GRASSWARD

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FOREWORD

A major topic of discussion at the Societies meetings during the past winter has been the introduction of milk quotas and the means by which the dairy farmer can maintain his business turnover with a ceiling placed on output. Alternative enterprises have received much attention; nevertheless, of all the possibilities, only intensive bull beef approaches the gross margin generated by a well managed dairy herd.

With the reasonable sheep meat market at present in the EEC, both the sheep farmer, with his eye on expansion and the dairy farmer, with his eye on diversification, have been interested in this aspect of livestock production. However, cognisance must be taken of the changing price structure which has been introduced, with the emphasis on later finishing of lambs.

Two main articles in this issue of Greensward tackle the dairy and sheep dilemmas. David Sargent has presented a very thorough review of the dairy sector and Mary Lloyd has outlined the road to profit in the sheep sector. The message from both is that good livestock husbandry, efficient grassland management and financial management are the prerequisites for success. Think, plan and pay attention to detail are the orders of the day. An interesting farmer response to quotas is given by Alan Kyle from Northern Ireland.

Following on the quotas problem, the Government has announced savage cuts in the financing of research, development and advisory work undertaken by the Scottish Agricultural Colleges and the Scottish Research Institutes. At present the future is unclear, but if the suggested financial cutback is fully implemented staff cuts and reorganisation are inevitable. Changes may be lessened if sufficient revenue can be raised through charges for advice and services. Only time will tell if the present level of liaison, so equally rewarding to farmer, adviser and researcher, can be sustained.

It is with regret that the death of SWSGS founder President, Ian Jennings of New Galloway, is announced and the CSGS lost a staunch supporter on the passing of Jack Edwards of Dollar.

Finally a piece of special news. Many congratulations to SWSGS members John and Willie Carson of Conchieton, Twynholm who became the first Scottish winners of the prestigious UK silage competition sponsored by BGS and ICI. A report on the competition is presented later in this issue.

The Societies record their gratitude to Mrs. E. Craig for typing the manuscript and to the Advertisers for their continued support.

Ronald D. Harkess - Editor

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ADJUSTING TO CAP PRESSURES

THE OPPORTUNITIES FOR GRASS: THE DAIRYING SECTOR

E.D. Sargent

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How We Got To Where We Are

Ever since the Second World War, a combination of government policy and economic circumstances has encouraged dairy farmers to adopt high input/high output systems in order to try and ensure their survival in business.

Apart from a period during the war when County Agricultural Executive Committees were empowered to require farmers to plough up a portion of their farms for cropping, dairy farmers have had freedom of choice in selecting strategies for the future. But under the provisions of the Agricultural Act of 1947 and succeeding legislation, production grants and subsidies were made freely available to encourage investment in and modernisation of agriculture. However, government policy was not totally open-ended. From the late 1950's farmers were expected to achieve increases in efficiency of production and full recoupment of increases in costs of production was not allowed in Annual Price Reviews.

This "carrot and stick" approach was also adopted by the EEC and written into the Common Agricultural Policy in the "Objective Method" for determining prices. Thus, on the one hand, there were directives which gave rise to aid such as FHDS/AHDS schemes. These were designed so that, through modernisation, farm incomes could be lifted to levels comparable with non-agricultural work in the same region. On the other hand, the calculation of farm price increases required to keep agricultural earnings on a par with non-farm income, involved some monitoring of farm costs through the EC's Farm Accountancy Data Network. But the combined costs/earnings calculations were to be reduced by 1.5 per cent per annum in respect of "bio-technical" progress. The emergence of surpluses and CAP budgetary problems has led to a total change in attitude - at least as far as dairy farmers are concerned.

Whilst the wide range of grants and other aids played a part in setting most farmers on the route to high input/high output systems, outside economic pressures have forced them further and further along that road - giving rise to the well known "Treadmill Effect", where farmers who wish to remain in business have had to put on more cows and obtain higher yield per cow in order to ensure continuing economic viability.

In dairying, there have been many casualties along the way. In 1950 there were 196,387 registered milk producers in the United Kingdom. By 1983 these were down to 39,703 - a "wastage" of almost 80 per cent. Over the same period the number of dairy cows declined from 3.7 million to 3.3 million. This means that the survivors had increased business size substantially. Between 1954/55 and 1982, average herd size in England and Wales rose from 17 to 65 cows and heifers in milk and, in the Scottish Milk Marketing Board area, from 36 to 83 cows and heifers in milk. Over the same period, total sales of milk off farms in the United Kingdom rose from 8.9 billion litres to 16.4 billion litres. In England and Wales this represents an increase of 84 per cent, in Scotland an increase

of 45 per cent and in Northern Ireland no less than 207 per cent. Between 1955 and 1982, average yield per cow in England and Wales rose from 3114 to 5085 litres and in Scotland from 3173 to 5020 litres.

This is not the place to go into fascinating detail of the "Second Agricultural Revolution" of the last 40 years. But it is important to recognise that the switch from horsepower to tractor power; the substitution of labour by machinery and the radical changes in the structure of the national breeds, in building design, milking and dairy methods, in cow nutrition (especially the switch from hay and roots to silage) and in the use of agrochemicals have had penalties attached.

Dairy farms became less self-sufficient for inputs and became much more dependent on bought-in supplies. Not only has agriculture become a heavier user of finite fossil fuels (both directly and indirectly) but farming has become increasingly vulnerable to outside economic pressures - the combined effects of inflation in all input costs, changes in the value of the £ against other currencies and the effect of changes in interest rates (themselves dependent not only on the performance of the UK economy per se but also on movements in interest rates in other countries - notably the USA).

These outside influences were particularly severe in the 1970's. The long-term indifferent performance of the UK economy, which had always affected farm incomes, was exacerbated by the USSR's "Great Grain Robbery" in the US feed grain market which not only forced up world prices but attracted the attention of speculators who could make bigger margins dealing in soya rather than silver. The energy crisis of the early 1970's affected input costs while the high rates of inflation of the late 1970's brought problems of debt managmeent which are still with us.

How Did Dairy Farmers Fare?

Time series data for England and Wales is not available because of an apparent break in publication. Table 1 shows average net farm incomes for dairy farms in Scotland from 1970/71 to 1981/82 (latest available statistics).

Table 1. Dairy farm net incomes in Scotland 1970/71 to 1981/82.

Year	Net income current terms	August 1964 purchasing power
1970/71	3,011	14,648
1971/72	4,285	19,111
1972/73	5,656	23,376
1973/74	4,357	16,718
1974/75	5,230	17,918
1975/76	8,937	25,515
1976/77	9,385	21,754
1977/78	8,044	15,963
1978/79	6,663	12,040
1979/80	3,376	5,580
1980/81	5,488	7,667
1981/82	10,755	13,307

Incomes are shown in actual and real terms i.e. past incomes are adjusted to show their purchasing power in August 1984 terms. The data should be treated with caution because it is not based on a comparable sample of farms and because of the accountancy conventions used. All farms are treated as though rented and an imputed rent is put on improvements. There have also been changes in the method of calculating depreciation and no account is taken of bank interest charges. Thus these net incomes do not give a measure of the cash position. The sample also contains a wide range of efficiencies.

The data indicate that dairy farmers have not enjoyed an "income bonanza" as a result of EEC membership. Indeed, the average annual real income over the nine years since the UK joined the EEC (1973/74 onwards) is £15,165 compared with £19,045 in the three years immediately prior to that event. While farmers in other EEC countries may have gained financially, the economic events in the UK outlined earlier - particularly inflation - have caused problems.

However, some dairy farms, particularly the "above-average", have managed to keep ahead of inflation.

Table 2. Average technical and financial performance of an identical sample of 60 herds 1973/74 to 1982/83.

	Unit	1973/74	1976/77	1979/80	1982/83
Herd size	Cows	97	107	117	127
Yield per cow	litres	4270	4751	5129	5611
Stocking rate	cows/ha	2.17	2.23	2.23	2.24
Concentrates:					
- per cow	kg	1110	1398	1624	1678
- per litre	kg	0.26	0.29	0.32	0.30
N use	kg/ha	234	265	273	285
Gross margin per ha	£	330	576	710	1081
Herd Gross Margin - real (1973/74) prices	£	14753	18116	21408	25338

Source: WSAC Milk Production Systems Investigation.

Table 2 shows the performance of 60 herds, recorded continuously over the ten years 1973/74 to 1982/83 inclusive, in the West of Scotland Agricultural College's Milk Production Systems Investigation (MPSI). Up to the Gross Margin stage only these farms managed to overcome the effects of inflation and were appreciably 'better off' after ten years.

They did this by, on average, increasing herd size by 30 cows, increasing the grass area allocated to the dairy herd from 45 ha to 57 ha but at the same time achieving high stocking rates per hectare, increasing concentrate feeding per cow from 1100 kg to 1678 kg per cow and increasing yield per cow from 4270 litres to 5611 litres. At the same time, Nitrogen use was increased by 51 kg N per hectare.

On a whole-herd basis, concentrate use increased from 107.7 to 213.1 tonnes per year (an extra 105.4 tonnes feed per year) and nitrogen use increased by

the equivalent of 17 tonnes of a 34.5% N fertilizer - from 30 tonnes to 47 tonnes.

There is no question that intensification paid off. Returns might have been even greater had better use been made of grass. Even so, the extra total milk was produced with an average marginal use of concentrates of 0.36 kg per litre - which is hardly excessive.

The MPSI data have demonstrated that a combination of "High Input/High Output" has consistently produced the highest Gross Margins per cow and per hectare (Table 3).

Table 3. Effect of yield combined with stocking rate on gross margin: 188 dairy farms - 1983/84.

		Average Yield/Cow		
Item	Unit	High	Low	
Yield	litres/cow	6201	4864	HIGH STOCKING
Stocking	cows/ha	2.51	2.44	
Concentrate use	kg/cow	1915	1497	
N use	kg/ha	335	297	
Gross Margin	£/ha	1200	925	
Yield	litres/cow	5887	4862	LOW STOCKING RATE
Stocking	cows/ha	2.05	2.07	
Concentrate use	kg/cow	1796	1378	
N use	kg/ha	272	256	
Gross Margin	£/ha	932	798	

Critics of this type of presentation have argued that, if fixed costs were taken into account, the net margin from the dairy herd might show that High Input/High Output systems were not the most profitable. Cooperators in MPSI did not undertake detailed recording and allocation of fixed costs. Information from other sources was used to examine this contention - the Scottish Milk Net Margins Investigation. This is a project jointly sponsored by the Scottish Milk Marketing Boards and the Department of Agriculture and Fisheries for Scotland, carried out by the three Scottish Agricultural Colleges, coordinated and reported on by the Economics Division of the West College. In this investigation, a portion of farm fixed costs is allocated to the milking herd. Using the same combinations of yield and stocking rate it can be seen (Table 4) that the "High" yield per cow with "High" stocking rate group showed the highest Net Margins per cow and per forage hectare.

Table 4. Effect of yield combined with stocking rate on net margin 107 herds - 1983/84.

Average Yield Per Cow			
High		Low	
Net Margin/cow = £146.9	HIGH STOCKING RATE	Net Margin/cow = £ 45.5	
Net Margin/ha = £364.2		Net Margin/ha = £106.5	
Net Margin/cow = £120.0	LOW STOCKING RATE	Net Margin/cow = £ 3.6	
Net Margin/ha = £212.5		Net Margin/ha = £ 6.6	

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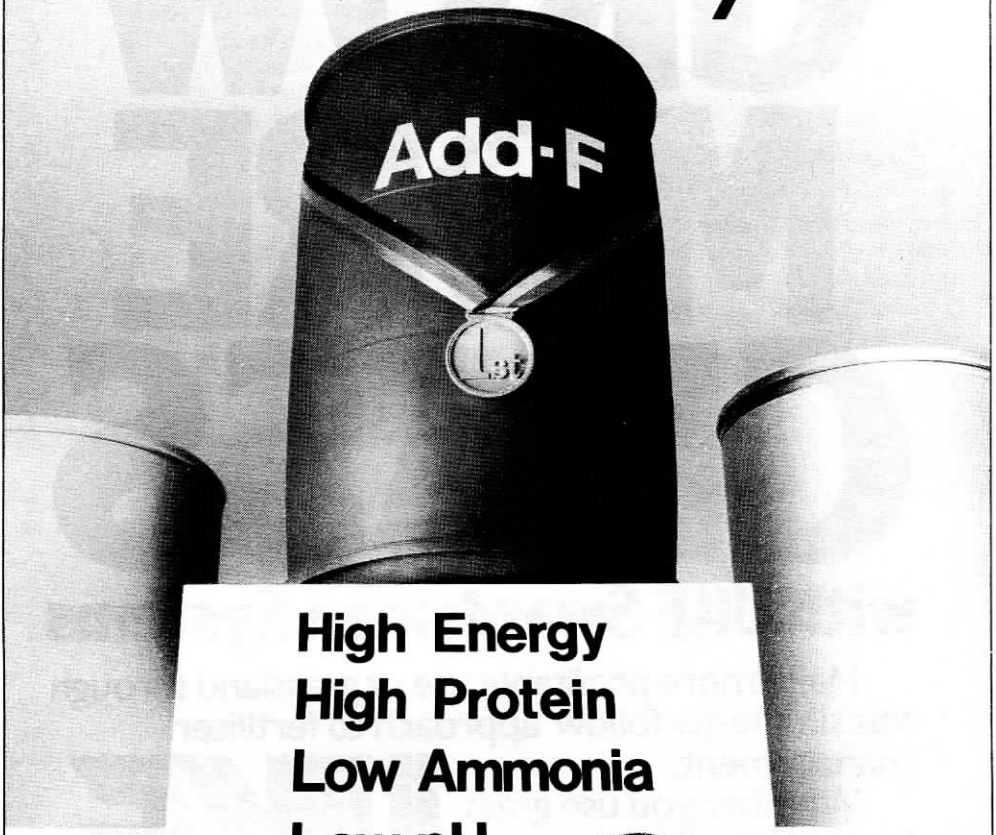

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The next best results were obtained by farms with a combination of 'High' yield per cow and 'Low' stocking rate, then by 'Low' yield per cow and 'High' stocking rate; the poorest results coming from a combination fo 'Low' yield and 'Low' stocking.

Thus, until 2 April 1984, intensification in milk production paid the 'average' farmer - albeit at a cost of mounting surpluses It is interesting to note, in passing, that this response by British dairy farmer's to economic pressures resulted in the United Kingdom accounting for 25% of the total extra milk produced in the EEC between 1975 and 1982!

The New Circumstances Facing The Dairy Farmer

With the imposition of a quota-levy system on 2 April 1984, the stated EEC objective of a "prudent pricing policy" insofar as the Target Price for milk is concerned, together with an increase in co-responsibility levy, the farmer faces a new set of constraints:

1. Loss of freedom of choice of future strategies through a limitation on physical quantities of milk which can be sold in future without attracting a super-levy.

2. A physical reduction in the permitted total sales to the Board of milk not subject to levy.

3. The likelihood of very modest price rises for milk - certainly in terms of the EEC target price. Depending on the rate of inflation, such modest price increases may result in a fall in real price.

4. Indeed the future performance of the UK economy will be a critical factor affecting the survivability of many farm businesses.

With the introduction of quotas, many dairy farmers find themselves part-way through development plans with capital committed and little chance of expanding output to cover the additional costs. True, a portion of the reserve quota has been set aside for allocation to developers but there are so many applicants that it seems inevitable that, with the limited reserve available, most farmers are likely to be disappointed with their extra allocation.

The continued growth in bank lending, to an industry which faces retrenchment rather than expansion prospects, is extremely worrying.

Table 5. Scottish bank lending to Scottish farmers (as at end May).

Year	£m
1979	355.8
1980	480.0
1981	576.9
1982	614.1
1983	684.5
1984	764.6

Only the Scottish banks publish lending to farmers (in England and Wales, bank borrowing to agriculture, forestry and fisheries is lumped together). Unfortunately, data on lending to farmers is not split into lending by farm type - it would be interesting to see such a split.

Bankers occasionally produce balance sheets for agriculture which show that at current values, there is adequate asset backing for current lending levels, the ratio of equity to debt being generally satisfactory. They also argue that the nature of bank lending has changed and that, compared with the past, banks now lend more long-term capital for land purchase; that with gradual tightening of merchant credit terms over the last 20 years they have stepped in to provide credit for purchase of requisites and that, because of inflation, family loans make a less significant contribution to finance than they did in the past and the banks are therefore providing more. This is all reasonable argument but the fact remains that in recent years farmers' indebtedness has increased faster than the rate of inflation and that this debt has to be serviced from farm incomes which, in general, are declining in real terms.

Not all farmer borrowing is for business purposes - a portion will be to finance private consumption - but for many individuals who are over-borrowed and who have compounded their mistakes by over-extending themselves with leasing and HP payments, future prospects must be gloomy and there will inevitably be financial casualties. Farm indebtedness varies and much depends on past timing of investment but, for everyone, efficient debt management in future will be vital.

But debt and future movements in interest rates is not the only financial problem. Effective managememt and control of all farm costs will be of paramount importance in the years ahead.

Full farm costings on behalf of both government and the EEC are undertaken by the Universities in England and Wales and by the Scottish Colleges. On a sample of 85 dairy farms costed by the West of Scotland Agricultural College, total costs (excluding bank interest) for an 'average farm' of 83 hectares and carrying, among other enterprises, a dairy herd of 88 cows, reached an estimated £102,230 in the financial year 1983/84. An annual rate of inflation of 6% over all costs would increase total costs by £6,134 in one year. The average total borrowings for this sample of farms was £31,107. An increase of 1% in the interest rates would therefore cost an extra £311. This highlights the relative importance of movements in inflation and in bank interest rate. Continuing control of inflation by government - where possible - is obviously crucial to future prospects.

When trends in costs were examined, variable costs rose by 45 per cent over the 5 years ending 1983/84 while fixed costs rose by 52 per cent over the same period. Control of these so-called fixed costs - labour, machinery and power and property costs is clearly necessary for future survival. Looking at cost breakdown in more detail, grain and concentrates amounted to 35 per cent of total dairy farm costs; labour (including an allowance for the manual labour of the farmer and his wife) for 20%; machinery and power for 14% and forage production - seeds, fertilizer, roughage bought and grazing rented - for 12% of costs.

If the allowance for farmer and wife manual labour is removed, labour costs would be substantially reduced. This suggests that cost planning and control should centre in the first instance around feed costs (grain and concentrates) and on expenditure on machinery and power.

The foregoing highlights the need for a redirection of our attention. In the past, monitoring of the performance of the milking herd only has received most of our attention. In the future we must look at the farm as a whole, in which, of course, the milking herd will remain an important component. Future decisions on investment as well as technical and financial adjustment must also relate to the business as a whole.

Financial management and business planning skills are patchy. Improvement of these skills is difficult to teach and advise on but it is an area that farmers will neglect at their peril.

Adjusting to Quotas

Much has been written and reported on the options open to farmers. Some scepticism is justified about the manifold calculations which have been churned out. Some of them appeal to the dubious authority of the computer and others, one suspects, are based on vested interests. The options open to the individual boil down to three main ones:

1. Reduce cow numbers substantially so as to achieve the required reduction in milk sales to meet quota; carrying on with the techniques you know, which essentially mean aiming for high yield per cow. Because most farmers would cull problem cows - those with a history of mastitis, lameness, rebreeding or behavioural problems or low fat tests it would probably be necessary to cull more than, say, 9 per cent of cows to achieve a 9 per cent reduction in yield. This option may suit the pedigree breeder who wishes to continue the pursuit of high yields. It would also suit those who would find any marked change in production techniques difficult to make. This would include farmers who, for either environmental reasons (wet land with a short grazing season) or because of a lack of management expertise, cannot manage grass efficiently.

   A reduction in cow numbers - and automatically a reduction in replacements required - releases land for other use, either enabling expensive rended grazing to be given up and stock brought home, or allowing other enterprises to be introduced. Care is needed in budgeting for this sort of change. Even within the new constraints, dairying is still the most profitable enterprise per hectare.

Table 6. Forecast gross margins 1984/85.

