

## 5. JOINING THREE TIMES IN TWO YEARS

### Accelerated lambing

The aim of this chapter is to discuss the issues surrounding an accelerated lambing system as a means of returning a flock to pre-drought numbers. The accelerated lambing system is defined as three lambings in two years. Under this system, the ewes must be joined every eight months, or effectively three months after lambing.

Such a practice might be considered where the farm is currently grossly understocked as a result of the drought and there are real constraints on the ability to alter the stocking rate through purchases.

An accelerated lambing system increases the stocking rate pressure on the property, because the ewes spend an additional five months over two years either in late pregnancy or lactation. During this period, the nutritional requirements of the ewes are twice as high as they would normally be. In addition, this extra nutritional demand will come at times where there is sub-optimal pasture conditions.

The main issues to consider, if contemplating three lambings in two years as part of the drought recovery strategy are:

- There will be an increased need for supplementary feeding as a result of ewes having high nutritional demands at times of the year that don't coincide with good pasture availability.
- The flock will be under greater nutritional stress and ewes will have lower immunity to worms therefore a strategic worm control program for the pastures will be hard to implement.
- Management of weaners will be a lot more difficult because of the combined effects of inadequate pasture quantity and quality at weaning and/or higher worm burdens on pastures.
- Shearing and other management events will have to be adjusted to fit around different joining and lambing times.

#### SECTION KEY MESSAGES

*Joining ewes three times in two years can provide an enormous boost to profitability, but is difficult to manage, and requires careful thought.*

*It is likely to pay off only when your stocking rate is well below normal.*

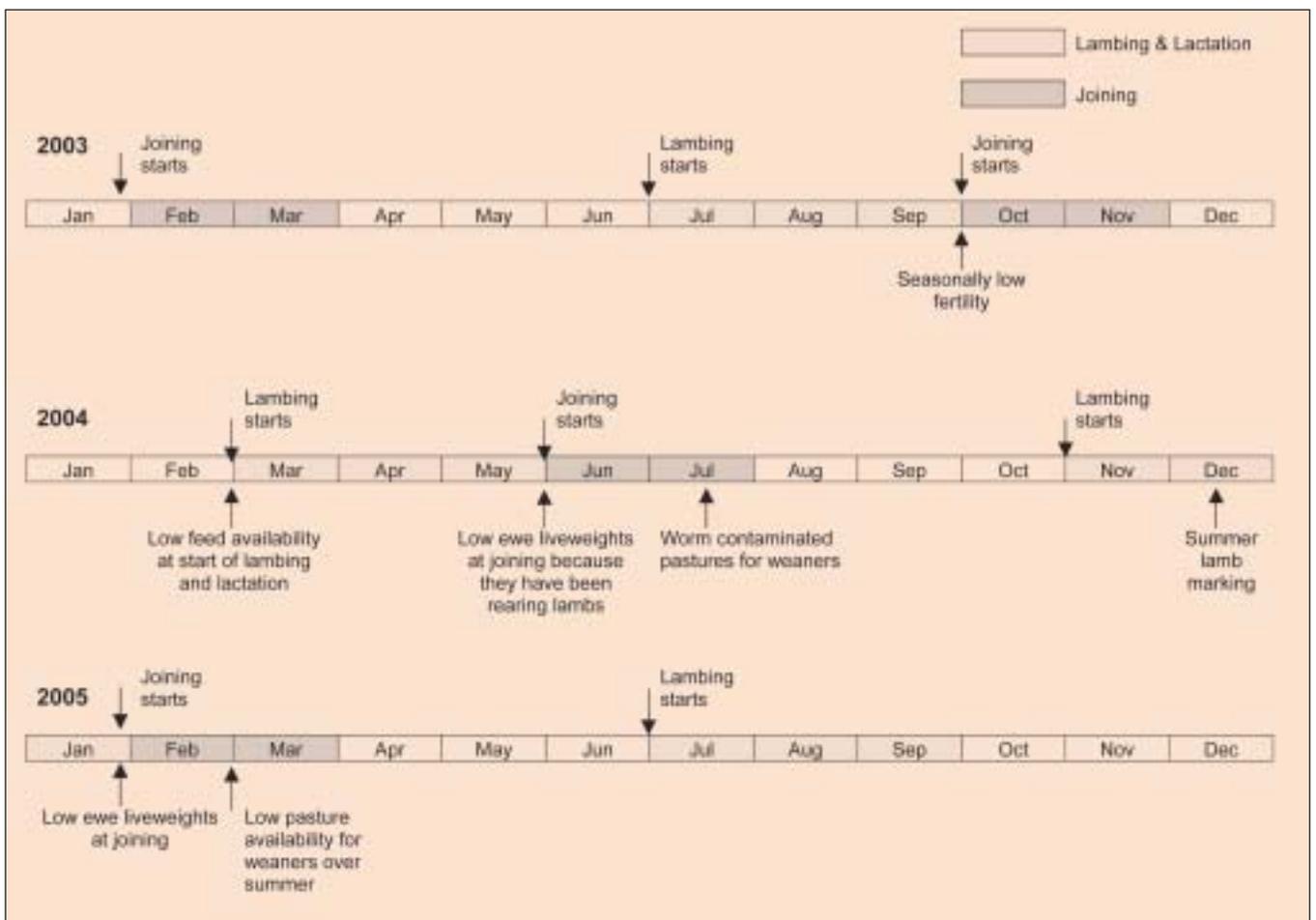
*In general, joining three times in two years doubles supplementary feed requirements.*

