SOME ECONOMIC ASPECTS OF VEGETABLE MARKETING*

With Special Reference to Seasonal Price Patterns

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1. INTRODUCTION

Comparatively little attention has been given by agricultural economists to the many industries associated with the production and marketing of vegetables. The relative unimportance of vegetables, as measured by the value of production may explain this neglect. In 1956-57 for example, the value of potato production in Australia was estimated at £22 million, while all other vegetables were valued at £26 million, as compared with a gross value of agricultural production of £347 million and a total rural output of £1,157 million.[1]

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* Prepared and compiled by officers of the Prices Section, Division of Marketing and Agricultural Economics.

[1] "Australian Rural Production and Exports," *Quarterly Review of Agricultural Economics,* Vol. X, No. 2 (April, 1957), p. 64.

The fact that domestic marketing of vegetables has also received little attention probably reflects the lack of reliable information concerning these trading operations. Apart from some incomplete records relating to arrivals of vegetables like potatoes, peas and beans on to certain Sydney markets, the quantity of vegetables marketed in New South Wales is not recorded and, because of the administrative difficulties involved, no official estimates are available as to the volume of vegetable products traded in markets such as Sydney. However it has been officially estimated that vegetables produced in New South Wales for human consumption had a value, at principal markets, of £8.5 million in 1955-56.[2] By far the most important vegetable crops on the basis of gross value were potatoes, green peas and tomatoes.

Comparatively little export trade is carried on in New South Wales vegetables but substantial quantities are imported from other States. The outstanding example of this import trade relates to potatoes, especially to imports from Tasmania, Victoria and more recently Queensland. In 1956, for example, about 54,000 tons of potatoes were known to be imported into New South Wales, of which about 34,000 tons were of Tasmanian origin. Information as to imports from Victoria and Queensland is less reliable than that pertaining to Tasmanian imports, but in 1956 the quantity of potatoes imported from Victoria would have been at least 15,000 tons, while imports from Queensland were somewhat in excess of 3,500 tons. The total market value of this import trade in 1956 is estimated to have been in the vicinity of £5 million. In 1957 total imports increased to more than 70,000 tons, the most significant increases being recorded by Tasmania and Queensland. It is reasonable to assume that the much lower prices obtaining on Sydney wholesale markets in 1957 dissuaded many growers, especially those in Victoria, from consigning to Sydney as many potatoes as were available for marketing. It is interesting to note that while imports into New South Wales increased about 30 per cent from 1956 to 1957, the total value of import trade in potatoes in the latter year was approximately half that of the former.

Peas would generally constitute the second most important vegetable of interstate origin to be traded on the Sydney wholesale markets. In 1957, for example, almost 4,500 tons of peas from Victoria were received into those markets.

It is obvious that the volume and value of turnover in the Sydney wholesale vegetable markets can fluctuate widely as between one year and the next and that there is at present no practicable means of accurately computing either the volume or value of such trade. Even on conservative estimates, however, the value of this trade justifies the provision of more detailed information about Sydney's vegetable markets.

The present article is designed to supply some of the preliminary information of interest to those directly concerned with vegetable marketing. The central portion of the article comprises graphs of the seasonal price patterns for each of nine vegetable products together with notes on each

[2] Commonwealth Bureau of Census and Statistics.

of the commodities graphed. In addition, there are observations on the general prospects for the vegetable industries and the type of information likely to be of service to the producers and distributors of vegetable products.

For the purpose of publication, it has been necessary to effect a compromise between the type of information desired by growers and that sought by readers with a more academic interest in marketing. The article can be studied usefully by those people with a direct interest in vegetable trading when used in conjunction with the extension pamphlet *Marketing Perishable Vegetables*, already issued by the Department.

2. VEGETABLE MARKETS IN SYDNEY

Vegetables are sold in various wholesale markets in the city of Sydney, the main market being the City of Sydney Fruit and Vegetable Markets located at Haymarket, near the Central Railway. There are more than 200 firms operating in these markets on behalf of growers. Space has also been set aside for growers who wish to sell their own produce. In addition there is a primary wholesale market for such vegetables as potatoes, pumpkins and onions at Alexandria. Produce arriving by rail and road from local and interstate sources is sold at Alexandria by individuals and firms operating either as merchants or agents. In the last two years there has also arisen at the Alexandria markets the practice of auctioning new season's potatoes mainly from local districts. Potatoes arriving by sea, mainly from Tasmania, are distributed from Sussex street, Sydney. In all there are approximately 300 farm produce agents registered in New South Wales, most of whom operate in Sydney.

3. THE ROLE OF THE DEPARTMENT

Apart from the Department of Agriculture's more obvious interest in the production of vegetable crops, there are three legislative enactments which involve various Divisions within the Department administratively in the marketing of such products. These Acts are:

(i) The Plant Diseases Act, 1924.

(ii) The Farm Produce Agents Act, 1926-1932.

(iii) The Marketing of Primary Products Act, 1927-1956.

The Plant Diseases Act, 1924

Regulations made in pursuance of this Act specify grades for potatoes and tomatoes. Departmental inspectors are empowered to examine consignments of these commodities to ascertain whether or not they conform to the grades specified in the Regulations.

The Farm Produce Agents Act, 1926-1932

The Farm Produce Agents Act, 1926-1932, provides for the registration of agents and the regulation of their activities by requiring them to furnish bonds from an approved insurance company, in order to protect growers against the misappropriaton of the proceeds from selling their produce and also by requiring them to keep the proper books and accounts relating to their transactions as farm produce agents. The fees and commissions which an agent may charge are fixed by regulation. In the case of vegetables, potatoes or other edible roots or tubers the commission is $7\frac{1}{2}$ per cent of the price realised except where the agent sells farm produce outside a radius of ten miles from the General Post Office, Sydney, in which case the commission is 10 per cent.

