CONSERVATION AND THE FARM BUSINESS - FARM 1

CASE STUDY 2

CRAVEN LIMESTONE
WILDLIFE ENHANCEMENT SCHEME - TIER 1

INTRODUCTION

The Craven area includes the largest expanse of upland limestone in Britain, most of which is notified as SSSI. The main objectives of the Scheme are to increase the flowering and abundance of many special limestone plants and enhance wildlife through positive management.

Management guidelines

- No artificial fertilisers, farmyard manure, slurry or lime can be used;
- Cattle should be grazed in preference to sheep in the summer;
- Stock feeding in the SSSI area must be kept to a minimum;
- The following stocking rates apply:

An 8 week period between 1 May - 31 August	1 ewe/ha (0.4 ewes/ac)
All other times	2 ewes/ha (0.8 ewes/ac)

IMPLICATIONS FOR FARM 1

Farm 1 has a suckler herd of about 22 breeding cows, producing 20 calves per year and a pure-bred sheep flock of 789 ewes with a lambing percentage of 104 lambs sold. There are 284 ha (702 ac) of rough grazing, 151 ha (373 ac) of common land and 58 ha (143 ac) of in-bye land. The profit for the 1995/96 year was £26,298.

Scenario 1 - **50 ha of the rough grazing land falls within the SSSI** - The current grazing pattern means that the farm is overstocked on this area from June to September by up to 124 ewes with lambs during the 8 week restricted stocking period (assuming that the stocking rate on other areas remains the same). To enable the farm to meet these criteria there are a number of options the farmer may consider, e.g.:

Option 1a - Buy hay in
Option 1b - Rent additional land
Option 1c - Reduce stock numbers by selling off-farm
Option 1d - Intensify grazing on in-bye land

It is assumed that everything else on the farm remains the same i.e. rent, machinery costs and labour costs etc., and that the farm is able to carry out all the suggested adjustments.

Original profit for 1995/96 = £26,298

Option 1a - Buy hay in Cattle remain on the rough grazing. All the hay required is bought-in rather than made on farm to release in-bye land which can be graze by sheep removed from the rough-grazing land. With no hay being made on the farm the 124 ewes with lambs can be grazed on the in-bye as long as the grazing stocking rate is increased to 8 ewes/ha. This will require increased grazing efficiency and an increase in the level of fertiliser to 65 kg/ha N (52 units/acre).	Hay 31 t @ £75/t = £2,325 Increased fertiliser cost = £600 WES payments @ £65/ha = £3,250 **Revised profit = £26,623**
Option 1b - Rent additional land Cattle remain on the rough grazing. Additional summer grazing land is rented to accommodate the equivalent of 124 ewes with lambs. Continue to make all winter fodder on in-bye.	Rent* 31 ac @ £120 /ac = £3,720 WES payments @ £65/ha = £3,250 **Revised profit = £25,828**
Option 1c - Reduce stock numbers by selling off-farm Cattle remain on the rough grazing. Flock size is reduced by 108 ewes with followers to meet the stocking rate requirement during the 8 week period. Continue to make all winter fodder on in-bye. **Capital released - ewe quota 108 units @ £35/unit = £3,780; and ewes sold 108 ewes @ £40 /ewe = £4,320.** ***Total £8,100***	Income lost from sheep 108 ewes @ £54 /head = £5,832 WES payments @ £65/ha = £3,250 **Revised profit = £23,716**
Option 1d - Intensify grazing on in-bye land Ewe numbers could be maintained at present levels by increasing stocking rates on the in-bye land to 10 ewes/ha (4 ewes/acre). This would require increased fertiliser use to 90 kg/ha N (72 units/acre). All winter fodder is made on the inbye land. Because the overall forage area and stock numbers have not changed there is no change in the eligibility for subsidies.	Increased fertiliser cost = £1,601 WES payments @ £65/ha = £3,250 **Revised profit = £27,947**

Scenario 2 - **Half of the rough grazing land (142 ha) falls within the SSSI** - The impact on the farm is much more severe. The current grazing pattern means that the farm is overstocked from May to September, by up to 353 ewes with lambs during the 8 week restricted stocking period (assuming that the stocking rate on other areas remains the same). To enable the farm to meet these criteria there are a number of options the farmer may consider, e.g.:

Option 2a - Buy hay in and rent additional land
Option 2b - Rent additional land
Option 2c - Reduce stock numbers by selling off-farm
Option 2d - Intensify grazing on in-bye land
Option 2e - Sell suckler herd