*An accelerated lambing system increases the stocking rate pressure on the property, because the ewes spend an additional five months over two years either in late pregnancy or lactation.*

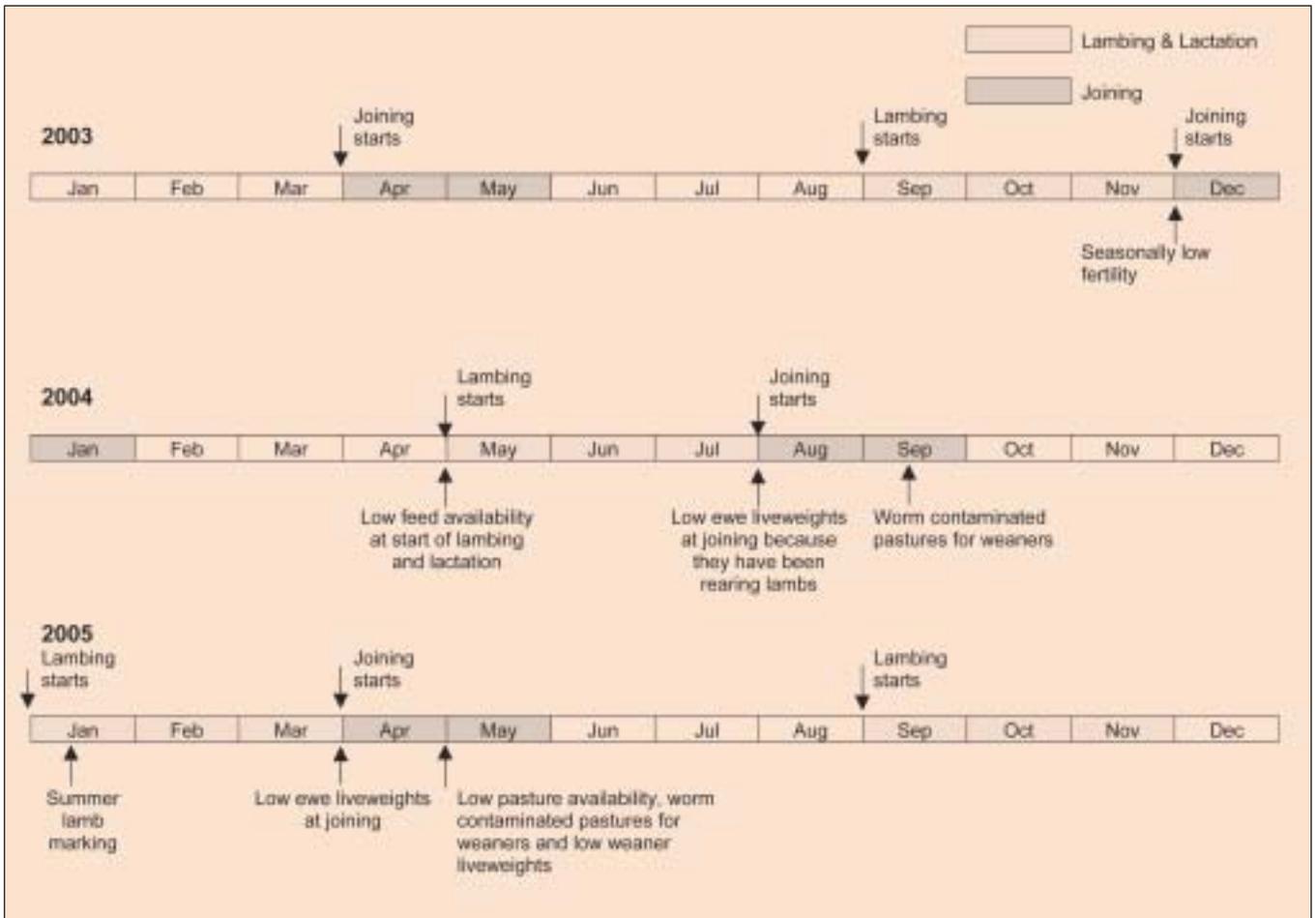
Figure 5.1 and Figure 5.2 depict a three year timeline to highlight the events and likely issues for a winter lambing and spring lambing flock respectively. Maintaining ewe live weights for joining, marking and mulesing lambs in the middle of summer, and managing weaners, possibly with very low weights in the middle of summer or on wormy pastures in winter, are the main issues. Adjusting the shearing time and other management events may also provide headaches.

