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MARKETING NEW SOUTH WALES BANANAS

by

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1. INTRODUCTION.

Despite the fact that banana production on a commercial scale in New South Wales dates only from about 1912, it has developed into one of the most important fruit industries in the State. Measured by the value of production, the banana industry is second in importance to the citrus industry. In 1948-49, the gross value of banana production was £1,789,890, or 34.7 per cent. of the total value of New South Wales fruit production. In 1949-50, the gross value of banana production was £2,126,630.

At the beginning of this century the banana industry was significant in northern Queensland. Bananas were shipped regularly to the Brisbane, Sydney and Melbourne markets and occasionally as far as Perth. The southern markets also received supplies from Fiji and Norfolk Island. Gradually banana growing, as a major fruit industry, moved to southern Queensland and northern New South Wales. This development was assisted by the introduction of an import duty on

bananas. Since 1932 the import duty has virtually placed an embargo on banana imports. There has also been a small development of the banana industry in Western Australia, in the Carnarvon district. In this area expansion is limited to the irrigation facilities possible from the Gascoyne River.

Plantations were almost annihilated by a virus disease called bunchy top between the years 1922 and 1926¹. This disease severely affected the industry, reducing the bearing acreage to about 1,000 acres and production to about 100,000 bushels. In August, 1923, the Governments of the Commonwealth of Australia, New South Wales and Queensland began a joint investigation into the disease. Each Government contributed £1,500 and a Bunchy Top Investigation Committee was established at Tweed Heads. By 1925, evidence was obtained concerning the virus nature of the disease and its insect vector, the banana aphid (*Pentalonia nigronervosa*). Based on this evidence, control measures were devised and regulations were gazetted in 1927 covering permits to plant and the eradication of diseased plants.

The measures taken to control the disease were successful and production began to increase again in 1928. A further investigation was conducted between 1935 and 1938 to determine the possibility of finding a variety of bananas resistant to bunchy top². This investigation did not reveal any resistant variety, and the disease is still controlled by planting only healthy suckers and destroying diseased plants. By the 1949-50 season the bearing acreage was 19,500 acres and production 2,737,973 bushels.

Nearly all bananas grown in Australia are of the Cavendish type. Williams Hybrid, Mons Marie and Viemama are "sports" of the Cavendish. Although of different vegetative appearance, they produce similar fruit. Williams Hybrid and Mons Marie have gained popularity, among growers, over the last decade. There is some production of the Lady's Finger type which does well in rich, fertile soil (as found on river flats) if out of frost danger. The Cavendish type, producing larger bunches and being more easily grown, is the more popular for commercial production. There is, however, some demand for the Lady's Finger type.

2. THE ORGANIZATION OF THE INDUSTRY.

Organization in the banana industry is facilitated by the fact that the industry is concentrated in a relatively compact region. This simplifies administration and tends to give the industry a homogeneity not so evident when growers are located in widely-separated districts.

¹For an account of the incidence of bunchy top and the methods adopted to control it see C. J. P. Magee, *Investigations on the Bunchy Top Disease of the Banana*, C.S.I.R. Bulletin No. 30, 1927; C. J. P. Magee, "Bunchy Top Disease of Bananas—Rehabilitation of the Banana Industry in New South Wales," *Journal of the Australian Institute of Agricultural Science*, Vol. 2, No. 1 (March, 1936); and H. W. Eastwood, "Bunchy Top Disease of Bananas," *The Agricultural Gazette of New South Wales*, Vol. LVII (1946), pp. 571-577, 643-646, and Vol. LVII (1947), pp. 26-30.

²See C. J. P. Magee, "Transmission of Bunchy Top to Banana Varieties," *The Journal of the Australian Institute of Agricultural Science*, Vol. 14, No. 1, (March, 1948).

The Tweed Fruitgrowers' Association, set up in 1916 with headquarters in Murwillumbah, was the first organisation of New South Wales banana growers. It was followed in 1917 by the formation of the Tweed Fruitgrowers' Co-operative Company Ltd., which was centred on Tweed Heads. The Banana Growers' Co-operative Company Ltd. was formed in 1929 as a separate organisation and was merged with all existing growers' marketing associations from Tweed Heads to Coff's Harbour, with the exception of the Tweed Fruitgrowers' Co-operative Company. These two organisations operated in competition for some years but were amalgamated in 1933, when the Banana Growers' Federation Co-operative Ltd. was registered as a co-operative.

The principal function of the Federation is to arrange for the transport of bananas and vegetables by rail, on behalf of the growers. The Federation also supplies growers' requisites such as cases, nails, poisons, dusts for disease control, dipping equipment, tools, aerial wire and pulleys. During World War II, the Federation purchased four sawmills in an endeavour to overcome the shortage of banana cases. Two of these sawmills are still in operation.

The Federation finances an experimental plot of five acres at Durambah, near Murwillumbah. Experimental work conducted at this plot is supervised by the New South Wales Department of Agriculture. The Federation and the New South Wales Department of Agriculture also work in close association in connection with disease control. For this work, a subsidiary company, known as the Banana Diseases Control and Development Co-operative Ltd., has been operating for two years. This company provides trucks and equipment and a staff of about fifty men for bunchy-top control work. Officers of the Department of Agriculture supervise the work of these men.

Since 1st May, 1949, the Banana Growers' Federation Co-operative Ltd. has carried out sample inspections of bananas at the railway loading points, with the object of raising the standard of quality of fruit consigned to southern markets. Inspectors, appointed and paid by the Federation, are stationed at Murwillumbah, Mullumbimby, Lismore, Coff's Harbour and Macksville. Periodic inspections are made at the numerous railway loading points. The inspectors advise growers when they are not complying with the grading regulations and suggest that the local departmental banana inspector be approached for advice regarding grading. If a grower consigns bananas which are below the lowest grade, he is warned that in future the Federation will not accept such fruit for transport. After two such warnings, further below-grade fruit from the particular grower will not be accepted for transport by the Federation. This action is only taken in the case of fruit destined for New South Wales markets. Fruit for markets in other States is not rejected, in the belief that to do so would be an infringement of section 92 of the Commonwealth Constitution.

