Greensward

1999

JOURNAL OF THE SOUTH WEST AND CENTRAL SCOTLAND GRASSLAND SOCIETIES

No. 42

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FOREWORD

"There never was a time when tremendous changes were more certain, when events were harder to forecast or when action was more difficult to plan".
J H Thomas. 1933.

From a devastating crisis in the beef industry. swiftly followed by plummeting prices in the sheep. pig and arable sectors. the spectre of price decline has now descended on dairying. Farmers in the West of Scotland. no less than the whole of the UK. are now facing fundamental challenges in an industry which cannot respond at the same speed as a click of an electronic button. At the BGS winter meeting in Peebles. disillusionment was predicted to be a major factor which would lead to changes in farming. The 1998 weather did little to cheer. with rain falling on more than 2 days out of 3. However. farming in the past has faced difficulties and futures very far from certain.

In spite of present problems. an underlying optimism can be detected in the grassland scene. There is continued enthusiasm for entering the various Society Competitions. especially for silage. In fact. new classes have been introduced for Whole Crop and Maize. Grass farmers have also been encouraged to look at fresh. almost alien. ideas to combat desperate market conditions. The new Grazing Discussion Group in Wigtown has been keenly considering new ways to make much greater use of cheap. grazed grass. Cutting costs has been the theme of many of the grassland society meetings during the past couple of years. Links with the BGS and overseas workers have helped to promote these new developments.

The two Societies in Central and South West Scotland wish to sincerely thank all speakers at their meetings and all host farmers at the farm walks. The solid support from commercial sponsors and from SAC colleagues are both gratefully acknowledged. The Editor thanks all contributors and advertisers who have helped in this issue. Special thanks are expressed to Lorraine Reid (Rural Business Unit. SAC Auchincruive) for typing and arranging the whole manuscript – a dedicated and exacting task. Staff at Printers: Walker & Connell are also warmly thanked for design. printing and publication.

G E D TILEY - Journal Editor

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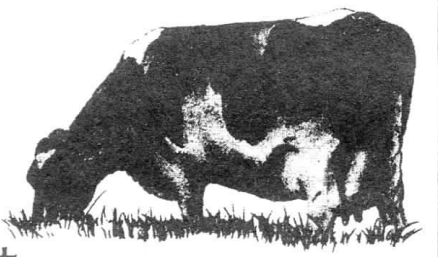

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SOUTH WEST SCOTLAND GRASSLAND SOCIETY
MEET THE CHAIRMAN
H Parker, Inchparks, Stranraer

Hugh presently farms with brother John and has 170 cows on 168 ha at Inchparks, together with a broiler unit of 25,000 birds for Ross Breeders. The soils range from wet peat in the lowest part of the farm, where there is an area of woodland, through clay loam to shallow stony fields which can burn in summer. Spring cereals and wholecrop wheat are also grown on 32-36 ha.

Management of the grass is for high quality silage and good grazing, and Hugh has been a keen member of the Wigtown Grazing Discussion Group (see p75), exploring the potential for extended use of grazed grass in the area.

A native of Stranraer, Hugh did BSc Agriculture (Hons) at Newcastle after attending Merchiston Castle school. Following graduation, he joined the family partnership with John and their parents. There were then 130 cows, 230 cross sheep, a bull beef unit, broilers and 16-20 ha barley. A very keen and accomplished rugby player, Hugh played at University level in University Athletic Union matches.

This was followed by a spell with Wigtown and then Kilmarnock, where he played for Glasgow District and Scotland B clubs, including tours to Canada and Zimbabwe. He has also visited and worked in New Zealand as well as being a frequent visitor to Ireland, north and south, comparing notes on farming practices. Hugh is currently President of Wigtownshire Rugby Club as well as serving as a stimulating Chairman of SWSGS. Hugh and wife Maureen have a son and 3 daughters. Other interests include curling and skiing.

CENTRAL SCOTLAND GRASSLAND SOCIETY
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CENTRAL SCOTLAND GRASSLAND SOCIETY
MEET THE CHAIRMAN
Jim Boyd, Dechmont, Cambuslang, Glasgow

Jim is enjoying his spell as CSGS Chairman, since it allows him to give back some input to an organisation which he feels offers so much. There is the exchange of views, learning about new ideas, stimulating improved farm management, exploring how to grow and use grass to its maximum.

Jim's farming business consists of two neighbouring farms – Dechmont and Lettrickhills at Cambuslang on the south east outskirts of Glasgow. Jim was born and brought up at Lettrickhills which was a dairy farm of 130 acres (52 ha) in the 70s, carrying 90-100 cows. In 1981, the tenancy of Dechmont consisting of 350 acres (140 ha) plus 70 acres (28 ha) of rough grazing was obtained. The two farms have been run as a single unit since that time, carrying 130 cows, young stock and 20 dairy cross stores. Around 40 ha of spring cereals are grown, and there are 300 ewes and 70 ewe hoggs, which are put to Texel tups and lambed mid-April. About a third of the lambs are sold off grass, and the remainder off kale by the New Year.

The silage is made by contractor apart from cutting and is top dressed with calcium ammonium nitrate (CAN) after removal of the ewes and lambs. Jim had learnt at a Grassland Society meeting that CAN is alkali-based in contrast to the straight nitrogen fertilisers which are acid-based. He reasons that 'sweet' fertiliser will produce sweet silage! Wholecrop spring wheat has been tried in recent years.

Farming on the outskirts of an industrial area has its drawbacks, which have to be taken into account in day-to-day management. Jim and wife Anne have a lifelong interest in farming and have 3 sons and a daughter. Apart from curling and a keen follower of sport, Jim's main outside interest is in farmer groups – Holstein Society, Grassland Society.

FARMING – PAST AND FUTURE
CSGS PANEL EVENING
C McCombie

A Meeting of CSGS at the Newhouse Hotel, Newhouse, 19 February 1998

Panellists: Mrs Ann Paterson, Garrionhaugh
Wallace Henry, Henry Bros
Matthew Mauchlin, Ben Challum, Crieff

Ann Paterson was President of the Scottish Women's Farming Union, in which she had become involved when growing vegetables. The Women's Farming Union had been formed by fruit growers in England some 20 years previously. Ann was brought up in the Irvine Valley; Weny Hill was one of the first farms in Scotland to have a milking parlour. On marriage, she had moved to a Clyde Valley farm where her father-in-law had been keen on change and new ideas. Garrionhaugh had been involved in dairying, pigs, a milk round, vegetable production and now crops and beef.

Vegetable production was hard work, and Ann had dealt with the marketing. Prices were often reduced or produce refused for marketing reasons, eg: the supermarket wanted a special offer on cabbage, lowering the price from 5p to 3p per lb, at which level the grower loses OR the leeks were too large for the new shelves fitted by the Coop! Up to 40 people were sometimes employed to harvest/pick at peak times.

Ann has 2 sons and a daughter. One son fortunately works for BP, the second (14) was keen to farm and wrote a letter to the Prime Minister on the current state of farming. Daughter Aileen is a very hard worker, and has often worked 14 hours a day wrapping lettuce.

The important role of the Women's Farming Union was to educate the public about farming. To this end, Garrionhaugh had hosted many visiting groups ranging from school children to businessmen.

Wallace Henry. Henry Bros is a cattle dealing firm who were currently involved in handling over 30-month cattle. 500 ha were owned or taken as grazing lets, plus 48 ha arable. There were 450 dairy cows. Wallace felt production systems could be improved by making them simpler and using fewer staff. He had been educated in Glasgow and acquired basic farming knowledge at Auchincruive. He had joined the Young Farmers at Kilmarnock, eventually becoming Ayr District Chairman, and enjoying several overseas visits including the YFC European

Rally. A Nuffield Scholarship in 1995 had allowed him to study the succession of farm businesses in USA, New Zealand and Australia. In the USA, he had visited Lincoln University, Nebraska and California. The USA dairy herds were very large, leaving very fine margins. Herd average 10-12,000 litres, but a cow replacement rate above 30%. Diet based on lucerne cut 8-9 times a year. New Zealand milk price was 9-10p litre^{-1}, requiring minimum inputs with stock outside year-round. Australia was the only place visited with an opportunity to start farming.

In farming succession, the future must always be considered, taking into account changes, eg: marriage. The question had to be asked: What do I want to be and what do I want to be doing in 10 years' time?

Matthew Mauchlin was born and brought up on a tenanted farm in the Borders near Kelso, with arable, sheep and cattle enterprises. Being the second son, he sought employment outside the family farm. After a BSc in Agriculture and aspiring to a post as farm manager, he travelled for 2 years for Europlant – a firm supplying metal braces to improve ewes' teeth. This allowed him to meet people on many farms with a variety of managements. He then managed a farm with 1100 ewes on the coast of Portpatrick on a partnership basis. In 1998, he became manager at Ben Challum, which consists of 300 ha in four blocks. From a stock of 30 Luing cows there are now 185 Luing based sucklers and heifers. The cows are out-wintered, all bull calves finished as bull beef and heifers finished at 2 years old.

Originally fed on silage, the stock are now carried on non-arable ground with a stocking rate above 2.5 cows ha^{-1}, requiring considerable fertiliser inputs. Winter and spring cereals plus oilseed rape are grown. The cereal straw is used for bedding and surplus barley for feeding. Low finished prices were causing financial pressures, and grass was being rented to qualify for extensification payments. Ben Challum is Farm Assured, and is a member of Scottish Quality Cereals. Matthew felt that the public should be informed of the methods of primary production of the food they buy. The NFU, who represent farmers, should be supported. The fact that all farming sectors were depressed should be a unifying factor.

SWSGS SPRING FARM VISITS IN AYRSHIRE 1998
GED Tiley

Visits by SWSGS to Nestlé Rowntree Factory, Girvan and Crailoch, Ballantrae on 14 May 1998

Members of SWSGS were privileged to be shown around the Nestlé Rowntree chocolate factory at Girvan in the morning, followed by a comprehensive visit to the beef/sheep enterprise at Crailoch in the afternoon.

Nestlé Rowntree Factory, Grangestone Estate, Girvan, by invitation of the Manager, Nestlé-Rowntree, Girvan. Society members were taken around the Girvan factory by John Alsopp, Production Manager and Diane Laird, Farm Liaison Officer. Regulations required that watches must be removed as these could fall into the chocolate, and hands rinsed to sanitise. John Alsopp was known as 'Mr Milk' in the area, since he canvassed directly with producers. He began by voicing concerns over the future of the milk market. The supermarkets were very powerful and liquid milk was essential for chocolate crumb production. The Middle East was not now taking milk powder from the UK because of BSE, hence Nestlé had lost half their market. Large companies could absorb market fluctuations, but not in Scotland where less than 10% of milk output was involved. The factory took delivery of 300,000 litres of milk per day, falling to 190,000 litres in November.

Processing. There was a 4p differential to encourage winter milk production and a large peak in spring since many suppliers were from the Stranraer area where a lot of milk came off grass early in the season. The milk was pasteurised, sugar added and then evaporated to sweet, condensed milk containing 80% solids. Cocoa (6-12%) liquor was then added, and the mixture then dried to chocolate powder. Most of this was shipped to York for the manufacture of Kit Kat, Smarties and Aero. 200 tonnes per week was exported to Canada for Kit Kat. Content of fat was important, not protein or milk solids, for the chocolate crumb. Fat had to be bought-in as butter oil. Protein was however, important in other branches of Nestlé making milk powder. Chocolate with a milky taste was required and this needed fresh milk not milk powder. The European market also required a high content of cocoa in chocolate, ie: dark chocolate. Crumb was a product that did not need to be used immediately, and could be stored for 1-2 years. At the time of the visit, milk was received from 123 farms. There was a waiting list and the factory wanted to expand. Quality control was strict, and samples were analysed by ADAS. The farms were distributed roughly one third each in Ayr, Dumfries and Kirkcudbright. All milk was collected by Maitland

using 15,000 and 20,000 litre tankers. The larger tankers were articulated with rear steering, cost £120,000, and did not damage farm roads or lorry tyres.

Milk was drawn from the silos when needed, then pasteurised for 15 seconds over a heat exchanger. Steam was drawn through by computer control and finally water condensed out to provide hot water for other uses. Lactose was added to build up solids. Skimmed milk was bought-in at certain times to increase solids. The amount of sugar added was computer-controlled and was determined by the total solids in the milk. Fat content was corrected through the addition of butter oil obtained by separation from milk. Evaporation occurred through the plates of a heat exchanger before cocoa oil was added. Crumb was obtained by further evaporation for 60 minutes of the extruded mixture onto endless belts. Lumps were broken down by 'teeth' and after passing through a hammer mill produced crumb powder. There was 24-hour working at the factory, except at Christmas and New Year. Good maintenance ensured minimum interruption. 1 tonne of crumb costing £1,200 required 2,500 litres of milk. The crumb was shipped in 1 tonne bulk bags or 25 kg small bags. Members who visited the factory left with the impression of an efficiently-run process where cleanliness and quality were top priority.

The Society greatly appreciated this tour of the factory, and wishes to thank John Alsopp and Diana Laird for their instructive commentary, and Messrs Nestlé for their hospitality.

King's Arms, Ballantrae (By invitation: Robert and Caroline Dalrymple).
In the afternoon, Society members visited the beef/sheep enterprise at Crailoch and Kings Arms. The Society had not made a previous visit here though the unit is a popular venue for the demonstration of very efficient lamb and beef production from grass. Robert and Caroline have won the SWSGS Beef/Sheep silage champion prize for the past two seasons, as well as on previous occasions. In 1995, they were awarded the first British Grassland Society all-Scotland Grassland Management prize; in 1992 the MLC Grass-to-Meat prize, and in 1990 second prize in SWSGS Environmental Competition.

At the time of the visit, stocking consisted of 204 Sucklers and 1032 ewes. Fields near the shore were flat and sandy and very prone to drying out during the summer. Those further inland were steeper and rolling with heavier soils, shallow and rocky in places. Two riverside fields had been reseeded in early September: one to a high-yielding silage mixture (Scotsward); the other to a long-term HF11 mixture, producing a very thick closed sward. This had been grazed late October-mid December to flush the ewes, and by ewes and lambs in February and March. A 10 ha field at the roadside was a Castlehill long-term

mixture undersown to arable silage. Half of this field was sand which needed frequent rainfall (weekly) to avoid the sward burning. Care was necessary during cultivations to avoid sandblow and grass seeds were drilled. However, lambs fattened more rapidly on this field than anywhere else on the farm. The first two fertiliser dressings were applied by motorbike and trailed spinner to avoid wheel damage to the sward at a rate of 40 ha day^{-1}. Silage fields receive 125kg ha^{-1} 34.5:0:0 for grazing, followed by 625kg 20:6:12 for the 1st cut. Grazing fields are dressed with 125kg 26:13:0 in February and in March, plus 125kg 29:5:5 in May and a final one bag (125kg ha^{-1}) of N in August.

The ewes were Texel cross and Mules put to Suffolk tup, except the last 200 ewes which were crossed to Texel for breeding ewes. All lambs were marketed Quality Assured through the local Lamb Group. The best Suffolk lambs received £5 creep feed per head for finishing and were drawn at 19 kg. The grass fields are progressively closed as lambs are sold, and the ewes concentrated in fewer areas. Maximum use had to be made of all available grass, since the selling price of the end products – lambs and suckler calves – could not be known in advance. The Suckler cows, formerly Aberdeen Angus/Friesian crosses, are now Limousin/Friesians. These were becoming more difficult to purchase and now contained more Holstein – likened by some to 'coat hangers'. The spring calving cows calved from end of March, the summer calvers in May & June and heifers from early February. Shortage of spring grass preferentially fed to the sheep was no disadvantage since initially there was an excess of milk. All calves were sold in the middle of the following April apart from a few in late February to allow more space for lambing. The heifers were synchronised and crossed with Charolais, in which the higher liveweights more than compensated for the premium available from Limousins.

The Suckler calves were weighed monthly on an electronic scale using the management identification tags and downloaded to a computer. An essential feature of the sheep management was the large (72m x 18m) shed used for lambing 640 ewes. The ewes were housed in groups of 20 per lambing pen in mid-December. They were all scanned and categorised by colour, size and lamb number. The sheep were generously straw bedded and the dung produced stored for use on grass reseeds. A nearby (27m x 18m) slatted shed could house 180 cows. The cows on 4m slats were fed from outside feeders while the calves on 3m slats were fed in the passageway. A novel home-designed barrow fitted onto the rear of an ATV motorbike was used for feeding the calves. All aspects seen by the Society demonstrated a careful and positive management of grass and stock, with an optimism to continue farming.

The Society wishes to thank Robert and Caroline, stockman Andrew and the tractor and trailer drivers for this detailed and interesting visit, and for their warm hospitality.

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THE PENNINES TO THE PLAINS
The BGS Summer Meeting, Staffordshire
12-16 July 1998
G E D Tiley and John Marshall

Staffordshire is essentially a county of grass, with dairying the predominant enterprise. There are three main regions: the North is undulating upland merging with the Pennines and Peak District and with high rainfall; the Central region, 60-120m has mixed farming of dairying with cereals; the South is a plateau 60-150m with lower rainfall and lighter soils allowing arable cropping with dairying. The average dairy farm is 56 ha with 71 cows. The trend now is back to low cost self feed silage and extended grazing, to dispense with expensive machinery. Sheep are mainly of the Masham breed crossed to Texel, Suffolk and Charollais. Total sheep have doubled to 135,000 in the last 20 years. The meeting was based on the new University of Stafford, and the host Vice-President was Graham Roobottom, a keen grassland farmer and member of local Agricultural Societies.