These are very difficult issues to manage and, unless the farm is grossly understocked and therefore the amount of supplementary feeding is minimised, they would be very expensive to manage.

**Figure 5.1: Accelerated lambing for a winter lambing flock**



**Figure 5.2: Accelerated lambing for a spring lambing flock**



To assess the potential benefit of an accelerated lambing system, the GrassGro program was used to model the expected increase in lambs born and the likely costs of additional supplementary feed. The scenario assumes the property is understocked compared to normal.

The starting environmental conditions were chosen to simulate the drought conditions experienced in the autumn of 2003. That is, very low pasture availability and no soil moisture. Subsequent seasons are shown as an average of the historical seasons experienced at the chosen locality. The results are therefore the expected outcomes under average seasonal conditions until the end of 2005.

Any deterioration in seasonal conditions below the average will add significant costs in supplementary feeding, and above average seasonal conditions will aid in the management of the flock.

Remember that the farms modelled have less than half their normal sheep numbers to reflect a grossly understocked property following the drought.

The model provides a disease and parasite-free environment, therefore losses associated with additional stresses from worm burdens, or flystrike are not accounted for in the analysis. The results presented are therefore an optimum outcome given average seasonal conditions. Any inability to manage the supplementary feeding, worm burdens or potential flystrike problems will lower the expected outcome. Any deterioration in seasonal conditions below the average will add significant costs in supplementary feeding, and above average seasonal conditions will aid in the management of the flock.

Two farm sites were chosen, a winter lambing system at Bendigo in Victoria, and a spring lambing system east of Wagga Wagga in NSW. Remember that the farms modelled have less than half their normal sheep numbers to reflect a grossly understocked property following the drought.

### **Winter lambing at Bendigo**

Bendigo has a 560mm long-term average rainfall. The pasture modelled was a sub clover and annual grass dominant pasture with some phalaris present. The flock was a large framed, self replacing medium merino flock. The normal stocking rate for the farm was 4.3 ewes per hectare. This was reduced to two ewes per hectare for the analysis.

The ewes are usually joined on the February to lamb in late-June. Under the accelerated system, the ewes would be subsequently rejoined after lambing in October 2003 and then June 2004. They would then be fitted back into the normal annual lambing pattern by joining in February 2005. Other important assumptions used in the model are explained in Appendix 1.

Table 5.1 and Table 5.2 show the key comparisons between the annual and the accelerated lambing system from the analysis.

Under the normal annual lambing system (Table 5.1), a total of 263 lambs per hundred ewes would be obtained from 2003 to 2005.

- The steady increase in the lambing percentage is a consequence of the recovery from drought and its influence on live weight at joining and pasture availability each year.
- The supplementary feed only takes into account that which is fed to the flock after the first lambing in July 2003. Prior to that date, both systems would incur the same feeding costs and therefore this was removed. The small amount of supplementary feed per ewe in 2003 is therefore only over the period post lambing to joining in 2004.

- There would be more supplementary feed in 2004 than 2005 because there would be less pasture availability on the back of the drought.
- A total of 940 kilograms per 100 ewes would be fed to the flock.

**Table 5.1: Expected natural increase and supplementary feed requirements under annual lambing system at Bendigo**

	Jul '03 Lambing	Jul '04 Lambing	Jul '05 Lambing	Total
Lambs Per 100 Ewes Joined	85	88	90	263
Weaning Weights	32	32	32	
Kg Supplement per 100 Ewes	12	538	385	940

**Table 5.2: Expected natural increase and supplementary feed requirements under accelerated lambing system at Bendigo**

	Jul '203 Lambing	Mar '04 Lambing	Nov '04 Lambing	Jul '05 Lambing	Total
Lambs Per 100 Ewes Joined	85	57	71	88	301
Weaning Weights	32	25	24	27	
Kg Supplement per ewe	12	1006	20	826	1860

The accelerated lambing system produced a total of 301 lambs per 100 ewes (37 more lambs than the normal annual lambing).

- Under these conditions, the out of season joining for the March 2004 lambing and the body weights at the mid-winter joining meant that there would be substantially less lambs born in March and November 2004 than would be expected in a July lambing.
- Weaner live weights would be significantly lower than under the normal annual lambing system which will have implication for their management.
- A total of 1860 kilograms per 100 ewes would be fed to the flock (920 kilograms more than for the normal annual lambing).
- If supplementary feed is costed at \$150 per tonne then the total additional cost of supplementary feed per lamb born would be \$4.

