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TRENDS IN PLANTINGS AND PRODUCTION OF CANNING FRUITS IN AUSTRALIA AND SOME OTHER COUNTRIES

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1. INTRODUCTION

The canning fruits industry is a significant sector of the Australian economy. The value of the annual output of canned fruits, juices and syrups approximated £27 million in 1957-58, while in 1958-59 exports of these commodities amounted to £13.5 million.

The industry is generally closely associated with large-scale irrigation development, the two largest centres being the Goulburn Valley, in Victoria, and the Murrumbidgee Irrigation Areas of New South Wales, where canning fruits are key products in the economy of the districts. Further, there has been considerable development in the Murray Valley of South Australia since 1945. In addition, the canning of pineapples has become significant in the tropical fruits industry of Queensland.

As detailed below, expansion of plantings in these areas during recent years indicates that there will be a considerable increase in production during the next five years, so that despite an expanding population, a large proportion of this will probably need to be exported. It is therefore of some significance to inquire into the conditions of competition likely to be met and this review is concerned with the trends in production of canned fruits in certain countries which may significantly affect future market conditions.

Estimates of future trends in bearing area have been made for tree fruits on the basis of the last available data as to total area, and these have been projected for a period equivalent to that which is accepted as the time necessary to bring newly-planted trees to bearing, viz., five or six years for peaches and apricots, and nine or ten years for pears.

Projection beyond this period requires an estimate of future rates of plantings based on assessments and assumptions as to farmer outlook which consequently render such an analysis much less certain than one for the shorter period. It is apparent that the peach trees which will constitute the bearing area, say, six years hence, are already planted and the farmer has already undertaken a capital commitment which can only be recouped by bringing the trees into bearing. The major assumption involved in estimating bearing area at this time is in respect to rates of removal, with an added assumption as to average yield when estimating production.

* The collection of data necessary for this paper was a major problem and the author places on record his appreciation of help given by the Commonwealth Department of Trade, particularly the Trade Commissioner Service, and the Departments of Agriculture for Queensland, South Australia and Victoria.

Considerable increases in the Australian peach crop have been forecast for the period to 1964 and for pears by 1967 or 1968. Apricot production will probably remain unchanged, although there would appear to be a considerable capacity for at least a short-term expansion by diversion from other uses. The future of pineapple production is rather more difficult to predict, but, in contrast to other fruit industries, this industry has a capacity for fairly rapid expansion of field production should economic conditions warrant it.

Similar trends are evident for Australia's major competitors on export markets.

Export Markets

Export of canned peaches, pears, apricots and pineapples, fruit salad and mixed fruits from Australia in 1958 totalled 3,839,000 cartons, of which 3,586,000 cartons, or 93 per cent, were sold on the United Kingdom market. Other markets were New Zealand (55,000 cartons), Canada (118,000 cartons); "other not specified" accounted for the balance of 80,000 cartons. These figures clearly demonstrate the dominant position which the United Kingdom has as a market for Australian canned fruit. However, some consideration should be given to markets not currently receiving large quantities of Australian canned fruit if trends expressed there could foreshadow trends in Australia's existing markets.

Table 1 gives a measure of the size of the various importing markets and demonstrates that the United Kingdom market dominates the import/export scene, in that it involves about 50 per cent of world trade. As imports into the United States are confined largely to pineapples from the Philippines, Cuba and Mexico, its significance to the subject of this review is restricted. About 75 per cent of the Canadian market is satisfied from the United States. The nature of the markets in West Germany, Sweden and Belgium may well be of interest, and particularly that of West Germany, whose imports increased four-fold in the period 1955 to 1957, from 18,800 tons to 75,600 tons. This is reflected in an increase from 4 per cent of total world imports to 14 per cent. At the same time, United Kingdom imports represented only 48 per cent of total imports in 1957, as compared with 62 per cent in 1955. However, it is apparent that at this stage the field of inquiry is largely determined by the nature of the market in the United Kingdom.

United Kingdom Market

The general structure of the United Kingdom market is illustrated in Table 2. Imports represent approximately 75 per cent of canned fruit consumption. The quantity of home-processed fruits is generally small relative to the quantity of the same lines imported, except for fruit salad, plums, apples and berries. Home-processed peaches, pears and fruit salad depend upon the import of fresh fruits; the main lines of home produced and processed fruits are plums, apples, small fruits and rhubarb.

It is difficult to access the competitive strength of canned lines utilizing imported fresh fruit. The relative price and availability of the raw product will be important considerations in this regard and these will be controlled by the extent of the overseas fruitgrowers' dependence on United Kingdom canneries as outlets for fruit produced.

The high proportion of home-produced fruit salad may be a reflection of a need for considerable trimming but, in any case, this product is a significant feature of the market which may be considered as in direct competition with Australian products.

The size of the plum pack is worthy of note, 24,400 tons in 1956 and 9,200 tons in 1957, and the question which naturally arises is the extent to which this line is competitive with Australian products.

TABLE 1
World Imports of Canned Fruit

Importing Country	1955		1956		1957	
	Tons	Per cent	Tons	Per cent	Tons	Per cent
United Kingdom*	279,600	62	297,800	56	255,300	48
West Germany	18,800	4	49,500	9	75,900	14
Canada	40,100	9	41,800	8	52,600	10
United States	32,600	7	39,100	7	42,000	8
Sweden	10,900	3	15,700	3	11,600	2
Belgium	9,000	2	12,700	2	22,400	4
Others (21 countries)	56,900	13	75,000	14	74,800	14
Total	447,900	100	531,600	100	534,600	100

* Includes fruit preserved without sugar.

Source.—*Fruit*, Commonwealth Economic Committee, Vol. 9 (October, 1958).

TABLE 2
United Kingdom Consumption of Canned Fruit, 1956 and 1957
(Excluding Carryover Stocks)

	Home Production Tons		Imports Tons		Total Available Tons	
	1956	1957	1956	1957	1956	1957
Peaches	4,900	7,800	67,200	52,000	72,100	59,800
Pineapple	....	....	61,600	56,400	61,600	56,400
Oranges and Grapefruit	....	....	51,400	37,900	51,400	37,900
Pears	8,800	6,800	40,000	37,700	48,800	44,500
Apricots	600	700	29,000	15,000	29,600	15,700
Fruit Salad	18,100	19,100	6,400	7,000	24,500	26,100
Plums	24,400	9,200	200	300	24,600	9,500
Apples	10,900	8,400	100	....	11,000	8,400
Other	29,000	25,300	7,900	10,100	36,900	35,400
	96,700	77,300	263,800	216,400	360,500	293,700
	Less Exports		..	..	1,500	1,400
	Total Available		..	..	359,000	292,300

Source.—*Fruit*, Vol. 9 (October, 1958).

Processed oranges and grapefruit are a very significant import. This product originates almost entirely in Japan and may represent a significant factor in the competition offered to Australian canned fruits. Without exact knowledge of the place of this product in United Kingdom food habits it is difficult to assess this; however, it is of some interest to note that imports into the United Kingdom increased from 11,900 tons, or 13 per cent of canned fruit imports in 1951, to the present figure of 51,400 tons or 20 per cent of canned fruit imports in 1956. The 1938 figure was 27,100 tons, or 14 per cent of canned fruit imports.¹ These figures indicate a Japanese canning industry of considerable capacity and, recognising the geographical latitude of the Japanese islands, the question of the possibilities of development into other more directly competitive lines is of some significance.

Thus, recognizing the problems which remain unanswered with respect to plums, oranges and grapefruit, and home-canned peaches and pears, this paper then concerns itself with trends in the plantings of peaches, pine-apples, pears and apricots in those countries which supply these canned products to the United Kingdom market.

The sources of these products are indicated in Table 3 and it will be observed that South Africa supplied 32 per cent of the imports in 1957 and that the next most important source was Australia, 24 per cent, followed by Malaya, 13 per cent. While imports from the United States fell off sharply in 1957 from 32,300 tons in 1956 to only 4,000 tons, this country was an important source prior to World War II; in 1938 101,000 tons out of a total of 200,000 tons originated in the United States. With recent relaxation of currency restrictions American products will no doubt again assume considerable importance and attention will also be given to trade in that country.

The canning industries of Japan, Argentine, Italy and Spain have shown considerable expansion during recent years, as set out in Table 4, and some attention will also be paid to trends in these countries.

TABLE 3

United Kingdom Imports of Canned Fruit Preserved in Syrup

Source	1956		1957	
	Tons	Per cent	Tons	Per cent
Australia	69,900	24	51,400	24
South Africa	62,600	24	67,600	32
Japan	39,500	15	27,300	12
United States	32,300	12	4,000	2
Malaya	23,300	9	28,000	13
Taiwan	6,900	3	2,600	1
Kenya	4,500	2	3,900	2
Italy	4,300	2	2,600	1
Others	27,500	10	29,000	13
Total	263,800	100	216,400	100

Source.—*Fruit*, Vol. 9 (October, 1958).

¹ *Fruit*, Commonwealth Economic Committee, London, No. 9 (October, 1958).

TABLE 4

Production of Canned Fruit in Japan, Argentine, Italy and Spain

Country	1953	1954	1955	1956	1957
	Tons	Tons	Tons	Tons	Tons
Japan	45,000	70,000	88,000	102,000	102,000
Argentina	18,000	8,000	16,000	18,000	20,000
Italy*	15,000	18,000	19,000	22,000	22,000
Spain†	22,000	40,000	40,000	45,000	45,000

* In syrup.

† Estimated.

Source.—*Fruit*, Vol. 9 (October, 1958).

Finally, because of its rapid post-war development as a source of pine-apples, trends in the canning industry of Taiwan will also be considered.

2. PEACHES

By 1964 Australian production of canning peaches may approximate 80,000 tons. If yields in all districts are 1 ton less than anticipated production would be only 67,000 tons. This would represent an expansion of between 16,000 tons and 29,000 tons on the highest previously recorded production, which is an increase of between 30 and 57 per cent. This expansion should be considered in relation to trends in those countries which are Australia's major competitors.

South African production will probably continue to expand to 60,000 tons by 1960, but some decline may follow to about 53,000 tons by 1964. However, even this latter figure would represent an increase of approximately 25 per cent on the 1957 figure of 45,000 tons.

The United States probably has a much larger potential production in existing plantings than will be developed. However, the general trend is for an expansion of at least 10 per cent by 1964 from approximately 446,000 long tons to 491,000 long tons.

Production from other countries is unlikely to offer strong competition in the immediate future, but developments in Italy, Japan, Argentine and Spain suggest that they may offer increased competition in the longer run.

Canning peach production is highly efficient in the United States, where average yields vary between 9 and 11 long tons per acre. It is also important that, whereas in the United States export markets are very largely subsidiary to the home market, this is not so for South Africa or Australia. South African yields have been generally below 3 tons per acre. The recent upward trend in yields in both the Goulburn Valley and the Murrumbidgee Irrigation Areas may well prove to be important in the years ahead.

United States

The production of canned peaches in the United States is virtually confined to the State of California, and this review will be restricted to the statistics available for that State. Although there has been an increase in the canning of freestone peaches over the past ten years, the pack, although considerable, is hardly significant to the overall picture, and attention has therefore been confined to clingstones.

Table 5 indicates trends in area for the period 1950 to 1959. Bearing area has remained at approximately 46,000 acres over this ten-year period. However, during recent years there has been a marked upward trend in plantings, and this is reflected in the statistics of non-bearing and total acreage. Non-bearing area increased by 150 per cent from 10,536 acres in 1950 to 26,334 acres in 1958.

Table 6 indicates the approximate area planted in each of the years 1950 to 1957, and the sharp upward trend for the years 1955 to 1957 is noteworthy when the annual plantings increased from approximately 4,400 acres to 8,200. However, a sharp recession was evident in the 1958 plantings, which were only 3,106 acres.

On the basis of a twenty years life expectancy and six years to bearing, a bearing area of 46,000 acres would only be maintained if the non-bearing area was maintained at 20,000 acres. This, in turn, would require a planting rate of at least 3,300 acres per annum, which figure is somewhat in excess of the 1958 planting rate but considerably less than those of the previous three years, 1955, 1956 and 1957. It might, therefore, be anticipated that the bearing area will expand in the near future. This is substantiated by the forecast of the California Crop and Livestock Reporting Service, which estimated the 1959 bearing area at 50,600 acres.