Improving Forage Utilisation in a Spring Calving Herd – Ashley Grange, Ashley, Market Drayton (*Ian and Fiona Platt).*
The first farm visited was on heavy clay loam at 170m with 700 mm rainfall. The area is 87 ha, including 16 ha cereals, plus 12 ha annual grass keep. A herd of 166 cows averages 6,320 litres, 60% from forage, and the aim is to achieve maximum production from grazing. All fields are cut at least once yearly to maintain a 'stem-free' sward, and the cows receive fresh grass daily in 24-hour paddocks, following the New Zealand system. A new Dairymaster parlour was installed on a greenfield site in 1984, and this has been expanded to a 14:28 unit in preparation for increasing the dairy herd to 200 cows.

Very High Yields from Forage – Manor Farm, Marston, Church Eaton, Stafford (*A R Cox & Son)*
The second dairy farm visited was also aiming to expand its herd from 180 to 280, maintaining average milk yields at around 9,800 litres, over 4,000 litres from forage. Although the soils are sandy and liable to dry out in a low (625 mm) rainfall area, performance is kept high through attention to detail in making silage and in grazing. Farm area is 160 ha plus 4 ha rented. Crops include winter wheat (14 ha), winter barley (20 ha) and 14.6 ha maize. Wintering lambs graze off surplus grass until late January, thickening the swards against drought and poaching. Slurry is applied as soon as the sheep leave followed by 40 kg N ha^{-1} in both February and March. The clamps are carefully managed and the Coxs had won the West Midlands silage competition during the previous winter. Grazing is by rotational set stocking.

Milk from Grazed Grass in a High Yielding Herd – New Buildings Farm, Hopton, Stafford (*Stephen and Lesley Brandon*). The Brandon family have farmed at Hopton for three generations, but in the last 9 years the whole system has been revamped and is now fully committed to maximum use of **grazed grass**. This change was stimulated by attendance at a BGS conference in 1995 and visits from New Zealand consultant, Mark Blackwell. From an emphasis on high yields and breeding large numbers of pedigree heifers, some for sale, the aim now is to expand the herd and fully utilise grazed grass to reduce production costs. The farm area is 101 ha plus 32 ha annual grass let. Previous arable and maize areas are to give way to more grass. The soil is heavy, poaching in winter but drying out in summer. Milk yields average 7,600 litres, 4,370 litres from forage; profit 12 p litre^{-1}. However, there has been investment in fencing, farm tracks and watering points. Grass availability is routinely measured on each field, and silage cutting is fitted around grazing surpluses. Surplus autumn growth is grazed by dry cows or young stock, not sheep.

Farming successfully in an ESA - Grange Farm, Onecote, Leek (*John & Janet Stone*). The second day began with a visit in the Peak District to Grange at 290-340m with rainfall up to 1000 mm. The farm lies within the Peak District ESA, and consisted of 96 ha owned and 53 ha rented yearly, all under grass, most of which can be cut for silage. Soils are sandy loam over clay, wet in the valley bottoms. It was planned to increase the 70-cow herd to 120 Holstein Friesians. Current yield was 8,000 litres, 3,700 litres from forage and the herd had won the Staffordshire NMR Small Herds Competition in 1994 and 1995. In addition, there was a beef enterprise based on 50 bought-in heifers reared on whole milk and crossed with Limousin or Belgian Blue. The ESA agreement features restrictions (eg: on liming) on herb rich grassland, and John being a keen bird watcher, was keen to improve habitats on the farm.

Integrating Livestock Enterprises on a Large Estate – Cote Farm, Farley, Stoke-on-Trent (*Wootton Farms Ltd*).

Wootton Farms Ltd is the farming arm of JC Bamford Excavators Ltd (JCB) and the farm is used extensively by the parent company for demonstrations and research on new machines. The 1700 ha (4,200 acres) estate occupies a beautiful part of the county, and conservation and landscaping figure prominently in its management. The aim of the enterprise is to produce quality meats and products to a very high standard of husbandry. There are five steadings and land units with a good system of internal roads. The farmed land (1054 ha) comprises a wide range of soil types from rocky hill tops (280 m) to river alluvium (70m); rainfall about 800-900 mm. There were 286 ha cereals, 60 ha organic cereals, 69 ha pulses and 21 ha set aside; 4,000t silage were made annually.

The main livestock enterprise is the suckler herd of 250 Aberdeen-Angus, spring calved and bull calves finished at 14 months in May/June. The steers are finished the second year off grass, the heifers finished with silage and fodder beet in house by the New Year. The sheep flock comprised 1500 Mules and Rouge X Mules plus 120 Polewarth finewool ewes, crossed to Texel and Charollais, and to Rouge for replacements. The lambs are fattened on grass and fodder crops, the ewes winter housed on silage. There is a 1000-strong Red Deer herd which, with bought-in stock, produced 1200 finished animals yearly for marketing through a Farm Venison Company.

Coping with Change – Anslow Park, Anslow, Burton-on-Trent (*Frank & Julia Thomstone*). Anslow Park was yet another dairy farm converting to a greater use of grazed grass and also aiming to increase cow numbers. This has necessitated a change from set-stocking to rotational paddocks, involving tracks, fencing and water troughs. Frank's herdsman walks the fields with a plate meter to measure grass availability. The paddocks also make for easier collection of the cows. Total farm area is 154 ha in 2 blocks 5 miles (8 km) apart, with also a main road splitting the main block (112 ha). Arable cropping of 40 ha is contracted out and 26 ha of maize are grown, giving flexibility, a good arable break, weed control and an entry for undersown Italian ryegrass. Rainfall is only 630 mm, soils on the heavy side, and altitude 100m. The 200 cows average 7,600 litres with only 25% from forage at present. A target of 3,500 litres, 47% from forage, is the aim, using 290 kg N ha^{-1}.

Growing grass for leisure – Cowley Hill, Hamstall Ridware, Rugeley (*Graham & Rachel Roobottom* – Host Vice-President). Originally a dairy farm, it has now diversified to haylage production for buoyant horse interests in the Midlands. Graham's daughter-in-law had been interested in horses and had persuaded his son to start selling feed to local horse owners. His son now runs his own merchanting business.

The 73 ha farm at 65-95 m now grows contracted arable crops rotating with 1-year Italian ryegrass for haylage. Cuts are taken in early June, late July and late September. After mowing with a mower conditioner, the grass is tedded several times over 2-3 days and harvested as big bales about 1½ days before it would be for hay. Fertiliser use, kg ha^{-1} N: P_2O_5: K_2O is 65:36:36 for 1st cut and 50:0:32 for the 2nd and 3rd cuts.

Increased self-sufficiency from home grown forages – Coppice Farm, Longnor Gorse, Penkridge (*Mark & Elaina Gadsden*). A small (19 ha) County Council holding at 100m, with basic facilities and 242,000 litres of quota, Coppice carries 30 cows averaging 7,400 litres, 3,200 litres from forage.

Maximum self-sufficiency was the aim, utilising own resources. Increased clover and protein forage crops were being tried, and some trials were being conducted for the Kingshay Farming Trust and for IGER. All sowing, harvesting and silage making is done by contractor. The silage is made as big bales and the fodder crops are used to tide over summer drought periods. Peas and wholecrop wheat undersown to grass are being grown to boost starch and also protein levels.

The Staffordshire programme also included an optional visit to **Rodbaston College**, with 450 students, studying agriculture and other countryside subjects. The **Alternative Programme** visited the Dorothy Clive Garden, the Wedgwood Pottery at Barlaston, Stafford, Lichfield Cathedral, the County Centre (Heart of the County) shops and restaurants in converted farm buildings, the JCB Estate, Tutbury – a Georgian town with castle where Mary Queen of Scots was imprisoned, the Bass Brewing Museum showing the history of William Bass family and Shugborough Hall – a National Trust property, home of Lord Lichfield.

SOUTH WEST SCOTLAND GRASSLAND SOCIETY VICE-PRESIDENT'S PRIZE 1999

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 1999 prize was awarded to Robert Logan, Bellcauseway, Barrmill Road, Beith, Ayrshire (HND Agriculture Course). Congratulations to him for his outstanding and deserved success!

A NATIONAL FORWARD LOOK AT GRASS – MY YEAR WORKING WITH BGS

Charlie K Mackie,
President of the British Grassland Society 1998-1999

Being asked to be President of the BGS was a real honour. Having been a BGS Member for almost 25 years, the Scottish Regional Representative on BGS Council back in the 1980's, the local Organisation's Secretary for the 1977 Summer Meeting in Aberdeen and Host Vice-President when the meeting returned in 1994, I felt I knew the workings of the Society. How wrong could anyone be! My memory of the time in office is of a Society that puts high value on its links with local Grassland Societies such as our own in Scotland, reaching out to over 10,000 grassland enthusiasts and being intimately involved at all levels.

Research

The BGS R & D Committee is chaired by Jim Harrison, one of the largest dairy farmers in the UK and now Chairman of Milk Link. This Group regularly updates its priorities for grassland R & D which are fed into all the major funders, eg: MAFF, SERAD, MDC, MLC and to contractors, eg: IGER, ADAS, SAC. On-site meetings are held with both groups, often leading to 'full and frank' discussions. BGS has also put its money where its mouth is and has funded Research Studentships, which cost about £40K. The most recent is based at Crichton Royal Farm under the guidance of Dave Roberts, where Lynn Wilson is studying responses to concentrates in high producing cows.

Technology Transfer

BGS plays an important role in ensuring the results of R & D are translated into practice. The Grass 99 Project has excited many grassland farmers to think again about the better use of grazed grass and the importance of extended grazing. The project is funded by MDC and BGS, is led by Jerry Rider, dairy farmer and Past President of BGS, and has involved consultants from New Zealand including Paul Bird and Carol Gibson. A series of discussion groups have operated across the UK, including one in SW Scotland (see p75) with farm visits and conferences. The publicity for the project has been excellent, including mention in 'Private Eye' and on the 'Archers'.

Publications

'Grass Farmer' plays a major role in generating practical advice from the results of R & D. It is a major cost to BGS (about £15K annually), but when its future was reviewed recently, the response from local Grassland Societies was a

resounding 'we want Grass Farmer!'. A new Editor has been appointed and changes have been made to make the magazine even more successful in transferring new technologies into the industry. BGS is asking local Societies to increase their contribution towards the cost and I believe all Societies will back this initiative. The BGS publication 'Grass and Forage Science' is an internationally-recognised scientific journal covering forage crops and quite recently it has become the journal of the European Grassland Federation, a real achievement when so often the UK seems to take a secondary role.

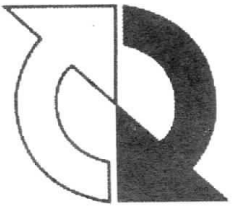
BGS has just published the third edition of the textbook 'Grass: Its Production and Utilisation'. This edition not only updates the previous versions but now includes sections on organic farming, herbage seed production, farm wastes amenity grass and nature conservation (see page 75). It is essential reading for students, researchers, advisers and forward looking farmers. To order your copy 'phone the BGS Office on 01189 318189!

Strategic Review

During my year as President, BGS carried out a strategic review. This was a rewarding and revealing exercise at a time when the number of people involved in agriculture is declining, time available for voluntary work is also less and the importance of communicating via media and new technologies is increasing. The Review has been published and while aimed at BGS it obviously has many areas that will interest local Societies.

Meetings and Symposia

Plans are already underway to bring the 2005 International Grassland Congress to the UK and Ireland. BGS is developing the UK part of the bid which will have to compete with other offers from countries such as China. However, the meeting that all BGS members are looking forward to is the Summer Meeting in 2002 in South West Scotland, at the invitation of your own South West Scotland Grassland Society. I look forward to seeing you then.



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GRAZING INTO THE FUTURE

G E D Tiley

SAC – Kemira Fertilisers Workshop held at SAC Crichton Royal Farm, Dumfries on 3 February 1998

A one-day workshop held at Crichton under the auspices of **SAC** and **Kemira Fertilisers**. The aim of the day was to examine methods of improving grazing and management practices to improve profitability. In the morning there were presentations by John Bax, SAC Crichton Royal Farm, Roger Chesher, Kemira Fertilisers and Professor Hemingway, Glasgow Veterinary School. In the afternoon, the Acrehead Research Unit at Crichton was visited.

The context of the day was set by Dr David Roberts, SAC Crichton Royal Farm. Dairy cows now had the potential to yield 37 litres milk per day, with a daily energy requirement of 260 MJ. To meet this, 21kg DM of grass per day were necessary. The challenge therefore was how to achieve this level of intake, how to supplement the grass, how much animal body weight loss was acceptable, with implications for cow fertility and standards of farm assurance.

J Bax described the low/high input experimental comparison in progress at the Crichton Acrehead Unit. This was SERAD funded and sought to improve the Nitrogen and energy efficiencies within grassland-based dairy cattle. The low input herd was fed on clover based swards, receiving no fertiliser N. These were set stocked to maintain a constant herbage supply in front of the cows, and minimise bloat. Extended autumn grazing had been introduced to keep the cows outside until late November-early December. As clover performance fluctuated with variations in the climate, particularly cold springs, supplies of buffer feeds were necessary to maintain milk yields and composition.

Extended Grazing. The **benefits** were: improved milk yield and composition, because cows were eating top quality grass; reduced silage requirement; simple and cheap system – though needed wire and willpower!; optimum use of cheapest feed.

Potential difficulties were: risk of poaching on heavy soils; needed good access roads and gateways; cannot put cows out early on clover based swards; low fertility outwith main grazing season as N fertilisers were not applied.

Buffer feeding. Early lactation cows responded best to buffer feeding. When milk yields fell below 30 litres day^{-1} it was not worth buffer feeding.

Rotational grazing. The advantages of rotational grazing were that higher sward heights of grass on offer led to larger bite size and consequently lower bite rate and lower grazing times. MDC were funding on-farm studies to improve the utilisation of grazed grass. These involved monitoring grass growth with a plate meter every three weeks and development of a relationship between sward height and herbage mass for UK conditions.

R Chesher. The advantages of correct timing for N fertiliser application in early spring were emphasised. If applied too early N would be lost; if too late yields would be less than optimum. There was a nation-wide network for following temperature accumulation from 1 January – the so-called T-sums, though these were not always reliable. On average, the optimum date was 53 days from 1 January (22 February).

The best fertiliser to use for the initial spring application was Early Bite (27:10:0), a mixture of Ammonium Nitrate and Ammonium Phosphate. The high proportion of N in the ammonium form was adsorbed by the soil and was thus resistant to leaching. The ammonium phosphate was very soluble and immediately available to the plant roots before being locked up into the soil phosphate reserves. The results of farm scale trials all over the UK comparing Early Bite with other types of fertiliser showed a widespread yield advantage for Early Bite.

Prof. Hemingway briefly discussed Phosphate intakes by animals which were generally related to crude protein content in forages. A study at 16 sites in Scotland showed that if N fertility falls then forage P content automatically fell. High yielding dairy cows required 4% P in the mineral (ash) content of feed. P in grass was therefore low. Levels of fertiliser use were going down, thus it would be necessary to supplement P in the diet, eg: 100 gm more minerals (8% P) day^{-1}. Cost of minerals and pollution potential are considerations, but if not fed the cow may lose P from its skeleton. It was noted that white clover had a higher P content than grass.

THE USE OF REEDBEDS TO TREAT DAIRY WASHINGS

Stewart E Moir
Reedbed Specialist, Environment Division,
SAC Auchincruive, Ayr

SAC has received numerous farmer enquiries in recent years as to whether **Reedbeds**, which are best known for the treatment of domestic sewage from septic tanks, would be able to cope with agricultural effluents. Research and development has been carried out in the UK and Europe using reedbed treatment systems on several agricultural effluents, including pig slurry and yard runoff. To date, results have been unreliable and outputs not yet of a standard acceptable for discharge to a watercourse or even for re-use on the farm. The design of a reedbed could never be expected to process high-solid slurries, but almost any dilute effluent containing organic base materials can potentially be treated. **Dairy washings**, containing a mixture of water, detergents and milk, come into this category and investigations on the suitability of treating these in a reedbed system have begun at SAC Auchincruive, using washings from the dairy unit. The research is being funded by SERAD (Scottish Executive Rural Affairs Department) and will continue until March 2003.

Technical Background

The polluting power of effluents can be compared using the Biochemical Oxygen Demand (BOD), measured in milligrams of oxygen litre^{-1} (mgO_2l^{-1}). See Table.

Effluent	**BOD mgO_2 l^{-1}**
A typical rural stream	3
Domestic sewage	300
Dairy washings	1000-2000
Farmyard run-off	200-2000
Silage effluent	60000-80000

Reference: SOAEFD (1997). "Prevention of Environmental Pollution From Agricultural Activity".

Slurry solids and effluents with very high BODs, such as silage effluent, would rapidly overload a reedbed system. It is suggested that effluents with BOD <1000, ideally <500, mg O_2l^{-1} are most suitable for reedbed processing. High ammonia or solids-contents should also be reduced before treatment.