## **Spring lambing east of Wagga Wagga**

The property at Tarcutta has 700 millimetres long-term average annual rainfall. The pastures modelled were composed mainly of phalaris and subclover. The flock is a medium-framed 19 micron self-replacing wool flock. The normal stocking rate is 14 ewes to the hectare, but for the purposes of this analysis it was reduced to eight ewes per hectare.

The ewes are normally joined in March to lamb in August and September. Under the accelerated system, the ewes would be subsequently rejoined after lambing in November 2003 and then July 2004. They would then be fitted back into the normal annual lambing pattern by joining in March 2005. Other important assumptions used in the model are explained in Appendix 1 - Table 5.5.

Table 5.3 and Table 5.4 show the key comparisons between the annual and the accelerated lambing system from the analysis.

Under the normal annual lambing system (Table 5.3) a total of 212 lambs per hundred ewes would be obtained from 2003 to 2005.

- The supplementary feed only accounts for that which would be fed to the flock after the first lambing in July 2003. Prior to that date both systems would incur the same feeding costs and therefore this was removed. The small amount of supplementary feed per ewe in 2003 is therefore only over the period post-lambing to joining in 2004.
- There would be more supplementary feed in 2004 than 2005 due to less pasture availability on the back of the drought.
- A total of 2910 kilograms per 100 ewes would be fed to the flock under a normal annual lambing program.

**Table 5.3: Expected natural increase and supplementary feed requirements under annual lambing system at Tarcutta**

	Aug '03 Lambing	Aug '04 Lambing	Aug '05 Lambing	Total
Lambs Per 100 Ewes Joined	68	72	72	212
Weaning Weights	25	25	25	
Kg Supplement per 100 Ewes	40	2270	600	2910

**Table 5.4: Expected natural increase and supplementary feed requirements under accelerated lambing system at Tarcutta**

	Aug '03 Lambing	Apr '04 Lambing	Dec '04 Lambing	Aug '05 Lambing	Total
Lambs Per 100 Ewes Joined	68	64	80	82	294
Weaning Weights	25	25	17	30	
Kg Supplement per 100 Ewes	80	3800	2170	100	6150

Under the accelerated lambing system, the total lambs born per 100 ewes would be 294. This represents an additional 82 lambs per 100 ewes joined from 2003 to 2004.

- The higher lambing percentages in the December 2004 and the August 2005 lambing would be due to higher body weights at joining. In the February 2005 joining this would be achieved because the ewes would not lamb until late spring and therefore achieve significantly higher peak live weights than under the normal annual lambing system. This is peculiar to an understocked system where there is excess feed available.
- A total of 6150 kilograms of supplementary feed would be used per 100 ewes (3240 kilograms more than under the normal annual lambing system).
- Most of the increase in supplementary feed is associated with the autumn lambing in 2004 and the supplementary feeding of the weaners born in December 2004. These lambs would be weaned at very low weights in the 2004/05 summer.
- The additional supplementary feeding cost, where grain is valued at \$150 per tonne, would be \$6 per lamb born.

## Recapping the Management Considerations

Remember that the farms modelled have less than half their normal sheep numbers to reflect a grossly understocked property following the drought. The closer to a normal stocking rate on the farm, the harder this would be to achieve, and the higher the supplementary feeding costs.

Being understocked allows more flexibility in the management system and therefore reduces the supplementary feed required and also the likely impact of worms and disease on livestock performance. There is no impact of weaner losses from parasites or disease.

The costs of managing weaner survival in less than ideal conditions, worms or summer pastures, and the impact that a forced change in shearing time might have on wool income or lambing results, are not included in this analysis.

The additional feed costs under average seasonal conditions are not insignificant. For the winter lambing system, they would amount to \$1,380 per 1000 ewes and for the spring lambing system \$4,860 per 1000 ewes. These figures could easily double under less than average seasonal conditions. The farm manager should consult the budget to make sure that there would be sufficient cash flow to accommodate potential feeding costs.

The additional income generated from an accelerated lambing program is not substantial. In the winter lambing example used it would be equivalent to \$29.25 per hectare or \$0.10 per DSE per week agistment income. The methodology for working this out is shown in Appendix 1 - Table 5.5.

If you wish to seriously consider implementing this strategy you need to:

- Determine your current stocking rate compared to the optimum for your farm.
- Draw up a time-line as in Figure 5.1 and Figure 5.2. Include all the proposed lambing and joinings for the next three years and work through the entire management program including shearing, crutching, marking, drenching and weaner management.
- Compare this strategy of flock rebuilding to other methods for boosting income e.g. stock purchases, alternative enterprises.
- Consider the consequences in an adverse season – the whole program is much more demanding of the sheep and therefore the management. If things go wrong they may do so much more rapidly than under normal management.

