GREENSWARD

Journal of the South West and Central Scotland Grassland Societies

No. 46

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Front Cover Photograph:
Broughton Mains, Sorbie, Wigtown — Andrew McKay, Scottish Regional Silage Champion 2003

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Front Row: Donald McColm, SWSGS Silage Champion 2003 with the Silver Rosebowl; Silage Judge, Ian Wakley; Andrew McKay, with the Scottish National Silage Trophy, won in 2002. Back Row: Ronnie Wilson, 2nd Dairy prize, 2003; Adam Gray, SWSGS Chairman; Alan Marshall, Best Silage in Wigtown 2003; Hugh McClymont, 3rd Dairy prize 2003.

FOREWORD

There is a great enthusiasm for grassland in South West Scotland, and all members of the Society felt honoured to host the 2003 BGS Summer Visit. Grass, together with its derived livestock products, is by far the most important 'crop' in the West of Scotland, and the Society aims to identify opportunities for improvement in all its aspects. This now very much includes environmental considerations, such as: avoiding pollution from slurry and crop nutrients, management of water use and the integration of commercial farming with nature conservation.

The South West Scotland Grassland Society was founded in 1962 and among its Founder Members were such grassland enthusiasts as Malcolm Castle, John Watson, I V Hunt, Alistair Campbell and John Frame. The Society draws its membership from the Counties of Ayrshire, Dumfries, Kirkcudbright and Wigtown, and is one of the largest of the local Grassland Societies. Current membership is around 270, including farmers, advisers and staff from commercial companies. From the outset, the Society has worked closely with the Scottish Agricultural College (SAC) and the Hannah Research Institute. In addition to meetings and farm walks, the Grassland Society organises Silage, Sward, Innovations and Environmental Competitions. Past winners have competed sucessfully at both Scottish and National levels. Most recently the Scottish representative and runner-up in the 2002 BGS Grassland Management Competition was David Yates from Castle Douglas.

Close liaison is maintained with the Central, East and North Scotland Societies. There is also regular contact with the Isle of Man and other UK Societies, backed up as always by solid support from the BGS.

The above introduction is quoted from the official guide to the BGS Summer Visit, 2003. A brief summary of the visit is contained in this issue of 'Greensward', together with reports of other activities from the Central and South West Scotland Grassland Societies during the past year. Also included are brief items from commercial firms on such diverse topics as Higher Sugar Grasses and Thistles.

As always, the two Societies are much indebted to the staff of commercial companies who continue to give enthusiastic support. In a developing era where time seems to be more and more at a premium, their support, together with that from host farmers, Scottish Agricultural College staff and many others is most gratefully appreciated. The Grassland Societies trust that all these contributions combine to promote the sustainable evolution of agriculture in the West of Scotland.

All authors, advertisers and sponsors are thanked for their participation in this issue. Special thanks go to Lorraine Reid, SAC Rural Business Unit, Auchincruive, for bearing the burden of work of preparing the Journal for publication during a particularly busy time. Mention is also made of the work of Angela Mitton, SWSGS Treasurer. All Society members will feel particularly indebted to the tireless efforts of both these ladies in the background on their behalf, ensuring the smooth running of the South West Society. Staff of our local Ayrshire printers, Walker & Connell are thanked for their valued work in the design, printing and publication of this Journal.

G E D TILEY - Journal Editor

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MEET THE CHAIRMAN

Adam Gray, Chairman, South West Scotland Grassland Society, Ingleston, Borgue, Kirkcudbright

Adam farms at Ingleston in Borgue, Kirkcudbright, on a 720-acre (288 ha) all grass farm. There are 250 dairy cows and followers, and 300 sheep are taken from a neighbour on a 50-week grazing lease.

The farm is split into two blocks: summer – grazing and silage; winter – grazing and outwintering. Only young calves and milking cows are inwintered. The main farm policy is to gain as much use of grass as possible, both winter and summer. Cows average 7,300 litres with 3,600 litres from grass.

Education was at Loretto school, Musselburgh, Edinburgh. Gained BSc (Hons) in Agriculture and Food Marketing at Newcastle University. Adam is married to Elisabeth, with two children, Georgina (6) and Cameron (3).

Activities within the agricultural industry include committee member at Stewartry branch NFU; Past Chairman Scottish Simmental Club; Past Council member British Simmental Cattle Society. Activities outwith agriculture: Past Chairman Newcastle University Senior Agriculture Society; Past coach of Glasgow U19 XV and current coach of Stewartry RFC and Dumfries & Galloway U18 XV. Recently achieved the highest coaching award available within the Scottish Rugby Union. Plays occasional golf and has been known to speak at Burns Suppers and rugby dinners.

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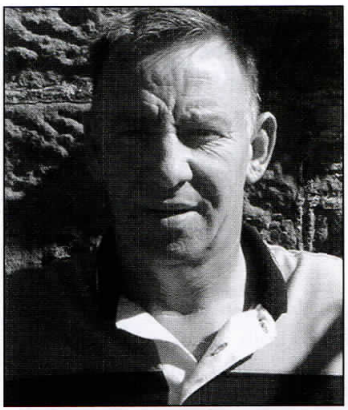
CENTRAL SCOTLAND GRASSLAND SOCIETY
MEET THE CHAIRMAN
Willie Bankier, Fernieshaw, Cleland, Lanarkshire



Willie has been farming at Fernieshaw, a 232 ha (580 acre) dairy farm, in partnership with his parents and brother for over 26 years. Married with three school-age children, he is keen to secure their future in the industry. He has 145 dairy cows and followers; all bull calves are kept on the farm to finish. 80 ha of cereals are grown for own use and 550 lambs fattened per annum, plus a medium-sized contracting business.

In his younger days, he was actively involved in the Young Farmers' movement, being Chairman of the local club, Lanarkshire District and West area. Currently he is Vice-Chairman of the local branch of the NFU and a committee member of the Lanark Discussion Society.

Other interests outside agriculture include being a Board Member of Trustees of the Airdrie Savings Bank, the only independent Savings Bank in the UK, with eight branches throughout the Central Belt and a customer base of 75,000. This has given an extensive experience and knowledge in the world of finance, and the lack of finance in the dairy industry in the past few years!

Willie hopes his knowledge, focus and vision will assist the continuing development of The Central Scotland Grassland Society and he is confident that he can look forward to the support and enthusiasm of all members.

NATURALLY BEST FROM SCOTLAND SOUTH WEST
The BGS Summer Meeting, South West Scotland, 13-17 July 2003

G E D Tiley

In 2003, the British Grassland Society Summer Meeting took place on our home ground in South West Scotland. It was hosted by SWSGS and arranged by an Organising Committee under the leadership of Professor Cled Thomas. Members of the Main Committee were: Cled Thomas, Gordon Tiley, Howard Jefferson, Jan Connell, Hew Chalmers, Adam Gray, Hugh McClymont, Ian McIntyre, John Marshall, Hugh Parker, Ailsa Walkinshaw and Wallace Welsh; and of the Alternative Programme Committee: Jan Connell, Nancy Frame, Anne Roberts and Angela Welsh. Hew Chalmers, Ailsa Walkinshaw and Adam Gray chaired days 1, 2 and 3 respectively.

From start to finish there was tremendous support from the Organising Committee, Host Farmers and, outstandingly, from both local and national sponsors. Acknowledgement of sponsorship was made in the official programme and during the visit. However, South West Scotland Grassland Society wish to re-emphasise their appreciation and thanks to all sponsors by reprinting the list below.

LOCAL SPONSORS

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The meeting was based at SAC Auchincruive Ayr, and began with a welcoming evening on Sunday together with an Introduction to Grassland in south west Scotland by Dr John Frame. The Main Programme of farm visits went to Stranraer and Ballantrae on Monday, to Arran on Tuesday and to Castle Douglas and Dumfries on Wednesday. The Alternative Programme made tourist visits in the same areas as the Main Programme. The Summer visit concluded with the

BGS Annual Dinner at the Brig O'Doon Hotel, Alloway, Ayr with Guest Speaker, Jack Lawson. The menu included prime beef sirloin supplied by Buccleuch Scotch Beef, plus Cream O'Galloway Ice Cream and a selection of cheeses from Taste of Arran.

The following is a brief summary of the visits; full details were included in the Visit Programme booklet.

Milk to cheese in a modern factory. The Caledonian Cheese Company, Stranraer (*Jane Haywood, on behalf of the company directors*).
The first visit was to this important milk processing facility in Stranraer. The visitors were able to see all stages of cheese manufacture from milk reception to vacuum packing and storage of cheese, with detailed explanations from the Factory staff. Approximately 1 million litres of milk are received each day, to produce a range of cheeses (Galloway cheddar was most popular), whey powder, skim milk powder and butter.

Making Tracks. Scottish Enterprise Dumfries & Galloway (*Iain Wilson, Project Officer*).
While groups of the visiting party were waiting their turn to go around the Cheese Factory, Iain Wilson gave a short presentation on 'Making Tracks'. This was a grant-aided scheme to develop links between farming, the environment and tourism in South Scotland, the chief aim to provide a nature-based attraction to tourist visitors, with interpretation, food or accommodation. Examples given were: the Galloway Red Kite Trail around Loch Ken, Mull of Galloway Experience, Eskdale Prehistory Trail, Borders Forest Trail, all of which provided diversification income for local farms.

Maximum use of grass by Extended Grazing. Low Barbeth, Ervie, Stranraer (*Ian & Kate McIntyre*).
As a member of Wigtown Grazing Group, Ian has been changing from a high input system to a much greater use of grazed grass and introduction of block spring calving. Earlier spring grazing has become possible and silage needs reduced. 180 Friesian/Holstein cows averaged 5,500 l on 0.7t cake. Low Barbeth is situated in a mild area where the grass 'never stops growing' and is well placed to test the potential of Extended Grazing.

Quality stock from quality management. Crailoch and Kings Arms, Ballantrae (*Robert and Caroline Dalrymple*).
Situated on the Ayrshire coast with shallow sandy soils (at Kings Arms), early grass was again a feature but followed by summer droughts. However, management was closely geared to these conditions to produce early lambs, with lambing in a modern sheep shed. The management aim was 'to grow the best

grass, buy the best stock and sell the best animals using a high input, high output system and rearing every animal well to get the best prices'. Cattle and sheep were integrated to give best grazing for the sheep.

Sustainable dairying with island constraints. Clauchlands, Lamlash, Isle of Arran (*Alec, Nan and Stuart Reid*).
One of half a dozen milk producers on the Isle of Arran, the Reid family felt it was vitally important to maintain production to keep the Arran Creamery operational, as this was an integral part of the Island's life. Clauchlands also had a long grazing season and a new Waikato parlour paved the way for higher cow numbers. At present there were 240 Holsteins, averaging 7,500l, all milk going to the Creamery to be made into Arran cheese.

Quality livestock from an island hill. Drumaghinier, Blackwaterfoot, Isle of Arran (*Hugh Stewart*).
The 160 ha hill farm with 480 sheep and 37 sucklers was run by Hugh to produce high quality lambs and beef cattle which were equally popular at shows and with the local butchers. There was 48ha of hill land, the remainder being clover rich permanent pasture. Three holiday cottages on the farm were in keen demand and provided welcome diversification income.

Diversification and adding value to traditional livestock farming. Bellevue, Blackwaterfoot, Isle of Arran (*Donald and Susan Currie*).
Characteristic Isle of Arran enthusiasm was also evident on the third farm visited on the Island. Compact beef and sheep units were augmented by a herd of 55 dairy goats, currently milked in a 2-unit parlour which was to be increased to 6 units. The goat milk is processed through a new on-farm cheese plant which produced a range of goat cheeses marketed through the Island's 'Taste of Arran' brand. At the time of the visit, milk supply could not satisfy the capacity and demand of the cheese plant. Bellevue cheeses were served at the BGS Annual Dinner. Self-catering accommodation and farm contracting were other forms of diversification.

