All Grass Wintering of Sheep

Phase III

2013-14

Report to EBLEX

By: Rhidian Jones and John Vipond

December 2014

Contents

Appendices

1 Executive Summary

- The All Grass Wintering (AGW) project has shown yet again the potential for significant cost reduction on sheep farms.

- The range of demonstration farm types has been expanded to include less favourable farms in poorer grass growing areas. While the winter was relatively kind the versatility of the system was evident.

- Some farmers in the South experienced severe flooding which curtailed the potential of AGW. However by adapting the system they still managed to achieve most of the benefits, again showing the flexibility of the system.

- The outcomes from the project include an updated BRP+ document, other articles and presentations and a large pictorial library. However more important is the knowledge that has been learnt that will now be able to be imparted to others contemplating the system.

- There is potential to include AGW as an integral part of most lowland and upland sheep systems and its use should be encouraged on sheep farms that join EBLEX grazing groups. In addition a separate category for AGW flocks should be considered for future EBLEX Stocktake costings to highlight the economic benefits of AGW.

- The potential to improve pasture by grazing management needs to be explored further with particular reference to swards that have deteriorated due to lax grazing management, possibly as a result of stocking restrictions imposed by environmental scheme requirements.

- The discipline of rationing grass using a swardstick/platemeter during the winter period and confidence gained in the approach has led to most participants continuing with it in summer rotations

- Summer rotations offer even greater financial rewards from faster lamb finishing and better quality silage, so AGW has been an effective lever to get farmers started at making more of grass.

- For the future AGW is a clear entry point for further development work on low cost lamb from grass with less labour and concentrate input.

- Significant input to farm visits by New Zealand consultants Trevor Cook and Murray Rohloff were particularly valuable to discussions and assessing priorities of participants and if possible should be continued.

2 Introduction

Following the success of the second phase of the All Grass Wintering project in 2012-13 an extension was awarded so that a further year of on farm demonstration and evaluation of the system could take place. In addition to looking at a different year on the farms in the South of England it was also possible to set up some new demonstration farms for the project in Northumberland and Cheshire.

There was a major effort to develop the new farms and to increase the farmers' skills and confidence. It is testimony to the skills and adaptability of the farmers concerned that this task has been relatively straightforward and it is true to say that we have learnt as much from them as they have from us.

3 The farms

- Graham Doidge, Little Orcheton, Modbury, Ivybridge, Plymouth, Devon
- Kevin Bateman, Martinsfields, Broadclyst, Exeter
- Mike Miller, Mount Pleasant farm, Woolland, Blandford Forum, Dorset
- Mike Dewar, Stowell Park, Yanworth, Cheltenham, Glos
- Ian Robertson, Chawton Park, Alton, Hants
- David Cross, High Ash farm, nr Nantwich, Cheshire
- Alan Cowan, Westerheugh farm, Stamfordham, Northumberland
- Duncan & Angus Nelless, Thistleyhaugh, Longframlington, Northumberland
- Graham & Michael Rutherford, Viewlaw & Blackpool, Longhorsley, Northumberland
- John Thomas, Flemingston Court, Flemingston, Barry, South Glamorgan has also been practising AGW for the last 2 winters and has been a regular attendee at meetings.
- Godfrey Palmer, Amherst farm, Ashford, Kent was prevented from AGW by the wet nature of his farm.
- Dave Sanders and Richard Hawke are now both dairying.

4 Activity & farm meetings

November 2013

- Rhidian Jones visited Alan Cowan, Westerheugh on 20th November to plan the first winter meeting on 10th December. At this meeting a Rising Plate Meter was demonstrated and lent to the farmer.

- John Vipond and Rhidian Jones visited three farms on 25th and 26th November along with a meeting of the Cotswold Sheep Group. Chawton Park, Alton; Stowell Park, Cheltenham and Amherst Farm, Ashford.

December 2013

- Rhidian Jones visited Thistleyhaugh on 4th December to discuss the system and to demonstrate a Rising Plate Meter.

- On 10th December the first winter meeting was held at Westerheugh courtesy of Alan Cowan. This was well attended by 46 farmers. In addition at this meeting Rising Plate Meters were demonstrated and given to Graham & Michael Rutherford and David Cross. The report for this meeting is in Appendix 1


Westerheugh meeting

- On 11th December Rhidian Jones visited Viewlaw to demonstrate the Rising Plate Meter and discuss the system with the Rutherford's.

Michael (left) and Graham Rutherford

- On 17th December John Vipond spoke at a Farming Connect meeting at Flemingston Court farm (John Thomas). This was one of 4 meetings in Wales on AGW & sheep nutrition. On the return journey he visited David Cross where remarkable growth of Italian Ryegrass was evident.

Twice daily shifts at Flemingston Court

Italian Ryegrass, Cheshire, December 2013!

January 2014

- On 14th January Rhidian Jones visited the three Northumberland farms to assess their progress and discuss issues with the farmers.

Westerheugh

Thistleyhaugh

- On 29th January Rhidian Jones visited David Cross to assess his progress and provide advice.

Romney ewes at High Ash farm

February 2014

- 10th February AGW meeting at Viewlaw. This was attended by 26 farmers. The report is in Appendix 2.


Viewlaw meeting

- On 18th February AGW meeting at Stowell park, Cheltenham. This was attended by 24 farmers. The report is in Appendix 3.


Stowell park meeting

March 2014

- On 25th March Rhidian Jones visited the three Northumberland farms to assess progress pre lambing.


Twin bearing ewes in foreground with singles 2 paddocks behind at Westerheugh. Right- Alan Cowan.

April 2014

- Post lambing data was collected from farms to cover scanning results, grass cover, feeding used, issues arising etc. This document is found in Appendix 4.

- On 16th April John Vipond presented a poster at the SRUC/SEPA conference in Edinburgh. This paper is found in Appendix 5

- On 29th April Poppy Frater presented a paper at the BSAS/EBLEX conference in Nottingham. This paper is found in Appendix 6

May 2014

- On 15th & 16th May Rhidian Jones visited all the farms in the South of England group to catch up with progress and deal with any issues raised. In addition the next meeting at Martinsfields was discussed with Kevin Bateman. The farms visited in order were; Stowell Park, Amherst, Chawton Park, Warren/Mount Pleasant, Little Orcheton, Martinsfields. The summary of the farm visits is in Appendix 7

Mike Miller

Ewes & lambs at Little Orcheton

June 2014

- 3rd June AGW meeting at Martinsfields, Exeter. This was only attended by a small number of farmers but this ensures a lively discussion. The report is in Appendix 8.

- 6th June AGW meeting at Thistleyhaugh, Northumberland. This meeting was attended by 25 farmers and the report is in Appendix 9. The renowned New Zealand sheep vet & consultant Trevor Cook was in attendance at this meeting.

- On 4th June SAC Consulting prepared a document (see Appendix 10) for distribution at the Scotsheep event in Berwickshire.

July 2014

- 4th July EBLEX meeting with Murray Rohloff at Warren/Mount Pleasant farm attended by John Vipond.

- 17th July EBLEX/AGW meeting with Murray Rohloff at High Ash farm, Nantwich. This was attended by 30+ farmers. Meeting was facilitated by Rhidian Jones and John Vipond.

- 18th July EBLEX/AGW meeting with Murray Rohloff at Wester heugh, Stamfordham. This was attended by 30+ farmers. Meeting was facilitated by Rhidian Jones and John Vipond. The report for these two meetings is in Appendix 11.

From left- Murray Rohloff, John Vipond & David Cross

September 2014

- 16th September. Rhidian Jones presented a paper at the Sheep veterinary Society annual conference in Darlington. The paper is in Appendix 12

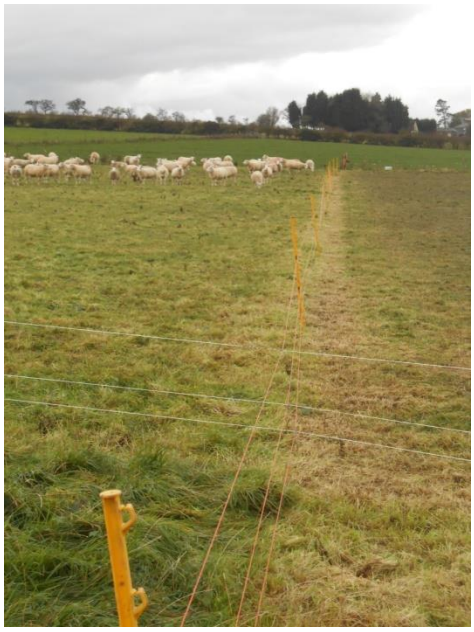
- 30th Sept AGW meeting at Chawton Park, Alton, Hampshire. This meeting was attended by 33 farmers and the report is in Appendix 13.

Ian Robertson

Poppy Frater demonstrating the EBLEX compressed sward stick

November 2014

- 7th November final AGW meeting at Viewlaw/Blackpool, Longhorsley. This was attended by 30 farmers and the report is in Appendix 14

Duncan Nelless & John Vipond

- Data input forms were sent out to gather Gross Margin data for the 2014 lamb crop. The Gross Margins will be discussed in section 6 of this report.

5 Promotional talks, papers, presentations given

In addition to the meetings outlined above the following presentations/articles and talks have also been carried out in the UK from the autumn of 2013 to December 2014.

John Vipond

- 4 Farming Connect meetings in Wales in December 2013
- Peebles monitor farm meeting
- Cotswold sheep group
- SAC sheep group
- Clyde monitor farm
- RNAS sheep event- Moray
- Perth sheep meeting
- Lectures to SRUC students, Edinburgh
- Internal SRUC KT event
- NSA poster
- Articles in SAC Sheep & beef news

Rhidian Jones

- Peebles monitor farm x 2
- Cotswold sheep group
- Lecture to SRUC students Ayr
- Talk to vets Zoetis Ayr
- Scottish Govt new entrants groups- SW Scotland, NE Scotland (2 meetings)
- North West livestock conference, Kendal market.
- Internal SRUC KT event
- Talks at Agri Supply Services meetings (suppliers of plate meters) in Scarborough and Dumfries
- Clyde monitor farm- meeting and mentoring farmer in AGW system
- Aboyne sheep meeting
- Yorkshire Farmer Network meetings in Settle & Reeth
- Articles in SAC Sheep & beef news

There has also been some press coverage, most recently in the Northern Farmer following the final meeting (see Appendix 15) and coverage on websites and discussion blogs.

6 Gross Margins

Data collection forms were sent out to 6 farms and to date replies have been received from 5 of them, two in the South and three in the North. The data is for the 2014 lamb crop which is the one relating to the 2013-14 winter on AGW. The recent EBLEX Stocktake results refer to the 2013 lamb crop so are not directly comparable with this data currently.

While the farms concerned have no issues with confidentiality the farms have been made anonymous for this report.

Gross Margin results plus other information (2014 lamb crop)

	Farm A North	Farm B South	Farm C North	Farm D South	Farm E North
Ewes tupped	1430	1308	1651	1425	920
Scan result	173	157	175	143	196
Lambing %	153	144	142	132	185
AGW days	100	116	154	96	127
Shift frequency	2 day	1day	2 day	3-4 days	2-3 days
Ewes on AGW	1430	400	1528	760	900
Lamb wt (kg L or D)	41 (L)	31.4 (L)	19.7 (D)	18.85 (D)	45 (L)
Lamb price £	76.05	55.22	75.02	73.00	72.00
Financial data	**£/ewe**	**£/ewe**	**£/ewe**	**£/ewe**	**£/ewe**
Net Output	**142.85**	**72.81**	**97.00**	**82.90**	**133.96**
Variable costs					
Feed	7.14	5.26	2.90	3.93	7.06
Bedding	1.35	2.12	0.85	0.80	0.21
Forage share	2.42	2.88	6.57	4.91	4.74
Vet & med	9.62	4.96	10.75	6.43	9.00
Other costs	16.08	6.43	1.67	2.12	5.60
Total	**36.61**	**21.29**	**22.74**	**18.19**	**26.61**
Gross Margin	**106.24**	**51.52**	**74.26**	**64.71**	**107.35**

Further information

Farm A

- High Output partly due to sale of high value breeding stock
- 350 ewes were lambed indoors earlier than main flock (20th April)
- Ewes winter shorn so housed briefly before being turned out again

Farm B

- Sells all lambs store
- 900 ewes wintered by housing or set stocking
- None of the feeding & bedding costs above were for the grass wintered ewes suggesting that GM for these ewes could be around £7/hd higher.

Farm C

- 310 ewes housed for 2-3 weeks and fed straw and rolls to ease pressure on grass
- Previously winter shorn – did like this practice but reckons that not having a large bill for making silage more than compensates for having to shear ewes in summer.

Farm D

- Half ewes managed conventionally (set stocking followed by housing)
- Ewes had 14 days on 4 day shifts then 82 days on 3 day shifts

Farm E

- High output due to high lambing percentage
- Ewes on 2-3 day shifts until 3 weeks pre lambing then daily moves with twins fed by snacker in next paddock to acclimatise before housing
- Singles then follow twins to graze to tighter residual

General points

- Farms C and E probably have the “best” system for comparison of the grass wintering system. The other farms systems and data is confused by having pedigree stock, other sheep not on AGW etc.
- All farms report that the time for setting up fences is around half a day a week and that moving ewes thereafter only takes 20-30 minutes

Comparison with industry data

The following table shows the average of the 5 AGW farms above alongside the EBLEX Stocktake data for April/May lambing flocks, EBLEX LFA flocks and QMS upland flocks. However it must be noted that the AGW data refers to the 2014 lamb crop while the comparative data is for the 2013 lamb crop as industry costings are always a year in arrears.

	AGW farms 2014 average	**EBLEX April May flocks**	**EBLEX LFA flocks**	**QMS Upland flocks**
Ewes	1347	635	741	606
Lambing %	148	140	132	143
Output £/ewe	104.10	79.30	78.55	92.55
V costs £/ewe	24.97	23.81	29.98	42.06
(inc feed costs/ewe)	5.14	8.25	12.98	18.17
Gross Margin £/ewe	79.13	55.48	48.57	50.49

- A feature of the data is the remarkably low feed costs (as expected). The recent Stocktake results (for 2013) have average feed costs at over £12.50/hd.
- It must be remembered though that 2013 was a late spring for grass so feed costs would have been higher on most sheep farms. The April/May lambing flocks performed well with lower feed costs than conventional flocks.
- For true comparison against other systems will need the 2015 Stocktake and QMS booklets that will contain data for the 2014 lamb crop.

7 Outcomes and Recommendations

Outcomes

- Updated BRP+ document on All Grass Wintering.
- Farmer experience and summary of tips for success (see Appendix 16).
- Comprehensive photo library both from on farm meetings, general visits and farmers’ own photographs.
- As consultants we now have experience and knowledge of 3 years, different farms, locations, breeds etc to impart to others.

- The participating farmers each have built up their own knowledge and skills to impart to others.

- Mike Miller is currently doing a Nuffield Scholarship which will further build on the information available. We look forward to the report in 2015.

- Press coverage and other papers and presentations.

- Excellent feedback from meeting attendees. The meetings have been enjoyable and interactive. Seeing the system in action has been key and has shown others how (relatively) straightforward AGW can be.

Recommendations

- That all demonstration farmers should be offered continued support for a further 2-3 years

- That AGW should be encouraged in EBLEX grazing group activity and if sufficient numbers exist that farmers practising AGW should have a separate group set up.

- AGW has potential to improve pastures that have been allowed to regress due to environmental scheme restrictions. A further project could look in more detail at how AGW can help restore grass productivity on these areas as food production becomes more of a priority in future.

- The potential to significantly reduce feed and housing costs should be promoted widely and the option of a category for AGW flocks in future EBLEX Stocktake reports should be considered once more farms adopt the system and more data is available.

- AGW should be promoted not only as a method of reducing winter feed costs but also as an entry into summer rotations and uptake of grass management based on year round sward dry matter allocation and control linked to condition scoring.

8 Acknowledgements

EBLEX
Poppy Frater
For organising and running meetings and for compiling the meeting reports expertly, accurately and cheerfully.

Poppy filming John Vipond and Alan Cowan

Liz Genever
For her continued support of the project and input to reports and publications

Gemma Sargent/EBLEX events team
For organising catering, meeting rooms and bookings

Farmers
- Alan Cowan
- Duncan and Angus Nelless
- Graham and Michael Rutherford
- Mike Miller
- Mike Dewar
- Graham Doidge
- David Cross
- Kevin Bateman
- Ian Robertson
- John Thomas

Others
- Ian Misselbrook & Graham Parnell, Limagrain
- Mark Grant, Rappa fencing
- Trevor Cook
- Murray Rohloff

Rhidian Jones & John Vipond

SAC Consulting, Beef & Sheep Select

December 2014

APPENDIX 1

Westerheugh meeting report

December 10th 2013

MEETING REPORT
EBLEX ALL GRASS WINTERING GROUP
Alan Cowan,
TUESDAY 10TH DECEMBER

The meeting was attended by 46 farmers, John Vipond and Rhidian Jones SAC Consulting, and Poppy Frater EBLEX .

What is All Grass Wintering?
Ewes are rotationally grazed through the winter on one day to four-day shifts to get more from grass.

How fields are set up:

1. Measure grass supply
2. Estimate feed demand
3. Estimate how much you should leave behind (the residual)
4. Supply minus residual gives available feed, divide available feed by flock demand gives days grazing available.

Fields need to be shut up in September and summer grazing management should set up a grass wedge (fields of varying grass quantity) for winter grazing.

EBLEX and SAC consulting have worked with seven farmers in the south to determine system suitability last year. Now we are working with farmers in the North too to work out adjustments required for areas of low winter grass growth.

Alan Cowan has 600 ewes on the system this year with indoor lambing in March

Farm walk

First field (9 days post-grazing)

Field closed second week of September and grazed for four days from November 26th. Currently~1250 kg dry matter/ha grass cover.

Alan uses a RPA map and a clear grid of one ha blocks to help divide up the fields. One hectare electric fenced paddocks, keeps the paddock size practical. The cover in the field will inform how many days grazing available.

Last year, Alan moved the flock every day, he has now increased this to every three to four days. On three days shifts, he finds the ewes are settled for the first two days and get restless on the third day so he adjusts the electric fencing to fast click on the third day.