Original profit for 1995/96 = £26,298

Option 2a - Buy hay in and rent additional land Cattle remain on the rough grazing. All hay required is bought-in rather than made on the farm to allow ewes to graze in-bye land released from hay production. This provides sufficient extra grazing for 96 ewes, as long as the grazing stocking rate is increased to 7 ewes/ha through increased grazing efficiency. Therefore, additional summer grazing land must be rented to accommodate the equivalent of 257 ewes with lambs.	Hay 31 t @ £75/t = £2,325 Rent* 64 ac @ £120 /ac = £7,680 WES payments @ £65/ha = £9,230 **Revised profit = £25,523**
Option 2b - Rent additional land Cattle remain on the rough grazing. Additional summer grazing is rented to accommodate the equivalent of 353 ewes with lambs. Continue to make all winter fodder on in-bye land.	Rent* 87 ac @ £120 /ac = £10,440 WES payments @ £65/ha = £9,230 **Revised profit = £25,088**
Option 2c - Reduce stock numbers by selling off farm Cattle remain on the rough grazing. As long as the grazing stocking rate on the in-bye land is increased to 7 ewes/ha through increased grazing efficiency so that 50 ewes with lambs can graze the in-bye flock size needs to be reduce by 265 ewes with followers to meet the stocking rate during the 8 week period. Continue to make all winter fodder on the in-bye land. **Capital released - ewe quota 265 units @ £35/unit = £9,275; and ewes sold 265 ewes @ £40 /ewe = £10,600.** ***Total £19,875***	Income lost from sheep 265 ewes @ £54 /head = £14,310 WES payments @ £65/ha = £9,230 **Revised profit = £21,218**
Option 2d - Intensify grazing on in-bye land Ewe numbers could be maintained at present levels by increasing stocking rates on the in-bye land to 14 ewes/ha (6 ewes/acre). This would require increased fertiliser use to 150 kg/ha N (120 units/acre). Because the overall forage area and stock numbers have not changed there is no change in the eligibility for subsidies.	Increased fertiliser cost = £4,002 WES payments @ £65/ha = £9,230 **Revised profit = £31,526**
Option 2e - Sell suckler herd Selling the suckler herd releases sufficient in-bye land from silage to graze all the excess ewes from the rough-grazing. All winter fodder is made on the in-bye. There may be some reduction in fixed costs depending on the farm situation. In this case about £1,000 may be saved through reduced machinery costs. NB No farmyard manure, building space released for other uses and winter management simplified. **Capital released - Suckler quota 22 units @ £100/unit = £2,200; and cows sold 22 cows @ £500 /cow = £11,000.** ***Total £13,200.***	Income lost from cattle 22 cows @ £483 /head = £10,626 Fixed costs saved = £1,000 WES payments @ £65/ha = £9,230 **Revised profit = £25,902**

DISCUSSION

The implications for the farm are somewhat different depending on the proportion of land affected by the Scheme. Options a and b in each case have a relatively small affect on profit, but rely on the availability and cost of land to rent for summer grazing and/or the availability

and cost of bought-in hay. Summer grazing land is normally extremely scarce and expensive within the area and would therefore not be a valid option to many farms. The management of the farm would also be complicated by having animals and land some distance from the main holding. Relying heavily on bought-in hay can also be risky and expensive depending on the season, and may have conservation implications for the in-bye land. Both of these options therefore expose the business to more risk.

The largest reduction in farm profitability is seen when stock numbers are reduced. However, capital is released that could be put to other uses and the requirement for winter fodder along with the workload is reduced, particularly during the winter months. In scenario 2 selling the suckler herd seems to be a better option than reducing flock size by 265 ewes, as the resulting profit is greater by £4,684. However, the amount of capital released is lower and removing an enterprise completely will increase the risk to the business as there is no longer a buffer between enterprises and fluctuations in the fortunes of the single enterprise left can have a substantial effect on farm performance.

Due to the level of payment received intensification through increased fertiliser use, stocking rates and grazing efficiency actually increases the farm profit in both cases. However, a change of this nature would require a change in approach to grassland management, particularly where 150 kg/ha N and a stocking rate of 14 ewes/ha is suggested (assuming that the land can sustain such levels). This level of intensification would also have conservation implications for the in-bye land.

It would therefore seem likely that the most likely option in each case would be a combination of intensification and reducing stock numbers depending on personal circumstances and land quality.