	£ per hectare
Dairy cows - 5000 litres	
Ad lib Silage, 0.53 ha per cow	825-950
Spring Barley (5.5 t/ha)	442
Winter Barley (6.5 t/ha)	547
Winter Wheat (7.0 t/ha)	589
Suckler Cows	280-340
18 Month Beef	579
14 Month Silage-based Bull Beef	967
Wintering Stores (Suckled Calves)	500-800
Winter Fattening	700-760
Summer Fattening	200-325
Greyface Ewes (12 ewes/ha)	375
Draft Ewes sold with lambs at foot	600
Lambs finished on swedes (Oct-Apr)	592

Data in Table 6 are based on the Scottish Agricultural Farm Management Handbook estimates for 1984/85. It shows that, apart from silage-based bull beef, most alternative enterprises are less profitable to the Gross Margin per hectare stage.

It must also be recognised that, in introducing new enterprises, additional capital investment may be needed for buildings, machinery and fencing; extra working capital is required and - most important - new skills may need to be developed. Unless farmers already possess these skills, performance during the "learning phase" may well be disappointingly below target performances used in budgets. The effect of any change on farm overheads must be considered in addition to gross margin budgeting, plus effects on labour profiles and on cash flows. The influence of additional stock enterprises on grass and silage requirements must be taken into account - especially in circumstances where some substitution of grass and silage for concentrates is also planned for the reduced dairy herd.

Options on large farms in arable areas are generally wider-ranging than those on small family farms in the West where, in many cases, grazing livestock enterprises are the only alternative, cereals being difficult to grow because of climate, topography and field size.

A 9 to 12 per cent reduction in cow and replacement members releases less area from a small herd than from a large herd. More area is released from systems with a low stocking rate than from those with a high stocking rate.

Caution is needed in examining alternatives. Barley and wheat are in over-production, real prices are likely to fall and the possibility of area quotas has been mooted. A fall in real prices and continual increases in input costs can only lead to lower profits. Oil seed rape does not have unlimited expansion prospects.

On the beef front it has been forecast that EEC surpluses could reach a peak of 600,000 tonnes by the end of 1984 and 1 million tonnes by 1990. In the UK a short-term increase in production is likely because:-

a) cows will be culled from the national dairy herd in response to quotas.

b) dairy farmers may introduce a beef enterprise. In the long-term the reduction of the national dairy herd will reduce the supply of beef but this might be compensated for by increased production from-

   i) those who leave the dairy industry and opt for beef production from lowground suckler cows.

   ii) marginal arable farms which move out of cereals and back into beef from sucklers.

   iii) possible expansion in beef production from upland farms responding to any perceived short-run shortage of beef. This is a topic for other speakers.

   An expansion in sheep production may also cause marketing problems and further pressures on the Sheepmeat Regime.

   Farmers could consider a range of 'erotica' as possible alternative enterprises - milk sheep, veal, venison, lupins - and even quinoa. Though these may appear attractive, any widespread mania for producing large amounts of

relatively exotic products could lead to marketing problems - though there may be limited local markets for some of them which will fall to the innovator. In general, it is difficult to see unlimited opportunities for expansion in any alternative enterprises at the present time.

2. Keep the same number of cows and reduce yield per cow by cutting concentrates and, where possible, substituting cheaper grass and forage for concentrates.

   This strategy would maintain the asset values of the cows but on the other hand would increase the proportion of total feed costs going on maintenance requirements for the cows. It would keep up income from cull cows and calves (especially those destined for beef if a strong demand were maintained from traditional beef finishers in arable areas) and would possibly provide a source of replacement heifers for those who have over-reacted to quotas by using 'too much' beef crossing. Unfortunately, a large number of people are already taking a gamble on this possibility.

   Reducing production from the existing herd size and cutting costs back even harder in attempting to maintain margins is probably the most difficult strategy to get right. It might be possible in the short term to maintain margins-over-feed and forage but would take skillful manipulation. Longer-term, continued inflation in total farm costs would make it increasingly difficult to maintain farm profits.

3. The middle way - some reduction in cow numbers and simultaneous reduction in concentrate feeding (again with some substitution of concentrates by grass).

   This seems to be the most popular option among those people who have made an effort to adjust to quotas. It enables farmers who have expanded in recent years to do some (delayed) culling without the danger of flooding the cull cow market. It maintains asset values and income from calves and cull cows; gives a degree of flexibility in re-organising strategies should this be needed and calls for less radical changes in cutting concentrates or improving grassland performance. There still remains the problem of coping with future cost rises.

The decision on which option to take is very much one for the individual farm. There is no panacea and much depends on the technical and managerial ability of the farmer, the quality of his land and his cows, the natural environment in which he works, his current level of debt and likely future capital and cash needs.

The Magnitude of Changes

Dr. David Leaver has calculated the changes in annual concentrate inputs and UME required to maintain margin over feed and forage (MOFF) per hectare values at previous levels. In the following table a previous concentrate usage of 0.30 kg per litre has been assumed.

Table 7. Strategies for maintaining MOFF/ha (previous concentrate use 0.30 kg per litre.

Strategy No	Change in cow numbers	Change in annual yield per cow	Change in annual conc. input/cow	Change in UME/ha
1	-9%	0	-20%	+0.5%
2	0	-9%	-27%	+7.0%
3	-4%	-5.2%	-24%	+4.0%

Source: J.D. Leaver, "Strategies for Maintaining Margins with Quotas", WSAC Technical Note No. 229, June, 1984.

The percentage changes apply across all yield and UME levels.

At lower base levels per litre, the required reduction in concentrate use is higher than that shown in the Table; at higher base levels of feeding, a lower reduction.

All these changes involve a considerable reduction in concentrate use both in terms of per cow and per litre.

David Leaver says that the increases in UME per hectare i.e. increases in grass/forage intake should be achievable on most farms without necessarily requiring extra fertilizer inputs and he suggests possible ways of doing it:

a) increasing grazing stocking rates from turn-out to first-cut silage - at least to 6 cows per hectare, or house the cows overnight offering them ad lib silage and stocking them on grazing at around 10 cows/ha. These measures allow an increase in the area cut for silage - and you get higher UME levels from cutting than from grazing.

b) cutting and ensiling all excess grass throughout the growing season (though this may be more difficult on set-stocking systems than with rotational grazing).

c) reducing losses in the ensiling process.

All the strategies imply that greater emphasis and attention will need to be put on-

i) having unrestricted access to sufficient good quality forage in winter.

ii) achieving much better performance from grazing grass in summer with a reduction of concentrate inputs and an increase in stocking rates.

The use of silage as a buffer feed throughout the summer has been suggested as one possibility.

Improving the Contribution of Grass in Practice

Whilst accepting the Leaver calculations and his claim that UME can be increased without the need for much more spending on fertilizer, this probably applies mainly to the skilled grassland manager.

On many farms, however, there is a yawning gap between what might be possible and what is actually achieved.

It must be accepted that some farmers are quite hopeless as grassland managers and others are disadvantaged by soil and climate conditions. As stated earlier, for these people, strategies calling for more efficient production and utilization of grass are just 'not on'.

For the rest, there is still much to learn. Despite the proven value of spring grass, farmers have for years fed 'too much' concentrates in the summer and, for winter feeding, have made either too little silage or run into intake problems with silage because of the level of concentrate feeding.

Costings schemes operated by the Milk Marketing Board in England and Wales and by the West of Scotland Agricultural College have clearly demonstrated a high correlation between UME and Margin over Feed and Forage and between UME and Gross Margin per Hectare but the message seems to have fallen on deaf ears.

It is only in this past summer, with the reaction (possibly over-reaction) to quotas that concentrate feeding at grass has been sharply reduced and grass allowed to show its potential.

Table 8. Performance in the grazing season, 107 farms in the Milk Production Systems Investigation 1st May to 31st August (4 months).

	1983	1984	+/- 1984 on 1983	% Change
Cows	111	108	- 3	- 3
Calvings	20	20		
Total Milk, litres	216950	204124	-12862	- 6
Yield/cow	1963	1895	- 68	- 3
Conc (kg)	36764	18206	-18558	-50
MOC (Total)	£24252	£24991	+ £739	+ 3
Milk Price	13.75p	13.66p	-0.09p	- 1
Conc Price/t	£152	£159	+ £7	+ 5

Source: WSAC Milk Production Systems Investigation

Even so we don't know whether, in achieving these results, farmers used areas originally set aside for silage, for grazing and that the penalty for this will be paid this winter in terms of lack of silage quantity and cow condition. The summer drought may well have exacerbated the situation in some areas.

In MPSI we have tried for years to find a relationship between 'D' value of silage and yield per cow, concentrates fed per cow and Gross Margin per cow and per hectare. This has only been possible in two out of the twelve years that the investigation has been in operation. This is thought to be due to a lack of confidence on the part of farmers in the contribution which silage could make to the diet of the dairy cow. There may also have been an element of "insurance", with farmers continuing to feed concentrates at fairly high levels, with silage "just to be on the safe side". This might lead to intake problems.

Perhaps D value is too simplistic a measure of quality and other factors such as fermentation quality and contamination by soil should be taken into account. Whatever the answer, it is clear that more effort should go into learning how to make and feed silage.

For many years, the message to farmers has been that grass is a cheap food - whether in terms of SE or UME - to produce. The concept of maximising ME production and utilization is one on which much stress is now being laid. But it must be recognised that while UME is useful for a "blunt instrument" approach, too much precision must not be claimed for it as a basis for calculation and the production of detailed plans.

Farmers must be persuaded to get grassland production right before going for better utilization i.e. farmers must make sure that they have silage and grass available. Each farmer should ask: Is my grassland right; have I enough silage? is my Nitrogen strategy right?; Is my stocking rate and stocking policy right? Get all these right first then reduce concentrate feeding. If farmers cut concentrates without forward planning of grass/silage production and utilization they are likely to end up in trouble and lose faith in the potential contribution which grass can make.

When to plan is important. March is too late to be thinking about the following summer or winter forage needs. There is probably a lot to be said for going back to what may seem an 'old hat' idea of drawing up a map of the farm and to plan ahead field use and fertiliser treatment.

Above all, each person has his own level of management skills and knowledge. Relating these to the constrains imposed by land quality the golden rule must be:

MAKE DECISIONS YOU CAN COPE WITH; NOT IDEALIZED DECISIONS.

Conclusions

Two different skills must be developed in the future:

i) financial management and decision-making skills
ii) grassland management skills

Both are difficult to learn and keep up.

More research effort is needed to establish and measure the levels that individuals can manage at. The aim should be to tailor grazing systems to individual needs and perhaps put less emphasis on over-simplification, more emphasis on treating grass as a valuable crop and one that is expensive to neglect. Technical efficiency will continue to be important - in feeding concentrates (hopefully with more precision on quantity), in the control of dairy cow herd health and fertility, in genetic improvement as well as in grass management.

However, it must be recognised that how you spend money has never been so important. Not only must management be technically right - it has to be financially right. Low input/low output farming is no answer to continuing economic pressures. Making enough money to provide personal drawings, to service debt and - with luck - to reinvest in the farm is the challenge of the future.

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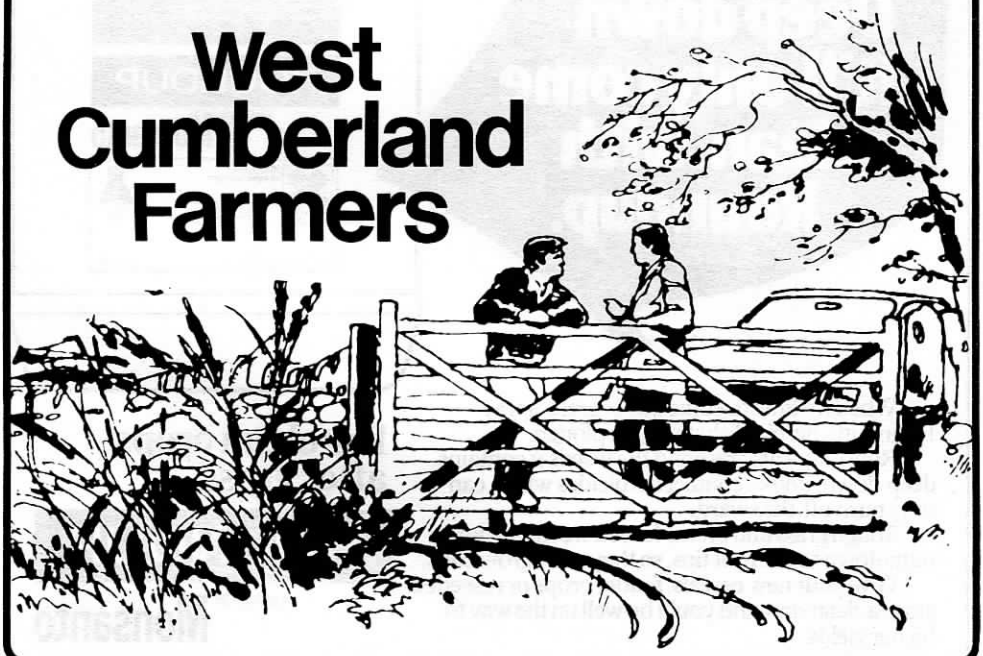

DAIRY FARMING TO MEET THE QUOTAS

Alan Kyle

Lissahoppin, Omagh, Northern Ireland

A joint meeting of the SWSGS and the Farm Management Association at the Ernespie Hotel, Castle Douglas, 15 November, 1984.

Lisahoppin extends to 119 ha and is made up from three holdings. At present the farm carries 164 dairy cows, 49 heifers and 42 calves. The switch back into dairying was made in 1979 after having opted out in 1973. However, to make milk production a more bearable business, it was decided to spring calve the cows (January-March) and then dry then off on 7th November and have seven weeks with no milking. Spring calving enables maximum use to be made of grass and this is essential when considering the cost of feeds. For example, the unit price of energy is as follows:- grazing 0.31p, silage 0.58p, hay 0.79p, barley 1.05p and concentrates 1.32p. In addition to exploiting grass, spring calving 'en bloc' means easier calf rearing, and flat rate feeding can also be introduced to simplify the system. The grassland comprises 32 ha for cow grazing, 10 ha for heifers and 45 ha for silage. The rainfall is 1220 mm per annum. In addition, cropping extends to 7 ha winter wheat, 8 ha winter barley, 15 ha spring barley and 2.5 ha of strawberries for self-pick.

Cow performance at the end of October 1984 was yield 4351 litres per cow with 0.45 t concentrate. 416 kg N per ha was applied and a stocking rate of 2.47 cows/ha gave a MOFF of £468 per cow or £1155 per ha. New buildings were put up in 1979 and comprise a 16/16 parlour, slatted yard, cubicle and a central feeding passage with 600 mm feeding space per cow.

Grazing

The 32 ha of cow grazing are split into 22 paddocks although 7 ha of this was cut for silage in 1984. Stocking rate starts at 5.5 cows/ha up to July, then 5 to mid August and then 4.5 for the rest of the year. This is tight at times but buffer feeding with silage overcomes any shortfall in pasture grass. Zero grazing with daily machinery use was ruled out.

A compound fertiliser (27:6:6) is used on the paddocks to apply 70 kg N/ha for the first two grazings, 65 kg N for the third grazing and 55 kg N for each of the grazings thereafter. Spring grazing starts around 25 April and concentrates are immediately halved. After one week at grass concentrate feeding is stopped. Calcined magnesite is dusted on to the sward 3 days before grazing. Silage feeding will start about the third week in September - trough fed morning and night and the cows are housed in mid October.

Silage

Four cuts of silage are made. Cuts 2-4 are fed to heifers and dry cows and cut 1 to the milking stock. Silage is fed via a forage box and concentrates are spread along the top of the silage - at the flat rate of 4 kg per head per day.

The home mix meal based on barley and balancer pellets, costs £123/t.

First cut silage this year analysed as follows: pH 3.9, ammonia N 67, DM 23.3%, MAD fibre 25.4, CP 15.3%, ME 11.3, D 71. Second and third cut silages were disappointing, despite the dry weather, due to high ammonia and butyric acid. This may have been due to a high nitrate content in the grass which had a crude protein content of around 20%. However the fourth cut taken in September has turned out well.

Young stock - Calves are left with their dams for 12-24 hours then put into single pens for 4 days. Thereafter they are moved in groups of 8 to 3 m x 4 m pens lined with straw bales. They are weaned once eating 1 kg concentrates per day at about 5 weeks old. At 9 weeks they move into a calf cubicle house (cubicle 600 mm x 1200 mm) and are offered silage ad libitum along with concentrate on top - just as they will receive once they join the milking herd.

During summer a leader and follower system is used over 4 paddocks with the calves followed by the heifers. All are dosed regularly during the summer and the heifers are served at around 330 kg liveweight on 22 March.

Silage Blueprint

Stock off silage ground, 1 November
Slurry from Xmas to February
1st week March 40 kg N/ha in a compound
4th week March 70 kg N/ha in a compound
Then roll, never harrow
First cut 12 May followed by 120 kg N
Second cut 16 June followed by 100 kg N
Third cut 21 July followed by 85 kg N
Fourth cut 1 September followed by slurry for late grazing

The target is to make 9-10 t silage per cow at 68-70 D and ADD F (85% formic acid) is used on all silage. A good fermentation and easy feeding are essential to encourage a high intake. A John Deere 4 wheel drive tractor is used first to cut with a Grasshopper 3 m mower and then to lift with a Claas precision chop forager. 45 ha are cleared in 4 days and the fertiliser is applied the following day. Most of the sward is old grassland. The 4 cuts per year plus the adequate fertiliser have rejuvenated these swards and there is no pressure to reseed. Swards if kept leafy and cut before seed heads appear, remain vigorous and healthy.

Quota Options

Concentrate feeding is already low and there is little scope for a reduced input. Fortunately it proved possible to lease an additional quota from a neighbouring unit (paying 2.5p/l for 4½ years). Unfortunately this year it is likely to mean selling 27,000 litres over quota at 3p - not good business! The options for the future for a 798,620 litre quota (and programming for 810,000 litres as a safety precaution) are as follows:

	Current	Option 1	Option 2	Option 3
No. of cows	164	184	162	193
Litres/cow	4351	4400	5000	4183
Concentrates t/cow	0.46	0.31	0.92	0
Fertiliser kg N/ha	440	475	440	500
MOFF/cow £	468	488	506	488
MOFF £	76,752	89,792	81,972	94,184

Option 1 is most attractive and is likely to be the option followed. However in the long term Option 3, relying entirely on grass is most interesting and is attainable with good grassland management. It will be important in future to maximise the business margin from the milk quota and yield per cow will not be so important.

In conclusion the key points employed at Lissahoppin to produce milk from grass are as follows:- block calving in spring; no meal before calving; flat rate feeding; no meal at grass; stock sward tightly especially in spring; make adequate good quality silage; apply sufficient fertiliser at the correct time; easy feed to stimulate intake; introduce calves to cubicles and silage at an early age.

Discussion

The problems of seasonal milk supply to the Boards was discussed, some concern being expressed lest a switch to summer milk may cause difficulties. Perhaps creameries could reduce their activity for a few weeks when the cows were dry. A suggestion was made that the Boards would be likely to adjust milk prices to retain a more regular flow of milk over the year. However, the speaker's farming system was an example of the New Zealand system which would not necessarily be recommended unreservedly for all units.

Mr. Kyle's blueprint and grassland management ability received considerable commendation. His 7 week no milking period gave him time to think and plan ahead for the next year. Seven weeks 'no milking' did not mean 7 weeks holiday! - it was decision making time.

Asked about grass seed mixtures, where new swards were established under cereals, a mid-season ryegrass such as Barlenna was mixed with a late pasture ryegrass. Even in the silage fields with their high N input clover did flourish.

Switching to breeding policy both AI and bulls are used. Anything which has not calved by 31 March is sold. Cows calving at an interval of 14 months cannot be afforded.

Silage making is important to Mr. Kyle's system and questions were asked concerning additive use. The speaker applies formic acid to all his silage. Sulphuric acid has not been tried but because of its cheapness, an open mind will be kept until there is further information available. It is not possible to make silage too good and a comment from the chair suggested that the years of better value silage were the years of better margins.

Concerning direct cutting for silage instead of mowing and then lifting, the speaker reckoned that it took 50 tractor hours to clear his 45 ha whilst direct cutting took 70-80 tractor hours, so the two stage system was much faster. It would also help in achieving the 20-25% dry matter target. If possible silage was always cut when dry. However, a comment from the floor suggested that if the tractor power was sufficient output need not be reduced. This sparked off a debate on machinery costs but factors such as faster work rates, less operator fatigue and safety had also to be brought in to the consideration.

