

8 CONCLUSION AND RECOMMENDATIONS

The evidence from the models suggests that a combination of reduced stocking rates plus reduced fertiliser use will lead to a fall in gross margin of between £20 and £30 per ewe displaced in most cases, though it may be higher in some circumstances. These findings are consistent with those from the evaluation of the pilot extensification scheme.

A prescription requiring a change from silage to hay is likely to prove unpopular because of the reduced convenience and greater risk of weather damage associated with hay production. The former is particularly important as the farm workforce is falling due to out-migration and the average age of those remaining is increasing. If there are significant environmental benefits to be gained from haymaking then it would seem more appropriate to introduce some form of management agreement under which those farmers who are still making hay rather than silage are given an annual subsidy to continue doing so.

A ban on out-wintering on the fell seems likely to have little real impact on farms, especially if it is associated with reduced stocking on the inbye which should ease forage constraints.

A ban on supplementary feeding on the fell may not lead to a drop in profits although there may be an adverse public reaction to a scheme which prevents supplementary winter feeding - especially if weather conditions are harsh. A ban on out-wintering would, of course, obviate the need for such a prescription.

Given that the objective of the policy measure is to reduce moorland overgrazing, we recommend that an extensification scheme be introduced. The scheme should combine a stocking rate prescription with a nitrogen prescription. We feel that these two combined will lead to a less severe impact on farm income and will require a lower level of Exchequer payment in compensation than a stocking rate prescription alone. A ban on over-wintering on the moor would also be beneficial and would require relatively modest additional funding. Such a ban would of necessity remove the problem of supplementary feeding on the moorland over winter. We feel that any attempt to introduce a prescription requiring farmers to switch from silage to hay production would be counter-productive because of the greater availability of silage production to upland area which suffer from uncertain weather.

We recommend that should such an extensification scheme be introduced the farmers should be allowed to retain their quota and receive their SAP even on the sheep that have been removed from the holding - albeit offset by a balancing reduction in the compensation payable under the scheme.

Where quota is sold under the scheme, it would seem sensible to allow that quota to cross the 'ring-fence' so that the overall level of stocking in the upland areas is reduced

to a more naturally sustainable level and thereby reducing overall environmental damage.

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GLOSSARY

Away-wintering - sending animals off farm (to lowland farms) for winter period

Cast - old breeding ewes which are sold to lowland farmers for a further one or two lamb crops

Crossbred - animal which results from crossing a ewe with a meat producing sire, destined for slaughter

Crossbreeding - using two different sheep breeds to produce a third, ie, cross bred

Enclosed - land surrounded by a stock proof boundary for keeping animals in or out

Fell - unenclosed grazing, typically in North England, Tor in South England, also known as outbye

Foddering/fothering - feeding of hay/silage on unenclosed grazing

Folded - controlled grazing of arable fodder crops such as stubble turnips/swedes/kale

Gimmer - female sheep from weaning to shearing. Also known as ewehogg, sheeder ewe, ewe teg, hoggett or hogg

Halfbred - animal which is a result of crossing two breeding animals in order to produce a hybrid breeding ewe

Haylage - 'long stemmed' silage often hay preserved as silage in unfavourable weather conditions

Inbye - land fenced between fields and open hill

Intake - improved pasture 'taken in' and fenced from hill

In-wintering - housing sheep/cattle, or restricting to inbye over winter period

Keep - area of land rented by upland farmer in lowlands in order to away-winter his sheep - also refers to the rental cost ("the keep was 28p/ewe/week")

Lambing percentage - in this exercise/project refers to number of lambs weaned and not number of lambs born

Outbye - see fell

Out-wintering - wintering animals on unenclosed areas of farm

Overwintering - keeping animals on farm over winter period

Wether - castrated male sheep also known as wedder/he teg

APPENDIX 1: Farm models

The relationship between site classification, fertiliser use and production of metabolisable energy

Management Prescriptions							
1.Reduction in Fertiliser Inputs							
Site Classification			Poor				
Area of Inbye/Intake			70				
Kg/N/Ha	10	20	30	40	50	60	70
Available ME	1344.7	1652.8	1757.7	1960	2159.5	2358.2	2550.1
Cattle	60	60	60	60	60	60	60
Ewes	39	94	149	203	256	308	360
Site Classification			Fair				
Area of Inbye/Intake			70				
Kg.N/Ha	10	20	30	40	50	60	70
Available ME	1631.64	1946.38	2058.20	2267.10	2473.10	2676.18	2876.36
Cattle	60	60	60	60	60	60	60
Ewes	115	172	229	285	339	394	447
Site Classification			Average				
Area of Inbye/Intake			70				
Kg/N/Ha	10	20	30	40	50	60	70
Available ME	1931.55	2158.38	2381.51	2600.92	2816.83	3028.62	3236.91
Cattle	60	60	60	60	60	60	60
Ewes	195	256	315	374	431	488	543

