluster	(2) Buying group for farm inputs	(3) Buying group for business services	(4) Labour pool	(5) Selling group for farm outputs	(6) Machinery syndicate		
17	●●	●●	●●	n.d.	●●	●	No role envisaged other than leasing land to the cluster.	Her decision to join cluster will ultimately depend on what family wants to do. She thinks it's best to go for Option 1 immediately rather than first try buying group etc. Sees potential for more tourism in the valley. She sees important benefits from cluster through increasing opportunities for time off and for women & children to get more involved in farm operations.
18	○	●	○	●●	●	n.d.	Could imagine himself doing some jobs for the cluster.	He thinks Option 1 is a good idea, but likes being his own boss too much. Concerned what would happen if he pooled land into cluster but didn't get work with it.

Table 3: Frequency with which different attitudes expressed for each option

Attitude to option	Frequency of attitudes for each option					
	1. Farm cluster	2. Buying group for farm inputs	3. Buying group for business services	4. Labour pool	5. Selling group for farm outputs	6. Machinery syndicate
Unlikely interest (○)	9	2	5	2	5	5
Possible interest (●)	4*	2	6	3	4	8
Likely interest (●●)	5**	14	7	10	9	4
Not discussed (n.d.)	0	0	0	3	0	1
TOTAL	*18*	*18*	*18*	*18*	*18*	*18*

* includes Farm Business 6 whose interest is limited to providing professional advice to cluster members.
** includes Farm Business 3 whose interest is limited to contributing labour, management and knowledge to the cluster.

Perusal of Table 3 indicates that the interviewees as a group are most interested in the buying group for farm inputs, followed in descending order of interest by the labour pool, the selling group for farm outputs, the buying group for business services, the farm cluster option, and the machinery syndicate.

4.7 Consultation on the Resource Audit findings

The material in sections 4.1 to 4.6 was circulated in June 2003 to the members of the Project Steering Committee. The committee met in early July to consider this material.

The higher level of overall interest across 'alternative' options 2 to 6, compared with the farm cluster option (option 1), stimulated considerable discussion at the meeting. Committee members agreed that a significant 'unexpected' opportunity may exist to establish some kind of communally-organised business that could offer some or all of options 2 to 6 in an integrated way. This business could be run as a cooperative that offers economies of scale to its members by acting for them collectively in a range of activities including: bulk buying and selling; joint sourcing of administrative services (perhaps starting with book-keeping); joint employment of labour (including satisfying government regulations relating to occupational health and safety, accreditation and so on); and machinery syndication. Of course, it would be possible to establish separate organisations to perform each of these functions. However, significant advantages in terms of economies of scope would exist from delivery through one business given the complementarities between the options, the fact that the administrative skills required for each would be similar, and the social advantages for group members of being involved in only one organisation that nevertheless gives them multiple reasons to cross paths with one another. Committee members speculated that the single business could be called something like 'Furracabad Farm Services'. Nevertheless, further investigation of this option within the present project was not possible because its funding contract specified that it would focus solely on the farm cluster option.

The Steering Committee judged that while the level of interest in the farm cluster option was lower than for most of the alternative options, it was adequate to warrant further appraisal of this option. The areas of land owned (or co-owned) by interviewees whose attitudes towards the farm cluster option categorised in Table 2 as "likely interest" or "possible interest" *and* who indicated an in-principle willingness to consider joining their land to that option in the reasonably near future are listed in Table 4. This table was made available at the meeting for perusal by committee members.

Table 4: Land identified in the resource audit as potentially available to the farm cluster option in the shorter term

Farm business interviewed	Land area owned (acres)
5	3,200
7	992
9	403
16	704
17	763
Total	*6,062*

The area of land owned by these five interviewees exceeds 6,000 acres. The Committee observed that the various land parcels involved are adjoining, aside from the 350 acres owned by Farm Business 16 that is located near Glencoe, some 20 kilometres south of Glen Innes. It was noted that this combined area compares favourably with the total land holding of 3,100 acres or so (also adjoining) upon which the Tilbuster Commons was founded. The Committee was optimistic that if the farm cluster option could get started in the Furracabad Valley, then the fears of other local landholders would gradually be overcome. Hence, the original cluster would grow over time and greater economic, social and environmental benefits would flow as a result.

The Committee formed the view that implementation of the farm cluster option would not weaken the scope for establishing some kind of organisation to deliver some or all or options 2 to 6 in an integrated fashion. It was anticipated that the members of the farm cluster would see strong advantages in achieving even greater economies of scale by joining with the organisation established for (any or all of) options 2 to 6 where this organisation offered services it required.

A report on the resource audit findings and subsequent deliberations by the Project Steering Committee was circulated to all interviewees and to others wanting to be kept informed about project progress. This report, entitled *Furracabad Farm Cluster Project: Report on the 'Resource Audit' Phase of the Project* (Marshall 2003), was circulated in early July.

5. STRUCTURING THE FARM CLUSTER AND IDENTIFYING THE LIKELY GAINS TO FARMERS

5.1 Deciding on a process

The Project Steering Committee agreed that the resource audit findings were sufficiently positive to justify proceeding to step 2 of the project methodology; that is, outline a structure for implementing the farm cluster concept and identify the likely gains under that structure for the farmers interested in being part of it. It was decided that this step would begin with contacting the five farm businesses listed in Table 4 to confirm their interest in exploring further the suitability to them of the farm cluster option. Those businesses with such an interest would be invited to a meeting in order to consider how the farm cluster would potentially be structured and whether the advantages to them under that structure could be expected to exceed the disadvantages sufficiently to justify them committing more solidly to joining such a cluster.

5.2 Outcomes from a first round of consultation

Of the five farm businesses, representatives of four could be contacted: Farm Business 5, Farm Business 9, Farm Business 16 and Farm Business 17 (the owner of the fifth, Farm Business 7, happened to be out of the district for some weeks). Each of these were keen to consider the farm cluster idea in more concrete terms. They were invited accordingly to a meeting in Glen Innes on 17 July. The meeting was attended also by all members of the Project Steering Committee. It was facilitated by Simon Fritsch due to his considerable earlier experience as a consultant helping farmers elsewhere establish farm syndicates.

The landholders present at the meeting appreciated the potential social and environmental advantages of joining a farm cluster, but agreed that their decisions to join would depend ultimately on evidence that they would benefit in economic terms. To help them think through the economic implications of joining, the facilitator led them through what the business structure for the cluster might look like. His previous experiences suggested to him that this kind of structure would be most suitable for the Furracabad landholders. In particular, his experiences had highlighted the importance of apportioning economic rewards in a farm syndication arrangement in accordance with two key principles:

1. Anything you do for the company should be rewarded commercially; and

2. All rewards should be made transparently.

The landholders present were told that joining a farm cluster structured along the lines he proposed would involve them contributing one or more of land, labour or working capital to a company running the affairs of the cluster. The facilitator used Figure 1 to illustrate how the economic rewards to land, labour and working capital would fit within the overall financial flows of such a structure.

Figure 1: Payment of rewards to land, labour and working capital under the business structure proposed for the farm cluster

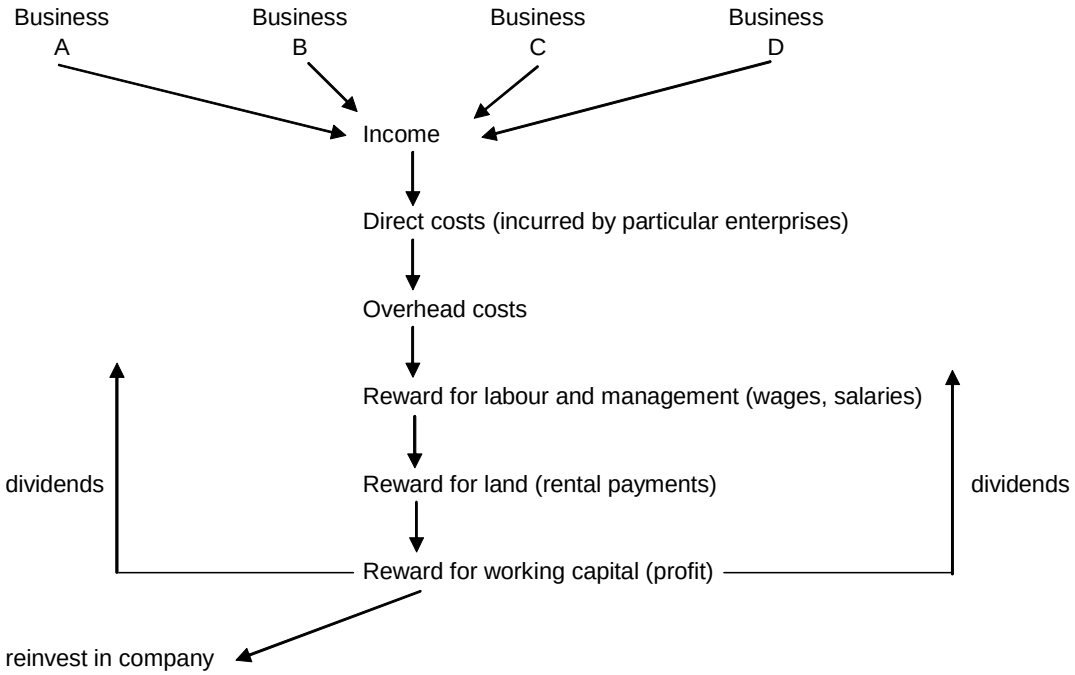

Figure 1 relates to a hypothetical farm cluster involving four farm businesses (although any number of businesses could potentially be involved). The resources contributed by the four businesses are shown as generating a single pool of gross income to be shared between them. From this income

pool, the costs of the various resources utilised to generate the income must be deducted. The direct costs are the costs expended that are enterprise-specific (e.g., incurred in a cattle fattening enterprise). The overhead costs are the costs expended that are not specific to particular enterprises. Once the direct and overhead costs are deducted from gross income, what remains is the net income available for rewarding the labour and management, land and working capital contributed by the four participating businesses. The reward for the working capital contributed – net profit, in other words – is thus calculated by deducting from gross income the sum of: direct costs; overhead costs; the reward for labour and management; and the reward for land. This profit is available for some mix (decided by the company directors) of paying dividends to the participating businesses and/or reinvesting in the farm cluster company.

The landholders present agreed that the reward paid to labour and management should be based on commercial rates matched to the levels of skill and responsibility required. They agreed further that the reward paid for land leased to the cluster company by the participating businesses would need to offer adequate incentive for those businesses to themselves incur the expenses of pasture maintenance and improvement, fencing, and so on. For this reason, it was agreed that land rental rates should be based on the productivity of land parcels (measured by livestock carrying capacity measured on a dry sheep equivalent (dse) per acre basis) rather than on their market value (since market value of land can be influenced by non-productivity factors such as proximity to town or size of property). It was agreed too that land rental rates would need to be guaranteed over a predetermined number of years, at least in the sense that those rates could only be changed by the board of the cluster company and not at the whim of the company manager.

Consistent with the view that the rental rates for land parcels should be based on their respective productivities, the carrying capacities of the various land parcels owned by the five landholders indicating an interest in joining the cluster arrangement (i.e., including Fletcher despite his absence from the meeting) were roughly estimated to allow preliminary budgeting. These estimates are shown in Table 5.

It was envisaged by those present that landholders would contribute to the start-up working capital of the farm cluster company pro rata to their share of the total carrying capacity of the land run by the company. For instance, Farm Business 5, with a 56 per cent share of the company's total carrying capacity, would contribute 56 per cent of its start-up working capital. Shares in the company (and thus in the total dividends remitted to shareholders) would be allocated in proportion to the working capital contributed by each participating landholder. Subject to the company's constitution or other rules, the potential would exist for individual landholders to vary their ownership of (i.e., investment of working capital in) the farm cluster by trading or gifting shares. The constitution might, for instance, contain provisions allowing landholder members to transfer shares to their children or preventing them from selling shares outside the original group of members.

Table 5: Estimated carrying capacities of the land parcels potentially involved in the farm cluster

Farm business and land parcel	Area (acres)	Total carrying capacity (dse)	Average carrying capacity (dse/acre)	Businesses's share of total carrying capacity (%)
Farm Business 5				54
Parcel 1	650	3,250	5.0	
Parcel 2	1,550	7,750	5.0	
Parcel 3	1,040	3,120	3.0	
Farm Business 7				16
Parcel 1	290	1,300	5.0	
Parcel 2	700	2,800	4.0	
Farm Business 9				8
Parcel 1	340	2,000	5.0	
Parcel 2	63	150	2.5	
Farm Business 16				11
Parcel 1	354	2,000	5.0	
Parcel 2	350	1,000	3.0	
Farm Business 17				11
Parcel 1	200	3,000 for	~ 3 for	
Parcel 2	563	both parcels	both	
Total	*~ 6,000*	*26,370*		*100*

The next stage of the meeting involved a budgeting exercise that started with the data on carrying capacities presented in Table 5. The results of this exercise are shown in Table 6.