The New Reedbed R & D at Auchincruive

A full-scale farm size treatment system, combining a modified conventional treatment process and subsequent reedbed, is being developed. The dairy washings at Auchincruive dairy (approximately 3,000 litres per day from the 180-cow herd which is equivalent to 30% of the total annual slurry volume) are collected and treated initially in an aeration system which bubbles air through the effluent. This provides oxygen to the microbes responsible for breaking down the organic matter and, therefore, reduces the BOD to an acceptable level prior to discharge into the reedbed system. The reedbed system provides secondary treatment (see diagram).

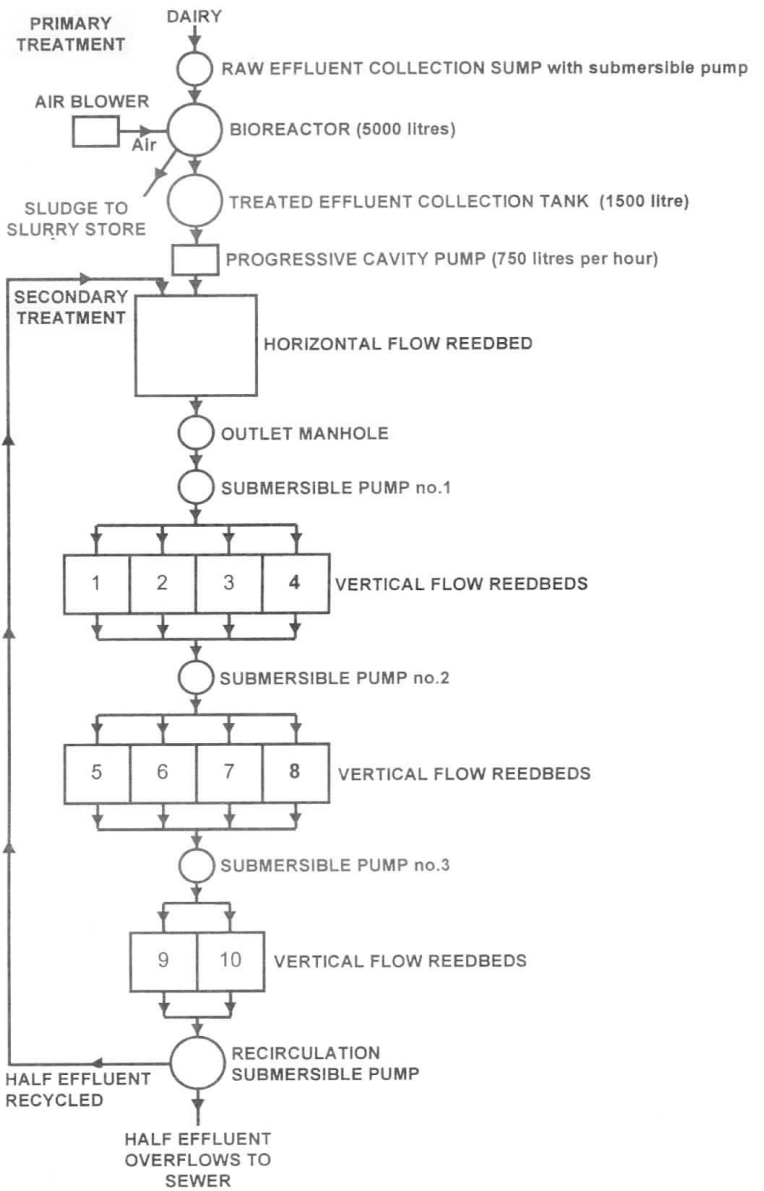
The two overall aims of the system are to: 1) produce an effluent suitable for recycling on the farm, eg: for washing down livestock collection/handling areas; and 2) achieve an effluent suitable for discharging to a watercourse. Current UK legislation prevents even treated agricultural effluents being discharged to a watercourse.

In the future contaminated waters (yard run-off + silage effluent) currently collected and irrigated at Auchincruive farm will be investigated. After an initial capital outlay for the system, treating these two effluent types would reduce the total volume of waste to be stored on a farm. The potential benefits to farm businesses would be:

- Diversion of effluent away from the slurry store, saving valuable slurry storage space;
- Reduced size and cost of slurry storage;
- An alternative to Low Rate Irrigation (LRI) of these effluents;
- Increased land availability for grazing;
- Reduced possibility of water pollution from field run-off;
- Reduced/no land dedicated to LRI;
- Reduced possibility of air pollution from LRI;
- Flexibility of management.

The research reedbed unit at SAC Auchincruive is now fully operational, and is open to visiting farmers by arrangement. For visits or enquiries, please contact the author (Stewart Moir) at SAC Auchincruive. Telephone: 01292 525321 or Fax 01292 525333.

Research support from SERAD is acknowledged.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TREATED EFFLUENT COLLECTION TANK (1500 litre)
PROGRESSIVE CAVITY PUMP (750 litres per hour)
SECONDARY TREATMENT
HORIZONTAL FLOW REEDBED
OUTLET MANHOLE
SUBMERSIBLE PUMP no.1
1
2
3
4
VERTICAL FLOW REEDBEDS
SUBMERSIBLE PUMP no.2
5
6
7
8
VERTICAL FLOW REEDBEDS
SUBMERSIBLE PUMP no.3
9
10
VERTICAL FLOW REEDBEDS
RECIRCULATION SUBMERSIBLE PUMP
HALF EFFLUENT RECYCLED
HALF EFFLUENT OVERFLOWS TO SEWER

SWSGS EVENING FARM VISIT 1998

G E D Tiley

A Visit to Kirkland, Closeburn, Dumfries, 22 July 1998
by invitation of Stewart Jamieson & Family

On a very wet July evening, a large gathering of SWSGS members and friends joined the visit to Kirkland and Rosehill farms, situated in the Nith Valley, Dumfriesshire.

The two units, totalling 180 ha, lie on free draining sandy soil which readily burns in a dry summer. This year however, had been wet since June. There were 145 Holstein-Friesian cows on each unit, total 290 with a herd average of 7,450 litres. Cow breeding had been aimed at increasing the Holstein influence, and was currently orientated toward higher PIN values.

Grassland management was geared towards maximum production from grass, rather than greater use of concentrates. Emphasis was placed on ensuring the grass, whether silage or grazing, did well and less on the cows doing well. Grazing was by set stocking on 3 fields (27 ha), a different field for each milking at 0.2 ha cow^{-1} until first cut silage, when the area was increased by 6 ha, followed by further additions after second cut silage. The grazed fields were topped occasionally to remove ungrazed grass and sprayed with Docklene to control docks.

The swards were winter grazed by lambs. In spring, the cows went out on 15 April. Supplementation was with 18% Cp, 12.5 ME, High Digestible Fibre concentrate. The grass produced 25 litres cow^{-1} in spring, 17 litres milk at the moment (July). Grazing swards were reseeded every 15 years. A total of 340 kg N ha^{-1} was applied annually, beginning with a first dressing of 87 kg, followed by 62 kg, two applications of 25:5:5 and a final dressing of N at the end of August. This had been the first year a contractor had been used to make silage, due to loss of staff and ageing machinery.

Maize Maize varieties: Nancis and Hudson had been sown on 15-16 May. The crop was 2 weeks behind the 1997 crop and some 0.8 m shorter at the same date, due to the season. A dry May had delayed germination which had been erratic, and there had been less sunshine in 1998. The crop was cut normally in early October, giving 40-45t ha^{-1} fresh weight, and it was fed only to the high-yielding cows (35-40% of the diet). Maize had allowed cow numbers to be maintained. It had proved difficult to make sufficient first cut silage, and also to maintain high quality when making over 100 ha silage. Being contractor grown and harvested,

maize could be added on without using farm staff. All surplus slurry could be disposed onto the maize land and 16 ha were being grown this year, after trying it for two previous years. It filled a gap in a dry year for grass and when the grass was damaged by rabbits.

Rabbit Control

A large area of woodland in the middle of the grass fields acted as an ideal sanctuary for rabbits, which thrived in the sandy soil of the Nith Valley. There was a serious loss of yield – some 200t silage per year amounting to £4,000 or more. Significant rabbit damage occurred up to 30m into the crop, with a total loss of yield up to 10m. Control measures involved completely surrounding the wood with a rabbit-proof fence dug 15 cm into the ground and placing special traps every 100 m along the fence. These consisted of a guided run leading over a deep trap hole. The hole was covered for 10 days to allow the animals to become accustomed to the run. Trapped rabbits were removed daily. To date some 1600 rabbits had been removed. The rabbit netting had cost £1.70 m^{-1}.

Cubicles

The cubicles at Kirkland had been replaced by steel cantilever cubicles and the length extended to allow for the increased size of the cows. The new design allowed for the use of mats and the cubicle width did not require changing.

The visit concluded with a short introduction to the ideas behind the New Zealand Grazing System given by Carol Gibson, Consultant from New Zealand. Members were invited to attend on-farm discussion meetings to explore the potential for increased use of grazing as a means of reducing costs (see page 72).

The South West Society wishes to thank Stewart Jamieson and his staff for this interesting and informative visit, and also to the Jamieson family for their very warm and welcome hospitality on a dark wet summer night.

CENTRAL SCOTLAND GRASSLAND SOCIETY
FARM VISITS IN 1998
C M McCombie

13 May – Findatie, Loch Leven (*Courtesy Ross and James Kinnaird*). A dairy farm with 200 Holstein Friesians averaging 6,700 litres and 200 followers, plus a few pedigree Blond d'Aquitaine suckler cows. Sheep include 70 Pedigree Charollais ewes, Suffolk and Blue Leicester ewes plus 350 Cheviot and Cheviot cross Texels. The Kinnairds moved to Findatie, altitude 105-240m and on the southern shore of Loch Leven, in 1947 when the farm totalled 122 ha. It now runs to 212 ha, with a further 60 ha rented and 82 ha on a seasonal let from the RSPB Vane Farm Nature Reserve. 28 ha of this land are cut for hay. Soil is medium loam, running to sandy loam at loch level. Cropping consists of 40 ha spring barley, 10 ha spring rape, 10 ha winter barley, 10 ha winter wheat, 4 ha kale, 48 ha silage ground and 61 ha grazing. All milk is retained locally using the on-farm processor. The Charollais ewes lamb in January and are housed 3 weeks before lambing. All ewe lambs are taken through to gimmers; the top are selected by family, type and MLC figures for backfat measurements and breed standards. Three to four year grass leys of intermediate and late diploid and tetraploid perennial ryegrasses, with timothy and white clover are established in the set-aside and under spring barley. The dairy cows strip graze kale at end September to end October. First cut silage starts first week of June. The grass is cut with a mower-conditioner and wilted for a maximum of 48 hours. The heaviest wilted is ensiled in a 500-tonne tower silo. Wetter grass is stored in a 300-tonne clamp silo. An Ag-Bag may also be used. All second cut is Ag-Bagged. The grass is lifted with a precision-chop harvester chopping to 7mm for maximum compaction in the tower.

Afternoon – Hilton Farm, Loch Leven (*Courtesy: J Thomson)*. A 360 ha farm carrying 165 suckler cows and 300 breeding ewes, with 136 ha cereals. Most of the grazing land was derived from former pit bings which were levelled out and 5 cm of top soil placed on top prior to seeding.

28 July – Warnockland, Fenwick (*Courtesy: Wallace and Angela Welsh*). Together with neighbouring Arness, Warnockland carries 170 Friesians milked through a 16 x 16 parlour. Male calves are finished as bull beef; heifers are put to an Aberdeen Angus bull. First cut silage is taken from 92 ha, second cut from 80 ha. About 50 ha spring barley are grown. The silage is self fed and concentrates milled and mixed on the farm. Environmental improvements (hedge and tree planting, renovation of old buildings) have taken place alongside commercial farm developments, earning the SWSGS Grassland Environmental award in 1995. The Welshs also won the Hydro Agri Best Grassland Farmer Award in 1998 (see Greensward No. 41).

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SEVERE LEATHERJACKET RISK IN GRASSLAND

Davy McCracken, Senior Agricultural Ecologist, Environment Division, SAC Auchincruive

Leatherjackets are the grubs of craneflies (commonly known as daddy-long-legs). These grubs live just below soil level and eat the roots of grasses and other plants from July/August through to May/June each year. Every November/December, SAC Auchincruive and the Advisory Service conduct a survey of the size of leatherjacket populations in grasslands in central and south-west Scotland. The survey results give a good indication as to whether any crops to be planted after grass, or indeed the grassland itself, will be at risk from damage by the leatherjackets in the following spring.

The results of the winter 1999-2000 survey indicate that leatherjacket population densities are at the highest level for 17 years across all areas surveyed. Over 80% of 92 grass fields sampled during November and December 1999 harboured populations in excess of 1.0 million/ha and almost 50% contained populations greater then 2.0 million/ha. Even fields which were sprayed in spring 1999 were carrying high densities of new grub generations in winter. This is not surprising since fields treated and cleared last spring will have been recolonised readily by the large number of adults emerging from any surrounding untreated grasslands during the autumn.

Consequently, not only is there an extremely high risk of damage and associated loss of yield to spring cereals out of grub infested turf but fields of permanent grassland are also under severe threat for the third year in a row. The overall risk for the current season greatly exceeds that of 1983/84, which until now had been the worst year by far in recent memory.

Despite the predictions of an extremely serious grub threat, blanket insurance spraying is to be discouraged. Even where a past history of problems may suggest that fields are at risk from leatherjacket attack, it is important that some form of assessment of leatherjacket infestation be conducted prior to the application of any insecticide treatment. Conducting such assessments in late winter/early spring helps identify those fields at risk before any damage, and associated loss of productivity, has occurred. This allows any necessary control measures to be targeted cost-effectively. Hence, it is not only for environmental but also for economic reasons that insecticide application should be restricted to only those fields where the need has been demonstrated.

It should also be borne in mind that grub populations can be extremely variable, not only from area to area but also within an area and from field to field on the same farm. Consequently there will always be some fields where conditions are much more favourable for leatherjacket survival and which are therefore at considerably greater threat from leatherjacket damage. For example, eight sites on Bute each contained grub population densities in excess of 3.0 million/ha, two sites in Ayrshire contained a population of over 6.0 million/ha and one field in Argyll even contained a population of just over 9.0 million/ha!! Further evidence of the broad risk can be drawn from the fact that only 3 out of the 92 fields recorded nil infestation.

The results from ongoing research have also suggested that in any one spring, leatherjackets infestations are likely to be higher in fields which have a tendency to waterlogging and/or which are flat or predominately east or south facing. Past management history also appears to influence leatherjacket levels. Fields which have been used for silage and have received applications of dung or slurry the previous year tend to have higher infestation levels, especially if the sward height was relatively high in the late summer/early autumn. This serves to provide some indication as to which types of field it would be worthwhile paying closer attention to.

If leatherjacket infestations are proved to be very high in individual fields, either in grass to remain as herbage or in leys to be ploughed, a spray should be applied as soon as ground conditions permit. Past SAC trials have indicated that pre-ploughing treatments are more effective than those applied once damage is under way in the replacement crop. However, where grub densities prior to arable crops are marginal for treatment, current advice is not to take preventative action against the grub straight away but to wait and monitor the brairding crops and spray only if necessary.

The leatherjacket survey is supported by SERAD, Dow AgroSciences UK and in part by participating farmers who have their fields sampled at a substantially discounted rate.

KEEPING DAIRY PREMISES UP TO DATE

Dr Mike Kelly
Building Design Services, Environment Division,
SAC Auchincruive, Ayr

A Report of a one-day meeting held at SAC Auchincruive on 4 November 1998

This meeting raised a number of issues regarding the welfare and productivity of dairy cows. How can farmers cope with ever-increasing market and consumer demands and develop feeding, milking and housing systems to minimise labour inputs and capital costs, without compromising welfare standards. There were contributions from Canada, Germany and Holland as well as from UK. The following is a summary of the main points discussed:

Natural Ventilation – Sidewall Inlet Design – *John McFadzean, Sun-North Systems Ltd, Ontario, Canada*

Higher production and new feeding methods make it even more important to get the ventilation of dairy buildings right. Overall ventilation is due to a combination of wind and temperature which affects moving air. Temperatures in Canada range from –25° to +35°C. Roof insulation has proved important to reduce summer radiant heat, and also internal winter condensation. The walls are not insulated, but ventilation is controlled by the adjustment of sidewall curtains. Building temperatures are regulated through rate of inflow of cool air at the sides, and outflow of warm air at the roof ridges.

Weelink Feed Systems for Animal Welfare and Performance – *Dr Heiko Georg, Institute of Building Research, Federal Agricultural Research Centre (FAL), Braunschweig, Germany*

The Weelink moving feed barrier reduces labour inputs and building costs for housed cattle, but requires 2.5 animals per feeding place. An experimental comparison was made between the Weelink system, complete diet and manual block silage feeding. Additionally, the 2.5 animal:feed place ratio was compared with 1:1 and 4:1 ratios. Records of milk yield and composition, feed intake and animal behaviour using video recordings and infra red sensors were compiled.

Results showed no significant differences of intake or milk yield between the three feeding systems, or between the three ratios of animal:feedplace. There was more pushing at the 4:1 ratio, but this did not affect intake. It was observed that the feed table should be 15cm above ground level for optimum intakes.

