COMMONWEALTH OF AUSTRALIA

BEEF CATTLE PRODUCTION

AN INDEX OF COST MOVEMENTS

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1951—'52

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BUREAU OF AGRICULTURAL ECONOMICS
DEPARTMENT OF COMMERCE AND AGRICULTURE
CANBERRA, A.C.T.

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Bureau of Agricultural Economics,
CANBERRA

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B E E F C A T T L E P R O D U C T I O N

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SUMMARY

1. A survey was conducted by the Bureau of Agricultural Economics covering the financial results in 1949-50 of 56 properties exclusively engaged in beef cattle production, and distributed throughout Queensland, the Northern Territory and the Kimberley region of Western Australia.

2. From an analysis of the survey data, a structure of gross costs 1949-50 was developed in which the principal imputed costs were:
   (a) Allowance for owner-operator £745 p.a. at 30.6.50 (equivalent to £1,000 at 30.6.51).
   (b) Interest was allowed at the rate of 4½% per annum on the capital value of fences, waters, machinery, plant, structures, breeding, stock and horses.
   (c) The value of the breeding herd was regarded as the capital invested permanently in stock.
   (d) The allowance for land was covered by the rentals paid (or in the case of freehold properties, by the rental equivalent).

3. Using the structure of costs for 1949-50 as a base, an Index of Cost Movements was constructed. The object of the Index is solely to measure the movement in costs from one year to the other, not the absolute level of costs at any particular moment.

4. Climatological data are presented to show that 1949-50 was a suitable year to use as a base for the estimation of cost movements.

5. In constructing the Index, the average physical composition of the properties was regarded as constant over the period and the various cost items were adjusted from year to year by means of appropriate percentages (price relatives) which are designed to reflect movements between 1st July one year and the same date of the succeeding year in the prices of goods and services that enter into beef production.

6. On the basis adopted in the text, the Index points to an increase of 16.7% in gross costs in the 12 months 1950-51 - 1951-52.

7. The Index does not include any increase that may have taken place in killing and treatment charges since last year.

8. An examination has also been made of beef cattle mortality and the effect of drought losses upon costs.

BEEF CATTLE PRODUCTION

AN INDEX OF COST MOVEMENTS 1951-52

1. INTRODUCTION

On 11 October 1951 the Governments of the Commonwealth of Australia and the United Kingdom signed a Meat Agreement designed to cover a period of 15 years commencing on 1 July 1952 and terminating on 30 September 1967. The two Governments stated the intention of the Agreement:

> "To develop further the production of meat in Australia, to increase the export of meat to the United Kingdom and to provide a satisfactory market in the United Kingdom for the whole of the exportable surplus of meat from Australia during the term of the Agreement."

The Agreement comprised a General Agreement and Detailed Agreements covering beef and veal, and lamb and mutton. The Beef & Veal Detailed Agreement is included in this report as Annexure E. It will be seen that the basic schedule of prices agreed upon for the year ended 30 September 1952 will be amended in accordance with (but not necessarily proportionally to) the variation in production costs.

The Minister for Commerce & Agriculture had indicated to the British Ministry of Food that the figures relating to the movements in the costs of production would be compiled for the present by the Bureau of Agricultural Economics. This report sets out methods followed and the results obtained by the Bureau in the construction of an Index of Cost Movements.

It must be emphasised that for the purposes of the Meat Agreement, it is the movement of costs that is significant. Nowhere in the Agreement is there a relationship established between the prices (or the average price) of beef and the unit cost of production*; nor would it be feasible to do so since in the current state of knowledge of the industry no single figure would be

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* i.e. costs per pound of beef produced.

acceptable as an average unit cost of production - the diversity of physical and climatic environment and the variety of systems of management will render the concept of a unit cost inapplicable until a greater body of financial data has accumulated, so that it is not possible at present to quote an absolute figure for costs per pound. However, it is quite practicable to find the relative change in costs of production and to express this in the form of an Index.

2. PRINCIPLES OF THE INDEX.

In constructing an Index of Movements of Beef Production Costs, the physical composition of the property is regarded as constant over the period (twelve months) under consideration and the various items of cost are adjusted from one year to the next by means of appropriate index numbers which are designed to reflect the changes that have occurred in the prices of the factors of production, i.e. in the prices of goods and services that enter into the various items of cost.

Before describing in detail the methods of construction and operation of the Index, it is necessary to draw attention to certain important limitations in the Index approach to the measurement of cost movements. As in the case of a cost-of-living index or other type of price index, these limitations derive from the fact that the Index method, of necessity, assumes constant certain things which in the long term, at least, are liable to change. The principle assumptions inherent in the Index procedure are:-

(a) constant average type of property.

(b) constant production in relation to resources.

In effect these assumptions mean that the level of physical inputs corresponding to a given level of output is regarded as fixed over the short term. Experience in other industries in which

field surveys have been conducted annually of after a lapse of a few years have strengthened the belief that this assumption is justified. The Index Method therefore is complementary to the field survey; however, the Index cannot be used indefinitely as a complete substitute for the survey. The use of an index of costs can reduce the need for field surveys to say three-yearly intervals, but the operation of the Index method for long periods, without check of the validity of its assumptions by direct field survey, could possibly allow errors to occur due to changes in the average structure of costs and/or productivity. This becomes particularly important in the case of beef production since it is known from the outset that development of the industry will be encouraged. * Under such conditions it becomes essential that the relationship of the various cost items one to the other should be re-examined at regular intervals so that their proportions (weights) shall be in line with the developing pattern of utilisation of the factors of production.

In other words, for any particular year the Index relates solely to that part of the change in the cost of production arising from variation of prices and takes no account of changes in production costs attributable to changes in the system of management or the scale of operation. These can only be brought into account by the collection of further data in the field.

In the application of the Index Method to most other industries it is also necessary to make certain assumptions about the relationship between sideline costs and total gross costs. The

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* Australia-United Kingdom Meat Agreement: General Agreement Clause 4 (i) : - The Australian Government will use its best endeavours, not only to maintain the present volume of exports, but to bring about steadily increasing exports of meat to the United Kingdom, and to this end will promote developmental programmes.

problem does not arise on this occasion since only properties free of sideline income were included in the sample.

The operation of the Index involves then two factors, namely -

(a) a basic structure of cost items, and

(b) a set of index numbers (termed price relatives) by which the various items of cost can be brought up to date.

3. ADOPTION OF BASIC STRUCTURE OF COSTS.

Since the Index is concerned with the measurement of the change in average costs for the industry as a whole, a single average structure of costs has been adopted as the basis for the Index. This basic structure of costs was derived from the results of a field survey conducted during the past twelve months by officers of the Bureau of Agricultural Economics.

The results cover 56 properties scattered throughout Queensland, Northern Territory and the Kimberley regions of Western Australia. In all cases the financial accounts for the year 1949-50 were recorded, and aggregated to obtain an average structure of costs. A summary of the methods used in the field survey is given in Annexure B.

The geographical distribution of the 56 holdings is not strictly in proportion with the distribution of cattle population, a defect which can be attributed to practical difficulties arising from the great distances that must be covered in any field work associated with the beef industry. Certain areas are lightly weighted in the sample (e.g. Gulf Country) and there are insufficient Queensland properties included in relation to the Northern Territory and the Kimberleys.

In order to adjust for the lack of balance between Queensland and the other two areas, the properties visited in each State

were regarded as a sample of all beef cattle properties in that State and from them the percentage structure of costs was determined for each State. These State structures were then combined in proportion to the relative cattle populations in order to arrive at an overall percentage structure of costs for the industry as a whole.

It is proposed to undertake further field work in Queensland in the coming year to add to the number of samples there. Accordingly, the basic cost structure adopted this year will be revised in the light of the additional information which it is hoped to possess by the time of next years review. However, it is considered that when the beef producing areas of the North are regarded as a whole, a sample of more than 50 properties should give an average structure of costs substantially in agreement with the actual situation particularly when it is remembered that the areas from where further samples will be drawn are likely to possess a cost structure intermediate between those of coastal Queensland and the Northern Territory, regions which are already well represented in the sample.

The itemised structure of costs then indicates the relative importance of the various items, and irrespective of whether expressed as money values or as percentages, the items form weights which enable the various price movements to be combined in the appropriate proportions in order to obtain an estimate of the trend in cost movements.

4. PRICE CHANGES IN THE FACTORS OF PRODUCTION.

In general the revision of the items of cost has been by means of sub-indexes constructed by obtaining price quotations at 1 July in each year for representative goods and services covered by the item. Since the survey results which have been used as a starting point in the Index refer to the year 1949-50, prices have been collected at 1 July 1950, 1 July 1951 and 1 July 1952 ; for each item of cost the price(s) in 1950 have been regarded as 100 and the price(s) in subsequent years expressed as relatives (percentages or index numbers) on this base. The relatives then represent the change that has occurred over the twelve monthly periods in question.

Price data has been collected wherever possible from official and published sources, from recognised associations and from reputable firms.

The use of a single days price quotations for most items is considered satisfactory, since previous experience with the Index approach in other industries has shown that practically identical results are obtained by comparing cost increases between two points in time twelve months apart as by averaging quotations for a period, say three months each year. Details of the methods employed to compile the relatives for each cost item, the price data used and the sources from which it was obtained have been assembled in Annexure A.

With few exceptions the date selected for the calculation of the price relatives to be applied to the various items of gross costs has been 1st July. This date was selected in order to reduce to a minimum the time lag between the estimation of the Index and the operation of the revised schedule of prices at 1st October while allowing sufficient time for the collection and analysis of data from a wide variety of sources. The effect on the Index of changes in prices of the factors of production between 1 July and 30 September has been examined in Annexure D. This has been done in accordance with Clause 14(c) of the Meat Agreement (see Annexure E.)

5. ESTIMATE OF COST MOVEMENTS.

The application of the price relatives to the basic structure of cost 1949-50 enables an Index of Movement of Beef Production Costs to be calculated for 1949-50 - 1950-51 and 1950-51 - 1951-52. At the same time the revised structure of costs for 1951-52 is obtained as shown in the following table.

The itemised structure of costs 1949-50 as found by the survey is shown in column 2. The price relatives for 1950-51 and 1951-52 (both compared to 1949-50 prices = 100) are set out in columns 3 and 4 respectively. By multiplying the price relatives for 1950-51 (col. 3) by the weights shown in column 2, a revised cost structure for 1950-51 is obtained (col. 5). Similarly by multiplying the price relatives for 1951-52 (col.4) by the weights in col. 2, a revised structure for 1951-52 has been tabulated (col. 6). The comparison of these revised cost structures (i.e. the ratio of the total of col. 6 to that of col. 5) gives the Index of the movements of costs that have been experienced in the Beef Industry over the past twelve months.

