

QUEENSLAND.

Bureau of Sugar Experiment Stations

Division of Soils and Agriculture

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FARM BULLETIN No. 1

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# Farm Fertility Trials

Results for the 1930 Season



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BRISBANE :  
By Authority : Frederick Phillips, Government Printer.

## Farm Fertility Trials

Results for the 1930 Season

*During the past milling season the first series of farm fertility trials was harvested. In all twenty-nine experiments were carried through successfully; these were distributed throughout the cane areas from Mossman to Nambour. The returns from these experiments provide us with some very useful information, and our results must be regarded as quite satisfactory. With the progress of time many of the minor defects from which the earlier trials have suffered will be eliminated, and the quality of the results should be improved as a consequence.*

### EXPERIMENTAL METHOD.

THE general type of layout for these experiments was a series of twenty-five small plots of equal size varying in area from one-fifteenth to one-twenty-fifth acre depending on expected crop, harvesting method, area of block on which the trial was located, and so on. These plots were set out in five rows of five plots, giving us five plots of each of five treatments. In this way the question of soil variation from point to point in the field could be overcome to a large extent, by scattering the five plots of each treatment at random throughout the block. To make the matter clear we give below a plan of a typical experimental layout:—

N P	C	N P K	N	N K
N P K	N	N P	N K	C
C	N K	N	N P	N P K
N K	N P	C	N P K	N
N	N P K	N K	C	N P

At harvesting, the cane from each plot was taken on one mill truck, and individual weights obtained. As far as possible, individual c.e.s. tests were also secured from the mill samples. In calculating the results from the different treatments, the average weight of cane from each set of five plots was taken as a measure of the true yields for that treatment under the local conditions of soil, climate, and cultivation methods.

### Fertilisers Employed.

No commercial mixtures were used in setting out any of the trials. All treatments were based on the use of the three "primary" constituents of a mineral nature which are commonly used in the manufacture of commercial mixed manures, namely:—

- (1) Sulphate of ammonia, which supplies 20 per cent. of nitrogen in a water-soluble form.
- (2) Superphosphate, which contains 22 per cent. of phosphoric acid in the water-soluble condition.
- (3) Muriate of potash, supplying 50 per cent. of water-soluble potash.

Our first series of five plots acted as a control on the manurial treatments, and these received no fertiliser. They are designated in the plan by "C." Another set of five received a fixed amount of sulphate of ammonia as the only fertilising constituent; these plots are marked "N." A further series received superphosphate in addition to the above quantity of sulphate of ammonia; these are the "NP" plots. Other five were treated with potash and sulphate of ammonia, and these are labelled "NK." The remaining five plots received a complete fertiliser—sulphate of ammonia, superphosphate, and muriate of potash; these are represented by "NPK" on the plan.

In each treatment, the letters represent the same weights of fertiliser per acre whenever they appear, thus for a typical example:—

"N" represents 240 lb. sulphate of ammonia,

"P" represents 300 lb. superphosphate,

"K" represents 180 lb. muriate of potash.

It will be evident, then, that by comparing the five average yields after harvesting, the value of the additional constituents over the simple treatments may readily be gauged.

In selecting the above constituents for use in these trials, the question of simplicity was the chief consideration. Further, by selecting water-soluble fertiliser, quick response was sought. Muriate of potash was taken in preference to the sulphate, because of the purchase price consideration. The former is the cheaper per unit of potash, and our experiments to date with these two forms of potash indicate that they are essentially equally efficient as sources of potash for cane growing.

### Combination of Fertiliser and Liming Trial.

In a few selected localities, it was found convenient to test the need for lime, in addition to the five treatments enumerated above. With these trials thirty plots were selected, in six sets of five. Thus, there were six plots of each fertiliser treatment and, in addition, three of these were limed whilst three were left unlimed. It will be appreciated that such an experiment yields considerably more information than the simple type without lime, but the question of the lime and fertiliser application and the increase in the number of plots required, make the laying-out and harvesting of the experiment much more laborious.

### Method of Application of Fertiliser.

Research work in other countries has shown that the earlier the fertiliser is applied to the crop, the greater is the response to the treatment. Our own experiments have shown identical results. Consequently, in these farm trials, all potash and superphosphate was applied in the drill before the plants were dropped. With the sulphate of ammonia the case is somewhat different. Water-soluble nitrogenous fertilisers are likely to do damage to young roots and shoots under certain conditions. Further, under conditions of heavy rainfall, the valuable nitrates may be washed from the soil before the crop can absorb them; this danger does not arise in the case of superphosphate and potash. Hence, only about one-fifth to one-fourth of the ammonia was applied in the drill, while the remainder was given as a top-dressing when the stools were fairly well established. It was generally possible to have the fertilising completed by the end of November.

Many growers will doubtless take exception to this method of applying fertiliser, but we can assure them that we have every reason to believe that it is the best practice. In no case have we observed ill effects from fertiliser applied in this way, and in many instances, particularly where soils are deficient in phosphates, we have observed that any plots receiving superphosphate in the drill have made decidedly better earlier growth than those which received none, and this advantage was maintained throughout the growing period.

### Results to Date.

A note of warning should be given in presenting the results of one year's work. It must be carefully observed that these responses to fertiliser are governed by a number of factors, one of which is climate. Under a certain rainfall distribution one fertiliser combination may prove superior, while in another year the returns will be quite different. It should be borne in mind, then, that the results reported herewith cover only one particular season and are to be taken only as indicative of what might be expected. Most of the plots reported will be carried through two ratoon crops in addition to the plant, and in this way we hope to make the data more nearly complete.



On the whole, the past season was not a good one for cane growth; the spring was decidedly dry, and the rainfall distribution during the summer months was not good. Favourable conditions during the autumn months did assist materially, and the late-harvested cane benefited accordingly.

#### Basis for Calculation of Value of Crop Returns.

As it is not possible at this time to determine the final nett price to be paid for the past season's crop, the declared price of £17 16s. 10d. per ton raw sugar has been taken as the basis for calculation. Fertiliser prices are based on the Brisbane quotations plus freight. An allowance of 10s. per acre has been made for the cost of application of the fertiliser.

#### NORTHERN DIVISION.

*Location.*—Pringle Brothers' farm, Mossman.

*Soil Type.*—Recent alluvial soil on the Mossman River.

*Variety.*—Badila. Age of crop—Fifteen months.