Asked if he would not have been better off had he fed more concentrate in 1983 the speaker replied 'wouldn't we all!'. The no concentrate option was attractive but it was something to be approached cautiously as ones expertise with grassland management improved. In view of Mr. Sargent's information showing improved margins despite a substantial drop in concentrate input during the last summer it was suggested that perhaps a levy on concentrates should have been introduced some years ago! Indeed another contribution suggested a levy on fertiliser N may have reduced production and asked just how much one could pay for fertiliser N and make it pay. The concensus was that even at £200/t it would still pay to use it and feed grass but it would be important to ensure better utilisation of the grass grown. A report from the south of Britain suggested that fertiliser would have to rise by at least 30% and with no increase in end produce price before there would be pressure to switch to a low N/higher clover option of farming.

In reply to a question on the long term future of the industry Mr. Sargent suggested that two factors were critical: i) control of inflation - it if stays at its present level things won't be too bad but if it takes off things will be very difficult; ii) EEC/Government intentions on how big an agricultural industry they want. Germany and France with its larger agricultural vote will probably aid things by ensuring some price rises. However in the last 30 years, there has been an 80% wastage amongst milk producers and those who will survive in future will be those with a controlled financial management and use grass as the lifeline.

A final questioner asked if in 10 years time there would be any dairy farmers around if synthetic milk from soya bean was around. The speakers felt that the efficient dairy men would cope with the challenge. The consumer has been exposed to synthetic alternatives in the food stores for some years but a correctly priced natural product should sustain a demand.

CONCHIETON WINS THE 'SCOTTISH'

John and Willie Carson of Conchieton, Twynholm, the SWSGS representatives in the BGS Scottish Region silage competition, won the Scottish Trophy. John and Willie had to do battle with Sandy Bankier from CSGS and representatives from the Norgrass and ESCA societies for the final honours to represent Scotland in this year's UK national final. For that result see page 21.

UK CHAMPIONS - JOHN & WILLIE LAND THE BIG ONE

Based on an information report prepared by the British Grassland Society, 1985

This years British Grassland Society top award in the National Silage Competition has been won by SWSGS members John and William Carson, Conchieton, Twynholm, Kirkcudbrightshire. This is the first time the award has been won by an entry from Scotland. The Carson partnership beat the eight other regional finalists in the competition which is open to all members of UK grassland societies affiliated to the BGS.

The winning silage helped achieve outstanding results for the 70 hectare farm's 60 plus dairy cows. Milk production at 6037 litres/cow with a stocking rate of 2.47 cows/ha and a concentrate input of 850 kg/cow lead to a margin over feed and forage of £1697/ha. In addition to the dairy herd there is a substantial beef from silage enterprise. A simple self-feeding method is used for both types of stock. No exceptional machinery was involved in making this championship silage.

John and Willy were presented with the ICI NITRAM Trophy by Professor Ron Bell, Director General of ADAS, at a ceremony in London in March. They also received 10 tonnes of NITRAM donated by ICI Agricultural Division who sponsored the competition.

The runner-up in the competition was Mr. William Graham, from Ballymena, Co. Antrim who runs a beef fattening enterprise on 37 hectares. As at Conchieton, 3 cuts of silage are made but the beef animals are on an easy-feed system. William Graham received a trophy and 5 tonnes of NITRAM.

The Score Sheet

Judges for the competition were Alan Adamson, (ADAS South West Regional Nutrition Chemist), John Davies (representing last year's winner) and Ken Nelson (Agriculture Consultant). Both chemical analysis and visual inspection played a part in the judges' decision as did the efficiency of making and feeding the silage. The contribution silage made to production was also assessed.

The following marks were achieved by the winner and runner-up.

	Maximum score	J & W Carson Winners	W Graham Runner-up
Silage Analysis			
Dry matter content	2	0.6	0
Metabolisable energy	12	11.8	12.0
Ammonia N	15	12.7	14.1
Crude protein	6	6.0	5.7
Sub total	35	31.1	31.8
Silage Inspection			
Surface waste	10	9.5	7.5
Visual assessment of quality	15	15.0	13.5
Effluent control	5	5.0	4.0
Sub total	30	29.5	25.0

	Maximum score	J & W Carson Winners	W Graham Runner-up
Production and Utilisation			
Efficiency of silage making	5	4.0	5.0
Efficiency of feeding	9	9.0	7.5
Contribution of silage to the diet	10	9.5	9.0
Stocking density	6	5.0	5.0
Overall impression	5	5.0	4.0
Sub total	35	32.5	30.5
Grand total	100	93.1	87.5

Commenting on the winner's performance, Alan Adamson said on behalf of the judges that it demonstrated that to succeed in making quality silage there is no need for an expensive, complicated system. 'Simplication can in fact make it easier to concentrate on timing and attention to detail'.

THE BRITISH GRASSLAND SOCIETY

1. A symposium on 'Grazing Management' is to be held in the Abbey Hotel, Great Malvern, 5-7 November, 1985.

2. The winter meeting of the Society is to be held at the Purcell Room, South Bank, London on Wednesday 4 December 1985. The theme of the meeting is 'Grassland Manuring'.

3. 'Scotland goes for Grass'. This is the theme of the 1986 summer meeting when the Society visits the west of Scotland, 21-25 July. The meeting will be centred at Wolfson Hall in Glasgow with visits to good commercial dairy, beef and sheep units in Lanarkshire, Renfrewshire, Ayrshire and the Isle of Bute. Research into upland beef/sheep production will be demonstrated by the Hill Farming Research Organisation at Hartwood and Scotland's premier dairy research unit at Crichton Royal Farm, Dumfries will also be on display.

   An attractive ladies social programme includes the Burrell collection of antiques and objets d'art, a visit to the ancestral home of Lord Bute and a tour of the Burns Country.

   The SWSGS and CSGS are joint hosts for the meeting. Dr Malcolm Castle is Host Vice President and David Marshall, The West of Scotland Agricultural College, Lanark, is organising secretary. Members will be kept fully informed via Society secretaries but remember, 'if you can't come to stay, then come for a day'.

EFFICIENT GRASSLAND USE - THE KEY TO PROFITABLE MILK PRODUCTION

Dr. J.D. Leaver
Crichton Royal Farm

A meeting of CSGS held at Gryffe Arms Hotel, Bridge of Weir, 21 November, 1984.

For many years agricultural advisers have been preaching the need to obtain more from grass, and the savings which can be made from not feeding concentrates during the summer. It has taken until this year for the majority of dairy farmers to fully grasp this message. The one factor which overnight has totally changed attitudes towards grassland management is the advent of milk quotas, and the only way that farmers are going to stay in profitable business is to make best use of grass. The major problem with quotas is that sales are restricted and therefore the traditional response to increasing financial pressures, to produce more, is no longer an option. In the west of Scotland the option of other enterprises is limited, and these will have to be based on grass.

Under quotas, profitability levels on dairy farms can be increased by:

(a) reducing the cost per litre of milk produced i.e. maximising margin per litre.

(b) adding to or putting additional enterprises on the farm.

On many farms option (b) will not be an alternative, and therefore the remainder of this talk will concentrate on option (a).

More from Grass

The relative costs per unit of Metabolisable Energy for feeds available to the dairy cow are: grazed grass 1; conserved grass 2; purchased concentrates 4. Therefore a bit more grass produced and utilised off each hectare (in the form of grazing or silage) could certainly help to maintain or impove profit levels.

From information available from the College's Milk Production Systems Investigation, the direct relationship between Utilised Metabolisable Energy (UME) per ha and Gross Margin per ha has been clearly established. For one Gigajoule (GJ) per ha increase in UME, there is a £15/ha increase in gross margin.

Under quotas two basic options are open to the dairy farmer; a) keep a larger number of cows with lower yields and low concentrate inputs or b) fewer cows aiming for higher yields and higher levels of concentrate inputs. The results from the Acrehead Unit at Crichton Royal Farm demonstrate the latter option.

Table 1. Results from the high and low concentrate input herds at Acrehead Unit.

Year	Milk price to concentrated price ratio	Extra surplus to high concentrate herd (£/ha)
1981-82	1.05	+£245
1982-83	1.02	+£158
1983-84	0.87	-£4

Thus as the milk to concentrate price ratio has narrowed so the low concentrate input herd has become more profitable.

However it must be remembered that the most important effect on profitability from silage is how much we actually have, and as concentrate feeding falls, silage intakes increase. Also as silage quality is increased, so intakes will rise (Table 2).

Table 2. The effect of concentrate inputs and silage quality on intakes of silage.

Concentrate level (kg/day)	Silage (25% Dry Matter) required for 200 day winter (tonnes per cow)	
	60D	65D
6	8.1	9.2
8	7.5	8.5
10	6.6	7.5

With very high quality silage, cows would eat even more (with 70 D silage there is a 10 t/cow winter requirement). It is necessary to feed forage *ad lib* as the value of milk lost by restricting forage will more than out-weigh the cost of the forage.

At present (November 1984) milk production in SMMB area is 1% under quota which is equivalent to about 25 litres per cow in the Board area. In managing quotas there are four aims to achieve:-

1. Attempt to meet quota week by week.
2. Maximise margin over feed and forage per hectare.
3. Forage must be fed *ad lib*.
4. Simplify concentrate feeding system and make adjustments across the herd.

At Crichton Royal Farm in five experiments involving 272 cows there has been a failure to show any advantage in "feeding to yield" over "flat rate feeding". This is illustrated in Table 3.

Table 3. Comparison of two concentrate feeding systems with two qualities of silage.

Silage quality	59D		65D	
Concentrate system	Flat Rate	Feed to Yield	Flat Rate	Feed to Yield
Concentrates (kg/day)	9.0	9.0	9.0	9.0
Silage DM intake (kg/day)	7.5	7.6	9.2	8.7
Milk Yield (kg/day)	21.6	22.2	24.3	24.1
305 day lactation yield (kg)	5786	5824	6215	6096

The increased intake of higher quality silage, and the associated increase in milk yield is also worthy of note.

All that happens in the feed to yield situation is that yield is spread out, but at the end of the day total yield is still the same as flat rate yield.

Grazing

Having dealt with some aspects of forage utilisation it is perhaps worthwhile to consider in more detail grazed grass utilisation. Much grass is wasted in summer by under-stocking in spring and the tendency to over-stock in the rest of the summer. The problems with grazing are a) 30% less grass is harvested that from cutting b) it is difficult to use grass efficiently (high UME) and also have a high performance (high stocking = lower yields) and c) the cow is a selective grazer.

There are three components of grazing namely grazing time, bite rate and bite size. Table 4 shows how season of year affects these factors and their consequent influence on intake and production.

Table 4. Typical grazing measurement.

	Season		
	Early	Mid	Late
Grazing time (minutes/day)	500	550	550
Bite rate (bites/minute)	60	65	65
Bite size (g DM)	0.55	0.38	0.35
Intake (kg/day)	16.5	13.6	12.5
ME intake (MJ/day)	198	153	138
Production (Maintenance + litres milk)	M + 22	M + 14	M + 10

Summer management of grass must aim for three main objectives: 1) high stocking rates in spring 2) maximising area for first cut silage 3) making available a forage buffer feed as the season progresses (at milking time or housing overnight).

Table 5. Effect of high early season stocking rate on UME/ha.

	Stocking rate (cows/ha)		
Early season	4.7	5.5	6.4
Whole season	4.0	4.3	4.6
Milk yield (kg/day)	20.8	21.8	21.8
UME (GJ/ha)	80	86	94

There is therefore a strong case to consider buffer feeding which involves supplementing grazed grass with higher quality forage (silage) as the season progresses. The cows preference goes from grazed grass in spring to silage in autumn and when buffer feeding is practiced total dry matter intakes are maintained throughout the season.

The advantages of buffer feeding can be summarised as:-

- allows grass/forage intakes to be maintained (and hence performance) throughout season
- promotes high milk fat contents
- simple system in which cow decides if she has ample grass
- results in higher grass utilisation (UME/ha)

The whole system is geared to getting more grass off every hectare and also trying to maintain silage intakes in winter. In summer there is a need to resort to buffer feeding rather than concentrates. Above all the system must be simple and the answer is always to keep some silage in storage.

Discussion

Not surprisingly a great deal of discussion was stimulated by Dr. Leaver's talk. The first point related to the comparison between the high and low concentrate input herds which showed the low concentrate herd to have a £4 per ha advantage over the higher input herd. With concentrates prices down again this year would the high concentrate input herd show a recovery? In reply, Dr. Leaver stated that in three out of the last four years the high concentrate input herd had done best.

In the 1983-84 winter, concentrates were expensive but were now about £25/tonne cheaper, with the milk price not a lot better. On the face of it the higher concentrate output herd should be doing better, but now the effect of quotas had to be taken into account, and no longer was it possible to produce as much milk as we wanted.

A question was then raised on the effects of the very dry summer of 1984 where there was 30% less rainfall between April and September and most farmers were unable to grow more grass. The speaker will appreciated the situation, with many farmers short of high quality silage. The answer had to be to look for a silage substitute. Most of the alternatives were not truly silage substitutes, lacking either fibre or energy. Hay or treated straw could be considered and it would be better to substitute part of the silage in the ration now rather than have to completely change the ration later in the winter. When buying a substitute for silage it was important to look at the cost per unit of energy and most feeds were still cheaper than compound dairy cakes.

One questioner suggested that in order to maximise utilisation of grass we should cut more often - say four times a year. However, in response Dr. Leaver said that the more frequently grass was cut the less grass we actually get off the field and that there was more bulk to be had from a two cut system than a three cut system. In terms of profit the first priority had to be to make sufficient quantity and then achieve the highest quality within that constraint. Profit per farm and margin per litre were still the most important factors.

In reply to a question concerning the restriction of intake of high quality silage the speaker pointed out that on an easy-feed or self-feed system the better cows would still have a longer feeding time. It would probably be the heifers that suffered and then there would be problems with getting them back in calf.

Blackgrass. Brome. Couch. Dock. Thistle. Yorkshire Fog.

People who sow 'HF' will have none of it.

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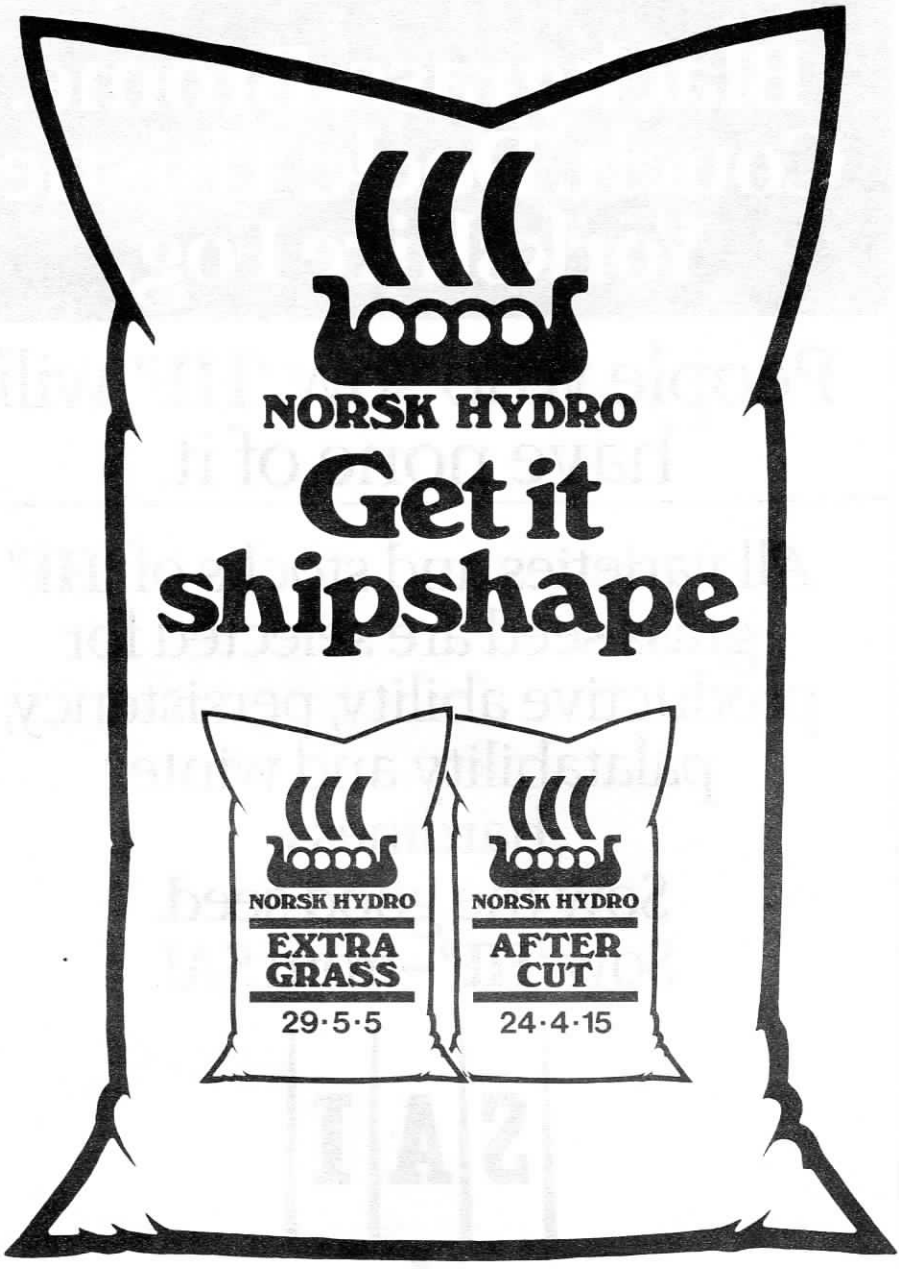

NORSK HYDRO
Get it
shipshape
NORSK HYDRO
EXTRA
GRASS
29·5·5
NORSK HYDRO
AFTER
CUT
24·4·15

The use of zero-grazed grass as a buffer feed in order to increase grassland utilisation is a possibility but it was not a true buffer grazing system. It would involve cutting grass and feeding limited amounts (say 1 hour after milking), but care would have to be taken as grass could spoil. The expense of making it into silage, and particularly the expense of additive would be saved. It was also pointed out that good quality hay could also be used as a buffer feed.

Timing the start of buffer feeding was then discussed. The speaker said that a flexible attitude had to be maintained and to be prepared to feed on any day of the year. There was always the problem of which end of the silo to open, and perhaps big bale silage could be considered for the early feeding period. On a heavy wet farm in a wet May, cows should be on the land for as short a period as possible, and use should be made of buffer feeding during this period. It would mean limiting grazing possibly with an electric fence, and then cutting more grass for silage later on.

Fertilising for maximum output was also raised and it was pointed out that the response curve of grass growth to nitrogen application was now well established. In trials work for each kg of nitrogen applied there was a response of 15-20 kg extra dry matter production up to about 300 kg of nitrogen but in practice the response on farm was only about 7-9 kg DM/kg N. Nevertheless the value of extra dry matter produced was still worthwhile.

Asked whether T sums were used and how much importance was attached to them, the speaker said that the technique correlated on a lot of farms with optimum timing of first fertiliser. However he was not too concerned about date of turnout as long as there was plenty of silage. Producing grass to bring forward turn-out date is not always important. If T sums were being used it had to be remembered that not all grazing ground should be fertilised at the first opportunity but that favourable areas should be selected. T sums were more important in a sheep situation where early grass was important.

Set tocking versus rotational grazing was a topic which provoked much discussion with Dr. Leaver pointing out that most trials showed no difference between set stocking and rotational grazing. There did however appear some advantage to rotational grazing in situations of high stocking rates with clover, as clover needs a rest period. The best advice was to choose a system which suited the farm. Stocking rates were more important than grazing system.

Strong opinion from the audience expressed the view that set stocking had been the ruination of dairying in Scotland and that operating such a system was not simple. It was also felt that it might not be such an appropriate system under a nil concentrate regime although there was always the option to buffer graze. - I.R. Fraser.

MEET THE CHAIRMAN

SWSGS : JIM WATSON, CREOCH, OCHILTREE

Born and reared on Creoch, to which his parents moved in 1930, Jim Watson is very conscious (and proud) of his Ayrshire roots and a keen publicist for farming.

He took over the running of the 92 hectares farm in 1962 and devoted his not inconsiderable energies to the production of milk, initially from a flying herd of mixed Ayrshire and Friesian origins. A typical reaction to economic pressure was his decision in 1979 to introduce pedigree Holsteins and the herd is continuing in that direction through grading up. Despite a principal interest in the commercial qualities of the breed he has had success in the show ring, taking the breed championship at Ayr in both 1983 and 1984 with his cow Wicketthorn Fearless Pearlette. He takes even more pride in having home-bred animals placed in heifer classes at Lanark.

