United Kingdom Falkland Islands Trust

(UKFIT)

1995/6 Review and Activity Report

Registered in England as a Charity Number 282786

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Historical. The Trust was established in June 1981, before the Argentinean invasion, as a Registered Charity to provide support to the population in the agricultural, education and civic sectors. It is a voluntary organisation. Projects have been supported by the Dulverton Trust and Standard Chartered Bank, apart from the continuing support of the Falkland Islands Development Corporation and the Departments of Education and Agriculture.

Introduction. The Trust continued to provide support in the agricultural sector of the Falkland Islands economy, working in cooperation with the Falkland Islands Development Corporation (FIDC) and the Department of Agriculture (DOA). In particular, the support entails further research work in the establishment of trees; the fertiliser value of locally harvested kelp; a joint survey of Tussac grass soils; identifying potential areas for the future marketing of agricultural products; promoting the Organic Concept for Falkland Islands agriculture; and encouraging school students to become interested in farming subjects.

The Trustees and Consultants met quarterly to review progress and plan ahead. The Falkland Islands Government Representative, Miss Sukey Cameron, and/or the UK Representative for FIDC, Mr Ian Cox attended these meetings. Day-to-day business was undertaken on a continuing basis involving liaison with the Falkland Islands and FIDC Representatives in London and postal/telefax communications with Stanley. Two UK trustees visited the Islands during the year.

Shackleton Scholarship Fund (SSF). With the inauguration of the SSF in 1995 within the Trust, but as a separate operating unit under the management of Sir Rex Hunt, CMG, Her Royal Highness Princess Alexandra graciously agreed to become Patron of UKFIT. SSF, whilst operating independently as a Fund, reports to UKFIT half-yearly due to the latter's overall responsibility for its affairs. The Fund has been established to provide scholarships to promote academic and individual exchanges between the Falkland Islands and South Atlantic Region, and other parts of the world. Total funds raised by the end of May 1996 were £311,262.

Trustees. Mr Tim Miller of Market Garden, Stanley, accepted an invitation to become a Falkland Resident trustee to join Mr Robin Lee, also a Resident trustee, to strengthen further the working liaison with the Islands. Mr W J Turley resigned as trustee due to his other commitments. His assistance to the Trust since 1982 has been greatly appreciated.

Consultants. The two UKFIT Consultants, Mr David Stickland, Organic Farming Consultant and former Managing director, Organic Farmers and Growers, and Dr Jim McAdam, Applied Plant Service Division, Department of Agriculture Northern Ireland and Agronomist, with Queens University Belfast, continued to give valuable technical support, both in the United Kingdom and the Falkland Islands. Mr Malcolm Beatty, a Forestry Officer in the Northern Irish Government, visited the Islands on behalf of the Trust in January/February 1996 to provide a report on the potential for commercial afforestation and to give a second opinion on the tree development work. Two further consultancy visits are planned for the turn of the year 1996/7.

President's Visit. Rt. Hon. Lord Strathcona and Mount Royal, President of the Trust, visited the Falkland Islands in December 1995. He was able to meet the Governor, Government officials and farming representatives concerned with Trust work. His report is included at Annex A. Lord Strathcona appreciated greatly the hospitality and time given to him during the visit which allowed so much to be seen in a relatively short space of time.

Government Liaison. The Trust appreciates having a close relationship with HE The Governor, The Chief Executive/Chairman FIDC; the General Manager of FIDC and the Director of Staff of DOA. This situation and their appreciation and understanding of the difficulties of active working at a great distance are much appreciated.

Funding. UKFIT has invested capital of about £70,000. Its annual income for support work is confined to interest and dividends on its investments. Consequently, as agricultural research work has increased progressively and investment interest declined, the momentum can only be sustained by grants from FIDC (1996/7 £16,000). These have increased in size annually and are much appreciated. Now that the FIDC grant well exceeds UKFIT income, it is logical and correct that FIDC/DOA should work very closely with the Trust in preparing the annual budget (1996/7 £22,600) and share the same initiative for the work programme. This procedure should be started with the 1997/8 Budget.

Biological Husbandry & Kelp Fertiliser Programme. The Trust's agricultural programme commenced with detailed studies on the levels of biological activity in Falkland Islands' soil and the potential for improvement of soil fertility. Locally harvested kelp has potential as a grassland fertiliser though improvement will be a slow, but sustainable, process. An extensive series of grassland trials are ongoing and a Trust-funded pilot digester plant to produce liquid kelp extract has been operational in the Islands.

Tree Development. The Trust is now in the seventh year of a twenty year trial programme covering the development of trees in the Islands, and their potential. The work is conducted by Dr J McAdam and involves supervision from the United Kingdom, co-opted work in the Falkland Islands and periodic monitoring visits to the developing sites. A request for a study of the potential for afforestation in a commercial sense provided a new angle to the work. The situation to date has been summarised in a Report entitled "The Potential Role for Trees and Forestry in the Falkland Islands" by Dr Jim McAdam, April 1996. It includes an history of previous attempts at tree development. A summary is at Annex B. The Report includes details and conclusions stemming from Mr Malcolm Beatty's visit. The full report may be obtained from Dr J McAdam, Department of Agriculture for Northern Ireland, Newforge Lane, Belfast BT9 5PX (price £10).

Tussac Grass Soils. DOA and UKFIT are conducting a joint survey of the Tussac grass and erosion control problem due to the importance of this subject as a grazing resource. The work is in its second year and is covered in an Interim Report "A Survey of Tussac Soils in the Falkland Islands" March 1996. It is summarised at Annex C.

Agricultural Products. Mr David Stickland worked actively on various subjects which aim to identify marketing potential for local products in the Islands and abroad. Because the Islands are basically organic, the aim is to take every advantage of this fact and enter the premium markets overseas once local markets are satisfied. The subjects include wool, pigs, meat products once the abattoir is working, and legumes. A necessary first step towards introducing the Organic Concept is for farmers wishing to be involved to be registered as organic and inspected by an authorised Inspector of Standards whilst markets are researched. Work to manufacture liquid kelp fertiliser continued at Port Howard on a small scale and calls for further development. Research into the large scale harvesting of kelp to be used as a fertiliser has yet to be started. An overall summary of these subjects is at Annex D, together with the case for Organic certification and marketing at Annex E.

Cooperators. UKFIT Agricultural Products are very dependent on the help of Falkland Islanders on the farms. In particular, the support of the following persons are mentioned with appreciation. Messrs Ron Binnie; Robin Lee; Rodney Lee; and Tim Miller. UKFIT is grateful also, to the Department of Agriculture for Northern Ireland which has provided valuable support on an ongoing basis. Support by the Falkland Islands Association is also appreciated.