The range of gross margins per dse used in Table 6 was chosen to demonstrate the sensitivity of the farm cluster's economic performance to the level of productivity it is assumed to achieve. To illustrate how the gross margin figures were derived, the aggregate gross margin of $791,100 for an assumed productivity of $30 gross margin per dse was calculated by multiplying the cluster's estimated carrying capacity of 26,370 dse by $30.

It was agreed by the landholders present that a land rental rate of $10 per dse would be desirable for providing participating landholders with the incentive to improve the productivity of their land. At this level of land rental, however, it is evident from Table 6 that the net profit of the cluster company would be positive only with an average productivity yielding a gross margin of at least $25/dse. Assuming zero reinvestment of net profits into the cluster company, the dividend received by each landholder would equal the company's net profit multiplied by the landholder's proportional holding of the company's shares. With an average gross margin of $30/dse, for instance, the dividend received by Farm Business 7 would be about $32,480 (= $203,000 multiplied by 0.16), assuming that his proportional holding of company shares equals his proportional share of total carrying capacity as estimated provisionally in Table 5. In addition to this dividend, Farm Business 7 would be paid a land rental of about $41,000 (= 4,100 dse multiplied by

Table 6: A preliminary budget of economic outcomes from a farm cluster

Economic measure	Gross margin per dse ($)			
	30 ($'000)	25 ($'000)	20 ($'000)	15 ($'000)
Gross margin (income less direct costs)	791	659	527	396
less Overhead costs - pasture maintenance[Φ]	80	80	80	80
- general[α]	45	45	45	45
less Reward to management & labour (incl. 25% on-costs (OC))				
- manager ($50,000 + OC)	62	62	62	62
- 2 full-time workers (@ $35,000 + OC)	88	88	88	88
- 1 half-time casual worker (@ $17,500 + OC)*	22	22	22	22
- 1 half-time secretary (@ $17,500 + OC)*	22	22	22	22
equals Gross Profit	466	334	202	71
less Reward to land				
- land rental @ $10.00/dse	263	263	263	263
- land rental @ $7.50/dse	198	198	198	198
equals Net Profit				
- land rental @ $10.00/dse	203	71	-61	-192
- land rental @ $7.50/dse	268	136	4	-127
Rate of Return to Working Capital[†] (% p.a.)				
- land rental @ $10.00/dse	15	5	-5	-15
- land rental @ $7.50/dse	20	10	0	-10

[Φ] The pasture maintenance share of overhead costs was rounded up from a calculation that assumed an annual maintenance requirement of 1 kg phosphorous per dse and a cost of $278/tonne for aerial spreading of single super (recognising that single super is 9% phosphorous).

[α] See Table A1 in Attachment A for the assumed composition of the general share of overhead costs.

* Rolling these two half-time positions into a single position may be possible.

[†] Working capital was estimated assuming that each 1 dse of carrying capacity entails a $50 total investment in working capital.

$10/dse) presuming he contributed all his land for use by the cluster company. If he were also employed by the company, he would receive a salary or wage in addition to the above amounts. From his land rental income, of course, he would need to meet any costs associated with operating, maintaining and improving that land (e.g., local government rates, repairs & maintenance and insurance for fixed structures, capital improvements, etc.).

Due to the company showing a negative net profit with a land rental of $10/dse if the average gross margin were $20/dse or less, sensitivity analysis with a land rental of $7.50/dse is also reported in Table 6. With this lower land rental, the cluster company's estimated net profit is positive provided the average gross margin achieved is $20/dse or greater. Under this rental scenario, therefore, the company depends less on achieving high levels of productivity in order to be profitable. Nevertheless, the landholders present agreed that there would be little point in undertaking the cluster venture unless the objective were to achieve a level of productivity that put it among the top 10-20 percent of all producers. Considerable confidence was expressed that the venture would achieve such productivity levels, and accordingly that the cluster company would be able to afford land rental payments of $10/dse.

On the basis of the budgeting exercise outlined above and wider-ranging discussions about related social and environmental issues, all the landholders present indicated interest in proceeding towards a business plan for the farm cluster concept. It was agreed that the outcomes of the present meeting would be summarised for circulation to the other landholder participants in the resource audit process, and that a further meeting would be convened as soon as possible to which these others would be invited. The aim of this next meeting would be to share with the wider group of landholders the present meeting's progress in order that they may reconsider their earlier lack of interest in becoming part of the proposed farm cluster.

5.3 Outcomes from a second round of consultation

The next meeting was held on 15 August, about a month later. Of the four farm businesses represented at the previous meeting, three were represented at the new meeting. In addition, four extra farm businesses were represented, as well as the Steering Committee.

The meeting was successful in terms of sharing what had been learned and decided at the previous meeting, and in providing an opportunity for resolving a range of farm cluster issues still of concern to its prospective members. Nevertheless, lack of attendance by representatives from two of the five farm businesses listed in Table 4 as indicating shorter-term interest in joining the farm cluster (Farm Businesses 7 and 17) was taken as evidence that these two had lost enthusiasm. With their loss, the land run by the farm cluster would decline from 6,000 acres to 4,300 acres. Moreover, concerns were expressed that the farm cluster arrangement might then become somewhat 'unbalanced' given that Farm Business 5 would be contributing three-quarters of the total land area (and the motivation for him joining would therefore be less).

As a result, those at the meeting agreed after considerable discussion that the farm cluster would not be viable unless additional farm business were encouraged to join. Various possible candidates were suggested, and individuals at the meeting volunteered to contact them and ascertain their interest. It was agreed that a further meeting would be convened around a month later to which any prospective new cluster members would be invited.

These efforts to encourage additional interest in the farm cluster were unsuccessful, so the planned meeting did not eventuate. The Project Steering Committee met on 15 October 2003 to consider how the project should proceed in these circumstances. The conclusion reached in August – that the farm cluster venture was not viable with the existing level of committed interest – was re-endorsed. It was agreed as a result that the project as defined by the funding application could not

be progressed any further, i.e., towards development, acceptance and sign-off of a farm cluster business plan.

Despite disappointment that the farm cluster concept would not be implemented within the limited time allowed for the project, Committee members agreed that the project should be regarded a success. Awareness and understanding of the concept within the Furracabad Valley and surrounding areas had strengthened greatly as a result of the resource audit process and the subsequent consultation meetings. The project had also brought into much clearer focus the challenges to be surmounted in implementing the concept. Although the project had generated among landholders a groundswell of support for the farm cluster idea, it also identified some formidable short- to medium-term obstacles to converting this support into action.

The source of many of these obstacles can be traced to time. The time factor was critical in at least two ways. Firstly, circumstances need to be such that a 'critical mass' of individual farmers are ready to join a farm cluster at the same time. Such a favourable situation seemed to prevail around early 2000 when the Furracabad Farm Cluster idea was conceived and the funding application was submitted (when nine farm businesses with a combined landholding of over 17 thousand acres expressed commitment to the idea).

By the time that the project commenced, however, the situation had become less propitious. Family circumstances had changed in some of these cases, with sons or sons-in-law unfamiliar with the farm cluster concept having become more interested in taking over farm management responsibilities. In these cases, the original interest in the concept had been motivated considerably by the scope the concept offered for aging farmers to retire from physical work while retaining a say in the management of their own and other land in the cluster and remaining in a position to share their hard-won local knowledge with other cluster members. A son or son-in law taking over the management of their farm would offer many of the same benefits, in addition to the satisfaction of keeping the farm 'in the family'.

In other cases, farmers formerly committed to the concept had left the district. In one or two other cases, it seemed that the earlier enthusiasm for the concept had simply dissipated with the passage of time, perhaps due to the morale-sapping effects of the drought or disappointment at loss of interest from others they had looked forward to working with in the cluster.

The second critical way in which time presented an obstacle to the project arose from farmers' conservatism. Due to this conservatism, considerable time is often needed to change their attitudes. Probably the most formidable attitudinal obstacle in this respect derived from the widespread 'rugged individualist' self-image of many Australia farmers and their associated preoccupation with operating their own land as far as possible without outside interference. Powell et al. (c1982 p. 153) explained this individualism as follows:

> Being one's own boss, free to decide how and when to carry out farming operations, is valued highly by many farmers. … The converse of independence is dependence on others. Some farmers find it hard to adapt to being a member of a team with a different set of responsibilities. Others are not willing to enter into closer working relationships with neighbours for fear of having to reveal details of their business and private lives.

Leith Boully, then the chairperson of the Community Advisory Council of the Murray-Darling Basin Ministerial Council, observed similarly how 'rugged individualism' remains widely admired in Australia and how, in consequence, "working together is sometimes seen as a bit soft and perhaps un-Australian" [1].

Changes to entrenched attitudes of this nature do not occur overnight. In retrospect, it was optimistic to expect that the attitudes of farmers unfamiliar with the farm cluster concept at the beginning of the project could be shifted sufficiently by its end (i.e., within three-quarters of a year) that they would seriously consider giving up their independence in order to join a farm cluster. Perhaps the farm cluster might have eventuated within the life of the project if more of the farmers already interested in the farm cluster concept had remained in a position to participate in its implementation. Given the attrition among such farmers that did occur, and the consequent need within the short life of the project to convince new farmers of the cluster concept's merits, the inability to move as far as a business plan within the life of the project was probably not surprising even if disappointing.

6. BUSINESS PLAN AND OPERATING GUIDELINES FOR A HYPOTHETICAL FARM CLUSTER

Despite this disappointment, the Project Steering Committee remains optimistic that a farm cluster involving farmers participating in the project will be implemented in the medium term. The project made strong progress among farmers in and around the Furracabad Valley in building an understanding and appreciation of the cluster concept. This understanding and appreciation, as well as the information on landholders' resources and attitudes collected during the resource audit stage of the project, remain a platform from which farmers interested in implementing the concept can launch their efforts. The Committee took the view that the responsibility for taking advantage of this platform should now lie with the farmers themselves. The project performed an important 'hand-holding' role, but it's now time for interested farmers to assume ownership of the initiative and carry it forward.

Nevertheless, the Steering Committee recognised that it could facilitate this hand-over of responsibility in one more way. If there had been sufficient commitment from local farmers towards implementing a farm cluster, the next stage of the project would have involved developing a business plan for the cluster, together with operating guidelines. Given that insufficient commitment could be obtained within the life of the project, it was not possible to proceed to the stage of a business plan and operating guidelines. Under these circumstances, the Committee decided that it would be useful to develop for a *hypothetical* farm cluster a business plan (including set of operating guidelines or memorandum of understanding) and detailed feasibility analysis that could serve as models for those farmers seeking eventually to proceed with establishing an actual cluster arrangement. These documents should be useful also for farmers in other districts and regions interested in entering a farm cluster arrangement.

[1] Quoted from the documentary *Water Pressure* broadcast by ABC TV in Australia on 12th March 2001 as an episode of the *4 Corners* series.

Refer to Attachment B for the hypothetical business plan and feasibility analysis that were developed.

7. FURTHER LESSONS

7.1 Generating employment

One of the goals in pursuing the farm cluster idea was to provide greater opportunities for employment in the regional economy. It was reasoned that these opportunities would arise in a number of ways. Firstly, seeking economies of scale by way of a farm cluster would lessen the need for neighbours to buy one another out, and for the 'bought-out' neighbours to add to the competition for employment elsewhere in the regional economy. Establishment of a farm cluster would therefore narrow the gap, compared to what otherwise would be the case, between the numbers of jobs available and the number of people seeking employment.

By fostering the pursuit of economies of scale in a way that does not displace people and their talents, secondly, opportunities for diversification of enterprises run by farm businesses would be opened up. The larger pool of people associated with a farm cluster offers increased scope for specialisation of labour in accordance with individuals' skills and enthusiasms. The farm cluster model also adds to the likelihood of diversification into innovative enterprises by enabling the associated risk to be spread beyond a single farm family. As new agricultural and/or non-agricultural enterprises become established as a result of this diversification, new employment opportunities would follow. Even if many of these opportunities are taken up by members of the farm families constituting the cluster, competition from these individuals for jobs elsewhere in the regional economy will be lessened. In any event, once experience and skill in these new enterprises accumulates and becomes shared beyond the farm cluster gate, opportunities for others in the region to emulate the cluster's lead, and thus diversify the regional economy and its employment base in a more substantial sense, should follow.

The feedback obtained from the project indicates that the goal of strengthening regional employment opportunities through establishing a farm cluster is a realistic one. However, it suggests also that these employment benefits would become evident only in the medium to long term. The process of neighbours buying one another out to chase economies of scale is gradual and sporadic, so any effect of establishing a farm cluster on slowing this process would be discernable only in the longer term. Moreover, the influence on enterprise diversification of establishing a farm cluster may not become apparent until the medium term. In the short term, the focus of the farm cluster may be on implementing a business plan based on one or more of the enterprises already run on the properties entering the cluster. During this time, the number of individuals receiving remuneration from the farm cluster for their labour and management might even be less than the number that would have been drawing remuneration from the separate farm businesses had the cluster not been established. As implementation of the original farm cluster business plan 'beds down', however, its members' attention could be expected to turn increasingly to exploring the potential of other enterprises to make fuller use of their combined land, labour and other resources. To the extent that new enterprises are tried and succeed, employment within the farm cluster could be expected to grow over the medium to long term.