On the basis of the 1958 acreage, and assuming a depreciation of 3 per cent per annum, it has been estimated that the bearing area in 1964 may approximate 60,000 acres. However, 29 per cent of existing plantings are eighteen years or older (Table 7), and an estimate of the age distribution in 1964, as detailed in Table 8, indicates that a very high proportion (39 per cent) of plantings will be seventeen years and older. As a rather higher rate of depreciation might be assumed for these plantings, a bearing area of 60,000 acres may be rather too high. However, for the purpose of this review it seems reasonable to assume some expansion of bearing area up to a maximum of 30 per cent. Production statistics are difficult to interpret because of the effect of crop control measures such as "green drop"; however, Table 9 indicates that canned production during recent years has averaged about 446,000 tons. On the basis of an average yield of 9 to 11 tons per acre, it is apparent that by 1964 total production might be of the order of 540,000 to 660,000 tons. Assuming a similar proportion of diversion to canning as experienced in the past, this would mean that from 486,000 to 594,000 tons might be canned.

Continued expansion of the United States population will undoubtedly absorb some of the potential increase in production, nevertheless further expansion will probably be conditioned by the possibility of greater disposal on export markets. Whereas in 1938 exports from the United States totalled 145,900 tons with 125,100 tons going to the United Kingdom market,

the total canned fruit exports in 1952 were only 55,000 tons with none disposed of in the United Kingdom. By 1957 the total had increased to 137,400 tons but only 3,000 tons were marketed in the United Kingdom. The increase in total exports was associated with considerable expansion in the Canadian (35,800 tons), West German (36,800 tons) and Belgian (13,700 tons) markets with appreciable increases in the Netherlands (9,300 tons), Sweden (6,800 tons) and Switzerland (5,800 tons).

While United States exports constituted 27 per cent of the world total of canned fruit exported in 1957, they represented only 8 per cent of total United States production. It is therefore apparent that while export disposals are a small factor in the economy of the United States industry they are of a major significance to countries such as Australia which export a much higher proportion of total production.

TABLE 5

Area of Clingstone Peaches—California

Year	Non-Bearing Area	Bearing Area	Total Area
	Acres	Acres	Acres
1950 ..	10,536	45,702	56,238
1951 ..	10,325	46,405	56,730
1952 ..	10,007	46,639	56,646
1953 ..	9,606	47,441	57,047
1954 ..	12,732	43,935	56,667
1955 ..	13,965	45,032	58,997
1956 ..	16,109	46,840	62,949
1957 ..	21,942	46,179	68,121
1958 ..	26,334	46,825	73,159
1959 ..	n.a.	50,600*	n.a.

* Estimated.

Source: California Crop and Livestock Reporting Service.

TABLE 6

New Plantings of Clingstone Peaches—California

Year	Area Planted*
	Acres
1950	1,926
1951	2,342
1952	3,960
1953	4,747
1954	3,171
1955	4,373
1956	6,168
1957	8,230

Area planted during the years shown and standing in 1957.

Source: California Crop and Livestock Reporting Service.

TABLE 7
Clingstone Peaches classified by age—California
 (Age Groups 1957)

Year of Planting	Age	Area	Per cent
	Years	Acres*	
1939 and earlier	18 and older	10,699	29
1940—44	13—17	11,776	31
1945—46	11—12	3,310	9
1947—51	6—10	11,687	31
	Total	37,472	100

* Calculated from California Crop and Livestock Reporting Service data.

TABLE 8
Estimated age of Clingstone Peaches—California
 (Estimated Age Groups 1964)

Year of Planting	Age	Bearing Area	Per cent
	Years	Acres	
1947 and earlier	17 and older	21,816	39
1948—50	14—16	5,937	10
1951—53	11—13	8,729	15
1954—58	6—10	20,000	35
	Total	56,482	100

TABLE 9
Clingstone Peach Production—California

Year	Total	Canned	Yield per Acre	Proportion Canned
	Tons	Tons	Tons	Per cent
1950	421,000	369,000	9.2*	87
1951	527,000	493,000	11.3	94
1952	410,000	384,000	8.8*	94
1953	485,000	456,000	10.2	94
1954	412,000	388,000	9.4*	94
1955	484,000	456,000	10.7	94
1956	580,000	507,000	12.4	86
1957	479,000	442,000	10.4	92
1958	451,000	419,000	9.6	93

*Green drop 1950—15 per cent; 1952—15 per cent; 1954—17 per cent, but average yield per acre computed on basis of total bearing area.

Source: California Crop and Livestock Reporting Service.

The recent alterations in the United Kingdom dollar quota for canned fruit indicate that quantities moving to that market will be increased by at least 50 per cent in the future and further relaxation of dollar restrictions seems likely.

South Africa

The only data available on the area of clingstone peaches is that collected by the Deciduous Fruit Board at intervals of several years for the main producing provinces and is given in Table 10. Between 1949 and 1952 the area of clingstone peaches more than doubled; however, between 1952 and 1955 the increase was little more than 1,300 acres, or 8 per cent, and if the 1960 estimate is correct a further expansion of only 1,200 acres occurred in the following years. On this basis it would seem that the expansion following 1949 has slowed considerably. This is clear from Table 11 which may be taken as representing the approximate size of the original planting figures for the years listed; it is apparent that the 1954 rate of planting was only a third of the 1951 rate.

On the basis of a life expectancy of twenty years and six years to bearing, the 1960 estimated area of 18,500 acres could only be sustained by an annual planting rate in excess of 93,000 trees. Therefore, unless there has been a further decline in planting rate since 1954 the planting rates at that date will lead to further expansion and, if continued, would establish at equilibrium a total area of 22,000 acres, of which 15,400 acres would be in bearing.

A feature of some considerable interest in Table 10 is the high proportion of the Kakamas variety, which represents approximately 75 per cent of the bearing and 60 per cent of the non-bearing trees. This suggests that the industry might well face the need to spread production over a longer harvest season as has been experienced in some districts of Australia.

TABLE 10
*Area of Peaches—South Africa**

					Non-bearing	Bearing	Total
					Acres	Acres	Acres
1949..	..	..	..	..	4,860	2,540	7,400
1952..	..	..	..	..	8,940	7,080	16,020
1955—							
Kakamas	..	..	..	..	5,300	6,410	11,710
Goosen	..	..	..	..	1,980	840	2,820
Keimos	..	..	..	..	1,050	20	1,070
Others	..	..	..	..	380	1,350	1,730
Total—1955	..	..	..	..	8,710	8,620	17,330
1960 (estimated)	..	..	..	..	.....	.....	18,500

* Area at Time of Census.

Source: *Fruit Intelligence*, Vol. VII, No. 8 (January, 1958), p. 26.

Tree numbers converted by author at 100 trees to the acre.

TABLE 11
*Peach Trees Classified by Year of Planting—South Africa**

Year of Planting	Number of Trees at 1955
1951	300,000
1952	298,000
1953	143,000
1954	110,000
1955†	20,000
Total	871,000
Average 1951—54	163,000

* Number of canning peach trees by years of planting and standing in 1955.

† Figures incomplete, as census taken part-way through 1955 planting season.

Source: *Fruit Intelligence*, Vol. VII, No. 8 (January, 1958).

TABLE 12
Age Distribution in 1966 of Peach Trees—South Africa

Year of Planting	Age	Area	Per cent
1949 and earlier	Years 17 and older	Acres 4,000	27
1950—52	14—16	6,000	40
1953—55	11—13	2,000	13
1956—60	6—10	3,000	20
	Total	15,000	100

The bearing area in 1960 will include all trees standing in 1955 less depreciation and less plantings made in 1955, which has been calculated to approximate 17,000 acres. On a similar basis, using the 1960 official estimate of the total area of 18,500 acres, the area of bearing trees in 1966 should approximate 15,000 acres assuming an annual depreciation of 3 per cent. Thus, bearing area might be expected to decline by about 12 per cent in the next six years.

An estimate was made of the likely age distribution in 1966, and this is set out in Table 12 which indicates that a rather high proportion (27 per cent) will be senile or approaching senility at that time. If these estimates approximate the true position fairly heavy new plantings would be required to counteract the downward trend in acreage which would follow from the removal of these trees.

On the other hand, during the next six years an increasing proportion of plantings will be coming into optimum production, so that, despite a possible downward trend in area, it could be anticipated that production will probably increase to some degree before exhibiting a decline.

Table 13 details the recorded production of canned peaches, 1951-52 to 1958-59, from which has been estimated the production or fresh fruit for processing and the canning yield per acre of bearing trees. Between 1951-52 and 1957-58 fresh fruit canned quadrupled, increasing from 11,700 tons to 45,500 tons but a sharp recession followed in 1958-59 to 28,500 tons.

Yield per acre has varied from approximately 1.2 to 3.1 tons per acre. These figures are surprising, to say the least. Yield would be somewhat greater if production diverted to other channels was included, but while no data is available on this aspect it is thought that it would not be large and that it would not greatly alter these estimates. Yields will probably increase gradually, and in estimations of future production it would be perhaps reasonable to use a figure of 3.5 tons per acre. On this basis the 1960 production would approximate 60,000 tons and the 1966 production 53,000 tons.

Italy

Official statistics do not provide details in regard to the area of clingstone peaches as distinct from dessert peaches, nor are any figures available as to the relative quantities of peaches, pears and apricots canned. Table 14 presents the only information available for peach area and production.

TABLE 13
Production and Yield of Peaches—South Africa

Year	Production of Canned Peaches*	Fresh Fruit Canned†	Yield per Acre Bearing
	Tons	Tons	Tons
1951—52	12,300	11,700	1.7‡
1952—53	9,000	8,600	1.2‡
1953—54	17,200	16,300	2.3‡
1954—55	20,400	19,400	2.2§
1955—56	25,700	24,400	2.8§
1956—57	29,700	28,200	2.4||
1957—58	47,800	45,500	3.1||
1958--59**	30,000	28,500	1.8||

* *Fruit, op. cit., Fruit Intelligence, Vol. III, No. 9 (February, 1959).*

† Fruit used for processing. Calculated on basis of 50 cartons to the ton of canned fruit; 52.5 cartons to ton of fresh fruit.

‡ Calculated on bearing area of census 1952.

§ Calculated on bearing area of census 1955.

|| Calculated on bearing area of 11,600 acres 1956, 14,600 acres 1957, and 15,600 acres 1958.

** *Fruit Intelligence, Vol. IX, No. 6 (November, 1959).*

TABLE 14

*Area and Production of Peaches in Specialized Orchards—Italy**

Year	Total Area	Production	Average Yield per Acre
	Acres	Tons	Tons
1954	100,000	301,000	3.0
1955	102,500	338,000	3.4
1956	112,500	245,000	2.2
1957	125,000	397,000	3.2
Average ..	.....	318,000	3.0

* Calculated from Official Statistics. In addition, non-specialized production includes about 2,500,000 peach trees; approximately 33,000 acres producing about 138,000 tons.

TABLE 15

Production and Export of Canned Fruit—Italy

Year	Production	Exports
	Tons	Tons
1953	15,000	6,800
1954	18,000	7,900
1955	19,000	12,200
1956	22,000	9,300
1957	21,600	10,700
1958	22,600	12,100

Source: Official Statistics and *Fruit*, Vol. 9 (October, 1958).

TABLE 16

Area of Peaches (All Varieties)—Japan

Year	Non-bearing Area	Bearing Area	Total Area
	Acres	Acres	Acres
1955 ..	5,500	19,700	25,200
1956 ..	8,200	26,400	34,600
1957 ..	9,700	30,500	40,200
1958 ..	na.	32,300	n.a.

TABLE 17
Production and Yield of Peaches—Japan

Year			Production	Yield per Bearing Acre	Production Used for Canning	Export Canned Peaches
			Tons	Tons	Tons	Tons
1955	..	..	78,800	4.0	14,500	240
1956	..	..	113,400	4.3	20,900	1,180
1957	..	..	134,600	4.4	24,100	1,660
1958	..	..	138,600	4.3	n.a.	3,380

The area under all varieties of peaches increased by 25 per cent in the period 1954 to 1957 from 100,000 to 125,000 acres, and while production has been variable it is apparent that a similar kind of trend is evident in this respect. These statistics give no direct information on trends in canning peaches but it would perhaps be reasonable to assume at least a similar trend, particularly when it is known that factory capacity has been expanded by the erection of a number of large-scale modern units. This is supported by Table 15, which indicates that cannery production of all fruits increased by about 50 per cent between 1953 and 1956 and as peach area expanded by only 25 per cent and pears by only 33 per cent (1954 to 1957) canneries must have been obtaining an increased proportion of the fruit produced. Unfortunately no details are available as to the proportion of the various fruits; however, it is known that few apricots are canned, and the canned fruit production statistics therefore relate almost entirely to peaches and pears.

As the production of fresh peaches increased by about 96,000 tons in the period 1954 to 1957 and as canned fruit production increased by only 4,000 tons, there is no doubt that a high proportion of the peach area is for fresh fruit. The Italian public is apparently used to consuming fruit in the fresh state, and there is not a large home market for the canned product. Furthermore, a very considerable export trade in fresh fruit has also been developed and Italy is by far the most important exporter of fresh peaches, so that, despite the development of new cannery capacity, the expanded acreage is very largely for fresh fruit production.