School Agriculture. UKFIT has a specific desire to help develop a farming interest among school students with an eye to supporting agriculture in the long term. To this end, it donated a further small sum for student research work. The Trust is working with the Directors of Education and Agriculture on attendance at practical courses for young farmers in the Islands and the United Kingdom.

Liaison and Cooperation. During the year, the Trust has been able to strengthen further its essential close liaison and cooperation with FIDC and DOA, as well as with cooperating farmers. As mentioned, this process has been helped by the President's visit, followed closely by Captain Paddy Vincent (RN), at his own expense, and Mr Malcolm Beatty. Its residential trustees, Messrs Robin Lee and Tim Miller are in the Islands, as is Mr Lewis Clifton from time to time. In the United Kingdom, apart from coordinating all aspects of Trust work, the Chairman met Mr Hugh Normand, General Manager FIDC, HE The Governor, Mr Andrew Gurr, Chief Executive and Mr Aiden Kerr (DOA) together with other personalities as they passed through London.

External Support. The Trust welcomes any financial support, or agricultural support in kind, to help develop the very worthwhile projects. The research and development work in conjunction with FIDC and DOA has a potential selective global application. Any Corporate Organisation Company or individual interested in offering assistance is requested to write to the Chairman or Administration Secretary, c/o Falkland Islands Association, 2 Greycoat Place, Westminster, London SW1P 1SD. An explanation as to how support can be given will then be sent. UKFIT is grateful for the help provided in London by the Falkland Islands Government Representative (UK), Miss Sukey Cameron, and the Representative FIDC - Mr Ian Cox.

Patron
HRH Princess Alexandra

Trustees.
President: Rt Hon. Lord Strathcona and Mount Royal.
Chairman: Major-General N. St. G Gribbon OBE.
Hon. Secretary: D G Ainslie.
Hon. Financial Adviser: J C Dodwell.
Sir Rex Hunt CMG.
Mr D L Clifton.
Captain P M C Vincent CBE. RN.
Mr Robin Lee (FI).
Mr Tim Miller (FI).

Administration Secretary: Mrs D. Dodson.

Project Consultants: Mr David Stickland (Farming Consultant)
Dr Jim McAdam (Department of Agriculture for Northern Ireland).

Nigel St. G. Gribbon

Chairman
August 1996

Extracts from Notes by Rt. Hon Lord Strathcona following his visit to the Falkland Islands 1 - 9 December 1995

From start to finish I was treated as a VIP, somewhat to my embarrassment but certainly to my enjoyment. In so far as people are aware of the United Kingdom Falkland Islands Trust (UKFIT) working in the agriculture sector, its efforts are appreciated:

a) As outsiders who are sufficiently well informed of Island problems to be able to contribute fresh ideas.

b) As an organisation, however small, which is seen as independent of Government, hence both more flexible and also free of personal involvement inevitable in a small community.

c) We can afford to be less worried about getting "egg on our faces".

d) We have access to UK and European or even international contacts which are more difficult to find from F.I.

e) Jim Mc.Adam, our tree and grass consultant, is much respected and liked.

Trustees. Robin Lee enjoys his contacts with the Trust but is concerned that he may be less able to contribute now that he is to be based at Port Howard.

He endorses my suggestion that he should remain a trustee but that we should seek an additional Stanley-orientated trustee if our constitution permits. (Tim Miller has become a Resident Trustee).

FIDC. I felt that I established a good relationship with Mike Summers (who is due to leave FIDC shortly). But he claims to welcome and support our efforts: certainly was endlessly helpful. I like to think that benefit has accrued to the Trust in having met many other Island contacts in a fairly busy programme.

Trees. The Trust's most important project has been the encouragement of tree growing. We have been given much of the credit for the burgeoning enthusiasm among farmers for the concept of shelter planting. It is accepted that establishing trees is not easy but not impossible; the potential value of shelter belts is appreciated. It is unwise yet to envisage commercial forestry for timber production. The priority is to establish shelter belts on a significant scale. This could bring not only immediate benefit in protection of livestock and improvements to pasture but would also open up the later option of more serious forestry behind the shelter belts.

The creation of shelter derives added importance if meat production becomes a significant farming activity as a result of setting up an abattoir - suggesting higher quality breeds which would require better treatment.

To derive the maximum benefit, shelter belts, by definition, are liable to need to be planted in somewhat exposed positions whereas, hitherto, most plantings have tended to enjoy some shelter.

A successful planting programme demands guidance on the appropriate tree species which may vary with differing locations (eg damp areas). Species suggested, mostly in UKFIT trials, include:-

a. Lodge-pole pine (Oinus contorta). Outgrowing macrocarpa on a small mixed planting at Fitzroy.

b. Cupressus macrocarpa. Generally regarded as the most promising species in the Islands. Trees are now being grown from selected seed from New Zealand.

c. Willow.

d. Poplar (spreading by suckers might be a positive advantage)
e. Sitka (probably only viable in wet areas)
f. P. Radiata (Insignis)
g. Birch
h. Eucalyptus (Gunnii mainly) perhaps coppiced.
i. Chamaeayparis Leylandii
j. Nothofagus dombeyi (Southern Beech) Procera?

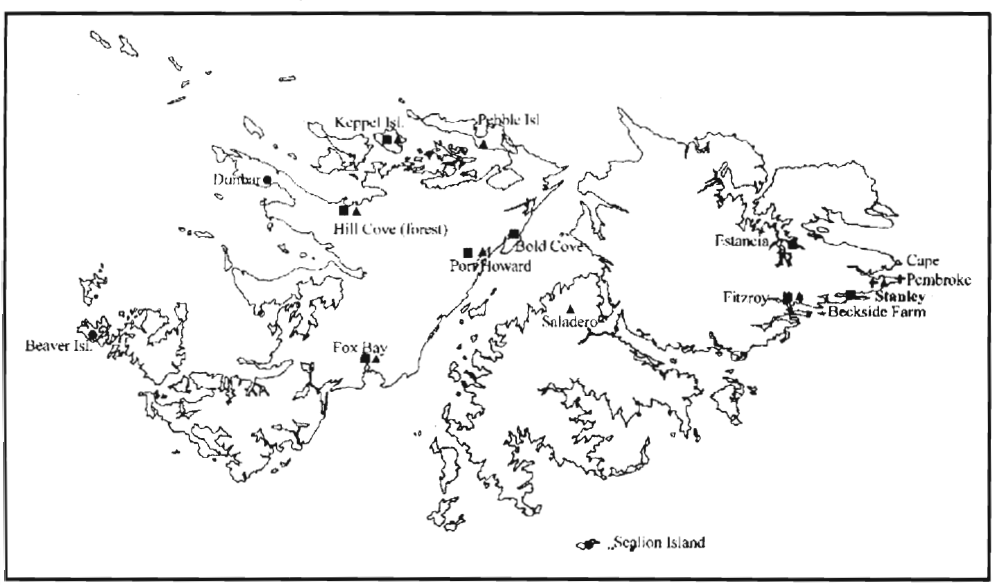
Tim Miller would be willing to assist with data giving a record of trees known to have been tried in different locations and conditions: giving species, date of planting, provenance, nature of site, circumstances, protection, fertiliser, planting distance, weeding, survival rate, max/min size. It would supplement scientific data included in Dr McAdam's current work and reports.