Superb grassland and stock management to maintain profitability. Meikle Firthhead, Haugh of Urr, Castle Douglas (*David and Sandra Yates*).
The 3rd day took the BGS visits to the heart of south west Scotland, beginning with a visit to the runner-up of the 2002 BGS Grassland Management Competition. Here the results of many years of hard work by the Yates family, a clear and definite stock breeding policy and absolutely superb grassland and stock management were evident for all the visitors to see.
In addition to producing high output of 10,700l per cow and carefully matching genetics with feeding, animal welfare, water conservation and environmental

work figured prominently. Maize and grass silage contracting was also carried out.

Research in dairying to meet the modern challenges of farming. SAC Dairy Research Centre, Crichton Royal Farm, Dumfries (*Dr David Roberts, Director, and Hugh McClymont, Farm Manager*).
The Crichton Royal Farm is now a major centre for Dairy Research for Scotland, UK and European projects. New buildings and facilities for nutritional and other research have recently been installed, and with a herd of over 400 cows, system studies were possible on large groups of animals. Currently, these included: Low *vs* High Forage Systems, two projects on health and welfare in relation to milk yields, and grazing studies. Studies on CLA (conjugate linoleic acid) content in milk, greenhouse gas (methane) emissions, maize agronomy and nutrient (NPK) budget efficiency were also in progress.

Strategies for sustainability on difficult wet uplands. Auchenbainzie, Penpont, Dumfries (*David and Louise Kirkpatrick*).
The final farm visit (in hot, glorious sunshine) was to the upland farm, Auchenbainzie ('Hill of Stones') within the Duke of Buccleuch's Drumlanrig estate. Because of shallow soils and wet rushy areas, ploughing is avoided. Two thirds of the 640 ha were wet hill/upland and only 64 ha cuttable. The farm had been under organic conversion since 1998. This imposed restrictions on bracken spraying and conventional pasture upgrading after rape sown into a previously sprayed out sward. Livestock comprised 250 sucklers and 1250 ewes, with Angus/Holstein and Blackfaces respectively. However, Stabiliser cattle and Lleyn sheep ('easy care' breeds) were being introduced to reduce management inputs and increase forage efficiencies. This was part of a UK-wide trial centred in Yorkshire (Richard Fuller). The visit concluded with an inspection of a newly constructed wood chip corral, with a capacity for 30 cattle.

The Alternative Tour included visits to the Logan Botanic Gardens and Creetown Gem Museum in the Stranraer area; on Arran, a round-island bus trip stopped at Lochranza to tour the Island's Whisky Distillery followed by a visit to Brodick Castle and Gardens; in the Dumfries area, visits were made to the Shambellie National Costume Museum and the Hospital Museum, cathedral-style church and gardens on the Crichton Royal Farm.

With unbroken hot sunshine on all 4 days, the BGS Summer Meeting in South West Scotland was an outstanding success from beginning to end, and was thoroughly enjoyed equally by all visitors, participants and host farmers.

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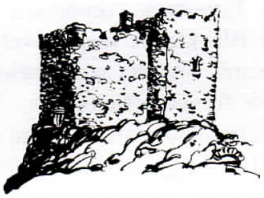

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SWSGS SILAGE COMPETITION 2002
Competition Evening of SWSGS held in Woodland House Hotel, Newbridge, Dumfries on 23 January 2003
G E D Tiley

*Sponsored by **BPI Agri UK, Biotal Ltd, Nickerson (UK) Ltd, John Watson Seeds***

Silage Judge: Willie Crawford, Hatton Mains, Kirknewton

SWSGS Chairman, Adam Gray, welcomed members to the Competition Evening and, following the Society's AGM, introduced Willie Crawford, the Silage Judge, together with other speakers for the evening. It transpired that the Judge and Chairman shared two common interests – Rugby and Grass!

Silage Quality 2002 – Emma Boyes, SAC Farm Business Services, Dumfries and David Keiley, SAC Dairy Services Unit

Emma Boyes began her comments on silage quality (Tables 1 and 2), with the fact that 2002 saw the worst silage made for 5 years, due to the unfavourable weather. Rainfall at Crichton in May and June was practically double the 48-year average, and sunshine totals were well below average for May, June and July. Harvest of first cut silage at Crichton was protracted, requiring over 3 weeks for completion, with stopping and starting, compared with the normal 3-5 days.

Competition silages showed greatly reduced mean DM compared with previous years, and ME and protein levels were lower and very variable. Compared with 2000, 0.8 lower mean ME equated to 6 litres less milk or an extra 3kg concentrates per day. Low DM coupled with low sugar contents had led to a great depression in predicted and actual intakes (see Intake Factor figures). Comparing county means, DM was highest in Wigtown, lowest in Dumfries. IF and CP were lowest in Dumfries, however there was great variability between silages. Mean silage quality for SW Scotland was overall better than means for all Scotland.

David Keiley highlighted some potential problems in feeding silages through the winter, due to the difficult silages with low protein, low intake and high ammonia contents. Silages were bulky, would be used more rapidly and would give reduced performance. Compensatory feeding would be required with transition rations for dry cows and young stock.

Table 1 - SILAGE COMPETITION 2002 - ANALYSES MEANS

Overall Means (Grass Silages)

Group (Number)	DM (%)	D (%)	CP (%)	ITF (c)	ME	NH_3 (% total N)
All Dairy (83)	25.1	64.5	12.2	94.7	10.5	9.2
Beef/Sheep (19)	27.9	60.0	10.9	96.4	9.6	10.2
Big Bale (6)	39.5	59.8	10.7	114.3	9.6	10.2
Dairy						
Ayr (24)	25.5	64.3	12.2	95.8	10.3	9.9
Dumfries (26)	23.8	65.2	11.7	91.3	10.4	10.2
Kirkcudbright (21)	24.8	63.7	12.6	94.4	10.2	8.5
Wigtown (12)	27.7	64.8	12.6	100.6	10.4	6.7

Table 2 - FREQUENCY DISTRIBUTIONS (%) 2002

			Dairy				
	Bale	**Beef/ Sheep**	**A**	**D**	**K**	**W**	**All**
No of Entries	6	19	24	26	21	12	83
D-Value							
>75	0	0	0	0	0	8	1
70-75	0	0	17	12	0	25	12
65-70	0	16	33	50	52	25	42
60-65	50	32	29	27	38	8	28
<60	50	52	21	11	10	34	17

Table 2 - FREQUENCY DISTRIBUTIONS (%) 2002 cont.

	Bale	Beef/ Sheep	*Dairy* A	D	K	W	All
DM							
>40	50	16	4	4	0	0	2
30-40	33	16	13	8	14	50	17
25-30	17	10	29	15	38	8	24
23-25	0	21	17	23	5	8	13
20-23	0	21	25	15	29	17	22
<20	0	16	12	35	14	17	20
CP							
>18	0	0	4	0	0	0	1
16-18	0	0	4	0	10	17	6
14-16	0	21	13	8	14	17	12
12-14	50	5	25	42	38	25	34
10-12	17	37	46	27	33	25	34
<10	33	37	8	23	5	16	13
ITF (c)							
>125	0	0	4	0	5	0	2
120-125	17	5	4	8	5	8	6
110-120	67	21	8	4	5	34	10
100-110	0	11	17	7	19	8	13
90-100	16	16	38	31	19	8	27
<90	0	47	29	50	47	42	42
Ammonia-N							
<4	0	0	13	19	24	17	18
4-7	33	11	25	8	19	33	19
7-10	17	42	12	15	19	42	19
10-15	33	37	33	46	24	8	31
15-20	17	10	13	8	14	0	10
>20	0	0	4	4	0	0	3
ME							
>12	0	0	0	0	0	8	1
11.5-12.0	0	0	8	12	0	17	8
11.0-11.5	0	0	13	0	5	25	9
10.5-11.0	0	15	25	38	33	8	29
10.0-10.5	33	11	21	27	29	0	22
9.0-10.0	50	58	25	23	33	17	25
<9.0	17	16	8	0	0	25	6

Table 3 – 2002 Silage Competition – Short Leet Entrants

Prizes		*Analyses (35)*	Marks *Inspection (65)*	*Total (100)*
	Dairy Class			
1st & SWSGS Rosebowl	A McKay, Broughton Mains, Sorbie, Whithorn	28.35	49.5	77.85
2nd and Best New Entrant	J Howie, Langside, Kilmaurs	23.50	53.0	76.50
3rd	W R Wilson, Mayfield, Castle Douglas	19.15	55.0	74.15
	M McCreath, Garlieston	28.70	45.0	73.70
	W S Jamieson, Rosehill, Closeburn	27.40	44.0	71.40
	D Hogarth, Sorbie, Ardrossan	20.85	47.5	68.35
	H M Parker, Inchparks, Stranraer	24.15	43.0	67.15
Michael Milligan Prize	A Shankland, Langdale, Ballantrae	18.90	46.0	64.90
	Beef/Sheep Class			
1st & BP Trophy	A Mair, Nether Garrel, Courance	16.70	49.5	66.20
	Maggie Gordon, Barfil, Crocketford	15.40	48.0	63.40
	Big Bale Class (on analysis)			
1st	R Marchant, Barony College, Parkgate	15.5		

		Analyses (35)
	Best Silage in County (on analysis)	
Ayrshire	J Howie, Langside, Kilmaurs	23.5
Dumfries	W S Jamieson, Kirkland, Closeburn	27.4
Kirkcudbright	R Paton, Torr, Auchencairn	20.6
Wigtown	M McCreath, Home Farm, Garlieston	28.7
	Best Maize Silage (on analysis)	
Biotal Prize	D Watson, Byeloch, Mouswald	50.3%
	Best Wholecrop Silage (on analysis)	
Nickerson Prize	A Campbell, Cuil, Castle Douglas	68.9%

Best New Entrant prize donated by **John Watson Seeds Ltd**
1st **Dairy, Beef/Sheep** and **Big Bale** winners also received cash tokens donated by **BP Agri Ltd**

Silage Judge's Comments

The Silage Judge, Willie Crawford, said he had taken great pleasure in coming to south west Scotland to judge silage. It did not seem like a task and he was glad of any excuse to look at someone else's farm. Reminiscing, he had previously enjoyed a holiday in the area but ensured he travelled home through Melrose to see his team win the rugby 'sevens'. He had recently attended a Burns Supper in Ballantrae and felt the itinerary of farm visits seemed to follow the Burns Trail (eg: Mauchline, Ellisland). However, there was no connection between silage and Robert Burns, who was a ruined farmer, though the Judge himself felt like 'Wandering Willie'! Thanks were voiced to SAC for promoting the local Grassland Society and other Discussion groups and the Judge hoped these would be continued into the future. He also expressed appreciation to the chauffeurs, including the Chairman Adam Gray and Ian McIntyre for the tour of "the fine countryside and good farmers".

General comments on the farms visited included: universal use of feed wagon, with sheargrab to achieve a tight face at the pit; telescopic materials handlers; cubicle passages well cleaned; additive use universal because difficult without it in wet weather; increasing use of wholecrop silage in dairy rations, thus moving toward the American system with large bulk quantities; one or two asphalt clamp floors giving a good seal to control effluent; roofing was also an advantage for this though of high capital cost; many with top analysis marks were from second cut silage – marks were reduced as there was insufficient quantities to last the winter; there were one or two farms undergoing organic conversion and most farms were safety conscious. The Judge congratulated all winners, particularly the 1st, 2nd, 3rd dairy which were outstanding demonstrations of what can be done. The winning farms and judging marks are detailed in Table 3.

Hatton Mains, Kirknewton – W Crawford

Following presentation of the prizes, the Judge briefly described farming at Hatton Mains in Midlothian. The farm is near the outskirts of Edinburgh where his grandfather had settled in 1924, having moved from Lanark. It was formerly part of the Dalmahoy Estate, sold off in 1911 with two previous owners. 160 ha had cost £24,000 in 1924 and a dairy herd was established. His other grandfather had a herd with the Maxwellbank prefix – one of the first in the Friesian herd book and originally from New Abbey.

Sheep and beef cattle were also kept and crops including cereals, potatoes and hay, grown. After study at Edinburgh and Leeds, Willie went into partnership with his father, with grant-aided building improvements in the 70's and 80's.