* Area required and rental value is based on the equivalent of lowland permanent pasture stocked at 10 ewes/ha due to the varying quality and cost of any summer grazing that may be available within the Dales.

CONSERVATION AND THE FARM BUSINESS - FARM 1

CASE STUDY 3

YORKSHIRE DALES MEADOWS AND PASTURES WILDLIFE ENHANCEMENT SCHEME

INTRODUCTION

Many of the finest meadows in the country are found in the Yorkshire Dales and along with some in-bye pastures are often rich in a variety of plant species. The main objectives of the scheme are to increase the flowering and abundance of many special meadow and pasture plants and maintain the plant diversity as well as provide good breeding conditions for birds through reduced productivity.

Management guidelines - Meadow Land

- No artificial fertilisers, slurry or lime can be used, limited farmyard manure is allowed;
- Stock feeding in the SSSI area must be kept to a minimum;
- Only hay must be made;
- The meadow must be shut up for at least 8 weeks from mid-May and cut hay from mid-July.

Management guidelines - Pasture Land

- No artificial fertilisers, farmyard manure, slurry or lime can be used;
- Avoid poaching;
- The pasture must be kept stock free for an 8 week period between May and August.

IMPLICATIONS FOR FARM 1

Farm 1 has a suckler herd of about 22 breeding cows, producing 20 calves per year and a pure-bred sheep flock of 789 ewes with a lambing percentage of 104 lambs sold. There are 284 ha (702 ac) of rough grazing, 151 ha (373 ac) of common land and 58 ha (143 ac) of in-bye land. The profit for the 1995/96 year was £26,298.

1 Meadow Land

With no fertiliser being applied the productivity of the grass is reduced. The fact that only 50 kg/ha N is applied in the first place means that the production lost from the SSSI area is not as great as would be experienced in higher fertility situations. In this case yields would be reduced by about 40%.

Scenario 1.1 - **2 ha of the meadow land falls within the SSSI** - With such a small area affected there are basically two options the farmer may consider to cope with the reduction in grass yield:

Option 1.1a - Buy hay in
Option 1.1b - Increase area cut for hay

It is assumed that everything else on the farm remains the same i.e. rent, machinery costs and labour costs etc., and that the farm is able to carry out all the suggested adjustments.

Original profit for 1995/96 = £26,298

Option 1.1a - Buy hay in Buy hay in to make up the shortfall in production. This will require about 2 t to be bought and means that the area cut for hay stays the same.	Hay 2 t @ £75/t = £150 Saving in fertiliser and spray on 2 ha = £86 WES payment 2 ha @ £250/ha = £500 **Revised profit = £26,734**
Option 1.1b - Increase area cut for hay Put aside an extra 1.5 ha of grazing land for hay production. A slight increase in the grazing stocking rate on the in-bye through increased grazing efficiency is required.	Saving in fertiliser and spray on 2 ha = £86 WES payment 2 ha @ £250/ha = £500 **Revised profit = £26,884**

<u>Scenario 1.2</u> - **10 ha of the meadow land falls within the SSSI** - The same options as in the previous example apply:

Option 1.1a - Buy hay in
Option 1.1b - Increase area cut for hay

Original profit for 1995/96 = £26,298

Option 1.2a - Buy hay in Buy hay in to make up the shortfall in production. This will require about 9 t to be bought and means that the area cut for hay stays the same	Hay 9 t @ £75/t = £675 Saving in fertiliser and spray on 10 ha = £430 WES payment 10 ha @ £250/ha = £2,500 **Revised profit = £28,553**
Option 1.2b - Increase area cut for hay Put aside an extra 5 ha of grazing land for hay production. An increase in the grazing stocking rate on the in-bye to 6 ewes per ha through increased grazing efficiency is also required.	Saving in fertiliser and spray on 10 ha = £430 WES payment 10 ha @ £250/ha = £2,500 **Revised profit = £29,228**

2. Pasture Land

With no fertiliser being applied the productivity of the grass is reduced. The fact that only 50 kg/ha N is applied in the first place means that the production lost from the SSSI area is not as great as would be experienced in higher fertility situations. In this case yields would be reduced by about 40%. The 8 week exclusion period also means that stock will need to be accommodated elsewhere over this period.