##### RESULTS.

	No Fertiliser.	300 lb. Sulphate of Ammonia.	300 lb. Sulphate of Ammonia + 300 lb. Super-phosphate.	300 lb. Sulphate of Ammonia + 200 lb. Potash.	300 lb. Sulphate of Ammonia + 300 lb. Super-phosphate + 200 lb. Potash.
Tons cane per acre .. ..	26.4	30.5	31.7	33.0	32.6
C.C.S. in cane .. ..	18.2%	18.0%	17.9%	17.9%	17.7%
Value of crop .. ..	£61 16 0	£69 8 0	£71 17 0	£73 19 0	£72 16 0
Less harvesting costs .. ..	£10 10 0	£12 4 0	£12 18 0	£13 4 0	£13 1 0
Return .. ..	£51 6 0	£57 4 0	£58 19 0	£60 15 0	£59 15 0
Increased return due to fertiliser ..	..	£5 18 0	£7 13 0	£9 9 0	£8 9 0
Cost of fertiliser and application ..	..	£2 12 0	£3 16 0	£4 0 0	£5 4 0
Profit from fertiliser .. ..	..	£3 6 0	£3 17 0	£5 9 0	£3 5 0

*Discussion.*—It will be seen that there was a good response to sulphate of ammonia and potash, with but little, if any, from super. The best return was shown from the mixture of sulphate of ammonia and potash—£5 9s. profit per acre. Even the application of 800 lb. of fertiliser per acre, in the complete mixture, showed a profit of 63 per cent. on the money invested for the fertiliser.

*Location.*—L. R. Hearn's farm, Mossman.

*Soil Type.*—Alluvial soil on the Mossman River. Soil tests showed that the land needed liming.

*Variety.*—Badila. Age of cane—Fifteen months.

*Experimental Plan.*—Thirty small plots were set out—fifteen received 1 ton per acre of burnt lime before planting, the remaining fifteen received no lime.

Six plots were given each of the following treatments—three of these had been limed and three left unlimed:—

##### RESULTS.

	No Fertiliser.	300 lb. Sulphate of Ammonia.	300 lb. Sulphate of Ammonia + 300 lb. Super-phosphate.	300 lb. Sulphate of Ammonia + 200 lb. Potash.	300 lb. Sulphate of Ammonia + 300 lb. Super-phosphate + 200 lb. Potash.
Tons cane per acre .. ..	26.0	30.6	29.4	30.3	31.9
C.C.S. in cane .. ..	17.3%	16.8%	16.4%	16.6%	16.7%

##### RESULTS FROM LIME.

No lime plots .. ..	27.9 tons cane per acre
One ton burnt lime .. ..	31.4 tons cane per acre
Increased yield .. ..	3.5 tons cane per acre.

*Discussion.*—The results from this experiment are somewhat erratic, and it is not possible to draw definite conclusions. It is to be hoped that the ratoon crop yields will give more consistent results.

The crop suffered severely for want of moisture in the spring, yet we find a definite increase from sulphate of ammonia and lime. The increase from lime should be of interest to growers in the Mossman area. Probably results from the use of the Mowbray crushed limestone will not be as pronounced as the above on the plant crop following the application; for we know that burnt lime is much quicker in its action than crushed limestone. However, it is probable that the total return over a series of crops will compare very favourably, and the crushed limestone should be the cheaper form of lime in this area.

*Location.*—A. J. Kelly's farm, Aloomba.

*Soil Type.*—Old alluvial soil of the Mulgrave River; land typical of much of the Aloomba country.

*Variety.*—B. 147. Age of crop—Thirteen and a-half months.

##### CROP RESULTS.

	No Fertiliser.	300 lb. Sulphate of Ammonia.	300 lb. Sulphate of Ammonia + 300 lb. Super-phosphate.	300 lb. Sulphate of Ammonia + 200 lb. Potash.	300 lb. Sulphate of Ammonia + 300 lb. Super-phosphate + 200 lb. Potash.
Tons cane per acre .. ..	28.2	30.8	33.5	31.9	33.7
C.C.S. in cane .. ..	14.1%	13.3%	13.5%	13.6%	13.5%
Value of crop .. ..	£55 2 0	£56 18 0	£62 15 0	£60 3 0	£63 2 0
Less harvesting costs .. ..	£11 5 0	£12 7 0	£13 8 0	£12 15 0	£13 10 0
Return .. ..	£43 17 0	£44 11 0	£49 7 0	£47 8 0	£49 12 0
Increased return due to fertiliser ..	..	£0 14 0	£5 10 0	£3 11 0	£3 15 0
Cost of fertiliser and application ..	..	£2 9 0	£3 10 0	£3 15 0	£4 16 0
Profit or loss from fertiliser ..	..	Loss. £1 15 0	Profit. £2 0 0	Loss. £0 4 0	Profit. £0 19 0

*Discussion.*—The best return in this experiment was from the use of superphosphate. Although sulphate of ammonia gave a crop increase, the reduction in c.c.s. of the cane made the treatment unprofitable. (This crop was harvested early and was probably not mature.) There appears to be a need for only light dressings of potash on land of this type.

*Location.*—R. Matthews's farm, Pawngilly.

*Soil Type.*—Alluvial soil, typical of much of the Russell River lands. Tests showed the soil to be very acid and in need of a heavy lime dressing.

*Variety.*—Badila. Age of cane—Twelve and a-half months.

## RESULTS.

	No Fertiliser.	240 lb. Sulphate of Ammonia.	240 lb. Sulphate of Ammonia + 400 lb. Superphosphate	240 lb. Sulphate of Ammonia + 120 lb. Potash.	240 lb. Sulphate of Ammonia + 400 lb. Superphosphate + 120 lb. Potash.
Tons cane per acre .. ..	12.1	12.8	19.2	15.6	20.5
Value of crop .. .. .	£24 5 0	£25 11 0	£38 6 0	£31 5 0	£41 0 0
Less harvesting costs .. ..	£4 17 0	£5 2 0	£7 13 0	£6 5 0	£8 4 0
Return .. .. .	£19 8 0	£20 9 0	£30 13 0	£25 0 0	£32 16 0
Increased return due to fertiliser ..	..	£1 1 0	£11 5 0	£5 12 0	£13 8 0
Cost of fertiliser and application ..	..	£2 1 0	£3 9 0	£2 17 0	£4 5 0
Profit or loss from fertiliser .. ..	..	Loss. £1 0 0	Profit. £7 16 0	Profit. £2 15 0	Profit. £9 3 0

## INCREASED YIELD DUE TO LIME.

No lime .. .. .	13.0 tons cane per acre.
One and a-half tons burnt lime per acre .. ..	18.7 tons cane per acre.
Increase .. .. .	5.7 tons cane per acre.