It should be noted that the Index refers only to costs up to the point of sale for slaughter. It does not include any increase that may have taken place in killing and treatment charges since last year nor any change in storage and handling costs up to the point where the beef becomes the property of the British Ministry of Food.

TABLE

SUMMARY OF BEEF COST INDEX

Item	Cost Structure 1949-50 %	Price Relatives Base 1949-50 = 100 1950-51	1951-52	Revised Cost 1950-51 %	Structures 1951-52 %
(1)	(2)	(3)	(4)	(5)	(6)
LABOUR					
1. Owner Operator	5.7	134.2	165.0	7.6	9.4
2. Hired Labour	32.1	134.2	165.0	43.1	53.0
DEPRECIATION					
3(a) Structures	1.0	106.0	113.4	1.1	1.1
(b) Plant	4.7	110.2	122.6	5.2	5.8
(c) Horses	.9	100.0	100.0	.9	.9
MAINTENANCE					
4(a) Structures	2.6	157.3	173.3	4.1	4.5
(b) Plant	5.4	132.3	144.3	7.1	7.8
GENERAL STATION COSTS					
5. Rates and Taxes	3.7	121.3	147.3	4.5	5.5
6. Insurance	.8	126.7	156.9	1.0	1.3
7. Oils and Fuels	3.3	109.3	118.1	3.6	3.9
8. Inward Freight	1.8	122.5	144.5	2.2	2.6
9. Dip Materials	2.0	110.6	132.1	2.2	2.6
MINOR STATION COSTS					
10. Miscellaneous	2.9	117.6	142.8	3.4	4.1
MARKETING					
11. Commission	.7	114.8	170.1	.8	1.2
12. Railage	9.8	126.5	146.2	12.4	14.3
13. Droving	3.8	139.5	164.2	5.3	6.2
INTEREST					
14(a) Breeders	10.4	..	..	10.4	10.4
(b) Structures	.7	106.0	113.4	.7	.8
(c) Fences	.5	106.0	113.4	.5	.6
(d) Plant	.9	110.2	122.6	1.0	1.1
(e) Waters	1.4	110.2	122.6	1.5	1.7
(f) Horses	.4	..	..	.4	.4
RENTAL					
15. Rentals on Land	4.5	109.3	121.5	4.9	5.5
TOTAL GROSS COSTS	100.0			123.9	144.7
INCREASE (on previous year)				23.9	16.8

ANNEXURE A - DETAILS OF PRICE RELATIVES

LABOUR.

1. Owner Operator
2. Hired Labour

DEPRECIATION.

3. Depreciation -
   - (a) Structures
   - (b) Plant
   - (c) Horses

MAINTENANCE.

4. Maintenance -
   - (a) Structures
   - (b) Machinery and Plant

GENERAL STATION COSTS.

5. Rates and Taxes
6. Insurance
7. Oils and Fuels
8. Inward Freight
9. Dip Materials

MINOR STATION COSTS.

10. Miscellaneous

MARKETING.

11. Commission
12. Railage Out
13. Droving

INTEREST.

14. Interest -
    - (a) Breeders
    - (b) Structures
    - (c) Fences
    - (d) Plant
    - (e) Waters
    - (f) Horses

RENTAL.

15. Rentals on Land

ANNEXURE A

DETAILS OF PRICE RELATIVES

LABOUR

1. Owner-Operator:-

The allowance to the owner-operator was established at £1,000 per annum at 30.6.51, this allowance to cover all aspects of his labour both physical and managerial. The allowance also covered keep for the operator. In order to convert this sum to a figure applicable at 30.6.50, the allowance was deflated in proportion to the change in the weekly rate of payment for station hands with no limitation of hours as determined by the Queensland Station Hands Award between 30.6.50 and 30.6.51. (see below). This brought the allowance back to £745 at 30.6.50 and it was this figure that was used to determine the value of the owner-operator's labour in the 1949-50 costs.

Similarly, the allowance was advanced to 30.6.52 by amending it in proportion to the change in the weekly rates for station hands between 30.6.51 to 30.6.52. The allowance at the latter date becomes £1,230 per annum.

The corresponding price relatives are:

	Allowance	Price Relative
	£	%
1949-50	745	100
1950-51	1000	134.2
1951-52	1230	165.0

2. Hired Labour:-

This item has also been adjusted in accordance with the change in the weekly rate of payment for a general station hand with no limitation of hours, (with keep), under the Queensland Station Hands Award. Details were obtained from the Queensland Government Gazette as follows:

	Weekly Rate	Price Relative
	S.E. Division	
	£. s. d.	
1.7.50	6. 13. 1	100
1.7.51	8. 18. 7	134.2
1.7.52	10. 19. 7	165.0

DEPRECIATION

3. Depreciation:-

In the "index" approach, depreciation is adjusted in accordance with the increase in the (depreciated) capital values resulting from higher replacement costs of assets, but not from nett additions of machinery or buildings, since the physical structure of the farm is considered to remain unchanged from year to year. It is assumed that there is a constant rate of physical replacement for depreciable assets. Thus, machinery and plant has a life of 10 years, so that 10% of the machinery is replaced each year. Similarly structures are assumed to have a life of 40 years, with 2½% being replaced each year. Changes in the depreciation cost will then result from changes in the capital value of the structures and plant arising from -

(a) the depreciating value from year to year of the structures and plant in use, and

(b) the increase caused by the necessity to replace assets that have come to the end of their life with new structures etc. at much higher cost.

Changes in volume will not affect the costs, since by definition the volume of depreciable structures and plant is held constant and only the quantity which has reached the end of its working life is replaced each year. If structures have an average life of 40 years then in any particular year 1/40th of the sheds etc. will be replaced at present day costs. It is not necessary to know the actual investment in structures and plant on an average property for since equal volumes are replaced each year, it is sufficient to represent the movement in the prices of building materials and of farm machinery by index series. Because of this underlying idea of constant physical volume, the index series will also represent the values of the structures replaced each year.

The calculation of the relatives is given below:

(a) Structures:

The Melbourne Wholesale Price Index (Building Materials Group) was used in estimating the depreciated capital value of structures. Certain amendments were made:

(i) The series which is published for calendar years, was converted to a financial year basis

(ii) The figures for 1951-52 were estimated by reference to the corresponding Building Materials Index in the Wholesale Price Index of Basic Materials and Foodstuffs.(This latter series is more up to date, but unfortunately does not cover the whole 40 years.)

The depreciated value for structures in 1949-50 was obtained as the total of:

2½% of the index number for 1910-11
5% " " " " " 1911-12
7½% " " " " " 1912-13

and so on, up to

100% of the index number for 1949-50

The depreciated value for 1950-51 was obtained by a similar calculation using the index numbers for the period 1911-12 - 1950-51 ; and in like fashion the depreciated value for 1951-52 was found from the index numbers for 1912-13 - 1951-52. These totals and the price relatives derived from them are:-

	Measure of Depreciated Value	Price Relative for Depn. on Structures
1949-50	58,676	100
1950-51	62,201	106.0
1951-52	66,555	113.4

(b) Plant:

For estimating the depreciated capital value of plant an index of machinery prices was used based on information from H.V. McKay, Massey Harris Ltd. The calculation of the relatives for plant proceeds similarly to that for structures except that here it is necessary to take, as a measure of depreciation on plant for 1949-50, the sum of:

10% of the index number for 1940-41.
20% " " " " " 1941-42

and etc.

The totals and relatives were found to be:

	Measure of Depreciated Value	Price Relative for Depreciation on Plant
1949-50	7779.2	100
1950-51	8573.1	110.2
1951-52	9540.7	122.6

(c) Horses:

Horses were treated as a factor of production and a flat rate of 10% was allowed for depreciation. This means that the depreciation was charged on the standard conservative valuation of horses and as the valuation will stand until the next field review, the depreciation cost will remain constant.

MAINTENANCE.

4. Repairs and Maintenance:

As the labour element in maintenance cost is covered under the headings of owners' labour and hired labour, this item was revised on the basis of the percentage changes in the prices of materials and parts and in the maintenance of structures and plant.

(a) Maintenance of Structures:

The calculation of this relative was made on prices supplied by the Prices Branch in Queensland and by reputable distributors of imported materials.

Since 1949/50, the usage of the higher priced imported materials has become more widespread due to the shortage of local supplies and account has been taken of this fact. Where local supplies are adequate or nearly so, only local quotations have been used in the sub-index. For those items in short supply locally, the average price of the locally produced product is combined with the imported price, in proportion to their contribution to total available supplies for each of the two years 1950-51 and 1951-52. This procedure is based on the assumption that usage of imported materials is the same relatively to the usage of locally made goods for the beef cattle industry as for Australia as a whole. The period of transition to using much greater quantities of imported material was largely over by 1951, and it is doubtful if the proportion of imported material used in 1951-52 differed substantially from what it was in the previous year.

The following Table (Table A1) shows the price data for building materials and Table A2 sets out the calculation of the price relatives as the simple averages of the price ratios.

(b) Maintenance of Machinery and Plant:

This item has been varied in accordance with the movement shown by a sub-index of prices of representative spare parts for machinery and plant. Information was provided by leading manufacturers and distributors concerning the prices at 1.7.50, 1.7.51 and 1.7.52. The price data is set out in full in Table A3. For each of the 82 parts there was calculated the ratio of the price on 1.7.50 and the prices on the later dates 1.7.51 and 1.7.52. These ratios were then combined to give an average ratio for each of the main groups of plant. The means of the average price ratios became the price relatives, see Table A4.

In the case of one vehicle, the Land Rover, prices were not available on 1.7.50. It was assumed that the rise in price from 1.7.50 to 1.7.51 was the same for this machine as for the average of the spares of the other two vehicles during the like period. In this way, it was possible to bring the price data for the Land-Rover into the sub-index and so make the maximum use of the information that had been collected.

However, it should be noted that the replacement parts used in the sub-index to measure the movement in maintenance costs were mostly mass produced articles which had a small labour component. Inclusion in the regimen of items such as cam shafts which have a high labour component in their cost would have increased the price relatives to a greater extent than is reflected in the figures as they stand.