His interests he lists as "farming politics", being a council member of the NFU of Scotland and serving on committees for both Organisation & Publicity, and Labour & Machinery. The latter gives him scope for his mechanical curiosity through its working party on farm inventions. One new commitment is membership of the Ayrshire, Wigtownshire and Arran Farming, Forestry and Wildlife Advisory Group (FFWAG), the farm has a number of woodland strips and conservation objectives will shape their future management.

His enthusiasm for grassland management is not surprising, the farm is totally in grass with a large proportion being made into silage for the dairy herd. Until recently the owner of two concrete silage towers, he extended his initiative into demolition contracting and now has a 2000 tonne bunker silo and a big pile of hardcore! Concrete corrosion and spiralling machinery costs were taking their toll. The reduced degree of wilting now necessary should help towards the goal of improved silage quality. His present feeding system involves a feed waggon, for simplicity, with the silage supplemented by beet pulp and fishmeal. He choses to buy feeds which require no further "on-farm" processing and, like many other dairy farmers, is wary of the over inclusion of barley.

Though dairying is the principal enterprise he is making tentative forays into bull beef production in an effort to increase farm output. The lower yielding cows are served by a beef bull and he has experimented with Hereford, Charolais and Romagnola. Late grass is utilised, and winter kill avoided, by letting ground for 500 lambs each year.

The farm is very much a family partnership with Jim's wife Sheila taking an active part (how else could he serve on so many committees?). Her efforts are also noticeable in the very spruce garden which is the first impression for anyone visiting the farm. It's not all work though and some semblance of equality prevails when Jim has to stay home to let Sheila away curling, she is a past president of Ayr Ladies. The rising generation consists of son John, who takes a keen interest in the cattle breeding side and is responsible for DIY AI on the farm. One can't help thinking he'll follow in father's footsteps - he is already into committee work as current vice-chairman of Mauchline YFC. Not to be overlooked is daughter Jillian who, though only 9, is getting involved in grooming and showing the calves.

A staunch supporter of the SWSGS Jim is fully aware of the increasing importance that good grassland management will have to play, not only in his own dairy operation, but in farming generally. His farm has been used as a test bed for ideas gleaned from visiting widely, always with his eyes and ears open. A current enthusiasm is the increased use of phosphatic fertiliser. He is always ready to talk grass and, as an innovator and an enthusiast will be a most appropriate chairman for the Society. N. Day.

SPRING VISIT TO WIGTOWNSHIRE

An outing of the SWSGS to Baltersan and Mains of Penninghame, 7 May, 1985

Baltersan. (Dunlop family). Baltersan extends to 304 ha of which 29 ha are woodlands and 50 ha are barley. Silage is made from 40 ha of grassland and two cuts are taken. Three livestock enterprises are carried. There is a 125 herd of Friesian dairy cows and a 90 suckler herd of AA and Hereford crosses. All calves are reared. A small ewe flock is run but 200 lambs are brought in to fatten and 150 blackface hoggs are wintered on the grass. The farm operates with a moderate input of fertiliser and feed, and the silage operation is well mechanised.

Mains of Penninghame. (McConchie family). This is a suckler cow/sheep farming enterprise covering some 412 ha. Of the area, 248 ha are rough grazings, 20 ha are in barley and 40 ha are cut for hay. The stock comprises 147 Galloway and Blue-Grey suckler cows and Hereford, White Shorthorn and Galloway bulls are used. The sheep stock is made up of 300 hill ewes and 160 cross ewes on which Blue face Leicester tups are used. Of particular interest on the farm is the considerable grassland improvement that has been undertaken over the years.

Members thank both families for their kind welcome and an interesting day.

CENTRAL SCOTLAND GRASSLAND SOCIETY

SILAGE COMPETITION 1984-85

A meeting of CSGS in the Stuart Hotel, East Kilbride, 10 January, 1985.

Judge: Mr. David McCluskey, Lea Farm, Roslin, Midlothian.

Entries for this years competition had declined from previous years, despite there having been the best spell of silage making weather for many years. The drop in entries may have been due in part to a lack of second cut silages owing to the very dry weather, and the fact that the later silages were not made until September or October. Nevertheless the quality of silages entered in the competition exceeded any of the previous years entries, reflecting on the excellent silage making conditions at time of first cut (Table 1). This year 68% of entries achieved a D value in excess of 65, but ammonia nitrogen levels rose slightly on last years levels. Half of the silages entered in the competition were treated with an additive. The average analysis for silages entered in the last 6 competitions is given in Table 3 and indicates the great improvement in overall quality for the 1984-85 competition.

The judge went on to comment on the entries. The general standard of silage making had been very high with side waste on most clamps being minimal. However, those who had used side sheets had all but eliminated side and shoulder waste and this was a very commendable practice. Some clamps lacked uniformity, which was difficult to understand in a year when conditions had been generally favourable. In general, fermentation seemed quite satisfactory judged by smell and ammonia nitrogen. Soil contamination in several clamps caused pockets of butyric fermentation. Care has to be taken, particularly when putting two rows into one before lifting, to avoid picking up soil.

The judge felt that on some farms maximum use of the good silage was not being made. Even despite milk quotas, there was still a tendency to use too much dairy cake. Having gone to the considerable expense of making a top quality product, full use had to be made of it.

Before announcing the winners the judge thanked all those who had entered the competition and more particularly those he had visited during the two days of judging for the open and frank way they answered his questions.

The inspection marks awarded by the judge are given in Table 2. The first prize and SAI cup, along with a replica cup for the winner's retention was presented to Messrs A. Bankier & Co., Fernieshaw, Cleland, with the runner-up being Messrs. N.S. Millar & Son, Newlands Farm, Uddingston. Third prize went to Messrs John Clark & Sons, Dunrod, Inverkip with the fourth prize being won by Mr. Alan Park, Patterton, Newton Mearns, who was also awarded the best new entrant prize. Mr. Robert Hamilton, East Drumloch, Hamilton won the most improved silage prize. - I.R. Fraser.

Table 1. 1984/85 Silage Competition : Analyses and Marks.

Rank	Code	Analyses % DM	% CP	'D' Value	Ammonia N as % total N	Marks (out of 35)
1	CL29	23.2	15.6	73.6	7.0	31.75
2	CP34	21.9	16.8	70.2	8.7	30.67
3	CL12	22.8	17.5	70.3	9.5	30.60
4	CL30	31.3	15.8	69.2	8.8	30.06
5	CS 1	22.1	18.9	69.1	9.5	29.78
6	CS 5	21.3	12.6	69.1	7.4	28.56
7	CS 6	27.3	17.2	68.5	11.3	28.06
8	CP22	21.0	16.0	67.4	8.0	28.00
9	CS28	22.4	13.1	68.0	7.8	27.66
10	CL40	22.3	16.1	69.2	11.3	27.54
11	CP25	22.5	15.4	66.7	8.3	27.14
12	CP35	29.6	16.5	64.7	8.3	26.31
13	CL14	19.9	16.9	66.6	9.0	26.30
14	CP23	23.9	15.1	65.8	9.1	25.80
15	CS 2	22.9	15.0	64.8	7.7	25.62
16	CL38	20.7	18.3	68.1	13.2	25.39
17	CL16	17.6	17.7	69.9	13.5	25.25
18	CL39	21.7	19.0	67.6	13.5	24.98
19	CL37	21.6	15.5	67.7	12.7	24.44
20	CP19	29.7	15.2	65.6	11.2	24.24
21	CS13	20.6	14.7	65.2	9.7	23.59
22	CL15	24.2	11.2	64.3	7.8	23.46
23	CL32	31.2	14.1	62.9	8.2	23.39
24	CL 8	24.1	18.1	63.7	11.5	23.28
25	CL 7	27.0	20.6	66.4	16.5	22.20
26	CL 9	24.2	14.2	65.4	12.7	22.14
27	CP21	21.9	14.0	66.1	13.1	21.85
28	CP33	24.1	15.3	62.1	9.7	21.77
29	CL17	21.6	14.1	65.2	12.3	21.56
30	CL20	23.0	12.0	64.0	10.5	21.10
31	CL27	30.8	13.9	61.3	9.3	20.81
32	CL18	15.7	19.5	69.8	19.3	20.36
33	CL36	22.8	15.5	65.7	15.9	20.18
34	CL10	24.2	13.7	62.0	11.3	19.61
35	CS 4	33.1	10.8	62.0	9.9	19.48
36	CP24	20.2	17.9	62.9	14.1	19.17
37	CL11	17.4	18.1	63.3	13.2	18.94
38	CL31	21.3	17.6	66.9	21.5	18.78
39	CL26	26.4	14.8	66.7	21.5	18.10
40	CS 3	19.7	14.1	63.8	19.0	14.00

Table 2. Short list for judge's visit (in order of analysis).

Awards	Farm	Analysis (35)	Inspection (65)	Total (100)
1st and SAI cup	Messrs Alex Bankier, Fernieshaw, Cleland	31.75	59	90.75
4th	Mr. A. Park, Patterton, Newton Mearns	30.67	53	83.67
2nd	Messrs W.S. Millar & Son, Newlands Farm, Uddingston	30.60	58	88.60
	Mr. A. Orr, Boagston, Avonbridge	29.78	53	82.78
	Messrs T. & B. Wilson, Bishopbrae, Bathgate	28.56	49	77.66
	Mr. J.M. Telfer, North Branchal, Bridge of Weir	28.00	50	78.00
	Mr. A. McNichol, Pendreich, Bridge of Allan	27.66	47	74.66
	Messrs Bartlett, Ryden Mains, Airdrie	27.54	49	76.54
3rd	Messrs John Clark & Sons,	27.14	59	86.14

Other prizes (by analysis only)

Best New Entrant: Mr. A. Park, Patterton, Newton Mearns
Most Improved Silage: Mr. Robert Hamilton, East Drumloch Farm, Hamilton

Table 3. Mean silage analysis for silage competitions 1979-1984.

Year	Numbers entered	% DM	% Crude protein	'D' value	Ammonia N as % of total N	% of entries with D > 65
1979	33	20.8	17.0	61.8	18.9	12
1980	37	21.6	15.7	61.3	16.3	8
1981	53	22.6	13.8	60.1	14.0	4
1982	59	26.6	14.6	63.6	13.6	42
1983	53	24.0	14.6	61.5	11.3	13
1984	40	23.5	15.7	66.3	11.6	68

MACHINES AND SYSTEMS FOR QUALITY SILAGE

David Howat
Engineering Dept., The West of Scotland Agricultural College

A meeting of CSGS in the Stuart Hotel, East Kilbride, 10 January, 1985.

The speaker opened his talk by congratulating those who had taken part and been awarded prizes in the silage competition. The competition served an extremely useful purpose of encouraging good silage making and raising the standards of utilisation. Through discussion it was possible to share experiences and improve techniques and this should be the aim of the evenings meeting.

The year had started with confidence in the agricultural industry generally low. British Agriculture was rapidly becoming self-sufficient in the products it could most easily produce, and within the EEC there were the problems of over-production. Dairy farmers were having to face up to quotas which was a totally new experience. However, one message was coming through very loud and clear - 'make the most of grass'. The economists and planners were all pointing to better grassland production and improved utilisation as being the way to maintain margins and profits. Strategies based on improved grazing and conservation had shown most promise in achieving these objectives.

Silage Machinery

The 1984 Finance Act also brought about changes in Tax Allowances for plant and equipment and these are summarised in Table 1.

Table 1. Tax allowances for plant and equipment.

Purchase date	First year allowance*	Writing-down allowance**
Before 31 March 1984	100%	25%
1 April 1984 - 31 March 1985	75%	25%
1 April 1985 - 31 March 1986	50%	25%
After 1 April 1986	Nil	25%

* Available in year of purchase

** On a reducing balance basis

The grant on conservation equipment in development plans has been withdrawn. Grant aid is now only available through forage groups, syndicates or co-operatives with a minimum of three farm businesses being involved. In less favoured areas, 15% grant could be obtained for tractors and 25% on equipment under this scheme, so if major changes were being contemplated there was an inducement to co-operate.

Anyone thinking of purchasing machinery should give it serious consideration now and the farmer is strongly advised to consult with his accountant over the implications of these changes.

The other option would be to employ an agricultural contractor.

Route to Success

In silage making the first steps are to clarify objectives and to set production targets, having worked out the amount of silage required. It is worth re-stating the ten point plan which was put forward in the mid 1970's when the College was running its campaign on making the better silage.

Sow for D - use ryegrass based swards
Follow fertiliser recommendations, and apply correct quantities of fertiliser
Remember to take account of slurry
Cut on time - use D value forecasts
Wilt for 24 hours
Chop grass 20-70 mm
Keep silage clean - avoid contamination from soil or late applied slurry
Use an effective additive
Fill the silo quickly
Sheet the silo at night
Seal the silo tightly after filling

It is essential to prepare for silage making and the following points should be remembered.

Roll fields to push in small stones and flatten molehills. Remove tramp metal etc. from fields
Maintain gates and tracks for fast travel
Make sure silo apron is big enough, and approaches are wide enough
Overhaul machinery - tractors, forage harvesters, mowers, trailers, etc. in good time
Clean out silos and inspect for leaks

There are fashions and trends in silage making and currently there is considerable debate about wilting. In favour of wilting there is a reduction of effluent (Table 2) which is particularly important at the present time with the strong conservation lobby.

Wilting helps fermentation, enables more dry matter to be transported from field to silo more quickly, for more dry matter to be stored in the silo and gives easier handling of the material, all of which lead to more efficient harvesting.

Table 2. Grass dry matter content and silage effluent.

Grass dry matter (%)	Volume of effluent (litres/tonne)	Dry matter loss in effluent (%)
15	180	7
20	75	2.5
25	20	nil
>25	nil	nil

However, against wilting is the extra task using up more power, wilted grass needs more consolidation, the pit needs to be sealed more efficiently and there is a need for faster filling. Also research work in N. Ireland and in Scotland has suggested that there is improved animal performance from stock fed on direct cut, unwilted but well fermented silage.

Mowing the Grass

The aim of mowing is to leave a dense even swath with a minimum of 5 kg of grass per metre of swath length. The grass must be cut quickly and left in a swath suitable for wilting and harvesting with a minimum loss of material and minimum soil contamination. Various types of mower are available and their characteristics are summarised in the following table.

Table 3. Mower performance characteristics.

Type	Work rate (ha/hr)	Wilt rate	Power utilisation	Soil contamination
Disc/Drum	0.9	*	**	*
Mower conditioner	0.93	**	***	**
Flail	0.80	***	****	****

* = low **** = very high

There is an increasing interest in mower conditioners, particularly in relation to the following objectives:

Produce an even rectangular swath
Follow ground contours closely reducing contamination and leaving an even stubble
Allow sensible wheel setting so reducing swath compaction and contamination
Expose butt ends which tend to be most difficult to wilt
Allow compensatory treatment by giving stem high level of conditioning and leaf a low level
Produce a loose durable swath
Reduce fragmentation
Provide surface abrasion
Avoid soil contamination by allowing two operations to be carried out as one.

Several mower conditions meet these criteria but few fulfill all the suggested requirements.

It is important to have a reasonable swath specific weight (measured in kg of grass per metre) in order to achieve a satisfactory harvesting rate. Table 4 demonstrates the effect of swath specific weight on spot harvesting rate.

Table 4. Effect of swath specific weight on harvester rate and speed.

Swath spot weight (kg/m)	2-3	4-5	6-7	8-9	10-11
Spot harvesting rate (tonnes/hour)	17	24	27	37	42
Mean harvesting speed (metres/second)	1.88	1.48	1.15	1.21	1.11

In turn this can be translated into width of mower required to achieve a desired swath specific weight at varying yields of crop (Table 5).

Table 5. Width of mower required (spot rate 35 tonnes/hour at 1.2 m/second).

Specific weight (kg/m)	5				7.5			
Yield (t/ha)	15	20	25	30	15	20	25	30
Nominal mower width (m)	3.6	2.8	2.3	1.9	5.3	4.0	3.3	2.8

Mower widths over 2.1-2.4 metres generally tend to be of the trailed type which implies extra cost. Other ideas are now being investigated, particularly in regard to combining front and rear mounted mowers which allow better ground contour following, less wheeling on the crop, the option of conditioning and are flexible in use.

Usually the next operation is rowing up, and here there is not much to report. Care must be taken in selecting the correct forward speed and ensuring that weak and broken tines are replaced. The aim must be to avoid bunching, wrapping, soil contamination and leave a well set-up swath.

The Forage Harvester

The aim is to ensile the crop at the required stage of growth and at the desired chop length with minimum loss and minimum contamination. The main features of the various types of forage harvester can be summarised as follows:-

Table 6. Forage harvester characteristics.

Forage harvester	Chop length	Simplicity	Power	Soil contamination
Loader Wagon	*	**	**	***
Double Chop	**	**	*	**
Metered Chop	***	*	*	***

* = poor *** = good

The amount of energy required for different types of forage harvester can be quantified by measuring the specific energy consumption and typical figures are:-

Roll Bale	4.5 MJ/tonne
Conventional Metre Chop	4.0
Fine Chop	3.5
Reverse Cylinder Metered Chop	3.0
Loader Wagon	1.5

The dry matter of the crop can have a significant effect on the rate of harvesting. Whilst the spot rate in tonnes of fresh material lifted per hour may decline with increasing dry matter, it is the amount of dry matter harvested which is most important. This is at a maximum in the 20-25% dry matter range. However, the main factor affecting harvesting rate will be the type of machine used and Table 7 indicates the range of outputs which can be achieved.

Table 7. System performance.

Forage harvester	No. of cases	Overall rate (ha/hour)	Net work rate (ha/hour)	Net throughput in 24 t/ha crop (tonnes/hour)
Self loading wagon	49	0.37	0.43	10
Coupled double chop	25	0.45	0.53	13
Coupled metre chop	159	0.60	0.70	17
Engine driven metre chop	16	0.77	0.91	22
Self propelled	7	1.08	1.3	31

The finer grass is chopped, the greater the power requirement, but several advantages accrue such as the release of grass juice; an increased density of grass in trailer or silo; better consolidation; better mixing of additives; material easier to handle; helps maintain a tidy silo face.

Chop length can also have a considerable effect on the capacity of the trailer as noted in Table 8.

Table 8. Chop length and trailer capacity (tonnes grass).

Trailer size	10 m^3 (3 x 1.8 x 1.8)	14 m^3 (3.7 x 2.1 x 1.8)
Flail	1.75	2.75
Double or fine chop	2.25	3.75
Metered chop	3.00	4.50

This has been a quick resume into silage making techniques which can be summarised as follows:-

Begin with good grass
Ensure adequate fertiliser

Pick the correct stage of growth
Rest the swath for 24 hours - wilt
Ease filling by chopping grass
Pure grass - no contamination
Additive use worth considering
Rapid filling excludes air
Every night cover the silo
Do seal thoroughly

Discussion

The silage judge was asked how he made his silage. In reply Mr McCluskey said that he filled the pit as quickly as possible. The grass is cut and wilted usually for 24 hours and lifted with a precision chop forage harvester. An additive is always used. The silo is roofed, and back filled. At all times it is rolled with double rear wheels on the tractor. The silo is sleeper walled and lined with polythene. After filling, the silo is covered next day, although the pit is not normally sheeted during filling unless there is a hold up for weather. The pit is double sheeted and covered with tyres on top and straw bales round the sides.

The analysis of the silage this year: was dry matter 19%, 'D' value 70, ME 11.2 MJ/kg DM, crude protein 180 g/kg DM and ammonia nitrogen 5.2%.

Asked about his feeding system, Mr McCluskey removed the silage with a foreloader (with a front grab to keep the face tight), into a 6 t Krone spreader with a V at the back. Barley or beet pulp was also fed through the feeder with the high yielders getting 3 kg of barley plus silage for maintenance and 20 litres of milk. Current margin-over-concentrates was £725/cow with a yield of 5450 litres per cow.

The question of how long should lapse between last slurry application and cutting was raised. Both speakers said that it depended on rainfall, and how quickly the slurry was washed off the grass. It was important to apply the slurry whilst the grass was short. Mr Howat thought that 4 weeks with normal rain should be sufficient, although in his area Mr McCluskey preferred 6 weeks if he could manage it. If slurry was applied too late then the ammonia nitrogen content of the silage may be increased due to a poor fermentation.

Mr Howat was asked about assessing the use of a contractor against purchasing a forage harvester. In reply he stated that it depended very much on individual circumstances, and it was necessary for budgets to be drawn up for each case. It had to be remembered that a larger tractor would probably be required for the forage harvester, and that particularly on smaller farms, the extra labour the contractor brought was an important consideration.

