

AGR/77
2373

2373	2 3 7 3

(Formerly)

PASTURE :
YOUNG REPORT
1968

CONNECTED FILES.

NUMBER

64/36

TUSSAC GRASS

No.

It is requested that, in any reference to this memorandum the above number and date should be quoted.



7th April, 19 65.

From: O i/C Agricultural Department,

Stanley, Falkland Islands.

The Colonial Secretary,

Stanley,

Falkland Islands.

SUBJECT :- Proposed Itinerary of Grasslands Officer.

The proposed itinerary of the Grasslands Officer during April is as follows:-

Leave Stanley by air for Port San Carlos on 3rd April;
During week beginning 4th April travel to San Carlos;
Thence to Darwin and possibly Fitzroy, returning to Stanley about 20th/21st April.

Browning.
O i/C Agric. Dept.

BMT

11

51
17. ~~6/10~~ ~~1/11~~ ~~2~~

Some suggestions concerning pasture improvement in the Falklands.

.....

The Falklands are almost entirely dependent for their prosperity on the production of wool, and are likely to remain so for the foreseeable future. Competition from synthetic fibres grows continually and they tend to become better and cheaper. If we are to maintain or improve our standard of living, in fact if the Falklands are to remain a viable entity and not be abandoned to the seals and the penguins, we must increase production of wool per head of population and per unit of area. Total annual production here has not risen appreciably in the last 50 years, whereas in some wool-producing countries, such as Australia and New Zealand, it has risen remarkably since 1945.

It has been proved to my satisfaction that over large areas of the colony it is possible at an economic cost to increase production at least fourfold by reseeding pasture. I am convinced that nothing else can produce so much improvement so quickly.

Some method must be devised of getting such work going throughout the Falklands as soon and as extensively as possible. I suggest the following:-

- (1) An annual levy be imposed on all farms of perhaps 2d per acre, excluding islands of less than 500 acres in area, assumed to be uneconomic to stock.
- (2) The proceeds of this levy be deposited in a 'Pasture Improvement Fund', to be used to finance experimental work by the Grasslands Officer and the formation and equipment of a gang under his direction to improve pasture on farms unwilling or unable to undertake such work themselves, for which an economic charge to be made.
- (3) The whole or part of the levy to be remitted in any one year in respect of farms, which can prove to Government's satisfaction that they have in the previous year spent an equivalent amount on pasture improvement in an approved fashion, including depreciation on machinery specifically acquired for the purpose, but not initial capital expenditure on it.

By my reckoning the total acreage of farms, excluding islands of under 500 acres, amounts to 2,903,540 acres, so that the levy at 2d per acre would produce about £24,200, less amounts remitted under (3).

I do not consider that at recent levels of cost of production and wool prices subsidies for pasture improvement are necessary or desirable. Farms can afford to do such work unsubsidised and it will rapidly pay for itself. Subsidies may be necessary in the future and the 'Pasture Improvement Fund' could be drawn upon for this purpose.

(Intld) WWB
1.5.65

2277
3

The Falkland Islands Company, Limited.

(INCORPORATED BY ROYAL CHARTER 1851.)

REGISTERED 1902.

AGENTS FOR LLOYDS.

TELEGRAMS "FLEETWING PORTSTANLEY" VIA RADIO.



Stanley.

10th May, 1965

The Colonial Secretary,
Stanley.

Grassland Development

Dear Sir,

I have been instructed by the Board of Directors of the Falkland Islands Company, Limited, to advise the Colonial Government that an annual sum not exceeding \$1,000 for each of the next three years, may be spent on grassland development experiments which are carried out on our own farms, on the recommendation of the Grasslands Development Officer.

Yours faithfully,

A handwritten signature in dark ink, appearing to be "D. J. Jones" or similar, written in a cursive style.

Manager.

WHX/SGC

See ⁴~~2277~~

12th May, 1965.

S/o

3 ~~289~~

Thank you very much for your cheering letter of the 10th May on the allocation of £3,000 for Grassland development experiments. Please tell your Board how much we appreciate their attitude and action.

It is just the positive fillup we need at this rather indeterminate stage in our affairs, and nicely warming just as winter sets in.

Have you any objection to some mild publicity about this?

The Governor will, I know, be writing separately.

S.

W. H. THOMPSON.

W. H. Young, Esq.,
STANLEY.

TB

Ch. I wrote in m/s to Mr. Hirst on 30/5/65 saying how much we appreciated his FIC decision

Ch 1/6

S.

Bu Hirst (r)

Page

C/S

Leave for Teal Inlet on 19th May.

Thence to Douglas Station, Salvador,

Rincon Grande, Port Louis, Johnstons Harbour.

Probable Length of tour 3-4 weeks.

W. J. G. Lang.



W. J. G.

1836/A

6 ~~47~~ 2
21 May, 65

From: The Colonial Secretary,

To: The Grasslands Officer,
STANLEY.

Visits to Camp

Please let me have a note of your forthcoming visits to Camp
at the beginning of every month.

W. A. THOMPSON

COLONIAL SECRETARY

IM.

Falklands May 8 7
file. ~~87~~

PROPOSAL FOR THE INTRODUCTION OF A
FARMING DEVELOPMENT PLAN.

In spite of warnings given in the past by persons in authority in the Government of these Islands concerning our financial position, we sadly note that after several years of exceptional prosperity, during which our sole industry has reaped a considerable profit, we are, during the first year of decreased National income, on the verge of a financial crisis.-

Notwithstanding the fact that the Falkland Islands National Progressive Party is as yet unrepresented on Government, though supported well enough by the public, we presume to lay before you certain items for your consideration.-

The following are items considered worthy of your attention before going into details of our development plan outlined below:-

- (1) That the inability of various Governments in the past to squarely face the facts has contributed almost entirely to our present dilemma, inasmuch as they have taxed industry at a minimum rate considered necessary to balance the budget from one year to the next. Frequently even this objective has not been attained successfully. We feel that we must refer to taxation on the Wool Industry solely as this is truly the only industry which supports the Falklands and therefore must pay, in taxation, sufficient money to meet the needs of Government, who are obliged one way or another to meet the costs of administration and social services. It is to this industry to which we must look then when money is required. It must be run efficiently and developed to its fullest extent in order to play its full part in support of the Community. The people also pay their share in Income Tax and other taxes now in existence; we feel it unfair that, unless industry contributes its fair share by developing to the maximum, the people should contribute more either by direct or indirect taxation. Indirect taxation on luxury or non-essential items is merely taxing old money and burdening the people with taxes which, by their very nature, industry does not have to bear.-
- (2) Money essential for development, unless an outright grant, must be provided by the sheepfarming industry itself. Any form of loan from abroad would place a burden on the shoulders of this and future generations. Even an interest-free loan would have to be repaid.-
- (3) The over-representation of the minority instead of the natural representation of the majority has, to a large extent, contributed to bringing about the present state of affairs.-
- (4) Instead of being built up during times of prosperity, reserve funds have been drawn on almost annually to balance the budget.-
- (5) While Her Majesty's Government has been guiding us on the path to a greater degree of self government, our sole industry, with certain exceptions, has omitted to gear itself to this trend by not developing its resources to the fullest possible extent.-

In the light of the foregoing points we submit the following:-

(a) That in order to provide Government with a reasonable amount of income for the efficient maintenance of essential services, even in leaner years, a programme of land development should be instituted immediately to ensure that over a period of time the land can be improved to such an extent that it will be able to carry considerably more sheep per acre than it does at present.-

Considering certain improvements already carried out, it is felt that Legislation should be introduced imposing an annual levy of 3/- per head of the sheep population of each farm, no tax relief to be given on the levy, the money thus raised to be held in a fund and repaid to those who carry out certain specified improvements on their land. This would guarantee an annual sum of something over £90,000 being used for land development by those who were prepared to carry out the work. It is not envisaged that the levy would be imposed on additional stock carried as a result of improved pasture. The aim being that the amount paid per head would therefore decrease for those who carried out the prescribed improvements.-

(b) To control payment from the fund a committee should be set up. We suggest it be constituted as follows:-

Chairman (Govt. Official - preferably the Governor)
Grassland Expert
Legislative Councillor
Two Farmers (Representatives of the S.O.A. or otherwise)

This committee would approve development plans submitted by Farm owners or lessees and they would inspect the site of the region to be developed before giving approval and making recommendations as thought necessary.-

On completion of the Season's work the Farmer would submit a claim for the money expended on the work carried out. The region would again be inspected to ascertain that the work came within the scope of the prescribed developments (detailed in (c) below) and had been carried out to the satisfaction of the committee. Claims would be subject to a time limit.-

Plans would have to be submitted by a certain date to qualify for payment in that year. Payment on any project in any one year would be guaranteed only up to the amount paid in by that particular Farm the same year. However should any surplus remain in the fund due to some farms not carrying out any development project, this money would then be available to meet additional claims of those who had, so ensuring as far as possible that a maximum amount of development is being carried out by those interested.-

(c) Frivolous claims would not be entertained and work carried out would be within certain specified categories, designed to produce concrete results.-

We suggest as follows:-

- (1) Regrassing with certain types of grasses.
- (2) Fencing connected with regrassing (and only fencing in this category).
- (3) Purchase and proper use of fertilizer.
- (4) Provision of shelter belts.

In connection with (4) we feel that Government may well be

in a position to investigate the possibilities of establishing a small nursery for the supply of young trees for this purpose.-

(d) For a minimum period of three years at the outset Government should be prepared, as far as possible, to maintain taxation on all sections of the community at its present level; balancing the budget annually with money from funds already in existence.-

Government should practise the strictest economy in every possible way in order to assist in giving the plan every chance of success.-

In conclusion we would point out that in suggesting legislation of this type we in no way dispute the right of private ownership of property or the right of private individuals to conduct their business in whatever manner, within the Law, they see fit. However in the light of events we feel that the exercise of these rights must be regulated by law for the common welfare.-

C.S.

~~242~~
Jm
Hush
Hu.
14
8

Mr. C.D. Young came to see me on 26th June and gave me an outline of his activities during the past month.

He raised three specific points and I would like to have a word with you on them.

1. Did I think it worth him going on the Punta Arenas trip of R.M.S. "Darwin"? I replied that the value of such a trip would depend on the extent to which he could indicate what he would see in southern Chile which would be of value to us here. If he can produce some concrete proposals it might be worth considering the suggestion but one would have to be satisfied that it would be money well spent.
2. He enquired whether the Government troop of horses could be enlarged so that he would be able to reach parts of the ~~East~~ Falkland easily on horseback. I think it perfectly reasonable that he should travel by horse, in fact I think it is probably the best way for him to get about but there are, I believe, seven horses and I think that we should go into the question of ascertaining how many of them are really active and to what extent they are really used by the Agricultural Department men based on Stanley. I should like to have a word with you on this matter before any action is taken.
3. Experimental Farm. Mr. Young drew my attention to the past history of the farm at Anson and enquired whether Government had any intention of reviving such a farm. There are several matters of policy involved in this and I should like to discuss it with you.

Am

2 July, 1965.

We have already had a word.

✓ W! 2/2

Pa



Notes on the experimental programme of the Grasslands officer

#89
14/8

Initially work will consist of small plot experiments dealing with the following points:-

- 1 Suitable varieties of grasses and legumes.
- 2 Trace element deficiencies in the soil.
- 3 Pelleting and inoculation of legumes.
- 4 Comparison of cultivation methods.

Other points will also be looked into but these are the main headings.

The results from these trials will determine the exact nature of the following years' experiments and this will consist of larger scale work to consolidate earlier results and investigate any problems which come to light in the initial stages.

The Company's £1000 will be ~~most~~ ^{best employed} in item 4 where at least one new machine would be very useful.

In any grasslands policy the Company would be well advised to concentrate on the basic essentials of subdivision and drainage - particularly the former - as they are proven techniques.

13th August,

65

Dear Sir,

I should be grateful if you obtain from Laboratorios Dispert, S.A., Av. Garibaldi 2797, the following items for shipment to the Grasslands Officer, Stanley, by R.M.S. 'Darwin' sailing from Montevideo 14th September -

- 2 bags inoculant for red and white clover (enough for 50 kg. seed)
- 1 bag inoculant for subterranean clover (enough for 25 kg. seed)
- 1 bag inoculant for lotus (enough for 25 kg. seed)
- 1 bag inoculant for alfalfa (enough for 25 kg. seed)

Please also order from Agromax S.A.

- 50 kg. 300 mesh lime
- 50 kg. mesh rock phosphate.

Yours faithfully,

COLONIAL SECRETARY

Messrs. Maclean and Stapledon, S.A.,
Casilla de Correo 193,
Montevideo,
URUGUAY.

Copy sent to Grasslands Officer.

Sender's name and address:

P.D.L. Ainslie, Esq.,

The Falkland Islands Trading

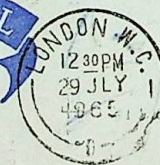
120, Pall Mall,

London, S.W.1.,

England.

AN AIR LETTER SHOULD NOT CONTAIN ANY
ENCLOSURE; IF IT DOES IT WILL BE SURCHARGED
OR SENT BY ORDINARY MAIL

Second fold here



His Excellency the Governor of the Falkland
Islands,
Sir C.D.P.T. Haskard, C.M.G., M.B.E.,
c/o Ultramar Agencia Maritima Ltda,
Casilla 538,
Punta Arenas,
Chile.

12
Esphing
W. 18

14 August, 1965

11
Thank you very much indeed for your letter of 28th July which came in the mail which reached us via Punta Arenas on the 11th August.

It is very satisfactory that you will be able to have a talk on grassland improvement with Vinson and Clement before they return from leave.

The Grasslands Officer, C.D. Young, tells me that initially he suggests that work should consist of small plot experiments dealing with the following four main points -

1. suitable varieties of grasses and legumes;
2. trace element deficiencies in the soil;
3. pelleting and inoculation of legumes;
4. comparison of cultivation methods.

Young considers that the results from these trials will determine the exact nature of the following year's experiments which would embrace work on a larger scale to consolidate earlier results and to investigate problems which may come to light in initial stages of experimentation.

Young feels that the bulk of the funds generously provided by the Company would be best employed in comparison of cultivation methods where at least one new machine, a giant disk harrow, would be very useful. Young tells me that this type of machine is not normally obtainable in the United Kingdom but is extensively used in New Zealand.

In general the Grasslands Officer thinks that the Company would be well advised to concentrate on the basic essentials of sub-division and drainage, particularly the former, as they are proven techniques.

I hope that the above gives you sufficient material for your discussion with Vinson and Clement. C.D. Young has stayed with

/.....

P.D.L. Ainslie Esq.,
Falkland Islands Company Ltd.,
120 Pall Mall, S.W.1.

- 2 -

both of them and they are aware of his general views. I am glad to say that he is of an active disposition and has already visited many farms throughout the Falklands and intends to visit before long all those which he has not already seen.

He has just come back from a trip to Punta Arenas where I hope he may have picked up a few useful ideas.

Reply at 15.

CS

C/S, 16 August
1965

16 Aug 65

13

#6

51

The following is the proposed itinerary
of the Grantslands officer on his next camp trip:-

Leave Stanley on or about 14th Aug
for North Arm, Port Stephens, Fox Bay
West, Fox Bay East, Also possibly Port
Houmou and Chaiton.

Estimated length of trip 3½ weeks.

L D Young.

209

C/S



14
Agricultural Department,
Stanley, Falkland Islands,

13th Oct 1965

Next Camp trip of Grasslands Officer.

HE informed

Port Howard - Monday 18th Oct.

W1

14/10 -

Pebble.

Scumdes

Corcure

West Point

New Island

Chickadee

Return to Stanley about mid November.

C. J. Gray.

Copy

THE FALKLAND ISLANDS COMPANY LIMITED,
120 Pall Mall,
London S.W.1

30th September, 1965

My dear Governor,

Many thanks for your letter of August 14.

On grassland improvement we have had some useful talks with Vinson and Clement while they have been home and we have agreed on the lines that the Falkland Company pursue. The Camp Manager will continue to authorise fencing sub-division where this would probably give good results. We will carry out some rotovating work on small areas of didle-dee and fern ground as thought worthwhile, and maybe there will be an opportunity to resume sod-seeding on a small scale in suitable places.

As you know, we are anxious to cooperate to the full with Mr. Young, the Grassland Officer, and we hope some of the experiments and trials that he wants to undertake will be made on the company's land. We do not feel that it will be practicable for the company itself to conduct controlled experiments on a sufficient scale to give closely accurate comparisons between one method and another in grassland improvement under different conditions.

Talking over these problems together, we feel that it would be helpful to Mr. Young if you were to invite say six sheepowners and managers to be available to him as an advisory committee. He has such a vast parish and there are so many different problems, some of which have been tackled more or less effectively in the past, that Mr. Young is bound to feel lost if he is left just on his own without the close interest and cooperation of farmers who have experience of conditions and possibilities, and who really know from experience the problems that most need to be tackled. So far as the Falkland Islands Company is concerned, I am sure that Vinson, Clement and Jimmy Robertson, for instance, would gladly make themselves available for occasional meetings and consultation whenever required. Tim Blake is a progressive-minded chap who has done quite a bit of grassland experiemental work himself, and of course Sid Miller is outstanding in this field. Men like this could we think be of considerable help to Mr. Young and ensure public confidence in the trials and experiments which are proposed.

~~On another matter, swimming baths. I think you know from the~~
talks which Hurd and I had when we were with you and the Colonial Secretary that the Falkland Islands Company is anxious to help with possible projects at Darwin School as well as in Stanley. There was talk, I remember, about a recreation hall - quite a simple affair - being provided for the Darwin School, and we are wondering whether there might be an opportunity to include swimming bath facilities in this.

We shall be interested to know how the swimming pool fund for Stanley is coming on and whether you have now reached the point when an estimate can be made of the likely cost, which would be a guide, to us in considering what donation the company should make. I know money-raising is often a tediously slow business and you may not be able to foresee the shape and cost of things to come, but please ~~remember that we are ready to give some help when this seems opportune.~~

Sgd. J.H. Yorath
for P.D.L. Ainslie

Sir Cosmo Haskard, K.C.M.G., M.B.E.
Port Stanley,
Falkland Islands

Could you please ask MaLean & Stapata to

Harster delivery of : 50 kg 300 mesh line
50 kg 300 mesh Rock Phosphate

ordered from Agromax SA on 13th Aug.

The other things ordered at the same time have been
delivered

L. J. G. J.

Grants & Co.

17
S/c Please arrange

14.10.65

DARWINNORTH ARMPORT HOWARD

Month/ Year	1960	Mean 1948 - 1960	1960	Mean 1948 - 1960	1960	Mean 1950 - 1960 [±]
January	60.7	48.7	25.1	45.0	52.2	69.3
February	32.5	45.0	17.0	40.1	45.2	58.0
March	36.3	40.2	9.7	28.0	27.5	43.5
April	43.8	39.3	21.3	37.2	28.4	48.4
May	40.5	47.3	32.5	36.5	51.0	65.8
June	58.4	38.7	37.3	30.9	69.1	47.9
July	28.0	37.4	33.3	32.6	56.7	68.0
August	50.9	35.4	32.8	29.0	55.6	47.9
September	18.4	29.2	10.2	29.5	21.2	42.3
October	30.2	28.8	22.1	26.5	54.9	34.3
November	40.3	36.4	13.2	24.0	43.4	56.7
December	34.8	49.2	18.5	42.9	53.1	59.6
TOTAL:	474.8	475.6	273.0	402.2	558.3	641.7

[±] September - December means 1949 - 1960 inclusive.

GOVERNMENT TELEGRAPH SERVICE

FALKLAND ISLANDS

SENT

PI677 P4416 8/64

Number	Office of Origin	Words	Handed in at	Date
--------	------------------	-------	--------------	------

Sty

15.10.65.

To

MACSTAPLE MONTEVIDEO

Hoa/c

10 No. 31 Mylet 13th August ensure mesh lime and mesh rock phosphate shipped next Darwin

Reply at 19

Secretary

FA

Time

KIV 14

DECODE.

TELEGRAM.

19

From.....Maclean & Stapledon, Montevideo.....

To.....Colonial Secretary, Stanley.....

51
22/10

Despatched : 15th October, 19 65 Time :

Received : 16th October, 19 65 Time :

18

Your telegram No. 51. Idme and rock shipped
Darwin September.

Macstaple

P/L : LS

Original sent to Mr Young.

2.11.65

16.10.65

KW 15

fa

1836

CS

~~20~~

20

G. 18m

11 November, 1965

Thank you for the letter of 30th September which Mr Yorath signed on your behalf.

In connection with grassland improvement I thought you would like to know that a Natural Resources Committee of the Legislative Council is being formed and one of the tasks which I hope it will be able to perform is that outlined in the third paragraph of your letter.

This Natural Resources Committee would be able to coopt members from outside the Legislature and no doubt these would include some of the very suitable people you have mentioned.

As I take a personal (if somewhat uninformed) interest in grassland problems, I want to take the chair, at any rate for the first few meetings.

We are much looking forward to meeting the Waldrons and Mr Matthews and Mr Blake when they come out. These contacts with home are indeed useful.

G

P.D.L. Ainslie Esq.,
2 New Square,
Lincoln's Inn, W.C.2

Pa

C/S



21
Agricultural Department,
Stanley, Falkland Islands,

10 Dec 1965

Grasslands Officer Camp + air

24/12

Lean Stanley 11th Dec for TI Douglas

• 4 possibly San Carlos returns in about 10 days

CD Young.

ka

C/S



24 Dec 64 22

6/6

Orders for Seeds Fertilisers & Lab Equipment

A set of Scales ordered on 3rd March 65 has not yet materialised. It appears to have been incorrectly numbered by the C.A. at some stage. It was supposed to be shipped in November 65 but was crossed out of the manifest of the last AES.

Seeds, Fertilisers etc were ordered from here on 8th July (~~sent~~ (leaving on the 12th July 'Dorcas'))

The orders do not appear to have been placed by the CA until the middle or end of September which could have missed the AES but would have been in time to come via Montevideo. They do not appear to have been despatched this way as they are not on the current Dorcas. I am informed that it is considered normal for CA to take 6 months to despatch materials. This is surprising in that seed order in July by Rincon Grande was on the last AES.

6th July.

GOVERNMENT TELEGRAPH SERVICE

FALKLAND ISLANDS

SENT

P1677 P4416 8/64

Number	Office of Origin	Words	Handed in at	Date
	Stanley			4.1.66

To

etat MACSTAPLE MONTEVIDEO

HOA/c

No. 1. Yourtel 12th November line and rock still not received please ensure shipment this Darwin without fail

Secretary

Reply at 24

KIV 22

LS

Time

DECODE.

No. 38.

TELEGRAM.

24

From Macstaple, Montevideo.

To Colonial Secretary, Stanley

Despatched : 5th January, 19 66 *Time :*

Received : 6th January, 19 66 *Time :* 0900

No. 1. Lime and rock per Darwin September
have shipped two bags. Repeated order today
without charge.

Macstaple

P/L : LS
(Intld.) HLB
Copy to; C.D. Young

fr *all 10.1.66*

DEPARTMENT OF BOTANY

PROFESSOR G. E. FOGG, PH.D., F.R.S.

WESTFIELD COLLEGE,

(UNIVERSITY OF LONDON)

LONDON, N.W.3.

TEL. HAMPSTEAD 7601.

File 2373 Falkland

Hista Dan 8.I.1966

His Excellency the Governor,
Falkland Islands.

Seemthuchyan. Go to see Reli
6. 11/1
By way 18th Jan 66.