The future development of the canning industry is hampered by a very heavy duty on imported cane sugar, however, the fact that this expense is recouped by a rebate on all canned fruit exported has no doubt been an important consideration affecting cannery expansion at least part of which has been achieved with capital from the United States and the United Kingdom and hence undoubtedly undertaken with a view to export markets. However, of the 10,700 tons exported in 1957 only 3,700 tons were in syrup and in 1958 the relative figures were 12,100 tons and 6,154 tons so that the proportion of production directly competitive with Australian production is small. It is possible also that the expanded cannery production may be achieved, to some extent at least, at the expense of less efficient competitors on the home market.

The statistics available do not lend themselves to the same kind of estimates as have been carried out for the United States and South Africa. However, it is apparent that if total acreage expanded by 25 per cent during the period 1954 to 1957 it is likely bearing area and production will expand by something more than 25 per cent in the period 1960 to 1963. Thus, canned fruit production might approximate 28,000 tons by 1964. Some of this increase will undoubtedly be sold on the home market, but because of the sugar duty rebate it might be assumed that the bulk of the increase of 5,500 tons would be exported. If these assumptions approximate the true position, canned fruit exported might approach 17,500 tons by 1963 or 1964 of which from 9,000 to 12,000 tons might be in syrup.

Japan

Official statistics do not provide details in regard to the area of canning peaches as distinct from dessert varieties. Table 16 indicates that the area devoted to peaches increased by 60 per cent from 25,200 acres in 1955 to 40,200 acres in 1957, and that bearing area increased by 66 per cent from 19,700 acres in 1955 to 32,300 acres in 1958. Table 17 indicates a similar trend in respect to both production and production used for canning, but the quantity entering world markets, while not large, increased by fourteen times from 240 tons to 3,380 tons.

Clearly a high proportion of the peach area is for fresh fruit, and utilization for canning was about 18 per cent of total production in 1957.

The statistics available do not lend themselves to the same kind of estimates as have been carried out for the United States and South Africa. Table 16 indicates that the marked expansion in bearing area was slowing and, on the basis of the 1957 acreage, and after due allowance is made for depreciation, it would appear that bearing area would approximate 33,000 acres by 1963. It might, therefore, be assumed that utilization for canning should not depart greatly from 25,000 tons. On the other hand, the high production of canned mandarins indicates considerable factory capacity, which may easily expand into peaches provided suitable varieties are available, but unfortunately no information is to hand on this aspect.

Argentine

It has not been possible to obtain statistics which would indicate trends in the area of peaches. Data on peach production and the export of canned fruit are given in Table 18, and a general upward trend in production is evident for the period 1951 to 1956. About 80 per cent to 90 per cent of the canned fruit exported is peaches, so that the trends revealed in Table 18 may be taken as reflecting the situation with regard to canned peaches, and it is evident that while exports were almost negligible from 1951 to 1955, there was a marked upward trend in the period 1956 to 1958 to 14,400 tons.

A considerable proportion of fresh fruit produced has been used for drying, but prices have been insufficient to cover costs, and canning has been sought as an alternative avenue of disposal. Production of all canned fruit varieties remained relatively stable at about 18,000 to 20,000 tons in the period 1953 to 1957 (Table 4) but there was a sharp rise in 1958 to 44,000 tons.

The only data relating to the details of the total canned fruit pack are in respect of the 1958 season when approximate estimates were 20,000 tons of peaches, 20,000 tons of pears and 4,000 tons of apricots.² The statistics available are hardly adequate as a basis for prediction of future trends in the industry.

The peach industry is reported as being in a rather depressed state, and there would appear to be room for considerable improvement in cultural and pest and disease control as well as in the quality of the canned product. During recent years new plantings of peaches were probably only sufficient to replace those which were going out so that on balance it seems unlikely that there will be any marked expansion in the short run at least.

TABLE 18
Production of Peaches and Exports of All Canned Fruits—Argentina

Year	Fresh Peaches Produced	All Canned Fruit Exported
	Tons	Tons
1951*	78,000	1,000
1952*	66,000	1,200
1953*	137,000	300
1954*	92,000	600
1955*	133,000	1,500
1956*	148,000	7,900
1957	77,000	5,500
1958	n.a.	14,400

* *Fruit*, Vol. 9 (October, 1958).

TABLE 19
Production of Peaches and Exports of All Canned Fruit—Spain

Year	Fresh Peaches Produced	All Canned Fruits Exported
	Tons	Tons
1951	98,000	15,000
1952	101,000	20,000
1953	118,000	20,400
1954	116,000	31,900
1955	76,000	30,100
1956	77,000	44,700
1957	83,000	43,300

Source: *Fruit*, Vol. 9 (October, 1958).

Spain

The only statistics available in relation to area under peaches are very sketchy and are reported by the Commonwealth Economic Committee as 34,000 acres for the latest pre-war estimate, 36,000 acres in the early post-war period, 39,000 acres in 1956, and 40,000 acres in 1957, so that it would appear that the area increased by only 4,000 acres in about ten years.

² *Fruit Intelligence*, Vol. ix, No. 4 (September, 1959), p. 38.

Statistics in relation to production are given in Table 19 which indicates that while production of fresh peaches has declined from about 100,000 tons to 80,000 tons in the period 1951 to 1957 the export of canned fruit of all kinds trebled to about 45,000 tons. No data is available to indicate the proportion of the canned fruit exports represented by individual fruits but it is likely that a very considerable proportion is fruit pulp and fruit canned without sugar.

In view of the fact that total peach production has shown a sharp decline, the increase in canned fruit production could be interpreted as a response to depressed conditions of the industry which view is supported by the fact that on the basis of 40,000 acres of trees (bearing and non-bearing) the average yield in 1957 was only 2 tons per acre. Nevertheless, a three-fold expansion in canned fruit exported is a considerable development which indicates the possibility of even further expansion and competition with Australian producers.

The statistics available do not warrant computation to estimate future trends, but in the absence of other information it seems reasonable to assume that Spanish canned peach production is unlikely to expand in the near future. However, the large capacity for the production of fresh fruit taken with the expanded export figures for all canned fruit indicates a possibility for the development of a canning industry provided associated problems can be resolved.

TABLE 20
Area and Annual Plantings of Canning Peaches—Goulburn Valley

Year	Non-Bearing	Bearing Area	Total Area	Annual plantings
	Acres	Acres	Acres	Acres
1954 ..	1,760*	7,040*	8,800*	126
1955 ..				366
1956	1,890	6,710	8,600	510
1957	2,730	2,940	5,670	1,518
1958	5,130	3,150	8,280	2,609
1959	n.a.	3,350*	n.a.	n.a.

* Estimated.

Source: Cole, C. E.—private communication, but numbers of trees converted at 100 trees to the acre.

TABLE 21
Production and Yield of Canning Peaches—Goulburn Valley

Year	Fresh Fruit Production	Yield per 100 Bearing Trees
	Tons	Tons
1954	33,000	4.7
1955	27,000	4.0
1956	19,000	2.8
1957	14,000	4.7
1958	23,000	7.3
1959	21,700	6.5

Source: Cole, C. E.—Private communication.

TABLE 22

Area and Plantings of Clingstone Peaches—Murrumbidgee Irrigation Areas

Year	Non-bearing Area	Bearing Area	Total Area	Annual Plantings
	Acres	Acres	Acres	Acres
1954	473	2,907	3,380	228
1955	702	2,917	3,621	317
1956	800	1,743	2,543	292
1957	1,611	1,926	3,037	903
1958	2,364	1,891	4,255	945*

* Estimated.

Source: Irrigation Research and Extension Committee, *Annual Fruit Tree and Vine Census*, (Mimeo).

TABLE 23

Production and Yield of Clingstone Peaches—Murrumbidgee Irrigation Areas

Year	Fresh Fruit Production*	Yield per Bearing Acre
	Tons	Tons
1954	17,123	5.8
1955	14,751	5.1
1956	14,349	4.9
1957	10,400	6.0
1958	12,800	7.5
1959	8,230	4.3

* N.S.W. Water Conservation and Irrigation Commission, *Annual Reports*.

Australia

Canned peach production in Australia is located in the three States of New South Wales, Victoria and South Australia. Differences in the nature of the statistics available and questions of special local interest make it convenient to treat each State separately.

It is a matter of considerable significance that the winter of 1956 was exceptionally wet and there were severe tree losses in both Victoria and New South Wales. These losses and farmers' efforts to recover their plantings are reflected in the area figures for all States. The losses in area were reflected in production but severe competition among canneries for the fruit available tended to minimize production loss.

VICTORIA

The production of canning peaches in Victoria is virtually confined to the Goulburn Valley. Trends in area are detailed in Table 20, and it is apparent that total area has quickly recovered from the devastation of the wet winter of 1956. However, while bearing area increased from 2,940 acres in 1957 to 3,350 acres in 1959, this acreage is still only 48 per cent

of the 1954-55 figure ; nevertheless the plantings of 1957 (1,518 acres) and 1958 (2,609 acres) will eventually contribute to a marked upward trend in bearing area. These plantings are an effort to repair the losses of 1956, and it probably can be assumed that planting rates will shortly decline to a much lower level but at this stage it is impossible to predict what this level might be with any degree of certainty.

Bearing area in 1964 will approximate the total area of 1958, less trees removed in the interim so that after allowing an annual depreciation of 3 per cent, the bearing area in 1964 has been estimated to approximate 6,800 acres. On the basis of a similar depreciation applied to individual age groups, which probably over-estimates the older groups, it would appear that about 20 per cent of the 1964 bearing area, or 1,430 acres, will be over 20 years old and 757 acres over 25 years old.

Trends in production and yield are given in Table 21. It will be noted that production did not decline in proportion to the decline in area, due to high average yields of 7.3 and 6.5 tons per 100 bearing trees in 1958 and 1959 respectively. These figures have undoubtedly been inflated by conditions of competition for fruit ; however, it is known that a large proportion of new plantings have been made on better soil types, both within the old area and in newly developed areas, so that it is probable that some of the increase will be permanent. On the basis of a yield of 6.5 tons to the acre the 1964 estimated bearing area would yield 44,200 tons, or at 5.5 tons, 37,400 tons.

NEW SOUTH WALES

Canning peach production in New South Wales is virtually confined to the Murrumbidgee Irrigation Area, and the analysis will be concerned solely with trends in that district.

Prior to the wet Winter of 1956, total area had increased to approximately 3,600 acres (see Table 22), of which the bearing area represented 2,900 acres. Following the severe losses of 1956, very heavy plantings were made in 1957 (903 acres) and 1958 (945 acres), such that total area had more than recovered to the pre-wet Winter situation ; however, bearing area was still considerably less.

A record production of 17,100 tons was achieved in 1954 (see Table 23), but this fell to 10,400 tons in 1957, rose to 12,800 tons in 1958, and receded again in 1959 to 8,200 tons.

The New South Wales section of the Australian Canning Fruits Advisory Committee has recommended to the industry a target area of 3,300 bearing acres to produce 20,000 tons of canning grade fruit.³ While bearing area is still well below the target, it is apparent that the total area will more than provide for this, and the Committee has consequently recommended that for the time being, at least, new plantings should be confined to those necessary to maintain this bearing area, which is estimated at 140 acres per annum.

On the basis of experienced rates of removal, it has been estimated that by 1964 bearing area will approximate 3,600 acres which, at 5 tons per acre, would represent a total production of 18,000 tons.

³ "Fifth Report New South Wales Section Australian Canning Fruits Advisory Committee", *Proceedings Ninth Australian Canning Convention*, mimeo. (Melbourne: 1958).

Table 23 indicates that in common with other districts per acre yield rose markedly in the post-1956 period to as high as 7.5 tons per acre. This was undoubtedly due, at least in part, to conditions of increased competition for fruit by canners, and may not, therefore, be permanent. However, in view of improved cultural practices and the installation of tile drainage, it is considered that at least some of this increase will remain and an average of 6 tons should not be unrealistic ; in which event, a total production of 21,600 tons is indicated by 1964.

SOUTH AUSTRALIA

A review of the canning peach situation in South Australia is complicated by the fact that freestones form a very considerable part of the total pack of that State. Trends in production of canned clingstones and freestones are set out in Table 25. Freestone peaches used for canning increased by eight times in the period 1952-53 to 1957-58 from 690 tons to 5,620 tons. At the same time clingstones increased by five times from 660 tons to 3,100 tons.

In 1957-58 about 60 per cent, or 8,700 tons, of all peaches produced were processed, and of the fruit processed 5,620 tons or 65 per cent were freestones. Of the total Australian pack of freestones in 1957-58 approximately 93 per cent were produced in South Australia.