Mr McCluskey was asked about his grass leys and fertiliser application. Most of the silage leys were 2-3 year mixtures as they tended to give more leafy material than permanent pasture. The permanent grass was kept for cow grazing. The short term leys could also give 3 cuts of silage. Silage ground received 500 kg/ha of a 20:10:10 compound in March with a further 180 kg/ha of 34.5% N in April (6 weeks before cutting). Second cuts received 500 kg/ha of a 24:4:15 and third cuts 375 kg/ha of 24:4:15.

Asked about putting straw underneath silage to soak up effluent neither speaker was particularly enthusiastic about the idea. Mr Howard felt that it would not absorb all the effluent unless the silage was reasonably dry anyway. There was also a danger that if straw was put up to the walls of the pit that air might be drawn in creating waste. Mr McCluskey felt that a layer of straw would lower the feeding value of the silage too much.

On the question of pit filling, Mr Howat said that the three main points were good spreading, good consolidation and good sealing. I.R. Fraser.

PRE-HARVEST HERBICIDE ON GRASS

Clearance has been given for the use of glyphosate (Roundup, Monsanto plc) on grassland prior to removal of the herbage. The technique is most useful where the ingress of perennial weeds such as docks or couch grass is likely to cause a problem in succeeding crops.

Heavy, bulky crops are better avoided but grazing, second or third cut silage or light hay crops can be sprayed one week before harvest. The company has undertaken extensive tests to ensure that sprayed herbage is safe to graze or ensile. All vegetation, including the weeds, will be killed-off. Cultivations and sowing of grass, kale or winter cereals can follow immediately the crop is removed thus saving several weeks compared to post-harvest spraying techniques.

Cost will vary according to age of sward and degree of weed infestation but is likely to range between £40 to £70 per hectare.

Full details can be obtained from the company concerned. The Editor would be pleased to hear from members who have experience of the technique.

CLIMATE AND GRASS

Dr. J. Frame

Agronomy Dept., The West of Scotland Agricultural College

A report on the European Grassland Federation meeting, Norway, 26-30 June, 1984.

Firstly a few statistics about Norway's agriculture. Only 3% of the total land area is farmed because Norway is so far north (nearly half its length is beyond the Arctic Circle), so mountainous (70% of land area) and so afforested (22%). Three-quarters of the income in agriculture comes from a grass-based livestock industry. Only one farmer in three is a full-time farmer. A typical farm is small, around only 10 hectares but with 55 hectares of forestry too. The country has a goal of maximum self-sufficiency in livestock products and in the crops which can be cultivated, such as potatoes, barley, oats and vegetables. The self-sufficiency stands at about 36% now and the target for 1990 is 44%. Government agricultural policy is concerned with maintaining a population and economic activity in rural areas and a personal farming income on a par with those of industry. A complexity of reduced costs or special income subsidies operate. In addition, strong agricultural co-operative systems have evolved which work closely with the government with regard to market regulation, production targets and import controls.

Dairy Farming

Norway does not have differing breed societies as in the UK. Instead there is a Breeders' Association for Norwegian Red Cattle. All local breeds are in it but cross-breeding with imported Ayrshires, Friesians and other breeds is carried out. The result is a population rather than a breed of dairy cattle. High milk production is the objective but good meat producing qualities are required. The average milk production of the Norwegian Red cow is 5800 litres per year at 4% butter fat and 3.25% protein. A two-price quota system was introduced in January, 1983.

There is something very familiar to UK dairy farmers in the remark made by a producer farming to the north of Oslo. *"The last round of negotiations with the government will probably put the final nail in the coffin for many milk producers in this region. Even though cost effectiveness is very good on this farm, the milk production will not likely show a profit in 1984. Since the price of milk will increase only a fraction of what is needed and because we are not allowed to deliver more than 146,500 litres of milk for 1984, we are in the same situation as most medium-sized milk producers in this region - we will have to rethink. In spite of the fact that the relative use of concentrates has reduced over the last four years, the increase in expenses for concentrates, fertilisers, hired help and diesel oil are hurting".* Mr. A. Pederson has 52.5 hectares of small and scattered fields, some owned, some rented, and mostly surrounded by forest. He sells the grain from 34 hectares as a cash crop. The grassland is harvested twice a year for haylage (600 g/kg dry matter) which is fed through a harvestore system all the year round, the 26 dairy cows being permanently housed. Concentrate use is 0.4 kg per litre of milk and he uses 300 kg fertiliser nitrogen per hectare of grassland.

The Norwegian farmers work hard in an inhospitable climate and on soils which are not the most fertile in the world. Stone gathering, drainage, tree felling and stump removal are undoubtedly common pursuits. A good grasp of forestry matters is important too since a large part of the winter is spent as a forester. Farmers are staunch 'co-operative' men unlike the 'independent' British counterparts. One wonders what would befall many of the farmers if they were independent. Probably there would be little farming except in circles around centres of population. Every aspect of agriculture seems to involve co-operation. Lastly, while expanded output is called for, the dice of high costs are loaded against him, so efficiency is the watchword.

Grassland Conference

The theme of the Congress was 'The impact of climate on grass production and quality' and it was the tenth general meeting of the European Grassland Federation. The meeting, attended by delegates from all over Europe, was held at the Agricultural University of Norway at As, north of Oslo. There were sessions dealing with grassland production, renovation of swards, chemical composition, conservation systems and grassland models. Selected topics are dealt with below but a copy of the whole proceedings is lodged in the Agronomy Department for reference if required.

Grass Species Production

One interesting paper (J. Corrall) showed that studies of the seasonal pattern of herbage production from grass was not simply related to environmental factors over the season. The cycle in the development of vegetative and fertile tillers must also be taken into account. Water availability was an important cause of variation within and between years (remember the 1984 drought!) and it could be deduced that grassland irrigation may become more common in the future. A project, in which Auchincruive is involved, was described whereby data on herbage production are collected from various sites in Europe, ranging from Iceland to Spain. There was a striking similarity in the relative timing of spring growth for many of the western sites but not unexpectedly, northern sites (Iceland/Finland) had much later spring growth. Auchincruive had the highest growth rate at around 140 kg dry matter per hectare during May. All the data will be used to construct a model of grass production in relation to climatic factors.

A paper from upland work in west Scotland (G.E.D. Tiley and J. Frame) presented performance data for eleven grass species. Red fescue, perennial ryegrass, timothy and cocksfoot were the highest producers. The greatest recorded differences in climate between the upland sites and adjacent lowlands were in wind exposure, daily air maximum and 10-cm soil temperature.

Other comparative upland work from Wales (D.A. Davies *et al*) investigated the productivity and seasonal growth of ten varieties of perennial ryegrass. Averaged over three harvest years, mean dry matter production at 8.8 tonnes per hectare was 22% lower in the upland environment. April-May growth showed the greatest contrast varying from only 6% of that in the lowlands after a severe winter to 113% in a good spring. Since the relative ranking of the varieties differed between the two environments, they concluded upland farmers must view evidence from the lowlands with care when selecting varieties for seed mixtures. Clearly, winterhardiness is an important factor in grasses for upland conditions.

Fertiliser Use

A paper on seasonal uptake and losses of fertiliser nitrogen in perennial ryegrass swards in wet and dry environments (K Dawson and J C Ryden) presented data which showed the importance of a growing, productive sward in minimising nitrogen losses; for example, nitrogen applied in dry conditions in midsummer was 'immobilized' into the soil organic matter; if the sward was irrigated then the nitrogen was available for grass growth.

Closely related work (C P Webster *et al*) measured the effect of water distribution on nitrogen uptake and loss in drainage water. Average 'rainfall' evenly distributed gave good grass yields and relatively small losses of nitrogen in drainage. Similar total water input but with a distribution modified to give repeated wet and dry periods, reduced yield and nitrogen uptake and greatly increased nitrogen leached from the soil. In other words, keeping the sward productive aided efficiency of nitrogen use.

Legumes

White clover figured in a number of papers. Auchincruive work (J Frame and A G Boyd) showed how annual production of grass/white clover swards could vary from year to year. For example, from 1975 to 1983, annual production of dry matter ranged from 6.1 to 10.0 tonnes per hectare. White clover contribution ranged from 29 to 71% of the herbage. It proved simple to find apparent relationships between production and weather, using extremes of weather but there was no consistent relationship between annual production and individual growing weather parameters eg temperatures, over the years. This is because production is affected by a complex of factors including soil, sward, animal and management as well as weather. White clover is a high-light-demanding species but it can adapt to shade by extending its stems. Indeed, by resting grass/white clover from grazing and taking a silage cut, white clover has benefited. However, where fertiliser nitrogen is used to stimulate a heavy crop, whether for grazing or cutting, clover performance will decline through reduced clover stolon branching and growing points. White clover is also less tolerant to drought than grasses. It roots to the same depth but it has less root mass in the upper soil layers. It is also something of an 'annual' since the initial tap root system gives way to shallower roots at the nodes of its creeping stolons. Until the biological processes of grass/white clover swards are clearly understood and predictability of production assured, farmers will preferably adopt annual production systems based on more acceptable nitrogen-fertilised grass swards.

Establishment and Reseeding

A number of papers dealt with the direct drilling of improved species of grass into run-out pastures. As a general rule, the technique, often tried with a range of equipment, has proved inconsistent. The bringing together of a number of factors needed for success at the same time is the ideal which so far has proved difficult to attain. In one paper (K Timenes), the undrilled sward outyielded the sward which was treated with glyphosate and then drilled with improved grasses. The main reasons were given as lack of control of sowing depth, and surface trash, which impeded the seedlings and also, when decaying, produced toxic substances.

Obviously persistence of grasslands in northern and alpine regions is dependent on winter survival of plants. Stable winters with prolonged snow cover favour attack by snow mould fungi. In snow-free conditions, temperature, previous management, soil drainage characteristics will affect survival. Well-adapted resistant plant varieties are essential as well as good pre-winter management (avoid high fertiliser nitrogen in late summer and taking of heavy crops in late autumn/early winter). It is noteworthy that in Scandanavia, perennial ryegrass and white clover are not generally hardy enough. Instead, timothy, cocksfoot, meadow fescue and red clover are favoured species, as are several of what we would call 'secondary' species, for example, red fescue, smooth-stalked meadow grass, bent grass.

Grass Quality

Water stress frequently leads to an increase in herbage digestibility because it delys stem development and the ageing of younger leaves. Grazing cattle have high daily liveweight gains when conditions were dry rather than wet (T.R. Evans and J.R. Wilson). However the story is not a simple one. If high temperatures prevail, digestibility declines. Thus a stemmy spring crop may have a higher digestibility than a leafy summer crop. Protein content is reduced by high light intensity since the proportion of sugars will increase. However, fertiliser nitrogen application has the opposite effect. Thus it was suggested (Deinum) that fertiliser nitrogen should be adapted to light intensity and growth rate in order to produce herbage with a balanced composition. This implies that fertiliser rates should be high in spring/early summer and decline as the growing season progresses.

A number of papers dealt with aspects of silage-making and reiterated the importance of the 'golden rules' familiar to readers of 'Greensward'. A Dutch paper (T.H. Bosma *et al*) underlined the need for good ensiling technique with reference to compaction and sealing. Grass cut for silage in the Netherlands is generally wilted to a dry matter of 600 g/kg and unless it is thoroughly compacted, permeability of air is high; and the necessary anaerobic conditions for fermentation are difficult to obtain. They noted that total forage intake and rate of intake are higher with dense, well-chopped forage. A Swedish author (I. Bertilsson) confirmed that wilting was advantageous to silage quality and feeding if conditions were dry but wet weather during wilting led to feeding value losses. Another hazard of wet weather is the potential damage to the sward by the wheeling of vehicles. This was serious in north Norway (K. Lindberg) and low-ground-pressure, wide wheels were advocated.

An interesting aspect of silage making is that all silage additives must undergo statutory evaluation in Norway and only a few products are listed as acceptable for use.

Conclusion

The 'state of the art' of grassland husbandry obviously varied markedly among European countries. Each has its own specific problems to contend with. No dramatic advances in relation to the impact of climate were forthcoming, but certainly everyone left with a keener appreciation of the influence of climatic

factors. A major problem is that climate is largely not under the farmer's control, although certain practices can be adapted to suit such as, irrigation in dry weather, use of suitable equipment for wet conditions, choice of suitable grass species/varieties adapted to climatic vagaries, increasing precision of fertiliser application and putting together packages of management factors which lead to greater predictability.

Acknowledgement

The author sincerely thanks the Executive Committee of the South West Scotland Grassland Society for a financial grant towards the cost of attending this conference.

VISIT TO AYRSHIRE

An afternoon visit by the SWSGS to Longhouse, Hurlford, 7 March, 1985

Mr Jim Spier, the manager, welcomed members to Longhouse on behalf of Mr J R Findlay. Two separate dairy units comprising 180 and 120 cows respectively are run on the neighbouring farms of Longhouse and Carnell Home Farm. In addition to the cows, 350 followers are carried. Half of each herd is put to the Charolais beef bull and the beef calves are sold off the farms. The area farmed extends to 249 ha plus estate woodland. Cropping comprises 57 ha barley, 64 ha grazing, 80 ha first cut silage and 48 ha second cut silage.

Lactation yield averages 5600 litre per cow with a concentrate input of 0.29 kg per litre. The concentrate ration is home mixed although some barley is also compounded to cake by a local miller.

Long term leys, of the Sinclair McGill, Castlehill type, have a life of 7 years plus. Paddock grazing on a 3/4 week cycle is used but with a heavy stocking rate in early season. 338 kg per nitrogen is applied in the liquid form and 3400 tonnes of silage are made each year.

Members very much enjoyed the visit to this neat, efficiently and simply run dairy unit with many interesting features and extend their thanks to Mr Findlay and Mr Spier.

PROFIT FROM SHEEP TODAY

Mary Lloyd

The East of Scotland College of Agriculture

A meeting of the SWSGS at the Galloway Arms Hotel, Newton Stewart, 11 October, 1984

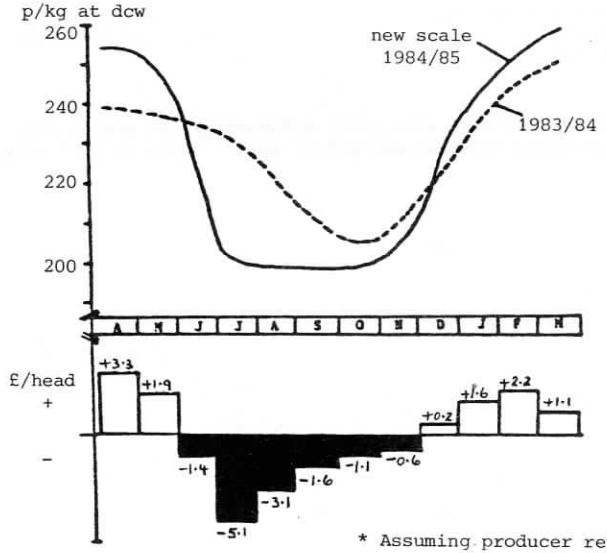
Mary Lloyd's talk centred round East College publication "The implications of recent changes in the EEC sheepmeat regime" (June 1984) by Mary Lloyd and Kevin Volans. The paper is reproduced by kind permission of the authors.

INTRODUCTION

During the 1984 Farm Price Package Review, the basic price for sheepmeat in Europe as a whole was reduced by one per cent. Although the UK reference price at 264.8 p/kg is just under three per cent higher than in 1983/84, guide prices have been reduced by an average of 2 p/kg. In addition, the changes in the seasonal scale of guide prices reduces returns during the summer and autumn when supplies of lamb are plentiful. A new method of calculating the annual premium is likely to result in a lower level of payment than might otherwise have been expected and advance payments are to be discontinued except in Less Favoured Areas where producers will receive an advance of 30 per cent. Clearly, the changes will reduce the amount of support available to producers.

The 1984/85 seasonal scale of guide prices is shown in Figure 1. The new scale is designed to encourage early fat lamb and the forage finishing of store lambs during the winter. The prices fall rapidly in June and remain at a relatively low level until December. The estimated differences in the values of lambs at 1983/84 and 1984/85 prices show that the summer grass lamb yielding a 19 kg carcass in July/August is the worst affected. In 1983, this lamb would have realised £42; on the new scale it is estimated to achieve £37.

Figure 1. Seasonal scale of sheep guide prices and average change in returns 18.5 kg lamb 1983/84 compared with 1984/85*.



* Assuming producer returns equal to Guide Price

FACTORS AFFECTING LOWGROUND PRODUCERS

The effects of these changes on producer returns will depend on the pattern of lamb marketing and the price differentials associated with the different types of lamb. If the pattern of production in 1984/85 is similar to that experienced over the past 3 years, the relative returns from alternative systems of lowground fat lamb production will change significantly as shown in Table 1.

Table 1. Relative returns - lowground sheep systems.

Type of flock	Early lambing	Grass lamb	Forage lamb	Hoggets
Time of sale	April-May	July-Sept	Sept-Jan	Nov-March
Lamb sales (£/ewe)	70.69	58.78	72.08	82.20
Lambs reared/ewe	1.42	1.58	1.58	1.58
Kg carcass weight	19	19	21	22
p/kg CW	262	196	217	236
Feed & forage costs (£/ewe)	27.35	15.50	16.07	21.21
Total variable costs (£/ewe)	49.17	33.60	34.88	40.65
Gross margin per ewe	31.42	35.08	47.10	51.45
Stocking rate (ewes/ha):				
Summer grazing	18	15	16	16
Grass and forage	16.5	12.5	10.4	8.8
Gross margin* per hectare 1984/85 (£)	518.43	438.50	489.84	452.76
Gross margin per hectare 1983/84 (£)	342	446	411	393
CHANGE	+176	-7	+79	+60

* Predicted annual compensatory premium, £6.50/ewe

The grass lamb produced in the July to September period is now potentially less profitable in terms of gross margin per ewe and per hectare than either the specialist early lambing flock or the short-keep grass and forage finishing system. Hogget production, although yielding the highest return per ewe remains less profitable than the autumn grass and forage flock on the basis of output per hectare.

The new scale of prices is similar to the old standard guaranteed price system and the seasonal pattern of lamb production may well revert to that which existed prior to the introduction of the EEC Sheepmeat Regime. In this situation, the general level of prices in the summer and autumn may increase as the supply diminishes and the lower guide price levels encourage exports.

The export market accounts for approximately half the lamb produced in Scotland and an increasing proportion of the lamb meat produced for the home market is sold through supermarket chains. Both outlets demand lean meat. The production of heavier, fatter lamb later in the season could increase the cost of support measures and further depress meat consumption levels.

The most profitable system on paper is not necessarily the most productive on the individual farm. The system must be selected to suit the farm and the breed to suit the system.

Early Lambing

The early fat lamb must command a price of at least 40 p/kg carcase weight if the producer is to achieve returns similar to those of spring lambing flocks. The seasonal breeding characteristics of sheep is a natural barrier to prolificacy. The number of lambs reared is 10 per cent below that of spring lambing flocks irrespective of the management skill applied. Feed and forage costs are at least twice as high as those associated with conventional systems.

The new scale of guide prices guarantees a premium of 50 p/kg providing the lambs are sold in April and May. The break even point is in early June. By mid June producers are operating at a loss. Producers must now opt for a January lambing and an intensive early weaning system of lamb feeding if they are to meet this sale deadline.

Specialist ewe breeds are necessary to achieve an economic lambing percentage from an early August mating. The Finnish Landrace x Dorset Horn is ideal but in short supply. The Suffolk x Halfbred is more readily available but the use of sponges and 500 iu of PMS is necessary to ensure consistent results. The spread of lambing must be contained to ensure efficiency of feed use and to facilitate group marketing.

The producer is aiming for a luxury market. The price differentials will only be achieved if lamb quality meets the buyers specifications. Demand varies from area to area. Potential buyers should be consulted before the rams are turned out!

Even at current levels of price differential, the potential for high stocking rates in the summer must be exploited if the system is to be competitive.

The enterprise demands a good supply of housing and labour. The ewe with lamb at foot needs 0.80 m^2 of floorspace compared to the 0.45 m^2 commonly associated with the pregnant ewe. Floors, troughs and pens must be constructed of materials that are easily cleaned and disinfected. A high standard of health and hygiene is essential.

Twenty-four hour supervision is needed at lambing time. Every lamb is precious in this high cost system. The shepherd will invariably require the assistance of non-specialist labour for routine cleaning, feeding and watering.

