



All Grass Wintering of Sheep

Winter 2012-2013

Report to EBLEX

By: John Vipond & Rhidian Jones

June 2013

Contents

- 1. Executive Summary**

- 2. Introduction**
- 3. The farms**
- 4. Initial farm visits November 2012**
- 5. December 11th 2012 meeting**
- 6. February 18th 2013 meeting**
- 7. May 28th 2013 meeting**
- 8. Summary of farm information provided**
- 9. Focus on 3 farms- physical and financial data**
- 10. Potential feed savings from reliance on grass**
- 11. Technical issues that have arisen**
- 12. Lessons learnt and value of industry partners**
- 13. Recommendations for further work**
- 14. Promotional activities**
- 15. Acknowledgements**

Appendices

- 1 November farm meetings
- 2 December meeting report
- 3 Summary of pasture covers at start of winter
- 4 February meeting report
- 5 May meeting report
- 6 Paper given by Poppy Frater at BGS/BSAS meeting
- 7 Poster on AGW for Northsheep display
- 8 Rising plate meter training documents
- 9 Data collection form

A successful 'All Grass Wintering' (AGW) system demonstrated in 2011/12 on a lowland Cornish farm was extended and adapted to six other farms ranging in altitude to 300 m. above sea level and as far north as Gloucestershire. All farmers who tried the system reported positive outcomes and will continue with the system as it offered significant savings in feed costs and labour, estimated on one farm, at up to £17/ewe, other farms had significant savings also. It resulted in pasture improvement whilst achieving commercially viable winter stocking rates of around 12 ewes/ha.

This occurred despite a year with severe weather problems and a much delayed spring which means that the system is robust enough to give us confidence that it has a real potential to reduce production costs across the UK. This conclusion was reinforced by results from a farm in South Wales and one in Northumberland not strictly in the EBLEX producer group but who accessed the data and who were also successful.

An EBLEX producer group was established with 6 additional participating farmers who decided to try the system after a visit to Dave Sanders and who visited three farms over the winter following an individual initial advisory visit to set up the system. Of around 20 other farmers who came to one or more farm visits many have expressed interest in adopting the system themselves having now seen it working. Farmers were successfully trained in the use of the plate meter for measuring grass, feed budgeting and condition scoring which are essential tools for successful implementation of the system. Using electric fencing and moving stock for rationing was demonstrated and proved well within farmers' capabilities. The objective of obtaining all winter nutrition from grass was not generally achieved as snow cover and the late spring required some supplementary feeding which had been planned for and was easily accommodated within the system.

The system does not suit heavy soil types due to poaching at the high stocking rates and some issues with soil compaction on some fields were identified and remedial action taken, but this was not seen as a major constraint to adoption by participating farmers. Lack of information on winter grass growth made planning difficult and local information on the likely range of daily dry matter production /ha. would be a valuable tool for the future.

No major health issues were raised which may have been helped by discussing health plans and closer monitoring as there are increased risks due to stocking density and greater reliance on pasture increases parasite burdens. The need to monitor for lice (spread during contact as sheep are moved) worms and fluke, was necessary and on one farm gulls attracted to the poached fields may have brought in Salmonellosis so vigilance is required.

The development work has been well reported with several press articles in farmers' magazines and a paper presented at a BSAS/BGS scientific conference. Interim results were presented at farmers meetings a poster at NorthSheep and future open days /farm visits and papers scheduled.

Sufficient information was obtained from the producer group meetings to produce a guidance booklet for farmers written by EBLEX with support from SRUC. This will provide evidence - based information for farmers wanting to try the system, but is based on limited evidence and will need revision as more experience is collected.

More information is required on how summer rotational systems can be used to set up covers for starting the rotation and it is clear many farmers who currently out-winter ewes on grass, then house them, could benefit from part of the winter being in a grass rotation to reduce costs. This extends the application to most of England as exemplified by the results in the case study from the Northumberland farm.

Continuation of the group approach to further adoption is recommended as there is a steep learning curve and farmers benefit from sharing experiences. Further experience of more breeds and crosses is needed although all breeds tried so far have been successful.

2 Introduction

Following the successful pilot study at Norton farm, Helland, Bodmin with Dave Sanders during the winter of 2011-12 and the well attended farm meeting in early September 2012 a further 6 farmers were recruited to further evaluate the All Grass Wintering (AGW) method of feeding sheep through the winter with minimal supplementary feeding and low labour requirement.

These farmers were mainly recruited at the September meeting and were each provided with a Rising Plate Meter (RPM) by EBLEX. Training in the use of the RPM had been given at the September meeting with further guidance provided as required through the winter. Another farmer from South Glamorgan has adopted the AGW system, purchased a RPM and has attended all the meetings to date so even though this farm is outside the remit of EBLEX we will include the findings from this farm in this report as it provides valuable information and another breed to compare with. A farmer from Northumberland received telephone advice and meeting reports and successfully wintered ewes on the system up to housing.

Whilst the farmers have generally been allowed to “get on with it” and adapt the system to their own circumstances, regular contact by email and telephone has provided advice and support. The farmers have generally been very good at providing information when asked and have made the system work despite a very challenging winter.

3 The farms

Full details of the seven farms are given in Appendix 1.

- Dave Sanders, Norton Farm, Helland, Bodmin, Cornwall
- Graham Doidge, Little Orcheton, Modbury, Ivybridge, Plymouth
- Kevin Bateman, Martinsfields, Broadclyst, Exeter
- Richard Hawke, Bodgate, North Petherwin, Launceston, Cornwall
- Mike Miller, Mount Pleasant farm, Woolland, Blandford Forum, Dorset
- Mike Dewar, The Estate Office, Yanworth, Cheltenham, Glos
- Ian Robertson, Chawton park, Alton, Hants
- John Thomas, Flemingston Court, Flemingston, Barry, South Glamorgan

The range of farms has given us a wider geographical spread from Cornwall to Gloucestershire. as well as a significant variation in altitude (close to sea level to 300 m above sea level), grass types (leys to permanent/semi natural), sheep breeds (Romneys, Lley, Mules, Exmoor, Easy Care) and scale (250 ewes to 1,000 ewes). In addition there is a range of farmer ages and attitudes to consider as well as management differences (from farmer doing all the work himself to a shepherded estate flock). Another farmer in Northumberland has been practising AGW successfully in an area with little winter grass growth. SAC Consulting are in contact with this farmer (Alan Cowan) and will be having a Sheep Group meeting at this farm on 31st August (to which EBLEX staff are invited). A range of winter stocking rates from 8-16 ewes/ha were achieved with an average of 12 ewes/ha.

4 Initial farm visits November 2012

In early November John Vipond and Rhidian Jones of SAC Consulting visited six of the farms to gather information and provide some guidance to the farmers before commencing the project. The findings of these meetings are provided in Appendix 1 and 3. The range in covers estimated ranged from 1800 to 2500kg.DM averaging 2166Kg.DM/Ha, and it was estimated by lambing covers would be in the range 1400-2700. On all farms except Norton farm there was sufficient grass built up for the number of ewes expected to be wintered and adequate reserves of home grown forage available.

These meetings were held well in advance of the system commencing to ensure that all the farmers were up to speed with what had to be done and how. In addition we had to be satisfied that each farm had appropriate safety nets in place if the system did not work and that the health and welfare of the sheep had been considered in their flock health plans. The “plan B” for most farms was to feed hay/silage on a sacrificial area or to house the sheep and feed them on the conventional system.

The first farm visit to see the system working was held as early as possible – about a week or so after commencing the system at Norton farm. One other farm (Stowell Park) had also commenced the system in advance of the meeting. The reason for this was to allow the farmers to gain confidence by seeing how Dave Sanders operates the system in practice. This was very important and far more effective than hearing/reading about the system at the September meeting (“to hear is to forget, to see is to remember, to do is to understand”). This was to become apparent as the winter progressed and each farmer gained confidence in the system despite the challenges and different circumstances they each faced.

5 December 11th 2012 meeting, Norton farm (Dave Sanders) *The full report is attached in Appendix 2*

Presentations/Discussions

- John Vipond- Introduction to the concept, plans for the group
- Rhidian Jones- grass covers on all farms at the start of the system (Appendix 3), comments from each farmer in turn
- Q&A session at the end- frosted grass, poorer grass quality, when to supplement
- Discuss issues for the next meeting in February

Issues discussed

- Getting going on the system
- Taking advantage of dry conditions to graze re-seeds or easier poached fields
- Grazing parameters, kgDM/ha, allowance, residual, feed sheep what they need NOT what they will eat
- Festulolium re-seeds- good winter growth but susceptible to frost, graze before winter to 3cm, “hoof and tooth” method of re-seeding
- Methods of moving sheep, shape of paddocks, size of gateways
- Water requirements of sheep on AGW
- Winter shearing, shearing twice a year
- EID & handling system

- Ram to ewe ratio with Romney breed, breeding and managing rams that don't lose excessive condition over tugging.
- Body condition scoring theory and practical. Guidelines for removing sheep from AGW based on body condition (<bcs2.0)

6 **February 18th meeting, Warren farm, Blandford Forum** (Mike Miller)

The full report is attached in Appendix 4

Presentations/Discussions

- Round table discussions on progress to date
- Rhidian Jones- grass growth data provided by farmers in early February
- Introduction to Warren farm by Mike Miller
- Rhidian Jones- Rising plate meter formulas- see Appendix 8 for handout
- John Vipond- Trace element results
- Poppy Frater discussed a meeting with Catchment Sensitive Farming at Bodgate farm (Richard Hawke)

Issues discussed

- Shape of paddocks, fencing issues, number of wires, spacing of posts
- Timing of sheep movement
- Recovery of grazed paddocks
- Deposition of manure, urine
- Breed adaptation to the system
- Risk of surface compaction on paddocks grazed on wet days
- Grazing of semi natural permanent pasture, accuracy of RPM formula for this type of grassland
- Recovered 3 year ley field, clover growth, methods of establishing clover
- Protein nutrition of sheep, feeding soya
- Beta-hydroxybutyrate testing for energy levels 4 weeks pre- lambing
- Lambing issues, body condition, prolapse, housing issues

7 **May 28th meeting, Martinsfields, Broadclyst, Exeter** (Kevin Bateman)

The full report is attached in Appendix 5

Presentations/Discussions

- Round table discussion on progress, lambing etc
- Kevin Bateman- introduction to his farm
- John Vipond- grass based systems for sheep
- Rhidian Jones-gathering data on the system for this report- see Appendix 9 for data collection form

Issues discussed

- Adverse weather issues, lack of spring growth
- Ewe body condition, housing
- Grazing wet paddock restricted grass growth subsequently
- How cell grazing allowed a 5.5 ha field to feed 400 ewes for 25 days!
- Potential for Festuloliums in organic system
- Fencing issues
- Comparison of grass growth in a field with 4 different soil conditioning methods (none, slitter, sward lifter, slitter+sward lifter)

- High clover pasture, evaluating clover content, value of clover, grass mixtures to establish clover
- Health issues- flystrike, Border disease, fluke treatment, lameness

8 Summary of farm information provided

NB apart from initial data we have had no further data from Chawton Park Farm or Norton Farm (policy change- sheep being sold!)