Scenario 2.1 - **2 ha of the in-bye land falls within the SSSI** - With such a small area affected there is really only one option the farmer would consider to cope with the reduction in grass yield:

Original profit for 1995/96 = £26,298

Option 2.1 - Increase stocking rate on other in-bye grazing areas The stocking rate only needs to be increased slightly to cope with the reduction in productivity. During the 8 week exclusion period ewes must be excluded from the SSSI area. These can be accommodated on the other in-bye grazing areas with an increase in stocking rate through increased grazing efficiency.	Saving in fertiliser and spray on 2 ha = £86 WES payment 2 ha @ £150/ha = £300 **Revised profit = £26,684**

Scenario 2.2 - **10 ha of the in-bye land falls within the SSSI** - Again there is really only one option the farmer would consider to cope withr the reduction in grass yield:

Original profit for 1995/96 = £26,298

Option 2.2 - Increase stocking rate on other in-bye grazing areas The grazing stocking rate on the other in-bye pasture areas is increased to an average of 6 ewes per ha through increased grazing efficiency. During the 8 week exclusion period when ewes must be excluded from the SSSI area stock can be accommodated on other in-bye areas if the stocking rate is increased to 9 ewes per ha on the 18 ha of grazing land. An increase in fertiliser use to approximately 75 kg N /ha (60 units/ac) would be necessary to achieve this as well as increased grazing efficiency.	Increase in fertiliser on 18 ha = £311 Saving in fertiliser and spray on 10 ha = £430 WES payment 10 ha @ £150/ha = £1,500 **Revised profit = £27,917**

DISCUSSION

The preferred option between buying hay in or putting aside a greater area on which to make hay would really depend on the availability and cost of bought in hay and the practicalities of making hay on a larger area, e.g. land quality, fields size etc. In the case where only 2 ha is affected the impact is more or less negligible due to the amount of in-bye available in the first place. Where 10 ha is affected there will need to be an increase in stocking rate on other areas if buying in hay is not feasible.

On the pasture land the findings are similar. Payments appear to be at an appropriate level for this farm and where only 2 ha are affected the impact is small. Where 10 ha are affected there will need to be an improvement in grassland management on other grazing areas so that the stocking rate can be increased sufficiently to accommodate stock from the SSSI during the 8 week exclusion period. This will depend on land quality and the level of grassland management achieved.

CONSERVATION AND THE FARM BUSINESS

FARM 2 - BACKGROUND INFORMATION

INTRODUCTION

Conservation issues are of increasing importance to farmers in the UK, especially those in upland areas. Within the Yorkshire Dales a number of conservation schemes now affect farm businesses. **English Nature's** Wildlife Enhancement Schemes (WES) are available for Sites of Special Scientific Interest (SSSIs) and cover various land/habitat types. The Schemes offer annual payments per hectare at a set rate for each habitat (hay meadow, moorland etc.) which reflect the extra cost of managing the land in a wildlife-friendly way.

The increasing environmental pressures and complexity of schemes mean that it is important for all parties concerned to have an understanding of how the performance of the farm business may be affected by entry into such a scheme. In order to give some indication of this a number of farm case studies have been developed to enable the impact of the Wildlife Enhancement Scheme to be estimated.

Farm 2 is a representative upland farm of the Yorkshire Dales which has been developed from the Farm Business Survey (FBS) special study on hill farming for the 1995/96 year. The study includes Less Favoured Area (LFA) farms producing beef and sheep in the Yorkshire Region, the majority of which are located in the Yorkshire Dales.

Two farm types are identified in the study, Hill farms and Upland farms. Upland Farms are classified as those not satisfying at least two of the following criteria:

a) a ratio of rough and common grazing to in-bye is of least 5:1
b) 50% or more of total grazing livestock units made up of sheep
c) the grazing livestock density is two or more hectares per livestock unit

The structure and performance of Farm 2 is given overleaf as the starting point for the various case studies. Farm 2 is then assumed to adopt separately the following Wildlife Enhancement Schemes operating in the Yorkshire Dales:

Case Study 1. North Pennine Moorland WES
Case Study 2. Craven Limestone WES
Case Study 3. Yorkshire Dales Meadows and Pastures WES

FARM 2 - YORKSHIRE DALES UPLAND FARM

Farm 2 is a tenanted upland farm in the Yorkshire Dales and has a suckler herd of 51 breeding cows, producing 48 calves per year and a sheep flock of 445 ewes with a lambing percentage of 143 lambs sold. The holding consists of:

Land area	**Ha**	**Ac**
In-bye	96	237
Rough grazing	34	84
Assessed common grazings	28	69
Total useable area	**158**	**390**

Suckler Herd - Cows are Autumn calving and housed over winter between October and May. The first Beef Special Premium and Extensification Premium is claimed on male animals and all calves are sold at 12 - 14 months old as stores. Suckler cow quota is available for 51 cows and Suckler Cow Premium, Extensification Premium and Hill Livestock Compensatory Allowances at the SDA rate are claimed. All replacements are bought in as in-calf heifers to join the herd in September. The annual replacement rate is about 14%.