The large estate house was sold and a new modern one built. Recently, oilseed rape had increased, and could now be grown as an industrial crop in setaside. Cropping at present is 128 ha combinable crops: barley for seed, winter wheat and oilseed rape. Son Martin looked after a small suckler herd of Bazaidaise cattle imported from France. These have good hind quarters but are slim and easy to calve. In 1999 it was decided to sell the dairy cows on retirement of the Wigtown dairyman after 28 years. Sale of quota allowed investment into 3 farm cottages for letting, as diversification. Cereals are stored in the converted silage shed and straw is sold to Lanarkshire livestock farmers who come and collect. Other diversification projects are livery stables and provision of office space for letting. Willie is involved with the local FWAG and Edinburgh Greenbelt Trust to help improve the visual amenity of the countryside.

The Competition evening concluded with brief comments from **David Yates**, Meikle Firthhead who described the judging process in the BGS UK Grassland Management Competition. This involved a 5-hour on-farm judging visit when all aspects of management – grass, environment, welfare, economics – were discussed in-depth. David was judged a runner-up and he felt it a great honour to represent Scotland in this Competition. **Ronnie Wilson**, Mayfield, 3rd prize Dairy winner, reported a difficult first cut silage which he began on 17 May and finished 20 June. May had been very cool and D-value fell from 77 to 73 in 7 days in material cut on 20 May which was well spread and could be left.

A vote of thanks was given by Robert Sommerville.

THE 4 POINT PLAN: BONUS POINTS FOR LIVESTOCK FARMERS

Rebecca Audsley, Project Officer in Water Resource Management, SAC

Sensible low or no-cost ideas to benefit the business are always welcome; the **4 Point Plan (4PP)** provides a good starting point to identify any changes to current practices that could cut hidden costs and save time. The 4PP could also help to reduce the risk of pollution on the farm and would certainly help towards cross-compliance measures needed for the single farm payment. It covers the following topics:

- Reducing dirty water around the steading. Less to collect means less to deal with, potentially saving time and money.
- Better nutrient use – nutrients added in excess of crop demand could just be lost to the surrounding environment.
- How to make a *Risk Assessment for Manure and Slurry*. Simple actions such as observing no-spread areas around watercourses can significantly reduce runoff risk.
- Managing water margins which provide food and habitat for birds and other wildlife whilst protecting watercourses from field operations.

As an added bonus, farmers implementing the 4PP will also qualify for **points** towards the Rural Stewardship or Organic Aid Schemes for the 2004/2005 round of applications.

The 4PP is available free from SEERAD offices or your SAC or FWAG adviser. It has been produced with the backing of SAC, SEERAD, WWF Scotland, SNH, SEPA, FWAG (Scotland) and NFUS. The plan is commended to all members to consider its potential advantages and put into every day practice wherever possible.

ALKALAGE COMPETITION

A new **Alkalage** section of the SWSGS Silage Competition was introduced in 2003, in view of the increasing popularity of this form of conservation of cereals. Harvesting a mature crop of barley for alkalage is not dependent on dry weather. Neither is bruising of the grain required, since the alkalage harvester incorporates a roller to crush the grain. Alkalage is a concentrate with a high pH and is very palatable for livestock. Properties required in the product are: high DM, maximum starch content, high ME and a pH above 8.0. Marks in the Society's Competition are awarded for DM (70-80%); starch (>30%); crude protein (>13%); pH (>8.0). There were 5 entries in 2003. David Jackson, Redhills, Collin, Dumfries was the winner, on analysis.

CENTRAL SCOTLAND GRASSLAND SOCIETY
SILAGE COMPETITION 2002

D Harvey, Secretary, Central Scotland Grassland Society

HF Seeds Silage Competition Presentation Meeting of CSGS at the Newhouse Hotel, Newhouse on 29 January 2003

The Chairman, Willie Bankier, introduced the Silage Judge: Robert NcNee, who had carried out the judging on the previous day. Robert felt it an honour to be asked to judge, especially as he had not done it before. Silage quality on the whole had been mediocre, though cows were milking very well. The winners were:

HF Seeds Cup & 1st Prize	A Bankier & Co, Fernieshaw, Cleland
2nd Prize	D Carruthers, Nethertown
3rd Prize	R Struthers, Collielaw
Hamilton Reco Salver for Best Beef & Sheep Silage:	R Struthers, Collielaw
Best Big Bale Silage:	R Struthers, Collielaw

Commenting on the prizewinners, Robert NcNee praised the silage quality at Collielaw (R Struthers), which won the Best Beef/Sheep and Best Big Bale classes, and came third overall. The system was simple and good silage was necessary to mix with wheat straw for the cows. Runner-up, Nethertown (D Carruthers) also had a simple self-feed system and very little waste. There was 3 times a day milking, shared and minimum machinery use and most of the winter forage was home grown.

The winners, Fernieshaw (W Bankier) had an immaculate silage pit with side sheets, giving an excellent overall impression, which the Judge felt was very important on farms today. The silage presentation was followed by a very interesting talk on Wind Energy given by Neal Reid, Scottish Power.

LATEST DEVELOPMENTS AT DAVIDSON BROTHERS (SHOTTS) LTD

Bill Souter, Davidson Brothers

In 2004, Davidsons commissioned a new blending plant which is fully integrated with their feed mill. Ingredients are weighed automatically in a microprocessor controlled 3000 kg weigher, and mixed in a highly efficient continuous flow mixer. The end product is screened and sprayed with a light coating of soya oil. New purpose built raw material storage sheds were completed in July, designed to hold 9,000 tonnes of cereal, distillery and flour mill by-products.

WIND ENERGY AND RURAL DIVERSIFICATION

Neal Reid, Renewables Development Officer, Scottish Power UK plc

Talk given at CSGS Competition Evening, Newhouse, 29 January 2003
Sponsored by Volac International Ltd

Neal began by introducing himself as a farmer's son from Northern Ireland, whose main job was negotiating planning permission for Wind Farms.

Global Climate Change. Annual global surface mean temperatures had been rising steadily since the mid-1930s, and were now around 1°F (0.5°C) higher. Increased fossil fuel consumption produced raised CO_2 levels in the atmosphere, which acted like an insulating blanket, preventing heat dissipation.

Market Drivers for wind energy and other renewables derived from the Kyoto protocol. Targets in Europe were an 8% reduction in greenhouse gases and 12% of energy from renewables by 2010. The UK obligation was 12.5% reduction in greenhouse gases, 20% reduction in CO_2 emissions and 10% renewable energy by 2010. UK suppliers were now under obligation to meet this target, otherwise face fines.

Wind is at present the most cost-effective source of renewable energy . Scottish Power (SP) were currently the second largest windfarm operator in the UK, owning 11 wind farms with a total share of 128 MW (mega watts) of the UK total of 530 MW generated (70 wind farms). All SP farms were in remote rural areas, including a 30 MW unit in Kintyre recently completed with consent for another 30 MW farm in Cowal. However, further expansion was required to meet the UK obligation and new farms totalling 500 MW were under development. According to a Scottish Executive study, a potential for 1000 MW generation from wind existed in Scotland. They could supply 10% of electricity demands, and create economic benefits for manufacturing, maintenance, suppliers and jobs. But planning success would be critical, as there were considerable objections to siting wind farms. SP were now developing sites on hilltops, medium altitude moorland, upland forest areas, coastal areas and exposed industrial areas. Though these were small sites which could generate 100+ MW each, there could be benefits from concentrating inputs into a few locations, eg: in the Central Belt of Scotland. Here there could be a significant contribution of green energy where needed most. Also, a few large sites would make Government targets more achievable. Large sites however, required approval from the Scottish Executive. Coastal sites required relatively shallow (not more than 20m) depths, which were infrequent in Scotland because of its geology.

Costs of renewable energy were currently (p per kw hour) wind 2.5-4.0, biomass 5.0-6.0, small scale hydro 3.5-4.5, waste 2.5-3.5. Wind had been chosen for commercial expansion because it was a cost-effective, proven and reliable technology with a large Scottish resource, quick to deploy and with significant economies of scale. Developments in turbines had led to greater size, up to 80m diameter with a hub height of 70m and an output of 2 MW. These were most economical for large sites. 850 kw generators were best for small sites.

Environmental Assessment. Landscape, visual and environmental impacts were of great importance and windfarms were never sited in scenic areas. Montages were prepared during the planning phase. Key issues to be considered were: Landscape and visual impacts, telecommunications (TV, phones), aviation (physical and radar obstruction), birds (ensuring no impact on protected species), plant life (damage and hydrology), noise (there were now strict guidelines), transport and socio-economic effects on jobs. There were clear benefits in getting wind farm developments right – growth, manufacturing, export, but **large** windfarms were essential for UK to meet energy targets.

Benefits to farmers

- Lease revenue of c.£2,500 MW^{-1} $year^{-1}$ was possible, with a guaranteed minimum payment.
- Windfarms were usually on marginal land and grazing or cultivations largely unaffected.
- Windfarm roads can help in access to more remote areas and do not occupy much land.
- Associated environmental improvement schemes add to income.

In the wider rural scene, local economy and jobs are improved and there are opportunities for tourism and visitor centres. SP have embarked on a large scale environmental improvement programme in Argyll to try and attract breeding golden eagles away from a windfarm area, employing a full-time ranger. Similar habitat improvements are planned in other windfarm areas.

WINDFARMING – A TURBULENT RIDE

Angus Campbell, Dalhanna Estate, Overcairn, New Cumnock

Meeting of the Auchincruive Discussion Group, SAC Auchincruive, 12 November 2002

This meeting of the Auchincruive Discussion Group centred on the practicalities of establishing a wind farm from a farmer's viewpoint.

The concept of a windfarm at Hare Hill, (600m above sea level), south east of New Cumnock in Ayrshire was evolved from an NAC Conference in 1991. Consultants were employed, including the National Engineering Laboratory, East Kilbride. Invoking a Scottish Renewable Obligation, the units required 5 years to build followed by a 15 year guaranteed contract to purchase electricity generated. Planning permission was required, as the rotors were more than 15m diameter, and separate access from the main road was necessary for the 1000 lorry loads of materials and equipment, and also for timber from existing forestry.

In the planning process, maps indicated contours of noise level and zones of visual influence. After 20 planning meetings and a Public Enquiry, costing £18,000, permission was eventually granted in 1996. After several years of initial spade work, it was decided to hand over the development of the windfarm to Scottish Power, who pay rental for the turbines based on power generated.

Each turbine base required 16 loads of concrete. The tower is 35m high, weighing 11 tonnes, rotor blades are 47 m diameter, each blade weighing 2t while the nacelle weighs 13t. Each unit contains a computer and 'phone line, and an anemometer monitors windspeeds. Capital costs were forecast as £420K per turbine, with a further £70-100K for installation. Power generated is 660 Kwh per unit, giving a total of 13.2 MWh from the 20 turbines, sufficient for 11,000 homes. Wind speeds of 15m sec^{-1} are optimum. The Hare Hill farm produces 43% of maximum output, considered very good. A saving of 46,000t greenhouse gases is achieved, and a life span of 25 years is anticipated, after which the turbines could, if necessary, be removed.

Benefits to farming are additional diversification income, improved access to the hill for lambing and stock management. In East Ayrshire, there were potential benefits for tourism, with a possible Visitor Centre. RSPB were supportive of the development.

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CENTRAL SCOTLAND GRASSLAND SOCIETY FARM VISITS 2003

D Harvey, Secretary, Central Scotland Grassland Society

14 February 2003. Fernieshaw, Cleland *(Courtesy: A Bankier & Co).* This was a winter farm visit, following success of the Bankier family in the local CSGS Silage Competition. The format was a soup & sandwiches lunch and farm visit, arriving 11.30, departing 13.30.

15 May 2003. Crochmore and Merkland Wells, Crocketford, Dumfries (*Courtesy: D & R Kerr*). A visit to two dairy units farmed by the Kerr brothers. Crochmore milked 310 Holsteins, averaging 8,400 l and fed a TMR ration with only a small amount in the parlour. Total area 424 ha, plus a further 24 ha rented, consisting of grassland, including 136 ha for first cut silage, and 72 ha arable (winter barley 38 ha, spring wheat 14 ha, setaside 20 ha). Merkland Wells was smaller with 150 cows averaging 8,100 l, again fed a TMR diet but no feed in the parlour. There were 120 in-calf heifers and 250 cattle for summer finishing. First cut silage amounted to 72 ha.