Tupping (25 days)

- At least three tups per group
- Using no raddle and following with three different colours (each for six days) determines when the ewes should be brought into the shed
- The tup was taken out 28th Oct
- Teaser rams are used to tighten the mating period

The ewes were rotated while tupping in three groups: gimmers and lean ewes accessed the field first followed by, the main ewe flock and finally the fat ewes. They will go into fields on 1700-1800 kg DM/ha. Not grazed tightly, at the bottom of the sward are endocrine disruptors, therefore tight grazing at tupping may reduce mating success. Instead the ewes eat roughly half the available dry matter on offer.

Graham and Michael Rutherford, Viewlaw, Longhorsley also cell grazed their ewes while tupping with 400 ewes/cell in four groups.

Measuring grass
Into the next paddock along at 1100 kg DM per ha.

The rising plate meter calculates the grass cover using grass height and density. As the pole is pushed to the ground, the grass raises the plate. In 30 measurements, the plate meter gives grass cover in kg DM per ha based on a calibration equation, see plate meter worksheet attached.

Sward sticks: several types available, the British Seed Houses version, suggests using the highest clover leaf in the field and the corresponding height with the correct season will give the kg DM/ha. Using clover for this would not be feasible in the winter, Alan compressed the sward lightly with another sward stick to estimate the dry matter based on the density.

The problem with set stocking:
After tight grazing, a ryegrass plant puts up half a leaf to gain leaf area for photosynthesis, the ewes will actively select that leaf, thereby reducing the capability of the ryegrass plant to regrow as plant energy reserves will be depleted with each repeated grazing.

Our current recommendations suggest using 100-110 daily paddocks over the winter in a single rotation, i.e. the first field is not grazed for 100-110 days, then use the first 60 paddocks for set stocking at lambing.

Permanent pasture
Permanent pasture is well suited to all grass wintering, as there is a much thicker tiller density at the base. However, because of this, encouraging clover growth is difficult. Alan wants the pastures grazed tightly to open out the sward at the base in the spring to enable clover to come through. The residual clover bank is estimated to be 5 kg/ha in the soil. This equates to a lot of clover seed as they are very small.

Fertilisation regime
The fields have only had Phosphorus (50 kg/ha), Potassium (30 kg/ha) and lime. Alan only uses approx. three tonne of nitrogen over the whole farm a year.

Compaction issues?
In wet weather, this may become an issue but the poaching caused by sheep is unlikely significant compared to tractor damage when hay needs to be fed out. Any issues will probably be caused on wet days so maintain the flexibility to graze wet areas when conditions are dry. Compaction issues will need to be resolved on a field by field basis.

Water provisions
Using long narrow paddocks makes providing water more practical than it would be in square paddocks.

The grass samples analysed for the farm were at 17% dry matter, therefore the sheep would be getting sufficient water and will not need to drink but water provision is required for farm assurance. The ewes are eating over 4 kg of water for every 1 kg of dry matter. If supplementary feeding of drier forage or concentrates then additional water supply will need to be provided.

In the summer this is different as the dry matter of grass will be higher and ewes will require water for lactation.

The grazing ewe flock, mid pregnancy (second day grazing)
Current grazed field (1.1 ha, ewes will be moved after another day)

The energy requirement during mid-pregnancy is only 10-11 megajoules ME therefore they can withstand hard rationing.

Suffolks were at body condition score of 3 to 3.5, therefore the target would be to reduce this by half a score.

How to reduce condition score (BCS)?
Reducing the energy provision by 2 MJ will reduce the BCS by a half, this is the equivalent to approx. 0.2 kg (2/5 lb) of barley.

One condition score is ~ 13% of body weight, therefore in a 65 kg ewe this is ~ 8 kg, to lose 4 kg in 50 days would require 80g/day loss.

Giving 1 kg DM/ewe/day will give 11-12 MJ ME on this grass. Accounting for wastage, this should allow for condition loss.

Plan B
Frost is not a huge issue, as the sun comes up, grazing becomes available again, although there may be some scouring sheep.

During the snow in February 2013, the ewes were fed straw in ring feeders for two weeks.

As the flock get nearer lambing, they are supplemented with a snacker.

During the wet weather, Alan removed the fences behind the ewes and gave them straw but found this was wasted.

Electric fencing is put at 9000 volt, the lambs, store and suckler cows get used to it.

Pre-grazing field (2 ha/5 acres/ 2 paddocks, closed first week of September)

2700 kg DM/ha

Deduct a residual of 900 kg DM/ha, gives 1800 kg DM/ha of available feed, therefore three days per ha available (1800/600 kg/day feed requirement).

As permanent pasture has a denser base, we tend to add an extra 15% to account for this also. That would give an extra 540 kg DM, nearly another days feed.

Maximum number of days for shifting?
The demonstration farmers all started on one day shifts and some have since moved to four-day shifts. One day shifts may be better to get the animals used to the system, tidy up the pasture and during wet weather to reduce poaching damage. Four days shifts are easier on the ewe and incur less labour and fencing costs.

As the flock moves closer to lambing, Alan moves to 2 day shifts. He may go back to one day shifts in February/March to improve spring grass supply**.** In addition if he is snacker feeding the ewes pre lambing it will be easy to dispense the feed in the new paddock before letting the ewes in or, alternatively shift the ewes in the morning and feed them in the afternoon once they have eaten most of the available grass.

Improved pasture quality
This field was the first field to be grazed in the rotation last winter. Alan comments how the pasture quality has improved, nettles don't like this sort of intense grazing although it will not cure thistles.

Summer grazing
1000 sheep cell grazed on ~8 ha (20 acres), 2 day shifts, 21 day rest and return. They leave a 4cm residual and the cattle follow behind to tidy up the pasture on two day shifts.

Flock size
Over 1000 ewes, there is risk of smothering when being moved. Under 300 ewes , the paddock size becomes impractical.

Lambing
Ewes are put though the shed, with a holding pen on one side and one on the other. When a batch of 50 lambs are ready to go out, Alan will load them in a trailer and their mothers will follow as he takes them to the first grazed fields of the winter rotation.

At 196% scanning, the performance remains unchanged from previous years.

Other forages?
Red clover? not suitable for 2 reasons- firstly pregnant ewes should not be grazed on red clover after tupping and secondly red clover should not be grazed below 6 cm or the growing point will be eaten and the plant will die out.

Break crops such as kale and swede would work but aim of the system is to make more of grazed grass.

Plan B
One month of barley straw kept

The bad weather during the spring in 2013, meant that Alan did have to buy more cake but this was a situation that every sheep farmer faced.

Health

- Worming: lambs were wormed for nematodirus in May/June, wormed again in September.

- Feacal egg counting used to determine burden. In the ewes, the burden only raises at 10-14 days pre lambing, therefore he worms them accordingly. Bad weather may cause stress and may increase worming requirement.

- Fluke: ewes are dosed in October and due again soon.

- Cooccidiosis: buckets are put out one month after lambing.

- Trace elements, as we are depending more on grass rather than concentrates (which may have greater supply of trace elements) there may be risk of trace elements problems. Alan used to bolus cows but now he blood tests and treats when required. At lambing, the ewes were give a copper, selenium and cobalt bolus, this year, the ewes were given a 12 month cobalt bolus pre tupping.

- Salmonella risk may increase close to lambing due to poaching, that is why it important to keep the ground clean.

- Health planning is essential

Handling is easier, Alan dosed a batch of lambs in under an hour in the summer.

The leaner ewes and gimmers are managed separately on a similar system. Ewe lambs are lambed in the last five days of the lambing period.

Ultimately, Alan has measured grass to feed budget more accurately thereby reducing wastage and improving pasture quality.

Next Group Meeting
Potential to hold the meeting at Graham Rutherford's farm, Longhorsely at scanning time (February). Further details and confirmation to come. Any queries or suggestions please email poppy.frater@eblex.ahdb.org.uk

APPENDIX 2

Viewlaw meeting report

February 10th 2014

MEETING REPORT
EBLEX ALL GRASS WINTERING GROUP
Michael and Graham Rutherford
MONDAY 10TH February

The meeting was attended by 26 farmers, John Vipond and Rhidian Jones SAC Consulting, and Poppy Frater EBLEX .

Northern AGW demonstration farms-

Farmer	Shifting	Current DM allowance	Scanning	Enough grass until	Lambing
Alan Cowan	2 days	1.5 kg DM/ewe/day	190%	23/03/2014	March 20th
Duncan Nelless	2 days	1.2-1.3kg DM/ewe/day	181%	Lambing	April
Graham Rutherford	1-2 days	1.5 kg DM/ewe/day	181%	20/03/2014	April 16th

Rhidian reported the progress with the Northern demonstration group farmers, a summary of details in table above. Main points of interest:

- Italian ryegrass growth reported growth at 20kg DM/ha/day with David Cross, Cheshire. He also grazed his sheep on a local dairy farm and these fields have recovered very well and clover plants are now filling gaps in the PRG.
- Two day shifts seem to be working best for most, although a farmer in Wales is using 12 hour shifts in wet weather to increase utilisation and reduce poaching.
- Regrowth on all farms is good, early grazed fields now have 1300-1500 kgDM covers

Mike Miller (Dorset) tried four day shifts but the sheep got restless, therefore is now using three day shifts. System is working well, not had to use plan B.

Ian Robertson (Hampshire) is shifting daily. Was short of grass at start, therefore reduced flock size, regrowth is good. One group of 170 leaner ewes have been housed.

Graham Rutherford (host farmer, Northumberland), described how they built up a grass wedge in the summer and started cell grazing in October (pre tupping). Graham and Michael both have 750 Lleyn ewe flocks, both split into two groups as they breed their own replacements. They started on 2 day shifts and will drop to 1 day.

Ewe or ram fertility issue?
50% of the ewes in one group tupped in the second cycle – is this a ram issue (5 tups per group) or ewe fertility issue? Fungal spores? John Vipond is concerned that by grazing the lower horizons, we are exposing the ewes to endocrine disrupters, therefore should only offer half the green material available during tupping (leave higher residual of 1500)

Body condition scoring (BCS)

At the start, they described the ewes at fit (score 3.5). They BCS the ewes at scanning and thought they were about right (2.5-3) therefore budgeting correctly. Alan Cowan (Northumberland demonstration farmer) suggests budgeting 1 kg DM/ewe per day at this stage to provide additional grass. There are gimmers in the groups though, which will require more for growth.

Grass wastage

The grass was too long in some of the wet fields, therefore a lot was wasted as it was trampled into the ground.

Plan B

As they have bought in cattle, therefore have no silage so would use straw as plan B feed.

Based on their calculations, grass will run out by March 20th, therefore they will set stock (5/acre or 12/ha) 7-10 days quicker than they initially planned. Discussion followed that suggested that as the ewes were fit their DM allowance could be reduced to steal some extra days grazing to get closer to lambing before set stocking.

Red clover

Their red clover is not useful for winter feed, therefore this will be replaced with more grass fields and fodder rape for lamb finishing. Currently there is 120 acres of red clover that is unavailable for AGW so by next year will reduce to 1 field – 25 acres.

Red clover should not be fed 6 weeks either side of tupping due to effects on ewe fertility.

Grass analysis

Sample	Crude protein	Metabolisable energy	Dry matter
4 year ley	23.50%	11.6 megajoules	10%
Ridge and furrow	24%	12 megajoules	12.90%

John Vipond discussed as a general rule, *1% crude protein requires 1 MJ ME* to be utilised, the rest is excreted. In terms of this organic system, this is a good source of nitrogen for the grass, which will be spread more evenly with cell grazing, as opposed to set stocking. The N excreted can be the equivalent of 200kgN/ha which is another contributory factor to the excellent regrowth of grass in this system.

Paddock 1: 4/5 year ley

Boxing Day post-graze cover: 1000 kg DM/ha, now this is measured at 1500 kg DM/ha. This field will be next grazed in March under set stocking. We discussed whether this field will grow much more by then or whether it will stick at 1500 kg DM/ha. It seems likely it will stick as it would have used up its root reserves. However it could be due to leaves decaying then being replaced that it appears that the grass is not growing. Green leaf though will ensure photosynthesis and spring growth compared to set stocked fields that have little green leaf and will be slower to get going in spring.

Following ewes with multiples with single bearing ewes
This is a good option to prevent the single bearing ewes becoming over fit while tidying up the pasture, but must not leave too great a gap between grazing as the ewes will select for the new shoots. Ideally, have the second grazing right behind the first, using twins to get the residual down to 1200-1300 then singles to utilise the remaining 200-300 kgDM.

Encouraging clover
Late heading tetraploids are more compatible with white clover because they have more open growth habit which allow the clover to creep and produce stolons to fill in the gaps. However Diploid PRG are hardier and will give greater ground cover.

Paddock 2: currently grazed with 480 twin bearing ewes

Current cover: 2700 kg DM/ha.

Using 0.9 ha paddocks based on feed budgeting calculations. Based on visual assessment of the ewe condition and the grass analysis figures, the group suggested there is scope to reduce allowance. At 12 MJ ME, 1.5 kg DM/ewe is providing 18 MJ ME, therefore energy supply is generous. Twin bearing ewes at 70kg, require approximately 12 MJ ME 7 weeks before lambing. As the flock is late lambing, they can afford to push them a bit harder now to steal extra days on the system and get closer to lambing.

Blood testing for betahydroxybutyrate three to four weeks before lambing will verify whether the ewes are getting enough energy.

Water supply
With the low dry matter of the grass at the moment, the ewes are getting 85% water with their feed intake, therefore water requirements are likely being met but fresh water supply should still be provided in the paddocks.

Fencing
Currently barrow fencing, they say the start-up costs for the fencing was ~£1000. They are thinking of changing to mains power due to theft risk of portable equipment at the side of the main road.

Alan recommends using a leisure battery rather than a tractor battery as they last longer. Also, the cold will consume power, therefore prop it up on a plank of wood to prevent it freezing to the ground.

Michael is using a PEL solar unit and has had no issues since the start of cell grazing in late October. Arthur Harrison from Ritchey commented that the solar unit can go 20 days without sunlight before it goes flat so this is unlikely.

Three posts are pulled back to allow the sheep to move through.

Trace elements
Blood tested the ewes at the start and identified no issues.

Health
Joseph Henry, Alnorthumbria Vets mentions fluke is not a severe issue in the area this winter. There were some lame ewes in the flock, this is why one or two were removed from the system at scanning.

Mobile pens are used for handling.

Behaviour
They should be quieter and easier to handle in this system.

Summer grazing management
Three x ~20 acre (8 ha) fields rotationally grazed over the summer. Grass covers were not measured at this point.

Converting red clover leys
John Vipond's suggests hard grazing the red clover to graze the crowns out and then reseed. In theory, more residual nitrogen would be available for the reseed rather than lost to the atmosphere.

Some farmers suggest the pinch point for grass supply is August- September time where the lambs and the ewes are competing for feed.

Feeding closer to lambing – lactation
Alan Cowan provides ad lib hay and 1kg concentrate/head when the ewes come into the shed for lambing. He gradually introduces the concentrate feed with a snacker in the lead up to housing and the hogs are 'trained' to this system the year before.

Digestible undegradable protein (DUP) is an important protein for ewes in late pregnancy and lactation, for this John suggests 15% soya based concentrates. For Alan's ewes, John suggest 0.8kg of 15% soya concentrate for twin bearing ewes and 1 kg for triplets.

With 11.8 MJ ME silage, a protected DUP can be provided rather than a compound. In soya, ~50% of the protein is still degradable, therefore has potential to be wasted in urea production. In pregnant ewes the food passes through the rumen quicker, therefore potentially DUP requirements are lower, but lactation supply is important.

Soil
At Westerheugh, the fields that looked the biggest mess in the winter, looked best in the summer. Alan wouldn't aerate, he believes the worms will do that for you.

Closing discussions
How has the severe weather affected performance up to scanning?

Stress will affect implantation immediately after tupping, but after 34 days this should not be a significant issue.

Late pregnancy feed
Late pregnancy ewe energy supply is important as this relates to the brown fat tissue production in lambs – important for lamb survival.

John suggests in the last three weeks of pregnancy, providing 100g soya/lamb carried. Alternatively, other sources of DUP are available.

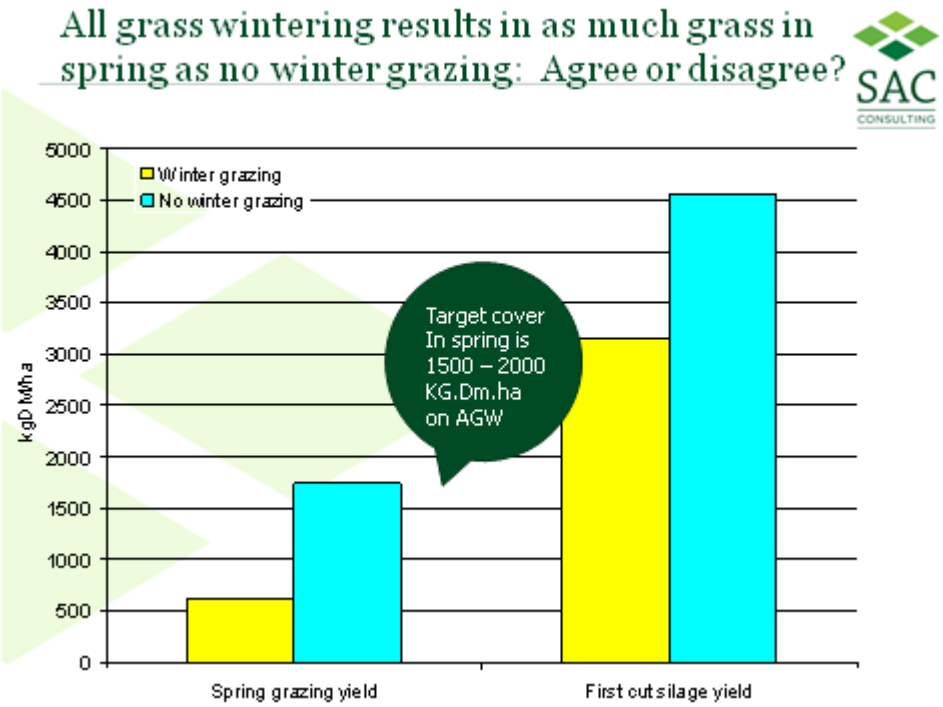
He suggests in fat ewes, replace 200g of concentrates with soya and thin ewes- provide an extra 200g of soya per day. This may not need to be done on a daily basis, this can be provided 3 times per week to give the same supply.

Roots on pasture such as swedes produce a low CP, high energy crop which could complement grazing well and help to utilise excess protein in the grass.