The production of canned freestone peaches in Australia has shown a remarkable expansion in recent years. However, in 1957-58 they still represented only 12 per cent of the total pack and there are strong indications that this pack will decline in importance. This is evidenced by the decline in production in 1958-59 to 96,000 cartons from a previous record of 253,000 cartons so that further analysis will be mainly concerned with the South Australian clingstone position.

No detailed figures relating to trends in clingstone peach area were available. However, from Table 24 it is evident that the area of all peaches increased by 86 per cent between 1953-54 and 1957-58 from 2,440 acres to 4,530 acres. At the same time, bearing area increased by 53 per cent from 1,560 acres to 2,390 acres and non-bearing area by 143 per cent. The large increase in non-bearing area is reflected in the planting rates, particularly for 1956-57 and 1957-58 when 700 acres and 600 acres were planted respectively. This was undoubtedly a response to the wet Winter of 1956 and the tree

TABLE 24
Area of Peaches—South Australia

Year	Non-bearing	Bearing	Total	Annual Plantings *
	Acres	Acres	Acres	Acres
1953—54 ..	880	1,560	2,440	200
1954—55 ..	950	1,820	2,770	300
1955—56 ..	1,140	1,960	3,100	200
1956—57 ..	1,540	2,100	3,640	700
1957—58 ..	2,140	2,390	4,530	600

* Approximate and largely estimated for earlier years.

Source: T. C. Miller, private communication.

TABLE 25
Peaches Processed and Canned—South Australia

Year	Canned Fruit		Fresh Fruit Processed		Production All Uses§
	Freestone*	Clingstone*	Freestone†	Clingstone‡	
	Cartons	Cartons	Tons	Tons	Tons
1952—53 ..	31,000	69,000	690	660	....
1953—54 ..	53,000	75,000	1,180	1,430	6,820
1954—55 ..	49,000	58,000	1,090	1,100	7,170
1955—56 ..	103,000	91,000	2,290	1,730	7,500
1956—57 ..	203,000	125,000	4,510	2,380	9,440
1957—58 ..	253,000	163,000	5,620	3,100	14,370
1958—59 ..	96,000||	197,000	2,130	....	....

* Annual Reports, Australian Canned Fruits Board.

† Calculated on basis of 90 doz. cans to the ton of fresh fruit.

‡ Calculated on basis of 105 doz. cans to the ton of fresh fruit.

§ T. C. Miller, private communication.

|| Includes nominal quantities packed in New South Wales and Queensland.

losses in Victoria and New South Wales as well as in South Australia. It is probable that the trends for all peaches may be taken as a general indication of the trends for clingstones.

Of the total area in 1956, only 730 acres were in non-irrigated districts, and of these only 184 acres were clingstones. Mount reports that most of the production from this source is sold as fresh fruit and that in any case expansion in these areas is unlikely or, at the most, will be small, so that from the point of view of the canning industry attention may be confined to the irrigated areas.⁴

The total area of irrigated clingstone peaches was 1,210 acres in 1956 or 51 per cent of all irrigated peach plantings. By 1958 the area had increased by 79 per cent to 2,160 acres representing 58 per cent of irrigated peaches. On the basis of the 1958 area and after due allowance for annual removals, set at 3 per cent per annum, it is estimated that the 1964 bearing area will approximate 1,770 acres. Miller estimates that average yield from irrigated peaches is 7 to 8 tons per acre so that, assuming an average of 7.5 tons per acre, production in 1964 should approximate 13,300 tons, which would represent an increase in excess of four times present production.⁵ On the basis of 6.5 tons per acre, it would approximate 11,500 tons.

SUMMARY

To summarize the situation in regard to Australia as a whole, the bearing area of clingstone peaches will probably expand to 11,870 acres by 1964 which represents an increase of 90 per cent on the current bearing area, see Table 26. These trends will be reflected in production which it is estimated may approximate 67,000 tons to 79,000 tons, depending upon whether maximum yields per acre are actually achieved.

⁴ W. E. Mount, *Report of the Canning Fruits Survey. Section I—Non-Irrigated Districts*, South Australian Department of Agriculture, mimeo (1955).

⁵ T. C. Miller, private communication.

3. PEARS

Australian canned pear production is dominated by the Goulburn Valley in Victoria which in 1957-58, provided 87 per cent of the total pack.

By 1967 or 1968 Australian production of canning pears may approximate 57,000 tons which represents an increase of 36 per cent on current production of about 42,000 tons. This expansion should be reviewed in relation to that of Australia's major competitors; however, it is worthy of note that of the 40,000 tons of canned pears imported into the United Kingdom in 1956, Australia provided 25,000 tons, South Africa 5,600 tons and the United States 3,000 tons.

South African production may almost double in the same period, from about 12,000 tons to 23,000 tons, although the evidence available for this is somewhat contradictory.

Production in the United States may be expected to expand slowly, by about 8 per cent or 9 per cent, from 277,000 tons to 300,000 tons. As mentioned for peaches, it is of some considerable significance that the export market is subsidiary to home markets for United States production, whereas this is not the case for Australian and South African production.

Average per acre yields vary between 7.7 tons and 9.6 tons in the United States although for the period under review a figure of 6.3 was recorded on one occasion. This is in marked contrast to South Africa, where yields are of the order of 3 to 6 tons. In view of the general competitive position, it may well be important that Goulburn Valley yields have shown a marked upward trend in recent years to as high as 8.7 tons per acre in 1958.

United States

Any estimate of trends in relation to canning is inevitably clouded by the fact that about 25 per cent of Williams Bon Cretien (WBC) pear production is utilized in the fresh fruit market. Further, three States, California, Washington and Oregon, all can significant quantities of pears, although the situation is undoubtedly dominated by the California pack. As statistics are readily available in respect of California, our considerations will therefore be confined in the first instance to that State. Pear orchards in Washington and Oregon have suffered seriously from a disease called "pear decline", about which little is known. It has been said that tonnage losses from extensive tree removals and loss of bearing surface necessitated by decline, continues to exceed the production increase afforded by extensive young plantings of Bartlett pears.

There has been a slight upward trend in total area over the nine-year period 1950-58 (see Table 27) from 38,000 acres to 41,000 acres, an increase of 8 per cent. This is a reflection of a trend in the non-bearing area which more than doubled, increasing from 3,138 acres in 1950 to 6,976 acres in 1958, while bearing area remained at approximately 34,000 acres.

Table 28 indicates the approximate area planted for the years 1950 to 1957, from which it can be estimated that the average annual rate of planting for this period was about 750 acres. The area planted in 1958

was 751 acres. On the basis of nine years to bearing and fifty years' life, continued planting at this rate would establish a non-bearing area of approximately 6,750 acres and a bearing area of approximately 31,000 acres, which latter figure is considerably below the current bearing area. Now whether this indicates that the long-term picture is for a gradual decline in area or that the average life of pear trees will exceed fifty years, might be a matter for debate. Thus, on the basis of a total of 41,100 acres in 1958 and assuming a 1 per cent annual depreciation, it can be estimated that the bearing area in 1967 would approximate 37,400 acres, an increase of 8.4 per cent, which is approximately the rate of expansion in the previous nine years.

TABLE 26
Summary of Area and Productions for Peaches—Australia

	Bearing Area		Production		
	1958 Tree Census	Estimate for 1964	1958	Estimated 1964	
				At Lower Yield	At Higher Yield
	Acres	Acres	Tons	Tons	Tons
Victoria	3,150	6,800	23,000	37,400	44,200
New South Wales	1,890	3,300	12,800	18,000	21,600
South Australia	1,250*	1,770	2,100	11,500	13,300
Total	6,290	11,870	27,900	66,900	79,100

* Calculated from 1957-58 tree census on basis of 58 per cent bearing.

TABLE 27
Area and Yield of WBC Pears—California

Year	Non-bearing Area	Bearing Acre	Yield per Bearing Area	Total Area
	Acres	Acres	Tons	Acres
1950	3,138	34,529	7.7	37,667
1951	3,581	34,639	7.9	38,220
1952	3,978	34,452	8.7	38,430
1953	4,009	34,201	6.3	38,210
1954	3,931	34,440	9.3	38,371
1955	4,000	34,238	8.0	38,238
1956	4,411	34,127	9.8	38,538
1957	5,203	34,277	9.6	39,480
1958	6,976	34,073	8.1	41,049
1959	n.a.	34,700	n.a.	n.a.

Source.—California Crop and Livestock Reporting Service.

TABLE 28
Plantings of WBC Pears—California

Year	Area
	Acres
1939 and earlier ..	30,050
1940—44	908
1945	354
1946	376
1947	457
1948	609
1949	787
1950	554
1951	689
1952	912
1953	797
1954	674
1955	503
1956	676
1957	1,134

Acres planted during years shown and standing in 1957

Source.—California Crop and Livestock Reporting Service.

TABLE 29
Utilisation of WBC Pears for Canning—U.S. Pacific Coast

Year	All States	California
	Tons	Tons
1950	257,000	182,000
1951	285,000	191,000
1952	261,000	188,000
1953	242,000	145,000
1954	307,000	221,000
1955	311,000	203,000
1956	n.a.	249,000
1957	n.a.	227,000
1958	n.a.	199,000

Source.—California Crop and Livestock Reporting Service.

The utilisation of pears for canning in California (see Table 29) increased by about 33 per cent, from 182,000 tons in 1950 to 249,000 tons in 1956, but has since shown a tendency to decline. A somewhat similar trend is indicated for the Pacific Coast taken as a whole, with an average of 277,000 tons for the six-year period 1950-55.

Now, if an expansion of 1 per cent per annum, which seems possible for California, can be assumed for all Pacific States and if the same proportion of production continues to be diverted to canning, then production for the United States would approximate 310,000 tons by 1967. The impact of "pear decline" may reduce this figure, however, unless deterioration is much more rapid than so far experienced, it seems unlikely that total production would be greatly affected. It is perhaps significant that growers in all Pacific States have provided funds for a stepped-up promotion and merchandizing programme for canned pears.

There would appear to be considerable capacity within the industry for expanded production by diversion from other uses and this, taken with the possibility of a limited increase in area, may well be sufficient for the markets immediately available. As with peaches the continued expansion of the United States' population will absorb some of the potential increase. Nevertheless, the trend towards relaxation of dollar restrictions in the United Kingdom will undoubtedly lead to increased disposals on that market.

South Africa

As with peaches, all data on area is based on the surveys undertaken by the Deciduous Fruits Board. Unlike peaches, however, this Board controls sales of pears to processors and reliable data has been obtained on this aspect, also.

The 1955 census was the first census which provided details as to pear varieties separating the WBC variety from others. Under these circumstances it is rather difficult to trace past trends in canning pear acreage. However, Table 30 indicates that the area under all varieties increased by 77 per cent from 6,750 acres in 1949 to 12,010 acres in 1955, and it is estimated by the Deciduous Fruits Board that total area will increase to 14,000 acres by 1960. While bearing area increased by 15 per cent from 4,910 acres to 5,660 acres between 1949 and 1955, non-bearing area increased by 245 per cent, from 1,840 acres to 6,350 acres, which is indicative of a very high level of planting.

Table 31 may be interpreted as indicating the approximate area of plantings made in the years listed. A sharp increase in planting is apparent for the period 1950-52, when a total of approximately 3,460 acres were planted. However, planting rates fell off sharply in following years to approximately 670 acres in 1954. As 53 per cent of all varieties and 41 per cent of the WBC plantings are non-bearing, it might be assumed that the planting rate of WBC has not been as high as that for dessert varieties, so that, while the trends outlined for all varieties have undoubtedly been generally followed by the canning variety, the rate of increase has probably been something less than that for dessert varieties.

Trends in production are given in Table 32. The general picture is undoubtedly clouded by the fact that there is little data on the proportion of WBC pears sold as fresh fruit. However, production of all pear varieties

doubled in the period 1951-52 to 1955-56, increasing from 17,500 tons to 34,700 tons. This increase resulted in part from the increased bearing area, but it was also due to improved per acre yields, which increased from about 3.2 tons per acre in 1951-52 to about 6.1 tons in 1955-56. Improved yields have apparently resulted from improved cultural practices.

The amount of fresh fruit processed more than doubled in the same period, increasing from 5,100 tons in 1951-52 to 12,300 tons in 1957-58, so that it may be deduced that an increasing proportion of the WBC pear production was flowing to canneries.

TABLE 30
Area of Pears—South Africa

	Non-bearing Area	Bearing Area	Total
	Acres	Acres	Acres
1949.. .. .	1,840	4,910	6,750
1952.. .. .	4,330	5,520	9,850
1955—			
WBC	2,340	3,380	5,720
All varieties	6,350	5,660	12,010
1960 (estimated) .. .. .	....	....	14,000

Source.—South Africa Deciduous Fruits Board, *Fruit Intelligence*, Vol. VII, No. 8 (January, 1958), p. 26.