From this data it would be possible to assemble a table by species showing results. It would include a proforma showing: Species, Location, Condition, Dates, Provenance, Pit/Slit screening, Survival %, Height.

Brook and Eileen Hardcastle at Darwin have tried a considerable range of species in moderately favoured locations. They have found it necessary to fence against hares as well as livestock when planting in improved ground close to the settlement. Ron Binney reports little sign of hare damage out on the hill.

The benefits of plastic strip wind fencing protection for plantation parameters is not conclusive.

Various suggestions have been advanced for establishing shelter up to about one metre high in order to help trees get established in the early stages after planting:- tree lupins (legumes which also fix nitrogen) pampas grass. Facine (which will grow quite quickly and naturally, once stock is fenced out).



Tree Development ▲
Tussac/Erosion ●
Kelp/Grassland ■
Civic Support ✚

Map showing the locations of sites where UKFIT have been involved inreasearch/development or civic support work.

NZ Flax (limited by propagation from division) Olearia traversii, which is extensively used for hedges sheltering the bulb fields on the Isles of Scilly, night be considered if it will stand the cold in FI. I intend to send Tim Miller some seedlings of Olearia Macrodonta which is hardier but slower and seeds at Colonsay. I can also offer unlimited seedlings of Griselinia Littoralis, though I am not confident that it will stand the wind.

The two page "outline plan" for trees establishment prepared by Jim McAdam is an excellent summary of the next stage in addressing these issues. It was discussed with Owen Summers and Aiden Kerr, who had only seen it recently. Maybe it would be commissioned and largely funded by FIDC? They and Beatty's terms of reference are rightly identified as key players. Aiden Kerr says that "The Agriculture Department has no policy on trees". But he seems keen to help. He "develops programmes to solve perceived agricultural problems" and sees the Trust as a complimentary add-on. Jim McAdam will be in prime position to review previous literature because of his work with Alan Lowe. Presumably this will be made available in briefing Malcolm Beatty before his consultancy visit. (Done)

Is anything similar available for Chile (there is no commercial planting in Chile) and Argentina? Do we know what areas are "hono-climes" (AK's technical word for places which have climates comparable to the Falkland Islands) where experience might save "re-inventing the wheel"? (Passed to Malcolm Beatty)

It is very important that any forestry expert adviser should not be constrained by UK experience (eg Western Scotland may sometimes have wind and salt-spray but it usually has a much higher rainfall 50+ inches vs 20inches or less in FI.

As part of Malcolm Beatty's preparation, can we assemble historical weather information for FI showing extremes over the years and seasonal variations within the year? (Done)

They also suggested that perhaps someone should use the anticipated DAP flight to Punta Areanas to visit relevant Chilean forestry undertakings. These may be a cheaper source of small tree seedlings. Has Jim McAdam already adequately covered this ground? (Already sourced. Trust is buying on experimental basis).

Perhaps the Department of Agriculture or/and FIDC would support the setting up of a field research centre eg near Darwin?

Around Mount Pleasant Airport, Lodgepole Pine has grown to about 6 feet in six years though it shows some sign of wind-burn, perhaps due to last year's hard winter. This demonstrates the benefit from the (expensive) planting with tall individual wind shelters and large soil-filled holes.

Tussac. Marshall Barnes and Robin Lee pointed out that FI stock rearing (particularly for meat once the abattoir is established) would be transformed if Tussac could be cultivated on a commercial scale because if can provide outstanding high-quality all-year-round feed. However, Tussac has so far defied all efforts to identify the cause of its steady decline in many areas of Camp or to establish its cultural requirements. (Joint DOA/UKFIT study in progress)

Anecdotal evidence suggests that Tussac has:

a. Suffered from over grazing.

b. Prefers to grow by the sea (but Robin Lee showed a small planted patch which had survived on the hill).

c. Benefits from association with birds and seal droppings (which are rich in nitrogen); and is often seen growing in hen runs.

Research has established that Tussac almost certainly is not falling victim to attack by beetles. Robin Lee claims that fencing against livestock, or feeding with nitrogen or goose droppings.

have not brought significant improvements, though there has not been systematic measurement.

Could animal scratching around the roots of "bog" be an essential beneficial ingredient? Can we identify what is special about hen runs? (UKFIT paper written)

The Department of Agriculture (originally Agriculture and Research Organisation funded by ODA) is keen to find a student to study restoration ecology/coastal degradation of which Tussac might be part. £10,000 is available in Department of Agriculture budget but there is a lack of experience in UK. Link with Queens University, Belfast, is vital and must be preserved. The Trust might help in finding people. I offered to contact Rowett Institute at Aberdeen. Might a student fit in with Shackleton Scholarship? (Taken up)

Organic. Mike Summers was enthusiastic about possibilities of organic registration if potential economic benefits can be demonstrated. (Farmers at my home have similar ideas). Judy Summers of Farmers Association says that Woolgrowers Association has more or less withered away, except for one or two specific negotiations.

The Trust has not yet succeeded in convincing farmers of value of being registered "organic" in the absence of figures on expected premium prices. To the layman the potential for premium prices for food products like meat and carrots is more credible than for wool. However, premiums for lanolin extracted from wool are more understandable.

We need to check just what is required to become registered. EU standards are relevant as representing the principal market and also are illustrative of the standards likely to be demanded outside the Union. The UK is about to withdraw from acting on behalf of outsiders intending to register with EU. (The subject is being progressed in detail).

Digester. Robin Lee is keen to resume experimental operation of the digester. He has in mind that the Port Howard book-keeper would undertake this job: he is meticulous in keeping records. We need to record man-hours spent on gathering kelp and hours of operation in order to assess cost of power.

The digester seems to be a very simple piece of apparatus. We need to draw up a research programme to establish the value of the product. (Action being arranged).