Good Ventilation for good cow welfare – *Rinse Andringa, Weelink Systems, Holland*

Good ventilation of a cubicle house helps to create an optimum environment, crucial for good cow performance and welfare. Weelink Systems have developed a 'Venturi ridge' to improve ventilation from the ridge of a building. Two transparent roof sheets have upturned edges at the ridge opening, which is overtopped with a transparent, movable skylight. The aerodynamic properties of the skylight and upturned edges, give a suction effect as wind passes over and through the ridge, thus removing warm air from the roof space. The transparent ridge top is said to increase feed intake and benefit calving intervals.

Evaluation of cow mattresses and dairy mats in dairy units – *Gary Tierney, Building Design Unit, SAC Auchincruive*

An experimental comparison between Pasture Mat mattresses and Cow Comfort Maxibed mats was made in the dairy units at SAC Auchincruive and Myerscough College, Lancashire from October 1997 to March 1998. The objective was to see if the more expensive mattresses were healthier and more comfortable than mats. A total of 176 cows were observed at the two sites for about 250 hours to record lying, feeding and ruminating periods. In addition, milk yield and composition, injury levels and cleanliness were measured.

Results. The mattress cows had longer lying times, ate more, had fewer injuries and cleaner udders than the mat cows. However, there were no differences in milk yields, milk composition, somatic cell counts, in body condition score, cow locomotion score, lameness or in scabbed or swollen joints.

Auchincruive Experiences with Cow Tracks – *Tim Wassell, Food and Farming Systems, SAC Auchincruive*

A 550m length of cow track, 1m wide, was laid to service a grazing trial on the farm at SAC Auchincruive in 1996. This consisted of a 30 cm trench lined with Terram geotextile on which was placed 20cm of stone covered with the geotextile edges, and topped with 10cm of jumbo bark flakes. Total cost using a contractor was £16 per metre. The track was fenced both sides to give a total width of 2m.

After two years, it was found the cows moved faster, more comfortably and udders were cleaner when using the track. The bark surface required topping up periodically, more so if peelings were used. The geotextile was essential to promote drainage. In summary, the track works well, but is not cheap and requires regular maintenance.

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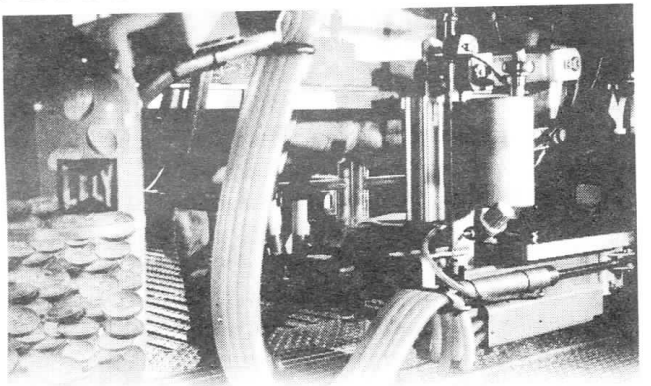

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Postcode:
Tel:

Robotic Milking – The Lely Astronaut System – *Mac Simpson, Lely (UK) Ltd*
From the initial concept in 1984, the robotic system was developed from 1986-1990 with the first commercial unit working in 1993. At present (November 1998), there were 250 units working in Europe, 5 in Scotland and 3 in south west Scotland.

How the Cow Looks at Robotic Milking

- Freedom to be milked and follow own routine
- Eliminates pre-milking stress
- No stress from herding cows for milking
- No stress from being confined in the collecting yard
- No stress from jostling for positions in the parlour
- The cow has the benefit of her own private milking stall for being washed, fed and milked
- The cows are fed to their own individual requirements.

Summary of Welfare Benefits of the Lely Astronaut

- Cows can be milked three, four or even fives times a day
- Improved milk yield
- Frequency of milking geared to level of production
- Fast and precise attachment of teats through state-of-the-art laser technology
- Perfect milking technique – no over milking
- Milking by quarter, including three teated udders.

Management Benefits

- Stress free environment in cow housing
- Flexible installation possibilities thanks to compact construction
- A single arm monitors and controls the whole milking process, can react immediately
- Possibility of scattered layout of boxes
- Comprehensive control through PC and management system
- Computerised pasture grazing.

The afternoon programme of the meeting included a visit to view an Astronaut robot in action at Drummuir Farm, Springside, Irvine (Courtesy: R Cuthbertson & Sons).

Maintenance of slurry and effluent tanks – *Adrian Jones, Environmental Protection Group, SAC Auchincruive*

The Problem. The steel and concrete in slurry and effluent stores and tanks can be severely affected by their contents if not protected by a suitable coating. Maintenance and repair are much cheaper than replacement of defective installations, which might lead to serious pollution.

Maintenance. Annual inspection and maintenance requires time and opportunity to clean, inspect and repair surface coatings. Complete emptying and cleaning will be required, but this can save expensive costs of repairing severe damage or of store replacement. New stores should also be inspected annually.

Damage. Corrosion is most often due to failure of the original coating or of applied mastic, eg: at bonds and edges, or where there has been physical damage. Sluice valves and fittings require frequent inspection for deterioration.

CENTRAL SCOTLAND GRASSLAND SOCIETY

Silage Competition 1998

HF Seeds Prize-Giving Meeting of CSGS at the Newhouse Hotel, Newhouse in January 1999

C McCombie, Secretary, Central Scotland Grassland Society

Silage Judge: **Gordon Law, Glentyre, Carmyllie, Arbroath**

This Competition had been judged in December 1998 and the results were announced by the Judge, Gordon Law, 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.

HF Seeds Cup:	1st Prize	J Clark, Dunrod, Inverkip
	2nd Prize	J Chalmers, Beam Farm, Falkirk
	3rd Prize	D Carruthers, Nethertown, Auchenheath, Lanarkshire
Hamilton Reco Salver for Best Beef & Sheep Silage:		P Clemson, Skellyton, Larkhall
Best Big Bale Silage:		G Millar, Gallamuir, Stirling

GRASSLAND IN THE ISLE OF MAN 1998

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

The 1998 programme of the Manx Grassland Society was similar to that in South West Scotland, with winter evening meetings, early spring/winter and summer farm walks, usually to the previous year's competition winners, but also including a spring visit to the mainland.

2 March 1998 – Evening meeting sponsored by **Genus: "Making high quality silage, every time"**. The speaker was Steve Edmunds from Somerset - a regular silage winner in the South West and Somerset Grassland Society, who has judged silage all over the UK.

3 March 1998, Lheakerrow Farm, Andreas *(Jean and John Caley)*
The Caleys have won the local Manx silage competition six times, and the UK Northern Regional competition three times (1993, 1996 and 1999), as well as the 1997 Dairy Grassland Management and Best Silage competitions. The successes are due mainly to their great attention to detail.

Lheakerrow is in the north of the Isle of Man in the same low rainfall region as Paul Fargher's Ballawanton. The farm totals 47 ha, of which 16 ha are rented annually, the remainder having been rented for 35 years. Soils vary from loam to heavy clay; rainfall is 625-750 mm. The buildings have recently been upgraded to accommodate larger cows, with automatic scrapers, out of parlour feeders and cubicles bedded with chopped straw. 1st cut silage was cut in May, ME 11.5; 2nd cut started 29 June ME 10.5. Biotal Goldstore additive was used. Seed mixtures contain intermediate to late tetraploid perennial ryegrass, timothy and clover. Early Bite (27:10:0) 250 kg ha^{-1} was applied in early February. 77 cows average 8,830 litres, 3,614 litres from forage, with 0.28 kg concentrate fed per litre. The cows are set stocked or strip grazed, with sheep grazing October-December. Fields away from the farm are zero-grazed. Silage is buffer fed all the year round, with access to the feeders.

Guilcaugh Farm, Andreas *(John Crellin)*. This farm won the 1997 Manx silage competition, and also Best Silage Utilisation Competition. Total area is 104 ha, rainfall 750mm and soils sandy, clay and peat loams. Cropping in 1998 was 47 ha grass, 20 ha rough grazing, 14 ha winter wheat, 12 ha maize, 4 ha lucerne, 7 ha pulses. The 107 cows are winter calved and average nearly 9,000 litres, 4,224

litres from forage, using 0.25 kg concentrate l^{-1}. The winter ration fed through a Keenan feeder was 24 kg maize silage, 26 kg grass silage, 4 kg peas, with cake fed in and out of parlour 1st cut silage taken in mid-May had an ME of 11.6, DM 23.6 and 18.1% crude protein. Maize drilled on 1 May and harvested October had 33.7% DM, 11.7 ME, 29.2% starch. The lucerne established in 1997 and intended to crop for 4 years, is harvested as big bales. 14 ha on the farm prone to summer drought are potentially suitable for this crop. Peas and beans were also tried in 1997; peas yield 5.5t ha^{-1}, beans 5t ha^{-1} though growing costs for peas were £23 ha^{-1} higher, being the cost of fungicides.

27-29 April 1998 – Trip to North Yorkshire

Travelling by air from Ronaldsay, 18 members of the Manx Grassland Society visited 6 mainly dairy farms in the Skipton area of North Yorkshire. **Marton Hall** *(Mr Burton)*, a predominantly permanent grass unit of 130 ha in the Pennine Dairy country, 5 miles west of Skipton. Wholecrop wheat and pea-barley mixture are also grown. The 120 cows are computer-matched to AI by a local semen company to produce the best offspring. Slurry was spread by an umbilical system. **Demesne, Gisburn** *(John Crosier)*, the home of the pedigree Whinhill Holstein herd, which is milked 3 times a day. The milk is pasteurised, bottled and delivered to a central point for distribution by a local dairy. There was a particularly fine selection of cows to be seen at Demesne, many imported from Canada. **Hammerton Hall, Wigglesworth, Near Settle** *(Simon Rushton)*. This farm featured alternative enterprises and diversification, with herds of red and fallow deer, a new pie and quiche factory and a farm shop, as well as 120 Holstein-Friesians. There were plans for a nature trail, fishing lakes, a themed restaurant in an old byre and an airstrip. Simon Rushton, an enthusiastic motor cyclist, was hoping to visit the Isle of Man TT. **Denton Hall Estate, Near Ilkley** *(Owner – N G Bailey – the largest privately owned electricians in Europe; Manager – George Bush)*. The estate of 1040 ha is managed as one unit, and includes 400 ha of moorland and 80 ha of managed woodland. The dairy herd of 198 pedigree Friesians is set to increase to 240. The bull calves and bought-in calves and stores from Carlisle are all finished on home milled ration exclusively for McDonalds. The visitors enjoyed a trailer ride to view the top of the estate, and the 2600 ewes and lambs (Lleyn crossed to Beltex and Charollais). Mr Bush was keen to improve the public perception of modern farming. **Stainton Hall, Near Gargrave** *(Robin Metcalfe and son, Robert)*. Though scenically attractive, the hilly land and river running alongside the silage clamp made for difficulties in farming. There were 120 Holstein-Friesians, 80 followers and 210 mule sheep, crossed to Suffolk and Charollais. The dairy ration incorporated wholecrop wheat, grass silage, sugar beet, maize gluten, soya and molasses. **Lawns Farm, Orrell** *(Tom Ashton)*. Tom is a well known pedigree Belgian Blue breeder who has pioneered and promoted the breed in the UK. The M58 motorway runs

through his farm, but serves to keep the breeding females and young stock isolated from the bulls for sale. Pedigree Belgian Blue breeding necessitates many caesarean sections, but Mr Ashton had a shed of various breeds (Jersey, Limousin x Holstein, etc) put to Belgian Blue, to demonstrate its value and safety as a terminal sire by giving shape to calves from dams of poor conformation.

28 July 1998. **Meary Voar, Santon,** on the east coast of Isle of Man. South of Douglas *(Wenmar Farms, Martyn & Wendy Moore)*. When the Moores moved from Lancashire in 1993, Meary Voar (150 ha, including 69 ha rented), was run-down with old, unsuitable buildings. Since then, the buildings have been modified and extended mostly with own labour to produce housing for beef cows, calves and pedigree bulls. The 6.5 m wide pens are partitioned onto a central feeding passage. The first 3m back from the passage is scraped, the remaining 7m depth being straw-bedded. Three pedigree herds of native beef cattle have been established: Beef Shorthorn, Polled Hereford and Highland, all producing champion prizewinners at leading UK shows. The initially rundown land was grazed by Highlanders to start the process of improvement. The enterprise is now nearing self-sufficiency with crops of barley, hay and silage, supplemented with produce from rented land. An additional wet field has been purchased, which provides good grazing in dry summers.

10 August 1998 – Ballalough, West Baldwin, Douglas *(Andrew & Sue Sanders)*. The farm totals 152 ha, 140 ha usable, at 140m and is the home of the Sandisfarne herd of Holstein/Friesians, established in 1977 originally in Wales. The aim has been to achieve genetic gain through the consistent use of high quality breeding to improve both yield and type, eventually to provide high quality heifers for sale. The buildings have been refurbished and extended; both slurry and straw manure are produced. In winter, the cattle are divided into 3 groups: dry, high and low yielders and fed round bale silage plus a blend through a vertical feeder wagon. In summer grazing is in 2 groups in rotational paddocks, with a leader-follower system. Further improvements of the farm – reseeding, fencing and roadways are still in progress.

Competitions. The Manx Society runs 12 competitions. These are the usual Silage classes: Dairy, Beef/Sheep, Big Bale, Best Kept Pit, Best Silage Utilisation, Best Contractor Made Silage, Best Analysis. In addition, there are prizes for the Best Set Up, Best Dairy Grassland Management, Hay Competition, Wholecrop and Maize. In 1998, Lheakerrow (John & Jean Caley) won the main Silage and Dairy Grassland Management Competitions. This year's Silage Judge was James Robertson, who farms 120 ha with 180 set stocked cows at Colmere Woods, Ellesmere.

SCOTGRASS '98
G E D Tiley

A Working Demonstration of grass machinery on Chapelcroft and Douganhill farms, Dalbeattie, 28 May 1998 (*Courtesy: David Broatch, Chapelcroft and Andrew Dodd, Douganhill*)

This event was organised by the ***Agricultural Engineers' Association (AEA)*** *in conjunction with* ***Barclays Mercantile, Kemira Fertilisers, SAC*** *and* ***Scottish Farmer.***

Scotgrass '98. an all-Scotland event. featured working demonstrations of grass harvesting and handling equipment. together with a range of trade and education stands. All major manufacturers of cutting. tedding. lifting and silage making and handling equipment were represented. Five fields from the two neighbouring farms were marked out into large plot areas. which were then allocated to individual machinery firms to provide a working demonstration of their equipment.

Following displays of cutting machinery. visitors were able to see lifting and baling (round and square) machines in action. with subsequent bale wrapping. Feed. fertiliser. seed. livestock . education and advisory stands were also present.

The day's event was very well organised. and drew a large attendance of farmers. contractors and students. who greatly appreciated being able to see the latest grassland machines in action.

SWSGS GRASSLAND ENVIRONMENTAL COMPETITION

The Environmental Competition is sponsored by
Bank of Scotland, Castle Douglas

The SWSGS Grassland Environmental Competition is run annually by the Society. with support from **Bank of Scotland, Castle Douglas**. with the aim of promoting sympathy for the environment amongst all grassland farms in south west Scotland. Small. relatively simple measures. eg: planting a few tress or better hedge management. 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.

KEEPING THE BALANCE

G E D Tiley

The Winter Meeting of the British Grassland Society, Peebles Hotel Hydro, Peebles, 30 November to 1 December 1998

The theme of this meeting, attended by over 80 members, was the control of costs by avoiding unjustifiable expenditure, but also by exploring the adoption of new technologies where these could give value for money. A Panel of 8 leading specialists from UK and Netherlands spoke in 4 sessions over the two days. The third session was chaired by Stewart Jamieson, Kirkland.

1 **Setting the Scene**. The background of falling incomes and increasing pressures on farmers was reviewed by **Brian Pack**, Chief Executive Aberdeen Northern Marts Group, and **Professor Joyce Tait**, University of Edinburgh. Price falls in all farm products had taken many by surprise, but **Brian Pack** felt that disillusionment would be the main factor leading to change in the farming scene. Farmers were fed up with uncertainty, working for nothing, quite apart from the constant threat of bad weather. He predicted that an upward movement in prices if any would be slow. World food prices had collapsed and Britain was dominated by an urban population trying to eat less. There could however be enormous opportunities in the future, particularly for those willing to innovate. Production costs had to be reduced; some units will expand but other reduce as part-time farming increases. Prices and hence profits are likely to be very volatile. The supply and service sector will suffer and choice become more limited. Technological innovation and research to support this would be essential. The challenge to the Grassland Society was to ensure that economics govern the drive for technical excellence.

Joyce Tait reviewed the environmental scene. A perceived over-production of many foodstuffs had led to pressures to replace support for crop production by support for environmentally beneficial activities. Increased power of multi-national companies was raising environmental and health standards in farm production to cater for public attitude. There may be new opportunities to produce non-food products such as fuel, fibre and medicinal compounds, though industrial processes may compete in this sector. Maintaining landscape and biodiversity was recognised as a sound reason for retention of farming in many areas. Future policy should ensure that all farm types (small, medium, large) should be as sustainable as possible from the environmental, agronomic, social and economic viewpoints, with a mix of farm types in an area to provide biodiversity. Intensive farms should be encouraged to develop wildlife habitats.