Dear Sir Borno,

Many thanks for allowing me to see the papers relating to kelp, which I found most interesting. I am returning them via Mr. Clapp.

The difficulties in the way of establishing a seaweed industry in the Islands, as set out in documents 72 and 81, are very real. However, there have been considerable developments in this field since 1947 and possibly the situation might be worth re-examining.

To me, two things stand out:

- 1) The present system of sheep-farming is bound to lead in the long run to impoverishment of the soil and declining yields. Control of grazing and introduction of better pasture plants will help temporarily but the main need is for fertilizers, particularly nitrogenous ones.
- 2) Kelp is the only material locally abundant and of value as a fertilizer*. Its nitrogen content is low but its use as a manure might well encourage natural nitrogen fixation processes. The main difficulties in using it are those of harvesting and transporting about the Islands.

* Apart from fish-meal

KIV 22 P.T.O.

It is perhaps a frivolous suggestion, since I have no expert knowledge of such things, but it occurs to me that weed thrown up on the shore might easily be loaded on to a hover-craft which could then dump it straight where it is required.

The Institute of Seaweed Research would be the best source of advice on these matters. However, the future of this organization is at present under consideration by a committee, of which I am a member, of the Natural Environment Research Council. If you think there is anything worth following up, I should be happy to give what help I can.

Dr Gunningham and I have thoroughly enjoyed our stay in Stanley and thank you again for your hospitality.

Yours sincerely

G. E. Fogg

6/6

28

28/3

Extract from a letter dated January 28th 1966 to H.E. the Governor from Lord Hurd.

"We have not had any news of plans which your Grassland Officer, Mr Young, may have for experimental work. This was mentioned at a Farm Committee Meeting the other day and we hope that Maurice Waldron will be able to bring us back some news. The Falkland Islands Company did, you remember, undertake to finance some experimental work on the company's farms to the extent I think of £1,000 a year for three years. Possibly Vinson knows what is going on and we shall hear in due course from him, particularly if you appointed the advisory committee we agreed would be desirable to help Young get ahead with his work in the most practical way with the cooperation of sheepowners."

2373

20. 27

28th March,

66.

To: The Grasslands Officer,

From: Colonial Secretary,

STANLEY.

Development.

Please prepare a report for Executive Council showing the present state of the experimental work, and the method of control over it, connected with the £1,000 p.a. grant made by the F.I.C. last year.

Please let me have this not later than the 12th April.

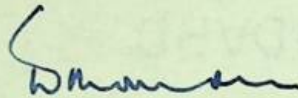
Sgd. W. H. Thompson
COLONIAL SECRETARY

Bur 13.5.66
(PO)

Grasslands Officer,

Please let me have a report on your activities so far, together with details of work done and of any results achieved, for submission to the next meeting of Executive Council.

The next Executive Council is expected to be held on the 11th of May.



C.S.

22nd April, 1966.

TB

2 Fite Traps

1 Wooda Cupboard.

1 Set shelves.

1 Wood Desk.

3 Chairs

1 set of Drawers.

1 Doormat.

1 wood paper basket.

1 Small set shelves. (15" x 15" x 10")

~~1 Running Sheet.~~

Fived equipment.

3 coat hooks

1 sink.

1 set shelves

1 Bench with cupboards.

1 electric Meter.

1 Phone.

C/S



23rd Feb 66 ³⁹

Camp Trip

21

23h

Leave Stanley today for Fitzroy & Douglas

Le J. Jones

Gross lack of effect.

C/S

23 Apr. 66

31

Camp Trip

CH
25/4

YE. fyi

S1
25/4

Leave Monday 25th Apr for:-

Pebble Island.

full
rta

B D Young.

Grasslands Officer.

Y. E.

You asked for details of £20 additional provision requested by the Grasslands Officer. These are attached.

L. G.

3.5.66

C. S. f. y. i.

C. H. 4/5.

List of items being purchased by the Grasslands Officer from Head
II Item 2 Books and Instruments.

1. New Zealand Journal of Agriculture.
2. Journal of the British Grassland Society.
3. New Zealand Journal of Experimental Agriculture.
4. Other Periodicals
5. Tape measures.
6. F.A.O. Agriculture Study No 21

Experimental WorkDouglas Station No. 1 (Trace Element Investigation)

	Mo	Cu + Mo	Control	Cu	
PO ₄ 2				4y	2y
Lime					
PO ₄ 1					
Control					
PO ₄ 1					
PO ₄ 2 + Lime					
					2y

Rates

Mo. at 6 oz Sodium Molybdate /acre
 Cu at 5 lb Copper Sulphate /acre
 Lime at 2 ton /acre
 PO₄ at $\frac{1}{2}$ ton /acre (1)
 PO₄ at 1 ton /acre (2)
 Mg on small plot at 5 cwt MgSO₄ / acre

21st December 1965

Sprayed Cu + Mo separately through watering can at about 1 gal /strip - wet windy day.

22nd December 1965

Spread Lime and PO₄ by hand. Windy day. Originally intended to have 1 strip of PO₄ 1 + Lime but not enough lime so left at PO₄ alone.

25th February 1966

Lime on Phosphate showing greener - has been closely grazed. Suggested fencing it off.

Douglas Station No. 2 (Herbicides)

	6y			
8y	Paraquat	Paraquat	Paraquat	Paraquat
	2 pints/ac	4 pints/ac	6 pints/ac	8 pints/ac

Site covered in fine grass, mosses, christmas bush, diddle-dee, fern.

21st December 1965

Sprayed through watering can at about 1 gal/plot. Windy day - some drift.

25th February 1966

The finer grasses have been killed out at all rates - christmas bush defoliated - diddle-dee not affected.

Douglas Station No. 3 (Varieties trial)

6 lb/ac Alsike Clover MVD	4 lb/ac KWWC W6	10 lb/ac S48 timothy	20 lb/ac Lucerne MVD
10 lb/ac Sweet clover MVD	10 lb/ac fodder raddish	12 lb/ac white turnips	20 lb/ac Lucerne L1
10 lb/ac S50 timothy	10 lb/ac S.S.M.G.	4 lb/ac K.W.W.C. MVD	10 lb/ac Annual M.G.
	10 lb/ac S.S.M.G.		
10 lb/ac crested dogstail	10 lb/ac S23 P.R.G.	4 lb/ac trefoil MVD	10 lb/ac sheeps fescue
10 lb/ac ribgrass	20 lb/ac Lucerne LID	12 lb/ac rape	4 lb/ac Strawberry clover MVD
4 lb/ac S100 MVD	50 lb/ac Sainfoin	10 lb/ac Bent	4 lb/ac Birdsfoot trefoil MVD
10 lb/ac S170 tall fescue	4 lb/ac suckling clover	10 lb/ac S143 cocksfoot	10 lb/ac R.S.M.G.
4 lb/ac KWWC W4	8 lb/ac red clover	10 lb/ac S59 red fescue	157 lb/ac forage rye
10 lb/ac Canadian R.F.	10 lb/ac Chewings fescue	140 lb/ac padarnoats	4 lb/ac trefoil B3
4 lb/ac S100 W6	4 lb/ac Birdsfoot trefoil B3	70 lb/ac lupin -inoc.	4 lb/ac S100 W4
		70 lb/ac lupin - NI ex NZ	8 lb/ac Sub Clover MVD

Plot size 2_y x 10_y.

Letters after legumes allude to innoculent used.

28th February 1966

Set up as above on reasonably fertile ex-oatfield which had been chain harrowed, seed was raked in and was rolled the following day. Weather fine. All seed ex UK.

20th March 1966

Mr. Reid reported by phone that legumes were at cotyledon stage and some of the grasses were just showing. Brassicas also through.

Fitzroy I (Varieties trial)

	12y						
25 _y	1	2	3	4	5	6	7

1. SSMG at 12 lb/ac + yorkshire fog at 8 lb/ac
2. Lotus major at 2 lb/ac + SSMG at 12 lb/ac
3. Clover at 2 lb/ac + SSMG at 12 lb/ac
4. Lotus at 2 lb/ac + yorkshire fog at 8 lb/ac
5. Lotus at 2 lb/ac
6. Clover at 2 lb/ac
7. Clover at 2 lb/ac + yorkshire fog at 8 lb/ac

20th January 1966

Sowed as above on previous year's oatfield which had been rotavated and sown to fog this year but fog had failed. To make oatfield it was ploughed out from virgin camp last year.

Area was chain harrowed - seed was broadcast - chained with harrows upside down - rolled twice but consolidation was poor. Both legumes were pelleted and inoculated.

15th February 1966

Mr. Clement reports fog germinated on plots 1, 4, 7 and through to "a good inch in height".

25th February 1966

Cotyledons of legumes on all plots showing. Fog showing clearly. Trace of SSMG.

Fitzroy II

The content of this experiment is identical to Douglas Station 3 though the layout is in a different random order.

25th February 1966

The experiment was set up as mentioned above and the ground was chain harrowed before and rolled after except western end which was too wet to roll.

16th March 1966

Mr. Clement reported lupins showing first true leaf and up to 1 - 1½ inches. Three others also showing possibly radish, turnip and sainfoin.

San Carlos I

17th December 1965

Sowed inoculated clover on one acre rotavated ground which had been sown to fog 4 weeks previously. Grass was just beginning to show.

Clover broadcast at 2 lb/ac and cambridge rolled 2 days later.

25th April 1966

H.E. informed me that at the time of his visit about 2 weeks previously occasional clover plants could be observed.

Johnsons Harbour I

	12y			
25y	1	2	3	4

1. Clover at 2 lb/ac
2. Clover at 2 lb/ac + yorkshire fog 8 lb/ac
3. Lotus at 2 lb/ac
4. Lotus at 2 lb/ac + yorkshire fog at 8 lb/ac

8th January 1966

The plots were surface sown as in the above plan. Ground was heavily stocked up till about 10 days before and was eaten right down. Vegetation was oreob/white grass/christmas bush.

28th April 1966

Bill Davis reports that "there is some growth".

Stanley Common I

	30 _y		
40 _y	5 lb/ac white clover	8 lb/ac sub. clover	4 lb/ac <u>Lotus</u>

19th February 1965

The above was set up on a damp white grass/christmas bush area of the common. An attempt was made to pellet seed but was not very successful - a mixture of lime and inoculated seed being sown.

27th February 1965

A 3 yard strip of Gafsa rock Phosphate was spread along one edge.

25th March 1965

White clover - 2 cotyledon seedlings showing on bare ground

Sub. clover - seedlings with 1st true leaf showing on bare ground and in white grass tussocks, higher germination than white clover.

Lotus - 2 cotyledon seedlings showing in some places, lowest germination.

1st May 1965

No sign of white clover or lotus.

Sub clover seedlings growing satisfactorily some strongly - some discoloured (red) at 4th true leaf stage.

16th March 1966

One white clover plant growing strongly at edge of lotus plot.

When this experiment was first set up some excess white clover seed was scattered on various places on the common. On inspecting these areas in March 1966 occasional strong growing plants were found. Inoculation must have been satisfactory in some cases.

Stanley Common II (Herbicides)

5y

10_y

8	7	6	5	4	3	2	1
16	15	14	13	12	11	10	9
24	23	22	21	20	19	18	17

1	9	17	-	Paraquat	at	$\frac{1}{2}$	lb	a.i./ac
2	10	18	-	"	"	1	lb	" "
3	11	19	-	"	"	1 $\frac{1}{2}$	lb	" "
4	12	20	-	"	"	2	lb	" "
5	13	21	-	T.C.A.	"	5	lb	" "
6	14	22	-	"	"	10	lb	" "
7	15	23	-	"	"	15	lb	" "
8	16	24	-	"	"	20	lb	" "

22nd October 1965

3 Plots 1-8 sprayed by watering can. Original regulation is white grass with christmas bush and oreob.

4th December 1965

Plots 1-4 showing burn on christmas bush.

4th January 1966

Plots 1-4 showing burn in order of rate on white grass, oreob and some christmas bush. 5-8 showing burn proportional to rate on white grass and a little on oreob. Sprayed 9-15 through watering can, windy sunny day (not enough JCA for 16).

12th January 1966

Sprayed 16, sunny day, little wind. 9, 10, 11, 12 showing burn increasing with rate on white grass and oreob. Less christmas bush burn on lower rates. 13, 14, 15, 16 showing slight white grass burn but no effect on others. 1, 2, 3, 4 oreob still mostly dead - especially high rates. Christmas bush recovering but still affected on high rate. 5, 6, 7, 8 little trace of herbicidal activity other than slight white grass burn.

7th March 1966

Sprayed 17-24 in usual manner. 9, 10, 11, 12 showing proportional burn on oreob and white grass and slightly on christmas bush. Small quantity of finer grasses is dead at all rates. Slight effect on 15 and 16. 1-8 little trace of burn.

15th March 1966

Paraquat plots 17, 18, 19, 20 showing differing degrees of burn on christmas bush, white grass and oreob equally affected. TCA

plots 21,22,23,24 white grass (and moss) only affected - equally at all rates.

October * sprayed plots-almost fully recovered.

December sprayed plots - paraquat at high rates killed fine grasses and still affecting white grass.

11th April.

December sprayed paraquat-oreob and white grass still affected TCA recovered.

January series - oreob, christmas bush, white grass still showing burn at all rates of paraquat - increasing with rate. TCA showing slight burn on white grass at all rates.

Hoggarth's dairy I (Varieties trial)

			10 _y	
		1	2	3
				10 _y
4	5	6	7	

1. Clover at 4 lb/ac = SSMG at 12 lb/ac
2. Lotus at 4 lb/ac
3. Sub. clover at 8 lb/ac
4. Clover at 4 lb/ac
5. Clover at 4 lb/ac + yorkshire fog at 8 lb/ac
6. Lotus at 4 lb/ac + yorkshire fog at 8 lb/ac
7. Lotus at 4 lb/ac + SSMG at 12 lb/ac

12th February 1966

Experiment broadcast as shown above on heavily disced area. All legumes pelleted and inoculated.

13th February 1966

Area chain harrowed.

15th March 1966

Legumes now germinating.

23rd April 1966

3 - clover growing well.

1,2,6, - growth of legumes to 1st true leaf stage but very sparse.

Butler's Paddock I (varieties trial)

Content as previous experiment except no number 3 and legumes all 2 lb/ac. Layout different.

13th January 1966

Sown on area of paddock which had been top sodded.

8th February 1966

Legumes just beginning to germinate on damp patches.

7th March 1966

Little trace of sown species except a few plants at lower edge where they have been washed by rain as the surface has a mat on it.

Government House Greenhouse

Observations are being carried out on 5 samples of seed received from NZ in late March. They are planted in boxes of soil from the common and are as follows:-

White clover control
White clover pelleted and inoculated
Lucerne control
Lucerne pelleted and inoculated
Sub clover pelleted and inoculated

At the moment the pelleted and inoculated seeds are doing much better than control.

FIC £1000 p.a. grant

I have written to Mr. Vinson (about 2 weeks ago) to find out more about how this is to be administered and used. Mr. Clement at Fitzroy knew nothing about it. I also asked Mr. Waldron when he was in my office and received an answer to the effect that if I required money for anything on the FIC farms just to see Mr. W. H. Young (who happened to be present at the time) about it. This seemed rather vague to me.

Balin D Young

GRASSLANDS OFFICER

CDY/FA

321A
33a

GRASSLAND IMPROVEMENT PRACTICES IN THE FALKLAND ISLANDS

Introduction

During this time I have visited nearly every farm in the Islands. I have studied the local conditions and looked at the local experimental work. I had planned a large scheme of preliminary experimentation but this had to be curtailed due to the late arrival of experimental materials. Soil samples from several farms have been sent to Aberystwyth for analysis.

I am at the moment organising a grasslands conference to be held in July in an attempt to explain what is being done in the way of research and development on the various farms.

Farms visited

Carcass Island - visited 12th November 1965

Mr. Bertrand was most interested and at the time of my visit was erecting a sub-division fence on the North coast of the island. I planned to erect further fences. I agreed with him in this policy and suggested that in some places surface sowing of seed with surface cultivation could prove beneficial. I was told that excessive cultivation could lead to erosion problems.

Chartres - visited 15th-17th May 1965 & 16th-31st September 1965

Mr. Luxton advocated that fencing was a good technique and had also had good results from draining. There is a large acreage of very short mossy type of camp on this farm and I suggested that some form of cultivation could effect a great improvement on this. The dangers of erosion were pointed out to me and on investigation we found the soil to be only about 1 ft. to 18 ins. deep.

On my second visit I observed an area of unimproved camp being rotavated near to the settlement. Mr. W. Luxton and I discussed the merits of pre-burning this area in an effort to reduce the loose lumpy nature of the ground left by the rotary cultivator. Mr. Luxton favoured the natural agency of weathering over the winter to consolidate the ground as burning near the settlement could have been dangerous to other parts of the camp.

Darwin - visited 8th-12th April 1965

Here I had a look at some of the sod seeding work which had been carried out a number of years ago. In certain places all that can be seen at the present time is a series of grooves left by the coulters of the machine. In other cases the grass sown (Yorkshire fog) can be seen in lines across the camp with some slight spread from these lines. Some areas were sown with fertiliser and some without but there did not appear to be any correlation between fertiliser use and establishment. I think that date of sowing may have affected the germination and establishment.

Douglas Station - visited 24th-26th May 1965, 13th-18th December 1965 and 27th-28th February 1966

This farm has one of the lowest lambing percentages in the islands and Mr. Reid is keenly aware of the need for improvement. A regular mileage of fencing is attempted every year over and above the renewal programme and this has resulted in a steady reduction in the size of the camps. The high ground camps in the Wickham Heights are used for summer grazing for all stock between shearing and dipping to give the main camps a rest. This is proving to be rather clumsy to work with the ewes and Mr. Reid is trying to get his owner's permission to alter the system slightly. On the peninsula to the east of the settlement Mr. Reid has tried out several cultivation methods. This piece of ground was originally covered in diddle-dee, and the following treatments have been tried out at various times.

- (a) A homemade scraper of truck rails was dragged over the area to destroy the diddle-dee and Yorkshire fog was drilled directly into the ground. There was a noticeable spread of native grasses and a fair amount of fog showing. This had been done several years ago.
- (b) Six years ago an area was ploughed and directly re-seeded to Yorkshire fog and clover was included in some areas. This area seems to be getting poorer and there are only one or two clover plants left.
- (c) Recently (Spring 1965) another section was treated with the scraper and then heavily disc harrowed before drilling Yorkshire fog. Establishment seems good.
- (d) Two further sections were ploughed and rotavated respectively this spring. The ploughed area seems to have a better establishment at the moment due to greater consolidations.
- (e) Mr. Reid had received from New Zealand samples of pelleted and inoculated legumes. These samples were re-inoculated with Uruguayan inoculant supplied by me and were sown on two places through the drill. Nodulation seemed to have been successful on all species at the time of my last visit. The species sown were:- white clover, Montgomery red clover, subterranean clover, suckling clover, lucerne, serradella. There was a fairly high seedling mortality due to wind in spring but there are still plenty plants left.

Several experiments have also been set up by me and are as follows:-

- (1) An investigation into the interaction of the trace elements copper and molybdenum with lime and phosphate. This was set up on the 21st December 1965.
- (2) An investigation into the effect of paraquat on diddle-dee. As was expected it had no effect at 8 pints per acre and less.
- (3) A trial of 42 different grasses and clovers. This was put on a former oatfield and several different inoculants were used for the legumes. It was laid down on the 25th February 1966.

Fitzroy - visited 12th-16th April 1965, 19th-20th January 1966 and 23rd-28th February 1966

Much drainage has been done on this farm with the Guthbertson 'water buffalo' and Mr. Clement is very pleased with the results. He is very keen on increasing the acreage of the settlement fields and is now steadily working down the peninsula of the Fitzroy parks. He agrees with me that sub-division is a good thing and has had some increased lambings on sub-divided camps. The first lambing after sub-dividing is usually very low but eventually seems to come up to higher than it was before fencing.

Mr. Clement is very interested in new machinery for seeding, broadcasting, silage making etc. and I have offered advice on what to get. The silage making is at the moment little more than an idea.

On a piece of camp originally ploughed out as an oatfield I have laid out the following experiments:

- (1) A small trial of a few grasses and legumes which were available before the arrival of the main order. The legumes have germinated and the grasses are growing satisfactorily.
- (2) An experiment identical to the large varieties trial at Douglas Station was set up on the 25th February 1966.

Fox Bay East - visited 13th-15th September 1965

Several years ago some long strips of white grass camp were ploughed and resceded to Yorkshire fog on this farm. I was shown this work and we agreed that good consolidation was one of the keys to success. There was also an area of recently rotavated ground on the point outside the settlement which had just been sown before I arrived. Difficulty was experienced with the broadcaster as the seed is so fine it runs like water; all the holes in the broadcaster have to be adjusted individually and consequently the seed runs out too soon. Mr. Porter, the mechanic, was trying to devise some sort of linkage. Some of the more recently sown areas did not have too good a take on them - possibly due to the broadcasting method; drilling may give a better establishment.

Fox Bay West - visited 2nd-6th September 1965

This farm has a large sandy area in it which has now been fairly successfully controlled by sandgrass plantings. The number of ponds which are used as fences causes trouble as they are difficult to get into and tend to dry out. Much drainage has been done with a dragline ditcher and a swamp plough. Mr. Robertson told me the former machine was well worth running but he could not now get anyone to drive it. We talked about sub-division of camps and Mr. Robertson said he planned to cut up one.

Green Patch - visited 17th-18th June 1965 and 9th January 1966

This farm carries out a policy of concentrated grazing on one camp to give the others a rest. The camp used for this appears much greener but on closer inspection this is seen to be due to an increased amount of Christmas bush.

This summer Mr. McPhee rotavated about an acre of balsam bog/moss/small fern camp and at the time of my last visit the Yorkshire fog seed sown had germinated and was looking rather well.

Hill Cove - visited 1st-9th March 1965

This farm goes in for large scale rotavation and has now a large acreage of ground which have been rotavated and sown to Yorkshire fog. The establishment on the loose seed-bed produced by this machine seems to be very slow. The earlier work now appears as a good growing sward. On dry diddle-dee camp the process works much better and the most spectacular improvement has been obtained on this class of ground. Results on white grass are not nearly as good and there is a tendency to concentrate - quite rightly - on the drier ground. There has been a great improvement in the condition of the sheep numbers. I suggested that more fencing would give better control of this improved grazing - the grass tends to get rather rank - but Mr. W. W. Blake considered that he had to give top priority to improving as many acres of grazing as he could by the re-seeding method as it gave quicker returns. Mr. L. G. Blake said that once the sheep numbers had increased to a number which was too great to handle at the Hill Cove settlement it was their intention to divide the farm into two sections - this however would be many years ahead.

Johnson's Harbour - visited 12th-16th June 1965 and 5th-8th January 1966

Mr. O. Smith is having to spend a lot of time and money on

maintenance. He has renewed some fencing and intends to put in more. He uses one of his large paddocks as a holding area for all his sheep for a few weeks prior to dipping; this blackens out the paddock severely and provides a good medium for sowing fog seed into. I suggested that nearly all of this paddock could with profit be surface sown with Yorkshire fog and Mr. Smith said he eventually intended to do this.

On the 8th January 1966 I laid down an experiment on the heavily grazed block. It was similar to the smaller one at Fitzroy but was surface sown.

Moody Valley

I visited this farm one afternoon and was shown the small areas improved at the head of the bay by pig keeping and the scattering of offal. Mr. Hills said the farm was well divided and he practised rotational grazing.