*Discussion.*—The block selected for this experiment was portion of a farm which had been cropped without the use of the correct fertiliser. The land was also very much in need of lime. A thirty-plot trial was set out—fifteen plots received lime before planting and the remaining fifteen were left unlimed.

Series of six plots (three limed and three unlimed) were then submitted to the five fertiliser treatments shown above. The results show that the return from lime and superphosphate has been most marked. This is in conformity with our findings at the South Johnstone Sugar Experiment Station, that very acid soils give best results after the use of lime and superphosphate. The returns may be summarised as follows:—Lime showed an increase of  $5\frac{3}{4}$  tons of cane per acre, and superphosphate (400 lb. per acre) a further  $6\frac{1}{4}$  tons.

*Location.*—W. Thiele's farm, Pawngilly.

*Soil Type.*—The selected block was on the fringe of the red volcanic loam which constitutes a fair area of the elevated cane lands of the Bartle Frere district.

*Variety.*—Badila. Age of cane—Eighteen months.

## CROP RESULTS.

	No. Fertiliser.	300 lb. Sulphate of Ammonia.	300 lb. Sulphate of Ammonia + 300 lb. Superphosphate.	300 lb. Sulphate of Ammonia + 300 lb. Potash.	300 lb. Sulphate of Ammonia + 300 lb. Superphosphate + 300 lb. Potash.
Tons cane per acre .. ..	18.2	18.9	18.7	30.0	32.3
C.C.S. in cane .. .. .	13.7%	13.7%	13.5%	14.9%	14.8%
Value of crop .. .. .	£28 7 0	£29 11 0	£28 15 0	£53 8 0	£57 1 0
Less harvesting costs .. ..	£7 5 0	£7 10 0	£7 9 0	£12 0 0	£12 18 0
Return .. .. .	£21 2 0	£22 1 0	£21 6 0	£41 8 0	£44 3 0
Increased return due to fertiliser ..	..	£0 19 0	£0 4 0	£20 6 0	£23 1 0
Cost of fertiliser and application ..	..	£2 9 0	£3 10 0	£4 8 0	£5 9 0
Profit or loss from fertiliser .. ..	..	Loss. £1 10 0	Loss. £3 6 0	Profit. £15 18 0	Profit. £17 12 0

*Discussion.*—The outstanding feature of this experiment is the response to potash. The use of this material showed a very large profit, while decided losses were incurred where it was not applied. It should be pointed out that the piece of land carried what are known as "sterile patches" where the cane growth was very poor. It was obvious that wherever potash was applied, the patches ceased to exist.

*Remember.*—This result applies to the red volcanic loam, and not to alluvial soils; with similar sterile patches under the latter conditions, it is generally found that lime and superphosphate are the corrective materials to apply.

*Location.*—J. P. McGowan's farm, Daradgee.

*Soil Type.*—The soil was typical of much of the older alluvial soil of the Johnstone River.

*Variety.*—Badila. Age of crop—Sixteen months.

## CROP RESULTS.

	No Fertiliser.	240 lb. Sulphate of Ammonia.	240 lb. Sulphate of Ammonia + 360 lb. Superphosphate.	240 lb. Sulphate of Ammonia + 160 lb. Potash.	240 lb. Sulphate of Ammonia + 360 lb. Superphosphate + 160 lb. Potash.
Tons cane per acre .. ..	33.1	33.4	34.8	34.6	35.8
Value of crop .. .. .	£59 13 0	£60 2 0	£62 14 0	£62 5 0	£64 10 0
Less harvesting costs .. ..	£13 6 0	£13 8 0	£13 18 0	£13 16 0	£14 6 0
Return .. .. .	£46 7 0	£46 14 0	£48 16 0	£48 9 0	£50 4 0
Increased return from fertiliser ..	..	£0 7 0	£2 9 0	£2 2 0	£3 17 0
Cost of fertiliser and application ..	..	£2 1 0	£3 6 0	£2 0 0	£4 7 0
Loss from fertiliser .. .. .	..	£1 14 0	£0 17 0	£7 0 0	£0 20 0

*Discussion.*—Prior to planting, a leguminous crop which had been fertilised with potash and super. was ploughed under. The above fertilisers were additional, and the results show that under these conditions only small though definite gains in crop yield result. The



leguminous crop had supplied sufficient nitrogen for the plant crop, so that the sulphate of ammonia showed a direct loss. Without this material, the potash and phosphate would probably have shown small profits, and the indications are that a small dressing of these two materials in the drill would have been beneficial.

*Location.*—J. A. Wolff's farm, South Johnstone.

*Soil Type.*—The red soil of the area which is often confused with the red volcanic loam. It is a soil derived from the decomposition of the schist rock so common in the area.

*Variety.*—Badila. Age of crop—Fifteen months.

## CROP RESULTS.

	No. Fertiliser.	300 lb. Sulphate of Ammonia.	300 lb. Sulphate of Ammonia + 300 lb. Super-phosphate.	300 lb. Sulphate of Ammonia + 240 lb. Potash.	300 lb. Sulphate of Ammonia + 300 lb. Super-phosphate + 240 lb. Potash.
Tons cane per acre .. ..	30.8	29.0	37.7	35.1	37.4
Value of crop .. ..	£60 7 0	£56 16 0	£73 18 0	£68 16 0	£73 8 0
Less harvesting costs .. ..	£12 6 0	£11 12 0	£15 1 0	£14 0 0	£14 19 0
Return .. ..	£48 1 0	£45 4 0	£58 17 0	£54 16 0	£58 9 0
Increased return from fertiliser ..	..	Decrease. £2 17 0	£10 16 0	£6 15 0	£10 8 0
Cost of fertiliser and application ..	..	£2 9 0	£3 10 0	£4 0 0	£5 1 0
Profit or loss from fertiliser ..	..	Loss. £5 6 0	Profit. £7 6 0	Profit. £2 15 0	Profit. £5 7 0

*Discussion.*—It will be noted that the results are erratic, but there is undoubtedly a good response to potash and superphosphate. The depressed yield due to sulphate of ammonia is, no doubt, fictitious. It is hoped that the returns from the ratoon crop will be more consistent.

*Location.*—M. Caldera's farm, Mourilyan.

*Soil Type.*—The typical reddish schist soil which forms one of the major soil types of the Mourilyan area.

*Variety.*—Badila. Age of crop—Seventeen months.