It would not be difficult to design and build a larger-scale machine locally. My thought is that perhaps a trailer or skid-mounted self-contained machine could be assembled using a small diesel engine for agitation and heat. This could be taken to conveniently-accessible sources of kelp which might possibly be collected by some sort of drag-line. Suggestions that kelp harvesting would be destroying breeding habitats for shrimps and squid can probably be discounted.

Grass Improvement. Farmers seem to be agreed that pasture management and improvement will become more important and viable with the opening of the abattoir.

Fencing and bursts of intensive grazing, preferably including cattle, seem the most promising methods of grass improvement. The progress made by Malcolm Ashworth at the Stanley Dairy at Beckside Farm is the outstanding example; but patches can be seen at other places. The dairy has been significantly supported. The "byre cum milking parlour" building attracts a rent of but £5 pa.

Kelp, as a fertiliser, might have a part to play in such grassland improvement: but it seems more likely to be productive in fostering shelter-belt tree growth.

Tim Miller sees promise in pigs as soil cultivators in addition to low cost meat producers. Mike Summers reports that original reservations about inbreeding had been overcome by buying stock of wider genetic origin.

Knitwear. Mike Summers showed me round the impressively-equipped Falklander Knitting Workshop in the Catholic Church Hall. The aspiration is to add value to Falklands wool by knitting squares of imaginative design which can be assembled into individually patterned jerseys. These would need to be marketed as up-market fashion items if they are to achieve the required selling price of £200. I undertook to consult an acquaintance in the rag-trade as to the feasibility of this project.

Summary of visit. This visit confirmed the enthusiasm for further work on the two major projects already identified by J McAdam, namely; Tree Establishment and the Tussac/Erosion programmes. Both are seen as an added interest once the abattoir comes into operation and advice on that will be welcome. Organic premiums would be an added bonus: the Trust through David Stickland can make an invaluable contribution. Raising pigs and growing vegetables, as being counselled by him, such as organic carrots, could form part of the picture.

The interest to which the Trust can contribute is constrained by finance. But maybe additional funds could be raised if the Trusts efforts were more widely promulgated: our interest is appreciated by those who are aware of our work.

Strathcona and Mount Royal
January 1996

UKFIT Note. The comments and recommendations in these notes have been examined by the Trust members concerned and with others concerned, where applicable. Progress will be reviewed at a future meeting of the Trustees.

Annexure B

The Potential Role for Trees and Forestry in the Falkland Islands

(A summary and extracts from the April 1996 Report)

Executive Summary

A. The Aims and Objectives of the report were as follows:

1. To review all previous reports on the potential for tree planting and forestry in the Falkland Islands.
2. To review results from the UKFIT's tree planting research programme (1989-1995).
3. To consider the recommendations of the UKFIT Forestry Consultant and the discussion document proposed by the Chief Executive, FIG.
4. In the light of 1-3 above to propose a forward strategy for the UKFIT programme and for the future role of trees and forestry in the Falkland Islands.

B. The Conclusions from the report were:

1. Due to the absence of detailed records it is difficult to assess the reasons for the failure of most past attempts to grow trees in the Falkland Islands. However, the common factors which appear to filter through the previous reports (albeit anecdotal in many cases) are that:- too-dry planting sites, insufficient care and attention at planting, lack of protection from livestock, incorrect species and province selection and insufficient knowledge about nutrition are major contributing factors to the failure of most planting efforts.

2. Unlike previous attempts at growing trees on the Falkland Islands, the UKFIT's programme has been based on proper replication and experimental design, thorough documentation and measurement of tree growth and an attempt to address the basic issue of planting technique and nutrition. It was concluded that trees can be satisfactorily grown in the Falkland Islands, provided that suitable species are chosen and the correct planting technique is used. Soil cultivation at planting and moisture retention are key issues in planting.

   Growth rates are promising for species such as lodgepole pine once established, although overall growth rates will never be high. The use of other species, particularly those growing at similar latitudes in Chile such as the Southern Beeches (Nothofagus sp.), should be seriously investigated and a source of tree supply through the development of an agar culture project with the University of Magallanes, Punta Arenas is being pursued.

3. The consultants' recommendations largely reinforce the view expressed in 2, ie that trees can be satisfactorily grown in the Falkland Islands and there is potential for shelterbelts and farm woodlands to be developed for socioeconomic, ecological and environmental reasons. This largely supports the Chief Executive's view although, from the trials carried out to date, the case for a commercial forest industry is not yet proven and demands a further development phase. His views on softwood and potential hardwood production are broadly supported by the Consultant and both agree on the need for further work on location, species selection and management regime. Recommendations for future research and development are presented.

4. Small scale farm woodlands could be an integral part of an enhanced rural economy based on agriculture, but with some land devoted to a small forest industry. The agricultural industry, while still based largely on sheep production from wool, might benefit from enhanced shelter by permitting diversified enhancement of income from sources such as cereal and horticulture production and other forms of livestock rearing.

5. Some of the Trust's work has shown already the feasibility of, and how, supplementary components of the farming industry could be introduced and managed on a sustainable basis using biological means (eg the use of kelp based products as a fertiliser), though the need for imported mineral phosphate has been highlighted by the consultant and control of tree pests may be required.

6. The Trust's initiative in establishing, with limited resources, a series of trials which have flagged the potential for trees is widely recognised in the Islands.

However, to translate these findings into practice a larger effort is required to establish a series of demonstration plots which would address the gaps in knowledge on issues such as establishment, species selection and management, yet would be on a sufficiently large scale to demonstrate that trees can play a valuable role in providing shelter and rural enhancement, as described previously. This is properly a role for the Government of the Falkland Islands as it's scale would be beyond that which the UKFIT's resources could sustain. Backed by the Consultant's recommendations, it is proposed to advance the situation by recommending that an ambitious and imaginative programme of tree development is forwarded by FIG through the appointment of a forest field officer directed within a programme advised on by a person or body with suitable expertise and on a consultancy basis. It is also recommended that the field officer and programme would be under the overall control of the Department of Agriculture and that the UKFIT would continue to have an advisory input to the programme. This input might also include the initial programme costing and tender specification and evaluation. The UKFIT could also continue to promote and manage its' initiative in establishing links with the University of Magallanes in Punta Arenas,Chile, and should use its Port Howard site (established with Dulverton Trust funding) as a location to test a further range of tree species and planting techniques.

In conclusion, past tree trials and reports have been largely inconclusive and the UKFIT programme and other recent plantings have shown that trees can be established with suitable care at planting. There is a future for trees in an expanded and diversified rural economy, particularly to enhance the diversity of structure and product from agriculture, though commercial planting should not be excluded, particularly following trials with other species. A substantial development exercise should now commence which would need to include planting reasonably large blocks of trees on, say, Lafonia in association with the National Stud flock and as part of a research programme which would be the responsibility of a Forestry Field Officer within DOA and advised externally. The UKFIT can continue to provide a valuable input to the programme. The overall aim is to develop a sustainable rural economy in the Falkland Islands and trees can make a substantial contribution to that goal.