CUMBRIAN PENNINE MOORS (MULES) - MODEL FARM				
		Present	Future	Future
			Same N.	Less N.
		Fertiliser		
INBYE (Ha)		40.00		
INTAKE (Ha)		100.00		
ROUGH GRAZING (Ha)		470.00		
NUMBER OF BREEDING EWES		800.00		
SUCKLER COWS		60.00		
Fertiliser total cost		2787.00		
STOCKING RATES (rough grazing)				
Breeding ewes per ha				
Present		1.70		
Future		1.60		
LAMBING PERCENTAGE				
Present		108.00	110.18	108.00
STOCKING INTENSITY				
In ewe units per hectare				
April-May	0.25	2.38		
June	0.50	2.79		
July	0.75	3.20		
Aug	1.00	3.62		
Winter		0.00		
		BEFORE	AFTER	
FLOCK STRUCTURE (as percentage)				
Replacement ewe lambs		0.26	0.26	0.26
Finished Lambs		0.27	0.27	0.27
crossbred ewe lambs		0.22	0.22	0.22
Sold as store		0.25	0.25	0.25
Ewe Disposal		0.20	0.20	0.20
Ewe Culls		0.10	0.12	0.12
Ram Culls		0.20	0.20	0.20
Ewe Drafts	1st Grade	0.62	0.62	0.62
	2nd Grade	0.25	0.25	0.25
Missing presumed dead		0.18	0.18	0.18
FLOCK NUMBERS				
Ewes		800	705	705
Lambs		864	777	761
Ewe lambs		225	218	218
Finished lambs		233	210	208
Store Lambs		216	194	190
cross bred ewe lambs		180	171	167
EWE DISPOSAL				
Ewe Culls		160	141	141
Ewe Drafts 1st grade		20	18	18
Ewe Drafts 2nd grade		99	87	87
Missing presumed dead		40	35	36
		28	25	25

CUMBRIAN PENNINE MOORS (MULES) - GROSS MARGIN OF HILL SHEEP ENTERPRISE						
GROSS OUTPUT			E/Head	TOTAL	Same fert	Less Fert
LAMB SALES						
Finished lambs			27.00	6288.56	5662.80	5550.606
Store Lambs			20.00	4320.00	3883.86	3807.00
Crossbred lambs			35.00	6652.80	5981.28	5845.00
EWE SALES						
Drafts 1st quality			42.00	4166.40	3671.64	3671.64
Drafts 2nd Quality			35.00	1440.00	1289.00	1289.00
Culls			14.00	280.00	246.75	246.75
Ram Sales	5	5	15.00	80.00	80.00	80.00
Wool			1.15	820.00	810.75	810.75
Subsidies	HCLA		11.20	8860.00	7896.00	7896.00
	SAP		12.81	10328.00	9101.55	9101.55
subtotal				43445.76	38603.72	38278.30
Less cost of flock replacements						
ewes						
rams		7	240.00	1680.00	1128.00	1128.00
GROSS OUTPUT				41766.76	37476.72	37160.30
VARIABLE COSTS						
Purchased concentrates						
kg use per ewe		25	25.00	20000.00	17625.00	17625.00
price per tonne		160		3200.00	2820.00	2820.00
Vet/Medicines			3.25	2600.00	2291.25	2291.25
Sundries (including contract)			1.00	800.00	705.00	705.00
Forage Costs						
Over Wintering			11.00	2471.04	2388.00	2388.00
Fertilisers	per ha/inbye		19.81	2787.40	2787.40	2060.63
Total				11858.44	11001.65	10274.88
GROSS MARGIN				29907.32	26474.07	28875.42
Gross Margin per ewe				37.38	37.55	38.12
					Same Fert	Less Fert
Payment per rough grazing hectare to maintain income					7.30	6.45
Total payment required					3433.25	3031.90
As an additional premium per breeding ewe					4.87	4.30
Saving in Ewe payments					2290.45	
Difference between savings and payments					1142.80	741.45

CUMBRIAN PENNINE MOORS (MULES) - CUMBRIAN FERTILISER IMPACT (SITE CLASSIFICATION: FAIR)					
	Present	1.5	1.00	0.75	0.50
Stocking Rate					
Number of Ewes	800.00	705.00	470.00	352.50	235.00
ME Req'd/Ha	30.00	27.46	21.16	18.01	14.87
Kg/N/Ha	31.99	23.55	3.08	0.00	0.00
Qty Fert	159.95	117.74	15.38	0.00	0.00
% Change	0.00	(26.39)	(90.39)	(100.00)	(100.00)

CUMBRIAN PENNINE MOORS - MODEL FARM				Present	Future Same N.	Future Less N.
				Fertiliser		
INBYE (Ha)			40.00			
INTAKE (Ha)			100.00			
ROUGH GRAZING (Ha)			470.00			
NUMBER OF BREEDING EWES			800.00			
SUCKLER COWS			80.00			
Fertiliser total cost						
STOCKING RATES (rough grazing)						
Breeding ewes per ha						
Present			1.70			
Future			1.60			
LAMBING PERCENTAGE						
Present			100.00	102.02	100.00	
STOCKING INTENSITY						
In ewe units per hectare						
April-May	0.25		2.35			
June	0.6		2.73			
July	0.75		3.11			
Aug	1		3.49			
Winter			0.00			
			BEFORE	AFTER		
FLOCK STRUCTURE (as percentage)						
Replacement ewe lambs			0.31	0.31	0.31	
Finished Lambs			0.00	0.00	0.00	
crossbred ewe lambs			0.00	0.00	0.37	
Sold as store			0.67	0.67	0.67	
Ewe Disposal			0.32	0.32	0.32	
Ewe Culls			0.12	0.10	0.12	
Ram Culls			0.20	0.20	0.20	
Ewe Drafts	1st Grade		0.60	0.62	0.60	
	2nd Grade		0.20	0.20	0.20	
Missing presumed dead			0.18	0.18	0.18	
FLOCK NUMBERS						
Ewes			800	706	706	
Lambs			800	719	706	
Ewe lambs			248	218	218	
Finished lambs			0	0	0	
Store Lambs			536	482	472	
cross bred ewe lambs			0	0	0	
EWE DISPOSAL						
Ewe Culls			31	23	27	
Ewe Drafts 1st grade			125	117	113	
Ewe Drafts 2nd grade			60	45	45	
Missing presumed dead			44	41	39	