TABLE A1

PRICES OF BUILDING & FENCING MATERIALS

Item	Unit	1949/50	1950/51				1951/52			
		Local	Local	Imported	Ratio	Wtd. Av.	Local	Imported	Ratio	Wtd. Av.
Galv. Wire Plain 8g.	ton	36. 0. 8	40. 0. 4	104. 0. 0	1 : 2	82.13. 4	54.13. 0	110. 0. 0	2 : 3	87.17. 0
" " " 10g.	"	36.10. 8	40.10. 4	115. 0. 0	1 : 2	90. 3. 5	55. 5. 3	110. 0. 0	2 : 3	88. 2. 1
" " Barbed 12½g.	"	38.18. 2	42.17. 0	122. 0. 0	5 : 6	86. 0. 8	57.11. 6	110. 0. 0	1 : 1	83.15. 9
Steel Fence Posts 5'6"	each	1.10¾	2. 1½	4.11	1 : 1	3. 7	2.10	6. 3	1 : 1	4. 7
Nails 11g.	cwt.	2. 8.10	2.12. 2	-	-	2.12. 2	2.17. 6	-	-	2.17. 6
Galv. Piping 2"	ft.	1. 7	1.10	6. 0	6 : 1	2. 5	2. 2	6. 3	6 : 1	2. 9
Corr. Galv. Iron 26g. 7ft.	ton	49.11. 4	56. 2. 4	157.10. 0	1 : 1	106.16. 2	66. 2. 4	160. 0. 0	1 : 1	113. 1. 2
Plain Galv. Iron 26g.	"	51. 6. 4	57.17. 4	-	1 : 1	57.17. 4	67.17. 4	-	1 : 1	67.17. 4
Cement	"	6. 8.10	7. 6.10	-	-	7. 6.10	8.14.10	-		8.14.10
Screenings	cu.yd.	9. 8	10. 8	-	-	10. 8	11. 5	-		11. 5
Scantlings 3' x 2"	100sq.ft.	2.13. 9	3.10. 0	-	-	3.10. 0	4. 2. 9	-		4. 2. 9
H.W. Flooring	"	3. 7. 3	4. 4. 6	-	-	4. 4. 6	4.18. 6	-		4.18. 6
Weatherboards	"	2.14. 3	3.10. 6	-	-	3.10. 6	4. 3. 3	-		4. 3. 3
A.C. Sheets 3/16"	sq.yd.	2.11	3. 5	-	-	3. 5	3. 7	-		3. 7

TABLE A2

MAINTENANCE OF STRUCTURES

Item	Price Ratio		
	1949/50	1950/51	1951/52
Galv. Wire Plain 8g.	100	229.4	243.8
" " " 10g.	100	246.8	241.2
" " Barbed 12½g.	100	221.1	215.3
Steel Fence Posts 5'6"	100	190.5	243.6
Nails	100	106.8	117.7
Corr. Galv. Iron 26g. 7ft.	100	215.5	228.1
Plain Galv. Iron 26g.	100	112.7	132.3
Cement	100	114.0	135.7
Screenings	100	110.4	118.0
Scantlings 3' x 2"	100	130.3	154.0
H.W. Flooring	100	125.7	146.5
Weatherboards	100	130.0	153.5
A.C. Sheets 3/16"	100	117.2	123.4
Galv. Piping 2"	100	151.9	173.5
Average (Price Relative)	100	157.31	173.33

TABLE A3

PRICES OF REPLACEMENT PARTS

	Prices as at								
	1/7/50			1/7/51			1/7/52		
	£.	s.	d.	£.	s.	d.	£.	s.	d.
ENGINES									
Engines 7/8 H.P.									
Cylinder	9.	0.	0	10.	11.	2	12.	2.	10
Cylinder Block		-			-			-	
Piston	4.	5.	0	4.	12.	6	5.	6.	2
Main Bearings	2.	14.	3	3.	3.	0	3.	12.	0
Big End Bearings	4.	0.	0	5.	6.	2	5.	6.	2
Valves		18.	8		18.	8	1.	1.	6
Cylinder Head Gaskets		9.	10		9.	10		11.	3
Compressions Rings		3.	6		4.	0		4.	6
Oil Rings		4.	3		5.	10		6.	6
Fuel Filter Wicks	1.	6.	5	1.	6.	5	1.	6.	5
Engines 10/12 H.P.									
Cylinder		-			-			-	
Cylinder Block	17.	17.	6	20.	9.	9	20.	9.	9
Piston	3.	1.	6	4.	5.	9	4.	18.	8
Main Bearings	1.	18.	4	2.	4.	3	2.	4.	3
Big End Bearings	2.	3.	9	3.	0.	6	3.	9.	7
Valves		10.	6	1.	2.	0	1.	5.	4
Cylinder Head Gaskets		5.	6		6.	10		8.	0
Compression Rings		3.	6		4.	0		4.	6
Oil Rings		4.	3		5.	10		6.	6
Fuel Filter Wicks	1.	6.	5	1.	6.	5	1.	6.	5
WATER SUPPLY AND STORAGE									
Windmills & Pump Heads									
20 ft. Mill	267.	0.	0	300.	0.	0	359.	0.	0
40 ft. Tower for 20ft. mill	93.	0.	0	119.	0.	0	159.	0.	0
No. 2A Pump Head	78.	0.	0	78.	0.	0	86.	0.	0
$1\frac{3}{4}$" x $1\frac{1}{4}$" H.W. Pump Rods with No. 3 Bronze Jnts.(ft.)		4.	6		5.	3		6.	0
3" "Comet" Cup Leathers		3.	0		4.	4		4.	7
Bronze Ball Valves for 3" Comet D.P. Pumps	1.	10.	0	1.	15.	3	2.	0.	6
Bronze Mushroom Valves for 3" Pumps		7.	0		9.	6		11.	0
LIGHTING PLANTS									
32V I.K.W. Generator	50.	10.	0	61.	10.	0	68.	10.	0
32V I. 5 K.W. "	81.	0.	0	99.	10.	0	109.	0.	0
32V I.K.W. Switchboard	22.	10.	0	26.	10.	0	26.	10.	0
32V I. 5 K.W. "	22.	10.	00	27.	10.	0	27.	10.	0
TRACTOR W - 6									
Engine Valve		11.	3		17.	1		19.	6
Cyl. Head Gasket		11.	6		13.	2		13.	6
Set Pistons & Sleeves	27.	14.	0	35.	15.	0	39.	8.	0
Fan Belt		11.	2		19.	6		19.	6
Clutch Lining		9.	5		12.	6		17.	3

		Prices as at								
		1/7/50			1/7/51			1/7/52		
		£.	s.	d.	£.	s.	d.	£.	s.	d.
MOTOR VEHICLES										
Chevrolet Utility										
5268484	Axle Shaft	6.	14.	4	8.	15.	0	9.	4.	0
1804447	Gear & Pinion	14.	5.	0	17.	17.	0	21.	14.	10
606566	Cylinder Head Gasket Set	1.	5.	6	1.	10.	6	1.	17.	0
599207	King Pin		5.	5		7.	2		8.	6
3847450	Clutch Plate	3.	15.	0	4.	9.	6	4.	9.	6
609321	Main Drive Gear	7.	6.	0	9.	3.	3	11.	3.	3
609531	Universal Joint	6.	0.	0	7.	7.	0	7.	7.	0
1792487	Tie Rod End		18.	9	1.	2.	0	1.	2.	0
Willys Jeep										
636755	Clutch Plate		-		2.	16.	0	3.	1.	6
A6074	Shackle Pin		4.	1		5.	0		6.	6
637833	Synchronizer Sleeve	5.	10.	8	5.	14.	2	5.	19.	0
		1.	17.	6x	2.	17.	6x		-	
638798	Second Gear	5.	18.	1		-		8.	4.	6
		5.	6.	0x	6.	13.	9x		-	
A1433	Universal Cross	2.	19.	6		-		3.	13.	10
635529	Clutch Throwout Bearing	1.	11.	6	1.	15.	9	1.	15.	9
630356	Engine Valve		8.	0		11.	2		12.	10
637098	Timing Cover Seal			11		1.	6		2.	6
Land Rover										
Ignition Coil			-		2.	4.	0	2.	15.	0
Distribution Contact Point Set			-			7.	9		8.	10
Headlight Bulb 50			-			5.	6		6.	1
Fuse			-				6			7
Water Pump Assembly			-		8.	8.	0	8.	8.	0
Clutch Plate			-		6.	19.	0	7.	2.	6
Water Pump Impellor & Seal Unit			-			18.	0		19.	0
Radiator Hose (top)			-			7.	0		7.	6
" " (bottom)			-			9.	6		10.	0
Connecting Rod Bearings (pr)			-		1.	0.	6	1.	0.	6
Sealing Rings for Valve Guides			-			1.	4		1.	4
Engine Valves			-			10.	6		10.	6
" "			-			12.	88		12.	8
Oil Seals for Front & Rear Axles			-		1.	17.	6	1.	17.	6
" " " " " "			-			14.	0		14.	0
" " " " " "			-			7.	6		7.	6
King Pin Bearings			-		1.	7.	0	1.	7.	0
Front Wheel Bearings			-		1.	17.	0	1.	17.	0
" " "			-		2.	9.	0	2.	9.	0
Engine Gasket Set			-		1.	7.	6	1.	7.	6
TYRES & TUBES										
Tyres - Universal		7.	15.	6	12.	10.	0	12.	5.	6
Tubes		1.	2.	6	1.	18.	9	1.	16.	9
SADDLERY										
Genuine Wieneke Price Poley "A" mounted		21.	19.	6	27.	10.	0	29.	15.	0
Camp Drafter - mounted		21.	19.	6	28.	10.	0	31.	0.	0
Pack Saddle-complete with bags and harness		20.	17.	6	24.	14.	3	27.	17.	9
Stockwhips 8' x 8 strand with handle		2.	12.	0	3.	3.	6	3.	12.	0
Bridles 1" extended head		1.	6.	7	1.	14.	3	2.	0.	3
Bush Pots and Covers			18.	6	1.	0.	10	1.	5.	0

x Ex American Factory Price.

TABLE A4

REPAIRS AND MAINTENANCE

Type of Equipment	No. of Samples	Price Relatives		
		1949/50	1950/51	1951/52
Engines	17	100	130.6	144.4
Pumps, Windmills	7	100	117.6	137.2
Lighting Plant	5	100	121.9	128.4
Tractor W6	5	100	140.6	158.2
Motor Vehicles	40	100	125.9	142.0
Tyres	2	100	166.5	160.6
Saddlery	6	100	122.8	139.2
Average	82	100	132.3	144.3

GENERAL STATION COSTS.

5. Rates & Taxes.

Shire rates predominate in this item and accordingly it has been adjusted in proportion to the average movement of the rates assessed in a sample of beef producing shires. A questionnaire was sent asking for details of the rates in the £ for the 1949-50, 1950-51 and 1951-52 and also for information concerning changes in the rateable values of rural properties. The change in the rates assessed was calculated for each Shire * using 1949-50 as base, and then the relatives were determined as the simple average of the movements among Shires in each year. From Table A5 it will be seen that the relatives are:

1949-50	100
50-51	121.3
51-52	147.3

6. Insurance:

An analysis of the insurance charges for 19 properties who supplied detailed information on this item showed that in 1949-50 the expenditures were:

Insurance, general (fire)		28.0%
Workers compensation premiums		46.4
Motor vehicles		
Third party	3.2	
Comprehensive	22.4	
		25.6
		100.0

The allocation of motor vehicle insurance between third party and comprehensive was made on the basis of experience in other industries, in the proportions of 1 : 7 respectively.