Some ewe supplement feeds may increase immunoglobulin supply in the colostrum by providing mannan oligosaccharides.

Stubble turnips are providing mainly leaf at present, therefore may need additional fibre.

John quoted some Irish work (see below) which indicated the benefit of winter grazing system on spring grass supply and quality.



Others agreed this would be the case, It is the management of the grass throughout the year which affects winter growth.

Grass varieties

Festuloliums (cross between festucas (Meadow Fescue/Tall Fescue) and lolium (Italian Ryegrass/Perennial Ryegrass)).

Ian Eadie (British Seed Houses) believes festuloliums - designed for drought situations- are unlikely to be valuable in this context in Northumberland. However, a perennial ryegrass x meadow fescue type festulolium was used with the initial AGW farmer (Dave Sanders) in Cornwall and did produce 5kg/DM/ha more grass growth than the other swards in winter 2011-12, but spring growth was slower.

John Heaphy (Limagrain) mentions the use of the same type of festulolium on a farm in Aberdeen. The variety had better spring growth last year but summer growth was

down compared to other leys on the farm. It does tend to have good density of tillers, which would be good for the high stocking rate on this system.

Italian ryegrass grows at lower temperatures than other types but it is difficult to control the seed head production.

Stocking rate

Over the winter, Dave sanders stocked at 8.6 ewes/ha for 100 days, Alan Cowan stocks at 12.6 ewes per ha with concentrates towards the end.

Effect of winter grazing residuals

Does grazing to a too low residual in the winter (<1200kg DM/ha) depress the annual grass DM production for the farm?

One farmer referred to a beef and lamb New Zealand document: http://www.beeflambnz.com/Documents/Farm/400%20plus%20-20a%20guide%20to%20improved%20lamb%20growth.pdf, which describes on p 13 *'as pasture production falls below 1200kg DM/ha, the potential pasture growth also declines'*.

This is in reference to late winter early spring grazing, where we would recommend a higher residual than early winter grazing. Additionally, would this potential decrease in production be balanced out by higher utilisation and better quality pasture production with less dead material built up?

The low residual post tupping is a way to control ewe condition.

For lamb finishing, a summer residual 1200-1900 kg DM/ha is necessary to ensure that intakes are not compromised and regrowth maximised.

In summary, the best residual is debatable; this is one aspect that will hopefully be clearer with this demonstration work in UK.

Next Group Meeting

To be arranged.

Any queries or suggestions please email poppy.frater@eblex.ahdb.org.uk.

APPENDIX 3

Stowell Park meeting report

February 18th 2014

MEETING REPORT
EBLEX ALL GRASS WINTERING GROUP
Mike Dewar
Tuesday 18TH February

The meeting was attended by 24 farmers, John Vipond and Rhidian Jones SAC Consulting, and Poppy Frater EBLEX.

Southern AGW demonstration farms

Farmer	Grazing duration	Remaining ewes cell grazing	Scanning	Lambing
Mike Miller	3 days	600	Romneys: 156% Mules: 160%	April 1st
David Cross	250 Twins now on daily shifts on IRG	420	154%	Last week March
Ian Robertson	1 day	320	?	April
Mike Dewar	1 day	750	145%	7th April

Those on plan B…

Farmer	No.	Current situation
Graham Doidge	240	On plan B? Most on stubble turnips in Jan.
Kevin Bateman	800	Singles housed, third weeks and ewe lambs on rented land. Twins cell grazing- 2-3 days
Godfrey Palmer	300	ewes housed in January- too wet

Demonstration farmer updates

Mike Miller
Fields are wet, pulled thin ewes, 600 remain.

Less grass going into the rotation has affected winter feed supply.

Less grass this summer- cover is too low to smoother moss, is hard grazing exacerbating the problem? John Vipond mentioned a trial in Scotland where the moss was harrowed in the spring and the pasture has now rejuvenated. Heavy grazing pressure should trample the moss and more even recycling of Phosphate should encourage grass competition.

Bare ground showing in permanent pasture therefore slot seeded with clover post-grazing.

Kevin Bateman
Last year they made huge savings in cake with the cell grazing system.

The third weeks and ewe lambs are on 85 acres (34ha) of rented ground. Singles indoor on hay and have lost condition. Twins out on cell grazing, if the conditions improve, the singles will join them.

Is the land lost due to waterlogging offset by the increase grass growth this winter??

No, the increase in ewe numbers has meant the cover was lower to start with than last year.

David Cross
Use of dairy ground, grazing to residual 1000-1100 kg DM/ha

Italian ryegrass drilled on September 10th has grown on average 30 kg DM/ha/day, therefore cover is currently ~4000 kg DM/ha. Hadn't anticipated the high grass growth, if had would have grazed it prior to the dairy land- the covers might be more manageable (2000-3000 kg DM/ha?)

Now strip grazing – 50x40m strips and moving daily – 3 day shifts didn't work, ewes get restless. Feed allowance: 1.5 kg DM/ewe/day.

John Thomas
~500 Easycare ewes with ewe lambs on tac.
Scanning: 162%, 34 empty.
Currently in good condition.
Rams were in for 25 days

Barley undersown with a grass mixture gave a more open sward, therefore moved the ewes every 12 hours, with 500 ewes/0.5 acre. This has averaged at 7 kg DM/day since grazing.

Older leys are left to be grazed, currently as ~3000kg DM/ha

Tried 3-4 day shifts but found they ate it all in the first 2 days.

<u>Heavy grazing pressure on four day shifts</u>
Alan Cowan- using two fence lines and increasing clicks on the third day to reduce breaks outs due to his high grazing pressure. Plate meter measurements showed that ~75% of the grass available was consumed on the first day, most was eaten by the second day and little left for the third day.

<u>Cell grazing during tupping</u>
Some northern farmers are doing this. John Vipond suggests only eating half the green matter available for the ewes at this stage as grazing lower horizons may expose the ewes to endocrine disruptors- affecting fertility. Aim is to get 85% in lamb in the first cycle.

Stowell Park- Mike Dewar and Steve (the shepherd!)
Predominantly arable, 1000 acres (405ha) of permanent pasture along river or parkland.

1500 ewes (mainly Kent Romneys) put to tup (11th November, tup in for 25 days):
780 ewes- cell grazing

350 set stocked
370 plainer ewes on stubble turnip

The flock had a prolapse problem in the past, possibly because the ewes were too fat and stubble turnips aggravated the problem. Therefore started cell grazing last winter, with one/two changes this year, including the decision to lamb later (7th April). Currently, leaving 1200-1500 kg DM/ha residual. Prolapses improved following last winter- potentially due to better feed allocation but also the tails were too short in the previous ewe batches. This has been implicated in prolapses as muscles around the tailhead are weakened.

The rainfall from October to present has equivalent to the farms whole year's worth of rainfall, yet the land and system has stood up well. However Mike reckons that they would be in a far worse situation had they not been cell grazing but set stocked over the whole area.

Scanning: 145%, 4.5% barren. Would having the tup in longer increase lambing %? Yes but the lambing would be more spread out.

Mike measures grass covers and uses a mapping package to plan paddock set up. The ATV is able to measure the distances to help set up paddocks. Eight days of paddocks are put up in one day by arable staff who are given a map. This is less time than they would have previously spent feeding fodder beet/bedding etc.

50ha grazed with cell grazing, 50 ha underwater with >3000 kg DM/ha. Major question- what to do with these flood prone meadows- large rooted Festuloiums that would be productive in summer and soak up water in winter possibly?

Grazing the land prone to flooding earlier in the season is not an option due to pheasant shoots, could potentially graze between shoots as these dates are known beforehand.

Daily shifts work well, sheep learn the system.

<u>Gateways</u>
Using 12 ft lengths of flexinet as gateway is easier for handling and sheep don't rub it. Left handed moves and gates at top of slope work better. A couple of people required for shifts during the first two days as the ewes learn the system.

There have been two break outs since start.

The farm has enough grass to last cell grazing until March 20th.

Lambing fields have not been cell grazed (last grazed in autumn) – believes this is important to ensure grass supply at lambing.

John Vipond – three important factors for successful lambing:
1. Right ewe body condition score (2-2.5 for upland ewes)
2. Sufficient grass supply
3. Appropriate stocking rate – 5-7 ewes/acre (12-17 ewes/ha)

Outdoor lambing issues

Tend to bunch up to start with- is this a consequence of tight mobs on AGW? Mathew Monteith stocks at 3/acre (7/ha) at lambing and finds they usually sort themselves out.

Assisted lambing in bad weather, sometimes can do more damage going in and assisting when others are lambing, best to leave them? Welfare concern if you do?

Agreed that judgement is required, look at others and decide whether or not to disturb.

Breeding for EasyCare traits to reduce need for assisted lambing.

Farm walk

Current grazing flock – moved into this paddock this morning

Previously grazed the stud paddocks and tidied up pasture well.

6 ha field, at allowance of 1.4 kg DM/day, this field will give 8 days grazing. Set stocked, we estimate the field would last 3/4 days due to wastage. Mike increased feed allowance from last year which has made the ewes more content.

John Vipond – assuming the quality is ~11 MJ ME/kg DM, that allowance is providing ~ 15 megajoules of metabolisable energy (MJ ME), which is sufficient at this point.

Ewes have been blood tested for trace elements and fluke, would use a bolus if required but only needed to give a selenium capsule. Beware, turnips can lock up Calcium.

They find daily shifting easier for budgeting.

Pasture-animal priorities…

- Up to scanning, when the ewes can be grazed harder, potential to gain grazing days for later on in the rotation.
- Nearing lambing, increase allowance and residual to meet ewe demands

Water supply

With the low dry matter of the grass at the moment, the ewes are getting 85% water with their feed intake, therefore water requirements are likely being met but fresh water supply should still be provided in the paddocks.

Health

Health plan is required for the All Grass wintering system.

Worms

Ewes are immune to worms at the moment and should have no worm egg output, but if stress increases faecal egg count (FEC) would increase. Lindon Cornwallis of Glyme farm, has been monitoring FEC in his flock, with no egg output.

Mild winter may have more overwintering larvae which may mean a high risk this spring.

Store lambs seem to have had high FEC this winter

The changing weather is changing worm patterns, e.g. *Ostertagia* (brown stomach worm) is now prevalent earlier in the year now. Therefore monitor ewe BCS, check the sheep and FEC occasionally to keep on top of them.

Lice
Lice are normally a problem at Stowell Park, but not this year, the ewes were shorn late September. Use a pour-on to control when necessary. Mike Miller's flock has had a lice problem both years.

Snow blindness (Infectious Keratoconjunctivitis)
Snow blindness was an issue at the start. Potentially spread quickly due to the tight grazing and high winds.

The ewes are difficult to catch, therefore when there is a problem, difficult to treat.

Sacrifice field
During the snow last year, the ewes were put onto a sacrifice field (a bank unsuitable for cell grazing), they found no point in putting hay on the cells as it went to waste.

340 plain sheep (BCS 2 and below) currently on the 'sacrifice field' with fodder beet. The advantage of the better feed budgeting on farm, has meant they can calculate how much is required.

Remediating compaction
Kevin Bateman did the following experiment last year: split 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 in May 2013 were as follows:

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

Heavy grazing during wet weather would increase compaction risk, therefore worth investigating with a spade.

Reseeding
One of our northern demonstration farmers – Alan Cowan- is trialling hoof and tooth method to reseed a field this year, this is where the seed is broadcast ahead of the grazing ewes and the heavy grazing pressure ensures seed-soil contact.

Underwater grass
The flooded land has been underwater for one month- what effect will this have on spring growth?

Mike Miller quotes recent press articles describing three weeks is the point where grass begins to die, this is potentially worse if the grass is still growing.

Options?
- Reseed- not worth it if flooding likely to reoccur
- Slot seed?
- White clover or grass seed in feed block or liquid molasses- works in some situations, would it help here?

Ewe Lambs

106 ewe lambs, April born. Highland cross and Romney Marsh. The Highland genetics are being brought into the flock for three reasons: improve milk supply post six weeks, reduce prolapsing and give more consistent prolificacy.

Were in with the tup for one cycle, scanning 20th Feb.

Ewe lambs were weaned at 70days. The weight threshold for tupping was 37 kg.

Mating ewe lambs is a good way to prevent them getting fat.

We discussed the merits of a New Zealand Romney over a Kent Romeny:

- higher prolificacy
- lambing ease
- pelts
- lamb growth rates

Twinning rate has a low heritability, easier managed with feed.

Rearing percentage

In 2013, the farm sold 120%, therefore ~30% drop from scan to market, which is acceptable for outdoor lambing….

General targets, scan at 150% and sell 130%.

John Vipond discussed the New Zealand strategy; the first two years, ewes are put to a Texel ram, farmers then breed replacements from ewes tat have done well with no problems in the first 2 lamb crops.

Early management and genetic effects

Poor ewe lamb upbringing can reduce lifetime performance. Pre-weaning, genes are switched on and off in response to environmental cues. Similarly pre-birth, ewe nutrition and health affects the lamb performance.

Estimate Breeding Values

Using EBVs makes use of all the information collected in association with that animal to better predict performance. NZ Romney breeders record with SIL and/or Signet- are ebvs available with Highlander genetics?

Tupping

5tups/356 ewes, initially 1/100 with the highlander. Three tups minimum advised per group. Likely that every ewe in season will be mated by every ram which is why you can get lambs from different rams born to the same litter.

Closing

How has the severe weather affected performance up to scanning?

Stress will affect implantation immediately after tupping, but at 30-90days, stress should not have a significant impact.

Scald may become an issue if the wet weather is prolonged.

Balancing protein and energy

Spring grass has high crude protein content, if this is complemented with a high energy root crop, the microbial protein supply is increased, because energy is required to utilise the protein.

Digestible undegradable protein (DUP) is an important protein for ewes in late pregnancy and lactation, for this John suggests 15% soya based concentrates.

With 11.0-11.8 MJ ME silage, a protected DUP can be provided, such as sopralin or Soypass (increases the undegradability to 75-80%), rather than a compound. In soya, ~70% of the protein is still degradable, therefore there is still potential for protein to be wasted in urea production. In pregnant ewes the food passes through the rumen quicker, increasing the DUP content of feeds. During lactation DUP supply is important, we should consider simple ways to supplement ewes without disturbing them.

Winter grazing effects on spring productivity
Heavy grazing up to Christmas should provide better quality grass in the spring, as the dead material is removed, dung and urine spread evenly, the clover stolons are encouraged to spread and grass is encouraged to tiller.

Theoretically, the soil biology should improve. Soil biologists generally assert, the biology below the ground is 20-30 x greater in weight than that above the ground. Therefore grazing as such high stocking densities could be encouraging greater soil biology.

Spring pasture management
In May, the post-grazing sward height target should be ~4cm. Consider the worm burden risk at this time.

Lambing mobs should be kept to 100-120 ewes/group. Disturbing small groups of ewes and lambs will train the lambs to find their mothers when mixed into larger mobs for rotational grazing..

Summer grazing management
Aim for 1900 kg DM/ha in and ~1200kg DM/ha out.

Leaving residuals of 7cm will mean that twin lamb growth rates are not compromised

In the last three weeks of pregnancy, providing 100g soya/lamb carried will reduce FEC and improve colostrum quality.

Providing DUP is feeding the ewe directly rather than the microbes. Soya is closest to the ideal protein in terms of amino acid quality.

Formaldehyde treated soya protects the protein, therefore the provision can be halved to 50g/lamb/day.

High quality silage (above 11ME & good intake potential) does not require concentrate feeding, the protein and energy is just being substituted by the concentrate, therefore making feeding more expensive.

Next Group Meeting
To be arranged.
Any queries or suggestions please email poppy.frater@eblex.ahdb.org.uk.

