Greensward

1998

JOURNAL OF THE SOUTH WEST AND CENTRAL SCOTLAND GRASSLAND SOCIETIES

No. 41

CONTENTS

FOREWORD

In an even more difficult year than the previous, it was essential in 1997 for farmers to stick ever more firmly to the systems that work best in the west of Scotland - grassland and stock. When all around threatens to depress, it is extremely encouraging to see so many positive signs in grassland.

Many of the farm visits, both local and elsewhere, reported in this issue demonstrate new ideas and approaches. New techniques such as robotic milking, improved usage of slurry, computer-aided dairy monitoring and improvements in produce through Quality Assurance all give added strategies for the future. Increased efficiency is constantly sought to adapt to hardening market conditions - evident in silage quality, grassland and stock feeding.

Outstanding educational successes and enthusiasm among students give solid grounds for optimism in the future. Trends in the national British Grassland Society are to look overseas into Europe to develop grassland links and to promote technology which would allow improved used of grassland in those countries. We should not, however, lose sight of the importance of maintaining and improving grassland production at home. Grassland technology and livestock in the UK in general and in west Scotland in particular are some of the finest in the world, borne to a great extent out of a long tradition of research and development work. To maintain their leading position, it will be essential to ensure that adequate R & D continues into existing and new opportunities which future needs dictate. Many of the evening meetings and items reported in this Journal provide indications of this in developments at research, trade and practical farm levels.

The Editor wishes to thank all contributors and speakers, all host farmers and other members of the Central and South West Scotland Grassland Societies for their help in compiling this issue. The continued support of Society sponsors and advertisers is acknowledged, together with help from colleagues at SAC. Lorraine Reid, Rural Business Development Unit, SAC Auchincruive is especially thanked for typing and preparing the whole manuscript, involving considerable time and effort. Staff at the Printers: Walker & Connell, Darvel are also thanked for final layout, printing and publication.

G E D TILEY - Journal Editor

International Code Number ISSN-0017-4092
Printed by Walker & Connell Ltd, Hastings Square, Darvel, Ayrshire

SOUTH WEST SCOTLAND GRASSLAND SOCIETY
EXECUTIVE COMMITTEE 1998

Chairman:	A H Borland, Altonhill, Kilmarnock, KA3 2NR
Vice-Chairman:	I C Morton, Carsenestock, Newton Stewart, DG8 6BA
Past Chairman:	J Marshall, Auchenleck, Auchencairn, Kirks, DG7 1RL
Secretary:	Dr G E D Tiley, SAC Auchincruive, Ayr, KA6 5HW
Treasurer:	Dr R F Gooding, SAC Auchincruive, Ayr, KA6 5HW
Journal Editor:	Dr G E D Tiley, SAC Auchincruive, Ayr, KA6 5HW
Ayrshire Members:	W Welsh, Warnockland, Fenwick, KA3 6ER W Muirhead, Smithfield, Tarbolton KA5 5LX N Day, SAC, 20 Miller Road, Ayr KA7 2BQ
Dumfriesshire Members:	J Fairgrieve, Cleughbrae, Terregles, Dumfries, DG2 9SB J Mackie, Dalfibble, Parkgate, Dumfries, DG1 3NF R Allbrooke, SAC, Mid Park, Bankend Road, Dumfries DG1 4SZ
Kirkcudbrightshire Members:	W McMillan, Drumwall, Gatehouse-of-Fleet DG7 2DE A Best, 12 Robb Place, Castle Douglas, DG7 1LW
Wigtown Members:	E Beck, Castle Clanyard, Drummore, Stranraer, DG9 9HF H Chalmers, Craigencrosh, Stoneykirk, DG9 9BX S J Donnelly, SAC, 99 George Street, Stranraer, DG9 7JP
Co-opted Member:	C McCombie, Central Scotland Grassland Society, SAC, Alpha Centre, Stirling University Innovation Park, Stirling, FK9 4NF

CENTRAL SCOTLAND GRASSLAND SOCIETY
EXECUTIVE COMMITTEE 1998

Chairman:	R Reid, Glen Farm, Glen Village, Falkirk
Vice-Chairman:	J Boyd, Dechmont, Cambuslang
Past Chairman:	R Millar, Newlands, Uddingston
Secretary:	C McCombie, SAC, Alpha Centre, Stirling University Innovation Park, Hillfoots Road, Stirling, FK9 4NF
Treasurer:	K Phillips, SAC, 57 High Street, Lanark, ML11 7LF

Committee Members

Retire AGM 1998	J Brown, Gaindykehead, By Airdrie G Millar Jnr, Gallamuir Farm, Plean, Stirlingshire M Lyle, Mid Cambushinnie, Dunblane
Retire AGM 1999	G Blackhall, Solstrice, Beldies Knowe, Skirling, Biggar ML12 6HD R Turner, Skellyton Farm, Larkhall
Retire AGM 2000	W Black, Westerlead, Wester Cash, Strathmiglo, Cupar KY14 7RG I Kerr, Kirklands, Dunsyre, Carnwath A Reid, Plean Farm, Plean, Stirlingshire FK7 8AN
Co-opted Member:	Dr G E D Tiley, SWSGS, SAC Auchincruive, Ayr, KA6 5HW

First Winner of the SWSGS Malcolm Castle Memorial Prize, Andrew Smith, B.Technol. Agric, Fourth year student at SAC Auchincruive, receives the Malcolm Castle Trophy from Mrs Betty Castle, at the Auchincruive Student Awards Ceremony, July 1998.

THE MALCOLM CASTLE MEMORIAL TRAVEL SCHOLARSHIP AWARD 1998

The **Malcolm Castle Memorial Travel Scholarship Award** is a new award instituted by the South West Scotland Grassland Society in 1997, in memory of Dr Malcolm E Castle.

The Society felt that Malcolm's contribution to grassland was so outstanding that a permanent memorial in the form of a travel scholarship should be set up. The Executive Committee of the Society decided that this Award would be made periodically to a resident in the 4 counties of South West Scotland, preferably to a farmer's son or daughter.

The scholarship grant of £250 would be awarded to a Fourth Year B.Technol. Agriculture student submitting the best Grassland/Ruminant Science based Honours Project.

The Award would be used to support attendance at an appropriate scientific/grassland meeting, or for an overseas visit to further knowledge or experience in grassland. Award recipients would be encouraged to present a written report for 'Greensward' and a brief verbal report at a Society meeting. The successful student would hold the **Malcolm Castle Memorial Trophy** during his/her tenure of the Scholarship.

The first winner of this prestigious Award was Andrew Smith, High Chapeltoun, Stewarton, Ayrshire. Andrew received his well-earned Award from Mrs Betty Castle at the Annual Prizegiving Ceremony at SAC Auchincruive in July 1998.

WINTER FARM VISITS IN AYRSHIRE

G E D Tiley

A Visit of the SWSGS to Meikle Heateth and Darnlaw, Auchinleck on 6 March 1997, by invitation of David Robinson and Bryce Sloan, respectively

This was a joint meeting with the SAC Auchincruive Evening Class.

Meikle Heateth (D Robinson)

This all-grass unit of 78 ha carried 75 Pedigree Holstein Friesians (The Sorn Herd) and 75 followers, with a herd average of 8,500 litres. 24 hectares had recently been reseeded for silage and grazing, though the emphasis was on silage production due to the difficult wet climate and clay soil. The main reason for visiting Meikle Heateth was to see the new Lely Astronaut robotic milker, installed through Pye Farm Feeds. Originally Dave Robinson had been very sceptical, but after visiting Holland to see robotic milkers in operation, he concluded the robot would be ideal for his system.

His parlour had been very old, required many repairs, and was small for the cows. He also felt he should milk more than twice a day. Taking all labour and repair costs into account, he thought robotic milking was the way to go. The cows would not have far to walk, and could be kept in the fields around the steading. Four cubicles were removed at the end of the shed, and the robot installed. To date, he had no regrets and yields had started to increase. However, the robot worked best with cows of even size. Production from forage was 3,800 litres and 0.35 kg concentrates were fed per litre through the robotic milker. A target of 10,000 litres had been set, through selected breeding and greater production from forage.

Darnlaw (B & A Sloan)

Darnlaw and Little Heateth farms are in total 120 ha, all grass, with the emphasis on pasture mixtures that allow complete flexibility. The herd consisted of 95 Pedigree milking cows, built up over a number of years. All calves were kept on the farm, either as replacement heifers or bull beef, and even with the problems related to marketing since BSE there was no likelihood of this changing. Pedigree breeding was an important part of the farm business, with surplus heifers being sold in-calf. A number of Pedigree bulls were sold annually, most privately and often to regular buyers. Most replacement heifers were also sold privately. The breeding emphasis was on developing a good balance of type and production. In 1996, this policy had been rewarded with: **2nd Prize** in the **West**

of Scotland Herds competition for type, and **1st Prize** in the **South Ayrshire Milk Records** competition for milk production.

The feeding regime was based on high quality silage (**2nd Place in the Scottish Winter Fair silage competition**), balanced with fodder beet and caustic treated wheat, grown on a family farm in Fife, and high quality protein supplied by Amino 2000 and Pye Farm Feeds Winter Dairy 30% meal. This mix gave M + 28 litres with additional compound fed to yield through out-of-parlour feeders, which Bryce felt allowed for more accurate feeding and fine tuning. Silage DM was not high, but great emphasis was placed on cutting at the right stage, thereby ensuring consistently high quality, to keep the cows as good as possible, based on maximum use of grass silage: "Good feed and good rest". This was borne out by the exceptional condition of the cows seen on the day of the visit. Ninety percent of the cows are kept in all the year, thus helping to maintain the grassland in good condition on the very heavy clay soils. Annual herd average was 8,452 litres, over 4,000 litres from forage, feeding 0.29 kg concentrates per litre. Clay tiles were placed in the silage pits to drain the effluent. Dirty water was spread in the back end, and the use of chopped straw helped the consistency of the slurry. In recent times, the Sloans have had to accommodate the building of a by-pass and the installation of Gas and Power lines, both causing disruption to normal farming.

The Society wishes to thank the Robinson and Sloan families respectively, for these very successful and interesting farm visits.

CSGS AND SWSGS SILAGE COMPETITIONS 1998-1999

These local silage competitions, 20th CSGS and 26th SWSGS, will again take place for the 1998 silage season. The prizewinners will be announced during the respective competition evenings held in January 1999. Both winners will then progress to the 1999 Scottish Regional Silage judging.

All members whose silage is sampled and analysed by SAC are eligible for automatic entry. Members with good silages who have not previously entered the silage competition would be encouraged to participate, simply by requesting an SAC sample. This is to ensure we find the best silages to go forward into the Scottish Regional event.

SWSGS SPRING VISITS IN KIRKCUDBRIGHT

G E D Tiley

A visit to Carswadda, Lochanhead and Loch Arthur, Beeswing on 14 May 1997

Carswadda, Lochanhead, Dumfries (By Invitation: Scott Henderson & Family)

The Society's visit in the middle of May 1997 brought the remark from our host, Scott Henderson, that "he had never seen grass like it", due to the earliness of the season. Carswadda was run with two other farms at Kirkgunzeon plus additional grazing, to give a total of 440 ha. With his brother Keith, Scott concentrates on a suckler cow, sheep and finished beef enterprise. Some 1000 mainly Charolais cross cattle would be finished at 500-550 kg in 1997, including 900 heifers. Entire bulls are run in large batches, since they cannot be mixed and are sold at around 1 year old. Only heifers were bought in, normally from the same farm, to ensure evenness of stock quality. Lower prices in the current crisis gave the opportunity to buy more animals for the same outlay.

The cattle had grazed since 8 April this year, 2 weeks earlier than normal, and stocking rates had been increased to keep on top of the grass. Grazing fields received 188 kgN ha^{-1} as 25:5:5 or 20:10:10 following spring 34.5:0:0. Cattle were fed from July, and all received a bolus for worms and trace elements. There were 76 ha of barley, 24 ha spring, 52 ha winter and some 80 ha silage ground. This received slurry until the end of April and 100 kgN ha^{-1}. First cut commences on 8 June using farm staff, with help from a dairy farm neighbour. General purpose grass mixtures were used with clover, which however did not persist under silage management. Docks were a problem, requiring herbicide treatment and periodic grain crops for control. A set-aside area had been undersown to grass in late April for grazing this year, following a poor seeding due to drought last autumn.

The sheep stock comprised 900 ewes, half Texel half Scotch mules. Except for broken mouthed ewes, these were shorn in January, housed and fed concentrates and silage. Ewes with singles (after scanning) were fed less. The second cut wetter silage was preferred this year. The lambing percentage was 161% this year and the sheep were grazed at 15 ewes + lambs ha^{-1} (cattle at 1800 kg ha^{-1}). The aim was to lamb early and sell lambs in June, producing what the market wants. A clean grazing policy is practised, keeping sheep and cattle separate, as far as possible.

Loch Arthur and Lochend, Beeswing, Dumfries (By Invitation: Timothy Brink *per* Camphill Trust)

Loch Arthur and Lochend farms were run by the Camphill Trust, a charity devoted to rehabilitating people with handicaps and learning difficulties. The farms are run on organic lines, with initial support from the Trust, but aiming for commercial viability and financial self-sufficiency, including crafts and cheese making.

Loch Arthur is a beef/sheep unit with 110 beef cattle and 135 breeding ewes, housed in separate sheds, which were all-wooden and recently constructed, providing a good working environment for the stock. Herd management aims to reduce stress and only the farm's own replacements are reared, though bulls and tups are bought in. Management also aims to reduce the risk of disease to avoid the use of vaccines and antibiotics as far as possible, except when animals are ill. Control of worms was a challenge. A clean grazing policy is practised, but remedies such as garlic have not worked. Young calves and lambs are exposed to low levels of worms so that they develop a resistance, though they cannot cope with a strong worm challenge. Round worms had been dealt with, but worms with longer life cycles were more difficult.

Total farm area was 152 ha, of which 20 ha were arable within a fertility building organic rotation, to reduce fertiliser use. Nitrogen from clover was crucial, and clover was sown in mixture with perennial ryegrass and also deeper rooting grasses such as red fescue. The ley was ploughed in and barley or rape sown for 1 year, followed by 2 years of oats. Oats grew better on lower inputs, lower fertility and acid soils; there was also more straw. Oat yields were 3.5-5t ha^{-1} in a good year, higher than formerly, using an old variety: Forward. 7-10 years were required to build up a good microflora. Italian ryegrass was used as a green manure which was essential in organic farming. FYM was turned regularly and placed in heaps to absorb rainfall so that the percolated liquid could be collected. Potash was adequate for crop growth following grazing, otherwise kainit could be applied. Slow acting rock phosphate was used. No additive was applied to the silage. Weeds (eg: docks) did not grow so vigorously under organic farming; thistles could be cut and the oat crop smothered most of the arable weeds.

Lochend contained the dairy unit where Ayrshire cows and 1 Shetland cow were tied up and milked in a byre all the year round. All the milk produced went to the creamery for cheese and yoghurt manufacture. The cows were not dehorned as the horns were considered to be on the sensory spots of the cow. There was a recently built wooden framed building and a new parlour and creamery with upstairs space for living quarters were being constructed at the time of the visit.

The Creamery was established 11 years ago to provide an outlet for the milk and to give scope for a craft. Quota had been purchased and the processing developed into a commercial enterprise, selling all around Scotland. Using farm milk, there was control over quality. Yoghurt production, at a cost of £1 per litre, was very profitable and sold locally. There were plans to increase the herd to 30 cows, though this could involve some automation and loss of quality. Cheese was made 3 times a week, but was less profitable. Production was by traditional farmhouse, hand-made methods, using old presses originally from Rainton, Borgue. Two 10-gallon (45 litre) drums of milk made one cheese. The whey was fed to pigs and surplus consigned to the slurry tank. Butter was also made. Some cheese was sold after 3 weeks, the rest matured in a cold store. The cheddar lost 3% in 3 months, 10% weight in 6 months. The press cloths were scalded onto the rind and the cheeses regularly turned and wiped with a dry cloth to control mould growth. A brine wash softened the cheese.

The Society is greatly indebted to the Henderson family, and to Timothy Brink and his staff, respectively, for their welcome and hospitality during these two visits.

REED BEDS

During the SWSGS Spring Visits on 14 May 1997, a short stop was made at the reed bed that treats sewage water from the village of Beeswing, Dumfries. **Stewart Moir**, Environmental Division, SAC Auchincruive, briefly described the construction and operation of the reed bed. **James McLeod**, West of Scotland Water, Dumfries, commented on the role of a reed bed as an environmentally-friendly method of treating rural sewage effluent, such as from villages, caravan sites, farms or small factories. There was a potential use for treating farm dirty water or parlour washings, and SAC are actively pursuing research into this area at Auchincruive.

Anyone wishing further information on the possible use of reed beds could contact Stewart Moir, SAC Auchincruive (01292 525321).

FAMILY FARMING FOR THE FUTURE

The BGS Summer Meeting, Northern Ireland
30 June-3 July 1997

G E D Tiley & John Marshall

The venue for the 1997 BGS Summer visit was Northern Ireland - an area of family farms and dominated by grassland because of the soils and climate, very much as in south west Scotland. Two thirds of Northern Ireland is Less Favoured Area (LFA) land, where beef and sheep enterprises are pre-eminent. However, dairying is the most important agricultural enterprise, and 22% of farms have milking cows, with an average herd size of 47. Percentages of farms with beef is 87, and with sheep 40.