The Need for Trees

Falkland Islanders have been interested in growing trees in Stanley and in the camp for many years. Although it may be undesirable to clothe large areas in coniferous woodland and tree growth will always be slow in the Falklands, there is a need for shelter for stock and gardens and to improve the visual appearance of Stanley. The potential role of trees in an expanded and diversified rural economy is now seen as a viable option.

Tree Nursery, Market Garden, Stanley

Now that flocks are smaller and the national sheep flock is going to be substantially upgraded from improved stock imports, the need to reduce losses is all the more important. Strategically placed shelter around clippy pens or in ewe camps could be used over the critical times of lambing and shearing to make a very significant impact on lamb survival and on sheep recovery after stress. Forestry and woodland lots, integrated with agriculture, could lead to soil improvement and enhance the options for rural industry.

Stanley is developing rapidly and, with new housing and small industries appearing, there is a need to landscape the town. Trees are widely recognised as the most natural way to achieve this. With many new small settlements appearing, trees have a further shelter and landscape role. There is also an interest in erosion control and rehabilitation of eroded areas. Research has shown the erosion process to be a direct result of the windy climate and trees can play a part in programmes addressing the issue of erosion and creating a sustainable vegetation cover.

Dulverton Plantation, Port Howard (in foreground)

Hence, there is a widespread interest in and need for trees to fulfil a number of roles in the Falkland Islands.

An overall summary of the findings from previous reports and observations on tree planting revealed the following key issues:

1. The climate of the Falkland Islands while adverse, does not predispose tree planting. Site selection should bear climatic limitation in mind and care should be taken to avoid dry, windy ridges and frost hollows. Autumn planting is preferred.

2. Soils have poor fertility and are generally underdeveloped. Tree growth would be greatly enhanced by shattering the hard 'pan' or layer between the peaty surface and mineral clay subsoils. Wet, water logged sites, and dry, hard, shallow soils should be avoided.

3. A range of conifers are suitable for trying but further work should be carried out on species of southern beech.

4. Most failures have occurred because of poor site selection, low planting stock quality, inadequate care and attention at planting and protection from livestock.

5. Successful plantings have resulted from; good site selection, protection, good planting stock and soil cultivation prior to planting. The whole issue of tree nutrition at planting, for establishment and for adequate tree growth, is poorly understood.

Site selection and protection can be largely taken care of with existing knowledge. However, information on planting stock quality and planting technique needed resolution. Hence in 1989 the UKFIT commenced a trial programme to investigate these means.

The UKFIT trial programme

The UKFIT programme of research has been based on properly replicated experimental design and detailed documentation and measurement of trees so that factors contributing to success and failure can be clearly seen and recommendations can be soundly supported. Within the limited resources available, the programme has concentrated on addressing issues of tree planting, nutrition and species selection.

The programme has demonstrated the value of shelter in improving pasture growth and has concluded that trees can be satisfactorily established provided that detailed attention is paid to planting technique, site selection and tree nutrition. Growth rates in the early years of a plantation, although slow, are satisfactory and sound healthy trees can be established. The importance of nutrition has been highlighted and promising results have been obtained by foliar feeding with kelp extract. Lodgpole pine is a suitable conifer for shelter planting and species such as eucalyptus and willow may be of ornamental value. *Cupressus macrocarpa,* which has been traditionally associated with the Falklands, can play an important role with the use of more promising strains recommended. Trials have shown that Southern Beeches, indigenous to southern Chile, can grow in the Falkland Islands and should be considered. Within the Trust's programme, links have been established with the University of Magallanes in S. Chile with a view to sourcing a supply of a range of species and strains.

A project to establish a small demonstration woodland, showed initial success but was decimated by severe weather. The sites should be relocated and used to promote the Trust's programmes.

In conclusion, the UKFIT programme has stimulated great interest in trees in the Falkland Islands, has shown that trees can be grown and do have a future role within an expanded rural economy. The importance of deciding on the next stage in the programme, necessitated the views and opinions of a consultant forester.

The Gurr Report

In a report for Executive Council on the discussion of the "Future of Falkland Landholdings Ltd" (Nov 1995), the Chief Executive of the Falkland Islands Government has actively encouraged the development of forestry. He rightly states that the case has been proven that trees can be grown (albeit on an experimental basis) and further work must be done on scale, location, species and management regime.

The comments made in this report, particularly those by the UKFIT Forestry Consultant, Mr Malcolm Beatty, satisfactorily addresses some of these issues and provide an informed comment on the way ahead for the development of a role for trees in the Falkland Islands.

The consultant's recommendations largely support the view that trees can be grown in the Falkland Islands and that the potential is largely in the area of shelter-belts and farm woodlands. These can be grown and developed to provide the infrastructure for a diversified rural economy which would be socio-economically and environmentally sustainable. The consultant does not feel that the information is yet available or the conditions suitable for the large-scale development of a commercial forest industry.

From Mr Beatty's discussion with Mr Gurr.

"It was quite clear that Mr Gurr fully understood that significant trials on tree planting would be necessary before any large scale scheme could take place. His determination to attempt sensible development was encouraging".

"I advised him of the various papers and reports written about tree planting in the Falklands. He was particularly struck by the idea that the ecology of soils and plants in the Falklands might be at an arrested, rather than at a climax stage of development. (There is certainly good evidence that trees can grow and reproduce in this climate; however, initial growth will be slow, followed by a period of more rapid growth as trees modify the site. This would occur, for example, as soil microflora and microfauna colonise tree growing areas and consequently the efficiency of nutrient cycling is improved)."

The consultant's report supports the approach taken by the Trust, ie, that the enhancement of soil fertility is the basis to all the developments in agriculture and rural industry. This will be a slow process in the Falkland Islands but the establishment of trees will greatly speed up the natural process of soil development.

The Trust's programme, along with the consultants recommendations, provide the basis for a future research and development programme to carry forward the tree planting initiative. The report on the Future of Falkland Landholdings refers largely to the land on Lafonia and in the SE of the Falklands generally. This land area has a relatively uniform and undulating topography and the report addresses the issue of diversifying from the traditional income mainstay of sheep farming. Such diversification might include an expansion of the use of beef cattle (particularly apt in view of public health concerns over intensively reared beef), horticulture, cereal production to provide livestock feed, all integrated with tourism and recreational use of an improved access countryside. Trees, by enhancing soil quality, providing shelter and producing an industrial product for local use are essential prerequisites to this view of an expanded local economy. The importance of retaining the 'green clean' image of the Falkland Islands would be very important in this scenario and the maintenance of an environmentally sustainable forest and agricultural industry must be stressed. In this context, the consultant had hinted at the potential role for locally produced materials such as kelp fertiliser.