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## Accelerated Lambing Case Study – Winter Lambing

Bob and Jane Mart manage a farm at Bendigo in Victoria. Bendigo has a long-term average rainfall of 560 millimetres. The Marts run a 21 micron, self-replacing, merino ewe flock on predominantly sub clover and annual grass pastures. The normal stocking rate for the farm was six DSE per hectare but this was reduced to 2.8 DSE per hectare through the drought.

Bob and Jane have been hit hard by the drought, having to sell heavily rather than hand-feed stock. High restocking prices and an expected low income in this year mean they will be unable to buy-in sheep for this season. Total stock numbers are less than half what they were going into the drought, however there was little substantial damage done to pastures.

In an effort to rebuild numbers quickly, Jane suggested that they try lambing three times over the next two years. Jane estimated that in a best-case scenario, they are likely to get an additional 40 lambs per 100 ewes over two years. Additional supplementary feeding is expected because of the timing of lambing and the necessity of maintaining ewe live weights during autumn and summer, where ewes will be forced to lamb. Even with a halved stocking rate, Bob and Jane will budget for 250 per cent of the normal feeding costs per ewe to ensure that they do not get caught in an unmanageable situation.

To calculate whether it makes economic sense they have worked out what the additional income per hectare will be. This was done as follows:

- Where previously every ewe required a quarter of a hectare, they will now require half a hectare (stocking rate is halved). This means that the additional land required for an accelerated lambing system is a quarter of a hectare. Over 100 ewes that equates to 25 hectares.
- They expect to get an additional 40 lambs per 100 ewes, therefore 40 lambs per 25 hectares or 1.6 lambs per hectare (40 divided by 25).
- Each lamb is valued at \$45 and it will take two years to get them all on the ground. Therefore the income per year would be equal to \$36.
- The normal feed cost per ewe is \$1.50 therefore they will budget for \$2.25 of additional feed per ewe. For 100 ewes, over 25 additional hectares, the total cost would be \$9 per hectare. Therefore the net gain from the additional joining is \$27 per hectare after feeding.

Bob and Jane understand that they will be receiving a low income per hectare but believe this is still their best option, as they are unwilling to agist.

Bob and Jane have been hit hard by the drought, having to sell heavily rather than hand-feed stock. High restocking prices and an expected low income in this year mean they will be unable to buy-in sheep for this season.

In an effort to rebuild numbers quickly, Jane suggested that they try lambing three times over the next two years.

Currently, the flock is set up to begin lambing early in July. Bob and Jane have highlighted the issues they will face, on paper, as shown in Figure 5.3.

The current shearing time is early June which fortunately fits well with the proposed system. The major issue in 2004 will be where shearing is timed to occur immediately prior to joining.

The current shearing time is early June which fortunately fits well with the proposed system. The major issue in 2004 will be where shearing is timed to occur immediately prior to joining. This may upset the ewes cycling but if joining is delayed slightly, or shearing is brought forward a couple of weeks, it is considered that this will be manageable.

Crutching is normally in December which will also be a problem in 2004, as it will coincide with lambing. It will be brought forward into October prior to lambing and possibly timed to coincide with the first summer drench. It is considered that the first summer drench would be kept in the program without any difficulties in all years.

In the October 2003 joining, the ewes will have a seasonally low fertility, however they should have high live weights given that the enterprise is understocked. Lambing will commence in March 2004. Dry matter availability should not be a problem, however the quality of the pastures until the autumn break occurs could be. Ewe live weights will have to be monitored closely over this period, to ensure they do not slip below condition score 2 for rejoining in June 2004.

Weaning of the autumn 2004 drop lambs will occur in June. The weaners will have to be monitored closely and drenched where necessary over this period if relatively uncontaminated pastures cannot be found.

Ewes will begin lambing in November 2004. Lambs will be marked in December and weaned in late summer. These lambs will most likely have low live weights at weaning and therefore will require careful attention. The ewes will also have to be monitored closely as they will lose condition quickly over summer while they are lactating. Supplementary feeding will be necessary over this period and some protein may be required depending on pasture conditions.