Hosts for the BGS visit were the Ulster Grassland Society and Fermanagh Grassland Club. Host Vice-President was Will Taylor (SWSGS Silage Judge, January 1998 - see page 39). The BGS had previously visited Ulster in 1948, 1959 and 1980. The meeting was based at Greenmount College of Agriculture and Horticulture, with visits encompassing research, livestock development and efficient grass farms. The BGS Alternative Programme included visits to Belfast to see the Parliament building, City Hall, Folk and Transport Museums; visits to the seaside town of Bangor, the mountain scenery of Fermanagh and Enniskillen; a National Trust property and caves; historic sites in Antrim and finally the famous Giants' Causeway.

Research on Animal Performance in Grass-Based Systems - Hillsborough Agricultural Research Institute of Northern Ireland, Co. Down (Prof Fred Gordon).

The tour began with a visit to the Agricultural Research Institute of Northern Ireland, Hillsborough which was established in 1926, with the objective of carrying out research to support the development of agriculture in Northern Ireland. Prof. Fred Gordon briefly introduced the work of the Institute which embraced dairy, beef, sheep and pig production, farm buildings and mechanisation, as well as grassland and silage management. Situated at 120-130 m above sea level in typical Co. Down drumlin countryside, the Institute had a total area of 302 ha, 100 ha rented. Stock consisted of 220 dairy cows, 160 replacements, 27 sucklers, 700 beef cattle, 450 ewes and 160 sows. The primary aim remains to present research findings to farmers as quickly as possible. Work on grassland was focused on obtaining greater milk production from grass, in spite of this becoming more difficult as a higher output per animal was desired. Improved genetic merit meant higher nutritional intake requirements.

A trial was in progress to compare **high forage** with **high concentrate** systems using cows of high genetic merit. The high forage group were stocked at 1.7 cows ha^{-1} , offering 23 kgDM $cow^{-1}day^{-1}$ with an estimated intake cow^{-1} of 19 kgDM day^{-1}. The high concentrate group were stocked at 2.2 cows ha^{-1}, offering 17 kgDM $cow^{-1}day^{-1}$ and estimated daily intake of 13 kg cow^{-1}. Evaluation of sheep crosses for improved meat output and quality, comparisons of large *vs.* small suckler cows, and elucidation of the rearing management and optimum weights at calving for the modern, heavier framed animals were other subjects being investigated.

High Performance Stockmanship and High Quality Grass and Silage - 54 Doughery Road, Banbridge, Co. Down (William and Joan Cromie)

This was a family dairy farm of 70 ha (40 ha rented) with 84 Holstein cows, 98 replacements, 70 beef cattle and 14 breeding ewes. Average milk yield was 7,700 litres, 4,200 litres from forage, achieved through attention to detail and from enthusiasm for grassland, livestock and management. Highest quality grazing and conserved grass were the key objectives, and high animal performance was achieved by exploiting grass and silage to the full. The cows were grazed on a rotational paddock system, using long term leys which were only rarely reseeded. A tall sward was offered to the cows but all pastures were well grazed down by heifers and dry cows through the summer. Three cuts of silage were taken, wilted to 25-30% DM and harvested by farm equipment, to ensure the critical timing and detail of harvesting essential to obtain high quality. The cost of machinery was spread by contract harvesting of 200 ha of neighbouring farms. Wholecrop wheat (6 ha) had been recently grown and ensiled at 40% DM to provide a more varied diet for the cows. Prior to BSE, all beef calves had been retained on the farm, but this practice now had to change.

Education, Technology with Student Management - Greenmount College Hill Farm, Glenwherry, Ballymena, Co. Antrim (Principal: Roy McClenaghan)

The hill farm at Greenmount lies between 230 m and 395 m and has a total area of 1000 ha with annual rainfall 1200 mm. It was purchased by the Department of Agriculture in 1963 to develop systems for hill and upland farms in the Less Favoured Areas.

At Greenmount, good grassland management is crucial for the achievement of production targets and for stock welfare. Around 2000 t of silage are made annually on only 5% of the land area. Inbye land is managed intensively to provide sheep grazing for autumn flushing and spring lambing. The stock comprised 800 Blackface ewes, 300 of which were crossed to Bluefaced Leicester, plus an additional 300 Cheviots crossed mainly with Suffolk. The ewe

lambs were in demand for breeding in lowland flocks, as also were the store lambs for finishing. 120 sucklers (Aberdeen-Angus and Limousin x Friesian) were put to continental bulls. The Glenhead unit is unique in that it is a commercial sheep and suckler cow enterprise which is managed by HND students with guidance from an advisory board. Two other units concentrate on sheep and agroforestry, and on extensification of low input farms.

Maximum Use of Grazed Grass - Curragh, Lisnaskea, Co. Fermanagh (Gerald and Carmel Maguire)

The second day's visits were in the west of the province in Co. Fermanagh, beginning with Gerald and Carmel Maguire's small family farm, Curragh. Until 1984 store cattle had been kept while the land was improved by drainage and reseeding. Dairying was then started and cow numbers and quota have been gradually increased since. There were now 67 cows plus 27 heifers and 12 calves kept on 46 ha grass with a quota of 343,000 litres. Average milk yield was 5,520 litres, 3,470 litres from forage. Grazing is by rotational paddocks divided by electric fencing to prevent back grazing. The cows are turned out with an appetite and grazing time is controlled to avoid poaching the heavy land in this high rainfall area. For the same reason, good roads and fenced tracks were considered vital.

Continental Beef and Heavy Lamb Production from Mixed Grazing - Tullynagowan, Churchill, Enniskillen, Co. Fermanagh (Edward Rogers)

Mixed grazing of sheep and cattle was seen at the next visit to the farm of Edward Rogers at Enniskillen. This was a topic researched in the 70's by the Grassland Department at SAC Auchincruive on Low Todhill, Kilmaurs in north Ayrshire.

Edward Rogers, whose wife is a school teacher, found that mixed grazing greatly helped to maintain pasture quality. Curragh is unusual in being mainly on limestone. It has an ESA management plan which limits stocking to 1.4 LU ha^{-1}. 54 continental cross sucklers, put to a Blonde d'Aquitaine bull and 60 other cattle were kept on the 72 ha holding, together with 154 Texel cross ewes which were crossed with Texel, Dutch Texel and Charollais rams. At the time of the visit, calves were being sold at 12 months, but in the future all calving will be in the autumn (September/October). The calves will then be overwintered and sold in the spring as stores or taken to finishing. In a project with the Department of Agriculture, Edward has been evaluating the Dutch Texel for the production of heavy lamb carcasses - up to 25 kg male, 21 kg female - to sell in a niche market.

Diversification and ESA Management on a Beef Farm - Dromard, Tamlaght, Enniskillen (Clive and Sharon Weir)

The next farm visited had also entered the ESA Scheme and Clive & Sharon Weir gave a high priority to methods of farming which were in sympathy with the environment. The farm had areas of mature woodland totalling 5 ha, and also an overwintering site for Whooper Swans. Diversification on the farm took the form of a farm guest house, with 4 bedrooms and a self-catering unit. This had been opened to serve tourists in the Fermanagh Lakeland, of which Enniskillen was the 'capital'. Dromard totalled 70 ha, 64 ha of which carried 30 beef cows and 130 other cattle. The Charolais cross calves were all finished, heifers at 20 months, and the steers at 24 months, with additional stores bought in. Emphasis was placed on producing quality beef which could be marketed as Quality Assured. Production costs were kept low through the maximum use of grazed grass and of high quality silage. Clive Weir had the unique distinction of having won all the Competitions in the local Fermanagh Grassland Club - Silage, Farm Management (Beef) and Countryside Management!

Profitable Dairying in a Less Favoured Area Farm from High Quality Grazing and Silage - 134 Coolkeeran Road, Loughguile, Ballymena, Co. Antrim (Malachy & Sean Connolly)

The third day of visits was based in Co. Antrim in north eastern Ulster, north of Belfast. The first stop was at a Ballymena dairy farm run by father and son, Malachy and Sean Connolly. Although in an LFA with peat over gravel and situated at over 200 m, the farm produced high quality grazing and silage. 80 ha of owned land was augmented with 40 ha of rented, *conacre* land. There were 140 dairy cows with 108 followers and herd average of 6,300 litres, 3,400 litres from forage. Grazed grass was used to the maximum by Extended Grazing as much as possible, with the aim of offering fresh leafy grass after each milking. This was achieved through the use of ½-day paddocks on a 21-day rotation. Target turn out date was the beginning of April. The paddocks were topped from June onwards, regularly N-fertilised and also dusted with magnesium. Silage cuts were taken in mid-May, mid July and September, aiming to produce 2000 t annually. A high DM, high ME product with a high Intake Factor was required to enable maximum use of home grown forage and minimum use of concentrates. The cut grass was wilted for 24 hours and lifted by contractor using an inoculant additive. The clamp covers were sealed using FYM.

The Connollys were confident that high management standards, efficient use of grazed and conserved grass and close scrutiny of input costs would ensure their future in dairying.

Modern Developments on a Traditional Hill Farm - Duncarbit House, Glenshesk, Ballycastle, Co. Antrim (Kevin & Brian McCaughan)
Members of the McCaughan family have been farming at Duncarbit since the 1600s and were hosts to the BGS on their first visit to Northern Ireland in 1948. The farm had then just purchased its first tractor to help the 3 working horses! Sheep numbers were 400, with 12 dairy cows, 8 sows and 100 hens. There were 4 ha oats and 2 ha potatoes as well as grass variety plots on peat land.

At the present time (49 years later) there were 450 Blackface ewes from Lanark on the hill and an inbye flock of 300 Cheviot and Cheviot cross ewes put to Suffolk. The 50 sucklers were Limousin and Simmental crosses bred with Charolais. However, it was intended to change to smaller Angus and Hereford type cows. Of the 328 ha total farm area, 182 ha were heather moor, 126 ha rough and clean grazing and 20 ha silage ground. Altitude varied from 75m to over 300m, with gravel-peat soils. The silage and grazing areas were fertilised and slurry was applied to the silage area. Grass and silage supplied most of the diet of the ewes and all that of the sucklers. The McCaughans have entered the local ESA Scheme and receive payments for management of heather, of unimproved and improved grassland and also for upgrading their farm buildings in the traditional style. Both Kevin and Brian are active members of local farming organisations, and Brian also teaches in a local primary school.

Productive Dairying from Pedigree Stock with Top Class Management - Ashdale Farm, 9 Carmavy Lane, Antrim (David, Gloria & Alan Wallace)
The final visit was to a highly productive dairy farm at Ashdale, situated at 150m on heavy clay. There were 100 pedigree Holstein-Friesian cows kept on 97 ha, together with 140 youngstock, all at the high stocking rate of 2.3 lu ha^{-1}. Average milk yield was 7,400 litres, 4,500 from forage.

The dairy herd was managed on a Two Sward System, with 21 one-day paddocks, 18 of these were grazed from turnout (normally 10-12 April) until after the first silage cut, when 2 more paddocks were added. The youngstock are set stocked and first year calves are grazed on new reseeds and silage aftermaths. Sheep are grazed in the autumn for 2 months. 14 ha cereals were grown and 10 ha were reseeded annually with Intermediate and Late perennial ryegrasses, including some tetraploids and white clover. Over 2000 t silage were made annually in 3 cuts, which were wilted for 24 hours to ensure a high DM product and high ME (12 in 1997). The herd was divided into high and low yielders for winter feeding. The high yielders received 6 kg of a 20% protein ration, including wholecrop wheat and molasses; the low yielders 2 kg daily. In summer, a high maize ration was fed above 25 litres from grass, according to milk yields.

An additional visit to **Greenmount College** was available on the 4th day to see the Horticulture Development Centre, Farming and Countryside Trail and the Dairy Unit. The **Horticulture Development Centre** featured computer controlled environments in 6 glasshouses, plus older polytunnels and mushroom houses. The **Farm Trail** was targeted primarily to stimulate the interest of school children in farming and the countryside. The **Dairy Unit** comprised 3 demonstration herds managed with 1) High Forage, 2) High Protein, 3) High Genetic Merit.

Adapted from the BGS guide book to the 1997 Summer Visit and from Grass Farmer No. 57, Summer 1997, with acknowledgement.

SWSGS GRASSLAND ENVIRONMENTAL COMPETITION

The Environmental Competition is sponsored by ***Trident Feeds Ltd***

The SWSGS Grassland Environmental Competition will be in its 11th year in 1999. It is run annually by the Society, with support from **Trident Feeds Ltd**, to promote sympathy for the environment amongst all grassland farms in south west Scotland. Small, relatively simple measures, eg: planting a few trees, can make a big difference, and grants are available for many conservation-related works. However, the attitude and approach to care for the environment is paramount, and this is one of the main things judged in this Competition. Members and non-members are invited to enter - entry is free.

SWSGS EVENING FARM VISITS - 1997
G E D Tiley

Dumfries - G Sommerville, Nethertown, Crocketford Road - 30 July

On a dull wet evening, a group of hardy members of the Society ventured uphill from the Crocketford Road to the upland farms of Nethertown, Glenkiln and Glen Scarr. George Sommerville, the Estate Manager, reminded us that the Nethertown main steading was at 190 m with annual rainfall of 1500 mm. H Keswick had taken the land in hand from his father in 1974, and had purchased nearby Bettyknowes in 1977. The Estate had required extensive upgrading of buildings, fences, repairs, drainage and reclamation, through investment and available grants. George Sommerville was appointed manager in 1976. There was a staff of 5 at present. Total stocking was 1100 Blackface and 1300 cross ewes, plus 650 hogg replacements, 80 pedigree Galloways, 300 cross cows and 150 replacement stock. The four farms, totalling 1450 ha, were all grass and 152 ha were cut for silage (80 at Nethertown, 40 at Bettyknowes, 16 at Scarr and 16 at Glen Kiln, as big bales). First cut was taken in July following ewe grazing, and the operation was carried out by a team. A 1200 tonne covered pit fed suckler cows and sheep housed in the 13-year old sheep shed. The pit floor had been tarred this year to prevent effluent leakage. Self cell additive from Harbro was used. To avoid *Listeria*, silage for sheep was never taken where sheep had grazed. 5-year silage analyses and big bale returns are given in the Table.

Buildings. The sheep shed measured 27m x 72m and had 3 passageways. It was used from January-April to take the ewes to lambing and also at clipping. There was a risk of pneumonia with the sheep kept inside, and also a problem of crowding at the troughs when cake was fed. There was a 66-cow shed with a 600 tonne silage pit, and an added lean-to extension. A general purpose shed, originally for hay and grain grown during ploughing and reseeding for grass improvement, had been converted to accommodate 70 cows plus calves. Interesting modifications had been made to the cattle race, including a non-slip base of rubber from a conveyor belt, a sliding gate instead of bars and a sloping side for a smaller beast. Expanded accommodation had proved necessary due to the increasing size of suckler calves, and to reduce the risk of pneumonia. This seemed to strike with no particular pattern, first in one shed then another. It was suggested that pneumonia was more prevalent due to the junction of low ground and the snowline nearby. The use of mats made conditions warmer for the stock.

The location of the silage pits and building design had to be changed, since a burn ran through the steading. A fire escape had been installed at the end of the silage shed to meet new regulations.

Glenkiln Farm - Silage Analysis and Big Bale Returns

	1992	1993	1994	1995	1996
Dry Matter	26.5	22.9	27.7	36.3	33.2
pH	3.8	3.9	4.5	4.4	4.7
Ammonia N (% of Total N)	9.3	9.8	6.6	6.3	7.6
Crude Protein	10.1	12.5	11.4	11.2	12.2
ME (MJ/Kg)	9.9	10.5	10.3	9.9	10.8
Digestibility (%)	62.1	65.4	64.3	61.7	67.3
Big Bales Produced	1857	2725	3766	2520	2176

The visitors were then taken on an extensive tour of the hill by tractor and trailer. Much of the area had been reclaimed from dense rush pasture. Thus in 1984 32 ha (carrying only 50 Blackface ewes) was reclaimed in a very dry season, giving a 10 cm thickness of rush trash, as well as numerous stones. The soil was peaty and poached easily with outwintering. However, grass was never short in a dry year. All areas had been sown to Castlehill long term mixture, which had developed into a good grass-clover sward. All fields had been topped and reinfestations of rushes were being treated with glyphosate by weedwiper. A dressing of 250 kg ha^{-1} 29:5:5 was applied in the spring and manure from the sheep shed was applied at the end of the year. Drainage pipes required a backfill of gravel because of the peat. Some areas had to be redrained due to growth of pioneer kale roots into the pipes. Scattered patches of woodland had been established for shooting and there was a small loch for fishing, though this attracted herons.

Some of the pure Galloway herd were seen with their calves, which were shortly to be speaned. Daily liveweight gain was 0.82 kg at 200 days. Only half the herd was outwintered, to reduce poaching, and barren animals were culled. Big bale silage for the Galloways was produced from an area shut up for Blackface lambing. A group of Henry Moore sculptures surveyed the scene from a nearby roadside.

The Grassland Society is much indebted to Henry Keswick, George Sommerville and their farm staff for this most interesting visit, and detailed tour of the farms.

Ayrshire - J Hogarth, Wheatrig, Kilmaurs, Kilmarnock - 5 August

This farm was winner of the 1998 Nickerson Sward Competition for the best grazed sward.

Wheatrig is a compact, well run all-grass farm situated in the heart of the lush grass producing area of north Ayrshire. The steading is centrally placed and the four grazing fields of around 7 ha each are conveniently located at the back of the farm, and the silage fields on either side of the tarmacadam main drive into the farm.