CUMBRIAN PENNINE MOORS - GROSS MARGIN OF HILL SHEEP ENTERPRISE							
GROSS OUTPUT				E/Head	TOTAL	Same fert	Less Fert
LAMB SALES							
Finished lambs				27.00	0.00	0.00	0
Store Lambs				20.00	10720.00	9837.95	8447.00
Crossbred lambs				33.00	0.00	0.00	0.00
EWE SALES							
Drafts 1st quality				36.00	4500.00	4223.23	4060.80
Drafts 2nd Quality				28.00	1400.00	1283.36	1283.36
Culls				12.00	388.64	270.72	324.86
Ram Sales		5	5	15.00	80.00	80.00	80.00
Wool				1.15	920.00	810.75	810.75
Subsidies	HCLA			11.20	8960.00	7896.00	7896.00
	SAP			12.91	10328.00	9101.65	9101.55
subtotal					37276.64	33283.56	32984.32
Less cost of flock replacements							
ewes							
rams			5	240.00	1280.00	1128.00	1128.00
GROSS OUTPUT					35996.64	32155.55	31856.32
VARIABLE COSTS							
Purchased concentrates							
kg use per ewe			12.5	12.50	10000.00	8812.50	8812.50
price per tonne			160		1600.00	1410.00	1410.00
Vet/Medicines				3.25	2600.00	2291.25	2291.25
Sundries (including contract)				1.00	800.00	705.00	705.00
Forage Costs							
Over Wintering				11.00	2728.00	2398.00	2398.00
Fertilisers		per ha/inbye		21.43	3000.20	3000.20	2060.63
Total					10728.20	9804.45	8864.88
GROSS MARGIN					25268.44	22351.11	22991.44
Gross Margin per ewe					31.59	31.70	32.61
						Same Fert	Less Fert
Payment per rough grazing hectare to maintain income						6.21	4.84
Total payment required						2917.33	2277.00
As an additional premium per breeding ewe						4.14	3.23
Saving in Ewe payments						2290.45	
Difference between savings and payments						626.88	-13.45

CUMBRIAN PENNINE MOORES - CUMBRIAN FERTILISER IMPACT (SITE CLASSIFICATION: FAIR)						
Stocking Rate	Present		1.5	1.00	0.75	0.50
Number of Ewes	800.00		705.00	470.00	352.50	235.00
ME Req'd/Ha	30.00		27.46	21.16	18.01	14.87
Kg/N/Ha	31.99		23.65	3.08	0.00	0.00
Qty Fert	159.95		117.74	15.38	0.00	0.00
% Change	0.00		(26.39)	(90.39)	(100.00)	(100.00)

LAKE DISTRICT - MODEL FARM				
		Present	Future Same N.	Future Less N.
		Fertiliser		
INBYE (Ha)		30.00		
INTAKE (Ha)		80.00		
ROUGH GRAZING (Ha)		566.00		
NUMBER OF BREEDING EWES		850.00		
SUCKLER COWS		35.00		
Fertiliser total cost		3185.50		
STOCKING RATES (rough grazing)				
Breeding ewes per ha				
Present		1.50		
Future		1.00		
LAMBING PERCENTAGE				
Present		82.00	86.11	82.00
STOCKING INTENSITY				
In ewe units per hectare				
April-May	0.25	1.51		
June	0.5	1.72		
July	0.75	1.94		
Aug	1	2.15		
Winter		0.00		
		BEFORE	AFTER	
FLOCK STRUCTURE (as percentage)				
Replacement ewe lambs		0.36	0.36	0.36
Breeding Lambs		0.07	0.07	0.07
crossbred ewe lambs		0.16	0.16	0.16
Sold as store		0.42	0.42	0.42
Ewe Disposal		0.27	0.27	0.27
Ewe Culls		0.00	0.00	0.00
Ram Culls		0.20	0.20	0.20
Ewe Drafts	1st Grade	0.46	0.51	0.46
	2nd Grade	0.38	0.37	0.38
Missing presumed dead		0.14	0.12	0.14
FLOCK NUMBERS				
Ewes		850	566	566
Lambs		700	487	466
Ewe lambs		250	164	164
Breeding lambs		50	35	34
Store Lambs		280	211	198
cross bred ewe lambs		110	77	70
EWE DISPOSAL				
Ewe Culls		0	0	0
Ewe Drafts 1st grade		110	77	71
Ewe Drafts 2nd grade		80	58	59
Missing presumed dead		35	17	22