Sheep Flock - The ewes are cross-bred to produce Mule ewe lambs for sale, along with store and some finished lambs. All lambs are sold before Christmas. Replacements are bought-in and first tupped as gimmers and the annual replacement rate is approximately 25%. Lambing takes place in April. Ewe quota is available for 445 ewes and Sheep Annual Premium and HLCA at the lower SDA rate are claimed.

Land Use - Cows with calves and with ewes with twins graze the in-bye land during the summer. These ewes also remain on the in-bye during the winter. The remaining ewes graze the rough-grazing and common land year round apart from tupping, lambing etc. when they are on the in-bye. Common grazing provides year round grazing for about 42 ewes with lambs. All the in-bye land can be cut and fertilised and is used to make silage for the cattle using a two-cut system. All hay is bought-in. At present fertiliser is applied at the rate of 130 kg/ha (104 units/acre) nitrogen, 65 kg/ha (52 units/acre) phosphate and 65 kg/ha (52 units/acre) potash averaged across all the in-bye land as a 20:10:10 compound. The average annual stocking rate over the farm is 0.77 livestock units per hectare.

Farm 2 - Financial Performance 1995/96

		£/farm	£/ ha	£/ac
Output				
Cattle	Calves	22176	140	57
	Suckler cow premium	7295	46	19
	HLCA	2423	15	6
	BSP	2670	17	7
Sheep	Finished lamb	4953	31	13
	Store lambs	6912	44	18
	Ewe lambs	14650	93	38
	Draft ewes	2688	17	7
	Wool sales	922	6	2
	Ewe premium	11993	76	31
	HLCA	1335	8	3
Valuation adjustment		-3329	-21	-9
Total farm output		**74687**	**473**	**192**
Variable costs				
Livestock	Concentrates	7816	49	20
	Vet & med	3263	21	8
	Other	3582	23	9
	Bought-in fodder	3000	19	8
Crop	Seed	330	2	1
	Fertiliser	8611	55	22
	Sprays	303	2	1
	Other	473	3	1
Total Variable Costs		**27378**	**173**	**70**
Farm Gross Margin		**47309**	**299**	**121**
Fixed costs				
	Labour - paid	4981	32	13
	Machinery	14174	90	36
	General farm costs	6066	38	16
	Rental equivalent	12313	78	32
Total Fixed Costs		**37534**	**238**	**96**
Net Farm Income		**9775**	**62**	**25**

CONSERVATION AND THE FARM BUSINESS - FARM 2

CASE STUDY 1

NORTH PENNINE MOORLAND WILDLIFE ENHANCEMENT SCHEME

INTRODUCTION

The North Pennine Moorland Wildlife Enhancement Scheme operates in areas making up the North Pennine Moorland Sites of Special Scientific Interest (SSSIs). The main objective of the scheme is to maintain and enhance the wildlife interest of existing heather ground through positive management.

Management guidelines:

- Grazing must be managed to maintain or enhance the heather;
- Cattle should not be grazed on heather ground;
- At least the same proportion of sheep should be away-wintered as at present;
- No artificial fertilisers, farmyard manure or lime can be used;
- Stock feeding in the SSSI area must be kept to a minimum;
- The following stocking rates usually apply:

Winter	1 October - 28 February	1 ewe/ha	(0.4 ewes/ac)
Summer	1 March - 30 September	1.5 ewes/ha	(0.6 ewes/ac)

IMPLICATIONS FOR FARM 2

Farm 2 has a suckler herd of 51 breeding cows, producing 48 calves per year and a sheep flock of 445 ewes with a lambing percentage of 143 lambs sold. There are 34 ha (84 ac) of rough grazing, 28 ha (69 ac) of common land and 96 ha (237 ac) of in-bye land. The profit for the 1995/96 year was £9,775.

