SOME ECONOMIC ASPECTS OF DEVELOPING HILL COUNTRY

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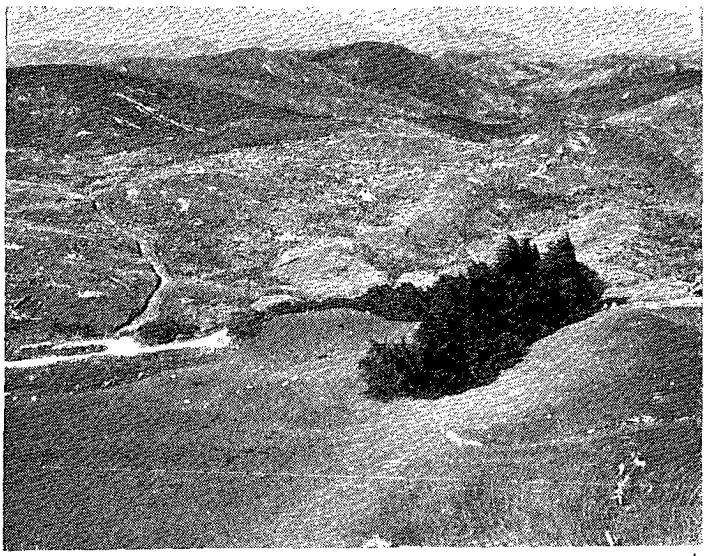
In a paper which Dr W. M. Hamilton presented to the.. annual conference of the Animal Production Society earlier this year he said that there was no technical reason why the revolution which had taken place on the ploughable lands of New Zealand should not be re-enacted on the hill lands of the North Island, although economic factors might restrict it to a lower level of intensity.

While the technical knowledge and much of the equipment and materials are available to enable considerable areas of our hill country to be 'developed, there are some matters relating to the development of this class of land about which there is confused thinking, many of these matters being of a financial or eco-



Most of the farm comprises rolling to moderately steep country with some steep parts.

nomic nature. I have found that there is a dearth of recorded information about the financial. side of hill country development and for this reason this paper deals with only one hill-country farm, which to some of you may appear to be somewhat restricted. I know that the financial questions which have arisen in developing this farm may not be the same as, for neighbouring farms, but nevertheless, questions very similar or in a modified form are likely to arise wherever farmers endeavour to improve the productive capacity of their hill lands.

This particular farm is situated some 35 miles south-east of Dannevirke and is 610 acres in area, which is typical of the size of the majority of hill-country farms in the Hawke's Bay and Wairarapa districts. The soil types on the farm are. predominantly silt loams formed from mudstones, and most of the country is rolling to moderately steep with some steep parts., It is -estimated that 400 acres or two-thirds of the farm can be disced, the remaining 200 acres being too steep for cultivation.

The average annual rainfall is between 45 and 50in. fairly evenly distributed throughout the year except for a dry summer period typical of the Hawke's Bay area generally.

CONDITION OF FARM-

When. the present owner took over in 1947 the farm was in very poor condition ; fences were poor and mainly ineffective and the only stock water supply was from one dam and a creek 'at the back of the farm, these having to serve 610 acres divided ostensibly into 15 paddocks.

Pastures comprised mainly browntop; danthonia, Yorkshire fog, flat weeds, and moss, and there was scattered manuka over the whole property. The use of fertiliser was unknown and buildings were extremely poor. The sheep taken over with the property were of a type one would expect to find on such a farm.

DEVELOPMENT PROGRAMME

The owner started his. -development programme 'in-the first year by topdressing the whole farm with 2cwt. of superphosphate per acre and scrub-cutting was pursued vigorously. In the 1949-50 season oversowing with white and subterranean clover was commenced. ,230 acres or. 40 per cent. of the farm area being treated that season. To accelerate the development programme a commencement was made three years

ago to clear some areas of stumps, cultivate, and sow to pasture. The main improvement work of a capital nature accomplished over the seven-year period to June 30 last is set out in the table.