A Banana Marketing Board was set up in 1935 under the provisions of the Marketing of Primary Products Act (1927). This Board lasted until 1938 when, by a narrow margin, growers voted for its dissolution. Growers are at present pressing for the establishment of another marketing control committee—this time one that will give the growers more control over the activities of the committee members. It is proposed

that before a direction involving a change in policy becomes effective, a ballot of growers be held to ensure that the board members are supported, in the move, by the growers.

3. ACREAGE TRENDS.

(a) New South Wales.

Practically all banana-growing in New South Wales is carried on in the North Coast Division. The Tweed, Brunswick, Richmond, Coffs Harbour and Nambucca are the main producing areas.

Although there is some doubt as to just when planting commenced on the northern rivers, it is known that small areas of the Cavendish species were growing in the Tweed River district in 1894. When it was found that the area was suitable, banana culture developed rapidly in this area, especially between 1914 and 1922. This was soon followed by development of the industry in the remaining four districts, as each was found to be suitable. There has been some banana culture in the Clarence district for many years but the industry did not develop in this district largely because of frost incidence.

Development of banana-growing was very rapid between 1929 and 1934. Apart from the enhanced prospects of success due to bunchy-top control, the renewed expansion in this period was attributable, in part, to the influx into the industry of unemployed persons. There were no marked annual variations in the total acreage between 1934 and 1944, though there was a slight decline over the period. After 1944 there was a further continuous increase in banana acreage until the record of 26,381 acres was reached in the 1947-48 season. There has been a slight decline in the total New South Wales banana acreage in the last two years. In March, 1950, there was a bearing acreage of 19,628 acres, and a total acreage of 22,842 acres³.

(b) Queensland.

The banana acreage in Queensland increased gradually from 1880 until the peak of 19,750 acres was reached in 1929. There was a decline between 1929 and 1937, the area in the latter year being 7,305 acres. This decline was caused by the incidence of bunchy-top and, in the Nambour-Gympie areas, by losses due to thrips and beetle-borers. Between 1937 and 1944 annual variations in the Queensland banana acreage were only slight. There was a slightly increasing trend between 1944 and 1948, but this was far less pronounced than the New South Wales increase over the same period. There was a decline in 1949 and an almost-record light planting in the 1949-50 season reduced the total Queensland banana acreage to 7,504 acres by March, 1950.

As can be seen in Figure 1, banana acreage was still increasing in Queensland during the period when the industry in New South Wales was severely affected by bunchy top. In Queensland, bunchy top did not extend beyond about Maryborough and the disease was not very serious between Brisbane and Maryborough. Since 1932-33, New South Wales has remained the more important banana-producing State.

³There are some discrepancies between the statistics of acreage furnished by the N.S.W. Bureau of Statistics and Economics and those available as a result of the licensing activities of the N.S.W. Department of Agriculture. The latter statistics show greater acreages under bananas than the former. For instance, the bearing acreage in 1950, according to Departmental records, was 24,333 acres, and the total acreage, 26,198 acres.



Fig. 1.—Acreage of Bananas, New South Wales and Queensland, 1919 to 1950.

4. SIZE AND ECONOMIC LIFE OF PLANTATIONS.

(a) Size.

Few plantations in Australia exceed twenty acres in size. Figures compiled in 1950 for about half of the Tweed River district show the size distribution of plantations in excess of one acre, set out in Table I.

TABLE I.
Percentage Distribution of Banana Plantations in Part of the Tweed River District by Size, 1950.

Area. Acres.	Percentage of Total Number of plantations. Per cent.
1 - 5	49
5 - 10	34
10 - 15	11
15 - 20	3
20 and over	3

Though these figures were not compiled from a representative sample of the banana-growing districts, they serve to indicate that the smaller plantations are the more popular. It is considered this is true in all districts in New South Wales. An area of five to ten acres, well managed, will give better results than a larger area which cannot be managed with available resources. In addition, if a plantation is too large for a grower to manage efficiently, the risk of incidence of disease in the industry generally is increased.

(b) Economic Life.

The economic life of a banana plantation is defined as the period for which returns from the plantation are greater than current fixed and variable costs of production and an allowance for the amortization of

establishment costs. Any figure given as the average economic life would need to be qualified by an explanation that, for various reasons, there are wide deviations from the average.

Indications are that the average economic life of banana plantations has increased in recent years. About twenty years ago the average life, from planting to destruction, was about five years. The average life is now estimated to be nine years. Many plantations are kept in operation for twenty years and more. The following are some of the factors influencing the economic life of plantations.

Selection of Site. It is generally considered that a slope with a north-easterly aspect, and above frost line, is the most favourable for bananas.

The Soil and its Conservation. Bananas are usually grown on red-volcanic soils or podsols, both of which have proved suitable. Owing to the sloping land on which bananas are planted, soil conservation has an important influence on the economic life of a plantation.

Cultural Operations. Economic life depends to some extent on the attention given to such practices as irrigation, fertilization and weed control.

Pest and Disease Control. If pest and disease control measures are carried out constantly, economic life is likely to be longer.