APPENDIX 4

Winter data summary

Thistleyhaugh, Longframlington, Duncan & Angus, Nelless

	Main group	**Other groups**
Date commenced	3rd January 2014	
Number of ewes	1400 Lleyn	
Shift frequency	2-3 days	
End date for AGW	6th March- ewes are housed in batches for winter shearing. Turned out again to lamb at grass	
grass cover- 28th March	1250 kg DM/ha	
Lambing date	1st April	
Scanning results	170% overall	
Concentrates fed	200g/hd/day of high soya organic blend for 3 weeks	
Cost/tonne	£630 (£2.73/ewe)	
Forage fed	Red clover silage – 11ME, 17% CP, ad lib while housed Total of 80 x 700kg bales at 30% DM Also will have fed 40 round bales of hay at 75% DM- 9ME plus grazed 6 ha of turnips (4.3 tDM/ha)	
Time taken to set up fences per week	6 hours per week	
Time taken to move sheep per day	5 minutes	
Labour cost £/hr	£10	
Total labour cost for 10 weeks on AGW	£660 (£0.47/ewe)	
Other issue	Identify persistent fence breakers early and remove	
Other issue	If commencing for the first time- identify sheep that don't cope	
Other issue	Monitoring ewe body condition	

Viewlaw, Longhorsley, Graham & Michael Rutherford

	Main group	**Other groups**
Date commenced	Late October- pre tupping and tupped on 2 day shifts	
Number of ewes	1500 Lleyn ewes in 2 groups of 750	
Shift frequency	2 days throughout apart from one group on 1 day shifts for 10 days in late January when conditions were wet	
End date for AGW	23rd March- ewes were set stocked for lambing- some were removed from 10th March	
grass cover- 28th March	1200 to 1500 depending on when grazed	
Lambing date	16th April	
Scanning results	181% overall- one group had a lot in second cycle	
Concentrates fed	Av of 0.75 kg/day to 60 triplets + 120 earlier lambers for 42 days	
Cost/tonne	£350/tonne (av £1.32/ewe)	
Forage fed	Straw to earlier lambers	
Time taken to set up fences per week	10 hrs/week	
Time taken to move sheep per day	5 minutes per move = 5 min per day as 2 groups moved every 2 days	
Labour cost £/hr	£11	
Total labour cost for 20 weeks on AGW	£2772 (£1.85/ewe) Previous would have spent 4 hours per day feeding and bedding (+ fuel)	
Other issue	Ewes did drink water for 2-3 days in early march when it was warm & sunny	
Other issue	15 removed in poor condition	
Other issue	Will now have shearing to contemplate- previously winter shorn indoors- considering wool shedding sheep or alternative shearing dates	Will use red clover for ewes & lambs but less ha as can't use for winter grazing

Wester Heugh, Stamfordham. Alan Cowan

	Main group	**Other groups**
Date commenced	27th November	
Number of ewes	600 Mules and Suffolk X	
Shift frequency	3 days initially- now daily	
End date for AGW	When housed for lambing- at 28th March had commenced lambing at grass and will delay housing as long as possible	Early twins now separate – other twins grazing ahead of singles with paddock in between. Triplets and gimmers also in separate fields
grass cover- 28th March	1300 to 1400- early ewes now grazing first fields otherwise covers would be higher	
Lambing date	24th March	
Scanning results	188%	
Concentrates fed	0.4 kg/day of Davidsons high soya for 3 weeks pre lambing to twins - fed by snacker on next paddock before letting ewes through + Crystalyx high energy blocks	Triplets also fed 150g/ewe of Amino max S pro. Heat treated soya at 85% undegradability
Cost/tonne/ewe	Davidsons - £270/tonne (£2.27/ewe) Crystalyx £750-/tonne	Amino max is £495/tonne in 25 kg bags – extra £1.56/ewe (soya was £445 in bags)
Forage fed	Sold straw and some silage Purchased 20t fodder beet at £35/tonne to feed at grass	
Time taken to set up fences per week	16 days fencing in 1.5 hours for 300 ewes	
Time taken to move sheep per day	10 minutes/group/2 days av	
Labour cost £/hr	£10	
Total labour cost for 18 weeks on AGW	£350 (£0.58/ewe)	
Other issue	Lowered bottom wire so they get a zap on the nose- if heads under bottom wire the wool at the back of neck insulates them	
Other issue	3-4 day shifts not easy in wet weather. Ewes adapt to variation in shift frequency	
Other issue	Sheep took 4 litres of water/hd for 2-3 days in early March	

Stowell Park, Yansworth, Cheltenham. Mikle Dewar

	Main group	**Other groups**	**Other groups**
Date commenced	19 Dec		
Number of ewes	780	345	350
	Romney	Romney- plainer	Romney tegs
Shift frequency	Daily	Grazed stubble turnips then purchased fodder beet	Set st till late Feb then fodder beet
End date for AGW	24 Feb		
grass cover- 28th March	1800 on av		
Lambing date	7th April	7th April	7th April
Scanning results	155%	137%	129%
Concentrates fed	Lifeline blocks in late March	Lifeline blocks in late March	Lifeline blocks in late March
Cost/tonne			
Forage fed		Grazed 15 ha st turnips@ £150/ha + 60 tonned fodder beet @ £27/tonne	Fed 20 tonnes fodder beet @ £27/tonne
Time taken to set up fences per week	14 man hours per week		
Time taken to move sheep per day	15 minutes per day		
Labour cost £/hr	£12.50		
Total labour cost for 10 weeks on AGW	£1970 (£2.52/ewe)		
Other issue			
Other issue			
Other issue			

High Ash farm, Nantwich, Cheshire. David Cross

	Main group	**Other groups**
Date commenced	8th December	
Number of ewes	420 Romneys	
Shift frequency	2 days – daily after scanning	
End date for AGW	Singles Feb 25th, Multiples March 10th	
grass cover- 28th March	1500	
Lambing date	24th March	
Scanning results	158%	
Concentrates fed	0	
Cost/tonne		
Forage fed	0	
Time taken to set up fences per week	5 hours per week	
Time taken to move sheep per day	20 minutes per day	
Labour cost £/hr	£9	
Total labour cost for 13 weeks on AGW	£858 (£2.04/ewe)	
Other issue		
Other issue		
Other issue		

Martinsfields, Exeter. Kevin Bateman

	Twins, lean ewes, returns	**Singles**
Date commenced	2nd February	2nd February
Number of ewes	500 mixed breeds, Dartmoor, Mules, Dorset	250
Shift frequency	1-3 days (field by field – not split with electric fencing)	Housed on hay
End date for AGW	26th March	Turned out to grass 20th March
grass cover- 28th March	1600 kgDM/ha	
Lambing date	1st April	1st April
Scanning results	138% (inc ewe lambs)	
Concentrates fed	0	0
Cost/tonne		
Forage fed	None	22 tonnes hay (88kg/hd) @ £90/t £1980/750 =£2.64/ewe
Time taken to set up fences per week	NA this yr but in 2013 took 5 hours per week + 20 min/day	
Time taken to move sheep	30 minutes a week this year	
Labour cost £/hr	£12	
Total labour cost for 8 weeks on AGW	£48	
Other issue	Good lambs, ewes in good condition with lots of milk	
Other issue	Each field has been grazed 4 times this winter – did this to avoid poaching due to wet weather/flooding	
Other issue	New marketing opportunity from the Pasture Fed Livestock Association	

Flemingston Court Farm, Glamorgan. John Thomas

	Main group	**Other groups**
Date commenced	5th Dec	
Number of ewes	500 Easycare	
Shift frequency	12 hrs to 3 days	
End date for AGW	Last week of March	
grass cover- 28th March	2000kgDM/ha +	
Lambing date	7th April	
Scanning results	159%	
Concentrates fed	2 lifeline buckets for triplets	
Cost/tonne		
Forage fed	none	
Time taken to set up fences per week	7 hrs (1 hr/day)	
Time taken to move sheep per day	5 min	
Labour cost £/hr	£10	
Total labour cost for 15 weeks on AGW	£1190 (£2.38/ewe)	
Other issue	V wet pre Xmas so did 12 hr shifts to protect new grass leys. Paddocks looked “wiped out” when ewes removed but no looking great (too much grass!)	
Other issue	Contagious Kerato Connjunctivitis- weather related but aslo v close proximity of ewes- 500 in 0.5 acres. Moved onto stubbles/clover for 2 weeks on 3 day shifts which sorted the problem out	
Other issue	Segregated after scanning- twins/triplets fed to appetite and followed by singles at 0.85 kgDM/day. Kept one empty paddock between them. Used less ground so now have 12 acres extra for early silage cut. Twins lambing on first grazed fields and singles on those grazed since Xmas	

Mount Pleasant farm, Wolland, Dorset. Mike Miller

	Main group	**Other groups**
Date commenced	5th dec	
Number of ewes	754 NZ Rom/Mules	364 mule gimm & el
Shift frequency	3 days	
End date for AGW	17th March	
grass cover- 28th March	2400 on 25th March 14	
Lambing date	1st April	1st April
Scanning results	165	145
Concentrates fed	5kg/hd to 360 Mule twins (housed)	5kg/hd to all 364 av
Cost/tonne	440 (soya)	soya
Forage fed	50kgDM/hd to 360 mule twins	60kg DM/hd
	Romneys all on grass	
Time taken to set up fences per week	5hrs/week	All away wintered off farm
Time taken to move sheep	1 hour/week	
Labour cost £/hr	10	
Total labour cost for x weeks on AGW		
Other issue	Difficult to compare systems	
Other issue	Mules need higher DM allowance than Romneys. Will not mix again in future	
Other issue	More mules removed from the system than Romneys	

Graham Doidge

	Main group	**Other groups**
Date commenced	20th December	
	2684kg av starting cover	
Number of ewes	282 to ram 131 on AGW	
Shift frequency	3-4 days	
End date for AGW	16th Feb then cleaned up grass and housed for lambing on 4th March	
grass cover- 28th March	Est 2,000	
Lambing date	31st March- doubles outside, singles & triplets in	
Scanning results	89 scanned empty- ram issue- put back with rams to lamb in June Rest of ewes 182 ewes running with 345 lambs in mid May	
Concentrates fed	18% rolls – 2.5 tonnes (all sheep)	
Cost/tonne	£232/t	
Forage fed	26 x 500kg bales dry silage	
Time taken to set up fences per week	Not long – couple of hours as only moving 2x per week	
Time taken to move sheep per day	minimal	
Labour cost £/hr	£10	
Total labour cost for 8 weeks on AGW	Under £250	
Other issue	Ram failure	
Other issue		
Other issue		

APPENDIX 5

Poster presentation

John Vipond

16th April 2014

SRUC/SEPA Conference, Edinburgh

Agriculture and the Environment X, Delivering Multiple Benefits from our Land: Sustainable Development in Practice (2014)

ALL GRASS WINTERING FOR BREEDING EWES: RESULTS FROM TWO YEARS FARM TRIALS

JE Vipond[2], R Jones[3], P Frater[1]and E Genever[1]

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INTRODUCTION

Relevant aspects of climate change to sheep production include:

- Warming for the rest of this century with wetter winters, drier summers and more days of very heavy rainfall and subsequent flooding.

- A potential increase in annual grass yield estimated at a 20 – 50%, but with more distributed over winter months and less in summer.

The challenge is to adapt current feeding systems for sheep to utilise winter grass growth. Sheep, being less likely to damage winter–wet swards than cattle are well placed to exploit this resource by grazing but need the right utilisation systems in place to protect soils from winter damage.

Winter grown grass is now commonly utilised on UK farms under set stocking systems, but in years of oversupply causes over fatness and lambing difficulties and in years of undersupply can result in soil and pasture damage around supplementary feeding sites. It was hypothesized that in winter grass favoured areas such as the South West of the UK that ewes can over winter on grass-only diets, using a rotational grazing system to ration the grass more closely to demand. A store of around 2,000 kg DM/ha of grass going into the winter, together with regrowth of 10 kg DM/ha/day was calculated to produce enough to allow an outdoor lambing avoiding the need for any supplementary concentrates. In less favoured climatic areas there will be less grass growth and ewes may need housing and feeding of conserved grass and concentrates over lambing to allow sward recovery for lactation and reduce lamb mortality.

The reduction in feed costs from substitution of all feeds with grass is substantial (see Table 1). Mechanised electric fencing systems also allow significant labour reduction at a modest capital cost circa £3 /ewe and there are big potential carbon benefits from cutting out conservation of grass.

Table 1: Potential annual reduction in ewe feed costs by wintering on grass

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

MATERIALS AND METHODS

The trials were started on a farm in Cornwall, South-West England in 2011/12, with 950 New Zealand Romney ewes (65 kg) wintered in one mob on an 110 ha block of fields with free draining soils, an average annual rainfall of around 200 cm and an elevation of 120 m above sea level. Ewes were put to Romney rams from 5th November to 3rd December. They were rotated around 25 fields that were split into approximately 1.0 ha daily paddocks from 1st December to 20th March (112 days), then set stocked 10 days before lambing started on the regrowth. Grass dry matter (DM) available (kg/ha) was measured on each field using 30 drops of an electronic plate meter to determine compressed sward height using the formula DM/ha = sward height in cm x 140+500. Paddock size was varied according to cover to supply 1.0 kg grass dry matter/ewe/day up to scanning on day 70 and thereafter 1.2 kg DM/day, assuming residuals of 900 kg DM and 1200 kg DM respectively. Following use of 98 paddocks (some used for 2 days) ewes were set stocked at around 17 ewes/ha. for lambing. Ewe condition was monitored using body condition scoring at scanning and 4 weeks pre lambing. Three strand temporary electric fences were erected to make grazing paddocks and the sheep were moved daily. The stocking rate achieved was 8.6 ewes/ha and stocking density was up to 850 ewes/ha.

In 2012/2013 trials were extended to a further six farms using the first farm as a model and by sharing information in a producer group. Farms were in favourable grass growing areas of England as far north as Gloucestershire, and in South West Wales. A Northumberland farm adapted the system to include indoor housing just prior to lambing which was also adopted by the Gloucestershire farm due to adverse weather at lambing and for one group of ewes on another farm at higher altitude.

RESULTS

Covers were estimated at the start of the rotation and grass budgeted to achieve a target cover of 1,500 – 2,000 kg DM/ha for lambing.

In year 1 in Cornwall, November (1,982 kg DM/ha) and January (2,105 kg DM/ha) covers indicated growth of around 10 kg DM/ha. One paddock suffered some

poaching damage but in a mild winter with a dry March there was noticeably more grass available in spring of better quality. Only 11 kg/head of silage was needed per ewe, fed during a few frosty days on paddocks with less than 1,200 kg DM/ha. 5% of the ewes were removed due to loss of condition, no health issues emerged. Lambing percentage at 168% scanned and 158% tailed was similar to previous years. Feed savings worth circa £15/ewe and reduced labour need encouraged the farmer to repeat the process.

In year 2 all farmers who tried the system reported positive outcomes and indicated they intended to 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. See Table 2 for indications of how far grass maintained ewes and production parameters. Higher farm numbers were more northerly and at higher altitude.

CONCLUSIONS

Wintering ewes solely on grazed grass was feasible on favoured farms in SW England with free draining soils, and where winter growth of 10 kg DM/ha/day grass growth occurred. In more northern locations and at altitudes up to 300 m above sea level some supplementation was needed and sheep needed removing from the rotation during periods of snow and exceptional rainfall of up to 10 days in total (10% of winter). This indicates the system is robust enough to reduce production costs across much of the UK, but fits better with housing for lambing the further north and the higher the altitude. Thus the system has widespread potential for winter dry farms with existing housing facilities; offering substantial savings in feed and labour, fuel usage and energy inputs. UK ewe breeds were suitable for the system. Future research is needed to determine the potential over a wider range of farms, locations, altitudes and breeds with more detailed cost- benefit analyses. This work indicates positive benefits from utilizing improved winter growth of grass brought about by climate change in the UK are possible. Farmers have been provided with a technical bulletin based on farm trials explaining how to manage the changes needed see http://www.eblex.org.uk/wp/wp-content/uploads/2013/09/BRPplus-all-grass-wintering-of-sheep260913.pdf

Table 2: Results from 6 farms practicing all grass wintering 2012/13

Farm No.	Sheep no. and breed	Ha.	Nov . cover kg.dm /ha	Feb cover kg.dm /ha	Lambing cover Kg kg.dm/ha.	Scan %	Supplement used	Fencing hrs/ week	Shifting sheep mins/day
1	450 Mules, Texel X Mules, Dartmoor	39	2658	1300	1200	146	None	3.5	10
2	450 NZ Romney	37	2302	1905	1713	193	3 tonnes forage on frosty days	10	20
3	250 Mules	23	2280	1637	N/A	147	Silage offered but not taken Feed blocks available		
4	670 NZ Romney, Welsh Mules and Suffolk X Mules	40	3018	1648	1850	160	Housed twin Mules- Lifeline blocks 8 tonnes forage used	10	20
5	840 Kent Romney	140	2239	1464	Not measured but below target	160	Sheep housed 30 t silage, 4 t blocks, 12.9 t ewe nuts	10	20
6 Wales	400 Easy Care	40	3000	na	Not measured but below target	160	Small amount of hay offered but not taken	7	5

Keywords: [sheep, winter grazing, climate change]

APPENDIX 6

Presentation

Poppy Frater

29th April 2014

BSAS/EBLEX Conference, Nottingham

Title:

Maximising winter grass utilisation on sheep farms: all grass wintering

Summary:

Implications All Grass Wintering (AGW) has potential to reduce winter feed costs on UK sheep farms.

Introduction AGW is a rotational grazing system where a wedge of grass is built up in the autumn and fed back to the ewes through the winter using one- to four- day shifts. The theory is that the wedge plus regrowth should provide enough grass for the ewe flock, which avoids the need for supplementary concentrates. EBLEX and SAC Consulting have been working with a group of demonstration farmers to determine the benefits and practicalities of this system in the UK.

Material and methods Following a pilot in Cornwall with 950 New Zealand Romney in-lamb ewes for winter 2011-12, the system was implemented on five farms from Plymouth to Gloucester during winter 2012-13 (~110days from mid-November/early-December). The farmers began to shut up the trial fields from September and the grass cover in all fields was measured with a rising plate meter. A feed budget was calculated for two average winter grass growth scenarios: 5 and 10 kg dry matter (DM)/ha/day for each demonstration farm. Feed demand was estimated at 1.5% of bodyweight pre-scanning and 2% of bodyweight post-scanning. Daily demand is multiplied up to the flock level and divided by the area, this is deducted from the grass cover to estimate the cover at the end of the month. The aim is to have over 1500 kg DM/ha average grass cover at the end of the rotation, those calculated below this figure would not be feasible without reducing stock or feeding conserved forage.

The residual targets were 900 kg DM/ha pre-scanning and 1,200 kg DM/ha post scanning. The field size was calculated based on daily feed demand and plate meter measurements, and seven paddocks were established each week using three strand temporary electric fencing.

Results Table 1: All Grass Wintering demonstration farm details

AGW flock size (ewes)	Breeds	AGW area (ha)	Initial grass cover (kg DM/ha)	February grass cover (kg DM/ha)	Lambing grass cover (kg DM/ha)	Scan results (%)	Supplements fed (tonnes)		Time fencir (hour week)
							Forage	Concentrates	
450	Mules, Texel Mules, Dartmoor	39	2658	1300	1200	146	0	0	3.5
450	NZ Romney	37	2302	1905	1713	193	3	0	10
670	NZ Romneys, Welsh Mules & Suffolk Mules	40	3018	1648	1850	160	8	0	10
840	Kent Romneys	140	2239	1464	bare	160	30	17	10

Lambing grass cover was short on two of the farms due to the late spring. Feed saving estimated at £15-17/ewe.

Conclusion AGW is feasible on South West England farms with free draining soils but amendments are required to prevent grass shortfalls at lambing. It is key that the system is flexible to cope with extreme winter weather. The next stage of this research will be to determine whether AGW can be

APPENDIX 7

Summary of May 2014 visits to South Group

Update on South group for All Grass Wintering

Farm visits on 15th & 16th May 2014.

Stowell park, Cheltenham- Mike Dewar
Reports grass covers of 1800 kgDM/ha on 28th March. Plenty of grass for lambing and this has continued. Ewes have lambed well, no major issues and mothered up well. and have plenty of milk. Body condition of 2 ½ about 1 month pre lambing. Lambed outside with additional fodder beet supplied at grass as a safe and easy supplement to spring grass. There were about 16 cases of prolapse which is well down on previous experiences. Now most groups are being rotated around 3 field system with the plan for surplus grass to be cut for haylage/silage. Future plans to increase to 1800 ewes and more Highlander genetics to give higher scan and more vigorous lambs. Ewes are shorn twice a year in June and in the autumn. Mike has agreed to provide full financial data to Gross Margin for the project.

Romney ewes and lambs

Amherst farm, Kent- Godfrey Palmer
Godfrey has had a good lambing at grass after the ewes were housed in January. The ewe lambs that had been tupped to a Sheltand ram had presented few problems and their lambs looked tremendous. The biggest problem is the amount of grass that there was and Godfrey had mobbed up a large group of sheep- 300+ plus lambs to get on top of the situation. He is planning to make silage but will still have surplus to sell or rent out grazing to local cattle farmers.