John Hogarth and his wife Margaret came up from Pinwherry in 1989, bringing all stock and equipment to Wheatrig on a 30-year lease. Unlike the previous farm which was very marginal, Wheatrig is more level. However the land is heavy and all fields were low in phosphate, though this has since been rectified by regular high-P fertiliser. Total area is 72 ha, with an additional 20 ha rented including 12 ha silage ground. Stock is 120 commercial cows with all year round calving. Quota had been brought from Pinwherry, some purchased plus some leased to total 900,000 litres. There is a stockman and a repair/maintenance man who also does JCB contract work.

All fields received a first application of 250-300 kg ha^{-1} 26:13:0, followed by 250 kg ha^{-1} 24:4:15 on the silage ground. Grazing fields were pushed hard until mid-season with 3-4 applications of 29:5:5 fertiliser, often applied before the end of grazing. After 2nd cut silage (late July), the silage fields were also grazed hard until early September, giving the cows access to high quality grass throughout the season. With silage, good quality was the aim, since poor winter silage feed could not be compensated by cake no matter how much was fed. Silage pit space was limited, so some second cut was stored over the first cut, the remainder stored in a separate small pit. No side drainage pipes were needed, since holes in perimeter walls allowed drainage into the surrounding concrete apron. A good asphalt base ensured adequate drainage collection of effluent. Axcool additive was being used, and 1997 analysis was 27.2% DM, pH 4.1, crude protein 14.3%, D 71, ME 11.3, Ammonia N 3 gkg^{-1}.

600 big bales were made to feed all youngstock saving £500-600 per month on cake bills compared with feeding hay formerly. Light green plastic was used for wrapping, which was more expensive, but resulted in a reduced loss of feed value from heating compared with black polythene. Axcool additive was also used in the bales. Cubicle mats were used to protect the bales from damage by the cows. The 30-year old Atcost cubicle shed had recently been renovated to accommodate additional cantilever cubicles, with cow comfort mattresses to give maximum comfort to the 70 high yielders, as well as increasing total accommodation from 80 to 150 cows and heifers, all on slatted floors under one

roof. The whole steading yard and driveway were neatly tarmaced, and the grass verges along the drive were cut weekly with a ride-on mower to maintain tidiness. Wheatrig is renowned for quality milk and quality stock, though the aim was primarily for efficient milk production.

The Society feels greatly privileged to have visited such a tidily kept and efficiently managed farm, and thanks the Hogarth family for their warm hospitality.

Wigtown - I McIntyre, Low Barbeth, Ervie, Stranraer - 14 August

Low Barbeth is an all-grass farm on the peninsula north of Stranraer. 130 Friesian-Holstein cows are kept on the 114 ha, together with 125 youngstock, with sheep wintered until March. The steading is located at the corner of the unit, creating difficulties in stock logistics. The cows have a 40-minute walk from some of the summer grazing fields, which extend to a local monument at a high point in the terrain. A public road also splits the farm. A useful sheltered quarry area, including whins and knowes, provides summer grazing for 30 bulling heifers and steers. The grass fields are long term, permanent pasture, only reseeded when necessary.

Three cuts of silage are taken, using a contractor, first cut on 48 ha. Herd average 6,300 litres feeding 1.5 tonnes cake. Considerable improvements have been made to the buildings in recent years, and were still in progress at the time of the visit. A tower had been removed and a new lean-to shed with bedded court and feed area had been built, and the slurry system upgraded. There were 120 cubicles and loose housing for 32 cows after calving. The parlour was a 16:16 herringbone. The farm was run by family labour plus a tractorman. Ian is a keen advocate of the value of grass, and is exploring ways of obtaining its increased use on Low Barbeth.

The Society wishes to thank Ian and his family and tractorman for the success of this visit, and for their generous hospitality.

CSGS PANEL EVENING

A meeting of CSGS at the Newhouse Hotel, Newhouse, 25 February 1997

A Panel Meeting was held at the Newhouse Hotel on 25 February 1997, to discuss current topics in grassland farming.

Panellists: Primrose Dunbar, United Auctions, Stirling
Archie McGregor, Allanfaulds, Kilsyth
Robert Simpson, Duchlage, Crieff

CENTRAL SCOTLAND GRASSLAND SOCIETY
FARM VISITS IN 1997
C McCombie

14 May - Auldhame, North Berwick (courtesy J R Dale & Sons *per* N Knox)
Auldhame is one of the largest arable farms in East Lothian, with approximately 344 ha of cereals and 60 ha of potatoes, in addition to a high yielding dairy herd. A high output from all enterprises is achieved with a remarkable yield of over 100 t ha^{-1} potatoes (over 40 t $acre^{-1}$) in one field last year. Auldhame belongs to John R Dale & Sons and is managed by one of the Directors, Neil Knox, past President of East Lothian NFU. The dairy herd has a carefully controlled complete feed ration, fed all year round with exercise paddocks provided in summer. Wholecrop wheat silage is made to supplement grass silage in the ration, since the wheat yields are more reliable than grass in a relatively dry climate. The cows are milked three times a day with a shift system of milking to cope with this workload.

14 May - Longyester, Haddington (courtesy A Hogg)
Longyester is a mixed beef/sheep/arable farm of 682 ha lying between 210 and 510 m and includes 309 ha of rough grazing, 113 ha permanent pasture and 16 ha woodland. Crops are 43 ha winter wheat, 60 ha of spring barley, 12 ha of turnips for stock feed, 15 ha of set-aside and 113 ha rotation grass for hay, silage and grazing. There are 2 shepherds, 3 tractormen and 1 part-timer. There is a flock of 750 pure bred Scottish Blackface ewes, Greyface ewes put to Suffolk tups and 80 pure bred Suffolk ewes. In a herd of crossbred and Blue-Grey cows, 100 calve in autumn and 30 from mid-April to May.

8 July - Sorbie, Saltcoats (courtesy D Hogarth & Sons)
Sorbie farm lies between 27 and 160 m above sea level, with an area of around 208 ha, 192 ha of which are arable. A further 48 ha of grass are rented. In addition to milking 180 dairy cows, Simmental bulls are used on many of the dairy cows and Aberdeen Angus on the heifers. All beef is finished on the farm. 104 ha are cut for first cut silage and approximately 64 ha for the second cut. 40 ha of cereals are grown, usually in equal quantities of winter and spring barley. Bearing in mind the uncertain future of quotas, increased emphasis has been placed on white clover over the past few years, and less reliance on bag nitrogen, to change to a less intensive system.

5 November - West Newton Farm, Strathaven (courtesy of T A Yuill)
West Newton is a 144 ha dairy farm with 140 Holstein Friesian cows. 60 ha are taken for first cut silage and 40 ha for second cut. Staff on the farm consist of Mr Yuill and his father, with a dairyman and stock/tractorman.

CENTRAL SCOTLAND GRASSLAND SOCIETY

Silage Competition 1997

HF Seeds Prize-Giving Meeting of CSGS at the Newhouse Hotel, Newhouse in January 1998

C McCombie, Secretary, Central Scotland Grassland Society

Silage Judge: **Archie Borland, Altonhill, Kilmarnock**

This Competition was judged in December 1997 and the results were announced by the Judge, Archie Borland, during the HF Seeds Prize-Giving evening. After the presentation, the Silage Judge briefly described silage making and dairy cow management at his own farm, Altonhill, Kilmarnock.

HF Seeds Cup:	1st Prize	T & B Wilson, Bishopbrae, Bathgate
	2nd Prize	J Clark, Dunrod, Inverkip
	3rd Prize	A Reid, Plean Farm, Stirling
Hamilton Reco Salver for Best Beef & Sheep Silage:		A Dyer, Ancaster Estate, Muthill

The points awarded were as follows:

	Analysis (35)	Inspection (65)	Total (100)
T & B Wilson	31.60	59	90.60
J Clark	33.50	57	90.50
A Reid	30.65	55	85.50
A Dyer	21.95	52	73.95

Judges Comments: The farms visited covered a wide area: Strathaven, Bathgate, Crieff and Bute, over a period of three days, with local rainfall varying between 800-2000 mm. A number of additional feeds were being used on the different farms - wholecrop silage and even maize were beginning to appear, while supergrains were a good feed if they could be purchased at the right price. Drumacloy (Bute) had a low cost system, with 130 cows giving over 7,000 l, using irrigation. Ancaster Estate used the silage for 100 bull beef. There was a purpose-built set-up at Plean Farm, Stirling and the cows were bedded on chopped straw bought at £15/tonne. At Dunrod, Inverkip there were 4 excellent silage pits and the silage made to perfection with concentrate use of only 0.2 kg litre^{-1}. Bishopbrae, Bathgate had exceptionally low concentrate use 0.08 kg l^{-1}. The only criticism was that the pit was overfilled. This farm went on to win the Scottish Regional round of the 1997 Silage Competition, and competed in the BGS UK National event (see p48).

TRACEABILITY OF FEED - HOW IT MAY AFFECT THE LIVESTOCK SECTION

A meeting of the Central Scotland Grassland Society (AGM) at the Newhouse Hotel, 5 November 1997

Dr Donald Lawson
Feed Nutritionist, Davidson Brothers (Shotts) Ltd
This meeting was sponsored by Davidson Brothers (Shotts) Ltd

Quality Assurance Schemes were coming to the fore in the livestock industry, and milk and meat purchasers were now closely scrutinising animal production, especially feeding, welfare, marketing and processing. Ruminant feed manufacturers such as Davidson Brothers were committed to doing everything possible to ensure that their customers would get the best market price for their products. This included the following Traceability Measures: Sourcing and Haulage of Raw Materials, Testing for microbial contamination, NIR Analyses, Computer Technology and Delivery of the Final Product.

Raw Material Sourcing. A Chartered Suppliers list was drawn up of well known, reputable raw material suppliers. For example: Cargill, Grosvenor, Intermol, McCorkell, Trident, United Molasses and Volac.

Raw Material Haulage. Davidsons' own articulated fleet was dedicated to haul raw materials. Other hauliers were closely monitored and required to declare the nature of the last 3 loads. They were excluded if these contained any of the following materials: glass, dressed cereal seed, mineral clays, animal wastes, or toxic and corrosive substances. Where coal, salt or medicated pig and poultry feeds were involved, a wash out certificate was required.

Microbial Testing. Mill equipment and delivery vehicles were tested monthly for *Salmonella*. Raw materials and raw material transporters were subject to random microbiological testing. MAFF carried out 44 microbe and bacterial tests annually.

NIR Analyses. Davidsons had invested £50,000 in Near Infra Red analytical equipment at their mill, developed in association with Aberdeen University. This was used to test every delivery of raw material and every batch of finished product.

Computer Technology. A £10 million investment in the mill had included computerisation of all systems. They had developed their own **Millwheel** computer system, which was now sold to other feed businesses. This system records and processes all information on every aspect of the business.

Traceability by Computer. This eliminated paperwork for the customer as Davidsons did all the record keeping in a simple system. Data sheets could be supplied on request. Bulk compounds were automatically entered and bag compounds were read from the bag ticket. Batch identification numbers were matched to raw material contract sources. Final batch numbers could be linked back to the suppliers of feed components in a display on the computer screen.

Delivery of Final Products. Davidsons used their own fleet of vehicles for delivery of final feed products. These were used only for ruminant feeds delivery. The mill processed feed exclusively for ruminants and no drugs were handled on the site.

Other Quality Assurance Measures. From 1 January 1998, all SQBLA (Scottish Quality Beef and Lamb Assurance, see p63) members must purchase from an associate member's mill, which will be audited by SQBLA-appointed assessors. Davidsons are an associate member of SQBLA and are quality assured under ISO 9002 (International Standards Organisation) with an open mill policy. After April 1998, the Scottish Milk Forum will seek to enforce the UKASTA (UK Agricultural Seed Trade Association) code of practice for animal feed manufacture.

SOUTH WEST SCOTLAND GRASSLAND SOCIETY VICE-PRESIDENT'S PRIZE 1997 and 1998

This prize is awarded annually to the best Grassland student in the first year of the BTechnol (Bachelor of Technology), HND (Higher National Diploma) and Higher National Certificate Agriculture courses at SAC Auchincruive. The 1997 prize was awarded to Claire Gormley of Low Glengyre Farm, Ervie, Leswalt, Stranraer. Claire also won an all-expenses paid trip to Holland as winner of the 'Mommersteeg' Grassland Management Competition in 1998. The 1998 winner was Allan Clark of Fineview Farm, Glenluce, Newton Stewart. Both these students were members of winning teams in the 'Hydro Agri Grassland Farmer of the Year' competition - Claire in 1997 and Allan in 1998. Congratulations to both for their outstanding and deserved successes!

THE MILK DEVELOPMENT COUNCIL
From the MDC, 5 John Princes Street, London W1M 0AP

Background - The Establishment of the MDC

The arrangements for buying and selling milk in Great Britain changed in 1994. Since the 1930s, the Milk Marketing Boards had been responsible for purchasing all the milk sold off farms and finding markets for it. They had also run an extensive network of services for dairy farmers, including the provision of information for the industry. From 1 November 1994, farmers were free to sell their milk to any individual or company, and dairy companies were free to buy milk direct from individual farmers or groups of farmers. Many of the other functions of the Milk Marketing Boards became established as independent businesses.

With the Government's decision in the late 1980s to concentrate their agricultural research budget on basic science, the Milk Marketing Boards agreed to fund research of more direct application to farms. Farmers were asked to vote on a proposal to set up a levy-funded body with direct accountability, to fund activities previously financed by the Boards. These included production research and development, livestock improvement, human nutrition, education programmes, crisis management and the gathering and publication of dairy industry statistics. The majority of dairy farmers in Great Britain voted in favour of the establishment of the MDC, funded by such a levy, leading the Government to bring in the necessary legislation. The Milk Development Council Order 1995 became effective on 7 February 1995. The Council's functions are:

1 Promoting or undertaking scientific research.
2 Promoting or undertaking inquiry into materials and equipment and methods of production, management and labour utilisation, including new developments and improvements.
3 Promoting or undertaking research into the marketing and distribution of products.
4 Promoting or undertaking research into the consumption or use of goods and services supplied by the industry, including factors affecting these.
5 Promoting or undertaking the collection and summarising of statistics.
6 Advising on any matters relating to the industry (other than remuneration or conditions of employment) when requested by Government.
7 Providing information and advice.

(*Abbreviated version of* "Functions of the MDC", *prescribed in the Milk Development Council Order 1995).*

COMPUTER USES ON THE FARM

Robin Mair
SAC Farm & Rural Business Division, Stirling

Talk given at CSGS (AGM) Meeting, 5 November 1997

Computers are nowadays of almost universal use in offices and businesses, and an ever-increasing proportion of private homes. It is therefore prudent that farms should consider the potential uses, costs, advantages and disadvantages.

Reasons for Buying a Computer: These include: a "perceived" reduction of paper, better record-keeping, improved financial control, more orderly accounts and a possible reduction in accountants' bills, electronic tagging, saving time in processing records and compiling outputs, access to the Internet. Other reasons frequently heard are: 'Everyone else has one', 'It will help children's learning', novelty and for record-keeping.

Advantages: Advantages mentioned were: It is the modern medium and the way forward. However, one must be prepared to spend time on it In the realm of handling figures, subsidy claims, stock records, etc, it can certainly make life easier. A result of this is that it makes your business more efficient. The printed outputs and orderly records can also create a better image, and could impress Departmental and Animal Health Inspectors. If connected to the Internet, the computer provides access to a vast range of information. Similarly, if appropriate software is introduced. Other benefits include a facility to send and receive fax messages and e-mail if a modem is installed. Computer games can be played and current information, eg: from the stock market, can be called up.

Disadvantages: Disadvantages to be considered include: computer viruses - virus-detection software may have to be added; competition for computer time from kids in the family; frequent use of the internet could run up hefty 'phone bills; it was essential to keep back-up discs in reserve, in the event of loss of information within the computer. Some patience is required until sufficiently practised and familiar with computer function.

Summary: Computers are the way forward, but are like any other tool - they will only perform correctly if the input is correct. Also, as with silage, no amount of good management can compensate for a poor silage, so computers cannot rectify inadequate record-keeping! Finally, one does not become a computer expert overnight! **SAC** runs computer courses which are specifically designed for farmers on Accounts, Record-Keeping, Computer Use and using the Internet.

GRASSLAND MANAGEMENT IN ZIMBABWE

David Hogarth, Sorbie Farm, Ardrossan, Ayrshire
Impressions of a Visit, October 1998

Zimbabwe, formerly Southern Rhodesia, is a country of 150,000 sq miles, 5 times the size of Scotland, which lies on the great African tableland, altitude 1000-1500m between latitudes 16° and 22° south. It is entirely land-locked with the Zambezi river and Kariba Lake to the north and the Limpopo river to the south. It boasts the Victoria Falls, the ancient Zimbabwe monuments and wild game parks as its main tourist attractions. On a brief visit to Zimbabwe in October 1998, my wife and I stayed with my wife's cousin, Ronnie Saul, on a 9,000 acre (3,600 ha) farm some 70 miles south of Harare, the capital. Ronnie had emigrated from Largs, Ayrshire in 1952 to work on a tobacco farm before farming on his own in 1958. His present farm carries 850 beef cattle which are rotationally grazed for 1-2 weeks in each of 8 paddocks. 40 ha of maize are grown mainly for the cattle, as well as a variety of cash crops such as beans, pumpkins and granadillas.

The climate is warm and tropical, averaging 70-75°F (21-24°C) in winter (April-October) and 85-90°F (30-32°C) in summer (November-March). Rainfall average is 850 mm, but this tends to fall as brief tropical storms of heavy downpours, which can very readily lead to run off and soil erosion. The main local cash crop is tobacco, which is very labour intensive. All operations from planting, harvesting to curing are carried out by hand. Visits were made to the magnificent Victoria Falls and to the Kariba Dam where the tops of dead trees from the inundated land can still be seen when the water level falls in the dry season. Self-sufficiency, resilience and optimism are essential elements required by farmers in Zimbabwe, in the face of climatic, political and economic challenges, no less so than farmers in the UK or elsewhere.