A co-operative society disposing of the agricultural products of its members only is not covered by the provisions of the Farm Produce Agents Act.

The Marketing of Primary Products Act, 1927-1956

The Marketing of Primary Products Act, 1927-1956, provided for the establishment of a State Marketing Bureau (now incorporated into the Division of Marketing and Agricultural Economics) to collect information about, and keep continuous records relating to the production, marketing and prices of primary products.

As part of its commitments under this Act the Division publishes a daily report of trading in the City of Sydney vegetable markets and of trading in vegetables in the primary wholesale markets at Alexandria. A special report is also prepared daily for broadcast by the Australian Broadcasting Commission. A summary of the week's trading in vegetables is included in the *Weekly Marketing Notes* prepared each Wednesday. Growers, rural and metropolitan newspapers, traders and many other individuals avail themselves of this free market information.[3]

Wherever possible the Division has kept continuous records of market prices and it is on the basis of price records for the past decade that the following graphs have been made.

4. THE GROWERS' MARKETING PROBLEMS

A producer who has taken care to grow a good crop will naturally also give careful thought to the marketing of his product. This will involve consideration of such matters as proper grading and presentation, where and when he can sell to best advantage and whether to sell through an agent or on his own account. The subject of grading and packing of vegetables has been adequately dealt with in the extension pamphlet already mentioned.

[3] The problems involved in market reporting have been well described in the *Queensland Fruit and Vegetable News* of November 14, 1957, in an article by G. Short and N. H. Hall, entitled "Market Reports—Why and How".

Broadly, the vegetable producer has the choice between three alternative sales outlets, viz.: a processing factory, local stores or country towns and the city wholesale markets. In the case of factory sales, his returns are secured by contract and he is relieved of certain marketing expenses; however, his returns may subsequently seem low in comparison with rates ruling in the markets for fresh vegetables. Little is known about the extent of local and country trading, but it does offer a useful outlet which can be exploited to advantage. During the late winter months of 1957, for example, when potato prices were unexpectedly low in the city, some potato growers in tableland districts were able to dispose of their crops locally on a comparatively favourable basis, mainly because of the saving in freight charges to more distant markets.

For many growers, however, the main outlet for their vegetables is the Sydney market, thus involving them in the need to study operations on that market, especially with a view to selecting a suitable agent and arranging consignments to agents in such a way as to obtain, as often as possible, the best average returns available.

Some agents in the city markets tend to specialise in either fruit or vegetables and in addition some concentrate on particular lines of vegetables, *e.g.*, peas and beans. It is important, therefore, for a grower to consider such facts before selecting his agent and, having made the selection, it is also desirable that the grower should have some personal contact with his agent. Skill in selling varies as between agents and the grower can only assess the relative merits of his contacts by experience and reliable opinions from fellow-growers. However, direct comparison of returns on particular consignments may not always constitute an accurate basis for determining the selling skill of an agent for here again practice varies. Some agents will hold out for the highest price which the market will, in their opinion, pay; others will reduce prices in order to clear stocks, again according to their own assessment of the market. Still others will try to avoid some of the extreme price fluctuations; that is, they do not force prices to their highest levels in times of relatively short supply so that they can retain their clients, probably at better than average prices, when supplies are more plentiful.

Although the grower has the protection of the special provisions of the Farm Produce Agents Act the relationship between the grower and agent should logically develop on the same basis as in any other business transaction, namely, mutual trust and respect. If either party is dissatisfied with the other's performance he is free to end the business association.

As mentioned earlier, a bona-fide grower is entitled to sell his own produce in the growers' section of the city markets and many growers do avail themselves of this opportunity. However, in choosing to sell his own produce rather than use an agent, the grower must assess the net advantage to himself. By doing his own selling the grower involves himself in a loss of time from farm duties and the risk of a carry-over, especially in times of heavy supply, say, of cauliflowers and cabbages. He also needs to develop the relatively specialised skills of selling and particularly of gauging the tone of the market. As against this, the grower-seller probably considers he has kept his marketing costs to a minimum and that every effort has been made to obtain the best returns.

The timing of consignments to city markets, as far as it is within control of the grower, also requires careful consideration. With some crops the grower has little or no choice in this matter, but with many vegetable crops there may be a period of several days or more during which the crop could be harvested without appreciable change in market quality. Where the grower has a number of alternative harvest days available to him, his decision to market on a particular day is likely to be influenced by a variety of factors, some of which may not be readily apparent to an observer in the markets. However, it can be assumed that generally growers are mainly influenced by the condition of the crop to be marketed, qualified in some instances by an assessment of market prospects which is likely to represent the consensus of opinions of fellow-growers and other personal contacts. It often seems that a grower becomes interested in the details of vegetable markets as reported in the press or on the radio only after his produce has been consigned and his interest is therefore directed to obtaining some guide or check for market returns on particular consignments. More astute growers will make a study of reliable market reports, together with their own performance on the market, keep in close contact with their agents and try, over a period of years, to develop a knowledge of supply and price patterns. It is mainly to provide assistance in this aspect of marketing that the present article has been written.