7.2 Safeguarding the social benefits

Despite the stated emphasis of the project on maintaining and strengthening the social fabric within and surrounding the Furracabad Valley, concerns were raised during consultation meetings that the formal structure envisaged for the cluster may stand in the way of realising social benefits of this nature. One possible disadvantage along these lines was discussed earlier in section 4.4.3; namely, the possibility that regularised employment arrangements would remove opportunities for cluster employees to drop home for a cuppa with their spouse or do some urgent chores, or help out in other ways such as by paying bills in town.

A particular concern raised during consultation meetings was that formalisation of work routines and specialisation of tasks within a farm cluster might leave less opportunity for children to participate in, and thereby learn from and develop an interest in, 'life on the land'. It is typically the case on family farms that children 'tag along' to help with appropriate tasks and even do some easier tasks alone. Although short-term productivity may be less as a result of this 'investment' in building the children's skills, confidence and enthusiasm, this investment is clearly important for the longer-term social sustainability of agriculture. It was recognised in the discussion pursuant to this concern being raised that social considerations could indeed become sacrificed in a farm cluster arrangement unless the social goals of entering the arrangement were enshrined in the operating rules of the cluster. It was unanimously agreed that the social goals are fundamental to what the farm cluster concept is about, and that they should be written into the constitution of the farm cluster company as some kind of 'charter'. For similar reasons, it was agreed also that the environmental goals of the farm cluster should also be enshrined formally in a charter.

These discussions regarding the social risks of establishing a farm cluster served not only to identify safeguards against such risks but also to highlight some important advantages of the farm cluster model in terms of investing in social sustainability through promoting the kinds of skills and attitudes in children that are valuable for a life of work on the land. Firstly, with specialisation of tasks under a farm cluster arrangement, children would get to spend time with and learn from experts rather than jacks-of-all-trades, and presumably as a result obtain a wider range of skills proficiently than would otherwise have been possible. Secondly, the enthusiasm of children to work on the land would likely be sustained more effectively as a result of getting to work with a wider range of personalities than available from one's immediate family. In some cases, family dynamics that might have discouraged some children from staying on the farm may be circumvented through a cluster arrangement extending the social dynamic within which they can seek to find a place (e.g., girls whose parents are not supportive of them pursuing a vocation on the land may find understanding and support from other adults involved in the cluster).

7.3 Moving beyond individualism

An important lesson from the project is that attitudinal obstacles to individual farmers joining a farm cluster cannot be overcome simply through dispassionate reason, and certainly not within the space of a year or less. The 'rugged individualist' ethos of many Australian farmers is emotionally entrenched. Attachments to 'running your own show' and fears of depending on others run deep in our farming culture. If wider commitment to the farm cluster model is to be secured, therefore, we need to deal squarely with the emotional side of why many farmers prefer to work alone.

Once the importance of addressing the emotional issues associated with joining a farm cluster is acknowledged, it becomes clear that the transition from multiple farm businesses to a single farm cluster cannot be planned all-at-once in a rational fashion. Rather, ample space needs to be left for individual farmers to 'feel their way' into the new arrangement. In the case of the Tilbuster Commons, for instance, it took nearly two years of discussion before the four interested landholders agreed in 1999 to form just an informal arrangement. Even though this arrangement had no legal standing, it provided a social vehicle for the group to continue exploring a way forward. Through this vehicle and its practical achievements, "trust, credibility and acceptance of each others' strengths and weaknesses have grown. Over time, each participating member has been able to see the advantages of collaborating. Increasingly, there is confidence in the group's capability to negotiate equitable outcomes with multiple benefits" (Williamson, Brunckhorst, and Kelly 2003 p. 25). It was not until January 2001 that a private company structure was registered for the Commons, and the company began operating in the next financial year (ibid.).

8. CONCLUSIONS

In this project, the concept of a 'farm cluster' was put forward as an innovative way for farmers in and surrounding the Furracabad Valley to respond in particular to the ongoing adjustment challenges brought about by their declining terms of trade. It was inspired more generally by a growing sense that the individualistic system of agriculture introduced to Australia at the time of colonial settlement has become increasingly outflanked by the economic, social and environmental challenges faced by the nation's farmers. The farm cluster concept is innovative in so far as it represents a coordinated communal response to these challenges rather than an uncoordinated series of individual responses.

The potential of the farm cluster model to help farmers in the Furracabad Valley, and probably also in other parts of the country, face these challenges more resiliently was demonstrated in the project. Virtually all the farmers consulted during the project considered the model to be worthwhile in principle. A preliminary budgeting exercise indicated a likelihood that individual farmers joining a farm cluster arrangement would benefit significantly in financial terms, in addition to the social and environmental benefits that would be also generated.

Nevertheless, it was not possible to obtain sufficient commitment from enough farmers in order to establish a farm cluster during the life of the project. Timing was a key contributor to this outcome, both through (a) the circumstances of some previously enthusiastic farmers having changed between the time the farm cluster idea was first discussed and the time it commenced, and (b) the project being too short to not only attract the interest of new farmers in the farm cluster concept (i.e., to make up for the loss of the farmers just discussed) but also overcome the attitudinal hurdles they face in committing themselves to implement the idea.

Even so, the project was successful in strengthening awareness and understanding of the farm cluster concept in and around the Furracabad Valley, and in generating a formidable groundswell of in-principle support for implementing the concept. The building blocks are now in place for landholders in the district to capitalise on. The present project was certainly important for getting momentum going in strengthening awareness and understanding of the farm cluster concept, gathering information, facilitating discussion, and putting together a structure for implementing the

concept. The business plan and operating guidelines developed for a hypothetical farm cluster should also serve as useful starting points for those seeking to establish an actual farm cluster. However, progress in establishing a farm cluster now depends on interested farmers coming together to take over ownership of the idea and move it forward. Accordingly, it is recommended that all farmers in and around the Furracabad Valley be given access to this report in order that those among them wanting to take the farm cluster idea further can benefit as much as possible from the lead provided by this project.

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ATTACHMENT A: SUPPLEMENTARY BUDGETING DATA

Table A1: Composition of the general overhead costs assumed in Table 6

Item*	Annual cost ($'000)
Fuel	15.0
Vehicle insurance	3.0
Repairs and maintenance - plant	7.5
Vehicle registrations	1.0
Electricity	2.0
Administration (bank fees, seminar attendance, accounting, telephone & postage, subscriptions, stationary, etc)	15.0
Total	*43.5*

* Local government rates and repairs & maintenance and insurance on farm structures are assumed to be incurred by the landholders (for which they would be compensated through the land rentals paid to them by the cluster) rather than by the cluster company. Vehicle insurance, repairs and maintenance and registrations assumes that the cluster would require 3 vehicles and 3 bikes for the ~ 6,000 acres it might have at its disposal.

FURRACABAD FARM CLUSTER PROJECT

Attachment B to the Final Report:

Business Plan and Feasibility Analysis for a Hypothetical Farm Cluster in the Furracabad Valley

Agri-Path Services Pty Ltd
Tamworth, Australia

for

the Glen Innes Natural Resources Advisory Committee

January 2004

Disclaimer:

All description, figures, analysis, forecasts and other details in this report have been prepared in good faith from information furnished to the consultant. These data are believed to be current as at the date of preparation of this document unless otherwise stated. However, it should be noted that projections, forecasts and calculations are subject to assumptions which may not turn out to be correct, and Agri-Path Services Pty Ltd expressly disclaim all and any liability to any person in respect of anything done or not done by any persons in reliance, in whole or in part, on this document in total or any part of its contents.

All amounts referred to in this document are expressed in Australian Currency unless otherwise indicated.

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B1. BACKGROUND

The Furracabad Farm Cluster Project has been initiated by a group of farmers in the Furracabad Valley, Glen Innes. The group is looking at ways to integrate the use of their resources (land, livestock, capital and human) to get a better outcome in terms of profit, lifestyle, employment opportunities and management of natural resources such as water and vegetation. To achieve these outcomes, the farm cluster must deliver to its stakeholders improved returns so that investment in the areas of opportunity, and further development of available resources, can occur. The group also recognizes that there is a need to establish a working agreement that covers stakeholder and farm cluster responsibilities for the ongoing management of the business, maintenance and development of the available resources. In constructing the agreement, it is particularly important to set clear guidelines to manage issues such as farm succession, the management of the environment and maintenance of existing infrastructure.

This report will examine the commercial elements of developing a sustainable business model for the farm cluster project. The main elements examined are:

1. development of shared vision and values;

2. SWOT analysis;

3. situation analysis and appropriate enterprise mix;

4. budget assumptions;

5. capital requirements and determination of financial viability of the cluster; and

6. determination of an appropriate business structure and development of a heads of agreement that will form the basis of a legal arrangement between all stakeholders.

The report draws largely on the experience gained in the process of exploring the development of a farm cluster within and surrounding the Furracabad Valley near Glen Innes in northern New South Wales, Australia.

B2. VISION

Development of joint vision and values is essential for the longevity of the arrangement. A lack of shared vision is quickly put to the test when events do not go as planned or the desired level of performance is not reached. Most ventures of this nature will not last if the stakeholders do not share a common vision. The shared vision is important in crisis events where major unforeseen or catastrophic market events occur. It becomes particularly important if there is a call on extra capital to ensure the venture can continue to trade.

The experience of stakeholders in the Furracabad Farm Cluster Project demonstrates that time is very important for developing a shared vision. The project concept is big and challenging, and people require time to think it over, ask questions and develop a picture of what the concept might offer them both financially and personally. Some of the project participants saw the cluster as a way

of freeing up their time commitment to farming without sacrificing their financial returns or rural lifestyle. Others saw it as an opportunity to work in agriculture at a larger and more corporate level. These visions could be misconstrued as conflicting, but fundamental to each is recognition that significant financial, social and environmental benefits are available from pooling resources. Furthermore, common to each vision is a recognition and acceptance that to achieve these kinds of benefits it is necessary to give up some aspects of management independence and work in an environment where decisions are made at board and management levels.

The essential elements of a shared vision are best captured when stakeholders are asked what they want the farm cluster arrangement to look like in five years. The following shared vision and values have been distilled from discussions during several workshops involving stakeholders in the Furracabad Farm Cluster Project.

Vision for five years ahead

- Wealth and well-being for both individuals and the community, financially, socially and environmentally.
- Participating farms will be obtaining returns on capital invested excluding land of greater than 25 per cent and greater than 5 per cent on capital invested including land.
- The cluster will use its human and resource capital to be the best in each enterprise that it engages in.
- The cluster will actively be seeking to develop new opportunities with the human, land, infrastructure, and cash resources available to it.
- Land contributed to a cluster will be managed in accordance with an established environmental charter, which recognizes the importance of sustainability, profitability and seeks to preserve the intrinsically valuable features of the landscape.
- The cluster's other main charter will recognize the value of the next generation of Furracabad residents by providing to stakeholders' children training, skill development, and work at commercial rates.

Values

- Land and vegetation are important assets to be managed for profit and sustainability.
- All forms of contribution to the cluster business will be recognized commercially.
- Transparency in all things is paramount
- Opportunities to develop the potential of the business for stakeholders, or increase the ability of stakeholders to cooperate, will be pursued.
- Employment and/or the opportunity to take up a new interest.

- Willingness to provide opportunities for next generation to work in agriculture.

B3. SWOT ANALYSIS

SWOT analysis is a useful step in assessing the merits of the cluster project. It is most valuable when it is used to draw out the elements of the business's strengths, weaknesses, opportunities and threats that are unique to the business. These elements are the key to developing a strategy for the farm cluster business. Strategy is developed by looking at the strengths that are unique to the cluster business, using these strengths to overcome perceived weaknesses, and using the opportunities identified to overcome any threats. Following is a summary of the SWOT analysis for a Furracabad Farm Cluster.

Strengths

Major strengths that set this business apart are:

- willingness to co–operate to get a better and more profitable outcome;
- capacity to run diversified enterprises but still have specialization in each due to the diversified skill base available;
- recognition that the land and resources offer many more opportunities for the stakeholders;
- provides viable management for owners who want to pursue other interests;
- better quality of life; and
- economies of scale.

Weaknesses

Major weaknesses relevant to this business are:

- loss of independence in decision making;
- dependence on others;
- potential weak motivation; and
- potential greater difficulty involving the next generation.

Opportunities

Opportunities available to this business include:

- utilisation of available resources that are presently under-utilized (eg., for farm stays, ecotourism, fishing and hunting) to provide more employment and income opportunities for stakeholders;
- direct marketing of product; and
- expansion through leasing more land to increase stakeholder returns.

Threats

Threats to this business include:

- inability to co-operate leads to breakup; and
- shareholder expectations are not met.