Farm & Farmer	Sheep	Ha for AGW	Kg DM/ha Nov/Dec 12	Kg DM/ha Feb 2103	Kg DM/ha Lambing	Scan results	Supplements used	Time/week fences	Time/day Shift sheep
Martinsfields K Bateman	450 Mules, Tex Mules, Dartmoor	38.85	2658	1300	1200	146%	None	3.5 hrs	10 mins
Bodgate R Hawke	450 NZ Romney	37	2302	1905	1713	193%	3 tonnes forage on frosty days	10 hrs	20 mins
L Orcheton G Doidge	250 Mules	22.94	2280	1637	N/A	147% (31 of 40 barrens mated again and are in lamb	Silage offered but not taken Feed blocks available		
Warren M Miller	670 NZ Romneys, Welsh Mules & Suff Mules	40	3018	1648	1850	160%	Housed twin Mules- Lifeline blocks 8 tonnes forage used	10 hours	20 mins
Stowell park M Dewar	840 Kent Romneys	140	2239	1464	bare	160%	Sheep housed 30 t silage, 4 t lifeline, 12.88 t ewe nuts	10 hrs	15-20 min
Flemingston J Thomas	400 Easy Care	40 ha	3000 (too much for small flock)		bare	160%	Small amount of hay offered but not taken	7 hours	5 minutes

9 Focus on three farms- physical and financial data

Each farmer provided feedback at the February and May meetings on how the system was working on their farms. In addition they have been keeping us informed by email and occasional phone calls through the winter. Prior to the May 28th meeting a data collection form was sent out (Appendix 9) to get more detailed information from each farm. Three farms will be highlighted in this section, looking at grass growth data, scanning results, ewe condition and assessing the financial benefit of the system for feed costs and labour. In future we would like to carry out a full enterprise costing for the system but this year the farms were trying the system out or only putting part of their flocks onto AGW (in some cases only the fitter ewes) so only partial financial comparisons have been possible.

a) Kevin Bateman/Julian Branfield, Martinsfields, Broadclyst, Exeter

Grass growth

Grass growth averaged 19kgDM/ha from December 2102 to 18th February 2013. However grass covers at lambing were low (1200 kgDM/ha) which reflected the cold spring that followed the February meeting. The all grass wintering system did provide just sufficient grass for ewes to lamb on but subsequent grass growth over lambing was lower than expected due to the late spring and adversely affected lamb survival and growth

Feed costs

Only 4 small bales of hay were used. No concentrates fed.

Labour costs

3.5 hours/week + 10 minutes/day @ £12.00/hour = £56/week for 14 weeks = £784 or £1.74/ewe (own labour cost)

Other issues/comments

Difficult to compare AGW flock with early lambing Dorset flock. These were housed for 90 days, fed hay and 15 tonnes of oats/pea blend. Removed 40 ewes from the system that were low in condition. Had a very bad night at lambing due to the weather and suffered many lamb losses. His ground has flooded 15 times this winter compared to 3-4 times ordinarily.

Comments from Kevin

- “We had no grass growth from beginning of March but stuck to it and lambed all ewes outside without any concentrate or supplementary feeding”
- “We will do it again next year but not set stock at lambing”
- “We are really happy with the system and have already decided to lamb the early Dorsets later with the main flock next year”
- “I don’t know if the system has left us with more or less grass but it is all very even with no waste at all”

Financial benefit

Difficult to quantify but much reduced labour and feed costs compared to other early lambing system and previous system for these sheep.

b) Richard Hawke, Bodgate, Launceston

Grass growth

Grass growth was excellent from the end of November until mid February. Some early grazed fields had more grass on 12th February than at the start of the winter. This would equate to ca 15 kg DM/ha/day in this period. Lambing covers of 1713kg DM/ha would equate to overall winter growth of 4kgDM/ha/day.

Feed costs

3 tonnes of silage was used on frosty days and for 6 days on "plan B". No concentrates were used on the AGW system.

Labour costs

10 hours/week plus 20 minutes/day @ £11/hr = £135/week for 15.5 weeks = £2120 or £4.71/ewe (own labour cost).

Other issues/comments

Scanned at 193% v 181% for sheep not on the system. This may have been due to only the fitter ewes (and no gimmers) being put on AGW. Ewes lambed in Body condition score 2 to 2.5 which was just right.

Comments from Richard

"System worked well, it took a little more time than the conventional system. It could have been reduced if I had purchased more end stakes at the start. The system has enables the ewes to survive without the neighbours 150 acres. It has saved on fuel and time. It took extra time/fuel driving to the neighbour's and over it, I would certainly consider repeating this again"

Financial benefit

Again difficult to truly quantify as it would be comparing fit ewes on AGW with leaner ewes on conventional system. However it seems that in this case the AGW system took longer to operate than conventional but incurred much reduced feed costs. The 354 ewes on conventional system required 20 tonnes of forage (56 kg/hd) v 3 tonnes for the 450 ewes on the AGW system (6.7 kg/hd) and the business also saved the cost of renting 150 acres of grass on a neighbouring farm (ca £2,500 + time & fuel).

c) Mike Miller, Mount Pleasant/Warren farm, Blandford Forum

Grass growth

Grass growth of 14kgDM/ha/day was seen from the end of November to mid February. Overall covers of 1850 kgDM/ha/day at lambing signified an overall winter growth of 5.16 kgDM/ha/day.

Feed costs

8 tonnes of forage used for 670 ewes on AGW (12 kg/hd) against 35 tonnes fed to 250 ewes on conventional system (140 kg/hd). In addition the conventional ewes were fed 10 tonnes of concentrates and used 7 tonnes of straw. See below for partial financial comparison.

Labour costs

10 hours/week plus 20 minutes/day @£9/hr = £111/week for 15 weeks = £1674 or £2.49/hd (own labour cost).

Other issues/comments

Concerned about the condition of twin bearing Mules (bcs 2 in Feb) so gradually changed their diet and housed them. This is something he would do again in similar circumstances. Romneys were fitter (bcs 2.5) and were left on the AGW system. Scanning was identical in 250 conventionally managed Mules (160%).

Comments from Mike

“Most issues have come out in the meetings but the fact that I’m hoping to base a Nuffield Scholarship on the system speaks for itself I think”

Financial benefit

Partial budget on labour and feed costs

	AGW system	Conventional system
Ewes	670	250
Scan result	160%	160%
Labour @ £9/hr (farmer’s est)	£1674	£786
Silage @ £25/t, straw @ £75/t	£200	£1275
Concentrates @ £290/t		£2900
Labour & feed £total	£1874	£4961
Labour & feed £/ewe	£2.80	£19.84
£benefit/100 ewes	+£1704	

A theoretical calculation of potential savings in feed costs is shown below based on current prices for grass silage and concentrates and feed requirements

10 Potential feed savings from reliance on grass

Traditional system	MJ	Pence /MJ	£/year
From Concentrate (50kg)	600	1.92	11.5
Silage dry matter 100kg (Jan –March)	1050	0.95	10.0
Grass (580 kg grass DM from grazing)	2600	0.36	9.60
Annual requirements	4250	0.73	31.10
If all annual requirements come from grass 4250MJ @ 0.36Pence/MJ = £15.30			
Potential Feed saving £31.10-£15.30 = £15.80			

Mike Miller fed no concentrates and £0.30 worth of silage to ewes on AGW vs £11.60 for concentrates and £5.10 on silage to traditional ewes saving £16.40 which is very close to theoretical potential estimates

11 Issues that have arisen

Difficult weather conditions from flooding to heavy snow making grass unavailable meant more days were spent off the system and on conserved forages than in the pilot year which had a particularly early spring. Given that all the farmers succeeded despite one of the worst winters on record gives us confidence the system is robust enough.

All breeds used had the ability to withstand the grazing pressure, year differences confounded any attempt to make comparisons with the pilot breed used, the NZ Romney (Dave Sanders pulled out of the group having made the decision to convert to dairy). All breeds used were 'Maternal breeds' of commercial sheep. Many of the farmers were impressed with the easy care attributes of the NZ Romney and some are trying out rams of this breed or Rissington Highlander/ crosses out of NZ Suffolks. Breed does not appear as a constraint to adoption of the system so far.

Poaching/compaction occurred on 1-10% of fields to varying degrees between farms and was related to severe weather events. The farmers have tried various remediation measures and this problem is not seen as a major constraint to adaptation but needs more work over a longer time span as it could be a cumulative problem

Disease risks appear to be similar to traditional systems, but with significant reduction in prolapse and lambing difficulty associated with overfat ewes on uncontrolled grazing. Some pregnancy toxemia occurred on one farm when ewes were housed in extreme weather, but where housing was planned for multiples this did not occur. One farm had an outbreak of Salmonellosis associated possibly with gulls that feed on a local estuary being attracted to the poached fields although this connection is speculative.

Too high pasture covers for small group sizes was a consistent problem and the system struggles at flock sizes below 300

12 Lessons learnt and value of industry partners

There is definitely an advantage to have someone who is familiar with the system to visit a farm considering the change to all grass wintering. This could be an adviser, someone from the supply trade or a mentoring farmer. Suitable soil types, the need for daily shifts, training in the use of a plate meter and body condition scoring proved essential. The initial visit to check there was 2000kg Dm/Ha cover to start the rotation and ewes in the correct body condition score is critical to success. A health plan and Plan B for the event of having to take ewes off the rotation are needed to ensure welfare is protected.

Industry partner Limagrain (Ian Misselbrook and Graham Parnell) gave sound advice to farmers on grass quality, the reseeding decision and helped us evaluate the potential of Festuloliums to increase winter growth, recording a 40 % increase at Helland farm. With some of the farmers trying these new varieties we are building up a more robust picture of the potential of this tweak to the system.

Industry partner Rumenco (David Thornton) provided farmers with trace element analyses but the farmers were not prepared to supplement with licks blocks or buckets for trace elements as the daily shifts precluded this as it would require too much work. Bolus products appear to be more relevant to this system.

Ridley Rappa systems (Mark Grant) demonstrated fencing techniques and was very good at stressing the importance of safe working practices with ATV mounted fencing machines. This was unexpected and very useful benefit.

It was good to take industry partners along on this development work. Their expertise and knowledge contributed much to the farm visits, with so little technical knowledge now available to farmers, commercial companies with the right attitude add greatly to development work. It opens up new potential sales avenues for them and keeps them up to date with industry developments. Importantly it provides farmers with people with experience of the system who have an interest in making it work and who can provide advice and support after the development phase.

13 Recommendations for further work

One key finding was that all farmers in the group would not be nearly as confident in the system and its management without the use of a plate meter for measuring grass. Use of this technology and associated grass budgeting is the way forward, bring some objective measurement into pasture utilisation.

- The development work showed that we could be more accurate and different formulas for the plate meter for use with sheep grazing on semi natural grass vs rotational pastures are relevant
- Health implications, lameness, risk of bird borne infectious disease, all need further monitoring along with potential trace element deficiency risks.
- Comparison of Matrix Festuloliums with other extended grazing mixtures
- Part winter systems, in conjunction with housing /sacrifice fields for Northern areas with the objective of both reducing costs and getting earlier spring grass growth.
- Using summer rotations to set up pasture for AGW
- Farmer demonstrations
- Full enterprise costing of farms that are totally AGW
- Better predictions of winter grass growth

14 Promotional activities

This project has attracted much attention from the farming press with articles in the Farmers Weekly, Farmers Guardian and the Grass Farmer. Mike Miller is a focus farmer in the Farmers Guardian and he has mentioned the system in the issues he has featured in. As a result of his work on the system and related activities he is applying for a Nuffield scholarship to study it further.

Poppy Frater presented a paper (Appendix 6) at the BGS/BSAS conference in February and SAC Consulting presented a poster at Northsheep (Appendix 7) in June.

Interim results were presented at farmers meetings at Holesworth and South Molton in Devon and to the Cotswold, Hampshire and SAC (Borders) sheep groups. An open day featuring the system will be held at Stowell Park (Glos) on July 5th and an SAC sheep group visit to the Northumberland farm is to be held on the 31st August.

Poppy Frater is also in the process of compiling an EBLEX Better Returns + bulletin on the system for which she has received input from John Vipond and Rhidian Jones. John Vipond is to present a paper at Tech and Bio, the European organic and alternative technical show at Drome in France 18/19 Sept 2013. Googling “all grass wintering EBLEX” gives a full page of results

There has thus been considerable industry interest in the system, attested to by the comments from existing farmers and prospective new adopters attending meetings. There will be no difficulty in finding several new farmers for a further extension of the project.

