A PRELIMINARY STUDY OF SOME ECONOMIC ASPECTS OF WALLUM DEVELOPMENT

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SUMMARY

1. It is possible to establish and maintain improved pastures on the Wallum.
2. The most economical methods of applying this knowledge are not yet known and various methods are being tested by a number of developers.
3. This paper is concerned with economic aspects of developing a hypothetical beef cattle property. Under the assumptions made the return on capital invested is reasonable.
4. The costs of developing and stocking the land are $132.50 per acre, to give a net return of $16.6 per acre per year.
5. It is emphasized that the analytical approach used includes many simplifications and arbitrary assumptions in order to present a relatively straightforward assessment of likely critical factors.

INTRODUCTION

Economic growth, and development of basic physical resources are prime objectives in Government Policy. Both require a continued expansion of export capacity. Long-run favourable export markets for beef indicate that this industry offers scope for productive investment.

The Wallum area of Queensland is one potential avenue for increased beef production. Current scientific and technical research being carried out in the Wallum is aimed at providing basic agronomic data for such development.

If an acceptable financial rate of return commensurate with capital outlay and risk involved can be obtained, then this area, currently wasteland, will become important for development.

This paper uses existing experimental and other data to assess the economics of development of a hypothetical beef-fattening property on Wallum country. It forms part of a larger study being undertaken by the agricultural economics group at the University of Queensland to estimate the economic feasibility for the Wallum of properties of various sizes and types (e.g., sheep, forestry), and methods of financing.

THE METHOD OF APPROACH

Experimental data were obtained from the Queensland Department of Primary Industries (D.P.I.) Research Station at Coolum, and the Commonwealth Scientific and Industrial Research Organization (C.S.I.R.O.) Research Station at Beerwah.

Practical data were obtained by the author while working for a commercial firm engaged in developing a Wallum block and from other Wallum developers.

On the basis of these and other supporting data, a hypothetical beef-fattening unit is set up on the Wallum and the economics of the enterprise assessed. Because of

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lack of data on the Northern Wallum, this paper deals only with the area south of the Mary River.

Obviously many assumptions concerning the hypothetical property need to be made. These include property size, carrying capacity, rate of development, management practices, method of financing, and estimated costs and prices. The objective of the study is to determine profitability given the assumptions made concerning these factors. If these assumptions are considered unrealistic or need to be changed as further information becomes available, then profitability will alter.

This preliminary study does not attempt to answer the question as to the best future use to be made of the Wallum, but merely indicates the costs and returns of one particular method of development.

Thus a property size of 4,000 acres is assumed. Improved pasture is sown at the rate of 400 acres per year so that the property is fully developed after 10 years, by which time 4 full-time labour units are employed and 4,000 head of fat cattle are being turned off annually. Development is carried out by a syndicate of 5 partners who each contribute $20,000 initially and thereafter $4,000 per annum, so that total capital required by the end of the development period is $280,000.

The analysis proceeds as follows:
Initially, in the Section, Background Information for Planning, p. 4, available data on costs, likely returns and other aspects of development are presented. These provide a background for making realistic assumptions about the hypothetical property. Thus, on the basis of data in this section, the hypothetical property is set up in the Section, The Hypothetical Property, p. 30, which includes material on property size, organization and management, and the level of costs and returns over the development period and when fully developed. The implications of this data are discussed in the Section, Discussion, p. 32.

BACKGROUND INFORMATION FOR PLANNING

Costs

Cost of land

Much of the Wallum is unoccupied Crown land. The Government has commenced allotting land for development under series of special leases. The first two leases were allotted to proprietary companies at Beerwah and Mooloolah in 1964 and 1965 after private negotiation. Since then applications have been called on a number of occasions, open only to individuals or partnerships. An example of terms and conditions for a recently balloted block are as follows:

"The successful applicant in each case will be required to develop the area granted in compliance with the following terms and conditions:
(a) The successful applicant will be responsible for all costs and charges associated with the provision and construction of any required roads other than those already existing.
(b) The successful applicant will be required to pay the cost of any survey.
(c) Subleasing or sharefarming for tobacco or small crop growing shall not be permitted, without the prior consent of the Minister.
(d) This is Wallum land of low natural fertility presenting problems in clearing, drainage, fertilising and establishment of pastures.