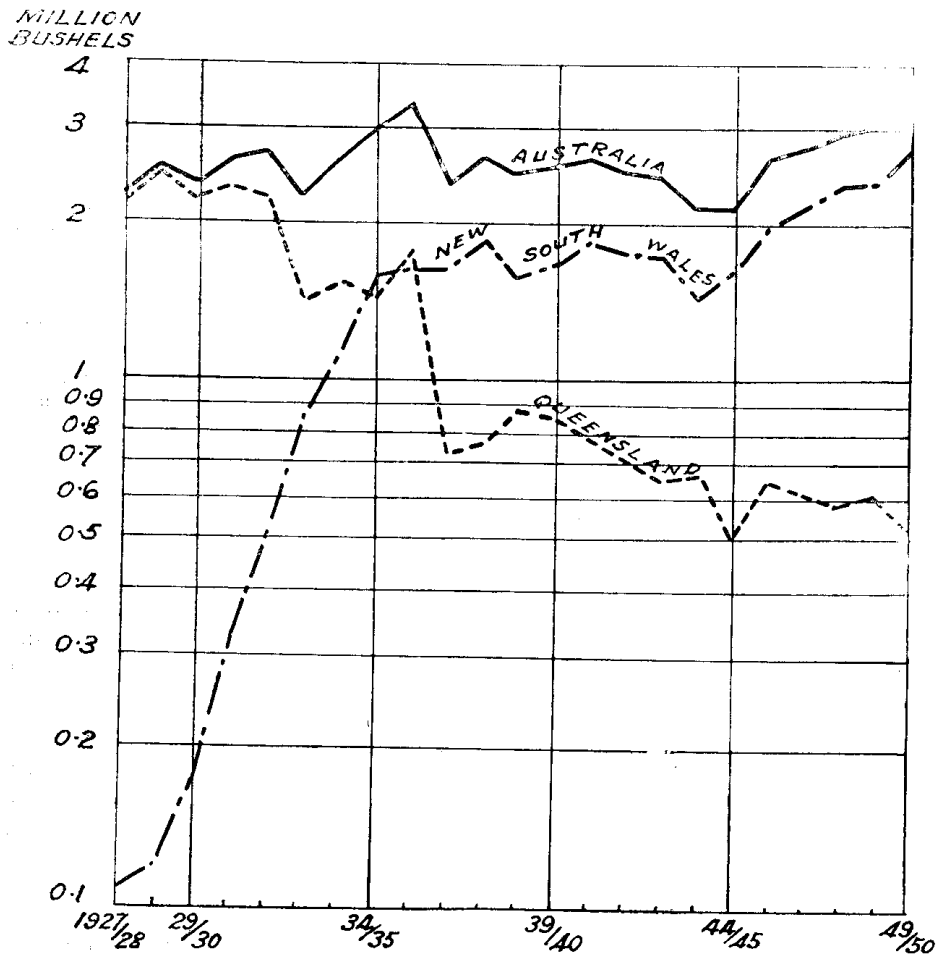


Fig. 2.—Banana Production, 1927-1950.

Management. Efficiency of management of the plantation will affect its economic life. Whether sufficient labour is employed, for instance, is important.

Abnormal Weather Conditions. Cyclones sometimes cause widespread destruction of plantations, rendering replanting necessary. In the absence of irrigation, drought conditions also have an adverse affect on economic life.

Price Conditions. The general outlook for the industry might also affect the economic life of individual plantations. For example, if prices remain low for a period of years, some growers would probably destroy plantations which had become uneconomic.

5. PRODUCTION TRENDS.

The statistics of banana production reflect the operation of the same influences as were outlined in the discussion of acreage trends. In recent years, the main determinant of production has been the planted acreage, since the yield per acre has varied only slightly. Recent trends in production are shown in Figure 2. Statistics of production for New South Wales, Queensland and Australia, since 1926, are contained in Table II.

TABLE II.

Bearing, Acreage and Production: Bananas: 1925-26 to 1949-50.

Year.	New South Wales.		Queensland.		Australia.	
	Bearing Area.	Production.	Bearing Area.	Production.	Bearing Area.	Production.
	thousand acres.	million bushels.	thousand acres.	million bushels.	thousand acres.	million bushels.
1925-26 ...	1.0	0.10	10.6	1.94	11.6	2.04
1926-27 ...	1.4	0.10	11.1	2.07	12.5	2.16
1927-28 ...	1.2	0.11	11.0	2.15	12.2	2.26
1928-29 ...	1.1	0.12	13.2	2.45	14.3	2.57
1929-30 ...	1.8	0.18	12.9	2.21	14.7	2.38
1930-31 ...	2.6	0.33	12.6	2.30	15.2	2.63
1931-32 ...	4.7	0.52	10.9	2.21	15.7	2.73
1932-33 ...	6.2	0.85	7.2	1.40	13.5	2.26
1933-34 ...	8.6	1.11	6.8	1.52	15.4	2.64
1934-35 ...	12.2	1.59	7.0	1.43	19.3	3.03
1935-36 ...	11.9	1.61	7.0	1.73	19.0	3.37
1936-37 ...	11.6	1.62	5.0	0.72	16.7	2.37
1937-38 ...	12.0	1.85	5.3	0.76	17.4	2.63
1938-39 ...	11.7	1.58	6.5	0.88	18.3	2.49
1939-40 ...	11.8	1.65	6.3	0.84	18.3	2.52
1940-41 ...	12.7	1.81	6.0	0.78	18.8	2.61
1941-42 ...	12.9	1.74	6.3	0.71	19.4	2.49
1942-43 ...	11.7	1.72	6.0	0.65	17.9	2.41
1943-44 ...	11.7	1.43	5.3	0.66	17.1	2.11
1944-45 ...	12.0	1.60	5.1	0.51	17.2	2.13
1945-46 ...	13.1	1.96	5.9	0.65	19.2	2.62
1946-47 ...	15.7	2.14	6.1	0.62	22.0	2.79
1947-48 ...	19.1	2.32	6.6	0.59	26.0	2.97
1948-49 ^a ...	19.6	2.40	6.3	0.61	26.4	3.09
1949-50 ^a ...	19.5	2.74	5.7	0.53	<i>b</i>	<i>b</i>

^a Subject to revision.

^b Not available.

Source: Commonwealth Bureau of Census and Statistics, *Production Bulletin*.

6. YIELD PER ACRE.

The average yield per acre of bearing banana plants has remained, approximately, between 120 and 150 bushels in New South Wales, for the last eighteen years. There have been annual variations in yield due to seasonal conditions, but the average yield per acre has not been increasing over the period. In Queensland, the average yield per acre of bearing plants has been steadily declining since 1937. For the ten years ended 1950, the mean yield per acre in New South Wales was 134 bushels, and in Queensland 106 bushels. Yield statistics for the banana-producing States and for Australia are contained in Table III. Recent trends in yield per acre are shown graphically in Figure 3.