Glenkiln, Crocketford, Dumfries *(Courtesy: H Keswick and manager, G Sommerville*). An upland beef/sheep and hill sheep enterprise in a wet part of the southern uplands. There were 940 ha of hill and 400 ha of in-bye. The hill carried 2000 Blackface and Lleyn ewes, with Texel X and Mule ewes for the lowland. Tups used were Blackface, Blue Faced Leicesters, Texel, Lleyn and Suffolk. Lambs were sold fat and kept for breeding, with the remainder sold as stores. In addition, there were 500 Angus cows and Shorthorn cross sucklers, put to Shorthorn, Romagnola, Simmental and Saler bulls. Particular thanks are extended to the Kerr family, to H Keswick and to G Sommerville for these two farm visits.

24 July 2003. Greentowers Farms Ltd, Lanark (*Courtesy: W Smith & Sons*). An evening farm visit was enjoyed by CSGS at Greentowers Farms, which extend to 496 ha, together with a further 80 ha rented. There are two dairy units carrying 300 Holstein cows with an average of 7,500 l. The cows are fed with a home mix in the parlour, and by mixer wagon outside the parlour. All young stock are reared with the bulls finished as bull beef. Sheep are overwintered and there was also a 70-suckler herd.

Cropping in 2003 was 68 ha barley, 16 ha winter wheat, 36 ha spring wheat for whole crop silage, 12 ha setaside. There were 40 ha of rough grazing and 56 ha planted woodland. The remaining area, 340 ha, were grazed and silage grassland. CSGS is grateful to the Smith family for the privilege of this visit.

ADVANCED SOIL MANAGEMENT FOR IMPROVED MINERAL UTILISATION

Dr David Atherton, Thomson & Joseph Ltd, Norwich

Joint Meeting of SWSGS with the Stewartry Agricultural Discussion Group, held at the Douglas Arms Hotel, Castle Douglas, 25 February 2003.
Meeting sponsored by ***Scotmin Nutrition Ltd, Ayr***

David Atherton is Managing Director of Thomson & Joseph, a specialist mineral company which has established an independent branch: Ground Level Nutrition, to interpret soil analyses and offer consultancy advice on "**Integrated soil management**". This aimed to link the properties of the soil with plant growth, and subsequent animal performance, all dependent on each other for optimal overall health and sustainability. In particular, recent increases in animal health and fertility problems could be linked with soil imbalances. The crucial importance of the soil as a vital functioning system was the basis of the grassland philosophies of André Voisin and other earlier workers, no less so of modern organic movements.

The importance of good soil physical structure, organic matter content, aeration and balanced chemical properties was emphasised. A balanced cation exchange, preferably base (largely calcium) saturated, was required. This had a major impact on micro organism activity and availability of trace elements. For example, high available molybdenum (Mo) could induce a soil copper (Cu) deficiency, affecting both crops and animals. Correcting Mo, eg: by soil aeration, would allow Cu to come back into balance. Magnesium and selenium were other key elements subject to imbalance, and also the sodium:potassium ratio. Cow fertility was affected by levels of copper, iron and molybdenum.

In conclusion, a Nuffield Farming Scholarship study by Josephine Scammell had shown that soil management should aim for maximum microbial activity to allow the soil to function naturally and in balance. This eventually resulted in a more economical crop and livestock performance. More balanced, rather than higher, fertiliser inputs were required, and cation exchange soil analyses could give a correct indicator of this mineral balance.

YEAST IN ANIMAL DIETS

Neil Dale, Dairy Specialist, Scotmin Nutrition Ltd, Heathfield, Ayr

Following David Atherton's talk, Neil Dale gave a short presentation on the role of yeasts in animal diets. The health of the rumen is critical to efficient feed utilisation, and work on yeasts to enhance this had been conducted for more than 20 years. Yeasts were live, specific and powerful, capable of fermenting sugars to produce alcohol and CO_2. Yeasts can also produce enzymes, metabolites, vitamins and can stimulate bacterial activity. Antibiotics were sometimes used as in-feed supplements in low doses for selective bacterial inhibition, and improved economic performance. However, fears of affecting

bacterial resistance in humans have led to their progressive withdrawal. Yeasts could provide a safe, wholesome, effective and economic alternative.

Biosprint is a registered yeast (*Saccharomyces cerevisiae*) product which stimulates rumen bacteria. In so doing, it moderates rumen pH and ammonia, leading to increased fibre digestion and protein synthesis. This results in higher intakes and higher animal production (milk yield and quality, beef liveweight gains and feed conversion efficiencies) which are proven in formal trials. The Biosprint yeast strain has been registered under No.39885. The benefits claimed are: reduced acidosis, laminitis and bloat; improved feed intakes; 9% higher liveweight gain; improved feed conversion and 5% more milk. Approximately 3g $head^{-1}$ day^{-1} are fed, ideally within minerals as a carrier. It is safe to handle and costs around 4p day^{-1}. This compares favourably with other live and dead yeast products, which gave similar responses. Yeast is a natural performance enhancer, which is particularly valuable in critical feeding situations, such as pre-calving or with high starch or high concentrate rations.

FWAG PROGRESS IN DUMFRIES & GALLOWAY

Wendy Fenton, Adviser, Dumfries & Galloway FWAG

The Farming and Wildlife Advisory Group (FWAG) exists to provide farmers with the best opportunity for environmental gain through cost effective quality solutions. It is an independent organisation and the leading provider of farm conservation advice in the UK. Dumfries & Galloway has retained a rich diversity of farmland and it is important to preserve what we have, whilst farming economically. With the RSS' popularity still growing and a prestigious new project up and running, we are convinced that FWAG can help farmers ensure that biodiversity within Dumfries & Galloway will continue to flourish.

FWAG advisers in Dumfries & Galloway made over 140 farm visits throughout the Region during the year. These included SNH funded visits (which are free to the farmer) to raise awareness of conservation issues amongst farmers. They were followed up either by Whole Farm or Landwise Reports, or by provision of the specific advice needed. The advice is given to improve farm biodiversity by, for example, improving hedgerows, creating grass margins around crops, fencing off watercourses or on possible sources of funding for these changes. The main areas of funding continue to be the Rural Stewardship Scheme (RSS), the Scottish Forestry Grants Scheme, Council Amenity Planning Grants and SNH grants.

The Rural Stewardship Scheme has become increasingly popular and all applications drawn up by FWAG in 2002-2003 were accepted and are currently underway. The popularity of the scheme led to a significant increase in applications for 2004, which are worth in excess of £400,000 to the Region. Following on from the success of the Stewartry, Central and Western Southern Upland Environmentally Sensitive Area (ESA) Schemes, all schemes reaching their 10-year anniversary now gain automatic entry into RSS. This will safeguard large areas of herb rich grassland and wetlands which have benefited from previous management under the ESA Scheme. Those already entered by D & G FWAG this year will bring in more than £380,000 highlighting the significance of RSS in contributing both environmentally and economically to the Region. The work will help maintain and improve wildlife habitats, often at minimal cost to the farmer, such as by maintaining species diversity in grassland and wetland by grazing and fertiliser control, managing grassland to allow nesting birds to fledge, creating conservation headlands or planting overwintering crops for wildlife cover.

Projects. Last year we ran a project entitled "**Promoting Pollution Control and Sustainable Waste Management"** which was funded through the Landfill

Tax Credit Scheme operated by Dumfries & Galloway Council. FWAG visited and gave free advice to 40 farms throughout the region on reducing waste, preventing pollution and enhancing biodiversity on farms. We were awarded funding for further visits during 2004.

"Best Practice on farms in the Annan and Dee/Ken Catchments" is a new 3-year project, funded through the Leader+ European Programme, Scottish Natural Heritage and FWAG. Partner organisations involved include FWAG, RSPB, D & G SEPA Catchment Management Planning Officers, SEPA Diffuse Pollution Initiative, the Wildfowl and Wetlands Trust and Solway Heritage. The project, which will be launched on 8 July 2004, aims to create four demonstration sites on farms located within the Annan and Dee/Ken catchments. £5,000 worth of capital expenditure will be awarded to each of the successful farms, focusing on key aspects of farmland conservation, namely: Wetland Management; Farmland Birds; Hedgerows and Trees and Sustainable farm drainage systems. Training events and farm visits will be held throughout the duration of the project. Farms located within these catchments, wishing to apply can contact the FWAG office.

Staff within Dumfries & Galloway. Kirsty Hutchison is Farm Conservation Adviser for the West of the Region, whilst Wendy Fenton is the Adviser covering the East of the Region. Isobel Craik is the Admin. Officer for the Group, looking after the office and local membership. They are supported by Alice Campbell (Chair) and Alan Crichton (Treasurer) and other members of the committee. If you are interested in a FWAG visit within Dumfries & Galloway, or in becoming a member, please telephone the office. Contact details: Dumfries & Galloway FWAG, Studio 1, Hillhead Mill, Kirkgunzeon, Dumfries DG2 8LA. Tel: 01387 760576 or e-mail Dumfries.Galloway@fwag.org.uk.

SWSGS PRIZES 2003

The SWSGS Vice-Presidents' Prize was awarded to the best Grassland student in the first year Higher National Diploma in Agriculture course: **Mark Colley**, from Dalry, North Ayrshire. The Malcolm Castle Memorial Prize was awarded to **Hazel Erskine**, Gillbank Farm, Carluke, Lanarkshire, for excellence in the Bachelor of Technology in Agriculture 4th year.

These prizes are sponsored by the South West Scotland Grassland Society to acknowledge and stimulate excellence in grassland orientated courses at SAC Auchincruive. The Society congratulates last year's winners and expresses Best Wishes in their future careers.

SWSGS EVENING FARM VISIT 2003, AYRSHIRE

G E D Tiley

Visit to Raith, Monkton, Prestwick on 26 June 2003

By Invitation: Robin Hamilton, Barmoorhill

A large turnout of Society members enjoyed this visit, the only local summer farm walk in 2003, just before the BGS Summer visit in July. Raith was taken over as a Limited Partnership in 1999 and has been adapted into a large, intensive dairy/arable/beef/contracting enterprise, with potential for further developments. The group of four units is worked together and totals 1,070 acres (428 ha). 580 acres (232 ha) are cropped to winter wheat, winter and spring barley. Raith itself comprises some 450 acres (180 ha) and carries 260 Holstein cows (with an average of 7,500 l). Silage areas are 210 acres (84 ha) first cut, 160 acres (64 ha) second cut, with an additional contracted acreage. All rations are home mixed. There is an extensive range of buildings, including a dry cow shed. Calf accommodation is limited to 100 spaces at the edge of a shed in a line beginning at the top and progressing to the bottom. The cubicle shed has a capacity for about 200 cows with a parlour that was newly installed when the Society visited Raith some 20 years previously. However, throughput is a limiting factor with a maximum rate of 70 cows $hour^{-1}$. Total milking time was 7 hours of the day and upgrading of the parlour was being considered.

2003 had been a good year for grass and first cut, begun on 20 May, had filled more than one of the two silage clamps. The silage had a low DM and better quality was anticipated at second cut. Manuring was 200 kg N ha^{-1} plus slurry on fairly heavy soils. 215 cows graze 26 ha grazing land throughout the summer. A beef unit at Foulton and Springbank kept up to 1000 head store cattle through the winter. All feeds were based on a home mix compounded at Springbank and transported to Raith and Barmoorhill. Cereals were grown on the better land around Foulton, including winter barley (cv. Pastoral) winter wheat cvs Clair, Deben and spring barley. Setaside areas had dense white clover which could potentially produce a seed crop. Docks were treated with a clover-safe herbicide. Labour was 4 family plus 2 full-time and 2 part-time employees. In addition to work at home, the enterprise was able to spread the costs of machinery in contract work. Since the date of the Society's visit, a new 24/48 parlour and shed for 100 cows has been installed at Raith, and a new 16/32 parlour and shed for 50 cows at Barmoorhill, resulting in a 50% reduction in milking time. Cow numbers have increased to 420 at Raith plus 160 at Barmoorhill.

