Flax as a rotation crop in the higher rainfall areas of Western Australia

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FLAX variety trials have been in progress at Bramley Research Station for three seasons and at Manjimup for two seasons, to determine if this crop would be a suitable cash rotation one. The results of these experiments were published earlier under the title of Flax Variety Experiment at Bramley and Manjimup, 1955-57, by Messrs. H. G. Elliott and F. E. Ryan.

Up to the present time the variety "Concurrent" is the standard commercial one which has been used in the flax growing areas at Boyup Brook and for the purposes of determining the value of this crop for the dairying districts as a cash crop rotation, the average yield of this variety is taken as a basis for determining results.

Bramley

The average yield of the "Concurrent" variety for the three years was equal to 1.74 tons per acre and basing the straw at better than standard price at which it was valued at each year, the following would be the gross returns per acre.

1.74 tons straw at £15 10s. per ton = £26 19s. 5d. It can be estimated that if the farmer carried out his own cultivation, planting, stooking, loading and supplied the fertiliser, fuel, etc., his cash outlay would not exceed £2 12s. per acre as the cost of seed, pulling, twine and cartage can be deducted from the crop proceeds after delivery to the processing mill. This amount has been estimated at £6 5s. per acre.

From the above it will be seen that the net returns per acre would be:

<table>
<thead>
<tr>
<th>Description</th>
<th>£</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gross Value of Straw</td>
<td>26 19 0</td>
</tr>
<tr>
<td>Cash Outlay</td>
<td>2 12 0</td>
</tr>
<tr>
<td>Other deductions on delivery</td>
<td>6 5 0</td>
</tr>
<tr>
<td>Net Return</td>
<td>18 2 0</td>
</tr>
</tbody>
</table>

With the above, cartage costs have been based on the assumption that all mileage in excess of 20 miles would be subsidised by the processing mill. No charge was made for the farmer's labour or deprecia-
tion on his plant. In the cash outlay items such commodities as fuel, fertiliser, and spraying materials, have been taken into account.

A nett return of £18 per acre for a cash rotation crop is worthy of consideration by farmers in the dairying areas, and if contracts can be made with the processing mill, consideration should be given to the growing of this crop. With efficient cultivation and good farm management this crop would, on well drained old pasture country, yield much better than the average which has been obtained to date in the flax growing areas.

Apart from the above considerations the land would be in excellent order for the following year when a good pasture mixture could be planted early.

RESULTS BRAMLEY RESEARCH STATION, 1957

<table>
<thead>
<tr>
<th>Variety</th>
<th>Original Straw Weight</th>
<th>Yield of Products per Acre</th>
<th>Gross Mill Value of all Products per Acre</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>cwts./acre</td>
<td>Line Fibre</td>
<td>Line Fibre per cent. on Original Weight</td>
</tr>
<tr>
<td>Concurrent</td>
<td>28·1</td>
<td>404</td>
<td>13·9</td>
</tr>
<tr>
<td>Bovup</td>
<td>27·9</td>
<td>336</td>
<td>11·4</td>
</tr>
<tr>
<td>Wada 100 lb./ac.</td>
<td>26·9</td>
<td>347</td>
<td>11·9</td>
</tr>
<tr>
<td>Wada 85 lb./ac.</td>
<td>26·5</td>
<td>307</td>
<td>11·6</td>
</tr>
<tr>
<td>Wiera 85 lb./ac.</td>
<td>22·4</td>
<td>324</td>
<td>12·9</td>
</tr>
</tbody>
</table>

From the above table it will be seen that the variety “Concurrent” gave the highest straw yields per acre and the highest percentage line fibre as well as the greatest gross value for all products when recovered at the Mill. This represented the saleable value after processing at £76 per acre. It will be seen that the lowest gross value of processed products was £58 per acre a difference of £18 per acre between highest and lowest producing variety in 1957.

MANJIMUP

The average yield of Concurrent for two years at Manjimup was 2.35 tons to the acre and taking this variety as the standard, the following returns might be expected if similar yields are maintained.

The 2.35 tons of straw valued at £16 per ton would give a gross return to the farmer of £37 12s. Providing the farmer did his own work such as cultivation, planting, stock- ing and loading, it is estimated that the cash outlay for fuel, fertiliser and if necessary spraying for pests would not exceed £3 per acre, as the balance for seed, pulling, twine and cartage would be deducted from the proceeds of the crop after delivery at the Mill. This is estimated allowing for cartage adjustment by the Mill at £8 10s. per acre.