(e) Applications offering less than five cents per acre rental or two dollars per acre purchasing price will not be considered.

(f) Freeholding will not be permitted until at least 1,000 acres have been fully developed; thereafter freeholding in parts of not less than 800 acres will be allowed.

At the time of writing this paper, no allotted block had a freeholding value higher than six dollars per acre and no rentals were more than six cents per acre per year.

The blocks that have been released to developers other than the original two companies, vary between 1,000-4,000 acres.

Clearing Costs

For the purpose of examining current clearing costs, the Wallum may be divided into heath and forested areas (including eucalypt ridges and tea-tree drainage lines and depressions), with true Wallum occuring between the tea-tree and heath.

The area of "true Wallum" is insignificant, and the forest areas comprise approximately 85% of the Wallum of southern Queensland. The amount of clearing depends on the condition of the land initially and the standard of the work required.

On the heath, a heavy build-up of vegetation does not occur. The fires that frequently burn over these areas are partly responsible for this. On the heath, slashing with a rotary slasher, and burning, are usually sufficient to prepare the ground for cultivation. Little exists in the way of root material which would cause obstruction to cultivating implements. Coolum experience suggests that heath can be cleared for $0.70 per acre.

The forested areas are treated differently. The timber must be felled by pulling, pushing or cutting, and after a suitable period must be burned. A good burn cannot be obtained in situ as is common in Brigalow country, so the timber must be raked into windrows. However, little commercial clearing has been done as yet and methods are still being evolved. In general, experience has shown that heavy tractors are subject to bogging, both on ridges and flat soils. On the ridges, the problem is aggravated by the depressions resulting from tree removal. These depressions, commonly up to 2 feet deep and 5-6 feet across, form wet spots which may remain boggy for weeks after the surrounding ground is suitable for working.

Medium-sized crawlers have replaced heavy tractors for windrow raking; this reduces the problem but does not eliminate it. Costly and time-consuming delays due to bogging are still common.

In the depressions and at the lower end of drainage lines where tea-tree has to be raked, melon holes present another bogging problem. The low areas between hummocks are not drained and water can escape only by percolation or evaporation. Working experience within the area suggests that tea-tree areas and eucalypt areas are equally difficult and expensive to clear.

Some examples of clearing costs are set out below.

1. Tenders for clearing and burning in the Beerwah area in 1966 were in the vicinity of $40 per acre.

2. In 1963, the Coolum research station selected a 20-acre ridge site adjacent to the wet heath, for clearing. Trees that could not be removed easily with a 50 h.p. crawler tractor were ringbarked, and trees required for shade or fencing materials were retained. Windrowing was carried out by the crawler and a 35 h.p. wheeled

tractor. Ringing, pushing, windrowing and stickpicking by hand were estimated to have a total contract value of $23 per acre.

3. Discussion with a Maryborough clearing contractor indicates that on open forest country he would undertake to push and windrow for around $20 per acre, depending on the width between rows (burning and restacking were not included).

4. At Bundaberg, on ridge country, one developer stated that clearing costs were around $24 per acre with another $8 per acre for burning, restacking and burning again.

It is concluded that the range of clearing costs is from $20 to $40 per acre.

Liming Costs and Requirements

Recommended liming requirements range from 5 cwt/acre to 1 ton/acre calcium carbonate. This is usually applied as pulverized limestone costing from $4 to $16 per acre delivered and spread.

At Beerwah, the lateritic podzolics and low humic gleys have, in general, a higher pH than the ground water podsols and heath sands of Coolum. Thus at Beerwah it has been found that 5 cwt of lime is sufficient for establishment of pasture legume mixtures.

At Coolum, on the heath, it has been found that liming requirements vary according to the species planted. Lotononis requires 15 cwt of lime for successful establishment, whereas white clover requires 20 cwt. In 1963, on 20 acres of ridge country adjacent to the heath, a mixture of Rhodes, green panic and molasses grasses with Siratro, stylo and desmodium legumes was successfully established on 5 cwt of lime.