Due to the wetness of the farm grass wintering is not really an option so Godfrey will house his sheep from now on in old cattle buildings. He will probably increase sheep numbers though up to 400+ over the next few years. We spoke about the soya plus high quality silage system which works well. The biggest issue Godfrey has though is the feeding system in the old sheds will not allow restricted feeding of high quality silage- ad lib access is almost unavoidable at the moment so if the silage is too good then ewes will eat too much and get fat. Therefore this year he will aim to make good silage/haylage and rely on a high soya concentrate in winter for feeding before turning out to grass.

Lleyn ewe lamb with Shetland X lamb

Chawton Park, Alton- Ian Robertson
There were still about 200 ewes left to lamb with one tupping group having a lot in the second cycle (ram issue). Ian had started the winter with quite low covers of 1400kgDM on 23 Nov 13. However at Chawton Park all the ewes lamb in the same 2 fields every year which are close to the buildings for convenience. These 2 fields were grazed once at the start of the winter rotation and had high covers of 1,800 kg by the start of lambing (Ian will send all the measurements he has once he has finished lambing).

Most of the other fields were grazed 3 times since early December which helped to eke out the grass despite starting with low covers. For example one field had grazed the main mob of 315 ewes for 4 days (daily shifts) in early December, again for 3 days in late January and was also grazed at 5 ewes/acre (12.5/ha) for 2 weeks in April before being rested for receiving ewes and lambs. On 15th May the cover was 4-5 cm very dense sward and was being filled up with ewes and lambs. This shows the flexibility of the system and how individual farmers are adapting AGW to suit their systems. We need some basic principles to follow (DMI, residual etc) but we cannot be too prescriptive (unfortunately due to time restrictions this was a flying visit and my camera was left in the car!).

Mount Pleasant farm, Dorset- Mike Miller
Mike's lambing had gone very well with both groups, the grass wintering group and the housed group. The Romneys/Perendales on AGW had started on 4 day shifts but this had changed to 3 day shifts before set stocking about 7 days pre lambing. The housed ewes had been on red clover and 200g soya (twins) – Mike was delighted with the simplicity and low cost of the system- approximately 25-30% of the usual concentrate costs and better performance/colostrum/lamb vigour. Mike will provide full data to GM level later on in the summer once he has returned from his Nuffield travels.

Currently all of Mike's groups of ewes and lambs are on rotational systems- generally with larger areas split into 3-4 paddocks to give 4-5 days grazing each from ca 2500kgDM down to 1500kgDM. This is working well but more data will be known on lamb growth rates later in the summer.


Mules & NZ Suffolk lambs

High clover pasture at 2700kgDM/ha

Romney ewes on rotational system

Little Orcheton, Modbury, Plymouth- Graham Doidge
Graham was very well and had a lot to report having missed the last meeting at Stowell Park. I will update the winter budgets with the winter data but in a nutshell he started the winter with 2680 kg cover, had 282 ewes to the ram and used 3-4 day shifts. Unfortunately he had a major ram failure (a Romney ram that had worked fine the year before) so he had ended up with 89 out of 102 ewes empty at scanning on 21st January. At the suggestion of his scanner he had put a ram back in with them. After they were rescanned 89 were in lamb so these will lamb in June. Keeping these tight at the moment is crucial given the amount and quality of grass he has.

Of the ewes that have lambed he has 336 lambs running with 173 ewes lambed to date. Currently there was a lot of grass and the Matrix 40 sown in 2 fields last year was growing tremendously fast and had a lot of clover. Like Godfrey Palmer, Graham's main problem at this time of year is keeping on top of grass but he is doing his best with the numbers he has.


Mule & Suffolk lambs


Mule & Romney lambs

Romney x lambs

Matrix 40 with high clover

Martinsfields, Broadclyst- Kevin Bateman
Kevin had not had an easy time this winter with more flooding than usual and for longer periods. However he had done what he could by regrazing fields (some 4 times) as they grew back (despite the wet weather it was mild and grass grew well- covers of 1600kg at the end of March and has kept going). Singles were housed but twins grazed on 1-3 days by field. AGW stopped on 26th March with singles turned out on 20th march. Lambing outside from early April. No forage and concentrates fed to twins with singles only getting hay when housed.

Currently swards looked tight but adequate with mobs moved around in rotation.


Tightly grazed sward

APPENDIX 8

Martinsfields meeting report

June 3rd 2014

MEETING REPORT
EBLEX ALL GRASS WINTERING GROUP
Kevin Bateman
Tuesday 3rd June

The meeting was attended by four farmers, John Vipond and Poppy Frater EBLEX and Graham Parnell, Limagrain.

Round table update

Tom Heritage (TH) farms in South Warwickshire on heavy land. He has 2800 ewes, March lambing. Struggling to keep up with grass growth. Winter shears ewes before housing them on a straw and concentrate-based ration.

Winter shearing

- Tom shears ewe lambs in September/October
- Kevin shears twice a year in October and May/June. Finds this saves on pour on treatments.

Alex Jones (AJ) has 550 EasyCare ewe flock in Gloucestershire. April lambing, off-farm wintering from November to March. This year the flock has issues with scald and weed control.

EasyCare breed potential benefits:

- Reduction in fly strike risk
- Ewe efficiency – lambing percentage
- Don't get stuck on back
- Low maggot risk
- Hardy
- Smaller ewes

Tim Bowden (TB) has 300 ewes and cattle. A lot of land is in stewardship schemes and permanent pasture. No shed space. Flystrike noticed therefore dosed and delayed shearing by a month.

Blowfly

Above 85% humidity, blowfly become a problem. Early in the year, the ewes are affected; later on the lambs are susceptible. Approx. 1% of national flock get struck. Selection for ewes that are not susceptible to dagging is possible as the trait is heritable.

Hugh Warmington (HW) noticed that blowfly are hitting clean wool not just dags.

Graham Elston (GE) farms on the North Cornwall coast, wishing to expand for succession but limited grazing land.

Spring grass

Of the farms able to practise All Grass Wintering (AGW) this winter, the quality and quantity of spring grass has notably improved. Important to target the lambing paddocks first to give sufficient recovery period.

Varieties

Festulolium types that are a perennial ryegrass crossed with meadow fescue may be well-suited to AGW as they grow at low temperatures and produce a dense sward.

The hybrid nature means there is genetic variation within the variety – it is similar to a late heading, diploid perennial ryegrass. Prefers low pH (<6.5). Dave Sanders, farmer in Cornwall that initially piloted AGW during winter 2011-12 measured winter growth of 14 kg dry matter (DM)/day when the reseed was fully established.

HW farms drought-prone land therefore has a new ley with drought tolerant species such as cocksfoot. Graham Parnell argues that cocksfoot needs to be grazed hard for management and needs to be over 60% of the mix or it will be Rejected as it forms clumps, these soon then become stemmy unpalatable and difficult to control. The hairy leaves make it less palatable to sheep, but modern varieties are much less hairy.

John Vipond (JV) suggests plantain would make a good alternative, Ceres Tonic plantain has proven to reduce daggs when incorporated into perennial ryergrass swards.

HW comments on the issue of grass utilisation now, the options would be to sell conserved forage or develop a dairy partnership to improve utilisation.

Kevin Bateman (KB) has practised AGW for two years now. Last winter required high flexibility to deal with the exceptional winter weather. The singles were brought inside and fed hay, the twins were kept outside and lambed outdoors – fed solely grass. As the land area able to withstand grazing was reduced, due to flooding, and winter grass growth was sustained, some fields were grazed four times over winter.

Lamb birthweight
KB noticed a lot of large lambs this winter.

Winter shearing twin bearing ewes has resulted in lambs 0.5 kg (I did say o.5 lb but checked the paper and it was 0.5kg so you got it right but I'd made the error) heavier at birth in controlled trials, this is primarily as result of carrying the lambs an average of 1.5 days longer, due to reduced stress, and increased dry matter intake. KB notes, the twins were in better condition (half a condition score higher) than the singles in the shed, therefore the grass must have been good nutrition.

Previously set stocked for lambing, KB has now begun rotating the flock as they lamb – 'drift lambing', i.e. moves the ewes that haven't lambed at a set time each day and batches the lambed ewes.

Autumn pinch point
KB would like to target August – October grass management with better weaning management. Some ewes go on to summer grazing ground, would like to get them back earlier for flushing.

KB is a member of the Pasture Fed Livestock Association (PFLA), therefore reducing concentrates fed.

Conserving silage
Good silage making is important to achieve a target of above 11 megajoules metabolisable energy (ME). With this target, no supplementation is required apart from digestible undegradable protein (DUP) (Sources: soya or protected vegetable protein products). There is more protein in the silage than the bugs in the rumen can handle, therefore providing additional energy to utilise this protein or DUP will increase protein uptake by the animal.

Worm egg counts in late pregnancy
Faecal egg counts increase in late pregnancy due to reduced immune capability of the ewe, making sure the protein requirements are met can reduce this effect.

Shorter winter rotations
Well drained, drought prone field was winter grazed four times in the AGW system. The small leaf clover was coming through well. White clover withstands, and is possibly even favoured by hard grazing.

AGW was initially based on the assumption that winter grass growth is slow, therefore a long rotation from around 3 weeks after tupping until three weeks before lambing was the structure, i.e. ~100 day rotation. However, KB, and other farmers of the demonstration group, were able to graze multiple times over winter with a 25 day rotation due to favourable grass growth conditions – this reflects the need to be opportunistic and flexible to adapt to the circumstances.

To deal with excess grass growth in summer the best options would be to cut it or use the cattle to tidy up the sward and maintain quality. If the whole farm is out of control due to the exceptional year just concentrate on the best swards and sort the excess out in the autumn-grazing only half the dry matter on offer and tidy it up during the 'start to scanning' phase of AGW

Chicory overseed
KB has overseeded with chicory in two fields for drought tolerance. First the field was flat lifted to alleviate identified compaction problem, then the seed was spread over the field and then tine weeded. Chicory is not competitive, therefore will not persist well in mixed swards. It needs hard grazing.

Worm control
HW has an April outdoor lambing system, therefore handling for worming is an issue. Wormer resistance to cydectin is an issue on many farms. At weaning it is important that the lambs go onto the cleanest paddocks.

Lambing paddocks will be heavily contaminated. TB found that lambs grazing the lambing paddocks had substantially higher faecal worm egg count (2000 eggs per gram(epg)) than those grazing rotational grazing (200 epg).

Coccidiosis bucketsThere is a coccidiosis problem on some fields –this is not a worm problem. The coccidia reproduce in the gut and cause loss of absorption. Control is by good immunity (lots of colostrum and milk) and avoiding challenge from fields heavily infected last year, although ewes remain a source of infection. . AJ uses decoquinate added to the ewes feed buckets by the manufacturer to control the shedding of oocysts and subsequent infection of lambs which reduces labour requirement, although a prescription is required and costs ~£1.20 per lamb.

Worming ewes at lambing options:

- Pure stand of Chicory/white clover - has proven to half the worm population in some trials
- DUP to reduce the output of eggs from the ewes
- Mixed grazing with cattle to dilute the sheep worm burden.
- Strategic dosing those performing poorly

Effects of paddock grazing on worm control? With ~ 2 weeks between fields, paddock grazing will not reduce worm burden as the larvae can remain dormant and survive that time.

Allowing lambs to be exposed to a moderate worm burden is recommended to allow them to build natural resistance.

There is also potential to breed for resistant (low FEC) and resilient (high FEC) ewes. In rams there is potential when breeding own to select on FEC and a FEC EBV is in development. At low stocking rates (less than 8 ewes and lambs/hectare or 3/acre) in combination with mixed species grazing, the worm challenge will be low.

Pinch and pluck test
JV recommended sampling the grass material the sheep are grazing to get an idea of the quality of feed. Things to look for:

- Green material %
- Brown material %
- Leaf versus stem
- Weed grasses

The digestibility of the forage will affect the intake, if low digestibility, the intake will be reduced, this will result in a check in lamb growth rate.

Lamb growth check
Typically, we see good lamb growth up to 12 weeks and then we get a check in growth.

Wean early?

- No correlation between milk yield and lamb growth after 8 weeks, therefore wean early to reduce the ewe and lamb competition for high quality grass and ensure the lamb gets the best pick. This is a good option if there is a feed shortage due to drought or in a wet year when there is too much grass getting low in digestibility, but some good quality aftermath available due to an early silage cut.
- Weaning pastures should have a high clover content. Clover breaks down in the rumen quickly, therefore higher intake is maintained. Studies have shown that with 10-20% in sward DM, before weaning, it can be worth an extra 50g/day and post weaning 70g/day in lamb liveweight gain, over grass only swards.
- Cut hay/silage crops earlier? This will mean there is good quality aftermath available for the lambs to graze.
- Stage weaning stressors, e.g. dose three weeks before weaning (oral Cydectin) and leave the lambs in the field and move the ewes out. Finished lambs can be sold at weaning, (the withdrawal period is 2 weeks), the remaining lambs can be left there for a fortnight on a pasture they know and still be protected from worms by the Cydectin. The reduced stocking rate may allow a sward height rise. Trials show this rising sward height adds 100g/day gain per cm rise. This way all the stresses are not occurring at once.

Grass versus animals
AJ reckons it is important to focus on the lambs post May and ensuring they get the best quality grass. To keep on top of grass growth and tidy up fields, use the weaning ewes in good condition or cattle.

'Forward creep grazing' is an option but those that have tried to set it up have struggled due to the time involved setting it up, as lambs have to start creeping by 2 weeks when at the playful stage. Put ewes salt licks near the creeps to encourage lambs to creep..

Sacrifice fields
During the snow of winter 2012-13, KB moved the flock onto a reedy field and fed hay to reduce the poaching damage on productive fields.

Selection
As the flock has been expanding, selection pressure has been low, but KB has started selecting for lambing ease in the Charollais and performance in the Dartmoor ewes. Will likely reduce flock size to improve lambing percentage.

Scald
Many of the farmers commented on scald issues. Is it a greater issue in set stocking due to shorter grass? Treatment with 3% formalin in a footbath at the first sign of lame lambs is effective or using hydrated lime around creep feeders reduces the incidence.

The bacteria involved in footrot is called *Dichelobacter nodosus,* if we can eradicate this bacteria, which only lives in sheep's feet and dies after 14 days on pasture we will reduce footrot risk significantly, however we will always see scald as this is caused by a different bacteria that is commonplace in the environment but acts as a trapdoor letting the Nodosus bacteria in . Culling those that do not respond to second antibiotic treatment is important as it gets rid of the source of Nodososus. Vaccination is helpful where conditions do not allow footbathing large numbers.

HW comments that keeping a closed flock is the ideal situation where culling can control risk, if dependant on buying in, quarantine and vaccination is important.

Pregnant ewe nutrition
Alan Cowan (Northumberland AGW demonstration farmer) had rotavirus problem which he treated with a probiotic. Feeding a compound with 15% soya in the lead up to housing helped the transition into the shed. He also fed 100g/day of protected protein (85% DUP) to housed ewes. He is aiming to graze winter barley this winter.

Concentrate supplementation response is greater with ewes indoors on conserved forages than those as grass. The increased rumen flow rate during pregnancy may reduce protein degradability of grass
Measuring blood beta hydroxybutyrate (BHB) four weeks before lambing will indicate whether the ewes are getting enough energy. SRUC studies have shown that high BHB levels are correlated with reduced lamb vigour.

Outdoor lambing issues
Mismothering – this is not a major problem for KB, he would remove culprits. AJ numbers the ewes before lambing to help remember which are lambing and therefore those attempting to steal can be easily idientified.

Upcoming group meetings with Murray Rohloff
July 17th 12.00-16.00 Dave Cross, Cheshire
July 18th 12.00-16.00 Alan Cowan, Stamfordham, Northumberland

Any queries or suggestions please email poppy.frater@eblex.ahdb.org.uk.

APPENDIX 9

Thistleyhaugh meeting report

June 6th 2014

MEETING REPORT
EBLEX ALL GRASS WINTERING GROUP
Duncan and Angus Nelless
Friday 6th June

The meeting was attended by ~25 farmers, John Vipond and Rhidian Jones (SAC consulting), Liz Genever and Poppy Frater (EBLEX). We were fortunate to have Trevor Cook, Totally Vets, over from New Zealand to input into the days discussions.

All Grass Wintering demonstration farmers

1. Michael and Graham Rutherford

Late decision to trial AGW last winter, cleared ewes onto stubbles to build up autumn grass wedge and started with covers ranging from 2500-3500 kg dry matter (DM)/ha.

Rotated ewe groups during tupping, allowing 1.8 kg DM/ewe and then post tupping this allowance was dropped to 1.5 kg DM/ewe. Lleyn ewe flock (bodyweight ranges from 65-85 kg throughout the year).

The ewes lost condition in the lead up to lambing, but lambing was still successful. Early lambers scanned at 166% and main flock: 181%. ~150% lambing rate.

Is grazing to a low residual risky during tupping?

Trevor Cook mentioned how sensitive the ewes fertility is to weight gain change during tupping, therefore rotating must be managed well, do not graze to a too low residual.

Golden days: 10 days before and after tupping – ewes need maximum feed quality.

When given the choice, ewes will:

- select forages with highest energy
- avoid fungal toxins
- avoid L3 larval stage contaminated pastures

Therefore giving a choice is important for priority stock to select the best quality feed.

2. Duncan Nelless

Allowed 1.3 kg DM/ewe during mid-pregnancy. Some pastures had lower starting covers (1800-200 kg DM/ha), therefore moved more frequently and left higher residual.

There are three rotational groups of 400-500 ewes and then 80 leaner ewes managed separately. Calculated that scanning to lambing survival was 89.53%. Scanning % was lower than previous years due to lean gimmers. Excluding these gimmers, the scanning percentage was 173%.

3. John Thomas

Ewe lambs managed separately, ram in for 25 days to compact the lambing period. New leys have been established by undersowing barley – during the wet weather, ewes were moved twice daily on these new reseeds to limit compaction damage. Spring grass production has been good. Grazing on the AGW system is a flock of ~500 ewes, these are managed together until ~ 3 weeks after scanning, then the twins are fed to appetite and the singles follow two paddocks behind.

Lambing performance: only 1 of 180 singles assisted during lambing. 27 ewes were empty at scanning. Set stocked for lambing at 7 ewes/ acre (17ewes /ha).