13 Acknowledgements

We would like to thank the following for their assistance with this project; EBLEX, Poppy Frater, Helen Tordoff and Liz Genever, Dave and Bill Sanders, Graham Doidge, Kevin Bateman, Julian Branfield, Mike Miller, Richard Hawke, Mike Dewar and staff at Stowell Park, Ian Robertson, John Thomas, Alan Cowan, Graham Parnell, Ian Misselbrook (Limagrain), David Thornton(Rumenco),

APPENDIX 1

Summary of group member farm meetings November 2012

Name	Kevin Bateman														
Address	Martinsfields, Broadclyst, Exeter, EX5 3JH														
Telephones	01392 462 128, 07900 084 294														
Email	kevin@bateman-north.co.uk														
Number of sheep	500 for All grass wintering plus 200 Dorset ewes														
Breed(s) of sheep	Dartmoor (50 kg) and Dartmoor Mules (75 kg) mainly														
Lambing date	1 st April														
System commences	Dec 10 th approx.														
AGW period	100 days- 10 th Dec to 20 th March														
Grass cover	Av 2300 kg DM/ha														
Hectares	51.2 ha														
Budget	<table> <tr> <td>KgDM on 5th November</td> <td>118,151</td> </tr> <tr> <td>growth to 10th Dec @ 10kg DM/ha/day</td> <td>17,920 +</td> </tr> <tr> <td>500 ewes x 50 days x 1kg DM</td> <td>25,000 –</td> </tr> <tr> <td>500 ewes x 50 days x 1.25 kgDM</td> <td>31,250 –</td> </tr> <tr> <td>Winter growth to 20th March @10Kg/DM/day</td> <td>51,200 +</td> </tr> <tr> <td>Grass DM on 20th March</td> <td>131,021</td> </tr> <tr> <td>(kg DM/ha)</td> <td>2,559</td> </tr> </table>	KgDM on 5 th November	118,151	growth to 10 th Dec @ 10kg DM/ha/day	17,920 +	500 ewes x 50 days x 1kg DM	25,000 –	500 ewes x 50 days x 1.25 kgDM	31,250 –	Winter growth to 20 th March @10Kg/DM/day	51,200 +	Grass DM on 20 th March	131,021	(kg DM/ha)	2,559
KgDM on 5 th November	118,151														
growth to 10 th Dec @ 10kg DM/ha/day	17,920 +														
500 ewes x 50 days x 1kg DM	25,000 –														
500 ewes x 50 days x 1.25 kgDM	31,250 –														
Winter growth to 20 th March @10Kg/DM/day	51,200 +														
Grass DM on 20 th March	131,021														
(kg DM/ha)	2,559														
Adjusted budget for higher or lower growth	<p>If winter growth = 5 kgDM/ha/day = 105,421 kg DM (2,059kgDM/ha)</p> <p>If winter growth = 15kgDM/ha/day = 156,621 kg DM (3,059 kgDM/ha)</p>														
Health issues	<p>Health plan in place</p> <ul style="list-style-type: none"> • Fluke a major issue • Sheep scab a risk due to purchased stock • Rumenco will sample forage and advise accordingly 														
Comments	<ul style="list-style-type: none"> • Organic farm NT tenant Target 800 ewes. Sandy soils • No issues with grass quantity, covers may be too high for lambing if year favourable • Low lying farm -20-30m asl • Ewes can be kept off farm until system ready • Ewes of different breed and liveweight will give an interesting comparison but will need monitoring- risk of smaller ewes getting too fit? • 5 fields prone to flash floods so will need flexibility to graze during low risk periods • Poorest grass should be grazed pre-scanning – however high quality clover field should not be wasted • Contingency plan in place- buildings and silage • Good fencing • Daily shifts recommended- paddock size initially for 500 ewes will be 0.4 ha (1 acre) based on average cover and residual of 1,000 kgDM/ha 														

Name	Graham Doidge															
Address	Little Orcheton, Modbury, Ivybridge, PL21 0TF															
Telephones	01548 830 515															
Email	Graham.doidge@sky.com															
Number of sheep	241 – 48 2 tooth, 92 under BCS 3, 101 over BCS 3															
Breed(s) of sheep	Mules															
Lambing date	Rams out Nov 7 th , lambing from April 2 nd															
System commences	10 th December															
AGW period	100 days															
Grass cover	Av 1930 kgDM/ha															
Hectares	22.94 (+ contingency of approx. 6.4 ha)															
Budget	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 60%;">KgDM on 5th November</td> <td style="text-align: right;">44,267</td> </tr> <tr> <td>growth to 10th Dec @ 10kg DM/ha/day</td> <td style="text-align: right;">8,029 +</td> </tr> <tr> <td>241 ewes x 50 days x 1kg DM</td> <td style="text-align: right;">12,050 –</td> </tr> <tr> <td>241 ewes x 50 days x 1.25 kgDM</td> <td style="text-align: right;">15,062 –</td> </tr> <tr> <td>Winter growth to 20th March @ 10Kg/DM/day</td> <td style="text-align: right;">22,940 +</td> </tr> <tr> <td>Grass DM on 20th March</td> <td style="text-align: right;">48,124</td> </tr> <tr> <td>(kg DM/ha)</td> <td style="text-align: right;">2,097</td> </tr> </table>		KgDM on 5 th November	44,267	growth to 10 th Dec @ 10kg DM/ha/day	8,029 +	241 ewes x 50 days x 1kg DM	12,050 –	241 ewes x 50 days x 1.25 kgDM	15,062 –	Winter growth to 20 th March @ 10Kg/DM/day	22,940 +	Grass DM on 20 th March	48,124	(kg DM/ha)	2,097
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Grass DM on 20 th March	48,124															
(kg DM/ha)	2,097															
Adjusted budget for higher or lower growth	<p>If winter growth = 5 kgDM/ha/day = 36,654 kg DM (1,597kgDM/ha)</p> <p>If winter growth = 15kgDM/ha/day = 59,594 kg DM (2,597 kgDM/ha)</p>															
Health issues	<ul style="list-style-type: none"> • Fasimec Duo fluke dose in autumn • No clostridial vaccines used • Poorer ewes bloused for selenium/cobalt/iodine • Rumenco trace element analysis arranged 															
Comments	<ul style="list-style-type: none"> • No issues with grass availability- low lying farm almost at sea level should ensure good winter growth • Purchased Mules will provide interesting trial • However has purchased Romney tups- best to breed from Mules that cope with the system • Plan B available- silage and housing as well as spare grass areas • Main issue will be small paddock size for 240 ewes- only ca 0.25/ha required each day- 50m by 50 m- will there be any issues regarding grazing close to edge of paddock etc. • 2 or 3 day shifts may be more realistic and will mean less fencing work for the farmer • Strip grazing with back fence recommended with smallish fields • Good example for the smaller unit typical of area and with limited labour availability and a desire to reduce labour 															

Name	Richard Hawke															
Address	Oakwood, North Petherwin, Launceston, PL15 8ND															
Telephones	01566 785 452, 07709 249740															
Email	Hawke452@gmail.com , hawke452@hotmail.co.uk															
Number of sheep	1,000, 450 for grass wintering system this year															
Breed(s) of sheep	Romney, some Highlander cross															
Lambing date	Late March															
System commences	20 th November															
AGW period	110 days 20 th November to 10 th March															
Grass cover	2153kg DM/ha															
Hectares	53.49															
Budget	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 70%;">KgDM on 5th November</td> <td style="text-align: right;">115,155</td> </tr> <tr> <td>growth to 20th Nov @ 10kg DM/ha/day</td> <td style="text-align: right;">8,023 +</td> </tr> <tr> <td>450 ewes x 60 days x 1kg DM</td> <td style="text-align: right;">27,000 –</td> </tr> <tr> <td>450 ewes x 50 days x 1.25 kgDM</td> <td style="text-align: right;">28,125–</td> </tr> <tr> <td>Winter growth to 20th March @10Kg/DM/day</td> <td style="text-align: right;">58,839 +</td> </tr> <tr> <td>Grass DM on 20th March</td> <td style="text-align: right;">126,892</td> </tr> <tr> <td>(kg DM/ha)</td> <td style="text-align: right;">2,372</td> </tr> </table>	KgDM on 5 th November	115,155	growth to 20 th Nov @ 10kg DM/ha/day	8,023 +	450 ewes x 60 days x 1kg DM	27,000 –	450 ewes x 50 days x 1.25 kgDM	28,125–	Winter growth to 20 th March @10Kg/DM/day	58,839 +	Grass DM on 20 th March	126,892	(kg DM/ha)	2,372	
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Winter growth to 20 th March @10Kg/DM/day	58,839 +															
Grass DM on 20 th March	126,892															
(kg DM/ha)	2,372															
Adjusted budget for higher or lower growth	<p>If winter growth = 5 kg DM/ha/day = 97,472 kg DM (1,822kgDM/ha)</p> <p>If winter growth = 15kgDM/ha/day = 156,311 kg DM (2,922 kgDM/ha)</p>															
Health issues	<ul style="list-style-type: none"> • Pilot farm for local health initiative, next meeting on 12th Dec • Rumenco forage sampling and advice • Fluke drench in Oct and spring • Feet generally OK • FEC closer to lambing 															
Comments	<ul style="list-style-type: none"> • Shillett (shaley) type soils • No issues with grass availability • Farm lies 130m asl • Compare costs with normal system on the other half of the flock- record inputs and time spent feeding, bedding etc as well as time to shift fences and sheep on AGW • Lost 200 acres of winter dairy grazing which has prompted this system being tried • Paddock size for 450 ewes will be approx. 0.4 ha initially • Ca 300 ewes have been shorn so this will also provide a good comparison with unshorn ewes on the system • Good farm for demonstration of system 															

Name	Dave Sanders															
Address	Norton farm, Helland, Bodmin															
Telephones	07814 002 660															
Email	Norton.nzromneys@rocketmail.com															
Number of sheep	2,000, 900-1000 for system this year															
Breed(s) of sheep	Romneys															
Lambing date	April															
System commences	Early December															
AGW period	110 days- 1 st December to 20 th March															
Grass cover	1,566 kg DM/ha															
Hectares	132.37															
Budget	<table> <tr> <td>KgDM on 5th November</td> <td>205,966</td> </tr> <tr> <td>growth to 1st Dec @ 10kg DM/ha/day</td> <td>33,092 +</td> </tr> <tr> <td>950 ewes x 60 days x 1kg DM</td> <td>57,000 –</td> </tr> <tr> <td>950 ewes x 50 days x 1.25 kgDM</td> <td>59,375–</td> </tr> <tr> <td>Winter growth to 20th March @10Kg/DM/day</td> <td>145,607 +</td> </tr> <tr> <td>Grass DM on 20th March</td> <td>268,290</td> </tr> <tr> <td>(kg DM/ha)</td> <td>2,027</td> </tr> </table>	KgDM on 5 th November	205,966	growth to 1 st Dec @ 10kg DM/ha/day	33,092 +	950 ewes x 60 days x 1kg DM	57,000 –	950 ewes x 50 days x 1.25 kgDM	59,375–	Winter growth to 20 th March @10Kg/DM/day	145,607 +	Grass DM on 20 th March	268,290	(kg DM/ha)	2,027	
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Winter growth to 20 th March @10Kg/DM/day	145,607 +															
Grass DM on 20 th March	268,290															
(kg DM/ha)	2,027															
Adjusted budget for higher or lower growth	<p>If winter growth = 5 kg DM/ha/day = 195,486 kg DM (1,477kgDM/ha)</p> <p>If winter growth = 15kgDM/ha/day = 341,093 kg DM (2,577 kgDM/ha)</p>															
Health issues	•															
Comments	<ul style="list-style-type: none"> • Low grass covers a concern at present with many lambs remaining to be sold • Potentially enough grass (if winter growth at least 10kgDM/ha/day)for 1,100 ewes to leave 1,500 kg DM/ha for lambing 															