In the revision of this item it is necessary to allow for increased costs resulting both from higher insurance rates and from higher values of assets insured. Information was obtained from the Queensland State Government Insurance Office and from the Fire and Accident Underwriters Association of Queensland. According to these sources the premium rates changed in the manner

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* For each Shire the change in the rates assessed was found as the product of the movement in the rate per £ and the movement in the valuation for rating purposes.

TABLE A5

MOVEMENT IN SHIRE RATES

	Details for year ending 30 June								
	1950			1951			1952		
	U.C.V. £'000	Rate d. per £	Yield £	U.C.V. £'000	Rate d. per £	Yield £	U.C.V. £'000	Rate d. per £	Yield £
Barcoo	426.3	8	15,225	437.7	12	21,885	445.9	9	16,721
Boulia	263.7	10	11,018	263.7	11.8	13,007	274.0	15.1	17,263
Barkly Tableland	126.3	4	2,158	151.7	4	2,654	154.0	4	2,567
Burke	148.2	9¼	5,713	149.2	9¾	6,063	149.2	13	8,084
Croydon	55.0	6	1,375	55.7	6½	1,509	59.6	10	2,481
Cook	158.4	5	3,300	167.1	6	4,178	189.8	7	5,537
Nebo	225.0	9	8,438	227.9	9½	9,021	253.3	9½	10,027
Peak Downs	290.1	7	8,462	296.8	7	8,657	298.5	11	13,681
Broadsound	349.6	6.7	9,710	350.2	6.5	9,543	349.9	10.5	15,349
Duaringa	214.9	9	8,058	267.2	11	12,246	269	13	14,027
Taroom	1052.7	4.6	20,300	1039.3	6.0	26,000	1040.3	7.81	33,730
Eidsvold	203.2	8½	7,197	208.2	12½	10,844	211.0	12½	10,990
Belyando	425.4	8½	15,066	468.0	10¾	20,960	470.0	13	25,456
Calliope	347.6	15	21,725	347.6	15	21,725	347.6	18	26,070
Kilkivan	402.5	8.6	14,423	402.3	9.65	16,176	1041.8	5.9	25,611
Kolan	344.2	13	18,644	435.8	13	23,606	451.3	13	24,445
Perry	122.3	8	4,077	122.3	8	4,077	271.6	5	5,658
TOTAL (£)			174,889			212,151			257,697
PRICE RELATIVE			100.0			121.3			147.3

shown in Table A6.

TABLE A6

Movement in Insurance Premiums

Insurance	1.7.50	1.7.51	1.7.52
Fire (buildings)	100	100	100
Workers compensation	100	100	100
Motor vehicles (Primary producers)			
Third party	100	186	186
Comprehensive			
Under hire purchase	100	133.3	177.8
Not under hire purchase	100	100	133.3
Average comprehensive	100	116.6	155.5

The increases which have been allowed in respect of values of these items are obtained from the relative determined for other items of cost.

TABLE A7

Changes in Values for Insurance

Insurance	Cost Item	1949-50	1950-51	1951-52
Fire	Depn.Structures	100	106.0	113.4
Workers Comp.	Hired Labour	100	134.2	165.0
Motor Vehicles.				
Third Pty.	-	100	100	100
Compreh.	Depn. Plant	100	110.2	122.6

The total movement in insurance costs has then been calculated on the basis of the distribution of costs between the various types of insurance. The price relatives are seen in Table A8.

TABLE A8

Insurance.

Insurance	Proportion of insur.cost 1949 - 50	1950-51			1951-52		
		Movement in Prem. Rate	Movement in Cap. Val.	Adjusted Cost	Movement in Prem. Rate	Movement in Cap. Val.	Adjusted Cost
	%	%	%	%	%	%	%
Fire	28.0	100	106.0	29.7	100	113.4	31.7
Wkrs. Comp.	46.4	100	134.2	62.3	100	165.0	76.6
Motor Vehs. 3rd Pty	3.2	186	100	5.9	186	100	5.9
Compreh.	22.4	116.6	110.2	28.8	155.5	122.6	42.7
Total (Price Relative)	100.0			126.7			156.9

7. Oils and Fuels:

Prices of petroleum products were obtained from the Shell Oil Company, Brisbane. Table A9 sets out the prices of a range of oils and fuels, and in Table A 10, these prices are combined with arbitrary weights to give the weighted components. The weights are intended to indicate the relative importance of the various products in their usage on cattle properties. It is the quantities of the different items in the regimen relative to one another that is important. The regimen does not represent usage on any particular property - indeed it would be most exceptional to find a property where only £50 - £60 had been spent on fuels in the past year. The aggregate value of the weighted components is used only to arrive at the ratios which represent the average price increases applicable to fuels.

TABLE A9

Prices of Fuels and Oils

Item	Unit	1.7.50	1.7.51	1.7.52
		s.d.	s.d.	s.d.
Petrol	gall.	2.9.	3.0	3.2½
Dieseline	"	1.5½	1.9	2.0½
Engine Oil	"	8.5	8.5	9.5½
Gear Oil	"	8.1	8.1	9.1½
Grease	lb.	7½	7½	7½

TABLE A10

Fuels and Oils

Item	Weight	1949-50	1950-51	1951-52
		£. s. d.	£. s. d.	£. s. d.
Petrol	320 galls.	44. 0. 0	48. 0. 0	51. 6. 8
Dieseline	50 "	3.12.11	4. 7. 6	5. 2. 1
Engine Oil	5 "	2. 2. 1	2. 2. 1	2. 7. 3½
Gear Oil	2 "	16. 2	16. 2	18. 3
Grease	5 lb.	3. 1½	3. 1½	3. 1½
		50.14. 3½	55. 8.10½	59.17. 5
Price Relative		100	109.32	118.05

8. Inward Freight:

Details of rates are taken from the comparative schedules prepared by the Chief Commercial Manager, Victorian Railways. These schedules show the rates currently in force in each State for the various classes of goods carried. The rates used in the calculation are those in force in Queensland for a distance of 300 miles.

The movement in inward freight rates has been measured by taking the simple arithmetic average of the increase in rates for the four relevant classes of goods - two special and agricultural classes, A and B, and two merchandise classes, 1 and 2. Typical commodities carried at each class in Queensland are given below:

A. Cement, Timber.

B. Iron generally; angle bars, pipes, fencing wire nuts and bolts.

1. Agricultural implements, second hand machinery, Windmill, A.C. Sheets.

2. Groceries, ironmongery, furniture, refrigerators, dynamos, tanks, motor vehicles.

The calculation of the price relative as shown in Table A11.

TABLE A11.

Freight Inwards (300 mls)

Class	1.7.50		1.7.51		1.7.52	
	Rate per ton	Ratio %	Rate per ton	Ratio %	Rate per ton	Ratio %
A	57-1	100	70-9	123.9	85-1	149.1
B	106-10	100	132-4	123.9	155-5	145.5
1	154-2	100	186-7	121.0	219-1	142.1
2	322-11	100	390-10	121.0	453-7	140.5
Av. Price Relative		100		122.5		144.3

9. Dip Materials:

Prices were obtained from some of the leading distributors of cattle dips - William Cooper & Nephews, Taubmans, Goldsborough Mort and Queensland Pastoral Supplies. Table A12 sets out the various brands, their price and the price ratio. The simple average of the price ratios was used to obtain the price relative.

TABLE A12
Dip Materials

	1.7.50		1.7.51		1.7.52	
	Price	Ratio	Price	Ratio	Price	Ratio
	sh-d		sh-d		sh-d	
Coopers Dip 5gl.	70-0	100	80-0	114.3	110-0	157.1
Tixol 5 gl.	77-6	100	92-6	119.4	125.0	161.3
Gamatik 60lb.	270-0	100	270-0	100	330-0	122.2
Rucide 56lb.	5-7	100	6-8	119.4	7-6	134.3
Harton 4gl.	56-9	100	56-9	100	56-9	100
Hibiscus.	85-0	100	93-9	110.3	100-0	117.6
Average (Price Relative)		100		110.6		132.1

MINOR STATION COSTS.

10. Miscellaneous:

Under this heading is grouped a large number of relatively unimportant costs which together aggregate between 2-3% of gross costs. Such items as telephone, radio, accountancy fees, stationery, bank charges, etc. are included. The costs of these items have risen by varying degrees, but taken together they are likely to keep pace with the rise in the general price level. Accordingly, the item has been varied with the rise in the Commonwealth Statistician's Wholesale Price Index (all groups).

	Wholesale Price Index (Av. 3 yrs ended June 39=100)	Relative
1949-50	205	100
1950-51	246	120.0
1951-52 *	299	145.9

* Estimated from the data for the 11 months to May 1952.

MARKETING.

11. Commission:

Since the rate of commission has been constant, the item has been moved in accordance with the variation in the average price of fat livestock (medium/heavy bullocks) at Brisbane. Using the information published in the "Meat Producer and Exporter" the average value was calculated, taking into account the numbers of bullocks yarded each month. These average values and the corresponding price relatives were:

	Average Value of medium/ heavy bullocks at Brisbane (wtd by yard-ings) sh/100 lb.	Price Relative
1949-50	71.5	100
50-51	82.1	114.8
51-52	121.6	170.1

12. Railage Out:

Using the same source of material as for Inwards Freight, it was decided to vary this item in conformity with change in freight rates for cattle moved 300 miles on the Queensland railways. The rates per truck are set out below together with the price relatives.

	Q'ld freight rate cattle (truck lots 300 miles)	Price Relative
1.7.50	243-10	100
1.7.51	308-6	126.5
1.7.52	357-11	146.8

13. Droving:

In order to adjust this item, reference was made to the rates of pay under the Queensland Station Hands Award for cattle drovers, travelling with stock (S.E. Division).

	Rate	Relative
1.7.50	£8. 5. 10	100
1.7.51	£11.11. 4	139.5
1.7.52	£13.12. 4	164.2

INTEREST

14. Interest:

During the period under consideration, the Commonwealth Bank's overdraft interest rates have remained constant. Any increase in this item would therefore arise only from an increase in capital value. The total capital invested (other than land) is the aggregate of the value of fences, buildings and yards, water supply, plant and machinery, breeding stock and horses.

(a) Breeding Stock: On established properties in continuous production the value of the stock is kept constant for costing purposes; changes in market values are not taken into account. The market value of stock will vary with the season and with the profitability of the industry so that as the price of beef rises there would be a tendency for stock values to rise also. To avoid writing this increase in market prices back into costs the value of stock has been held constant at the conservative valuations placed on them at the time of the field survey.