5. SEASONAL PRICE PATTERNS OF SELECTED VEGETABLES

Statistical Bases of Computation

The basic data upon which the following nine graphs have been compiled are the prices collected each day in the City of Sydney wholesale vegetable markets. From these daily prices monthly averages have been computed for each of the vegetables over the ten-year period from 1948 to 1957. The average monthly prices were used to compute an average annual price for each of the years from 1948 to 1957, and the price for each month was then expressed as a percentage of the appropriate average annual price, which is represented on the graph as 100 per cent. This meant that for each month of the year there were ten percentage figures and by taking an average of these ten figures it was possible to draw a graph showing how the prices for each month would, on the average, compare with the seasonal average. In the case of cauliflowers and tomatoes (both glasshouse and local field-grown tomatoes) it was decided to compute prices on a half-monthly basis as average monthly prices would not have provided the desired level of accuracy.

It is not necessary for the grower to master all the implications of the statistical methods employed. For his purpose it is probably sufficient to know that each graph gives a reliable indication of the average variation in the market price of that particular vegetable for each month of the season in the market conditions prevailing from 1948 to 1957.

The vegetables plotted on these graphs have been selected partly because of their significance in vegetable marketing and also because sufficient price quotations were available to provide a reasonably reliable price pattern. A

notable omission from the selection of vegetables is potatoes. It will be appreciated, however, that the differences in potatoes, *e.g.*, in quality, variety, source and whether new season or old season potatoes have made it impossible to obtain seasonal price patterns for this product.

Variations in prices of vegetables on particular market days and also as between one day or period and the next can be quite considerable. These wide variations create difficult problems, both for the official attempting to report the market as a whole and also for the statistician, who is concerned with devising average prices which will fairly represent market prices for any given period or choosing a reliable basis for the computation of seasonal price patterns.

The Sydney market for tomatoes in December, 1957, provides a striking example of the variation mentioned above. Early in the month, the supply of local field-grown tomatoes increased because of water restrictions and the consequent necessity to pick as much fruit as possible in order to save heavily-laden plants. Many of the tomatoes marketed were mature-green and very slightly coloured. Glasshouse tomatoes were neglected by buyers in favour of "smooth-skin" tomatoes, and these latter sold generally at 14s. 0d. to 24s. 0d. on Thursday, December 5, but were mainly 8s. 0d. to 20s. 0d. per half-case on the following day. As a result of the purchase of tomatoes suitable for despatch to Brisbane, prices improved somewhat on the following Monday, Tuesday and Wednesday, when "smooth-skin" tomatoes ranged mainly from 12s. 0d. to 16s. 0d. per half-case. Continued buying for the Brisbane market kept prices fairly firm for choice mature-green and semi-coloured tomatoes, and local field-grown "smooth-skin" tomatoes ranged generally from 8s. 0d. to 16s. 0d. per half-case until December 17. Even greater variation in price was evident during the remainder of the month; up to December 24, prices ranged from 18s. 0d. to 70s. 0d. and thereafter 6s. 0d. to 35s. 0d. per half-case. Extremes in quality and pack would result in prices outside the ranges quoted and the quality most in demand on the market could itself vary. For example, during the greater part of the last fortnight there was a strong demand for choice semi-coloured fruit, but on the three or four market days preceding Christmas Day only choice well-coloured tomatoes sold readily.

In thus drawing attention to the limitations as well as the utility of market reports and price quotations, it is important to stress the desirability of growers having some personal contact with the trade in vegetables on their main market. Visits to the market will enable the grower to appreciate the variations in quality and condition of produce traded and the wide variations in prices quoted. Such visits will also give the grower an opportunity to see how his produce compares with competing consignments on the market. There is often a big difference between the quality or condition of produce as it appears to the grower on his farm and the same produce in the market. This difference is often responsible for many growers being unable to reconcile their actual market realisations with the prices quoted in the market reports.