## CROP RESULTS.

	No. Fertiliser.	240 lb. Sulphate of Ammonia.	240 lb. Sulphate of Ammonia + 320 lb. Super-phosphate.	240 lb. Sulphate of Ammonia + 200 lb. Potash.	240 lb. Sulphate of Ammonia + 320 lb. Super-phosphate + 200 lb. Potash.
Tons cane per acre .. ..	26.8	34.7	32.7	35.7	37.5
C.C.S. in cane .. ..	16.5%	16.6%	16.6%	16.6%	16.7%
Value of crop .. ..	£55 6 0	£63 17 0	£68 2 0	£74 7 0	£78 15 0
Less harvesting costs .. ..	£10 14 0	£12 5 0	£13 2 0	£14 6 0	£15 0 0
Return .. ..	£44 12 0	£51 12 0	£55 1 0	£60 1 0	£63 15 0
Increased return from fertiliser ..	..	£7 0 0	£10 9 0	£15 9 0	£19 6 0
Cost of fertiliser and application ..	..	£2 1 0	£3 3 0	£3 7 0	£4 9 0
Profit from fertiliser .. ..	..	£4 19 0	£7 6 0	£12 2 0	£14 17 0

*Discussion.*—The results from fertiliser have been most marked on this block. Sulphate of ammonia and potash have shown large increases,

with a smaller return from superphosphate. The profit from the use of 760 lb. of mixed fertiliser was almost £15 per acre.

*Location.*—S. Pagano's farm, Mourilyan.

*Soil Type.*—The typical reddish schist soil of the Mourilyan area.

*Variety.*—Badila. Age of crop—Twelve and a-half months.

## CROP RESULTS.

	No. Fertiliser.	320 lb. Sulphate of Ammonia.	320 lb. Sulphate of Ammonia + 300 lb. Super-phosphate.	320 lb. Sulphate of Ammonia + 200 lb. Potash.	320 lb. Sulphate of Ammonia + 300 lb. Super-phosphate + 200 lb. Potash.
Tons cane per acre .. ..	26.2	28.1	26.7	29.8	29.2
C.C.S. in cane .. ..	16.3%	16.0%	16.1%	15.7%	16.0%

*Discussion.*—This crop followed a "plough-out and replant." There has been some response to the fertiliser treatment, but the results are erratic, and have not been calculated in detail. The plots have been ratooned and better results are hoped for in succeeding crops.

*Location.*—W. Jones's farm, Silkwood.

*Soil Type.*—Acid alluvial soil typical of the area. Tests show need for lime and phosphate.

*Variety.*—Badila. Age of crop—Seventeen months.

## CROP RESULTS.

	No. Fertiliser.	360 lb. Sulphate of Ammonia.	360 lb. Sulphate of Ammonia + 300 lb. Super-phosphate.	360 lb. Sulphate of Ammonia + 180 lb. Potash.	360 lb. Sulphate of Ammonia + 300 lb. Super-phosphate + 180 lb. Potash.
Tons cane per acre .. ..	21.2	23.1	31.1	23.4	33.5
Value of crop .. ..	£35 1 0	£35 4 0	£51 7 0	£38 12 0	£55 5 0
Less harvesting costs .. ..	£8 10 0	£9 5 0	£12 9 0	£9 7 0	£13 8 0
Return .. ..	£26 11 0	£25 19 0	£38 18 0	£29 5 0	£41 17 0
Increased return from fertiliser ..	..	£2 8 0	£12 7 0	£2 11 0	£15 6 0
Cost of fertiliser and application ..	..	£2 17 0	£3 18 0	£4 0 0	£5 1
Profit or loss from fertiliser ..	..	Loss. £0 9 0	Profit. £8 0 0	Loss. £1 6 0	Profit. £10 5

*Discussion.*—The land was treated to an application of lime earth before planting. The results show a very decided response to superphosphate, which is in harmony with our findings for acid soils of an alluvial nature.

*Location.*—Allison Brothers' farm, Midgenoo, Tully.

*Soil Type.*—A light buff alluvial soil with tendency towards poor drainage in local areas—typical of a fair area of land in this district.

*Variety.*—Badila. Age of crop—Fourteen and a-half months.

## CROP RESULTS.

	No Fertiliser.	240 lb. Sulphate of Ammonia.	240 lb. Sulphate of Ammonia + 360 lb. Super-phosphate.	240 lb. Sulphate of Ammonia + 150 lb. Potash.	240 lb. Sulphate of Ammonia + 360 lb. Super-phosphate + 150 lb. Potash.
Tons cane per acre .. ..	19.1	19.7	29.2	21.4	29.1
Value of crop .. ..	£34 8 0	£35 7 0	£52 11 0	£38 9 0	£52 8 0
Less harvesting costs .. ..	£7 13 0	£7 17 0	£11 14 0	£8 11 0	£11 13 0
Return .. ..	£26 15 0	£27 10 0	£40 17 0	£29 18 0	£40 15 0
Increased return from fertiliser .. ..	..	£0 15 0	£14 2 0	£3 3 0	£14 0 0
Cost of fertiliser and application .. ..	..	£2 1 0	£3 6 0	£3 1 0	£4 6 0
Profit or loss from fertiliser .. ..	..	Loss. £1 6 0	Profit. £10 16 0	Profit. £0 2 0	Profit. £9 14 0

*Discussion.*—One-half of the plots of this experiment received lime earth before planting, the remainder received no lime. The results from liming showed:—

No lime .. ..	22.8 tons cane per acre.
Lime earth .. ..	24.5 tons cane per acre.
Increase .. ..	1.7 tons cane per acre.

The small increase from lime is in keeping with what is generally found to be the case. The plant crop shows a smaller increase than is the case where burnt lime is used, but larger returns can be expected from the ratoon crops.

Again the marked response to phosphate on the acid alluvial soils is noted, and a highly profitable return resulted.

*Location.*—S. J. French's farm, Midgenoo, Tully.

*Soil Type.*—The typical gravelly loam of the area.

*Variety.*—Badila. Age of crop—Eleven months (first ratoon).

## CROP RETURNS.

	No. Fertiliser.	300 lb. Sulphate of Ammonia.	300 lb. Sulphate of Ammonia + 300 lb. Super-phosphate.	300 lb. Sulphate of Ammonia + 120 lb. Potash.	300 lb. Sulphate of Ammonia + 300 lb. Super-phosphate + 120 lb. Potash.
Tons cane per acre .. ..	25.2	31.6	32.5	31.7	32.8
C.C.S. in cane .. ..	15.3%	15.1%	14.9%	15.2%	15.1%
Value of crop .. ..	£52 6 0	£57 19 0	£58 10 0	£58 9 0	£59 17 0
Less harvesting cost .. ..	£11 5 0	£12 12 0	£13 0 0	£12 13 0	£13 2 0
Return .. ..	£41 1 0	£45 7 0	£45 10 0	£46 16 0	£46 15 0
Increased return due to fertiliser .. ..	..	£4 6 0	£4 9 0	£4 15 0	£5 14 0
Cost of fertiliser and application .. ..	..	£2 9 0	£3 10 0	£2 5 0	£4 6 0
Profit from fertiliser .. ..	..	£1 17 0	£0 19 0	£1 10 0	£1 8 0

*Discussion.*—This was a first ratoon crop, and greater response was expected. The return from sulphate of ammonia is appreciable, but potash and super. show only slight gains. It is apparent that these gravelly soils still carry a fair supply of available plant foods.