Name	Mike Miller,															
Address	Mount Pleasant farm, Woolland' Blandford Dorset DT11 0EX															
Telephones	01258 817 435, 07977261009															
Email	Michael.miller20@yahoo.com															
Number of sheep	539 NZ Romney planned but looking into also 440 welsh mules															
Breed(s) of sheep	NZ Romney and NZRomneyX Cheviots Welsh Mules NZ Suffolk X Mule ewe lambs (for next year)															
Lambing date	Tups out Nov 10 th lambing starts April 5th															
System commences	7 dec – 25 th March															
AGW period	110days															
Grass cover	2700															
Hectares	38.18															
Budget	<table> <tr> <td>KgDM on 6th h November</td> <td>103096</td> </tr> <tr> <td>growth to 7st Dec @ 10kg DM/ha/day</td> <td>12160 +</td> </tr> <tr> <td>539 ewes x 60 days x 1kg DM</td> <td>32340--</td> </tr> <tr> <td>539 ewes x 50 days x 1.25 kgDM</td> <td>33500--</td> </tr> <tr> <td>Winter growth to 20th March @50Kg/DM/day</td> <td>20900 +</td> </tr> <tr> <td>Grass DM on 20th March</td> <td>70316</td> </tr> <tr> <td>Cover at turnout</td> <td>1841</td> </tr> </table>	KgDM on 6 th h November	103096	growth to 7st Dec @ 10kg DM/ha/day	12160 +	539 ewes x 60 days x 1kg DM	32340--	539 ewes x 50 days x 1.25 kgDM	33500--	Winter growth to 20th March @50Kg/DM/day	20900 +	Grass DM on 20th March	70316	Cover at turnout	1841	
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Winter growth to 20th March @50Kg/DM/day	20900 +															
Grass DM on 20th March	70316															
Cover at turnout	1841															
Adjusted budget for higher or lower growth	<p>If winter growth = 0 kg DM/ha/day = 1300kg DM</p> <p>If winter growth = 10kgDM/ha/day = 2400 kg DM</p> <p>Could feed haylage on rotation for short periods</p>															
Health issues	<ul style="list-style-type: none"> • Ewe condition score 3.5 good body reserves • Vet plan under discussion, vet resides on farm • Conventional • Uses separate cobalt and selenium +iodine Tracesure bolus • Agreed to sample forage for Rumenco analysis • May vaccinate in spring for footrot 															
Comments	<ul style="list-style-type: none"> • Chalk downland running into greensand –free draining but some heavier soils • Altitude@ 850 feet may see some snow and several frost days • Suggested as the farm had really good excess 'deferred grazing' would be easier for a large mob of mixed welsh mule and Romney to be made Mike to revise figures and decide • Plan B Extra grass on 'Camp ' deferred grazing area • '000 haylage bales available –all ewes can run together in snow event 															

Name	Mike Dewar	
Address	The Estate Office, Yanworth, Cheltenham, Glos, GL54 3LQ	
Telephones	01285 720247, 07966 202499	
Email	Mike Dewar <Mike@stowellpark.com>	
Number of sheep	1300	
Breed(s) of sheep	Kent Romney (+300 ewe lambs crossing to Rissington highlander) wants to improve scanning % from current 150%	
Lambing date	April 1 st	
System commences	TBC suggest Dec 7th	
AGW period	Dec 7 th -20 March 104days	
Grass cover	Most fields 2500-3500 –not all sampled yet	
Hectares	TBC Either one or two groups discussed JV preferred one group as much of the grass is 'deferred summer grazing' and easier to manage as one group –less fencing	
Budget	The budget to be worked out but normally the farm grazes all the area set stocked then runs out of grass in spring with some ewes overfat and some prolapse problems . Venison park identified as good area for post tupping (sheltered partly wooded area with huge grass reserve). Start rotation when this area's grass runs out after 25-40 days post tupping Allow 1kg dm /day to scanning with 1000 kg dm residual Revise plan at scanning and after first meeting	
Adjusted budget for higher or lower growth	Graze overgrown areas first then better grass pre lambing	
Health issues	•	
Comments	Sheep health and condition very good but grass badly in need of hard grazing to rejuvenate pastures and encourage ryegrass .Some fields have wet areas best avoided close to watercourses Plan B	

Name	Ian Robertson	
Address	Chawton park farmhouse, Chawton park, Alton, Hants, GU34 1SW	
Telephones	01420 82634, 07771922865	
Email	Chawtonparkfarm@btinternet.com	
Number of sheep		
Breed(s) of sheep		
Lambing date		
System commences	Not visited yet	
AGW period		
Grass cover		
Hectares		
Budget		
Adjusted budget for higher or lower growth		
Health issues	•	
Comments		

APPENDIX 2

Report on the 'All grass wintering' meeting held on Dec 11th 2012 at Trethorne golf club and at Norton farm with kind permission of Dave Sanders.

The meeting was attended by 27 farmers, John Vipond and Rhidian Jones SAC, Poppy Frater EBLEX and Ian Misselbrook and Graham Parnell Limagrain.

After lunch JV introduced the team and program and initiated discussion on the concept of all grass wintering and plans for the group. Many farmers have visited Dave previously so we had an update since September. Dave started the rotation on Dec 5th, rams were out from Nov 4th @ 1:100 ewes. He reported lower average covers than last year @ around 1600kg dm/ha, so has left more sheep at Bill's farm and put 850 on the system with an extra 20 ha –total 130Ha.

This shows you have to be flexible from year to year. We had previously estimated that with normal October growth he could have run 1300 ewes at Norton and had less elsewhere. Were we too complacent about consistency of Oct. grass growth?

Rhidian Jones presented a report on grass covers, breeds, areas etc. from six farmers participating, then comments from each were sought.

Graham Doidge: Not started yet –one man band will be away 2 days and needs to be there from start. He has identified a small field to start so if ewes not held only get into next days' paddock. Concerned Mules will not settle

Mike Dewar urged others to get going as it is not as daunting as you think once on the system. He decided for the first year to work with his best sheep so took out older ewes and younger ones (tegs) ex 1200 to get a mob of 840. Had contemplated one large from mob of 1200 but restricted it and started the rotation on Tues 4th Dec. Some undergrazed paddocks at 3500 kg were grazed in 0.4ha blocks doing a super job of cleaning up the swards, not too muddy, good base in sward. Later he commented that it was useful to see the residual left at Dave's as this helped visualise how hard to graze. Useful also for shepherd Steven and foreman Andrew to see fencing setups and speak to other people

Other farmers were planning to commence system later in the week

Stop 1 Permanent pastures already grazed.

The average starting cover for the first paddock was 1500 kg DM/ha. Dave discussed how he took advantage of the dry conditions by moving the sheep earlier than he originally planned onto the reseeded areas which poach more easily. Many were surprised by the shortness of cover. Dave commented that sheep that had previously been on the system went straight back to it –they clearly must remember. Also he felt grass was standing up a bit better to grazing pressure in Year 2 (encouraging). Grazing down to residual of ca 1100 so having to give a bigger area than last year.

- Note flexibility and day to day decisions based on weather

Stop 2 Festulolium reseeds and mob of 850 Romney ewes

- Sheep on system- looked very settled and in good condition. Yesterdays field was a bit slippery but not too bad.
- Dave outlined his methods for moving sheep, others are using hurdles on exit to funnel sheep better. Issue when sheep double back along the fence line after moving through- this can attract sheep through the fence. Best not to have narrow strips but squarer paddocks so sheep have plenty of space to move into.
- Many farmers voiced concerned about the logistics of the sheep movements every day. Dave started with a gateway three times the size it currently is and gradually reduced it in. Dave and his dad set up the paddocks in 3 hours at the start of the week.
- We discussed the water requirements of the sheep, due to the DM percentage of the grass during the winter, the water requirements would be negligible, but it is recommended that a water bowser or bucket is placed in the paddocks to provide the minimum statutory requirements.
- Public footpaths may be a problem for some farmers.
- Winter shearing of Romneys done 3 weeks pre tugging –recommended as easier to see condition . Must have grass in front of shorn ewes so they can meet higher intake (+15% requirement for 3 weeks until wool grows back in) Increases ewes condition going into winter and wool yield by 1kg. Romney NZ type too woolly to leave unshorn but if not shorn need full belly and ring crutch pre-lambing which costs the same as shearing (Mathew Monteith observation)

Festuloliums:

Ian Misselbrook spoke on festuloliums

The field being grazed had previously been a 2-year red clover ley then sown in Sept to Matrix 70, containing 70% Matrix festulolium, 10% clover (of 2 varieties) and 20% perennial ryegrass. Sward cover was good –over 2000 kgdm/ha but there were some weeds including spurry

Matrix is an interspecific hybrid between PRG and Meadow Fescue. The meadow fescue provides the sugars whilst the ryegrass produces a dense sward. Only Matrix and Revolution are bred this way and suitable for cell grazing.

Other festuloliums are bred from Italian ryegrass and Tall Fescue and are more suitable for drought situations. In France Matrix has given 3 – 6 weeks extra grazing at the shoulders of the season.

- Use Matrix 70 in Southern England and Matrix 40 north of Humber
- Recovers well from winter kill but it is susceptible to frost.
- Do not go into the winter with Festulolium sward above 3 cm, it must be grazed off before the winter.

- Lighter coloured and not on the NIAB list, but this is an inappropriate test regime for a grazing variety for all grass wintering
- Makes a very dense sward so 2X clover seed rate is used in Matrix mixes.
- The premium cost of the seed reflects the low seed yield of these hybrids. Seed rates are around 15 kg per acre, but in New Zealand they go down to 12.5 kg. Prices are currently comparable to conventional mixes. Dave plans to use a novel method to establish the mix in March called 'hoof and tooth'-this involves broadcasting the seed immediately prior to grazing so that the biting and moving actions of the flock would incorporate the seed into the soil.

So far the work with Festuloliums is encouraging. Ian offered to do work with Dave on assessment of quality of festulolium vs other grasses. Note Ian is keen to evaluate the use of Festuloliums on other group members farms either through a conventional reseed or trampled in during Feb / March as part of the rotation. **Contact Ian asap if you want subsidised seed for this year.**

John emphasizes that the principle behind the system is to provide the sheep with what they need not what they would eat. This is done by budgeting the animals requirements. Based on approximations a 65kg ewe would require 0.85 kg DM/day. The residual to be left in the paddock to leave sufficient for recovery is estimated at around 800-900 kgDM up to scanning. Therefore, once you have calculated the quantity of feed available in the field you can determine how often they should be shifted and how big the paddocks should be.

Dave mentioned that the starting cover was lower than that of last year, his reasoning was that he wanted to keep things sensible to reduce the flock size by 100 ewes. Following scanning the feed budgets can incorporate the number of singles/twins/triplets in the flock. Twins should receive approximately 1.2 kg DM/day whilst singles require around 0.8kg DM/day.

Stop 3- Good matrix paddock

We moved on to the final field, a good sward of Matrix, 2100 kg DM/ha. This was drilled two weeks prior to the previous field providing a much denser sward. Ian Misslebrook commented that it was a decent re-seed considering the conditions of 2012 favouring the growth of broad leaved weeds. Discussed autumn reseeds, lack of clover safe herbicides and as clover has less time to establish it may be better to oversow coated clover into sward the next year.

Stop 4 - Indoors: Discussion on use of EID and handling system

Rams were assessed for condition after tupping and found to be in score 2-3 average 2.5 which is much better than for terminal sires which often 'melt' due to concentrate feeding. Dave does not supplement rams. Graham Doidge reported two of Dave's rams had served 100 and 150 ewes /replacements

without problems and without losing condition. JV pointed out rams at 1:100 lasting 4 years cost £1 /lamb v.s £5 if rams last 2 years and serve 40. See for more detail:

http://www.sruc.ac.uk/info/120109/beef_and_sheep/764/ram_management_and_purchase

Session on condition scoring, this ensured everyone was on the same wavelength regarding body condition. Ewes are body condition scored to monitor how they are coping with the system. The rule of thumb described by John is that if you can feel the spinal processes it is less than a 3, then you feel for the transverse processes to determine whether it is a 2 or a 2.5.