Other Fertiliser Costs and Requirements

ESTABLISHMENT.—The recommended application per acre for all soil types is—

> 5 cwt superphosphate
> 1 cwt KCl
> 7 lbs. $CuSO_4$
> 7 lbs. $ZnSO_4$
> 2 ozs. Mo.

It is extremely important to ensure an even distribution of trace elements. Hence a ground application may be preferable to aerial application.

MAINTENANCE.—The recommended application is 2 cwt of superphosphate and 1 cwt of KCl per acre per annum. Coolum recommends that the maintenance application be split, half in Spring and half in Autumn. Beerwah feels that an annual application is sufficient.

The reasons for the split applications are that the tropical species will be favoured in the Spring and the temperate species in the Autumn. Thus in a sward containing both white clover and lotononis, one can be forced in preference to the other, according to the time of application.

At Coolum, it has been found that potassium leaches readily from the sands and that a twice-yearly application is desirable.

Using ready mixed fertilisers, the cost for establishment is approximately $18 per acre and the cost for maintenance is approximately $6 per acre.

Costs of Pasture Establishment

Current and future experiments at Coolum are directed at utilization of Pangola, white clover and lotononis. Planting rates are usually ¾ lb. each for the legumes, pangola being planted by cuttings.

At Beerwah, an experiment of 108 acres has been commenced using the following grasses-legumes:

Paspalum dilatatum, Paspalum commersonii, Rhodes and Pangola, white clover, lotononis, green and silver leaf desmodiums, plus phasey bean as a pioneer species.

A major seed company's 1966 recommendation for the Coastal Lowlands was:

Sandy soils—		$
lotononis	0.5—1 lb.	6-12
N.Z. white clover	1 lb.	0.75
Pangola grass	Runners	—
		6.75—12.75 + pangola cuttings

Ridge Country—		
Greenleaf desmodium	1 lb.	12.00
Ladino white clover	1 lb.	1.50
Nandi setaria	2 lb.	24.00
		37.50

or alternatively—		
Silverleaf desmodium	1 lb.	12.00
N.Z. white clover	1 lb.	0.75
Pangola grass	Runners	—
		12.75 + pangola cuttings

A developer near Beerwah used the following planting rates in 1965/66 for both heath and ridges:

		$
Lotononis	0.5 lb.	6.00
White clover	2 lb.	1.40
Paspalum	2 lb.	1.00
Desmodium	minor quantity*	0.40
Phasey bean	1.5 lb.	3.00
Rhodes (or molasses grass)	1 lb.	1.00
Setaria	0.1 lb.*	1.20
plus Pangola cuttings.		$14.00/acre

*Only limited seed stocks available at the time.

The Autumn 1966 programme of another property involved planting 650 acres with the following—

		$
650 lb.	lotononis + inoculum	6340
650 lb.	New Zealand white clover	498
650 lb.	Ladino white clover	422
	Inoculum for white clover	78
50 lb.	Nandi setaria	600
125 lb.	Kazungulu setaria	1500
88 lb.	greenleaf desmodium + inoculum	1168
340 lb.	Siratro + inoculum	1644
176 lb.	silverleaf desmodium + inoculum	2012
		$14262

i.e., $22 per acre plus Pangola cuttings.

This area is to be used as a plot from which seed and cuttings for the next area will be harvested. Thus it is envisaged that the overall seed and material and labour costs will be reduced to $10 per acre.

A number of methods are being evolved for harvesting and planting Pangola runners. Harvesting methods include cutting or pulling by hand, mowing with a rotary scythe, and forage harvesting. Planting methods include trampling-in in wet weather, using a tractor-dawn converted tobacco transplanter, a sprig planter specially made, and discing-in after spreading from a truck. Costs will vary widely depending on methods used.

Initial Pangola material is available from D.P.I. or C.S.I.R.O. research stations without charge. Once a small plot of Pangola has been established, future cuttings can be produced on the property.

Stock Watering Costs

Possible watering methods include creeks, dams, earth tanks and bores.