On the second day of our visit we attended an Open Day of the local Zimbabwe Grassland Society, and signed the visitors' book as representing the South West Scotland Grassland Society! The Open Day was held on a ranch 30 miles south and attended by 50-60 farmers who had travelled from up to 200 miles distance. The grazings are natural *veldt* consisting of coarse grasses, such as *Hyparrhenia*, mixed with shrubs, bush and small trees, to create typical African savanna. When Hendrick O'Neil, the ranch owner, moved in, the area carried 5,000 head which had been increased to 7,500 at present, aiming for 10,000 with the adoption of improved grassland management. The cattle are effectively beef sucklers of various breeds, including Hereford, Brahmin and local Zebu which are more tolerant of high temperatures. Sahiwal bulls are popular. The farm has

its own slaughter house and abattoir with 3 retail butcher outlets in Harare. All cattle, including calves, must be dipped weekly to control ticks which inhabit the grassland.

The Open Day demonstrated a new system of Strip Grazing the natural *veldt* grassland. This was achieved by mob stocking limited areas of grazing very heavily in groups of 800-900 cattle for short periods. The fence was moved 4-5 times per day into fresh grazing. The reasons for this heavy grazing was 1) to trample down all the coarse grasses so as to encourage the finer species, and 2) to break and crumble the hard surface pan of the soil in the dry season, so that when rain came much more of it would soak into the soil and reduce the risk of run off. Strip grazing could also reduce worms and ticks. Destruction of coarse grasses and encouragement of young growth is very similar to some of our own grazing practices on the hill and in rough grassland in SW Scotland.

Except on some of the smaller farms, where a little hay is made, no attempt is made to conserve fodder for the dry season. In extreme drought conditions, feed cubes made in a farm cubing plant from arable by-products (maize, stover, soya, hen pen and molasses) are fed at 2 kg $head^{-1}$ day^{-1} scattered on the ground. Cattle are finished at 3 years and never housed. There is plentiful cheap labour locally and machines are rarely used. The soil is fertile enough to grow maize, but Mr O'Neil preferred to improve his grassland by strip grazing to increase farm output. The *Acacia* thorn bushes on the farm were conserved for shade and also as nitrogen-fixers. The Open Day concluded with tea under the shade of a tree.

SWSGS PHOTOGRAPHIC COMPETITION
January 1998

This is an informal competition which is arranged by SWSGS during the Competition Evening. Members attending are invited to display photographs with a farming or rural theme. These are judged anonymously by the audience present, and the best photograph chosen by a show of hands.

Winner with the Best Photograph in January 1998 was: Archie Borland, Altonhill, Kilmarnock, Chairman, SWSGS, who received an engraved crystal whisky glass as First Prize.

THE MILK BUSINESS

Jim Bell, Agricultural Consultant, Lockerbie

Meeting of SWSGS at the Douglas Arms Hotel, Castle Douglas on 21 October 1997. A Joint Meeting with the Stewartry Discussion Society.

Formerly Manager of Lockerbie Cheese Company, manufacturers of a high quality Dunlop cheese, Jim Bell had moved to a consultancy business in the Dairy Industry. He worked with various companies in Scotland, and had developed many contacts in dairying over the past 25 years. Trained as an electrical engineer, he had managed a beef/sheep unit for a while and was an agricultural college director. In practical farming, it was essential to be flexible in a very volatile marketplace. A manager must know how to get the best out of people. He briefly reviewed his work with the Lockerbie Cheese Company, to whom he still gave advice on contract. In 1996, it processed 200 million litres of milk and he had also been involved with the sale of equipment from Scottish Pride. With the changeover of milk marketing arrangements, companies which specialised were successful, but there was a need to bring new products to the marketplace. There was also a need to raise standards considerably in Quality within the food chain. Technology and foresight were required to develop important new products. Commenting on companies in the dairy industry, some were successful - others less so, and pooling of resources could be sensible. On the production side, differences will arise from the relative efficiencies of milk producer units. However, a successful solution was required to maintain this very important industry in a climate of falling world milk price.

In discussion, it was felt that every option needed to be explored to choose the right moment to enter the European currency market. Quotas were due to remain until beyond year 2000, and some regulation of milk production was sensible. Small and medium farms would find economics more difficult. To be successful, it was necessary to understand the business and to know where the customers are, seeking new products and aiming for excellence. If producers aimed to be better than average (in the top 10-25%), keep costs down and go for quality, they would survive. Regarding public image, farmers should be seen to be trying to solve problems and to gain a better image. Opportunity should also be taken to educate the public, especially at infant schools to present a proper perspective on farming.

INNOVATIONS IN DAIRYING AND A TRIP TO CALIFORNIA

Douglas Kerr, Crochmore, Crocketford Road, Dumfries

Meeting of SWSGS at Muirend Inn, Symington, Kilmarnock on 20 November 1997

Douglas, together with brother Bobby, runs a multi-farm enterprise west of Dumfries, and he spoke to the South West Society about new developments which had been recently undertaken at Crochmore and neighbouring units. The Society had seen many of these at a Summer evening farm visit in 1996 - see last Greensward, No.40, pp 26-28.

Having graduated with a BSc Agric. at Edinburgh in 1970, Douglas worked with the former SAI (Scottish Agricultural Industries Ltd) for 5 years, where he received a good grounding amongst a friendly team. An opportunity arose to purchase a neighbouring farm at home where his father ran an upland enterprise with sheep and dairy and beef cows. Douglas soon discovered it was a lot easier to advise people what to do than to do it himself! Nevertheless he increased cow numbers to 170 and entered into partnership with Bobby - a qualified engineer who had come out of industry. Douglas oversees dairy and beef, Bobby deals with the labour and buildings.

A new dairy unit at Merkland Wells was started in 1977 with 120 cows. New drainage and roads were installed and knowes levelled, with the aid of capital grants. The farm has been accepted into the Countryside Premium Scheme where some of the measures encouraged reverse previous improvements. Another farm of 112 ha with 1 million litres of quota was added in 1986, plus a further 50 cows to bring numbers up to 190. A fourth farm (100 ha) was purchased in 1989. A suckler cow unit was started here, though in hindsight this should have been a dairy.

The Crochmore dairy unit required modernisation, and additional cubicles for youngstock. Consequently, it was decided to use existing buildings for youngstock and to build an entirely new dairy complex for 200+ dairy cows in 1995/96. There are now in total 567 ha and 560 cows split between 3 units, with average yield 7,300-7,800 litres, aiming for 8,000 litres. 1000-2000 cast ewes and store lambs are purchased in the autumn for selling throughout the winter. Depending on the availability of grass and market prices, ewes and lambs are also purchased in the spring. Initially, up to 300 mainly bull beef were kept, but this enterprise has ceased because of the calf slaughter scheme. Up to 250 store heifers and bullocks are now bought in autumn and winter.

Silage is made in 3 cuts: 200 ha first cut, 160 ha second and 32 ha third cut. It is cut by the farm and chopped by contractor using a self-propelled harvester after scattering to increase DM to 24-28%, and ME 11.8-12.2. Inoculants had been used for the last 2 years.

Innovations

Initially, the unit increased its slurry lagoon as a cheap means of expanding its storage capacity. However, this was not at all easy to manage in a wet climate, and it was subsequently replaced by a slurry tower.

Crochmore was the first farm in the region to use a mixer wagon when a Farmhand 360 was purchased in 1977. Mixer wagons in a variety of makes are in use on all 3 units. The farm was also the first to buy milk quota in 1985 to replace cuts in the initial quota base which had been quite good in 1983 due to milking 3 times daily; this is now down to twice daily. Wholecrop wheat had been briefly tried in an effort to find the right kind of feed.

It appeared that Douglas found time for sailing, skiing and an occasional round of golf when not managing the dairy cows!

Visit to California

Douglas had joined a party of 24 farmers and 7 Harbro staff. The climate was very dry and cubicle sheds were similar to those in Britain, but without sides to reduce heat stress. Average herd size was 1500, milked at the rate of 400 per hour. 21 hours per day were spent milking, using Mexican labour who were very quick applying the milk clusters. All cows were yoked and the tails painted for fertility purposes, and to allow the selective use of BST. A large proportion of the calves were kept in wooden hutches. There was an abundance of by-products available, such as cotton seed and vegetables. The labour worked 10 hour shifts and were paid £5 per hour.

NEW FERTILISER DEVELOPMENTS
Ian Main, Kemira Fertilisers Ltd

At the same meeting, Ian Main briefly referred to development work being conducted in the UK with fertilisers on grassland. He posed the questions: Is grass working hard enough? Are we making best use of slurry? Is it time for innovation? Stressing the importance of grass, he estimated that the diet of dairy cows was 60-65% grass, of beef animals 80-95%, of sheep 90%. The genetic potential yield of grass was 27-30t DM ha^{-1}; experimental plots yielded 17-20t, farm yields averaged 10-12t. Clearly, there was room for improvement. To improve farm yields and grow quality grass, soil fertility was the main factor that could be influenced, through balanced NPK and trace elements, with good drainage and a suitable seeds mixture. Timing of fertiliser application was vital and fertilisers were required to replace nutrients taken off through the animal. 45-50 kg ha^{-1} P & K were removed per year by grazing. Offtake of P in silage was similar, but K removal was much more (about 4 times).

For **Grazing**, begin with NP to give 2 kg day^{-1} N uptake; use NPK later and straight N toward the end of the season once P & K levels are adequate - NOT at the beginning. An NP compound such as Early Bite provides readily available soluble P which stimulates early root growth in the spring, and lays the foundation for better yields throughout the year. Early Bite (27:10:0) yielded more in farm demonstrations - 12.6% more DM at Crichton Royal Farm and up to 35% more on other sites.

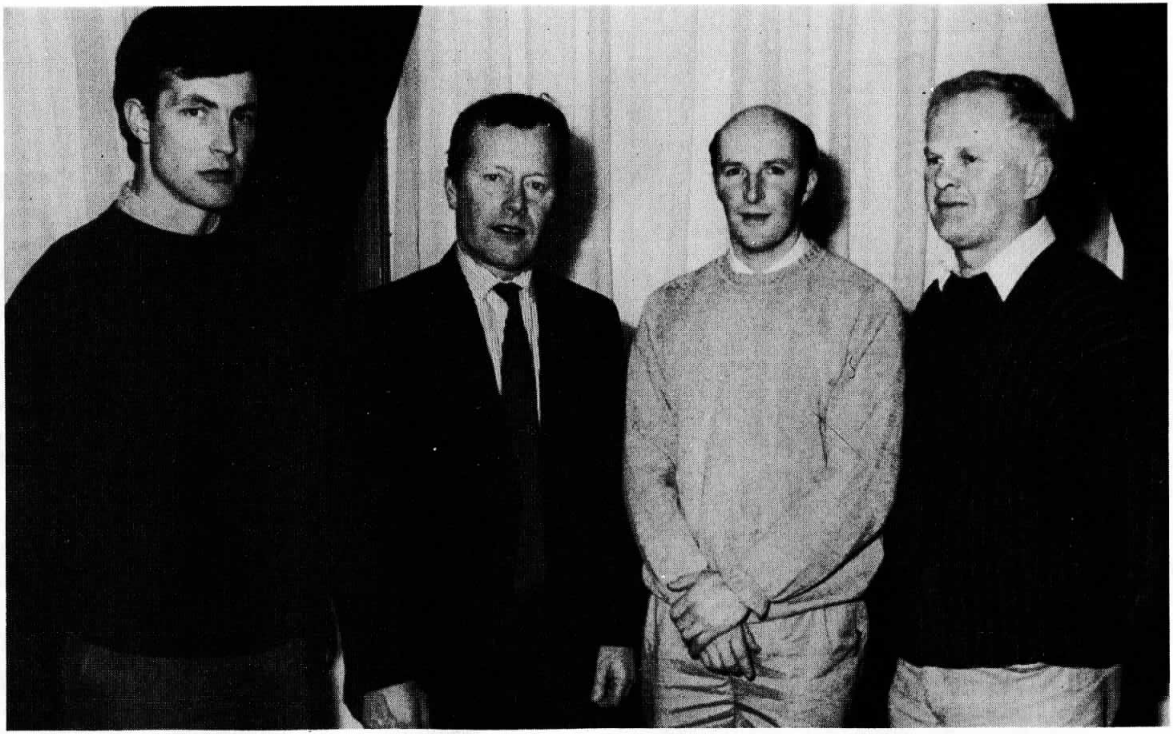
For **Silage**, apply the first fertiliser as soon as one can get on the ground and match inputs to crop requirements. The optimum N:K ratio for high protein grass was 5:3. Economic quantities of N and especially K can be returned by using slurry. Premier Cut (20:8:12) has the correct balance of NPK for silage if slurry is not used. **Slurry is the cheapest fertiliser on the farm**, 14,400 litres (6% DM) are produced per cow per winter. 30-90% N could be lost to leaching if not applied at the right season (February-March). Slurry Balancer (28:3:8) at 375 kg ha^{-1} matched slurry nutrients for first silage cut, and up to 26% (average 13%) higher silage yields were recorded across the UK using this. If applied before the optimum date (T = 200°C) less yield was lost than if put on too late. Also as fertiliser deliveries were concentrated into less than 3 months of the year, it was sensible to purchase early to avoid the risk of yield loss through delayed delivery and application. On certain soils, Sulphur deficiency could occur in grass herbage, due to the reduced levels of Sulphur in the atmosphere. Where N:S in herbage samples was more than 13:1, a response to S-fertiliser could be expected in 2nd cut silage, eg: the use of 500 kg ha^{-1} of Sulphur 10 (20:4:14 + 7S) had given up to 12% more yield in Lanarkshire.

CHOOSE THE RIGHT PARTNER FOR YOUR SLURRY

SLURRY BALANCER®– THE ONLY FERTILISER DESIGNED TO MAXIMISE THE VALUE OF YOUR SLURRY

KEMIRA
KEMIRA FERTILISERS

®Slurry Balancer is a registered trademark of Kemira Agro UK Ltd, Ince, Chester CH2 4LB. Tel 0151 357 2777 Fax 0151 357 1755



South West Scotland Silage Winners, 1997 season. Left to right: David Yates, Meikle Firthhead, Third; Silage Judge, Will Taylor; Peter Bull, Coopon Carse, Champion; Wallace Welsh, Warnockland, Runner-up.

SWSGS SILAGE COMPETITION 1997

The Competition Evening of the SWSGS held at the North West Castle Hotel, Stranraer on 14 January 1998

G E D Tiley

Sponsored by The Bank of Scotland, Castle Douglas, Kemira Fertilisers Ltd and Plasti-Covers Ltd

Silage Judge: Will Taylor, Glastry Farm, Kirkcubbin, Newtonards, Co. Down, Northern Ireland.

The Chairman, Archie Borland, welcomed the audience to the meeting and wished everyone the Society's compliments for the 1998 season. He reminded the meeting that grass can do so much to maintain profitability in south west Scotland. He thanked SAC staff for all they did to help in the Silage Competition, and the Executive Committee members for carrying out the preliminary screening of silage entries.

He introduced the Silage Judge, Will Taylor, who had been UK National Champion in 1996, and a National Judge last year. He was a Deputy President of the Ulster NFU and the Society was deeply indebted to Will for giving his time to judge our silage. The Judge thanked the Committee for their (second) invitation to judge the Competition, and thanked all entrants for their tremendous hospitality. As he was only 30-40 miles as the crow flies from his farm in Northern Ireland, he felt quite at home in SW Scotland!

1997 Results

Analysis, inspection marks and final placings by the Judge of the short leet farms are given in the Results Table 1.

First prize in the Dairy Class and Silage Champion 1997 was Peter Bull, manager at Coopon Carse, Palnure, Newton Stewart. This was the second Coopon success in consecutive years, following Polwhilly's win last year. Runner-up was Wallace Welsh, Warnockland, Fenwick and 3rd David Yates, Meikle Firthhead, Haugh-of-Urr, last year's runner-up. Wallace Welsh was 1998 Hydro-Agri Grassland Farmer of the Year 1997 - see last year's 'Greensward', pp 6-9.

Table 1 - 1997 SILAGE COMPETITION - SHORT LIST FOR JUDGING
(In Order of Analyses Marks)

Prizes		*Analyses (35)*	Marks *Inspection (65)*	*Total (100)*
	Dairy Class			
1st & Rosebowl	P Bull, Coopon Carse, Palnure	34.50	53	87.50
3rd	D Yates, Meikle Firthhead, Haugh-of-Urr	32.80	49	81.80
	J Cuthbertson, West Tannacrieff, Kilmaurs	32.00	42	74.00
	W Kerr, Helenton Mains, Symington	31.40	34	65.40
2nd	W Welsh, Warnockland, Fenwick	30.45	54	84.45
Best New Entrant	T & W McMillan, Drumwall, Gatehouse	30.15	43.50	73.65
Michael Milligan Prize	W Young, Beuchan, Keir	29.65	42	71.65
	K G Campbell, Kerricks	29.00	39	68.00
	G Sommerville, North Corbelly, New Abbey	28.55	36	64.55
	C McKay, Broughton Mains, Sorbie	28.00	40	68.00
	G Morton, Coopon Polwhilly, Newton Stewart	27.20	41	68.20
	R I R Evans, Penkiln, Garlieston	24.25	45	69.25
	Beef/Sheep Class			
	J Prentice, Hermitage, Haugh-of-Urr	27.60	41	68.60
1st & BP Trophy	R & C Dalrymple, Crailoch, Ballantrae	27.05	47	74.05
	Big Bale Class			
1st	A Crichton, Killymingan, Kirkgunzeon	17.90	-	-

Beef/Sheep winner was again Robert and Caroline Dalrymple, Crailoch, Ballantrae, with runner-up J Prentice, Hermitage, Haugh-of-Urr, where the Judge particularly remarked on the quality of stock and performance, coupled with optimism for the future. Best Big Bale, on analysis, came from Killymingan, Kirkgunzeon (A Crichton) and Best New Entrant Prize went to W McMillan, Drumwall, Gatehouse. W Young, Beuchan, Thornhill received a copy of 'Improved Grassland Management' by J Frame, the Michael Milligan Prize for attention to detail in making and feeding silage.