Recalculated on basis of 100 trees to the acre.

TABLE 31
Plantings of Pears—South Africa

Year of Planting	Number of Trees*
1947	54,000
1948	25,000
1949	36,000
1950	117,000
1951	113,000
1952	116,000
1953	95,000
1954	67,000
1955†	12,000

* Standing in 1955 and planted in year indicated.

† The 1955 figures are incomplete, as the census was taken part-way through the planting season.

Source.—South Africa Deciduous Fruits Board, *Fruit Intelligence*, Vol. VII, No. 8 (January, 1958), p. 26.

TABLE 32
Production and Yield of Pears—South Africa

Year	Production		Yield per Bearing Acre
	Total	Fresh Fruit Processed†	
	Tons	Tons	Tons
1951—52 ..	17,490	5,141	3.2‡
1952—53 ..	27,300	6,876	4.9‡
1953—54 ..	18,700	4,311	3.3§
1954—55 ..	32,250	6,573	5.7§
1955—56 ..	34,720	10,390	6.1§
1956—57 ..	33,400	10,528	5.9§
1957—58*	28,880	12,329	n.a.
1958—59||	n.a.	11,600	n.a.

* *Fruit Intelligence*, Vol. VIII, No. 8 (January, 1958).

† Includes a small proportion for drying.

‡ Calculated on basis of 1952 bearing area.

§ Calculated on basis of 1955 bearing area.

|| *Fruit Intelligence*, Vol. IX, No. 6 (November, 1959).

Source.—*Fruit Intelligence*, Vol. VII, No. 8 (January, 1958).

TABLE 33
Number of Trees, WBC Pears—Goulburn Valley

Year	Non-bearing*	Bearing	Total	Annual Planting
	Number of Trees			
1952	n.a.	n.a.	517,000	n.a.
1953	n.a.	n.a.	n.a.	n.a.
1954	72,000†	493,700†	565,700†	14,500
1955	88,000†	492,200†	580,200†	27,000
1956	117,000†	490,200†	607,200†	29,000
1957	180,700	484,700	665,300	63,000
1958	223,100	492,700	715,800	50,500
1959	n.a.	500,000†	n.a.	n.a.

* Non-bearing, 0-10 years.

† Estimated.

Source.—C. E. Cole, private communication.

Assuming nine years to bearing, it is apparent that all plantings existing in 1955 will be in bearing by 1964, less such trees as may be removed, which has been placed at 1 per cent per annum. On this basis, the bearing area of WBC pears in 1964 should approximate 5,200 acres, an increase of 54 per cent on the 1955 position; so that, assuming an average yield of 6 tons per acre, production would approximate 31,200 tons.

Now it is difficult to gauge the proportion of this production which will be processed but the figure for 1955-56 was about 30 per cent. If the same proportionate utilization is assumed for the WBC variety in 1964 about 10,000 tons of fruit would be canned. However, this figure has already been exceeded in 1957-58 when cannery utilization was 12,300 tons or 42 per cent of the pear crop.

It is apparent that an important factor affecting utilization will be the relative prices of fresh fruit on the export market and at canneries, and it is pertinent that fresh fruit pear exports doubled in the period 1951-52 to 1956-57 from 11,000 tons to 22,000 tons. However, the Deciduous Fruits Board has estimated a cannery utilization of some 23,000 tons by 1962-63 and has apparently assumed that an even greater proportion of fruit than 42 per cent will flow to canneries. Indeed, it would appear that it has assumed that all the increased production of the next few years will flow in this direction, which may not be unreasonable, although the importance of the export market for fresh fruit may affect this assumption.

Other Overseas Countries

As the United States, South Africa and Australia account for the bulk of the canned pears entering export markets, and as the statistics available for other countries are even less detailed than for peaches, there is little point in attempting a close analysis. Some comment on the general canned fruit position for Italy, Argentine and Japan is included under the sections dealing with peaches. It can only be added that no details are available with regard to the proportion of the total canned fruit pack of Italy represented by pears, and that pears form a small proportion of the canned fruit pack of Argentine and Japan.

However, it is perhaps worthy of note that while Australia produced 94,000 tons of fresh pears of all varieties in 1957, and South Africa 55,000 tons, these totals are relatively small compared with France, 127,000 tons, Western Germany 115,000 tons, Italy 355,000 tons, Spain 103,000 tons, Japan 173,000 tons. These statistics do not include production for Perry. While the WBC variety is the most important one for canning and there are no statistics available indicating the area of particular varieties, these production figures indicate pear industries which have a considerable potential should other factors facilitate the development of canned fruits industries.

Australia

Canned pear production in Australia is located in the three States of New South Wales, Victoria and South Australia, although Victoria produces 85 to 90 per cent of the total pack. Differences in the nature of the statistics available and questions of special local interest make it convenient to consider each State separately.

VICTORIA

Trends in area are set out in Table 33. Between 1952 and 1958 there was an increase of 38 per cent in the area of WBC pears in the Goulburn Valley; the total area expanding from 5,170 acres to 7,160 acres (assuming

100 trees to the acre). The area of bearing trees remained fairly steady at approximately 4,900 acres for the period 1954 to 1958, but expanded to 5,000 acres in 1959. The area of non-bearing trees more than trebled in the period 1954 to 1958 due to very heavy plantings in the years following the wet winter of 1956.

The wet winter of 1956 did not greatly affect the health of pear trees, so that the heavy rate of plantings would appear to be in replacement of other kinds, mainly peaches on the less suitable soils, for while peach area has very largely recovered to the pre-1956 position it is known that this has been achieved to a considerable degree by expansion in the new district of Cobram. As the total decline in the peach area in 1956-57 was 2,925 acres, it is apparent that a planting of 1,135 acres of pears must have made a considerable contribution towards replanting the affected area, and after allowing for the fact that some of the area would have been replanted to peaches and that there have been considerable plantings of apples, 300 acres in 1957, it would appear likely that annual plantings of pears will return to normal in the near future.

Despite the fact that bearing area has remained fairly constant, production has shown a marked upward trend, expanding by about 45 per cent over the period from 30,000 tons to 43,000 tons in 1958. This expansion has been influenced very largely by increased yields, which rose from 6.0 tons per acre in 1954 to 8.7 tons per acre in 1958 (Table 34). While 1958 may have been an exceptional year, the table, nevertheless, indicates a strong upward trend to at least 7.5 tons per acre.

On the basis of ten years to bearing and an annual depreciation of 1 per cent and taking the total area for 1958, bearing area should approximate 6,400 acres by 1968. Assuming an average yield of 7.5 tons per acre, production should increase from about 37,000 tons at present to 48,000 tons by 1968.

NEW SOUTH WALES

The production of canning pears in New South Wales is virtually confined to the Murrumbidgee Irrigation Areas, and this analysis will be confined to trends in that district.

Table 35 shows that total area of WBC pears increased steadily by 40 per cent from 412 acres in 1953 to 575 acres in 1958; bearing area increased by 18 per cent from 337 to 397 acres, while non-bearing area more than doubled, increasing from 75 acres to 178 acres chiefly as the result of heavy plantings in 1957 (67 acres) which were undoubtedly a response to the 1956 wet winter and the loss of trees more susceptible to damage than pears.

The Murrumbidgee Irrigation Area is not generally regarded as being especially suited to canning pear production, and the N.S.W. section of the Australian Canning Fruits Advisory Committee has sounded a note of caution in regard to expansion of plantings on several occasions during recent years.⁶

⁶ *Proceedings Ninth Australian Canning Convention (1958)*, "Fifth Report of N.S.W. Section Australian Canning Fruits Advisory Committee."

TABLE 34
Production of WBC Pears—Goulburn Valley

Year	Production Fresh Fruit Canned	Yield per 100 Bearing Trees
	Tons	Tons
1954	29,500	6.0
1955	34,000	6.9
1956	29,000	6.0
1957	38,000	7.8
1958	43,000	8.7
1959	37,000	7.4

Source: C. E. Cole, private communication.

TABLE 35
Area of WBC Pears—Murrumbidgee Irrigation Areas

Year	Non-bearing Area	Bearing Area	Total Area	Annual Plantings
	Acres	Acres	Acres	Acres
1953	75	337	412	12
1954	90	334	424	22
1955	101	364	465	17
1956	96	368	464	6
1957	156	380	536	67
1958	178	397	575	n.a.

Source: Irrigation, Research and Extension Committee; *Annual Fruit Tree and Vine Census*.

TABLE 36
Production and Yield of Pears—Murrumbidgee Irrigation Areas

Year	WBC Fruit Processed*	Total Fruit—All Varieties*	Yield per Acre—All Varieties
	Tons	Tons	Tons
1953 ..	580	960	2.1
1954 ..	850	1,598	3.5
1955 ..	1,700	2,108	4.6
1956 ..	870	1,540	3.3
1957 ..	1,550	1,860	3.9
1958 ..	1,750	1,960	n.a.
1959 ..	1,280	n.a.	n.a.

* Source: N.S.W. Water Conservation and Irrigation Commission Annual Report.

No data is available as to the quantity of WBC fruit diverted to the fresh fruit market and the figures for the quantity of WBC pears canned given in Table 36 cannot be taken as indicating the level of total production. Fresh fruit canned varied from 850 tons to 1,750 tons in the period 1954 to 1959 without any general trend being evident.

Because of the unknown quantities diverted to fresh production, it is not safe to determine average yields on the basis of fresh fruit canned. Table 36 details average yields calculated from the production and bearing area of all varieties, and these vary from 2.1 to 4.6 tons per acre. It is probable that yields of WBC would be somewhat higher than this. However, the figures must be considered as low compared with yields elsewhere.

Assuming nine years to bearing and an annual depreciation of 1 per cent and working from the 1958 total area, it is estimated that bearing area in 1967 would approximate 520 acres, which would be an expansion of 30 per cent on the 1958 bearing area of 397 acres. On the basis of a yield of 5 tons per acre, WBC production for all purposes would approximate 2,600 tons. If a proportionate increase in the quantity of fresh fruit processed is assumed and if the average quantities processed for the year 1957-59 are taken as a base, a 30 per cent increase would indicate a canning production of between 1,660 and 2,280 tons.

SOUTH AUSTRALIA

The information to hand relating to trends in pear area in South Australia is given in Table 37. W. E. Mount reports that of the total area of 1,760 acres of all varieties in 1956 some 688 acres or 39 per cent were located in the River Murray irrigation districts and 61 per cent or 990 acres in the non-irrigated districts.⁷ The WBC variety represented 95 per cent of the irrigated plantings and about 70 per cent of the non-irrigated plantings. On this basis, Table 38 sets out an estimate of trends in the area of canning pears for the period 1953-54 to 1955-56. No consistent overall trend is evident for non-irrigated areas, which fluctuated between 693 and 777 acres. The same is apparent for the irrigated areas up to 1956-57, but it seems likely that the expansion to 837 acres in 1958 is of some significance. Nevertheless, a slackening of pear plantings in the irrigation districts is reported such that only 4,900 trees were planted in 1958.

In 1956, 41 per cent of irrigated plantings and 92.5 per cent of non-irrigated were in bearing. On this basis bearing area in 1957-58 is estimated to approximate 270 acres for irrigated districts and 648 acres for non-irrigated.

Mount reports that pear trees in the non-irrigated areas of South Australia are declining at a greater rate than they are being replaced.⁸ Approximately 71 per cent are reported as being in "good" health, 19 per cent in "fair" health and 10 per cent in "poor" health. Many of the pear orchards are very small and are frequently considered by farmers as an unimportant

⁷ W. E. Mount, *Orchard Rehabilitation and Canning Fruits Tree Planting in South Australia*, South Australian Department of Agriculture, mimeo (1958).

⁸ W. E. Mount, *Report of the Canning Fruits Survey Section I—Non-Irrigated Districts*, South Australian Department of Agriculture, mimeo (1955).

side-line and, furthermore, 49 per cent are over 30 years old. This situation is reflected in average yields which Miller has put at 3 to 4 tons per acre, compared with 6 to 7 tons for the irrigated areas.⁹

Trends in production are indicated by Table 39. Fresh fruit production has shown some variation, but increased by 2,500 tons from 5,880 tons in 1953-54 to 8,380 tons in 1957-58. The quantity of fresh fruit processed has varied also between 1,360 and 3,300 tons, representing between 33 per cent and 55 per cent of the total pear crop. However, no marked trend was apparent over the period under review.