Graphs of Seasonal Price Patterns

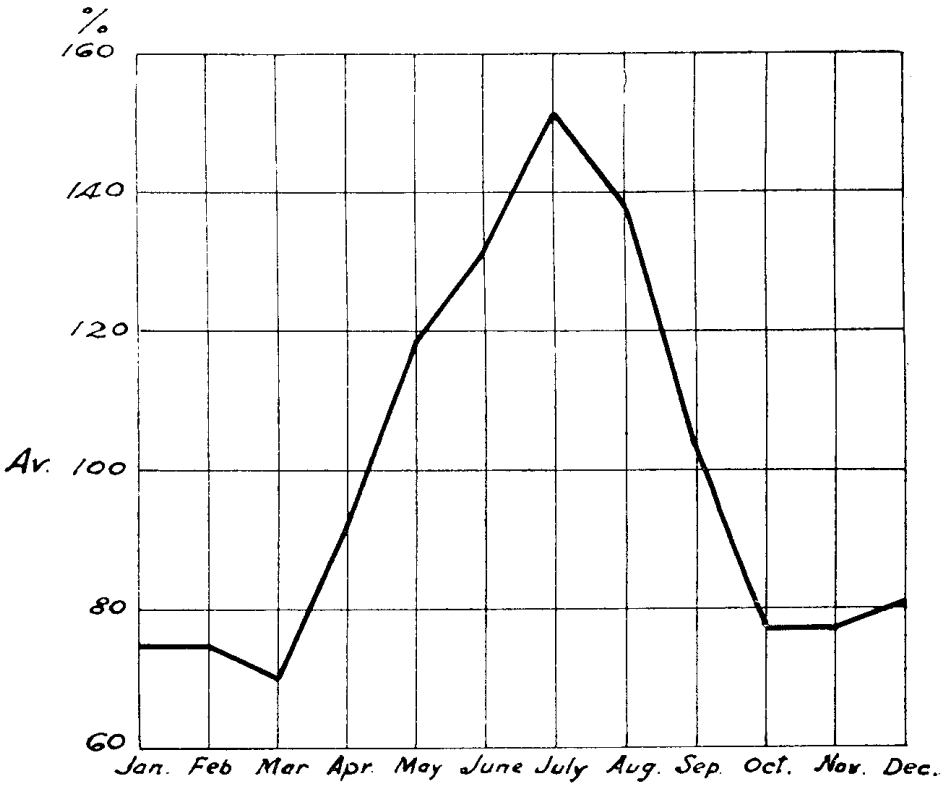

Fig. 1. Seasonal Price Pattern for Peas

There is a very close inverse relationship between the supply and price of peas, hence, when supplies are light during the winter months there is a steep rise in average prices culminating in a seasonal peak in July. During this period peas are being received mainly from North Coast growing centres where production usually begins in May and tapers off in September, or later, according to seasonal conditions. Other growing areas will consign to Sydney whenever possible during the period of high winter prices, e.g., peas are received from Victoria and South Australia in May or June.

The months of low average prices correspond with the period of heavy production, the largest consignments being received usually from Central Tableland and Victorian districts. Supplies from Metropolitan and South Coast areas are usually received in autumn and spring.

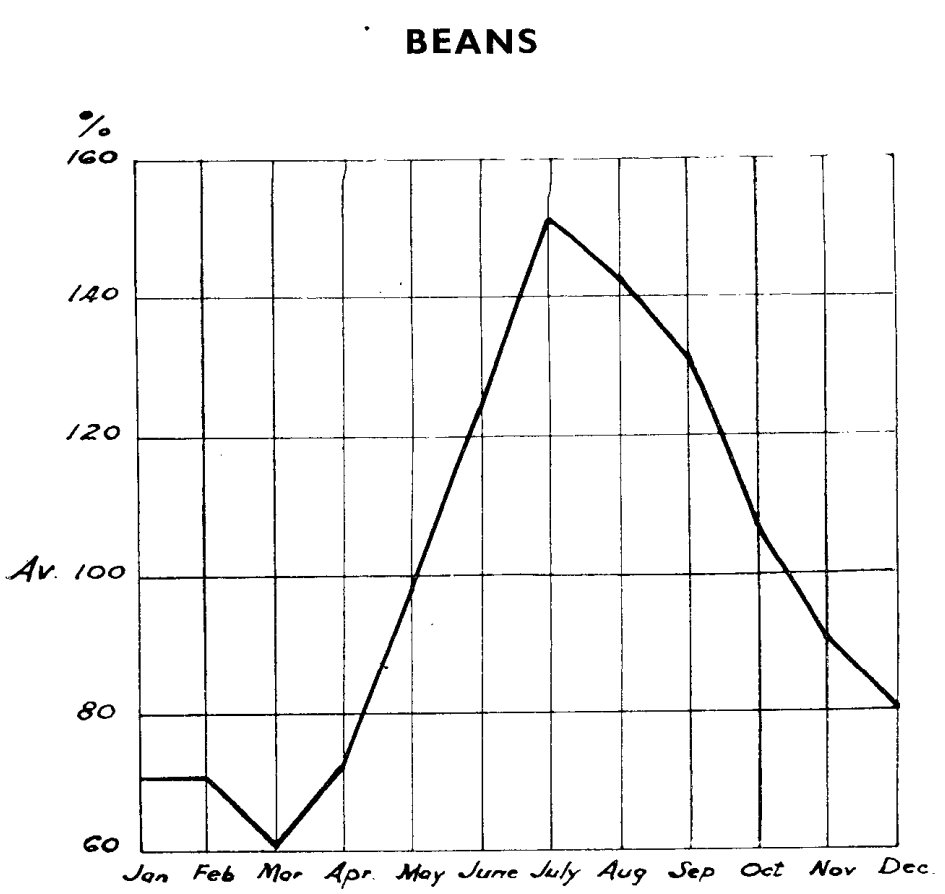

Fig. 2. Seasonal Price Pattern for Beans

As with peas the seasonal price pattern for beans is closely related to the inverse of the supply pattern. High prices occur in the period of short winter supplies and the seasonal peak during the past ten years has usually occurred in July. There has been an interesting shift in the seasonal peak over a period of years; from 1934 *to* 1939, *for example, the period of highest prices occurred in September; in the years from* 1944 *to* 1949 *the seasonal peak occured in August. This shift of the seasonal peak from September back to July may be explained by an increase in supplies of beans from North Coast and Queensland districts in late winter and early spring months.*

The low prices in March are probably due to the arrival of heavy supplies of beans from Metropolitan and South Coast districts and also Victoria. In South Coast districts there are extensive sowings of beans which can be kept for seed if prices on the fresh market are too low.