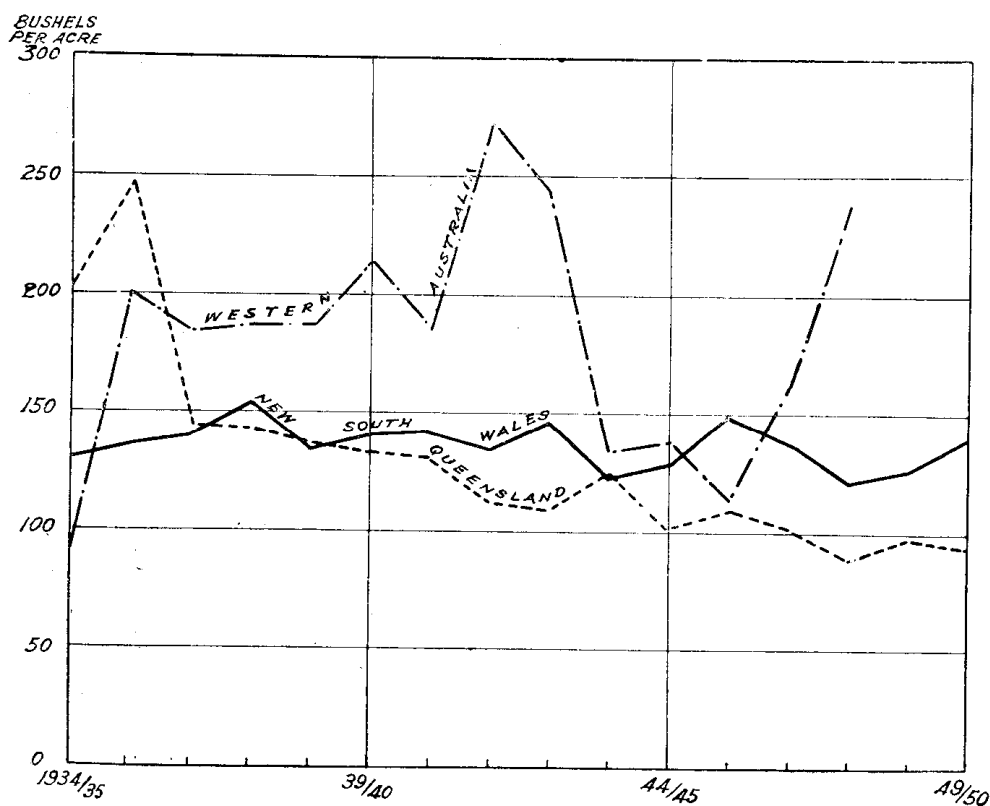


Fig. 3.—Average Yield per Bearing Acre, 1934 to 1950.

In New South Wales, yields have been highest in the Coffs Harbour and Nambucca districts in recent years. Growers in these districts pay careful attention to cultural operations. As well, plantations in these areas are not troubled with insect pests or disease to the same extent as those in the Richmond, Brunswick and Tweed districts.

Farming methods have an important influence on yield per acre, and there are wide individual variations in yield due to different cultural practices. The most important single factor contributing to high yield per acre appears to be irrigation. Other factors, such as suitability of site, use of fertilizer and disease control also influence yield. At the Duranbah demonstration plot, near Murwillumbah, 420 cases (or 570 bushels) were produced from one acre of Cavendish bananas, under irrigation, in the 1949-50 season. Similar high yields have been recorded

at other irrigated and well-fertilized plantations. Raising yield per acre on individual plantations is largely a matter of farm management. With improved irrigation and fertilization of plantations, the average yield for the State should increase.

TABLE III.
Bananas: Average Yield per Bearing Acre—1926 to 1950.

Year.	New South Wales.	Queensland.	Western Australia.	Australia.
	bushels.	bushels.	bushels.	bushels.
1925-26	95	184	56	175
1926-27	70	186	54	173
1927-28	91	196	97	128
1928-29	115	248	51	180
1929-30	97	171	241	162
1930-31	124	183	134	173
1931-32	109	203	22	174
1932-33	137	194	20	167
1933-34	128	224	412	171
1934-35	130	203	88	157
1935-36	136	247	201	177
1936-37	140	145	184	142
1937-38	154	143	187	151
1938-39	135	136	187	136
1939-40	140	133	215	138
1940-41	142	130	184	139
1941-42	135	113	272	128
1942-43	147	109	241	135
1943-44	122	124	134	123
1944-45	127	101	138	119
1945-46	149	109	113	136
1946-47	137	100	162	127
1947-48	121	89	239	114
1948-49	126	97	a	a
1949-50	140	93	a	a

a Not Available.

Source: Commonwealth Bureau of Census and Statistics, *Production Bulletin*.

7. RESTRICTIONS ON PRODUCTION.

(a) Planting Conditions.

Under the New South Wales Plant Diseases Act (1924) a permit to plant bananas must be obtained for all new planting, including replacement of an area destroyed. It is also compulsory to obtain a permit to move plants from one area to another. The New South Wales Department of Agriculture has nine banana inspectors, stationed in the banana-growing districts. Their duties include responsibility for administering these sections of the Act. The banana-growing districts are divided into quarantine areas, now numbering seventeen. If disease becomes serious in one such area, the movement of suckers out of that area is regulated.

In view of the serious setback the banana industry suffered through the bunchy-top disease, the issue of planting permits since 1928 has been made conditional upon the fulfilment of certain conditions. The conditions are set out annually by the Division of Horticulture of the New South Wales Department of Agriculture, after consultation with

the Banana Growers' Federation. The Department has the support of the Federation in endeavouring to require compliance with the conditions. The aim is to ensure that a grower is capable of performing proper cultural operations for the whole of the area he proposes to plant. If an inspector considers a grower is neglecting his plantation, he might refuse to issue a permit to plant an additional area, at least until the plantation is cleaned up. Though prosecutions are not numerous, an inspector has power to prosecute a grower if his plantation is neglected, has weeds in it or has bunchy-top disease in it. In addition to prosecution, a grower may be ordered to destroy a neglected plantation or a plantation affected by bunchy-top.