Current grazing management: now moving the ewes with twin lambs every two days in hectare paddocks but the grass is getting away.

Considering cattle to help tidy the sward behind the sheep to reduce the work and worm challenge. Considers summer rotational grazing easy as the paddocks are there for the summer, however the water infrastructure requires investment.

4. David Cross

500 ewes. He has done a lot of reseeding last autumn and grazed neighbouring dairy ground. The new Italian ryegrass ley grew at 20kg DM/ha/day through the winter. The high covers when the ewes came back to graze (~4000 kg DM/ha) meant there was a lot of a lot of grass treaded in and wasted. The ley has recovered fine and has been cut for haylage at the end of May, next cut planned early July and another cut will follow. The ley has tillered well.

Initially allowed 1.5 kg DM/ewe/day of rough pasture and moved every three days, then during wet weather moved daily. Allowance would range from 1- 1.5 kg DM/ewe/day depending on the quality of pasture. 1000l tanks and permanent electric fencing installed. Currently, the ewes and lambs are moved in weekly shifts. Pasture quality? the stem content is high but clover content is looking decent.

Wean early?
Option to forward graze lambs with ewes following behind so the growing lambs get the best pick of the grass and maximise growth rates.

No correlation between milk yield and lamb growth after 8 weeks, therefore weaning early to reduce the ewe and lamb competition for high quality grass and ensure the lamb gets the best pick.

5. Alan Cowan

Alan could not attend the meeting unfortunately but Rhidian gave the highlights as follows:

- Flock grazing to a low residual during the winter (<1000 kg DM/ha),
- Little nitrogen use
- Rotavirus problem, treated with a probiotic
- Although mainly indoor lambing, he lambed the first two weeks outside.
- Lambs are growing well, at 9 weeks old they are averaging at 32/33 kg and the largest is 42kg.

Thistlyhaugh farm
Cattle

110 cows
-17/18 month finishing and store cattle bought in.
Decreasing cow size, bulling heifers are now at 380kg.

Pigs and poultry
Contract rearing pigs from 2009, only started turning a profit this year.

Sheep
The 'B flock'- 25% of the flock (350 ewes) put to terminal sire – these are the ewes with poor udder conformation or temperament that they wouldn't want to breed replacements from.

Started using EiD in 2007.

1600 lambs are Signet performance recorded.

Building tup selling enterprise.

Land
The 'B flock' graze arable breaks (43ha) during summer near Berwick and lambs are finished on red clover. Finishing weight is 36kg (18.2 DW) with organic premium they reach ~£5/kg DW.

As lambs reach slaughter weight, the batch is replaced with another on the red clover pasture.

The cost of rearing pet lambs
Michael has calculated that is costs £87/lamb to rear organically, excl. labour.

To limit the number of pet lambs, the Nelless's keep 100 singles indoors for fostering with some triplets in too.

Shearing pre lambing – end of Feb/March – this increases ewe intake? and makes management easier.

Field 1 assessment

This field hosted the second cycle group (~80 ewes) which are rotating round four fields, followed by steers. Scald has been an issue with this group.

Grass measurements
Compressed sward height was measured at 1400 kg DM/ha. Angus prefers using compressed sward height measurements now as it is easier to carry round while doing the stock checks. The plate meter readings in this field would be inaccurate due to the crested dog tails.

Trevor recommends measuring once a month and using the same farm notebook to compress sward height consistently.

Farmax
Thistleyhaugh is part of the EBLEX Farmax project. Farmax is used to understand the whole farm feed supply and demand over the year. With good data input, the predictions become more accurate to aid decision-making.

Looking back at April, feed supply got a bit tight as illustrated in the graph below – when forecast in advance, they could make the decision to purchase feed in good time and get a better price.

Farmax also helps determine which enterprise is giving the greatest gross margin/ha.

Gross margins at Thistleyhaugh:

- Sheep enterprise: £800/ha,
- Beef enterprise: £450/ha

Valuing land in terms of ME value
Cattle are put on the land that wouldn't rear twins.

Topping?
Some farmers would consider topping this field with the high proportion of crested dogs tail. The field will be topped for aesthetics and thistles. Hard grazing to reduce the weed problem wouldn't work as the residual would be too low and compromise performance. Cattle grazing could work, but the problem will be gone in Autumn.

Improving sward quality
Deferred grazing the rig and furrow land has reduced the clumps of rushes. They also harrowed this land which has helped the pasture quality. AGW grazed fields has reduced the need for harrowing.

Trevor Cook: Grazing at the 2/3 leaf stage favours ryegrass production.

To manage this during periods of high grass growth:

1. Shut up fields that are getting away for silage or
2. Get in more sheep

Aim in the October to only have core stock on the farm.

It is hard to farm extremes, work for a normal spring and deal with the extremes as they unravel.

Improving excess grass utilisation
Push lambing date back?

Increase lambing percentage?
Turn cattle out earlier?

Beef and lamb New Zealand Monitor farm
Started in 2009: farm averaging at 120% lambing
2012: dry autumn, cover going into the winter was low and therefore many ewes lost condition. From November 1st, the farmer focused on BCS and monitored pasture covers.

2013 Lambing: High rainfall therefore many farms had reduced lambing percentage, yet this monitor farm had a record lambing percentage due to the focus on ewe BCS.

Key message: lamb vigour is important for lamb survival in adverse weather, this is related to ewe BCS.

Crucial feeding periods

Defining the crucial feeding periods helps understand where underfeeding is possible.

35 days before lambing, maintaining ewe condition is important.

Target BCS = 3 for mating and lambing

Compaction
Monitoring growth will determine whether soil structure may be a problem, but there is only a small window of opportunity to remediate compaction issues. Thistleyhaugh aim is to improve utilisation rather than productivity.

They did trial a sward lifter previously and this reduced pasture productivity. On heavy ground, natural cracking will alleviate the problem naturally.

Red clover silage field

This was established under oats, the first cut will go into the silage pit and the second cut will be baled into 150-200 bales destined for the 'B Flock'.

One week before lambing, the ewe requires a 16-18 % crude protein and 11 MJ ME diet.

Representative silage analysis is important to understand the level of supplementation required.

Too wet silage is not good for lambing, therefore soya supplementation will help ensure the protein provision is sufficient.

John Vipond recommends 100g of soya/lamb carried.

The Nelless's incorporate the soya into the silage bale. Total soya use ~ 1.5 tonnes, at £630/tonne, the soya cost is £2.73/ewe. The range in intake will be similar to that in trough feeding but over the time period it would average out.

Previous lambing on red clover silage alone has been fine.

Selecting replacements

This is continual based on performance: BCS and lamb vigour. Rams are selected for performance on forage.

Upcoming group meetings with Murray Rohloff, New Zealand Sheep expert

July 17th 12.00-16.00
Dave Cross, High Ash, Cappers Lane, Spurstow, Nantwich, Cheshire, CW6 9RP
July 18th 12.00-16.00
Alan Cowan, Westerheugh Farm, Stamfordham, Ponteland, Northumberland NE18 0ND

Any queries or suggestions please email poppy.frater@eblex.ahdb.org.uk.

APPENDIX 10

SAC Consulting information sheet for Scotsheep 2014

Results from EBLEX trials on All Grass Wintering in Northumberland show promise for Scotland

The South had one of the wettest winters on record and it was an above average winter for rain in Scotland and Northumberland last winter. But with the rain came mild temperatures allowing significant grass growth in Northern counties of around 5 kg/DM/ha/day. All grass wintering (AGW) is dependant on winter grass growth to provide grass to lamb on, otherwise you need to house the ewes from 10 days pre lambing. The results from Northumberland farms this year showed AGW is a flexible and relevant system, not just for the south of England. It can also cut feed costs significantly.

Three Northumberland farms practising AGW had grass covers at the end of March of 1300kgDM/ha. this year which meant several fields were fit to graze. Five kilos of grass growth per day averaged over half the winter rotation of around 100 days is 250kg DM. Prior to lambing ewes eat about 2.5% of bodyweight as grass dry matter when set stocked giving 125- 150 grazing days /ha -about 10 days feed in front of ewes stocked at 15/ha. This is probably enough in most years to get a proportion of the ewes through lambing provided spring arrives and grass growth keeps up with, or exceeds intake. This allows sward heights to rise to a target of 4cm. for early lactation. So it may be possible in an open winter to lamb some, or all, of the fit ewes with twins outside. If the weather is good and this allows limited housing space to be used for ewes needing extra attention –gimmers, thin ewes, triplets and singles that need a lamb set on. If looked at 3 times a day ewes lambing at grass can be little work if the weather is reasonable, and it frees up pens inside for sheep needing attention.

Quotes from farmers on the system include:
‘Overall very pleased with the system , thought last year it could not have been any wetter but I think this winter at times was equally as bad but we still coped ‘
‘Before Christmas tried 12 hr. shifts for the sake of grass (new leys undersown under barley), although the paddocks looked as if they had been wiped out, they are now superb’
‘Would be in a far worse situation had not been cell grazing but set stocked over the whole area’.

Only modest requirements for outlays are needed to move to winter cell grazing as ewes generally need no water and can be fed with a portable trough , however it was noticed on dry sunny and warm March days ewes took water this year. For a mechanised electric fencing system and a plate

meter to measure grass £3-4/ewe will cover equipment that lasts 10 years or more.

Generally sheep health and ewe performance has been similar or better on the system. Two farmers had sheep with infectious keratoconjunctivitis (pink eye /snow blindness) which spread during severe gales. Farmers have to have a 'Plan B' which consists of a backup of conserved forage and 'sacrifice fields' for use when grazing is impossible. Also body condition scoring (BCS) and health monitoring are needed to identify ewes not coping and needing extra feed to protect health and welfare. Bolus products have been used to cover known trace element deficiency problems and extra egg counts for worms to meet the risk of a more pasture- based diet.

The system has worked with all breeds tried so far covering most lowland crossbreds, Lleyns, Easycare etc. and flock sizes from 300 to 1300 were involved. Ewes were grazed from 25 days after mating to 10 days before lambing then either housed or, if winter grass growth was 5-10Kg/day, set stocked on the earliest grazed fields for lambing.

Central to the success has been measurement of pasture and its allocation. In the first 55 days –up to scanning -around a kilo of dry matter is enough, after scanning ewes with multiples are grazed closer to appetite at around 1.5kg /day and singles run a couple of paddocks behind them on a 1200kg DM/ha residual to keep condition off them. Ewes are expected to lose half to one score of condition; this spins out valuable grass, and benefits lambing ease. The system can cope with shifts ranging from 1-4 days but the longer the break the less effective ewes utilise the grass, the greater the pasture damage and the greater the pressure on fences as sheep get restless.

- Most farmers are opting for 1or 2 day shifts. Plate meter measurements showed that on 3 day shifts around 75% of the grass available was consumed on the first day, most of what remained was eaten on the second day and little was left for day 3.
- Exceptional daily winter growth of grass of 10-30kgDM/ha on new leys of Italian, Hybrid and Festulolium based mixtures were seen in the south
- Cell grazing in winter increased grass growth by cleaning out the trash from the sward base and due to the fertilising effects of dung and urine returns with more grass in spring on fields grazed at the start of the rotation than ungrazed fields .
- Big reductions in labour costs are achieved as fencing is quick and looking and moving sheep, which become much quieter on the system, takes only minutes per day.

For further information on all grass wintering google EBLEX, all grass wintering

APPENDIX 11

Meeting report from Murray Rohloff visits on 17th & 18th July 2014

EBLEX ALL GRASS WINTERING GROUP with Murray Rohloff
David Cross, Nantwich and Alan Cowan, Northumberland

"Profit comes from taking control of two important areas, grazing management and genetic capabilities. If it can't be measured then forget it." Murray Rohloff

This was a series of two AGW events with Murray Rohloff - New Zealand Sheep Consultant, associated with EasyRams (supplier of New Zealand genetically sourced Suffolk, Texel and Sufftex rams).

Around 30 farmers attended each day, additional input and support was provided by John Vipond and Rhidian Jones (SAC consulting) and Poppy Frater (EBLEX).

Three lessons learnt:

1. Lamb growth rates are a key driver to profitability
2. Sheep are very sensitive to feed digestibility
3. Field subdivision helps to increase grazing pressure to improve pasture quality

Key points – Murray Rohloff's talk

Sheep business challenges in order of impact on profitability:

1. Pasture quality control
2. Fit feed supply and demand in early spring
3. Increase rearing % - lambs born plus survival
4. Control internal parasites

High impact on profitability, short term

5. Select animals that are able to thrive and finish off pasture
6. Decrease labour and health costs
7. Ewe and ram longevity
8. Serving capacity

Medium impact on profitability, long term

9. Ability to ration pasture – particularly during maintenance season (winter)
10. Breeder – improve genetics
11. Selling strategies

Traits with the greatest impact assessed using Sheep Ireland figures:

1. Days to slaughter (contributes ~45% of business profitability)
2. No. of lambs born (contributes ~12-14% of business profitability)
3. Carcase conformation (contributes ~3% of business profitability)

Digestibility
Nutritive value declines with leaf age. In most grasses, leaf older than 25 days of age plummets in digestibility. Summer pastures have higher stem content further reducing digestibility.

Sheep are very sensitive to digestibility. Animals consuming over 12% dead material – will take longer to degrade feed in the gut – this limits intake.

The proportion of dead matter in pastures is a key driver of autumn growth in lambs - One dead leaf in eight can halve lamb growth rate as it takes much longer to digest dead leaves. Therefore grazing pressure to reduce dead matter build-up is important. Legumes have higher digestibility even at older leaf age.

Chemical topping – a useful strategy to promote clover- use 300-350ml/ha glycophosphate to reduce the grass seed heads and open the sward to promote clover. 2014 has been a bad year for clover due to the high grass cover.

Feed budgeting
Two thirds of the year- sheep are fed for maintenance rather than production, accounting for their feed requirements can reduce costs.

Allocate grass over the season, aim to end the season with a cover guaranteed to deliver an optimal production level for the next season.

- If the season budget indicates there will be a shortage, the deficit can be met with additional feed or altering stock numbers.
- If the season proves to be better for pasture growth, management is forewarned with pasture cover measurement- excess pasture will lower feed quality which will compromise future lamb growth rates. Cattle can help utilise the less digestible pasture material if ewe grazing pressure is not enough.

Hoggets should be fed 50% of the available grass but rotated round the land area twice. Ewes should do only one rotation but allowed more.

The lactation period coincides with grass quality, if grazing suppress grass sufficiently – clover is promoted.

Start rotational grazing: split field in half – graze flock to 4cm move to next half.

Grazing management:
-Never graze below 4cm
-Avoid entering field above 10cm
-Never allow lambs more than 50% of grass available.

Weaning decisions
1. Plenty of grass available? wean late – the ewes help maintain the grazing pressure to maintain pasture quality for lambs
2. Short of grass? Wean early to ensure the lambs get the best quality feed

Moving from set stocking to rotational grazing increases dry matter yield by 30-50%

David Cross

Farm introduction
310 1st lambing 2 tooth's (bought as ewe lambs January 2013).

150 full mouth ewes (bought December 2012 in lamb).
- 420 of these ewes put to the tup November 2013
- Scanning percentage 158%, including 3% empty
- Lambs live now/ewes to the tup 139%

85 lambs put to a Romney tup 20th November for 17 days, then NZ Suffolk follows behind
- Teasers in for 32 days
- 72% in lamb (24 empty)
- 61 ewe lambs at a 121%

- Lambed at 90% at tailing

Overall average growth rate to weaning was 330g/day

Started AGW after tupping 2013;

- Reseeded 43 ha (108 acres): approx. half long term mix and half Italian ryegrass mix
- Undersown arable land
- Dairy land winter grazing – goal to improve clover and remove dead material

Started with four day shifts and moved back to one day shifts. Use nets along the fencing to prevent the ewes going through during shifts.

Winter shearing
David shears in June and October. Murray comments farmers on the North Island shear twice due to fly strike issues, on the South island, farmer crutch bellies in the winter and leave belly on when shearing in the summer – saves time.

Matthew Monteith comments on the importance of ewes getting enough feed the day after winter shearing.

Old permanent pasture
We assessed a field which is due re-seed next Spring (2015). Murray comments how pastures evolve according to grazing management, therefore re-seeds can be delayed if grazed well. In New Zealand, the main reason to reseed is following a brassica crop.

Clover cover in this pasture was low. Ian Misslebrook asks about pH as clover is sensitive to low pH, but the pH of the field is good.

Increase clover options:

- Graze hard then use a Moore slit seeder and graze hard again, problems – seed can go too deep, no tilthe, need wet weather afterwards to get good soil contact. Can use a drill that makes a tilth like the Aitchison with inverted "T" shape which creates a slot that is wider at its base than at the surface and, as a bonus, severs the roots of neighbouring plants.
- Harrow and broadcast
- Pelleted clover, these seeds come with a stimulant which helps it get going in adverse conditions. Use in a slug pelleter on back of quad.

Ley established under Barley
This field had 40 units of N, post barley cut and 40 units in the spring. Few weeds issues, seed heads had been topped. Estimated ~ 25% clover content of pasture on DM basis.

Emulating the lamb grazing, taking the top 50% of the sward, you can assess what the lambs are eating. The lower sward material will be eaten by the ewes.

Electric fencing
David uses a three strand system with a metal wire on the bottom as this is the first wire they touch, doesn't stretch and makes it easier to understand which way up it is.

Italian ryegrass reseed
This field was spring drilled with persistent and high yielding Italian rye grass mix. The field has been cut twice and will get cut at least once more. it will then be used for tupping and then All Grass Wintering. Used diploid and tetraploid varieties for a cut and graze mix. Italian ryegrasses can be killed out during harsh winters.

11 ME Silage challenge
David cut at the first ear emergence, cutting at the third ear emergence would provide a 67 D value, 11 ME silage, Ian Misslebrook. If high ME is required, cut earlier.

An 11.7 ME IRG silage will not require any additional energy supplementation. 1% crude protein utilised in the rumen by 1 MJ ME, therefore protein content above this level is wasted as it is degraded in the rumen. Addition of digestible undegradable protein (DUP) will provide additional protein which will be absorped in the gut. John advises 100g soya per lamb carried or 50g of sopralin per lamb carried by spreading it on top of the silage for last 3weeks before lambing.

Contribution of spring clover to protein supply? Clover has less degradable protein but it is not protected, better than grass , not as good as soya/sopralin.

