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Cover Page Footnote
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AGRICULTURE IN WESTERN AUSTRALIA

2. A preview of future development

By A. W. HOGSTROM, B.Sc. (Agric.), Adviser, Agricultural Economics and Marketing Section

THE agricultural areas of Western Australia produce most of the State’s agricultural output. Only isolated small areas of arable agriculture exist in the North-West and tropical areas of the State.

With the fulfilment of plans for further development of the north with large scale irrigation works, agricultural production will increase rapidly. But despite this potential the greatest expansion of agricultural production, in area and volume of produce, will be in the south-west corner of the State. It is from this area that the main part of Western Australia’s export income will come.

This south-western part comprises a total area of about 70 million acres bounded approximately by the 11-inch rainfall isohyet or a line running from the mouth of the Murchison River in the north to Israelite Bay, east of Esperance, in the south. Agriculture now extends to this boundary in some districts. Of the gross area, about 4.3 million acres are set aside as State Forests. There is also a coastal strip and several other types of land as yet not usable for agriculture.

To estimate its potential the State has been divided into five regions—Cereal and Sheep, Southern Agriculture, Esperance, Dairying, and North-West and Kimberley regions.

Each region has potential for greatly increased production of a basically different type. Excluding the North-West and Kimberley, the Cereal and Sheep region has by far the greatest potential in terms of land available. However the next decade will see development and increased production mainly in the Southern Agriculture and Esperance regions, with some extension in the medium to high rainfall areas of the Cereal and Sheep region. Consequent on this development may be a swing away from the State emphasis on cereal cropping to increased animal produce.

| TABLE 1 |
| WESTERN AUSTRALIA. LAND USE AND POTENTIAL. |

<table>
<thead>
<tr>
<th>Region</th>
<th>Cereal and Sheep</th>
<th>Southern</th>
<th>Esperance</th>
<th>Dairying</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Area holdings (m. ac.)</td>
<td>27</td>
<td>7.5</td>
<td>2</td>
<td>2.5</td>
<td>39.0</td>
</tr>
<tr>
<td>Area cleared (m. ac.)</td>
<td>19.5</td>
<td>4.9</td>
<td>0.5</td>
<td>1.3</td>
<td>26.2</td>
</tr>
<tr>
<td>On holdings suitable, uncleared (m. ac.)</td>
<td>3</td>
<td>2</td>
<td>1.5</td>
<td>0.7</td>
<td>7.2</td>
</tr>
<tr>
<td>Off holdings suitable for clearing (m. ac.)</td>
<td>9</td>
<td>2</td>
<td>4.5</td>
<td>1.4</td>
<td>16.9</td>
</tr>
<tr>
<td>Total suitable but uncleared (m. ac.)</td>
<td>12</td>
<td>4</td>
<td>6</td>
<td>2.1</td>
<td>24.1</td>
</tr>
</tbody>
</table>

CEREAL AND SHEEP REGION

It has been estimated that there are three million acres on holdings and nine million acres off holdings yet to be cleared in the Cereal and Sheep region. (See Table 1.)

This uncleared area is distributed in five ways:

The first of these is throughout the region on and between holdings. Some districts are fully developed but these are exceptions.

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The second area is the West Midlands where there are still about 1.5 million acres to be taken up. The type of agriculture here is similar to that of Esperance, with grazing being the chief enterprise. Although not developing at the same rate as the south coastal scrubplain, its proximity to metropolitan markets will ensure early development of this area.

The third area is in the Kulin, Lake Grace and Nyabing-Pingrup districts, east of and on lighter soils than the existing settlement. This block of land is bounded on the east by the Lakes District and No. 1 Rabbit Proof Fence and on the south by the areas of new development. The total area remaining is about 1.4 million acres.

The fourth area is bounded by the Kalgoorlie railway line in the north, and the No. 1 Rabbit Proof Fence and the Kalgoorlie-Esperance railway in the west and east. It consists of both light and heavy textured soils and was planned for development in 1927-30 as part of the 3,500 Farms Scheme. This area is about 3.5 million acres, capable of supporting about 1,000 farms. Experience gained in heavy land development in the Salmon Gums and Lakes Districts and on light land such as the experimental plots at Forrestania show that the area can be profitably farmed. Encroachment from all sides is gradually taking place but the major extensions are likely to be from the south coast. The
most suitable part of the area for development is to the south of a line from Lake King to Circle Valley, in an area which receives more than 14 inches of rain a year.

The fifth area for development in the Cereal and Sheep areas is a gradual extension on the eastern margin of existing holdings in the northern and north-eastern agricultural areas onto good heavy and light soils. This type of development is rather slower than subdivision and allocation of large tracts but is often done by farmers with land fairly close by who are seeking to increase property size.