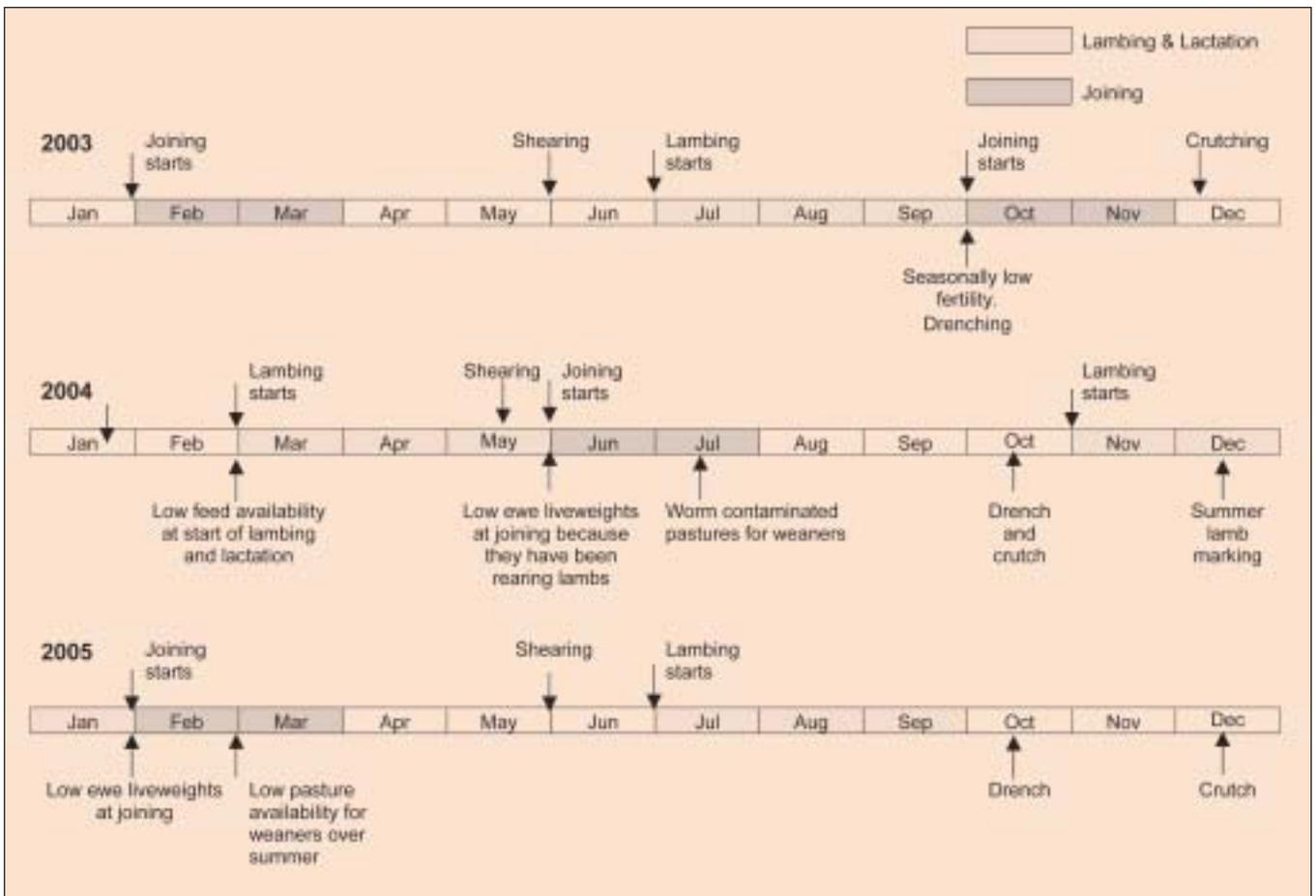
None of these problems seem insurmountable; however they will require careful attention and preparation. Once Bob and Jane have entered into this system they cannot afford to stop before 2005. Stopping after the a bad lambing in autumn 2004 would be a disaster because they would have a significantly lower total number of lambs weaned than if they had continued with an annual lambing.

## Recapping the cash flow considerations

The additional feed costs under average seasonal conditions are not insignificant. For the winter lambing system Bob and Jane are budgeting for \$2,250 per 1000 ewes. These figures could easily escalate under less favourable seasonal conditions.

The additional income per hectare would be \$27 per year after the budgeted additional feeding costs.

**Figure 5.3: Case Study 1: Winter lambing**



## Accelerated Lambing Case Study – Spring lambing

Hugh and Belinda Johnson manage a farm east of Wagga Wagga in NSW. The long term average rainfall is 700mm. They run a 19 micron, self replacing, merino ewe flock on predominantly phalaris and sub clover pastures. The normal stocking rate for the farm is 18.2 DSE per hectare but this was reduced to 10.4 DSE per hectare during the drought.

Hugh and Belinda have been hit hard by the drought, having to sell heavily rather than feed stock through. High restocking prices and an expected low income this year mean they are unable to buy-in sheep.

In an effort to rebuild numbers quickly, Belinda has suggested that they try lambing three times over the next two years.