It will be seen from this that the nett return per acre would be £26 2s.

2.35 tons @ £16 per ton = £37 12 0
All costs
Cash outlay £3
Mill deductions £8 10 0

£26 2 0

RESULTS C. LEFROY, MANJIMUP, 1957

<table>
<thead>
<tr>
<th>Variety</th>
<th>Original Straw Weight</th>
<th>Yield of Products per Acre</th>
<th>Gross Mill Value of all Products per Acre</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>cwts./ac.</td>
<td>Line Fibre</td>
<td>Line Fibre per cent. on Original Weight</td>
</tr>
<tr>
<td>Concurrent</td>
<td>54·9</td>
<td>1,117</td>
<td>19·1</td>
</tr>
<tr>
<td>Boyup</td>
<td>50·2</td>
<td>947</td>
<td>17·2</td>
</tr>
<tr>
<td>Wiera</td>
<td>49·4</td>
<td>1,008</td>
<td>18·2</td>
</tr>
<tr>
<td>Wada</td>
<td>54·9</td>
<td>921</td>
<td>16·8</td>
</tr>
</tbody>
</table>
The above figures do not take into consideration the cost of the farmer's own labour or depreciation on the plant which was used.

**COMMENT**

A payable cash crop would be of considerable advantage on farms in the dairying districts for renovation of existing pastures, suppression of weeds, and for sowing of improved species of pasture plants. In very limited areas potatoes provide such a crop but results of the present series of experiments suggest that fibre flax could provide an alternative with a wider application.

It is considered that if flax is grown in these areas the area sown to this crop would be less than 1/15th of the pasture area of the property and that the paddocks used would be those most in need of cultivation and renovation and of low production under grazing. Consequently this would not be expected to interfere very much with the normal carrying capacity of the property.

Improved production could be expected from these paddocks following the flax crop resowing with pasture and more than compensate for the area excluded from grazing.

Although flax is grown commercially at present within a 30 mile range of the Mill at Boyup Brook an endeavour has been made to compare these experimental results with the commercial crops grown there.

Many growers in the Boyup area produce much heavier yields than the average for the district so a comparison of experimental results from one or two sites elsewhere with the district average is not strictly correct, but the results are encouraging from the following points:

(1) **Yields of Straw.**

At Bramley for the three years 1955-56-57, the average mean yield of straw (original weight) was 32.5 cwt. per acre. At Manjimup for the two years 1956-57 the mean yield was 48.6 cwt. per acre; whereas at Boyup Brook the average for the three years 1955-57 of all commercial crops was 26 cwt. per acre.

If the Concurrent variety is accepted as the standard the average yields would provide an estimated nett return of £18 2s. per acre at Bramley and £26 2s. per acre at Manjimup at the present ruling price for straw.

(2) **Fibre Recovery.**

The recovery of fibre from the straw produced at Manjimup in 1957 was 17.8 per cent., Bramley 12.3 per cent. and the overall crops at Boyup Brook 11.0 per cent.

![Fig. 2.—A flax crop in flower](image)

Such increases in fibre recovery as obtained from the Manjimup straw would go a long way to reducing the cost of fibre production to a level at which it could be sold on the world market, providing the high recovery was consistent.

In addition a higher price per ton could be paid by the Mill for straw with such a high fibre content and this would improve the farmer's return per acre.

(3) **Value of Products.**

If the Concurrent variety is taken as a standard the gross Mill value of the fibre, tow, seed and chaff from this variety grown at Bramley was worth £76 per acre, at Manjimup £165 per acre, consequently if the same yields of straw together with
the percentages of extraction of products at the Mill were maintained. Flax production at Manjimup would have a very bright future. In order to obtain more information from a wider area at Manjimup commercial crops have been planted on three sites as well as three experiments during this season, 1958.

(4) Varieties.

"Concurrent," "Boyup," "Wada," and "Wiera" varieties have been used in these trials, and all four have produced equally well at Manjimup, whereas "Concurrent" and "Boyup" have consistently yielded well at Bramley.

CONCLUSIONS

Both districts have shown that they are suitable for growing flax for fibre with best results to date from Manjimup. Further studies are being made at Manjimup on Times of Planting, Fertilisers, Drilling V Broadcasting and Varieties, for the purpose of determining if increased yields of straw and fibre can be obtained.
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