Because of variation between districts, overall yields per acre must be interpreted with caution. Miller estimates that removals approximate 2 per cent per annum; however, in undertaking an estimate of future trends it seems desirable to take into account the youth of the irrigated plantings and the declining state of the non-irrigated.¹⁰ Accordingly, removals have been estimated at 1 per cent per annum for irrigated and 3 per cent per annum for non-irrigated. On this basis it would appear that by 1967 the bearing area of irrigated pears will approximate 760 acres, producing 4,950 tons, and the bearing area of non-irrigated pears will approximate 510 acres, producing 1,790 tons. Total production should thus be about 6,700 tons which, if it was all processed, would represent an increase of 100 per cent on 1957-58 production.

TABLE 37
Area and Plantings of Pears (All Varieties)—South Australia

Year	Non-bearing	Bearing	Total	Annual Plantings*
	Acres	Acres	Acres	Acres
1953—54 ..	280	1,370	1,650	20
1954—55 ..	380	1,440	1,820	25
1955—56 ..	460	1,220	1,680	30
1956—57 ..	510	1,250	1,760	40
1957—58 ..	540	1,280	1,820	55

* Estimated.

Source: T. C. Miller, private communication.

TABLE 38
Area of Irrigated and Non-Irrigated WBC Pears—South Australia

Year	Irrigated	Non-irrigated
	Acres	Acres
1953—54	611	705
1954—55	695	777
1955—56	622	718
1956—57	655*	693*
1957—58	837*	700*

* W. E. Mount, *Report on Canning Fruits Varieties in the River Murray Irrigation Area*, South Australia Department of Agriculture, roneo (1959).

⁹ T. C. Miller, private communication.

¹⁰ T. C. Miller, private communication.

TABLE 39
Production and Yield of Pears—South Australia

Year	Production Canned Pears†	Fresh Pears Processed‡	Production Fresh Fruit All Varieties	Yield for Bearing Acre
	Cartons	Tons	Tons	Tons
1952—53 ..	69,000	1,530	n.a.	n.a.
1953—54 ..	150,000	3,300	5,880*	4.3
1954—55 ..	61,000	1,360	3,720*	2.6
1955—56 ..	143,000	3,180	6,140*	5.0
1956—57 ..	108,000	2,400	5,110*	4.1
1957—58 ..	139,000	3,090	8,380*	6.5

* T. C. Miller, private communication.

† Australian Canned Fruits Board; *Annual Reports*.

‡ Calculated on a basis of 45 cartons to the ton of fresh fruit.

SUMMARY

To summarize the situation in regard to Australia as a whole the bearing area in 1957-58 was 6,200 acres and on the basis of the estimates made previously this will probably expand by about one-third to 8,200 acres by 1967 or 1968, when production for all purposes may approximate 57,000 tons (see Table 40). Victorian production will still dominate the Australian situation.

4. APRICOTS

It seems unlikely that Australian production of apricots for canning will change greatly in the next five to six years. The only State which appears to have a potential for increase is South Australia, where about 50 per cent of total production is diverted to uses other than canning.

South African production for canning will probably remain unchanged over the same period at about 18,500 tons, while production for canning in the United States will probably decline by about 12 per cent from 97,000 tons to 85,500 tons.

These trends however, must be viewed in the light that in most countries a considerable proportion of apricot production is diverted to uses other than canning. It is doubtful whether the quantity of fruit entering particular avenues is freely adjusted according to relative prices, but there is available a reservoir of fruit should expansion of canning be indicated. In Australia this does not apply so much in the Goulburn Valley and the Murrumbidgee Irrigation Areas as it does in South Australia.

It is a feature of apricot production that yields per acre show extreme variation from year to year. Yields are exceptionally low in South Africa, from about 0.6 to 1.1 tons per acre; California yields varied from 2.2 to 5.8 tons per acre, while in the Goulburn Valley figures from 1.4 to 4.7 tons per acre were recorded, and in the Murrumbidgee Irrigation Areas 4.3 to 7.1 tons per acre. Miller indicates that yields in South Australia are about 2.5 tons per acre for non-irrigated orchards and 6.5 tons per acre for irrigated orchards.¹¹

¹¹ T. C. Miller, private communication.

It would appear that in this respect South African production is currently at some considerable disadvantage and that Australia is at least on even terms with the United States, with possibly a slight advantage.

United States

Canned apricot production in the United States is virtually confined to California, so that this analysis will be concerned solely with trends in that State. Between 1953 and 1958 the total area under this crop declined by 5 per cent, from 44,000 acres to 41,700 acres (see Table 41). The bearing area showed a similar but steeper trend, while the non-bearing area increased steadily by more than four times from 1,200 acres to 5,600 acres. This latter trend perhaps indicates a renewed interest in apricots, and this is supported by the figures in Table 42, which indicate the approximate size of the annual plantings made from 1951 to 1957. The sudden increase from 682 acres in 1954 to 1,166 acres in 1955 and thence to 1,509 acres in 1957 is noteworthy and may be a reflection of the fact that a large proportion of plantings are approaching the end of their economic life. In 1957 some 73 per cent or 30,700 acres, were 18 years and older.

TABLE 40
Summary of Area and Production of Pears in Australia

State	Bearing Area		Production	
	1957—58	Estimated 1967 or 1968	Processed 1958—59	Estimated for 1967 or 1968*
	Acres	Acres	Tons	Tons
Victoria	4,927	6,400	37,000	48,000
New South Wales	380	520	1,280	2,600
South Australia	918	1,270	3,090†	6,700
Total	6,225	8,190	41,370	57,300

* Production for all purposes.
† 1957-58.

TABLE 41
Area of Apricots—California

Year	Non-bearing Area	Bearing Area	Total Area
	Acres	Acres	Acres
1953 ..	1,210	42,800	44,000
1954 ..	1,210	41,400	42,600
1955 ..	2,810	38,700	41,500
1956 ..	3,746	38,125	41,871
1957 ..	5,200	36,700	41,900
1958 ..	5,600	36,100	41,700
1959 ..	n.a.	37,000*	n.a.

* Estimated.
Source: California Crop and Livestock Reporting Service.

TABLE 42
*Plantings of Apricots—California **

Year			Area
			Acres
1951	..	..	257
1952	..	..	590
1953	..	..	489
1954	..	..	682
1955	..	..	1,166
1956	..	..	1,373
1957	..	..	1,509

* Area planted during years shown and standing in 1957.

Source: California Crop and Livestock Reporting Service.

As in the other countries, apricot production exhibits a wide variation from year to year (see Table 43), from as high as 226,000 tons in 1955 to as low as 80,000 tons in 1958, representing average yields of 5.8 and 2.2 tons per acre. These yields are hardly as high as are recorded in Australia but are noteworthy in view of the high yields obtained with peaches.

A considerable proportion of production is disposed of in avenues other than canning, but there are strong indications of an increasing proportion entering canneries, the figure for 1958 being as high as 72 per cent, although a safer figure for the estimation of future trends would perhaps be 65 per cent. Between 1953 and 1958 the quantity of fresh fruit processed has varied between 58,000 tons and 136,000 tons with an average of 97,000 tons.

Assuming six years to bearing, it is apparent that the total area existing in 1958 will be in production by 1964, less depreciation. If an average annual depreciation of 2.5 per cent is allowed it may be calculated that the bearing area in 1964 should approximate 35,400 acres which, on the basis of an average yield of 4 tons per acre, would produce 131,600 tons, of which 85,500 tons might be canned, a decline of 12 per cent. Further, an annual planting rate of even the 1,500 acres planted in 1957, if maintained, is probably only sufficient to establish a bearing area of 25,000 acres at equilibrium, so that overall the general view is for a marked downward trend, although some expansion of the canned product would always be possible by attracting fruit usually diverted to other uses.

South Africa

Details of the area under apricots for the provinces surveyed by the Deciduous Fruit Board are set out in Table 44. The Bureau of Census and Statistics estimates that about 1,000,000 trees, or 10,000 acres, are grown elsewhere. If this is so, the yields per acre estimated in Table 46, would be almost halved to 0.3 to 0.5 tons per acre.

For the purposes of this review, the statistics reported by the Deciduous Fruit Board will be adopted. Total area increased from 25,200 acres in 1949 to 33,700 acres in 1952, but then declined to 32,200 acres in 1955 and a further decline to 30,000 acres is estimated by 1960. Similar trends are evident in the bearing area, which was 21,100 acres in 1955.

TABLE 43
Production and Yield of Apricots—California

Year	Production	Yield per Bearing Acre	Fresh Fruit Canned*	Proportion Canned
	Tons	Tons	Tons	Per cent
1953	205,000	4.8	107,000	52
1954	125,000	3.0	78,000	62
1955	226,000	5.8	136,000	60
1956	166,000	4.4	108,000	65
1957	149,000	4.1	97,000	65
1958	80,000	2.2	58,000	72

* California Crop and Livestock Reporting Service.

TABLE 44
Area of Apricots—South Africa

Year	Non-bearing Area	Bearing Area	Total Area
	Acres	Acres	Acres
1949 ..	11,790	13,450	25,240
1952 ..	9,260	24,400	33,660
1955 ..	11,060	21,120	32,180
1960 ..	n.a.	n.a.	30,000*

* Estimated—Deciduous Fruit Board.

Source: *Fruit Intelligence*, Vol. VII, No. 8 (January, 1958).

TABLE 45
*Plantings of Apricots—South Africa**

Year	Area
	Acres
1951	3,100
1952	3,020
1953	2,650
1954	1,940
1955	35†
Total ..	1,106

* Area of trees planted in various years and still standing 1955.

† Incomplete, as Census was taken part-way through the planting season.

Source: *Fruit Intelligence*, Vol. VII, No. 8 (January, 1958).

Table 45 may be interpreted as indicating the approximate area of annual plantings 1951 to 1954. It is apparent that planting rates exhibited a marked decline from 3,100 acres in 1951 to 1,940 acres in 1954.

Total apricot production increased from 13,200 tons in 1948 to 24,000 tons in 1954, and then declined to 19,000 tons in 1957. (See Table 46.) Yield per bearing area has fluctuated from 0.6 tons to 1.1 tons per acre, which is extremely low and would appear to be a reflection of an extremely low level of horticulture for this crop.

Of the production available, an increasing proportion has been processed. In 1951 approximately 19 per cent of the total production of fresh fruit, or 3,400 tons were canned, while the relevant statistics for 1957 were 18,400 tons or 97 per cent.

An annual depreciation of 2.5 per cent has been adopted for irrigated apricot plantings in other countries. However, in the absence of any definite statistics, and in view of the low yields achieved, it would appear that 5 per cent would be a more realistic figure for South Africa at the present time.

On this basis, and adopting the estimated total area of 30,000 acres in 1960, it may be calculated that bearing area by 1966 would approximate 21,000 acres and hence no expansion from the present situation is likely with production for all uses remaining at about 23,000 tons. In view of the trend in the proportion canned it may well be that the greater proportion will be processed, which would represent some increase on the present position.

Other Overseas Countries

At the present time Australia and South Africa are virtually the only exporters supplying canned apricots to the United Kingdom, and it would appear that canned apricot production is relatively small in all other countries but the United States.

However, while Australia produced 30,000 tons of apricots for all purposes in 1957, South Africa 25,000 tons and the United States 171,000 tons, a number of other countries also produced sizeable quantities, viz., France 106,000 tons, Spain, 83,000 tons, Iran 70,000 tons, Turkey 69,000 tons, and Italy 34,000 tons.

Australia

Canned apricot production in Australia is virtually confined to the States of New South Wales, Victoria and South Australia with Victoria by far the most important. Differences in the nature of the statistics available and questions of special local interest make it convenient to treat each State separately.

VICTORIA

Canning apricot production in Victoria is virtually confined to the Goulburn Valley, so that this analysis will be confined to that district. No consistent trend is evident in the statistics for either area or plantings, as set

out in Table 47. However, as the total area of apricots in the Goulburn Valley in 1958 was 2,230 acres, a slight downward tendency was evident up to 1956. Heavy plantings followed in 1957 (251 acres) and 1958 (177 acres) and total area almost recovered to the pre-1956 situation—this is also true of the bearing area which is indicative of rather heavy plantings in the period 1951-53.

TABLE 46
Production and Yield of Fresh and Canned Apricots—South Africa

Year	Total Production	Yield per Bearing Acre	Fresh Fruit Processed||	Canned Fruit
	Tons	Tons	Tons	Tons
1948	13,200	1.0†	12,630	....
1949	n.a.	....	....	....
1950	n.a.	....	....	....
1951	18,000*	0.7‡	3,400	4,600
1952	14,000*	0.6‡	3,500	4,700
1953	18,000*	0.7‡	6,500	8,800
1954	24,000*	1.1§	9,500	12,800
1955	22,000*	1.0§	11,900	16,100
1956	25,000*	1.1§	15,100	20,400
1957	18,950	....	18,400	24,800
1958¶	n.a.	....	13,200	17,800

* *Fruit*, Vol. 9 (October, 1958).