LAKE DISTRICT - GROSS MARGIN OF HILL SHEEP ENTERPRISE								
GROSS OUTPUT				£/Head	TOTAL	Same fert	Less Fert	
LAMB SALES								
Finished lambs				27.00	1360.80	947.36	806.1327	
Store Lambs				20.00	5810.00	4220.00	3860.00	
Crossbred lambs				33.00	3626.70	2624.84	2307.28	
EWE SALES								
Drafts 1st quality				36.00	3860.00	2772.00	2556.00	
Drafts 2nd Quality				28.00	2520.00	1624.00	1652.00	
Culls				12.00	0.00	0.00	0.00	
Ram Sales		4	5	15.00	75.00	75.00	75.00	
Wool				1.15	877.50	650.90	650.90	
Subsidies	HCLA			11.20	9520.00	6339.20	6339.20	
	SAP			12.91	10873.50	7307.06	7307.06	
subtotal					38823.50	28460.36	25753.58	
Less cost of flock replacements								
ewes								
rams			7	240.00	1680.00	905.60	905.60	
GROSS OUTPUT					37143.50	25554.76	24847.98	
VARIABLE COSTS								
Purchased concentrates								
kg use per ewe			8.2	8.20	6970.00	4641.20	4641.20	
price per tonne			190		1324.30	881.83	881.83	
Vet/Medicines				2.50	2125.00	1415.00	1415.00	
Sundries (including contract)				1.00	850.00	566.00	566.00	
Forage Costs								
Over Wintering				11.00	2748.80	1804.00	1804.00	
Fertilisers	per ha/inbye			18.91	2190.10	2190.10	282.70	
Total					9238.30	6856.93	4949.53	
GROSS MARGIN					27905.20	18697.83	18898.45	
Gross Margin per ewe						32.83	33.04	35.16
						Same Fert	Less Fert	
Payment per rough grazing hectare to maintain income						16.27	14.15	
Payment per ewe displaced						284.00	32.42	28.19279
Total payment required						9207.37	8006.75	
As an additional premium per breeding ewe						16.27	14.15	
Saving in Ewe payments						6847.24		
Difference between savings and payments						2360.13	1159.51	

LAKE DISTRICT - FERTILISER IMPACT (SITE CLASSIFICATION: AVERAGE)					
Stocking Rate	Present	1.5	1.00	0.75	0.50
Number of Ewes	850.00	849.00	566.00	424.50	283.00
ME Req'd/Ha	36.34	36.31	25.66	20.84	16.01
Kg/N/Ha	34.19	34.08	4.11	0.00	0.00
Qty Fert	170.94	170.40	20.54	0.00	0.00
% Change	0.00	(0.32)	(87.99)	(100.00)	(100.00)

LAKE DISTRICT (HERDWICK) - MODEL FARM				
		Present	Future Same N.	Future Less N.
		Fertiliser		
INBYE (Ha)		30.00		
INTAKE (Ha)		80.00		
ROUGH GRAZING (Ha)		434.00		
NUMBER OF BREEDING EWES		1000.00		
SUCKLER COWS		60.00		
Fertiliser total cost		2190.00		
STOCKING RATES (rough grazing)				
Breeding ewes per ha				
Present		2.30		
Future		1.50		
LAMBING PERCENTAGE				
Present		60.00	64.82	60.00
STOCKING INTENSITY				
In ewe units per hectare				
April-May	0.25	2.25		
June	0.5	2.49		
July	0.75	2.73		
Aug	1	2.97		
Winter		0.00		
		BEFORE	AFTER	
FLOCK STRUCTURE (as percentage)				
Replacement ewe lambs		0.38	0.38	0.38
Finished Lambs		0.00	0.00	0.00
crossbred ewe lambs		0.00	0.00	0.00
Sold as store		0.62	0.62	0.62
Ewe Disposal		0.18	0.18	0.18
Ewe Culls		0.00	0.02	0.00
Ram Culls		0.20	0.20	0.20
Ewe Drafts	1st Grade	0.46	0.47	0.46
	2nd Grade	0.38	0.37	0.38
Missing presumed dead		0.16	0.14	0.16
FLOCK NUMBERS				
Ewes		1000	651	651
Lambs		600	422	391
Ewe lambs		230	218	218
Finished lambs		0	0	0
Store Lambs		370	260	241
cross bred ewe lambs		0	0	0
EWE DISPOSAL		212	136	136
Ewe Culls		0	3	0
Ewe Drafts 1st grade		99	64	62
Ewe Drafts 2nd grade		81	50	52
Missing presumed dead		32	19	22

LAKE DISTRICT (HERDWICK) - GROSS MARGIN OF HILL SHEEP ENTERPRISE						
GROSS OUTPUT			£/Head	TOTAL	Some fert	Less Fert
LAMB SALES						
Finished lambs			27.00	0.00	0.00	0
Store Lambs			20.00	7404.00	5207.60	4820.00
Crossbred lambs			33.00	0.00	0.00	0.00
EWES SALES						
Drafts 1st quality			36.00	3564.00	2301.12	2232.00
Drafts 2nd Quality			28.00	2288.00	1408.86	1447.04
Culls			12.00	0.00	36.00	0.00
Ram Sales	4	5	15.00	75.00	75.00	75.00
Wool			1.15	1150.00	748.85	748.85
Subsidies	HCLA		11.20	11200.00	7281.20	7291.20
	SAP		12.91	12910.00	8404.41	8404.41
subtotal				38571.00	25472.94	25018.30
Less cost of flock replacements						
ewes						
rams		7	240.00	1680.00	1041.60	1041.60
GROSS OUTPUT				38891.00	24431.34	23976.70
VARIABLE COSTS						
Purchased concentrates						
kg use per ewe		5	5.00	5000.00	3255.00	3255.00
price per tonne		260		1300.00	846.30	846.30
Vet/Medicines			3.25	3250.00	2115.75	2115.75
Sundries (including contract)			1.00	1000.00	651.00	651.00
Forage Costs						
Over Wintering			10.00	6000.00	4220.10	3806.00
Fertilisers	per ha/inbye		19.91	2190.10	2190.10	1863.40
Total				13740.10	10023.25	9382.45
GROSS MARGIN				23150.90	14408.09	14594.25
Gross Margin per ewe				23.15	22.13	22.42
					Some Fert	Less Fert
Payment per rough grazing hectare to maintain income					20.14	19.72
Payment per ewe displaced					349.00	25.05
Total payment required					8742.81	8556.65
As an additional premium per breeding ewe					13.43	13.14
Saving in Ewe payments					8414.39	
Difference between savings and payments					328.42	142.26