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"Now the ryegrass is flourishing free from competition"

* Nortron is a registered trade mark.

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Hon. Secretary: R. McFarlane, Mid Lecropt Farm, Bridge of Allan

The potential returns do not justify extensive investment in buildings and equipment. This enterprise should not be allowed to increase the fixed cost burden on the farm. Ideally, the flock should utilise existing buildings and absorb a seasonal labour surplus. It is well suited to arable farms, where cultivations take precedence over sheep in the spring but the workforce is willing and able to assist in January.

Spring Lambing - the Choice of System

The key factors are the seasonal supply of grass and the quality of lamb produced. Maintaining lambs into the autumn in order to achieve higher prices is only worthwhile if there is an adequate supply of grass and forage on the farm for BOTH the breeding ewes and the stored lambs. Failure to improve lean ewes pre-mating and to maintain flock condition in early pregnancy typically reduce the lambing rate by 12 per cent. This is equivalent to a reduction in lamb prices of 34 p/kg or a decrease in ewe gross margin of £9.17. A grass and forage flock selling 1.42 lambs per ewe will achieve a lower gross margin per hectare than a grass lamb flock rearing 1.58.

Time of Sale and of the Seasonal Demand for Grass

The effect of maintaining lambs into the autumn on the seasonal demand for grass is shown in Table 2. The calculations are based on experience on the College farm where the summer stocking rate potential is around 15 ewes/ha. A good aftermath carries 25 weaned lambs/ha. The seasonal supply of grass declines rapidly from late September onwards and the optimum stocking rate on rested pasture at mating time is between 8 and 10 ewes/ha.

Table 2. The effect of time of sale on seasonal grassland requirements. 500 ewe flock: 170% lambing: total summer grazing 40 ha (including 7 ha conserved).

% sold fat by weaning	Aftermath required for lambs (ha)
62	12.7
24	25.4
12	29.4

% sold fat by 15 Sept	Flock grazing needs: Oct-Nov (ha)		
	Ewes	Lambs	Total
100	62.5	-	62.5
70	62.5	12.5	75
24	62.5	29.2	91.7

Even when two-thirds of the lambs are sold before weaning, the balance demand a greater area of aftermath than is required to feed the flock over the winter. If the lambs are retained, 25 to 30 ha of aftermath is needed where 7 ha of conservation is sufficient for the 500 ewe flock.

By October, the ewes and retained lambs demand a total of 90 ha compared to the 40 ha grazed and conserved mid-summer. Failure to provide the forage depresses lamb growth rates and reduces ewe lambing percentages in the subsequent season. Individual animal performance can only be maintained if the sheep have access to vacated cattle pastures and/or new seeds. The alternative is to reduce overall stocking rates to that which can be safely carried on a year round basis. On a sheep only farm, this would result in an overall stocking rate of around 7 ewes/ha which is quite uneconomic.

Sheep or Predominantly Sheep Farms

Pasture quality deteriorates rapidly during the second half of the season. Aftermaths are in short supply. Weaned lambs maintained on previously grazed swards acquire heavy worm burdens. The lambs remain in store condition well into autumn. There is little or no rested pasture available for flushing, mating and early pregnancy. A combination of moderate lamb prices and loss of ewe productivity in the subsequent season lead to poor returns.

The sale of light, lean lambs early in the season is recommended in this situation. A combination of moderate stocking rates and good individual ewe performance will more than make up for the lower lamb prices achieved.

An Equal Balance of Cattle and Sheep

Where sheep occupy approximately half the grassland area on the farm in summer, and the cattle pastures are available for grazing in the autumn, the lambs may be retained up until mid-September. There is sufficient aftermath to accomodate up to 70 per cent of the lamb crop in August. The dry ewes can be tightly grazed after weaning and a proportion of the previously grazed pastures top-dressed and rested for flushing lean ewes in September/October.

From mid September onwards, the accumulation of pasture for mating should take precedence over store lamb feeding. Fit ewes losing weight in early pregnancy on the College farm typically produce 1.58 lambs in the subsequent season.Ewes maintaining condition rear over 1.7 lambs on average. There is little advantage gained from the higher lamb prices.

Flockmasters should aim to sell single lambs fat as soon as possible in the summer; the remainder should be finished off aftermath in August and September.

Forage Lambs and Hogget Production

These systems are best suited to farms where cattle predominate and there is an ample supply of autumn/early winter pasture. However, the retention of lambs later in the season should not be associated with an increase in the proportion of overfat lamb produced.

Recent trials have shown that summer sward heights of 3 to 4 cm are the optimum for store lamb production; 5-7 cm for fat lamb off grass. The Suffolk cross maintained on a lower plane of nutrition may be taken to heavier weight and achieve the same fat class as a lamb reared on unrestricted feed. This application of feed restriction allows autumn/winter finishers of lamb to increase their stocking rates mid-season and release acres for forage crops,

thus improving output per hectare without jeopardising lamb quality. Hogget producers are advised to combine these management strategies with the use of larger, later maturing terminal sire breeds e.g. Oxford. Recent discussions with supermarket chains would suggest that there is an increasing demand for the larger, leaner lamb for the convenience food market.

THE FACTORS AFFECTING HILL AND MARGINAL UPLAND PRODUCERS

The predicted increase in the annual compensatory premium and the changes in the January-February prices should favour upland and hill store lamb producers.

The relative returns for alternative store lamb finishing systems in 1983/84 and 1984/85 are shown in Table 3. The value of the medium keep lamb has been increased by around £2.30. The potential profitability of late winter/spring finishing to which the hill lamb is well suited remains attractive. The value of short keep lambs is marginally reduced.

Table 3. Relative returns - store lamb finishing systems*.

System	Time of sale	Average purchase price 1983/84	Gross margin return (£/head) 1983/84	1984/85	change
Suffolk Greyface lamb					
Grass	Nov	36	3.20	2.00	-1.20
Rape Stubble turnips	Dec-Jan	34	7.00	6.90	-0.10
Swedes	Feb-Mar	34	10.70	13.10	+2.40
Scottish Blackface lamb					
Rape Stubble turnips	Nov-Dec	26	6.30	5.70	-0.60
Yellow turnips	Jan	26	10.10	12.30	+2.20
Swedes	March	24	17.60	18.80	+1.20
Intensive finishing	Feb	16	7.70	8.90	+1.20

Considerations in Practice

The effects of these changes on producer returns will be markedly influenced by finisher responses to projected prices. Store lamb production offers no guarantee of return. Demand fluctuates from season to season depending on the fortunes of other lowground enterprises and this is outside the control of the sheep producer.

The supply of finished lambs from lowground flocks is likely to decline during the summer period. Lower guide prices should encourage exports. The small, fit Blackface and Cheviots are ideally suited to this market.

The competition from crossbred lambs in the store market is likely to increase. This will enable the finisher to be more discerning in terms of lamb quality.

The liveweight and condition of the store lamb at the start of the finishing period determines its suitability for alternative feeding systems. The short keep lamb is least likely to benefit from the changes in the seasonal scale. Long keep Blackface and Cheviot lambs are potentially the most valuable in the market place. The small "tail-end" Blackface weighing less than 25 kg is unsuitable for conventional systems of store lamb finishing. The reputation of the sheep depends on reliability of performance.

RECOMMENDATIONS

Sort the lambs carefully at weaning. Sell fit lambs in the fat market as soon as possible.

Finish the forward store on homegrown forage whenever possible. Sow forage crops early to maximise yield and to facilitate early grazing. Do not allow store lambs to compete with ewes for autumn/early winter grass.

Promote the long-keep lamb e.g. 26-30 kg lean Blackface in the market place. Draw evenly. Footbath, dip, dose and vaccinate against Clostridial diseases and Pasteurellosis pre-sale. Endeavour to keep lambs clean in transport.

Consider intensively feeding the small "tail-end" lamb indoors on the farm. This lamb is unlikely to achieve its potential value even in the current situation. Its removal from the market will improve the general supply and demand situation and will enhance the reputation of the remainder of the store lambs in the long term.

THE FUTURE

Support Prices

The increase in the reference price for 1984/85 represents the final adjustment in British support prices necessary to establish a common basic price throughout Europe. From now on, UK producers will have to rely solely on the annual price review for any increases in support prices and in current circumstances, these are likely to be minimal.

The Basic Price for sheepmeat in Europe was reduced by 1 percent this year and a further price squeeze may be imposed. The Commission has already proposed that a maximum be applied to the level of variable premium and although this proposal was not adopted in 1984/85, it is still a possibility in future years.

Significant increases in flock returns in the future are only likely to be achieved by improvements in flock performance.

Factors Affecting Profitability

The factors affecting the financial performance of the enterprise have not changed. The major costs are associated with land, labour, working capital and flock replacements. These fixed costs are incurred irrespective of the quantity or quality of the lamb produced. Profitability is therefore closely associated with good individual animal performance.

For all lowground flockmasters, and more especially for summer lamb producers, the key to maintaining profitability is to increase the number of lambs reared per ewe. The potential for increasing the weight of the lamb by improving growth rate rather than by changing the time of sale should also be considered carefully.

In the hills and uplands, in the long term, increased returns are more likely to be achieved by improving lamb quality rather than by increasing quantity. The virtues of hill livestock must be promoted in the market place.

All too often, a price squeeze is associated with reduced inputs of feed and fertiliser. Improvements in ewe and lamb performance will not be achieved if the nutrition of the flock is poor. The objective must be to utilise feed and forage more efficiently.

Aids in Management

Research into factors affecting the reproductive performance of the ewe has resulted in a clear definition of optimum ewe body condition at critical points in the production cycle. Regular handling and the provision of better pasture and/or supplements to thin ewes will not only improve the efficiency of feed use and increase lamb output but will enhance the flock life of the ewe. A fit ewe is less susceptible to stress diseases e.g. Pasteurellosis. In the long term, this reduces flock replacement cost.

The principle of feeding according to need has recently been further facilitated by the development of an effective method of pregnancy diagnosis. The correct application of the new technology will not necessarily reduce feed costs on the farm but will almost certainly increase the number of lambs born alive and reared.

The application of the techniques of sward height measurement and clear definition of the pasture quantity and quality required to achieve target ewe and lamb performance can ensure that the producer is prepared to meet the future challenge of a more demanding market.

Marketing and Lamb Meat Consumption

The market demand is for a regular supply of quality lamb on a year round basis. The diversity of breeds and system in the UK can ensure that this demand is met providing that there is clear communication between producer and trader. It is encouraging to note that lamb purchasers are becoming more willing to define their requirements and that there is increasing evidence of quality based price differentials in the market place. The dialogue between producer and trader must increase if consumer demands are to be met. The future of the industry depends on maintaining lamb consumption levels. Taxpayers and politicians are unlikely to support a product for which there is no demand in the years to come.

Discussion

Many aspects of sheep production were covered during a most vigorous discussion which continued long after the Chairman formally closed the meeting.

Sheep feeding and performance are closely linked and it is important not to cut back on feed and forage costs if the squeeze comes. Indeed, the sheep will need to work harder to improve their performance. If lambs are kept too long, pressure is put on the ewes at tupping. The nutrition of the ewes must be kept up throughout pregnancy in order to retain the foetuses, give good placental growth and ensure the birth of strong lambs. The traditional management of "stuff and starve" will not do.

Ewe productivity and stocking rate must be kept high and it may be necessary to dispose of lambs, even at a lower price, in order to reach this target. Good fertiliser practice is an important factor in maintaining stocking rate and a nitrogen level of 12-14 kg/ewe stocked on each hectare is a useful guide. A change of cross may aid in the faster growth of lambs, for example, the Blackface x Texel grows faster than the Suffolk cross lamb.

The number of lambs reared per ewe has not greatly increased over recent years. However, in the improved hill situation advances have been made. If lambing is improved from 80% to 115% and two-thirds of the lambs can be sold fat, this improves income by £8 per head with an improvement of £11.50 per ewe. In allowing for feed costs of £5.50 per ewe and a £2 interest charge (at 14%) the balance is £4.00 per ewe. So land improvement to aid ewe productivity and lamb growth is well worth considering.

In answer to the question concerning the cessation of feeding ewes in spring, the guide given was based on the height of the grass sward. If it is 3 cm in height, a full ration plus fishmeal at 4 weeks before lambing is suggested. The fishmeal is best introduced in good time. Once the grass reaches 4 cm, the high protein feed (i.e. the fishmeal) can be removed and when grass reaches 5 cm, feeding can stop. These heights assume that a dense sheep sward is being grazed.

Dairy farmers interested in running sheep should aim for selling forage lamb or hogget in the November-January period. Hence planning ahead is needed and beware of short term reaction. Avoid producing heavy, fat lambs since penalties will be incurred. The quality of the lamb is going to be particularly important in the future.

SOWING GRASS SEEDS

J. Harris

Adapted from the Manx Grassland Society Newsletter No. 7, 1985.

Good grass seed establishment is so important yet it is frequently the factor least satisfactorily obtained on the farm. Often only a low proportion of the sown grasses live into the next year. Frequently it is the cheaper, earlier, more erect types of grass rather than the better pasture and bottom grasses that survive. The surviving grasses usually make a passable sward in the short term and so the loss is not realised until it is too late.

Direct Seeding

On the Isle of Man there is very little traditional husbandry behind sowing grass seeds direct. Very few farmers have been brought up with the practice and they are still learning the best way of using the technique. Certainly it gives far better long and short term results than undersowing if properly done. Direct seeding can be very successful following two or three years of arable crops and guidelines for direct seeding are given below.

Time of sowing. Spring sowing can encourage weed problems. Also in many fields the ground is becoming progressively drier when the grass seeds most need moisture. Sowing during mid May to mid July is not recommended except on hill farms where moisture is rarely a problem. Sowing in early autumn sometimes works but not too often. Italian ryegrass can be sown up to early October. However, few of the better grasses and clovers survive a Manx autumn and winter if sown after early September. Heavy rain in October can ruin the soil structure before the seeds have become well established.

The best time for direct sowing generally is the period between the third week of July and the third week in August. At this time the soil is warm, becoming more moist and the weed problem is less than in spring. This could include sowing after winter barley, but there are so many delays at this time of year that it is often September before the job is completed!

Cultivations. Early ploughing may be preferable to stubble cultivations because of the problem of volunteer cereals. Rolling (and harrowing) are necessary to get a really firm seedbed. Do not be afraid to use a heavy roller (3-5 tonne) and the firmness of the seedbed is just as important in autumn as it is in spring. The quality of the seedbed cannot be overemphasised and tractor wheelings often show the value of good consolidation.

Fertilisers. Apply 75 kg/ha of phosphate and potash. No more than 60 kg of nitrogen should be applied and this may be reduced with the later sowings.

Grazing/Cutting. This is an important part of management with there being no real alternative to sheep. A big mob of sheep for a weekend's grazing 5 or 6 weeks after sowing does wonders and should be repeated after a further 2-3 weeks but for a longer time. Silage cutting of spring reseeds after 8-12 weeks growth also gives a good take - if you can stand the sight of the weeds for so long!

Grazing, however, remains the most important part of good establishment and needs to be carefully thought out before sowing so that the right stock are available and the grass is available at the right time before the autumn sets in.

Weed Control. Good herbicides are available but for optimum clover establishment, grazing is preferable for the control of weeds. Remember these are arable weeds and they will not survive long in pastures and some of them are fairly palatable and can be grazed off. Remember too that seed mixtures containing herbs must not be sprayed.

Nurse Crops. Probably the best nurse crop is a light seeding of oats or barley for grazing. Rape at low seed rates can be a good nurse crop (stubble turnips are better) up until the autumn. The damage done to swards by rape, left during September and October for eating off at that time, can be very severe.

Pests. This is a subject we are only starting to appreciate. Slugs, frit fly and leatherjackets may all need controlling if the £350 per hectare investment in direct seeding is going to give the best results.

Undersowing

This is the traditional method for what is a much less specialised job, but one which so often goes wrong. Most farmers were brought up with undersowing under oats but now 90% of the grass is undersown in barley. 250 kg of a 9:25:25 fertiliser gave good oats and good seeds but it is not good enough for barley yields today, so the tradition is changing.

Arable silage cut in mid to late July is undoubtedly the best nurse crop followed by oats, spring wheat and finally barley. However, a reliable and successful way of undersowing barley every year is still required.

Problems of Undersowing. There are three main factors which inhibit the good establishment of undersown grass and clover seeds: a) drying out and competition for moisture in summer between the cover crop and the grass seedlings b) herbicide use is essential and this reduces clover content in many cases and c) harvesting problems in a wet time - including straw removal.

Against this the seedbed is not so critical. A good rolled barley seedbed is quite adequate for grass seeds.

Key Points for Undersowing

1. Fertiliser - at least 55 kg/ha of phosphate and potash. Nitrogen should be limited to 60 kg/ha and ideally rather less.

2. Variety of cereal - strength of straw is important and a longer straw is usually favoured. Atem would do very well in 1985.

3. Sowing method - there is a considerable advantage to the grass seeds if the corn crop is broadcast rather than drilled, especially in a dry summer. Don't sow grass seeds too deep.

4. Sow and roll the grass seeds on the same day as sowing the cereals.

5. Remove the straw as soon as the crop is combined. If combining occurs before the end of August, 30 kg/ha of nitrogen will work wonders for the seeds, so long as sheep are available later to eat off the grass.

6. The first year management is doubly important. So often the soil has gone hard and structureless before the grass has grown well enough for its roots to really get going. What it does not want in the following year is too early (winter) grazing or heavy hay crop. A spring rest before grazing in early May is ideal. A second best is a silage cut or a light hay crop. Again sheep grazing is the way to establish a really tight sward and grazing can start quite early in spring where the take has been good. A poor take that needs nursing and building up is better grazed later in spring.

In the two years of the grassland subsidy scheme about 500 newly established fields were inspected. The superiority of direct sowing was there to see in nearly every case, but it was also obvious that a handful of farmers had really mastered the art of undersowing grass.

Unfortunately there were far too many undersown fields that were not bad enough to plough in but were a long way behind the best. If left at the start of the establishment race, such swards seldom catch up.

BOOK REVIEW

'MILK AND MEAT FROM GRASS' by Dr Mike Wilkinson

Published by Granada, London, 1984, 149 pages. £8.95.

This book is based on a series of articles written by the author for the Farmer Weekly. The contents review recent knowledge and experiences aimed at improving the efficiency with which the grass crop is converted into saleable animal products. Gross margin analyses are provided for various production systems and average outputs are compared with the top third producers. Thus a target is set.

Chapters include : Grass Production, Grazing, Silage, Hay, Upgrading Low-Quality Crops and Winter Feeding. The final three chapters discuss profitable milk, beef and lamb from grass and show the necessity for a balance of grass production and utilisation for a successful system - R D Harkess.

COMPETITIONS 1985/86

CENTRAL SCOTLAND GRASSLAND SOCIETY

7TH ANNUAL SILAGE COMPETITION

Permanent Trophies will be awarded to the first four places in the open competition, in addition the overall winner also receiving the SAI cup to retain for one year. Trophies will also be awarded to the most improved silage and best new entrant on analysis only.

NEW THIS YEAR - There will be a separate beef/sheep section with the first two silages judged on analysis only receiving prizes. Details will be sent to members in late July.

SOUTH WEST SCOTLAND GRASSLAND SOCIETY

13TH ANNUAL SILAGE COMPETITION

Scoring and judging procedures will be the same as last year. Permanent trophies will be awarded to the first three places overall and to the first and second place in the Beef/Sheep section. Details will be sent to all members in due course.

10TH ANNUAL HAY COMPETITION

As for previous years entries will be judged entirely by chemical analysis and examination of the hay in the laboratory.

GRASSLAND IDEAS COMPETITION

Members are again invited to submit to the committee any innovation, invention or novel idea introduced to the farm to aid the growing or feeding of grass or conserved products. There is no entry fee for this competition and the committee will decide on the merits of the entries if an award should be made.