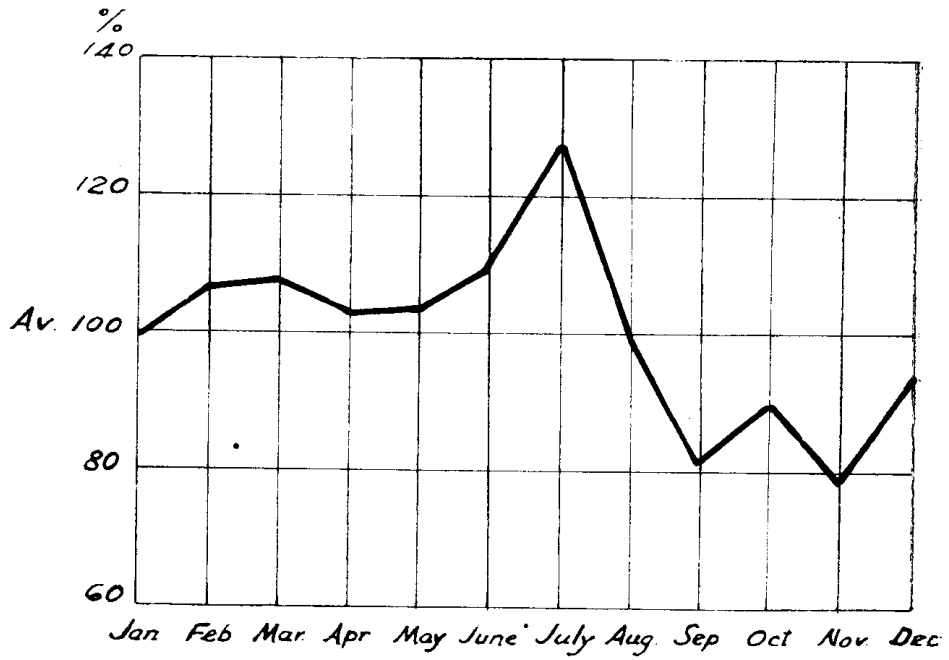

Fig. 3. Seasonal Price Pattern for Cabbages

The peak in the seasonal price pattern for cabbages, i.e., July, corresponds with the usual period of greatest supply. This apparent paradox may be explained by the fact that in July all other vegetables, and especially peas and beans, are in short supply and vegetable prices generally are at very high levels.

With a general increase in vegetable supplies in spring and early summer months the price of cabbages declines below the seasonal average but usually begins to rise again in December when supplies are relatively light. Supplies are fairly light during the early months of the year and prices are above the seasonal average.

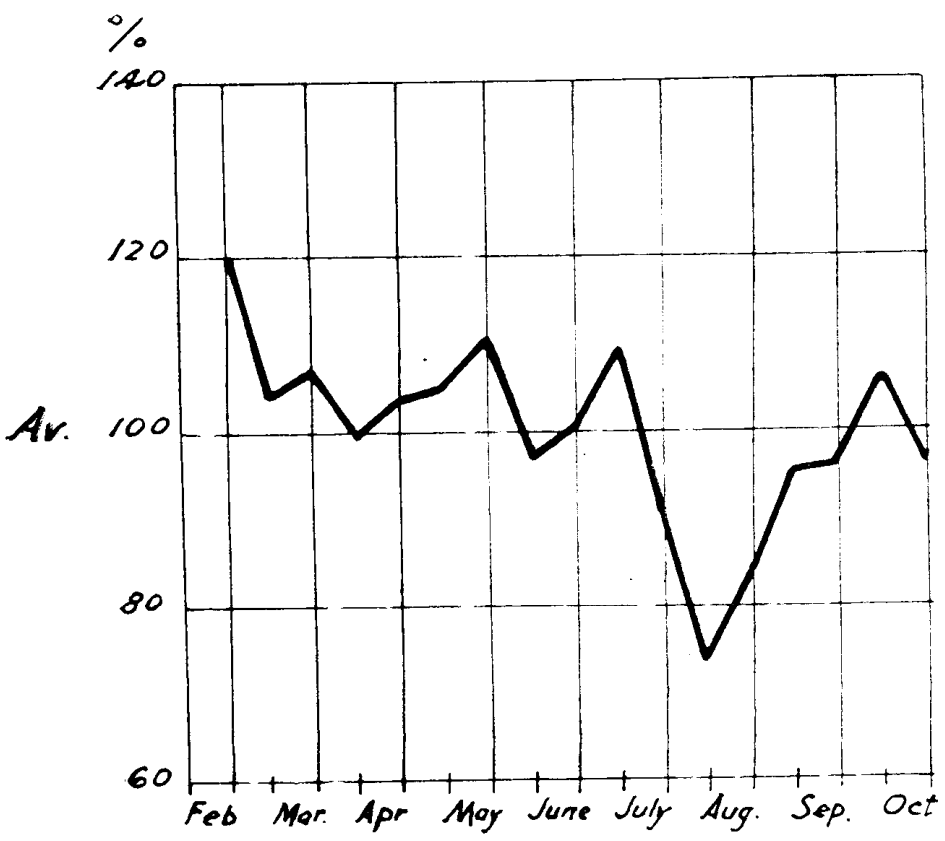

Fig. 4. Seasonal Price Pattern for Cauliflowers

Arrivals of cauliflowers outside the season indicated in the graph are usually negligible. The high prices at the beginning of the season in February are also an indication of light supplies. However, the highest price levels during the remainder of the season are attained in May and July when the production of cauliflowers is also at peak levels. This mid-winter period is one of generally low vegetable supplies, with the exception of cauliflowers and cabbages, and prices are consequently high.

The price decline in June is apparently due to the arrival of very large quantities from the Windsor district. An increase in cauliflower production together with a general increase in vegetable supplies accounts for the sharp price decline in August.