Table 1: Improvements effected since 1947

Area ,of farm .	. 610 acres
Area oversown .	. 434 „
Sown pastures	. 105 „
'Dams for stock water	. 15
Farm access tracks	. 4 'miles
New fences	. . 19 chains

PHYSICAL RESULTS

The physical results so far achieved from the development programme are set out below:

Table 2: Winter carrying capacity per acre

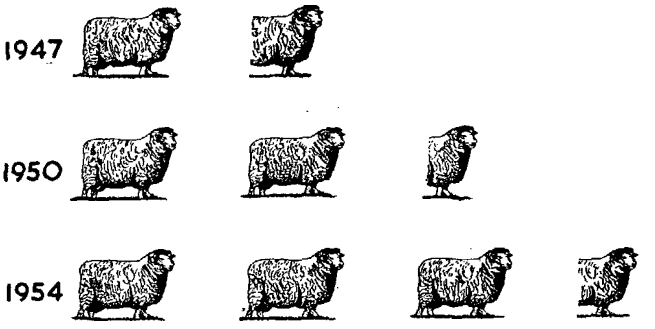
(All stock converted to ewes)

Year	Ewes per acre
1947	1.7
1950	2.5
1954	3.6

Table 3: Wool production per acre

Season	Wool per acre lb.
1947-48	17.0
1950-51	19.1
1953-54	26.3

STOCK UNITS PER ACRE,



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2.5

3.6

The farm had been run as an extensive pastoral enterprise with farm revenue coming from the sale of wool and store and breeding stock. However, with the improved pastures it has been possible to fatten lambs and in the 1952-53 season a draft of 128 fat lambs was sold, these being the first lambs ever fattened on the property. Last season 198 fat lambs were sold, these representing 20 per cent, of the lamb crop, and this season the farmer expects that 300 will be fattened, which if achieved will represent approximately 30 per cent. of the lamb crop.

FINANCIAL ASPECTS

To appreciate the initial financial difficulties of this farmer it is necessary to look at the capital limitations of the enterprise when he took over in 1947 and we have something like this: on one side a property valued at approximately £5700, stock of a value of £1600, cash resources of nearly £600, and against this a mortgage indebtedness of £7250.

Table 4: Capital structure of enterprise (In June 1947)

	£		£
Land & Improvements	5,700	Mortgage . .	7,250
Livestock . .	1,600		
Cash . . .	600		
	$7,900		57,250

With this financial picture the first year promised to be a difficult one for the farmer, as he was faced with two immediate problems—

1. The necessity to begin building up the fertility of the property, and
2. The necessity to replace the poor ewe flock.

With the $600 cash and no other equities but with hope for the future and a capacity for hard work he cast the die by purchasing a line of good ewes, although old, selling most of those taken over with the property, purchasing 50 head of cattle and sufficient superphosphate to topdress the whole property with 2cwt. per acre.

The results for the first year were satisfactory; there was a cash deficit of £100, but this was covered by utilising some of the cash resources.

I do not propose to trace the financial results year by year, but I shall look at the total figures for the seven-year period 1947-48 to 1953-54.

Table 5: Receipts and Payments for 7 years 1947-48 to 1953-54.

	£		£
Farm running expenses	12,150	Receipts	29,400
Interest on mortgage	1,430		
Principal repayments on mortgage	1,140		
Taxation	2,150		
Capital Expenditure:			
Devdopment	6,690		
House improvement	900		
Livestock	2,920		
Equipment	1,220		
			£28,600
		Surplus	BOO

These figures show that after meeting the farm running expenses, most of the overheads, taxation, and all development expenditure, there was a cash surplus of £800, but no allowance had been made for the After allowing for this there was actually a cash deficit of £1770, which was met by injecting this amount of additional capital into the enterprise.

The figures demonstrate that the surplus farm receipts were sufficient to meet 85 per cent. of the living expenses of the farmer over the seven years. total capital expenditure of $11,730.

MORTGAGE REPAYMENTS

It will be noted that $1140 was paid off the mortgage during the seven-year period, the mortgage,. being repayable on the amortisation principle. If this amount had not been repaid, the amount of additional capital required to be injected into the enterprise would not have exceeded £650.