The foregoing summary of the SWOT analysis undertaken highlights several important issues that need to be addressed in developing a working model for the Furracabad Farm Cluster. These are:

1. The group is made up of people with diverse farming, recreational and personal interests. To be successful, the cluster needs to be able to provide opportunity for stakeholders in their favoured areas.
2. Stakeholders need assurances that the next generation will be able to find opportunity in the cluster should they wish to pursue a career on the land.
3. Stakeholders need a working agreement to run the cluster, which covers responsibilities and deals with disputes.
4. There is a need for a clear exit strategy.

B4. SITUATION ANALYSIS

On the basis of experiences with farm syndication arrangements elsewhere, it would seem that a farm cluster arrangement for landholders in and around the Furracabad Valley would deliver significant economies of scale only if the effective carrying capacity of the land pooled under the arrangement were to exceed 40,000 dry sheep equivalent (dse) units (note: significant levels of other benefits – eg, social or environmental – may nevertheless still be available if the scale of the cluster were not this large). Table B1 below demonstrates how an overall carrying capacity of 40,000 dse might realistically be sustained given the classes of land potentially available to a 'hypothetical' Furracabad Farm Cluster and the average annual carrying capacity (per hectare) of each class. It is evident from the table that the target of 40,000 dse could realistically be achieved by the hypothetical

farm cluster with a pooled land area of around 4,000 ha, provided that some use were made of high-performance pastures.

Table B1: Land areas and carrying capacities for a hypothetical Furracabad Farm Cluster

Land class	Area of cluster's land in class (ha)	Average carrying capacity (dse/ha)	Total carrying capacity (dse)
Pasture (improved & Unimproved)	3,600	11	39,600
High performance Pasture	200	25	5,000
Not utilized for grazing	200	0	0
Total	*4,000*	*n.a.*	*44,600*
Weighted average	*n.a.*	*11.74*	*n.a.*

B5. ENTERPRISE MIX

Based on the information summarised in Table B1, a suggested enterprise mix that offers both economies of scale within enterprises and sufficient enterprise diversity to meet the diverse personal interests of the stakeholders is presented in Table B2. The price and production variables associated with the numbers presented in this table depend on various factors including markets, environmental influences (drought, cold snaps, etc.), so their assumed levels in the table can only be regarded as appropriate at a point in time.

Adoption of this suggested enterprise mix has been assumed for the financial modeling that follows. However, it will be up to the farm cluster's board of directors to make the final decision regarding enterprise mix. In doing so, they will undoubtedly take into account the relative profitability of each enterprise and the availability of skills to run each.

Table B2: Enterprise mix assumed for a hypothetical Furracabad Farm Cluster

Enterprise	Type	No. head	Total dse carried	Average gross margin ($/dse)	Total enterprise return ($)	% use of total effective farm area
Commercial merino flock	Ewes	6,000	15,114	41.50	627,231	35.0
Fine wool merino stud	Ewes	1,000	2,182	60.34	131,662	5.0
1st cross lambs	Ewes – older ewes	3,000	6,735	27.53	185,414	15.5
Weaner beef breeding	Cows	500	9,316	17.81	165,917	21.5
Steer fattening	Steers	1,000	10,000	38.60	386,000	23.0
Total			*43,347*		*1,496,224*	*100*

For instance, the hypothetical farm cluster's commercial merino flock comprises 15,114 dse (6,000 breeding ewes with followers) and is estimated to generate a gross margin of $41.50 per dse. Therefore, the total enterprise gross margin would be 15,114 dse multiplied by the enterprise's average gross margin of $41.50 per dse, yielding $627,231. The table clearly illustrates that enterprise selection is paramount to improved financial performance. Running an enterprise with a lower gross margin per dse will reduce the profitability of the farm cluster.

A decision to run a less profitable enterprise needs to be carefully considered by stakeholders, along with their stated long-term goals and the need to ensure that farm performance is optimized to allow for the development of more opportunities in the future.

B6. ASSUMPTIONS USED IN BUDGETING AND DETERMINING FINANCIAL VIABILITY

A cash flow budget for three years after establishing a hypothetical Furracabad Farm Cluster along the lines detailed above is summarized in Table B3. Information regarding the major assumptions made in calculating this budget is presented below. For more detailed information regarding these assumptions, refer to the tables presented in the Appendix to this Attachment B report**.**

Table B3: Cashflow budget for first three years of the hypothetical farm cluster				
		Year 1	Year 1	Year 3
INCOME				
Wool Proceeds		648202	648202	648,202
Merino Sheep Sales		307100	307100	307,100
XB Sheep Sales		229960	229960	229,960
Stud Sales		180445	180445	180,445
Breeding Cattle Sales		194408	194408	194,408
Steer Sales		657360	985050	985,050
TOTAL INCOME		2217475	2545165	2,545,165
LIVESTOCK - SHEEP				
Genetics/L'stock Purchases		125180	125180	125,180
Sheep Health		47874.7	47874.7	47,875
Fodder & Supplements				
Contract Services		138883	138883	138,883
Sheep & Wool Selling Costs		96797	96797	96,797
		408734	408734	408,734
LIVESTOCK - CATTLE				
Cattle Purchases		532500	532500	532,500
Cattle Health Costs		8919.76	12676.4	12,676
Fodder & Supplements				
Cartage & Selling Costs		60581.9	83106.5	83,106
		602002	628283	628,283
OVERHEAD EXPENSES				
Pasture Expenses		240000	240000	240,000
Casual Labour		30000	30000	30,000
Fuel & Oils		12000	12000	12,000
Insurance		23150	23150	23,150
R & M Plant		7500	7500	7,500
R & M Structures		66900	66900	66,900
Management Costs		165000	165000	165,000
Administration		50200	50200	50,200
Rates, Rent & Rego		7800	7800	7,800
Electricity		4000	4000	4,000
		606550	606550	606,550
FINANCING EXPENSES				
Interest on O/D		10139.6	895.043	1,593
Interest on Bills				
Rental		446000	446000	446,000
		44160.9	44160.9	44,161
		500301	491056	491,754
TOTAL OPERATING COST		2117586	2134623	2,135,321
CASH SURPLUS/DEFICIT		99888.9	410542	409,844
CAPITAL MOVEMENTS				
Capital & Loans - In		0	0	0
(Dividends Paid)		0	-265000	-265,000
(Taxation)		0	-29966.7	-123,163
		0	0	0
CAPITAL MOVEMENTS		0	-294967	-388,163
CASHFLOW		99888.9	115576	21,682
		0	0	0
Opening Balance		200000	299889	415,465
CLOSING BALANCE		299889	415465	437,146

Major assumptions regarding production and returns

The returns for each enterprise will vary with commodity prices and expected production. The assumptions outlined below regarding production levels and returns should therefore be taken as a guide only. The production parameters have been calculated at levels which would be considered above average but not the very best in the industry. One of the goals of the Furracabad Farm Cluster is to operate within the top 20 per cent of industry performance in terms of profitability and productivity as a result of cluster members working on enterprises at which they are most skilled and most motivated to gain further skill.

Commodity	Parameter	Price
Fine adult wool	Wool cut – 5 kgs/head	650c/kg greasy
First cross lambs	20 kg plus	$80/head
Beef	Weaners 270 kgs liveweight (LW)	$1.75/kg LW
Beef	Steers 550 kgs LW	$1.80/kg LW

The assumptions made for the first year account for some delay in steer trading sales, as these will have to be bought in. It takes time for the animals to grow to turnoff weights. The first year budget assumes that the commercial sheep and cattle enterprises are bought as going concerns, which would be realistic given knowledge of the properties involved. The opening values for each flock or herd in the livestock schedules are an estimate of the value of the animals based on other sales and valuations that have occurred in recent times. They are therefore to be used as a guide only for the purposes of budgeting and planning.

Major cost assumptions

Enterprise Costs

It is assumed that enterprise (direct) costs are paid by the management company which is carrying out the business of the cluster. The enterprise costs are provided in detail in the gross margins for each enterprise presented in tables B7-B8 and B10-B13. The direct costs are based on a typical management program for each enterprise.

Overhead costs

The overhead cost structure of the managing company will be different to that of a normal farm. The main differences are that the managing company's role is to carry out the business of farming, and it is the individual owner's responsibility to look after and improve the asset. There are some types of costs that need to be defined so that all stakeholders are clear on their responsibilities. These types of cost are:

Pasture costs

The managing company's budget allows for the maintenance of soil Phosphorus levels. Research data indicates that 1 kg of Phosphorus per dse per year is what is required for maintenance. 'Capital' application of Phosphorus (i.e., application which builds soil P levels) to improve the quality,

quantity and carrying capacity of the land is the landowner's responsibility. The reward for this is deemed by the payment of a higher rent, which is based on the carrying capacity of the country.

It is assumed that 200 ha of high-performance pasture will be established on appropriate land to enhance livestock finishing capacity and assist in long-term pasture improvement programs. The use of high-performance pastures is generally regarded as a useful step in long-term pasture development. Hence, landowners would be consulted on the suitability of paddocks based on their pasture development program. As the life of a high performance pasture is relatively short (two years), the managing company will pay all costs involved in establishing this type of pasture. Costs associated with the establishment of long-term perennial pastures are the responsibility of the landowner, the logic being that the better pasture will improve carrying capacity and thus be rewarded by higher rent.

Labour costs

Based on the size and scale of the hypothetical cluster operation, it is assumed that the cluster will require a CEO, three full-time employees, and casuals as required in peak times. It is assumed that the CEO will be advertised and selected on merit by the board of the managing company. A package of $60,000 per year has been budgeted to attract an appropriately experienced and qualified CEO. It is assumed that the three full-time employment positions (each returning $30,000/year plus superannuation contributions) and casual labour positions (totaling $30,000/year) will be offered to members of the farm cluster first of all. All labour will be paid at rates that reflect what is commercially available.

The management of labour is the CEO's responsibility. This is particularly important in peak times when several of the cluster members who are not normally involved in the day-to-day running of the cluster may be utilized. It is assumed that any labour contributed would be paid at commercial rates to keep the dealings with all stakeholders transparent, and to avoid complicated bartering systems which get difficult to resolve if there is a dispute.

Machinery and plant costs

It is envisaged that the cluster would be managed with minimal machinery. It is assumed that the farm cluster's machinery would be limited to three four-wheel-drive utilities and four four-wheeler motor bikes (all leased – see 'lease and hire purchase charges' below) will be the extent of the machinery. The management entity will also purchase approximately $34,000 of necessary stock handling equipment such as scales, jetting gear, wool presses, etc. All other machinery requirements such as tractors, tillage and haymaking machinery will be acquired by using contractors. Workshop tools if required will be supplied by cluster members and will remain the responsibility of the members supplying them.

Repairs and maintenance of structures

Maintenance of fixed assets is essential to avoid rundown and loss of value to the individual landowners. In recognition of general wear and tear, the managing company will approve and allocate a maintenance allowance to each owner in its business plan. The cash flow budget summarized in Table B3 assumes that this allowance is calculated on the basis of $1.50 per dse of assessed carrying capacity. It is envisaged that payment of the maintenance allowance to each cluster

member would be accompanied by a schedule of priority maintenance. The intent is that good improvements are rewarded by low maintenance costs. Hence, an owner can benefit by not having to spend his or her entire maintenance allowance. The suggested rules and conditions on this complex area have been set down in the draft Memorandum of Understanding that has been developed for the consideration of all stakeholders in the Furracabad Farm Cluster Project (see section B9).

Administration costs

Administration costs derive from the necessary compliance obligations of a managing company. These costs and their assumed annual levels are: accountancy ($10,000), book-keeping ($12,000), bank fees associated with maintenance of an account ($1,200). There are also minor costs such as associated with office, communications, postage, journals and subscriptions.

Training expenses are assumed (at $12,000 per year) to be a major cost item for the farm cluster. This reflects stakeholders' desires to have the staff and members of the farm cluster well-trained and at the forefront of industry best-practice. Similarly, a budget of $5,000 per year is assumed to be made available for expenditure on specialist consulting as required.

Rates, rents and registration costs

Payment of land rates is assumed to remain the responsibility of the landowners. The management company is assumed to pay Rural Lands Protection Board rates and registrations on vehicles.

Electricity costs

Allowances have been made for electricity used by the manager, the managing company's office, and the shearing sheds. Each of these uses will require separate meters.

Insurance costs

Allowances are included in the cash flow budget for the following insurances: public liability, workers' compensation for employees, and insurance on vehicles. Individual cluster members will be responsible for insurance of farm structures.

Lease and hire purchase charges

All vehicles will be leased and replaced regularly to avoid large maintenance costs.

Land rent payments to cluster members

Land rent is assumed to be paid to each cluster member at the rate of $10 for each dse that the member's land is assessed as having the capacity to carry. Details on how carrying capacity will be determined are set out in the draft memorandum of understanding presented in section B9. The rental rate has been set at a level where owner-funded capital improvement to raise carrying capacity can be repaid through increased rental over a period of 2-4 years.