## CENTRAL DIVISION.

*Location.*—J. Trevaskis's farm, Farleigh.

*Soil Type.*—Sandy loam on gentle slope—similar to a fair area of land in the near neighbourhood.

*Variety.*—M. 1900. Age of crop—Eighteen months.

## RESULTS.

	No Fertiliser.	300 lb. Sulphate of Ammonia.	300 lb. Sulphate of Ammonia + 300 lb. Super-phosphate.	300 lb. Sulphate of Ammonia + 240 lb. Potash.	300 lb. Sulphate of Ammonia + 300 lb. Super-phosphate + 240 lb. Potash.
Tons cane per acre .. ..	15.2	16.0	17.9	18.2	21.2
C.C.S. in cane .. ..	18.0%	17.9%	18.2%	18.0%	18.1%
Value of crop .. ..	£35 1 0	£36 8 0	£41 15 0	£41 19 0	£49 0 0
Less harvesting costs .. ..	£6 2 0	£6 8 0	£7 3 0	£7 6 0	£8 9 0
Return .. ..	£28 19 0	£30 0 0	£34 12 0	£34 13 0	£40 11 0
Increased return due to fertiliser .. ..	..	£1 1 0	£5 13 0	£5 14 0	£11 12 0
Cost of fertiliser and application .. ..	..	£2 8 0	£3 8 0	£3 19 0	£4 18 0
Profit or loss from fertiliser .. ..	..	Loss. £1 7 0	Profit. £2 5 0	Profit. £1 15 0	Profit. £6 14 0

*Discussion.*—The results indicate that land of this type requires heavy dressings of a balanced mixture. The heaviest dressing (840 lb. per acre) showed a profit of £6 14s. per acre. The apparently poor response to sulphate of ammonia alone is probably due to the deficiency of phosphate and potash, so that the nitrogenous fertiliser alone showed a loss.

*Location.*—H. Single's farm, Foulden, Mackay.

*Soil Type.*—Recent alluvial sandy loam of good natural fertility, as found along the banks of the Pioneer River.

*Variety.*—Q. 813. Age of crop—Eighteen months.

## RESULTS.

	No Fertiliser.	300 lb. Sulphate of Ammonia.	300 lb. Sulphate of Ammonia + 300 lb. Super-phosphate.	300 lb. Sulphate of Ammonia + 240 lb. Potash.	300 lb. Sulphate of Ammonia + 300 lb. Super-phosphate + 240 lb. Potash.
Tons cane per acre .. ..	31.5	34.6	33.7	36.4	36.9
C.C.S. in cane .. ..	17.2%	16.6%	16.8%	16.6%	16.7%
Value of crop .. ..	£68 2 0	£71.16 0	£70 18 0	£75 11 0	£74 19 0
Less harvesting costs .. ..	£12 12 0	£13 17 0	£13 10 0	£14 11 0	£14 7 0
Return .. ..	£55 10 0	£57 19 0	£57 8 0	£61 0 0	£60 12 0
Increased return due to fertiliser .. ..	..	£2 9 0	£1 18 0	£5 10 0	£5 2 0
Cost of fertiliser and application .. ..	..	£2 8 0	£3 8 0	£3 19 0	£4 18 0
Profit or loss from fertiliser .. ..	..	Profit. £0 1 0	Loss. £1 10 0	Profit. £1 11 0	Profit. £0 4 0

*Discussion.*—The results from the experiment were somewhat erratic, and definite conclusions cannot be drawn. There does appear to



be a definite response to fertiliser, but apparently the heavy dressings were excessive on this type of soil.

*Location.*—C. Rowe's farm, Mirani.

*Soil Type.*—The better type of well-drained alluvial loam found along the Pioneer Valley.

*Variety.*—H.Q. 426. Age of crop—Fourteen months.

## RESULTS.

	No Fertiliser.	300 lb. Sulphate of Ammonia.	300 lb. Sulphate of Ammonia + 300 lb. Super-phosphate.	300 lb. Sulphate of Ammonia + 240 lb. Potash.	300 lb. Sulphate of Ammonia + 300 lb. Super-phosphate + 240 lb. Potash.
Tons cane per acre .. ..	17.7	21.7	22.7	22.3	24.0
C.C.S. in cane .. ..	15.8%	16.0%	15.7%	15.8%	16.1%
Value of crop .. ..	£34 12 0	£43 1 0	£44 1 0	£43 11 0	£48 0 0
Less harvesting costs .. ..	£7 2 0	£8 13 0	£9 2 0	£8 19 0	£9 12 0
Return .. ..	£27 10 0	£34 8 0	£34 19 0	£34 12 0	£38 8 0
Increased return due to fertiliser ..	..	£6 18 0	£7 9 0	£7 2 0	£10 18 0
Cost of fertiliser and application ..	..	£2 8 0	£3 8 0	£3 19 0	£4 18 0
Profit from fertiliser .. ..	..	£4 10 0	£4 1 0	£3 3 0	£6 0 0

*Discussion.*—A good response to fertiliser was obtained, and it appears that nitrogenous fertiliser gave the greatest increase. However, 840 lb. of complete mixture showed £6 per acre profit.

*Location.*—C. W. Walz's farm, Marian.

*Soil Type.*—The soil of this block resembles closely much of the lighter coloured soil of the Mackay area, where natural drainage is only moderately good.

*Variety.*—M. 1900. Age of crop—Fifteen months.