The planting conditions serve as a general guide to inspectors in evaluating the acreage a grower is likely to be able to manage effectively. It is not a function of the Department of Agriculture to predetermine a person's efficiency and deny him the right to be a banana grower. If a man is inefficient and, as a result, disease occurs in his plantation, or it is neglected, the regulations under the Plant Diseases Act confer upon the inspectors the power necessary to deal with him. Inspectors exercise discretion in issuing permits. Whether the planting of bananas by a particular grower in a particular area would cause or assist the spread of disease is a question which is decided on the merits of the individual case.

New growers may enter the industry at any time of the year, but most permits are issued during the planting season which extends usually from September to January. Before issuing a permit to a new entrant to the industry, an inspector satisfies himself that the applicant has sufficient labour and is capable of carefully managing the acreage he proposes to plant. Inspectors occasionally dissuade growers or intending growers from planting new areas, either because they feel proper care could not be given to the proposed acreage or because the site is unsuitable. An inspector might, for example, be loth to issue a permit to plant in an area near an area badly infested with bunchy-top or beetle-borers. Planting conditions were more rigidly applied during World War II than in any other period.

A conference of New South Wales and Queensland Ministers for Agriculture and departmental officers was held at Grafton on 4th August, 1941, for the purpose of investigating the infiltration of aliens into the industry and considering restriction of planting for the ensuing season. The conference agreed that:

any further infiltration by enemy aliens into the industry would be closely scrutinized by a system of permits and no grower would be permitted to increase acreage to more than what was regarded as a living area, possibly ten acres⁴.

Following this conference, growers were not permitted to increase acreage to more than ten acres, which was then considered to be a living area. All applications by aliens for a permit to plant were referred to the Minister for Agriculture for decision. Because men engaged in the banana industry were eligible for military service, manpower to work the plantations was scarce during the war years. For a time, prisoner-of-war labour was made available to assist growers cultivate plantations.

⁴Press statement by the Hon. W. F. Dunn, N.S.W. Minister for Agriculture (*Grafton Daily Examiner*, 5th August, 1941).

As a result of a controversy within the industry regarding the utilisation of prisoner-of-war labour, the planting conditions for the 1942-43 season provided that such labour should not be used to plant additional acreages for existing growers or to plant new areas for intending growers. One of the main motives for this action was a desire to prevent acreage from increasing, and thus leave opportunity for ex-servicemen to be rehabilitated in the industry.

In 1943, planting conditions were reviewed. It was decided to remove the restrictions on planting of bananas by persons other than aliens, provided that satisfactory permanent labour was available on the basis of one man to five acres, two men to twelve acres, three men to twenty-four acres, four men to forty acres and one man for every additional ten acres. The restriction on applications by aliens for permits to plant was maintained. Permits were not to be issued to share-farmers and negligent or unsatisfactory growers⁵.

There was some relaxation as regards restrictions on planting by aliens in the 1944-45 planting season. Naturalized aliens were allowed to plant bananas provided they were able to comply with the planting conditions relating to land tenure and cultural operations. Naturalized aliens were still not permitted an area greater than eight acres unless they were planting to maintain an existing area in excess of eight acres. Unnaturalized aliens were still not granted permits and there was no relaxation of the restriction on the use of prisoner-of-war labour.

Planting conditions were not altered in the 1945-46 season except that permits were permitted to attorneys of members of the armed services. The next change occurred in the 1947-48 season when the restriction on planting by unnaturalized aliens was withdrawn⁶. The planting conditions set out for that season have been retained to date⁷.

(b) Acreage Control.

Fear of over-production has caused several controversies on the question of acreage control. A conference, convened by the Commonwealth Minister for Commerce, was held at Grafton on 21st January, 1935, to consider the problems of the industry arising from falling prices. This was a period of rapidly rising acreages and production. The meeting was attended by the Ministers for Agriculture for New South Wales and Queensland, departmental officers and banana industry

⁵Permits were not issued to share-farmers because they were responsible to the owner of the property and could not be bound by the provisions of the Plant Diseases Act.

⁶The alien question was a live issue during the war years. It was thought at the time that if control was not exercised, the industry would become dominated by enemy aliens.

⁷The conditions are:

(1) Before a permit is issued, inspectors must be satisfied that permanent labour is available on the basis of 1 man to 5 acres, 2 men to 12 acres, 3 men to 24 acres, 4 men to 40 acres and 1 man for every additional 10 acres.

(2) No permit is to be issued to share-farmers and negligent or unsatisfactory growers.

(3) Proof of legal tenure of the land must be produced before a permit is issued.

(4) No permit to be issued to any grower who disposed of an area of bananas to another person for the purpose of escaping his obligations under the Plant Diseases Act or regulations thereunder.

representatives. The conference concurred in the view that the application of any form of restriction on planting would be undesirable and impracticable¹.

This was not the last that was heard of fears of over-production. At the 1941 Grafton conference, mentioned in the preceding section, there was also some concern about the possibilities of over-production of bananas in the near future. Though action to keep aliens out of the industry and keep acreage down to allow for settlement by returned soldiers was said to be the purpose of the conference, there was some discussion about the possibility that increased acreages might lead to a decline in the care given to plantations, with the consequent risk of the spread of disease. It was also feared that heavy production would lead to a fall in prices.

Shortly after the conference, a statement was issued regarding the measures decided upon. This was to the effect that:

... the two States had come to a working arrangement in regard to the infiltration of aliens into the industry. Growers would have to apply for a permit to plant and that permit would not be issued to an alien.

The Government had also agreed that a further extension of the industry might be undesirable in view of the possibility of over-production. A permit would have to be issued before the acreage could be increased. It was agreed, however, that where an Australian already in the industry might only have two or three acres and might have to increase his acreage to ten to have a living area, he would be allowed to increase production to that extent².

A further conference was held at Brisbane on 26th April, 1946, attended by representatives of the Commonwealth, New South Wales and Queensland Departments of Agriculture and representatives of fruit industry organizations from the two States. This conference concluded that further planting of bananas could not be recommended until some improvement was made in the channels of distribution. It was considered that market requirements could be supplied by existing growers. When this decision was reported at the 26th Meeting of the Australian Agricultural Council in August, 1946, the general tenor of the discussion indicated uncertainty as to whether, in fact, there was any cause for fear of over-production. It was argued, for example, that bananas were not cheap in the shops.