Hugh and Belinda have been hit hard by the drought having to sell heavily rather than feed stock through. High restocking prices and an expected low income this year mean they are unable to buy-in sheep. Total stock numbers are nearly half what they were going into the drought, however there was little damage done to pastures.

In an effort to rebuild numbers quickly, Belinda has suggested that they try lambing three times over the next two years. Belinda estimates that in a best case scenario, they are likely to get an additional 82 lambs per 100 ewes over two years. Additional supplementary feeding is expected because of the timing of lambing and the necessity of maintaining ewe live weights during autumn and summer, where ewes will be forced to lamb. Even with a halved stocking rate, Hugh and Belinda will budget for 250 per cent of the normal feeding costs per ewe to ensure that they do not get caught in an unmanageable situation.

To calculate whether it makes economic sense, they have worked out what the additional income per hectare will be. This is done as follows:

- Where previously there were 14 ewes per hectare, now there are eight. The additional area required per 100 ewes is equal to approximately 5.5 hectares  $((14 \text{ minus } 8)/(14 \text{ multiplied by } 8))$
- They expect to get an additional 82 lambs per 100 ewes, therefore 82 lambs per 25 hectares, or 15 lambs per hectare (82 divided by 5.5).
- Each lamb is valued at \$45 and it will take two years to get them all on the ground. Therefore the income per year is equal to \$338.
- The normal feed cost per ewe is \$1.50 therefore they will budget for \$2.25 per ewe. For 100 ewes, over 5.5 additional hectares, the total cost is \$41 per hectare. Therefore, the net gain from the additional joining is \$297 per hectare after feeding.

Hugh and Belinda understand that there is high risk associated with this income but feel this is still their best option.

Currently, the flock is set up to begin lambing in late August. The ewes have already been joined. Hugh and Belinda have highlighted the issues they will face as shown in Figure 5.4.

The normal shearing time is in February. This will work well in 2004 but would normally occur in the middle of lambing in 2005. To accommodate this, Hugh and Belinda will plan to delay the 2004 shearing slightly and aim to shear in late March 2005. Shearing would then be brought back into line with normal practice in 2006.

The ewes are normally crutched in July, which will coincide with the end of lambing and the start of joining in 2004. This may provide some management difficulties but Hugh and Belinda still feel it is manageable.

The first summer drench can be kept in the program without any real difficulties. The second summer drench is unlikely to be a problem if it is found necessary.

In December 2003, the ewes will be joined with nine months' wool. This may inhibit joining at a time when the ewes will also have a lower seasonal fertility. There will be some compensation in that the ewes would be likely to have high joining weights.

Lambing would commence in May of 2004. Dry matter availability may be a problem, as will careful monitoring of the worm burdens in the ewes prior to lambing. Ewe live weights will have to be monitored closely over this period, to ensure they do not slip below condition score two for rejoining in August.

Weaning of the autumn 2004 drop lambs will occur in August with low pasture availability and possibly high worm burdens on the pastures. The weaners will be monitored closely and drenched where necessary over this period.

Ewes will begin lambing in January 2005, lambs will be marked in February and weaned at the beginning of April. It is expected that these lambs would have low live weights and require a lot of attention through the subsequent autumn and winter. The ewes will also have to be monitored closely through lambing, as they would lose condition quickly over summer while they are lactating. Supplementary feeding would be necessary over this period and some lupins may be required depending on pasture conditions.

None of these problems seem insurmountable however, they will require careful attention and preparation at the time. Once Hugh and Belinda have commenced this system they cannot afford to stop before 2005. Stopping after a bad lambing in autumn 2004 would be a disaster as they would have a lower total number of lambs weaned than if they had continued with an annual lambing.