The Society wishes to acknowledge the privilege of visiting this impressive enterprise and thanks the Hamilton family very much.

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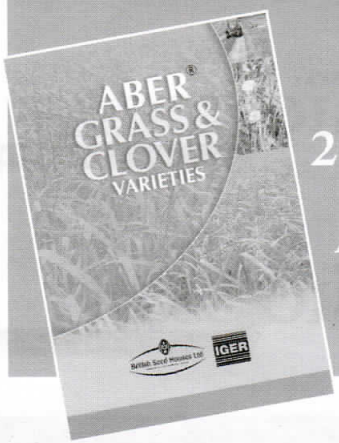

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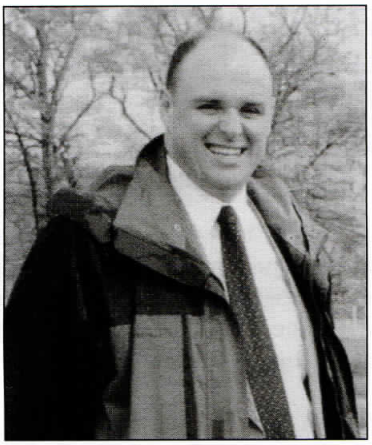
HIGHER SUGAR FORAGE GRASSES IN THE PIPELINE

David Butler, Agribusiness Communications (ABC) Limited, Mosterly Farm, Cound Moor, Shrewsbury

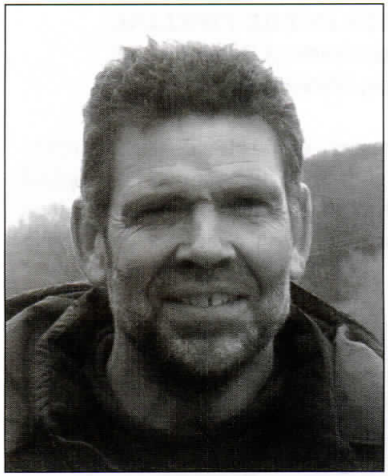
The best new generation of high sugar grasses could have water-soluble carbohydrate (WSC) contents almost 20% higher than the pioneering diploid perennial ryegrass variety AberDart – the first forage grass to win the prestigious NIAB Variety Cup for combining improved quality with excellent agronomic performance.



Michael Shannon

According to Michael Shannon from British Seed Houses (Scotland) – the company that markets the Aber grass and clover varieties developed at the Institute of Grassland & Environmental Research (IGER) in Wales – the Institute is continuing to make good progress in increasing both the sugar and yield in forage ryegrasses. The new generation of Aber high sugar grasses (Aber HSG) are yielding on average an extra 40g kg^{-1} WSC in the latest trials. The results represent an annual improvement of 5g kg^{-1} – or 0.5 percentage points – over each of the past nine years of the Aber HSG breeding programme. IGER grass breeders are also widening the ratio between WSC and protein in the grass, which will allow the animal to utilise the protein more efficiently. As with all varieties of perennial ryegrass, the potential of higher WSC content will vary to some extent with the management regime employed. To maximise WSC content in all cases – and certainly to exploit the high WSC content of Aber HSG varieties most fully – it is best to use the three-leaf system of rotational grazing management, whereby each tiller ideally has three fresh leaves prior to the commencement of a new grazing rotation.

IGER grass breeder Dr Pete Wilkins reports that grass with a high WSC content provides extra, readily available energy for the rumen microbes. This results in the double benefit of allowing them to utilise more of the available protein from the forage for meat or milk production, while decreasing the amount of nitrogen lost in the urine. IGER animal scientists have recorded significant improvements in liveweight gain in beef cattle and lambs, and milk yield in dairy cows, when grass varieties had WSC contents at least 4% higher than the 'control' varieties used. These improvements to on-farm performance of the



Dr. Pete Wilkins

new generation of Aber high sugar varieties come from better utilisation of protein in the rumen, and also from higher voluntary intake.

However, the WSC content of grass fluctuates with daily and seasonal conditions, and also with growth period. Management practices, such as the level of nitrogen fertiliser applied and cutting or grazing frequency, also affect WSC levels. "Research is on-going to ascertain how these relationships work," says Dr Wilkins. "We know, for instance, that the protein content of herbage has an important effect on WSC levels. It appears that when the protein content increases, the WSC level decreases. Low light levels and high applications of nitrogen fertiliser tend to increase protein. Increased leafiness has been a key trait for raising the D-value of varieties, but I think we have taken this trait about as far as we can. Increases in leafiness have to be balanced against other economic traits, such as stem yield at the time of first cut silage".

British Seed Houses (Scotland) reports that the next high sugar grass in the Aber pipeline is AberStar and limited quantities should be available in spring 2005. A new booklet on Aber Grass & Clover Varieties is available from British Seed Houses (Scotland) on 01968 678480.

Aber HSG High Sugar Grasses (SAC Recommended Lists 2004/05)

AberDart HSG – intermediate perennial ryegrass
AberAvon HSG – late perennial ryegrass
AberZest HSG – late perennial ryegrass
AberStorm HSG – AberHybrid ryegrass
AberEcho HSG – AberHybrid ryegrass

IGER's work on breeding high sugar grass is funded by the Department of Environment, Food and Rural Affairs, while the animal performance work is supported by DEFRA, Milk Development Council, Meat & Livestock Commission and Germinal Holdings Ltd.

RECENT DEVELOPMENTS IN GRASS MACHINERY

Jim Campbell, Lely UK Ltd, Crosshill, Maybole

Joint Meeting of SWSGS and Scottish Branch of the Institute of Agricultural Engineers, held at SAC Auchincruive, Ayr on 9 December 2003.

Jim Campbell is area manager for Scotland with Lely, a company originating in the Netherlands with a history of high-tech machines for agriculture. Their logo was a green grass leaf dripping milk into a glass ("From grass to glass"). In the 1950s Lely invented the finger hay turner, marketed together with Vicon. They were the first company to market the single disc spreader, followed by power harrows (Roterra), modular cutter bar and robotic milking (1992). Taking over Welger in 1995, a fixed chamber baler was developed. The company now operates and develops machinery worldwide and extends to industrial balers for wool, plastic and nylon products, and also Toro amenity grass machinery.

Features of grass mowers, spreaders, balers, baler wrappers, diet feed wagons were briefly highlighted.

Splendimo mowers 1.65-3.2m have no oil in beds and are driven by a central hexagonal drive shaft. Because there is no oil, the mower can cut at an angle or trim hedges. Front mounted mowers could be used in combination with two rear units to increase cutting width with a suitably large tractor.

Tedders or grass spreaders were very popular in UK: These could row up to form a very square sided row. Round and square balers, and conventional balers were produced. Novel features were the hydraulic opening to clear blockages, a reset clutch to save damage to the baler, and rollers with adapted bearings and flexing mechanism. Lely made their own string knotters. The Lely-Welger baler-wrapper allowed immediate fermentation in the bale.

Self propelled and trailed Italian feeder wagons with low power requirement were described. In conclusion, it was emphasised that costs to make bad silage were the same as for making good silage, and there must be a clear aim in making the type of silage required. Machines were getting bigger, and there was a move to combination models.

TOWARDS HEALTHY GRASSLAND

Steve Peel, DEFRA, Leeds
President of the British Grassland Society, 2002-2003

I felt honoured and privileged to be invited to be President of the BGS, having been twice a national council member, as well as on several organising committees. I've also been a member of 3 local societies, in one as secretary, and was even a member of the New Zealand Grassland Society for a year or two. As President I have tried to progress and to build on the work of the BGS tradition of sharing knowledge for the benefit of all.

Is the Society in good health?

I think, the BGS is an essentially healthy society, with the following strengths:

- We command respect as a learned society, but we are friendly and open.
- We are unique in having a membership spanning farming (35%), research (25%), consultancy (15%), education (10%) and trade (10%), with 20% of our members from overseas.
- Our membership is underpinned by the 67 local grassland societies across Britain, which are the source of many of our farmer members.
- Our journal, Grass and Forage Science, is profitable and has been adopted as the journal of the European Grassland Federation.
- Our magazine, Grass Farmer, has undergone a major improvement in recent years.
- We have a varied programme of meetings which attract many non-members.
- We have a superb secretariat, and an outstanding honorary treasurer.

Improvements which could be made include: Attracting more younger members, attracting more scientists to the summer meeting and more farmers to the winter meeting, endeavouring to interact more with the public – food, countryside, wildlife and equine interests.

The Way Forward

I believe we have to think broader and to look outwards. The BGS has been doing this for some years. For example, we have been building alliances, and holding joint meetings, with the Maize Growers Association, the British Society of Animal Science and the British Ecological Society. We have helped LEAF to develop their grassland audit, and our future programme includes a joint meeting with the Association of Applied Biologists and the Colloquium of Organic Researchers. In 2005, together with the Irish Grassland Association, we will help to host the International Grassland Congress – a global event likely to attract 1500 delegates, including leading research workers from all over the world.

We have also taken the opportunity to launch a new National Grassland Competition. This builds on the old silage competition, but looks wider – at the way all the resources on the farm are managed. This exciting development has the potential to engage interest outside the grassland sector, and perhaps with the public, which the old competition never could. But the Society must have firm foundations, which should start with applied science. I am concerned that, whilst we have many young scientists at our conferences, most are not members. And scientists, young and older, are finding it difficult to get sufficient recognition for papers offered to our journal, and/or our conferences. This is because their careers are judged against pure science criteria, with little attention to practical application and the ability to communicate with users. We need to explain to research funders that this approach, which appears to be academic snobbery, is a barrier to the success of the research they are paying for and the technology transfer they desire.

Our other foundation is our local county societies, of which most of the active members are intensive farmers, mainly in the dairy sector. Some of the younger farmers, and prospective members, have joined the grazing discussion groups, many of which have been very successful. Our greatest challenge is to broaden our membership at local level to include and extend the broad spectrum of interests that is covered by our national membership – why shouldn't local societies have more members who farm extensively, or process and sell food?

The BGS will continue to show its members the benefits of membership by reaching out to all with an interest in grassland, whether in science or practice, by promoting and stimulating ideas, sharing and using knowledge, to meet the ever changing and new challenges in farming.

ADVANCES IN SILAGE RESEARCH – PART II

Prof Cled Thomas, SAC Auchincruive, Ayr

Second part of a summary of the XIIIth International Silage Conference, held at SAC Auchincruive, 11-14 September 2002. The First Part appeared in last year's 'Greensward', No.45.

New Techniques. New advances were reviewed by Richard Muck from US Forage Dairy Centre and Padraig O'Keily of Teagasc in Ireland**.** Worldwide sales of forage harvesters show a trend towards larger equipment, with growth in self propelled harvesters and large square balers. There has been a decline in direct cutting, but a massive growth in big bales. Flexibility, transportability, saleability and, in wet climates, the need to reduce effluent pollution have been the key drivers.

A recent development in the US has been the introduction of replacement rolls for mower conditioners that provide 'super conditioning'. A pressure system connected to the rollers crushes forage stems more effectively with a claimed (yet to be independently tested) improvement in drying rates of 30-50%. In maize silage systems, grain processing using counter-rotating rollers has become more common in the US. The extra processing needs to be counter-balanced by increasing target chop length by about 6mm to maintain chewability. Modest but economic improvements have been achieved with dent type maize of about 1-2kg of milk per day and a 6% improvement in efficiency has been noted in beef feedlot cattle. There is now interest in the use of these machines for grass and legume silages, but the benefits have yet to be assessed. Sensors on harvesters are now able to measure yield while the machines are in motion, which could have considerable benefits in ensuring more accurate application of additive. Less certain is the benefit gained from being able to assess forage quality.

Major advances have been made in big bale systems, but concerns about this technology still exist. Unchopped material common in big bale systems results in poorer fermentation and handling difficulties. However, systems are now available that can provide chop lengths of 40-50mm. There has been concern about greater chamber and drop losses with these balers, but differences in overall total losses appear to be small.