In New Zealand we are' firmly wedded to the amortisation principle of extinguishing mortgages. Government agencies have had -60 years' experience with this type of mortgage and of the $130 million which if is estimated is on loan to farmers and, secured by mortgages I do not think I would be exaggerating when I say that 50 per cent. of this sum is repayable on amortisation schedules. This shows how this principle is firmly woven into the New Zealand mortgage. fabric.

I consider that in some cases the covenants in these mortgages to repay instalments, containing prin-

cipal at set intervals, particularly where the mortgages are not sympathetically administered, can be a hindrance to a hill-country farmer or any other farmer when carrying out a development programme. To me it appears somewhat illogical that a farmer should be making principal repayments on a mortgage at the same time as he is putting back into the property the maximum amount of surplus revenue to increase the productive capacity of the property and incidentally create a sounder security for the mortgagee. In this connection it is interesting to note that the Marginal Lands Board in its last annual report made a plea to mortgagees to refrain from making unnecessary demands for reduction in their accounts where money was being advanced by the Board to increase the productive capacity of marginal lands.

TAXATION

I am rather timorous at mentioning taxation. This farmer has paid or will soon have paid $2150 in taxation, of which $1460, or nearly 70 per cent., comprises income tax. It would have been very pleasant not to have had to pay this sum, but it would be stretching the imagination to suggest that its payment has been a definite hindrance to the development of the property. With the concessions which were again increased this year a considerable amount of development expenditure which is met from farm revenue is allowable as a deduction when the amount of taxation payable is assessed. In this case the amount of expenditure met from revenue on land improvement work was £4700 and except for $250 it was treated as an allowable expense for taxation purposes. In other words most of the capital expenditure on land improvement has been allowed as farm running expenses. However, I must concede the point that when a development programme is completed it must be something of a shock to some of the farmers to receive their taxation assessment demands. Nevertheless I find it difficult to subscribe wholly to the view that taxation is a major deterrent to hill-country development.

ACCELERATED DEVELOPMENT

The time taken by this farmer to increase his carrying capacity may appear to be rather long; it

took three years to raise the capacity from 1.7 ewe equivalents to 2.6 ewe equivalents per acre and seven years to double it. I do not consider it could have been done in less time. When he began the farmer had no. equities which could be used as security for additional capital from outside sources, he was untried in developing hill country, and therefore was an unknown credit risk. His prospects at that stage of being able to obtain additional capital to expedite development would have been very poor.

It is perhaps a truism to make the remark that when money is spent on developing hill lands to create more and better grass, more money must also be spent on additional stock to eat the grass, or alternatively the farmer foregoes some revenue by retaining stock to build up the productive flock or herd, and I am afraid that some enthusiasts who advocate the rapid development of hill country forget this point.

On this farm for every £100 spent on land development work an additional $43 had to be spent on extra livestock, or revenue to this extent was forgone, These figures do not constitute a standard ratio, but they are quoted to illustrate the point that the expenditure of money on land improvement is not the end of the spending process, and also where the farmer has few equities against which to raise capital and he is improving land out of surplus revenue the building-up process cannot be rapid.

WAS THE EXPENDITURE ON IMPROVEMENTS ECONOMIC?

After the use of so much surplus revenue and some additional capital to improve the physical production from the farm a natural question is: Was it economic, or in other words did it pay?

I have acted on the assumption that no further money will be spent on capital development this year, which actually will not be the case, and a budget has been constructed for the year based largely on prices and costs ruling for the 1953-54 season.

Top: When the farmer took over the property in 1947 pastures were mainly brown top, *Danthonia*, flatweeds and moss, and there was scattered manuka over the whole property. Bottom: This pasture, which was sown in April 1952, is now predominantly perennial ryegrass, white clover and subterranean clover, with some crested dogstail and Yorkshire fog.

From these figures a net figure called owner's surplus has been computed which is set out in the table.

