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Agriculture in Western Australia

A review of the development of agriculture in Western Australia with an outline of the distribution and importance of present agricultural and pastoral enterprises.

By A. W. HOGSTROM, B.Sc. (Agric.)

Western Australia's economy has always been largely dominated by its pastoral and agricultural activities. For short periods gold has given greater annual returns than the products of farms and stations, but these periods have never been very long. Only in recent years has the value of factory production equalled that of our stations and farms.

Despite vast areas of land with favourable climate, agricultural production during the first 60 years after the establishment of the colony barely met the needs of the small population. Early disappointments with crops in the coastal lands near Perth sent settlers inland. Here they found limited areas of better crop lands in alluvial flats and valleys spread from Geraldton to Albany—but only a quarter of a million acres were in use by 1890 to support a population still under 50,000.

The gold rushes of the 1890's led to a rapid population increase to 180,000 in 1900. Agriculture was stimulated by the profitable home market for nearly everything that could be produced. The decline of the gold industry between 1900 and 1910 coincided with the rapid opening up of the "wheatbelt" and the State's emergence as a wheat exporter. The area under crop reached one million acres in 1911—two thirds of this was sown to wheat. The substantial development from 1890 was also partly the result of the extension of the railway lines to potential wheat growing areas.

Superphosphate and subterranean clover were undoubtedly the two most important factors in the growth of Western Australian agriculture.

Superphosphate

The use of superphosphate to correct a widespread phosphorus deficiency of the soils in Western Australia enabled cropping of most of the heavy land in the State to be carried out every three years under a fallow system. In 1961-62, 329,000 tons of super were used on 6,966,000 acres of crop. The average rate of use is about 1 cwt. per acre on both crop and pasture.

Subterranean clover, and trace elements, were responsible for the successful extension of farming lands onto the sandplain soils of the State.

Subterranean Clover

Extension of wheat growing into the drier areas was near its maximum by the mid 1930's. Experiments with trace elements copper and zinc showed that the light land, once considered waste land, could be cropped using superphosphate, copper and zinc, and by growing subterranean clover in the rotation to build up nitrogen in the soil.

Subterranean clover was first introduced into the State in about 1900 and by the late 1930's it was well established as a valuable pasture plant in the South-West areas for dairying and meat production.
The sharp rise in cleared land over the past 15 years has been due mostly to the clearing of light land areas.

Much of the newly cleared land has been sown to subterranean clover pasture.

Its value in improving crop growth on light sandy soils in the 16 to 20 inch rainfall belt was recognised in this period. However it was not until after it had been demonstrated that subterranean clover would grow successfully in the 14 inch rainfall at Wongan Hills that the full potential of the plant was realised. After several years of subterranean clover, cereal crop yields at Wongan Hills Research Station were increased by 50 per cent., from 14 bushels to 21 bushels—and sheep carrying capacity was doubled.

The results at this station provided a strong incentive and stimulus for the large scale development of sand plain which has occurred in the sheep and cereal districts since the second world war.

Cleared land in Western Australia has now reached 26,261,000 acres compared to 14 million acres in 1945-46. It is increasing at the rate of 750,000 acres a year. Most of the increase is in the light land areas. Over the last 10 years the area of improved pasture rose by 105 per cent. to 8,182,000 acres.

**CEREALS**

The cereal growing areas now extend over nearly 60,000 square miles with rainfall varying from 25 inches in the west to 11 inches and less on the eastern margins. The use of superphosphate, the adoption of dry farming techniques and the production of new drought resistant wheat varieties were most important in the development to the east in these low rainfall areas. Sheep raising for wool production, which before was limited in extent outside the pastoral areas, increased rapidly as the land was fenced and developed.

**Wheat**

After the first world war a policy of expanding land settlement was resumed and a soldier settlement scheme started. With liberal finance available, greater technical efficiency and a buoyant wheat market, the area sown for grain increased to 3,955,763 acres in 1930. This was surpassed only by the acreages sown in the last three years.

Foremost among the advances which led to bigger areas being cropped was the introduction of tractor farming. This greatly increased the area which could be worked with relatively little man-power.