Of the 12 million acres available in the Cereal and Sheep region about five million will be cleared in the next 10 years. About half of this will be scattered throughout the area both on and off holdings with about 750,000 acres each in three areas—the West Midlands, the east Lake Grace and the 3,500 Farms Scheme area.

<table>
<thead>
<tr>
<th>TABLE 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>CEREAL AND SHEEP REGION POTENTIAL AND 10 YEAR ESTIMATE OF CLEARING</td>
</tr>
<tr>
<td>Area</td>
</tr>
<tr>
<td>----------------</td>
</tr>
<tr>
<td>m. ac.</td>
</tr>
<tr>
<td>1</td>
</tr>
<tr>
<td>2</td>
</tr>
<tr>
<td>3</td>
</tr>
<tr>
<td>4</td>
</tr>
<tr>
<td>5</td>
</tr>
<tr>
<td>Total</td>
</tr>
</tbody>
</table>

SOUTHERN AGRICULTURAL REGION

This region is relatively closely settled with only four million acres yet to be cleared. Most of this is either in the high rainfall (over 25 inches) belt along the eastern fringe of the Darling Range from the Williams to the Upper Blackwood district or along the south coast.

Clearing costs in the heavy timbered high rainfall belt are high although the use of nitrogenous fertiliser with initial crops helps to offset this. The land is highly productive for grazing when developed and sown to pasture. War Service Land Settlement and other large project areas have been responsible for much development in the high rainfall area and about half of the uncleared land on holdings is in this area. Grazing with occasional cropping is likely to be the usual farming practice.

The next 10 years should see about half a million acres developed along the south coast and a further half million in the remaining area, with some concentration in the western parts. Consolidation and expansion of existing farms onto unalienated land will be important in development in the next 10 years.

ESPERANCE REGION

Since the establishment of the Esperance Downs Research Station in 1949 much attention has been focused on the potential of this district. In this time over 1½ million acres have been alienated.

The most productive land has nearly all been taken up but there still exists about a million acres on these holdings to be cleared. As well as this, much of the rest of the region is suited to grazing and cereal cropping (less than 20 inch rainfall) and is likely to benefit from the rapid development by becoming settled fairly quickly. There are about 4.5 million acres of holdings which are suitable for development.

At least a further one million acres will be cleared in the region during the coming decade.

DAIRYING REGION

The lower South-West portion of Western Australia has the least potential area for development. Besides this the high cost of clearing is a problem and the rate of expansion will be slow and dependent on the local requirement for produce of the area. Much of the 1.4 million acres of unalienated land not at present reserved for forests carries good timber and may be more profitably retained for forestry than cleared and devoted to agriculture.

There are 700,000 acres uncleared on holdings at present which are suitable for clearing.
LIGHT LAND

Most of the potential agricultural areas in W.A. depend on the development of light land similar to that developed since 1945. Research into light land development techniques have made this expansion possible. The most notable advances have been in the field of trace element and other fertiliser requirements, the use of subterranean clover and cheaper and improved clearing methods.

HIGH RATE OF CLEARING

The rate of clearing has been around 750,000 acres a year since 1946. This rate should be maintained for the next 10 years unless economic conditions change markedly. Such a rate will by no means exhaust the 24 million acres yet to be cleared. This will probably take until the end of the 20th century and will be the limit of expansion possible with present technical knowledge.

As in the past, much of the development in the next decade will be done by existing farmers expanding the size of their farms. The next decade will see development in the higher rainfall light land areas well suited to stock—where improved pastures can be established, productivity is more assured because of climate. As these areas consolidate the lower rainfall areas will be cleared for cereal production—if markets allow it.

TECHNICAL ADVANCES

There is at present a considerable backlog of technical information which when generally adopted will markedly raise productivity per acre. The extension of clover pastures to all areas for which suitable species are now available would itself have a big effect in raising soil fertility, pasture growth and animal production. Geraldton subterranean clover, Cyprus barrel medic and rose clover have extended the limits of improved pastures to the 12 inch isohyet.

It is estimated that there will be 13.7 million acres of pasture in 10 years' time. This represents 41 per cent. of the estimated cleared area compared with 31 per cent. at present.

Known techniques and further advances in the fields of crop and pasture cultivation and manurial practices will increase production far above that anticipated by the clearing of new areas.

Better crop, pasture, stock and farm management in general will raise the level of production per acre as farms become more fully developed and the consolidation stage is reached. Increased costs are making it necessary for farmers to consolidate and increase productivity per acre.

CEREAL PRODUCTION

Cereal grain yields have increased by about three bushels an acre over the past 30 years with improved varieties and better cultivation practices. There seems no reason why this trend should not continue as fertiliser requirements are more accurately determined and the effects of improved pastures and rotation changes are felt. If the use of nitrogenous fertiliser becomes widespread in the cereal areas the rate of increase could be much higher than in the past.