Many creeks provide permanent water, and local knowledge would enable a developer to decide for or against using a particular creek.

There is ample ground water in many areas. This can be collected by small dams or earth tanks which take advantage of natural drainage lines which seep for months after rain. However, the soil type on which the dam is built is important and an examination should precede selection of a dam site.

Three small dams on a developer's property, each capable of watering about 150 cattle, were built in about 4 hours each. They are built on very gentle slopes and collect seepage rather than runoff. As there are no puddling problems, stock can drink directly from these dams. Such dams cost about $80 or approximately $0.5 per acre. If desired, larger dams or earth tanks would enable water to be reticulated to troughs in nearby paddocks.

Water may be drawn from bores. Some problems have arisen on lower country when bores were too deep or drawn upon too quickly, allowing the inflow of salt water. On

the other hand, the Beerwah research station has one bore on a ridge, which is supplying considerable quantities of water of good quality.

It is estimated that a 10 ft. mill, 30 ft. tower and 10,000 gallon tank and accessories would cost about $2,000. Is this could be made to serve two 150-acre paddocks, the cost would be about $6 per acre.

Fencing Costs

Fences may vary from closely-spaced, bored wooden posts to wooden strainers 440 yards apart with steel droppers and wire spreaders in between. The type of fence may depend on managerial preference.

Some examples of fence types are—

1. Bored, split wooden posts 15 ft. apart with three to four strands of barbed wire.
2. Timber posts every chain with five steel droppers between posts.
3. Timber strainers every 220 yards with steel droppers every 100 ft. and with wire spreaders every 20 ft.
4. Timber strainers every 440 yards with steel droppers every 100 ft. and wire spreaders every 20 ft.

Some appreciation of the variation in fencing costs can be obtained from the following estimates, prepared after discussions with developers and reference to the 1966 farm management handbook, Department of Primary Industries. The price per acre will vary with paddock size and shape.

ESTIMATES PER MILE

1. Bored wooden posts 15 ft. apart with 4 strands of 12.1/2 gauge barbed wire—

	$
Split posts 352 @ $0.50	176
Barbed wire	144
Erection	400
	720

2. Suspension fence with strainers 220 yds. apart, steel droppers every 100 ft., and wire spreaders every 20 ft.—

	$
Strainer posts 9 @ $2	18
Steel posts 50 @ $0.45	23
Wire spreaders	30
Barbed Wire	144
Erection	85
	300

Estimated Revenues

The income derived from a fattening enterprise will be a function of carrying capacity, liveweight increases, and prices.

Carrying Capacity

No practical output data is available as commercial enterprises have not been established for a sufficient time. The results of experimental trials must therefore be utilized. Properly, experimental results should be reduced somewhat when attempting to estimate carrying capacities under average management on commercial properties.

C.S.I.R.O. trials show that some sward mixtures grazed at one beast per acre have remained weed-free into the fourth year of grazing. Others have been stable at one beast to 1.5 ac. but degenerated at a beast to 1.0 ac.

On a D.P.I. 40-acre trial of lotononis—Pangola pasture commenced in October 1963, the stocking rate currently is a beast to 1.3 ac. This does not appear to be the limit. Another trial has been grazed at one beast to 1.1 ac. for one year (October 1963 to November 1964) and one beast to 0.9 ac. since.

These trials have all been carried out on relatively small areas. Nevertheless, it appears that these pastures can carry about one beast per acre after proper establishment.

Liveweight Increases

C.S.I.R.O. records for one experiment show annual liveweight increases for the eight years to 1965 ranging from 221 lb./head to 414 lb./head, on rotational grazing trials. The stocking rate has been increased over the period, thus:

1957-1958	1 beast/2 ac.
1959-1960	1 beast/1.5 ac.
1961-1965	1 beast/1 ac.

Liveweight gain per acre ranged from 119 lb. in 1958 to 354 lb. in 1963, the whole eight-year range being as follows:

Liveweight gain (lb.) per acre

1958	1959	1960	1961	1962	1963	1964	1965 (drought)
119	207	166	292	264	354	294	191

D.P.I. Coolum records indicate that, on the 40-acre trial, liveweight gains average 300 lb. per acre/annum.