Table 6: Estimated owner's surplus 1954-5

	£	£
Receipts	5,500	
Stock inventory	70	
		5,570
Expenses	2,170	
Depreciation	160	
Interest on mortgage	190	
Interest on additional capital expenditure	380	
Interest on value of stock and plant	420	3,320
Owner's surplus		£2,250

The owner's surplus is the amount available to the owner, to meet living expenses, taxation, and investments such as principal repayments on the mortgage. If taxation and these principal repayments are taken into account in this case, I estimate that there will be 61150 clear to the owner. On the basis of present prices and costs it cannot be said that the development was an uneconomic undertaking. One can go further and make an assessment for a return on investment. It is not a very satisfactory figure because of the various methods which can be adopted to assess owner's investment in a property, but on a basis I have adopted in this case the return would be approximately 12 per cent.

THE FUTURE

Having improved the productive capacity of the farm so far it is difficult to resist the temptation to do a little crystal gazing in an endeavour to assess any future problems.

Possibly one of the major ones the farmer has to face is that the farm has reached the' limit of a one-man unit. To increase the productive capacity further will involve the employment of labour and to obtain satisfactory permanent labour good housing. accommodation must be provided. I do not consider that a group housing scheme for farm workers would be satisfactory in this isolated locality.

If he increases the productive -capacity further, the farmer has several alternatives, for instance—

1. He can carry on for a period without doing any further development work and endeavour to build up a reserve fund for an additional dwelling and for further development work. If prices and costs remain as at present and there are no setbacks, the creation of a reserve fund between £3000 and £4000 would possibly take about four years.

2. He can raise the additional capital for the dwelling and employ the labour. To repay an additional mortgage of £3000 on a 35-year term and pay labour would involve extra annual outgoings of £650 to £700. This is only part of the story. Extra stock would have to be carried to pay for the outgoings and this in turn would involve additional capital expenditure for development work to enable the extra stock to be carried.

It is only by careful budgeting that the economics of the alternatives can be assessed. Of course, the farmer can adopt the attitude that he will go no further, in which case from the national point of view latent potential will be left untapped.

In this paper I have not endeavoured to lay down any economic principles for developing hill country, but from one example I have endeavoured in the time available to illustrate some problems that arise in developing this class of country and I think in summarising I can say:

1. At present it is possible to develop economically considerable areas of hill country from surplus farm revenue.

2. When the development is being done from surplus revenue, in most cases the raising of the carrying capacity cannot be rapid.

3. The present. taxation concessions should be a stimulus to ***land*** improvement on hill country.

4. Sympathetic administration of existing mortgages is a requisite to the ultimate development of much hill country.

5. The problem of increasing the carrying capacity of a hill farm beyond the limit of one labour unit

is a major one in many private land development projects.

There is one aspect on which I have not touched and it will be my finishing note. I have met a number of hill-country men in both islands who are improving their lands and in most cases they show considerable pride in their achievement, which is a very good omen for the future. They have just cause for their pride when one sees the results of their work in what is often a difficult environment.

DISCUSSION

Q. What- was the later procedure on the farm? Did the farmer continue with the topdressing after sowing down?

A. The programme is continuing. In the first period it consisted of oversowing and topdressing the whole farm, except for 70 acres. This year another 35 acres will be worked up and sown down. Topdressing is continuing, but not oversowing.

Q. I was surprised to hear the speaker's opinion that progress might be considered slow. I would be very happy to see the carrying capacity more than doubled in seven years. After all we are expecting it to take 20 years over the whole country.

A. If there was a grading of farmers this one would be in the Al group and his progress is quicker than that likely to be achieved by many others.

Q. Is the farmer running all sheep ?

A. He now has Aberdeen Angus cattle as we'll, though there were sheep only when he took over the property. He is running more cattle every year.

Q. What was the technique of oversowing ?

A. The first oversowing was by hand; some of the fertiliser was also sown by hand. Later he tried the Mower, and then he topdressed by aeroplane.

Q. In view of the importance of fencing I was surprised to see only 19 chains shown in the improvements.

A. He is proposing to subdivide the newly sown paddocks and this expenditure will be an increasing item.
Hamblgn: The 19 chains mentioned actually added two paddocks and he now has 17 paddocks.

Q. How did the property compare with the average in the district when it was taken over?

A. There were many others in the district of that capacity when he took it over. No one else has achieved his new capacity in this particular area, though there have been same cases in better districts in the county.