Best silage analyses marks in each County for 1997 were:

Ayrshire	J S Cuthbertson, West Tannacrieff, Kilmaurs
Dumfries	R Graham, Kirkland, Parkgate
Kirkcudbright	P Bull, Coopon Carse, Palnure, Newton Stewart
Wigtown	C McKay, Broughton, Sorbie

The Dairy and Beef/Sheep 1st Prize winners each received a cash token towards the purchase of plastic sheet products from Plasti-Covers (Irvine) Ltd.

SILAGE QUALITY 1997
S Donnelly, SAC Stranraer

Seamus Donnelly began by reminding the audience that the cow will tell us whether or not the silage was good! Some were extolling the virtues of grazing grass, and of using alternative crops such as wholecrop wheat and maize, but these could only complement grass silage. It was important to look at the overall efficiency, as indicated for example by the Milk Manager data. The difference between the upper and lower quartiles (25%) could be as much as £240 cow^{-1} annum^{-1}, or around £30,000 annum^{-1}.

A Summary of the Analyses means of silages entered in the 1997 Competition and the Distribution (%) of values are given in Tables 2 and 3, respectively. Trends observable in 1997 were:

No. of Entrants - there were fewer Beef/Sheep entries in 1997. In the Dairy Section, there were very few new members entered.

DM - DM levels were generally higher, but Wigtown values were lowest. This reflected poor weather at the first cut and is showing through in animal intake. There was a high risk of secondary fermentation in silages above 40% DM.

Table 2 - SILAGE COMPETITION 1997 - ANALYSES MEANS

Overall Means

Group (Number)	DM (%)	D (%)	CP (%)	ITF (c)	ME	Ammonia (% Total N)
Dairy (132)	28.7	71.3	15.5	106.6	11.4	9.56
Beef/Sheep (26)	28.5	67.2	13.1	103.1	10.4	9.68
Big Bale (3)	32.4	65.3	15.5	102.7	10.5	14.9
Dairy						
Ayr (32)	29.5	71.1	15.4	108.0	11.4	8.79
Dumfries (40)	28.5	71.3	16.0	107.8	11.4	10.07
Kirkcudbright (28)	29.3	72.4	16.2	108.9	11.6	9.18
Wigtown (32)	27.8	70.5	15.2	101.7	11.3	10.02

ITF - An important value which tries to predict how the cow will accept silage. The value is a complex derived from a number of analytical items, such as ammonia, neutralising value, sugars, fatty acids, etc. It is also influenced by DM. There should be concern where values are less than 100 - the cows have to like the silage!

ME and D-value - Small differences in ME can be worth several thousand pounds in the pocket!

Crude Protein - These were generally higher. If crude protein was less than 14%, a supplement would be needed.

In conclusion, it was essential to have Ration Targets. Thus, cows yielding 6,000 l required a minimum of 16% crude protein, those yielding 7,500 l 17% crude protein, otherwise performance would fall. Care was however, necessary that a high Crude Protein analysis figure was not caused by excess free N in the silage, due to high fertiliser N or high slurry rates.

Table 3 - FREQUENCY DISTRIBUTIONS (%) 1997

	Bale	Beef/ Sheep	*Dairy* A	D	K	W	All
D-Value							
>80	0	0	0	0	4	0	1
75-80	0	4	22	10	25	6	15
70-75	0	38	47	60	50	60	55
65-70	34	31	25	20	21	34	25
<65	66	27	6	10	0	0	4
DM							
>40	33	8	12	3	4	3	5
30-40	0	27	31	27	32	32	30
25-30	34	23	25	37	36	34	33
23-25	33	23	13	25	14	9	16
20-23	0	11	16	8	14	19	14
<20	0	8	3	0	0	3	2
CP							
>18	33	0	3	2	11	12	7
16-18	0	8	34	53	28	25	36
14-16	34	11	47	37	50	38	42
12-14	33	65	16	8	11	19	13
<12	0	16	0	0	0	6	2
ITF (c)							
>125	0	11	13	10	18	0	10
120-125	0	4	15	5	4	6	8
110-120	34	16	19	25	25	22	23
100-110	-	23	25	33	25	31	29
<100	66	46	28	27	28	41	31
Ammonia-N							
<4	0	0	3	0	7	0	2
4-7	0	16	38	20	11	19	22
7-10	34	42	34	43	57	34	42
10-20	66	38	25	37	21	47	33
>20	0	4	0	0	4	0	1

ADDITIVE USE 1997

Records on additive use on competition silage entries from Dumfries & Kirkcudbright were as follows:

	Dumfries	Kirkcudbright
	23 out of 40 (58%)	18 out of 28 (64%)
Bioferm	-	4
Ecosile	5	2
Safesile	1	2
Elite	-	1
Cool Store	-	1
Axrod	1	-
Maxgrass	1	-
Silcall	2	-
Greengold	1	-
Inoculant	1	-
Biosoak	1	-
Folia	1	-
Silograss	1	-
H_2SO_4	2	-

Judges General Comments - Will Taylor

1 **Animal Welfare** - Every farm visited showed a positive and careful approach to animal management, and quite clearly this resulted in very good production figures. This could not be done without ensuring animal comfort. Farmers were sometimes accused of taking short cuts in animal welfare and in standards of food production. In south west Scotland, the Judge felt he had seen some of the best stockmen in Europe.

2 **Farm Safety** - This was quite clearly a first priority for the farmer and his employees. Some areas required improvement however - particularly safety barriers on silos where very large heavy machines were being manoeuvred nowadays.

3 **Environment** - The government were now trying to influence methods of farming to improve the environment. Damage was particularly possible in wetter areas. Every entrant displayed a very high standard of collecting and storing silage effluent, the most potent source of pollution. However, the Judge felt that most farmers needed to pay much more attention to the manurial value of slurry, and the amount of fertiliser it could replace.

4 **Farm Waste** - Slurry should be put out in reasonable quantities and within the recommended dates. He was doubtful of the very common practice of using farm waste immediately after the 1st silage cut, especially when inoculant additives are used.

5 **Intake Factor** - This was above 125 in the majority of the short leet, indicating tremendous quality - 'rocket fuel'. However, there was a wide range of confidence in this - from 3-12 litres being obtained from silage, so that there was considerable room for improvement.
6 **Wilting** - The Judge was amazed at the almost universal move to wilt silage, but welcomed this trend which was ahead of Ireland.
7 **Investment** - It was important to identify the estimated investment involved, especially machinery, labour and contractor costs which could lead to problems in the present economic climate.
8 **Other Silage** - He had been disappointed when inspecting other silos on the farm. The 2nd and 3rd cuts were perfect examples of the wilting process gone wrong. Wilting was successful but secondary fermentation and moulds developed when the silage was fed.
9 **Future** - In the present climate of quotas and tariffs and what might happen to agriculture after further rounds of talks, high costs must turn out the goods. Those who are flexible with middle of the road or low cost systems may have a greater chance of business survival.

Glastry Farm, Kirkcubbin, Newtonards, Co. Down - Will Taylor

Will Taylor then briefly spoke on his dairy farming at Kirkcubbin in Northern Ireland. Glastry was a free-draining all grass farm of 80 ha, with 140 pedigree Holstein cows. 6 ha of forage maize were grown. The cows are calved September-February; the heifers September-November, all being diet fed using a Keenan feeder. Herd average is 7,100 l at present, feeding 1.19t concentrates cow^{-1}. His target for the year 2000 was 180 cows yielding 8,000 l, 5,000 l from forage, milk protein 3.5%. He felt it was essential to set targets in farming.

Silage was cut with two 3.3 m mowers, beginning 1 May and finishing on 3 May in 1997. A 8.4 m tedder rowed up 3 rows at 4 ha $hour^{-1}$, keeping ahead of the lifter. The 1st cut is wilted for 24-30 hours; 2nd and 3rd cuts are wilted slightly less. The crops are contractor harvested at 40 ha per day into both indoor and outdoor silos. The aim is to achieve 28% DM. Trial samples at Glastry showed that in 1997 rapid 24 hour wilting increased DM from 16-18% at cutting to 30-32% at lifting for 1st and 3rd cuts. For 2nd cut increases were from 15-18% to 38-50%. In 1997 the analysis was 29.7% DM, pH 4.0, ammonia-N 9.0, ME 11.7.

A VISIT TO NEW ZEALAND 1996

Will Taylor

A visit was made to New Zealand in September-December 1996 as a Gibson Trust Scholar to study low cost milk production in "the only truly free market in the world". The transition from subsidised to free markets was made in 1980, and this study was to see what could happen if the same transition came about in UK.

Currently sheep and dairy farms dominate the New Zealand agricultural industry, with some 50 million sheep and 2.9 million cows. Dairying is expanding as also are fruit and vegetable farms. Cropping takes place mainly in the south island; beef is at an all-time low. Dairy herds numbered 14,700 in 1996, herd average 3,360 l cow^{-1} at 4.55% butterfat, 3.7% protein. Since 1980 herd size has increased and numbers of herds fallen. New Zealand boasts the largest average herd size and lowest labour usage on dairy farms (see Table).

Herd Size as a Measure of Efficiency

	Herd Size	Labour Units
New Zealand	198.0	1.50
Australia	117.0	1.51
EU	18.4	2.79
Canada	44.2	2.23
France	24.7	2.36
United Germany	25.2	2.47
Netherlands	39.7	2.14
UK	64.6	2.17
Republic of Ireland	24.2	2.20
Northern Ireland	46.1	2.21

Looking at the reasons for this, the secret seems to be in the use of **grazed pasture**. Grazing continues for 10.5-11 months in the north island and 8.5 months in the south.

Effective grass use is by rotational grazing. The cows are dried off for 2 months until calving. The grass is inspected 3-4 times a week in front of the cows to arrive at decisions where to graze. Stock control is by a 2-strand electric fence, and there are adequate tracks cambered for drainage to move the cows around. Water tanks (12-14,000 l) are sited in the middle of the field.

A comparison of dairying costs is given in the Table.

Comparison of Costs Per Cow

	New Zealand £	Northern Ireland £
Vet & Medicines	19.82	29.56
AI	6.33	29.00
Milk Recording	4.50	14.00
Power	6.80	39.96
Dairy Expenses	3.97	20.00
Feed & Forage	6.98	201.00
Fertiliser	(mainly P) 40.57	(mainly N) 50.00
Repairs & Maintenance	14.03	49.84
Wages & Admin	32.09	62.11
Buildings & Machinery Depreciation	12.11	56.81
TOTAL COSTS	147.20	552.28
Return on Capital	6.5%	6.6%

Return on capital is the same. Milk is sold to a processing plant which requires a minimum of 5 million l day^{-1}, peaking at 13 million l day^{-1}. Milk processed per employee is 1.3 million l. 95% of the milk produced is exported as products. New Zealand is responsible for only 2% of global milk production, but 22% of the export market.

All support was radically removed in a few weeks causing considerable suffering for many families, with farms going out of business. However, it was easier for young people to come into farming than in the UK with quotas.

SCOTTISH REGIONAL SILAGE CHAMPIONSHIP 1998

Winners - T & B Wilson, Bishopbrae, Bathgate (Central Scotland Grassland Society)

Dr R D Harkess, OBE Scottish Regional Silage Judge 1998

Dr Ron Harkess of SAC was again appointed Scottish Regional Silage Judge, and he wished to express his great pleasure and feeling of honour in being invited to judge the 4 winning entries from Norgrass, East, Central and South West Scotland Grassland Societies. He thanked the Secretaries of the respective Societies for acting as stewards and congratulated the winners: T & B Wilson on their success at winning. Runner-up was: P Bull, Coopon Carse, Newton Stewart (SWSGS). The judge remarked that the standard was high and the enthusiasm and commitment of the farmers highly commendable.

The winning farm, Bishopbrae, is a grassland farm carrying 104 cows and youngstock, plus 100 head of growing and fattening beef cattle. A mixer wagon is used to feed the cows in two groups. The silage was of good quality but marks were lost due to wastage at the shoulders and some deterioration under the top sheet. No additive was used. Supergrains were fed with silage. Production data per cow were: milk 7,489 litres; concentrates 0.652 tonne, margin-over-purchased feed £1,550; margin-over-food & fertiliser ha^{-1} £4,238. Marks: silage analysis 24.4; inspection, A 13, B 7, C 25, D 9 = 54; total 78.4.

Runner-up, Coopon Carse, is an arable/dairy unit carrying 150 cows plus sheep. Complete diet is fed throughout the year and the cows graze for only 3 hours or so per day during summer. The cows are milked 3 times daily. Silage was excellent, but with some side waste and a little on the top also. Wholecrop wheat silage was also fed. Production data per cow were: milk 10,300 litres; concentrates 3.4 tonnes; margin-over-purchased food £1,700; margin-over food & fertiliser ha^{-1} £4,008. Marks: silage analysis 27.7; inspection A 14, B 7, C 23, D 6 = 50; total 77.7.

General Judging Comments were:

1 Very good silage was available on all four farms. The range of the analyses was as follows:

Dry Matter*	30-38.2%	D-Value	77-78%
ME*	12.3-12.5 MJ kg^{-1}	DM Protein	153-214%
Amino Acid P*	72-82%	Ammonia	47-99 gN kg^{-1} TN

VFA* 13-21% total acids Intake Factor 97-130
Neutral. Value*211-376 Meq kg^{-1} FW

* BGS National Scoring System used.

Three silages had been treated with inoculant type additive. Only one unit used open bunker silos.

2 The farms inspected were 3 dairy/arable and one dairy unit, aiming to make high quality silage as a basis for their winter feeding programme. All used forage mixer wagons and provided a complete diet for a major part of the production. Buffer feeding was available during the grazing period, although one unit restricted the grazing period to 3-4 hours per day.

3 Other foods added to the silage in the mixer wagons included: wholecrop wheat silage, barley, supergrains, molasses, potato starch, maize gluten, fishmeal and concentrates where appropriate.

4 The need to try and control in-silo losses was recognised by each competitor, but no silo was completely free from some top and/or shoulder waste. The fast filling of the silo where contractors were involved perhaps discouraged some details to adequate consolidation of the clamps. The use of side sheets adequately folded over the silage heap would have been useful in instances where rolling was difficult near the silo walls. First cuts of 800-1200 tonnes were cut and ensiled in 3-5 days, the shorter period when contractors were used (3 units).

5 Farm waste management and use was generally good. No unit was feeding the silage effluent, although the high dry matter of the silages inspected meant that, at least at first cut, effluent flow was not large.

6 Cows in lactation were housed in two or three yield groups, plus another group for dry cows and/or heifers and mixer wagon rations adjusted accordingly. The flexibility offered by this method of feeding is seen as important with ever-increasing lactation yields and larger bodyweights. Calving indices ranged from 375 to 395 days, and three units did their own AI. On one unit, cows were housed in straw yards.

7 The standard of husbandry was good, although only one unit had a regular monthly visit from the vet. Lactation yields ranged from 6,050 to 10,300 litres, and concentrate feeding from 0.6 to 3.4 tonnes per cow. MOF ranged from £1,200 to £1,700 and MOFF £2,598 to £4,238 per cow.

8 The four units were very close in their markings. Silage analyses marks were from 24.4 to 27.7, inspection marks were 48-54, giving totals of 75.5 to 78.4, ie: a spread of less than 3 marks.

SOUTH WEST SCOTLAND GRASSLAND SOCIETY
NICKERSON SWARD COMPETITION
R F Gooding & G E D Tiley

The results of the **Nickerson UK Sward Competition** were declared during the Competition Evening at Stranraer on 14 January 1998. Commenting on the judging, Rod Gooding thanked Nickerson UK for suggesting and supporting the Competition. Most people if asked think they know what a good sward is, but when it comes to actual judging it is much more difficult to set up a system of marking.

5 swards were entered in 1997, and these were all very good with a range of age and variations in management regime. Two farms relied heavily on clover which gives rise to a different type of sward. In the marks system clover was scored on Length of Stolon (the clover creeping "stem") per 5 cm core diameter sample. This is a direct indicator of the amount and vigour of white clover in the sward, rather than judging on leaf numbers, which can be misleading.

Results

Judging Inspection Marks, with Ranges:

Item (Marks)	**Range**	**Winner**
Uniformity (10)	7.5-9.5	9
Vigour (5)	3.5-4.5	4
Density - Visual (5)	2.5-4.0	3
- Core Counts (10)	7.0-8.0	8
Botanical Composition:		
- Sown (5)	3.0-5.0	5
- Weeds (5)	3.0-4.5	4.5
- Clover/Herbs (5)	1.0-5.0	2
Discretionary (5)	3.0-4.5	4.5
TOTAL (50)	-	**40**

The winner in 1997 was **John Hogarth, Wheatrig, Kilmaurs**, who received 2 ha of Nickerson Grass Seeds (see Summer Farm Visits, p22, and Nickerson Advert, p51).

TETHERED COWS AND OVER MATURE HAY - IMPROVING GRASSLAND IN LITHUANIA

John Frame
Ard Choille, Alloway, Ayr

The author acted as an agricultural consultant under the aegis of a European Union Phare project during 1997 and 1998 to improve all aspects of grassland management and animal nutrition, and increase efficiency of animal production.