The UKFIT programme

In his report the consultant states; "There was clear support for the idea of tree growing from farmers and others at a scale and in locations appropriate to the Islands. I have no doubt this

was due to the work of UKFIT in identifying the role which trees could play and in persevering with the various trials which must have been difficult to manage at such a distance".

He goes on to add; "However, the scale of work which is now envisaged under a tree planting initiative is too great for UKFIT to conduct under the present arrangements, It is more appropriate for FIG to fund directly, albeit it may wish to use the expertise within UKFIT to act in an advisory or part supervisory role to assess the progress of trial periodically". (Beatty, 1996)

The future role of UKFIT in the tree programme might be seen as:

1. **Act in an advisory capacity and be represented on a steering group for the Falkland Islands Government tree development programme.**
2. **Act as a costing and tendering agent for the next stage of the FIG tree programme.**
3. **To continue to use the Dulverton site as an area to plant a range of tree species and which would remain as tangible evidence of the Trust's contribution to the tree initiative.**
4. **Developing the links with outside bodies to source and arrange the import of materials which would aid and enhance the development of a local forest industry.**

Annexure C

A survey of Tussac Soils in the Falkland Islands (Extracts from a joint DOA/UKFIT preliminary study)

Summary

Attempts at replanting Tussac grass for erosion control and as a grazing resource have had only limited success.

As part of an ongoing research programme carried out by the Department of Agriculture Stanley and the UK Falkland Islands Trust to investigate remedy and sustain previously eroded coastal areas in the Falkland Islands, a survey of soils from previous ex Tussac grass sites was undertaken in 1995 to determine the soil characteristics best suited for Tussac grass establishment. Soils were sampled from (a) naturally occurring Tussac grass sites, (b) sites which have been successfully planted, (c) sites which have been unsuccessfully planted, (d) hen runs with successful plantations. Samples from 23 sites were analysed for a wide range of physical and chemical parameters.

The analysis of the soils did not reveal a definite cause for the failure of Tussac grass plants to establish and grow at certain sites, but it did indicate some possible causes.

The chemical composition of hen-run soils which were found to differ from natural, successful and unsuccessful sites is almost certainly due to the input of nutrients from poultry excrement. This increased level of nutrients appears to enhance Tussac grass growth. There are indications from this survey that the levels of available phosphorus could play a vital role in the growth and development of Tussac grass in the Falkland Islands.

Due to the extensive root system in Tussac grass it may be advisable to look at the major nutrient levels at varying soil depths, although most of the 'feeding roots, are in the top 10 cm of the soil.

Small scale trials in the Falklands could ascertain the effect of varying levels of phosphorus (at rates of 50 kg ha-1 and above) on the growth of Tussac grass. Based on the work carried out in Northern Ireland, it would be advisable to look at the effect of nitrogen in conjunction with phosphorus on growth and survival of Tussac grass. Due to the high cost of imported fertiliser, it would be advisable to investigate the use of kelp, guano etc. as alternative fertilisers.

Discussion

One of the primary aims of this survey was to identify any chemical or physical differences between the soil at unsuccessful sites and sites where Tussac grass grows successfully. The measurements of plant height, basal circumference, and health score of Tussac grass at the four site types clearly show how different the Tussac grass plants at unsuccessful sites are from the plants at the three other site types. It is evident, from the results of this survey, that the chemical composition of soils which support Tussac grass in the Falkland Islands can vary greatly and while the analysis did not reveal a definite cause for the failure of Tussac grass plants to establish and grow at certain sites, it did indicate some possible causes.

One of the most obvious findings of the survey was that the chemical composition of soils in hen-runs differs significantly from soil at successful, natural or unsuccessful sites. The success of Tussac grass in hen-runs has been attributed to several factors, eg increased levels of nutrients from excrement, hens predating on possible insect pests and lack of competition from other grasses as the movement of the hens keeps the soil surrounding the Tussac plants bare (McAdam & Walton 1990). The theory that hens control inspect pests appears unlikely as, to date, no serious insect pests of Tussac grass have been found and Tussac grass grows well in areas that contain ducks which are herbivorous. From the results of this survey it would appear that the input of nutrients from poultry excrement could play an important role in the success of Tussac grass at these sites.

Poultry excrement contains high levels of nitrogen, phosphorus and potassium and this would account for the greater levels of phosphorus and potassium which were found at hen-run sites. The fact that nitrogen levels were not greater in hen-run sites is most likely due to the fact that nitrogen in poultry excrement is in the form of urea. When nitrogen in the form of urea is added to soil much of the nitrogen is lost largely as a result of volatilisation of ammonia formed by the urea hydrolysis (Terman 1979). Based on the nitrogen levels recorded at the four site types in this study, it would appear that nitrogen does not play an important role in the failure of Tussac grass plantations in the Falkland Islands. This is in agreement with a previous study which found that the application of nitrate fertilisers had no effect on the establishment of Tussac grass (McAdam & Walton 1990).

Levels of zinc and calcium (total and available) which were greater at hen-run sites would also appear to be caused by the presence of poultry excrement. It would therefore seem likely that the level of phosphorus used in the trial in the Falkland Islands was insufficient to enhance Tussac grass growth. In the Falkland Islands, natural Tussac grass stands are usually found in close proximity to the coast, often in areas which have abundant wildlife. The input of nitrogen and phosphorus could therefore account for the increased size and productivity of Tussac grass at these sites (Smith 1985). This would also explain why Tussac grass planted in hen-runs usually grows successfully.

The importance of phosphorus in Tussac grass growth may also provide an explanation for the failure of Tussac grass plantations at sites where Tussac grass previously grew. Reports

made by the first ships to visit the Falkland Islands indicate that Tussac grass formed a coastal fringe around much of East and West Falkland and completely covered many of the offshore islands. The introduction in the 18th century of large numbers of livestock which were allowed to graze in an uncontrolled manner is believed to have been the major factor in the decline of Tussac grass cover.

Annexure D

Suggestions and recommendations made by UKFIT towards improving and diversifying Falklands agriculture.

INTRODUCTION

In prefacing this article, the Trust wishes to explain that, until fairly recently, it worked unilaterally with its own contacts in the Falkland Islands to help support and develop their agriculture. However, with the advent of FIDC great assistance and an every-growing working relationship with the Department of Agriculture, the objective of the various projects has become a bilateral exercise. The Annexure covers the Trust's ideas and work starting from the early 1980s and it is appreciated that several subjects mentioned were being advanced and worked on by the Development Corporation and Department of Agriculture on their own account. The two aspects have now come together.