Prices

For the five-year period to 1963-1964, the average annual price (Brisbane Abattoir) of yearlings was $20.58 per 100 lb. dressed weight. The corresponding price for chiller bullocks was $19.03. If it is assumed that yearlings can be purchased at $20.00 per 100 lb. dressed weight, and that after twelve months can be sold as prime bullocks for the same price per 100 lb., then, on the basis of 300 lb. liveweight gain per annum and a dressing weight of 50%, the margin per beast would be $30.00.

Table 1 shows a range of margins per beast assuming a carrying capacity of 1 beast/ac.

TABLE 1.

A range of price margins per beast.

	$	Liveweight Increase per acre				
		200	250	300	350	400
Price per 100 lb Dress Weight	30	30.00	37.50	45.00	52.50	60.00
	25	25.00	31.25	37.50	43.75	50.00
	20	20.00	25.00	30.00	35.00	40.00
	15	15.00	18.75	22.50	26.25	30.00
		100	125	150	175	200
		Dressed weight Increase per acre.				

Another approach to gain some idea of the possible gross returns is to examine the price difference between yearlings and steers. As far as the Wallum is concerned, this could well represent a period of 12 months. Over the period 1955 to 1964, the average difference (Brisbane Abattoir) was $40.1.

It is suggested that gross returns under current conditions could be between $30 and $40 per acre per annum.

The Effect of Income Tax Concessions

Section 75 of the Income Tax and Social Services Contribution Assessment Act allows certain items of capital expenditure to be deducted from the gross income of tax-payers engaged in primary production, before the assessment of income tax.

The major items affecting developers of the Wallum are—
1. Destruction and removal of timber.
2. Ploughing and grassing the land for grazing purposes.
3. The draining of swamp on low-lying lands where that operation improves the agricultural or grazing value of the land.
4. The construction of dams, earth tanks, or the sinking of bores or wells.

These concessions result in a financial advantage to developers who can utilize otherwise taxable funds in the development of a property. Such income may be derived from more than one source, and there are two conceivable situations—
1. Where income is derived from sources outside the development block and applied to development within it during the year of income.
2. Where a block is developed gradually and income from production is ploughed back into further development during the year of income.

In practice, it is likely that a combination of these situations will apply. The value of these concessions will vary with the individual developer. An indication of the range of discount on capital may be obtained from Table 2. For example, assume taxable income of $10,000 (column 5 line 16). If $4,000 is invested in development, the tax saving is $1,894 (column 5 line 12).

TABLE 2.

A table showing the absolute saving in tax if development is carried out from otherwise taxable income and the consequent % of reduction in capital cost.

AMOUNT OF OTHERWISE TAXABLE INCOME INVESTED IN DEVELOPMENT $

	$	1	2	3	4	5	6	7	8	9	10
1.	20,000										62% 12,234
2.	18,000									50% 9,024	62% 11,176
3.	16,000									53% 8,484	63% 10,018
4.	14,000								47% 6,606	55% 7,728	
5.	12,000							45% 5,448	50% 6,066	57% 3,422	
6.	10,000						43% 4,290	49% 4,908	53% 5,290	58% 5,834	
7.	9,000					37% 3,348					
8.	8,000					40% 3,190	47% 3,750	52% 4,152	55% 4,426	59% 4,734	
9.	7,000			33% 2,338	42% 2,950						
10.	6,000			36% 2,180	44% 2,650	50% 2,994	54% 3,268	57% 3,416	60% 3,576		
11.	5,000		29% 1,454	39% 1,940	46% 2,290						
12.	4,000		32% 1,296	41% 1,640	47% 1,894	52% 2,110	56% 2,258	58% 2,316	60% 2,418		
13.	3,000	23% 698	35% 1,056	43% 1,280	49% 1,466						
14.	2,000	27% 540	38% 756	44% 884	50% 1,010	55% 1,100	58% 1,158	58% 1,158			
15.	1,000	16% 158	30% 300								
16. $		2,000	4,000	6,000	8,000	10,000	12,000	14,000	16,000	20,000	32,000

TAXABLE INCOME.