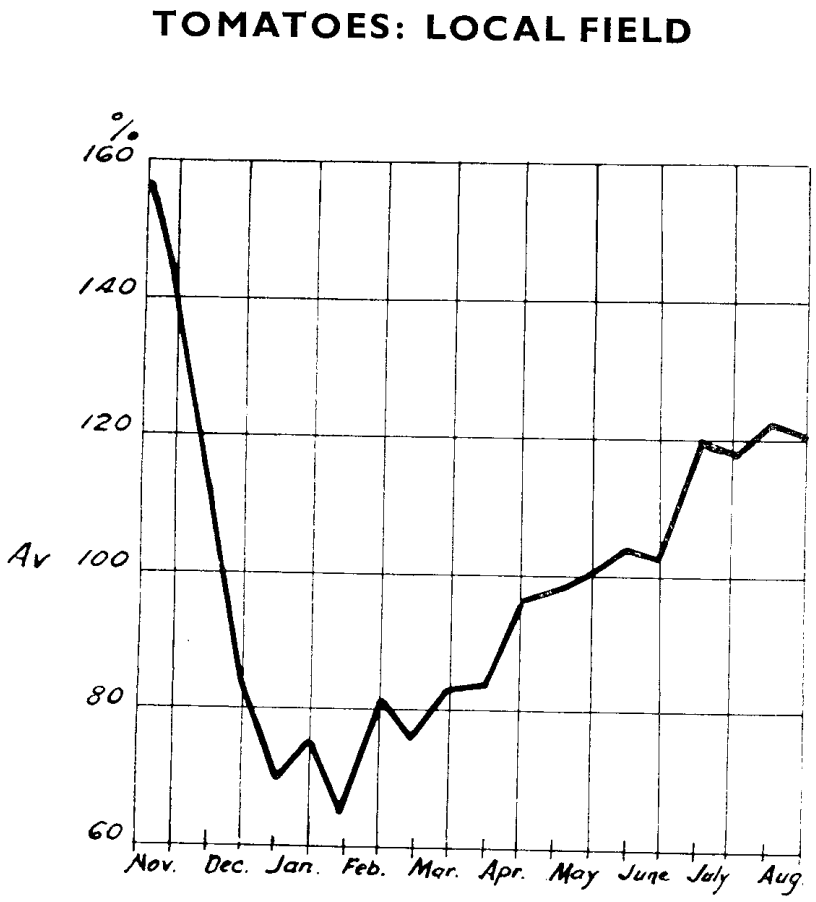

Fig. 5. Seasonal Price Pattern for Tomatoes (Local Field-Grown)

The early arrivals of local field-grown tomatoes in November are comparatively small in volume and although glasshouse tomatoes are still available the field-grown varieties are generally preferred by buyers in the market. Hence, the prices of local field-grown tomatoes are at their highest levels in November, and decline sharply as supplies increase in the following two or three months. There is a fairly steady rise in prices from February onwards due to falling supplies and a further noticeable increase in July as tomato production dwindles at the end of the season.

TOMATOES: LOCAL GLASSHOUSE

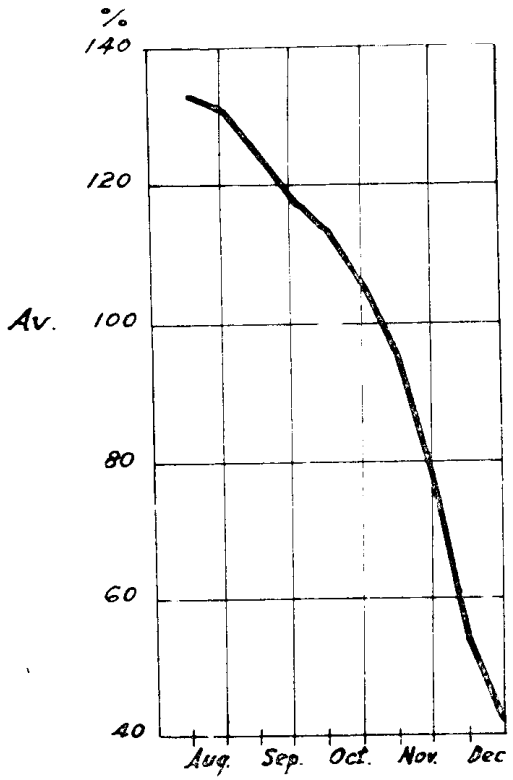

Fig. 6. Seasonal Price Pattern for Tomatoes (Glasshouse)

The price pattern for local glasshouse tomatoes illustrates the dependence of these growers on the early market before field-grown tomatoes are available. The latter tomatoes usually begin to arrive in November and therefore, by reason both of increased total supply and the market preference for field-grown fruit, the price of glasshouse tomatoes falls sharply to reach its lowest point, nearly 60 per cent below the seasonal average, at the end of the season in December.