The most direct attempt to restrict acreage occurred early in 1948 when ballots were conducted by growers' organizations in New South Wales and Queensland to determine whether growers favoured statutory prohibition of the planting of bananas in the coming season. The move arose out of the industry's concern about the expanding acreage under bananas in the two States. Over-production with consequent unpayable prices was feared. In New South Wales, 4,146 ballot papers were issued and 2,099 were returned. Of the voters, 1,331 favoured the prohibition and 756 opposed it. In Queensland, the ballot resulted in 371 (or 49 per cent.) in favour and 383 (or 51 per cent.) against. No further action was taken to seek statutory prohibition on account of the adverse vote in Queensland.

¹One of the most difficult obstacles to acreage control is the practice of "dummying." During the war years, it was found that if a grower was refused a permit, he was able to obtain one indirectly by getting someone to "dummy" for him.

²*The Banana Bulletin*, July 31st, 1941, p. 3.

8. RESTRICTIONS ON MARKET SUPPLIES.

In addition to the impediments to production mentioned above, there have been, in recent years, various restrictions or proposed restrictions, on the supply of bananas to southern markets, with a view to maintaining regularity of supplies and avoiding market gluts.

(a) Proposed Ban on Small Bananas.

Late in 1947, the Banana Growers' Federation sought a ban on the shipment of small bananas while supplies were heaviest¹⁰. The New South Wales Department of Agriculture refused to endorse the proposed ban and the Victorian Department would not agree to the prohibition unless it was to be permanent. The former pointed out that existing fruit grading regulations provided for the sale of fruit, irrespective of grade, as long as it was free of disease and fit for human consumption¹¹.

The objective of the Federation was to control shipments so as to support prices. Such action might be open to criticism by consumers on the ground that good fruit was being kept off the market merely to raise the price received by growers. Moreover, length of the fruit is not as important as mature development as a criterion of quality. Nevertheless there was a case for voluntary action by growers in withholding small fruit from a market already considered to be sufficiently supplied with larger fruit. The difficulty was in the means to be taken to achieve or enforce such a programme.

(b) The Quota System.

On 31st January, 1950, the Banana Growers' Federation, at a time of maximum seasonal production, imposed a quota on consignments forwarded by each grower. The quota was 80 per cent. of each grower's consignment during the previous fortnight. By controlling supply in this manner, the Federation anticipated that the market price would be 18 to 30 shillings per case for average quality fruit, sixes to eights. It was decided that a variation of 5 shillings either way would not cause the quota to be altered.

The market price rose and the quota was suspended within two weeks. The effect on price of the restriction of supply can be seen in Table IV.

TABLE IV.
Prices of Bananas at Principal Markets—January-February, 1950.

Date.	Wholesale Price per Case (1.36 bushels).		
	Sydney.	Melbourne.	Adelaide.
	Shillings.	Shillings.	Shillings.
24th Jan., 1950 (just before quota) ...	12 to 20	10 to 14	10 to 15
4th Feb., 1950 (2nd quota train) ...	20 to 30	14 to 21	18 to 29
14th Feb., 1950 (2nd train after quota) ...	12 to 20	10 to 17	18 to 29

Source: *The Banana Bulletin*, 1st April, 1950, p. 3.

¹⁰Small bananas are defined as being 5-6 inches long x 4 inches in circumference.

¹¹*The Banana Bulletin*, January 1st, 1948, p. 1.

The quota scheme was widely discussed for some time before it was used. It was recognised that there would be administrative difficulties associated with the scheme. The chief defect is probably that all growers are given the same quota irrespective of the quality of the fruit they market. A quota plan does not ensure that only the poorer quality fruit is kept off the market. A proportion of good quality fruit is kept off the market while some poor-quality fruit is marketed. Another difficulty is that, if the quota is only operating for a short time, growers will be affected inequitably due to different rates of cutting on different farms and between districts.

Apart from the administrative problems, the quota scheme is possibly open to the same criticism as the ban on small bananas. It is a method of restricting supply to keep up growers' returns, which conflicts with the natural desire of consumers for fruit at the lowest possible price.

It is questionable whether either of these restrictive methods would lead to a satisfactory solution to the problem of heavy production. If growers find they are only permitted to market a proportion of their production in the summer months they might reduce the size of their plantations. A reduction in production by this means might cause shortages in supply in the winter months, when bananas are normally most scarce. On the other hand, if the price to growers is artificially supported, by supply restrictions, additional growers will continue to be attracted to the industry, causing still greater production. These difficulties are recognized in industry circles. They constitute some of the problems which are involved in the "orderly marketing" of a perishable crop which is seasonally produced.

(c) Railhead Inspection.

The railhead inspection scheme, described above, is another means of controlling delivery of market supplies. This is designed to reject bananas which do not measure up to grading regulations.

In addition to the immediate effect of keeping poor quality fruit off the market, the scheme might, in the long run, increase the popularity of bananas and thus make it possible for heavier supplies to be placed on the market without causing a serious fall in price.

9. SUPPLIES AND PRICES.

(a) The Seasonal Pattern of Supplies and Prices.

Though bananas are one of the few fruits available throughout the entire year, the seasonality of supplies is of some importance. Supplies are heaviest in the summer months, November to March inclusive, and during these months, wholesale prices are lowest. Supplies are lightest in the winter months, June to August inclusive, and during these months wholesale prices are highest. During spring and autumn supplies and prices are at intermediate levels. The average seasonal patterns of receipts and wholesale prices at Sydney markets, for the years 1938 to 1949, are shown in Figure 4.