THE HYPOTHETICAL PROPERTY

This section sets out the operations and financial estimates of a development programme for a hypothetical property.

The Developer

A syndicate of 5. In the blocks now being released, limited liability companies are precluded from applying. Thus, only partnerships and individuals may apply. An inspection of leases already granted by the Lands Department shows that some leases are to individuals and some to partnerships.

Capital Available

The syndicate has a total of $80,000 available for immediate investment, and surplus income from other sources of $4,000 each per annum which can be applied for property development. This invested surplus will allow them to take advantage of income tax concessions.

Situation

100 miles north of Brisbane. This is in the vicinity of the two experimental stations.

Size

4,000 acres.

Topography

80% forested country, mainly eucalypts on the ridges and tea-tree in the depressions and drainage lines. 20% open heath which needs draining before it can be cultivated.

Land Acquisition

The terms of release of Wallum land allow for rental, with the option of purchase, of parcels of land as developed. Here, the land is not converted to freehold during development, in order to take maximum advantage of income tax deductions afforded by rentals.

Term of Development

Ten years. This is the time usually granted to developers. Although yearly profits are made from the third year onwards, they are regularly ploughed back for further development. The work planned for each year is included in Table 3.

Machinery

Prices generally have been obtained from the farm management handbook prepared by the D.P.I., January 1966. Machinery expenses other than fuel are estimated at 10% of cost. This takes into account the rough, sandy conditions of the Wallum. The fuel costs have been based on a total horsepower of the three tractors. They have also been compared with those of the commercial developers.

Machinery Required

	$
60 H.P. crawler and blade	11,000
Windrower	1,700
2 × 50 H.P. wheeled tractors	7,000
Front-mounted blade	500
Offset discs	1,600
Set of 1/2 tracks	500
Slasher	400
Fertiliser spreader (trailer type)	500
Post hole digger	300
Welding equipment, power saw, tools	1,000
Truck	4,000
Scoop	200
Ditcher (for small drains)	300
Seed planter	500
Sprig planter	500
	$30,000

Fencing

An average of 4 miles of suspension fencing per year at $300 per mile.

Dams, Surveys etc.

Initial surveys for sites are to be carried out by Irrigation and Water Supply Commission Officers (estimated cost $500). It is estimated that $500 would be required for troughs and reticulation per year, although not required in every year

Fertiliser

Establishment costs are based on $60 ton, and $40 ton for maintenance.

Lime

Lime costs are based on a 1966 price of $16 per ton charged by a local lime works, including spreading. Application rates assumed are 1 ton/acre on the heath and 5 cwt/acre on other areas.

Seed

Seed costs are based on 8 oz. lotononis at $6, 1.5 lb. white clover at $1, and small quantities of Siratro, setaria, phasey bean and desmodiums, according to area. Seed could be harvested in good years with hired equipment.

Runners

Pangola grass. One of the initial operations in development is to establish an area of Pangola for a propagation plot.

Freight

These charges are based on local transport costs of $0.66 per mile for a load of approximately 20 head.

Commission

Based on standard commission charges.

Labour Force

1 Manager at a salary of $3,000 per annum.

Farm labourers at a wage of $2,250 per annum each.

Carrying capacity and financial returns

It is assumed that one beast per acre is turned off per year. These cattle are bought as yearlings and turned off within twelve months. The difference between cost of purchase and sale is $40.

Constant costs

Constant costs are assumed throughout the development period. McCarthy and Hamilton (personal communication) showed in a projection of similar costs and returns that margins might be expected to increase if the trends then operating continued.

Financial costs and returns

These data based on the assumptions above are included in Table 4. No attempt has been made to use discounting techniques.

DISCUSSION

The development programme shows that under the assumptions made investment in a Wallum development and fattening project would be quite profitable.

TABLE 3.

Work plan for development.