2 **Managing Costs**. There were simultaneous Discussion sessions for Dairy and Beef/Sheep Enterprises.

3 **Technology 2000 – Potential of New Technologies.**

Animal genetics. **Dr R F Veerkamp**, Institute for Animal Science and Health, Lelystad, Netherlands. This paper sought to demonstrate how better genetic stock could play a major role in keeping down costs in the future. Increasing the amount of milk produced per man and per hectare are of major importance for long-term economic survival implying higher yields per cow. The latter is possible through animal breeding, whilst at the same time maintaining or improving health, fertility and welfare of the cows. New selection indices, including an economic index, were being developed to assist breeders.

Plant breeding targets. **D H Hides** and **M O Humphreys**, Institute of Grassland and Environmental Research (IGER), Aberystwyth. Herbage plant breeding is long term and forward planning becomes difficult if there are radical changes in ruminant production. Selection criteria were being developed to produce cultivars for: improved utilisation efficiency in the rumen; improved quality of ruminant derived products; increased biodiversity of grassland swards. A combination of classical breeding methods and new molecular techniques gave opportunities for improving farm produced feeds.

Nutrient Budgeting. **A H Sinclair**, SAC Aberdeen, **P Dombarg**, **N Chalmers**, **A C Edwards**, Macaulay Land Research Institute, Aberdeen. The environmental and economic benefits of nutrient budgeting were discussed. Budgeting of nutrients originated on dairy farms in the Netherlands, to try and reduce nutrient losses into the environment. Within 5 years, co-operating farmers had substantially cut N, P and K losses. Nutrient budgets could be prepared at 3 different levels: river catchment, farm gate or individual field. Farmgate records do not include internal farm movements between fields, eg: slurry disposal or grass harvesting. Dutch legislation (MINAS) imposed levies on farmers with farm gate nutrient surpluses above certain threshold values, which were set to decrease in the future. These restrictions were to reduce nitrate levels in the groundwater, the whole of the Netherlands having been designated a Nitrate Vulnerable Zone (NVZ). An investigation into nutrient levels in the River Ythan catchment in NE Scotland was reported. Monitoring of nutrients showed some scope for lower fertiliser use. Livestock manures could replace inorganic fertilisers, but there may be additional storage and handling costs.

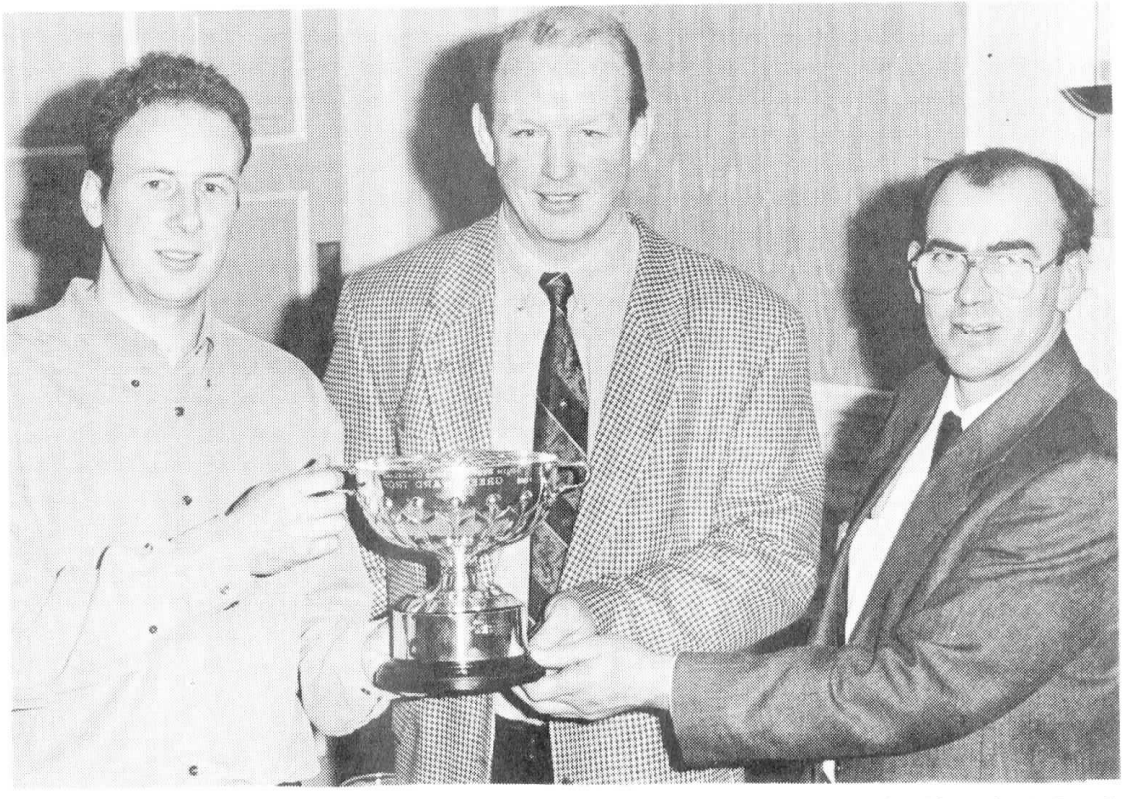
Precision Farming. **Richard J Godwin**, Silsoe College, Bedford. Precision farming is a method of crop management in which different areas of a field are managed with differential levels of input, depending on the yield potential of the

crop in each area. This resulted in reduced costs of crop production and a prevention of excess levels of agrochemicals. Precision farming had become possible following the production of **yield maps** from grain flow rates as a crop is harvested, using satellite global positioning. When applying fertiliser, a variable rate spreader is controlled by computer based on the yield map. A forage yield map can be derived from radiometric measurements at the end of the harvester spout. The yield map allows identification of the major causes of variation, eg: drainage and whether any of these can be corrected. More efficient use of inputs, maximising net benefit and minimising environmental impacts are the main advantages of the system.

4 **Planning for the Future**. **Peter Cook**, Head of Rural Business Unit, SAC and **Maitland Mackie CBE** Aberdeen, each briefly attempted to look into the future. **Peter Cook** thought the agricultural crisis, due to commodity over-supply, high £ Sterling and other factors, was unlikely to be just temporary. Agenda 2000 was a stop gap to deal with short term over-supply in the EU. Longer term support policies were uncertain. Prices looked set to continue falling in real terms, so that net costs would have to be cut. Grazed grass was cheap, but the 6 months winter using more expensive feeds greatly affected our ability to compete. A radical new approach would be required, with careful budgeting, elimination of fixed costs, diversification and planning for volatility.

Maitland Mackie considered Politics, Population Increase, Global warming and Technology to be the main forces for change. An increasing globalisation of markets, restructuring to larger scale farms, production specialisation, quality assurance and increased environmental requirements were predicted. Population growth was certain, global warming debatable, science and technology would progress and farmers would invest in it.

The incoming President of the British Grassland Society, Arthur Davies, concluded that we could not afford to ignore new technology, and that better use must be made of grass, particularly grazed grass.



South West Scotland Silage Winners, 1998 season, Graham Morton (right) receiving the Champion's Rosebowl, with Silage Judge, Paul Fargher (left) and SWSGS Chairman, Hugh Parker (centre).

SWSGS SILAGE COMPETITION 1998

The Competition Evening of the SWSGS held at Oswald Hall, SAC Auchincruive on 14 January 1999

G E D Tiley

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

Silage Judge: Paul Fargher, Ballawanton Farm, Andreas, Isle of Man.

On a wild winter January evening, the Chairman, Hugh Parker, welcomed a large gathering of Society members, with the sound of wind howling down the great chimney of the old estate house, Oswald Hall at SAC Auchincruive. This did not in any way quash the enthusiasm of the evening, which is always the most popular of the Society's programme. The Chairman began by thanking the Committee for carrying out the preliminary screening of the farms in preparation for the main judging. The general farming outlook of prices and weather was depressing, and it was a credit to all Society members that they were still enthusiastic to support the Silage and other Competitions. "The difference between a pigeon and a farmer was that the pigeon could still leave a deposit on a tractor!"

At this point, Ian Main, Kemira Fertilisers, gave a short presentation of recent information on fertilisers for silage. This is summarised by Richard Huxtable on page 70 of this issue of the Journal.

SILAGE QUALITY 1998

G W Berry, SAC Ayr

Gordon Berry gave a brief overview of analysis values from silages entered in the Competition, ie: members' silages sampled and analysed by SAC. 1998 was not a vintage year for silage. The means for analysis figures (Tables 1 & 2) were lower than for previous years in almost every character. **Dry Matters** were quite good, but **Intake Factors** were very disappointing, with means mostly below 100 in 1998, reflecting poorer fermentations from wetter grass. D-value had been c. 4% lower than in previous years, MEs thus being correspondingly lower. There was a trend to fewer silages being entered, possibly because many farms were using feed firms to do their analyses. Alternative crops were being tried for winter fodder. These crops tend to come and go, but quality grass silage will continue to be the mainstay for the foreseeable future.

Table 1 - SILAGE COMPETITION 1998 - ANALYSES MEANS

Overall Means

Group (Number)	DM (%)	D (%)	CP (%)	ITF (c)	ME	Ammonia (% Total N)
Dairy (121)	25.7	68.2	14.6	99.0	10.9	7.4
Beef/Sheep (22)	22.7	64.5	12.9	90.9	10.3	9.3
Big Bale (5)	22.7	63.4	14.4	89.6	10.1	13.3
Dairy						
Ayr (31)	26.3	67.8	13.7	100.0	10.9	6.9
Dumfries (34)	25.2	69.3	15.0	99.4	11.0	7.9
Kirkcudbright (34)	26.2	68.3	14.7	99.7	10.9	7.0
Wigtown (22)	24.7	67.0	15.1	96.0	10.7	8.0

Table 2 - FREQUENCY DISTRIBUTIONS (%) 1998

				Dairy			
	Bale	Beef/ Sheep	A	D	K	W	All
D-Value							
>80	0	0	0	0	0	0	0
75-80	0	0	0	3	3	0	2
70-75	0	9	35	59	41	32	43
65-70	40	32	45	23	35	41	35
<65	60	59	20	15	21	27	20

Table 2 cont.

	Bale	Beef/ Sheep	A	D	*Dairy* K	W	All
DM							
>40	0	0	0	3	3	4	3
30-40	20	9	16	9	23	9	15
25-30	0	9	42	41	21	18	31
23-25	20	18	19	12	12	14	16
20-23	20	36	13	21	23	41	23
<20	40	28	10	14	18	14	14
CP							
>18	0	0	0	12	3	0	4
16-18	0	4	10	14	14	41	18
14-16	60	9	35	44	41	31	39
12-14	40	64	39	21	36	14	28
<12	0	23	16	9	6	14	11
ITF (c)							
>125	0	4	0	6	3	4	4
120-125	0	0	10	0	18	4	8
110-120	0	5	10	6	6	14	8
100-110	20	14	35	38	21	5	26
<100	80	77	45	50	52	73	54
Ammonia-N							
<4	0	4	10	9	9	13	10
4-7	0	28	45	29	47	14	35
7-10	40	36	39	41	32	50	40
10-20	60	32	6	21	12	23	15
>20	0	0	0	0	0	0	0
ME							
12.0-12.5	0	0	0	3	0	0	1
11.5-12.0	0	9	16	25	21	22	21
11.0-11.5	0	0	23	44	26	14	28
10.5-11.0	40	23	42	16	32	32	30
10.0-10.5	40	50	13	3	12	14	10
<10.0	20	18	6	9	9	18	10

In answer to questions, the lower D-values could not be due to changes in analysis scales at SAC, as these occurred before 1996 and annual means should thus be comparable. It was suggested that marks for DM were too heavily weighted since high DM silage was very prone to surface heating and hence needed more careful management. Also, low DM silages could be of equivalent feed value if of good quality.

Judge's General Comments

The Chairman briefly introduced the Silage Judge, Paul Fargher, who was a regular silage winner at home in the Isle of Man, and who was also a previous UK Northern Regional winner. Paul had worked for some time at West Kirkland, Wigtown with Alan Marshall. The Judge thanked the Society for its invitation to judge the Silage Competition. He had thoroughly enjoyed doing this, in spite of the tight programme. He much appreciated the warm hospitality and accommodation plus the efforts of the chauffeurs. In particular, he thanked all competitors for entering and for giving up valuable time and effort in a busy working life to try and do well in the competition. Unfortunately, there could only be one winner. He had been impressed by the very positive approach shown by every entrant. Everyone was trying to increase output, whether through cow numbers or yield per cow, to at least maintain margins. A general fault observed was the tendency to overfill the silage clamps, which gave rise to problems at the sides due to insufficient compaction. He suggested making surplus grass into bales to minimise waste at the sides. He also stressed the need for safety rails to prevent tractors from tipping over the side.

1998 Results

The analysis and inspection marks of the farms judged in the short leet, together with final placings, are given in the Results Table 3.

A Coopon farm, this year at Polwhilly, was Dairy Class winner and overall Silage Champion, the third Coopon success in a row. Alan Campbell, Kerricks, with new 120-cubicle accommodation was an enthusiastic runner-up, 10 points behind the winner, and Barony College (Russell Marchant) was third. Newcomer: Jim Hodge, Dykes, Auchinleck was Beef/Sheep Champion with an excellent quality silage, and Ian Wilson, Drum, Beeswing was Best New Entrant. John Cuthbertson, West Tannacrieff, Kilmaurs received the Michael Milligan Prize for best attention to detail.

Table 3 – 1998 Silage Competition – Judged Entrants
(in order of Analysis Marks)

Prizes		Marks *Analyses (35)*	*Inspection (65)*	*Total (100)*
	Dairy Class			
1st & Rosebowl	G Morton, Coopon Polwhilly, Newton Stewart	31.95	55	86.95
	J Forrest, Meinfoot, Ecclefechan	30.75	44	74.75
Best New Entrant	I Wilson, Drum, Beeswing	25.95	48	73.95
	B Ramage, Several, Drummore	25.50	46	71.50
3rd	R Marchant, Barony College, Parkgate, Dumfries	24.90	50	74.90
2nd	A Campbell, Kerricks, Auldgirth, Dumfries	24.40	52	76.40
	M McCreath, Garlieston, Newton Stewart	23.65	42	65.65
M. Milligan Prize	J Cuthbertson, West Tannacrieff, Kilmaurs	23.65	47	70.65
	T & W McMillan, Drumwall, Gatehouse	21.15	48	69.15
	Beef/Sheep Class			
1st & BP Trophy	J Hodge, Dykes, Auchinleck	27.00	42	69.00
	WT McCombe, Trohoughton, Dumfries	21.30	45	66.30
	R & C Dalrymple, Crailoch, Ballantrae	15.45	47	62.45

The **Best Big Bale** (on analysis) was again entered by Alan Crichton, Killymingan, Kirkgunzeon, repeating last year's win. **Best Silage in County Prizes** went to:

Ayrshire:	J Telfer, Raith, Monkton
Dumfries:	J Forrest, Meinfoot, Ecclefechan
Kirkcudbright:	P Bull, Coopon Carse, Palnure, Newton Stewart
Wigtown:	G Morton, Coopon Polwhilly, Newton Stewart

Cash tokens for the purchase of plastic products, donated by **Plasti-Covers Ltd**, were awarded to the 1st Dairy and 1st Beef/Sheep prizewinners.

Winners Comments

Coopon Polwhilly. Graham Morton deliberately aimed for a low ammonia content silage, and thus reduced nitrogen use to 1.9kg day^{-1} – 94kg ha^{-1} plus slurry. The grass was cut 11 May and gave a low ammonia-N value (3.8%), good DM and high sugar, though he had been lucky with the weather. The silage was entirely contractor-made, shaken out immediately after cutting and wilted for 24 hours to achieve DM contents of 30-35% and for increased cow intake. First cut is from 46 ha harvesting only 12.5t ha^{-1} to achieve high quality, but aiming for maximum yields at 2nd and 3rd cuts when the weather is better. A 4th cut is also usually taken in September. *Livesystem* additive is used and the silage well compacted. The soils are of heavy clay and temperatures low in spring, so that the cows are not put out, but a 1st cut silage is taken instead. Half of the land is below sea level, and the first fertiliser is applied 15 March using low pressure tyres. The fields are reseeded every 5 years to keep the swards young and productive. Maize, peas and wholecrop cereal are also being tried. 60% of feed DM is from forage. Spring wheat and peas are undersown. The farm is primarily a cutting farm, and the policy is to keep the fields from grazing to maintain sward productivity at a stocking rate of 2.7 LU ha^{-1}. Milk from forage is almost 4,000 litres. The cows went out in May, but were brought in again in July last year (1998) instead of September. An arable silage mix of 50 kg peas 25 kg wheat and 15 kg grass was sown on 11 May and cut on 11 August when the middle peas in the pod were at the right stage. This yielded 20t ha^{-1} at 10.2 ME and 13% crude protein, the starch being mainly in the peas.