Mullet Creek - visited July 1965

A steady improvement has been carried out over the past few years on this farm by the scattering of Yorkshire fog seed on the surface. This is particularly noticeable in the east end piece. One or two new paddocks have also been made near the house by a similar means. The farm would like to put up some more internal division fences. It is unfortunate that on one side this farm marches with the common and therefore has to bear the whole cost of renewal of this fence which is some $2\frac{1}{2}$ miles long.

New Island - visited 17th-22nd November 1965

Erosion is a great problem on this island and Mr. Davis blames the penguins. I suggest it is due to a previous history of burning. The island has quite extensive tussac plantations which Mr. Davis planted over the years. The sheep stock has increased steadily since Mr. Davis bought the island. Rabbits and firebirds are also a problem. Quite a lot of fog seed is sown by surface seeding.

North Arm - visited 20th August-1st September 1965

Some experimental areas have been ploughed and sown to Yorkshire fog in the camp, but are rather small and tend to be over grazed. One camp had been split into three before Mr. Oliver took over. Mr. Oliver said he would have to make this camp work before he went on with further sub-division, which he considered the only method of improving whitegrass. A system of splitting camps in 3 and moving a flock round these sections in an annual rotation was the system he favoured. Though not as intensive as it could have been, I was inclined to agree that it would be a good working compromise.

Mr. Oliver also proposed an extensive scheme with a small gang and low overheads. The idea would appear to be not without merit - especially on the grounds of economics.

Pebble Island - visited 26th-28th April 1966

Like most islands Pebble is more fertile than the mainland. In this case it is possibly due to the deposits of shell sand on the beach which have been blown on to the land. Exposure is a problem and some form of a shelter - especially at the east end - would be welcome.

Port Louis - visited 9th-11th June 1965

Mr. Grant said he was hoping to cut his two northern camps in half so that he could keep the sheep off the coast section which is at present very heavily grazed. I agreed that this was sound policy.

Port San Carlos - visited 3rd-5th April 1965

Mr. Cameron used a scheme similar to Douglas Station in that he rested his main camps by putting his sheep on 'concentration grounds' between shearing and dipping. These camps were in some cases parts of larger ones which had been split up. He had some success with surface sowing in these heavily stocked camps. Mr. Cameron considered that there was a place for cattle in the farming system here and regretted that there was no commercial outlet for them. I agreed with him and suggested that cattle were worth keeping even if they were only used as machines for controlling long grasses.

I have not visited the farm since Mr. A. Miller took over the managership.

Port Howard - visited 18th-22nd March 1965 and 29th-October to 2nd November 1965

This farm has a large acreage of cultivated land around the settlement which is now and then increased. Plans are in hand at the moment to increase it further. Silage is grown on this acreage and is fed to about 600 ewes before lambing with reasonable success. If the silage is still successful after 5 years it is intended to go in for supplementary feeding in a big way.

The main part of the farm is divided into 4 main groups for rotational grazing purposes. These 4 parts are sub-divided into smaller camps round which the sheep are moved at regular intervals. This system has increased the carrying capacity of the farm.

It is planned to use cattle as an integral part of the scheme and also to introduce surface sowing of better grasses. Mr. Pole-Evans is very enthusiastic about severe burning. I suggested that it would be better to trample down the excess herbage with cattle but Mr. Pole-Evans maintains that there is a place for burning.

Port Stephens - visited 7th-12th September 1965

Mr. Goss had only recently taken over the managership and intends to put as much fencing as he can on the farm. There is an area - quite extensive - which was burned over a number of years ago and is still bare. I suggested that it could be disced over and sown down to fog. I also offered advice on the cultivation of a new oatfield i.e. I considered that rotavating was not required and again a severe discing would do the job and require less power. Mr. Goss agreed on this point.

Rincon Grande - visited 4th-8th June 1965

This farm is well sub-divided but I consider that further sub-division would pay considerably. Mr. Turner said it was his intention to continue with fencing.

He showed me some interesting experimental work where he had sown seed after discing and had achieved quite a good take. This was on camp which had had the diddle-dee burned off. He intended to carry on with this method and I agreed with him that it seemed to be the most convenient technique for large areas of the farm which carry a thick cover of diddle-dee. Some interesting erosion control had been carried out on the north-west coast.

Roy Cove - visited 9th-14th March 1965

There is now a large acreage of ploughed and reseeded grassland on this farm and the sheep stock has increased accordingly. I suggested to Mr. Miller that a sward which included something other than fog would be much better e.g. white clover. He pointed out the expense of the seed and the trouble which has previously been experienced in getting legumes to grow. He added that he saw my point and said that at one time he had looked on the Yorkshire fog as being only a stage in the improvement but now he was not so sure as the soils did not seem to have a great potential.

I again suggested that more fencing would control the grass better but his opinion was similar to Mr. Blake's. He also considered that the seed heads on the grass were a good thing as this helped to spread the grass on to the bare patches which occur.

I also said that the ploughing seemed rather an expensive process when coupled with discing on some ground and that discing alone after burning may be just as good. Mr. Miller seemed to favour the more severe cultivation.

Salvador - visited 27th May-3rd June 1965

Having just come from Douglas Station I thought that Mr. Reid's technique with diddle-dee ground might be suitable at Salvador and Mr. Pitaluga said he would bear it in mind when he started grassland improvement. He is at the moment concentrating on improving his buildings.

There is an erosion problem on the Big Rincon and I said that I would attempt to control it by some easier means than planting sand-grass. I had in mind the planting of some fast growing crop such as lupins or rye early on in the season in an attempt to stabilize the ground before it dried out in the summer.

San Carlos - visited 6th-7th April 1965 and 16th December 1965

This farm also uses its high ground to rest its main camps in the summer time. Mr. Bonner said that there was a lot of ground round San Carlos waters which he thought it would be easy to cultivate and re-seed and I agreed that this seemed to be the case. As a pilot scheme about an acre of suitable ground was rotavated over the winter and sown in the spring to Yorkshire fog. A month after sowing the grass seed I over-sowed with clover and the report is that occasional plants can now be seen. As the inoculation technique was not perfect this is most encouraging.

Saunders Island

Mr. Pole-Evans has tried an experimental strip of improvement on a section of short fern and diddle-dee camp. A large and heavy scraper made of old Bren gun carrier tracks was dragged over the area and Yorkshire fog seed was sown. The idea is, in my opinion very sound and should give good results. Much of the island could be treated in this way. Mr. Pole-Evans burns off diddle-dee and leaves it to re-seed with native grasses. I advised him to cultivate lightly and sow seed after the burning.

Teal Inlet - visited 14th-23rd May 1965

Some of the best re-seeding to Yorkshire fog I have seen in the Falklands is at this farm. It is on a diddle-dee point near the farm and has been down for about 4 years. I suggested that much more of this could be done, to which Mr. Barton agreed and said that they tried to do a bit of ploughing when they had men free.

He asked my advice on what seeds mixtures to undersow his oat-crop and I suggested two seeds mixtures - one for each half of the field - and also recommended a fertiliser treatment.

West Point Island - visited 13th-16th November 1965

Just before my arrival Mr. Napier had just completed a further two sub-division fences which had been suggested by Mr. Wannop. He was planning to rotate his sheep through the camps, a technique with which I agreed. As on several other islands erosion is a problem and Mr. Napier showed me where they had stopped the sand with sand-grass. He had also planted tussock in some clay patches in this eroded area and the tussock was thriving there and in sand. Some large bare patches were still in evidence which were growing in, but so slowly that I said I would attempt to sow something on them as planting up with sandgrass is a long process. There is sufficient

tussac in plantations on the island to feed practically all the sheep for 3 months in winter which is extremely good management. I suggested that the guano deposits on one of the adjacent islands would make excellent fertiliser for this island and Mr. Napier said he would attempt to bring some up as a trial.

Weddell Island

This island would well repay fencing up and mild cultivation to remove the diddle-dee and replace it with grass. Mr. McGill agreed with this opinion but said that he was limited in what he was allowed to do.

Stanley Common

Several small experiments have also been set up near Stanley. These are mostly small variety trials similar to those at Fitzroy and Johnsons Harbour but there is one herbicidal trial. It is to investigate the correlation (if any) date and rate of application of paraquat and T.C.A.

Colin D. Gormley

GRASSLANDS OFFICER

9th May 1966

32
33

CONFIDENTIAL

Ref: 2373

13th May 1966

MEMORANDUM NO. 41/66 FOR EXECUTIVE COUNCIL

Report by Grasslands Officer

32a

The accompanying report by the Grasslands Officer is circulated for information of Council.

2. Copies of the report are being made available to Members of the Natural Resources Committee.


COLONIAL SECRETARY

CONFIDENTIAL

ER

fa

EXTRACT FROM MINUTES OF THE MEETING OF THE NATURAL RESOURCES COMMITTEEHELD ON THE 13th MAY 19665. Grasslands Policy

33a. His Excellency reminded members that the Government decided towards the end of 1964 to employ a Grasslands Officer, Mr. Young, who had now seen a good deal of the Colony. The Grasslands Officer had acquired a useful basic knowledge of the islands and had made a report in general terms on what he has done since his arrival. Copies of the report were handed to members of the Committee. This report would be circulated to members of Executive and Legislative Councils.

The Committee thought that the Grasslands Officer should be given more informed direction than has been the case in the past and that it should be one of the tasks of the Committee to suggest such direction.

His Excellency thought that the Committee could suggest certain targets for the Grasslands Officer.

Mr. Blake suggested that Mr. Young should look into records of production trends for all farms which he believed were in the Secretariat. If production had gone up or down on farms it would be helpful to know what might be the cause. It was a waste of time to consider establishing an experimental station because farms and methods of farming varied so greatly and Mr. Young could learn more by carrying out his work on a variety of farms than he could from a central experimental farm.

Mr. Blake also suggested that perhaps Mr. Young might make a catalogue of machinery in use on each farm. Mr. Miller wanted the method of using any machine to be added to the list, so that a borrower might benefit by other people's expensive mistakes.

Mr. Young, the Grasslands Officer, was then invited to attend the meeting, and the above suggestions were put to him. It was explained that the information he produced for the Committee could be disseminated in various ways, perhaps by the Monthly Review or by post direct to farms. It should be submitted for the next meeting of the Committee and also for the information of the Sheep Owners Association. Mr. Young agreed to do this. He added that production trends did not seem to have changed noticeably for a very long time.

C/S.

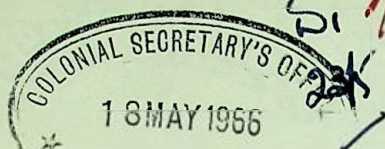
374

For Information.

Perhaps H.E. would like to see one? *OK*

Agricultural Department,
Stanley, Falkland Islands.

May 1966.



Dear

As you may have heard this department is going to hold a conference in grassland improvement on the day after the final S.O.A. meeting; probably the 14th July. This conference will take place in the Council Chamber in the Town Hall. Several Farm Managers will address the meeting on various aspects of grassland improvement and there will be a discussion and question period following each talk.

The meeting will take all morning and if there are enough speakers there will be an afternoon session as well. A detailed programme will be sent out as soon as it is arranged.

It is not intended that this conference should be exclusively for Farm Managers and if there are any people on your farm who may be interested please tell them about the conference.

To give me some idea of the numbers likely to attend could you please fill in the attached form and return it in the enclosed envelope.

Yours sincerely,

GRASSLANDS OFFICER

GRASSLANDS IMPROVEMENT CONFERENCE 1966

Name of farm _____

No. of people attending _____

35

18th May,

66

To: Grasslands Officer,

From: The Colonial Secretary,

STANLEY

Copy to: Harbour Master

Estimates

Agriculture - maintenance of tractor for the Grasslands Officer

The Select Committee on the Estimates has directed that no expenditure is to be incurred unless the machine can be put in running order for a reasonable sum. It was thought that the estimate must include the cost of the fuel for running the machine.

(sgd) W. H. Thompson.
COLONIAL SECRETARY

PC

COPY

CS

Thank you for Grasslands Officer's figures on wool statistics and lambing.

Could he now please make out a graph indicating the trends.

(Intld) CH
23/5/66

GO

f n a
(Intld) WT
23/5/66

37

Agricultural Department,
Stanley, Falkland Islands,



25 May 1966

Next Camp trip connects locality and voluents

Rory Cove, Hill Cove, Darren Fitzroy

aspy.

Pa

37
34 a

EXTRACT FROM MINUTES OF THE MEETING OF THE NATURAL RESOURCES COMMITTEE

HELD ON THE 18th JULY 1966.

4. Records and graphs of wool production trends

Mr Young, the Grasslands Officer, had been asked at the first meeting of the Committee to tabulate figures of wool production trends. Mr Young had selected six farms at random on which to base his figures and the statistics he had produced were distributed to members.

Mr Barton enquired whether the figures were based on stock returns from the farms or had been supplied from London. Mr Young confirmed that the figures were taken from returns submitted by the farms.

Mr Blake commented on the figures for Teal Inlet (Evelyn Station) which had shown a steady production increase over the past 10 years. Knowing the methods of production of this particular farm, as other members of the Committee did, Mr Blake thought the figures were as good an argument in favour of subdivision as any. The reasons for the impressive figures for Roy Cove were widely known; it would be interesting to know what factors influenced the figures from other farms.

Considerable discussion then followed on the subject of the length of time taken before the benefits of subdivision manifest themselves and on the question of whether the capital and recurrent costs of subdivision and rotation of stock absorb the increased profits derived from subdivision.

It was agreed that the Grasslands Officer should provide before the next meeting figures of wool production trends for the period 1951-1966 in respect of all farms in the Colony except the smaller island farms. Pebble Island, Saunders Island and Weddell Island figures should be included.

The following graphs prepared by Mr Young were passed round for the information of members:

Total Colony wool production 1905 - 1918
Total Colony wool production 1951 - 1965
Average wool production per head 1951 - 1965
Colony lambing percentages 1951 - 1965

EXTRACT FROM MINUTES OF THE MEETING OF THE NATURAL RESOURCES COMMITTEE

HELD ON THE 18th JULY 1966

5. Catalogue of machinery in use on each farm

At the first meeting Mr Young had been asked if he could make a catalogue of machinery in use on each farm with notes on the method of using any particular machine. Mr Young reported that he had not completed his list which would take some time. Mr Barton suggested that perhaps the Falkland Islands Company might be able to assist in compiling the list.

It was agreed that once the list is available it would be circulated for information to all farms. The item would be brought up again at the next meeting.

GOVERNMENT TELEGRAPH SERVICE

FALKLAND ISLANDS**SENT**

38

PI676 P4416 8/64

Number	Office of Origin	Words	Handed In at	Date
	Stanley			18.8.66
To	MACSTAPLE MONTEVIDEO		Hoa/c	

Re 39 Grateful you ensure shipment next Darwin eight bags
inoculant clovers red and white two bags each inoculant for
lotus alfalfa and clover subterranean obtainable Laboratories
Dispert Garibaldi 2797 also 120 kilos magnesium sulphate
MgSO₄ from Agromax

Secretary

Time

copy to G.O.

Pl

C/S



3rd Sep 66

39

I am aware of the fact that nothing can be done about this,
but I would like it to go on record that the premises to which
I was moved some months ago are too small to make a satisfactory
lab. and office, and any future holder of this post should not
be expected to carry out his experimental work from such
cramped quarters.

Colin J. Jones
Executive Officer

22
noted. S. 24/11

B. U.
7/11/66

C/S



Agricultural Department,
Stanley, Falkland Islands,

20th Sept 1966

Camp trip

Forthcoming camp trip will be to Roy Cove, Hill Cove,
West Point, Fox Bay East, Fox Bay West.

C D Young

Greenhouse Officer.

Bu 7/11/66

2373

41

MACLEAN & STAPLEDON S.A.

CODIGOS
NEW BOE CODE WITH "Q" LIST
BENTLEY'S SECOND PHRASE CODE

TELEX 770 MACSTAP CX

FUNDADA EN 1901

CASILLA DE CORREO 193
COLON 1486-90

MONTEVIDEO

(URUGUAY)

DIRECCION TELEGRAFICA
MACSTAPLE MONTEVIDEO
TELEFONOS 87474/78
T. T. 27

September 19th. 1966

Colonial Secretary
PORT STANLEY



Dear Sir:-

38

With reference to your telegram of 18th ultimo requesting Dispert products and 8 bags inoculant clovers red and white, we regret to inform you that there is no stock at the present moment.

We are forwarding per this opportunity 2 bags lotus, 2 bags alfalfa and 2 bags subterranean clover.

Yours faithfully,
MACLEAN & STAPLEDON, S. A.

JG/vd.

Reply 44

A/T
210

To see P!
JA
28.9.66

I presume that remainder of order will be sent when available. yes
6 JG
5/10/66

S. S.
Dear, thank you.
3.10.66

Bu 16/10/66

HABER DE CAJA

Cuenta COLONIAL GOVERNMENT (telegrama 18/8-1966)

Concepto DISTERR - 2 bags Nitrasol Lotus 99.60

2 bags Nitrasol Alfalfa 99.60

2 bags Nitrasol Trebol Subterraneo 99.60

Fecha 19/9-1966

Iniciales

\$ 298.80



P/S

42.



Next Camp Trip

West point, TI Douglas

BT Gary

Quarantine officer

ACS Please give telegraphic
remittance of ~~remittance~~ of MacStable order as it is
urgently required. Bmail BT Gary
MacStable mail? 19/10.
Bu 5/11/66

C/S

43

Agricultural Department,
Stanley, Falkland Islands,

21st Nov 1966

Next Camp trip to Pinnon Grove, San Carlos
Darwin (pronounced) and Fitzroy. Starting from today.

Colin D'Gony

✓ E. to see L. 21/11
SI 21/11

GOVERNMENT TELEGRAPH SERVICE

FALKLAND ISLANDS

SENT

44

Wt P2809 5/61

Number

Office of Origin

Words

Handed in at

Date

Stanley

24.11.66

To

etat HACSTAPLE MONTVIDEO

HOA/c

41

No 38 Yourlet 19th September dispart products endeavour supply
remainder next opportunity

Secretary

PA

Time

copy to G.O.

CS

see 45

39

2/11/66

hated

25.11.66 61 24/11

2373

45

MACLEAN & STAPLEDON S.A.

FUNDADA EN 1901

CODIGOS
NEW BOE CODE WITH 'Q' LIST
BENTLEY'S SECOND PHRASE CODE

CASILLA DE CORREO 193
COLON 1486-90

MONTEVIDEO

TELEX: 770 MACSTAP CX

(URUGUAY)

DIRECCION TELEGRAFICA
MACSTAPLE MONTEVIDEO
TELEFONOS R 7474/78
T. T. 27

December 7th. 1966

Colonial Secretary
PORT STANLEY

Dear Sir:-

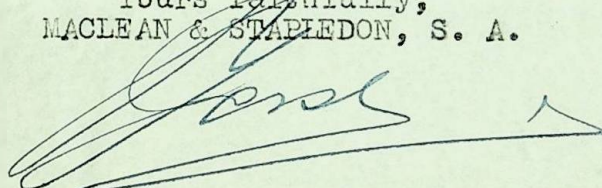
We refer to your telegram of 24th ultimo, reading as follows:

44

"No.38 YOURLET 19TH SEPTEMBER DISPERT PRODUCTS ENDEAVOUR
SUPPLY REMAINDER NEXT OPPORTUNITY",

and beg to inform you that we forwarded 8 bags inoculant
clovers red and white per "PROTECTOR" sailed southbound
on 3rd inst.

Yours faithfully,
MACLEAN & STAPLEDON, S. A.



JG/vd.

Go.

Has this been received pl?

AC

Arrived by
Protector

P. R. M.

29.12.66

29.12.66

Pa

C/S



Agricultural Department,
Stanley, Falkland Islands,

61
4/1

3rd Gen 1967

Next camp time is to West Point, Ray Cove, 1/2 77
Cove, Chantres. Starting on or about 4th Jan 67

B Young
Grasslands office

Ba

C/S

2373.

27 Feb 67 47.



Camp Trip

Next camp trip is to.

Teal Inlet

Douglas

Salvation

Rincon Grove (possibly)

commencing 27th Feb 1967

bp Gony

(Grasslands officer)

pe

2373 .

c/s

48



Agricultural Department,
Stanley, Falkland Islands,

22nd Mar 1966

Camp trip

Next trip - Fitzroy + back on 23rd Mon

B. J. Gony

Grasslands officer

S1

23/3

per

Agricultural Department,
Stanley, Falkland Islands,



30th Mar 1967

Camp trip

Next camp trip to :- Down.

Cormack 30th Mar 67

G. J. Young

Per

C/S



50
Agricultural Department,
Stanley, Falkland Islands,

10th April. 1967

I would like to know if there is any possibility of my being moved to a more commodious office some time within the next course of months as the present one is too small and inconvenient. I have mentioned this matter before and if I remember rightly there was a possibility that alternate accommodation would become available.

Reply at 51

E. Jones
Government Office

50a
JH to speak
Si
/

2373

51

14th April,

67

To: Grasslands Officer,

From: Colonial Secretary,

STANLEY.

Office accommodation

50 Your letter of 10th April refers.

What have you in mind?

W.H. Thompson

COLONIAL SECRETARY

Reply at 52

Hm/

50a to you.

JA 15.4.67

ER

C/S

2373

52



Agricultural Department,
Stanley, Falkland Islands,

15 April 1967

Office Accommodation

A room about 3 times the size of the present one (i.e. 18ft x 21ft) with bench space on 2 walls. A separate store for materials would be very useful but is not essential. Extra shelving is also required. The standard of decoration is irrelevant as is the location.

The main problem is sheer lack of space.

Colin D Young.

G.O.

63
Go. Do
you know of
a suitable
place? Please
have a look at the
rooms at the back of
Edith's R.T. which we know

C/S

54

Space behind P/T office is smaller than present office. Was not some mention made of space becoming available 'due to re-organisation of telecommunications system'?

Yours.

6/6.

4/5/67

PRIVATE BAG
NORTHCOOTE, AUCKLAND
TELEPHONE 283-012

Biological Laboratories Ltd

9373 55
INVOICE

SOLD TO:

The Secretary,
The Crown Agents.,
St. Nicholas House,
St. Nicholas Road,
Sutton.
SURREY. ENGLAND.

DELIVERED TO:

Grassland Officer,
Agricultural Dept.,
Stanley,
FALKLAND ISLANDS.

FALK. IS. W/A 5/53302/1 (FO)

ORDER NUMBER		DATE OF DISPATCH		PER	INVOICE NUMBER	
5/53302/1 (FO)		10.10.66		Letter packet	13.1.66 05152	
QUANTITY ORDERED <small>For our stand's</small>	UNIT	ITEM	*	QUANTITY SUPPLIED	UNIT PRICE	AMOUNT
1	30 lb	Lupin Inoculant.		1	-	6 3
<div>3732.</div> <div>SECOND ADVICE COPY</div>						
1		30 lb		Lupin Inoculant.		1
						- 6 3

BU 4/5/67. (64)

Biologica

The Secretary,
The Crown Agents.,
St. Nicholas House,
St. Nicholas Road,
Sutton.
SURREY, ENGLAND.

SECO

CS
your b. v. at
54 Pl. JH
4.5.67

2373.56

C/S
for Information
B.Y. 6th May.



Agricultural Department,
Stanley, Falkland Islands,
May, 1967

Dear

It is hoped once again to hold a Grasslands Conference this July after the S.O.A. meetings. It will take place in the Council Chamber of the Town Hall and should last most of the morning. As there will be fewer speakers this year I hope that people will put up ideas for discussion from the floor of the house and in this connection if you have any suggestions for the Agenda please let me know.

The Conference is intended for anyone interested in grassland improvement so could you please publicise it on the farm.