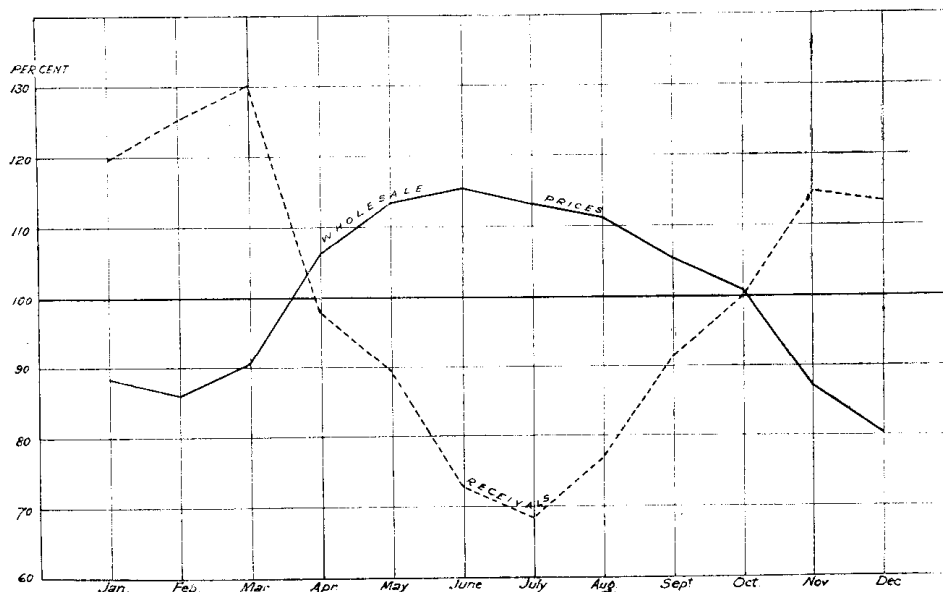


Fig. 4.—Seasonal Pattern of Receipts and Prices.

Indices of average monthly receipts of bananas and wholesale prices of bananas (graded "sevens") at Sydney Municipal Markets, based on data for the years 1938 to 1949.

Winter prices are highest, not only because of short supplies but also because of less competition from other fruits. In the summer months, competition is often experienced from stone fruits. If stone fruits are in particularly heavy supply, during the short time they are on the market, they will probably sell at low prices and there will be some substitution, by consumers, of stone fruits for other fruits. Since bananas are available right throughout the year, they are one of the fruits for which stone fruits are substituted when the latter are available at reasonable prices. This factor, operating during the period of heaviest supply of bananas, is part of the reason why wholesale banana prices are lowest in the summer months. The fact that receipts of bananas are greatest in March while wholesale prices are at their lowest in February, might be explained by the substitution.

The seasonal pattern is also influenced to some extent by the planting schedule in the industry. The most favourable period for planting is between September and January. Cutting from new plants can be commenced about March and will be heaviest in June, July and August. This means that if there is a high rate of new planting in a given season, and there are no offsetting losses, winter supply will be greater than usual. Early planting might help to even out the seasonal variations in production, but it is usually found that growth is so slow before August or September that the fruit will not mature any earlier.

(b) The Effect of Variations in Supply on the Price to Growers.

An analysis of wholesale prices and receipts of bananas at Sydney markets indicates that the short-run price-supply curve for bananas has less than unitary elasticity¹². Consequently, a fairly large reduction in price is required in order to clear the market of heavy supplies.

¹² This analysis was based on statistics of receipts and wholesale prices of bananas ("sevens") at Sydney markets. Elasticity of the price-supply curve appears to be approximately the same whether calculated on an annual or a seasonal basis.

Winter supplies of bananas have never been so heavy as to cause very low prices. It is only in the summer months that "glut" selling conditions are caused by heavy supplies. It is the opinion of traders that quantities arriving in excess of 25,000 cases per week, in the summer, almost immediately introduce "glut" selling conditions. This critical volume is dependent upon the supply of other fruits on the market. If the supply of such fruits, particularly stone fruits, is lower than usual, the market can absorb a larger quantity of bananas than otherwise.

The quantity of bananas passing through the market to retailers can be regulated somewhat by holding the fruit at constant low temperature in order to defer ripening. However, this cannot be done to a very great extent because the market has to be cleared to make room for further supplies.

Weather conditions also influence market capacity. It is claimed, for instance, that less bananas are sold when cold, wet weather prevails. On the other hand, in hot, humid weather, bananas ripen quickly and the price falls as the trade tries to dispose of fruit to avoid losses.

The above analysis has been concerned with the relation between wholesale prices and receipts of bananas at Sydney markets. If retail prices were considered instead of wholesale prices, a different elasticity would be recorded because of the effect of marketing margins on elasticity. The wider and more stable the distribution margin, the less elastic is the demand at wholesale compared with the demand at the retail store¹³. If marketing margins were taken into account, it would probably be found that the price-elasticity of demand for bananas is greater than was indicated above. That is, a small fall in retail price would be associated with increased sales.

(c) Market Price Quotations.

Quotation of market prices are published by the press in the banana-growing districts, for the information of growers. Until recently, at the Sydney Municipal Markets, a price committee, comprising representatives of the New South Wales Chamber of Fruit and Vegetable Industries and the Sydney representative of the Banana Growers' Federation Co-operative Ltd., met twice weekly to decide the prices that would be quoted for publication in the banana-growing districts. The Federation was not satisfied with this arrangement, feeling that quotations were being used to influence receipts rather than give a true reflection of actual market prices. The Federation recommended the formation of a committee representing the Department of Agriculture, the agents and the Federation. The Chamber of Fruit and Vegetable Industries did not favour this. Since October, 1950, the Sydney representative of the Banana Growers' Federation has furnished quotes on the basis of his own observations.

(d) Price Control.

During World War II and until 10th October, 1947, both the wholesale and retail prices for bananas were fixed by Commonwealth prices regulations. The wholesale price has not been controlled since 10th October, 1947, but the retail profit margin has been fixed. When the

¹³G. S. Shepherd, *Agricultural Price Analysis* (Ames: Iowa State College Press, 1941), p. 206.

Commonwealth Government handed the function of price control to the States, in August, 1948, the State Prices Branch continued to use Commonwealth orders until these were rendered invalid by the New South Wales Supreme Court decision in the Yates case delivered on 30th June, 1950. After this decision, the New South Wales Prices Branch introduced the first State Prices Order for bananas (No. 162 of 21st July, 1950). Under this order, which is still effective, the retail seller is allowed twopence per pound margin on the wholesale price.