Sandwiched between the Baltic sea to the west, Latvia in the north, Belarus to the south and east, and Poland and the Kaliningrad region of the Russian Federation to the south-west, Lithuania is somewhat smaller than Southern Ireland. The population is 3.7 million, and the language archaic, similar to ancient Sanskrit, and different from its neighbours. Lack of a major port (now rectified) due to a low-lying sandy coastline, only 60 miles in length, meant that little industrialisation took place during the previous Soviet occupation. Hence there was a much lower immigration of Russian industrial workers than there was in neighbouring Latvia and Estonia. It is thus primarily an agricultural country, with arable farming (cereals, potatoes, sugar beet) pig farming and grassland farming (dairy and beef cattle) the most important. Sheep are an uncommon sight. Lithuania was fomerly a major supplier of animal products to the Soviet Union but this market has since collapsed.

There are three lowland and three upland regions in the country, the highest hill being under 1,000 feet (300 m) above sea level. Soil type varies: limestone in the north, the most productive loamy or clay soils in the centre, wet acid soils in the west and acid sandy soils in the east. The climate fluctuates between maritime and continental with average temperatures being 17°C in July and –4.6°C in January. Thus summers are hotter and winters colder than in south-west Scotland. Temperatures can reach as high as 30°C in summer and as low as –32°C in winter. Annual rainfall, average 745 mm, is about 30% less than in south-west Scotland but much of it falls intermittently during summer thus saturating the soil and hampering haymaking and the cereal harvest. The growing season is approximately from May to mid October, but temperatures fall rapidly in September.

Agriculture is in a state of transition mainly because of structural changes just before or following independence in 1991. Large collective and many State farms, each up to a few thousand hectares, were broken up in a land restitution programme and replaced by voluntary co-operatives or agricultural companies (the so-called *bendroves*) which occupy over 40% of the 3.5 million hectares of agricultural land. The remainder consists of private farms (nearly 30%) and

smallholdings of only a few hectares (25%). In the restitution programme, land was returned to those families who could prove ownership prior to the Soviet occupation in 1940. Farmers who opposed collectivisation in 1940 were deported to Siberia, as also were many professional people such as teachers, and even the Head of the Grassland Division at the Lithuanian Research Institute! The *bendroves* now farm land which is co-operatively owned, leased to them by the State or rented to them by small private landowners. Some operate very successfully in the current free market conditions, particularly those which farm land with the best agricultural potential. Grassland for dairy and beef cattle, barley for livestock feeding, wheat and rye for processing, other cash crops and pigs are the main types of enterprises. Some *bendroves* have herds of several hundred dairy cows and up-to-date milking parlours yet surprisingly horses and the typical east/central European boat-shaped carts are widely seen. Other *bendroves* have gone to the wall and one sees gaunt structures of dilapidated buildings stripped of anything of value and rusting giant machinery - also seen on the sites of former collectives. The land is then divided up into a host of small farms from 2-25 ha.

The smallholders or private farmers can be classed as (a) "89-ers" i.e. those who obtained land in the first tranche of privatisation in 1989 who benefited from credit at reasonable rates, subsequent inflation and the fact they were often enterprising technical staff from the giant collectives; (b) "restitution farmers" who received land, often only a few hectares, which their families had owned in the 1940s. Some had experience of farming but others were brought up in towns and cities; (c) "plotters", former collective farm workers and rural dwellers who received 2-3 ha to supplement their subsistence or other income. Landowners in groups b) and c) often farm small, scattered pieces of land and rely on borrowing equipment or machinery from a neighbour or from the *bendroves*; timing of operations is therefore not always ideal. They farm a mixture of livestock, pigs and cash crops but are constrained by small scale and by distance from their land, since they typically live in villages. They are heavily dependent on family labour. Cattle are grazed in summer and overwintered in buildings close to their homes, hay being the dominant winter feed. In effect, farming is on a subsistence level though surplus production is sold. About 50% of Lithuania's milk production comes from these small farms. A typical sight in summer is women milking tethered cows by hand in the field and then taking the milk in cans to a central collection point by bicycle. Each farm has 1-2 dairy cows upwards to 10 or so, and similar numbers of beef cattle and sows. Lactation yields are around 3000-4000 litres. Capital is urgently needed to modernise production methods, but there is little public money available. The small farmers lack capital and their units will only remain viable if they have other

jobs. At the moment, many families intensively cultivate allotments and sell surplus produce in local markets or at the roadside.

Grassland in particular is characterised by low fertiliser use, low levels of clover and often a high degree of weediness. Stocking rates are low, and under-utilisation of grazing is common, producing grass of low nutritive value. Swards often enter winter with too much unused herbage and so winterkill is a hazard. The cow tethering system of summer grazing often suffers from insufficient water supply to the cows, as hand-carrying of buckets is the norm. The long winter feeding period requires an adequate supply of hay, which is cut too late, and dried too long, leading to a product of poor feeding quality. Because of the cold winters, cocksfoot, timothy and meadow fescue are dominant in seed mixtures, grasses not noted for good quality especially if allowed to become too mature. Red clover is the main legume, but the use of white clover is increasing. A once-thriving seed growing industry has collapsed and there is reliance on seed imports from Denmark and the Netherlands if the seed can be afforded. Lack of equipment is a major handicap at all levels of grassland management except on the more efficient and viable *bendroves*. Some second-hand equipment is bought, eg: from Germany, and the engineering skills in keeping old equipment going is remarkable. Machinery rings are being started and contractors are setting up in some areas. With a shortage of finance and machinery, silage is as yet an exception rather than a rule.

The strategies used by the project to **improve grassland management** will be familiar to south-west Scottish farmers, but recommendations have to be affordable and practicable. A point emphasised to researchers and advisers was to use 'leapfrog' technology, i.e. use existing western Europe technology, where appropriate, and not repeat the research leading up to it. Starting with the sward, reseeding is necessary where the existing sward is too far gone for renovation. Mixtures based on perennial ryegrass were sown for demonstration at open days on farms in different parts of the country, since some *bendroves* had shown that ryegrass swards could persist in spite of the cold winters. One complaint was that the yields were too heavy for some of the existing cutting equipment! On the other hand better milk yields were also recorded. A Hunter Rotary Strip Seeder was purchased and the art of direct drilling grasses and clover into the old sward was demonstrated. Grazing systems, both rotational and continuously stocked, were set up using electric fencing and the concept of sward height as a management tool discussed. The possibility of small units, each with a few cows, collaborating and perhaps communally grazing large fields instead of individually tethering cows was a potential option. Big bale silage and Dutch-type above-ground silage clamps with plastic sheeting top and bottom were demonstrated on selected small farms. Large clamp silos typical of the UK but

even larger, are used on the *bendroves*, though attention to detail is sometimes lacking and so the key points of efficient silage making and utilisation were emphasised. The Finnish firm, Kemira, is at the forefront of commercial partnership with farmers not only for fertilisers but for the latest silage technology. A major aim in the project was to demonstrate the virtues of cutting swards before or at ear emergence for silage, and earlier than customary for hay. This was done not only *via* forage analyses (NIRS analyses was introduced), but with comparative feeding trials using forages of differing growth stages, and feeding value. Formulation of winter feed rations using UK computer programmes was also introduced.

Intensive in-service courses on all aspects of grassland management and animal production were organised for advisers and advisory leaflets written. A national silage competition on similar lines to that in South West Scotland has been organised. Suggested plans for a national grassland society and a development farm or farms on the model of Crichton Royal have yet to come to fruition. However, the project involved a group of dairy farms receiving regular advice and visits to improve their efficiency and reliability of supply to a local creamery. A hazard of Lithuanian farming is that farmers do not always receive payment for their produce on time from food processors, a practice not conducive to investment for the long term. The project ended in December 1998 with a final summing-up conference which discussed achievements, lessons learned, and the way forward in grassland farming.

To end on a lighter note, the capital Vilnius is now a thriving city, with a historical old town. There are many monuments and typical wooden religious shrines commemorating the anti-Soviet and previous struggles in history. Museums, wooden houses, national parks and churches abound and folk art, folk music and folk dancing are widespread. To the north is a picturesque lake district and forested areas, some planted and some natural, are found all over the country. A hill covered by literally thousands of crosses and crucifixes paying tribute to Catholicism ('hill of crosses') is a focus for pilgrims. Another notable sight is the Neringa spit, a narrow stretch of undulating sand dunes acting as a seaward barrier which encloses a coastal lagoon rich with migratory birds in spring and autumn. Now is the time to visit Lithuania if you want to see a country way of life, similar to our own many years ago, before it disappears through modernisation to western European standards.

SHEPPY **HumberPalmers**

GRANULAR ORGANIC BASED FERTILISERS

EXPERIMENTAL RESULTS HAVE SHOWN THAT USING **HumberPalmers** ON GRASSLAND WILL ACHIEVE:

- 35% INCREASE IN DRY MATTER YIELDS
- IMPROVED SILAGE QUALITY
- BETTER ROOT DEVELOPMENT
- GREATER TRACE ELEMENT AVAILABILITY
- REDUCED LEACHING OF PLANT FOOD NUTRIENTS
- EXTENDED GRAZING TIMES
- IMPROVED PALATABILITY

ALL **HumberPalmers** GRADES HAVE A SIGNIFICANT SULPHUR CONTENT WHICH WILL SUPPLY ALL REQUIREMENTS FOR GRASSLAND.

PLEASE CONTACT:

BRUCE La TROBE - TEL: 01776 854266/Mobile: 0850 961672

OR

SHEPPY FERTILISERS LIMITED

RUSHENDEN ROAD, QUEENBOROUGH, KENT ME11 5HH

TEL: 01795 580365/FAX: 01795 580649

Nature and Technology Hand in Hand

GRASSLAND IN THE ISLE OF MAN, 1997

Caroline L Perry
Secretary, Manx Grassland Society
Department of Agriculture, Fisheries & Forestry, Knockaloe Farm,
Peel, Isle of Man

The Manx Grassland Society had its usual active programme in 1997, with 3 local farm walks in spring and summer, an 'overseas' trip to Shropshire in May and a full complement of silage, hay and management Competitions.

20 February 1997, Kiondroghad Farm, Andreas (Welton Dale Farms)
Kiondroghad is situated in the north of the Isle with a low annual rainfall (700 mm) and prone to drought on the sandy areas of the farm. The total of 59 ha comprises 14 ha long term permanent grass, 20-22 ha of 3-4 year leys, a similar area of barley and 3 ha of horse paddocks.

The stock includes 60 Limousin and Limousin X cows, which calve in late February. 5-6 pedigree bulls are sold annually from UK top-ranking Limousin sires. Finished beef and bull beef have been champions both live and dead in the Fatstock Show. Blonde d'Aquitaine and Limousin X Friesian bulls are bought-in at 6-8 weeks and given *ad lib* home mix from October. Heifers are finished at 20-22 months. The home mix is a barley-pea-fishmeal and minerals mix containing 14.5% protein. There are also 100 Texel X ewes put to Texel and housed 3-4 weeks prior to lambing (January and March). Ewes receive Rumevite from tupping to housing, then 1.4 kg home mix (peas, oats, sugar beet, minerals and fishmeal - 20% protein).

Ballawanton, The Lhen, Andreas (Paul Fargher)
The second farm on the winter farm walk is in the same region as Kiondroghad, with sandy loam soils and frequent droughts. In 1996 rainfall was only 21 mm from May-December. Total area is 53 ha, which includes 4 ha of sand dunes and 7 ha newly taken over land previously unfarmed for 30 years.

There are 56 Holsteins averaging 8,000 litres and receiving 2.3t concentrate cow^{-1}, with 49 heifers and calves. The croppable area consisted of 34 ha first cut silage, 4 ha grazing, 9 ha rye undersown to Italian Ryegrass and red clover. All silage operations are done by contractor using Ecosyl additive. In 1996 there were 550t 1st cut, 200t second, 100t 3rd cut plus 200 big bales. Cutting dates, respectively, were 15 May, 26 June, 26 November and 15 July.

The cows are set stocked and zero grazed throughout the summer. Silage has been fed all year for the past 3 years. Grazing and silage fields both receive 360 kgN ha^{-1} and slurry is applied in winter until February. Zero grazing of rye begins mid-March.

24 June 1997, Glen Rushen (David Little)

A 640 ha hill farm rising from sea level to 400m of mainly peatland carrying heather. 66 ha of heavy land has been improved to provide up to 10 ha inbye paddocks. 77 ha has also been rented recently. The hill is stocked with 800 horned Blackface and Swaledale ewes. Half are put to Bluefaced Leicester, 300 to Blackface/Swaledale for replacements, 100 to Teeswater. An additional 200 Mule and Masham ewes are crossed with Texel. All rams except the Texel are imported. The Cross ewes and hill ewes with twins receive an 18% protein cake from February until lambing in early April. Grassland improvement was initially by direct reseeding to late perennial and white clover in 1986, but has since followed a 2-year pioneer rape crop. 125 $kgha^{-1}$ 20:10:10 is applied to the inbye paddocks or a low N Timac compound on clover rich areas, plus autumn nitrogen for finishing and ewe flushing.

10 July 1997, Ballakillinghan Farm Ltd (Mr Edwards, *per* J Fargher, Manager)

This enterprise consists of 2 units: Ballakillinghan, 88 ha mainly sandy loam and Sky Hill, 96 ha, at 170-270m mainly on shale. Stocking is 115 Milking cows, averaging 8,000 litres, 89 youngstock and a handful of Blackface sheep. Feeding policy has been simplified to cake and silage, with big bale silage buffer feeding in summer. Youngstock receive home-grown oats and silage. Silage is contractor lifted using Microsile 2001 additive. 44 ha first cut harvested 18 May, 26 ha second cut harvested 20 July. The majority of fields on both units had been recently reseeded, either direct or undersown to oats. The grazing fields at Ballakillinghan receive winter applications of Timac, 375 $kgha^{-1}$ and 125 kg Nha^{-1} during spring and summer.

6-8 May 1997, Trip to Shropshire

During this 3-day visit, members flew to Liverpool and travelled by coach to visit a dairy breeding centre (Cogent) at Alford, Chester, and 5 dairy, beef and hill farms in Shropshire. At **Hawkstone Abbey Farm**, 330 cows averaging 6,400 litres are milked to provide 800,000 litres annually for making Cheshire and Double Gloucester Cheeses by traditional hand methods. The 330 cows are milked in 1¾ hours by one operator through a rotary concrete parlour floating on 25 cm water and holding 32 cows. Quality milk is essential to the cheese-making process.

Longnor Farm, Church Stretton (Downes Family) is a mixed dairy/beef/sheep unit of 228 ha aiming to maximise the use of clover and thus reduced use of nitrogen. Milk target 6,000 litres (4,000 litres from forage), using also fodder beet and maize. At **Walcot Farm, Lydbury North (Evans Family)** a 220 suckler herd produced store cattle making extensive use of arable feeds (crimped moist grain, straw and fodder beet). The cows are block grazed on 75 ha of parkland with trees, which is thus unsuited to ploughing. Silage is not made due to the river Kemp running through the steading, and an associated pollution risk.

Hill sheep (900 Welsh Mules and Beulah) and 100 sucklers are the stock on **Trefnant Hall, Welshpool** where grazing and silage were on permanent swards. David Jones, a former Welsh silage champion, took over the farm in a very run down state in 1986. The final visit was to **Colemere Woods Farm, Ellesmere**, with 120 ha and 180 cows averaging 6,400 litres, where the aim was low cost production and profitability at low milk prices, with a block calved, flying dairy herd flat rate fed.

Manx Society Competitions

The main competition run by the Manx Grassland Society is for the Best Silage. As with the majority of UK Societies, this is scored under BGS rules and the winner progresses to the UK Northern Regional and National Competitions. Beef/Sheep and Dairy Management Competitions are also included in which the emphasis on marking is on i) sward condition and composition; ii) grazing and conservation management with assessments in relation to the natural limitations of the farm; iii) livestock assessment - quality, quantity and stocking rate.

In addition, the Silage Judge awards marks for i) the Best Set-up; ii) Best kept silage pit, and iii) Best Silage Utilisation. There are further prizes for Best Silage Analysis and Best Contractor made silage, both based on analyses only. Big Bale and Hay Classes are judged on analyses and visual inspections.

SWSGS Environmental Competition Winner, Alasdair Hutton, Floshend, Gretna receives the Forum Trophy from Society Chairman, Archie Borland.

SWSGS GRASSLAND ENVIRONMENTAL COMPETITION 1997

G E D Tiley

Judges: Marcus Maxwell, Viewfield, New Galloway (1996 Winner), Philip Davies, FWAG Adviser, Ayrshire, Arran & Bute, SAC Advisory Office, Ayr

For the first time the Grassland Environmental Competition was sponsored by **Trident Feeds** in 1997. In its 9 years' history over 30 farms had been entered and subject to the detailed scrutiny of annual judging. The Competition attempts to recognise farms with a commitment to care and sensitivity for wildlife in normal commercial operations.

In his introduction during the Competition Evening, 14 January 1998, Philip Davies emphasised that the 2nd meaning of 'conservation' applied - ie: conservation of wildlife on the farm. From a national viewpoint, if the government looked after the farmer, the farmer would look after the land. Previous policies had required farmers to take action when required in the national interest. Since then, the agenda had changed from yield production towards an emphasis on the environment. Some places on the farm were naturally not very productive, and with current government incentives it might be possible to obtain a greater return from wildlife than from agricultural production; and at the same time improve aesthetic value.