The Agenda will be sent out as soon as it is ready.

Yours sincerely,

GRASSLANDS OFFICER

RIV 54

memo in

C/S



Agricultural Department,
Stanley, Falkland Islands,

9th May

1967

Camp trip

Next camp trip to: West Point; Roy Cone; Hill Cone; Port Stephens;
Port Hammond; San Carlos and Rincon Grande is supposed to start
today but will most likely be delayed till tomorrow (10th May) by poor
high weather.

Calvin D. Greening

W!
9/5

EXTRACT FROM MINUTES OF THE MEETING OF THE NATURAL RESOURCESCOMMITTEE HELD ON THE 4th MAY 1967.3. Records of Wool Production Trends

The figures of wool production trends which had been produced by Mr Young and distributed in advance of the meeting were studied by the committee. Mr Young said that there was no significant comment he could make about the figures; they followed a trend which had continued for a number of years.

The Sparrow Cove figures were high and Mr Hills explained the methods used. The acreage of Sparrow Cove was of course only some 2,600 acres. Mr Hills also mentioned that Gentoo penguins were an asset in that they provided a source of natural manure.

The weights for pounds of wool per acre from the islands were comparatively high but Mr Barton mentioned that a certain amount of dirt would be mixed with the wool.

All agreed that the figures were interesting and H.E. thanked Mr Young for producing them.

EXTRACT FROM MINUTES OF THE MEETING OF THE NATURAL RESOURCES
COMMITTEE HELD ON THE 4th MAY 1967.

4. Catalogue of machinery in use on farms

The catalogue of farm machinery produced by Mr Young and distributed in advance of the meeting was next studied by the committee. Mr Young commented that one interesting fact he had discovered on his visits to farms was that one or two home-made machines were proving as efficient as imported ones.

Thanking Mr Young, H.E. said that this list of machinery might well come in useful at the time of the next Grasslands Conference.

15

minute on file to
Hasslands Office

60

Accommodation

John 54

There is no spare accommodation.

Please draw up a plan of what
you consider to be the minimum
requirements for a Hasslands Office.

It can then be priced & looked at.

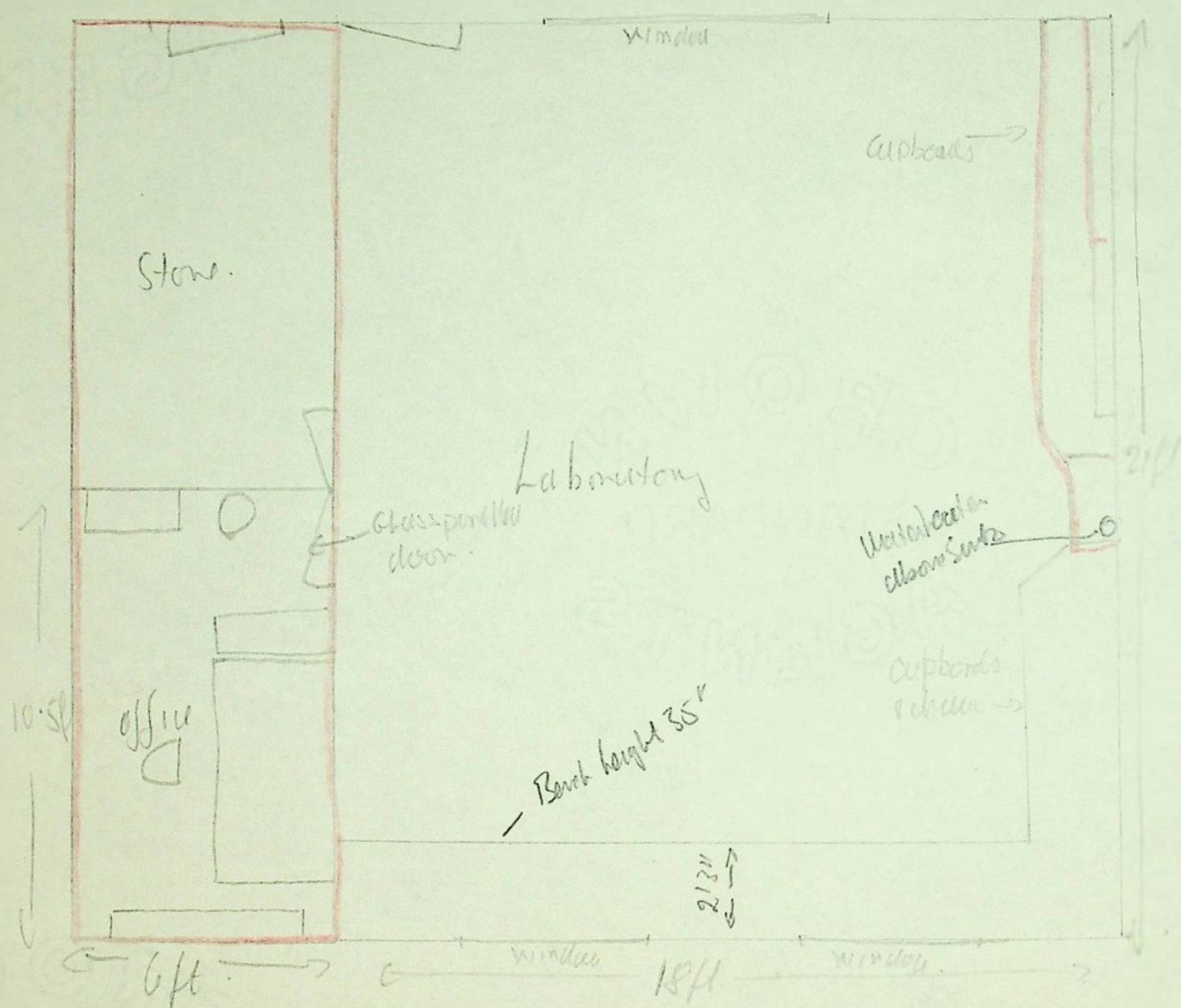
W.I.

1/6/67

See 61

Adaptation of Present building.

a.

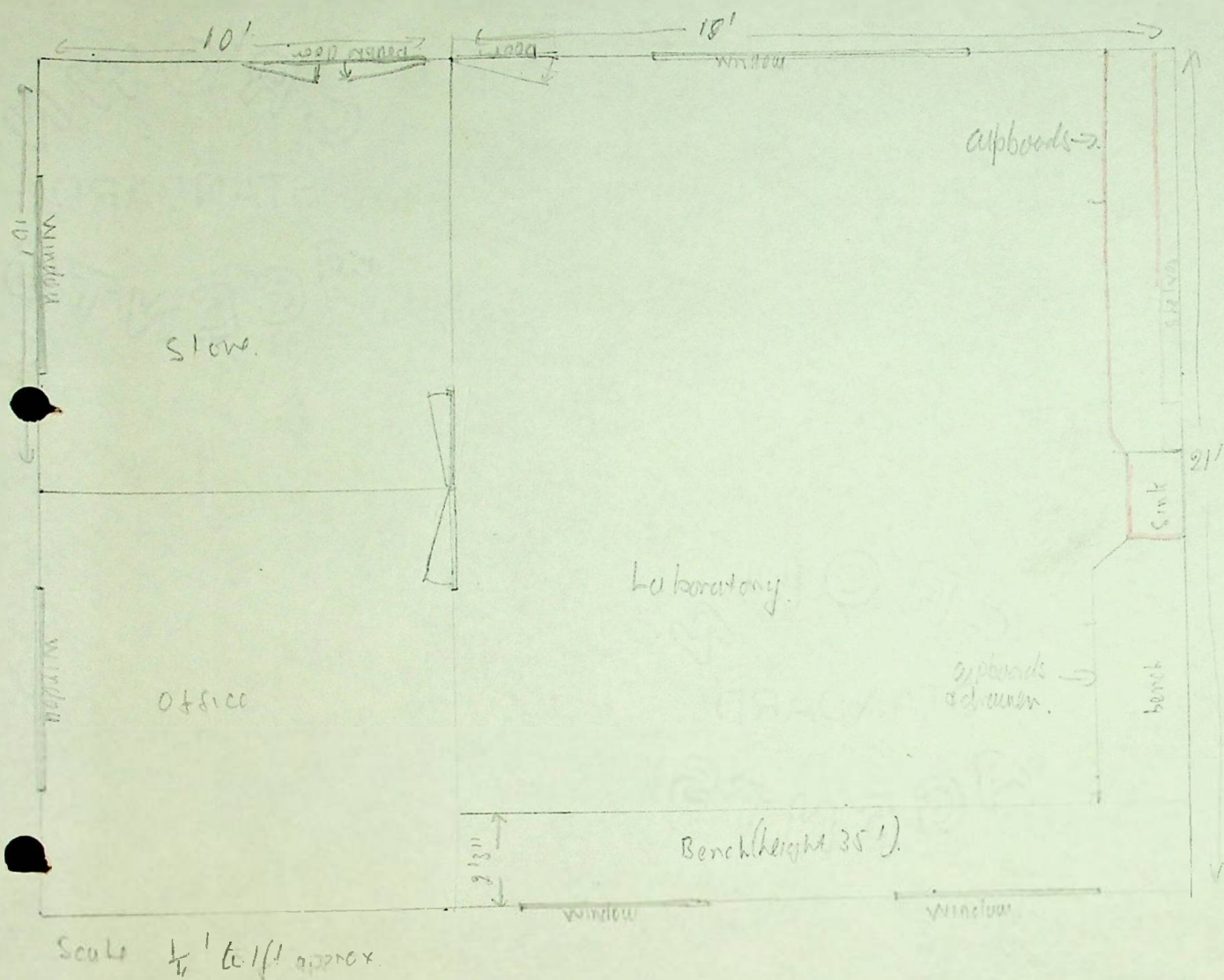


Existing equipment and bulkheads shown in red.

To construct the lab. approx 250 cu yds of soil and anchoring piles would have to be moved. No further expansion would be possible on this site.

New building.

b.



Pont ceiling in red can be taken from the present lab.

The roof need be no higher than 8m of feet and could be flat.

A building such as this on a good site could have other parts added on if the department expanded any.

C/S

6th June 67.

b1

blank

file off

Herewith the plans for a new office.

It is adaptable to suit almost any agricultural requirements. The new building would be easier and better to build due to the limitations of the present site.

To be of any use to me such a building would have to be available for use during the latter part of August 1967.

Colin Young

G.O.

C/S For Information



AGRI 67

A conference for the dissemination of agricultural knowledge

Date - S.O.A. time
Place - Council Chamber, Town Hall,
Stanley
Time - 9.15 a.m.

First Session

"Subdivision and Silage" - D. M. Pole-Evans
"Direct drilling at Port Stephens" - W. H. Goss
"Concentration Camps at Port San Carlos" - A. Miller
"Drainage and Tree Planting" - J. T. Clement
"Review of last season's Experimental Work" - C. D. Young

Second Session

This will be a time for open debate during which the following topics will be laid before the house:-

"Identification and grazing value of native grasses"
"Clear faced sheep"
"Types and methods of fencing"

All further suggestions for this session should be sent to the Grasslands Officer.

Agricultural Department,
Stanley,
Falkland Islands.

17th June 1967.

21

63.



Agricultural Department,
Stanley, Falkland Islands,

.....16 Jul..... 19.67..

ACS

Could the following please be included through MacStaples.

From Laboratory Descent
 Gambololi 2797
 Montevideo.

20. Phage clones inoculant

2 bags Lactas inoculant.

They should be able to get it down on this trip

284.
B.O.

A.C.S



Could you please ask Macstaples to find out a price per ton of lime F.O.B. Montevideo . Also the same for phosphatic fertiliser and for general fertiliser. The Plan Agropecuario may be able to help them locate these prices.

C.D. Young.

65.

GOVERNMENT TELEGRAPH SERVICE

FALKLAND ISLANDS

SENT

PI677 P4416 8/64

Number	Office of Origin	Words	Handed in at	Date
--------	------------------	-------	--------------	------

STANLEY

13.1.67

To

LTF MACSTAPLE MONTEVIDEO

HQA/c

No 22 Please ensure shipment Darwin twenty bags Clover Inoculant
two bags Lotus Inoculant obtainable Laboratories Dispert Garibaldi
2797 also advise FOB ton quotations lime coarse phosphatic and general
fertilisers stop Plan Agropceuario may assist

Secretary

ER

Copy to GO

Time

79

No. PWD 051.

MEMORANDUM

It is requested that, in any reference to this memorandum the above number and date should be quoted.

26th July, 19 67.

To: The Colonial Secretary,

STANLEY.

From: Superintendent of Works, P.W.D.

Stanley, Falkland Islands.

SUBJECT:- Proposed improvement to Agricultural Dept.
Office Facilities.

I recommend the extension of the present G.O's. Office as suggested (folio 61a).

My estimated cost for construction - as existing - is £650.

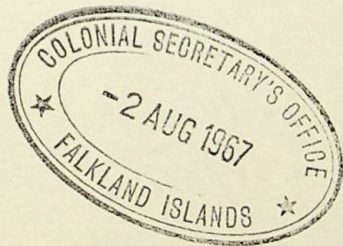
P. George
Supt. of Works.

67
G.O. This item is to
See 68. be included in Jan
next estimation 51 27/12

C/s

2nd Aug 1967

The idea of this new office/laboratory was for my own use. If it is to be on next years' estimates it will not be built till next August and my contract finishes in February. As I have been agitating both verbally and in writing for longer periods for at least a year I would have thought that this was sufficient time for more positive action during my stay in the colony.



B. J. Green.

G.O. I am afraid that with staff as it is & priorities as they are - there is no hope of a completed office before you leave. W.S. 318

C/S

4th Aug 67 70

So be it. I shall continue to function with reduced efficiency. W
S/S

As this office will be built I assume that there will be some sort of a successor to my post. It would be much better if this successor could arrive while I am still in the colony in order that I could pass on much useful information.

I ideally this post should be combined with o.i/c Agric and the holder given technical and clerical assistance.

It would be well nigh pointless to continue to post unless definite steps were being taken towards the establishment of an experimental farm
B.P. O

C/S

71



S21

4/6

16/8/68

Re Mr Camp (tree seeds)

Usual thanks as he has actually gone to quite a bit of trouble. The seeds have been distributed among several interested people in town and in camp. The literature will be circulated to give as many people the benefit as possible. I will try to get people to tell the US Forest Service how the plantings have been. I can't guarantee this of course. The literature (which I have not fully read) seems very interesting.

B. J. Jones. 16 Aug.

American International Association

for Economic and Social Development

50 ROCKEFELLER PLAZA • NEW YORK, NEW YORK 10020



72
Reply
73

July 10, 1967

Dear Mr. Thompson:

With the cooperation of the Forest Service of the United States Department of Agriculture, I have been able to obtain for you some seeds of trees that might grow in the Falkland Islands. These seed packets are enclosed, together with related descriptive publications and literature on how to grow the planting stock and the windbreaks, based on U.S. experience. I am sending similar material to Des King in Stanley and to Tim Blake at Hill Cove as promised. I hope you will have some success with these plantings.

The Forest Service compares the Falklands with the Aleutian Islands in Alaska. The Aleutians are treeless but some sitka spruce (*Picea sitchensis*) were planted by the Russians at Unalaska a hundred years ago and are still there. Hence they believe that this species and several others that grow on the Alaska coast almost to the Aleutians would be worth trying. The others are white spruce (*Picea glauca*) which grows in drier areas than sitka spruce, balsam poplar (*Populus balsamifera*) and black poplar (*Populus trichocarpa*) which ought to provide much quicker windbreak protection, and paper birch (*Betula papyrifera*) which would add to the attractiveness of the landscape. The white spruce and the poplar seeds will be sent to you later in the year and additional small quantities of the sitka spruce and paper birch seeds if they can be obtained from Alaska. However, the enclosed seeds will give you enough to experiment with. The Forest Service will probably send to you directly the poplar seeds since they are very short lived and lose their viability rather quickly. They should be planted as soon as received.

The Forest Service has also recommended two other tree and shrub species which are considered fairly resistant to salt spray. They are Japanese black pine (*Pinus thunbergii*) from a northern source in Japan, and a rose shrub (*Rosa rugosa*) from the coast of Korea. The shrub can make a dense barrier 10 to 15 feet tall. Small packets of these seeds are enclosed.

The publications include a "Pocket Guide to Alaska Trees" and several reprints from the Forest Service publication "Silvics of the Forest Trees of the United States" which describes the trees from the Alaska area. There is also enclosed a woody plant seed manual and a publication on the planting of shelterbelts as developed in the United States. The information in these publications, of course, will have to

Mr. W. H. Thompson

-2-

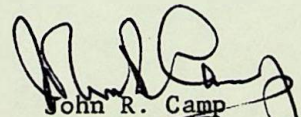
July 10, 1967

be adapted to your situation, but I believe will provide sound guidance in the growing and planting of the trees. Also enclosed is a Forest Service translation of a publication from South America entitled "Regions of Latin America Potentially Suitable for Planting Pines and Other Conifers" by Lamerto Golfari. This publication contains some useful forestation information concerning southern Argentina and Chile which may be of interest.

I hope you find all of this information helpful and that at least some of the seeds germinate and become trees. Otherwise my pronouncements and advice as a forester are going to be questioned. I am sure the Forest Service would be interested in hearing of the results obtained from the plantings. Mr. Carl E. Ostrom, Director of Timber Management Research of the Forest Service (U. S. Department of Agriculture, Washington, D.C. 20250) was directly responsible for helping obtain the seed stock and the publications.

Again I want to thank you and Mrs. Thompson for the hospitality shown us when we were in the Falklands. The trip was a memorable experience for both Mrs. Camp and myself. We would love to return some day.

Sincerely yours,


John R. Camp
Executive Vice President

Encls.

Mr. W. H. Thompson
Colonial Secretary
Port Stanley
Falkland Islands

17th August

67

Dear Mr. Camp,

What a wonderful surprise your letter and its enclosures of July the 10th were! We are absolutely delighted and I cannot say how much I appreciate all your interest and the trouble you have taken. 72

The seeds have been distributed among interested people in town and in camp and we are starting our own nursery here taking advantage of the green houses and gardening staff at Government House.

We are also circulating the literature to as many people as may possibly benefit from it.

In due course we will write to Mr. Carl E. Ostrom and let him know the results of the plantings.

We certainly hope you come back to the Falkland Islands and, who knows, the Thompsons may be able to take Mr. and Mrs. Camp for a picnic in one of the new American International Association Aleutian type Falkland Island forests.

My wife joins me in sending our very best regards to you both.

Sincerely yours,

(W.H. Thompson)

Mr. John R. Camp,
Executive Vice President,
American International Association
for Economic and Social Development,
50 Rockefeller Plaza,
New York,
New York 10020.

pmc.

BU 16/8/68 (51)

A. 16/5 65

4th Sept 67

73a

Re order for inoculant on appendices tel. which
has now arrived. Inoculant for White
Clover was intended but that for Subterranean
Clover has been sent. Could you repeat order
for 20 bags White Clover inoculant to be
sent this Autumn

C D Young

G.O.

S/C Re. d.s.

25.9.67

GOVERNMENT TELEGRAPH SERVICE

FALKLAND ISLANDS

SENT

P2538 P4776/32/401381 500 11/66 R. Ward 843

74

Number	Office of Origin	Words	Handed in at	Date
	STANLEY			7.9.67
To	LIEF MACSEAPLE MONTEVIDEO			HOA/c

No 30 Please ensure shipment Darwin twenty bags white clover inoculant

Secretary

Time

ER

Copy to G.O.

BO 16.8.68

C/S

13th Sept 67

75

Next Camp trip

Friday 15th Sept to Fitzroy



C D Young

G.O.

1

BU 16.8.68

C/S



76
Agricultural Department,
Stanley, Falkland Islands,

.....22nd Sept..... 1967.....

Next camp trip to:- Carcass Island

Leave 22nd Sept

Colin Young
Grasslands Officer.

4
B 16.8.68.

C/S



77
Agricultural Department,
Stanley, Falkland Islands,
21

3rd Oct. 1967.
10.

Next camp trip beginning 4th Oct. to:-

Port Stephens

West Point

Pebble Island

Malin D Young.
(Grasslands Officer)

BU 16.8.68

GOVERNMENT TELEGRAPH SERVICE

FALKLAND ISLANDSSENT

P2538 P4776/32/401381 500 11/66 R. Ward 843

Number	Office of Origin	Words	Handed in at	Date
	STANLEY			4.10.67
To	LTF MACSTAPLE MONTEVIDEO			HOA/c

74
No 35 Mytel 30 requested white clover whereas subterranean clover
received stop Grateful you accept return and ensure ten bags white
clover inoculant shipped this Darwin

Secretary

Time ER

80 16.8 68

DECODE.

79

TELEGRAM.

From Macstaple Montevideo

To Colonial Secretary, Stanley

Despatched : 16th October, 19 67 *Time :* 0917

Received : 16th October, 19 67 *Time :* 1200

White clover actually unavailable

Macstaple

P/L : ER
Copy to G.O.

D/C/s

18 Oct 67

80

79

With reference to the recent Tel from

Mac Staples about Close incident could

you please ask them to check again and

find out if White Close incident is temporary.

or permanently unusual/circa.

Many thanks.

C/Hans.

B.O.

GOVERNMENT TELEGRAPH SERVICE

FALKLAND ISLANDS

SENT

P2538 P4776/32/401381 500 11/66 R. Ward 843

Number	Office of Origin	Words	Handed in at	Date
	STANLEY			18.10.67
To				
	HEF MACSEAPLE MONTEVIDEO			WDA/c

79
No 37 Yourtel 16th is white clover temporarily or permanently
unavailable

Secretary

Reply at 82

Time

Copy to GO

EP

DECODE.

82

TELEGRAM.

From Macstaple Montevideo

To Colonial Secretary, Stanley

Despatched : 19th October, 19 67 *Time :* 1215

Received : 19th October, 19 67 *Time :* 1500

81

Your telegram No. 37 white clover available
end February

Macstaple

P/L : ER
Copy to G.O.

Bu 16.8.68. (71)

2373

83

24th October

67.

To: The Grasslands Officer,

From: Colonial Secretary,

STANLEY.

Report on Grasslands Conference 1967.

Can you give me the date when this will be ready?

(W.H. THOMPSON)
COLONIAL SECRETARY

BU 16.8.68

84

C/S



Agricultural Department,
Stanley, Falkland Islands,

25 Oct. 19 67
.....

Next camp trip to:- Fitzroy

leave 26th Oct.

Colin Young
G. O.

BU 16/8/68

22

C/S



Agricultural Department,
Stanley, Falkland Islands,

..31..Oct.....19 67..

Next camp trip to:- Salvador

Douglas Station

Teal Inlet

beginning 1st November.

Belin D Young

Grasslands Officer

Bo 16/8/68

86

MACLEAN & STAPLEDON S.A.

CODIGOS
NEW BOE CODE WITH "Q" LIST
BENTLEY'S SECOND PHRASE CODE

TELEX: 770 MACSTAP CX

FUNDADA EN 1901
CASILLA DE CORREO 193
COLON 1486-90

MONTEVIDEO

(URUGUAY)

DIRECCION TELEGRAFICA
MACSTAPLE MONTEVIDEO
TELEFONOS 974 74 / 78
T. T. 27

October 20th. 1967

Colonial Secretary
PORT STANLEY



Go to See
21

Dear Sir:-

81
We acknowledge receipt of your telegram No. 37
of 18th inst. reading as follows:

"No 37 YOURTEL 16TH IS WHITE CLOVER TEMPORARILY OR
PERMANENTLY UNAVAILABLE"

and confirm our reply of the same date stating:

"No. 37 WHITE CLOVER AVAILABLE END FEBRUARY"

Yours faithfully,
MACLEAN & STAPLEDON, S. A.