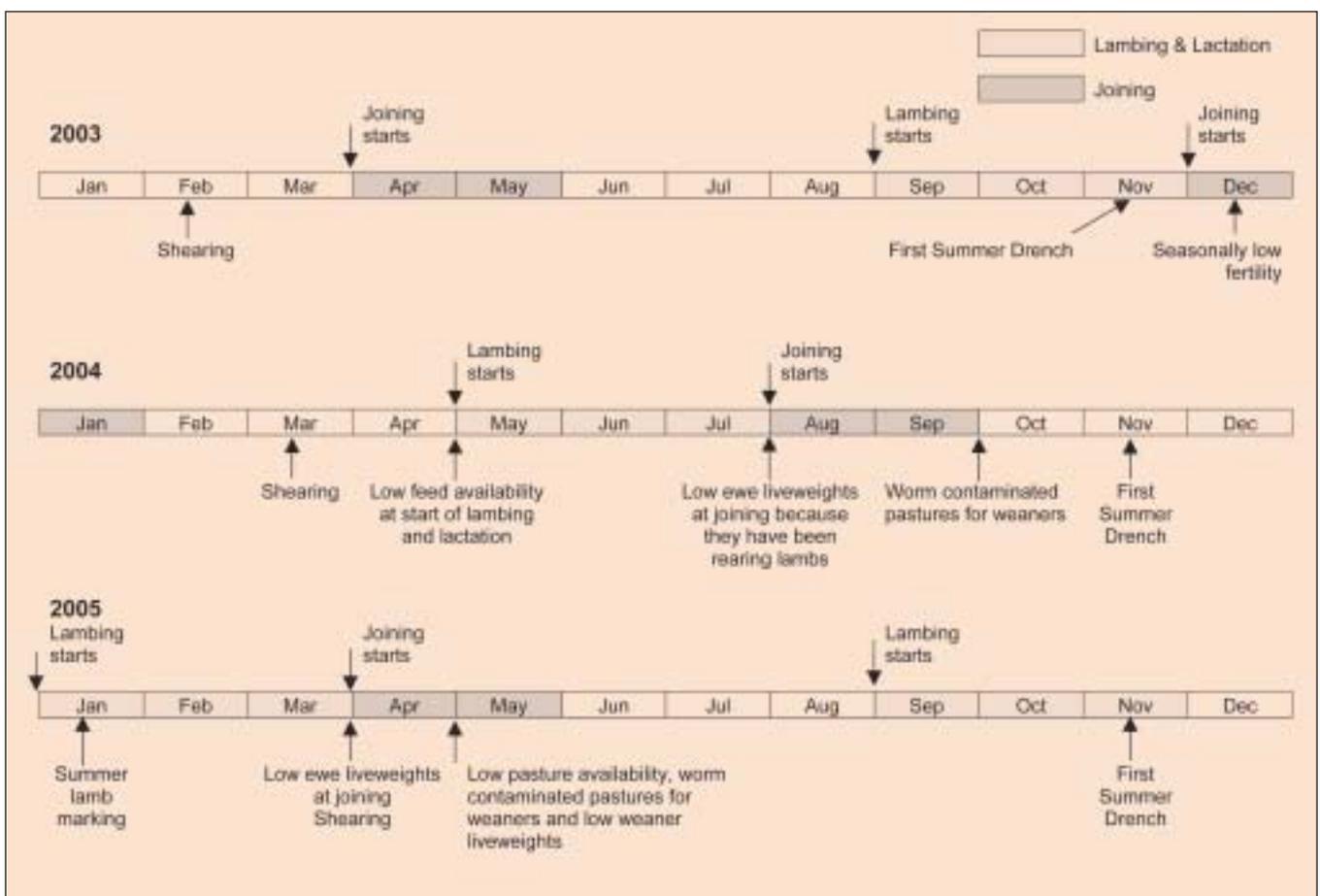
In December 2003, the ewes will be joined with nine months' wool. This may inhibit joining at a time when the ewes will also have a lower seasonal fertility. There will be some compensation in that the ewes would be likely to have high joining weights.

## Recapping the cash flow considerations

The additional feed costs under average seasonal conditions are not insignificant. For the winter lambing system Hugh and Belinda are budgeting for \$2,250 per 1000 ewes. These figures could easily escalate under less favourable seasonal conditions.

The additional income per hectare would be \$297 per year after the budgeted additional feeding costs are deducted.

**Figure 5.4: Case Study 2: Spring lambing**



## Appendix 1

**Table 5.5: Supplementary feeding and conception rate assumptions**

Supplementary Feeding	Sheep are fed cereal grain as a supplementary feed. Feeding rules were implemented so that ewes were unable to fall below condition score two and lambs up to 5 months were not allowed to fall below condition score three		
	February Joining	November Joining	January Joining
Winter Lambing Conception Rates	113%	68%	90%
	March Joining	October Joining	June Joining
Spring Lambing Conception Rates	110%	64%	98%

**Table 5.6: Calculating the income generated per hectare from an accelerated lambing system**

Value of Weaner	\$45	A
Cost of Additional Feed	- \$6	B
Net Value of Weaner	\$39	$A - B = C$
Normal Stocking Rate	4 ewes per hectare	D
Post Drought Stocking Rate	2 ewes per hectare	E
Additional Hectares Required Per 100 Ewes	25	$(100 + E) - (100 + D) = F$
Additional Lambs Per 100 Ewes	37	G
Additional Lambs Per Hectare	1.5	$G + F = H$
Additional Income Per Hectare	\$58.50	$H \times C = I$
Number of Years	2	J
Additional Income Per Hectare Per Year	\$29.25	$I + J = K$
Normal DSE's Per Hectare	6 DSE's Per Hectare	L
Equivalent Agistment Income Per DSE Per Week	\$0.10	$= K + 52 \times L$