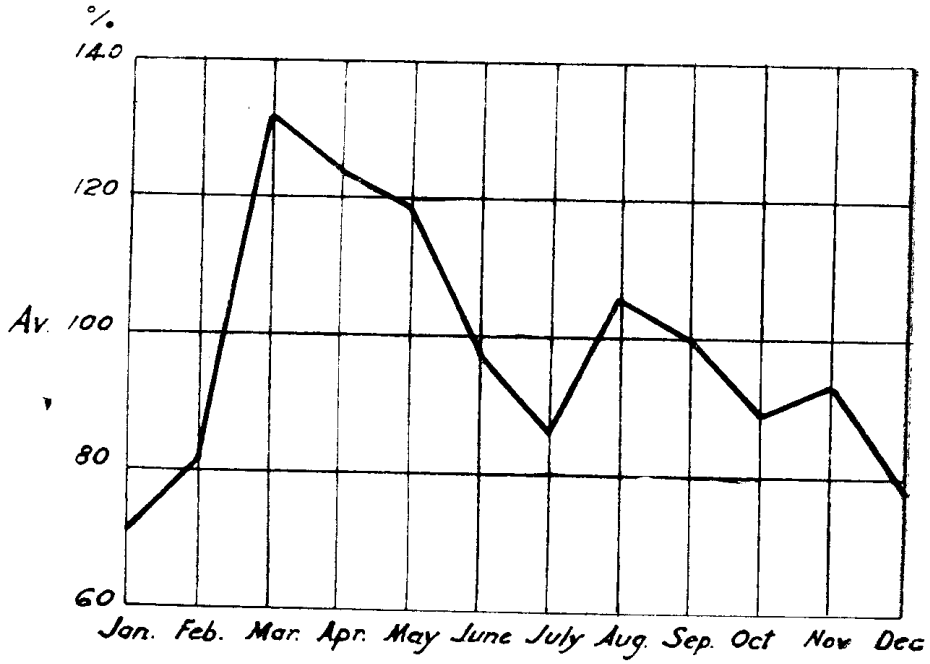

Fig. 7. Seasonal Price Pattern for Lettuce

Production of lettuce is heaviest in the summer months and although consumption is also heavy in this period prices are usually below the seasonal average, reaching their lowest levels in December and January. There is a sharp upturn to the seasonal peak in March due possibly to sustained demand in conjunction with diminishing supplies.

The seasonal peak prices formerly occurred in July and August but it appears that the introduction of improved lettuce varieties for winter production has changed the seasonal price pattern in this respect.

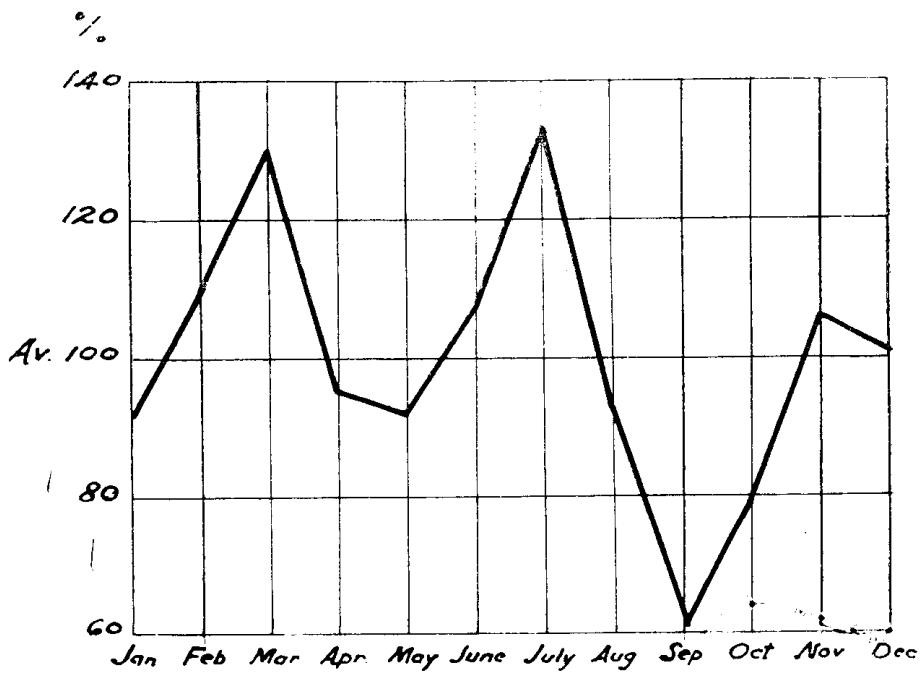

Fig. 8. Seasonal Price Pattern for Spinach

The high price in March is apparently due to continued demand in the face of diminishing supplies of spinach. The subsequent price decline in April and May is probably due to new supplies coming on to the market. However, production is again low in the winter months and the peak price of the season is obtained in July. When supplies increase in September average prices drop to the lowest point for the season, then recover somewhat towards the end of the year.