Low prices in the depression of the early thirties caused a reduction in the area sown to wheat. These did not increase again until 1938, but during the war years...
The effect of fluctuating economic conditions is reflected in the area sown to wheat. The graph of yields shows a steady increase of about one bushel in two years.

with acreage restrictions in force the area dropped to 1.5 million acres. In post war years, however, it has steadily increased and consistently good yields have been obtained.

An outstanding development after the rapid increase in production from 1910 onward was the introduction of bulk handling of grain. It was first mooted in 1920 but the bins did not start operation until 1931. These were highly successful and nearly all the wheat produced in Western Australia is now handled in bulk—often from harvester to port.

Oats and Barley

Two other grain crops which have become important in the agricultural areas are oats and barley.

Oats have been grown in Western Australia since the early development of wheat farming but their cultivation was limited until stimulated by the development of sheep raising in the agricultural areas. The area in crop to oats for grain rose from 584,000 acres in 1949-50 to a maximum of 1,330,000 in 1960-61.

Besides their importance as local stock feed, large quantities of oats are also exported to the United Kingdom and other countries.

Little barley was grown in Western Australia until the lighter soils of the wheatbelt were developed. Barley grows well on this type of soil and is successful as a first crop on newly developed land. The opening up of new land was partly responsible for the remarkable increase in the areas sown to barley. Sixty eight thousand acres were sown to this crop in 1949-50 and in 1960-61, 541,000 acres were sown. This increase was mainly in 6-row barley.

Part of the barley crop is kept for stock feed but most is exported for human consumption and malting.

WOOL

The pastoral industry—where stock graze natural herbage in the station country, or artificially established pastures in the farming districts—supplies a large part of the State’s export income.

Pastoral development was first confined to grazing bush country in the agricultural areas. Exploration of the northern divisions from 1840 to 1880 drew attention to the pastoral possibilities of large sections of the Kimberleys, North West and Pilbara areas. Widespread development in these areas after 1880 saw sheep numbers rise quickly to a total of about five million in the late 1920's.
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Cotton picking machine working on the Ord.
Overstocking and droughts in the station areas have caused a decline in numbers and now the sheep population remains at about three million. The pastoral industry is no longer confined to the northern areas but extends over a large part of the State, including the agricultural areas and eastern goldfields.

Sheep numbers in the agricultural areas have risen steadily since early development. The rise has been accelerated during post war years by several factors—the most important of these were the effects of high wool prices in 1950-52 and the increasing use of subterranean clover pastures.

In 1949-50 the agricultural areas carried 6,377,000 sheep or 57.4 per cent. of the State's total. In 1961-62 this figure had increased to nearly 15 million or 82 per cent. of the total sheep population. During this time the function of sheep has changed from being merely a scavenger on fallow and stubble to a highly profitable animal—often providing most of the income on farms.

MEAT

Meat production ranks third in value to wool and wheat. In the Kimberley Division, cattle raising exists as a single specialised enterprise and it is the chief form of land use. About 550,000 cattle, or more than half the State's total, are in this area and are raised solely for beef. The chief
handicap to the production of high grade beef is the seasonal changes in grazing conditions. The cattle are generally treated at meatworks at Broome, Wyndham and Derby and exported as chilled and frozen beef.

Large sums of money have been allocated for road development in the area in recent years. Road transport of cattle allows an earlier turn-off, improved quality and more cattle for market each year. Private investment in water supplies and fencing could further contribute to greater production. The irrigation of pastures for supplementary feeding or fattening of cattle is another prospect raised by current developments on the Ord River.

In the agricultural areas meat production is generally a sideline to wool growing, cereal growing or dairying. Beef production in these areas has become more important in the last 12 years. In 1950, 87,000 head represented 13.6 per cent. of the State's total cattle population and in 1962, 366,000 head made up 37 per cent.

In the 1930's the State achieved a reputation as a producer of high quality lambs which found a ready market in the United Kingdom. From this, and a greater local consumption, has grown a thriving fat lamb industry. Once again, the growth and spread of this industry through the agricultural areas can be partly attributed to subterranean clover pastures.