LAKE DISTRICT (HERDWICK) - FERTILISER IMPACT (SITE CLASSIFICATION: AVERAGE)					
Stocking Rate	Present	1.5	1.00	0.75	0.50
Number of Ewes	1,000.00	651.00	434.00	325.50	217.00
ME Req'd/Ha	45.00	33.10	25.70	22.01	18.31
Kg/N/Ha	65.81	27.10	4.24	0.00	0.00
Qty Fert	329.03	135.50	21.22	0.00	0.00
% Change	0.00	(68.82)	(93.55)	(100.00)	(100.00)

DARTMOOR - MODEL FARM

		Present	Future Same N.	Future Less N.
			Fertiliser	
INBYE (Ha)		80.00		
INTAKE (Ha)		0.00		
ROUGH GRAZING (Ha)		200.00		
NUMBER OF BREEDING EWES		400.00		
SUCKLER COWS		50.00		
Fertiliser total cost		2376.00		
STOCKING RATES (rough grazing)				
Breeding ewes per ha				
Present		2.00		
Future		1.50		
LAMBING PERCENTAGE				
Present		85.00		
Future		89.25		
STOCKING INTENSITY				
In ewe units per hectare				
April-May	0.25	2.16		
June	0.5	2.50		
July	0.75	2.83		
Aug	1	3.17		
Winter		0.00	Same N.Fert	
		BEFORE	AFTER	
FLOCK STRUCTURE (as percentage)				
Replacement ewe lambs		0.22	0.22	
Finished Lambs		0.24	0.25	
crossbred ewe lambs		0.00	0.00	
Sold as store		0.50	0.50	
Ewe Disposal		0.15	0.15	
Ewe Culls		1.00	1.00	
Ram Culls		0.00	0.00	
Ewe Drafts	1st Grade	0.00	0.00	
	2nd Grade	0.00	0.00	
Missing presumed dead		0.33	0.33	Less N.Fert
FLOCK NUMBERS				
Ewes		400	300	300
Lambs		340	268	255
Ewe lambs		88	66	66
Finished lambs		82	67	64
Store Lambs		170	134	128
cross bred ewe lambs		0	0	0
EWE DISPOSAL				
Ewe Culls		90	45	45
Ewe Drafts 1st grade		80	45	45
Ewe Drafts 2nd grade		0	0	0
Missing presumed dead		0	0	0
		30	15	15

DARTMOOR - GROSS MARGIN OF HILL SHEEP ENTERPRISE							
GROSS OUTPUT				£/Head	TOTAL	Same fert	Less Fert
LAMB SALES							
Finished lambs				24.00	1958.40	1606.50	1530.00
Store Lambs				19.50	3315.00	2610.56	2486.25
Crossbred lambs				0.00	0.00	0.00	0.00
EWE SALES							
Drafts 1st quality				18.00	0.00	0.00	0.00
Drafts 2nd Quality				12.00	0.00	0.00	0.00
Culls				12.00	720.00	540.00	540.00
Ram Sales	2	3		15.00	45.00	30.00	30.00
Wool				1.15	460.00	345.00	345.00
Subsidies	HCLA			11.20	4480.00	3360.00	3360.00
	SAP			12.91	5164.00	3873.00	3873.00
subtotal					16142.40	12365.06	12164.25
Less cost of flock replacements							
ewes							
rams		3		150.00	450.00	300.00	300.00
GROSS OUTPUT					15692.40	12065.06	11864.25
VARIABLE COSTS							
Purchased concentrates							
kg use per ewe		10		1.30	4000.00	3000.00	3000.00
price per tonne			130		520.00	390.00	390.00
Vet/Medicines				2.50	1000.00	750.00	750.00
Sundries (including contract)				1.00	400.00	300.00	300.00
Forage Costs							
Over Wintering				0.00	0.00	0.00	0.00
Fertilisers	per ha/inbye			29.70	2376.00	2376.00	1030.49
Total					4296.00	3816.00	2470.49
GROSS MARGIN					11396.40	8249.06	9393.76
Gross Margin per ewe					28.49	27.50	31.31
						Same Fert	Less Fert
Payment per rough grazing hectare to maintain income						15.74	10.01
Total payment required						3147.34	2002.64
As an additional premium per breeding ewe						10.49	6.68
Saving in Ewe Premium						2411.00	
Difference between savings and payments						736.34	-408.363

DARTMOOR FERTILISER IMPACT (SITE CLASSIFICATION: FAIR)						
Stocking Rate	Present	1.5	1.00	0.75	0.50	
Number of Ewes	400.00	300.00	200.00	150.00	100.00	
ME Req'd/Ha	31.25	26.56	21.88	19.53	17.19	
Kg/N/Ha	36.17	20.61	5.37	(2.13)	(9.66)	
Qty Fert	180.87	103.05	26.85	(10.67)	(47.82)	
% Change	0.00	(43.02)	(85.15)	(100.00)	(100.00)	