The extensive use of plastic in silage systems and its environmental impact remains a key issue. Pressed bags clearly reduce the amount of plastic, but they are not transportable like individually wrapped bales. Optimum DM should be about 30-40%. Punctures can also have a major impact on quality, and need to

be repaired quickly. In wrapped bales, the thickness of the plastic is important. Long-term studies in Ireland and Japan suggest that 4 layers of conventional 0.025mm thick film were optimum. Increasing from 4 to 6 layers had little further benefit. Six layers would probably be needed with 0.014mm film.

Studies in Ireland on how to deter birds from damaging the stretch film of big bale wrappers found a painted eye design to be one of the most effective.

Feeding Systems. Methods of feeding silage are little researched, and yet these can have major effects on feed losses and costs. The Agricultural Research Institute of Northern Ireland (ARINI) compared two systems. A high labour (HL) system offered a complete diet of grass silage, maize silage and concentrate (8kg DM) daily using a mixer wagon with the removal of refused feed twice weekly. In a low labour system, blocks of grass and maize silage were placed along a feed barrier mounted on wheels that allowed cows to 'graze' into the blocks. The blocks were exchanged twice weekly and concentrate (same amount as in HL) fed in out of parlour feeders. The results showed no difference between the two systems in intake, milk production (29kg per day) or condition score. The low labour system reduced the total time per week to feed 100 cows from about 5 hours to 2 hours 20 minutes.

The relative costs of silage systems have also been examined in Northern Ireland. Usually only part costs are presented, but a team from ARINI and Greenmount College examined all costs up to the point of feeding. Using actual yield and utilisation figures from trials in NI, grazed grass cost £73 t^{-1} utilised DM (UDM) whilst 3 cut grass silage cost £85 with big bale at £86. The 20% higher relative cost of silage compared with grazed grass is much lower than the conventionally accepted figure. The most interesting conclusion was that if alternative forages are produced on land eligible for area aid, then their net cost of production (£75 t^{-1} UDM for maize; £70 wholecrop wheat) was similar to grazed grass. Without aid the costs were £91 (maize) and £88 (wholecrop). All these costs are very sensitive to yield. In the study, a 3-cut system and big bales yielded 11.5t UDM ha^{-1}, urea wholecrop 11.8 and maize under plastic 12.6 t ha^{-1}. These values make forages very competitive with grassland systems, even under conditions similar to ours.

Legumes for Silage

Red clover and lucerne have been shown to yield well for 3 years at IGER, Aberystwyth, and could be successfully made into silage. Plots of lucerne cv. Vertus and red clover cv. Merviot were cut in May, early and mid July and late August. Over 3 harvest years, the lucerne averaged 4.8, 5.3 and 3.1t DM ha^{-1} for 1st, 2nd and 3rd cuts respectively, whilst yields for red clover were 4.1, 4.4 and

2.3t DM ha $^{-1}$. The crops were conserved in big bales after inoculation with a live culture of *Lactobacillus plantarum*. Crude protein contents of all silages were in excess of 20%, with lucerne consistently higher, although there is evidence that the protein in red clover silage is of better nutritive value. Lucerne silages were also easier to wilt with a DM of 38.5%, red clover being only 30%. This was confirmed in a subsequent trial where, in good conditions, lucerne left undisturbed in swaths, reached a DM content of 40% after 27hrs, whilst red clover took 50hrs to achieve this level. Achieving higher DMs than this could be risky, since analysis revealed a potential for instability when exposed to air. Wilting to about 40% DM, addition of inoculant and big baling resulted in high quality lucerne and red clover silages. Using either formic acid or a 'live' inoculant gave the best fermentation characteristics. In terms of overall nutritive value, the US Dairy Forage Centre in Wisconsin reported that, on average, lucerne and red clover produced similar yields of milk.

HONOURS TO MEMBERS

Members of SWSGS who have been awarded Honours during the past year include:

Donald Biggar, Grange, Castle Douglas – OBE, January 2004 for services to the livestock industry.

Seamus Donnelly, SAC Farm Business Services, Stranraer – MBE, January 2004, for services to agriculture and the local community.

John Frame, December 2003, Jubilee Medal of the Institute of Land Reclamation and Grassland Farming, Falenty, Warsaw, Poland for distinguished co-operation in grassland research and development in Poland.

Cled Thomas, November 2003, Annual Award of the British Grassland Society, for outstanding contributions to grassland and livestock research, education and development.

All four Society members are congratulated on the award of these distinctions.

CENTRAL SCOTLAND GRASSLAND SOCIETY
SILAGE COMPETITION 2003

CSGS Silage Competition Evening, Newhouse Hotel, Newhouse, 29 January 2004

Silage Judge: J Currie, Carlinside. The Silage Judge gave a brief review of the farms he had visited. The winners were:

HF Seeds Cup & 1st Prize	J J Fleming, Hallhill, Crossford
2nd Prize	W Baillie, Hillhead
3rd Prize	W Mitchell, Hazelside, Glespin
Hamilton Reco Salver for Best Beef & Sheep Silage:	W Mitchell, Hazelside, Glespin
Big Bale Prize:	R Struthers, Collielaw

Following presentation of the prizes, **Niall Robertson**, photographer with 'The Scottish Farmer', displayed a portfolio of photographs accompanied by a commentary. Niall commented on how new technology had revolutionised the industry. A photograph could be taken in Iraq and 10 minutes later it could be in the press in the UK. Niall also stressed that you should always carry a camera, as he had a holiday paid by a tourist board from a snap he took on one particular holiday. All members agreed the talk was very interesting, and many questions were asked and responded to by the speaker.

BGS NATIONAL GRASSLAND MANAGEMENT COMPETITION 2003

Sponsored by ***Kemira GrowHow and Barclays Bank***

The BGS National Grassland Competition sets out to find the farmer who best demonstrates excellence in the management of grass and forage, leading to profitable livestock production and care of the land.

The 2003 winner was David Wallace, Ashdale Farm, Antrim, Northern Ireland. Farming 105 ha of heavy clay land bordering Lough Neagh, near Antrim, David was winner of the Ulster Grassland Society silage competition. His aim is maximum profit to grow the business, with high animal welfare and environmental awareness. Milk average was 8,142 l, 4,432 litres from forage (2,385 litres from grazed grass), using 1.73t cake. He is keen on new ideas and research results that can be applied, and is involved in local groups to broaden his knowledge.

The Scottish representative, John Hamilton, Innerwick, Dunbar, East Lothian was a runner-up, as was David Yates in 2002. John maximises income on his 816 ha upland unit from the production of high quality organic beef and lamb, which is marketed directly to supermarkets. Wholecrop barley, peas and lupins supplement high quality silage. Summer grass is maximised through clover, FYM and rotational management, so that most lambs can be finished early.

SCOTTISH SILAGE COMPETITION 2004

Rhidian Jones, Macaulay Land Use Research Institute, Sourhope, Kelso

(BGS Scottish Regional Representative)

This year's winner of the Scottish Silage Trophy was J & J Fleming, Hallhill Farm, Crossford, Lanarkshire (Central Scotland Grassland Society) and the runner up Donald McColm, Cairngarroch, Drummore, Wigtownshire (SWSGS winner).

The annual Scottish Silage Competition was originally sponsored by the British Grassland Society (BGS) and SAC. However, since 2001, when the national society introduced an alternate Grassland Management Competition, the four Scottish local grassland societies (North, South West, Central and East Scotland), along with the BGS Scottish representative, have continued to sponsor the Scottish Silage Trophy. The winner of each local society competition, or an alternate nominee, goes forward to the final. This year's competition was judged by Dr Ron Harkess, formerly of SAC, using a scoring system agreed by the four Scottish societies. Points are awarded for the chemical analysis of the silage, plus marks for the overall efficiency of production and utilisation of the silage, as assessed during a visit to the farm.

NOTES FROM THE ISLE OF MAN

Caroline L Perry, Secretary, Manx Grassland Society

26 June 2003. Farm Visit to **Ballahowin, St Marks** (*Howard & Lorraine Quayle*) Ballahowin was winner of the 2002 Silage Competition and the visit was sponsored by Pye Farm Feeds. Representatives of Pye were in attendance to discuss grassland management, seed mixtures, silage additives and minerals. The Quayles also won the local Beef & Sheep Competition held later in the year.

September 2003. **Lheakerrow Farm, Andreas** (*John Caley*) was winner of the Manx Dairy Grassland Management Competition. He subsequently came second in the Northern Regional Management round, the winner of which (IR and J Walton, Carkin Moor, Richmond) went onto the Finals of the BGS UK Grassland Management Competition.

January 2004. Silage Competition. **Ballavell, Ballasalla** (*Colin & Helen Duggan*) was declared winner of the 2003 Silage Competition by Silage Judge: Harri Evans from Anglesey, Wales. The Competition awards were announced at a dinner in the Imperial Hotel, Douglas. The Manx Society run 10 separate classes in the silage competition, in addition to 2 management classes (dairy, beef & sheep) and a hay competition.

2 March 2004. Farm Visit to **Balla Killingan, Lezayre** (*Julian Edwards, owner; Brian & Fiona Brumby, contract managers)* A total of 160 ha is divided into 40 ha moorland, of which only 12 ha are used as rough grazings; 52 ha grassland at Skyhill (210m); 68 ha at sea level at Ballakillingan consisting of 16 ha wheat, 6 ha maize and 46 ha grass. There are 150 Holsteins plus 130 followers and 50 Blackface ewes. Current milk yields averaged 9,885 l with cows kept on shredded straw in a loose yard, bedded and scraped twice daily and fed TMR. Yields and cow performance had improved considerably over 6 years, from original cubicle housing and fed by forage wagon. TMR rations are carefully formulated with buffer feeding during summer, as grazing is limited. Inclusion of Alkalage in the diet has reduced acidosis. Silage made is now under the control of farm staff, and is of much better quality than previously when contractor-made.

2 March 2004. Farm Visit to **Baljean, Laxey** *(Ellwood & Ean Parsons).* The main purpose of this visit was to see a woodchip corral as a method of wintering cattle. The Manx Grassland Society continues to generate enthusiasm and to attract good attendance during its programme of activities. In 2005, the annual Summer Tour of the British Grassland Society will be held in the Isle of Man, 7-11 September.

TECHNICAL KNOW-HOW TO MAXIMISE FARM PROFITABILITY

Mark Garrett, GrowHow Adviser (Scotland)
Kemira GrowHow UK Ltd

Every farm is different. Agronomically, soil type, variety selection, nutrient status, and local weather patterns all have an influence. Then there are manpower and machinery to consider and, increasingly, environmental factors to take into account. Also, let's not forget the demands of government and politicians and the increasing influence they have on the provision of farm support. All these factors, and more, have an impact on the way the land is farmed.

Traditionally, however, the amount of fertiliser applied has had more to do with rules of thumb than accurate diagnosis and precise application rates. But this is changing. Food assurance and environmental initiatives like NVZs and cross compliance are driving the change. The introduction of Single Farm Payments (SFPs) is adding to the pressure to use fertilisers at optimum levels and so maximise the return on investment.

All of this means that good crop nutrition advice has never been more important. Kemira GrowHow can provide the technical know-how in crop nutrition to help maximise farm profitability. Focusing on customer needs we have assembled a team of crop nutrition specialists equipped to provide tailored advice and support services. We can help to make sure that inputs are targeted more precisely and therefore more profitably. We have done this because, in today's competitive climate, our long-term survival depends on the profitability of UK farmers.

What does sound crop nutrition advice offer?

- Potential savings on your fertiliser bill
- Greater returns by targeting inputs to maximise yield, quality and so profitability
- Reduce input costs by optimising the use of slurries, sludge and manures
- Potentially lower operational costs
- Traceability to meet crop assurance schemes and protocols
- Support for NVZ requirements
- Help in meeting cross compliance standards on nutrition and soil management

If you feel that your business could benefit from sound crop nutrition advice then please contact me on any of the following: Office 01764 660350; Mobile 07885 945674; E-Mail mark.garrett@kemira-growhow.com

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FIELDS WITHOUT THISTLES FOR BETTER GRAZING

Vaughn Stansfield, Grassland Agronomist, Dow AgroSciences

If you have thistles you do not have grass growing. In fact, you might as well ring fence your thistles with barbed wire for all the good they do in your fields. A few thistles may not seem much but their total effect on grazing can be significant. Livestock avoid grazing an area of up to 30cm (12in) from the edge of every thistle rosette in the sward. A 5% thistle infestation in the sward could result in a 0.5t ha^{-1} DM loss of grass yield, which will affect grazing and forage requirements. The emergence of a few creeping thistles (*Cirsium arvense*) may be just the tip of the iceberg. What you see above the surface does not reflect fully the extensive root activity below ground.