Agreed - take sheep out of the cell grazing system at score 2.0 or lower Dave mentioned that in New Zealand, BCS assessments are not started until the ewes are cell grazing for 3 weeks as this brings them all onto a level playing field to determine their suitability for the system. Following that BCS is measured at 3 weeks intervals. Those that do not suit the system i.e. show a drop in BCS to 2 or below are put to the Suffolk ram so none of their genetics come back into flock. Those that make it to mid December tend to adapt to the system well and can go right through.

John discussed the positive relationship between BCS and ovulation rate that exists across farms but not within farms, i.e. farms that have on average better BCS for their flock tend to produce more lambs than those that have less favourable BCS on average, however, within a flock it is not necessarily the ewes with better BCS that have more twins. If BCS is too high the, the incidence of prolapse is high. 1 BCS equals approximately 13% of the ewes body weight or there is approximately 8kg difference between BCS 2 and 3 The use of body fat in winter saves equivalent of half a pound of concentrates per day.

Another interesting point was the difference between selfish and maternal ewes. Selfish ewes maintain condition during lactation and do not allocate as much energy and nutrition to their offspring, hence they live a long time. Maternal ewes provide good quality milk for their offspring but lose a lot of condition during lactation and don't live as long.

John examined the teeth of the ewes, he mentioned anecdotal evidence that grass gets stuck behind the incisors in Sept/Oct and gums recede due to gingivitis. Moredun research shows this weakens the ligaments, leading to broken mouth.

Stop 5- Question and answer session-back at the hotel

Q. How do you get round the frosted grass in the morning?

A. Dave- sometimes shifts them later so they do not eat the frosted grass or provides bales to eat whilst grass thaws. He could also use the south facing fields during frost spells. Braxy (fatal) may arise from eating frozen grass.

Q. How do you account for poor grass quality?

A. John- difficult to analyse the grass but we suspect it would be 10.5/11 MJ ME/Kg DM. Dung provides an indication of fibre content. The quality relates to grazing control whereas the yield relates to the seed mix used.

Dave- at the start you will graze off the rough grass, therefore a higher allowance is provided per ewe.

Q. When and how much do you supplement with bales?

Dave- 900 ewes ate 80% of one round bale (600kg) during frost on 1200kg/dm/ha paddocks, however as soon as the grass thawed the sheep ignored the bales.

John- need to make the decision to supplement before the sheep enter the paddock, cannot drive over grazed grass its a safety issue.

Future meetings

- Next meeting post scanning on another group members farm (Volunteers welcome!)

We would like at this meeting to discuss decision making for ewe management after scanning. To assess how the grass is growing or regrowing this winter in the different locations. Please take plate meter readings of all fields on the rotation close to the event (details will be posted). In the meantime also make a note of when paddocks within fields were grazed (a rotation map helps) so we can work out the daily growth rate.

At any time feel free to contact the facilitation team: John, Rhidian or Poppy for advice or ask other group members.

APPENDIX 3

EBLEX Sheep All Grass Wintering - Summary of pasture cover data from group farms

	Norton farm	Martinsfields	Bodgate	Little Orcheton	Mount Pleasant	Stowell park	Chawton park
	Bodmin	Exeter	Launceston	Plymouth	Blandford Forum	Cheltenham	Alton, Hants
	Dave Sanders	Kevin Bateman	Richard Hawke	Graham Doidge	Mike Miller	Mike Dewar	Ian Robertson
Sheep breed	NZ Romney	Dartmoor & Mules	NZ Romney	Mules	NZ Romney & W Mules?	Kent Romneys	Lleyn
Number	950	500	450	250	540	840 on system	400?
Lambing date	April	1 st April	Late March	April 2nd	5 th April	April 1st	May
AGW system	1 Dec to 20 March	10 th Dec to 20 th March	20 th Nov to 10 th March	10 Dec to 20 March	7 Dec to 25 March	Dec 7 th to 20 th March	Jan 1 st to April 20 th
Hectares	132.37	51.2	53.49	22.94	38.18	141- more av	41
Av cover/ha pre	1806	2658	2302	2280	3018	2239	Ca 3,000
Total DM	239,058	136,071	123,178	52,296	115,256	315,450	123,000
Demand	116,375	56,250	55,125	27,112	65,840	94,500	49,000
Growth @ 10kgDM/ha/day	145,607	51,200	58,839	22,940	41,998	141,000	45,000
Total DM pre lambing	268,290	131,021	126,982	49,124	91,414	361,950	119,000
Cover pre lambing/ha (@10kgDM/ha/d)	2,027 (1477 @ 5kg) (2577 @ 15kg)	2,559 (2059 @ 5kg) (3059 @ 15 kg)	2,372 (1822 @ 5 kg) (2922 @ 15 kg)	2,097 (1597 @ 5 kg) (2597 @ 15 kg)	2394 (1841 @ 5kg /ha) (1300 @ 0 kg/ha)	2567 (2067 @ 5 kg) (1567 @ 0 kg)	2902 (2350 @ 5kg) (1805 @ 0 kg)
Plan B	Silage	Silage, sheds	Usual system	Silage, more fields available	Deferred grazing, haylage	Deferred grazing Plenty of ground	Normal feeding
Comments	- low initial covers due to lambs remaining and slow growth -	- 20-30 m asl -Fluke -Organic -Some flood prone fields -Different breeds, liveweights	-Pilot for health scheme -130 m asl -compare with normal system -small paddock size	-low lying, good grass growth -Purchased Mules -Small paddock size, 2/3 day shifts -strip grazing with backfence?	-850 ft asl, snow, frost -lower growth estimates due to altitude etc	-need hard grazing to rejuvenate pastures -avoid wet areas in some fields	-higher ground may be less growth

APPENDIX 4

MEETING REPORT EBLEX ALL GRASS WINTERING GROUP MIKE MILLER, MONDAY 18TH FEBRUARY

The meeting was attended by 14 farmers, John Vipond and Rhidian Jones SAC, Ian Misselbrook Limagrain and Poppy Frater EBLEX. Dave Sanders sent his apologies.

Summary of farmer observations through using the 'All grass wintering' rotation

- Square paddocks work better
- Recommend that farmers fence paddocks in advance
- Move sheep at the same time each day as they learn when they can expect to be moved
- Heavily poached paddocks recover
- Animal tracks disappear
- Faeces and urine deposition is more even
- Mules, Dartmoors, and Dorsets learn the system as well as the Romneys
- System works well to tidy up them farm
- Pastures grazed on wet days which suffered severe trafficking may require slitting

John Vipond opened the meeting and initiated the round table for the farmers to discuss relevant issues.

John Thomas of South Glamorgan started. The system has worked well on his farm so far, the main issues were as follows:

1. During the wet weather in December he had to increase paddock size to ensure adequate grass available,
2. During the snow period (four inches), he provided hay but noticed the stock still scratched the snow to graze the grass
3. One valley waterlogged substantially, therefore he put the stock to some permanent pasture fields instead.

He is now back on track with the rotation. He pulled some thin sheep out and has not scanned.

Mike Dewar of Stowell Park, Stratford on Avon ran 840 ewes on rotations from 4th December and had used over 30 ha up to 18th January. A foot of snow meant ewes had to be taken off just before planned movement onto steeper paddocks that would be inaccessible for hay provisions, so ewes were put onto a tussocky parkland grass area for 10 days and allowed to forage for natural grasses. They also had feet problems arise.

Scanning at Stowell Park: Ewes were scanned 29th January at 160%, with ~5% barren rate. Slightly disappointed with scanning rate of replacements,

340 to the Highlander ram. Since scanning, triplets have all been put in one lot and managed separately and all single and twins put together. Total flock size on the rotation was increased to 1,294. The new additions adapted quickly. The shepherd Steven has found that ewes need training to go left handed and right handed and uses hurdles at the gateways to stop ewes running back up the fence line and trying to get through. They use plastic stakes with polywire for a gate. Main observations are that the group now hold together much better as a mob, he is not needing the use a dog to move them, they have calmed down and much easier to handle.

Other issues:

- Noted when rotationally grazed sheep will bark young trees,
- After heavy rain the field looks like a ploughed field,
- Problem with some areas still being too wet, with flooding.

One farmer asked whether the ewes will be more settled at lambing due to the system? It could be a good technique to calm stock.

Graham Doidge, Mules in South Devon on the coast – 260 Mule ewes including 2 tooth (shearlings) in one group were put onto the rotation during a period of particularly wet weather. Ewes were moved every 2 – 3 days and initially were not eating pastures down as they got very dirty, however it has now improved. Sheep were putting pressure on existing non electric fences but all electric fences worked fine. He observed that the ewe bellies have shrunk and they have now settled down and are much more placid. Mules are used to constant roaming behaviour, but once adjusted to the electric fencing, they settled fine and he just needed to lift the stakes and the ewes moved through. Poor scanning results- 147% scanning rate and 43 of the flock were barren- particularly in the 4 and 6 tooth ewes, these have subsequently been put back to the ram and 20 have got in lamb. This suggests embryo mortality, probably post day 11, possibly reason may be salmonella if lots of gulls have been attracted to the wintering area and have brought in the problem. Possibility of Schmallenberg and fluke.

Compaction: Graham and John Thomas expressed concerns about compaction when grazing the wetter paddocks- this could increase the recovery time of the pasture therefore needs careful monitoring.

Recommendation – treat pastures that have suffered severe treading damage with a slitter in March/April.

Mathew Monteith is not implementing all grass wintering. His scanning rate was 170%, lambing will start in April. He has found that with increase in altitude, scanning rate increased on his farm and those kept on wetter land had lower scanning rate. Ram to ewe ratio is 1:70.

David Harrison keeps lleyns and scanned at 170%. Again, he does not use all grass wintering but he does move his sheep every 4 or 5 days between the best looking pastures. He also used fodder beet to domesticate the sheep.

Geriant Powell keeps romneys. His strategy involved hammering the pasture in January to get good quality pasture in April. His flock scanned at 166%, 750 of which were shearlings (two toothed). His farming practise is restricted by the shooting and hunting seasons.

Kevin Bateman from near Exeter Airport – rotation started 14th December after the ewes were brought back from 2 holdings away from the farm, a mixture of breeds: Mules, Dartmoors, and Dorsets, he observed no difference between breeds in their ability to adapt to the system. Currently concerned there is not enough grass as some fields which flood and have not been used in the rotation and are still not available. Started with mobs for the first 6 days on 3 blocks with 2 day moves and agreed it was not as good as moving every day. Spend £2,500 on electric fencing but probably should have spent more and needs more fencing and had problem with broken Mule (fencing kit). Ewes were taken off for 5 days over Christmas and next year will put in extra fencing for the paddocks.

Agreed next year also to winter shear to help identify condition scoring. His farm is fairly open to the public and after 2 days of rain gets in a real mess, 17th January had paddocks looking like slurry. However frosty days with 5 in a row was a difficult period. Scanning 146%. Very bad fluke farm with 2 doses given. Noted ewes looked healthy, full of vitality, he has not split twins from singles, agreed must have square paddocks and has adequate grass – some fields up to 3,000 kg of dry matter. He has pulled some scanned triplets out and lambed some early lambing Dorsets separately. Paddock size was enlarged to account for waterlogged land.

Dave Cross farms in Cheshire and implements a 'hybridised version' of all grass wintering. Relatively small flock size (120 Romney ewes), it would not be feasible to use daily paddocks, therefore he moves them through paddocks every 4/5 days. He plans to increase flock next year.