EXMOOR - MODEL FARM					
			Present	Future Same N.	Future Less N.
			Fertiliser		
INBYE (Ha)			100.00		
INTAKE (Ha)			0.00		
ROUGH GRAZING (Ha)			400.00		
NUMBER OF BREEDING EWES			1000.00		
SUCKLER COWS			20.00		
Fertiliser total cost			2970.00		
STOCKING RATES (rough grazing)					
Breeding ewes per ha					
Present			2.50		
Future			1.50		
LAMBING PERCENTAGE					
Present			94.00		
Future			103.40		
STOCKING INTENSITY					
In ewe units per hectare					
April-May		0.25	2.24		
June		0.6	2.63		
July		0.75	3.02		
Aug		1	3.40		
Winter			0.00	Same N.Fert	
			BEFORE	AFTER	
FLOCK STRUCTURE (as percentage)					
Replacement ewe lambs			0.24	0.24	
Finished Lambs			0.08	0.12	
crossbred ewe lambs			0.00	0.00	
Sold as store			0.67	0.66	
Ewe Disposal			0.16	0.16	
Ewe Culls			0.00	0.00	
Ram Culls			0.20	0.20	
Ewe Drafts		1st Grade	0.50	0.52	
		2nd Grade	0.25	0.25	
Missing presumed dead			0.25	0.23	Less N.Fort
FLOCK NUMBERS					
Ewes			1000	600	600
Lambs			940	620	584
Ewe lambs			236	141	141
Finished lambs			76	71	65
Store Lambs			630	409	358
cross bred ewe lambs			0	0	0
EWE DISPOSAL					
Ewe Culls			210	98	98
Ewe Drafts 1st grade			0	0	0
Ewe Drafts 2nd grade			105	50	48
Missing presumed dead			53	24	24
			53	22	24

EXMOOR - GROSS MARGIN OF HILL SHEEP ENTERPRISE

GROSS OUTPUT			£/Head	TOTAL	Same fert	Less Fert
LAMB SALES						
Finished lambs			28.47	2140.84	2031.22	1846.58
Store Lambs			24.30	15304.14	9949.98	8689.10
Crossbred lambs			35.00	0.00	0.00	0.00
EWE SALES						
Drafts 1st quality			18.00	1890.00	898.56	864.00
Drafts 2nd Quality			12.00	630.00	288.00	288.00
Culls			12.00	0.00	0.00	0.00
Ram Sales	4	7	15.00	100.00	100.00	100.00
Wool			1.16	1150.00	690.00	690.00
Subsidies	HCLA		11.20	11200.00	6720.00	6720.00
	SAP		12.91	12910.00	7746.00	7746.00
subtotal				45325.08	28423.76	26943.66
Less cost of flock replacements						
ewes						
rams		7	150.00	1000.00	600.00	600.00
GROSS OUTPUT				44325.08	27823.76	26343.66
VARIABLE COSTS						
Purchased concentrates						
kg use per ewe		21	2.73	21000.00	12600.00	12600.00
price per tonne		130		2730.00	1638.00	1638.00
Vet/Medicines			2.75	2750.00	1650.00	1650.00
Sundries (including contract)			1.25	1250.00	750.00	750.00
Forage Costs						
Over Wintering			7.50	3750.00	1807.50	1807.50
Fertilisers	per ha/inbye		29.70	2970.00	2970.00	0.00
Total				13450.00	8815.50	5845.50
GROSS MARGIN				30875.08	19008.26	20498.16
Gross Margin per ewe				30.88	31.68	34.16
Payment per rough grazing hectare to maintain income					29.67	25.94
Payment per ewew displaced				400.00	29.67	25.94231
Total payment required					11866.83	10376.92
As an additional premium per breeding ewe					19.78	17.29
Saving in Ewe Premium payments					9644.00	
Difference between subsidies and payment saved					2222.83	732.923

EXMOOR FERTILISER IMPACT (SITE CLASSIFICATION: GOOD)

	Present	2	1.50	1.00	0.75
Stocking Rate					
Number of Ewes	1,000.00	800.00	600.00	400.00	300.00
ME Req'd/Ha	41.50	34.00	26.50	19.00	15.25
Kg/N/Ha	40.11	18.11	0.00	0.00	0.00
Qty Fert	200.54	90.55	0.00	0.00	0.00
% Change	0.00	(54.85)	(100.00)	(100.00)	(100.00)

NORTHUMBERLAND - MODEL FARM				
		Present	Future Same N.	Future Less N.
		Fertiliser		
INBYE		34.00		
INTAKE		50.00		
ROUGH GRAZING		480.00		
NUMBER OF BREEDING EWES		600.00		
SUCKLER COWS		25.00		
Fertiliser total cost		1800.00		
STOCKING RATES (rough grazing)				
Breeding ewes per ha				
Present		1.25		
Future		1.00		
LAMBING PERCENTAGE				
Present		90.00		
Future		92.25		
STOCKING INTENSITY				
In ewe units per hectare				
April-May	0.25	1.47		
June	0.5	1.70		
July	0.75	1.93		
Aug	1	2.16		
Winter		0.00	Same N.Fert	
		BEFORE	AFTER	
FLOCK STRUCTURE (as percentage)				
Replacement ewe lambs		0.26	0.28	
Finished Lambs		0.00	0.00	
crossbred ewe lambs		0.00	0.00	
Sold as store		0.74	0.74	
Ewe Disposal		0.23	0.23	
Ewe Culls		0.11	0.12	
RAm Culls		0.20	0.20	
Ewe Drafts	1st Grade	0.36	0.40	
	2nd Grade	0.36	0.32	
Missing presumed dead		0.24	0.20	Less N.Fert
FLOCK NUMBERS				
Ewes		600	480	480
Lambs		540	443	432
Ewe lambs		140	115	112
Finished lambs		0	0	0
Store Lambs		400	328	320
cross bred ewe lambs		0	0	0
EWE DISPOSAL				
Ewe Culls		16	13	12
Ewe Drafts 1st grade		50	44	40
Ewe Drafts 2nd grade		50	35	40
Missing presumed dead		34	22	26