A large, stylized handwritten signature in dark ink, likely belonging to a representative of Maclean & Stapledon, S.A.

JG/vD.

BU 16/8/68

Chapter III

87

The Fertility of the Soil

26. The natural pastures of the Falkland Islands, which are acid in composition and peat-forming, have now been grazed by sheep for a century; and they appear to have undergone a considerable deterioration during that period. One result of this is that the predominant vegetation over most of the Camp consists of White Grass (Cortaderia pilosa) and Diddle Dee (Empetrum rubrum). The former makes very poor grazing, except when it is quite young; while the latter, which may be regarded as the ecological equivalent of the British heather, is inedible by sheep: there is also a large quantity of Christmas Bush (Baccharis magellanica). According to William Davies⁽¹⁾ about 55 per cent of the pastures consist of hard camp, where there is usually a fair depth of soil with natural drainage; and 45 per cent of soft camp, where a relatively thin crust of soil lies on a layer of peat of varying thickness, under which is often impermeable quartzite or other rock. However, it does not follow from this that the carrying capacity of soft camp, in terms of acres per sheep, is necessarily lower than in the case of hard camp, as can be seen from the stock returns for the Darwin Farm, the greater part of which is soft camp covered with White Grass.
27. Over-grazing, combined with the former practice of burning hard camp when the soil was dry, with a view to getting rid of dead White Grass or Diddle Dee, has led to a considerable reduction in the number of sheep on the pastures from their peak of 807,000 in 1898 to about 607,000 in 1930, around which latter figures the numbers have fluctuated ever since.
28. The question then arises: What can be done to improve the fertility of the soil, and so enable a larger number of sheep to be carried successfully?
29. Writing as an economist with no special knowledge of the technical problems of sheep farming, I must rely mainly on the opinion of experts who have made detailed studies of the system of sheep husbandry as practised in the Falkland Islands. I have thought it well, therefore, to compile a short summary of some of the more salient features of their reports.
30. The first general account of sheep farming in the Falkland Islands was contained in a "Memorandum on the Sheep Farming Industry in the Falkland Islands", published in 1924, by the Governor of the time, Sir John Middleton. In this document he included in an Appendix a Report, dated 29th December 1895, by the then Chief Inspector of Stock (an office which was subsequently allowed to lapse) from which the following statements are extracts: "Sheep farming in the Falkland Islands has not progressed with the times, possibly owing to its isolated position and the smallness of the area. The sheep farmers are not, in most cases, alive to their own interests - the rams are not good - there are too many different breeds Sufficient attention has not been paid to culling and selecting ewes, and there seems to have been an idea that the more sheep there are on the ground the more wool will be clipped; such an idea is a fallacy. Sheep farmers have suffered from general unpractical management, that is, speaking in comparison with the system in vogue in the Australian Colonies. I consider that the great want here is more sub-dividing fences, which would at once increase the sheep carrying capacity of the Islands. Much might be done in many places towards improving the feed by grass sowing, especially on the Islands."

(1) William Davies: The Grasslands of the Falkland Islands (1939) p. 60.

BO 16/8/68

London of £1,100,000, and an average annual net value to the farmer of £957,000, after deduction of freight, commission and other charges.⁽¹⁾

25. A very special role is played in the sheep farming industry by the Falkland Islands Company. This Company, which was founded by Charter in 1851, has gradually acquired and owns the freehold of nearly half (46 per cent) of all the land under sheep in the Colony. But over and above this it has almost a monopoly of the trade of the Islands. With four exceptions all the farms sell their produce through the Company, which acts as their agent for this purpose; and they buy through it the greater part of their farm requisites and other stores. The Company, through a subsidiary, owns and runs (with the aid of a mail subsidy, and a guarantee, from the Falkland Islands Government) the Royal Mail Steamer Darwin, which supplies an indispensable service for passengers and a certain amount of cargo, by monthly sailings between Montevideo and Stanley. It also charters a Danish vessel which sails four times a year between the Islands and the United Kingdom, transporting wool on the homeward journey, and on the outward journey most of the equipment, etc., needed by the farms. The Company owns the only large retail store in Stanley and, in the absence of a commercial bank, provides some of the financial facilities associated with the operation of such a bank.

(1)

It is customary in all published figures of the value of Falkland Islands wool exports, to take the London price. But this shows the c.i.f. values, and not the f.o.b. values which are what farmers receive for their wool. The above calculation of net values is based on an average deduction of 7d. per lb from the gross selling price to cover freight, commission and other charges. After having inspected a considerable number of actual invoices, I consider that a deduction of 7d. per lb would be a reasonable figure to take in order to arrive at an estimate of net value. I have put in Appendix II a table showing the difference between the gross and net values of wool exports for the years 1959 to 1965.

31. In his Memorandum, which was brief and mainly descriptive, Governor Middleton said, inter alia, "Practically no land, which is not too exposed for winter use, is freed from stock for any part of the year. Further subdivision by fencing, it is generally admitted, would facilitate the management of the flocks and would repay the cost. Such a measure, with some modification of existing farm methods, would have the additional advantages of allowing blocks of land to be rested in rotation and the grasses to seed."
32. In the year following the date of this Memorandum (i.e. in 1924) a New Zealand expert (H. Munro, Principal District Inspector of the Department of Agriculture, New Zealand) visited the Colony and issued a "Report of an Investigation into the Conditions and Practice of Sheep Farming in the Falkland Islands". Mr. Munro was critical of most aspects of sheep farming practice as he found it in the Colony, and compared it unfavourably with parallel conditions in New Zealand. In particular he condemned in-and-in-breeding and the use of mongrel sires and ewes. Amongst his chief recommendations were: the limitation of the number of stock to what the pasture would maintain in good condition throughout the year; and the more extensive subdivision of farms by fencing, in order to enable pasture to be rested periodically. He stated categorically that, largely as a result of injudicious burning of hard camp, and over-stocking, a process of exhaustion of pastures had been operating for a long time past; and expressed himself on this in the following terms: "In place of keeping their principal intact and living on the interest, so that something will be left for posterity, the people who have owned the country during the past 60 years have been drawing steadily on their principal as represented by the soil and pastures, and now that it shows pronounced signs of exhaustion it behoves them to get to work and replenish it". He characterised this as "The paramount duty of owners of farms." One recommendation of the Munro Report, to which immediate practical effect was given, was the establishment of a Government experimental farm to carry out experiments in re-grassing and breeding. Stud sheep were imported from New Zealand, and the manager, a New Zealander, arrived at the end of 1926. But alas, two years later the farm was closed down and the stock and equipment sold - "in the interest of public economy", according to the Annual Report for 1928-29.
33. Scant attention seems to have been paid to the other Munro recommendations, to judge by the next investigation undertaken by Mr. William Davies, a Senior Grassland Investigator at the Welsh Plant Breeding Station, Aberystwyth. His Report on "The Grasslands of the Falkland Islands" dated February 1939, was the first scientific survey by a competent ecologist of the natural resources embodied in the Falkland Islands soil; and it still remains the standard work on the subject.
34. Many of Davies' conclusions were similar to those of Munro; but there was at least one major difference. Davies drew an important distinction between overstocking and over-grazing. He denied that the Falkland Islands sheep farms as a whole were overstocked, indeed, he believed that they could with advantage carry more stock; but he was emphatic that they were over-grazed and had been deteriorating in consequence. He pointed out that sheep always concentrated on those grasses which they found most palatable; hence, if they were free to roam at large over a wide area they would "eat out" the more palatable grasses and gradually exhaust them, while at the same time increasing the aggressiveness of inferior grasses or shrubs (e.g. diddle dee) which could the more easily enter into possession of the soil thus vacated.⁽¹⁾ What was needed was controlled grazing with rest periods for part of the land;

(1) Cf. Munro op. cit.:- "Nature insists that soil shall be protected by a covering of vegetation of some kind, and the experience of all countries has been that when man destroys the indigenous vegetation, and fails to replace it immediately with some other, nature will provide one of her own choosing, which is usually very inferior to that which man has destroyed."

and he was insistent that "The present system of grassland farming in the Falkland Islands is nothing short of large scale ranching." His views on the practical issues involved for the Colony may be summarised by the following extracts from the concluding pages of his Report:

35. "The time has arrived when the Falklands must consider very seriously whether the present ranching policy is to continue, or whether a complete change of methods involving a policy of grassland improvement together with a more intensive system of pastoral agriculture is to be put into effect. Continuance of the present ranching system cannot but lead to a still greater lowering of carrying capacity, and to the decreased wealth of the country as a whole"..... "Until a methodical and much extended system of sub-dividing existing paddocks is brought about, the potentialities for land improvement throughout the Colony will remain all but untapped"..... "Subdivision of paddocks, better management of pastures, and the replacement of the present herbage, by better plants, are all essentials in the development scheme."
36. Some twenty years after the Davies Report, in a general work on the Falkland Islands⁽¹⁾ Chapter 15 on Vegetation was contributed by one of the authors, Dr. D. H. Maling, himself a scientist. I have taken the following extracts from this Chapter:
37. "Human activity has altered the ecological balance considerably. The main changes have occurred since extensive methods of sheep farming became the principal economic activity of the Islands. Uncontrolled grazing and neglect of the pastures has led to a definite deterioration of the grassland and a considerable decline in the number of sheep which it can support"..... "The deterioration of the grasslands must be regarded in the light that these represent the sole natural resource of the Colony which has been exploited for more than a year or two, and that virtually the whole of the economy of the Islands is based upon the productivity of its pastures."..... "The hard camp comprises slightly more than half the total area of the islands..... Great changes appear to have occurred, particularly in the spread of heaths at the expense of the better natural grasses. These changes are largely the result of continuous grazing by sheep. Indiscriminate burning has accelerated the process in some places. Where the pastures are unfenced, as in most parts of the Falklands, the sheep naturally congregate most on the better grazing. Where this grazing is continuously stocked the more palatable plants are readily exhausted"..... "Along the coast of the Falkland Islands rather specialised plant communities have developed. The most notable is Tussac (*Poa flabellata*), a grass which grows to a height of five or six feet..... The importance of this plant to any live stock industry in the Falkland Islands is inestimable. Its greatest value lies in the fact that it is available during the winter and early spring, thus reducing the necessity of hay or silage for winter feeding. The fact that Tussac occurs hardly anywhere on the larger Islands must be blamed upon the bad husbandry of three generations of sheep farmers; that replanting had hitherto proved rather unsuccessful we must probably ascribe to ignorance of the soil requirements of this plant".⁽²⁾

(1) The Falkland Islands by M. B. R. Cawkell, D. H. Maling, and E. M. Cawkell (1960).

(2) Cf. Munro, op cit.: "The extent to which the large Tussac has been destroyed, particularly on the Western Island, and the total absence of any serious effort to replace the old bogs appears to me to be very regrettable. In view of the fact that this can probably be classed as one of the most nutritious grasses in the world, it is quite remarkable to see it so much neglected in a country where nutritious vegetation of any kind is all too scarce. I can assure Falkland Islands farmers that, had we similar tussac points and islands in our country we would value them sufficiently to take very good care of them."

38. Finally, Mr. A. R. Wannop, Director of the Hill Farming Research Organisation in Scotland visited the Islands during 1960-61, and produced a "Report on Visits to Falkland Islands Sheep Stations" (June 1961), extracts from which read as follows:
39. "There are at present no pastures suitable for fat lamb production".....
 "The system of sheep husbandry is extensive grazing, in the main set stocking, though slight modifications of this have been introduced on a few stations in recent years..... The general level of sheep nutrition tends to be low, and is definitely low in winter"..... "The natural pastures over which the sheep graze, usually referred to as camps, are large enclosures. Though a small number may be 1,000 acres or less, the great majority range from 5,000 to 15,000 acres, with a few between 20,000 and 30,000 acres. Under such conditions, with one sheep to five acres, sheep can exercise marked preferences in respect of the plants they eat. Obviously they take the most palatable first and only turn to less palatable ones when compelled. This is natural sheep behaviour on all extensively grazed set stocked pastures"..... "In a normal winter growth is at a standstill and the sheep, having eaten all the palatable herbage, must turn to the White Grass and similar coarser plants which were uneaten during the previous summer and so are overgrown, very fibrous and low in feeding value.".....
 "Falkland Islands natural grazings appear to provide ample evidence that there has been much deterioration."..... "Though the several methods of camp improvement being tried are all deserving of praise, they are unlikely to give their maximum result unless combined with some grazing control. In fact in the existing condition of the camps the greatest return from expenditure on improvement is likely to be obtained from money invested in subdivision. It is well established that wherever it is possible to alternate grazing and rest periods this not only prolongs the effectiveness of a grazing, but can, if well controlled, actually lead to its rejuvenation. Nearly every camp seen was in need of a rest from grazing, but this will only be possible with fencing and subdivision. It would lead to genuine camp improvement if each were divided into at least four. This would enable the sheep to be concentrated in one area with better grazing of all the herbage, especially of the coarse grass; while the other areas would be rested and the finer grass get a chance to recuperate..."..... "As was frequently pointed out, fencing and fence maintenance are costly both in money and in labour. In camp improvement, however, fencing is likely to bring a better return than any other possible expenditure, through better herbage, better utilisation of herbage, fitter ewes in winter, better lamb crops and more wool from more sheep. Five per cent more lambs per year could result in about ten per cent more sheep in five years and twenty-five per cent more in ten years"..... "The future of sheep farming under the conditions of the Falkland Islands deserves most serious consideration. An economy based on wool production only is vulnerable in conditions under which artificial fibres may in the future become highly competitive and force prices down. Methods of reducing the cost of wool production should, therefore, be continually under review, as well as the means of ensuring continued productivity under a system which is a form of extractive farming, since nothing is done at present to replace the materials removed annually in the form of wool and slaughtered sheep. Nitrogen and potash are probably the principle sufferers, since wool is the exported commodity."
40. Three main conclusions seem to stand out from a reading of the Reports from which I have quoted:-

First, there is the impressive unanimity of expert opinion that subdivision of the camps by means of fences is an essential prerequisite for any improvement in the condition of the grasslands.

Secondly, all the writers (at least since 1924) are agreed that the fertility, and carrying capacity (in terms of numbers of sheep) of the pastures, had been deteriorating and were continuing to deteriorate.

Thirdly, the evidence afforded by the most recent work - that of Maling and Wannop - shows that with few exceptions remarkably little progress had been made during the preceding forty years towards the subdivision and fencing of pastures, and other practical measures for conserving or improving the fertility of the soil.

41. Some part, but only a part, of the explanation of the apparent failure on the part of most of the sheep farmers to invest money in improving their pastures, above all by fencing and subdivision, is to be found, first in the fact that before the 1939-45 war wool prices were so low that they were not able to afford much capital outlay for this purpose. Secondly, after the war was over, when wool prices were high and money plentiful, they devoted a good deal of their high profits to building up reserves against the likelihood of bad times recurring in future; while, so far as investment in their farms was concerned, they gave first priority to a much needed but expensive improvement in the housing they provided for their employees. But this notwithstanding they both could and should have done more to subdivide their large enclosures, many of which are over 10,000 acres and quite a number in excess of 20,000 acres.
42. It would be incorrect, however, to infer from these comments, and from the extracts I have cited from previous Reports, that none of the farms have made any progress in recent years in the direction of grassland improvement.
43. In the smaller islands, with areas of only 2,000 to 5,000 acres, some measure of subdivision and rotational grazing has been imposed on the farmers by virtue of necessity. Most of these islands also are fortunate in having fairly extensive stretches of tussac grass along their coasts; and this grass affords a very valuable winter feed for sheep, provided the sheep are kept off it in the summer and autumn months. In some cases successful plantings of tussac have also been made in the past and are still continuing.
44. On the mainland, already in the 1940s, Port Howard (J. L. Waldron, Ltd.) on West Falkland was singled out in a report by the then Director⁽¹⁾ of the Agricultural Department of the Falkland Islands Government, as the farm which was doing the most constructive work towards improvement of its pastures, by subdivision and in other ways. But it is chiefly since about 1960, stimulated in some cases by the interest aroused by the publication of the Wannop Report⁽²⁾ that really active measures have been taken by a number of farms.
45. The most spectacular results have been achieved at Roy Cove (Bertrand and Felton, Ltd.) on West Falkland where, beginning in 1959 a systematic policy has been adopted of ploughing up (mainly Diddle Dee) land and re-seeding it with Yorkshire fog. It is true that in England Yorkshire fog is not regarded as a desirable grass to feed to stock; but it is a very much preferable feed when compared with White Grass⁽³⁾. It has the great advantages that it is a perennial grass which spreads once it is fully established; that it can grow well on acid soils; and that it will "take" without necessitating the use of fertilisers - and fertilisers at a cost of £40 or more a ton are out of the question for the vast acreages of Falkland Islands sheep farms.
46. I attach, as Appendix III to this Report, a schedule of results for which I am indebted to Mr. Sydney Miller, the Manager of Roy Cove. This statement shows that after nine seasons of pasture improvement, beginning

(1) Report on the Work of the Department of Agriculture 1937-46 by Dr. J. G. Gibbs.

(2) See above.

(3) The ultimate aim must be to establish legumes, especially clover; but this is very difficult to achieve without fertiliser on the acid and cold soils of the Camp.

in 1958-59, the total cost of ploughing up and re-seeding 5,120 acres was £20,937. From the fourth season (1961-62) onwards it was possible to carry additional stock as a result of the improved pastures; and it is estimated that by the end of the 1966-67 season the total increase of revenue from an extra 4,612 sheep carried will amount to £26,803. Hence by that date the whole of the capital outlay will have been more than recouped, even after allowing for interest on that outlay. The number of sheep on the farm increased from 15,812 to 20,424, i.e. by 29 per cent; and net wool production rose from an average of 127,800 lbs. for the four years prior to 1960-61 to 171,600 lbs. for the average of the two years 1965-66 and 1966-67 - i.e. an increase of 34 per cent. As at present envisaged, the programme is to work to a total figure of 10,000 acres of ploughed and re-seeded land, out of a farm acreage of 74,600. It is, however, an essential feature of the Roy Cove technique to fence off the improved areas of grassland in paddocks of suitable size; and then to control the grazing on them so as to obtain the maximum benefit from the longer period of rest which then becomes possible for the remaining unimproved areas. It is in the control of the movement of the sheep and the rotational grazing of the pastures that the quality of the management tells most. The foregoing figures show clearly that pasture improvement on Falkland Islands soil can be made to pay: though it must be borne in mind that the soil at Roy Cove is fairly good quality hard camp with little White Grass, but a great deal of Diddle Dee. But apart from the overriding need for rotational grazing and the fencing and subdivision of pastures, experience may show that the Roy Cove method will require modification in other areas if soil conditions, etc. are dissimilar.

47. In the adjoining farm of Hill Cove (Holmsted Blake & Co.) where an active policy of pasture improvement (including a certain amount of subdivision⁽¹⁾) has been in progress especially since 1960, a different technique of re-seeding from that at Roy Cove has been practised. In the five seasons 1961-62 to 1965-66, 4,490 acres have been rotavated and sown down to Yorkshire fog; and when the 1966-67 season is included, this figure is brought to a total of nearly 6,000 acres. The employment of rotavators enables a large number of acres to be re-sown over a given period, and at a substantially lower average cost per acre.⁽²⁾ On the other hand the "take" is considerably slower with rotavation than it is with ploughing, and there are also difficulties on the mechanical side. It is too soon as yet to know whether the advantages of rotavation outweigh its disadvantages; and differences in the type of soil to be treated may well have a bearing on this issue.
48. At Port Howard, with its long record of progressive management, pasture improvement has been achieved essentially by subdivision of the big enclosures, where this has proved to be possible, though a certain amount of re-seeding with Yorkshire fog and other grasses has also been done, but without ploughing-up or rotavating the soil. I have put also in Appendix III to this Report a statement for which I am indebted to Mr. D. M. Pole-Evans, the Manager of Port Howard, which shows that an area of 66,924 acres (out of a total acreage of 173,000) has been organised in four main Groups. Taking the four Groups together, they have been fenced off and divided into 21 smaller paddocks, mostly between 2,000 and 3,000 acres each in size. In order to create these paddocks, 62 miles of subdivision fencing had been erected before June 1960; while in the last six and a half years this has been increased by 54½ miles, making 116½ miles in all in respect of this section alone of the Farm. The policy underlying

(1) I understand that at the present time there are 161 miles of subdivision fencing at Hill Cove, in addition to 29 miles of boundary fencing.

(2) Roy Cove costings for ploughing and re-seeding 3,186 acres, during the five seasons 1960-61 to 1965-66, show an average annual cost per acre of £3 14s. 6d.; whereas the Hill Cove costings for rotavation and re-seeding 4,480 acres, during the same five seasons, show an average annual cost of £1 18s. 2d. per acre. But it is not clear to me whether the costs have been calculated on exactly the same basis in these two cases.

this large programme of capital investment (present day fencing costs are over £300 a mile) is based on the view that there still remain valuable indigenous and other grasses in the soil, and that properly controlled rotational grazing will enable these grasses to be maintained and indeed increased in quantity.⁽¹⁾ Moreover some of the native vegetation, such as clumps of old White Grass or Diddle Dee bushes, can provide much-needed shelter for sheep, but especially for lambs - and lack of shelter is one of the big problems of sheep farming in the wind-swept Falklands. The large flat expanses of ploughed land under Yorkshire fog at Roy Cove and elsewhere certainly look dangerously exposed; though to some extent this can be met by leaving at intervals patches of unploughed land. It is mainly for the two reasons just set out that ploughing is not favoured at Port Howard. The policy pursued there of concentrating on rotational grazing has also yielded practical results, for whereas the number of sheep carried on the farm in 1952 was 32,000, this had increased by 1966 to 38,000, though part of this increase is attributable to success in breeding clean-faced Corriedale sheep free from wool blindness.

49. The three farms mentioned so far are all on West Falkland; but there are also farms on East Falkland, for example Douglas Station (Greenshields) and Salvador (R. M. Pitaluga), both of which I have visited, where active work for pasture improvement is in progress, partly through ploughing or rotavating and partly through fencing and subdivision. Thus in Salvador, a farm of not more than 59,000 acres, 14½ miles of fencing have been completed during the past six years.