	Year 1	Year 2	Year 3	Year 4-10	Total
Survey	4,000 acres	—	—	—	4,000 acres
Clear and burn—ridge	100 ,,	100 acres	200 acres	2,800 acres	3,200 ,,
Drainage—heath	300 ,,	300 ,,	200 ,,	—	800 ,,
Discing	400 ,,	400 ,,	400 ,,	2,800 ,,	4,000 ,,
Fertiliser	400 ,,	400 ,,	400 ,,	2,800 ,,	4,000 ,,
Lime—heath	300 ,,	300 ,,	200 ,,	—	800 ,,
ridge	100 ,,	100 ,,	200 ,,	2,800 ,,	3,200 ,,
Seed- and sprig-planting	400 ,,	400 ,,	400 ,,	2,800 ,,	4,000 ,,
Fencing	400 ,,	400 ,,	400 ,,	2,800 ,,	400 ,,
Watering facilities	400 ,,	400 ,,	400 ,,	2,800 ,,	4,000 ,,
Machinery Shed	1	—	—	—	1
Manager's house	1	—	—	—	1
Yards and dip	1	—	—	—	1
Pasture maintenance	—	400 ,,	800 ,,	increasing 400 acs./yr.	
Purchase cattle	200 head	600 head	1,000 head	increasing 400 head/yr.	
Sale cattle	—	200 ,,	600 ,,	increasing 400 head/yr.	

For the property as a whole, a cost outlay of $280,000 as partners' capital plus reinvested profits of $250,000, results in a capital investment of $530,000. Thus, for each partner, this means a total outlay for other sources of $56,000 to give an investment of $106,000 by the time development is completed. After this period the net return to each investor is $13,250 per year, or 12½ per cent on the total cost of development. These figures do not include an allowance for interest on total capital invested.

The position on a per acre basis is as follows:

DEVELOPMENT $

Cost of land   nil   (Rental included in operating
Development   82.5   Expenses)
Stocking   50.0

$132.5 = 100%

OPERATION

Gross margin per acre   40.0
Operating expenses   23.4

$16.6 = 12.1/2%

Higher Return Resulting from Income Tax Concessions

If the outside incomes of the syndicate members were such that investment in Wallum resulted in a tax saving of 50%, then the cost of the above outlay would be $28,000, and the accrual of capital to $106,000 would represent a gain of $78,000 (including profits ploughed back in), most of it non-taxable. Part of the gain of $78,000 would be taxable because the net income from the property exceeds the amount being "ploughed back" by way of deductible expenditure before the full development has been

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TABLE 4.

Financial data of development programme.

	Year 1	2	3	4	5	6	7	8	9	10	11	Total
	$	$	$	$	$	$	$	$	$	$	$	$
DEVELOPMENTAL COSTS—												
Land acquisition	—											
Survey Costs	1,000											1,000
Machinery initial cost	30,000											30,000
repairs, maintenance & insurance	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000		30,000
fuel	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000		40,000
Lime	5,200	5,200	4,000	1,600	1,600	1,600	1,600	1,600	1,600	1,600		25,600
Fertiliser	7,200	7,200	7,200	7,200	7,200	7,200	7,200	7,200	7,200	7,200		72,000
Seed	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000		40,000
Runners	200	—	—	—	—	—	—	—	—	—		200
Dams, surveys, mills & reticulation	1,000	500	500	500	500	500	500	500	500	500		5,500
Fencing	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200		12,000
Wages	5,500	5,500	5,500	5,500	5,500	5,500	5,500	5,500	5,500	5,500		55,000
Manager's house	8,000	—	—	—	—	—	—	—	—	—		8,000
Yards and dip	2,000	—	—	—	—	—	—	—	—	—		2,000
Machinery shed	1,000	—	—	—	—	—	—	—	—	—		1,000
Replace small tractors & maintenance equipment	—	—	—	—	—	—	—	—	—	—	7,700	7,700
Total	73,300	30,600	29,400	27,000	27,000	27,000	27,000	27,000	27,000	27,000	7,700	330,000
INITIAL STOCKING COSTS	10,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	10,000	200,000
DEVELOPMENT & STOCKING A	83,300	50,600	49,400	47,000	47,000	47,000	47,000	47,000	47,000	47,000	17,700	530,000 A