Rental returns and dividends

The cash flow budgets assume that in the first year only land rent will be paid (@ $10 per dse of assessed carrying capacity) to cluster members, as there is a requirement to build up surplus operating capital to fund the operation. In the second year, it is calculated that a dividend of $6/dse would be available for payment to cluster members if the assumptions are correct. In the third year, it is assumed that dividends would be payable on a quarterly basis in line with tax provisions. It is envisaged that the dividend paid will be at the discretion of the board of the management company. In drought years the dividend paid may be drastically reduced, and in good years it may be augmented. In general, the emphasis should be to manage the distribution of profit to maximize shareholder return without jeopardizing the managing company's position or denying the company opportunities to develop new enterprises.

B7. SUMMARY OF CAPITAL REQUIREMENTS AND RETURNS BASED ON BUDGET ASSUMPTIONS

The proposed structure of the cluster is such that cluster members would be rewarded for their labour through payment of wages, for their land through payment of rent, and for the working capital they contribute to the management company by way of dividend paid from surpluses. In the case that a loss were incurred, the proposed structure requires that the cluster members would be called on to contribute more capital based on the proportion of the capital base they own.

The capital base is derived from three sources: cash, contributed livestock, and contributed equipment. Initially, it is assumed that the contributed capital will be in proportion to the estimated percentage of carrying capacity that a cluster member contributes to the total carrying capacity. For example, if a cluster member's carrying capacity is estimated at 10 per cent of the management company's total carrying capacity, then the demand for capital from that member would be 10 per cent of the total capital required. It is proposed that the capital contributed could be in the form of cash, livestock or plant that has been independently valued. In cases where the initial contribution of an individual cluster member exceeds or falls short of what is required, the difference will be made up in cash. Table B4 estimates the capital required to establish the planned enterprise mix and meet the initial cash demands of the management company.

Table B4: Estimated capital required to establish a hypothetical Furracabad Farm Cluster

Type of livestock	Number of head	Total ($)
Merino stud sheep	4,190	710,700
Commercial Merino flock including followers	12,100	882,600
1st cross ewe flock including followers	4,335	238,500
Breeding cows including followers to12months	937	542,000
Trading steers	666	306,360
Total livestock		2,680,160
Livestock handling equipment		34,200
Cash - based on cash flow requirements		200,000
Total capital requirement		2,914,360

The total requirement with some reliance on debt finance is estimated at $2.91 million. It is proposed that much of the capital can be contributed in kind, i.e., in the form of livestock on hand. It is envisaged that all livestock and required equipment that is contributed would be independently valued prior to the management company forming. Disagreements over the valuation will be resolved by obtaining two additional independent valuations, with an average of the three being used.

The cash requirement was calculated on the basis of initial cash flow requirements with some reliance on debt financing by the management company.

B8. FINANCIAL VIABILITY

The cash flow projections indicate the cluster can produce a sustainable cash flow. The profit generated by the cluster can be calculated as shown in Table B5.

Table B5: Profitability calculation for the hypothetical farm cluster

	Financial measure	$
	Cash income	2,545,165
	Profit due to livestock inventory	-15,062
equals		
	Gross income	2,530,103
less		
	Enterprise costs	1,037,017
	Overheads	606,550
	Depreciation	15,000
	Rent	265,000
equals		
	Operating return	606,536
less		
	Finance and leasing	45,754
equals		
	Business return	560,782

The foregoing calculation indicates that the management company for the hypothetical farm cluster would likely generate a rate of return on capital before tax of 20.8 per cent. If the land managed is worth $250 per dse carried, the rate of return to the land and contributed capital would then be 5 per cent.

Gross margin analysis indicates that some enterprises are a lot more profitable than others. It is therefore likely that in time these rates of return could be improved as greater emphasis is placed on the more profitable enterprises.

Returns to cluster members

Table 4 summarizes returns to cluster members over the start-up period. A steady state is assumed to have been attained by the third year, so third-year returns can be taken as indicative of long-term returns.

Table B6: Summary of returns to cluster members from the managing company per 1,000 dse.

Source of return	Year 1 ($)	Year 2 ($)	Year 3 ($)
Maintenance budget	1,500	1,500	1,500
Rent	10,000	10,000	1,0000
Dividend (franked)		6,000	6,000
Labour – at cost			
Total	11,500	17,500	17,500

The average capital contributed is $ 65,344 per 1,000 dse carried. Hence, the dividend rate of return on capital invested is 9.2 per cent.

The average capital contributed including land is $315,344 per 1,000 dse carried if land is valued at $250 for each dse it can carry.

The rate of return on assets including land (i.e., from rent & dividends) is 5 per cent. This compares favourably with average agricultural returns over the last ten years of around 3.5 per cent. Returns are likely to vary with the usual seasonal influences in agriculture. However, one of the strengths of the farm cluster arrangement is that rent, and wages also if the cluster member is employed by the management company, are guaranteed sources of income. It is only the dividend that will vary. Furthermore, the fees charged to cluster members to cover the overhead costs of the management company can be reduced in poor years at the discretion of the management and cluster members. Cost items such as pasture maintenance, high performance pastures, maintenance, and some administration costs such as training, can also potentially be pruned in poor years to ensure that the management company continues to meet the expectations of cluster members.

B9. PROPOSED BUSINESS STRUCTURE AND MEMORANDUM OF UNDERSTANDING FOR A FURRACABAD FARM CLUSTER

The following has been put together to capture the general intent of the proposed joint venture between cluster/syndicate members. Please note that it is presented for discussion purposes only. The final version agreed to after discussion would be used to guide the drafting of legal agreements.

Land ownership	The individual properties would be owned by existing owners and licensed to the joint venture. *List details of the owners of the land, area , carrying capacities in dse units.* The owner of the land will be responsible for council rates and insurance of structures and improvements. The joint venture management company will be responsible for Rural Lands Protection Board rates

Land licensing fees	The properties are licensed on a per dse basis to the management company. The suggested rate is $10 per dse per annum payable quarterly in advance. The actual rate will be finalised and approved by the board of the management company after the business plan and budgets have been completed and approved by the board. The intention is to keep the rate commercial and at a level where there is sufficient incentive for the individual landowners to maintain good pastures and continue to improve unimproved pasture areas. The licence rate will be reviewed annually by the board of the management company and landowners, and adjusted to reflect changes in carrying capacity which may occur. Once set, the rate is fixed until the next review. Rate per dse will be the same for both properties High-performance pastures are short-term pastures, which require intensive application of inputs and last for 2-3 years. Establishment of high-performance pastures on any area of land would be at the discretion of the management company in consultation with the land owner. The management company would pay for the costs in return for profits. The landowner would continue to get a licence fee for the area that reflects the carrying capacity of that country before establishment of the high-performance pasture. The land owner would be responsible for pasture replacement costs at the end of the high-performance pasture phase.
Term of Venture	The venture would have an initial term of 5 years, with an option for a further 5 years. Involvement in the joint venture can be terminated before five years by giving written notice, due to: 1. land owner's right to withdraw; 2. irreconcilable disagreement between joint venture members following attempts to mediate; 3. death of member; or 4. insolvency event. On notice of termination, the joint venture member must be wound up within six months but where possible sooner. Six months is seen as necessary to enable enough time to deal with unforeseen events like drought or critical times like lambing, shearing, etc. On termination, all stock and plant will be valued by an independent valuer and split based on the capital contributed. High-performance pastures, fodder crops and other inventory will

	be valued independently at depreciated cost, and individual owners will purchase them at that value.
Venture structure	The farm cluster arrangement would be organised with a joint venture structure. A management company would be appointed to run the joint venture. The cluster members (or partners) would be special purpose companies owned by the respective principals.
Joint venture business	The management company will carry out the trading aspects of the business as a nominee for the joint venture. It will own the livestock and appropriate plant. Its business will be farming, grazing and livestock breeding. The joint venture will organise and collect all agistment proceeds.
Management	The management company will appoint a Chief Executive Officer (CEO)/manager. The CEO will report to the board of the management company. The initial board would comprise of 3-5 partners and one independent chairperson. Voting rights will be equal, with no casting vote by the chairperson. The intent of the management company is to manage the resources available to it in the most commercial way possible, taking into account social and environmental considerations.
Property/capital improvement	Improvements to land are the responsibility of the land owner. The management company has the right to request that improvements be upgraded. The owner has the right to negotiate an appropriate time frame with the management company to complete the requested improvement. Major capital expenditure required by the management company to add value to its business is to be treated on a case-by-case basis. If the management company identifies that it wants capital improvement to occur and this improvement involves removable capital items (e.g., components of irrigation plants), the company would purchase these items. (Removable capital items, like machinery and removable infrastructure, are those items which can be easily moved.) At termination, the removable capital items would be valued independently and the relevant owner would have first option to buy them.
Pasture improvements	The cost of new pasture (plus initial fertiliser) will be responsibility of the land owner, except in the case of forage crops and high-performance pasture. Forage crops and high-performance pasture will be valued at cost (including depreciation). The cost of applying annual maintenance topdressing with super phosphate will be incurred by the management company.

DSE ratings	*Insert dse ratings for each property here*
Equipment	Equipment purchases are to be based on a business plan for the management company and are to be approved by the board. Purchased equipment will be owned by the management company (which holds it as nominee for the joint venture). Depreciation will be split between the cluster partners. Other equipment would be retained by the individual partners for their own purposes and hired/leased to the venture if required. The owner will set the hire fee. The management company has the right to seek equipment from where it can be accessed at the best rates
Staff	The CEO has responsibility to hire and fire all staff in accordance with the business plan and in consultation with the board. The management company will employ all staff. The intention would be to employ labour on a contract basis where possible. All contract labour will need to prove insurance/workers' compensation coverage before commencement of employment. In the case where a cluster partner has an employee and the management company wishes to utilise some of his or her time, the partner would charge the management company an appropriate hourly rate for the time.
Stock	The appropriate mix of livestock carried will be identified in the business plan and will be approved by the board of the management company.
Venture capital	The partners would fund the venture in proportion to the capital allocated to each partner. Working capital requirements will be identified in the business plan and approved by the board. Partners would contribute cash, stock, stored semen, supplies, fodder or equipment at an agreed value based on independent advice. The annual business plan anticipates the amount of capital required. In the case of extraordinary events where more capital is required, partners will contribute equally. In the event that one partner cannot make a contribution, the other partners have the right to lend the management company the total amount of extra capital required. The partners making loans will be entitled to take security over the stock for the amount of the loan and will receive the commercial bank interest rate for the loan from the management company. Interest and loan repayments in respect of loans to the management company from partners will be paid before any

	profit distribution.
Maintenance Costs	Maintenance of property is the responsibility of the owner. In recognition of general wear and tear, the management company will approve and allocate a maintenance budget to each land owner in the business plan. The maintenance budget will be accompanied with a schedule of priority maintenance. The intent is that good improvements are rewarded by low maintenance costs. Hence, , owners can benefit by not having to spend the entire maintenance budget. The budget for maintenance is to be set and allocated proportionally on a dse basis. The CEO is to be responsible for administering this budget. Where necessary maintenance exceeds the budget allocated, the owner is responsible for the difference The management company has the right to complete necessary maintenance and to charge the owner if requested maintenance does not occur. The intention is that over the term of the joint venture (whether that be the full term or such shorter period if the venture is terminated early) the total maintenance budget will be expended in proportion to the dse capacity of each property. In any one year, however, it is acceptable due to maintenance priorities that the expenditure not be expended in such exact proportions. Upon termination of the joint venture, an adjustment will be made to compensate a venture partner for any shortfall in maintenance expenditure on a particular property over the term of the venture. The amount budgeted for maintenance is to be determined by the board of the management company.
Major venture costs	The management company will be responsible for the cost of superphosphate, salaries, animal husbandry, stock insurance, etc.
Land owners' costs	Land owners will be responsible for the cost of rates, pasture improvements (other than superphosphate), new fencing, maintenance of homestead and gardens, maintenance of yards, etc.
CEO	The CEO is responsible for implementing the business plan, which is approved by the board of the management company. He/she is also responsible for putting together the business plan, monthly reporting of how actual cash flows match budgeted cash flows, GST and tax returns any other legal obligations All expenditure outside the business plan has to be approved by the board. The CEO has discretion to arrange short-term finance for business-plan-approved opportunity purchases of stock. This is necessary for times when stock buying opportunities occur and

	there are insufficient funds because of timing issues. The CEO is responsible for marketing the product of the joint venture. He or she has the right to forward sell provided that the business plan price targets are achieved. If those targets cannot be achieved but the CEO still wants to proceed, he or she should seek approval from the board.
Board of the management company	The board sets strategic directions for the management company after taking advice from the CEO. The board approves business plan. The board has an independent chairperson with a term of 2.5 years. The board is responsible for hiring and firing the CEO and setting his or her salary/contract fee.
Utilities	Electricity: All houses to be metered separately. The management company is to pay for rural electricity Fuel: The management company is to purchase its own fuel. The telephone/fax/mobile phone costs of the CEO are to be paid by the management company.
Pest and weed control	Control of feral animals is the responsibility of the management company. The management company is to control all weeds as it deems necessary at the landowner's expense. Landowners have the right to control weeds over and above the requirements of the management company at their own expense.