Grass Quality

It is accepted that grass quality in the Falklands is poor and that, with subdivision to smaller farms, it is very necessary to improve that quality. But the application of sufficient fertiliser is uneconomic due to cost of artificial fertilisers.

The Trust recommended making more use of the one material in plentiful supply, namely seaweed. A biological digester was provided to produce liquid seaweed by bacterial action. That is happening at Port Howard and, while the liquid from the digester is still not sufficiently concentrated, it is beginning slowly to improve grass quality. When starting from such a low point, it is a long slow job to effect an improvement that really shows. Thus, with the efforts being made to strengthen the liquid, results should show increases in grass quality as time goes by.

Trees for Shelter

The Trust recognised that, as the grass improved, so shelter would be needed for the better quality fields and the livestock. But tree planting in the Islands had a very poor history of success. The Trust recommended that, by digging a hole for planting the tree in, and by providing food in the hole for the tree to establish it's root system, it would have a better chance of surviving the gales and the trees roots to tap the relative short water supply. This system is proving very successful compared with past efforts. A detailed review of progress so far is at Annex B.

Culled Ewes

The annual cull of 50,000 ewes has been disposed of unproductively. The Trust recommended that, if an abattoir was built to EU standards, there would be a market for that ewe meat. For example, a market was found in South Africa and passed to the FIDC. Also, with the proposed beef quality improvement, the market for that meat would also require an abattoir to EU standards. This subject has been a long standing issue and an abattoir is now being built to these standards. It has resulted in other people looking forward to buying the previously wasted meat.

Abattoir By-Products

The Trust has recommended that bones, meat, blood and other abattoir by-products should be recycled for use on the land, especially where vegetables are grown. That is under consideration.

Pigs

The Trust suggested that the right breed of pigs - it recommended Large Blacks - should be tried as converters of the peat and clay into useable arable soil, rather than the very expensive and not wholly successful mechanical methods being used. Some Large Blacks found by the Trust were bought jointly by a farmer and the FIDC. The latter, at the request of other farmers, took some Large White pigs, also found by the Trust. It will be interesting to see if either breed shows an advantage over the other under Falkland Island conditions. Being rapid multipliers, the pigs will soon provide another type of animal for the abattoir.

A Mill

The Trust has suggested to the FIDC that, with the future increase in pig numbers and the development of better beef animals, both using grain and concentrated food at some time to produce good quality well-finished meat, a versatile mill should be considered to cut the cost of the concentrate food. But there is a question of viability with the mill and the present small numbers of livestock. And even if the mill should be capable of producing flour for human consumption, the tonnage throughput would still be small. However, should the Falkland farmers produce their own grain in years to come, then a mill could be justified much sooner. It is an option, therefore, that should be kept in mind, especially if the world price of grain should fall. The right kind of mill could produce layers mash for the present poultry population and any proposed increase in that area.

Organic Status

The Falkland Islands use virtually no agro-chemicals so that the Trust has pointed out that they are in a unique position to become the first registered organic country in the world. That status could open up a very useful market for all Falklands products, a market that commands premiums of various sizes depending on the product. The Trust has supplied the FIDC with all the information that is required for attaining that status.

Organically Produced Wool

The Trust has spoken about selling organic wool to both the main agents in the UK who sell Falkland Islands wool. They are very interested in having another quality of Falkland wool to offer, especially one that is potentially so right for the times. Processing the organic wool in the UK presents no problems providing the bales are marked clearly before leaving the Islands. The organic wool, which should command a premium, can come only from farms inspected and certified as properly organic under the standards that will be adopted by the Falkland Islands Government.

Tussac Grass

The Trust recognises the importance of tussac grass to the Falkland farmer and, through the urging of it's resident trustee, has joined with the DOA in trials to find the answers to the problems with tussac survival. It has also suggested some reasons why tussac fails so often when away from the penguin areas of the coast. This is an on-going joint project of the DOA with the Trust which should yield very valuable aid to the Falkland farmer.

Shelter Belts

Through the Trust's agronomist, and with the cooperation of Queen's University where he works, the Trust is being asked for advice by farmers on tree planting due to the Trust's

success in that area. Also, the agronomist is planning trials on proper shelter belts for grass and livestock protection. The Trust sent out an independent forestry expert for assistance on that project, and for assessment of the work done on trees so far.

Education

The Trust recommended that the School should encourage projects by the students on the system of agriculture being recommended by the Trust, as they are the farmers and customers of the future. That is happening with some success. It also recommended that a student should take the external course of Wye College on marketing and farming business so that the Islands would have their own marketing executive: one who understands world trade, and who would be able to sell the future production of the Falklands farmers from their improved agriculture base. This proposal has been welcomed as a good future project once a candidate became available. In the meantime, a one-year attachment to an organic farm in Britain is being worked on to monitor and experience a full farming cycle and the marketing of its end product.

Vegetables

Serious vegetable production has been going on in the Falkland Islands since the introduction of the Vegetable Grant Scheme in the budget of 1989/90. Self-sufficiency has still to be achieved, and it is hoped that soil improvement trials being carried out by UKFIT will help with that aim. Also, the Trust is suggesting trials of various improvement methods, such as using special perforated film for protection of those vegetables likely to suffer from the strong winds. Hopefully, the vegetables can come under the organic scheme and, when sufficient are grown for local consumption, it may be possible to produce large tonnages of certain vegetables for sale to UK processors who are always short of organic supplies. The Trust is also willing to help with sourcing economic inputs for enhancing yields and with seed varieties that suit Falkland conditions.

Just to illustrate the possibilities of the vegetable trade, Britain imports parsnips from Western Australia and onions from Tasmania. And with the increase in the number of vegetarians, it is a part of the farm business that will increase in market share.

Trial Section

In conjunction with the vegetable initiative, the Trust is discussing with the FIDC the possible development of a trial unit to develop a farming system that results in increased production of better quality products to serve as an illustration for Falkland Island farmers and be used for investigating new methods and new inputs.

The Soil

UKFIT has always emphasised the great importance of soil improvement, both from the texture point of view and from the extreme need to improve soil-life. It sees the use of the abundant supply of seaweed as a soil dressing in the form of compost or by direct applications one important way of doing this. To be significant, large tonnages will be needed and the method of handling such quantities still has to be worked out. The Trust has earmarked money with DOA for looking into the best way of handling such large tonnages from the sea to the soil. Some of the worlds best agricultural production areas have been developed by the continuous use of seaweed.