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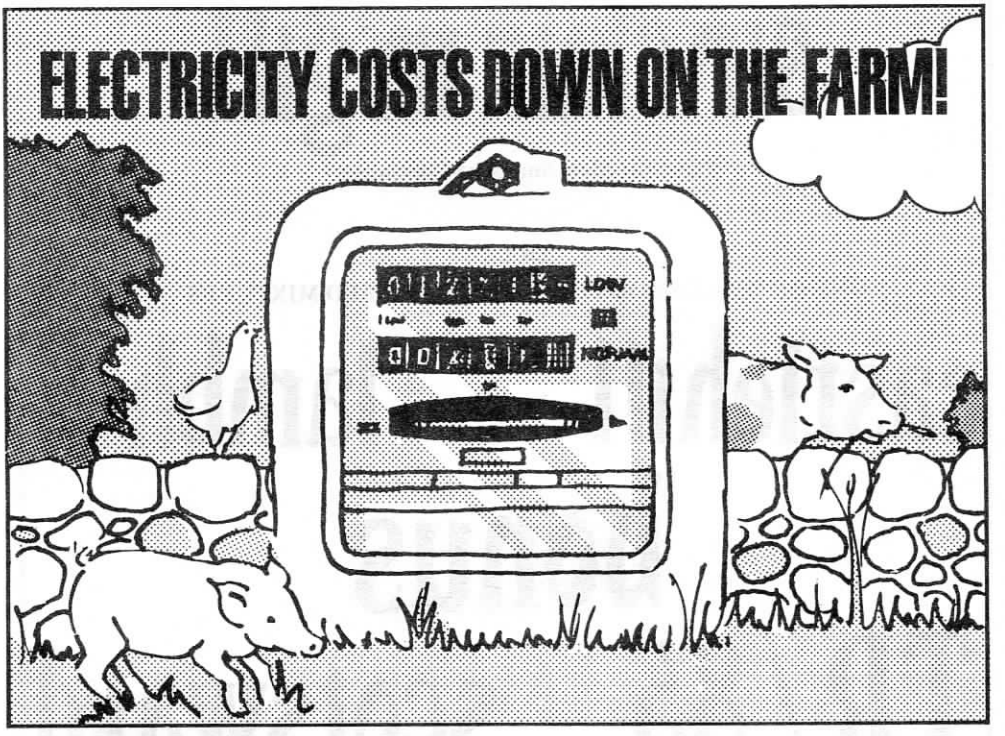

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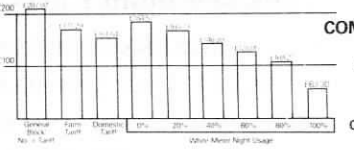

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SWSGS SILAGE AND HAY COMPETITION 1984 - 85

A meeting of the SWSGS at the Ernespie Hotel, Dumfries, 10 January, 1985.

SILAGE COMPETITION

Judge : A Bankier, Fernieshaw, Cleland, Lanarkshire.

Judge's Remarks

In opening his remarks the judge commented on the large entry for this year's competition which indicated a healthy interest in and enthusiasm for silage as a key winter feed. All the farms on the short leet had made such good silage, helped by a warm dry summer, that many entries at the final count were separated only by decimal points. (See Tables 1 and 2). Indeed, of the total entry of 80, the top 50 or so were good silages and it was a pity, for purely practical reasons, it had not been possible to visit a larger number of entries.

The inspection itself was no easy task and indeed the standard was such that it was a case of looking for faults to deduct marks, especially amongst the top entries in the open class. Apart from the silage itself, the judge had seen many useful ideas for the making and feeding of silage and these he will be taking home with him.

Of the silages inspected, only one dairy cow silage (and that was a tower silo) and two of the beef/sheep class had not received an additive. Ayrshire farmers seemed more committed to the use of contractors whereas in the Stewartry most farms had their own silage making equipment. The speed of making silage is an important factor in ensuring a good fermentation and perhaps the increase in contracting use has contributed to the large number of good silages entered by Ayrshire farms this year. The deterioration of silo floors was becoming more noticeable in general, due to silage effluent and traffic damage. Consideration of the addition of an acid resistant compound into any new silo concrete was worthwhile.

The judge stressed that even in a good year attention to detail was essential for successful silage making and he briefly commented on the winning entries before presenting his marks and awarding the prizes.

The marks awarded by the judge are given in Table 2. The overall winner and recipient of the Silver Rosebowl was J M L Milligan, Culvennan. The runner-up, only one point behind was J & W Carson, Conchieton and third place went to I G Campbell, Auchlane. All three prizewinners farm in the Stewartry of Kirkcudbright. In the beef/sheep section the winner was H McKeever, Hillhead, Tarbolton and second was G Prentice & Son, Hermitage, Haugh-of-Urr.

The best placed new entrant prize went to R Lindsay, Overlochridge, Stewarton and the Michael Milligan prize, awarded by the judge to an unplaced entry with good attention to detail, went to R Dalrymple, Crailoch, Ballantrae. The UKF prize was awarded to W A Campbell, Slagnaw, Castle Douglas for the most improved silage and the Plasti-Covers prize for the best big bale entry was awarded to R D Clark, Fineview, Glenluce. In addition Plasti-Covers vouchers were awarded to the winner and runner-up in the open class and the winner of the beef/sheep class.

Table 1. 1984/85 Silage Competition: Analyses and Marks.

Rank	Code	% DM	% CP	D Value	M.E.	Ammonia N % Total N	Marks /35
1	AS22	23.3	19.0	73.2	11.7	6.2	33.62
2	KS 1	21.6	19.8	69.9	11.2	7.4	32.13
3T	AS24	29.9	19.0	70.9	11.4	8.7	32.04
4	AS29	24.7	19.2	70.3	11.2	8.8	31.88
5	KS 4	19.8	18.4	69.4	11.1	6.3	31.76
6	AS28	27.1	19.7	72.8	11.6	9.8	31.16
7	KS 5	22.0	17.0	70.5	11.3	7.7	31.09
8	KS 6	22.1	17.6	70.4	11.3	8.5	31.08
9	AS32	26.2	18.7	69.2	11.1	9.5	30.60
=10	KS26	34.4	18.4	68.8	11.0	9.5	30.20
=10	WS 5	25.0	15.8	69.8	11.2	8.0	30.20
12	DS 7	27.9	14.5	70.3	11.2	6.7	30.14
13	DS 1	21.1	17.8	71.2	11.4	9.7	30.06
14	DS 3	22.0	15.1	70.8	11.3	7.0	29.75
15	DS 8	32.1	15.3	69.1	11.1	7.1	29.72
16	KS17	23.1	17.1	67.0	10.7	6.2	29.67
17	DS10	24.4	14.8	71.5	11.4	7.7	29.49
18	KS10	20.3	17.2	69.8	11.2	9.5	29.05
19	KS20	21.5	15.3	68.4	10.9	6.6	28.55
20*	KS28	29.5	16.1	67.7	10.8	8.0	28.40
21	AS18	24.3	20.0	67.8	10.8	10.3	28.39
22	KS11	18.6	17.9	69.1	11.1	9.3	28.36
=23	DS 4	19.5	19.0	68.8	11.0	9.7	28.29
=23	KS16	18.7	18.6	69.6	11.1	10.2	28.29
25	AS33	23.4	18.4	66.2	10.6	8.4	28.08
=26	KS25	20.6	19.5	69.4	11.1	11.5	28.00
=26	DS 6	23.7	14.2	71.4	11.4	8.6	28.00
28	KS24	19.7	20.8	70.7	11.3	11.7	27.99
29	KS 2	23.4	17.1	67.0	10.7	8.5	27.90
30*	KS18	22.5	13.9	68.9	11.0	6.8	27.74
31	AS12	21.0	15.8	68.5	11.0	8.3	27.66
32	KS 3	30.7	16.1	68.3	10.9	9.7	27.64
33	AS 3	26.6	14.9	69.1	11.1	9.4	27.48
34	AS 2	25.4	17.3	67.8	10.8	10.9	27.38
35	AS23	25.1	25.1	69.7	11.2	14.5	27.10
=36	KS 9	21.5	15.6	75.4	12.1	11.6	26.45
=36	AS 6	18.6	14.6	71.1	11.4	8.7	26.45
=38	AS 4	35.9	15.5	66.3	10.6	8.2	26.24
=38T	AS34	34.3	14.1	66.9	10.7	7.2	26.24
40	AS 8	23.3	17.9	66.5	10.6	11.0	26.18
41	KS12	20.3	14.5	71.8	11.5	10.5	25.75
42	WS 4	21.2	18.7	67.5	10.8	12.4	25.63
43	AS19	21.7	17.5	66.2	10.6	10.9	25.15
44	AS31	25.3	13.2	67.5	10.8	8.3	25.06
45	AS30	20.5	15.4	67.0	10.7	9.1	24.87
46	DS 2	29.1	14.8	67.4	10.8	10.7	24.64
47	KS21	28.4	14.7	64.6	10.3	7.2	24.54
48	AS10	22.9	15.5	67.4	10.8	11.1	24.50
49	AS 1	22.4	13.5	69.0	11.0	10.7	24.29
50	KS 7	18.0	17.0	68.4	10.9	12.2	24.14
51	AS 5	18.0	16.4	68.3	10.9	11.4	24.08
52*	AS15	25.8	13.7	66.3	10.6	8.7	24.04
53	AS14	25.5	15.5	65.4	10.5	10.4	23.58
54	AS13	24.7	15.3	62.6	10.0	7.0	23.22
55	WS 7	24.6	16.9	63.8	10.2	10.5	23.20
56*	KS19	25.2	16.0	64.0	10.2	9.9	23.08

Rank	Code	% DM	% CP	D Value	M.E.	Ammonia N % Total N	Marks /35
57*	AS27	25.5	14.3	65.5	10.5	10.2	22.64
58*	KS14	29.3	17.6	61.3	9.8	9.4	22.38
59*	DS 9	23.1	12.8	70.6	11.3	14.3	21.97
60	KS22	16.4	14.4	66.4	10.6	8.7	21.84
61	WS 1	25.6	12.5	65.4	10.5	9.0	21.70
62*	KS 6	21.7	16.7	67.2	10.8	16.0	21.27
63	AS 9	22.5	16.2	62.9	10.1	10.5	21.08
64	AS20	20.6	17.0	65.7	10.5	14.5	20.90
65*	AS26	28.0	14.1	60.6	9.7	7.1	20.02
66*	AS25	23.4	13.7	62.2	10.0	8.5	19.70
67*	KS27	20.1	12.2	67.0	10.7	11.8	19.31
68	WS 2	26.6	11.3	65.3	10.4	11.5	19.10
69*	KS23	20.4	16.4	64.9	10.4	16.0	18.20
70	AS16	24.5	14.2	61.8	9.9	11.5	17.67
71	WS 6	22.3	15.2	61.4	9.8	11.7	17.57
72*	DS 5	20.4	13.9	63.2	10.1	11.6	17.52
73	AS17	27.4	13.2	61.7	9.9	10.7	17.34
74*	KS13	20.3	19.0	65.5	10.5	24.7	17.15
75B	WS 8	33.1	16.0	59.9	9.6	12.7	16.74
76	AS11	27.1	13.4	60.1	9.6	10.2	16.34
77*	KS15	31.7	13.1	60.7	9.7	10.7	16.24
78*	AS 7	20.7	14.0	62.4	10.0	13.8	15.21
79	AS21	18.9	21.3	62.7	10.0	20.8	13.65
80*	AS35	20.6	13.3	59.0	9.4	11.5	12.90

Table 2. Short list for Judge's visit (in order of analyses).

Awards	Farm	Marks Analyses (35)	Marks Inspection (65)	Total
Best New Entrant	R Lindsay, Overlochridge, Stewarton	33.62	54.5	88.12
2nd	J & W Carson, Conchieton, Twynholm	32.13	61.5	93.63
	I C Gilmour, Humeston, Maybole	32.04	56.2	88.24
	W S Spiers, High Todhill, Fenwick	31.88	53.0	84.88
UKF Prize	W A Campbell, Slagnaw, Castle Douglas	31.76	55.5	87.26
3rd	I G Campbell, Auchlane, Castle Douglas	31.09	57.5	81.59
1st	J M L Milligan, Culvennan, Castle Douglas	31.08	63.5	94.58
	R Borland, South Woodhill, Kilmarnock	30.60	55.5	86.10
2nd Beef/Sheep	G Prentice, Hermitage, Haugh of Urr	28.40	54.0	82.40
	J L Brander & Co, East Glenarm, Crocketford	27.74	45.0	72.74
	W A Glover, Hall of Barnweill, Craigie	25.06	56.5	81.56
1st Beef/Sheep	H McKeever, Hillhead, Tarbolton	24.04	61.5	85.54
Milligan Prize	R Dalrymple, Crailoch, Ballantrae	22.64	55.5	78.14
	R J C Hogg, Gribdae, Kirkcuds	22.38	48.5	70.88

* = Beef/Sheep entry B = Big Bale entry

Dr J S Chalmers : Clamp Silage Quality, 1980 - 84

A summary of the quality of clamp silages over the last five competitions is given in Table 3. Judged by D-value, the overall quality in 1984 was the best in recent years. The last time a similar distribution was seen was in 1979 when 17% of the 35 entries were in the VG class.

The mean dry matter content of 24% is a little higher than in previous years but two-thirds of the silages had DM values less than 25% so there is no reversal of the recent trend away from high DM silages.

The mean ammonia nitrogen content, a good indicator of silage fermentation, was lower in 1984 than in any previous year of measurement. Only 13% of 1984 silages had ammonia values greater than 12 (% of Total N), the mean value in 1983.

In summary, it appears that climatic conditions in 1984 favoured the production of high quality silage. This was opportune as 1984 was a year when the role of home-grown forage could not have been more important. Interest in the competition continues to increase, suggesting that grassland farmers are approaching their problems in a very positive manner.

Table 3. Silage quality 1980 - 84.

		% of total in each group				
Quality	D-value	1980	1981	1982	1983	1984
Very good	>70	0	0	3	0	17
Good	65 - 70	31	7	39	16	63
Medium	57 - 64	67	88	56	71	20
Poor	<57	2	5	2	13	0
Mean dry matter %		22	21	23	23	24
Mean ammonia N (% of total N)		13	13	12	12	10
No. of entries		53	63	66	69	77

Dr R D Harkess : Additive Use, 1984

Table 4 summarises the use of additives in this year's competition. In the open section, which comprised the dairy cow silages, 77% of the entries had received an additive. This is lower than the previous year and perhaps reflects the better weather at silage making time. Of the beef/sheep entries, 39% had received an additive which was a small increase over last year.

Acid/formalin additives (Farmline, Fodderade Extra, Silaform, Silage F 100, Sylade 2) made up 42% of the additives used and straight acid (Add F), 38%. Inoculants (Biomax S1, Microsile, Safe-sile) were used on 11% and molasses on 7% of the silages receiving an additive.

Of the entries on the short leet, all the open class entries, except the tower silage, had been treated with an additive of the acid/formalin or straight acid types. In the beef/sheep section two of the shortest silages had not been treated with an additive.

Based on chemical analyses, the highest placed silages treated with straight acid, acid/formalin and inoculant were first, second and tenth respectively. The highest placed open class silage not receiving an additive ranked twelfth. The highest placed beef/sheep entry on analysis was ranked twentieth overall and had not received an additive.

Table 4. Additive Use 1984.

Additive	Type*	Open Class (62 entries)	Beef/Sheep Class (18 entries)
Add F	A	21	1
Farmline	A/F	9	-
Sylade 2	A/F	6	1
Silage F 100	A/F	2	2
Molasses	Sugars	3	1
Silaform	A/F	2	1
Safe-sile	I	2	-
Microsile	I	2	-
Biomax S1	I	2	-
Fodderade Extra	A/F	1	-
Add F + Biomax		-	1
No additive used		12	11

* A = acid A/F = acid/formalin I = inoculant

HAY COMPETITION

Seven hays were presented for this year's competition and the quality was substantially better than last year, undoubtedly due to the good summer in 1984. Results are summarised in Table 5 and the silage judge presented the awards as follows :

Winner and recipient of the BP Nutrition Trophy -
I C Gilmour & Sons, Humeston, Maybole

Runner-up - J Stevenson & Sons, Changue, Cumnock

Table 5. 1984/85 Hay Competition : Analyses and Marks.

		ANALYSES			MARKS		
Rank	Code	% DM	% CP	D Value	Analyses Marks/90	Visual Marks/10	Total Marks/100
1 CB	AH 6	82.8	17.9	69.5	85.40	9	94.40
2 CB	AH 2	79.7	14.0	72.7	80.85	9	89.85
3	DH 1	82.4	7.4	69.6	68.20	9	77.20
4	AH 1	82.5	8.7	60.5	52.65	9	61.65
5	AH 3	82.4	9.9	58.8	51.60	9	60.60
6	AH 4	84.9	9.4	58.7	51.60	8	59.60
7	AH 5	84.8	7.1	57.8	45.20	9	54.20

CB = Cold air blown dry

FARMING AT FERNIESHAW

A. (Sandy) Bankier

Fernieshaw, Cleland

A meeting of the SWSGS at the Embassy Hotel, Dumfries, 10 January, 1985.

Following the adjudication of the competitions the judge gave an illustrated talk on his farm. Fernieshaw extends to some 160 ha which are all in grass apart from 28 ha barley. Cow numbers have been reduced from 130 to around 120 in order to adjust to quotas. Cows are self-fed and housed in a slatted cubicle shed. Dry cows have access to second cut silage for 12 hours each day.

The milking cows are given 2.4 kg barley twice per day in the parlour. A high phosphate mineral is mixed with the barley. The out-of-parlour feeders provides a further 3 kg cake per day. The silage and barley are expected to produce maintenance plus 11 kg milk and for cows yielding over this, an 18% crude protein cake is available.

The swards at Fernieshaw are fairly old, many having been down for up to 15 years. However, the 3 cuts per year and an adequate fertiliser input have kept the swards in a vigorous and productive state and reseeding is only carried out if and when production begins to decline. Intermediate perennial ryegrasses along with some timothy are the preferred grasses. A tight grass heading pattern aids timely cutting and silage quality.

Silage making comprises a three man team. Two 2-metre mowers are used to cut about 4 hectares per hour and the swaths are rowed-up before lifting with a precision chop forage harvester. Grass is left in the swath for as short a time as possible before lifting but some wilting is allowed. Where possible long runs are taken to reduce turning in the field to a minimum.

Discussion

Further information was requested on herd management. The Fernieshaw herd has been upgrading to pedigree Friesian since 1971 mainly using Powis Mains bulls. There is one Holstein cow in the herd! The herd average is 5900 litres and as much milk as possible is produced from silage. The out-of-parlour feeders are used only for the first 100 days of lactation and a maximum concentrate usage of 1 tonne per cow per annum is the target. The calving index is 364 days with heifers calving mainly in October to November.

Questioned further on concentrate use, the speaker felt that concentrate quality was important hence he used 18% cake since it was fed to the higher yielders. His guide to concentrate use was based on three main factors; the milk output per day, the proportion of old to new calvers, and the production level in relation to the herd quota. Concentrate level can then be increased or decreased as appropriate. The general philosophy is to keep a tight rein and not let things drift too much one way or the other.

All heifer calves are kept and recently the bull calves have been retained too until 400-500 kg liveweight - there is a demand at present for Friesians.

Asked why barley was grown when so much emphasis was placed on grass and silage, the speaker replied that it was mainly grown to renew grassland, to crop ground which had been dug up for drains or where hollows were filled and hillocks flattened - in other words the barley was a valuable crop in aiding grassland management but the straw was useful too!

The discussion then moved on to the pros and cons of additive use. In the speaker's mind there was never any question, additive use is necessary to ensure a good, acceptable silage and it was an insurance to aid intake. A rapid fall in pH and exclusion of air were important in encouraging the best fermentation. Whilst ideally grass should be cut in the afternoon to enable a high level of sugars to build up (and a reduction in moisture) this approach didn't always fit in with other activities in the system. Some suggested that additives were not always necessary especially if conditions were good. But good conditions (which include weather, soil conditions and the chemistry of the grass) were difficult to define or measure on the farm so additive is best used at all times but perhaps at a reduced rate when weather conditions were good.

Finally the storage and feeding of silage effluent was discussed. It was noted that 20 litres of effluent have a similar energy value to 1 kg of barley. If collection and storage facilities can be provided at reasonable cost, then effluent feeding was worth considering. When stored, formalin or an acid additive must be added to prevent the effluent from putrefying. Stock find effluent very palatable and it may be necessary to restrict intake. Apart from its energy content, effluent is also very high in crude protein (e.g. 25-30%) and hence excessive intake is best avoided especially if offered to calves and dry stock. It was suggested that effluent feeding does not have the depressive effect which barley has on silage intake.

CHANGE OF SWSGS TREASURER

Jim and Carolyn Chalmers have returned to Orkney to take over the family farm. On their departure they reminded us that Stenness is nearer Ayr than London and they will be pleased to see anyone venturing north!