50. The record of the long-established Falkland Islands Company, which owns six farms comprising 1,330,000 acres, is up to now a disappointing one in respect of pasture improvement: it has failed to take the lead and has lagged behind some of the more progressive farmers. I say this with regret, because in other ways, it has done much for the benefit of the sheep-farming industry in the Falklands; but also be it remembered, for itself as the largest farming body in the Islands. It is true, and the Company deserves credit for this, that it started at the end of 1956 an experiment of sod-seeding on its big farm at Darwin of nearly 400,000 acres on the Lafonia Plain in East Falkland. This consisted of drilling areas of White Grass camp with Yorkshire fog. Sod-seeding in this form went on at intervals over the next few years, until by 1960 some 11,000 acres had been sown with fog. But the immediate results were not encouraging, and the experiment was abandoned as a failure in 1960, and has not been resumed since then. Today, there are remnants of Yorkshire fog to be found in seeded areas; but as the sheep appear to have been allowed to graze over them without their being properly rested, the new grasses can never have had a chance to seed themselves and expand their hold on the soil. The record of the Company with regard to one crucial aspect of pasture improvement - the subdivision of the large enclosures into smaller and more manageable paddocks, with its corollary of rotational grazing - is not at all impressive. In recent years, between 1962 and the end of 1965, it has only carried out, according to its Annual Reports, a total of 44½ miles of subdivision fencing; though it should be added that a small amount of subdivision of this kind was in progress in the 1950s. But this figure of 44½ miles, when related to an area of 1,330,000 acres, does not contrast well with the 54½ miles erected since 1960 at Port Howard for an area of 67,000 acres, or with what has been accomplished in some of the other more progressive farms. Since the Falkland Islands Company alone owns 46 per cent of the land of the Colony, and since there are known to be a number of other

(1) One further big advantage of closer subdivision of pastures is that it gives the shepherd a worth-while job to do - one that is practicable and manageable. For the shepherd is enabled to keep track of his sheep and to know what is happening to them.

farms which as yet have very little to show in the way of pasture improvement, the conclusion would appear to be that there is a majority of sheep-farming land in the Falkland Islands which is still, in effect, being ranched in the old way.⁽¹⁾

51. I have given much thought as to possible ways in which those farms, which are not actively engaged in improving their pastures, might be induced to undertake this process; and I make a recommendation, with this object in view, in Chapter VII of my Report, which deals with the Public Finances of the Colony (see paragraphs 88-93 below).
52. In 1964, following on a recommendation of the Wannop Report, the Falkland Islands Government appointed a qualified Grasslands Officer, who arrived in the Colony in February 1965, on a three-year contract. He has been active in establishing experimental plots in different parts of the Islands, and a number of farmers have found his assistance and advice of very real value. In July 1966 he organised a successful and well-attended Conference on Grassland Improvement, which served a useful purpose in enabling farmers to describe the progress they themselves were making, and to exchange views with their colleagues on other farms.⁽²⁾ Much of the experimental work that he has carried out (so far, it is true, largely with negative results) is still in its very early stages, but it could well have an important bearing on the future of this industry; and if the results of his efforts are not to be wasted, it is highly desirable that an expert and trained eye should keep watch over them and draw correct conclusions from them. Moreover, at a time when individual farmers are trying out new methods very much on a trial-and-error basis, and when there is a ferment of fresh ideas, notably among some of the younger Managers, there is a real need for competent outside opinion and for the co-ordination of results. The present Grasslands Officer has been operating under difficult, and at times frustrating conditions; and I am not clear that when his tenure comes to an end in 1968, the wisest solution would be an appointment to fill precisely the same post. I am convinced, however, that research into improvement of the Falkland Islands grasslands should not be allowed to lapse; and I would recommend that the Government of the Falkland Islands should, without delay, approach the Agricultural Research Council⁽³⁾ with the request that it should send a senior expert to the Colony to give advice as to the best ways, in which effective research on grassland improvement there, should be organised in future.

-
- (1) I understand that the Falkland Islands Company has recently decided to try out three different methods of grassland improvement during the next two or three years: ploughing and re-seeding; rotavating and re-seeding; and direct re-seeding by a new type of machine. It is proposed to re-seed in all from 2,000 to 5,000 acres on different soils on some of its farms. This is the sort of experiment which might produce instructive results; and it shows a very welcome, if belated, change in the policy of the Company.
 - (2) This is the kind of action which one might have expected to find sponsored by the Sheep Owners Association; and I regard it as a matter for regret that this Association should appear to be content with its existing role of negotiating wages and conditions of employment on the Camp with the Trade Union, and that it should be so little active where the wider interests of the sheep farming industry are concerned.
 - (3) This could presumably be done through the Ministry of Overseas Development.

53. Finally, there is a matter in connection with pasture improvement on which I would like to make a brief comment - namely the question of cattle. Most of the sheep farms keep only a small number of cattle, sufficient to provide fresh milk and butter, but not much more. On the other hand, there is a strong body of opinion in most sheep farming countries that cattle, with their wider mouths can be usefully employed as "scavengers," to eat down the coarser grasses after the sheep have finished their feeding and been moved to another paddock. Cattle also contribute to consolidate the soil. There are, however, obstacles in the way of keeping numbers of cattle on the Falkland Islands farms. First, there is the problem of keeping them alive during the winter, given the difficulty of providing winter feed for them. Secondly, most of the fencing on the farms is only a little over three feet in height, and cattle can jump over the fences or break them down. Thirdly, most shepherds are knowledgeable about sheep but have little expertise in the handling of cattle. None of these obstacles is necessarily insurmountable; and it is worthy of note that at Port Howard, where they are used effectively as scavengers, the ratio of cattle to sheep in 1965-66 was approximately 1 : 33 sheep, whereas in the remainder of the farms the ratio was 1 : 60 sheep, on average. As pasture improvement progresses and the supply of feed grows larger, there would seem to be a good deal to be said in favour of increasing the number of cattle, partly because of the contribution they can make to pasture improvement itself; and partly in view of long term possibilities of building up a meat industry in the Falklands. Accordingly I recommend this for the consideration of the sheep owners. It may also be observed in this latter context that there is no shearing bottle-neck as is the case with sheep, and a cattle farm would require less labour round the year than a sheep farm; though cattle rearing for beef could only be regarded as a very long term possibility.

c/s



88.
89.

Agricultural Department,
Stanley, Falkland Islands,

22 Nov 19 67

Next camp trip, starting today, to:-

Port Howard

Roy Cove

West Point

Darwin

Johnsons Harbour

✓

Si

22/11

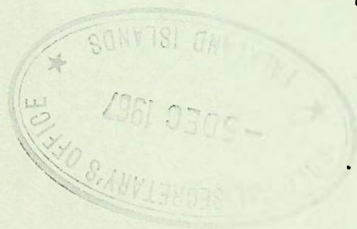
G. O. Jones

G.O.

80 16/8/68

c/s

Agricultural Department,
Stanley, Falkland Islands,



5.12.67 19 67

Next camp trip, leaving today for :-

Green Point

Ranunculus Grande

Gabon's Harbour

Bob Young

G.O.

BU 16/8/68

Experimental Farm

The object of such an establishment would be to provide a base where research into local agricultural problems could be carried out by a trained staff. Both stock and grassland work would be carried out and the resources of the place would mean that investigations of a much more complicated nature than has been hitherto possible, could be done. All experimental work would be properly supervised and pasture research involving grazing control would be possible. In fact, the severe limitations at present placed on research by the peripatetic nature of my job, would be removed.

At the moment there is no way in which a youngster who is interested in farming can receive even the most rudimentary training and a research centre could give this. Training a type of farm apprentice scheme could mean that the younger generation of workers would have at least some basic knowledge of good farming practice.

In the wider aspect of education a research establishment would be able to demonstrate improvement techniques to managers and owners.

Pedigree animals could be bred and sold and an artificial insemination service for cattle could be run within the Islands. It might also be worth considering the running of the Stanley dairies under the auspices of this establishment.

To establish such a farm at least two qualified men will be needed. The senior of these would be the director who would actually set up and run the farm. He should be recruited as soon as possible and ideally his arrival should be before my departure. It might be worth considering the appointment of an experienced man who has already retired from an overseas post but who would be prepared to come here for about 5 years to use his experience in this matter. The assistant to the director would be virtually the same post as I hold at present. The main burden of touring would fall on him but his camp experiments would only be to consolidate points already investigated on the farm. The Director would also do a fair amount of touring. The interests of one man should lie towards animal husbandry and those of the other towards grassland husbandry.

The present agricultural gang would be transferred to the farm (Sullivan stables would be given up) and this would provide staff for the day to day running of the farm. Eventually two further men should be recruited: namely a top class shearer and a tractor driver/mechanic. They would help in the running of the farm and assist in training boys in basic farm crafts.

The most convenient site for this farm would be the crown land surrounding Stanley at present leased as Sparrow Cove, Moody Valley and Mullet Creek. Davies recommended that block 57 would have made an almost ideal site but unfortunately almost all of this has been sold since the publication of his report. The lease for Sparrow Cove expires early next year and I suggest that it is not renewed. The lease for Moody Valley expires in 1970 and I suggest that negotiations are started with Mr. Hills with a view to terminating the tenancy 2 years earlier. Mullet Creek is on an annual lease and this could be terminated without too much trouble. It will probably be argued that the re-possession of Mullet Creek will cause a certain amount of hardship to the Browning family but I strongly suspect that they could make more money in paid employment.

The termination of the leases on the Crown farms is against the recommendation in the Guillebaud report which proposes an increase in the number of tenancies available. However, as the only alternative is to purchase or rent land from the F.I.C. (block 57 or the old Anson site) this is proposed on the grounds of expediency.

The combination of the three Crown farms will give a total carrying capacity of about 4,000 sheep. This is not very large and I would suggest that extra land is eventually rented or bought to bring the capacity up to about 8,000 - 10,000 sheep. The larger farm will make more money and thus defray the costs of experimental work to a greater extent: it will also cost proportionately less to run.

The costs of this project can be divided into establishment costs and running costs

Establishment costs

purchase of existing sheep stock	£3,800
Compensation to tenants for buildings and fencing on the farms	figure cannot be given without valuation

Machinery (tractor, plough, rotavator, harrow, roller, trailer, discs, drill.)	£3,710
This machinery could be purchased over 2 years	
New buildings	£2,500

Running costs

Director's pay	£2,814 - £3,234 p.a. + 25% gratuity & house	
Assistant's pay	£1,329 - £2,757 p.a. + 25% gratuity & house	
(Tractor Driver/Mechanic	£1,000 p.a. + gratuity & House)	} Not needed till after first year
(Shearer	£1,000 p.a. + gratuity & house)	

Present Ag. gang £2,000

The day to day running costs will be greater than those for a normal commercial farm as there will be more fencing done and a greater acreage of cultivating and re-seeding. A figure of £3,500 would cover the experimental expenditure and the day to day running costs. It is likely that this would vary considerably from year to year depending on what the experimental programme contained.

On the credit side the farm would make about £4,800 with wool at 3/- per lb. and £3,200 with wool at 2/- per lb. This figure would increase as the place was improved and more land was obtained. Money would also come in from the sale of pedigree stock and possibly also potatoes.

I would suggest that a fairly substantial sum of money is made available to the director on his arrival so that he is not hamstrung in his efforts to get the scheme going by having to wait for estimates to pass through committees. The future director may not agree in detail with all I have said but it is essential that he is given a completely free hand and every financial assistance in setting up the project.

This farm would be a permanent institution and would not be closed down as it would always have a part to play in the economy of the Falkland Islands. I suggest that it be constituted in such a manner as to make the Anson fiasco impossible in this case.

Gibbs, Davies, Guillebaud and Wannop all have relevant points to make about the future of research and experimentation in the Colony.

Calvin Young

Notes on Grasslands Officer's Paper
on Experimental Farm.

p.a. 9/1
S.

11/12

(Copies made & held back)

1. Falling wool prices and increased use of man made fibres compel one to question the economic future of the present sheep farming industry.
2. Quillband (para. 5.3) recommends study of possibility of building up a meat industry.
3. Whether the future development lies in the direction of sheep or cattle or both, high costs of production surely need to be cut if there is to be any profit.
4. If a ~~£~~ modest experimental farm could be financed from U.K. funds, nothing would be lost and much might be gained.
5. If such a farm were financed from Falkland funds, there is his uncommitted balance in his Development Fund (£183,000 at June 1968) which could make a contribution.
6. There is little enthusiasm among farmers for a centralized experimental farm. Please ask G.O. from what individuals support for such a farm might be forthcoming.
7. If an experimental farm were to be agreed in principle, there would be wide divergence of opinion regarding site. A thorough public investigation would be necessary.
8. Should an experimental farm attempt to defray costs? Probably his answer is: capital - no; recurrent - yes.

9. Please discuss on my return from James.

Box 16/8/68

2/12/67

c/s



Agricultural Department,
Stanley, Falkland Islands,

.....13 Nov.....1967....

Next camp trip, leaving today, for:-

Fox Bays

K.C.

San Carlos

Darwin.

B. H. H.
Grasslands Officer.

B.H. 16.8.68.

2373

93

C/S



Agricultural Department,
Stanley, Falkland Islands,

.....12 Jan..... 1968...

Next camp trip, starting today to:-

Teal Inlet

Douglas Station

Salvador

West Point

Port Stephens

A handwritten signature in dark ink, appearing to read "Colin J. Jones".

Grasslands Officer

PL

2373

944

8th February

68

To: Grasslands Officer,

From: Colonial Secretary,

STANLEY

Final Report

I shall be grateful for this before you leave. We spoke
some time ago.

(W. H. Thompson)
COLONIAL SECRETARY.

AR.

2.3.68.
By W. H. Thompson
W. H. Thompson



RMS Darwin.
21 Feb

Dear Nap.

Points I forgot to deal with

Could you please deal with them as they are (coldly enough) very few & quite simple

1) Could the bottom 2 copies of my report be sent to meet my home address. (Other 2 for official submission)

2) Could the 2 sections in the report headed "New Zealand pellets and molecular clones" - one section in 1966-67 part and one in 1967-68 part - be copied out again and sent to :- Mr G. Bennett, Coated Seed Ltd, Pinnacle Bay, Northcote, Christchurch New Zealand. (This address should be checked from the letterhead in the file in bottom drawer headed "Compendium NZ - key from Dic apic").

3) In the last index I submitted could the words "finely ground" be added to the description of the Dolomite and Rock Phosphate.

That is all I think many thanks.

Yours sincerely
Colin

29th March 1968.

Dear Mr. Young,

Herewith two copies of your Report, but what happened between paragraphs 5 and 6?

Please let me have whatever should have gone in there just as soon as you can: then I will do what I can to get it put over to all the persons concerned.

Sincerely yours

(W.H.THOMPSON)

Mr. C.D. Young,
35 Marlborough Avenue,
Glasgow, W.I.,
SCOTLAND.

TB,

Bu. 24. 5. 68 (mail)

30th April,

68.

Dear Syd

His Excellency the Governor tells me that you asked about Young's report during Executive Council. I enclose a copy of the material produced by him but you will see that after the fifth paragraph something has gone very wrong. We have written him asking for the missing paragraphs and as soon as we receive them Young's report will be reproduced for circulation.

We have another copy here and please do not bother to return this one.

As ever

Tommy

The Honourable Mr. S. Miller, J.P.
Roy Cove,
West Falkland.

SC

98.

Country Description of Vacancy, O.D.M. and Overseas Government Reference, Regional Scheme (if applicable)	Date Request Received or Recruitment Authorised	Position as at 31.3.68
<p><u>CHILKLAND ISLANDS</u></p> <p>Asslands Officer 6/A 213/60/01</p>	<p>December 1967</p> <div data-bbox="570 672 830 857" style="text-align: center;"> <p>CHILKLAND ISLANDS SECRETARY'S OFFICE 23 MAY 1968</p> </div>	<p>Advertised December and March.</p>

Box 13 6 68. (mail)

30th May, 68.

Dear Mr. Young,

Will you please let me have a reply to my request for the missing portion of your report on the work you did here. Members of the Legislative Council have expressed themselves disappointed that a longer report was not produced and until I get the missing sections there appears to be very little I can do about it.

I hope you are enjoying your leave.

Yours sincerely,

(W.H. THOMPSON)
COLONIAL SECRETARY.

C.D. Young, Esq..

SC

see 105

BU 13.6.68

Goose Green

9 July 1968.



To The Colonial Secretary.

Dear Sir,

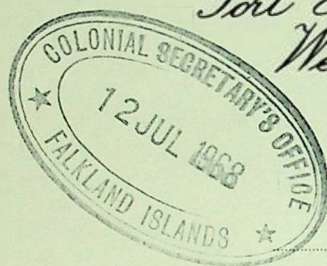
Re. yours 1st July regarding fodder,
I am very sorry we cant help as we have a limited
supply ourselves.

Yours faithfully,

R Morrison

JAMES LOVEGROVE WALDRON.
LIMITED.

Telegraphic Address:
HOWARD. FOXBAY, FALKLANDS.
BENTLEY'S CODE USED.



Port Howard.
West Falkland Islands.

7
102

July 9th. 1968.

The Colonial Secretary,
Stanley.

Dear Sir,

Reference your letter to "All Farms" of July 1st. 1968.

We are unable to supply Mr. Rozee any fodder and have already informed him so. We have been supplying Mr. Hoggarth over the past years with our limited surplus, and we have a commitment of a further 70 bales of hay this year.

To our mind it is unfortunate that a purchaser of a business, such as Rozee has bought, should not be far sighted enough to run same without having to ask Government's help to maintain supplies for his herd.

Yours faithfully,

JAMES LOVEGROVE WALDRON LTD.

Philip Evans..... FALKLAND MANAGER.

16th July, 68.

Dear Mrs. King,

I promised you that I would look into the question of the "refusal of Government" to carry fodder from Port Howard for Mr. Hogarth.

I must refute the allegation completely. The history from our side is that Mr. Hogarth asked whether we could carry fodder for him. We brought in a load (at specially reduced freight charges) in June and Mr. Hogarth was told that we would pick up some more at the next convenient call at Port Howard. Port Howard was not a port of call on the last western voyage because the "A.E.S." had been there and, as you know, there is no sense in competing with Darwin Shipping Limited. The next call is about the end of the month.

Mr. Hogarth has made no request to the Harbour Master for a special voyage to Port Howard and he knew full well what the schedule was; so well indeed that he came to a special arrangement whereby he could borrow fodder from the Agricultural Department to help him through.

It is interesting to note that Mr. Hogarth who usually puts his head round my door when he has worries has not appeared over my horizon this time. As always we shall do our best to assist.

Yours sincerely,

(W.H. THOMPSON)
COLONIAL SECRETARY

The Hon. Mrs. N. King,
Stanley.

SC

R. B. Napier. 104

Colonial Secretary.

Stanley.

West Point Island

Falkland Islands.

14th July 1968.

Dear Sir,

Thank you for your letter of 1st July 1968.

I regret that I am unable to supply, oats, or hay to Mr Rozee for his dairy.

Yours sincerely,

A handwritten signature in blue ink, appearing to read 'R. B. Napier', with a long, sweeping underline.

*No. Mail.*By 12. 9. 68 (mail)

(Kiv - if no reply from C.D.Y.

further action under to
accelerate publication of report)

15th August,

68.

U R G E N T

Dear Mr Young,

99

Please refer to my letter of 30th May.

I am still waiting for the beginning of your report. Until we get it we cannot publish your report or hand over anything to a successor.

We expect to get a technical aid team out here very shortly and your paper will be of the utmost importance. I shall be glad for a very early reply.

Yours faithfully,

(W.H. THOMPSON)
COLONIAL SECRETARY

C.D. Young, Esq.,
35 Marlborough Avenue,
Glasgow, W.I.
Scotland.

SC

4.10.68

BU 12.9.68



Dear Mr Thompson,

On my return home yesterday I received your letters of 20 March, 30th May, 15th August, and 30th August.

As my report appears to have been dropped on the floor and re-organised by someone of a not very inspired nature I am sending a properly organised copy - could I have it back when convenient? If the report should ever be published I would also like a copy of that.

I would be interested to know how long a report the Ledger expected and how the present one would have been extended without a repetition of the words of Monroe Dances & Lybhis.

When the Technical Aid team is finished there should be a startling quantity of literature available on the Falklands.

With reference to the photos of the Seal survey I have sent the ones I have to Mr Long at DCS - this is only on film however. The remainder are in the large cardboard box on the right of my office. You must remember we discussed this and I said that it was essential that this was

and home on the 'Buzza' at the end of the season along
with the peat borer etc. This does not seem to
have been done.

When the Glahs report is received I shall
be grateful for a copy and as I do not seem to have
brought a James Report coming with me could I
have one of those too?

Yours faithfully

Calvin J. Young.

(Ex-Grasslands officer)

W. H. Thompson.

Colonial Secretary's Office

Tonley

Ulva Islands

REPORT ON PASTURE IMPROVEMENT
EXPERIMENTS CARRIED OUT IN THE
FALKLAND ISLANDS DURING 1965 - 1968

by

C.D. Young, B.Sc., M.Sc.

Stanley, Falkland Islands.

October 1968.

INTRODUCTION

The wool production in the Falkland Islands in 1898 was slightly greater than that in 1967. This sums up the complete lack of progress in the field of grassland improvement which has been made in these islands over the last 70 years. It is not through lack of advice but rather lack of initiative that this state of affairs has come to pass. Indeed there has been, over the years, a wealth of good advice made available to anyone who cared to take it. There has been the Munro Report, the Davies Report, the Gibbs Report (now to be published after a lapse of 22 years) and the Wannop Report. All these reports, had they been heeded, contain enough sound advice to have doubled the wool production of the Falklands since the first one was written in 1924.

It is most depressing for an agriculturist to come out here to what is supposedly a virgin field and find that so much work has been done by his predecessors but that so little attention has been paid to it.

It will be argued that there is nowadays an upsurge of interest in grassland improvement in the islands today but only the next 10 years or so will tell if this is a case of bolting the stable door after the horse has gone. There are at the moment, about fifteen farms involved in some form of land improvement; had this been the case even 20 years ago the present economy would be infinitely healthier.

In view of the increased interest in the improvement of pastures it is unfortunate that the Government did not see fit to provide better facilities for research when the post of Grasslands Officer was created. An office cum laboratory which is so small that it was formerly used as a stationery cupboard is not in the least convenient and no great effort was made to provide larger premises. To carry out any advanced programme of research without an experimental farm is a hopeless task and unless immediate steps are taken to provide such an establishment there is little point in bringing out another agriculturist to a post in this Colony.

In view of the great amount of background detail in the Gibbs report which will soon be published this present effort is confined mainly to the investigations carried out over the last three years.

EXPERIMENTAL WORK

Season 1965/66.

The experimental materials ordered from the United Kingdom did not arrive till the end of February so use had to be made of such seed as was available; namely - ladino white clover, trefoil smooth, stalked meadow-grass and Yorkshire fog. A small trace element investigation was also set up at Douglas Station with copper, molybdenum, lime and phosphate.

Clover introduction

At San Carlos, on 17th December 1965, 2 lbs. ac. white clover was oversown on a field sown with Yorkshire fog a month earlier. The seed was broadcast by hand and rolled in, with a Cambridge roller 2 days later.

By June 1967 there were only one or two healthy clover plants to be seen.

Trace elements with lime and phosphate

At Douglas Station strips of trace elements were sprayed at right angles to strips treated with lime and phosphate. Trace element treatments were:- 140 gm/ac. sodium molybdate, 2.3 kg/ac. copper sulphate and a combination of both. The lime and phosphate treatments were:- lime at 2 ton/ac., phosphate at $\frac{1}{2}$ ton/ac., phosphate at 1 ton/ac. and a combination of lime at 2 ton/ac. and phosphate at 1 ton/ac. Controls were included in both treatments and a small plot of 5 cwt. magnesium sulphate/ac. was sprayed.

In February 1966 the lime plus phosphate was the only treatment showing greener and this advantage persisted until March 1967, but could not be seen the following spring. The area had been fenced off from grazing animals in February 1967.

Grasses and legumes trial

This was set up as follows (asterisks mark if sown at that site):-

	Johnson's Harbour	Hoggarth's Dairy.	Fitzroy.
Clover at 2 lb/ac. +Yorkshire fog at 8 lb/ac.	*	*	*
Clover at 2 lb/ac.	*	*	*
Clover at 2 lb/ac. +S.S.M.G. at 12 lb/ac.		*	*
Trefoil at 2 lb/ac.	*	*	*
Trefoil at 2 lb/ac. +Yorkshire fog at 8 lb/ac.	*	*	*
Trefoil at 2 lb/ac. +S.S.M.G. at 12 lb/ac.		*	*
Subterranean clover at 8 lb/ac.		*	
Yorkshire fog at 8 lb/ac. +S.S.M.G. at 12 lb/ac.			*

Cultivations were: Johnson's Harbour:- surface sown; Fitzroy:- chain harrowed and rolled after rotavation; Hoggarth's dairy:- broadcast on heavily disced ground. Dates of sowing were: Johnson's: 8th January, Fitzroy: 20th January, and Hoggarth's 12th February.