(b) Structures:- On the other hand the increased costs of replacing outworn structures are real costs which may be temporarily postponed e.g. in wartime by deferring replacement, but which must be incurred eventually. When replacement is made at higher prices (and under the Index Method, it is assumed that equal volumes of structures are replaced throughout the life of the assets) then the capital values will increase. Because of this the value of structures alters each year and the change in the (depreciated) capital value of this item is measured by using the same relatives as found for Depreciation on Structures.

(c) Fences:- Exactly the same remarks apply to Fences as to Structures and the same price relatives.

(d) Plant:- A similar argument holds for Plant except that the appropriate relatives to be used are the ones applicable to Depreciation on Plant.

(e) Water Supply:- The item Water Supply will vary in a similar manner to Plant.

(f) Horses:- Since horses have been considered as similar to plant, the allowance for interest on horses should be treated in the same manner as for plant. However, owing to the short working life of horses and the difficulty of obtaining price data from year to year for animals of similar quality it was decided to hold this item constant until such time as a complete revision of capital values is made.

RENTAL.

15. Rentals on Land:-

Information was obtained from the Queensland Department of Lands in respect of the annual rents and survey fee instalments payable on grazing tenures at 30 June for the years 1950-1952. The movement in these rents payable was adopted as the price relative to adjust the item of Rentals.

TABLE A13

Annual Rents Payable

Queensland

	30.6.50	30.6.51	30.6.52
	£	£	£
Grazing Farms	186,518	199,833	225,184
Grazing Homesteads	396,980	431,858	479,602
Pastoral Holdings	335,504	368,473	405,630
Occupation Licences	61,190	70,862	80,935
Totals	980,192	1,071,026	1,191,351
Relatives	100	109.3	121.5

ANNEXURE B

FIELD SURVEY PROCEDURE

Notes summarising the methods used in the field survey of production costs on beef producing properties in Queensland, Northern Territory and Western Australia.

1. Aim of Survey:-

The survey was designed to collect information on costs of beef production, together with certain related physical data such as herd size, carrying capacity etc., with the object of assessing a basic average structure of gross costs for use in an Index of Cost Movements.

2. Period of Survey:-

Details of costs were collected for the financial year 1949-50. The climatology of Northern Australia in that year is discussed in Annexure C. For certain properties the financial returns for the year 1950-51 were also available but owing to the limited number of properties and the onset of drought these figures have not been incorporated in the basic cost structure.

3. Selection of Samples:-

Only properties deriving their income exclusively from beef cattle raising were included in the sample. To date information has been collected from 56 properties throughout Queensland, Northern Territory, and the Kimberley region of Western Australia. Table B1 sets out the statistical (or other) divisions, the 1949-50 beef cattle populations and the number of samples so far collected in each district.

The percentage of the beef cattle population covered in the survey was:

Queensland	4.2 %
Northern Territory	12.9 %
Western Australia	____
Total (3 States)	====

In Queensland the number of samples is distributed approximately in proportion to the beef cattle populations in the different divisions. In Northern Territory and the Kimberleys it was not possible to follow this method and information was collected from as many properties as time permitted. In order to adjust for the lack of balance in the sample, the percentage

structure of costs for each of the 3 States was calculated and combined in proportion to the relative beef cattle numbers (see Table B3).

The field work is not regarded as complete since there were certain areas within the State of Queensland which are only lightly represented in the sample. Further field work will be undertaken in order to include holdings from these areas in the sample. It should be noted, however, that all the main beef cattle regions of the State were visited so that the ommission of certain areas from the results of the survey does not invalidate the cost structure or the Index.. The additional field work in Queensland will also have the desirable effect of balancing up the proportion of samples between the different States.

TABLE B1.

BEEF CATTLE SURVEY

Distribution of Samples by States and Divisions

Division	Cattle population 31 March, 1950	Sample Properties
	no.(000)	no.
QUEENSLAND		
Moreton	125	1
Maryborough	364	1
Downs	446	2
Roma	270	2
South Western	209	1
Rockhampton	853	9
Central Western	391	3
Far Western	209	2
Mackay	94	2
Townsville	405	3
Cairns	129	1
Peninsular	76	-
North Western	998	6
Total Queensland	4,569	33
NORTHERN TERRITORY		
Barckly Tableland	347	4
Darwin - Gulf	153	1
Victoria River	305	1
Alice Spring	214	9
Total Nth. Territory	1,019	15
WESTERN AUSTRALIA (a)		
East Kimberleys	306	2
West Kimberleys	208	6
Other regions	119	-
Total West. Australia	634	8
TOTAL	6,222	56

(a) Estimated in proportion to distribution between districts in 1948.

TABLE B2

BEEF CATTLE SURVEY

State Aggregates, 1949-50

Item	Queensland	Northern Territory	Western Australia
No. of sample properties	33	15	8
No. of cattle in State	4,569,000	1,019,000	634,000
Av. No. of cattle on samples	189,700	130,000	99,900
Av. No. of breeders on samples	72,490	55,700	37,500
CAPITAL VALUES: £			
Breeders	901,060	587,600	277,500
Structures	100,708	43,281	20,248
Fencing	50,989	32,591	12,175
Plant	82,652	56,931	14,651
Water	126,841	82,055	19,928
Horses	28,741	23,328	15,600
TOTAL	1,290,991	825,786	360,102
COSTS: £			
Labour			
Owner-operator	24,585	11,175	5,960
Hired labour	138,037	58,150	33,907
Depreciation			
Structures	3,995	2,645	1,130
Plant	18,354	13,872	4,609
Horses	2,874	2,333	1,560
Repairs and Maintenance			
Structures	9,772	8,417	2,473
Plant	19,843	17,722	5,924
General Station Costs			
Rates and Taxes	20,815	1,069	484
Insurance	3,297	1,333	738
Oils and Fuels	12,344	10,808	3,508
Inward Freight	5,637	7,327	2,960
Dip Materials	11,128	773	48
Minor Station Costs			
Miscellaneous	12,969	5,259	1,793
Marketing			
Commission	2,029	3,552	934
Railage	45,373	26,643	-
Droving	11,226	17,331	4,548
Interest			
Breeders	40,545	26,442	12,488
Structures	2,742	1,948	911
Fencing	2,295	1,476	548
Plant	3,717	2,562	657
Water	5,708	3,692	897
Horses	1,293	1,049	702
Rentals			
Rentals on Land	23,237	3,948	1,997
TOTAL GROSS COST £	421,815	229,856	98,776

TABLE B3

BEEF CATTLE SURVEY

Percentage Structure of Cost, States and Total 1949-50

Item	Queensland %	Northern Territory	Western Australia	Total %
Labour				
Owner-Operator	5.8	4.9	6.7	5.7
Hired Labour	32.7	25.3	38.2	32.1
Depreciation				
Structures	.9	1.2	1.3	1.0
Plant	4.4	6.0	5.2	4.7
Horses	.7	1.0	1.8	.9
Repairs & Maintenance				
Structures	2.3	3.7	2.8	2.6
Plant	4.7	7.7	6.7	5.4
General Station Costs				
Rates and Taxes	4.9	.5	.5	3.7
Insurance	.8	.6	.8	.8
Oils and Fuels	2.9	4.7	4.0	3.3
Inward Freight	1.3	3.2	3.3	1.8
Dip Materials	2.6	.3	.1	2.0
Minor Station Costs				
Miscellaneous	3.1	2.3	2.0	2.9
Marketing				
Commission	.5	1.5	1.1	.7
Railage	10.8	11.6	-	9.8
Droving	2.7	7.7	5.1	3.8
Interest				
Breeders	9.6	11.5	14.1	10.4
Structures	.7	.8	1.0	.7
Fences	.5	.6	.6	.5
Plant	.9	1.1	.7	.9
Water Supply	1.4	1.6	1.0	1.4
Horses	.3	.5	.8	.4
Rental				
Rentals on Land	5.5	1.7	2.2	4.5
TOTAL GROSS COST.	100.0	100.0	100.0	100.0

4. Collection of Data:-

The co-operation of industry organisations was obtained and prior approval sought from the owners for visits to their properties. A very comprehensive schedule was used by the field teams to collect the required details and the responsibility for filling it in rested with the field officer rather than with the owner or manager. In cases where all the information was not held on the property, the schedule was completed by a visit to the head office.

5. Treatment of Cost Items:-

(a) Capital Values:-

(i) Livestock: For the industry as a whole the ability to produce depends upon the size of the breeding herd, and it is the value of the breeding herd which represents permanent capital investment in stock. Accordingly the average number of breeders carried on each property was ascertained and valued at conservative standard values depending upon the district taking into account proximity to rail, extent of development, type of country and other factors. In arriving at a valuation, the assistance of the Commonwealth Bank Valuation Section was obtained. All values were related to the year 1949-50.

(ii) Buildings & Fences: The book values of the buildings and fences were accepted. This represents the original costs less depreciation. This basis of valuation ma tend to err on the conservative side particularly on properties which have been in one hand for any lengthy period of time. However it does measure the capital that was actually invested in these assets.

(iii) Plant, Machinery & Water Supply: The book values were accepted for these items also. As before this represents original costs less depreciation and tends to be too conservative. For depreciation purposes the existence of the 40% initial depreciation allowance on any new plant and machinery installed in that year (1949-50) tended to counterbalance what would otherwise be too low an estimate arising from the use of capital estimates based on book values

(b) Interest.

Interest at the rate of 4½% was charged on the total capital involved.

In this way it was possible to avoid the necessity of drawing a distinction between the equity enjoyed by the farmer and the amount of borrowed money.

(c) Depreciation.

Depreciation represents the total of the amounts claimed by owners for the financial year ending 30th June, 1950. Where depreciation was not shown in accounts, it was assessed at income tax schedule rates.

It is considered preferable to treat horses as plant rather than as trading stock, and accordingly depreciation was allowed at a flat rate of 10% per annum.

(d) Labour.

(i) Owner-Operator: The allowance to the owner-operator was assessed at £1000 as at 30th June, 1951, which was equivalent to £745 at 30th June, 1950. This level of remuneration for the owner (or manager) was generally considered as a reasonable average figure under present conditions for an item which must be arbitrarily determined on any property. It compares reasonably with the allowances in other industries and reflects the skill and effort required for beef production.

Where a property was run by a manager his actual salary was excluded from paid labour. Instead he was regarded as the operator with the same allowance for costing purposes as an owner viz. £745 in 1949-50.

(ii) Family Labour: Partners and other adult labour were treated as stockmen paid at stockmen rates found under the Queensland Station Hands Award.