APPENDIX: DETAILED ASSUMPTIONS MADE IN CASH FLOW BUDGETING FOR THE HYPOTHETICAL FURRACABAD FARM CLUSTER

Appendix Table 1: Budget for a hypothetical Furracabad Farm Cluster

Effective Area	3800 ha	**Carrying Capacity**	**Total DSE's**
Area of improved pastures	3600 ha	11.00 dse / ha	39,600
Area of High performance Pastures	200 ha	25.00 dse / ha	5,000
Area of native pastures		0.50 dse / ha	-
Area of irrigated pasture		20.00 dse / ha	-
Atea other			-
TOTAL GRAZING AREA	**3800 ha**	11.74 dse / ha	**44,600**

Grazing Enterprises average DSE's Carried			
Sheep	Commercial Merino Flock Yr2	15114.00 dse	$41.50 /dse
	Stud Merinos YR2	2182.50 dse	$60.34 dse
	Prime Lambs Yr2	6735.00 dse	$27.53 dse
Cattle	Breeding - Cows	9316.00 dse	$17.81 dse
	Steers Yr2	11366.75 dse	$30.03 dse
TOTAL AVERAGE DSE CARRIED		**44714.25 dse**	11.77 dse / ha
Not Utilised		**-114.25 dse**	-0.03 dse / ha
Unallocated Area			

Dry Sheep Equivalents	
SHEEP	**Ave. DSE's**
Merino ewes - joined	1.80 dse
Merino ewes - unjoined	1.20 dse
Merino wethers	1.10 dse
Ram Hoggets	1.10 dse
Sale Rams	1.10 dse
Ewe Hoggets	1.10 dse
Merino weaners	1.00 dse
Merino rams	2.00 dse
semen	
Merino culls	1.00 dse
XB ewes HOGGETS	1.00 dse
XB Lambs	0.60 dse
XB weaners	1.00 dse
XB Ewes	1.20 dse
CATTLE	
Cows	13.00 dse
Heifers	8.00 dse
Steers - 250 Kg	7.00 dse
Steers - 300 Kg	8.00 dse
Steers -400 Kg	10.00 dse
Steers - 450 kg	11.00 dse
Steers - 550 Kg	12.00 dse
Weaners - 200 kg	8.00 dse
Bulls	8.00 dse
Calves	
1st calf cows	13.00 dse

Appendix Table 2: Cash flow budget for the third year of a hypothetical Furracabad Farm Cluster

	TOTAL	July	August	September	October	November	December	January	February	March	April	May	June
INCOME													
Wool Proceeds	648,202			162,442			321,060				164,700		
Merino Sheep Sales	307,100							73,100		234,000			
XB Sheep Sales	229,960				99,920			20,400	20,400	48,440	20,400	20,400	
Stud Sales	180,445			5,600			24,960	24,960	24,960	30,960	24,960	44,047	
Breeding Cattle Sales	194,408								63,020				131,388
Steer Sales	985,050					328,350				328,350			328,350
TOTAL INCOME	2,545,165			168,042	99,920	328,350	346,020	118,460	108,380	641,750	210,060	64,447	459,738
LIVESTOCK - SHEEP													
Genetics/Lstock Purchases	125,180							73,100	6,000		46,080		
Sheep Health	47,875	18,954			6,863	12,735		361	1,608	4,145		3,210	
Fodder & Supplements													
Contract Services	138,883	8,850	32,850		3,630	48,073	10,710		3,672	30,450		648	
Sheep & Wool Selling Costs	96,797	1,504	1,504	1,504	1,504	19,244	40,396	1,631	10,830	13,915	1,631	1,631	1,504
	408,734												
LIVESTOCK - CATTLE													
Cattle Purchases	532,500		7,500			175,000				175,000			175,000
Cattle Health Costs	12,676	150			3,500		1,275		1,692	2,499		3,560	
Fodder & Supplements													
Cartage & Selling Costs	83,106					3,483				64,227		15,397	
	628,283												
OVERHEAD EXPENSES													
Pasture Expenses	240,000	140,000									100,000		
Casual Labour	30,000	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500
Fuel & Oils	12,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
Insurance	23,150	5,000	4,538			4,538			4,538			4,538	
R & M Plant	7,500	625	625	625	625	625	625	625	625	625	625	625	625
R & M Structures	66,900	5,575	5,575	5,575	5,575	5,575	5,575	5,575	5,575	5,575	5,575	5,575	5,575
Management Costs	165,000	13,750	13,750	13,750	13,750	13,750	13,750	13,750	13,750	13,750	13,750	13,750	13,750
Administration	50,200	2,933	5,433	2,933	2,933	2,933	2,933	2,933	5,433	2,933	2,933	2,933	12,933
Rates, Rent & Rego	7,800	1,800							6,000				
Electricity	4,000			1,000			1,000			1,000			1,000
	606,550												
FINANCING EXPENSES													
Interest on O/D	1,593			522		651	420						
Rental	446,000	111,500			111,500			111,500			111,500		
Lease Expenses	44,161	3,680	3,680	3,680	3,680	3,680	3,680	3,680	3,680	3,680	3,680	3,680	3,680
	491,754												
TOTAL OPER. COST	2,135,321	317,821	78,955	33,089	157,060	293,785	83,864	216,655	66,903	321,300	289,275	59,046	217,567
CASH SURPLUS/DEFICIT	409,844	-317,821	-78,955	134,953	-57,140	34,565	262,155	-98,196	41,477	320,450	-79,215	5,400	242,171
CAPITAL MOVEMENTS													
Capital & Loans - In													
(Dividends paid)	-265,000	-66,250			-66,250			-66,250			-66,250		
(Plant & Machinery)													
(Loan Repayments)													
(Drawings)													
(Taxation)	-123,163	-30,791			-30,791			-30,791			-30,791		
	-388,163												
CAPITAL MOVEMENTS	-388,163	-97,041			-97,041			-97,041			-97,041		
CASHFLOW	21,682	-414,862	-78,955	134,953	-154,180	34,565	262,155	-195,236	41,477	320,450	-176,256	5,400	242,171
Opening Balance	415,465	415,465	603	-78,352	56,601	-97,580	-63,015	199,140	3,904	45,381	365,831	189,575	194,975
CLOSING BALANCE	437,146	603	-78,352	56,601	-97,580	-63,015	199,140	3,904	45,381	365,831	189,575	194,975	437,146

Appendix Table 3: Overhead and capital expenses for a hypothetical Furracabad Farm Cluster, 2002/03 year

1.0	Pasture Expenses													
	Fertiliser Spread	140,000	Jul-02											
	HP Pasture	100,000	Apr-03											
	Contract forage	0	Nov-01											
	Sub Total	240,000												
2.0	Casual Labour													
	Casual	30,000	Jul-02	Aug-02	Sep-02	Oct-02	Nov-02	Dec-02	Jan-03	Feb-03	Mar-03	Apr-03	May-03	Jun-03
	Casual 3	0	Jul-99	Jul-99										
	Sub Total	30,000												
3.0	Fuel & Oils													
	Overhead Fuel	12,000	Jul-02	Aug-02	Sep-02	Oct-02	Nov-02	Dec-02	Jan-03	Feb-03	Mar-03	Apr-03	May-03	Jun-03
	Crop Fuel	0	Jul-99											
	Sub Total	12,000												
4.0	Insurance													
	PL	1,000	Jul-02											
	Workers' Compensation	18,150	Aug-02	Nov-02	Feb-03	May-03								
	Farm Vehicles	4,000	Jul-02											
	Other		Nov-99											
	Sub Total	23,150												
5.0	R & M Plant													
	General	7,500	Jul-02	Aug-02	Sep-02	Oct-02	Nov-02	Dec-02	Jan-03	Feb-03	Mar-03	Apr-03	May-03	Jun-03
	General, Workshop	0	Jul-01	Aug-01	Sep-01	Oct-01	Nov-01	Dec-01	Jan-02	Feb-02	Mar-02	Apr-02	May-02	Jun-02
	Sub Total	7,500												
6.0	R & M Structures													
	Mainetnance Allowance	66,900	Jul-02	Aug-02	Sep-02	Oct-02	Nov-02	Dec-02	Jan-03	Feb-03	Mar-03	Apr-03	May-03	Jun-03
	Sub Total	66,900												
7.0	Management Costs													
	Manager	60,000	Jul-02	Aug-02	Sep-02	Oct-02	Nov-02	Dec-02	Jan-03	Feb-03	Mar-03	Apr-03	May-03	Jun-03
	Permanents	90,000	Jul-02	Aug-02	Sep-02	Oct-02	Nov-02	Dec-02	Jan-03	Feb-03	Mar-03	Apr-03	May-03	Jun-03
	Super	15,000	Jul-02	Aug-02	Sep-02	Oct-02	Nov-02	Dec-02	Jan-03	Feb-03	Mar-03	Apr-03	May-03	Jun-03
	Salary	0	Jul-02	Aug-02	Sep-02	Oct-02	Nov-02	Dec-02	Jan-03	Feb-03	Mar-03	Apr-03	May-03	Jun-03
	Sub Total	165,000												
8.0	Administration													
	Bank Fees	1,200	Jul-02	Aug-02	Sep-02	Oct-02	Nov-02	Dec-02	Jan-03	Feb-03	Mar-03	Apr-03	May-03	Jun-03
	Consulting	5,000	Aug-02	Feb-03										
	Accounting	10,000	Jun-03											
	Education & Training	12,000	Jul-02	Aug-02	Sep-02	Oct-02	Nov-02	Dec-02	Jan-03	Feb-03	Mar-03	Apr-03	May-03	Jun-03
	Travelling	2,000	Jul-02	Aug-02	Sep-02	Oct-02	Nov-02	Dec-02	Jan-03	Feb-03	Mar-03	Apr-03	May-03	Jun-03
	Telephone	3,200	Jul-02	Aug-02	Sep-02	Oct-02	Nov-02	Dec-02	Jan-03	Feb-03	Mar-03	Apr-03	May-03	Jun-03
	Postage	1,200	Jul-02	Aug-02	Sep-02	Oct-02	Nov-02	Dec-02	Jan-03	Feb-03	Mar-03	Apr-03	May-03	Jun-03
	Subscriptions	3,600	Jul-02	Aug-02	Sep-02	Oct-02	Nov-02	Dec-02	Jan-03	Feb-03	Mar-03	Apr-03	May-03	Jun-03
	Secretarial	12,000	Jul-02	Aug-02	Sep-02	Oct-02	Nov-02	Dec-02	Jan-03	Feb-03	Mar-03	Apr-03	May-03	Jun-03
	Sub Total	50,200												
9.0	Rates, Rent & Rego													
	Rural Lands Board	6,000	Feb-03											
	rego Vehicle	1,800	Jul-02											
	Sub Total	7,800												
10.0	Electricity													
	Electricity	4,000	Sep-02	Dec-02	Mar-03	Jun-03								
	Other		Jul-01	Aug-01	Sep-01	Oct-01	Nov-01	Dec-01	Jan-02	Feb-02	Mar-02	Apr-02	May-02	Jun-02
	Sub Total	4,000												
11.0	Rental													
	Rental - Land	446,000	Jul-02	Oct-02	Jan-03	Apr-03								
	Other		Nov-99											
	Sub Total	447,593												
12.0	Lease & Hire Purchase													
	4 Wheel Drive Vehicle*3	29,848	Jul-02	Aug-02	Sep-02	Oct-02	Nov-02	Dec-02	Jan-03	Feb-03	Mar-03	Apr-03	May-03	Jun-03
	4 Wheeler *4	11,939	Jul-02	Aug-02	Sep-02	Oct-02	Nov-02	Dec-02	Jan-03	Feb-03	Mar-03	Apr-03	May-03	Jun-03
	Computer + Acessories	2,374	Jul-02	Aug-02	Sep-02	Oct-02	Nov-02	Dec-02	Jan-03	Feb-03	Mar-03	Apr-03	May-03	Jun-03
	Sub Total	44,161												

Appendix Table 3 (continued)

	CAPITAL MOVEMENTS					
1.0	Capital & Loans - In					
	Sub Total	0				
2.0	(Dividends Paid)					
	Dividend	-265,000	Jul-02	Oct-02	Jan-03	Apr-03
	Improvement3		Nov-99			
	Improvement4		Nov-99			
	Sub Total	-265,000				
3.0	(Plant & Machinery)					
	Sub Total	0				
4.0	(Loan Repayments)					
	Sub Total	0				
5.0	Profit Distributions					
	Sub Total	0				
6.0	(Taxation)					
	Tax @30%	-123,163	Jul-02	Oct-02	Jan-03	Apr-03
	Payment 2		Nov-99			
	Payment 3		Nov-99			
	Payment 4		Nov-99			
	Sub Total	-123,163				