Weaning to slaughter
David decided not to wean onto good grass straight away as they will waste it while running back and forth. Approx. 30 lambs are ready for slaughter now, the largest is 42kg. John recommends fortnightly weighings if the lambs are growing well.

Murray- at 8cm covers would not see a check in post weaning performance.

Grazing pressure
When the thin ewes have gained condition, will consolidate the ewe groups to add to grazing pressure.

Suitable stocking density? 5 sheep/acre plus summer dairy cattle will reduce the need to top or 6-7 sheep/acre.

Worm burden
No effect has been shown in worm burden in response to short term rotational grazing.

As the pasture quality improves, the immune status should improve, thereby improving worm resilience. In research trials, lambs have maintained good growth rates with 1500-1800 eggs per gram in faeces.

Ewe lambs
Tupping weight average 37kg put to a Shetland ram as smaller for easier mating. Those that are barren or daggy are culled.

Murray recommends 42-45kg cut off weight for tupping – never put future capital stock at risk.

First couple of years, ewe lambs are put to terminal sire, the breeding replacements are bred out the older sheep that have stood the test of time. This also avoids inbreeding.

The older a ewe is before first lambing, the worse mother she is, ewe lambs appear to have better mothering instinct than those mating first as shearlings.

Murray: 80% of rams used commercial are produced from 20% of breeders in NZ. Using genetics now to advance the puberty of ewe lambs and only select for those that rear a lamb.

John: select against those that had a twin and reared a single and those that produced lambs 10% below average weaning weight.

Rotational grazing – effects on behaviour

David comments the ewes are now quieter and expect to be moved when ready. Murray suggests shouting to them on call to be moved, this helps train them for other occasions when they need to be brought in. This can help them move up the race if they baulk.

Alan Cowan

Farm introduction

- 50 suckler cows
- 600 Mules and Suffolk cross ewes
- Started AGW 25 days after tupping (3 tups/ 600 ewes). Uses coloured raddle to determine order to bring into shed.

In the lead up to lambing, the ewes are snacker fed in the field. The singles follow the twins, two paddocks behind. First weeks ewes lambed outside, lambs were getting too big, therefore brought them in.

Twins allowed 1kg/day grass and 0.4 kg concentrate (18% CP, 13 MJ ME plus soya pro 15%) nearer lambing.

Triplets managed separately, given 450g/day concentrate plus 100g carrs –billington protected soya product (Amino-MaxR) (84% DUP).

Paddock recovery

We assessed the field that was first grazed as part of the AGW system. The 10 ha field sustained 600 ewes for 30 days.

As the field is in Entry Level Stewardship, topping is prohibited until July/August. In the case of the Crested Dogstail, the tillers will die, therefore topping later in the season will result in slower tillering. If going to top, better to do this in May/June at ear emergence.

Graham Rutherford comments how the fields grazed during the wet winter weather have struggled to recover but the drier field have recovered well.

During heavy poaching, a surface sealing can form which is damaging to recovery, therefore move before the damage occurs.

Measuring grass cover making correct decisions
It is important to measure sward height where the lambs are eating when making decisions on when to move. After being challenged by worms lambs (but not immune ewes) show faecal avoidance grazing behaviour. They make a trade off in not grazing the more nutritious grass growing close to dung (dark green) and instead graze in the areas between dung pats. A quick visual assessment may suggest there is plenty of grass around but look at the areas away from dung pats, where these may be shorter than 7cm it indicates lambs are due to be moved on, this may occur after two days grazing. On clean grass lambs can be grazed to a lower overall sward height as they do not show faecal avoidance behaviour.

If field cover is 1500 kg DM/ha, the lambs should be offered 50%, therefore allocate based on 700 kg DM/ha.

After excellent growth rates of 400-550 g/day, the lambs at Westerheugh are now slow to finish. Alan puts this down to the challenge of managing quality this year, the sward was grazed pretty hard away from dung patches so feed quantity could also be an issue.

Measuring quality
One leaf in ten were dead, therefore this would be slowing lamb growth rates.

Clean up stock – the problem with a high lambing percentage is you do not have enough ewes to clean up to maintain quality for the priority animals(lambs).

In autumn the clover is dying back providing a nitrogen supply for autumn growth. Encouraging clover in the late spring and early summer by tight grazing management will help this useful nitrogen supply. Clover gets going as temperatures rise above 15°C.

Options:
1. fence tight, ewes in good body condition (3-3.5) to get on top of grass- problem is that not advancing through the farm very quickly
2. Cows and calves to follow the mob

Weaning decisions should be feed dependant:
- short of high quality feed- wean
- abundance of feed- wean later to utilise the grazing pressure of the ewe

Murray emphasises the importance of field subdivision. The New Zealand in the 1980s, farms had an average of 30 fields, now it is more than 60 – all while stocking rates have increased.

Lambing grazing management
At lambing, set stock for six weeks to ensure the ewes and lambs bond properly, then start rotational grazing again.

Improvements in permanent pasture
Through hard grazing, Alan has noticed the improvement in a 14 year old ley. This 8 ha field was closed in mid-September and grazed for 28 days in three day shifts (8 paddocks) in February. Then it was grazed with ewes and lambs in April.

Although the field was poached, it has recovered. The aim in Alan's system is to shift every 3-4 days, but during wet weather, this is reduced to every 2 days. In winter

2012-13, the frost -burnt and snow- covered pastures were short of energy therefore used an energy feed block.

Research shows hard grazing and poaching of perennial ryegrass on loamy soils does not reduce output but it does with unsown species and heavy land, so bear in mind when winter grazing.

Other issues
Singles inside in low condition score were not milking, provided 50g of protected soya/day and recovered immediately.

Listeria – possibly due to sheep muck used on silage fields (harrowing before shutting fields on a sunny day can kill most listeria) or oxygen contamination due to inadequate seal on bales.

Economics
Charlie Walker invested in water troughs and paddock fencing (reduced 15-20 acre fields to 7 acre fields) costing ~£30/acre. Ten tonnes of organic concentrate at £375/tonne, is the equivalent of 30 water troughs, so investment to utilise grass to save concentrates is worth it.

Murray estimates investments in temporary electric fencing is paid for within one year, permanent fencing to increase subdivision is paid for within two years.

Murray Rohloffs final comments – the top 20% NZ Farmers have:

- High stocking rate
- High lambing rate
- Use nitrogen to improve pasture productivity at the shoulder of the season
- Low labour requirement
- Use more fertiliser

Future meetings and developments
The final two meeting for this project will be held this Autumn: one for the South group and one for the North group – details to follow.

EBLEX are setting up grazing discussion groups – these are farmer-led discussion groups supported by an external facilitator. Farmers are asked to draw up terms of reference and contribute £100/year to the group to demonstrate commitment and part fund the support costs. EBLEX will top this up this funding pot to cover the group running costs. Please get in touch if interested. Poppy Frater, 02476 478891, poppy.frater@eblex.ahdb.org.uk

APPENDIX 12

Rhidian Jones

Presentation

Sheep Veterinary Society Conference

16th September 2014, Darlington

ALL GRASS WINTERING OF SHEEP

DR. JONES[1], JE. VIPOND[1], P. FRATER[2] and E. GENEVER[2]

[1] *SAC Consulting division of Scottish Rural College (SRUC), Beef & Sheep Select Services*

[2]*EBLEX, Agriculture and Horticulture Agricultural Board (AHDB), Stoneleigh Park, Kenilworth, CV8 2TL, UK;*

INTRODUCTION In recent years the focus on improving grassland management has concentrated on growing more grass and of better nutritional quality by attention to soil analysis, soil structure and through re-seeding. However gains are also possible by grazing management that results in a higher percentage of the grass being utilised. Good grazing management also results in more dry matter per hectare and of higher digestibility which helps to reduce the cost of feeding livestock.

CURRENT WINTERING SYSTEMS Housed systems provide control of nutrition, rests grassland and is convenient for shepherding but is expensive, labour intensive and can lead to disease spread. Outwintered systems involve set stocking the ewes over the available grass area, feeding forage in ring feeders and concentrates in late pregnancy. This means most of the feed still has to be supplied, there is potential to cause damage from tractor wheelings or trampling around feeders and the grass has no rest from continuous grazing. This means that the whole farm will be bare in spring so spring grass growth will be slower due to reduced photosynthesis. Ewes with lambs at foot will thus require more concentrates to be fed and for a longer period until grass growth is sufficient.

Underestimating grass growth in the winter can be a problem for set stocked ewes as it can result in over-fatness and lambing difficulties. Overestimation of supply may also lead to ewes becoming too lean. To turn a problem into a solution it was hypothesised that, with control of intake, sheep flocks could survive on grass-only diets from tupping through to lambing. A wedge of grass, built up from late summer can be 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 the pregnant ewe flock, avoiding the need for supplementary concentrates.

Table 1- Typical annual feed requirements and costs of a crossbred ewe

Feed requirement	**MJ/Year**	**p/MJ**	**£ cost/yr**
From concentrate- 50 kg @ £200/tonne	600	1.92	11.50
From conserved grass- 100 kg DM	1050	0.95	10.00
From grazed grass	2600	0.36	9.40
Total feed requirements	**4250**		**30.90**
All requirements from grazed grass	**4250**	**0.36**	**15.30**

EBLEX FUNDED DEMOSTRATION The system was piloted on a farm in Cornwall in 2011-12. The following year the project was expanded to include a further six farmers in the South of England

and one in Northumberland. In 2013-14 there were a further two farms in Northumberland and one in Cheshire also demonstrating the project. Most farms have hosted meetings for the project which have been very well attended. Uptake of the new system was dependent on seeing it in action on farm, aided by group discussions and active facilitation.

KEY TARGETS AND PARAMETERS The aim is to graze each paddock once in winter followed by a long recovery period. The grass cover is calculated on a field basis using a rising plate meter or compressed sward stick and then individual fields are subdivided to give each group plots that allow 1-3 days of grazing. An initial grass cover over the winter grazed area of 2,000 to 2,500 kgDM/ha (8-11 cm) is recommended. In early winter the grass can be grazed down to 1,000 kgDM/ha (3cm) but after scanning this should be increased to 1,500 kg DM/ha (4-5 cm). This gives twin bearing ewes more choice and also increases the leaf area remaining on the later grazed fields to allow faster recovery.

A feed budget is calculated so that ewes post tupping receive their daily requirements for maintenance of 10-12MJ/hd/day. Moving the ewes daily increases feed utilisation but has higher requirement for labour and electric fencing equipment. After scanning twin bearing ewes receive a higher DM allowance than singles. Typically 8 ewes per hectare can be wintered on this system for 100 days assuming an initial cover of 2,000 kg DM/ha. Winter grass growth of 5-15kgDM/ha/day has been seen which also contributes to the feed supply. Setting up the electric fences can take 2 workers a morning each week but moving the ewes will only take 10-15 minutes a day thereafter, a considerable saving in labour over conventional feeding & bedding systems.

SAFEGUARDS AND FLEXIBILITY No ewes under condition score 2 ½ should be put on the system. Full consultation with the farm vet and consideration of health and welfare safeguards is advised, e.g. after 3 weeks on the rotation any ewes that are losing more condition than is acceptable should be removed. To guard against periods of severe weather forage for 21 days should still be made. A portable water trough should always be available although ewes will not generally take much water unless the weather is very warm or they are being fed hay or concentrates. Health issues seen to date have included soil balling in wet weather, pinkeye and lice, which are both exacerbated when sheep are kept in closer proximity than usual.

Some farms have tupped ewes on the system, giving the ewes a higher allowance (1.6kgDM) during this period. Other farms operate the system for 90 days before housing the ewes for lambing. In this case it is important to adjust their diet 3 weeks before housing by feeding concentrates. Breeds used have included Mule, Lleyn, Romney and Easycare. Farms from the South West to North East and from sea level to 900 ft have all operated the system. Further flexibility has been seen by the ability to re-graze some fields if winter grass growth is good. In wet conditions or on re-seeds it is advisable to move ewes more frequently while in dry conditions or on permanent pasture 2-3 day shifts can be used. A 2-3 day shift system will also favour smaller flocks as one day paddocks will be very small.

CONCLUSION The UK is experiencing warmer wetter winters giving a longer growing season. A system hypothesized to use this resource to meet the ewes winter nutritional requirements along with autumn saved pasture has proved successful. It has been modified by farmers in Northern and upland areas with less winter grass growth by incorporating housing and feeding at lambing without health problems arising. It offers significant savings in feed and labour costs over conventional systems, reducing pasture damage and nutrient losses to soils around trampled feed areas and wheelings. Over three variable winters between 2011 and 2014, when conventional systems were expensive it has proved robust and offers an alternative wintering method for farms where soil conditions are suitable.

FURTHER READING

EBLEX, (2013) All Grass Wintering of Sheep, Better Returns + publication

Frater P, Genever E, Vipond JE & Jones DR (2013) Can breeding ewes be wintered on grazed grass alone? Profitable and sustainable grazing systems: moving forward with science. Proceedings of the BGS and BSAS conference, Malvern 26-27 February 2013.

Vipond JE, Jones DR, Frater P & Genever EM (2014) All grass wintering for breeding ewes: Results from two years of farm trials. Agriculture and the Environment X, Delivering multiple benefits from our land: Sustainable development in practice. Proceedings of the SRUC & SEPA Biennial Conference Edinburgh 15-16 April 2014

Frater P, Genever E, Vipond JE & Jones DR (2014) Maximising winter grass utilisation on sheep farms: all grass wintering. Science into practice: planning for intensification. Proceedings of the BSAS Conference, Nottingham 29-30 April 2014

APPENDIX 13

Chawton Park meeting report

September 30th 2014

EBLEX ALL GRASS WINTERING GROUP
30th September 2014
Chawton Park farm, with thanks to Ian and Helen Robertson

The lowest cost of feeding our animals is by the method of grazing; utilising the greatest amount of available feed at its highest feed value.
Rhidian Jones, SRUC

33 farmers and industry members attended this meeting with John Vipond and Rhidian Jones of SRUC and Poppy Frater, EBLEX.

What is All Grass Wintering? (also referred to as winter cell grazing, rotational grazing or mob grazing)

Ewes are rotationally grazed through the winter on one day to four-day shifts to get more from grass. If the ewe demands can be met solely from grass up to lambing, there is potential to half feed costs.

The problems with set stocking during winter:

- Livestock deplete root reserves resulting in low spring growth
- Stock waste time and energy in pursuit of feed
- Under-estimation of grass supply during mild winter can result in over fat ewes at lambing

Therefore: Allocate grass to meet ewe maintenance requirement rather than her appetite with electric fencing and rotational grazing.

Initially, 100-110 daily paddocks for winter grazing would be grazed once, starting and returning to the lambing paddocks, however some farmers have taken advantage of good winter grass growth and grazed the same land multiple times over the winter.

Further guidance on how to set up All Grass Wintering can be found here: http://www.eblex.org.uk/wp/wp-content/uploads/2014/09/BRP-plus-all-grass-wintering-of-sheep150914.pdf

The project
EBLEX funded SRUC to deliver a project to determine whether this system is suitable for English farms. In 2013-14, this involved a series of nine demonstration farms: three in Northumberland (Alan Cowan, Graham and Michael Rutherford and Duncan Nelless), Hampshire (Ian Robertson), Dorset (Mike Miller), Devon (Kevin Bateman), Plymouth (Graham Doidge), Gloucestershire (Mike Dewar) and Cheshire (David Cross).

John and Rhidian helped set up the farms, provided advice and collected data which will halp advise other farmers through these meetings and updates to the EBLEX BRP guidance.

Chawton Park Farm

- 270ha
- Grazing platform (permanent pasture): 200ha in Summer, 240 ha in Winter
- 300 shearings tupped in October, housed in March

- 1100 Lleyn ewes tupped in December – half mated pure and half put to Charollais/Primera tup (these will be tupped while rotating)
- Poor ewes are housed in January
- Mob lambed on 10ha lambing fields near shed
- Twins given most productive land, while singles put on the poorer land
- Lambs sold store from August-November at ~30kg
- EID used for farm management

Winter 2012-14
Started with low grass cover (~1700) going into winter, therefore tupped 300 ewes on daily moves to trail AGW.

In February increased this flock to 400 and, due to good grass growth, the flock rotated round the land twice.

5 were removed due to poor condition.

Summer 2014
Rotationally grazed:

- 250 singles from one month old, moved weekly
- 120 thin ewes, moved every four days

Aims to maintain ewe condition from lambing to tupping to avoid the costs of having to put condition on.

At weaning, sort by Body Condition Score: BCS 2-2.5 ewes managed separately and given more grass than those BCS 3+.

Autumn 2014
650 ewes rotationally grazed in daily shifts: thin ewes grazed first to higher residuals (~1500kg DM/ha), followed by the fitter ewes (residual ~1000 kg DM/ha) with a paddock in-between.

Winter plan
By tupping, all the grazing land will have been rotational grazed, so the fields will be set up for the winter. With the prolificacy of the Lleyns, there is no need to flush up to tupping.

December cover will inform whether some fields can be grazed again before lambing. 650 ewes will be wintered using AGW.

Setting up paddocks
Measure grass – Ian started with rising plate meter and since moved to a compressed sward stick, which he finds easier.

Winter feed budget: Use an excel spreadsheet to calculate a feed budget based on the grass cover, flock demand and grass growth estimate – this determines whether there is *enough* feed for the winter.

Paddock planner: another spreadsheet to plan the paddocks – using pre-graze cover, target residual, stock feed requirements to calculate the available feed while in paddock, the number and the size of paddocks.

EBLEX versions of these spreadsheets accompany this report.

Once he knows the size of the paddocks required, Ian uses a tool called Magic map (available here: http://www.natureonthemap.naturalengland.org.uk/MagicMap.aspx) to measure field size and split into paddocks. Then he can work out where the electric fencing should go across the fields and measure out using a measuring wheel.

Farm walk

Allocating according to ewe needs

A series of six daily paddocks (~0.8 ha) – furthest away was the thin ewe mob, an empty paddock inbetween (post grazed by thin ewes) and the fitter ewes following in the next paddock.

The thin ewes will graze down to ~1500 kg DM/ha, then the fitter mob graze down to ~1000 kg DM/ha to allow for some loss of condition and tidy the sward.

Creep grazing to give lambs the best quality grass

Creep grazing can work, it requires high labour input for field set up and lambs started from 2 weeks old, but this would ensure the lambs are getting the best quality feed while the ewes can be grazed to lower residuals to tidy the pasture.