Someone raised concerns of copper deficiencies due to soil ingestion. John discussed this would be an issue if Molybdenum levels were high.

Rhidian discussed the grass re-growth figures sent by all farmers using the system. Re-growth ranges from 6-28 kgDM/ha. Richard Hawke, who wasn't at the meeting, commented that 2 fields now had more grass on them than at the start of the rotation. Graham Doidge's regrowth was in the range of 11 – 28 kg per day, Mike Dewar had 6 -20 kg per day and John Thomas observed that there was a lot of grass on the fields grazed early.

Ian Misselbrook of Limagrain mentioned that cuts have already been taken off a grass trial including matrix in Lincolnshire, there has been no winter kill of matrix. He also mentioned a body called Grass Right (in which Limagrain are involved) that provide advice to one farm per year on seed mixes, nutrition and mechanical remediation. The one factor that consistently improved results was aeration using a slit aerator or sward lifter to improve drainage.

Dave Sanders estimated a 40% increase in winter growth with Matrix 70 than existing grasses (combined reseeding +varietal effect) i.e. 14kg/day vs 10 kg/day

Introduction to Warren Farm, Bulbarrow- Mike Miller

Mike Miller has 670 Romney and Romney x cheviots and 200 Welsh mules and Welsh x NZ Suffolk ewes- 700 on the rotation. He runs mules and Romneys as one mob. He uses narrow paddocks and picks up the corner posts to allow the ewes to move through. The snow covered the grass for 7 days, therefore he used ring feeders on a sacrifice area. They had lost 0.5 BCS over the cold spell.

Scanning rate for the flock in rotation is 153% (Mules not in rotation 158%), which was a bit lower than hoped and likely down to fluke (fluke eggs present in faecal egg counts). Tissue samples on the grass suggested no major issues, slight selenium deficiency but unlikely to have contributed to low lambing percentage. Lice has also been a problem, treated with pour on but agreed using a jetter and OP dip more effective.

Mike mentioned that permanent pasture- which was really wet when used- has not been damaged and the farm is definitely looking a lot tidier and much better grass for next year. Mown ground for haylage (mown once last year) has not got a good grass base in it and turned to mud very readily, this is because the tiller density at 5,000 – 7,000 per square meter is much lower than on the permanent pasture where it would be 15,000 – 20,000.

Next we visited key areas of Mike Miller's farm in the following stops.

Permanent pasture (high altitude, 900 ft)- Stop 1

This pasture needed hard grazing to remove dead material. The top of the slope had not been grazed hard, the sheep had been using this area to defecate. This field had been grazed in January and this had removed some dead matter. Ian noted that the sward was made up of some ryegrass, some fescue and creeping bent. The ryegrass proportion could be improved with the intensive grazing over the years. Intensive autumn grazing would open out the sward better to allow ryegrasses to come through. He could consider harrowing this pasture to remove dead material. Ian would recommend re-seeding to increase the palatability of the sward.

Current cover for this field was 1300 kg DM/ha after leaving a residual of 1200 kg DM/ha following grazing in January. Rhidian discussed the reliability of plate meters on permanent pasture. Plate meters use sward density to estimate the DM/ ha of grass availability. The conversion is based on an equation, but one equation is not reliable for all types of sward and at times of the year and DM % varies. Therefore the plate meter does not accurately estimate DM quantity if the same equation is used on all fields, but it is a starting point and provides figures to work with. One farmer pointed out that

they visually assess the grass quantity of a field anyway, but the plate meter gives us figures for feed budgeting. Perhaps when farmers get their eye in, they could assess the grass DM available by eye alone. It was decided that the calibration equation would be kept consistent for all farms for this trial.

Someone asked whether it would be feasible to use the system for store lambs or hogs. John said that target liveweight gains for this class of stock over the winter would be 4-5kg. He mentioned systems in south Scotland that is doing this.

3 year ley- Stop 2

Current cover= 1400 kg DM/ha.

Looking at the ley, the ryegrass proportion was good, but clover content was lower than desired. Ian discussed that clover would start growing when it is warm enough, therefore he would recommend putting it in now, then it would remain inactive in the soil until temperature increases enough for germination. He mentioned pelleted clover which provides more protection to the seed with a biostimulant to help establishment. Clover should be sown at 4 kg/ha and pelleted clover at 5kg/ha. It would need to be sown at surface or $\frac{1}{4}$ "depth, not too deep to get good soil and moisture contact. Suggested that open swards will benefit from over sowing with clover under this system as the clover does not germinate immediately

The target sward height post lambing is 4-6cm, at this stage there will not be a growth response to concentrate supplementation. Mike noted that the paddocks had better manure distribution and consistent quality.

He mentioned a crop of turnips and kale that the game keeper would like him to graze. John suggested strip grazing this crop initially to get the best utilisation.

Someone asked whether Mike is concerned about the feed availability for late pregnancy. Mike replied that he is worried about the mules and is considering bring the twin lambing mules inside for lambing.

John discussed the protein requirements in late pregnancy. In the last week of pregnancy, there is more pressure on the ewe's protein supply for wool development in the lamb. This is where they are more susceptible to worms. Therefore addition of dietary undegradable protein (DUP) is recommended (soya is a good source) in combination with high quality silage. Liquid feed molasses is a good source of energy, which will mop up excess nitrogen before it is excreted and therefore improve Nitrogen utilisation and protein formation. This is most crucial for thin ewes and those carrying triplets. Clover is also a good source of protein.

During lactation, mothers do not have adequate reserves of energy and protein to draw on, therefore the energy and protein supply in diet is important for milk production.

Paddocks being grazed – Stop 3

This paddock contained all the mules and 450 Romney (twins), thinner ewes and triplets are being managed separately. Mike has budgeted to feed them 1.5 kg DM/day therefore had given them a large area. He noted how content the sheep seemed and the grass supply of the paddock the previous night so decided to keep them on it for the night and moved them in the morning. We discussed whether he should have kept them on this paddock for longer as there was still ~ 2000 kg DM/ ha left. However there was a high proportion of dead matter and likely more mycotoxins, therefore, moving them then was likely the right decision. Providing the sheep with sufficient quality feed at this stage is the priority not tidying up the pastures. Graham Doidge commented that the system taught him that he had given the ewes too much grass in the past. It is all about increasing the percentage of grass sheep eat and not wasted. The average utilisation rate of grass in the UK is currently ~50% when it could be 70-80% with better management.

Mike only electrified one line to reduce costs and he is increasing the post spacing to make movements easier. He discussed the lice problem in the flock, but added that this is also an issue in those not in all grass wintering, therefore it is not due to the system. He used a pour on treatment and is considering autumn shearing next year. An OP dip might be effective.

We discussed the water requirement of the flock. During the winter the grass would be ~ 15-17% dry matter, therefore they are getting sufficient with their grass intake. For comparison, turnips would be 9% dry matter with their tops~ 15% dry matter. They require ~4.5 litres/ kg DM.

We discussed how we would identify those that are not getting enough nutrients. John mentions getting blood tests for *beta*-hydroxybutyrate. If levels are high they are under fed. This would be useful 4 weeks pre lambing. You should also body condition score. If over fat, you would use some soya to replace cereals for DUP. If thin you would add soya to the diet. Mike mentioned he had prolapse problems in the past.

Mike's mules are sired by a NZ Suffolk ram. NZ Suffolks are bred for easy lambing and kept on grass; this is advantageous over those reared on cereal based rations. Mike justified his decision to keep mules and not to just Romneys in that he thought the mules would utilise the high supply of grass better, perhaps the Romneys would get overfat on this supply or he could just up the stocking density.

We discussed re-seed options using 'hoof and tooth' method on a strip that had been grazed four days previously. Ian thought the sward might not be open enough- try and get a more open sward before trailing this method. When spreading the seed use a spinner on a quad bike but reduce the spin setting. Limagrains are offering subsidised seed for hoof and tooth trials- if interested please contact Ian at ian.misselbrook@limagrains.co.uk. As the temperature is increasing, around now to spring would be the ideal time to

trial it. Full rate of 25kg/ha would be recommended and you could use a festulolium mix for this.

Closing back at the village hall:

Rhidian talked through the formulas used for the plate meter dry matter calibration for different situations and how they compare- a hand out for this is attached. New Zealand use a different formula for sheep only systems and Teagasc account for the residual in their formula to give the feed available.

John delivered a presentation on the trace elements results. He emphasized that a trace element deficiency does not equal disorder; therefore he would recommend doing farm trials to determine whether it is cost effective to use trace element supplements. Cobalt cannot be stored in the animal, it is present in the soil. Clover and chicory can be good ways to get it into the diet. Chicory strips at the side of the field could be a good option, the animal would graze it when required, but it may go to seed if not managed well.

Poppy discussed a recent meeting with catchment sensitive farming (CSF), Natural England and Environment Agency staff at Richard Hawke's farm. They were grateful to be included at this stage in the project and thought it was better than conventional out wintering, where ring feeders can cause significant poaching. Farmers would need to check their HLS and ELS specifications first. The 4-5 days post grazing would be the high risk period for soil erosion, therefore farmers could consider using buffers to reduce pathways to water.

Next Group Visit

We will aim to have the next meeting post lambing and are looking for farmer volunteers. An invite with agenda items and a list of members of the group and their contact details will be sent later –if there are subjects you want to raise contact Poppy Frater on poppy.frater@eblex.ahdb.org.uk.

To register your attendance please ring Hellen, Sandra or Vickie at EBLEX on 0870 609 1840 / 01904 771214 or email brpevents@eblex.ahdb.org.uk

APPENDIX 5

MEETING REPORT EBLEX ALL GRASS WINTERING GROUP Kevin Bateman, TUESDAY 28TH MAY

The meeting was attended by 14 farmers, John Vipond and Rhidian Jones SAC , Graham Parnell Limagrain and Poppy Frater EBLEX .

Summary points

- Ewes tend to ignore hay that is put out in favour of the grass- even when covered by snow or grass cover was low
- All grass wintering (AGW) may help prevent over fat ewes at lambing
- If bringing ewes indoors due to weather or loss of condition, do this gradually to limit conditions associated with abrupt diet change
- Minimum mob size for a paddock is likely 250-300 for practicality and labour use efficiency, larger flock sizes would be better
- We need to look further into how the heavy grazing pressure affects disease issues
- Poaching during waterlogging could lead to compaction damage
- Although a challenging winter-farmers remain positive about AGW

John Vipond opened the meeting and initiated the round table for the farmers to discuss relevant issues.

John Thomas of South Glamorgan started. He has ~400 EasyCare ewes lambing 7/8 April and puts the tup in for 25 days to keep a tight lambing period. He will do all grass wintering (AGW) again this winter. Poaching was a problem when wet and following snow melt. He put hay out during the snow spell but the ewes did not eat it. At lambing he returned to set stocking, there was no grass growth. 200 ewe lambs are kept on neighbouring farm on tac. Scanning main ewe flock: 160%, ewe lambs 176%.

He noted that they were none stuck on their back this year and puts this down to them being in better condition-‘fit not fat’. Due to relatively small flock size, he comments paddock size was too small (~1/2 acre/0.2 ha). Starting covers of 3000 kg DM/ha (quite high). Organic farm, therefore spring growth is slow.

Graham Langford has Poll Dorset pedigrees on mainly permanent pasture within an ESA, therefore opportunities for AGW are more limited. He is September lambing, utilising dairy fields over there winter, therefore his winter demands are higher. He does not use concentrates except for his Waitrose lambs.

David Turner has Highlanders. He had two batches of lambing: February and Mid April and intends to try AGW this winter. He has land in HLS and some parkland and is indoor wintering at present. He perceives his steep ground to be a limitation to AGW, but others in the group suggest it is not.