† Calculated on 1949 bearing area.

‡ Calculated on 1952 bearing area.

§ Calculated on 1955 bearing area.

|| Calculated from *Canned Fruit* on the basis of 50 standard cartons to the ton of canned fruit and 135 doz. A 2½ cans per long ton fresh apricots.

¶ *Source: Fruit Intelligence*, Vol. IX, No. 6 (November, 1959).

TABLE 47
Area, Production and Yield of Apricots—Goulburn Valley

Year	Non-bearing Area	Bearing Area	Total Area	Annual Plantings	Production	Yield per Acre*
	Acres	Acres	Acres	Acres	Tons	Tons
1954 } ..	790†	2,370†	3,160†	74	8,600	3.6
1955 } ..	750	2,290†	3,043†	118	8,400	3.5
1956 ..	607	1,825	2,432	67	2,900	1.3
1957 ..	607	1,825	2,432	251	3,000	1.6
1958 ..	614	1,995	2,609	177	9,400	4.7
1959 ..	n.a.	2,063	n.a.	n.a.	2,800	1.4

* 100 trees per acre.

† Estimated.

Source: C. E. Cole, private communication.

TABLE 48
Area and Planting of Trevatt Apricots—Murrumbidgee Irrigation Area

Year	Non-bearing Area	Bearing Area	Total Area	Annual Plantings
	Acres	Acres	Acres	Acres
1952	365	1,163	1,528	64
1953	419	1,196	1,615	130
1954	490	1,200	1,690	123
1955	474	1,202	1,680	51
1956	340	1,096	1,440	22
1957	396	1,020	1,416	191
1958	444	1,046	1,490	41

Source: Irrigation Research and Extension Committee: *Annual Fruit Tree and Vine Census*.

TABLE 49
Production and Yield of Apricots—Murrumbidgee Irrigation Area

Year	Production Fresh Fruit*	Yield per Acre	Production Canned*
	Tons	Tons	Tons
1954 ..	8,440	7.1	n.a.
1955 ..	5,455	4.5	4,584
1956 ..	7,453	6.2	6,731
1957 ..	5,441	5.0	4,489
1958 ..	4,369	4.3	3,944
1959 ..	6,363	6.1	n.a.

* New South Wales Water Conservation and Irrigation Commission, *Annual Reports*.

As in other parts of Australia, the year to year variation in production is considerable. For the period under review yield varied from 1.3 to 4.7 tons per acre, with an average of 2.7 tons per acre, and total production varied from 2,900 to 9,400 tons. Because of the impact of the 1956 wet Winter upon health and production and the likelihood of improved practices leading to increased yields, it would seem more realistic to adopt a yield of 3.5 tons per acre in estimating production for the near future.

On the basis of the 1958 area of 2,609 acres, six years to bearing and an annual depreciation of 2.5 per cent it is estimated that by 1964 bearing area would approximate 2,200 acres, producing 7,800 tons of fruit, so that no expansion on the present situation appears likely.

NEW SOUTH WALES

The production of canning apricots in New South Wales is virtually confined to the Murrumbidgee Irrigation Areas, and this analysis will be confined to trends in that district. Data on area and plantings is set out in Table 48. Due to plantings of 130 and 120 acres made in 1953 and 1954, both total and non-bearing area increased sharply from 1952 levels to 1,690 acres and 490 acres respectively. However, a considerable decline in area followed in 1956 and 1957, which was offset to some degree by heavy plantings (191 acres) in 1957.

Year to year variation in production, as in other places, is considerable (see Table 49) being as high as 8,400 tons in 1954 and as low as 4,370 tons in 1958. Average yields have varied from 4.3 to 7.1 tons per acre, but averaged 5.5 tons per acre for the period 1954 to 1959. The proportion of production canned varies between 80 per cent and 90 per cent, being greater in years of higher production. Production canned has varied from 3,944 tons to 6,731 tons.

The New South Wales section of the Australian Canning Fruits Advisory Committee has recommended a target production of 6,000 tons for all uses and has further recommended that planting rates should not exceed those necessary to maintain the current area of about 1,000 bearing acres.¹² Estimates based on experienced removal rates, however, indicate that the bearing area may expand to 1,300 acres by 1964, producing approximately 7,200 tons in an average year.

SOUTH AUSTRALIA

From Table 50, it may be seen that while the total area fluctuated between 4,000 acres and 4,250 acres for the period 1953-54 to 1956-57 a sharp increase occurred in 1957-58 to 4,470 acres. This was probably a reaction to the damage which had occurred in canning fruit plantings in the Goulburn Valley and the Murrumbidgee Irrigation Areas during 1956. It was reflected in a sharp increase in plantings from a previous average of about 30 acres to 120 acres in 1956-57 and 195 acres in 1957-58. Bearing area remained at approximately 3,300 acres, although the non-bearing area increased from 670 acres in 1953-54 to 1,110 acres in 1957-58.

Apricots are produced under two sets of conditions, irrigated and non-irrigated and in 1956, of the total area of 4,170 acres, about 56 per cent or 2,340 acres were irrigated and 1,830 acres non-irrigated. W. E. Mount has reported that by 1958 the total area of irrigated apricots had increased to 2,550 acres, while the non-irrigated area was 1,800 acres.

Mount reports also that in 1954-55 about 50 per cent of the non-irrigated apricots were affected by gummosis and that 44,700 trees (447 acres) were removed as a result of the South Australia Department of Agriculture's campaign on this disease between 1954 and 1956. A further 70,000 trees (700 acres) were removed between 1956 and 1958. He further reports that gummosis is still rife "but many of the derelict orchards and badly affected plantings have been eliminated and replacements tend to balance the wastage to a considerable degree."¹³ The standard of culture in the non-irrigated plantings is reported to be low and canned fruit production generally in these areas is regarded as subsidiary to other farm enterprises. A health survey in 1953 indicated that only 44 per cent were in "good" health. "Declining soil fertility is common in all (non-irrigated) districts and only 50 per cent of growers use manures. Soil structure has deteriorated, tree health has suffered and production is declining."¹⁴ About 40 per cent of planting were twenty years or older in 1953.

¹² *Proceedings Ninth Australia Canning Convention*, op. cit.

¹³ W. E. Mount, *Report on Canning Fruit Varieties in the River Murray Irrigation Area*, South Australian Department of Agriculture, mimeo (1959), p. 2.

¹⁴ W. E. Mount, *Report of the Canning Fruits Survey. Section I—Non-Irrigated Districts*, South Australian Department of Agriculture, mimeo (1955), p. 3.

TABLE 50
Area and Plantings of Apricots—South Australia

Year	Non-bearing Area	Bearing Area	Total Area	Annual Plantings
	Acres	Acres	Acres	Acres
1953-54 ..	670	3,390	4,060	25
1954-55 ..	700	3,550	4,250	40
1955-56 ..	790	3,380	4,170	30
1956-57 ..	870	3,140	4,010	120
1957-58 ..	1,110	3,360	4,470	195

Source: T. C. Miller, private communication.

TABLE 51
Production of Apricots—South Australia

Year	Canned Apricots*	Fresh Fruit Canned†	Production—All Uses†
	Cartons	Tons	Tons
1953-54 ..	420,000	7,000	14,580
1954-55 ..	155,000	2,600	9,560
1955-56 ..	398,000	6,600	13,820
1956-57 ..	468,000	7,800	16,150
1957-58 ..	189,000	3,200§	14,900

* Australian Canned Fruits Board, *Annual Reports*.

† T. C. Miller, private communication.

‡ Calculated on basis 120 doz. A 2½ cans to ton fresh fruit.

§ Dry season.

TABLE 52
Summary of Area and Production of Apricots in Australia

State	Bearing Area		Production*	
	1957—58	Estimated 1964	1957—58	Estimated 1964
	Acres	Acres	Tons	Tons
Victoria	1,825	2,200	9,400†	7,800
New South Wales	1,020	1,300	5,440	7,200
South Australia	3,360	3,430	14,900	17,200
Total	6,205	6,930	29,740	32,200

* For all purposes.

† 1958-59.

For the period under review total apricot production varied widely from 9,560 tons to 16,150 tons (see Table 51). Quantities processed also varied widely from 2,600 tons to 7,800 tons, and in years of high production have approximated 50 per cent of total fresh fruit produced. In 1956, 56 per cent of irrigated apricots and 40 per cent of non-irrigated apricots were canned.

T. C. Miller has suggested that average yields would approximate 2 to 3 tons per acre for non-irrigated areas and 6 to 7 tons per acre for irrigated.¹⁵ He further estimates that rates of removal would approximate 5 per cent per annum for all plantings. In estimating future bearing area and production, depreciation rates of 2.5 per cent per annum for irrigation districts and 5.0 per cent for non-irrigated districts have been adopted, as well as average yields of 2.5 and 6.5 tons per acre, respectively. On this basis, and working from the 1958 figures, it is estimated that the bearing area of irrigated trees would approximate 2,170 acres in 1964, producing 14,100 tons, and the bearing area of non-irrigated plantings would be 1,260 acres, producing 3,150 tons. Total production would thus be 17,200 tons, so that if a 50 per cent diversion to canneries is maintained the quantity of fresh fruit canned would approximate 2,600 tons, which would represent an increase of only 10 per cent on the 1956-57 figure of 7,800 tons.

SUMMARY

To summarise the situation in regard to Australia as a whole the bearing area of apricots in 1957-58 was 6,200 acres and on the basis of the estimates made previously this will probably expand by 15 per cent to approximately 6,900 acres by 1964 (see Table 52). South Australian production will still dominate the Australian scene in regard to apricots for all purposes, but production for canning will probably remain fairly evenly divided as between States. Nevertheless, the South Australian industry will possess a capacity for rapid expansion should the market situation warrant it.

5. PINEAPPLES

Pineapples present a somewhat different problem to tree fruits in estimating future trends, in that they come into bearing relatively quickly, in from eighteen to twenty-four months, and their average life is relatively short, ranging up to five or six years. Crops are harvested twice a year, so that annual production figures represent the result of two harvests. The net result is that bearing area can change very quickly to meet altered market situations, although, as with other perennial crops, most areas once planted would remain in production as long as returns provide a margin over current costs.

All countries, except the United States, producing canning pineapple for export depend to a very large extent upon export markets for the disposal of their product. The sharp reduction in prices of canned pineapple on export markets since 1955 might be expected to be reflected in area and production trends. This is certainly true for Malaya, and perhaps Taiwan; however, the industries in South Africa and Australia, on the latest figures available, show signs of continued expansion in the face of this trend.

¹⁵ T. C. Miller, private communication.

Competition will probably become increasingly keen as countries such as Malaya and Taiwan implement steps to improve industry efficiency. South Africa would appear to be at some considerable disadvantage from the point of view of yield per acre.

United States

Canned pineapple production in the United States is practically confined to Hawaii, and consideration of trends will be confined to that State.

The industry is very highly organised and field production is closely allied with the big canneries, so that trends in area no doubt are adjusted to the market situation and the capacity of cannery plant. In 1948 the total area under pineapples was 68,000 acres; this increased to 73,600 acres in 1951, and then a further expansion took place in 1955 to 77,000 acres. Production has followed a similar trend, increasing from 228,000 tons of canned pineapple in 1948 to 369,000 tons in 1957 (see Table 53).

It is apparent that the Hawaiian industry has a very large capacity and at the moment production would appear to be geared to the needs of the home market. Nevertheless, a considerable export trade has been developed which accounts for about 20 per cent of production. It is of interest that of the total of 44,500 tons of canned pineapple exported from the United States in 1957, Western German markets received 17,500 tons.

Because of the close relationship which exists between canneries and field production, it seems unlikely that there will be any sudden large surplus production to be placed on export markets. It appears more likely that any development to supply export markets would be the result of continued steady development of markets which appear to offer long-range economic prices for sizeable quantities.

South Africa

The available data regarding area is rather inadequate from the point of view of following trends but is set out in Table 54. It is apparent that a considerable expansion occurred between 1945 and 1950 when area increased from 20,000 to 30,000 acres, and again between 1950 and 1954 when the area further increased to 46,000 acres, which represents a proportionate change of 50 per cent. Thereafter it would appear that little change occurred, although this is contradicted to a degree by the expansion in production of canned pineapple in 1957 and 1958.

Fresh fruit production has followed a similar trend to area, increasing by nearly 50 per cent, from 50,000 tons to 90,000 tons, between 1951 and 1957. Yields per acre seem low at about 1.5 to 1.8 tons.

On the basis of the information available, little more can be said than to add that, despite the market situation since 1955, South African production of canned pineapple has continued to expand and, in fact, it actually doubled in the period 1954 to 1958.