Appendix Table 4: Cattle schedule for a hypothetical Furracabad Farm Cluster

CATTLE	Open No.	$ Head	Total $	Nat Increase	Pur-chases	Trans In	No. Sales	Trans Out	Deaths 2.0%	Close No.	$ Head	Total $	Ave DSE's	Open DSE	Close DSE	% Yr Carried	Ave DSE
		450	0						0	0	450	0	0	0	0	50%	0
Cows	410	800	328,000		0	88	79		9	410	800	328,000	13	5,330	5,330	100%	5,330
1st calf cows	90	600	54,000			112	22	88	2	90	600	54,000	13	1,170	1,170	100%	1,170
Heifers	0		0			0	0	0	0	0	0	0	8	0	0	50%	0
	0		0						0	0	0	0	0	0	0	50%	0
Weaners - 200 kg	425	320	136,000			425	304	112	9	425	320	136,000	8	3,400	3,400	80%	2,720
Steers - 250 Kg	0		0			0	0		0	0	0	0	7	0	0	50%	0
Steers - 550 Kg	0		0						0	0	0	0	12	0	0	50%	0
	0		0						0	0	0	0	0	0	0	50%	0
Calves	0		0	425				425	0	0	0	0	0	0	0	50%	0
	0		0						0	0	0	0	0	0	0	50%	0
Bulls	12	2,000	24,000		3		2		1	12	2,000	24,000	8	96	96	100%	96
			0						0	0	0	0	0	0	0	50%	0
			0						0	0	0	0	0	0	0	50%	0
TOTAL	937		542,000	425	3	625	407	625	21	937		542,000		9,996	9,996	n.a.	9,316

0.00 higher closing value
0.00 higher closing number

Steers	Open No.	$ Head	Total $	Nat Increase	Pur-chases	Trans In	No. Sales	Trans Out	Deaths 0	Close No.	$ Head	Total $	Ave DSE's	Open DSE	Close DSE	% Yr Carried	Ave DSE
Steers - 300 Kg	0	540	0		0			0	0	0	540	0	10	0	0	100%	0
Steers -400 Kg	0	720	0		0			0	0	0	720	0	10	0	0	75%	0
Steers - 450 kg	250	810	202,500			0			3	247	810	200,070	11	2,750	2,717	50%	1,367
Steers - 250 Kg	1,000	460	460,000		1,000		995		5	1,000	460	460,000	10	10,000	10,000	100%	10,000
	0		0						0	0	0	0	0	0	0	50%	0
			0						0	0	0	0	0	0	0	50%	0
			0						0	0	0	0	0	0	0	250%	0
Steers 1998			0						0	0	0	0	0	0	0	50%	0
Steers 1999			0						0	0	0	0	0	0	0	50%	0
			0						0	0	0	0	0	0	0	50%	0
			0						0	0	0	0	0	0	0	50%	0
Bulls			0						0	0	0	0	8	0	0	50%	0
			0						0	0	0	0	0	0	0	50%	0
			0						0	0	0	0	0	0	0	50%	0
TOTAL	1,250		662,500	0	1,000	0	995	0	8	1,247		660,070		12,750	12,717	n.a.	11,367

-$2,430 lower closing value
-3 lower closing number

Appendix Table 5: Gross margin for steer enterprise at steady state

INCOME					Month
Cattle Sales					
Steers - 550 Kg	332 hd @	550 Kg/hd @	180 c/Kg =	328,350	Nov-02
Steers - 550 Kg	332 hd @	550 Kg/hd @	180 c/Kg =	328,350	Mar-03
Steers - 550 Kg	332 hd @	550 Kg/hd @	180 c/Kg =	328,350	Jun-03
Steers	0 hd @	0 Kg/hd @	0 c/Kg =	-	Dec-99
Total Cattle Sales	995 head	550 Kg Ave.	180.0	985,050	
Add Change in Inventory				(2,430)	
A - TOTAL INCOME				982,620	

VARIABLE COSTS					
Cattle Purchases					
Steers - 250 Kg	333 hd @		$525 per hd =	175,000	Nov-02
Steers - 250 Kg	333 hd @		$525 per hd =	175,000	Mar-03
Steers - 250 Kg	333 hd @		$525 per hd =	175,000	Jun-03
Total Cattle Purchases	1000 head				
Cattle Health					
Drench 5in1	1250 hd @	1 appl @	$2.80 per appl =	3,500	Oct-02
Drench	1000 hd @	1 appl @	$2.80 per appl =	2,800	May-03
Selenium	1000 hd @		$0.30 per hd =	300	May-03
Vaccine	1000 hd @	2 appl @	$0.23 per hd =	460	May-03
Ear Tags electronic	0 hd @	1 appl @	$4.86 per appl =	-	Oct-01
Veterinary Expenses	0 hd @		$0.00 per hd =	-	Monthly
Cattle Fodder & Supplements					
Agistment	0 hd @	$5 /week for	5 weeks	-	May-99
Fodder	0 hd @		$5.00 per hd =	-	May-99
Blocks	0 hd @		$5.00 per appl =	-	Sep-01
Cattle Selling Costs					
Transport	995 hd @		$20.00 per hd =	19,900	Mar-03
Levies	995 hd @		$3.50 per hd =	3,483	Nov-02
Commission, levies etc	4.50% @		$985,050 =	44,327	Mar-03
B - TOTAL VARIABLE COSTS				599,770	
C - GROSS MARGIN (A - B)				382,850	
GROSS MARGIN/DSE				$30.03 /dse	
GROSS MARGIN/HA				$353.33 /ha	

Appendix Table 6: Gross margin for cattle

INCOME					Month
Cattle Sales					
Cows	79 hd @	500 Kg/hd @	120 c/Kg =	47,400	Feb-03
Heifers	22 hd @	450 Kg/hd @	140 c/Kg =	13,860	Feb-03
Steers - 250 Kg	207 hd @	270 Kg/hd @	170 c/Kg =	95,013	Jun-03
Heifers	97 hd @	250 Kg/hd @	150 c/Kg =	36,375	Jun-03
Bulls	2 hd @	800 Kg/hd @	110 c/Kg =	1,760	Feb-03
Total Cattle Sales	407 head	322 Kg Ave.	148.2	194,408	
Add Change in Inventory				-	
A - TOTAL INCOME				194,408	

VARIABLE COSTS					
Cattle Purchases					
Cows	0 hd @		$450 per hd =	-	Sep-02
Bulls	3 hd @		$2,500 per hd =	7,500	Aug-02
Cows 1997	0 hd @		$0 per hd =	-	May-99
Total Cattle Purchases	3 head		#DIV/0!		
Cattle Health					
Preg test	522 hd @	1 appl @	$3.20 per appl =	1,670	Feb-03
Drench	425 hd @	1 appl @	$1.50 per appl =	638	Mar-03
Ear Tags - electronic	425 hd @		$4.38 per hd =	1,862	Mar-03
Tail Tags	200 hd @		$0.11 per hd =	22	Feb-03
Vaccine	500 hd @	1 appl @	$0.30 per hd =	150	Jul-02
Calf Vaccine /Drench	425 hd @	2 appl @	$1.50 per appl =	1,275	Dec-02
Veterinary Expenses	0 hd @		$2.50 per hd =	-	Monthly
Cattle Fodder & Supplements					
Agistment	0 hd @	$5 /week for	5 weeks	-	May-99
Fodder	0 hd @		$5.00 per hd =	-	May-99
Blocks	0 hd @		$5.00 per appl =	-	Sep-01
Cattle Selling Costs					
Transport	407 hd @		$20.00 per hd =	8,140	May-03
Levies	407 hd @		$3.50 per hd =	1,425	May-03
Commission, levies etc	3.00% @		$194,408 =	5,832	May-03
B - TOTAL VARIABLE COSTS				28,513	
C - GROSS MARGIN (A - B)				165,895	
GROSS MARGIN/DSE				$17.81 /dse	
GROSS MARGIN/HA				$209.54 /ha	

Appendix Table 7: Sheep schedule for a hypothetical Furracabad Farm Cluster

MERINO SHEEP	Open No.	$ Head	Total $	Nat Increase	Pur-chases	Trans In	No. Sales	Trans Out	Deaths 2.0%	Close No.	$ Head	Total $	Ave DSE's	Open DSE	Close DSE	% Yr Carried	Ave. DSE
Merino ewes - joined			0				0		0	0	0	0	2	0	0	0%	0
Merino ewes - joined	6,000	80	480,000			1,882	1,462	300	120	6,000	80	480,000	2	9,000	9,000	100%	9,000
Merino ewes - joined	0	0	0						0	0	0	0	2	0	0	0%	0
	0	0	0						0	0	0	0	0	0	0	0%	0
Ewe Hoggets	0	0	0			3,200	1,600	1,600	0	0	0	0	1	0	0	100%	0
Merino weaners	6,100	66	402,600	5,700		450	2,800	3,200	122	6,128	66	404,448	1	6,100	6,128	100%	6,114
	0	0	0						0	0	0	0	0	0	0	0%	0
Merino rams	0	0	0						0	0	0	0	2	0	0	0%	0
Merino culls	0	0	0						0	0	0	0	1	0	0	0%	0
Merino culls	0	0	0						0	0	0	0	1	0	0	0%	0
			0						0	0	0	0	0	0	0	0%	0
fers In DO NOT EQUAL Transfers Out																	
TOTAL	12,100		882,600	5,700	0	5,532	5,862	5,100	242	12,128		884,448		15,100	15,128	n.a.	15,114
	1,848	higher closing value															
	28	higher closing number															

Stud	Open No.	$ Head	Total $	Nat Increase	Pur-chases	Trans In	No. Sales	Trans Out	Deaths 0	Close No.	$ Head	Total $	Ave DSE's	Open DSE	Close DSE	% Yr Carried	Ave. DSE
Merino ewes - joined	900	240	216,000			200	0	184	18	898	240	215,520	2	1,350	1,347	100%	1,349
Merino ewes - joined	100	400	40,000			100		98	2	100	400	40,000	2	150	150	100%	150
Merino ewes - joined	0	0	0						0	0	0	0	2	0	0	0%	0
	0	0	0						0	0	0	0	0	0	0	0%	0
semen	2,650	40	106,000				350		0	2,300	40	92,000	0	0	0	0%	0
Ram Hoggets	440	300	132,000			450	221	220	9	440	300	132,000	1	484	484	100%	484
Sale Rams	0	400	0						0	0	400	0	1	0	0	100%	0
Merino rams	100	2,167	216,700			80	78		2	100	2,167	216,700	2	200	200	100%	200
Merino weaners	0	0	0	900				900	0	0	0	0	1	0	0	0%	0
Merino culls	0	0	0			140	140		0	0	0	0	1	0	0	0%	0
			0						0	0	0	0	0	0	0	0%	0
fers In DO NOT EQUAL Transfers Out																	
TOTAL	4,190		710,700	900	0	970	789	1,402	31	3,838		696,220		2,184	2,181	n.a.	2,183
	-14,480	lower closing value															
	-352	lower closing number				6,502		6,502	0								

XB SHEEP	Open No.	$ Head	Total $	Nat Increase	Pur-chases	Trans In	No. Sales	Trans Out	Deaths 0	Close No.	$ Head	Total $	Ave DSE's	Open DSE	Close DSE	% Yr Carried	Ave. DSE
XB ewes			0						0	0	0	0	1	0	0	0%	0
XB ewes	0	90	0		0		0		0	0	90	0	2	0	0	100%	0
XB ewes	0	0	0						0	0	0	0	1	0	0	0%	0
Merino wethers	0	0	0						0	0	0	0	1	0	0	0%	0
Merino ewes - joined	3,000	50	150,000		1,462		1,402		60	3,000	50	150,000	2	5,400	5,400	100%	5,400
Merino ewes - joined	0	0	0						0	0	0	0	2	0	0	0%	0
XB ewes HOGGETS	1,275	60	76,500			1,275	1,249		26	1,275	60	76,500	1	1,275	1,275	100%	1,275
XB Lambs	0	0	0	2,550			1,275	1,275	0	0	0	0	1	0	0	50%	0
Rams	60	200	12,000		20		18		2	60	200	12,000	1	60	60	100%	60
Merino culls	0	0	0						0	0	0	0	1	0	0	0%	0
			0						0	0	0	0	0	0	0	0%	0
TOTAL	4,335		238,500	2,550	1,482	1,275	3,944	1,275	88	4,335		238,500		6,735	6,735	n.a.	6,735
	$0	higher closing value															
	0	higher closing number															24,032