Three farms had been judged:

Tibbers (Alan Stannett, Manager), part of the Drumlanrig Estate at Thornhill, Dumfries. Here there was a long tradition of woodland and moorland management. A new dairy complex had been built, but rather than demolish old traditional buildings, these had been integrated with the requirements of a modern dairy unit. New hedges, shrubberies and trees had been planted to integrate with the new layout.

Hedge management had involved double fencing of new hedges, including rabbit netting and trimming existing hedges to A-shape. Trees had been planted in steep areas and in field triangles, also around an existing pond. Headland areas had been designated along the boundaries of old woodland. These were protected from grazing by electric fence during spring and early summer, and received no fertiliser or pesticides. An area of headland had been made available to the Dumfries & Galloway - SAC Headland Project. The banks of the River Nith were also protected to promote better conditions for fish populations. It

was important to retain a balance, ie: conservation - not preservation which could be as bad as intensive farming. - farming should be in tandem with wildlife needs. It was however, essential that the farmer believed in what he was doing and incentives may be required.

Floshend, Gretna, Dumfries (Alasdair Houston). A 280 ha arable/cattle/sheep farm in southern Dumfries, which had been bisected by the new M74 road. With a preponderance of good land, there had been a challenge to know where to introduce wildlife areas without prejudice to commercial operations. With help from Farm Woodland grants, strategic areas of new tree plantings had been made, including many hardwood species. Damp and rough areas had also been planted to screen both rail and roadways. A new pond had been created with some landscaping, plus a detail in the form of plastic tubes in a bank to encourage sand-martins.

Alasdair commented that he aimed to plant a few trees each year, thus only involving a small area of land at a time and minimal clearance costs. He did not feel comfortable to take the best land for planting trees and 2.5 ha of woodland had been established on a peaty area. The key was to obtain maximum amenity value with minimum commercial disruption. He emphasised that he did not take short cuts in the early management of young trees. Weeding and protection from vermin and grazing were essential. This was often frustrating but he was now reaping the benefits, noticing increased bird activity. He wanted to put back as much as he took out of the farm.

Dalreagle, Wigtown (Giles Myrtle). This was a more difficult farm; very exposed and with extensive wetland areas. These had been managed sympathetically under a hill sheep/beef regime. Considerable thought and effort had been expended on improving hedgerows by laying and ensuring the maintenance of wildlife corridors. Water quality had been greatly improved by the management of silage effluent, and there had been improvement on the flood plain.

The judges found it very difficult to separate the entries, but the Forum Environmental Trophy was awarded to **Alasdair Houston, Floshend, Gretna**, principally for his informed introduction of wildlife areas into land of high commercial agricultural value. Due to the unique nature of the landscaping of the new dairy unit at Tibbers within the context of a large traditional Estate, a **Trident Feeds** special prize was awarded to **Buccleuch Estates** (per Alan Stannett) for Outstanding Conservation Work on a Large Estate, in recognition of the special care and consideration for wildlife and amenity in the planning of the modern intensive dairy complex.

OUTLOOK IN EUROPE

Brian Simpson and Margaret Stewart
Scotch Quality Beef and Lamb Association (SQBLA)
Rural Centre – West Mains, Ingliston, Newbridge, Midlothian

Meeting of SWSGS, Cairndale Hotel, Dumfries, 12 February 1998
The meeting was sponsored by Harbro Farm Sales Ltd

Brian Simpson is Chief Executive of SQBLA – a post he has held for the last seven years. A graduate from Auchincruive, his earlier career included advisory work with SAC and business development with Scottish Enterprise. He also was secretary of the Central Scotland Grassland Society. Margaret Stewart studied Food & Nutrition at Queen Margaret College and after working in the wines and spirits trade joined SQBLA in 1991 and now holds the post of Export Promotions Manager. Margaret is well known through her close involvement with SAYFC. Sandy Gardiner and Brian Will from Harbro Farm Sales Ltd also attended the meeting.

Brian Simpson presented the main objectives of SQBLA which were to promote the qualities of Scotch Beef and Scotch Lamb in the most profitable markets. This is a major task with farm gate sales currently valued at some £700m annually and a marketplace which in normal circumstances covered most of Europe and emerging markets as far away as Hong Kong and Singapore. The SQBLA team is only ten strong but the organisation is based on a network of partners who share the vision. Over 7000 farm businesses are members of SQBLA; all Scottish auction marts; 25 meat plants; 3000 retail units; 600 Scotch Beef Club restaurants. SQBLA is strongly supported by public agencies such as SOAEFD, SE, HIE and MLC.

The focuses of all the promotional work are the brands Specially Selected Scotch Beef and Lamb. These require full quality assurance from farm right through to retailer. The brands give assurance of professional standards and genuine improved eating qualities achieved by careful carcass selection and proper maturation. The commitment to Quality Assurance (QA) is undoubtedly creating opportunities for Scotch Beef and Lamb in difficult, over-supplied markets. But there is a considerable cost involved and SQBLA is determined to keep this to a minimum while maintaining standards that are real and meaningful to trade buyers and consumers. The establishment of Scottish Food Quality Certification has ensured European accreditation as well as the opportunity to share inspection and administration costs with other sectors such as cereals and milk.

The current objectives are to tighten standards and auditing procedures beyond the farm gate to ultimately involve European importers in the Specially Selected Scotch brands. At farm level there is a need to have stock on assured farms from birth and SQBLA intends to make this a condition of the scheme by the end of 1999. This will require increased recruitment of store calf and lamb producers to meet this demand. Brian Simpson is convinced that this investment in QA will prove to be the most significant development in the Scotch beef and lamb industry. Already buyers were showing a preference for the QA product with Scotch Beef trading at substantial premiums over similar English or Irish products. The lamb market was lagging a couple of years behind but already there were encouraging signs in some markets.

For obvious reasons, SQBLA had concentrated promotions in the UK market in the last three years. The British retailer and consumer had stayed very loyal to the Scotch brand and effectively were now purchasing £120m worth of Scotch Beef, which had previously been exported. Nevertheless, it was absolutely vital to regain a share of the European market to give us access to higher spending consumers (in particular the quality restaurant sector) and equally important to bring much needed competition in the UK market.

Research into European Markets – Margaret Stewart
During 1998 SQBLA will carry out a major study of the main European markets in partnership with SE, HIE and SOAEFD. The objective was to establish a strategy for re-establishing beef exports. The study should establish:

- The current situation of Scottish Exporters.
- The most profitable export opportunities for Scotch beef and lamb.
- The impact of BSE on former markets and any specific PR/confidence problems.
- The changes/trends/requirements of each market in relation to purchasing, labelling and traceability.
- The nature of the competition and their position in relation to Scotch Beef.

From this study, an action plan will be prepared. It is intended to extend the successful QA scheme in Scotland to European importers. This will allow better control of the Scotch label and reduce opportunities for substituting with beef from other countries.

The importers who make a commitment to Scotch beef will be given significant promotional support to build confidence with their customers and a comprehensive advertising campaign will be developed in the key markets of Italy, France, Belgium and Holland. Market research will continue to identify

opportunities in the rest of the EU and in important markets such as South Africa. Some markets, such as Germany, will take many years to achieve worthwhile penetration.

The opportunities for Scotch lamb were also assessed in the export study. More than 50% of Scotch lamb is exported, mainly to France and Belgium. Most of this lamb is traded as a commodity and SQBLA is keen to establish the Scotch brand as the preferred product and ideally at a premium value. Some important steps have already been taken on the French market with two important wholesaler/distributors promoting Scotch lamb as a premium product ideally suited to the quality catering sector. This has been piloted successfully in the Bordeaux area and plans are underway to promote Scotch Lamb in a chain of butchers' shops in South East France. The key to this success lies with the quality assurance work and particularly the farm assurance element. The importers require the farm assurance code number on every lamb carcase and this is checked via the SQBLA Internet database to ensure compliance with agreed European standards. Clearly there is much work to be done to raise the prices for Scottish producers but making progress towards the price enjoyed by French home-killed lamb would certainly help.

While red meat consumption continues to be under pressure in the UK market there are still some pointers for optimism in the export market. Not least in the fact that world population is still growing quickly. Continued economic growth in the EU should result in higher disposable income allowing consumers to become increasingly discerning in their choice of food – again favouring quality grass fed Scotch Beef and Lamb.

SWSGS NICKERSON (UK) SWARD COMPETITION

This Competition is sponsored by ***Nickerson (UK) Ltd***

This Competition was arranged with support from **Nickerson (UK) Ltd** to give some emphasis to the importance of good, dense swards, whether for grazing or silage. The sown sward can only express the potential of the soil if it contains mostly the species intended and if the sward is dense and vigorous. To promote excellence in swards, Nickerson (UK) Ltd offer 2 ha (5 acres) grass seeds as 1st prize. Members are invited to enter a field to compete for this prize.

MAIZE IN SCOTLAND 1998

Dr Katharine Leach, SAC Crichton Royal Farm, Dumfries

1998 was a difficult year for all maize growers. Prospects looked good at the start in Dumfries, with exceptional temperatures from 12th-21st May (average maximum air temperature 20.4°C, 10 cm soil temperatures 15.3°C). Plants emerged within a week of sowing and looked promising. However, the premature summer was short-lived and those who were unable to sow before 15th May were severely disadvantaged. At SAC Crichton Royal Farm, a visible difference persisted until harvest, between adjacent plots of the same variety, sown on 5th and 15th May respectively. The usual "stagnant growth phase", when plants suffer from low soil and air temperatures and appear to stand still, was prolonged. Weed control was then particularly difficult because excessive soil moisture reduced the effects of the residual herbicide, and the slow crop development gave the weeds extra time to take hold, instead of being shaded out. Fortunately there was an Indian Summer in September with progress in crop maturity, but by then the opportunity to reach full potential, yield and composition, was past.

Table 1 - Forage Maize Yields at SAC Crichton Royal Farm, Dumfries

Year	Yield (t DM ha^{-1})	DM %	Sunshine Hours (May-Sept)	Ontario Heat Units (May-Sept)
1996	12.8	24	877	1983
1997	10.0	25	751	2143
1998	8.0	19	674	2090
Long Term Average	11.0	23	780	2109

Those who harvested at the usual time (October) cut green crops with low dry matter and low starch, though relatively high ME. Following a successful experiment by SAC last winter, some growers incorporated sugar beet pulp with this wet material, which reduced effluent losses and gave a highly palatable silage with an increased ME value. Those who delayed harvest, in the hope of increasing maturity, faced worries with continued wet weather and considerable problems of harvesting. However there was some benefit from higher starch content (18-20%), but also reduced digestibility of the dead stem and leaf.

Choice of harvest date for forage maize is always a compromise in UK. As long as the crop is green and not frosted, it will continue to accumulate dry matter yield and to mature the cobs, albeit slowly, during October. However, the longer cutting is delayed, the greater the risk of wetter soils and a more difficult harvest, with possible soil damage. Once the crop is frosted, there is little to be gained from delaying cutting beyond a few days for the leaves to dry out. Those who have harvested in difficult conditions should remember that soil compaction seriously retards maize development. Subsoiling may well be necessary to ensure that this year's problems are not passed on to next year's crop. Despite the difficulties, growers on the whole have ended up with a valuable feed and are reporting satisfaction with cow responses to maize in the ration.

MILKNET

Jimmy Goldie, SAC Dairy Services Unit, Crichton Royal Farm, Dumfries

MilkNET is SAC's new internet-based interactive information system for the dairy industry. Using the latest technology, subscribers will have fast and efficient access to dairy information. We have developed **MilkNET** to upgrade our Milk Manager dairy costing service. If you are connected to the internet at home, you can enter your dairy physical and financial figures on the screen and print your reports instantly. Quota Milk Manager is also available on the internet, allowing you to check and manipulate your targets against actual production.

MilkNET contains a number of additional features including;

- **Topical Tips and What's New** - enables you to keep up to date with simple reminders or detailed recommendations.
- **SAC Technical and Research Notes** - available at the touch of a button.
- **Benchmarking** -. SAC's Milk Manager provides monthy comparisons with similar businesses for recorded herds. All results are kept confidential, but averages, high and low results are shown to allow you to compare your performance with others.
- **Contact with SAC** - MilkNET has an e-mail facility direct to SAC Dairy specialists.

If you are connected to the internet, visit **www.MilkNET.sac.ac.uk**

For further information on **MilkNET** contact your local adviser.

ADAPTING TO NEW OPPORTUNITIES - IMPRESSIONS FROM A PRESIDENTIAL YEAR

Angus Golightly
Jealotts Hill Research Station Farm, Bracknell, Berks.
President of the British Grassland Society, 1997-1998

The Presidential year has been challenging and rewarding - another busy year for the British Grassland Society, with a wide range of activities for the President. Many of the events attended by the President are planned months and sometimes years before the President is nominated, so there is an element of surprise and originality in one's term of office. Activities ranged from the pastures of the Great Plain in Hungary to the Royal Society Conference on Emissions into the Atmosphere, the former dominated by botanical experts and the latter by Fellows of the Royal Society and Professors.

UK Conferences and Visits

In taking up the Presidency at the July 1997 Summer Meeting in Northern Ireland, I referred to the recent dramatic changes in agriculture and the need for organisations to adapt, identify new opportunities and take new initiatives. The initiative in grazing, ably led by Jerry Rider and funded mainly by MDC, has continued through 1998 and is entering its final year. Other new initiatives were the adoption of Grass & Forage Science by the European Grassland Federation as its research journal, and the establishment of a Local Society Liaison Committee. These help to broaden BGS influence when numbers of researchers, advisers and farmers in UK agriculture are all declining. Although an important part of the Food Industry, we appear to have few members with food technology and marketing interests, and not very strong links with environmental organisations. It was therefore pleasing to see a different group of researchers and advisers at the Lancaster Conference in September 1997 addressing the subject of Grassland Management in ESAs, and the large number of young researchers at the BGS 5th Research Conference at Seale Hayne in the same month.

A feature of both these Conferences was the small number of farmers attending, though some farmers who farmed in ESAs (Environmentally Sensitive Areas) gave excellent papers. There is so much to be gained if farmers and researchers communicate more frequently, as is possible at such conferences. This is an area of concern for me, as the strength of BGS is in the synergy between members with different interests, and I should hate to see BGS delegates polarise and create separate farmer and researcher events.

The Autumn Conference, 'Grass is Greener', attempted to explore if the positive aspects of grassland farming could help to sell produce in the face of increasing difficulties for farming. Quality aspects such as environmental care of soil and wildlife, assured standards and animal welfare were examined against both large scale intensive and organic production systems, aspects which have not been seriously considered until crises strike the industry.

BGS Overseas

I attended the 17th European Grassland Congress on behalf of BGS at Debrecan in Eastern Hungary in an even colder and wetter May than back home. Delegates were from 30 European nations and Asia, the majority being researchers and advisers with almost no farmers. The congress focused on Ecological Aspects of Grassland Management and was supported by a strong delegation from the UK (see page 77). BGS hosted a reception attended by many of our European members, some newly acquired during the meeting and several sessions were chaired by our members. Jan Crichton manned a BGS stand at the event and there was an enthusiastic demand for our publications. Owen Jewiss, editor of Grass & Forage Science, met many researchers whom he previously knew only through correspondence. Those who have seen the published proceedings, weighing 4 kg, will appreciate the proof reading and anglicising efforts of John Frame! The Congress gave an awareness of the vast regions of natural grassland in Europe, with extensive range systems of production, very different from much of the UK. The challenges of more intensive systems to aspects of environment, amenity and recreation were also considered.

Two other areas have occupied my BGS time in 1998:

1) Revitalising the BGS publication for farmers, 'Grass Farmer'. I was invited to chair a working party for the Publications Committee to consider the future of this publication. The working party which included several farmer members, strongly supported continuation of this vital written link with practical farmers and proposed a number of changes. This included the appointment of a new Editor, a lady, who will begin with the Spring 1999 edition, which focuses on the Kemira Grassland event at Stoneleigh on 19-20 May 1999.

2) The second task was to take a look forward and produce a Strategy Paper for the next decade. The late Ken Nelson instigated the last review 17 years ago, and many things have changed since, eg: only half the number of dairy farmers! This BGS review is close to finalisation and considers:

- numbers in agriculture;
- numbers of BGS members as farmers, advisers, researchers, etc;

- significance of grass and forage for livestock;
- significance of other aspects of grassland, amenity, environmental, organic;
- importance of new methods of communication and recording information;
- finances and critical mass of an organisation;
- impact of commercialisation and voluntary time available;
- succession in staffing.

The continuity between Pre and Post years in office has been vital, since many projects continue through Presidencies, eg: the Grazing initiative. I shall now have some more time to devote to that as 51% of our milk from grazed grass is still not good enough! On a financial note, the Jealott's Hill re-emphasis on grazing has restored bottom line profit per litre to a pre-price drop level. The Irish and New Zealanders still lead, but Paul Bird, Carol Gibson and Jerry Rider have given us target guidelines.

I look forward to seeing SW Scotland again, if the BGS holds a Summer Meeting there in the next Millennium.

ᘓ ᘓ ᘓ ᘓ ᘓ ᘓ ᘓ

Angus Golightly has managed the Zeneca Agrochemicals (formerly ICI Fertilisers) Jealotts Hill Research Station Farm & Estate, near Bracknell in Berkshire, since 1973. In addition to meeting research requirements, 300 ha are farmed commercially to produce only assured food products. The farm focuses on maximising grazing and forage for the 150 dairy cows, plus followers, bi-product beef herd and the ewe flock. There are 150 ha of wheat, oats, beans and Oilseed Rape. A production system developed in the 80's for the dairy cows produces 5,700 litres cow^{-1}, 5,000 litres from forage (grass, maize and red clover silages), 3,000 litres from grazing using half a tonne of protein supplement. Following the BGS Grass '99 initiatives funded by MDC, further increases in grazing are envisaged. Angus has a firm belief that intensive agriculture can operate in harmony with the environment, and is a strong supporter of LEAF (Linking Environment and Farming) and FWAG.