Where high thistle infestations coincide with pressure on grazing then livestock are forced to graze closer to the weeds. Many sheep farmers believe that there is a strong link between thistles and **orf infection** and are concerned about stock grazing pastures containing thistles. Thistles can irritate and damage the mouth, which may allow orf infection to take hold and then develop.

Early treatment is the key to weed control and this helps to remove the conflict between thistles and livestock during the grazing season. It allows greater grass growth by removing the competition for water, nutrients and light. Getting to the root of the problem is crucial - kill the roots and you are well on the way to a thistle-free pasture.

A two-year study at the Institute of Grassland and Environmental Research (IGER), Aberystwyth, has shown the long-term effects of controlling creeping thistle in established grassland. The study looked at the impact on herbage productivity and quality resulting from the application of a 1 l ha^{-1} of a new thistle-specific herbicide (**'Thistlex'**), to control creeping thistle in permanent grassland. Each treatment was mown four to six weeks before the whole area was heavily stocked with sheep. Four sample cuts were taken during 2002 and 2003 to measure the herbage available for grazing. The results over the two years showed a 1.79t ha^{-1} difference in grass DM yield between the treated and untreated pastures, which would be valuable grazing especially in a dry year.

Trials have shown that Thistlex gives long term control of the thistle roots, on average achieving 80% control of this problem weed one year after treatment. This means that a field could be thistle free within three years of using Thistlex and managing the grass well, thus saving money on repeat applications year after year. In other words, weed control should be considered as a long-term strategy for it to be most effective.

It is crucial that weeds are at the right growth stage for spraying, otherwise you are wasting time and money. For the best results thistles should be treated when they are at the rosette stage, showing 4-10 leaves and up to 20cm high. This stage ensures that there is enough leaf area and rapid plant growth for effective uptake of herbicide and translocation to the root. If the weeds are not actively growing or at the flowering stage when you spray you will not be able to control them. Where the plants become too mature then the best option is to top them and wait for re-growth, two to three weeks later. But keep a close eye on the re-growth as thistles can go to seed quickly during the summer.

It is essential to use the correct water volume when spraying for good coverage of the weeds. The recommended rate is 200-400 litres ha^{-1} of water for one litre of Thistlex. Afterwards, the fields should not be grazed for at least seven days and longer if possible to allow the chemical to work to maximum benefit.

Many sheep and beef producers who used Thistlex for the first time last year were looking to achieve long-term control of thistles, not previously possible with other products. They are now looking forward to cleaner pastures and better grazing, confident of getting the results they require.

MAIZE 2003
Notes from Crichton Royal Farm
Jenni Bell, Dairy Research Centre, Crichton Royal Farm, Dumfries

2003 was a much better season for maize compared with 2002. The weather in May and June was mixed, but as the season progressed both air and soil temperatures exceeded those of 2002. Total Ontario Heat Units were 2328 compared with 2145 in 2002. July, August and September were increasingly warm and dry, resulting in good levels of sunshine hours and heat units. Growth and maturity of the crop, especially the cobs, were noticeably quicker than in previous years; however by the end of September the maize plants had not senesced, as there had been no frost.

Maize fields at Crichton Royal Farm were: 5 ha (Netherwood Steading) sown under plastic, variety Algans and 6ha (Lochbank Front) sown without plastic. Varieties sown were Nancis, Algans and EGZ, a variety under test at the time, now commercially available as 'Pride'. The spring seedbed preparation consisted of applying $75m^3$ ha^{-1} of dairy cattle slurry during the spring, then ploughing and power harrowing in April. The maize was sown at a rate of 43,000 seeds $acre^{-1}$ (106,300 ha^{-1}). A pre-emergence spray of atrazine, 1.5 l ha^{-1}, was applied on 12

May. No post-emergence weed control measures were necessary. The maize under plastic was harvested on 15 September. The non-plastic maize was harvested on 2 October. The maize grown without plastic performed at least as well, if not better, than that grown under plastic, as the season provided ideal growing conditions for the crop with no need, as it turned out, for plastic. Analyses of the two ensiled crops (plastic and non-plastic) are shown in the table below.

Chemical Analysis of forage maize 2003

	Plastic*	Non-Plastic**
Dry Matter (g kg^{-1})	301	310
ME (MJ kg^{-1} DM)	10.9	11.1
FME/ME	0.78	0.75
pH	3.7	3.8
D Value	68	69
Starch (g kg^{-1} DM)	270	292
Crude Protein (g kg^{-1} DM)	81	76
NDF (g kg^{-1} DM)	482	447
Organic Matter (g kg^{-1} DM)	970	952

* Var. Algans ** Var.Nancis, Algans, EGZ (Pride)

MAIZE AND LUPINS 2004

Maize. Some 21 ha of forage have been established at 42,000 seeds $acre^{-1}$ (103,700 ha^{-1}), sown end of April and using the varieties: Nancis, Pride, Soldier, Scimitar, Kingdom, Fabius and 3 unnamed varieties under test.

Lupins. 7.5 ha of lupins are being grown in the river flat land, to provide an additional high-protein source for the dairy cows. Two varieties were sown: Sonnet (blue flowers) for grain and Barlano (white) for wholecrop. In summer the Sonnet area provided a field of intense blue colour in the river valley.

SWSGS SILAGE COMPETITION 2003
Competition Evening of SWSGS, held in NorthWest Castle Hotel, Stranraer on 22 January 2004
G E D Tiley

Sponsored by ***Biotal Ltd, BP Agri Ltd, John Watsons Seeds Ltd, Nickerson (UK) Ltd*** *and* ***Volac International***

Silage Judge: Ian Wakley, West Leschangie, Kemnay, Inverurie

Following the 52nd AGM of the Society, Chairman Adam Gray welcomed Members to the Competition Evening and introduced the Silage Judge, Ian Wakley, from Inverurie, North of Scotland. As well as being a dairy farmer and regular Silage winner in the North of Scotland Grassland Society (Norgrass), Ian was keen on rugby and cricket and, by way of diversification, occasionally worked as a 'bouncer' at night-clubs.

Silage Quality 2003 – David Keiley, SAC Farm Business Services, Stranraer Briefly commenting on Silage Quality in the past year (Table 1, Analyses Means), David Keiley said that on the whole silage had been made well, although the first cut was mixed. Those who cut early did well with good protein and ME, easily reaching DM of 30%; tedding and shaking had been well worthwhile. There was an increasing tendency to grow starch on the farm, in the form of wholecrop and maize silages. 2003 had been a good year for both and this was reducing the costs of bought-in feeds. Peas also had performed well in wholecrop silage.

Silage Judge's Comment

Ian Wakley said he found it difficult to judge silage and the management of grass in a short visit to a farm. The silages inspected were uniformly dry and of high quality that anyone could have been the winner. He had looked for simple, well thought management and attention to detail – elements that were present in all the main winners. The Beef/Sheep top silage was purpose made for beef and thus of a lower analysis level. He was greatly impressed with the outstanding production levels (9,000 litres) of the Dairy winner, Donald McColm. The cows looked and performed well with minimal use of cake and no "money wasted". He thought that runner-up Mayfield was one of the most impresssive farms he had ever visited, with tremendous attention to detail and superb silage. He also complimented SAC Crichton Royal Farm for its high level of management in the complexities of a Research establishment. Simplicity of management was a feature in the New Entrant and Michael Milligan prizewinners. The full results are detailed in Table 3.

Table 1 - SILAGE COMPETITION 2003 - ANALYSES MEANS

Overall Means (Grass Silages)

Group (Number)	DM (%)	D (%)	CP (%)	ITF (c)	ME	NH_3 (% total N)
All Dairy (59)	30.4	68.3	14.5	107.1	10.9	5.5
Beef/Sheep (15)	29.2	63.5	11.9	104.2	10.2	5.4
Big Bale (3)	34.0	61.7	12.9	113.3	9.9	9.2
Dairy						
Ayr (12)	28.8	67.0	13.4	104.0	10.7	4.3
Dumfries (26)	32.2	68.0	14.4	110.0	10.8	5.6
Kirkcudbright (14)	28.1	69.0	14.6	100.0	11.1	6.0
Wigtown (7)	30.9	71.0	16.4	113.0	11.4	6.2

Wholecrop, Maize and Alkalage Silages 2003

Group (Number)	DM (%)	pH	D (%)	CP (%)	Starch (%)	ME
Wholecrop (11)	40.9	4.0	66.6	8.9	28.4	10.6
Maize (5)	30.9	4.1	70.0	8.1	32.3	11.1
Alkalage (5)	80.6	8.2	75.9	18.2	34.2	11.7

Table 2 - FREQUENCY DISTRIBUTIONS (%) 2003

	Bale	Beef/ Sheep	A	D	*Dairy* K	W	All
No of Entries	3	15	12	26	14	6	58
D-Value							
>75	0	0	0	8	0	0	3
70-75	0	7	25	19	29	83	29
65-70	0	20	58	58	71	17	57
60-65	100	73	17	15	0	0	11
DM							
>40	33	14	8	23	14	17	17
30-40	33	13	17	38	14	33	28
25-30	34	40	33	8	14	33	17
23-25	0	20	25	4	37	17	17
20-23	0	13	17	19	7	0	14
<20	0	0	0	8	14	0	7
CP							
>18	0	0	0	0	0	33	3
16-18	33	7	8	23	21	33	21
14-16	0	7	25	42	43	17	35
12-14	0	26	33	27	29	0	26
10-12	67	53	34	8	7	17	14
<10	0	7	0	0	0	0	1
ITF (c)							
>125	0	7	0	19	22	33	17
120-125	33	7	25	23	0	0	16
110-120	33	13	17	16	15	33	17
100-110	34	33	17	12	0	17	11
90-100	0	33	25	15	42	17	24
<90	0	7	16	15	21	0	15
Ammonia-N							
<4	0	33	50	35	22	17	33
4-7	0	33	33	38	50	50	43
7-10	67	27	17	15	14	33	15
10-15	33	7	0	12	14	0	9
ME							
>12	0	0	0	8	0	0	4
11.5-12.0	0	0	7	3	29	50	15
11.0-11.5	0	7	33	27	29	33	29
10.5-11.0	0	7	17	31	28	17	26
10.0-10.5	0	46	33	19	14	0	21
9.0-10.0	100	40	0	12	0	0	5

Table 3 – 2003 Silage Competition – Short Leet Entrants

Prizes		*Analyses (35)*	Marks *Inspection (65)*	*Tota (100*
	Dairy Class			
1st & SWSGS Rosebowl	D McColm, Cairngarroch, Drummore	26.1	60.0	86.1
2nd	W R Wilson, Mayfield, Castle Douglas	30.2	55.5	85.7
3rd	H McClymont, SAC Crichton Royal Farm, Dumfries	34.1	50.5	84.6
Best New Entrant	D Kirkpatrick, Stepends, Penpont, Thornhill	30.2	53.0	83.2
	D Yates, Meikle Firthhead, Castle Douglas	26.7	55.0	81.7
	D Marshall, West Kirkland, Wigtown	32.6	49.0	81.6
Michael Milligan Prize	B Sloan, Darnlaw, Auchinleck	21.6	55.5	77.1
	J Mackie, Dalfibble, Parkgate, Dumfries	26.7	50.0	76.7
	J McAuslan, SAC Auchincruive, Ayr	22.0	51.5	73.5
	D C Hogarth, Sorbie, Ardrossan	23.6	49.0	72.6
	Beef/Sheep Class (on analysis)			
1st & BP Trophy	A Nelson, Cogarth, Parton, Castle Douglas	18.9	58.0	76.9
	W T McCombe, Trohoughton, Dumfries	16.3	48.5	64.8
	Big Bale Class (on analysis)			
1st	R W Campbell, Craigalbert, Ballantrae	16.9		