Dykes. Jim Hodge emphasised that his land was very heavy and he could only manage two cuts of silage. 1st cut is normally in early June, but was a week late in 1998 due to poor weather. The 2nd cut (28 August) was the best, unusually, with a good 4-day spell of dry weather. The cut grass lay for 48 hours to help produce as high DM as possible. The aim was to feed maximum levels of silage and keep concentrate use low for the 95 sucklers and 300 ewes. The spring calving herd get only silage and minerals, and all heifer calves are finished, so that high quality silage was essential. The ewes coming in at the end of January are also fed silage to keep concentrates and costs down.

Ballawanton Farm, Andreas, Isle of Man – Paul Fargher. Paul Fargher was from a farming family, and a native of the Isle of Man, an island 30 miles long by 10 miles wide and population of 70,000. It is a Crown Dependency under the Home Office, but NOT in the EU and thus receives no support. It is however, tied to the European Union under Protocol 3 and can freely trade within the EU. Interest rates and the £ are same as in UK. He had worked for a year at West Kirkland, before taking a farm tenancy in 1990.

Ballawanton is an exposed farm on the north coast of the island. In places, the soils are pure sand and also stiff clay, though mainly sandy loams. Rainfall is 650-700 mm and drought is possible from April-September. The land is flat, but the biggest problem is the drastic effects of the wind. Cobbles from the shore were used to build a house and farm buildings, to add to the Dutch barn which was there on entry. There are now around 80 Holsteins developed from 30 heifers in 1991, on 52 ha (12 rented). The fields are bounded by earth banks with stones on the outside, soil inside and capped with grass sods. They need to be fenced to prevent damage by cattle. An early 1st cut of silage is taken followed by a 2nd of 7t ha^{-1} before the sward burns. In 1998 32 ha gave 25t ha^{-1} crop at 1st cut on 8 May, plus a further 14 ha from outside land. The clamps have cheap earth walls and concrete base. Ecosyle is used and a layer of salt applied over the top of the silage at 1 kg m^{-2} with a fertiliser spinner. Use of salt has eliminated dark patches in the silage previously formed in the tyre imprints. Rye which could be ready in mid-February has been tried. Also, an Italian/Red clover mixture for early bite (5 March). Otherwise utilisation is much better by zero grazing, aiming to feed silage 10 months of the year. The cows are dry in June and July, and then go on to full winter rations. 1-2 ha of Typhon stubble turnips sown in summer provide 6 weeks of grazing. Utilisation must be within 12 weeks of drilling, which is therefore phased to provide continuity. Wholecrop cereal silage was tried 3 years ago, but this dried out too quickly (56% DM) for fermented silage. A kale-wheat-peas silage proved popular with the cows this year, although the DM of 40% achieved after 4 hours was too dry. Tractor and sheargrab were used, also cubicle mats and straw beds. The grass herbage was routinely analysed 3 weeks before cutting to check N contents. No slurry was applied to the grass after the end of June to avoid contamination. It was then spread on the neighbour's stubble in return for some straw. The cows were milked 3 times daily, and milk sold for cheese manufacture through a Milk Association, which had purchased 86% of milk produced in 1996 from 8,000 cows giving 8 million litres annually. There were no quotas and current price was 18.5 p $litre^{-1}$. Export of cheese incurred shipping costs. The Farmers Union were negotiating for an increased price level.

Paul then spoke about his plans to take the tenancy of a 100 ha farm on the other side of the hill in a higher rainfall (1375 mm) area near Douglas. A good all-round farm that could grow maize. He would then avoid the problems of salt and wind at Ballawanton, which however was good for young stock –being free of summer mastitis. The landlord was to invest in a new dairy unit with slats as there was no sawdust (no forestry) on the island. Milk was profitable on the island, and it was necessary to expand to remain in business. He was enthusiastic and forward looking.

SCOTTISH REGIONAL SILAGE CHAMPIONSHIP 1999
Winner – Graham Morton, Coopon Polwhilly, Newton Stewart
(South West Scotland Grassland Society)
Dr R D Harkess, OBE
Scottish Regional Silage Judge 1999

Following his silage championship win in the local South West Scotland Silage Competition, Graham Morton, Coopon Polwhilly, Newton Stewart went on to win the Scottish Regional Silage Event. The last Regional winner from the South West, also from Wigtown, was Hew Chalmers, Craigencrosh, in 1996. This year's runner-up was Ian Waklay, West Leschangie, Kemnay (North of Scotland). The Competition is run by the British Grassland Society, and Graham was one of nine UK Regional winners who contested the UK National Silage Championship. Polwhilly was placed "several points clear of the other three entrants due to the exceptionally high quality of silage". Much of the silage made last year was of lower quality due to the very poor weather. Analyses marks ranged from 14 to 22 points in comparison with the previous year, when all the final silages were above 24 points. Inspection marks ranged from 43 to 50, slightly lower than the previous year, due to all silos exhibiting some degree of surface and side waste. A high standard of husbandry was seen on all farms and lactation yields ranged from 7800 to 9300 litres per cow.

UK SILAGE COMPETITION 1999

Graham was highly placed in the judging of the UK National Competition, which is organised by the British Grassland Society and supported by Kemira Agro UK Ltd, ADAS and SAC. First and winner of the Kemira Star Trophy plus 5 tonnes of fertiliser was Gerwyn Owen, from Lampeter, Wales. With his wife, Glenys and son Andrew, Gerwyn farms 73 ha all grass at 230 m, using long term perennial ryegrass-clover leys. 108 dairy cows averaging 5,600 litres are carried at 2.1 cows ha^{-1}. 1st cut was started on 18 May, 2nd cut 2 July and 3rd cut at end of August. The grass is wilted for 24 hours and an additive used on 1st and 2nd cuts. Runners-up were Edward and Jane Fair, Market Drayton, Staffordshire, winning 3t of fertiliser. The 198 ha farm includes 78 ha leys, 62 ha of permanent grass and 56 ha of forage maize. The 331 cow herd averages just short of 7,000 litres at a stocking rate of 2.2 cows ha^{-1}. 1st cut silage was cut on 7 May, 2nd cut 20 June and maize in October. ME of 1st cut silage was 12.2, DM 35.9%. The UK Judges looked for: sufficient silage to maintain high cow intakes, lack of waste, speed of silage operation, farmers in full control of contractor work, utilisation of effluent and knowledge of its nutrient value.

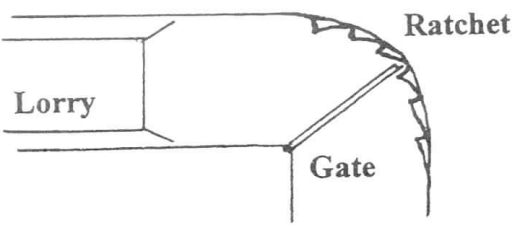
SWSGS GRASSLAND IDEAS COMPETITION 1998

Sponsored by ***Kemira Agro UK Ltd***

G E D Tiley

The Winning Idea: **Safety Holding Gate for Cattle**, was submitted by George Sommerville, Bettyknowes, Crocketford, Dumfries.

A metal gate is hinged at the corner point of a right angled passage, of the same width as the gate, and bounded at the outside arc of the corner with a metal rail. Whilst loading cattle into a lorry reversed into one arm of the passage, the gate is pushed forward through the corner. If the cattle push back against the gate, the spring-loaded hasp of the gate will automatically engage on metal ratchets placed at 45cm intervals on the metal rail arc. This has proved to be a valuable safety device, preventing the cattle escaping and with welfare advantages. See diagram.



George Sommerville was presented with the Kemira Prize – an inscribed tankard donated by *Kemira Agro UK Ltd.*

An Idea for: **Permanent Tramlines in Grass Fields** was submitted by John Mackie, Dalfibble, Parkgate, Dumfries.

A metre strip of pure timothy is sown at 24m intervals in reseeded perennial ryegrass mixtures. This is achieved by leaving a blank metre's width every 6 bouts of seeding, which is then later seeded with timothy using the drill blanked off to 1 metre. The timothy stands out as very obvious strips providing accurate guidelines 1) during fertilising – of great benefit in avoiding overlaps or misses; and 2) at silage harvest, where it allows absolutely parallel working. The tramlines have been in use for 7-8 years, and are now evident on all reseeded fields on the farm where they persist for up to 6 years before being invaded by other grasses. Of interest is the preferential grazing of the timothy by wintering sheep. Some operators have used unseeded strips as grass tramlines, but these are prone to docks and weeds.

BASIC GRASSLAND MANAGEMENT

John Frame
Ard Choille, Alloway, Ayr

The substance of a talk given in Lithuania

Introduction

Grassland science is one of the youngest sciences but great strides have been made, particularly in precision of inputs and predictability of outputs. In developed western European countries, extensification, which is often *de-intensification*, is on the increase with cost containment a vital strategy. While undoubtedly grassland management is an art, those who operate on the basis of scientific knowledge acquire a competitive advantage.

Sward establishment

Existing swards both semi-natural and reseeded which have deteriorated, require better management to reverse the deterioration. Improving management, eg: by fertilisation, by weed control or better grazing control may be necessary, together with an upgrade in botanical content by complete reseeding. Oversowing (partial reseeding) though slower and less dramatic is an alternative to complete reseeding. Several techniques are available, such as surface sowing and direct drilling (sod seeding), using a range of machines. Key guidelines for success include reducing competition from the existing sward, sufficient soil moisture, good soil fertility and control of subsequent grazing. When completely reseeding, choice of seed mixture depends on purpose, duration and intended management. The components should be selected by seed merchants from a national recommended list of improved varieties following agronomic assessment.

Plant breeding

Compared with cereals and arable crops, breeding of grasses and clovers is at an early stage and rates of yield improvement for species such as perennial ryegrass and white clover are around 0.6% per annum. Specific breeding aims vary at different centres and countries. Taking white clover as an example, improvements are being sought in: yield and persistence; compatibility with grasses; winter hardiness/spring growth; drought tolerance; disease/pest resistance; nitrogen fixation; seed yield; anti-bloat traits. For the commonly used grass species, there is a large number of varieties from which to select and breeding will continue for better nutritive value, efficient exploitation of nutrients and resistance to stress. However, there is likely to be greater emphasis on breeding of grasses for moderate or low-intensity use, improving digestibility, compatibility with legumes and acceptability by grazing livestock.

Some selection of forage herbs has taken place in New Zealand. Progress in plant breeding is accelerating with the introduction of novel methods such as species hybridisation and differing forms of genetic engineering.

Forage legumes

The N-fixing ability and enhanced intake and feeding value of forage legumes compared with grasses are enhancing their role in environmentally-friendly animal production – and in organic farming which is now increasing in Europe. Advances in the development of economically viable systems of animal production have been greatest for grass/white clover swards. However, there is still the challenge of persuading wide-scale adoption by farmers.

The key to sustainable productivity from grass/white clover swards is a satisfactory clover content, sometimes difficult to achieve given the dynamics of the grass-clover association, which are greatly affected by soil N levels. The reaction of the perennating stolon network to the different interacting components (defoliation, trampling, excretal return) of the grazing process and to defoliation (severity and frequency) in the conservation process is a vital element. A flexible approach to management is necessary, namely, reacting to seasonal effects or to the effects of previous management, eg: the rejuvenation of clover in over-grazed swards by resting and cutting for conservation.

Nutrient management

Surveys of soil fertility often show that fields are low in one or two nutrients for optimum grass production, eg: K in frequently cut fields; Sulphur (S) application is sometimes necessary on light, sandy soils low in organic matter. Magnesium (Mg) and Sodium (Na) may also need to be increasingly applied in future.

Nitrogen (N) is the most important nutrient influencing grass production and precision of N inputs and predictability of herbage response are current goals. A point of importance is that 80-90% of maximum yield is achieved with 50-60% of the N needed to attain maximum yield. Inputs of N are also being reappraised in response to economic pressures and environmental concerns, such as nitrate in water supplies and losses of ammonia and nitrous oxide to the atmosphere. This has focused research on the components of the N cycle to try and minimise losses. Practical measures include: more precision in rate, timing and spreading of N, from both inorganic and organic sources; environmentally safe levels of N loading on land; greater use of grass/white clover swards; more emphasis on long-term swards; reduced autumn reseeding; greater account of soil N status, soil type and water holding capacity; nutrient balance sheets on farms.

Herbage Quality

Physical, chemical and plant anatomical features all contribute to herbage quality and in turn to voluntary intake by ruminants. Digestibility decreases with increasing plant maturity, eg: perennial ryegrass and white clover which are 'high digestibility' species both have high cell content:cell wall ratios. Thus, the aim in grazing or conservation is to achieve maximum digestible nutrients and not maximum dry matter yield. This requires leafiness in grazed swards and cutting before or at ear emergence for silage and at early flowering stage for hay.

Grazing methods

The key to efficient grazing is matching stocking rate to the grass available and maintaining leafy swards of high nutritive value by integrating grazing and conservation. Grazing is the cheapest and most economical method for converting forage to animal products. In recent years the greatest stimulus to the efficiency of grassland production and utilisation under grazing has been the 'sward height' concept, where grass growth rate, both physiologically and in terms of tissue turnover, has been linked to animal intake and production. There are recommended heights above ground level to be maintained under continuous grazing and for pre-grazing and post-grazing heights under rotational grazing. These differ for different types, classes and physiological stage of stock. Heights are measured by simple rulers or specially designed devices such as swardsticks and weighted disc meters. In practice, the use of 'buffer' areas, which can be grazed or cut for silage as required, is an important way of adjusting stocking rate on grazed areas to maintain correct sward heights and optimise sward and animal performances. Supplementation by buffer feeds e.g. silage, hay, or their withdrawal are other options for sward height control. Extending the grazing season by early bite production in spring and late bite in autumn/early winter is very worthwhile in suitable areas.

Forage conservation

Ensiled grass is now the most important winter feed for ruminants in north-western Europe and comprises 70% of the 15 million tonnes of forage dry matter conserved annually in the UK. Hay, formerly the most important conserved forage, has now been superseded. Reasons include improved forage harvesting equipment, introduction of plastic sheeting for sealing silos, improved silage additives, better analysis of real feeding value and enhanced feeding systems. About 80% of UK silage is made in large concrete-sided clamps and the remainder in big bales.

Silage has advantages over hay since it is less weather dependent, gives quicker regrowth after cutting since it is cut at an earlier stage of growth and has potentially better feeding value. Silage making is also a means of improving

grazing management by removing surplus grass at any time during the season, big bales being ideal for 'opportunity' silage making. Silage making must be maximised in early season because of the high proportion of annual production then, but also, by using the greatest conservation area possible, the remaining area for grazing is highly stocked and closely grazed. In turn, this avoids grass wastage during this period of vigorous growth when undergrazing often takes place; also, the close grazing stimulates future tillering, sward density and stability.

The Golden Rule for achieving good quality hay and silage and efficient feeding is attention to detail at every stage in the process: for silage, pre-cutting field management, eg: rolling, cutting at a quality to suit the stock being fed, e.g. highest quality for dairy cows, silo management, eg: perfect sealing, and exploiting it in feeding, eg: using analysis of quality for precise ration formulation.

Conclusion

The principal objectives of food production and output efficiency from grassland in technical and economic terms have now given way in the face of Society's demands to additional challenging objectives: improved product quality, better animal welfare, environmentally-friendly production systems, minimum use of non-renewable resources, landscape enhancement and amenity opportunities, nature conservation and species biodiversity. Fortunately, in many modern European countries financially supported official schemes are available, and full advantage should be taken of these.

To be truly sustainable in the widest sense, grassland farming will have to meet and integrate these challenges and yet still develop low-cost and cost-effective technologies within production systems. This will require a continuation of the good partnership between researchers, advisers, commercial companies and farmers.

BGS SUMMER VISIT – 2002

The British Grassland Society has accepted an invitation from the South West Scotland Grassland Society to hold their annual Summer Visit in South West Scotland in July 2002. The BGS last visited the West of Scotland in 1986, but were unable to reach farms in the heart of south west Scotland. Previous to that, there were visits in 1954 and 1969. A 2002 Organising Committee under the Chairmanship of Prof Cled Thomas, has been set up to start the preparations for this visit.

HONOUR FROM THE POLISH GRASSLAND ASSOCIATION

Honorary Vice-President and former Secretary of the South West Scotland Grassland Society, Dr John Frame, has recently received another International Grassland Honour from a country in Eastern Europe. He was honoured during 1999 with the award of a Diploma of Honorary Membership of the Polish Grassland Association, based in Posnan. This is the highest distinction that can be awarded by the Polish Association.

The Diploma was awarded "*for the involvement in promoting grassland sciences and our Association abroad*". Professor Stanislaw Kozlowski, President of the Polish Grassland Society stated that the Diploma "carried with it an enormous weight of gratefulness for your genuine and sincere attitude shown to Polish representatives of various scientific disciplines in our Association and for your helpful hand, smile and sympathy shown to Polish meadows".

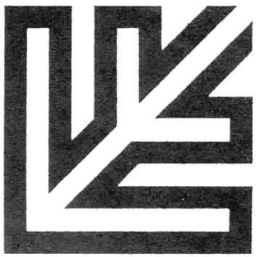
Professor Kozlowski continued "On behalf of the Polish Grassland Association, I have the great privilege to thank you very much from the very bottom of my heart. We remain optimistic that we shall have the pleasure of thanking you in person. We are certain that there will be numerous opportunities to do so as our Association is planning to organise some conferences. Please, also accept our best wishes of health and prosperity as well as much joy in walking across fragrant meadows. We believe that your sincerity and openness towards us and our Association will remain unchanged".