Triticale

The Trust recommended that triticale - half wheat and half rye - should be tried in the Falklands' conditions. It is a very hardy grain and has excellent quality for feeding livestock. A small amount was provided and grew well. Some was tried, also, by the Market Garden as future feed for their Large Blacks.

Information on triticale from China and other countries has been sent by the Trust to the Chief Executive.

Products Various

The Trust has supplied, over the years, many trial products and inputs ranging from trees, tree protection items, various biological fertilisers, seaweed products, the original digester and accompanying sprayer, and carrot seed from it's funds. Plus, of course, the shared costs of two consultants.

Conclusion

UKFIT realises that while some of the above projects will fail, some will succeed, and very well. We are looking at the long-term future as agriculture is a slow business due to the varying seasons and other well-known factors. Making soil improvements that last is always a slow process, and it is the biological processes that survive and expand rather than quick chemical fixes that rely on oil-based inputs. And it is the biological improvement of the soil in the Falkland Islands that will in the end increase production in a stable and continuing way.

Annexure E

THE CASE FOR ORGANIC FARMING IN THE FALKLAND ISLANDS

Why Organic Farming in the first place

INTRODUCTION

There are increasing numbers of people wanting to eat organic food if they can afford it. Up to 25% of consumers is estimated by one research organisation. That number increases substantially in countries such as Germany, the United States and Japan. The reasons for wanting to eat organically grown food include fear of chemical contamination; allergies thought to be caused by certain chemicals in food; better flavour or more flavour; environmental concern about the use of chemicals both in the soil and in the atmosphere; worries about chemical run-off in to rivers and watercourse; deterioration in the overall quality of food grown with chemical stimulation; livestock management, and a general liking of the organic system and it's nearness to the natural way of doing things.

Whether the above reasons for wanting to eat organic food are real or imagined is not important. They create a demand and a market that is there to be satisfied. And now the desire for organic produce has spread to fibres. In the case of wool, it is mainly the fear of possible contamination of wool with organo-phosphorus sheep dips. In the UK it is the law to dip your sheep and, in spite of much evidence to the contrary, the Ministry of Agriculture still claims that OP dips are safe.

As is demonstrated by the BSE scare, the public no longer has faith in scientist's protestations of safety and that is understandable, bearing in mind the history of mistakes with agro-chemicals going back to DDT, Aldrin and Dieldrin. The answer to many people is organically grown food, inspected and certified to recognised organic standards by officially approved bodies, to be available.

The Organic Market

In the UK, organic food is stocked by most of the large national chains including Sainsbury, Tesco, Safeway, Waitrose, and from time to time Marks & Spencer. The supermarkets are now the largest sellers of organic food followed by healthfood shops. Probably, the market that is increasing the fastest is the carton of mixed organic fruit and vegetables currently in

season and delivered to the doorstep. Milk has now taken off to the extent that organic milk is imported to meet demands. That has happened since the demise of the Milk Marketing Board. And, of course, organic meat is considered free of BSE and is therefore much wanted.

In countries such as the Netherlands, Denmark, Germany, Japan, the United States, Australia and many others, the demand for organic food is growing more rapidly than in the UK. All predictions by responsible and knowledgable organisations are for the organic market to grow by anything from 40% to 500% over the next few years. In the UK, there is even an organic standard for trees and their resultant wood.

With the exception of some grain in the United States, there is always a premium price for good quality and well-presented organic products. That premium ranges from 10% to 200% depending on the product and market demand. Added value is always an advantage, so any cleaning, processing, grading and other improvements that can be made to a product before selling must be worthwhile.

Organic for the Falkland Islands

THE FALKLANDS' PRESENT FARMING SYSTEM

Artificial fertilisers are used only on newly seeded fields, not on grass generally. The new seeds can become organic twenty-four months after the last application of fertiliser. The exceptions for the Falkland Islands are the Dairy Farm with intensive milk production, and The Market Garden with intensive salad and vegetable production. Agro-chemicals are not used except in the two exceptions above. Sheep are not dipped but some cobalt is given to lambs in southwest. However, that should pose no problem as it is an inherent natural shortage. Some system of supplying cobalt to the livestock other than by slow-release bullets might be an advantage in the future. So, for the Falkland Islands farmer, organic farming standards should pose no threat and cause no change of system.

Cost to the Farmer

All farms going over to an organic system have to be inspected once every twelve months. That inspection would be done by the Organic Certification Body set up in the Falklands both for that task and to maintain the organic standards to those of the European Union (EU) and other world Certification bodies.

The Falkland Islands Government will have to decide who should set up and run such a body within the Islands. It is then up to that body to decide what it charges each farmer for the inspection, or whether it is absorbed as part of the agricultural system. The former would be the main likely cost to the individual farmer. The whole operation will be run from the Falklands as it's own organic production system using recognised and approved standards.

Organic Wool Marketing

The organic wool produced under the system can be marketed through the two normal marketing agents. It will give them another wool product to sell to new markets, whether in the UK, Europe, the USA or Japan. The wool can be scoured in the UK and kept separate by marking the wool bales ORGANIC very clearly before they leave the Falklands. The mills doing the scouring will have to be inspected and approved. That can be done by an UK approved body.

Consequently, there will be no disruption to the present marketing and wool movement methods. The two main selling agents have been contacted and say that they are very willing to market organic wool, seeing new opportunities with such a product.

Value to Falkland Islands Agriculture

A farm is certified as organic rather than just the livestock. So beef cattle can be included and organic beef can be sold. At the moment, organic beef if much in demand as being free from BSE. Organic lanolin can be made from the UK scouring process for selling to such companies as The Body Shop. Vegetables produced on approved farms will be classed as organic, and for certain types there will be a good demand outside the Falklands.

An aim could be for the whole of the Falkland Islands to be approved as organic and, thereby, be the first country in the world to be considered as "green" for all exported farm products, with the exception of the Dairy Farm and The Market Garden.

Conclusion

It is not possible, at this time, to predict or quote a price for organic wool, as there is very little produced. A small amount comes from New Zealand and the UK, and some from South Africa. But it is not sufficient in quantity to lay down a world price. Once the decision is taken in the Falkland Islands to go ahead, it will take eighteen months to two years to have certified organic wool to sell, and it is unrealistic to expect buyers to commit themselves that far ahead. But the cost to the Falkland farmer is going to be minimal to produce such organic wool and, even taking the highly unlikely view that no extra money will be made, it would ensure that the Falkland farmers are producing something unique and in demand. That will make the wool very saleable against all competitors.

As already mentioned, organic products always command a premium so that it should be possible to gain a 20% premium, at least, while the demand for organic products is rising. And that demand will keep rising for many years due to the shortage worldwide of organic products.

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