## RESULTS.

	No Fertiliser.	400 lb. Sulphate of Ammonia.	400 lb. Sulphate of Ammonia + 300 lb. Super-phosphate.	400 lb. Sulphate of Ammonia + 240 lb. Potash.	400 lb. Sulphate of Ammonia + 300 lb. Super-phosphate + 240 lb. Potash.
Tons cane per acre .. ..	14.5	17.1	19.4	19.7	20.6
C.C.S. in cane .. ..	16.1%	16.5%	16.2%	16.2%	16.2%
Value of crop .. ..	£29 0 0	£35 8 0	£39 1 0	£39 13 0	£41 19 0
Less harvesting costs .. ..	£5 16 0	£6 17 0	£7 15 0	£7 18 0	£8 5 0
Return .. ..	£23 4 0	£28 11 0	£31 6 0	£31 15 0	£32 14 0
Increased return due to fertiliser ..	..	£5 7 0	£8 2 0	£8 11 0	£10 10 0
Cost of fertiliser and application ..	..	£3 1 0	£4 0 0	£4 11 0	£5 10 0
Profit from fertiliser .. ..	..	£2 6 0	£4 2 0	£4 0 0	£5 0 0

*Discussion.*—The response to the three fertiliser constituents on this block was fairly even, indicating the need for an evenly balanced mixture. The heaviest dressing (940 lb. per acre) showed a profit of £5 per acre.

*Location.*—E. K. Glen's farm, Pleystowe.

*Soil Type.*—The soil is typical of the average alluvial soil found in the Pioneer Valley.

*Variety.*—Q. 813. Age of crop—Thirteen months.

## RESULTS.

	No Fertiliser.	300 lb. Sulphate of Ammonia.	300 lb. Sulphate of Ammonia + 240 lb. Super-phosphate.	300 lb. Sulphate of Ammonia + 180 lb. Potash.	300 lb. Sulphate of Ammonia + 240 lb. Super-phosphate + 180 lb. Potash.
Tons cane per acre .. ..	15.3	17.6	18.5	18.5	19.1
C.C.S. in cane .. ..	15.8%	15.7%	15.9%	15.7%	15.7%
Value of crop .. ..	£29 19 0	£34 3 0	£36 11 0	£35 18 0	£37 2 0
Less harvesting costs .. ..	£6 2 0	£7 1 0	£7 8 0	£7 8 0	£7 13 0
Return .. ..	£23 17 0	£27 2 0	£29 3 0	£28 10 0	£29 9 0
Increased return due to fertiliser ..	..	£3 5 0	£5 6 0	£4 13 0	£5 12 0
Cost of fertiliser and application ..	..	£2 8 0	£3 4 0	£3 11 0	£4 7 0
Profit from fertiliser .. ..	..	£0 17 0	£2 2 0	£1 2 0	£1 5 0

*Discussion.*—This farm was unfortunate in missing the spring storms which favoured other parts of the district, and the returns are what one might expect from a dry season. However, the return from fertiliser, though small, has been profitable.

*Location.*—J. Gibson's farm, Racecourse.

*Soil Type.*—The soil was typical of the older soils of the valley, requiring provision for artificial drainage in the wet season.

*Variety.*—H.Q. 426. Age of crop—Seventeen months.

## RESULTS.

	No Fertiliser.	300 lb. Sulphate of Ammonia.	300 lb. Sulphate of Ammonia + 300 lb. Super-phosphate.	300 lb. Sulphate of Ammonia + 240 lb. Potash.	300 lb. Sulphate of Ammonia + 300 lb. Super-phosphate + 240 lb. Potash.
Tons cane per acre .. ..	22.5	24.8	26.4	25.9	24.0
C.C.S. in cane .. ..	17.1%	17.6%	17.6%	17.4%	17.5%
Value of crop .. ..	£47 15 0	£54 11 0	£57 19 0	£56 1 0	£52 14 0
Less harvesting costs .. ..	£9 0 0	£9 19 0	£10 11 0	£10 7 0	£9 12 0
Return .. ..	£38 15 0	£44 12 0	£47 8 0	£45 14 0	£43 2 0
Increased return due to fertiliser ..	..	£5 17 0	£8 13 0	£6 19 0	£4 7 0
Cost of fertiliser and application ..	..	£2 8 0	£3 8 0	£3 19 0	£4 18 0
Profit or loss from fertiliser ..	..	Profit. £3 9 0	Profit. £5 5 0	Profit. £3 0 0	Loss. £0 11 0

*Discussion.*—Unfortunately these results are erratic, probably due to an adverse condition affecting two of the plots of the complete fertiliser. It would appear, however, that definite response to the treatments has been obtained.



*Location.*—H. R. Swanson's farm, Homebush.

*Soil Type.*—Soil typical of the sandy loam of the Homebush area, responding to artificial drainage by planting in beds.

*Variety.*—Q. 813. Age of crop—Fifteen months.

## RESULTS.

	No. Fertiliser.	228 lb. Sulphate of Ammonia.	228 lb. Sulphate of Ammonia + 228 lb. Super-phosphate.	228 lb. Sulphate of Ammonia + 136 lb. Potash.	228 lb. Sulphate of Ammonia + 228 lb. Super-phosphate + 136 lb. Potash.
Tons cane per acre .. ..	21.8	24.5	26.4	25.3	28.2
C.C.S. in cane .. ..	17.3%	17.2%	17.2%	17.3%	17.1%
Value of crop .. ..	£47 8 0	£53 0 0	£57 2 0	£55 1 0	£60 13 0
Less harvesting costs .. ..	£8 14 0	£9 16 0	£10 11 0	£10 2 0	£11 6 0
Return .. ..	£38 14 0	£43 4 0	£46 11 0	£44 19 0	£49 7 0
Increased return due to fertiliser ..	..	£4 10 0	£7 17 0	£6 5 0	£10 13 0
Cost of fertiliser and application ..	..	£1 19 0	£2 14 0	£2 16 0	£3 11 0
Profit from fertiliser .. ..	..	£2 11 0	£5 3 0	£3 9 0	£7 2 0

*Discussion.*—Very good response was obtained on this block. This area was favoured by an early thunder storm, which emphasises the importance of the spring rain both in crop growth and results from fertilisers.

*Location.*—H. Ivers' farm, Rosella.

*Soil Type.*—Sandy loam similar to much of the Homebush land. Artificial surface drainage has been provided for on this farm.

*Variety.*—Q. 813. Age of crop—Thirteen and a-half months.

## RESULTS.

	No. Fertiliser.	300 lb. Sulphate of Ammonia.	300 lb. Sulphate of Ammonia + 240 lb. Super-phosphate.	300 lb. Sulphate of Ammonia + 180 lb. Potash.	300 lb. Sulphate of Ammonia + 240 lb. Super-phosphate + 180 lb. Potash.
Tons cane per acre .. ..	18.7	19.7	25.6	20.9	26.7
C.C.S. in cane .. ..	16.7%	16.6%	16.7%	16.7%	16.8%
Value of crop .. ..	£39 1 0	£40 18 0	£53 9 0	£43 13 0	£56 4 0
Less harvesting costs .. ..	£7 10 0	£7 18 0	£10 5 0	£8 7 0	£10 14 0
Return .. ..	£31 11 0	£33 0 0	£43 4 0	£35 6 0	£45 10 0
Increased return due to fertiliser ..	..	£1 9 0	£11 13 0	£3 15 0	£13 19 0
Cost of fertiliser and application ..	..	£2 8 0	£3 4 0	£3 11 0	£4 7 0
Profit or loss from fertiliser .. ..	..	Loss. £0 19 0	Profit. £8 9 0	Profit. £0 4 0	Profit. £9 12 0

*Discussion.*—The response to phosphates was most marked on this experimental area. The apparent loss from the sulphate of ammonia alone is probably fictitious, due to the fact that in the absence of phosphate, the crop makes but poor use of the nitrogenous manure.