Malaya

Following World War II the area devoted to pineapples increased sharply from 13,800 acres in 1946 to 23,000 acres in 1953, and 45,500 acres in 1957, after which a sharp decrease of 33 per cent occurred to 30,000 acres in 1959 (see Table 55).

TABLE 53

Area and Production of Pineapples—Hawaii

Year				Area	Production Canned Pineapples
				Acres	Tons
1948	..	..	..	68,000	228,000
1949	..	..	..	68,000	274,000
1950	..	..	..	70,700	269,000
1951	..	..	..	73,600	288,000
1952	..	..	..	73,500	294,000
1953	..	..	..	73,200	338,000
1954	..	..	..	73,200	332,000
1955	..	..	..	77,000	328,000
1956	..	..	..	77,000	369,000
1957	..	..	..	77,000	360,000

Source: *Statistics of Hawaiian Agriculture, 1957*, Agricultural Economics Report No. 35—Hawaiian Crop and Livestock Reporting Service.

TABLE 54

Area and Production of Pineapples—South Africa

Year	Area	Production Canned Pineapple*	Production Fresh Fruit—All Uses*
	Acres	Tons	Tons
1945	20,000	n.a.	n.a.
1950	30,000	n.a.	n.a.
1951	n.a.	6,600	50,000
1952	n.a.	4,700	45,000
1953	n.a.	9,900	65,000
1954	46,000	16,700	75,000
1955	n.a.	11,700	70,000
1956	45,000	15,900	80,000
1957	n.a.	25,600†	90,000
1958	n.a.	29,900†	n.a.

* *Fruit*, Vol. 9 (October, 1958).

† *Fruit Intelligence*, Vol. VIII, No. 9 (February, 1959).

TABLE 55
Area and Production of Pineapples—Malaya

Year	Total Area	Area for Canning‡			Fresh Fruit for Canneries†‡
		Small Growers	Canneries	Total	
	Acres	Acres	Acres	Acres	Tons
1946 ..	13,800	n.a.	n.a.	n.a.	n.a.
1948 ..	16,100	n.a.	n.a.	n.a.	n.a.
1953 ..	23,900	10,000	9,000	19,000	55,000
1954 ..	27,900	12,000	9,000	21,000	71,000
1955 ..	34,800	16,000	14,000	30,000	76,000
1956 ..	44,700	19,000	19,000	38,000	112,000
1957 ..	45,500	17,000	20,000	37,000	142,000
1958 ..	40,000*	13,600§	19,000§	32,600§	153,000
1959 ..	30,000*	n.a.	n.a.	n.a.	n.a.

* Estimated.

† Includes fruit for processing in Singapore factories which use Malayan pineapple almost exclusively.

‡ *Fruit Intelligence*, Vol. VIII, No. 11 (April, 1959).

§ Bearing acres.

TABLE 56
Area and Plantings of Pineapples—Taiwan

Year	Non-bearing Area	Bearing Area	Annual Plantings	Total Area*	Annual Removals
	Acres	Acres	Acres	Acres	Acres
1954 ..	1,875	11,900	4,125	17,900	850
1955 ..	4,125	9,400	4,270	17,795	4,425
1956 ..	4,270	11,500	4,775	20,545	2,000
1957 ..	4,775	13,400	3,950	22,125	2,400
1958 ..	3,950	15,600	3,675	23,225	2,650

* Total Area = non-bearing + bearing + plantings.

The pineapple industry is very largely tied to canneries, in that 80 per cent of the area has been planted for this purpose and trends in the area for canning have been parallel to total area, increasing by 94 per cent from 19,000 acres in 1953 to 37,000 acres in 1957. Further, production for canning is divided between the plantations of small growers and those of the canneries. In 1953 cannery plantations represented 47 per cent or 9,000 acres, but by 1957 the proportion had increased to 53 per cent. or 20,000 acres. In the same period production for canning had almost trebled from 55,000 tons to 142,000 tons. As the area for canning had only doubled in the same period, it is apparent that yields per acre also increased considerably, and probably chiefly on cannery plantations. The figures available indicate a yield of about 3.0 tons per acre (bearing plus non-bearing) in 1954, and about 3.8 tons per acre in 1957.

The trend towards an increased proportion of cannery plantations is perhaps an indication that the processing industry is seeking the close tie between available markets and field production, which is a feature of the Hawaiian industry.

In common with the canned pineapple industry in other countries, the Malayan industry faced falling price levels on overseas markets since 1955. As a result, two of the five plants shut down in December, 1958, and the remaining three were confining their operations to fruit from their own plantations. As a consequence of these trends, the Governments of the Federation of Malaya and Singapore set up a Commission of Enquiry into the Pineapple Industry of Malaya, which commenced its investigation in July, 1959.

Clearly the future development of the industry will depend upon improved prices (which appear unlikely for some years at least) and/or improved industry efficiency which would naturally take some time to be implemented. It is apparent that the state of the industry is a matter of considerable concern to the Government and an increased effort to expand may be anticipated, if it can be reorganized on a profitable basis, otherwise we may see a gradual decline.

Taiwan

In the period 1954 to 1958 the area under pineapples increased steadily by 30 per cent from 17,900 acres to 23,200 acres (see Table 56). Bearing area increased by a similar proportion from 11,900 acres to 15,600 acres for the same period. Non-bearing area increased from 1,875 acres in 1954 to 4,775 acres in 1957 and then declined slightly to 3,950 acres in 1958, evidently a response to reduced planting rates which declined from 4,775 acres in 1956 to 3,675 acres in 1958.

The Government has published a Four-Year Economic Development Plan in which it appears mention has been made that improvement in agricultural technique and quality of canned pineapple are the main points of future development. Standards for the establishment of pineapple canneries have been introduced and are being rigidly enforced with a view to improving the quality of canned pineapple, in order to capture a larger share of the overseas market. This suggests that the impact of reduced export prices has stimulated a drive for efficiency without arousing pessimism as to the ability of the industry to compete. On the other hand, the reduced rate of planting for 1957 and 1958 may indicate some decline in confidence.

Production increased by 50 per cent between 1954 and 1957 from 65,000 tons of fresh fruit to 100,000 tons (see Table 57). At the same time, yields increased from 5.5 to 7.5 tons per bearing acre, indicating some success in the drive for improved agricultural techniques. However, it is considered that the annual rates of planting are probably only sufficient to maintain the 1958 bearing area of about 15,600 acres, so that taking into account the currently depressed state of the export market it seems unlikely that production would take a marked upward trend at an early date. Nevertheless, the importance which the Government places on the industry and the expressed wish for greater efficiency and a larger share of the market suggests a continued pressure to expand.

TABLE 57
Production and Yield of Pineapples—Taiwan

Year	Fresh Fruit Produced	Yield per Bearing Acre	Yield per Acre (Total)
	Tons	Tons	Tons
1954 ..	65,000*	5.5	3.6
1955 ..	63,000*	6.7	3.5
1956 ..	75,000*	6.5	3.7
1957 ..	100,000	7.5	4.5
1958 ..	136,000	n.a.	n.a.

* Source: *Fruit*, Vol. 9 (October, 1958).

TABLE 58
Area and Yield of Pineapples—Queensland

Year	Non-bearing Area*	Bearing Area*	Total Area†	Yield per Acre‡	New Plantings
	Acres	Acres	Acres	Tons	Acres
1955 ..	2,200	4,600	9,400	8.9	2,600
1956 ..	2,200	5,400	10,100	7.0	2,500
1957 ..	2,500	5,900	11,800	5.2	3,400
1958 ..	3,400	6,400	13,900	5.3	4,140
1959 ..	4,140	8,500	n.a.	n.a.	n.a.

* Committee of Direction of Fruit Marketing—private communication. Data relates to suppliers to canneries.

† Total area is equal to sum of new plantings, bearing and non-bearing area.

‡ Calculated on total area.

TABLE 59
Production of Pineapples—Queensland

Year	Total Fresh Fruit	Fresh Fruit Processed	Canned Pineapple
	Tons	Tons	Tons
1950* ..	50,000	31,000	11,400
1951* ..	44,000	26,000	10,000
1952* ..	27,000	10,000	42,000
1953* ..	57,000	36,000	15,100
1954* ..	61,000	54,000	22,200
1955† ..	84,000	63,000	26,900
1956† ..	71,000	54,000	23,300
1957† ..	71,000	44,000	18,500
1958† ..	73,000	56,000	....
1959†‡ ..	100,000	70,000	....

* Adapted from Fruit Industry Sugar Concession Committee, *Annual Report*, 1958.

† Committee of Direction of Fruit Marketing—private communication.

‡ Estimated.

Australia

The production of canned pineapple in Australia is virtually confined to Queensland, and this analysis will deal with trends in that State.

Between 1955 and 1958 the total area increased by 48 per cent, from 9,400 acres to 13,900 acres (see Table 58). Bearing area increased steadily by 85 per cent in the period 1955 to 1959, from 4,600 acres to 8,500 acres. A similar trend is evident in the figures for non-bearing area resulting from increased annual plantings, which were 2,600 acres in 1955, compared with 4,140 acres in 1958.

Table 59 sets out the figures for annual production for the period 1950 to 1959. By 1955 production had increased from 50,000 tons to 84,000 tons, and fresh fruit processed from 31,000 tons to 63,000 tons. However, despite the fact that the bearing area continued to expand in the years following, production declined to 61,000 tons in 1957, of which only 44,000 tons were processed. Some increase followed for both total production and quantity processed in 1958, and a sharp upward movement was predicted for 1959, such that a total production of 100,000 tons, with 70,000 tons processed, was anticipated. Statistics available to date indicate that some 42,000 tons of the 1959 summer crop were processed, which represents an increase of about 80 per cent on the previous summer. The reduced production for the year 1956 to 1958 was associated with lower yields, which fell to 5.2 tons per acre (bearing plus non-bearing) in 1957, compared with 8.9 tons in 1955.

The general picture is, then, that despite the difficulties which have been set in marketing since 1955, the area devoted to pineapples has continued to expand, while yield per acre has declined.

Industry efficiency is probably affected by its ability to market at economic prices considerable quantities of the juice by-product. It may be pertinent, then, to note that in 1957 Hawaiian pineapple juice production approximated 13,000,000 cases and that Australian production was 425,000 cases, while Malaya produced only 60,000 cases and South Africa 273,000 cases. In Hawaii, for every fifty cases of canned pineapple thirty-three cases of juice are produced. The comparative figure for Australia is twenty-one, for South Africa eleven, and Malaya two. It would appear that proportionately to total pack of fruit, large quantities of juice have been discarded in Malaya and South Africa.

6. CONCLUSIONS

Considerable expansion in the production of canned peaches, pears and apricots will probably occur in Australia during the next five years. The situation with regard to pineapples is rather obscure, but it is likely that strong efforts will be made to maintain the industry at its present level, if not to expand it.

Whether these trends, in fact, constitute a problem would require a detailed analysis of the various markets, including the Australian market. Nevertheless, it is suggested that expansion of production is not necessarily undesirable and whether it proves to be desirable or not will depend upon

population growth, and changing standards of living and food habits in the world's markets in the long run and industry efficiency, marketing and merchandizing in the short run.

Post-war expansion of the Australian industry has taken place in a situation of protected markets, chiefly as a result of currency control in the United Kingdom, which virtually excluded competition from the strong United States industry. It would appear that during this period most of the Australian production could be disposed of either at home or in the United Kingdom and very little development of other markets by Australia occurred.

On the other hand, the exclusion of the United States from the United Kingdom market was followed by a gradual increase in the quantities of American production reaching other markets, notably Western Germany, Canada, Belgium, Sweden and Switzerland.

With increased dollar allocations for canned fruit and complete decontrol for some other goods in the United Kingdom it is apparent that Australian canned fruit must face a new trade situation in the future.

On the basis of the preceding analysis it appears that there will be a considerable increase in the quantities available from all major exporting countries and there are indications of development in some other countries such as Italy, Spain and the Argentine which would add even further to the volume entering international trade.

The general outlook, then, is one of increased competition on all export markets, with a consequent depressing effect on prices; indeed, some reduction in price has already occurred. It would appear, therefore, that if the Australian industry is to maintain its position and profitably dispose of the increased quantities which are likely to be available in the near future it will need to develop both the Australian and export markets through sound sales promotion techniques.

The downward trend in prices which has already been experienced stresses the need for increased efficiency in all sections of the industry. Canning fruit-growers will need to seek higher yields per acre and lower costs of production through more careful attention to all cultural matters such as land use, irrigation, pest and disease control, etc., and canneries will need to examine canning techniques, labour utilization and the consumer appeal of both the product and its container. Both sides of the industry should use imagination as well as logic and be ready to experiment with new techniques, such as bulk handling, in an effort to reduce costs and improve the product.