At Johnson's after 2 years there were only occasional fog plants to be seen on the appropriate plots.

At Fitzroy by October 1967 the fog had grown well though it was patchy on some plots. The smooth-stalked meadow grass was small and unhealthy and seemed to be decreasing.

There was a great regrowth of native grass at the dairy site and by February 1968 the whole area was completely green again. Nodulated white clover plants were found on all plots it had been sown on (all clovers had been pelleted and inoculated before sowing). This site was a lot more fertile than the other two as it had been used for grazing cattle for many years so this accounts for the growth of the clover.

Varieties Trial

At the end of February at Fitzroy and Douglas Station a varieties trial identical to the one set up in the 1966/67 season was set up (see later). At Douglas the frost killed everything over the winter. The only annual plant that appeared was rye and it was very small. At Fitzroy the annuals which showed were:- blue lupins (3 in.), rape, fodder radish (good) and white turnips. All that survived the winter was some sheep's fescue and a trace of bent.

Both these sites were cultivated the spring after sowing.

Season 1966/67

Varieties Trial

About 32 varieties of grasses, legumes and brassicas were tried out on 10 yd. by 10 yd. plots. The sites, dates of sowing and cultivation methods are given below:

<u>Site</u>	<u>Date</u>	<u>Cultivation</u>
Teal Inlet	21.10.66	Ploughed and disced. After sowing seed was covered with a chain and rolled 3 times. Diddle-dee ground.
Douglas Station	26.10.66	Ploughed and disced 2 years previously out of white grass. Seed disced in and rolled once.
Moody Valley	14.11.66	Ground had been ploughed out from site of old pig run and then disced and rolled. After sowing it was harrowed and rolled.
Rincon Grande	22.11.66	Treated with ripper and lightly rotavated. Seed disced in and not rolled. Diddle-dee ground.
San Carlos	25.11.66	Ploughed, rotavated, rolled and chain harrowed. Seed chain harrowed in and not rolled.
Darwin	2.12.66	Seed was split in halves and used on 2 adjacent cultivations on diddle-dee ground. One half was disced 5 times and the other ploughed and disced. Both were rolled before sowing and the seed was harrowed and rolled in.
Fitzroy	6.12.66	Ground had been rotavated out of white grass as a trial oatfield. It was chain harrowed before sowing, harrowed again afterwards and rolled twice.
Roy Cove.	14. 1.67	Area had been ploughed and disced from diddle-dee and short fern, seed was disced in and rolled.
Hill Cove	18. 1.67	Site had been rotavated out of heavy diddle-dee. Chain harrowed before and after sowing and rolled.
Port Howard	24. 1.67	Surface sown on well grazed white grass.

All seeds were broadcast by hand.

Varieties shown, together with seed rates are given in the following table:-

<u>Variety</u>	<u>Seed Rate (lb/ac.)</u>
S50 timothy	} All at 10 lb/ac.
S48 timothy	
S23 perennial ryegrass	
S143 cocksfoot	
S170 tall fescue	
Sheep's fescue	

Variety	Seed Rate (lb/ac.)	
Chewings fescue	All at 10 lb/ac.)
Smooth-stalked meadow-grass		
Rough-stalked meadow-grass		
Crested dogstail		
Canadian red fescue		
S59 red fescue		
Annual meadow-grass	4)
Strawberry clover		
Suckling clover		
Birdsfoot trefoil		
Trefoil		
SlOOwhite clover		
Kent wild white clover		
Sl51 red clover		
Sweet clover		
Lucerne		
Alsyke clover	6	
Sainfoin	50	Not included, Darwin, Hill Cove, or Roy Cove.
Blue lupin	112	
Sarradella	10	Only at San Carlos, Fitzroy, Roy Cove, Rincon Grande and Hill Cove.
Ribgrass	10	Not included Darwin.
White turnip	12	
Fodder radish	12	
Rape	12	
Rye	157	
Oats (padarn)	140	

Soil Analyses of some sites:-

Site	pH	L.R. (cwt/ac)	Soluble nutrients (ppm in soil)				
			P	K	Mg	Cu	Co
Rincon Grande	4.9	130	3.1(1)	429(4)	428(6)	0.1(L)	0.27(L)
Hill Cove	4.5	100	3.1(4)	193(2)	401(6)	0.1(L)	0.03(VL)
Port Howard	4.5	100	2.9(1)	226(3)	291(5)	0.33	0.2(L)
Roy Cove	4.9	80	1.6(0)	300(4)	240(4)	0.11(L)	0.31(L)
Fitzroy	4.0	100	1.0(0)	162(2)		0.15(L)	0.07(VL)
San Carlos	4.4	80	1.6(0)	288(3)		0.25(L)	0.2(L)

L.R. - Lime requirement

(L) - Low

(VL) - Very Low

Figures in brackets after P, K and Mg values are the classified "index numbers".

All legume seed was pelleted with a mixture of lime and phosphate from Uruguay and inoculated with Uruguayan or New Zealand inoculant.

Results. Grasses.

Sheep's fescue - This was the best grass on all sites giving up to a 90% cover of healthy flowering plants after one year. On average the ground cover was about 50%.

Chewings fescue - this was the next best with an average cover of about 30% after one year and a maximum of 70%. The plants were again healthy and flowering though not as large as sheep's fescue.

These two grasses were by far the most outstanding under all conditions, none of the others being so consistently good.

Perennial ryegrass, bent and S59 red fescue were all fairly similar. They did not perform consistently and gave an average ground cover of about 15% after the first year with a maximum ranging up to 60%. The plants never grew to much more than 2 - 3 ins. though they were usually fairly healthy in appearance. Cocksfoot, annual meadow grass, S48 timothy, Canadian red fescue, S50 timothy and smooth-stalked meadow-grass gave an average ground cover, after a year, of 10% with a maximum up to 50% on occasion. The plants were usually healthy enough but small and sometimes rather yellow.

Tall fescue produced a 50% cover at Hill Cove but made little growth elsewhere. The patches that did grow were almost invariably healthy and up to 6 ins. tall.

Rough-stalked meadow-grass only produced a few plants.

Oats usually produced a short (3-4 ins) cover of fairly healthy plants, by the autumn after sowing.

Rye was similar to oats but sometimes grew to about a foot in height. There was sometimes quite a re-growth of rye in the following year.

Legumes

Blue lupins grew well sometimes reaching a foot in height but on average they were only about 5 ins. They were all frosted off in the first winter.

Serradella also grew well and produced a reasonable cover of plants about 1½ - 2 ins. high.

Alsike clover. S100 white clover, Kent wild white clover, S151 red clover and suckling clover all produced a few rather small plants by the summer after sowing but none was very vigorous.

Sainfoin, lucerne, sweet clover and birdsfoot trefoil were sometimes present as a trace in the following summer.

The only nodulation which occurred was a slight amount in the suckling clover at Teal Inlet. None of the other legumes survived the winter.

Brassicacae etc.

All these results refer to the autumn after sowing (except ribgrass).

Fodder radish gave variable results; under some conditions it produced a crop up to a foot high (average 8 in.) with a 60% ground cover but on other sites there was no growth at all.

Rape gave similar results to radish but did not grow so tall or have such a good ground cover. Good results for both were obtained at the same sites.

White turnip was also very variable giving quite large plants at some sites and nothing at others.

Ribgrass only gave a few odd plants but the red clover which was present as an impurity in the seed grew quite well in one or two places.

The effect of grazing by geese on these small plots was demonstrated at Rincon Grande where Mr. Turner put small fences round parts of the rye, S59redfescue and S48 timothy plots. Inside these fences the rye grew to 4 ft., the red fescue to 6 ins. and the timothy to 9 ins.

Little can be said about the results from different types of cultivations as the sites were not all adjacent and were sown at different dates. At Darwin where ploughed land and disced land were used side by side the ploughed site gave much better results though they were not very good. The best results of all came from Rincon Grande where the cultivation was rough and the seed was not even rolled in. These better results could be due to the higher pH, rain at the right time or the discing in of the seed keeping it nearer moisture. With the other sites the earlier sown ones seem slightly better as there has not been sufficient time for the other ones to catch up. For this reason and again because of the separation of the sites it is not possible to deduce anything from this experiment about the best date for sowing.

The Port Howard surface sown was one of the poorest but a considerable lapse of time is sometimes required before any results can be seen from this method of sowing.

The effect of the major and trace elements on various swards.

All the major and trace elements (except iron, sodium, silicon and chlorine) were sprayed or scattered on two sets of 3 yd. by 39 yd. strips. These strips ran at right angles to each other and a control was included. Each element therefore appeared alone, at twice the original rate and in combination with every other element.

The elements were applied as follows:-

Nitrogen (N)	124 lbs/ac urea (50 units)
Phosphorus (P)	120 lbs/ac triple superphosphate (50 units)
Potassium (K)	93 lbs/ac potassium chloride (50 units)
Calcium (Ca)	Varying rates of lime (see later)
Magnesium (Mg)	4½ cwt/ac magnesium sulphate
Sulphur (S)	½ cwt/ac elemental sulphur or 2½ cwt/ac calcium sulphate.
Boron (Bo)	10 lb/ac borax
Manganese (Mn)	8 lb/ac manganese sulphate
Zinc (Zn)	1 lb/ac zinc sulphate
Copper (Cu)	12 oz/ac copper sulphate
Molybdenum (Mb)	6 oz/ac sodium molybdate

The last 4 on the list were sprayed through a watering can in about half a gallon of water, usually with a commercial detergent as a wetting agent.

The dates, sites and rates of application of lime are given in the following table:

<u>Date</u>	<u>Site</u>	<u>Rate of Lime</u>
23. 9.66	Roy Cove	3½ tons/ac
24. 9.66	Fox Bay East	1¾ tons/ac
15.10.66	West Point	3 ton/ac
20.10.66	Teal Inlet	1¾ tons/ac
26.10.66	Douglas Station	1 ton/ac

<u>Date</u>	<u>Site</u>	<u>Rate of Lime</u>
29.10.66	Salvador	1 ton/ac
24.11.66	San Carlos	$3\frac{1}{2}$ ton/ac
7.12.66	Fitzroy	$3\frac{1}{2}$ tons/ac (from Shell Point)
17. 1.67	Hill Cove	$3\frac{1}{2}$ tons/ac

At Roy Cove, Fox Bay East, Teal Inlet, Douglas Station, and San Carlos the site was on an area of well-established Yorkshire fog. At Fitzroy and Hill Cove a Yorkshire fog and clover mixture was sown for the purpose at the same time as the experiment was put down. At West Point the site was a native sward of bent and Yorkshire fog and at Salvador it was a sward of bent and smooth-stalked meadow-grass.

All the sites were fenced against grazing.

The soil analyses for some of the sites of this experiment are given below.

Site	pH	L.R.	Soluble nutrients (ppm in soil)				
			P	K	Mg	Cu	Co
Teal Inlet	4.2	80	1.1(0)	300(3)		0.33	0.27(L)
Fitzroy	4.0	100	1.0(0)	162(3)		0.15(L)	0.07(VL)
San Carlos	4.2	80	4.9(1)	345(3)		0.43	0.27(L)
Fox Bay East	4.2	80	1.3(0)	428(4)		0.15(L)	0.14(VL)
Hill Cove	4.5	100	31(4)	193(2)	401(6)	0.10(L)	0.03(VL)
West Point	4.8	50	4.4(1)	238(3)	401(6)	0.14(L)	0.52

L.R. - Lime requirement in cwt calcium carbonate per acre

(L) - Low

(VL) - Very low.

Figures in brackets after P, K and Mg values are the classified "index numbers".

Results

Roy Cove - by May 1967 one of the N strips was slightly greener but this was no longer the case by November 1967.

Fox Bay East - In January 1967 the P strips were greener and stronger and this advantage persisted till December 1967.

West Point - By January 1967 the N strips were taller and greener and remained slightly greener till October 1967 at which time there was also a slight greening of the lime strips. By January 1968 there was no effect visible.

Teal Inlet - In February 1967 there was a greening and heightening of the N strips. This was still visible in November 1967 as was a slight improvement in the P strips.

Douglas Station - No effect ever visible.

Salvador - In March 1967 there was a slight greening up of one of the N strips but this was no longer noticeable in the following November.

San Carlos - The N strip was taller and thicker in June 1967, and this persisted, though to a lesser degree, until December 1967.

Fitzroy - In March 1967 the P strips were very green and thick compared with the others and the N strips were quite green. The advantage of the P strips continued till November 1967 when it was still very noticeable.

Hill Cove - No effect ever visible.

On all sites the lime had still not all been washed into the ground at the last time of viewing.

It can be seen that nitrogen and phosphate were the only treatments which gave results and these were neither very significant nor consistent.

New Zealand pelleted and inoculated clovers

Commercially prepared white and subterranean clovers were sown as in the following table. (seed obtained from Coated Seed Ltd., Christchurch).

<u>Site</u>	<u>Date</u>	<u>Rate (lbs/ac)</u>		<u>Method of sowing</u>
		<u>sub</u>	<u>white</u>	
Stanley Common	15 Nov. 66	6	4	Surface Sown (2 sites)
Fox Bay East	Nov. 66	6	4	Harrowed into rotavated ground
West Point	21 Nov. 66	3	2	Surface sown
Rincon Grande	22 Nov. 66	6	3	Disced into skim-rotavated ground
Salvador	4 Dec. 66	6	3	Harrowed into clay patch and rolled
Douglas Station	5 Dec. 66	6	4	Drilled into established sward
Roy Cove	13 Jan. 67	3	2	Surface sown
Port Stephens	24 Feb. 67	3	2	Drilled into burned ground

Results

On Stanley Common, Roy Cove and West Point there was a slight germination but by the following spring there were no plants to be seen.

At Port Stephens and Douglas Station there was quite a good germination of fairly healthy plants but by the following summer there were only a few stunted white clover plants to be seen. They were not nodulated.

The white clover at Rincon Grande and Fox Bay East produced a thick, fairly even cover of light green plants and some at Fox Bay were flowering the following year. The sub. clover at Fox Bay established well but was somewhat reduced over the first winter; by the following summer there were still quite a few large plants some of which were setting seed. The sub. clover at Rincon Grande also lost some plants over the winter but there were still quite a few left the following summer. None of the clover at these two sites was nodulated.

On first germinating some of the Salvador plants were very stunted and very few of either type were found next spring. By summer there were only one or two small clumps of white clover left but some of these plants were slightly nodulated.

Surface sowing of clover into established Yorkshire fog.

At Roy Cove and Hill Cove white clover was surface sown at $\frac{1}{2}$, 1, $1\frac{1}{2}$ and 2 lbs/ac on to a well established sward of Yorkshire fog. The seed was pelleted with a 50:50 mixture of lime and rock phosphate from Uruguay and inoculated with inoculant from U.S.A. Dates of sowing were: Roy Cove - 23 Sept. 66, and Hill Cove 18 Jan. 67. Half the area was rolled in each case; the rolling being done at Roy Cove with the tractor wheels. There was about 25% bare ground at Roy Cove but none at Hill Cove.

Results

In January 1967 at Roy Cove there were a few stunted and sick looking clover plants on the two higher rate plots but these did not persist into the winter.

There was never any sign of clover plants on the Hill Cove plots.

Hay and other fodder crops.

Trials were set up in the settlement fields at Douglas Station, Port Howard and Fox Bay West to determine the best grasses for hay-making and to look into the suitability of some other fodder crops. Rates of sowing were as follows: (all rates in pounds per acre):-

Variety	Fox Bay	Douglas	Port Howard
Oats (padarn)	140	140	140
Rye	157	157	157
Bent			
S50 timothy			
S48 timothy			
S23 perennial			
Ryegrass			
S143 cocksfoot			
S170 tall fescue			
Chewings fescue			
Smooth-stalked			
meadow grass			
Rough-stalked			
meadow grass			
Crested dogstail			
Canadian red fescue			
S59 red fescue			
Rape	12	12	12
Fodder radish	10	10	10
White turnips	12	12	12
Lupins (blue)	-	112	-
Commercial perennial	-	20	-
ryegrass			
Stormont Zephyr	-	20	-
perennial ryegrass			

2 lb/ac white clover and $1\frac{1}{2}$ lb/ac red clover were sown on the whole area at Port Howard and Fox Bay West, both were pelleted and inoculated. Dates of sowing were:- Port Howard, 24th January 1967; Douglas, 26th October 1966. (Only Fodder radish, lupins, rye, oats, commercial P.R.G. and Stormont Zephyr were sown at this date, the rest being sown on 16th January 1967). Fox Bay 27th September 1966. The Port Howard and Fox Bay plots were broadcast and harrowed in and the Douglas ones were drilled; all were rolled.

Soil Analyses	pH	LR	Soluble Nutrients (ppm in soil)				
			P	K	Mg	Cu	Co
Port Howard	4.8	110	4.4(1)	209(3)	161(3)	0.18(L)	0.33(L)

Results

At Fox Bay there was a massive invasion of chickweed and all plots except oats and rye were smothered. The oats produced a thick and healthy stand but the rye was not so thick and the plot had a patchy appearance. Occasional non-nodulate clover plants were seen. This experiment was ploughed up the following winter.

At Port Howard the best grasses were perennial ryegrass, cocksfoot, S.48 timothy, S.50 timothy and bent in that order. The ryegrass was not much more than 2 ins. high in May but it was well established and healthy looking. The cocksfoot was nearly the same and the others were progressively poorer. Neither the radish nor the turnips grew to any height but they were grazed down by the geese. There were only a few small clover plants visible. This experiment was also ploughed up the following winter.

None of the grasses planted at Douglas in January survived the winter as they may not have been well enough through to stand the frost. They could also have been blown out as the field used was very dusty and tended to blow. The commercial P.R.G. and the Stormont Zephyr established quite well and were 5 - 6 ins. high and flowering by January 1968, though still in the 7 in. drills in which they were planted. The rye was heavily grazed by geese and only grew to 6 - 8 ins. Some fodder radish grew to 1 ft. but most plants were stunted. The oats were variable in height from 6 ins. to 1 ft. and had been slightly grazed by geese. The lupins gave an even cover about 9 ins. high.

It is intended to give the commercial P.R.G. and the Stormont Zephyr 150 units/ac each of N, P and K.

Erosion Control

At West Point and Salvador an attempt was made to sow seed directly into the large eroded clay patches which occur on both farms.

Twelve varieties of legumes (9 at Salvador) were sown on 30th October 1966 at Salvador and on 6th January 1967 at West Point. The plots were split in half and the two halves oversown with oats and rye. All legume seed except lupin was pelleted and inoculated. Seed rates were as follows:-

	<u>Salvador</u>	<u>West Point</u>
Strawberry clover	4 lb/ac	8 lb/ac
Kent wild white clover	not sown	8 lb/ac
S100 white clover	not sown	8 lb/ac
Suckling clover	4 lb/ac	8 lb/ac
Birdsfoot trefoil	4 lb/ac	8 lb/ac
S151 red clover	8 lb/ac	16 lb/ac
Sweet clover	10 lb/ac	20 lb/ac
Lucerne	20 lb/ac	40 lb/ac
Alsike clover	6 lb/ac	12 lb/ac
Sainfoin	50 lb/ac	100 lb/ac
Serradella	not sown	20 lb/ac.
Oats (padarn)	140 lb/ac	280 lb/ac
Rye	157 lb/ac	314 lb/ac

The West Point plots received 128 lb/ac triple superphosphate.

Adjacent to the above experiments two plots of blue lupins were sown; $\frac{1}{4}$ acre at 112 lbs/ac at Salvador and $\frac{1}{8}$ acre at 224 lbs/ac at West Point. The West Point plot was undersown with Yorkshire fog at 16 lbs/ac and one half of it received 256 lbs/ac triple superphosphate.

The Salvador plots were all harrowed in with a harrow made from old bren-gun carrier tracks and rolled; the West Point plots were all raked in by hand owing to the stony nature of the ground.

Soil Analyses for the two sites are given below:-

Site	pH	LR	Soluble nutrients (ppm in soil)				
			P	K	Mg	Cu	Co
West Point	4.6	100	0.7(0)	97(1)		0.68	0.24(L)
Salvador	5.3	40	0.3(0)	115(2)			

Results

West Point - the oats grew to 4 - 5 ins. in the first year and in the following year, there was a patchy regrowth of plants up to about 8 ins. tall. The rye was thinner and shorter than the oats and regrew in a similar manner. The only legume to be seen was some stunted serradella.

The lupins grew to a height of 3 - 4 ins. before being frosted off. The Yorkshire fog had a thin but even cover of healthy plants on the side treated with phosphate but a very patchy cover on the untreated side. It received a setback over the winter but by January 1968 there was a 50% cover of flowering fog on the fertilised side and only a 5% cover on the other. There was a tendency for soil and vegetable matter to be caught among the grass plants thus preventing further erosion and leading to a build up of soil on bare clay.

Salvador - The oats here grew to 6 - 8 ins. with some healthy looking patches. The rye was 2 - 3 ins. high and looked very poor and thin. Sainfoin produced a thin, even cover of plants about 2 ins. high and yellow in appearance. There were also a few stunted red clover plants. The lupins grew to 5 - 6 ins. and were healthy in appearance. None of the plants survived the winter but a few seeds got caught in the dead remains of the lupins and produced grass plants.

None of the legumes on either site became nodulated.

Cover crops.

As it was thought possible that a cover or 'nurse' crop might improve the establishment of grasses and clovers, a Yorkshire fog (6 lb/ac)/white clover (4 lb/ac) mixture at Roy Cove was oversown as follows:-

Rye @ 157 lb/ac
Oats @ 140 lb/ac
Fodder radish @ 13 lb/ac.

Date of sowing was January 1967.

By May the radish was small and stunted, the rye was short and very thin. The oats were 3 - 4 ins. and healthy and the fog was thin but healthy. There was no sign of the clover which had been pelleted and inoculated. The following November the rye produced plants up to 15 ins. high and very strong in patches, but on average a thin stand of healthy plants. There was no sign of the oats and a few radish plants were still growing. The fog had made good growth but did not

appear to be any more vigorous on any of the plots. The state of the fog will be more readily observed once the rye has been grazed off.

Experimental Work 1967/68

New Zealand pelleted and inoculated clovers.

Because of the variable results achieved - in the preceeding season it was decided to try out several sowing dates. The seed was despatched from New Zealand on three dates as follows:- 1st lot - 19th May, 2nd lot - 23rd June and 3rd lot - 31st July.

Sites, dates of sowing, cultivations and seed rates are given in the following table. The seed rates refer to weight of pelleted seed.

Site	Rate (lbs/ac)		Lot 1	Dates of sowing		Cultivations
	White	sub		Lot 2	Lot 3	
West Point	4	6	11 Sept	9 Oct	28 Oct	Surface sown.
Port Howard	4	6	11 Sept	2 Oct	23 Oct	Surface sown.
Stanley Common (1)	8	12	12 Sept	30 Sept	-	Surface sown (12 Sept white only)
Stanley Common (2) (near stables)	8	12	12 Sept	30 Sept	19 Oct	Surface sown.
Fitzroy	4	6	15 Sept	13 Oct	25 Oct	Ploughed and disced ground sown with sheep's fescue cocks foot and S.S.M.G.
Salvador	4	-	15 Sept	-	1 Nov	Narrowed into clay patch.
Fox Bay West	4	6	22 Sept	18 Oct	31 Oct	Drilled into rotavated ground.
Fox Bay East	4	6	-	-	-	Sown with fog into ploughed ground
Fox Bay East	4	6	-	-	-	Surface sown (white only on last 2)
Moody Valley	-	-	4 Sept	4 Sept	-	Forked into plough- ed ground.