All Members of the South West Scotland and Central Scotland Grassland Societies will wish to extend their heartiest Congratulations to John on the receipt of this latest honour.

CSGS AND SWSGS SILAGE COMPETITIONS

These local silage competitions will again take place for the next silage season. The prizewinners will be announced during the respective competition evenings held in January. Both winners will then progress to the Scottish Regional Silage judging, and the Scottish Regional winner onto the UK National Championship.

All members whose silage is sampled and analysed by SAC are eligible for automatic entry. Members with good silage analysed by commercial companies may also be eligible for inclusion in the competitions. The Societies' aim is to ensure that we find the best silages to go forward into the Scottish Regional event.



POLSKIE
TOWARZYSTWO
ŁĄKARSKIE

Dyplom

Honorowego Członka

Polskiego Towarzystwa Łąkarskiego

dla

doktora Johna Frame'a

za promowanie nauk łąkarskich i naszego

stowarzyszenia za granicą

Sekretarz PTŁ
B. Golińska
Dr Barbara Golińska

Prezes PTŁ
S. Kozłowski
Prof. Stanisław Kozłowski

Poznań, 28 kwietnia 1999 roku

SWSGS Grassland Environmental Competition Winners, 1998-1999. Peter Murray-Usher (left), winner of First Prize and Environmental Trophy. Runner-up, Alan Crichton (right) and SWSGS Vice-Chairman, John Fairgrieve (centre).

SWSGS GRASSLAND ENVIRONMENTAL COMPETITION 1998-1999

G E D Tiley

Judges: Alasdair Houston, Floshend, Gretna Green (1997 winner)
Philip Davies, Dumfries & Galloway European Partnership, Dumfries

The **Grassland Environmental Trophy** was awarded to Peter Murray-Usher, Murrayton Farms, Cally Estate Office, Gatehouse-of-Fleet, in the 1998-1999 Competition. The Judges: Alasdair Houston and Philip Davies, found it very difficult to separate First Prizewinner, Peter Murray-Usher, from runner-up Alan Crichton, Killymingan, Kirkgunzeon. Conservation on the Murrayton Estate has been on a much larger scale, and thus more formalised. Peter Murray-Usher placed great emphasis on BALANCE in the blending of environmental measures with commercial activities. Compromises were made to accommodate conservation interests wherever possible. Three of the four farm units are upland/hill farms in the Fleet Valley National Scenic Area. They are within the Stewartry ESA and are also covered by an agreement with the National Trust. Livestock comprises 210 sucklers (Galloway, Blue Grey, Simmental Cross, Angus Cross and Saler Cross), largely outwintered. Part of the Blackface flock of 1800 ewes are crossed to produce Scotch Mule lambs and the remainder bred pure for replacements. Only 125kg ha^{-1} (one bag per acre) 27:5:5 is used annually on the permanent grazing swards. The 40 ha of commercially managed woodlands are rotationally replanted with additional hardwood species where possible. One of the two areas of semi-natural woodland is subject to an SNH Management Agreement. Other important conservation features are: heather moorland, a new pond, dyke maintenance, river banks and fishing. Improvement of the fish habitat by restocking and water management, and positive management of woodland, hedges and scrub for sporting interests were conspicuous conservation measures.

Alan Crichton was equally committed to the needs of conservation, and had initiated a number of positive measures at Killymingan. New hardwood trees had been planted on the open, exposed LFA upland, and also in the valley. Stone dykes and hedges were being maintained. A length of old hedge had been rejuvenated by careful laying and a fenced water margin created along the adjacent burn. There were old and new ponds, and a former mill-lade area was being sympathetically managed for bird life. Former mill buildings were being renovated to provide vernacular office accommodation.

Sponsorship for the Grassland Environmental Competition was received from **Trident Feeds Ltd** and is acknowledged with many thanks.

HEADLANDS FOR WILDLIFE AND GAME

Dr Karen Haysom
Environment Division, SAC Auchincruive

An Evening Visit to Barlocco and Nether Hazelfield, Dalbeattie, 13 August 1998
(Courtesy: N van Zwanenberg)

The evening visit was made primarily to view Grass Conservation Headland plots which had been laid down at Barlocco and Nether Hazelfield in 1996, and to hear research results to date. **Headlands for Wildlife and Game** is a collaborative project between SAC and the Game Conservancy Trust funded by the Scottish Executive Rural Affairs Department, the Dumfries & Galloway European Partnership and the Game Conservancy Trust. Its objective is to research the conservation value of Grass headlands in promoting insect and bird life, parallel to the success achieved in headlands in arable crops. The managed grass fields of Dumfries & Galloway offer an ideal subject to study grass headlands. Plots are sited on the Crichton, Drumlanrig and Hoddom & Kinmount Estates as well as at Barlocco.

The Barlocco plots aimed to see if chick food insects would increase with restricted summer grazing. The effect of glyphosate spray strips as a means of changing the physical structure of the sward was also being studied. The contrast of coarse tufts of grass and bare ground could create a better habitat for chick food insects and would provide runs for the chicks.

Results. The results of insect sampling in July showed clearly that preventing summer grazing greatly increased the abundance of the main chick food insects – plant bugs, caterpillars and sawfly larvae. The insect fauna following spraying were still being assessed. A problem in some of the grass headlands was the development of broadleaved weeds such as thistles and ragwort, which required control measures in dense infestations. However this could be avoided by careful choice of site.

The land area at Barlocco and Nether Hazelfield totalled 290 ha, including 30 ha of woodland, scrub, wetland and cliffs. The unit carries 1300 ewes, 300 hoggs and 90 fattening bullocks. 250 cattle were summer grazed and 550 cattle overwintered on contract. The grassland rotation was 8 years grass and 2 years arable silage (barley and oats), undersown in the second year. 48 ha of 1st cut silage were made, with 2nd cut when required. The grass mixtures were intermediate/late perennial ryegrass, timothy and white clover. The woodland and scrub areas on the farm were managed to provide habitat for game birds for commercial shooting.

USING GRASS TO REDUCE COSTS

Padraig Walshe, Bishopswood, Durrow, Co. Laois, Ireland

Meeting of SWSGS at the North West Castle Hotel, Stranraer on 22 October 1998

The Society was privileged to hear Padraig Walshe, one of Ireland's leading dairy farmers and currently Chairman of the Dairy Section of the Irish Farmers' Association and Member of the Irish Dairy Board. He described management at his dairy unit in central Ireland and gave some insight into his philosophy for making greater use of grass to generate profit.

The unit at Bishopswood was 32 ha owned, with 300,000 litres quota and 40 ha leased together with 350,000 litres quota. There were 105 cows, 10 less than last year, stocked at 3.1 cows ha^{-1} over the home block. There were also beef animals. Annual rainfall was 1000 mm and annual N usage was high at 400 kg ha^{-1}. Nitrate leaching was not the same problem on grassland as on arable land. The farm was in a very good area for grass, so it was logical to concentrate on it. Production averaged 5,500 litres cow^{-1}. This was considered the least important figure, because the limitation on the farm was not yield cow^{-1} but **quota** and **amount of land** available for production. *Cheaper production of that quota was much more important.* The objective was a reasonable standard of living for the family and provision for retirement, and to retain a farm to pass on to the next generation. Calving of the herd was 30% autumn (October-November); 70% spring (February-April) and kept as tight as possible. Concentrate cow^{-1} was 500 kg, producing milk with 4% butterfat and 3-3.6% protein. Production costs were 12.5p $litre^{-1}$ 8.5p for production, 4p for quota lease. Milk sold at 27.5p $litre^{-1}$ giving a profit of 15p $litre^{-1}$, excluding labour, tax and repayments. Labour consisted of family and one student. How was this achieved? Diet was 80% grazed grass; 14% silage (for dry periods) and 6% concentrates. The management philosophy was summed up by the acronym: KISS – Keep It Simple Stupid! and arrange to get the cows to feed themselves if possible.

Grass cover was monitored every 2 weeks by Moore Park, measuring grass heights, cow condition score, inputs, rainfall, etc. For example, 2000 kg ha^{-1} were recorded last week (mid-October) over the whole farm, giving sufficient grass until early December. The annual grass growth curve was sigmoid. At the optimum rate of production 18 days were required for regrowth sufficient for grazing. This increased to 36 days in August and 52 days in winter. Concentrates were normally introduced in October, and the grass zero grazed in July. Regrowth will be grazed in preference to dung patches if the stock go back too soon. The ground has the ability to recover if only grazed for one day.

Rejection of dung areas is not a problem if there is a 60-day rest. Fields will not be soiled when the grass has grown and recovered after 3-6 weeks. The winter in South West Scotland will be longer than in central Ireland, but 2 weeks extra grazing at each end of the season = one month.

It was necessary to be convinced of the value of grass to adopt the grazing principle. A budget had to be made from 1 December until the end of April, and the average cover of grass predicted. Growing grass was no use if it was not harvested. This grass had to be **managed** and this couldn't be done without **paddocks**. Padraig's father set up the programme and in 1981 £1,000 was spent on splitting the farm into paddocks. This was the best £1,000 he had ever spent. Another £400-500 was spent on tracks around the fields which had yielded returns. Concrete was used in the least productive season, and therefore had given a low return. Water troughs were not placed near gateways, as this would quadruple soiling of the sward. *Four wheels depreciate therefore fewer wheels gave less depreciation.* On the other hand, *4 legs appreciated.* The new approach required: i) make things change; ii) know what happened; iii) wonder what happened. He advocated "Get out there and make things happen"; set own long-term objectives – short-term decisions must fit in with the long-term objectives. Decide up here (in the head). If you do decide, spend time to educate yourself to make sure you know what you are doing – ie: *train yourself.* Make sure you concentrate on what you are doing **inside the farm** and not spend too much time outside. You can be involved outside, but you should not spend too much time there.

New Zealand bulls have been tested in the grazing situation. Soil would be analysed every 5 years. Slurry should be returned to the fields it came from, ie: the silage ground.

The meeting had been sponsored by **TIMAC (UK)**. **Mr Roland Columbard**, gave a short presentation describing the company and some of its products.

Timac was originally part of another group, but in 1959 it expanded with its main product calcified seaweed. In 1979 is started taking over other companies, including the Gafsa phosphate mine and developed in North America. The main component was *maerl* soil conditioner which contained Calcium and Magnesium. It boosted the microflora and microfauna of the soil, ie: it fed the soil. It encouraged white clover and thus protein levels in grass. It contained a whole range of trace elements. Grazing became very palatable because *maerl* originated from the sea. It did not leach and did not acidify the soil, and stimulated the plant root systems.

HOW DO YOU GET MORE FROM YOUR

GRASS?

The Farming Press keep telling Farmers to get more out of GRASS. But who's showing you HOW?

HOW DO YOU GET - TIGHTER GRAZING

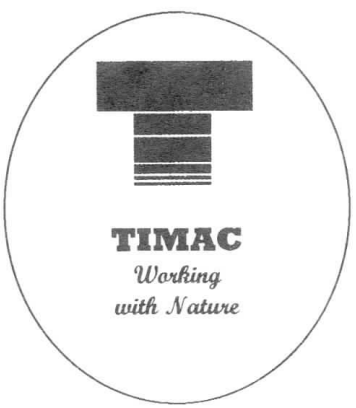
HOW DO YOU GET - LONGER GRAZING

HOW DO YOU GET - HIGHER PROTEIN LEVELS

HOW DO YOU GET - IMPROVED MILK YIELD FROM GRASS

HOW DO YOU GET - MORE PALATABLE GRASS

HOW DO YOU GET - BETTER RESPONSE FROM FERTILIZER



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WINTER COW POWER WITH LOW INPUTS

Kay S E Carslaw
West Lavington, Midhurst, West Sussex

Meeting (AGM) of SWSGS at the Embassy Hotel, Dumfries on 12 November 1998

The Meeting was sponsored by **Kemira Fertilisers Ltd** and **Richard Huxtable**, Branch Development Manager, gave a short presentation (see p 70).

Kay Carslaw had spoken at a BGS Conference at Newton Rigg in February. He provides a costing service for dairy farmers, and has clients throughout Southern England. His job is to think about clients' business and to point the way to better profits through simple systems.

The **Guides to Profit** were said to be: Focus by the farmer; well-trained and motivated people around you; compact calving for simplification – allowing time to think and giving something to look forward to: cow power – paddocks full of cows; use of self-feed silage – again for simplification; low costs and wise investment – the most important keys to profit. **Drains on Profit** were: Pursuit of ever higher yields, involving expensive inputs, complex feeding and complex breeding; moving lots of things around; rust with barns full of machinery - expensive 'toys'; all year round calving – equating to 'confused slavery' and nothing to look forward to; youngstock wastage. How do you **plug these drains**? Minimise visits from commercial representatives; resist temptation to lift the 'phone; differentiate clearly between Need and Want – ask the question: What do I need this for?; talk with someone when planning to spend; join a discussion group.

Management Measures which were meaningless when comparing dairy systems:

- **yield per cow** only in litres – inverse ratio to profit.
- **concentrates** – kg cow/year/ or /litre. Which concentrate is it and when is the herd calved?
- **stocking rate** – differences in land quality make some acres (hectares) smaller than others.
- **milk from forage** – grazed or conserved?
- **gross margins** – no correlation with profit and all costs are variable.

Important Costings data are:

- **Margin over Total Feed Costs** which isolate the potential drain of feeding out costs.
- **Youngstock Wastage** – percentage of weaned replacements which does not achieve their 2nd calving 3 years later. There is more wastage in the extreme dairy type cattle in the first lactation.

Total Feed Costs 1998-1999 (pence)

System:	Moorepark	KC Group	Year Round Yield Focused
Concentrates, Minerals and Additive	<1.5	<2.5	4
Forage variables and establishment	<2	>1.5	2
Silage making and slurry disposal	0.5	<1.5	2
Feeding out silage and concs.	0.1	0.1	2
TOTAL	**4**	**5.5**	**10**

Moorepark – spring calving, 75 days dry, consistent 10-month grazing season, 5,000 litres cow^{-1}.
KC – Kay Carslaw Group – self feed and cubicles, 4-8 months grazing, 35 days dry, 6,000 litres cow^{-1}.
Yield focused all year round – up to 365 day feeding with less and less grazing, 8,500 litres+ cow^{-1}.

Labour costs were calculated in seconds per litre of milk, based on the whole year. Two men, working 5 days and sharing all work except silage making and slurry disposal, work 9-11 seconds/litre with 1.5-1.8 millions litres of milk from 250-300 cows. Add 1 second for silage making and slurry disposal, giving a total of 10-12 seconds/litre. Large New Zealand dairies milking double the number of cows through rotary parlours average 10 seconds/litre.

FEED OPTIONS FOR MAXIMUM MARGINS

J Goldie, Dairy Select Services Manager,
SAC Crichton Royal Farm, Dumfries

Meeting of SWSGS at Douglas Arms Hotel, 18 February 1999, sponsored by ***Milk Development Council***

When milk prices are high, decisions on feeding regimes are lax. In an era of falling prices, managers must focus more sharply on the range of options available.

The **Meaning of Margin**. Margin over Concentrates (MOC) has been used for many years. Other margins may be used, eg: Margin from Forage or over Total Feed Costs. *It is essential* to know the figures for the present margins on the farm as a starting point. The business can then move in two possible directions: 1) Maximise outputs; or 2) Optimise inputs.

1 The potential for increasing output can be indicated by comparing the upper quartile (upper 25%) of costings within a Group with the remaining 75%. This showed a 2p litre^{-1} differential, equivalent to £12,000 per annum for a 100 cow herd averaging 6,000 litres yield.

2 The scope for optimising inputs can be obtained by comparing forage quality in the same way. To produce 30 litres of milk the upper 25% use only 6kg per head day^{-1} of concentrate compared with up to 10 kg per head day^{-1} by the rest, a cost difference of over 2p litre^{-1}.

The Role of Alternative Forages. These can raise DM intakes, reduce concentrate use, trim costs and produce more milk. There are also potential Arable Aid payments. Choice of alternative forage hinges on considerations of bulk or of protein.

- Maize – depends on location.
- Fermented Wholecrop – reliable bulk, can claim arable aid.
- Urea-treated Wholecrop – has the benefit of high pH to counter the low pH of grass silage.
- Protein Sources – Kale, red clover, forage peas – good sources of protein, but can be difficult to establish and ferment.

Bi-cropping involves alternate strips of different crops that are harvested across the strips to provide a mixture. Wheat and rape give the best results. However, relative ripening can be very uneven, and costs are higher than for grass.

Costs. Grazing grass costs only half that of making silage. Wholecrop cereals are cheaper than grass silage if arable aid is obtained. Kale and forage peas compete fully with grass silage. Alternative feeds such as brewers' products are dearer than forages but have no land requirement. Fodder beet has high sugar, potatoes can be a useful replacement for cereals but storage and cost on a dry matter basis must be considered. Before attempting to grow alternative crops, it was essential to consider your own farm system taking account of soil type, ability to grow them, store them and feed them effectively. It was re-emphasised that the current position must be known as a yardstick for any improvement. Costings were all contractor figures based on growing and harvesting costs, and were thus comparable.