NORTHUMBERLAND - GROSS MARGIN OF HILL SHEEP ENTERPRISE							
GROSS OUTPUT				£/Head	TOTAL	Same fert	Less Fert
LAMB SALES							
Finished lambs				33.00	0.00	0.00	0
Store Lambs				20.00	7992.00	6553.44	6393.6
Crossbred lambs				33.00	0.00	0.00	0
EWE SALES							
Drafts 1st quality				36.00	1814.40	1589.76	1430.784
Drafts 2nd Quality				28.00	1411.20	989.18	1112.832
Culls				12.00	182.16	155.98	145.728
Ram Sales		3	4	15.00	60.00	60.00	60
Wool				1.15	690.00	552.00	552
Subsidies	HCLA			11.20	6720.00	5376.00	5376
	SAP			12.91	7746.00	6196.80	6196.8
subtotal					26815.76	21476.16	21267.74
Less cost of flock replacements							
ewes							
rams			4	200.00	800.00	640.00	640
GROSS OUTPUT					26815.76	20836.16	20627.74
VARIABLE COSTS							
Purchased concentrates							
kg use per ewe			7.5	7.50	4500.00	3600.00	3600
price per tonne			130		585.00	468.00	468
Vet/Medicines				2.50	1500.00	1200.00	1200
Sundries (including contract)				1.00	600.00	480.00	480
Forage Costs							
Over Wintering				10.00	1404.00	1151.28	1123.2
Fertilisers	per ha/inbye			21.43	1800.12	1800.12	-32.02
Total					5888.12	5099.40	3239.183
GROSS MARGIN					19928.64	15736.76	17388.56
Gross Margin per ewe					33.21	32.76	36.23
						Same Fert	Less Fert
Payment per rough grazing hectare to maintain income						8.73	5.29
Total payment required						4189.88	2538.08
As an additional premium per breeding ewe						8.73	5.29

NORTHUMBERLAND - FERTILISER IMPACT (SITE CLASSIFICATION: AVERAGE)					
	Present	1.5	1.00	0.75	0.50
Stocking Rate					
Number of Ewes	600.00	720.00	480.00	380.00	240.00
ME Req'd/Ha	32.74	38.10	27.38	22.02	16.67
Kg/N/Ha	26.95	43.03	9.36	(6.82)	(22.58)
Qty Fert	129.77	215.15	48.75	(34.09)	(112.92)
% Change	0.00	65.80	(63.98)	(100.00)	(100.00)

YORKSHIRE DALES - MODEL FARM				
		Present	Future	Future
			Same N.	Less N.
			Fertiliser	
INBYE		34.00		
INTAKE		50.00		
ROUGH GRAZING		480.00		
NUMBER OF BREEDING EWES		600.00		
SUCKLER COWS		25.00		
Fertiliser total cost		1800.00		
STOCKING RATES (rough grazing)				
Breeding ewes per ha				
Present		1.25		
Future		1.00		
LAMBING PERCENTAGE				
Present		90.00		
Future		92.26		
STOCKING INTENSITY				
In ewe units per hectare				
April-May	0.25	1.47		
June	0.5	1.70		
July	0.75	1.93		
Aug	1	2.16		
Winter		0.00	Same N.Fert	
		BEFORE	AFTER	
FLOCK STRUCTURE (as percentage)				
Replacement ewe lambs		0.26	0.26	
Finished Lambs		0.00	0.00	
crossbred ewe lambs		0.00	0.00	
Sold as store		0.74	0.74	
Ewe Disposal		0.23	0.23	
Ewe Culls		0.11	0.12	
RAm Culls		0.20	0.20	
Ewe Drafts	1st Grade	0.36	0.40	
	2nd Grade	0.38	0.32	
Missing presumed dead		0.24	0.20	Less N.Fert
FLOCK NUMBERS				
Ewes		600	480	480
Lambs		540	443	432
Ewe lambs		140	115	112
Finished lambs		0	0	0
Store Lambs		400	328	320
cross bred ewe lambs		0	0	0
EWE DISPOSAL		140	110	110
Ewe Culls		15	13	12
Ewe Drafts 1st grade		50	44	40
Ewe Drafts 2nd grade		50	35	40
Missing presumed dead		34	22	28

YORKSHIRE DALES - GROSS MARGIN OF HILL SHEEP ENTERPRISE							
GROSS OUTPUT				£/Head	TOTAL	Same fert	Less Fert
LAMB SALES							
Finished lambs				33.00	0.00	0.00	0
Store Lambs				20.00	7992.00	6553.44	6393.8
Crossbred lambs				33.00	0.00	0.00	0
EWE SALES							
Drafts 1st quality				36.00	1814.40	1589.76	1430.784
Drafts 2nd Quality				28.00	1411.20	989.18	1112.832
Culls				12.00	182.16	156.98	146.728
Ram Sales		3	4	15.00	60.00	60.00	60
Wool				1.16	690.00	552.00	552
Subsidies	HCLA			11.20	6720.00	5376.00	5376
	SAP			12.91	7746.00	6196.80	6196.8
subtotal					26616.76	21476.16	21267.74
Less cost of flock replacements							
ewes							
rams			4	200.00	800.00	640.00	640
GROSS OUTPUT					26816.76	20836.16	20627.74
VARIABLE COSTS							
Purchased concentrates							
kg use per ewe			7.5	7.50	4500.00	3600.00	3600
price per tonne			130		585.00	468.00	468
Vet/Medicines				2.50	1500.00	1200.00	1200
Sundries (including contract)				1.00	600.00	480.00	480
Forage Costs							
Over Wintering				10.00	1404.00	1151.28	1123.2
Fertilisers	per ha/inbye			21.43	1800.12	1800.12	-32.02
Total					6889.12	5098.40	3239.183
GROSS MARGIN					19926.64	16736.76	17388.56
Gross Margin per ewe					33.21	32.78	36.23
						Same Fert	Less Fert
Payment per rough grazing hectare to maintain income						8.73	5.29
Total payment required						4189.88	2539.08
As an additional premium per breeding ewe						8.73	5.29