(iii) Women: When women were doing the work of stockmen, they were treated as stockmen equivalent and costed accordingly.

On many properties, the wife of the owner acted as general cook and was costed at the rated applying under the Station Hands Award to females over 19 years, without penalty rates.

(iv) Hired Labour: Information was obtained in respect of the amounts actually paid during the year ended 30th June 1950. In a few cases the amounts paid for contract mustering and spraying were counted under hired labour. Stockmen travelling in train with cattle were included in this item.

(v) Stores and Rations: Stores and rations were included in labour cost in the Territory and Western Australia, and in Queensland when available. When not available in Queensland an additional sum was added in respect of each unit of labour to cover keep, calculated at the rate allowed uner the Queensland Station Hands Award, viz, £65 per annum.

(e) Repairs and Maintenance.

This item covers the amount actually paid during 1949-50 for all materials used in the repair and maintenance of buildings, fences, dips, yards, water supplies, vehicles, plant and saddlery, together with expenditure on timber treatment and to a lesser extent to the general shortage of materials.

(f) General Station Costs.

This heading embraces the more important items of cash costs, namely rates and taxes; oils and fuels; inward freight; insurance and dip materials.

Rates and Taxes covers shire rates and like charges. It does not include rentals on land leased from the Crown. Land tax on freehold land was excluded being replaced by a "rental equivalent".

Any veterinary medicines, inoculations etc. paid for during the year were included with the outlay for dip materials.

Agistment has been excluded from station costs on the grounds that it is a transfer payment within the inudsty.

(g) Minor Station Costs.

Covers telephone, radio, accountancy fees, stationery, bank charges, travelling expenses, and other miscellaneous costs. It was assessed from the amounts actually expended during 1949-50.

(h) Marketing Expenses.

The actual cost in 1949-50 was recorded for marketing expenses which refers to droving, dipping, railage out of livestock, dues and commission.

Railage represents by far the biggest item of marketing expenses. Because of the fact that certain outer regions were only lightly represented in the Queensland sample, there is a preponderance of properties close to the seaboard with the consequence that their rail charges are less than the average for the

State as a whole. In order to correct this an examination was made of the distances from sample properties to usual point of sale - the average haul was slightly below 200 miles. The average haul for cattle (in truck lots) on all lines has been estimated by the Bureau at approximately 300 miles. Since the rail freights do not increase pro rata to distance, the correction was made by expanding the actual expenditure for railage on the sample properties, by the ratio of cattle truck rates ruling at 30.6.50 for distances of 300 and 200 miles.

A similar correction was applied to the expenditure on inward freight based on the average ratio of the rates applicable to Classes "A", "B", "1" and "2" for 300 and 200 mile hauls.

TABLE B4

Queensland Rail Freights 30.6.50

	300 miles	200 miles	Ratio
Class A	57-1	46-11	121.7
B	106-10	87-0	122.8
1	154-2	117-2	131.6
2	322-11	234-3	137.9
Average			128.5
Cattle (Truck lots)	243-10	186-9	130.6

It is also known that most of the properties were relatively close to railheads. This implies that on the average droving costs would be likely to be understated compared with the average for Queensland as a whole, and to a lesser degree expenditure on oils and fuels would probably be understated in the Index. However as no statistical basis existed by which the extent of the understatement could be assessed, it was necessary to leabe these items as they stood.

6. Gross Costs:-

From the foregoing costs, the gross costs were ascertained and totalled to obtain the total gross costs. The costs for each item were also aggregated and compared with the total gross costs to arrive at a basic structure of costs for the year 1949-50. This was done by combining the percentage structure of costs for each State in proportion to the relative cattle populations of the three States. Table B2 sets out the aggregate costs found on the sample properties in each State and Table B3 shows the percentage cost structure derived from these figures together with the average cost structure for the industry as a whole.

ANNEXURE C

METEOROLOGICAL DATA FOR NORTHERN AUSTRALIA

Since only a single year has been used to asses the basic cost structure for the Index, it become important to examine whether climatic conditions in the year in question (1949-50) were reasonably normal. The Commonwealth Bureau of Meteorology supplied the data shown in Table C1 which lists for significant centres:

(i) The mean monthly temperatures.

(ii) The humidity throughout the year.

(iii) The Monthly rainfall.

An examination of these meteorological statistics indicates that if anything 1949-50 was a favourable year for the industry, particularly in respect of the incidence of summer rainfall which is the important factor in these areas from a climatic point of view. Neverthcless, the figures do not depart from the long-term averages to the extent that the cost structure is likely to suffer any significant distortion. In as much as there had been a run of fairly good seasons after 1945, it is probably that the pattern of production was reasonably steady as far as climatic variability will ever permit, although there may have been other factors affecting the cost structure (e.g. material shortages) not associated with seasonal conditions in Northern Australia.

TABLE C1

METEOROLOGICAL DATA FOR NORTHERN AUSTRALIA

(10 centres)

Year	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
(A) QUEENSLAND													
BRISBANE													
Mean Temperatures													
1949	76.1	78.0	74.1	67.7	63.5	58.2	57.9	59.7	64.1	71.3	72.7	75.1	68.2
50	77.4	75.1	74.9	70.3	65.3	61.4	62.1	60.4	64.6	68.7	70.3	74.1	68.7
Av. 56 yrs.	77.3	76.5	74.4	70.2	64.6	60.3	58.6	60.6	65.2	69.8	73.4	76.1	68.9
Humidity 9.00 a.m.													
1949	59	73	79	67	69	72	72	69	65	68	60	62	68
50	64	77	78	78	71	76	88	70	70	69	67	65	73
Av. 59 yrs.	66	69	72	71	73	73	72	68	64	60	60	62	68
Monthly Rainfall													
1949	517	681	754	63	168	285	82	20	207	114.1	452	348	4718
50	630	1513	744	373	148	596	860	165	44	468	614	238	6393
Av. 95 yrs.	628	624	565	366	274	259	216	188	198	259	375	506	4458
ROCKHAMPTON													
Mean Temperatures													
1949	82.2	82.9	79.0	72.7	69.1	61.9	63.0	65.4	70.7	76.6	78.0	81.4	73.6
50	82.3	80.8	78.3	74.9	69.7	62.9	67.1	63.8	69.8	74.3	76.8	78.6	73.3
Av. 53 yrs	81.0	80.3	78.5	74.4	68.7	63.9	61.9	64.7	70.0	74.8	78.1	80.6	73.1
Humidity 9.00 a.m.													
1949	65	73	75	68	69	64	67	61	59	71	57	55	65
50	63	72	82	72	72	74	81	64	65	65	62	67	70
Av. 42 yrs.	69	71	72	70	71	73	71	68	64	61	61	64	68
Monthly Rainfall													
1949	345	1238	1055	23	9	22	27	3	8	400	275	104	3509
50	478	934	1703	170	332	628	673	47	27	254	333	261	5840
Av. 76 yrs.	728	774	438	242	160	244	172	80	124	180	243	460	3845
LONGREACH													
Mean Temperature													
1949	84.5	84.9	81.5	70.8	65.6	55.9	58.3	61.7	69.6	77.9	79.1	85.3	72.9
50	83.7	81.1	78.4	70.7	66.7	58.3	61.3	59.7	68.9	74.1	79.7	82.5	72.1
Av. 32 yrs.	86.3	84.4	81.1	74.1	66.2	60.6	58.7	62.3	69.5	77.3	82.2	85.2	74.0
Humidity 9.00 a.m.													
1949	45	59	70	56	60	60	47	38	44	51	40	47	51
50	55	64	72	70	71	81	83	59	56	58	56	59	65
Av. 30 yrs.	48	53	54	51	52	61	56	47	41	38	41	43	49
Monthly Rainfall													
1949	327	317	599	71	5	9	0	0	21	548	154	311	2362
50	637	572	638	691	223	105	354	0	134	270	304	206	4134
Av. 54 yrs.	231	354	225	90	84	88	77	26	54	89	118	182	1618

TABLE C1 (Contd.)

Year	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
CLONCURRY													
Mean Temperatures													
1949	87.1	84.3	83.4	76.4	71.0	60.0	63.6	67.9	74.6	81.3	83.5	88.1	76.8
50	85.8	83.5	79.9	75.1	70.1	62.0	63.5	65.3	74.0	77.9	84.5	85.0	75.6
Av. 32 yrs.	87.7	85.8	83.7	78.5	71.5	65.9	64.0	68.1	74.7	81.7	85.9	88.1	78.0
Humidity 9.00 a.m.													
1949	39	61	65	43	42	40	36	33	39	37	34	44	43
50	58	61	73	58	61	74	64	41	47	56	47	61	58
Av. 28 yrs.	45	50	47	37	39	44	41	32	29	28	34	38	39
Monthly Rainfall													
1949	112	339	221	0	0	0	0	0	25	372	204	538	1811
50	462	1125	971	51	87	145	65	0	85	241	267	216	3715
Av. 63 yrs.	436	438	231	67	49	60	34	14	28	44	123	274	1798
WINDORAH													
Mean Temperatures													
1949	84.0	83.5	79.6	68.9	61.5	51.3	54.9	59.7	65.6	74.5	76.9	86.1	70.5
50	85.3	83.8	76.0	70.3	64.9	55.1	56.3	57.1	66.5	72.3	77.9	83.6	70.8
Av. 32 yrs.	87.6	86.2	81.6	72.8	64.3	58.1	56.4	60.7	67.8	75.9	81.8	85.6	73.2
Humidity 9.00 a.m.													
1949	29	49	71	50	57	66	49	34	41	48	31	21	45
50	38	52	77	66	70	84	78	51	45	52	49	52	59
Av. 28 yrs.	32	37	38	39	48	57	54	40	31	29	30	30	39
Monthly Rainfall													
1949	193	235	832	0	53	10	0	2	105	537	67	152	2186
50	261	45	1962	79	55	153	45	5	135	291	371	496	3898
Av. 56 yrs.	151	164	151	88	72	77	55	37	44	67	90	130	1126

TABLE C1 (Contd.)