How much to feed? Most alternative feeds can be safely fed at 25–30 % of the dry matter of the diet. The most important factor is that the diet is balanced with other suitable feeds to achieve good performance.

It should be recognised that good quality grass silage and plenty of it would take some beating, and should form the solid basis of any feeding system. At lower yield levels, alternate forages can be less of an advantage. However, at the higher yield levels they could be useful to maximise total dry matter intake. Alternate forages should be regarded as a complement to silage and not a substitution.

Other factors could limit the option of alternative forages, such as land availability and cubicle house capacity. Grass itself should not be undervalued – it could be an alternative crop at the end of the season. The question to answer is 'What fits our own farm and system best?'

It is vital to set performance and financial targets and monitor them regularly. The value of MilkNET, an Internet program from SAC Dairy Services Unit, in compiling dairy costings and records, was mentioned. This allowed ongoing analysis of records and comparisons with other similar enterprises.

KEMIRA PRODUCTS FOR GREATER PROFITABILITY

Richard Huxtable
Northern Region Branch Development Manager, Kemira Fertilisers

Presentation at AGM of SWSGS, Embassy Hotel, Dumfries on 12 November 1998, sponsored by ***Kemira Fertilisers***

Richard Huxtable gave a brief summary of the results of nation-wide on-farm trials with new fertiliser products from Kemira. The trials focused on 1) Early grazing; 2) Complementing nutrients from slurry; and 3) Sulphur.

Early Grazing. Early Bite (27:10:0) had been compared with a range of other fertilisers, applied in the second week of March, at 16 sites across the UK in 1997, and at 26 sites in 1998. 1997 results showed 15% higher fresh weight yields in early April, valued at £17-70 ha^{-1}; in 1998 the average yield increment was 19%, value £26-50 ha^{-1}. The combined ammonium and phosphate contents within a **compound** were the keys to these yield benefits (see p22).

Making greater use of slurry. Slurry Balancer (28:3:8) had been developed to complement the average nutrient contents of slurry. This had been compared with several other fertilisers at 10 sites in north and west UK, in both 1997 and 1998, together with slurry applied at approximately 40,000 litres ha^{-1} in mid-March. The rate of Slurry Balancer used was 1 bag per acre (125 kg ha^{-1}) LESS than with other fertilisers. The grass yields in mid April were however higher: 13% in 1997, valued at £65 ha^{-1} and 11% in 1998, valued at £80 ha^{-1}.

Sulphur. Similar on-farm trials with Kayenne-Sulphur on a more limited range of sites for second cut silage all showed a yield increase compared with several other fertiliser blends.

NEW WHOLECROP AND MAIZE SILAGE CLASSES

The SWSGS will be introducing Wholecrop Cereal and Maize silage classes in the annual Silage Competition. This will be on a trial basis in the 1999 competition. Prizes are being donated by: **Nickerson (UK) Ltd** and **Biotal Ltd**. Nickerson (UK) Ltd are donating 3 acres (1.2 ha) of cereal seed to the winner of the **Wholecrop Cereal Silage** class. Biotal Ltd will offer a permanent trophy plus a quantity of silage additive to the winner of the **Maize** silage class.

The South West Society wishes to thank Nickerson (UK) Ltd and Biotal Ltd respectively for their generous sponsorship of these two new classes in the Competition.

MAIZE IN SCOTLAND 1999 – AND BOLIVIA

Dr Katharine Leach, SAC Crichton Royal Farm, Dumfries

Thankfully, 1999 provided much more favourable conditions for maize than 1998 (Table 1). Some growers ventured to sow in mid-late April under the protection of complete cover plastic. Measurements at Crichton Royal Farm have shown that soil temperature can increase as much as 7°C under this system. Our first year of trials with complete cover resulted in impressive dry matter and starch contents of 30% but a reduction in yield, with some plants appearing rather stunted. There are interesting interactions with sowing date, variety and the time when the plants become exposed. The latter is not easily controllable, and trials will continue this year to investigate some of these effects. The open autumn allowed a wide window of opportunity for harvest, and yields and maturity were generally good. The Crichton commercial crop was disadvantaged by late sowing (15th May), but in trial plots sown in the same field on 5th May, the same variety (Nancis) produced 14t DM ha^{-1} at 26% DM.

Table 1 – Forage Maize yields and climate 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	8.5	20	674	2090
1999	10.5	22	729	2397
Long Term Average	11.0	23	780	2109

On an international note, I have just returned from a visit to Arnoud Hameleers in Bolivia, where Arnoud is helping two Bolivian Universities to improve the training of agricultural and veterinary graduates. He is making good progress, despite the frustrations of Latin American restrictions. Maize is, of course, a staple crop in Bolivia, for human consumption. The animals have to make do with the dried stalks, and the weeds gathered from between the rows. I see that we are not the only ones trying to grow maize in difficult conditions! Crops in fertile river valleys are at real risk from flooding, and some hillside fields appear virtually inaccessible, while the *altiplano* experiences great temperature changes between day and night. Perhaps we should not grumble too much ...

DAIRY PROFIT WORKSHOP – GRAZING GRASS FOR MORE PROFIT

Ian McIntyre, Low Barbeth, Ervie, Stranraer

Meeting of Wigtown Grazing Discussion Group, held at Sandhead Hotel, Sandhead, Wigtown, 11 March 1999

Members of the Wigtown Grazing Discussion Group attended a **Dairy Profit Workshop** run by New Zealand consultants: Carol Gibson and Paul Bird, together with Christian Fox, Chairman of West Sussex Grassland Society. The Workshop was one of a nation-wide series organised under the BGS Grass 99 project, also supported by MDC and Farmers Weekly. The objective of the workshops was to summarise UK experience of making greater use of grazed grass, quoting examples of actual returns achieved, and to show how to get rid of high cost structures and enjoy higher profits.

Summary of Main Points from the Wigtown Workshop

The focus of the day was on maximising profit by utilising the maximum amount of grazed grass in the cow's diet.

Comparable Farm Profit (CFP) is a standard method for comparing profitability and financial efficiency between dairy farms, which has been developed to allow dairy farmers to compare their performance with others in discussion groups. CFP is calculated using the Profit & Loss statement from the farm accounts. Other methods of efficiency comparison, eg: Margin over Concentrates (MOC), Margin over Purchased Feed (MOPF) or Milk from Forage, are considered to be of limited use to the farmer. Budget figures for 50 UK farms projected a drop in expenses of 3.6p litre^{-1}, against a fall in income of 4.9p litre^{-1}. The main cost reductions were in feed, labour and power/machinery. Some UK farmers have now progressed to the point of having dropped costs from around 18p to 12p litre^{-1}. These costs include depreciation and a payment for unpaid family labour. They do not include the cost of finance, quota or rent.

Principles of Grassland Management

Why Grazing? Grazed grass is the cheapest source of food available to cows. Grazing more grass and feeding less silage and concentrates dramatically reduces costs.

Making the most of grazed grass. To do this, you must:

- Match growth and demand as closely as possible;
- Graze grass at correct height;
- Maintain grass quality;
- Maximise regrowth.

Good grazing management occurs **despite** the weather not **because** of it.

Matching growth and demand. Grass growth follows a typical bi-modal pattern with the main peak in May-June and a second lesser peak in autumn. Cutting too much silage in June/July catastrophically cripples grazed grass supply. Cow demand can be estimated in terms of grazed grass. Changing to spring calving greatly reduces cow demand in winter and early spring, to obtain a closer match to grass growth.

Measuring growth. To match demand to growth as closely as possible, a regular simple measuring system is required to monitor grass growth in all fields/paddocks every 7-10 days. From the tabulated results, a picture of available grass and growth rates can be built up. From this, a strategy for grazing is developed.

Practical grass management. Details of how to calculate cow demand from stocking rate, intake per cow and pasture growth rate were given. Skill in spring management is the major determinant of annual profitability. The day that grass growth exceeds daily cow demand in spring is known as 'Magic Day'. A grazing plan must be prepared which results in grazing the whole farm once before making silage. Buffer feeding may be required in drought periods. On extremely wet days in early spring or in the autumn, cows are turned out for 2-4 hours. Action must be taken to avoid poaching – back fence, graze back paddock first, use several gateways, drop fence along track to get cows into the field. Avoid sheep grazing in winter.

Block Calving. The major objective of block calving is to calve the cows in as short a period as possible, preferably within 10-12 weeks. The **benefits** are: minimises the number of jobs to be done at any one time, significantly reduces total labour requirement and simplifies feeding management. Spring calving (really, late winter) cows maximise the use of grazed grass. As with grass growth, detailed reproductive records are required. Selection of sires proven on a forage based system is desirable.

Infrastructure – Tracks, Paddocks and Water Supply

Tracks are essential to extend the grazing season and avoid poaching, dirty cows and other difficulties in wet conditions. The potential gains (more than £1 per cow for every extra day at grass) justify the initial costs. **Benefits** are: accessibility to all paddocks to permit flexibility of grazing; reduces poaching; encourages cows to walk faster; facilitates tractor access. Tracks must be wide enough for cow herd size and should be crowned to shed water, and the surface material must be suitable for cows to walk on comfortably. Track layout design is crucial to give maximum access from minimum track length. Avoid wet and sheltered areas to help achieve a dry surface. Details of construction were discussed.

Paddocks. A great aid to good grazing management, but again requiring thought in layout and adaptation to one's own farm conditions. Rectangular paddocks (20-30) with the short sides along the track are ideal, using permanent or temporary electric fences, with electric tape or spring gates. At first, temporary fences are best until final positions are decided.

Water Supply. The principles of a good water supply are:

- Enough water for the cows when they need it;
- Pipe size more important to flow rate than pump size;
- Create a 'ring main' system for more efficient supply;
- Good quality water
- Gravity fed from a storage tank where possible.
- Own farm water will be cheaper in long term.

In conclusion, the system of making greater use of grazed grass aimed to keep inputs to a minimum, so the only people likely to make money from it were the farmers themselves. The Wigtown members attending found the whole day very interesting and stimulating, and everyone was able to take something home from it.

SWSGS PHOTOGRAPHIC COMPETITION
January 1999

The winner of this informal Competition for the best photograph displayed during the Competition evening held at SAC Auchincruive, 14 January 1999 was: Wallace & Angela Welsh, Warnockland, Fenwick, who received an engraved crystal whisky glass as First Prize.

GRASS 99 – PROGRESS IN WIGTOWN

Carol Gibson, Milk Development Council

I have seen many changes over the past 18 months on the farms in and around Stranraer, including:

- Grazing season extended by at least two months
- Farmers changing to spring calving for profitability and ease of management
- Improvement in general pasture management using rotational grazing
- Numerous other small changes that make life easier.

The Wigtown group has progressed to the stage where it now freely discusses farm running costs which is necessary to identify practices that improve profit in these difficult times. Many of the farmers attended a conference we organised in Malvern. The feedback from this conference was tremendous. Farmers returned enthusiastic and keen to make further changes on their farms.

At the end of 1999, the group was hosted in Northern Ireland by the local Discussion Group facilitating interaction with farmers pursuing the same aims as themselves: more milk from grazed grass, more profit from farming, and putting the 'life' back into farming instead of the 365-day drudgery that so many farming operations have become. The exchange was a great success.

I believe the Discussion Group to be some of the most positive farmers around, who can see a way forward despite the lowered milk price! It is continuing in 2000. If there are other farmers keen to join the group, please 'phone me on 01942 702705.

NEW EDITION OF BGS BOOK: GRASS

Grass – its Production and Utilisation, 3rd Edition (1999), edited by Alan Hopkins. Oxford, Blackwell Science, 456 pages £35.00. £25.00 for BGS Members.

This Edition thoroughly updates the two previous editions, and widens the range of topics, endeavouring to reflect changes occurring in land use and agriculture. As well as covering the basic principles of grass production, management, conservation and use, the text now includes chapters on amenity grassland, organic grassland and management for landscape and wildlife. Recent advances in technology are incorporated and the book will be an authoritative reference for students, research workers, advisers and progressive farmers.

ODE TO SILAGE MAKING

Carol Gibson, New Zealand Consultant, Milk Development Council

The following poem was presented at the European Dairy Event. It was used to emphasise the cost associated with making silage, relative to grazing. Of course, silage will always be a part of dairy systems in the UK, but we aim to minimise the amount needed. Every step in the silage making process costs money - and time!

You cut it and then you rake it,
Pick it up, and then take it
In air-conditioned comfort back
To pile it high into a stack.

O help us, bother, please forgive,
I clean forgot the additive.
So then you drive all over it
With sheets of plastic, cover it.

Then tyres too, half filled with water,
All hands on deck (including daughter).
Now in suspense, you wait awhile,
And it ferments there in a pile.

Then open up and add things to it,
Mix it, feed it, them cows then pooh it.
And so, you scrape IT and collect it.
Store it, load it, cart and inject it.

And calmly then, you wait for rain
To grow some grass and start again.

With acknowledgement to ***Farmers Weekly***.

SWSGS NICKERSON SWARD COMPETITION 1998

R F Gooding & G E D Tiley

Four swards were entered in 1998, all in the Wigtown area. These were judged during April 1999, with the following results:

Results

Judging Inspection Marks:

Item (Marks)	**Winner**		**Others**	
Uniformity (10)	9	9	7	6
Vigour (5)	5	4.5	4	3
Density – Visual (5)	4	4	4	4
- Core Counts (10)	8	7	5	7
Botanical Composition:				
- Sown (5)	4.5	4	3	3.5
- Weeds (5)	4.5	3.5	3.5	3
- Clover/Herbs (5)	4	1.5	1	1
Discretionary (5)	4	4	3.5	3
TOTAL (50)	**43**	**37.5**	**31.0**	**30.5**

Comments: A good clover content is marked up, whereas a high annual meadowgrass content which competes with perennial ryegrass is marked down.

The winner was **Donald McColm, Cairngarroch**, Drummore, who received 2 ha of Nickerson Grass Seeds.

The Competition will be run again in 2000.

SWSGS NICKERSON (UK) SWARD COMPETITION

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

This Competition is arranged with support from **Nickerson (UK) Ltd** to give 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 a large proportion of the species intended, and when 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. Entry is free.

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WEATHER DATA FOR 1998
SAC AUCHINCRUIVE (35°29'N 4°34'W) Alt 45m

	Mean Air Temp °C		Mean Soil Temp °C	Rainfall		Sunshine
Month	*Max*	*Min*	*At 10 cm*	*Total (mm)*	*No of Days*	*Total Hours**
January	7.7	2.1	4.3	97.8	24	48.4
February	10.0	6.1	6.7	119.5	25	36.6
March	9.9	4.5	6.6	81.4	20	44.4
April	10.7	3.1	7.2	51.2	20	155.2
May	15.0	7.4	11.8	41.2	14	151.7
June	16.1	9.3	13.3	66.9	18	189.5
July	16.6	11.3	14.6	115.6	23	149.8
August	17.3	11.1	14.6	126.1	21	139.6
September	17.2	10.3	13.4	55.1	14	138.0
October	12.3	6.2	9.9	184.0	26	92.7
November	9.2	3.6	6.7	133.7	24	61.5
December	8.8	2.9	5.9	95.9	28	36.3
Means/ Totals	**12.6**	**7.8**	**9.6**	**1138.4**	**257**	**1243.7**

Max air temperature: 23.2° on 13 May. Min air temperature: -5.1° on 6 December. Last frost: 18 April 1998. First frost: 18 October 1998.

* Prestwick Royal Navy Air Squadron (HMS Gannet), except January & February.

WEATHER DATA FOR 1998
SAC CRICHTON ROYAL FARM (55°3'N 3°35'W) Alt 65m

	Mean Air Temp °C		Mean Soil Temp °C	Rainfall		Sunshine
Month	*Max*	*Min*	*At 30 cm*	*Total (mm)*	*No of Days*	*Total Hours*
January	8.5	1.4	5.4	107.0	14	51.4
February	10.0	5.4	6.6	75.8	18	23.2
March	10.4	3.0	4.1	89.1	15	56.1
April	11.2	3.4	8.7	111.0	17	118.5
May	16.8	7.0	12.5	62.9	9	155.1
June	16.2	8.2	14.1	105.9	16	118.1
July	19.4	10.4	14.9	93.0	17	97.9
August	18.3	10.6	15.7	88.7	16	130.7
September	17.3	10.4	14.7	60.8	13	141.7
October	12.7	5.9	11.6	189.5	21	136.1
November	8.7	2.9	7.5	131.1	23	86.9
December	8.4	1.6	5.9	107.8	23	39.2
Means/ Totals	**13.2**	**5.9**	**12.2**	**1222.6**	**202**	**1154.9**

Max air temperature: 25.1° on 13 May. Min air temperature: -6.5° on 27 December 1998. Last frost: 4 May 1998. First frost: 18 October 1998.

1998 was essentially a very wet year, with a distinct lack of sunshine. A wet but mild winter and early spring were followed by a short warm spell in May. The summer was then cool and wet, with little sunshine until mid September-early October, followed by a very wet but still mild autumn and early winter. At Auchincruive more than 2 days in 3 were rainy.

Meteorological data reproduced courtesy of SAC Auchincruive, SAC Crichton Royal Farm and RNAS Prestwick.

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