The Moody Valley plots were small samples which had been sent by airmail in case the inoculum did not survive the long sea passage. The third lot did not arrive.

Both clovers of lot 3 sown at - West Point, Fitzroy and Fox Bay East were molybdenised. The small plots at Moody Valley included molybdenised and normal treatments.

Results

West Point - no clover ever seen.

Port Howard - at the end of November one sub. clover plant was found on lot 1.

Stanley Common (1) - In February 1968 a few tiny white clover plants from lot 2 were seen.

Stanley Common (2) - In February 1968 there were a few small and reddish sub clover plants on lot 3 and some very small white plants could be seen on the same lot.

Fitzroy - by February 1968 results were as follows:-

Lot 1 - the sub. had given quite an even cover of small yellow plants with a few larger ones; the white was, on average, quite thick but rather yellow and small, though there were some greener and thicker patches.

Lot 2 - the sub. was small and yellow but quite even and with a few larger plants. The white was stunted and yellow.

Lot 3 - the sub. was quite healthy but patchy and the white was fairly even but with some thicker patches and some yellow ones.

Salvador - in January 1968 there were only a few stunted white plants on lot 3.

Fox Bay West - by December 1967 the results were as follows:-

Lot 1 - both clovers had been frosted off and some seed of the sub. seemed to be just germinating; there were a few white plants.

Lot 2 - the sub. was at the 2 leaf stage and was very good at the place where a carcass had been burned; the white was just germinating.

Lot 3 - the sub. had just germinated and was particularly visible in the wheelmarks. There was no sign of the white.

Fox Bay East - by December 1967 the results were as follows:-

Cultivated. Lot 1 - the sub. had come through thickly but there only remained some 2 leaf plants. There were only occasional small white plants.

Lot 2 - a few small sub. plants and no white.

Lot 3 - neither showing as not long sown.

Surface sown; lot 1 - both types showed occasional stunted plants with the sub. slightly thicker. Many plants had been blown out by the wind as the site was sandy.

Lot 2 - an even scatter of tiny, newly germinated white plants was visible.

Lot 3 - not yet visible as not long sown.

Moody Valley - germination was very poor or non-existent on all plots and by February 1968 there were only 3 plants on the second lot of white clover (molybdenised).

At no time was nodulation observed on any of the clovers sown in this experiment. Due to the poor results it is not possible to come to any conclusion about the best date for sowing. It is worth mentioning, however, that the earliest sowing at the Fox Bays were practically wiped out by the frost and this may have been the cause of poor results elsewhere e.g. Moody Valley.

None of the surface sown plots were any good and this could be due to lack of moisture as September and October are very dry months. It is not likely that much of the clover which is at present growing will survive the winter.

Erosion Control

Because some success had been achieved in the previous season with Yorkshire fog and fertilisers, lupins and sainfoin it was decided to carry on along those lines with more varieties of grasses and lupins.

Clay patches on the same two farms were chosen. At Salvador 10 varieties of grass were sown at 10 lb/ac and the plots split and one half of each plot give 45 units N, 47 units P and 60 units K per acre. Five of the plots were oversown with blue lupins and the other five with white lupins, both being inoculated the day before sowing.

At West Point the layout was similar but the grasses were sown at 14 lb/ac, the fertilizer applied at 60 units N, 62 units P and 80 units K per acre and $6\frac{1}{2}$ plots were oversown with blue lupins and $3\frac{1}{2}$ with white.

Dates of sowing were West Point - 10th October 1967 and Salvador - 2nd November 1967.

The grasses sown were - smooth-stalked meadow-grass, chewings fescue, S59 red fescue, S143 cocksfoot, perennial ryegrass, sheep's fescue, Canadian red fescue, bent, S50 timothy and Yorkshire fog.

An acre of pelleted and inoculated sainfoin was sown at Salvador at 16 lbs. per acre.

Results

The comparative results from both experiments were similar - though the Salvador grew much better. The difference was due to the lack of rain at West Point where most of the growth was confined to the drainage channels cut in the clay. All the grasses did much better with fertiliser and in fact there was very little growth without it. Perennial ryegrass was the best in January 1968 with healthy plants about 2 ins. high. S59 red fescue, smooth-stalked meadow-grass and Yorkshire fog were the next best with a thinner cover of smaller plants. None of the others did better than producing a few small plants, except cocksfoot and it was not as good as the others. A better idea of the performance of the grasses will be obtained next year after the plants have stood a winter and the lupins have died off.

Both lupins grew 5 - 6 ins. and neither type had nodules. The blue lupins were stronger and greener on the plot which received the fertilizer. The white lupins did not show so much improvement on the fertilizer plot. Both types of lupin grew better in the drainage channels as there was more moisture and better coverage of the seed; a large amount of the seed did not grow as it was not properly covered.

The sainfoin at Salvador produced an even growth of plants about $1\frac{1}{2}$ - 2 ins. high in January 1968. There was no nodulation and the plants were a yellowish-green colour.

Varieties trial

The grasses and legumes used in this trial were those which were growing best in the autumn of the 1966/1967 season.

The following grasses were sown at 10 lb/ac. (Port Stephens 5 lb/ac) Bent, Sheep's fescue, chewings fescue, S50 timothy, cocksfoot, Canadian red fescue, S23 perennial ryegrass, S59 red fescue and smooth-stalked meadow-grass. All sites were sown with clover mixtures which are given in the following table along with dates of sowing and types of cultivation.

<u>Site</u>	<u>Date</u>	<u>Legumes sown</u>	<u>Cultivation</u>
Port Stephens	6 Oct 67	2 lb/ac white clover + $\frac{1}{2}$ lb/ac red clover	Direct drilled into previously burned ground.
West Point	11 Oct 67	4 lb/ac suckling clover	Seed broadcast on area which had been Dutch harrowed, then harrowed in Diddle-dee and balsam bogs with bent/pigvine.

<u>Site</u>	<u>Date</u>	<u>Legumes sown</u>	<u>Cultivation</u>
Fitzroy	28 Oct 67	3 lb/ac white clover + 1 lb/ac red clover	Seed drilled into ploughed and disced white grass with Brillion seeder.
Douglas Station	4 Nov 67	3 lb/ac suckling + 2 lb/ac Montgomery red clover. (sown Jan 68).	Seed broadcast and rolled into rotavated diddle-dee/small fern ground.
Teal Inlet	6 Nov 67	None (seed lost)	Ground ploughed and disced. Seed broad- case chain harrowed and rolled.

The white clover was a 50:50 mixture of S100 and Kent wild white clover and all clovers were pelleted with gafsa rock phosphate and inoculated with New Zealand inoculant. Plot sizes were:- Port Stephens, Fitzroy and Teal Inlet - 1 acre. Douglas - $\frac{1}{2}$ acre; West Point $\frac{1}{10}$ acre.

At Douglas and Teal Inlet $\frac{1}{2}$ acre plots of pelleted and inoculated subterranean clover at 6 lb/ac were included. And at Fitzroy a 3 acre plot of inoculated serradella at 10 lb/ac was included.

Seed for similar experiments to the above was sent to Port San Carlos and Johnson's Harbour for surface sowing on to heavily stocked ground in January or February.

Results.

Insufficient time has elapsed since these plots were sown to allow for other than a preliminary appraisal. The main idea in having the large plots was to see how well the grasses and legume stood up to grazing. It will therefore be several years before any concrete results emerge. All the sites were re-visited in January 1968 when these observations were made.

Port Stephens:- The site had been invaded with groundsel since sowing and there had also been a considerable re-growth of goosegrass, mountain berry and liverwort. Germination of all grasses was very patchy and was better on the less trashy ground where there had been a slight 'burning-in' by the fire. Chewings fescue, sheep's fescue, cocksfoot and perennial ryegrass were the best. S59 red fescue could not be found and the others were intermediate. Clover growth was very patchy and poor; none of the plants were nodulated.

West Point:- No trace of any of the sown species was found as there had been very little rainfall since the date of sowing.

Fitzroy:- Germination was again very patchy with better growth in the hollows and wheelmarks. It did not seem that the Brillion drill was giving enough cover and consolidation. Sheep's fescue was the best grass with a fairly even, though thin, cover of plants $1\frac{1}{2}$ - 2 ins. high. The rest gave a patchy but healthy cover of small plants. The clover plants were small and infrequent in occurrence and were not nodulated.

Douglas Station:- Only the chewings fescue and the Canadian red fescue, which were together on a damper and better consolidated part of the site, produced anything more than a few small plants. These two gave a 5% ground cover of short but healthy plants. The poor results with the other grasses were due to the loose and chunky nature of the seedbed produced by the rotavator. A few sub. clover plants grew and some of them were nodulated.

Teal Inlet:- Cocksfoot, perennial ryegrass and timothy gave an even strike of healthy plants about 2 ins. high. Bent was thin and poor and smooth-stalked meadow-grass was intermediate. The fescues were all poor; they were all on the southerly exposure of a hill whereas the others were on the north side and in a valley. The difference between the two groups was quite marked and it seems that exposure can be an important factor in the establishment of grasses. The sub. clover plot had a thin even cover of plants at the 5 - 6 leaf stage and some plants were nodulated.

Control of pigvine (*Gunnera magellanica*) by herbicides.

At West Point and on Stanley Common three rates each of five herbicides were sprayed on to patches of pigvine. They were sprayed through a watering-can in approximately $\frac{1}{2}$ gallon of water each. Dates of spraying were: West Point 28th November 1967, and Stanley Common - 22nd December 1967. The herbicides used were:-

2 - 4 D at 1, 2 and 3 gal/ac.
MCPA at 2, 4 and 6 gal/ac.
ATA at 1, 2 and 3 gal/ac.
MCPB at 2, 4 and 6 gal/ac.
CMPP at 3, 6 and 9 gal/ac.

Results

The West Point plots were re-visited on 17th January 1968 and the Stanley ones on 10th February 1968. The percentage kills for the low (L) medium (M) and high (H) rates are given for both sites in the table. The figures for degree of kill are all visual estimates.

	<u>West Point</u>				<u>Stanley</u>		
	L	M	H		L	M	H
MCPA	90	99	100		0	25	50
2-4 D	90	95	100		0	50	70
CMPP	50	100	100		0	30	50
MCPB	10	30	50		Leaves turning red and scorched.		
ATA	0	5	5		0	0	5

At West Point almost complete control was achieved with MCPA 2-4 D, and CMPP at the top two rates. At the low rate MCPA and 2-4 D gave almost as complete control. The results from Stanley while not as good show a similar pattern. The poorer kill with the Stanley trial would be partly due to the fact that the pigvine sprayed in this experiment was smaller and better protected by grass than that on West Point. The later spraying date could also have made a difference. As was to be expected the ATA gave a good kill of the surrounding grass at the top two rates.

Discussion of Experimental results and other observations.

The comments and suggestions in this section are drawn from observations of work done on the farms as well as the work in the experimental section of this report.

Grass varieties for sowing in camp

It has been known for many years now that Yorkshire fog will thrive when sown in the camp. It is highly tolerant of poor soil conditions and is very aggressive in habit. It is, however very hairy in the leaf and tends to shoot to stem rather quickly. These two attributes make it rather unpalatable and under ideal grazing conditions it should be kept short and leafy. Fog has the great advantage of growing in the winter. There are other 'native' or 'naturalised' grasses growing here which make a large contribution to the feed of the grazing animal. The most notable of these are bent, sheep's fescue, smooth-stalked meadow-grass and wavy hair grass.

Sheep's fescue was the only one of these which grew well from seed (seed of wavy hair grass is not available commercially), and both it and chewings fescue would be worth sowing in strips on the more fertile and sheltered parts of a cultivated area. The grazing of the fescues would have to be very carefully controlled as, owing to their greater palatability, sheep would tend to graze them harder than fog. They would not do well in a mixture with fog as the latter invariably takes over completely any seed mixture in which it is sown.

The poor performance of bent and smooth-stalked meadow-grass is surprising in view of their prevalence in certain areas. It was suggested by Dr. Gibbs that the smooth-stalked meadow-grass found here was a different variety from that obtainable commercially, and in view of the less vigorous appearance of the plants from the imported seed the idea seems probable. A similar theory could be applied to bent insofar as the bent sown (*agrostis tenuis*) may be less suited to Falklands conditions than, say *agrostis magellanica*. It is possible that perennial ryegrass and cocksfoot may have a place in the camp under very favourable conditions but without the use of some sort of fertilizer it is most unlikely that they would thrive for any length of time.

The effect of the major and trace elements.

In this experiment the only response obtained was from N and P with one small reaction to lime. In the course of time as the lime is washed into the soil a further result should become evident. A greater response to P would have been obtained with a higher rate - say 150 units - as the amount applied could be rendered unavailable very rapidly due to a high level of fixation in these soils. The response to N is to be expected as it is not likely that there is a great amount of available nitrogen in these soils.

As regards the trace elements it is possible that the grasses in these swards may not respond as they are better able to extract trace elements than ryegrass, cocksfoot, clover etc., i.e. they are already getting all they require and hence an increased uptake would not show up as an increase in growth.

It is also possible that the lack of lime (not yet washed in to the soils) and phosphate (rendered unavailable) is limiting production and hence the demand for trace elements is low.

The matter of trace element deficiencies needs further investigation as nearly all the soil analyses show the soils to be low in copper and cobalt and it is still possible that there are others in short supply.

Establishment of legumes

Without doubt it is possible to grow healthy clover plants in these islands. One only has to look about the Stanley road verges to see this is so. It is therefore not climatic conditions which are making it difficult to establish legumes here.

In the 1966/67 season the pelleting materials used were lime and phosphate from Uruguay. It was suspected that the lime was calcium hydroxide and the phosphate was not rock phosphate and hence the innoculum did not survive. The following year dolomite and gafsa phosphate were obtained direct from U.K., but the dolomite was late in coming so pelleting was done with the phosphate only. Nodulation in 1966/67 had been non-existent and in the following year only a few subterranean clover plants nodulated. It could be that both the gafsa and dolomite are vital (they are in fact important) but the commercial pellets from New Zealand which are gafsa/dolomite coated only nodulated on one occasion. The three month travelling time could have been fatal to the inoculum but the expected life of inoculum in these pellets is four months.

The only fairly successful growth of clover was at Hoggarth's dairy on what is, by Falkland Islands standards, a fairly fertile piece of ground. However a sample of commercially pelleted seed airmailed from New Zealand in 1966 was successfully grown in a greenhouse in soil from one of the sourest parts of Stanley common. Nodulation in this case was achieved. It must therefore be possible to grow nodulated clover, in these acid soils without recourse to liming and topdressing with phosphate (both practices are out of the question anyway).

The annual legumes (lupins and serradella) grew well in comparison with the others though the lupins were never nodulated. Serradella was nodulated at Fitzroy and if it grew well enough to flower (as it may do later this year) there is a chance that it could set seed for the following year; assuming pollination took place. It is worth mentioning that serradella is a member of the lupin family which is very tolerant of acid soil conditions. Other members of this family may be worth investigating as to their suitability for Falkland Islands conditions.

Hay and fodder crops

The growing of oats as a hay crop is a laborious and expensive process which is carried out on too many farms today. It is not too difficult to establish a good sward of grass suitable for cutting as hay, and this has been done on a few farms. It is much easier, and cheaper to topdress a grass field once a year than to go to all the bother of ploughing and sowing expensive oat seed.

Yorkshire fog does not make good hay owing to its stemmy growth but cocksfoot, perennial ryegrass or timothy could produce excellent crops if the fertility was right. This last point is important as it is obvious from the experimental work that it is useless to expect a good crop from a field which will normally only grow a mediocre crop of oats. It goes without saying that if clover is established in the hayfield (and it is easier to do this than establish it in the open camp) a saving in the amount of nitrogenous fertilizer used will result, quite apart from the enhanced feeding value of the final crop.

The only alternative to grass hay worth considering, is the use of a fodder crop such as rape, kale or fodder radish. These crops have the great advantage that they can be fed off in situ with the help of an electric fence, thus keeping most of the fertility in the field. All these crops have been tried in the islands and all have grown well on various occasions. Fodder radish grows very quickly and tends to go to seed far too soon but if sown late it could provide the first grazing break of the winter. Thousand headed kale has been grown with considerable success at Port Howard and Pebble Island but the depredations of the geese have reduced production considerably. Rape has been grown once at Pebble and seems to be alright.

All these brassica crops also require a reasonable level of fertility and this can either be applied from the bag or as shed manure and sheep carcasses. A useful rotation between the brassica

fodder crops and grass hay could be worked out as there would eventually be a build up of weeds if the brassicas were sown continuously.

Types of cultivation for camp improvement

The essential point about any method of cultivation is that it should provide as near as possible ideal conditions for the germination of seed. These are a fine seedbed, good consolidation and adequate moisture. A rotary cultivator working in diddle-dee/small fern ground will produce none of these conditions, but the same machine working in conditions of minimal vegetation (e.g. at Chartres) will produce an excellent seedbed. Because of its 'fluffing up' action the rotary cultivator (unless followed by very heavy rolling) does not normally give as firm a seedbed as that produced by ploughing and discing. Consolidation, and, hence moisture availability is, however a problem of all cultivated land in the Falklands; the better growth in the tractor wheelmarks is a common sight on all newly sown land. If land were left for a year or more between cultivating and sowing, the action of the weather would help to break down the clods and firm up the ground. All seedbeds should be rolled with the heaviest roller possible, both before and after sowing.

When a large area of heavy diddle-dee is being cultivated untouched strips should be left at regular intervals. This will afford shelter to sheep and lambs when the sward is established and also reduce the chance of any wind erosion occurring before the land has been sown.

The cultivation of white grass is a problem in itself and not a great amount of it has been turned in. The most satisfactory results are achieved with a plough of the lea type having a long mould board and turning a furrow at least twice as wide as it is deep. Complete inversion of the furrow is essential. Such a plough exists at Douglas Station. The problem with this type of ploughing is that it leaves soil which is susceptible to blowing and it might again be advantageous to leave unploughed strips.

It is difficult to obtain a good seedbed economically therefore any drill used has to be able to work in poor conditions. The best type is a robust machine with disc type coulters at about 4 ins. spacing. The idea is to get the seed well into the ground as there is so little moisture available and the top of the soil is liable to blow away. The only machine of this type used in the islands is the ordinary corn drill used at Port Stephens and it has coulters 7 ins. apart. Germination is usually very good and variations are due to the seedbed (merely burned over diddle-dee ground) rather than any faults in the drill. The Danish drills in use on several farms do a good job of work but their Suffolk type coulters do not give enough penetration. The performance of the "Brillion" drill does not justify the numbers bought recently in the Colony. Under good conditions (e.g. Chartres) it does a fine job but with a rougher and drier seedbed the seed is not well enough covered.

Dates of sowing of grasses in camp improvement.

Grass has been sown successfully in the Falklands in all months from September to April. A great deal depends on the actual conditions at the time of sowing and the occurrence or otherwise of a few showers of rain can make a great difference. In the 1966/67 varieties trial the October and November sowings apparently gave better results than those put down in January. However as the experiments were on different sites with different soil conditions and micro-climates little significance can be attached to these results. The best time for sowing seems to vary from farm to farm but on the whole, early spring (September) and summer (January and February) give the best results. Depending on the incidence of frost and the rainfall these times can be varied between farms. A

series of sowings at regular intervals carried on for some years could throw a lot of light on this subject. The Falkland Islands have a dry climate and the best use must be made of the available rainfall.

Control of erosion

On many farms there are large clay patches which are slowly growing as the years go by. This growth is not always apparent to somebody who is looking at the patch all the time and there is a great tendency to assume that things are just the same as they were in father's day. This is not so and efforts should be made to fill these areas of erosion in. The areas should be fenced off (some of the old rolls of fencing which are tipped on the beach or left as monuments in the camp would do for this) and an effort made to grow seed on them. Grass can be established with the help of fertilizers and if applied from the bag triple superphosphate would be enough to get Yorkshire fog established. Carcasses, kelp, shed manure, peat-mould, and stained pieces of wool all make useful fertilizers and some of these on their own, without seed being sown, would go a long way towards covering in clay patches.

Lupins also grow well on clay and if nodulated could be a useful source of nitrogen to the young grass plants. This was the reason for their inclusion in the erosion control experiments but as they failed to nodulate it is doubtful if the small amount of shelter they provided was a significant factor in assisting in the establishment of the grasses. The presence of the fertilizer was the critical factor.

Control of pigvine with herbicides.

This is largely a question of economics. Whether 2-4 D, MCPA or CMPP is used depends on their landed cost, and whether or not any herbicide is used depends on the value of the improvement that it would bring about. If pigvine were killed out on, say, West Point there would still remain the problem of what to do with the bare patches. In these areas where it is growing in association with grass there would be little problem as the grass would soon take over, if necessary with some assistance from a topdressing of guano. But in those areas where the pigvine was too thick to allow the growth of grass it would be difficult - though not impossible - to establish grass. Cultivation by hand and planting at the wettest time of the year would probably be the answer.

Subdivision and rotational grazing.

This is the most important single method of improvement available in these islands. In view of the number of times that it has been advocated as an improvement method it is surprising that so little subdivision has been done. It is impossible to control large areas of re-seeded ground without adequate fencing and in fact the fencing should be there before the re-seeding is started. In recent years many farms have worked out a system of spelling camps but there are still too many large camps. The splitting up of camps would be greatly encouraged if the farms themselves were split into smaller units. The most intensive farms in the islands are all comparatively small.

With reasonably sized camps burning would be completely unnecessary and all the cleaning up could be done by cattle. Cattle are disliked intensely in many quarters here, chiefly because they make no money and nobody knows anything about how to work them. They are accused of breaking down fences but this does not seem to be a problem at Port Howard which uses cattle as scavengers and runs more per sheep than any other farm on the Islands. It would be repetitive to go over all the suggestions for further subdivision and increasing cattle numbers mentioned in the reports of Munro etc. so the present author will confine himself to endorsing their remarks completely.

The point of subdivision is, of course, so that rotational grazing can be practised with its resultant reduction of coarse vegetation in favour of the finer grasses and the spelling which these grasses get.

Suggestions for further experiment.

The work of trace elements and establishment of legumes must be carried on and the benefits of rotational grazing should be demonstrated on an experimental farm.

It is almost unbelievable that such a valuable food as tussac has been allowed to practically vanish on some farms. It would be of considerable interest to see if it could not be grown as a row crop in a field with proper cultivations and fertilizer dressings. There are a great many fairy tales told about where tussac will not grow. None of them are true and there is no reason why the plant should not be grown on a large enough scale to provide valuable winter feed for young stock. It is argued that on a large farm tussac plantations would have to be huge to have any effect. The answer to this is that most farms are far too large anyway and if they were a reasonable size a little tussac would go a long way.

Supplementary feeding either with a proprietary compound such as "Rumovite" or straight urea needs to be investigated. Something which stimulated the rumen and supplied extra nitrogen could cause an increase in the utilization of white grass with a consequent improvement in pastures.

Acknowledgements

Without a great amount of help from many farm managers, cadets, tractor drivers, navvies and shepherds none of the experimental work in this report could have been carried out and I would like to record my thanks to all who helped in any way.

(Sgd) Colin D. Young.
GRASSLANDS OFFICER.