**DAIRYING**

With the development of the two main industries, wheat and sheep and because of the rising population, other forms of agriculture were developed. Dairying in particular was one of these.

The group settlement scheme for migrants in the early 1920's, although not entirely successful, helped to stimulate interest in dairying. This industry has continued to develop in the wetter southwest corner of the State and supplies fresh milk and butter for the local market. Most of the year-round whole milk supply comes from the coastal strip south of Perth where the irrigation areas are centred.

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**Gross value of agricultural and pastoral products, 1960-61.** The importance of wool and wheat to Western Australian agriculture is clearly shown here.
ORCHARDING

Orcharding is confined mostly to the wetter areas in the south of the State. The main districts are Donnybrook, Bridgetown and Mt. Barker. Apples are the most important export crop and they comprise about 60 per cent. of the 24,000 acres of orchard in the State.

VEGETABLES

Production is mainly for local consumption and the only substantial exports are potatoes, tomatoes and beans to the Eastern States. Some fresh vegetables are sent to Singapore.

About seven thousand acres of potatoes are planted each year; this is about half the total area sown to vegetables.

POULTRY

The poultry industry is now largely a specialist industry with most of the eggs being produced by full time poultry farmers within 30 miles of Perth. Surplus eggs are exported but at some periods of the year there are only just enough to supply the home market.

Over the last few years there has been a rapid expansion of the broiler industry using specially bred, meat producing birds. The continued growth of the local market will mean further expansion of this side of the poultry industry.

POTENTIAL PRODUCTION AND TRENDS

The area of arable or cleared land is now 26 million acres. It has been estimated from general knowledge of the soils and climate that another 25 million acres will be brought into production in the southwest of the State. This will increase production along similar lines to that of recent years with wheat the principal cereal in conjunction with sheep. Increased production from existing areas should result from greater use of superphosphate and by increasing the areas sown to subterranean clover.

The proportions of each crop grown and the ratio of crop to stock numbers will be affected by the relative prices for each commodity on the local and export market.

At present rates of production, and with a continued high rate of population increase, Western Australia will experience much higher local consumption of meat, milk, fruit and in particular, wheat. Decreased exports of these products will place more emphasis on wool for export income.

Relatively large areas are still available for cereal production and there should be no shortage of this commodity for many years. Local markets for wheat should expand in the future and it will probably continue as an export income earner.

With big increases in areas of crop and pasture in the future, the fertiliser requirements will be tremendous. More manufacturing and distribution centres will be needed throughout the State, particularly in the new areas, to meet the demands.

One of the large areas of light land to be developed is the area west of the Midland railway line from Gingin to Dongara. Perhaps the best known is the Esperance Downs area where more than three million acres will ultimately be developed. The next ten years should see one million acres in the area developed through local investment and by American companies. Stock carrying capacity on subterranean clover pastures is two sheep per acre in this area and hence large increases in sheep and cattle numbers can be anticipated.

Agriculture in the present cereal and sheep areas will become more intensive. Better water supplies and the use of limited areas of irrigation on each farm can be foreseen. These irrigated pastures will be used to feed stock at critical times to improve their condition before sale or mating. This should improve lambing percentages and mean greater production per acre.

Another area of the State considered to have high potential is the North-West and Kimberley region. On the Fitzroy river a private company has been growing rice and an oil seed crop, safflower, with some degree of success, but generally development of the area is still in the speculative stages. Results from the Kimberley Research Station on the Ord River have indicated suitable crops for the area are rice, cotton, safflower and linseed.
These are being tested on the pilot farm which was established on the Ord river to determine if these crops are an economic proposition on a farm scale. Five commercial farms have now been started. Although sugar cane grows particularly well in the area it is excluded since Australian production is already in excess of its needs and overseas markets are not remunerative.

Increased turn-off from cattle stations will eventuate as road transport facilities are improved and fencing and water supplies are extended.

With large areas in the south to be developed and the possibility of agricultural undertakings in the Kimberleys, prospects for increased agricultural production in Western Australia are bright.

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