YORKSHIRE DALES - FERTILISER IMPACT (SITE CLASSIFICATION: AVERAGE)					
Stocking Rate	Present	1.5	1.00	0.75	0.50
Number of Ewes	600.00	720.00	480.00	360.00	240.00
ME Req'd/Ha	32.74	38.10	27.38	22.02	16.87
Kg/N/Ha	26.86	43.03	9.35	(6.82)	(22.58)
Qty Fert	129.77	215.15	46.75	(34.09)	(112.92)
% Change	0.00	65.80	(63.98)	(100.00)	(100.00)

YORKSHIRE DALES (MULES) - MODEL FARM SIZE				
		Present	Future Same N.	Future Less N.
		Fertiliser		
INBYE (Ha)		34.00		
INTAKE (Ha)		50.00		
ROUGH GRAZING (Ha)		400.00		
NUMBER OF BREEDING EWES		570.00		
SUCKLER COWS		25.00		
Fertiliser total cost		1800.00		
STOCKING RATES (rough grazing)				
Breeding ewes per ha				
Present		1.43		
Future		1.00		
LAMBING PERCENTAGE				
Present		105.00	109.46	105.00
STOCKING INTENSITY				
In ewe units per hectare				
April-May	0.26	1.39		
June	0.6	1.67		
July	0.76	1.84		
Aug	1	2.21		
Winter		0.00		
		BEFORE	AFTER	
FLOCK STRUCTURE (as percentage)				
Replacement ewe lambs		0.11	0.11	0.26
Finished Lambs		0.00	0.00	0.00
crossbred ewe lambs		0.37	0.37	0.37
Sold as store		0.63	0.62	0.63
Ewe Disposal		0.23	0.23	0.23
Ewe Culls		0.12	0.12	0.12
Ram Culls		0.20	0.20	0.20
Ewe Drafts	1st Grade	0.46	0.48	0.46
	2nd Grade	0.23	0.21	0.23
Missing presumed dead		0.19	0.19	0.19
FLOCK NUMBERS				
Ewes		570	400	400
Lambs		599	438	420
Ewe lambs		66	48	44
Finished lambs		0	0	0
Store Lambs		317	228	218
cross bred ewe lambs		221	162	158
EWE DISPOSAL		140	92	92
Ewe Culls		16	11	11
Ewe Drafts 1st grade		64	44	42
Ewe Drafts 2nd grade		32	19	21
Missing presumed dead		27	17	17

YORKSHIRE DALES (MULES) - GROSS MARGIN OF HILL SHEEP ENTERPRISE								
GROSS OUTPUT				£/Head	TOTAL	Same fert	Less Fert	
LAMB SALES								
Finished lambs				27.00	0.00	0.00	0	
Store Lambs				20.00	6344.10	4553.64	4368.00	
Crossbred lambs				33.00	7307.69	5346.15	5214.00	
EWE SALES								
Drafts 1st quality				36.00	2318.40	1688.76	1523.52	
Drafts 2nd Quality				28.00	901.80	540.86	592.48	
Culls				12.00	180.82	132.48	126.86	
Ram Sales		3	4	15.00	57.00	57.00	57.00	
Wool				1.15	655.50	480.00	460.00	
Subsidies	HCLA			11.20	6384.00	4480.00	4480.00	
	SAP			12.91	7358.70	5164.00	5164.00	
subtotal					31607.80	22323.89	21985.96	
Less cost of flock replacements								
ewes								
rams			4	200.00	760.00	533.33	533.33	
GROSS OUTPUT					30747.80	21790.66	21462.63	
VARIABLE COSTS								
Purchased concentrates								
kg use per ewe			17.5	17.50	9875.00	7000.00	7000.00	
price per tonne			130		1296.75	910.00	910.00	
Vet/Medicines				2.50	1425.00	1000.00	1000.00	
Sundries (including contract)				1.00	570.00	400.00	400.00	
Forage Costs								
Over Wintering				10.00	658.35	480.00	440.00	
Fertilisers		per ha/inbye		21.43	1800.12	1800.12	0.00	
Total					5750.22	4590.12	2750.00	
GROSS MARGIN					24987.68	17200.54	18702.63	
Gross Margin per ewe						43.86	43.00	46.76
						Same Fert	Less Fert	
Payment per rough grazing hectare to maintain income						19.49	15.74	
Total payment required						7787.15	6295.06	
As an additional premium per breeding ewe						19.49	15.74	
Saving in Ewe payments						4098.70		
Difference between savings and payments						3698.45	2198.36	

YORKSHIRE DALES (MULES) - FERTILISER IMPACT (SITE CLASSIFICATION: AVERAGE)					
Stocking Rate	Present	1.5	1.00	0.75	0.50
Number of Ewes	570.00	600.00	400.00	300.00	200.00
ME Req'd/Ha	31.40	32.74	23.81	19.35	14.88
Kg/N/Ha	21.76	25.96	(1.48)	0.00	0.00
Qty Fert	108.80	129.77	(7.38)	0.00	0.00
% Change	0.00	19.27	(106.78)	(100.00)	(100.00)