It seems likely that cereals will occupy the same proportion of cleared land in the future unless prices for grain change markedly in comparison to animal products. The ultimate total production of cereals should exceed 200 million bushels, of which about 50 per cent. will be wheat, 30 per cent. oats and 20 per cent. barley. The relationship between the three cereals could vary with demand but the total should be about the same.

The defined cereal and sheep region should account for most of this production. In the Esperance and Southern Agricultural regions cereal cropping will be less important although the inclusion of a crop in the rotation either for pasture renovation or for supplementary feed for stock will be continued. The use of nitrogenous fertiliser with an initial crop after clearing will be of value in helping to offset development costs.

If plant diseases such as rusts and root rots can be controlled or avoided, cropping in these higher rainfall areas may be practised to make use of the improved soil fertility following clover ley.
SHEEP PRODUCTION

Sheep numbers and wool production will rise because of the increased acreage, pasture improvement, stock management and disease and pest control.

Stocking rates in the wheat and sheep areas average only about half a sheep per cleared acre. This rate could be doubled with the use of new clover varieties now becoming available. In the southern agricultural and higher rainfall grazing areas they rise as high as one sheep to the acre—a similar figure to the present stocking rate at Esperance. In these areas the effects of more improved pastures and such improved practices as spring lambing and set stocking could lift the average stocking rate to 1½ or two sheep to the acre.

As clover pastures extend into the drier wheat and sheep areas stocking rates will rise and lead to greater numbers of sheep per acre and pounds of wool per sheep. The wool cut per sheep has increased from just over 6 lb. to over 9 lb. since 1930 and this rate of increase should be maintained with improved nutrition and management and the application of present known principles of fleece and flock measurement.

The agricultural areas of the State will ultimately carry more than 40 million sheep—a figure which should be reached by 1980.

BEEF CATTLE

Although beef cattle numbers have more than trebled in the agricultural areas in the past 10 years they are still only a small proportion of total stock numbers. Price relationships and the demand for wool, mutton and beef and the possible supply of better quality beef from the north of the State are factors which will determine the growth of beef cattle numbers.

A few beef cattle have been introduced into the cereal and sheep areas in recent years. However it is most likely that in the future beef will become significant in the higher rainfall areas and present dairying areas—and then only if prices are favourable.

THE LOWER SOUTH-WEST

The extreme South-West corner of the State, which has a rainfall from 35 to 60 inches a year, mainly provides the State's local needs for dairy products, vegetables and fresh fruit. Apart from about a million cases of apples a year there is little export from this area.

The present area under pasture is about 1.75 million acres, carrying 450,000 cattle. Steady but not spectacular increases can be expected in new land development and improvements on existing farms. Cattle numbers will rise, probably with greater emphasis on beef production. Sheep raising is likely to increase and will include more store fattening for expanding meat markets in the city.

It can be expected that this region will continue to meet the local demand for dairy products, fresh fruit and vegetables and part of the demand for meat, with some surplus for export. While there is a big potential for increased production of these items, especially as private and Government irrigation schemes develop and expand, the growth of exports from the region will depend on world markets.

The development of fruit and vegetable canning and processing industries can be foreseen in the long term. However they are likely to be limited initially by requirements within the State as there is extremely strong competition from established overseas and Eastern States industries in this field.

In general, the higher rainfall South-West corner of the State can be expected to continue to develop as a region which serves the needs of the rest of the State's population, with exports playing a limited part in development—at least in the immediate future.

THE NORTH-WEST AND KIMBERLEYS

A forecast of the ultimate potential of the pastoral and tropical northern areas of Western Australia is much more difficult, and it would be unrealistic to attempt one at this stage.

Major increases in pastoral production are unlikely because of the low rainfall in the pastoral areas. Station management, including subdivision, controlled grazing,
vermin control and better husbandry will probably result in sheep numbers rising from three to five million in the pastoral areas.

In the Kimberleys, cattle output can be expected to increase as the development of better roads and motor transport allow earlier turn-off. A further increase can be expected as the standard of cattle nutrition improves through better station management, supplementary fodder from irrigation schemes and by-product feeds from the irrigated agriculture of the Ord River scheme. At a rough estimate, cattle turn-off could double with better road transport and treble when the effect of the Ord River scheme is fully felt.

This will be achieved with little change from the 551,000 head of cattle carried at present.

The present programme of development on the Ord River envisages 200,000 acres under irrigation, but this does not take into account the possibility of utilising other rivers in the Kimberleys. For example, an even larger area could be irrigated from the Fitzroy River in the West Kimberleys.

However, while it is true that there are enormous possibilities, any forecast of production from these areas at full development would be premature at least until the cropping programme is organised, insect pests are controlled and indications of commercial yields are available.

ACKNOWLEDGMENTS
Acknowledgment is made to Mr. F. L. Shier and Mr. G. H. Burvill, who helped to make some of the estimates, and to other officers of the Department of Agriculture who shared their knowledge of agriculture in various parts of the State.
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