OPERATING COSTS											Costs and returns after development	
Replacement of store cattle	—	10,000	30,000	50,000	70,000	90,000	110,000	130,000	150,000	170,000	190,000	200,000
Fertiliser	800	2,800	5,600	8,400	11,200	14,000	16,800	19,600	22,400	25,200	28,000	28,000
Freight	—	3,200	6,400	9,600	12,800	16,000	19,200	22,400	25,600	28,800	31,200	32,000
Commission	—	720	2,160	3,600	5,040	6,480	7,920	9,360	10,800	12,240	13,680	14,400
Labour	—	2,000	2,000	2,000	2,000	4,000	4,000	7,000	7,000	7,000	10,000	10,000
Animal Health	50	150	250	400	500	600	700	800	900	1,000	1,000	1,000
Land Rental	200	200	200	200	200	200	200	200	200	200	200	200
Interest	—	—	1,000	2,100	2,900	3,300	3,500	3,300	2,900	2,100	800	—
Other Costs—Motor vehicles, machinery, depreciation and miscellaneous	1,000	1,000	2,000	2,000	3,000	4,000	5,000	6,000	7,000	8,000	8,150	8,150
Total operating costs B	2,050	20,070	49,610	78,300	107,640	138,580	167,320	198,660	226,800	254,540	283,030	293,750 B
FUNDS REQUIRED FOR DEVELOPMENT AND OPERATION A plus B	85,350	70,670	99,010	124,300	154,640	185,580	214,320	245,660	273,800	301,540	300,730	
FUNDS SOURCE— Partners' capital (Total $280,000)	100,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	—	—
Sale of cattle—revenue C	nil	18,000	54,000	90,000	126,000	162,000	198,000	234,000	270,000	306,000	348,000	360,000 C
ANNUAL CASH SURPLUS/DEFICIT C — (A + B)	14,650	−32,670	−25,010	−14,300	−8,640	−3,580	3,680	8,340	16,200	24,460	41,270	66,250
PROGRESSIVE CASH SURPLUS/DEFICIT	14,650	−18,020	−43,030	−57,330	−65,970	−69,550	−65,870	−57,530	−41,330	−16,870	24,400	—
ANNUAL PROFIT AFTER FULL DEVELOPMENT	14,650											66,250 C-B

Note: Profits (*C-B*) are made from year 3 onwards but are re-invested in development.

completed. After development, the whole of the net return of $13,250 would be taxable. Since the actual cost of the investment is reduced, the dividend rate is correspondingly increased.

Methods of Financing

The methods of financing will have considerable effect on the final result.

It is likely that private investors will be the major source of capital in the early stages of Wallum development and since the investors in this study already have substantial incomes, the fact that no drawings are made against profits during the period of development is a reasonable assumption.

There are alternative methods of arranging the finance. For example, the syndicate might borrow more and hasten development. It will be noted that in no year is the cash deficit greater than the amount needed to purchase stores for initial stocking and replacement, so that the land is unencumbered at all times and no difficulty should arise in raising more funds if so desired.

Alternatively, the members might borrow more, and use less of their own funds, allowing no change in the development rate. The income tax concessions would not be greatly affected, provided the same capital expenditure was being undertaken. In both these cases, however, operating profit would be reduced by interest charges.

Finally, the syndicate might allow the development to proceed at a slower rate once sufficient capital had been invested. Thus, after the fifth year, 2,000 acres would be capable of earning $33,125. This could be "ploughed back" without the additional funds from the syndicate members—$20,000 per annum.

Any long-term development plan must be flexible enough to meet changing conditions. It is considered that the plan in this paper is flexible.

Size of the Property

The property has been developed by what is considered to be an optimum-sized unit in terms of labour and machinery. At the end of the development period, there would appear to be no reason why the syndicate could not disband, each member then operating on his own account. The economics of operation would be altered somewhat, but the development would have been carried out in the most economic manner.

Limited Liability of Syndicate Members

Disbanding of the syndicate would, possibly, be an answer to an investor who wished to obtain the best income tax advantages available but not incur, for any longer than necessary, the personal liabilities sometimes attaching to partnerships. This is a matter of law, and outside the scope of this paper.

ACKNOWLEDGEMENTS