Scenario 1 - **Half of the rough grazing land (17 ha) and all of the common land (28 ha) falls within the SSSI** - The current grazing pattern and stocking rate restrictions mean that the farm is overstocked for a large part of the year. Between June and September the rough grazing land is over stocked by about 81 ewes with lambs and during the winter by about 78 ewes (assuming that the stocking rate on other areas remains the same). The stocking rates on the common land already fall within the limits of the Scheme, therefore the utilisation of the rough grazing land needs consideration. To enable the farm to meet the criteria there are a number of options the farmer may consider, e.g.:

Option 1a - Rent additional land in summer and away-winter ewes
Option 1b - Reduce stock numbers by selling off-farm

It is assumed that everything else on the farm remains the same i.e. rent, machinery costs, labour costs etc., and that the farm is able to carry out all the suggested adjustments.

Original profit for 1995/96 = £9,775

Option 1a - Rent additional land and away-winter ewes The in-bye land is already stocked to capacity, therefore additional land would need to be rented to accommodate 81 ewes with lambs over the summer months. In addition the number of animals grazing the rough grazing during the winter must be reduced by about 78 ewes.	Rent* 20 ac @ £120 /ac = £2,400 Agistment 81 ewes @ £8/head = £624 WES payment = £675 **Revised profit = £7,426**
Option 1b - Reduce stock numbers by selling off-farm To meet the stocking rate restrictions the flock must be reduced by about 81 ewes. This will also eliminate the need to away-winter animals. Stock numbers on the in-bye land do not change. **Capital released - Ewe quota 81 units @ £35/unit = £2,835; ewes sold 81 ewes @ £40/ewe = £3,240. *Total £6,075***	Income lost from sheep - 81 ewes @ £59 /head = £4,779 Saving in hay purchase 7 t @ £75/t = £525 WES payment = £675 **Revised profit = £6,196**

<u>Scenario 2</u> - All of the rough grazing and common land (62 ha) falls within the SSSI - The current grazing pattern and stocking rate restrictions mean that the farm is overstocked for a large part of the year. Between June and September the rough grazing land is over stocked by about 161 ewes with lambs and during the winter by about 155 ewes (assuming that the stocking rate on other areas remains the same). The stocking rates on the common land are within the limits of the Scheme, therefore the utilisation of the rough grazing land needs consideration. To enable the farm to meet the criteria there are a number of options the farmer may consider, e.g.:

Option 2a - Rent additional land in summer and away-winter ewes
Option 2b - Reduce stock numbers by selling off-farm

Original profit for 1995/96 = £9,775

Option 2a - Rent additional land in summer and away-winter ewes The in-bye land is already stocked to capacity, therefore additional land would need to be rented to accommodate 161 ewes with lambs over the summer months. In addition the number of animals grazing the rough grazing during the winter must be reduced by about 155 ewes.	Rent* 40 ac @ £120 /ac = £4,800 Agistment 155 ewes @ £8/head = £1,240 WES payment = £930 **Revised profit = £4,665**
Option 2b - Reduce stock numbers by selling off-farm To meet the stocking rate restrictions the flock must be reduced by about 161 ewes. This will also eliminate the need to away-winter animals. Stock numbers on the in-bye land do not change. **Capital released - Ewe quota 161 units @ £35 = £5,635; ewes sold 161 ewes @ £40/head = £6,440. *Total £12,075***	Income lost from sheep - 161 ewes @ £59 /head = £9,499 Saving in hay purchase 15 t @ £75/t = £1125 WES payment = £930 **Revised profit = £2,331**

DISCUSSION

The implications for the farm are somewhat different depending on the proportion of land affected by the Scheme. Option a relies on the availability and cost of land to rent for summer grazing. This is normally extremely scarce and expensive within the area and would therefore not be a valid option to many farms. The management of the farm would also be complicated by having animals and land some distance from the main holding. Although the effect on profit is not as great as reducing stock numbers it does expose the business to risk.

Reducing stock numbers has a large effect on farm profit in both cases. In scenario 1 the reduction in profit is £3,579 and the capital released is £6,075. In scenario 2 the reduction in profit is £7,444 and the capital released is £12,075. Despite the fact that the capital released could be put to other uses and the requirement for winter fodder is reduced along with the workload, it is unlikely that the prospect of a reduction in profit of this level would be attractive to the farmer, especially considering that the existing level of profit is relatively low. Therefore it would seem that the most likely option would be to rent additional land and away-winter ewes if possible.

* Area required and rental value is based on the equivalent of lowland permanent pasture stocked at 10 ewes/ha due to the varying quality and cost of any summer grazing that may be available within the Dales.