*Location.*—P. Petersen's farm, Sarina.

*Soil Type.*—Gray sandy loam to clay loam, 14 to 20 inches deep, with general clayey or gravelly clay subsoil.

*Variety.*—Q. 813. Age of crop—Fifteen months.

## RESULTS.

	No. Fertiliser.	320 lb. Sulphate of Ammonia.	320 lb. Sulphate of Ammonia + 240 lb. Super-phosphate.	320 lb. Sulphate of Ammonia + 160 lb. Potash.	320 lb. Sulphate of Ammonia + 240 lb. Super-phosphate + 160 lb. Potash.
Tons cane per acre .. ..	20.1	21.8	23.2	30.0	31.1
C.C.S. in cane .. ..	16.9%	16.8%	16.8%	17.0%	17.0%
Value of crop .. ..	£42 12 0	£45 17 0	£48 16 0	£64 0 0	£66 7 0
Less harvesting costs .. ..	£8 1 0	£8 14 0	£9 6 0	£12 0 0	£12 9 0
Return .. ..	£34 11 0	£37 3 0	£39 10 0	£52 0 0	£53 18 0
Increased return due to fertiliser ..	..	£2 12 0	£4 19 0	£17 9 0	£19 7 0
Cost of fertiliser and application ..	..	£2 11 0	£3 6 0	£3 11 0	£4 6 0
Profit from fertiliser .. ..	..	£0 1 0	£1 13 0	£13 18 0	£15 1 0

*Discussion.*—On this soil, potash was the important limiting factor, an application of 160 lb. of this material (cost about £1) resulted in about 8 tons increase per acre. Here again the nitrogen showed little increase in the absence of potash, but probably was of material importance in effecting the high yield from the complete manure.

*Location.*—P. Brooks's farm, Sarina.

*Soil Type.*—Heavy loam soil 10 to 15 inches deep, with stiff clayey subsoil.

*Variety.*—M. 1900. Age of crop—Thirteen months.

## RESULTS.

	No. Fertiliser.	320 lb. Sulphate of Ammonia.	320 lb. Sulphate of Ammonia + 320 lb. Super-phosphate.	320 lb. Sulphate of Ammonia + 160 lb. Potash.	320 lb. Sulphate of Ammonia + 320 lb. Super-phosphate + 160 lb. Potash.
Tons cane per acre .. ..	19.1	19.5	32.1	21.2	30.7
C.C.S. in cane .. ..	15.6%	15.3%	15.2%	15.1%	15.2%
Value of crop .. ..	£36 10 0	£36 8 0	£59 8 0	£38 19 0	£58 16 0
Less harvesting costs .. ..	£7 13 0	£7 16 0	£12 17 0	£8 10 0	£12 6 0
Return .. ..	£28 17 0	£28 12 0	£46 11 0	£30 9 0	£44 10 0
Increased return due to fertiliser ..	..	Decrease. £0 5 0	£17 14 0	£1 12 0	£15 13 0
Cost of fertiliser and application ..	..	£2 11 0	£3 12 0	£3 11 0	£4 12 0
Profit or loss from fertiliser .. ..	..	Loss. £2 16 0	Profit. £14 2 0	Loss. £1 19 0	Profit. £11 1 0

*Discussion.*—Due to some soil variation effect, the complete fertiliser yield was lower than that from the superphosphate and sulphate of ammonia. However, the results indicate clearly the absolute necessity for heavy phosphate dressings on soils of this type. With treatments which excluded phosphate, the loss from fertiliser was very marked—with the application of super. very high gains resulted.

## SOUTHERN DIVISION.

*Location.*—Burrage Brothers' farm, Maroondan.

*Soil Type.*—Black clay typical of the area.

*Variety.*—M. 1900. Age of crop—Eighteen months.

## RESULTS.

	No Fertiliser.	250 lb. Sulphate of Ammonia.	250 lb. Sulphate of Ammonia + 300 lb. Super-phosphate.	250 lb. Sulphate of Ammonia + 240 lb. Potash.	250 lb. Sulphate of Ammonia + 300 lb. Super-phosphate + 240 lb. Potash.
Tons cane per acre .. ..	15.2	16.0	17.8	15.7	20.0
C.C.S. in cane .. ..	16.7%	17.0%	17.0%	16.8%	17.4%
Value of crop .. ..	£32 0 0	£34 9 0	£38 7 0	£33 6 0	£44 8 0
Less harvesting costs .. ..	£5 6 0	£5 12 0	£6 5 0	£5 10 0	£7 0 0
Return .. ..	£26 14 0	£28 17 0	£32 2 0	£27 16 0	£37 8 0
Increased return due to fertiliser .. ..	..	£2 3 0	£5 8 0	£1 2 0	£10 14 0
Cost of fertiliser and application .. ..	..	£2 1 0	£3 0 0	£3 11 0	£4 10 0
Profit or loss from fertiliser .. ..	..	Profit. £0 2 0	Profit. £2 8 0	Loss. £2 9 0	Profit. £6 4 0

*Discussion.*—Results were erratic; but, as was anticipated, good results have followed from the use of phosphate. The complete fertiliser showed an increase of almost 5 tons per acre over the plots receiving no fertiliser.

*Location.*—P. Peterson's farm, Bingera.

*Soil Type.*—This block is on the slope below a volcanic ridge, and is mixed volcanic-sandy loam.

*Variety.*—Black Lunis. Age of crop—Eighteen months.