Year	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
(B) NORTHERN TERRITORY													
DARWIN AERO													
Mean Temperature													
1949	83.7	80.9	81.9	81.2	78.6	72.9	74.8	77.3	81.0	83.9	84.3	82.6	80.3
50	82.0	81.5	82.2	82.5	80.4	76.9	75.9	78.6	80.9	82.3	83.1	81.5	80.7
Av. 6 yrs.	83.2	82.1	82.3	81.7	80.0	77.1	76.2	78.7	81.5	83.7	83.3	82.9	81.1
Humidity 8.30 a.m.													
1949	82	82	82	73	74	55	67	70	76	73	75	82	74
50	84	87	85	70	74	65	61	68	77	79	78	78	75
Av. 7 yrs.	86	86	88	79	68	65	70	76	77	76	78	81	77
Monthly Rainfall													
1949	821	2179	1565	306	0	0	0	0	2	84	278	1378	6613
50	2334	1259	909	16	5	11	0	3	72	507	595	1409	7120
Av. 8 yrs.	1123	1306	1185	382	7	5	1	49	103	195	682	773	5811
KATHERINE P.O.													
Mean Temperature													
1949	86.4	82.6	82.0	78.1	75.7	65.3	68.7	72.6	81.1	89.3	88.1	85.6	79.6
50	83.2	84.1	83.5	78.8	76.1	71.5	71.9	74.3	82.3	83.7	86.5	82.1	79.8
Av. 7 yrs.	84.6	83.4	83.5	80.0	76.1	71.3	70.9	74.2	81.0	86.9	88.0	87.1	80.6
Humidity 9.00 a.m.													
1949	82	85	84	56	61	45	53	50	49	63	63	76	64
50	85	89	89	73	66	66	54	51	63	70	71	79	71
Av. 6 yrs.	81	85	80	62	60	58	59	55	53	55	65	68	65
Monthly Rainfall													
1949	474	969	874	0	0	0	0	0	0	0	308	1295	3920
50	890	758	547	18	0	0	0	0	109	559	316	985	4182
Av. 70 yrs.	926	795	632	113	21	10	3	2	25	113	344	814	3798
DALY WATERS													
Mean Temperature													
1949	89.5	84.5	83.1	78.6	74.9	65.9	68.5	72.1	79.1	85.9	86.3	84.6	79.4
50	83.3	83.2	83.1	77.7	73.9	68.3	67.2	70.5	78.7	81.5	85.5		
Av. 62 yrs.	86.8	85.4	83.6	80.0	74.5	70.1	68.8	72.7	79.6	85.8	88.4	88.3	80.3
Humidity 8.30 a.m.													
1949	64	77	69	44	50	37	39	38	49	58	57	74	55
50	80	82	68	54	63	61	49	43	51	63	73		
Av. 7 yrs.	70	77	72	54	51	51	45	46	45	46	52	62	56
Monthly Rainfall													
1949	191	606	417	0	0	0	0	0	2	26	300	748	2290
50	250	895	593	0	0	0	0	0	0	267	168	594	2767
Av. 70 yrs.	649	596	477	93	23	27	5	10	20	79	224	403	2606

TABLE C1(Contd.)

Year	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
(C) WESTERN AUSTRALIA													
HALLS CREEK													
Mean Temperature													
1949	88.2	79.7	80.6	72.8	69.7	62.2	-	66.1	75.1	83.8	88.1	85.5	-
50	86.9	86.6	84.3	75.9	74.9	66.0	61.5	67.7	76.1	81.1	85.8	83.9	77.6
Av.42 yrs.	86.5	85.6	83.1	77.7	70.8	65.7	64.0	69.0	75.9	83.7	87.2	87.4	78.1
Humidity 9.00 a.m.													
1949	52	74	50	41	48	34	32	25	28	31	33	50	41
50	51	56	41	33	44	41	33	27	29	47	47	52	42
Av.41 yrs.	51	52	46	35	37	40	37	33	29	32	35	43	39
Monthly Rainfall													
1949	189	1467	164	0	165	0	0	0	0	13	115	318	2431
50	217	330	103	0	5	0	0	0	68	408	253	564	1948
Av.58 yrs.	549	431	287	66	33	23	23	11	17	50	131	313	1934
WYNDHAM													
Mean Temperature (1)													
1949	89.8	84.6	87.1	84.3	79.9	72.1	75.5	78.3	84.1	89.7	91.4	88.5	83.8
50	86.0	86.6	88.6	85.6	83.3	77.1	74.1	80.1	84.7	87.8	90.8	87.7	84.4
Av. 43 yrs.	88.2	87.6	87.2	86.0	81.3	77.0	75.8	79.1	84.3	88.4	89.8	89.2	84.5
Humidity 9.00 a.m.(2)													
1949	62	67	66	37	39	29	29	30	35	46	54	62	46
50	70	73	62	37	49	44	35	33	52	57	59	63	53
Av. 42 yrs.	67	69	64	46	41	42	40	43	44	51	56	55	52
Monthly Rainfall													
1949	332	1159	581	0	7	0	0	0	0	0	17	543	2639
50	1186	886	284	20	0	3	0	0	71	334	211	829	3824
Av. 62 yrs.	726	633	488	77	22	16	14	3	8	47	183	441	2658

(1) $\frac{\text{Max.} + \text{Min.}}{2}$

(2) 9.00 a.m. humidities are considered representative.

ANNEXURE D.

FURTHER COST CHANGES

The Detailed Agreement lays down that account will be taken of any known changes in costs which have occurred or will occur from the date of ascertaining cost changes up to the date at which the new price schedule will come into operation. The following notes list the known or probable changes between 1st July and 30th September, 1952 with in some cases an estimate of their effect.

1. Hired Labour: A rise of 6/- per week has already been declared in the Basic Wage for Queensland operative from the first pay period in August. This will add approximately 1.3% to labour costs when applied to the hired labour and droving items in the Index.

2. Station Costs: These will probably continue to rise because of the higher labour cost in their manufacture and distribution. Even if the rise in general prices (as measured by the Wholesale Price Index) is only half what it has been in the past quarter, this will mean an increase of 9.6% on the June 1952 level, over Maintenance, General Station Costs and Minor Station Costs taken together.

3. Interest: The increase in overdraft rates from 4½% to 5% will come into force on 1 August. Conversion to this rate of interest would add approximately 1.3% to the figure for 1951-52.

ANNEXURE E

BEEF AND VEAL DETAILED AGREEMENT

During the period to the 30th September, 1958, the exportable surplus of beef and veal from Australia, less the quantities which may be shipped to other countries, will be sold to the United Kingdom in general under the same terms and conditions as during 1950/51 but subject to the provisions of the General Agreement and of this detailed agreement.

The quantities of beef and veal which may be shipped to other countries will be such that, together with mutton and lamb, they will not exceed in any year 3% of the quantity of meat shipped to the United Kingdom or such other amount as may be agreed annually between the two Governments.

A schedule of prices has been agreed for the year ending 30th September, 1952 and this will be the initial schedule for the purposes of this detailed agreement. This schedule will be reviewed annually not later than 31st July.

During the period of this detailed agreement in no year will the level of prices be lower than the schedule which ruled in the year 1950/51, or that schedule as modified by agreement.

At each price review the Australian Government will present to the United Kingdom Government figures compiled by the appropriate Australian Government Department showing the variation, if any, in the costs of production since the previous review. The Australian Government will explain and justify to the United Kingdom Government the data used and the methods of calculation adopted in the preparation of these figures.

If at any price review the figures so prepared show an increase in costs -

(a) of any percentage up to and including 10 per cent, the whole of that percentage will be added to the price schedule in fixing the schedule for the ensuing year.

(b) of more than 10 per cent but not more than 20 per cent then not less than four-fifths and not more than six-fifths of the increase will be added.

(c) of more than 20 per cent but not more than 30 per cent then not less than three-fourths and not more than five-fourths of the increase will be added.

(d) of more than 30 per cent then not less than two-thirds and not more than four-thirds of the increase will be added.

Provided that in no case will the increase determined by the limits within which the percentage increase of costs falls be less than the minimum increase which would have been due had the percentage fallen within the next lower limits.

In negotiating the increase in prices to be made under Clause 13, the two Governments will take account of:

(a) any imperfections in the method of ascertaining cost changes likely to arise in respect of cost changes of more than 10 per cent.

(b) any known changes in costs which have occurred or will occur from the date of ascertaining cost changes up to the date at which the new price schedule will come into force.

(c) at the end of the first period of three years any considerable change in prices paid by the United Kingdom to other suppliers of beef and veal.

(d) any other factor which at the beginning of the negotiations the two Governments agree to be relevant.

If the cost figures show a reduction in costs the price schedule will be subject to reduction in accordance with the same principles.

Nothing in this agreement or in the General Agreement will preclude either Government from proposing such detailed variations in the arrangement of the price schedule as might seem expedient to maintain an appropriate relationship between the several kinds and qualities of meat.

PART II

BEEF PRODUCTION COSTS

DROUGHT LOSSES

The Effect of Drought on Costs

In an industry like beef-raising, which is subject to violent periodic disturbances such as drought, the cost of production can only be realistically estimated on a long-term basis.

The following table sets out, very schematically, a hypothetical profit-and-loss account for the industry as a whole over a five year drought cycle. It must be emphasised that the figures are fictitious, being solely intended to show the general trend in the behaviour of the various items, in illustration of the points made further down. For this reason they are not given in any particular units. In constructing the table, the assumption is made that all prices, including the prices of goods entering into cost, are constant over the five year period.

TABLE I

Year	Cattle Losses	Costs			Income	Investment Margin
		D	I	Total		
1	20	1,000	1,000	2,000	2,200	200
2	500	1,200	900	2,100	1,900	-200
3	20	1,000	1,000	2,000	2,000	0
4	20	1,000	1,000	2,000	2,100	100
5	20	1,000	1,000	2,000	2,200	200
Average				2,020	2,080	60

The main points which this table is intended to illustrate are:-

1. In a drought, some costs (I) will increase (e.g. labour), while others (D) will decrease (e.g. dip materials). On balance total costs will tend to rise.
2. The effects of the drought are felt more severely in the loss of income than in the increase of costs. In the example above, average costs over the five years are 2,020, compared with 2,000 in a fair year; an increase of 1%. Average income, on the other hand, falls to 2,080 compared with 2,200 in a in a fair year; a decrease of 5½%.
3. The most violent fluctuations take place in the margin for investment - from 200 in a fair year to only 60 on the average; a deficiency of 70%.
4. The loss does not fall exclusively in the drought year itself. It is, in fact, possible for production in a drought year to be relatively high, owing

to the slaughtering of beasts to conserve fodder. But whether this happens or not, the main losses in a drought will be losses of breeders and calves. The calves that are lost will fail to come to the slaughterhouse in the next year or two as they otherwise would have done. The breeders will need to be replaced by reducing the culling of heifers in the next year to rebuild the herd. In this way the loss is likely to be spread over a number of years.

The Need for a Drought Allowance

Clearly, if the margin available for investment is to be maintained at the level reached in a fair year, the income side must be supplemented by some form of drought allowance which would compensate for the loss due to drought. Such an allowance would be the same in principle as an insurance premium against drought risk. In this case, the industry would be self-insuring. But the amount of premium involved would still be a legitimate cost of the industry, and as such would be met by an addition to the price.