Appendix Table 8: Gross margin for a merino sheep enterprise at steady state

INCOME					Month
Wool Sales					
Merino ewes - joined	6000 hd @	5 Kg/hd @	650 c/Kg =	195,000	Dec-02
Merino weaners	6100 hd @	3 Kg/hd @	900 c/Kg =	148,230	Sep-02
Merino weaners	6100 hd @	3 Kg/hd @	900 c/Kg =	164,700	Apr-03
Merino weaners	5700 hd @	1 Kg/hd @	400 c/Kg =	15,960	Dec-02
	0 hd @	0 Kg/hd @	0 c/Kg =	-	Mar-00
Total Wool Sales	23900 head	2.9 Kg Ave.	762	523,890	
Add Change in Inventory					
Sheep Sales					
Merino ewes - joined	0 hd @		$5.00 per hd =	-	Jul-99
Merino ewes - unjoined	1462 hd @		$50.00 per hd =	73,100	Jan-03
Merino wethers	2800 hd @		$55.00 per hd =	154,000	Mar-03
Merino culls	1600 hd @		$50.00 per hd =	80,000	Mar-03
Total Sheep Sales	5862 head			307,100	
Add Change in Inventory				1,848	
A - TOTAL INCOME				832,838	
VARIABLE COSTS					
Sheep Purchases					
Merino weaners	0 hd @		$12 per hd =	-	Feb-00
Total Merino Purchases	0 head				
Sheep Health					
Drench - Capsule /5in1 - Ewes	6000 hd @	1 appl @	$2.63 per appl =	15,780	Jul-02
Drench/Backline - Ewes	6000 hd @	1 appl @	$0.60 per appl =	3,600	Nov-02
Drench - Ewes	6000 hd @	1 appl @	$0.20 per appl =	1,200	Mar-03
Drench - Ewes	6000 hd @	1 appl @	$0.20 per appl =	1,200	May-03
Vaccine - lambs	5700 hd @	2 appl @	$0.48 per appl =	5,472	Oct-02
Drench/Backline /pellet - Lambs	5700 hd @	1 appl @	$0.90 per appl =	5,130	Nov-02
Drench - Lambs	5700 hd @	1 appl @	$0.20 per appl =	1,140	Mar-03
Drench - Lambs	5700 hd @	1 appl @	$0.20 per appl =	1,140	May-03
Ear Tags	3200 hd @		$0.17 per hd =	544	Jul-02
Backline	1700 hd @	1 appl @	$0.40 per hd =	680	Mar-03
Veterinary Expenses	0 hd @		$20.00 per hd =	-	Monthly
Sheep Fodder & Supplements					
Blocks	0 hd @		$5.00 per appl =	-	Jan-00
Contract Services					
Shearing - Ewes	6000 hd @		$3.50 per hd @	21,000	Nov-02
Crutching - Ewes	6000 hd @		$1.20 per hd @	7,200	Jul-02
Mulse & Mark	5700 hd @		$0.55 per hd @	3,135	Oct-02
Shear - Weaners	6100 hd @		$3.50 per hd @	21,350	Aug-02
Shear - Hoggets	6000 hd @		$3.50 per hd @	21,000	Mar-03
Shear - Lambs	5700 hd @		$3.50 per hd @	19,950	Nov-02
Fleece weigh	6100 hd @		$1.50 per hd @	9,150	Aug-02
Fleece weigh	6000 hd @		$1.50 per hd @	9,000	Mar-03
Class				450	Nov-02
Jetting	0 hd @		$3.90 per hd @	-	Jan-00
Sheep & Wool Selling Costs					
Wool packs, etc	404.47 bales @		$20 /bale	8,089	Nov-02
Sheep Transport	0 hd @		$20.00 per hd =	-	Jan-00
Wool Transport	404.47 bales @		$14 /bale	5,663	Nov-02
Commission etc on sheep sales	4.00% @		$307,100 =	12,284	Mar-03
Commission etc on wool sales	6.00% @		$523,890 =	31,433	Dec-02
B - TOTAL VARIABLE COSTS				205,590	
C - GROSS MARGIN (A - B)				627,248	
		GROSS MARGIN/DSE		$41.50 /dse	
		GROSS MARGIN/HA		$488.34 /ha	

Appendix Table 9: Gross margin for a stud Merino sheep enterprise at steady state

INCOME					Month
Wool Sales					
Merino ewes - joined	1000 hd @	5 Kg/hd @	650 c/Kg =	35,100	Dec-02
Ram Hoggets	440 hd @	4 Kg/hd @	850 c/Kg =	14,212	Sep-02
Merino weaners	900 hd @	1 Kg/hd @	400 c/Kg =	2,520	Dec-02
	0 hd @	0 Kg/hd @	0 c/Kg =	-	Mar-00
Total Wool Sales	2340 head	3.3 Kg Ave.	673	51,832	
Add Change in Inventory					
Sheep Sales					
Merino ewes - joined	0 hd @		$5.00 per hd =	-	Jul-99
Sale Rams	44 hd @		$564.70 per hd =	24,960	Dec-02
Sale Rams	44 hd @		$564.70 per hd =	24,960	Jan-03
Sale Rams	44 hd @		$564.70 per hd =	24,960	Feb-03
Sale Rams	44 hd @		$564.70 per hd =	24,960	Mar-03
Sale Rams	44 hd @		$564.70 per hd =	24,960	Apr-03
Sale Rams	78 hd @		$564.70 per hd =	44,047	May-03
Merino culls	140 hd @		$40.00 per hd =	5,600	Sep-02
Merino culls			$30.00 per hd =	-	Mar-03
semen	150 hd @		$40.00 per hd =	6,000	Mar-03
Total Sheep Sales	589 head			180,445	
Add Change in Inventory				(14,480)	
A - TOTAL INCOME				217,797	
VARIABLE COSTS					
Genetics					
Semen	400 hd @		$50 per hd =	20,000	Apr-03
Embryo Transfer Program	100 hd @		$120 per hd =	12,000	Apr-03
Semen Storage				2,000	Apr-03
Semen Collection				80	Apr-03
AI program	800 hd @		$15 per hd =	12,000	Apr-03
Total Merino Purchases	1300 head				
Sheep Health					
Drench - Ewes - Capsules/5 in 1	1000 hd @	1 appl @	$2.63 per appl =	2,630	Jul-02
Drench - Ewes	1000 hd @	1 appl @	$0.20 per appl =	200	Nov-02
Drench - Ewes	1000 hd @	1 appl @	$0.20 per appl =	200	Mar-03
Drench - Ewes / Lambs	1348 hd @	1 appl @	$0.20 per appl =	270	May-03
Backline Ewes - Zapp	1348 hd @	1 appl @	$0.40 per appl =	539	Nov-02
Vaccine - Lambs	900 hd @	2 appl @	$0.13 per appl =	234	Oct-02
Ear Tags	900 hd @		$0.35 per hd =	315	Oct-02
Backline -Lambs/Rams	1440 hd @	1 appl @	$0.40 per hd =	576	Nov-02
Sellenium Pellet	900 hd @	1 appl @	$0.30 per hd =	270	Nov-02
Drench - Lambs/Rams	1440 hd @	1 appl @	$0.20 per appl =	288	Nov-02
Drench/Vetrazin - Rams	902 hd @	1 appl @	$0.40 per appl =	361	Jan-03
Drench/Vetrazin - rams	813 hd @	1 appl @	$0.40 per appl =	325	Mar-03
Veterinary Expenses	0 hd @		$20.00 per hd =	-	Monthly
Sheep Fodder & Supplements					
Blocks	0 hd @		$5.00 per appl =	-	Jan-00
Contract Services					
Shearing - Ewes	1000 hd @		$3.50 per hd @	3,500	Nov-02
Crutching - Ewes	1000 hd @		$1.20 per hd @	1,200	Jul-02
Mulse/ mark	900 hd @		$0.55 per hd @	495	Oct-02
Shear - Ram Hoggets	440 hd @		$3.50 per hd @	1,540	Aug-02
Shear - Ram Lambs	450 hd @		$3.50 per hd @	1,575	Nov-02
Crutching - Rams	540 hd @		$1.20 per hd @	648	May-03
Fleece weigh	540 hd @		$1.50 per hd @	810	Aug-02
Classing	440 hd @			450	Jul-02
Classing				450	Nov-02
Class Ewes				450	Mar-03
Sheep & Wool Selling Costs					
Wool packs, etc	45.31 bales @		$20 /bale	906	Nov-02
Sheep Transport	0 hd @		$20.00 per hd =	-	Sep-02
Wool Transport	45.31 bales @		$14 /bale	634	Nov-02
Commission etc on sheep sales	10.00% @		$180,445 =	18,045	Monthly
Commission etc on wool sales	6.00% @		$51,832 =	3,110	Dec-02
B - TOTAL VARIABLE COSTS				86,101	
C - GROSS MARGIN (A - B)				131,697	
		GROSS MARGIN/DSE		$60.34 /dse	
		GROSS MARGIN/HA		$710.04 /ha	

Appendix Table 10: Gross margin for a cross-bred sheep enterprise in year 2

INCOME					Month
Wool Sales					
XB ewes	3000 hd @	4 Kg/hd @	600 c/Kg =	72,000	Dec-02
XB rams	60 hd @	4 Kg/hd @	200 c/Kg =	480	Dec-02
	0 hd @	0 Kg/hd @	0 c/Kg =	-	Mar-00
Total Wool Sales	3060 head	4.0 Kg Ave.	592	72,480	
Add Change in Inventory					
Sheep Sales					
Merino culls	1402 hd @		$20.00 per hd =	28,040	Mar-03
XB ewes HOGGETS	1249 hd @		$80.00 per hd =	99,920	Oct-02
XB Lambs	255 hd @		$80.00 per hd =	20,400	Jan-03
XB Lambs	255 hd @		$80.00 per hd =	20,400	Feb-03
XB Lambs	255 hd @		$80.00 per hd =	20,400	Mar-03
XB Lambs	255 hd @		$80.00 per hd =	20,400	Apr-03
XB Lambs	255 hd @		$80.00 per hd =	20,400	May-03
Total Sheep Sales	3926 head			229,960	
Add Change in Inventory				-	
A - TOTAL INCOME				302,440	
VARIABLE COSTS					
Sheep Purchases					
Merino ewes - joined	1462 hd @		$50 per hd =	73,100	Jan-03
XB rams	20 hd @		$300 per hd =	6,000	Feb-03
Merino weaners	0 hd @		$12 per hd =	-	Jan-00
Total Merino Purchases	1482 head				
Sheep Health					
Drench Capsules, 5in1 - Ewes	0 hd @	1 appl @	$2.63 per appl =	-	Jul-02
Drench/Jet - Ewes	3000 hd @	1 appl @	$0.60 per hd =	1,800	Nov-02
Drench -Ewes	3000 hd @	1 appl @	$0.20 per hd =	600	Mar-03
Vaccinate -ewes	3000 hd @	1 appl @	$0.20 per appl =	600	May-03
Vaccine/Drench - lambs	2550 hd @	1 appl @	$0.33 per appl =	842	Oct-02
Vaccine/Lambs	2550 hd @	1 appl @	$0.13 per appl =	332	Nov-02
Drench - Lambs	2040 hd @	1 appl @	$0.20 per appl =	408	Feb-03
Jet -Ewes	3000 hd @	1 appl @	$0.40 per appl =	1,200	Feb-03
Veterinary Expenses	0 hd @		$20.00 per hd =	-	Feb-00
Sheep Fodder & Supplements					
Blocks	0 hd @		$10.00 per appl =	-	Monthly
Contract Services					
Shearing	3060 hd @		$3.50 per hd @	10,710	Dec-02
Crutching	3060 hd @		$1.20 per hd @	3,672	Feb-03
Lamb Mark	2550 hd @		$0.45 per hd @	1,148	Nov-02
Jetting	0 hd @		$3.90 per hd @	-	Jan-00
Sheep & Wool Selling Costs					
Wool packs, etc	72.00 bales @		$20 /bale	1,440	Nov-02
Sheep Transport	255 hd @		$0.50 per hd =	128	Jan-03
Sheep Transport	255 hd @		$0.50 per hd =	128	Feb-03
Sheep Transport	255 hd @		$0.50 per hd =	128	Mar-03
Sheep Transport	255 hd @		$0.50 per hd =	128	Apr-03
Sheep Transport	255 hd @		$0.50 per hd =	128	May-03
Wool Transport	72.00 bales @		$14 /bale	1,008	Nov-02
Commission etc on sheep sales	4.00% @		$229,960 =	9,198	Feb-03
Commission etc on wool sales	6.00% @		$72,480 =	4,349	Dec-02
B - TOTAL VARIABLE COSTS				117,043	
C - GROSS MARGIN (A - B)				185,397	
			GROSS MARGIN/DSE	$27.53 /dse	
			GROSS MARGIN/HA	$323.91 /ha	

Appendix Table 11: Plant and equipment lease costs

YEAR						Yearly
Plant & Equipment	Method	Unit Price	Term	Rate	Residual %	Lease/ Unit
4 Wheel Drive Vehicle*3	Leased	120000	4	8%	15%	29,848
4 Wheeler *4	Leased	48000	4	8%	15%	11,939
Computer + Acessories	Leased	6000	3	20%	0%	2,374
	Leased	120000	5	8%	15%	
Total Annual Lease Cost						44,161