Mike Miller had concerns about the condition score of his mules (BCS 2) at the last meeting (February), he therefore brought his twin mules indoors. He did this gradually over 2 weeks feeding silage and cake (1/4 kg/head initially) and leading up to 1kg/head/day cake. He commented that due to the practicalities and reduced predation risk, he would bring them in again next time. The Romneys at BCS 2.5 were left on the system outside. He provided Lifeline to those outside to give mannan oligosaccharides as recommended by John. His flock were prone to prolapses in the past, this year only 5 prolapsed. He blood tested the ewes for energy levels- they were fine. John discussed the benefits of measuring blood albumin levels which can indicate protein deficiency.

Mike observed that the permanent pasture looks better, although improvements need to be made with the fencing layout to become more efficient. Next year he will increase the mob size to 760. He has a hard culling policy to keep only those that are suited to the system.

Graham Doidge had 270 ewes. The wet weather has been an issue. He notes, once the ewes were used to the fencing system, the ewes were fine. At the last meeting he discussed the high barren number (40 ewes) and he put them back to the tup at the end of January. He keeps all the ewes together, except for the singles. A scanning error meant that the last 10 'singles' were twins likely due to the early scanning for these few.

Concerned about lack of grass, he provided silage but they were not interested and would have lost condition. He did not give any concentrates but gave fish oil blocks. Colostrum levels were sufficient. The main thing he has learnt from the system, is that he fed too much grass in the past, but performance has been better in the system and he will do it again. He thinks it even has potential for ewe hoggs and fattening lambs. No fertiliser used except for in the re-seeds, and he has introduced more clover to the sward. Old pastures have not improved, and although young pastures look bare, sheep are content.

One area for concern is the possible introduction of Salmonella to the flock. This could have been transmitted by seagulls attracted to the poached land due to worms.

Kevin Bateman has two flocks- the pure Dorset and Charollais ewes which are early lambing (February 1st) and the 'commercial' mix of mules and other breeds (April 1st lambing). It is an organic National Trust farm. His teasers were not properly vasectomised, consequently he now has Exmoor Horn genetics in his flock! One positive of this is how the breed has withstood the bad weather. He intends to move towards one block lambing. He pulled 40

ewes from the system and gave them hay to build up BCS. These were put out again 3 weeks prior to lambing.

During lambing, he moves those that haven't lambed on to the next paddock the next day. Due to the public access he would like to bring his lambing ewes closer together to improve surveillance. This goes against what most farmers do to keep them spread out for 'nesting' behaviour. He notes that ewes settled fine.

Bad weather. Severe weather one night caused deaths for all lambs born that night. During the winter, land has flooded 15 times, normally it is only 3/4 times. He is hedging for HLS agreement which will provide more shelter in the future. Border disease has been a problem in the flock.

He is developing the electric fencing to be mains supplied. He thinks the ewes are behaving much calmer now, although, Mike Miller observes that his ewes are not calmer at lambing as a result of AGW.

All ewes will be moved off the main farm for summer grazing. This land will then be used for silage. Staggered silage cutting will build a wedge of grass for later on in the year. Last year, he thinks the second cut was too late, therefore he might only do one cut this year. This should depend on what the grass is doing, some degree of flexibility is required to utilise the grass well to leave good quality sward in the window that weather allows. He has just taken on more land up the road. This autumn he will put the ram in for 25 days to move to block lambing.

Robert Priest has been practising rotational grazing on his farm for ~ four weeks now. He has 450 sheep. He moves the flock through paddocks every three days.

Graham Elston has 100 ewes and intends to increase flock size for paddock grazing to become practical.

Adam Pitts 1400 ewes lambed between February 7th and May 1st. The older ewes lamb first followed by the two toothers and then the ewe lambs. He intends to take on another 400-500 ewes.

Graham Parnell of Limagrain discussed the potential of festuloliums- a ryegrass crossed with a meadow fescue - bred for winter hardiness and well-suited to rotational grazing. He also commented that the younger lays have performed better for the past winter.

What is the minimum flock size for intensive rotational grazing? If we are budgeting the feed demands of the animal properly, at small flock sizes, the paddock becomes too small to be practical. Alternatively they can remain in the paddock for a longer duration. However, Graham Doidge and others have found that daily movements is best during the winter as the sheep are ready to move on and get restless. You also need to consider the labour cost per

ewe, which inevitably increases for small ewe flocks. Perhaps the minimum limit would be 250-300 ewes, although more would be more efficient.

Farm tour

We toured the farm in three stops:

Stop 1 Arable reversion

This field -approximately 10-12 acres (4-5 ha)- provided maintenance for 270 ewes for 28 days using daily paddocks, at least 3 weeks longer than if it had been set stocked. One paddock grazed when waterlogged had notable lower grass cover now (~1522 kg DM/ha) that the rest of the field (~2000 kg DM/ha). He should've moved the ewes on quicker to reduce the damage.

Historically used for sugar beet, potatoes and corn, this field needed attention to improve soil quality, reduce erosion and provide protection to an archaeological ring. Kevin has put in hedges to provide shelter and planted white clover, ryegrass mixture with chicory and cocksfoot. The sandy well-drained soils are prone to drying out over the summer so deep rooting species were planted to overcome this. Surrounding fields are floodplains in which he paddock grazed when there was a window of opportunity. He used a sacrifice field (6.7 ha) and provided hay during bad weather but the ewes did not eat it.

Unfortunately, the drainage of the field was broken up to give way to a cycle path. The P and K indices are good but low calcium.

Graham Parnell (Limagrain) discussed the potential for festuloliums in organic systems, because there are not organic sources available, organic farmers could get a derogation. The chicory in the sward could be a concern as it is likely to bolt before the rest of the sward is ready to cut. We discussed whether chicory is better sown alone as its management is difficult in mixed swards. Chicory could provide an anthelmintic effect and increases trace elements availability fourfold compared to grass.

The most profitable element of the farm is the native grazing by cattle and Exmoor ponies on the rough bog land.

Fencing. He used 3 strands of wire fencing with Rappa stakes using a mule. He would spend 3 hours on a Saturday setting up the system and move the sheep through daily.

Winter shearing- Kevin will shear twice a year May and October to save on pour on.

Stop 2 Compaction alleviation experimental field

Kevin split this field into four and treated each quarter as follows: sward lift (down to 8 inches), slit (~12 inches), sward lift *and* slit and nothing. Grass covers on the day of this meeting were:

1. Sward lifter only: 1522 kg DM/ha
2. Slitted only: 1508 kg DM/ha
3. Both: 1676 kg DM/ha
4. None: 1360 kg DM/ha

A soil pit in the area of the field not treated did show signs of compaction. The clayey sandy soil is a challenge for the field and long term monitoring of the effects of these different treatments will show which is the best option to increase grass yields. Graham (Limagrain) discussed how chicory and clover roots do break through compacted layers when left. We discussed the best timing for aeration treatments to catch a window when the machinery will not do any damage. The soil needs to be moist but not too wet or compaction will be exacerbated, but always dig a pit first to determine whether there is compaction and at what depth.

Stop 3 Sheep and lambs grazing

Medium term lay with late lambers. Kevin had previously undersown cereals with red clover in this field to establish the lay. He did not notice any difference in behaviour between breeds. John observed that some looked bloated due to the clover.

Borders disease: John Vipond discussed how this can lead to up to 5% ewe mortality and affect lamb growth rate. Lambs show shaking behaviour symptoms. Similar to BVD, there are persistent infectors that if left in the flock will continue to shed the disease unless culled.

The clover content of the sward would be ~15% DM estimated from a 'pinch' test (John plucked the grass from the sward to give a representation of what the sheep would eat)- this looks like 30% as ground cover due to the way clover grows and its upward facing leaves. Sheep selectively graze clover so there will be a higher proportion in the diet than there is in the sward. The quick breakdown of clover in the rumen will lead to higher feed intake.

At 20% of sward dry matter, clover provides the equivalent of approximately 200 units of N/acre (250 kg/ha). There is about 5kg/ha of seed present already in this field, it is all about the management as to how well it persists. Hard grazing will do it no harm and will favour the small leaf varieties. The open patchiness of the sward will favour clover expansion.

Graham stresses the importance of getting the pH and P right for successful establishment of clover lays.

John mentioned another potential positive of AGW is the protection of the clover stolon.

Flystrike has not been an issue. John urges farmers to use a new reporting tool to help other farmers prepare for flystrike at <http://www.flystrikealert.co.uk/>. Graham Langford also mentioned a tick problem on his farm, therefore keep an eye out, the increasing deer population and winter temperatures would favour tick populations.

Closing discussions

We discussed the effects of management on clover, the residual grass cover to be left post-grazing (1200 kg DM/ha would lead to a faster recovery than a lower grass clover) and the production of good grass silage- fast wilting leads to better quality and this can be achieved through spreading the grass. To make red clover silage, cutting before flowering will give greater protein content but will compromise yield gains and turning would not be recommended as this causes leaf shatter.

John referred to some Irish research (Teagasc) which highlights the importance of good silage in combination with soya.

Footrot should not be tolerated, in general for every foot affected liveweight gain is reduced by 50g/day. Fluke is a severe issue for farmers further north and resistance to flukicides is apparent on some farms. A strategic dose of flukicide in May/June will prevent snails (intermediate host) getting infected- for every one fluke infecting a snail, 600 offspring are produced, therefore this approach will give a degree of damage control.

Strategic nitrogen applications need consideration. Application in autumn will boost grass growth as we go into the winter. We discussed summer rotational grazing post weaning. The complications of water provision are more apparent in the summer and at this time the focus should shift to gain maximum performance of the lambs rather than tidying up grass swards.

Kevin ended the discussion with a suggestion- would the group gain more if each farmer practising AGW focused on a different area, e.g. worm control, aeration, re-seeds? Something to think about as a group, but we don't want to push farmers too hard with our demands.

Next Group Meeting

Watch this space. If you are practising AGW and would like to host a meeting on your farm, please contact Poppy Frater on poppy.frater@eblx.ahdb.org.uk.

APPENDIX 6

CAN BREEDING EWES BE WINTERED ON GRAZED GRASS ALONE?

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INTRODUCTION Underestimating grass growth in the winter can be a problem for set stocked ewes as it can cause over-fatness and lambing difficulties. To turn a problem into a solution it was hypothesised that sheep flocks in the south west of England could survive on grass-only diets. A wedge of grass is built up from the autumn, and fed back to the ewes through the winter using a daily shift grazing system. The theory is that the wedge plus regrowth should provide enough grass for an outdoor lambing system, which avoids the need for supplementary concentrates.

MATERIALS AND METHODS The trial was conducted on a farm in Cornwall with 950 New Zealand Romney in-lamb ewes (average liveweight of 65 kg) due to lamb in March/April and wintered in one group on 110 ha. The land was gently rolling, around 120 m above sea level with free draining soils and an average annual rainfall of around 138.5cm. The fields used in the trial began to be shut up from September and all fields were measured with a plate meter before the trial started. The daily feed demand for the ewes was calculated to be 0.85 kg DM/ewe/day (808 kg DM for the group) up until scanning at day 70 of pregnancy, and 1.2 kg DM/ewe/day (1,140 kg DM) from then on. The residual target was 800 kg DM/ha pre-scanning and 1,200 kg post scanning. Ewe body condition was monitored at scanning and 4 weeks pre lambing. The winter grazing system began on the 1st December, with 950 ewes allocated to a paddock roughly one ha in size. The field size was calculated based on daily feed demand and plate meter measurements, and seven paddocks were established each week using three stand temporary electric fence. The ewes moved through the system for 100 days, with a stocking rate of 8.6 ewes per ha and a stocking density of up to 950 per ha. Then were set stocked at around 17 ewes per ha for lambing.