Hydro-Agri UK Grassland Farmer of the Year 1998. The Calderwood family with the Viking Trophy at a presentation on Rosneath Home Farm, Helensburgh, with Jim Brown, Hydro Agri, Dr Rod Gooding and the winning student grassland team from SAC Auchincruive

HYDRO AGRI "GRASSLAND FARMER OF THE YEAR" COMPETITION - 1998

Rod Gooding, Food & Farming Systems, SAC Auchincruive

The partnership of a leading grassland farming family and a team of Auchincruive Grassland students have retained the Hydro Agri Viking Trophy in the west of Scotland. Since the competition started in 1994/95, it has been the winning strategy of the Auchincruive teams to link up with farmers who were themselves students at Auchincruive. These partnerships have made it to 'Runners-up' in 1995 and 1996 and to overall 'Winners' in 1997 and 1998. This year's winners, twins: Matthew and Scott, and sister Una, Calderwood were all HND Agriculture students at Auchincruive (1988-91 and 1991-93 respectively). Among the many awards gained by the family at Auchincruive, Scott was the 1992 winner of the SWSGS Vice Presidents' Prize given to the best HND grassland student. The 'Runners-up' in this year's Hydro Agri competition were the SAC Edinburgh and the Welsh Agricultural College entries.

We are aiming to make it a hat trick in 1999. Our nominated 'Farmer' is Stuart Mitchell of Grougar Mains, Kilmarnock. Stuart was also an HND Agriculture student at Auchincruive 1995-1997.

The Auchincruive Team:

Students	**Course**
Allan Clark, Fineview, Glenluce, Newton Stewart.	HND Agric.1
Richard Huston, Branetrigg, Torthorwald, Dumfries.	BTechnol Agric.2
David Lindsay, 2 Townhead Street, Lockerbie, Dumfries.	HNC Agric.
Neil Marshall, West Kirkland, Newton Stewart.	HND Agric.1
Scott Mackenzie, Taighnacraggan, Shandwick, Nr Tain, Ross-shire.	HND Agric.2
George McNaughton The Farmhouse, Fulshaw Wood, Ayr. *(not in photograph)*	BTechnol.Agric.4
Stuart Roan , Barnbarroch Farm, Dalbeattie, Kirkcudbright.	HND Agric.1
Sandy Ross, Carfin House, Shore Road, Clynder, Helensburgh.	HND Agric.1

The format of the Hydro Agri Competition involves the monitoring of grassland management on the entered farm for one year by the student team. At the end of the year, the results are written up into a fully detailed description, report and informed comment on the farm. This final report is produced as a neatly bound book, which is presented to the farm with a copy kept in the SAC Auchincruive library. The 1998 and previous years' reports are available there for future reference.

HOME FARM, ROSNEATH
The Calderwood Family, Rosneath
Winners, Hydro Agri "Grassland Farmer of the Year - 1998"

Rosneath Home Farm and Clachan Farm extend to about 325 ha of which there are 127 ha permanent pasture and rough grazing, 84 ha of rotational grassland, 5 ha of spring barley, 35 ha of winter barley, with the remainder under woodland, ponds etc.

The dairy herd at Rosneath is the main enterprise on the farm consisting of 140 pedigree Holstein Friesians with a rolling average of 7040 litres, 4.05% BF, 3.31% protein and calving interval of 376 days. DIY AI is practised with a conception to 1st service average of 72%. The top half of the herd are AI'd with Holstein sires for replacements and the remainder AI'd to Limousin and Blonde d'Aquitaine bulls. Calving is all the year round, although 50-60 cows calve in June/July to take advantage of seasonality payments. Replacement heifers calve in summer and autumn and are AI'd with easy calving Holstein sires to aid calving and also to speed genetic gain in the herd. Limousin/Blonde heifers are sold as suckler replacements and bullocks fattened and sold through ScotBeef. Most black and white bullocks are sold through a processing scheme. Milk is sold through Scottish Milk as co-operation is seen as a key to the future. More than half of the milk comes from forage 3700 litres cow^{-1} last year, with an increase to 4000 litres this year and an overall feed rate of 0.19 kg l^{-1} of milk produced. The cows are first turned out during the day at the end of March onto a pure Westerwolds ley (9 ha) sown after winter barley in September, strip grazing this until mid-April when they will then have access to the main grazing paddocks. These are strip grazed until the end of April, when grazing should begin in night and day paddocks. The Westerwolds will continue to be grazed until the end of May when it is ploughed in and 4.5 ha each of stubble turnips and kale sown.

After 1st and 2nd cut silage extra paddocks are introduced to grazing as more cows calve and grass growth declines. The stubble turnips are used in late July-August coinciding with the peak lactation of summer calvers to help maintain yield, condition and subsequent fertility of cows. This alternative forage allows a paddock to be taken out of grazing and used for extended grazing later in the year. The kale is ready to graze after the stubble turnips are finished and, together with the saved grass, will keep the cows out till early November. The grazing area receives a total of 370 kg N ha^{-1} with an initial split dressing of 50 kg ha^{-1} in early March and 60 kg N ha^{-1} in early April, as 26:13:0, followed by 25:5:5 every 4 weeks.

The Silage area receives: 1st cut 4,000 l ha^{-1} slurry (20-30 kg N) in March plus 50 kg N early March and 60-80 kg N 4 weeks later, both as 21:8:11. 2nd cut also receives 4,000 l ha^{-1} slurry (20-30 kg N) and 100 kg N, or 120 kg N as 24:0:17 if no slurry is applied. Total N for two silage cuts and aftermath is 355 kg ha^{-1}. Silage is made using farm machinery so we can start when conditions are right. It is cut with a 2.7 m mower conditioner and wilted for 24 hours before lifting. Ecosyl is used at 1st cut; clamps are double sheeted and side sheeted. First cut silage is used for the dairy cows and the second cut for followers and beef cattle.

Silage analysis for silage lifted from 15th May 1998 was: DM 27%, D-value 74, ME 11.8, CP 15%, pH 4.0%, Intake Factor 121. Silage yield was 5t ha^{-1}, helped by removing the sheep from the fields after December and by not rolling unless mole hills were a problem. After the kale and extended grazing are finished, (usually end October) the cows are housed day and night. Diet consists of 45 kg silage, 3.5 kg supergrains and 0-6 kg 20% protein blend (12.8 ME) of concentrate/beet pulp/dried grains. Concentrate use is currently 1.25t cow^{-1}.

Spring barley is mainly the malting variety: Chariot, winter barley: Pastoral grown for own use and sale. Grass sow outs after winter barley were HF 11 for grazing fields and HF Supersilage and Bonus for silage.

The sheep flock consists of 280 cross ewes, 250 Blackfaces and 127 ewe lambs put to the tup this year. The cross ewes are mostly Scottish mules and Texel cross Blackface, all homebred. A Suffolk terminal sire is used. The cross ewes are housed for 8 weeks before lambing in early March, and are fed *ad lib* hay or haylage plus up to 1 kg $head^{-1}$ day^{-1} of homemixed concentrate, which is formulated to 18% protein, 12.6 ME. Lambing in March means tupping in October, carried out on silage aftermaths with sufficient grass for flushing the ewes without the need for any concentrate. This year's cross ewes have scanned at 201% even after 400 mm of rain in October. We are in an early grass growth area and housing ensures sufficient grass by mid-March for turning ewes and lambs straight out after lambing. The only creep fed lambs are from ewes rearing triplets or broken mouth ewes rearing twins.

The Blackface flock are used primarily for mule ewe replacements by the Bluefaced Leicester and Texel Cross and also quality fat lamb by Texel. The Blackfaces start lambing after the crosses on 1st April producing ewe lambs big enough to go to the Suffolk tup in their first year. They are lambed outside, achieving a normally high lambing % due to the use of cow grazing aftermaths and pre-tupping blocks. All ewes are scanned and grouped for feeding accordingly. The sheep use 87 ha of permanent pasture in the summer months,

shared with dry cows, heifers and fatteners. A 26:13:0 NP compound is applied in early March at 50 kg N ha^{-1}, repeated in April with 25:5:5 (50 kg N ha^{-1}), with a further 50 kg N ha^{-1} after this depending on grass growth. Ewe lambs are lambed inside at the end of April to aid mothering of lambs. All lambs are sold through the Highland Glen Lamb group, beginning June/July. Any lambs/cull ewes not sold by October are finished on Typhon stubble turnips regrowth after cow grazing.

The **deer enterprise** uses 8.2 ha of improved grazing divided into 3 paddocks, 2.9 ha for 50 breeding hnds, 4 ha for 65 yearling stags and 1.3 ha for 20 yearling hinds. The perennial ryegrass swards receive 200 kg N ha^{-1} over the summer. The hinds calve in early June and require a sward of 6-8 cm height so that milking ability and subsequent calf growth rates are not impaired. 80 kg N ha^{-1} is applied at this time to ensure good grass growth. The calves are weaned off in mid-late September so the hinds can be flushed with silage and Tublyx Cattle booster blocks. The 45 homebred calves are brought inside and fed a diet consisting of *ad lib* hay and 1 kg barley-soya mix. They are joined by 40 store stag calves bought in. The hinds are in-wintered from early December to prevent poaching of the swards, and are fed a diet of *ad lib* barley straw, with 1 kg barley-soya mix. This is a cheap ration which keeps them from getting fat before the spring turnout. When the calves are turned out the following late April, at sward height 6-8 cm, they can grow at 220-240 g day^{-1} and at 15-16 months a 50-60 kg deadweight carcass can be achieved. They will be sold from autumn through to spring to Scottish Farm Venison Ltd whose main demand comes from the supermarkets.

ECOLOGICAL ASPECTS OF GRASSLAND MANAGEMENT - THE 17TH EUROPEAN GRASSLAND FEDERATION MEETING, DEBRECEN, HUNGARY

J Frame, Ardchoille, Alloway, Ayr

The 17th European Grassland Federation (EGF) Meeting was held in Debrecen in north eastern Hungary, 18-21 May 1998 on 'Ecological Aspects of Grassland Management'. This was attended by over 250 delegates from 30 European countries and some 200 papers were presented as lectures and posters, (see Appendix). There were pre- and post-Meeting tours and technical excursions to various regions of Hungary. The proceedings of 1033 pages became Volume 3 of "Grassland Science in Europe" and the British Grassland Society mounted an exhibit of its activities, to meet and recruit foreign members and to promote its publications. Sown grassland comprises only a small proportion of Hungary's grassland resource which occupies less than 20% of the agricultural land since Hungary is essentially orientated towards arable agriculture. Consequently, much of the grassland research effort is towards the marginal, sometimes flooded, natural and semi-natural pastures or "*puzsta*", wild, desolate and flattish land with cattle and sheep supervised by mounted herdsman. On a cold and dank evening they gave the meeting delegates a magnificent show of horsemanship. Hungary normally has drought-prone summers, but 1998 was unduly wet.

The meeting covered a wide range of grassland subject areas. Possibly because of the warmer, drier climatic conditions anticipated from global warming, there is a lot of research work dealing with the response of grasses and clovers to high temperatures, and tolerance of drought is an aim of plant breeding. A considerable range of grasses and legumes is being studied across Europe, and it raises the question of whether or not we in the UK have become over-reliant on perennial ryegrass swards. Should we take a leaf out of New Zealand's book and breed varieties of secondary grasses, primary grasses other than ryegrasses, legume species and even forage herbs? In studies on grassland farming systems, it was noted that extensification in western European countries was often really **de-intensification** and that management had to remain intensive if economic returns were to be satisfactory. Potential benefits for low-input systems included resource conservation, reduced costs, increased product value, reduced pollution, better protection of landscape and wildlife and increased rural income opportunities. An interesting EU project is gauging the potential of novel and established forage legumes - white and red clovers, lucerne, birdsfoot trefoil and goat's rue - for silage in low-input, environmentally sustainable milk production systems. The project involves Germany, Sweden and Finland as well as the UK, and SAC Auchincruive is using the information generated to model the

economics and environmental impact of integrating the silage into dairy cow feeding.

The adverse effect of high soil fertility on species-rich grassland was discussed. Reducing N and P fertilisation, infrequent cutting and lowering stocking rates were beneficial to species numbers and diversity. However, there is a penalty of lower production and herbage quality, though the herbs have a high nutritive value. An inevitable loss of farm income requires to be compensated in some way if the concept is to be widely adopted. Management measures aimed at increasing species numbers included introduction of seed (which is expensive), varying the cutting management, and deliberate reduction of soil fertility by removing topsoil. One problem, as yet unsolved, is that of weed invasion on extensively managed sites, since traditional herbicides also kill the desired species.

A topical subject area was how to reduce nitrogen loss to the environment, whether by nitrate leaching, gaseous emission of nitrous oxide from the soil or ammonia volatilisation from urine or slurry. Using less fertiliser N is one way, but this needs more precise use of N if grass production is not to suffer. **Nutrient budgeting**, ie: the study of fertiliser inputs and animal production outputs, will become more common on UK farms. Models are available to optimise nitrogen and other nutrient use according to grassland management, soil conditions and weather patterns for economic and environmental targets. Advances in technology included: the use of genetic engineering to introduce genes with specific characteristics into existing forage species; prediction of N availability from soil mineralisation; the role of protein reserves in white clover stolons for winter survival; the interaction of sward height, bite size and rate of biting at grazing; manipulation of protein to avoid excessive N in animal excreta; competition for light in mixed grass/clover swards.

Meeting Programme

I The ecological aspects of grassland management. II Intensive production systems. III Low input systems, including hill pastures and silvo-pastoral systems. IV Extensive grassland systems. V Mediterranean grassland systems. VI Recent advances in grassland and nature conservation. VII Recent advances in reduced emission technology of intensive grasslands. VIII Recent advances in grassland agronomy. **Workshops** - Nine workshops addressed key practical problems in grassland, eg: How to minimise the nitrogen leaching risk after clover-rich leys in organic farming; Ensilability of some common grassland herbs; Grass-legume associations for alpine grasslands.

WEATHER DATA FOR 1997
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***	***No of Days***	***Total Hours***
January	6.0	1.2	3.0	14.9	11	31.6
February	8.6	3.1	4.6	155.3	27	60.7
March	10.2	4.7	6.2	62.0	20	96.3
April	11.9	5.2	8.6	44.8	12	96.2
May	14.7	5.9	10.7	77.3	15	228.5
June	16.8	8.8	13.7	57.1	18	174.1
July	19.1	11.6	15.5	60.2	18	155.1
August	21.3	12.6	16.2	41.4	14	193.3
September	15.8	9.0	11.7	93.6	15	147.9
October	13.1	6.4	9.4	83.3	17	107.4
November	10.7	5.9	7.9	59.4	21	40.3
December	8.4	2.8	5.3	123.9	24	39.1
Means/ Totals	**13.1**	**6.4**	**9.4**	**873.2**	**212**	**1370.5**

Max air temperature: 27.2° on 10 & 11 August. Min air temperature: -4.8° on 2 & 3 December 1997. Last frost: 6 May 1997. First frost: 22 October 1997.

WEATHER DATA FOR 1997
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*	*No of Days*	*Total Hours*
January	5.6	0.6	3.7	10.9	9	32.5
February	8.4	3.1	4.9	213.0	22	52.4
March	10.7	4.3	7.0	50.2	18	93.9
April	12.3	4.3	9.1	26.9	12	94.3
May	14.2	5.8	11.6	103.8	13	137.3
June	17.2	8.8	14.4	97.1	16	119.6
July	19.8	10.7	16.0	95.3	18	174.2
August	21.3	12.4	16.9	37.0	15	188.2
September	17.0	8.4	14.4	98.7	13	132.2
October	13.4	5.1	11.9	58.6	10	110.5
November	10.6	4.3	9.2	129.5	21	39.9
December	9.1	2.7	6.4	163.7	18	21.5
Means/ Totals	**13.3**	**5.9**	**10.5**	**1084.7**	**185**	**1196.5**

Max air temperature: 26.8° on 10 & 20 August. Min air temperature: -4.5° on 29 October. Last frost: 9 May 1997. First frost: 22 October 1997.

1997 began with a generally cold and wet winter and dull spring, then early warmth and sunshine in late May. The later summer and early autumn became warm and fine, followed by a mild wet early winter.

Meteorological data reproduced courtesy SAC Auchincruive and SAC Crichton Royal Farm

SPONSORS

The South West Scotland and Central Scotland Grassland Societies wish to gratefully acknowledge and thank the several sponsors who have supported their activities during the 1997-1998 season:

Bank of Scotland, Castle Douglas
Davidson Brothers (Shotts) Ltd
Harbro Farm Sales Ltd
HF Seeds Ltd, Edinburgh
Kemira Fertilisers Ltd, Chester
Nickerson (UK) Ltd, Rothwell, Lincs
Plasti-Covers Ltd, Irvine
SAC, South West & Central Scotland
Timac (UK) Ltd
Trident Feeds Ltd

ADVERTISERS

The two Grassland Societies acknowledge and thank the following firms who have placed adverts in the current issue of this Journal. Please mention "Greensward" when replying to any of these adverts.

Kemira Fertilisers Ltd
McCaskie Farm Supplies Ltd
McGill & Smith Ltd
Nickerson (UK) Ltd
SAC
Sheppy Fertilisers Ltd
Timac (UK) Ltd

PRINTED BY WALKER & CONNELL LTD., HASTINGS SQUARE, DARVEL, AYRSHIRE KA17 0DS.