The Society is fortunate in having Rod Gooding to fill the post as Treasurer. Rod, a Society member for many years is a lecturer in the Agriculture Department at Auchincruive.

VISIT TO BALBIRNIE HOME FARMS

An afternoon visit by the CSGS to Pitilloch Farm, Freuchie, and Treaton Farm, Markinch, 8 August, 1984.

Having left the west of the country in drought and with little grass, it was comforting that on the visit to Fife we were able to see good grass. Balbirnie Estate extends to some 827 ha of which 210 ha are in rotational grass, 58 ha in permanent pasture and 36 ha in rough grazings. The remainder of the farm is down to arable crops and comprises of 77 ha winter barley, 88 ha winter wheat, 20 ha oil seed rape, 240 ha spring barley and 58 ha potatoes rented out to a local merchant.

Main points of interest were the dairy herd at Pitilloch and the beef unit based at Treaton. The dairy herd comprises 246 Friesian cows with a herd average of just over 5000 litres per cow. Calving takes place the whole year round as about 1600 litres of milk are retailed daily mainly into the wholesale market. Cows are in calf either to the Friesian bull, in which case the heifer calves are retained as herd replacements, or they are in calf to the Hereford, in which case the heifer calves are retained as replacements for the suckler herd. All bull calves are sold at a young age as there is insufficient grass to keep them on.

About 3000 tonnes of silage are made annually for the dairy unit, with all silage receiving additive (usually Add F) at 2.25 litres per tonne in good weather and 4.5 litres per tonne in situations where a satisfactory wilt cannot be obtained. Farm manager Allan Muir reckons that the cost of additive at half rate (£1.15 per tonne) is justified in terms of dry matter which is not lost. 'D' values are normally in the 63-65 range and most cutting mixtures are based on SAI HF7 or HF11 mixtures.

The hub of the beef herd is the 240 Hereford/Friesian cows which calve in July/September. It was this beef herd and its progeny, which in 1982, won the Grass to Meat Award sponsored by the BGS and MLC. Gross margin per cow is £186 but with a stocking rate of 2.36 cows per hectare, GM/ha is £459. Cows are crossed with an Aberdeen Angus as first and second calvers and thereafter are put to the Charolais bull. The aim is to get the Charolais calves to around 400 kg for selling at Perth and Stirling in September (i.e. at one year old). Cows are in-wintered on straw-bedded courts and turned out in mid-May at the rate of 5 cows and calves per hectare. In past years calves been weaned in July and turned onto silage aftermath, but this year they were housed at weaning time and zero grazed in order to achieve higher stocking rates and better grass utilisation.

There is a herd of a further 60 suckler cows calving in the spring which are mainly used as scavengers and utilise the rougher ground.

Grassland management for the beef and dairy herds is much the same with two years grazing followed by two years conservation. A total of 375 kg/ha nitrogen is applied on all grass, and silage aftermaths receive an application of slurry.

The Society is indebted to farm manager Allan Muir and his staff for showing members this most interesting unit. Thanks are also due to Mr. J.C. and Dr. Jean Balfour for their kind permission to visit the estate. - I. Fraser.

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VISIT TO INGLESTON, DUMFRIES

A visit by CSGS to Ingleston Farm, Irongray, Dumfries, 21 May, 1985.

After a rather cold and slow spring it was a pleasure for members to travel to the south-west where grass always seems greener. A visit to Jock Rome is enough to fill anyone with enthusiasm and really make an effort to do better back at home. Ingleston, and its two associated units of Kirkland and Gateside, extend to some 400 ha ranging from 20 to 200 metres above sea level. Around 50 ha of cereals are grown, about half of which is winter barley. The remainder of the farm is down to grass. The aim is to make about 120 ha of silage in the first cut with 90-100 ha being taken in the second cut. Silage is stored in outdoor clamps at Ingleston and it was possible to see various types of silos ranging from earth bank walls, sleeper walls through to in-situ poured concrete and concrete block walls. At Kirkland there are roofed silos where cows are on a self-feed system.

There are two dairy herds each of 150 cows, one being carried at Ingleston and the other at Kirkland. All dairy youngstock are retained, heifers being reared to calve at around 2 years as dairy herd replacements, and bulls being put on to a bull beef fattening enterprise. In addition to the dairy cows there is also a herd of 150 Angus x Friesian suckler cows which are mainly crossed with the Charolais bull.

To allow for flexibility in managing grassland on such a large area, no rigid grazing system is adopted. Both strip grazing and set stocking are used where appropriate. The dairy cows tend to graze the steep land at Ingleston to allow the flatter areas to be cut for silage. Members were particularly impressed with the quality of the grass swards and the general absence of weeds. Jock explained that when establishing grass he sows the grass seeds, lets the sward establish, takes any appropriate chemical weed control necessary and then oversows the clover with fertiliser after the weeds have been controlled. This allows a greater choice of herbicide and also gives a better take of clover.

It is Jock's philosophy that money tied up in machinery is money wasting so all machinery is second-hand. He prefers to invest money in buildings where he can see a pay-back, and when grant is taken into account the cost can often be cheaper than a tractor. In fact this philosophy has allowed two extra men to be employed with most of their time spent putting up buildings and doing concrete work.

Farm buildings are also of interest. The dairy cows are housed in high level slatted buildings as are the rearing dairy heifers and the bull beef enterprise. There are two herringbone parlours with automatic cluster removal, a 16/16 at Ingleston and a 10/20 at Kirkland.

Although having spent a day at Ingleston, many members felt they could go back for another day and still not see everything! The Society is very much indebted to Jock Rome and his wife for providing a most interesting and stimulating visit, and for the very kind hospitality shown to members of the Society. - I.R. Fraser.

GRASS ON MY FARM: A PANEL NIGHT

Mr. Richard Nixon, Snar, Crawfordjohn
Mr. Tommy Brown, Muirhouse, Libberton, Carnwath
Mr. David Yellowlees, Muirhall, Perth

A meeting of the CSGS held at the King Robert Hotel, Bannockburn, 28 February 1985.

Richard Nixon, Snar, Crawfordjohn

Snar extends to some 1,200 ha and lies between Crawfordjohn and the Leadhills. Annual rainfall is 1,375 mm. The farm is between 315 and 600 metres above sea level and carries 1,000 Blackface ewes and 260 hoggs on the hill which is divided into two hefts. In addition a further 35 ewes and 10 hoggs are put to the Dorset Down and kept on 16 ha of very steep inbye ground.

Grassland management on a hill farm means managing the herbage for the various seasons of the year. At Snar the farm has three different types of herbage. The north end is predominantly Molinia-type grassland which extends over one-third of the farm. Molinia is of limited value for summer sheep grazing apart from late May and early June, and it predominates on ground which is steep and shallow and usually very expensive to improve. On improved areas erosion can be a problem. Some areas of the Molinia have been treated with glyphosate (Roundup) which appears to have achieved reasonable success in controlling Molinia and allowing other grass species to be sown. Last year was the first attempt with this technique. If successful it would be useful to do strips say 1,000 metres wide, and the use of a weed wiper could also be a refinement of the technique. It would be quite undesirable to treat the whole area of Molinia as it provides good winter keep particularly when there is snow on the ground. Burning Molinia has not proved successful as it regenerates quickly.

The central band across the farm is predominantly moss and heather on a reasonable depth of peat. The heather is short at 100-200 mm and there is also a proportion of palatable grasses, with drawmoss and cotton grass being particularly favoured at lambing time. There is plenty of herbage on this heft and hoggs are home wintered. Rumevite blocks have been tried but the sheep did not appear too interested in them.

The third part of the hill is predominantly heather and is maintained by the game-keepers for sporting purposes. Heather is very valuable for sheep particularly when maintained properly by burning selected areas each year. Muirburn can only be carried out at specific times in the year. It is therefore necessary to make the most of this restricted time by bringing in staff to ensure that the required amount of burn is carried out. The idea is to get regular ages of heather by burning in a 4-5 year rotation. Mass burning must be avoided, as this neither benefits the sheep stock nor the game bird population. It is also necessary to avoid spot burning as this will not provide enough young heather for the sheep. In the first year strips 50-80 metres wide should be burned, followed in the second year by joining the strips in the opposite direction to form a mosaic pattern. Heather on shallow peat tends to be slow growing and slow to re-generate, and a good grassy sward can develop until the heather is established again in 4-5 years.

Tommy Brown, Muirhouse, Libberton

Muirhouse extends to some 130 ha of tennanted land nearly all of which is arable. There are three integrated enterprises of 600 cross ewes, 50 ha of barley and 200 fattening cattle, mainly heifers.

In 1980 a change in policy was decided upon and the dairy herd which had been carried on the farm for the previous ten years, was dispersed. In setting up the new farming system it was very necessary to make the enterprises complimentary. The sheep and barley were quickly decided upon, but the decision over cattle was more difficult. Cattle were needed to eat the silage which was necessary to make a clean grazing system work, but the capital tied up was quite considerable. Eventually it was decided to purchase store cattle in the autumn with the aim of selling from January onwards.

All ewes are now taken off grass during the winter and fed inside on silage. During the grazing season sheep are set stocked at 15 ewes and lambs per hectare. There was some concern initially about making late silage, as ewes are on the silage ground until 1 May, and then the silage ground is shut up for 6-7 weeks, which means making silage mid-June. However, experience over the last two years has shown that silage made at this time is not too low in D value, and compares well with silage made in late May which has not been grazed with sheep beforehand.

The aim is always to make quality silage, and particularly for the sheep, bulk is less important. If the cattle silage is not good, growth rates are poor and there is little money in the fattening enterprise. Silage is made quickly by a contractor, the aim being to fill the pit in 1½ days. As well as the contractor there is also co-operation with a neighbour which makes available 9 tractors, 7 trailers and 2 mowers. Grass is not cut until the contractor arrives and the aim is to keep 8 ha in front of him. An additive is used, but is generally cut out in the afternoons if conditions are good. When the pit is filled it is double sheeted on top and covered with bales. Side sheets are also used.

Around 200 beef heifers are purchased in the autumn for fattening, and of all three enterprises, this takes the most money to operate. The heifers are fed around 23 kg of silage per day plus any straw they pick up from bedding, but nothing else. A lot has been learned about buying cattle, and it is necessary to buy the right type of cattle for the system. The aim is to make 67 D silage at around 25% dry matter. The silage is analysed before cattle buying starts and the analysis will probably influence the type of cattle purchased.

As silage becomes more expensive to make, and if barley becomes cheaper it may be necessary to consider a change of ration.

Devid Yellowlees, Muirhall, Perth

Muirhall extends to some 154 ha of which 48.5 ha are down to grass. Other enterprises include barley, potatoes, wheat and peas. A herd of approximately 90 Friesian cows is carried along with associated youngstock. Around 32 ha of silage are made in the first cut. The dairy cows set stocked on the remaining 16 ha of grass. Youngstock are generally kept in the house until first aftermaths are ready for grazing, and only 16 ha of silage is made for second cut. Youngstock are fed mainly on straw and potatoes.

Silage feeding to the cows starts in early August and finishes at the end of April. Therefore it is imperative that silage is of good quality and that best use is made of it. The whole success of the dairy enterprise depends on good silage utilisation. Because one is always walking a tightrope between quality and quantity there is seldom sufficient silage to carry through the whole feeding period so the ration has to be supplemented with draff, brock potatoes and beet pulp.

Muirhall is a very dry farm and it is essential to make the most effective use of spring grass. T sums are used as a guide and when T200 is reached, half the fertiliser is put on the grass with the rest put on two or three weeks later. When predicted grass D values are at 70 the decision when to cut silage is made depending on bulk, and likely weather conditions. If bulk is not available then quality is sacrificed. Grass mixtures are mainly of intermediate types of ryegrass, to allow bulking without loss of quality. Also they provide good grazing later in the season without quality falling away too rapidly.

Silage is usually wilted for about 12 hours and certainly no more than 24 hours, to reduce effluent. An additive (F100) is used and grass is lifted with a precision chop harvester. Silage is stored in an unroofed clamp with porous walls so side sheets must be used. To further control effluent, a flexible plastic drainage pipe is put right round silo and this catches a lot of the effluent. Straw has been used to control effluent by unrolling ten big bales in the silo before filling. However, it was impossible to work the loader in the pit, and nothing would eat the straw when it was taken out. Also it seemed to soak up little effluent.

The speaker felt that grazing was an inefficient system for feeding dairy cows, but because of the layout of the farm, 20 ha had to be grazed. Zero grazing is too labour intensive and strip grazing was wasteful. There was interest in storage feeding and it was suggested that this might be a way of improving grassland utilisation.

Grass was used principally as a break crop on the farm, and was particularly useful to follow with seed barley. All grass was established under barley, since the dry conditions made it less suitable for direct drilling, although grass seed was always drilled in.

Finally to deal with quotas, it was proposed to keep the same grass area, reduce cows by 10% and make the grass do more work. The aim was to cut concentrate inputs from 2.5 tonnes per cow to 2 tonnes whilst maintaining yields per cow. This would mean concentrate inputs falling from 0.34 kg/litre to 0.28 kg/litre.

As for the future the thought was that there would be more emphasis on grass since it was likely to be more profitable than the arable sector. If possible more quota would be obtained.

Discussion

Richard Nixon was asked whether he looked after all the ewes himself, and also what he did with twins. In reply he said that apart from tupping time when a shepherd was hired all herding was done by himself. At lambing time 12 score were brought in but the remainder lambed on the hill. The twins from one of the hefts were put on to the better pastures but the remainder had to fend for themselves. A better job could be and indeed would have to be done of the twins and the aim is to make enclosures on the hefts and to put in shelterbelts. Scanning of the hill ewes was also being carried out and those carrying twins were put into enclosures and given extra feeding.

David Yellowlees was asked to expand on his unenthusiastic approach to direct drilling. He said he felt that he achieved far better takes of grass under barley, even though it meant sacrificing some barley yield. Invariably the sward was weed free and this was a big advantage. To be successful with undersowing, the barley and grass seed were drilled separately, but the grass was always drilled within 2 days of the barley. Conserving moisture was important at Muirhall with a rainfall of 950 mm, most of which fell in the autumn.

Tommy Brown was asked about his preference for grass varieties in his leys, and how he established them. When he was dairying he had opted for single strain Barlenna swards, but the clean grazing system needed a sward both for cutting and grazing and so a mixture of Barlenna, Cropper, Melle and white clover was used. All grass is sown under barley, always within 3 days of the barley and rolled at least twice.

Asked what margin was expected from heifers at Muirhouse, the aim was to purchase cattle at 300 kg and to sell at around 400 kg which suggests a margin of £100. If cattle were bought well at say 85-90p per kilo,then margin could be £120 per head. They are only fed 20 kg per day silage and the cost of this would have to be deducted as well as the interest on the capital invested. It was essential to buy the right cattle and Hereford or Simmental Crosses were preferred with the aim of putting on 100 kg of liveweight before sale.

David Yellowlees was asked what type of bull he used and what he did with bull calves. The herd had been pure Ayrshire until 15 years ago but was then crossed with Friesians, and thereafter into Holsteins. So there was now no premium for the calves with the Ayrshire and Holstein blood in them. A bull beef enterprise had been considered but the idea was ruled out because it would have required more buildings and the capital cost was not justified. The system also seemed dependent on implants and this idea was not appealing either.

He was then asked if concentrate prices went even higher would he make even more use of grass. In reply he felt that concentrate prices would not go up in the next 5-10 years, as cereal prices were set to fall. There would always be room for the judicious use of concentrates and as long as the system was working well it would not be changed.

Tommy Brown was asked about the management of his sheep flock. With cross ewes, everything needs generous feeding. Ewes and lambs are put into individual pens for 12 hours after lambing, and are then turned out on to bare fields with turnips. The lambs are creep fed to get them away early and certainly before the end of June when the price drops drastically. Lambs are sold fat on the hoof.

Asked the same question Richard Nixon stated that none of his Blackface lambs went fat. He tended to sell the same draw of wedders at the same sale each year and had built up regular customers.

The question of Common Market Support was then raised. Tommy Brown was dependent on the Beef Variable Premium Scheme. He said that if the Common Market withdrew the Scheme then he would have to seriously consider the future of the cattle enterprise, as at the moment it was the only enterprise with a fixed income. This was the reason for the popularity of milk - there was a known income at the end of the day. David Yellowlees felt that EEC pressures would get worse. It had been fine for the first 10 years but the next 10 would be far less predictable.

All three speakers, being tenant farmers, were asked about the possibility of becoming owner occupiers. David Yellowlees felt that in his situation the possibility was never likely to arise. Tommy Brown stated that he would consider purchasing if the chance arose. Looking at it from the landlord's point of view he felt rent was a poor return on capital, and now with land values no longer appreciating at the same rate as previously, there could be more land offered for sale. Richard Nixon felt that it would probably stretch finances too much to purchase even at sitting tenant valuation.

Finally each speaker was asked about his thoughts on the cuts in the College Advisory Services. Richard Nixon had a high regard for the Service, and as well as the advisory service it had to be remembered that there were also cuts in development work. He did feel however that it was easy to give advice if it was not your money that was being spent. At the end of the day the farmer still had to weigh up very carefully the advice he was given.

Tommy Brown had found the Advisory Services most helpful and felt that even despite having to pay for soil and silage analyses, they still represented a very good return on money spent. He hoped that the Advisory Services would manage to continue despite the cut in funding, but it also had to be remembered that it was up to the individual farmer to get out of the hole at the end of the day.

David Yellowlees felt that advice was a two-way exchange between the farmer and the adviser, and he was not sure how this relationship would be affected when charges were introduced. There were a number of sources of advice e.g. fertiliser manufacturers, feedingstuff manufacturers etc., and these were not as biased as was sometimes made out. Silage analyses could also be obtained free of charge as could costing services. He felt that the Colleges would have to seek commercial backing rather than recoup charges from individual farmers if the Advisory Services were to continue. - I R Fraser.

BOOK REVIEW

'SILAGE AIDS UK' by Dr Mike Wilkinson

Published by Chalcombe Publications, Marlow, 1985 108 pages £4.95

This is an update of last year's book listing silage additives, their content and cost. Also included are intake and/or palatability enhancers added to the silage at time of feeding.

New sections include applicators, weighers, plastic sheets and bags and block cutters, all important hardware in the making of good silage. - R D Harkess.

COLLEGE PUBLICATIONS

SILAGE AND HAY ADDITIVES 1985. Technical Note No 76 1985
10 pages ISSN 0142 7695.

A guide to additives available on the UK market together with a brief comment on the different basic types and their mode of action. Active ingredient concentrations are quoted where available.

GOOD SILAGE MAKING. Advisory Publication No 151 1985
20 pages ISSN 0308 5708.

The key points for good silage making are explained with special reference to reducing losses. A good silage crop is planned well in advance and guidelines are given for attaining yield and quality targets to suit the type of stock and the farming system. Specific reference is made to attaining a good fermentation, growing and cutting the crop, additive use, wilting, filling and sealing the silo.

CHICKWEED CONTROL IN GRASSLAND. Publication No 150 1985
8 pages.

This leaflet covers the choice and timing of herbicide use. Herbicides are grouped into those suitable for swards where clover is important or not important. Guidance is also given on chemicals suitable for seedling or established swards.

CLASSIFICATION OF GRASS AND CLOVER VARIETIES FOR SCOTLAND 1985 - 86.
Publication No 152 1985 18 pages ISSN 0308 5708.

A listing of all grass and clover varieties on the UK National List together with a merit and rating for the three Scottish College Regions. The list incorporates recommended varieties for Scotland.

Single copies of these publications can be obtained gratis from the Scottish Agricultural Colleges in Aberdeen, Ayr or Edinburgh or their Area Offices and via the secretaries of the grassland societies or the Journal Editor.

EVENING WALKS

Evening walks organised by local committee members of SWSGS, summer 1984.

Kirkcudbrightshire	:	Bishopton, Kirkcudbright by courtesy of James Dunlop Esq. (26 July).
Wigtownshire	:	Torhousemuir, Wigtown by courtesy of Charles Orr-Ewing Esq. (9 August).
Dumfriesshire	:	The Gall, Boreland, Lockerbie by courtesy of J. Maxwell & Son (14 August).
Ayrshire	:	Cockenzie, Kilwinning by courtesy of Robert Lamont Esq. (20 August).

These informal evening walks are primarily intended to stimulate discussion and interest at local level.

The Society is indebted to each of these farms for extending hospitality to members who thoroughly enjoyed the visits and greatly appreciated the trouble gone to on their behalf.

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