New Entrants to Farming

Lambing three times in two years

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Lambing three times in two years is possible with some breeds of sheep e.g. Dorset, Merino, etc, rather than the normal system of one lambing per year. Generally, sheep are seasonal breeders, with the dark autumn and winter nights triggering the start of the breeding season. This is carried out by the pineal gland, which is situated at the base of the ewe's brain, responding to darkness and producing melatonin, a hormone in the ewe's bloodstream. In the summer when there are only a few hours of darkness, low levels are produced. For this reason mating usually occurs in the winter resulting in lambing in the spring.

Lambing three years in two years, does allow for a quick turnover, a reduction in fixed costs, as well as accelerating the number of replacements born each year, but this does come with higher costs such as feed and vet and medicines and a requirement for a high level of detail and management. This guide will explain how to manage this type of system as well as showing the costs involved.

Figure 1 Polled Dorset and Dorset Horn sheep can be bred out of season (photo credits: Sam Driver (left) and Graham Cubitt (right), Dorset Sheep Society)

Why?

Lambing three times in two years eliminates the non-productive stage of the ewe's annual calendar- the four to five months from weaning to mating when she is dry and not pregnant. In this way rearing percentage can be increased by 50%. It is a possible approach for those wishing to increase ewe numbers quickly or a way to spread the lamb crop across the year to buffer against price and climate variation. It would be recommended to split the flock into two to further spread the risk and enable greater year round lamb supply.

Example breeding schedule

y1	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Flock A	Lamb			Mate	Finish				Lamb			Mate
Flock B	Finish				Lamb			Mate	Finish			
y2												
Flock A	Finish				Lamb			Mate	Finish			
Flock B	Lamb			Mate	Finish				Lamb			Mate

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Considerations

Out of season mating: two of the matings above are outwith the ewe's biological seasonal mating window. To overcome this, there are breeds such as the Poll Dorset and Dorset Horn who are capable of breeding throughout the year, although their ovulation rates will be lower out of season and hormonal treatments may be beneficial.

Figure 2 To keep costs controlled, we suggest indoor lambing for January and outdoor lambing for May and September

Out of sync with grass growth: This is most pronounced with the January lambing but the May lambing nutrition could be based on grass alone. The September lambing coincides with declining pasture quality so supplements will be required. The three different lambing period conditions will require versatile management and staff.

Early weaning and quick sale: the lambs should be weaned between 8-12 weeks, the sooner the better to give the ewes opportunity to re-gain some condition before mating again. Creep feed should be considered to maintain ewe condition and support early weaning. Lambs need to be off farm as quick as possible to alleviate pressure on grass supply. The target should be 100 days to slaughter.

Parasite management: this lambing pattern may increase the worm egg output in the ewe flock which typically occurs at lambing time. This will increase the contamination of the pastures. Creep feeding and early finishing will mitigate this effect in the lambs but worming protocol will need adapted. If the ewe flock is split into two or three, there will be dry ewes at lambing time that can be used to 'hoover' worm eggs. In addition, the likely low triplet numbers and good feeding will reduce worm egg output due to lower nutritional stress on the ewes at lambing.

Lambing ewe hoggs – rather than mating at 9 months old, they could be given a bit more time to gain weight and mated at 11 months old.

Strict culling: farmers may be tempted to keep barren ewes or ewes that have lost a lamb and give them a second chance. This risks affecting the long term fertility of the flock unless they are electronic identification tagged and performance is monitored and puts greater strain on the system through carryover on non-productive stock.

Sticking to schedule: the lambing and mating times will easily slip. Farmers should aim to keep to schedule to maintain the 50% production benefit of lambing three times in two years. This schedule should include, the length of time the tup is in with the ewes, weaning, and selling lambs.

Grass demand: the flushing ground will be required at the same time as lambs are finishing, this will lead to high pressure on grass supply. On top of this silage will need to be cut for the January lambing system and to supplement the September lambing period.

Cost:Benefit?

A partial budget has been completed to understand the net benefit to practicing the system, costs will vary over time, anyone assessing this system should use this template but update the costs.

Added Income		Added Costs	
75 lambs @ £80	£6,000	Creep feed	£1,175
10 Cull ewes @ £65	£650	Labour	£1,000
		Hormones	£300
		Vet and Medicine	£450
		Replacements 15%	£1,950
Reduced Costs		**Reduced Income**	
None		None	
Total Benefit	£6,500	Total Cost	£4,875
Net Benefit	£1,625		

Assumptions

- 100 ewes rearing 150 lambs in one year, will rear 50% more lambs – 75 lambs. At a value of £80/lamb
- Cull ewes, increased by 10%, due to ewes working harder and the ewe flock life decreasing.
- Late pregnancy nutrition will be most expensive for the January lambing period and least expensive for the May lambing period. Assume January lambers fed for 12 weeks (0.6kg/hd/day) equates to 5 t, September lambers fed for 6 weeks (0.6kg/hd/day) equates to 2.5 t and May lambers only receiving a small amount of feed e.g. 1 t. Averages out at 4.25 t per year. This is typical for an early spring lamber.
- Creep feeding will be a useful tool to keep ewe condition on and facilitate early weaning. Assume 6 weeks creep feeding, 0.5kg/lamb/day, 150 lambs will equate to 3.15t, therefore 4.7 t additional feed for one year (one and a half lamb crops as an average). At £250/t, that equates to £1,175.
- Labour: Assume seasonal labour for three weeks over lambing. Averaged over the two years, 1.5 weeks additional labour will be required per year which can be estimated at approximately £1000 (£8/hour x 12 hours/day x 10.5 days).
- Hormones cost approx. £3/ewe, at least two of the matings will benefit from this to increase ovulation. 100 ewes will cost £300.
- Vet and medicine cost will increase due to greater number of lambs and the additional pressure on ewe immunity. A typical sheep enterprise incurs £9/head vet & medicine costs, therefore an additional £4.5/head has been allowed.
- Ewe longevity – increased pressure on the ewe will risk 'breeding fatigue'. It is likely that culling rates will increase by 5-10%. 10% replacements have been allowed, plus an additional 5% due to higher death rate due to fatigue.

A cost that has not been allowed for in the partial budget includes the potential stocking rate of the farm. This will be lower due to higher demand on the ewes. In crude terms, we are increasing their production by 50% thereby their potential stocking rate is halved. If we have 10 ewes per hectare producing 15 lambs at 19kg carcase weight (CW), production per hectare is 285kg CW. Five ewes/hectare producing 11.25 lambs (average 225% rearing) at 19kg CW produces 213.8kg CW/ha.

At face value, for those building numbers not limited by land, the cost:benefit is positive. For those that would need to destock, there would be a reduction in productivity per hectare which would affect revenue per hectare.

Lifetime productivity of the ewes would increase unless ewe longevity is reduced by more than one year. For instance, a farm that retains ewes until they are six years old, will get four lamb crops if mated as gimmers. If the farm decides to lamb twice in three years but takes one year of the ewe's lifetime, the three productive years will yield five lamb crops.

Alternative – Lamb five times in three years?

This is also known as the Cornell STAR system based on similar principles, the annual average output effectively increases by 40%, slightly lower than lambing three times every two years, but the schedule would be more achievable.