RESULTS Target cover for lambing was 1500-2000 kg DM/ha. Average cover in November of 1,982 kg DM/ha and January of 2,105 kg indicated growth of approximately 10 kg DM/ha. Only 11 kg/head of silage was needed on paddocks with a cover of <1,200 kg DM/ha pre-grazing. 5% of the ewes were removed due to poor condition, and no health issues emerged. Scanning of 168% and tailing of 158% were similar to previous years. Feed savings worth around £15/ewe and reduced labour requirements meant the producer was keen to repeat the process.

CONCLUSIONS Wintering ewes solely on grazed grass looks feasible on South West farms with free draining soils, in years where 10 kg DM/ha/day grass growth occurs. The next stage of this research will be to determine all grass wintering can be successful on a greater range of systems, with different soil type, breeds, climate and altitudes.



Wintering Sheep on Grass in South West England in 2011-12



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Introduction

Underestimating grass growth in the winter can be a problem for set stocked ewes as it can cause over-fatness leading to lambing difficulties and poor grass utilisation. To turn a problem into a solution it was hypothesised that sheep flocks in the south west of England could survive on grass-only diets. A wedge of grass is built up from the autumn, and fed back to the ewes through the winter using a daily shift grazing system. The theory is that the saved wedge plus regrowth should provide enough grass for lambing outside in April, which avoids the need for supplementary concentrates.



Measuring grass with a rising plate meter.

Ewes were very content and calm on the system.



A large mob of sheep on the system during 2011-12.

Methods

The trial was conducted on a farm in Cornwall with 950 New Zealand Romney in-lamb ewes (average liveweight of 65 kg) due to lamb in late March/April and wintered in one group (until scanning) on 110 ha. The land was gently rolling, around 120 m above sea level with free draining soils and an average annual rainfall of around 138.5cm. The fields used in the trial were shut up from September and all fields were measured with a plate meter before the trial started. Ewes were shorn in October.

The daily feed demand for the ewes was calculated to be 0.85 kg DM/ewe/day (808 kg DM for the group) up until scanning at day 70 of pregnancy, and 1.2 kg DM/ewe/day (1,140 kg DM/group) from then on. The residual target was 800 kg DM/ha pre-scanning and 1,200 kg post scanning. Ewe body condition was monitored pre mating, at scanning and 4 weeks pre lambing. After scanning a leader follower system was adopted with single bearing ewes following the twins.

The winter grazing system began on the 1st of December, with 950 ewes allocated to a paddock roughly one ha in size. The paddock size was calculated based on daily feed demand and plate meter measurements, and seven paddocks were established each week using three stand temporary electric fence. Moving the fences for the week took 2 people 3 – 4 hours and each daily shift took no more than 15 minutes per day.

The ewes moved through the system for 100 days, with a stocking rate of 8.6 ewes per ha and a stocking density of up to 950 per ha. They were then set stocked at around 17 ewes per hectare 10 days before the start of lambing.

Results

Target pasture cover for lambing was 1500-2000 kg DM/ha. Average cover in November 2011 of 1,982 kg DM/ha and January 2012 of 2,105 kg indicated growth of approximately 10 kg DM/ha in this period. Only 11 kg/head of silage was needed for the winter, fed only when paddocks had a cover of less than 1,200 kg DM/ha pre-grazing or when snow or ice restricted grass intakes.

5% of the ewes were removed due to poor condition, and no health issues emerged. Scanning of 168% and tailing of 158% were similar to previous years. Feed savings worth around £15/ewe and reduced labour requirements meant the producer was keen to repeat the process and several other farmers were keen to volunteer for the system.

Conclusions

Wintering ewes solely on grazed grass looks feasible on farms in south west England with free draining soils where 10 kg DM/ha/day of winter grass growth is likely. The next stage of this project will be to determine whether all grass wintering can be successful on a greater range of systems, with different soil type, breeds, climate and altitudes.



Open day September 2012.

Further work in 2012-13

During the winter of 2012-13 a further 6 farms in Southern England and one in Northumberland have adopted the "all grass wintering" system for sheep. Despite challenging weather conditions all farms have expressed favourable comments and have commented that they have more grass than usual in spring and the farms are looking very tidy. Several different breeds of sheep have now been tried successfully on the system.

The full results of the extended project have yet to be analysed but is in progress. It is hoped to extend the trial again to sheep farms further North and on upland farms.

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Further information on this work is available from:

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APPENDIX 8

All Grass Wintering for Sheep, Norton Farm, Bodmin, PL30 4HU

Wednesday 5th September 2012

Using a Rising Plate Meter (RPM)

Rhidian Jones, SAC

Why use a Rising Plate Meter?

- To assess pasture cover in Kg Dry Matter per Hectare (Kg DM/ha) to enable grass budgeting techniques for various classes of livestock
 - e.g. 2,000 kg DM/ha of pasture cover in a 4 ha field
 - If grazing down to residual (grass remaining) of 1,000 kg DM/ha
 - Then there is 4,000 kg DM available for grazing in total
 - For 1000 sheep requiring 1.2 kg DM/hd/day this equates to $4000/1200\text{kg} = 3.3$ days grazing so split field into 3 paddocks
- To monitor grass growth- usually during main growing season from turnout to midsummer- useful for rotational grazing systems, to help determine stocking density and when grass can be shut up for silage.
 - Deduct previous reading from current reading and divide by the number of days elapsed.
 - e.g. Today's reading 2,000 kg DM/ha
 - Last week's reading 1,600 kg DM/ha
 - 400 kg DM growth in 7 days = 57kg DM/ha/day

Calculation of Kg DM/ha with a Rising Plate Meter

- Based on the compressed sward height measurement (clicks) and the **formula** used. The formula consists of a "multiplier" and an "adder"
- The multiplier accounts for the increase in DM yield for each increase in the plate meter reading – e.g. one click (0.5 cm) x the multiplier
- The adder refers to the grass DM that cannot be measured by the plate meter, i.e. the DM yield when the plate meter reading is zero
- The formula can be changed at different times of the year or for different types of sward, e.g. during rapid growth of low DM (wet) grass the multiplier should be lower whereas during very dry conditions (higher grass DM) it should be higher.
- Default formula used is **number of "clicks" x 140 (multiplier) + 500 (adder)**. This is the best fit for a range of situations.
- Electronic RPM's will carry out all the calculations for you based on the formula entered.
- Only truly accurate way to measure pasture DM/ha is to cut, weigh and dry several 1m^2 plots and multiply up to 1 ha ($10,000\text{m}^2$).

Using the Rising Plate Meter

Number and frequency of readings

- 20 to 40 (electronic RPM will beep after each reading, give 3 short beeps after 29 readings and one long beep after 30 readings)
- Take a reading every 3-4 steps and don't select areas to avoid or read
- Take weekly readings and keep records of pasture cover in each field

Route across the paddock

- Avoid gateways, troughs and fence lines
- Walk diagonally across the paddock or in a W pattern
- Take the same route through a paddock each time (or in reverse)

Technique

- Do not roll the RPM
- Place the RPM squarely on the ground without excessive force
- The size and weight of the plate is calibrated to fall under its own weight so don't slam the plate down or force the shaft into the ground

Weather and ground conditions

- Wait until frost has lifted
- Be aware that strong winds, heavy rain or snow will compress long grass leading to lower readings
- Ensure there is no surface water on the plate that increases its weight, leading to a lower reading
- The RPM will not be accurate where the pasture is badly poached

Weeds and weed grasses

- The RPM has been calibrated for perennial ryegrasses/white clover swards. Different pasture species will give different readings.
- Avoid patches of weeds as they may hold up the plate meter
- Topped areas with weed stems may create an artificially high reading

Rolling average Kg DM/ha

- The reading you get will be a rolling average pasture cover in kg DM/ha after each plonk. Once you have reached the minimum of 30 plonks you can take a reading but in larger paddocks, or where there is considerable variation within the field or where conditions are not ideal then more readings should be taken.
- With the electronic RPM you can simply keep walking and "plonking" the RPM every 3-4 steps until you reach the end of the field without worrying about keeping count of the number of readings.

Maintenance of the RPM

- Charged battery, freely moving shaft, correctly aligned cog
- Plate clean and free of grass and mud/soil (extra weight)
- After use remove and clean the plate and store in the case provided

Rising Plate Meter Training checklist

Name		
Address		
Telephone & mobile		
Email		
Number of sheep		
Breed(s) of sheep		
		Tick
	I understand the principles of measuring grass Dry Matter using a Rising Plate Meter	
	I understand the way Kg Dry Matter/ha is calculated using the RPM and formula	
	I have observed the demonstration of a Rising Plate Meter using correct methods and techniques	
	I have received a supervised practical session using a Rising Plate Meter	
Signed		
Date		
SAC countersigned		

Using different formulas to calculate kgDM/ha

The formula consists of the **multiplier** which multiplies the number of 0.5 cm “clicks” by a value that will depend on the time of year, type of grass and DM of the grass, and the **adder**- which is the amount of grass DM when the plate meter reading is zero. The default formula we have been using to date is

- “clicks” x 140 + 500 = kg DM/ha

This is the formula that EBLEX have been using and is also the factory default for the electronic RPM's we have been using.

However we have already said that unless all your fields are exactly the same grass type, that the formula that we need to use will vary from field to field. This is especially true on beef and sheep farms where there will be a wide variation in grass types ranging from new re-seeds, older re-seeds, permanent pasture and swards containing a diverse range of species. In addition to the kgDM/ha variations with different grass types there will also be a variation in the feed quality (ME, CP etc) of different sward types. Therefore while a dense permanent pasture may have more DM/ha than a more open sward the quality of the grass **may** be higher in the latter.

Rising Plate Meters have been calibrated on dairy farms in New Zealand on Perennial Ryegrass and white clover swards. At the end of the day they are just a guide and we should also use our common sense and judgement of what the grass type is, what it looks like, how the sheep are behaving and whether they are gaining, maintaining or losing body condition.

Some literature has suggested using different formulas for beef and sheep pastures and Teagasc in Ireland also use a formula that gives “Available Dry Matter” as opposed to total DM. This formula involves a multiplier and a “subtractor” – which refers to the amount of grass that is not available to the animal for grazing. The table below calculates the DM/ha using these different formulas based on readings using the default formula. These have been calculated by working back from the DM/ha to the “clicks” count then multiplying up with the different formula.

Default formula x 140 + 500	Beef and sheep NZ- x 158 + 200	Sheep only NZ X 158	Teagasc available DM x182 - 615
750	482	282	No DM available
1000	764	564	35
1250	1046	846	359
1500	1328	1128	684
1750	1610	1410	1010
2000	1893	1693	1334
2250	2175	1975	1660
2500	2457	2257	1984
2750	2739	2539	2310
3000	3021	2821	2635

This table could be used as a guide so that you don't have to re-calibrate the RPM with a different formula for different field types.

APPENDIX 9

All Grass Wintering for sheep

Data collection proforma

In order to accurately report the costs and benefits of this system we require to collect some physical and financial data from you.

Name		
Address		
Telephone		
Email		
Breed(s)		
Numbers on AGW system		
Numbers on normal system		
Ha used for grass wintering		
Average cover at start on ??	We have got this info already	
Average cover at lambing on ??		
	kg	£
Hay/silage used		
Forage crop used		
Concentrates used		
Scanning results		
Est av body condition		
At start/tupping		
At lambing	Singles	Twins
Number of mobs-tupping to scanning		

Number of mobs post scanning		
Time taken to set up fences each week		
Frequency of shifts	Daily	Other
Time taken to move sheep per shift		
Value of labour £/hr		
If you also had sheep on your conventional wintering system this year please fill in the details below	Alternatively if all your sheep were on AGW this winter please fill this section for previous years inputs	
Breeds		
Numbers		
Ha grazing used pre housing		
Forage crops used	Crop	Ha
Forage fed at grass		
Days housed (av)		
	Total kg	Total £
Hay/silage fed		
Straw used		
Concentrates used		
Time to feed/look sheep pre housing		
Time to feed/look sheep post housing		
Scan results		

Other comments on the system and how it has worked for you, will you do it again etc.