An allowance of this kind is especially desirable in the context of an agreement to keep prices stable. In a free market, the forces of the market operate in times of scarcity to secure for the producer some compensation for loss of product in the form of higher prices. In the context of price stability (such as the Long-Term Meat Agreement is intended to provide) this compensation must be secured by other means.

Assessing the premium

While the principle of such a drought allowance is quite clear, the amount involved is more difficult to assess. There are two main quantities to be estimated.

(a) The nett increase in costs.

(b) The loss of income.

The nett increase in costs is due partly to an increase in the prices of goods and services used by graziers, consequent on the heavy demand arising from the incidence of the drought, and partly to an increase in the quantities used. In-so-far as it is due to an increase in the price, this will be reflected in the Index movement, which determines the price to the grazier. In-so-far as it is due to an increase in quantities used (increased labour for droving etc.) it will not and cannot be reflected in the Index (which is an index of prices only).

However, the amount involved is likely to be small relative to the loss of income, and difficult to estimate. It is clearly small, too, relative to total costs, when it is remembered that it would be spread over the entire drought

cycle, including fair and flush seasons. What is important is to realise that it does exist and is a legitimate part of the costs of the industry; that as such it is a drain on the funds which would otherwise be available for investment, and that any estimate of the drain on these funds which ignores it is thereby smaller than it otherwise would have been.

The loss of income arises from these three causes:

(a) Cattle failing to reach the markets.

(b) Cattle reaching the market in poor condition.

(c) Loss of replacements.

The most important of these is the loss due to cattle failing to reach the market (i.e. dying from droughts). An attempt has been made to measure the extent of this loss. The calculations are set out in an appendix (Annexure F). The conclusion arrived at is that the loss from this cause is of the order of 6% per annum.

The loss due to the second cause (poor condition) is difficult to estimate. An attempt has been made, and is set out in Annexure F. The indication is that the loss may be of the order of 2¼% per annum.

The third cause (loss of replacement) is not easily separable from the first. As already pointed out, a drought has the effect of temporarily reducing the culling of heifers for the market, in order to rebuild the herd. The main loss, then, is of the numbers which ultimately reach the market, and this is already given by the excess deaths.

Summary

The proposal is, then, that to the price as ascertained by consideration of costs in a fair year there shall be added a sum as drought allowance. This sum will be of the order of 6% of the price as already ascertained (if only direct losses are taken into account; 8% is losses due to poor condition are included).

It must be borne in mind that the nature of the problem is one of deficit; of decline from a norm. Fundamentally this is not a question of "ups and downs" which are self-compensatory. Although lush seasons do occur, there does not arise therefrom any excess margin for investment which can be offset against the losses of drought seasons. In particular, the "fair year", being itself the norm, by its nature yields no more than the normal investment margin. To repeat, this is not a question of "ups and downs", but of norm and catastrophe. The argument of Annexure F, and in particular the graph at the end, make this point clear.

Under the conditions of price stability envisaged by the Long-Term Meat

Agreement, such a situation can only be met by making the deficit good - by providing a drought allowance along the lines set out in this document.

ANNEXURE F

BEEF CATTLE MORTALITY

Estimating Cattle Losses

The problem is to estimate the loss arising from the failure of cattle to reach the market as a result of a severe drought.

There was such a drought in Queensland in the year 1946/7. There was another in 1951/2. The following table shows the deaths, slaughterings, and overland exports for a 5-year drought cycle. Figures are given in thousands.

	Deaths	Slaughterings	Exports (overland)
1945/6	362	1007	389
1946/7	881	804	381
1947/8	277	1157	397
1948/9	328	1149	365
1949/50	229	1101	361
Normal Average	299	1103	378

(Notes:- Figures for deaths are taken from the Queensland Year Book for 1950. Figures for slaughterings are from the same source, but they are based on calendar years, starting with 1945; they include cattle slaughtered on stations and holdings. Figures for exports are based on statistics originating from the Queensland Government Statistician and The Queensland Government Railways.)

The 'normal average' is the average of the four 'normal' years. With average 'normal' deaths at 299 thousand per annum, there were 582 thousand excess deaths in 1946/47.

Disappearances of cattle in normal years can be set out as follows:

	Thousand	%
Deaths	299	16.8
Slaughterings	1103	62.0
Live Exports	378	21.2
	1780	100

These proportionate disappearances can be applied to any group of cattle. They can be applied to the 582 thousand cattle who made up the "excess deaths" in 1946/7. That is to say, 83.2% of them would have been ultimately slaughtered or exported, i.e. 484 thousand. The following table shows slaughterings and exports, actual and potential, for the complete 5-year cycle.

Slaughterings and Exports	Thousand	%
Achieved	7111	93.6
Lost	484	6.4
Potential	7595	100

The actual marketings, then, were 93.6% of potential or in other words, losses were 6.4% of capacity.

The Long-term estimate

These calculations are based on a single recent drought cycle, extending from the year preceding the 1946/7 drought losses up to (but not including) the year preceding the 1951/2 drought losses. Statistics of actual cattle deaths are only available from 1944 onwards.

The following is an attempt to estimate these deaths for the period 1921-43, using the formula

$$D = N - R + B + U - S - E$$

where D is the estimated number of cattle deaths

N " " cattle population at the beginning of the year

R " " " " " " end " " "

B " " number of calves branded

U " " " " " dropped but not branded

S " " " " cattle slaughtered

E " " " " net exports (overland)

Official statistics published by the Queensland Government Statistician are available for all these quantities except U (the number of calves dropped but not branded). An estimate has been made of this, taking U = 10% of N, which is equivalent to an average branding rate of about 65% of calves dropped. The series for net exports of live cattle overland is available on a calendar year basis back to 1932 only. For earlier years it has been adapted from a financial year (July-June) basis by taking the average of every two consecutive years.

Using the official statistics of actual cattle deaths for the years 1944 onwards, it is now possible to estimate cattle deaths for the thirty year period 1921/50.

In spite of the imperfections of the estimating methods used, these estimates show a remarkable correspondence with expectation, as can be seen from the accompanying graph.

In the majority of years (19 out of 30) the annual deaths lie very close

to a straight line. The remainder are grouped in a number of peaks of at most two years' duration, with the exception of the years 1938 and 1939 which form a trough. There are seven peaks, all very pronounced with the possible exception of that at 1932. These peaks correspond to periods of drought losses. Conversely, the 1938/9 trough must be considered as a flush period.

This series of annual deaths can be treated much as before. First it is necessary to establish the trend values for the eleven abnormal years, and calculate the total deviation from trend which they show. This total deviation is the total loss from drought for the whole period, after allowing for the two flush years.

If all cattle deaths lay along the trend line based on normal years, the number of deaths would have been 15,751 thousand. Actual deaths were 19,108 thousand. Excess deaths from drought were, therefore, 3,357 thousand.

Proceeding along the previous lines, disappearances of cattle in the nineteen normal years can be set out as follows:

	Thousands	%
Deaths	9602	29.7
Slaughterings	17380	53.7
Live Exports	5385	16.6
	32367	100

As before, it can be assumed that 70.3% of the 3357 thousand excess deaths would have come to market, either for slaughter or export, that is 2360 thousand. From this can be constructed the following table for the complete 30-year period.

Slaughterings & Exports	Thousands	%
Achieved	34525	93.6
Lost	2360	6.4
Potential	36885	100

Thus the losses over the whole 30-year period were 6.4% of capacity, which is identically the same figure as was obtained from consideration of the single 5-year drought cycle.

Loss from poor Condition

Estimates of this are based on the same drought cycle as the first calculation in this annexure, with the addition of one earlier year. Figures are for numbers of cattle (excluding calves) slaughtered, and tonnage of beef (excluding veal) produced.

	Cattle (thousand)	Tons (thousand)	Tons per beast
1944/45	738.2	169.7	.230
1945/46	601.2	132.4	.219
1946/47	859.6	184.5	.215
1947/48	928.4	220.3	.237
1948/49	801.8	195.9	.245
1949/50	812.3	204.4	.252

(All except the last column taken from the Primary Production Bulletins published by the Commonwealth Statistician.)

The Series shows a steady upward trend, except for the year of heavy drought losses (1946/47) and the year immediately preceding it. Taking these latter as years of drought or incipient drought, we can calculate the trend values from the remainder. By using the trend values of .2326 tons per beast for 1945/46 and .2368 tons per beast for 1946/47 we get a total potential production over the six years of 1133.7 thousand tons, compared with actual production of 1107.2 thousand tons. Actual production is therefore 97.7% of potential, giving a loss of 2.3%.

ANNUAL CATTLE DEATHS - QUEENSLAND, 1921-50

Up to 1942 inclusive, from formula D = N - R + B + U - S - E

From 1944 onwards, as supplied by Queensland Government Statistician

(For explanation of Symbols, see text. Numbers in thousands)

Year	N	R	B	U	S	E	D
1921	6,455	7,047	1,520	645	500	244	829
1922	7,047	6,355	1,217	705	504	128	1,382
1923	6,955	6,397	1,037	695	566	185	1,539
1924	6,397	6,455	1,062	640	714	165	765
1925	6,455	6,437	1,273	645	958	241	737
1926	6,437	5,465	860	644	629	255	1,592
1927	5,465	5,226	796	546	643	245	693
1928	5,226	5,128	990	523	725	213	673
1929	5,128	5,209	997	513	673	105	651
1930	5,209	5,464	1,072	521	634	141	563
1931	5,464	5,550	1,048	546	592	214	702
1932	5,550	5,535	984	555	596	209	749
1933	5,535	5,781	1,062	553	673	143	553
1934	5,781	6,053	1,204	578	798	213	499
1935	6,053	6,033	1,096	605	860	48	813
1936	6,033	5,951	1,088	603	1,011	145	617
1937	5,951	5,959	1,113	595	1,119	90	491
1938	5,959	6,097	1,160	596	1,324	86	208
1939	6,097	6,199	1,213	610	1,256	171	294
1940	6,199	6,211	1,234	620	1,263	118	461
1941	6,211	6,303	1,256	621	1,074	260	451
1942	6,303	6,466	1,304	630	1,080	287	404
1943	6,466	6,525	1,387	647	1,018	229	729
1944	6,525	6,623	995	652	954	186	409
1945	6,623	6,542	855	662	1,007	230	362
1946	6,542	5,945	728	654	804	294	881
1947	5,945	5,975	1,185	595	1,157	315	277
1948	5,975	5,992	1,051	738	1,149	295	328
1949	5,992	6,305	1,092	749	1,107	192	229
1950	6,305	6,733	1,286	749	1,152	228	227

(Rows may not add exactly, due to rounding)

ANNUAL CATTLE DEATHS (ESTIMATED)

QUEENSLAND 1921-50.

——— Estimated deaths

- - - - - Normal year trend.