		Analyses (35)
	Best Silage in County (on analysis)	
Ayrshire	D C Hogarth, Sorbie, Ardrossan	23.6
Dumfries	H McClymont, SAC Crichton Royal Farm, Dumfries	34.1
Kirkcudbright	W R Wilson, Mayfield, Castle Douglas	30.2
Wigtown	A D Marshall, West Kirkland, Wigtown	32.6
		Marks
	Best Maize Silage (on analysis)	
Nickerson Prize	D Yates, Meikle Firthhead, Castle Douglas	69.2%
	Best Wholecrop Silage (on analysis)	
Biotal Prize	D Yates, Meikle Firthhead, Castle Douglas	78.2%
	Best Alkalage Silage (on analysis)	
Volac Prize	D Jackson, Redhills, Collin, Dumfries	71.7%

Best New Entrant prize donated by **John Watson Seeds Ltd**
1st **Dairy, Beef/Sheep** and **Big Bale** winners also received cash tokens donated by **BP Agri Ltd**

Judge's Farm, West Leschangie, Kemnay, Inverurie

The Wakley family had previously been in North Wales as tenant farmers for 5-6 generations. The holding was purchased in 1983 before selling and moving to Aberdeenshire. Here the suckler herd was sold off in 1990 to purchase 140 commercial Holsteins. These were later dispersed in favour of high index heifers, planning for high milk yields. Grazing was by set stocking and high quality silage the principal aim. With a self propelled harvester rapid lifting was possible. DM contents were not critical, usually from 25-30%, not higher as this made the cows thirsty. Additives did not appear to affect quality. Machinery was shared with neighbours. The existing parlour had been refurbished rather than replaced, due to milk market uncertainty. Simplicity of management was the watchword. High yielding cows received cake to compliment silage. Health of the animals was paramount and Ian made a point of monitoring the cud-chewing rate daily on the same sample of 9 or 10 cows. A rate of 50-55 chews per cud was considered normal.

Photographic Competition – sponsored by *Caledonian Cheese Company, Stranraer.* A photographic Competition during the evening was won by John Frame, with a shot of traditional hay making in Rumania. The prize of a basket of local cheese was donated by **The Caledonian Cheese Company**, **Stranraer** (now McLelland-Caledonian).

GRASSLANDS – A GLOBAL RESOURCE
The XXth International Grassland Congress, Dublin, 26 June-1 July 2005

The 4-yearly International Grassland Congress (IGC) will be held at the University College, Dublin in 2005, from Sunday 26 June to Friday 1 July. The main themes are:

a) Efficient Production from Grassland
b) Grassland and the Environment
c) Delivering the Benefits from Grassland

This will essentially be an up-to-date review of the science, technology and application of grassland knowledge worldwide. However, content inevitably will be orientated toward UK, European and temperate grasslands. There are pre-Congress, mid-Congress and social tours to different parts of the UK.

Satellite Workshops

At the end of the Main Congress, a series of 5 Satellite Workshops have been arranged in different UK locations:

1 Oxford. Nutrient cycling and soil quality.
2 Aberystwyth. Genetics of grasses and forages, incorporating the 4th Molecular Forage Plant Breeding Meeting.
3 Glasgow. Grassland in marginal environments.
4 Belfast. Silage, incorporating the XIVth International Silage Conference.
5 Cork. Grazed grass systems, in association with the European Grassland Federation.

The Satellite Meetings run from 3-5 July, and can be attended separately from the Main Congress.

Further information is available on the website: www.igc2005.com.

BIG BALE SILAGE IN RUSSIA

Ken Fallows, bpi agri plc, Stockton-on-Tees

Earlier this year I was asked to visit Russia, to learn about their silage production and feeding techniques including their level of understanding of the Big Bale forage system. The objectives were:

- **to ascertain the current condition of the Russian market place, knowledge, crops, machinery and infrastructure**
- **to train the Russian farmers on best practice for producing big bale silage.**

Training seminars were arranged on Big Bale wrapping – history, technology, costs, machines, plastic film quality and wrapping procedure. The following gives an indication of the local farm conditions in a fairly remote locality in Russia.

Pskov is very remote and the village is built around one farm, (seen in the photograph in the background). 20 years ago this was a very productive farm with a large tower silo. It now makes baled silage from low quality, high dry matter very coarse old pasture leys such as timothy with red clover. The aim is to raise milk yield from 3,500 litres average to 7-8,000 l (as per UK standards). Milk is sold for around 5-6 roubles per litre (1 rouble = 2.0p. £1 = approximately 48 roubles).

The estate in Tver is a large Co-op owned and run by the local farmers. It became a limited company 3 years ago, with closed stock retained by the board and shareholders. Petrov Sergy (Serg) has been the manager for 5 years and is just beginning his second office of a further 5 years. Turnover was more than 50,000,000

roubles in 2003 and profit almost 10%. A percentage of profit is paid back to the shareholders as dividend, and also money put into education and training. They are struggling to get older people to accept modern farming practice. Alex is his estate manager and he runs the 16,500 ha, being 3,000 ha of vegetables, 6 ha under glass, with the remainder grass and timber. A new wrapper was purchased in 2001 and a second machine is to be leased in 2004. At present, 4,000 tonnes are wrapped on their farms, approximately 8,000 bales, amd 12,000 tonnes of clamp silage diet fed TMR.

They are currently aiming for genetic improvements to their Holstein cattle, which currently attain 3,500-5,300 ltrs per lactation, BF 3.5%, protein 3.6%. Bonuses are available to them from their processors for higher quality as in UK. Winter milk prices are higher than summer so they are looking for better winter quality. Bactoscan and sub clinical counts have started at the cheese processors. A collection bonus has recently started there and the milk goes to feed 250,000 people. The system is being developed on their farms by students at the Agricultural colleges. The main problems suffered are: snapping and splitting of cheaper bale films, little mechanisation for feeding out the bales, no chopper balers in Russia yet giving low bale density, getting paid by the neighbouring farmers, very little cash available (sounds familiar).

FARMING IN SOUTH WEST SCOTLAND
G E D Tiley

South West Scotland is first and foremost a grassland area. Less than 5% of farmland is cropped. Most lowland areas are Land Classes 3 and 4, but large areas of classes 5 and 6 occur at higher altitudes. There are only very small pockets of Class 2 land in Ayrshire and Wigtown. Most of the lowland areas were traditionally used for dairying and supported over three quarters of Scotland's dairy units. At higher altitudes and on more difficult land, there were beef/sheep and hill sheep enterprises that have traditionally reared hardy stock for fattening in the lowlands. Almost two thirds of the agricultural area comprises Rough Grazings, varying from relatively good bent-fescue pasture on brown earth soils, through wet rush pastures on podzols to poor heather moorland on peat. Enclosed grasslands, occupying around one quarter of the farm area, include rotational leys and long term permanent grassland. Large areas of Forestry Authority land in the Southern Uplands and in southern Arran have been planted to Sitka spruce.

The Climate is mild, windy and oceanic, being under the influence of the Atlantic Ocean and the Gulf Stream. Winds are predominantly westerly, and rainfall around 1000-1500 mm (40-60 in), lower near the coasts but rising to 2500 mm on the mountains. October-January are the wettest months.

Accumulated temperatures and annual growing days decrease with increase of altitude and latitude (Mull of Galloway 300 growing days, mountain tops 150). Plant growth is also much influenced by exposure to wind, which is very high along the west coast and upland summits. Wind-chill also affects animal performance, especially in combination with wet weather. As a result of the mild winters, moist summers and high summer irradiation (due to northerly latitude), grass growth potential is among the highest in Europe. With good management, very high yields of grass, both grazed and conserved and of animal output are obtainable. Management however is constantly challenged by frequent wet ground conditions, and consequent risks of poaching so that the grazing utilisation season is all too often prematurely curtailed. Vigilance is also called for when spreading slurry or applying nutrients. Other forages –whole crop cereals, peas and maize – in suitable areas, giving additional management options, have latterly supplemented conserved grass.

Weakening markets in traditional livestock products have led to increased diversification into tourism, recreational and other non-agricultural uses plus processing to give added value produce to supplement farm incomes. Nature conservation increasingly figures in overall farm management, greatly encouraged by Government Environmental schemes – ESA, Countryside Premium and Rural Stewardship – with application both in upland and lowland enterprises. Animal welfare issues and prevention of environmental pollution are increasingly highlighted, particularly where market forces have tended to create larger and more intensive units. An area of free draining sandy soil in the Nith Valley is under consideration as a Nitrate Vulnerable Zone.

In spite of the ever-increasing recent pressures entering the farming scene, South West Scotland is still endowed with a large number of farmers adapting to modern challenges and continuing to produce livestock products to the highest standards of natural quality – "Naturally Best from Scotland South West".

This article featured in the Guide to the British Grassland Society Summer Visit to South West Scotland, 13-17 July 2003

WEATHER DATA FOR 2003
SAC AUCHINCRUIVE (35°29'N 4°34'W) Alt 45m

	Mean Air Temp °C		Mean Soil Temp °C	Rainfall		Sunshine
Month	*Max*	*Min*	*At 10 cm*	*Total (mm)*	*No of Days*	*Total Hours**
January	6.8	-0.8	3.2	69.0	18	55.9
February	7.4	-1.0	2.7	36.9	12	89.7
March	11.2	0.4	5.0	45.3	13	184.3
April	14.2	2.7	8.4	28.9	10	184.4
May	13.7	5.3	11.1	90.9	24	127.7
June	18.3	9.5	14.8	55.7	14	155.8
July	20.0	12.9	16.4	53.0	18	147.9
August	18.6	10.1	14.9	29.0	11	176.0
September	16.9	9.3	13.1	92.8	17	112.4
October	12.2	4.6	7.9	48.8	16	115.7
November	11.1	6.2	7.4	119.3	19	52.9
December	8.7	2.2	5.0	110.7	19	41.7
Means/ Totals	**13.3**	**5.1**	**9.6**	**780.3**	**191**	**1444.4**

Max air temperature: 30.0^0 on 16 July. Min air temperature: -7.7^0 on 4 January.
Last frost: 15 May 2003. First frost: 20 October 2003.

* RNAS Prestwick.

WEATHER DATA FOR 2003
SAC CRICHTON ROYAL FARM (55°3'N 3°35'W) Alt 65m

	Mean Air Temp °C		Mean Soil Temp °C	Rainfall		Sunshine
Month	*Max*	*Min*	*At 30 cm*	*Total (mm)*	*No of Days*	*Total Hours*
January	6.7	1.5	3.8	92.0	20	77.0
February	7.0	0.5	3.4	49.8	11	103.9
March	11.4	2.2	6.6	55.5	11	174.6
April	14.1	5.0	10.3	68.5	10	209.0
May	14.4	7.2	12.5	92.1	23	163.4
June	18.6	9.6	16.2	80.9	17	165.4
July	20.2	12.5	17.2	78.8	17	126.4
August	21.2	11.6	18.2	13.1	4	199.2
September	17.2	9.3	15.5	85.1	17	119.2
October	12.9	4.7	11.0	22.0	9	96.1
November	10.7	4.8	8.6	150.9	23	60.4
December	7.8	1.5	6.0	104.8	15	55.2
Means/ Totals	**13.5**	**5.9**	**10.8**	**892.7**	**177**	**1549.8**

Max air temperature: 28.5^0 on 15 July. Min air temperature: -7.2^0 on 31 December. Last frost: 12 April 2003. First frost: 21 October 2003.

A cold frosty winter was followed by a warm, early spring which, however, deteriorated into wet conditions in May-early June, affecting early silage cutting. From mid-July, coinciding with the BGS visit to south west Scotland, the summer became exceptionally fine and hot. Dry conditions continued until mid-September and also during October. Significant rainfall returned in November, before the year ended with hard frosts. Total rainfall was much lower than in 2002 and sunshine hours higher.

Meteorological data reproduced courtesy of SAC Auchincruive, SAC Crichton Royal Farm and Met. Office, Exeter.

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