## RESULTS.

	No Fertiliser.	250 lb. Sulphate of Ammonia.	250 lb. Sulphate of Ammonia + 250 lb. Super-phosphate.	250 lb. Sulphate of Ammonia + 400 lb. Potash.	250 lb. Sulphate of Ammonia + 250 lb. Super-phosphate + 400 lb. Potash.
Tons cane per acre .. ..	15.5	16.2	17.1	21.6	22.0
C.C.S. in cane .. ..	13.0%	13.1%	13.0%	13.1%	13.2%
Value of crop .. ..	£22 10 0	£23 15 0	£24 16 0	£31 14 0	£32 11 0
Less harvesting costs .. ..	£5 9 0	£5 13 0	£6 0 0	£7 10 0	£7 15 0
Return .. ..	£17 1 0	£18 2 0	£18 16 0	£24 4 0	£24 16 0
Increased return due to fertiliser .. ..	..	£1 1 0	£1 15 0	£7 3 0	£7 15 0
Cost of fertiliser and application .. ..	..	£2 1 0	£2 17 0	£4 11 0	£5 7 0
Profit or loss from fertiliser .. ..	..	Loss. £1 0 0	Loss. £1 2 0	Profit. £2 12 0	Profit. £2 8 0

*Discussion.*—The response to potash has been quite marked on this trial. The heaviest dressing of fertiliser (900 lb. per acre) showed a profit of £2 8s. per acre. Undoubtedly the amount of potash applied was excessive.

*Location.*—Eardley Brothers' farm, North Coast road, via Bundaberg.

*Soil Type.*—Forest sandy loam; an important soil type of the area.

*Variety.*—D. 1135. Age of crop—Fourteen months.

## RESULTS.

	No Fertiliser.	60 lb. Sulphate of Ammonia.	60 lb. Sulphate of Ammonia + 250 lb. Super-phosphate.	60 lb. Sulphate of Ammonia + 300 lb. Potash.	60 lb. Sulphate of Ammonia + 250 lb. Super-phosphate + 300 lb. Potash.
Tons cane per acre .. ..	16.6	16.6	18.8	18.5	23.4
C.C.S. in cane .. ..	14.8%	14.7%	14.9%	14.8%	14.7%
Value of crop .. ..	£29 0 0	£28 14 0	£33 1 0	£32 6 0	£40 10 0
Less harvesting costs .. ..	£5 16 0	£5 16 0	£6 12 0	£6 10 0	£8 4 0
Return .. ..	£23 4 0	£22 18 0	£26 9 0	£25 16 0	£32 6 0
Decrease .. ..	..	£0 6 0	£3 5 0	£2 12 0	£9 2 0
Cost of fertiliser and application .. ..	..	£0 13 0	£1 9 0	£2 10 0	£3 6 0
Profit or loss from fertiliser .. ..	..	Loss. £0 19 0	Profit. £1 16 0	Profit. £0 2 0	Profit. £5 16 0

*Discussion.*—The results from the trial are not definite, but there was certainly a response to fertiliser. Due to a misunderstanding, the second dressing of sulphate of ammonia was not given, so the plots did not receive a full complement of nitrogen.

*Location.*—C. N. Dahl's farm, Bundaberg.

*Soil Type.*—Woongarra red volcanic loam.

*Variety.*—D. 1135. Age of crop—Thirteen months.

## RESULTS.

	No Fertiliser.	60 lb. Sulphate of Ammonia.	60 lb. Sulphate of Ammonia + 250 lb. Super-phosphate.	60 lb. Sulphate of Ammonia + 400 lb. Potash.	60 lb. Sulphate of Ammonia + 250 lb. Super-phosphate + 400 lb. Potash.
Tons cane per acre .. ..	20.1	20.7	21.1	20.7	21.0

*Discussion.*—The fertiliser has apparently shown no result on this trial.

*Location.*—A. Adie's farm, Cordalba.

*Soil Type.*—Red volcanic loam.

*Variety.*—D. 1135. Age of crop—Seventeen months.

## RESULTS.

	No Fertiliser.	250 lb. Sulphate of Ammonia.	250 lb. Sulphate of Ammonia + 250 lb. Super-phosphate.	250 lb. Sulphate of Ammonia + 400 lb. Potash.	250 lb. Sulphate of Ammonia + 250 lb. Super-phosphate + 400 lb. Potash.
Tons cane per acre .. ..	23.0	24.0	24.2	24.1	23.8

*Discussion.*—There appears to have been some inaccuracy in the returns of the individual plots in this trial, and therefore the results allow of no conclusions being drawn.



*Location.*—T. Beattie's farm, Mount Bauple.

*Soil Type.*—Stony hillside slope soil, characteristic of upland soils of the area.

*Variety.*—D. 1135. Age of crop—Eighteen months.

## RESULTS.

	No. Fertiliser.	250 lb. Sulphate of Ammonia.	250 lb. Sulphate of Ammonia + 250 lb. Super- phosphate.	250 lb. Sulphate of Ammonia + 300 lb. Potash.	250 lb. Sulphate of Ammonia + 250 lb. Super- phosphate + 300 lb. Potash.
Tons cane per acre .. ..	13.8	16.6	17.5	19.1	18.9
C.C.S. in cane .. ..	14.45%	14.3%	14.3%	14.5%	14.3%
Value of crop .. ..	£23 5 0	£27 1 0	£29 0 0	£32 6 0	£31 7 0
Less harvesting costs .. ..	£4 17 0	£5 16 0	£6 3 0	£6 14 0	£6 12 0
Return .. ..	£18 8 0	£21 15 0	£22 17 0	£25 12 0	£24 15 0
Increased return due to fertiliser ..	..	£3 7 0	£4 9 0	£7 4 0	£6 7 0
Cost of fertiliser and application ..	..	£2 1 0	£2 17 0	£3 19 0	£4 15 0
Profit from fertiliser .. ..	..	£1 6 0	£1 12 0	£3 5 0	£1 12 0

*Discussion.*—There appears to be a definite response from the use of nitrogen and potash on this type of soil. Conditions were adverse with this trial, and a deluge of rain after planting probably removed some of the fertiliser with the washed soil.

*Location.*—F. N. Kirk's farm, Nambour.

*Soil Type.*—Alluvial loam of Petrie's Creek; land requires provision for surface drainage. Excessively wet during heavy rains.

*Variety.*—Q. 813. Age of crop—Fourteen months.

## RESULTS.

	No. Fertiliser.	75 lb. Sulphate of Ammonia.	75 lb. Sulphate of Ammonia + 250 lb. Super- phosphate.	75 lb. Sulphate of Ammonia + 150 lb. Potash.	75 lb. Sulphate of Ammonia + 250 lb. Super- phosphate + 150 lb. Potash.
Tons cane per acre .. ..	17.3	18.7	21.1	20.1	19.3
C.C.S. in cane .. ..	11.1%	10.9%	11.8%	11.3%	11.2%

*Discussion.*—Response to fertiliser appears to have been very slight, and the results are quite erratic. Soil variation is a serious factor here.