Nitrogen application

The lambing fields get one bag of nitrogen per acre pre lambing to boost grass supply, otherwise the farm gets very little nitrogen. The dead material in the sward was quite high, suggesting it needs grazed hard with fit ewes to tidy up. The dead material locks nitrogen to break down, therefore adding nitrogen might stimulate dead material break down.

Targets

Ewe BCS at tupping: 3+

Lambing percentage (sold store per ewe): 170% (Lleyns~200%, Shearlings: 160%)

Some suggest target BCS at 2.5 would help control lambing percentage.

Rotationally grazed lambs

The last of the lamb crop are currently being rotationally grazed, moved every week through a series of three paddocks, residual: 1500kg DM to ensure they are getting the best quality feed.

When it comes time for the ewes to graze the same field, it will be split into 7/8 paddocks depending on cover, grazed to ~ 1000 kg DM/ha.

Gateways

Ian uses hurdle gateways for ease, Mike Miller simply pulls the corner post round. Lying the fence down for the ewes to run over would not be good practise as it is important to keep the ewes trained to steer clear of the fence.

Avoiding stress at embryo implantation
10 days either side of tupping is crucial to ensure ewe nutritional needs are met. After that, it is possible to restrict the feed of the ewes if body condition is good.

The embryo should be fully implanted by 35 days post-tupping, therefore stress involved with movements, dogs, etc should be limited as far as possible.

We discussed the risks associated with overfeeding prolific breeds such as the lleyn. John mentioned overfeeding can increase blood flow of progesterone in the ewe which would affect foetal development.

Maintaining production under HLS
The final field was a naturally regenerated field, previous set-aside. It had been grazed lightly over the summer and then had 650 ewes on it to graze it down at Natural England's request.

How can quality be improved?

AGW the ewes in BCS 3 at the start of the rotation at a low residual will take out a lot of the poor quality material. Grazing management is a good tool to improve sward quality to favour the ryegrass and encourage natural clover. It might take two years to tidy up.

Some suggest cattle would be a good tool, but the risk of Tb would be high – Ian has deer on the farm too.

At soil pH 6 and P and K on target, no nutrient applications required.

Future meetings and developments

The final meeting for the project is in Northumberland on November 7th, unfortunately this meeting was the last for the south.

However EBLEX are setting up grazing discussion groups – these are farmer-led discussion groups supported by an external facilitator. Farmers are asked to draw up terms of reference and contribute £100/year to the group to demonstrate commitment and part fund the support costs. EBLEX will top this up this funding pot to cover the group running costs. We have had a lot of interest in this and will follow up through this mailing list soon. Please contact Poppy Frater on poppy.frater@eblex.ahdb.org.uk for further information.

APPENDIX 14

Viewlaw/Blackpool meeting report

November 7th 2014

EBLEX ALL GRASS WINTERING GROUP- FINAL MEETING
7th November 2014
With thanks to Graham and Michael Rutherford

30 farmers attended this meeting with John Vipond and Rhidian Jones of SAC Consulting and Poppy Frater, EBLEX.

All Grass Wintering? (also referred to as winter cell grazing, rotational grazing or mob grazing)

Ewes are rotationally grazed through the winter on one day to three-day shifts to get more from grass. If the ewe demands can be met solely from grass up to lambing, there is potential to halve feed costs.

Further guidance on how to set up All Grass Wintering can be found here: http://www.eblex.org.uk/wp/wp-content/uploads/2014/09/BRP-plus-all-grass-wintering-of-sheep150914.pdf

This BRP+ manual will be updated soon.

The project
EBLEX funded SAC Consulting to deliver a project to determine whether this system is suitable for English farms. In 2013-14, this involved a series of nine demonstration farms: three in Northumberland (Alan Cowan, Graham and Michael Rutherford and Duncan Nelless), Hampshire (Ian Robertson), Dorset (Mike Miller), Devon (Kevin Bateman), Plymouth (Graham Doidge), Gloucestershire (Mike Dewar) and Cheshire (David Cross).

John and Rhidian helped set up the farms, provided advice and collected data which will help advise other farmers through these meetings and updates to the EBLEX BRP guidance.

Further questions
- How does the system affect spring grass production? Difficult to answer without a controlled trial but the farmers thought there was more spring grass growth as a result of tight grazing early in the winter. The generally low stocking rates on UK farms means that the system has not been really tested yet where maximising spring growth is essential.
- Adaptations for wet weather – go smaller and faster. Reducing paddock size and moving through faster will give greater recovery time and may limit pasture damage
- Accounting for twins and singles – some farmers allocated more to the twins and left greater residuals then followed up with the singles two paddocks behind.

The farm
Michael and Graham Rutherford manage 1600 ewes in four rotationally grazed groups.

- Started the current rotation on October 24th
- Tupping during rotation – allocating 1.8 kg DM/ewe/day
- Post tupping, this will be reduced to 1 (1.2?) kg DM/ewe/day

- Post scanning, this will be increased to 1.5 kg DM/ewe/day
- Rotational grazed by field during the summer with less electric fencing required
- Issues: lameness, thistles and poaching around mineral blocks
- 'Plan B' – hay and straw
- Saved 1000 bales of silage last year, therefore bought store cattle that provided a positive margin.
- They have calculated there will be enough grass until approximately one month pre lambing

Ewes rotationally grazing during mating
This field was rotationally grazing during summer on this new sward sown under corn. The grazing flock had been working up the field in 0.4 ha (1 acre) electric fenced paddocks over the past two weeks. They were leaving high residuals to ensure the ewes were getting the best quality grass during the tupping period.

On this allocation, John comments they will likely be gaining condition therefore, providing other stress factors are low, a good scanning rate should be expected. Last year, the flock scanned at 180%.

The tup is kept in with the early lambing group for two weeks, those not marked are put in with the main flock, lambing in April. The cover is ~3500kg DM/ha pre grazing. There is too much grass to graze for longer than two days as there would be high wastage. This group (gimmers and mature ewes) are lambed first and put straight out/lambed outside.

Alan Cowan has also been rotationally grazing the flock during tupping. With larger paddocks (8 ha or 20 acres) to sustain 500 ewes for two days while leaving 1700 kg DM/ha. He manages the gimmers separately, moving every 3-4 days on hectare paddocks.

Rotationally grazing while tupping helps prepare for the AGW rotation as the ewes are trained and the remaining grazing land with left aside to gain good covers is reserved to start the system. Charley Walker commented that he started summer rotational grazing this year and that has meant that it is easier to get into winter rounds. Often it is said that "grass disappears" under set stocking so by getting into a year round rotation it is easier to quantify and manage the grass. You have to start somewhere though by subdividing and allocating grass by knowing the demand from the group of stock.

Optimal tup:ewe ratio?
Three tups are in with the 300 ewe group. John referred to some research that found one ram could serve 210 ewes without a drop in scanning rate *if* the rams are not on a high concentrate diet. He would recommend one ram to 100 ewes is fine, but selected grass-reared rams is important. High concentrate-fed rams will not perform as well or last as long.

Gateways
Michael reels in fencing and the flock walks through. Alan raises the fence and the ewes go underneath. Other farmers pull back the two end posts to form a gateway.

Setting up paddocks
Seven to ten days of fencing put up in one morning. Michael measures out the paddock using the motorbike or pacing the required length.

Electric fencing
Electric solar unit – tested voltage at 5.5kV, over 4kV is enough to keep cattle and sheep in.

Wet weather
During very wet weather, the two day paddocks are split in half and ewe flock shifted daily.

Winter shearing
Those that winter shear (Duncan) comment on the need to keep indoors or on sheltered fields immediately afterwards. Duncan shears at end of February for April 20th lambing, Graham and Michael used to shear in January but this year had to shear the ewes after lambing. While they used to like the winter shearing ("a good job for a bad day"-Duncan) Michael reckoned the cost savings from grass wintering far outweighed the cons of having to change shearing protocol. Duncan shears with a snow comb to leave some wool and John commented that it is not so much the amount of wool that provides insulation but the layer of air between the skin and the wool. A few days growth can provide good insulation but they still need to be kept in a very sheltered environment.

Lameness
Footrot is an issue in the flock – those affected are at the back of the group when they move through the paddocks, these are pulled out, injected and then returned to group. Others use a formalin and zinc footbath to treat the ewes. Longer grass may be the cause. Frequent shifting of ewes as in AGW is beneficial for footrot as *Dichelobacter Nodosus* (the cause of footrot) will not survive for more than 14 days without the presence of livestock. However *Fusobacterium Necrophorum* (which causes scald) is always present and long grass will exacerbate the problem.

We discussed the evidence to reduce dependence on foot trimming with mixed feelings. Duncan has been strict with his no trimming policy and it has worked fine. Ian Robertson is involved in a trial with Sainsbury's but is yet to be convinced.

Mobile footbaths could have potential but some treatments (formalin) will kill the grass without a dry surface interval before returning to grazing. Charlie Walker uses hydrated lime around water troughs. John commented that footbathing in the field may be beneficial but ideally the sheep's feet should be allowed to dry after footbathing so putting them onto long grass would just wash off the solution.

Shifting frequency – balance between grass waste and labour use
Many of the demonstration farmers have found that shifting every two days is enough, without a significant drop in utilisation. Daily shifting is optimal to maximise feeding pressure and reduce waste.

Reducing high covers going into winter
Covers that are too high will be poorer quality and more likely to be wasted. The high covers (over 3000 kg DM/ha) on Alan's farm were knocked back by the ewes in September/October. The remaining fields over 3000 kg DM/ha will be grazed first.

Lower covers mean less subdivision required.

As a general rule of thumb, the farm grass cover should average at 2000-2500 kg DM/ha before the winter system commences, however Alan managed on 1700 kg DM/ha last year.

Dealing with enhanced peak pasture production
A consequence of improving grazing management is greater pasture productivity and managing this enhanced spring/summer peak in production is difficult – solutions?

Short term:

- Make silage from fields that get ahead
- Opportunistic store cattle finishing

Long term:

- Increase flock size,
- Increase lambing percentage
- Reducing off-farm grazing area
- Contract dairy heifer rearing

Residual – the grass left behind
The target cover left post-grazing (residual), is dependent on the pasture recovery and condition of the ewe group.

In general, the demonstration farmers left:

- 1000 kg DM/ha residual pre scanning, this helps tidy up the sward and reduces ewe condition.
- 1200-1500 kg DM/ha left post scanning is easier on the ewes and aids grass recovery.
- In addition it may be beneficial in the early years to really give old pastures a good “chewing out” but in subsequent years as the pasture improves we may need to be more careful.

John recommends, if ewes are thin, allow half the green material on offer and move daily.

Graham was allocating 1.5 kg DM/ha to his ewe group in February but his calculations showed he would be a month short of feed. The ewes were in good condition so he reduced their allocations to make the grass last and they lambed fine.

Alternative forages
Previously made red clover silage is no longer depended upon for the winter feed, so the Rutherfords were considering reducing the red clover acreage. However, the red clover is invaluable for the tup lambs and lactating ewes during the summer and, as the persistence of red clover leys has improved with advances in clover breeding, the red clover fits in to the system quite well.

Duncan uses a 12 acre turnip, rape and kale mix which is established after a white clover-ryegrass ley to help with winter ewe feeding.

What are the risks in feeding pregnant ewes kale? Kale anaemia can occur of the ewes are feed high kale diets for longer than eight weeks, however this condition is rare. High sulphur inputs can increase this risk and blood testing can be used to monitor risk.

Plan B
The Rutherfords fed 600 bales of hay and 200 bales of silage last year due to the snow cover.

John comments, that 22 days of back-up feed supply is sufficient based on historic weather records. Even if every one in five years, feeding and housing is required due to adverse weather conditions, the savings over the other four years makes the system worthwhile.

Finishing entire rams
Duncan and the Rutherfords keep rams entire to finish faster. They have to be separated from the ewe lambs in August and they aim to get them away by Christmas to ensure quality is optimal. John comments they finish 10% quicker, produce a leaner carcase but need quality grass in front of them.

Future meetings and developments
The AGW project has now come to an end, however EBLEX are setting up grazing discussion groups – these are farmer-led discussion groups supported by an external facilitator. Farmers are asked to draw up terms of reference and contribute £100/year to the group to demonstrate commitment and part fund the support costs. EBLEX will top up this funding pot to cover the group running costs. We have had a lot of interest in this and will follow up through this mailing list soon. Please contact Poppy Frater on poppy.frater@eblex.ahdb.org.uk for further information.

APPENDIX 15

Northern Farmer article

After final meeting

Neil Ryder

Winter grass trial hailed a success

ALL-WINTER GRAZING

A two-year trial by SAC and Eblex has proved successful at a Northumberland farm. **Neil Ryder** reports

ALL-GRASS wintering of sheep has proved successful on the three northern farms taking part in an Eblex and SAC two-year trial, farmers heard at the final meeting in Longhorsley, Northumberland.

The system is based on cell grazing in which sheep are managed at high stocking densities and moved frequently through electric-fenced paddocks using stockpiled and winter-grown grass.

It is based on careful grassland management, matching the amount of grass available to the needs of the sheep.

After a successful pilot project in Cornwall in 2012, Eblex and SAC Consulting set up a two-year project with seven farms, including three in the North. The final meeting took in a visit to see the system in action at Mike Rutherford's Viewlaw farm, near Longhorsley,

SAC's Rhidian Jones said: "On current lowland sheep systems using concentrate, conserved grass and grazed grass, a typical crossbred ewe will cost about £30.90, but if all annual requirements come from grass, the cost is only £15.60. That is effectively halving direct feed costs, let alone other costs such as labour and equipment.

"Conventional set stocking with ewes depletes grass root reserves, resulting in low spring growth and in cold winters, ewes spend too much time looking for a bite and too little actually getting one! However, in milder winters ewes can become overfat and prolapse.

"Feed allocation on the basis of requirement, not appetite, is best and only available by controlling access through pasture rotation.

"If you are thinking of rotational grazing it is best to start during the winter, as growth can be less predictable in summer. In either case, it is important to measure the volume of grass available and adjust grazing accordingly."

"All-winter rotational grazing has flexiblllity and adaptability. For instance, if housing for lambing, it can be combined with three weeks concentrate feeding at grass before housing with smooth transition on to haylage and concentrates, offering significant feed, bedding, and labour savings over conventional systems. Much depends on the farm, system and grass growth each year," he said.

"As with any system, all-winter grazing will not suit everybody. It will depend on having the right soil type with good drainage, rainfall and floods, levels of winter grass growth, intensity of stocking and environmental scheme agreements.

"However, there is real potential to save £10 to £20 per ewe on forage and feed costs, plus bedding.

"There might also be a small number of sheep that simply do not take to the system and will need to be taken off and managed separately," he said.

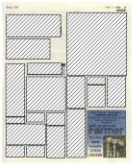
For Mike Rutherford, all-winter grazing has been a major success and he is certain that he will stay with the system, now the trial is coming to an end. He says the transition to all-winter grazing for his 850-strong Lleyn ewe flock was relatively straight forward as he had been using a strip-grazing system for some years earlier.

Now his rotational paddocks are divided using solar-powered electric fencing with each paddock planned to give two days grazing. He finds it easy to set up seven to ten days' fencing requirements in a morning.

Mike works with his brother, Graham, who farms nearby and also uses all-winter grazing for his 900-strong Lleyn flock. Mike's Viewlaw flock lambs at about 180 per cent lambs over ewes mated. All male lambs are reared entire and, as the farm is organic, all finished lambs are sold deadweight.

Together, they farm about 850 acres, all organic, contract-rearing about 2,000 pigs per year and growing about 150 acres of cereals – mostly spring and winter oats.

Mike says: "We have been very pleased with the all-winter grazing trial and it is something that we will definitely carry on. We brought sheep in for a short period during lambing last year and expect to do

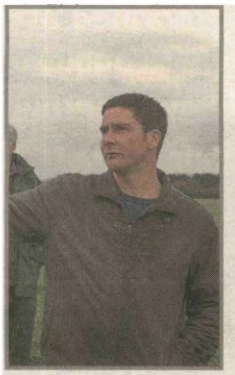


so this winter but, hopefully, can get to the stage where they are grazed throughout the winter. However, this will always depend on the weather and the condition of the ground."

Farmer tips for all-grass wintering:

- reduce the days in paddock, move from the four-day shifts to three or one-day shifts to prevent poaching. When conditions are wet, go smaller and faster;
- use well-drained paddocks or denser swards in wet weather;
- n place gateways at the top of the slope;
- keep the ATV away until being moved as they mob up and poach;
- use in combination with housing, sacrifice fields, forage crops – not a rigid system;
- remove those in poor condition, and regular escapees;
- watch out for soil-balling problem on the feet of some ewes in wet weather;
- be flexible – farmers can re-graze fields if it suits system.

> *We have been very pleased with the all-winter grazing trial and it is something that we will definitely carry on. We brought sheep in for a short period during lambing last year and expect to do so this winter but, hopefully, can get to the stage where they are grazed throughout the winter.*
>
> ***Michael Rutherford, of Longhorsley farm***



MAJOR SUCCESS: Farmer Michael Rutherford

FINAL TRIAL: Rhidian Jones, of SAC

APPENDIX 16

Practical tips from demonstration farms

Practical tips for all Grass Wintering from Demonstration farms

- Reduce number of days in paddock when conditions are wet or if grazing “softer” ground or re-seeds
- Alternatively plan to use wetter fields/paddocks or denser swards in wet weather
- Increase Dry Matter allowance if on 2-4 day shifts to allow for reduced utilisation of grass
- Site gateways between paddocks at the top of slopes to aid sheep movement
- Squarer paddocks allow sheep to spread out into the paddock while with long narrow paddocks there is a danger of sheep tracking back along the fence.
- Keep ATV’s away from the sheep until being moved to prevent mobbing and poaching
- Use AGW in combination with forage crops, housing or feeding forage on sacrifice fields. Be flexible.
- Remove ewes not coping with the system or those that escape regularly
- If soil balling occurs run them up a hard track to dislodge the soil
- Be flexible. Re-graze paddocks if necessary and if grass growth sufficient
- Graze lambing fields at the start of winter to give longer grass recovery time
- Use steel wires as the bottom strand to increase conductivity. Ensure height of bottom wire is low enough to touch sheep on the nose not on the fleece at the back of the neck
- Use leisure battery instead of tractor battery as they last longer. Place batteries on a plank of wood to reduce contact with cold, wet ground and preserve energy.