10. POSSIBILITIES OF BROADENING THE MARKET FOR BANANAS.

(a) Increased Home Consumption.

Since bunchy top has been controlled, banana production has risen faster than the increase in Australia's population. Accordingly, there has been a gradual increase in the quantity of bananas available for consumption per capita. In 1920-21, before the bunchy-top episode, 15.49 lb. per capita were available for consumption. By 1932-33 this had increased to 18.30 lb., by 1938-39 to 18.89 lb. and by 1948-49 to 20.83 lb. per capita.

There are several ways in which consumption of bananas in Australia might be increased: (a) by supplying new areas; (b) by improving the technique of marketing in areas already supplied; (c) by advertising and (d) by increasing consumption of processed forms of bananas.

(a) Outside the main ripening plants in the Sydney markets, modern ripening is conducted in various country centres. These country plants (established at Murwillumbah, Lismore, Grafton, Coffs Harbour, Kempsey, Taree, Newcastle, Wagga, Dubbo, Albury and Broken Hill) receive supplies direct from the growing areas and supply nearby towns.

In April, 1948, Messrs. T. J. Whipps and J. T. Payne, directors of the Banana Growers' Federation Co-operative Limited, examined the possibility of extension of banana markets in western and tableland towns in New South Wales. On the northern tablelands, wholesalers and retailers in Tenterfield, Glen Innes, Guyra and Uralla were visited. Supplies to these areas come mainly from the Lismore ripening rooms of the Banana Growers' Distributors or the Lismore Banana Company. Very little fruit from interstate sources reaches these markets. It was found that carelessness in harvesting and handling bananas caused the fruit to appear unattractive in the retail shops. Messrs. Whipps and Payne suggested that growers should adopt the cluster pack as the standard pack. By this method, they said, much of the black-end would disappear and bruising would be reduced. The cluster pack is not popular in the industry, mainly because less bananas can be packed into a case and inspection of the fruit is difficult when the cases reach the market.

Wholesalers and retailers were also visited in other country towns on the western slopes and plains. The investigators considered supplies to these towns could be improved. In their report, they said:

We were worried very much about the very inferior fruit on sale at prices ranging from 1s. 3d. to 2s. 6d. per dozen, and in our opinion the prices charged were out of all proportion to what growers received. The consumer was being charged very high prices for a very inferior article¹⁴.

¹⁴ *The Banana Bulletin*, 1st December, 1948, p. 10.

It was found that in order to obtain supplies, some wholesalers either "tipped" salesmen or engaged a buyer in Sydney. The costs of these practices, in addition to freight and cartage costs, made marketing costs high. It was suggested that the cost of marketing bananas in these towns could be reduced by the establishment of ripening rooms at the principal centres. Fruit could be sent direct to these ripening rooms and distributed from them for a radius of about 150 miles. In appraising this recommendation, it should be remembered that agents and merchants in the main metropolitan markets have found it more economical to handle other fruits in association with bananas. Ripening-room and cool-room facilities can also be used for storing other fruits for short periods.

(b) Careful handling on the plantation, grading, packing, transporting and ripening are all important in turning out a product attractive to the consumer. There is considerable scope for improvement in these directions. Careful elimination of inferior fruit, accurate grading and thorough dipping for squinter disease are all well worth while. Time spent and fruit discarded in careful selection for the market will probably be well compensated by improved sales. Ripening is a key process, capable of influencing consumption, and should be carried out by trained workers using good equipment.

Officers of the Department of Agriculture inspect fruit at the markets to ensure that (i) fruit is graded and packed in accordance with the regulations and dipped for squinter disease during the months, May to November; and (ii) disease-infected fruit is not offered for sale. They issue instructions for destruction of fruit, if necessary. They also inspect sales dockets and account books and collect data in relation to wholesale price levels.

(c) Radio and screen advertising is already being used in an effort to stimulate consumption of bananas in the summer months when supplies are heaviest. Exhibits at the Sydney Show and country shows give publicity to the industry. Prepared literature, giving recipes and details of the different ways of using bananas as a food, is distributed in the hope that consumers' knowledge of the fruit will be improved. The fruit is also periodically advertised by the use of posters. Some appraisal of the effectiveness of such advertising is greatly to be desired.

(d) It is possible to utilise surplus and undergrade bananas in various manufactured forms. Banana figs (dried bananas) can be processed satisfactorily but have to compete with other dried fruits on the market. Their greatest potential market lies in their increased use as sweets. If banana figs can be processed commercially at an attractive price, this channel may prove a worthwhile means of increasing banana consumption. Banana flavouring, for use in the preparation of milk drinks, is another expanding outlet for banana production.

The development of banana canning will probably become the most important factor in increasing banana consumption and stabilising the market in times of heavy production. Banana canning experiments, so far conducted, have revealed more difficulties than is the case with most other fruits. It has been found, for instance, that the application of heat tends to toughen the texture of the banana. The Northgate cannery, in Queensland, and the Commonwealth Scientific and Industrial

Research Organisation have been experimenting with the processing of bananas, packed in sugar syrup, for the past two years. An attractive product has now been produced and it might not be long before it will be possible for commercial canning to be undertaken on a large scale. Consumer reactions to the canned product have been varied, but it has been found that on markets where fresh bananas are not available, the canned product has been well received.

(b) Exports.

At the present time, there is no export market for Australian bananas. It is possible that the New Zealand market could absorb some Australian fruit in the future. New Zealand is able to obtain some supplies from the territories of Samoa, Raratonga and Nive. One of the main difficulties confronting the local industry in supplying the New Zealand market is the question of securing agreement on price. The price demanded by Australian growers is considered by New Zealand fruit merchants, to be excessive in comparison with the price of Fijian fruit to which New Zealand consumers are more accustomed.

The perfection of a canning technique might improve the possibility of exporting a portion of the Australian production. If this was done, markets could be supplied which were previously not supplied with fresh fruit.

At present, there is very little pressure, from the banana industry in Australia, for the development of an export market, partly because there is not much difficulty in disposing of production on the home markets and partly because it is not easy to obtain regular, suitable shipping space.