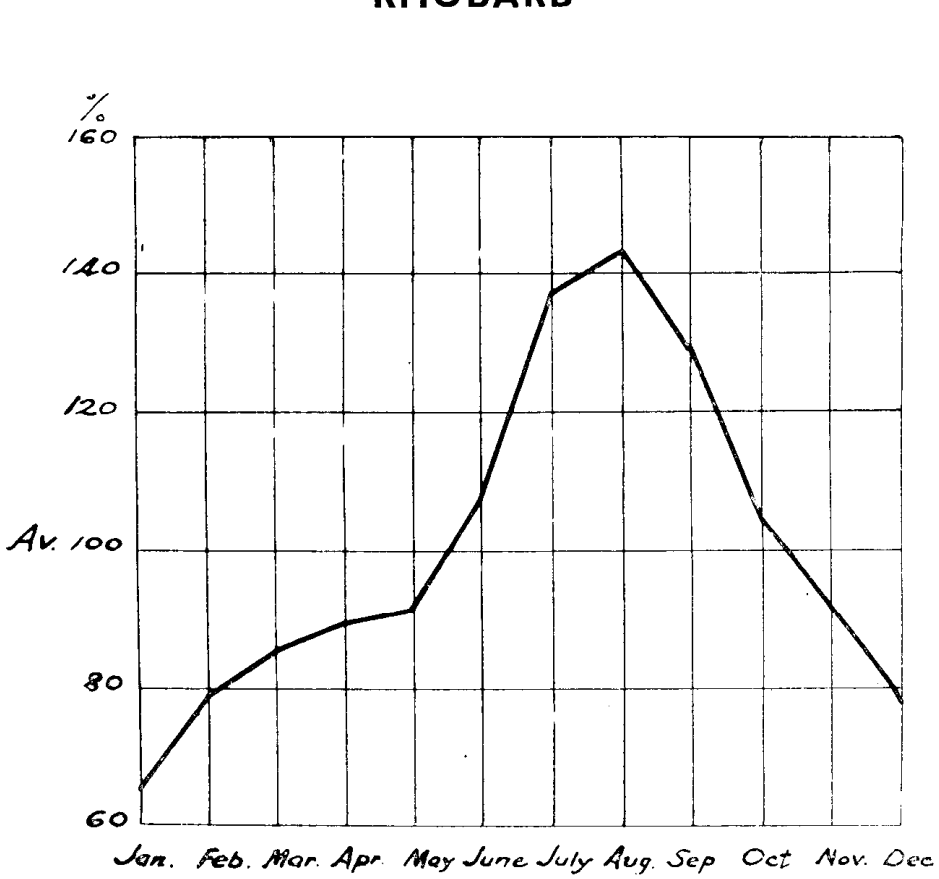

Fig. 9. Seaconal Price Pattern for Rhubarb

The price pattern for rhubarb is typically that of a product that is in short supply in winter with high prices resulting and heavy production in summer with prices generally below the seasonal average. However, the price rise from February to May is accompanied by an increase in supply; this is attributed to the fact that the demand for rhubarb is favourably affected by the diminution in the supply of stone fruit.

6. CONCLUSION

Fluctuations in Vegetable Supplies

Wide fluctuations in supplies are an outstanding characteristic of vegetable markets. The supply of vegetables may range from serious scarcity to over-supply beyond the capacity of the distributive systems.

The public have cause to remember the potato scarcity of 1956, when the retail prices in Sydney, as collected by the Commonwealth Statistician, rose to about 1s. 6d. per lb. The retail prices of potatoes and onions in the September quarter of that year accounted for about 5s. of the 11s. increase in the quarterly wage adjustment. During the four months from June to September, 1956, potato supplies to the Sydney wholesale markets were only about one-half of the quantity received in the same period in 1955 and in 1957. During the period of scarcity primary wholesale prices were, on the average, about double what they were in 1955 and three to four times higher than levels realised in the comparable months of 1957.

The other extreme of excessive supplies is all too common for growers. Heavy supplies sometimes result in difficulties in clearing the market, low returns to growers and probably greater wastage than would normally occur. Several examples can be gleaned from the records of the State Marketing Bureau to illustrate the prevalence of this situation in the city wholesale vegetable markets during 1957.

During the five months from February to June, average monthly prices of local field-grown tomatoes were between 7s. and 9s. 9d. per half-case, which was less than half the rates generally ruling in the same months from 1954 to 1956. Beans were recorded at the unusually low average monthly prices of 6s. 8d., 5s. 3d. and 10s. 11d. per bushel for the months of March, April and May respectively, which suggests that realisations were about one-quarter of those obtained during this part of the season in 1955 and 1956. The average monthly prices of cabbages ranged from 4s. 7d. to 6s. 1d. per dozen from April to July inclusive which would be on the average, about one-sixth of realisations in the same period from 1955 to 1956. Cauliflowers were comparatively low during most of the year, reaching their lowest average monthly price of 10s. 2d. per dozen in August. Peas averaged 15s. 6d. and 16s. 5d. per bushel in April and May respectively.

Heavy vegetable production in areas close to Sydney has been held as mainly responsible for the excessive supplies and low realisations indicated above. To the extent that heavy plantings of vegetable crops were due to a too-optimistic assessment of market prospects or the desire by many individuals to supplement their incomes by small-scale, part-time vegetable production, the phenomenon may be regarded as one of the characteristics of risk enterprise which can only be mitigated, if at all, by industry organisation.

About 90 per cent of the New South Wales production of beetroot, glasshouse tomatoes, cabbages, cauliflowers and lettuce comes from the districts in the statistical divisions of Cumberland, Hunter and Manning, South Coast and Central Tableland. These Divisions include and surround

the Sydney metropolitan area. A large part of the State's production of potatoes, turnips, field tomatoes, beans and pumpkins is also produced in this region.

It is natural that increasing vegetable growing in districts around Sydney should accompany the economic development of the metropolis, but such heavy production as has occurred in certain periods poses considerable problems for any grower or marketing organisation desiring to evolve a more orderly pattern of production and distribution.

Improving Outlets for Vegetables

An improvement in vegetable industry prospects would be possible if additional or enlarged retail outlets could be obtained. The traditional outlet, viz.: the suburban fruit and vegetable shop, is unlikely to alter its scale of operations to any marked extent in the near future ; however, the future operations of chain stores may have a significant impact on fruit and vegetable trading.

Some chain stores and departmental stores have already commenced or have enlarged existing food-selling services. This has resulted in an increase in the value of retail trade in fruit and vegetables by the larger stores and further increases can be expected. To the extent that these stores generally buy quality lines in bulk and follow up with a sales drive after some extensive advertising, some indirect financial benefit could accrue to the growing industry. It is obvious that reliable information as to prospective market supplies is very important to any firm planning such advertising and sales campaigns in advance.

It appears that for the most part, buying by large retail stores has been done in the city markets, with only a few attempts to buy direct from sheds or individual growers. This latter is a logical development of large scale retail trade in farm products and would fit in with plans, already advanced in some instances, for central storing, packaging and distribution to suburban and city stores.

Quality remains an important problem, especially where pre-packaging is practised, for there is a limit to which repacking or sale in broken lots can be done economically.

Recent seasons have witnessed increasing attention to the growing of vegetable crops for processing. Peas and beans for processing have become more important in districts like Tumut, Batlow, Tumbarumba, Gundagai and Wagga, as well as remaining important in the Murrumbidgee Irrigation Area, Bathurst, Cowra and Glen Innes. This trend indicates that an increasing amount of total vegetable production can be expected to by-pass the Sydney wholesale market and other fresh vegetable markets.