

Capsicum and chilli information kit

Reprint – information current in 1999



REPRINT INFORMATION – PLEASE READ!

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This publication has been reprinted as a digital book without any changes to the content published in 1999. We advise readers to take particular note of the areas most likely to be out-of-date and so requiring further research:

- Chemical recommendations—check with an agronomist or Infopest www.infopest.qld.gov.au
- Financial information—costs and returns listed in this publication are out of date. Please contact an adviser or industry body to assist with identifying more current figures.
- Varieties—new varieties are likely to be available and some older varieties may no longer be recommended. Check with an agronomist, call the Business Information Centre on 13 25 23, visit our website www.deedi.qld.gov.au or contact the industry body.
- Contacts—many of the contact details may have changed and there could be several new contacts available. The industry organisation may be able to assist you to find the information or services you require.
- Organisation names—most government agencies referred to in this publication have had name changes. Contact the Business Information Centre on 13 25 23 or the industry organisation to find out the current name and contact details for these agencies.
- Additional information—many other sources of information are now available for each crop. Contact an agronomist, Business Information Centre on 13 25 23 or the industry organisation for other suggested reading.

Even with these limitations we believe this information kit provides important and valuable information for intending and existing growers.

This publication was last revised in 1999. The information is not current and the accuracy of the information cannot be guaranteed by the State of Queensland.

This information has been made available to assist users to identify issues involved in the production of capsicum and chilli. This information is not to be used or relied upon by users for any purpose which may expose the user or any other person to loss or damage. Users should conduct their own inquiries and rely on their own independent professional advice.

While every care has been taken in preparing this publication, the State of Queensland accepts no responsibility for decisions or actions taken as a result of any data, information, statement or advice, expressed or implied, contained in this publication.



Queensland Government

Before you **START**

If you have never grown capsicums or chillies before, then you will find this section very useful. It is a brief checklist of the essential things you need to know before you start. It will help you make the right decision.

The information here is brief and to the point. We provide more detail on important areas in other sections of the kit. Symbols on the left of the page will help you make these links.

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An overview of the Queensland capsicum and chilli industry

Capsicums and chillies were grown in Queensland in 1996–97 on about 1325 ha and were worth about \$28.6 million for about 24 400 tonnes produced (Source: Australian Bureau of Statistics). These figures increased in 1998. Queensland produces about 76% of the volume of production of the Australian crop and 70% of its value.

In Queensland capsicums and chillies are grown year-round. The industry has a large number of relatively small growers cropping less than 10 ha. About 65% of Queensland's production is from an estimated 950 ha in the Bowen–Burdekin region and 25% from Bundaberg; other production areas include the Lockyer Valley and Stanthorpe districts. Bowen–Burdekin production is mainly in late autumn, winter and spring, Bundaberg produces from autumn to early summer and Stanthorpe and the Lockyer harvest through summer.

In the Bowen–Burdekin region, five growers each produce more than 80 ha and another 10 to 15 growers each crop more than 50 ha.

The industry is subject to erratic profit margins, aggregation of farms and a trend to larger individual holdings. There is some fluctuation in the numbers of smaller growers who produce capsicums each year. Several larger packing houses take product from growers of intermediate size.

About 82% of capsicums are sold as fresh product and 18% are processed.

The chilli market is small but increasing. Chillies are produced in small quantities for the fresh market as well as some small-scale processing for powder and paste.

Queensland capsicums and chillies are marketed throughout Australia, with the main sales centres being Sydney, Brisbane and Melbourne. About 10% of production is exported, with 70% of this going to New Zealand, 20% to south-east Asia and 10% to the Pacific region.

SWOT analysis

Table 1 lists the Strengths, Weaknesses, Opportunities and Threats (SWOT) affecting the capsicum and chilli industries.

Table 1. Factors affecting the capsicum and chilli industries

Strengths	Weaknesses	Opportunities	Threats
Production technology	Limited domestic demand	Processing—paste and paprika	Tomato spotted wilt virus (TSWV)
Culinary interest	Limited export opportunities	Processed product for pizza	Low cost imports of processed product
Few production problems		Quality Assurance (QA) programs	
Postharvest management		Small increase in exports to New Zealand	



a key issue



**Pest and disease
management**
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Know what you are getting into

A high level of management skill and knowledge of the crop is needed to grow and market capsicums and chillies successfully. Poor management of cultural operations can seriously reduce yields and quality.

Unpredictable market prices make income forecasting difficult; the market price fluctuates considerably. There can be large variations in price and yield, depending on supply, and the weather and seasonal conditions, which affect yield, quality and demand. Wet weather can seriously reduce marketable yields and the quality of the remaining crop. Pests and diseases can cause heavy losses.

Growers should do everything possible to ensure capsicums are handled with care throughout harvesting and marketing. Careful handling will limit mechanical damage, and bruising and infection by bacterial and fungal breakdown organisms.

The capital cost of irrigation, spraying, harvesting and packing equipment is high.

There is a heavy requirement for labour for picking, harvesting and packing, and reliable, quality labour may be hard to find. The cost of harvesting capsicums can be greatly reduced by using harvest aids.

What you can expect to make

Yields

Yields vary considerably depending on climatic conditions, pests and diseases, and season. Average yields per hectare for crops over all seasons are 4000 to 5000 x 8 kg cartons for capsicums and 6000 to 7000 x 3 kg cartons for chillies.

Not every crop grown can be expected to reach average yields because of the severe impact of wet weather and pest and disease incidence on yield and quality. Knowledge of Integrated Pest Management (IPM) is desirable because of the high pest and disease pressure.

Prices

Prices vary greatly depending on quality and supply.

Capsicums. Prices vary from \$2 to \$70 per 8 kg carton, with an average of \$11 to \$13 over all varieties of capsicums. The highest prices are usually paid for red fruit, followed by green, with cartons of mixed coloured fruit being least popular. At times of oversupply prices can fall to below the cost of production. For a 4000 carton per hectare crop grown in Bowen and sold in Brisbane, the break-even price is about \$8.30 per 8 kg carton of green capsicums.

Chillies. Prices vary from \$1 to \$15 per kilogram for all varieties of chillies with an average of \$5/kg. The highest prices are paid for small, hot chillies, which are normally sold in 9 L cartons weighing 2.5

more info



**Market information
Contacts**
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to 4 kg per carton. For a 6000 tray crop of hot red chillies grown in Bundaberg and sold in Sydney, the break-even price is about \$14.25 per 3 kg carton.

The graphs show average prices and throughput at the Brisbane and Sydney markets for 1996 to 1998. The bigger the variation above or below the average price, the greater the opportunity or risk involved.

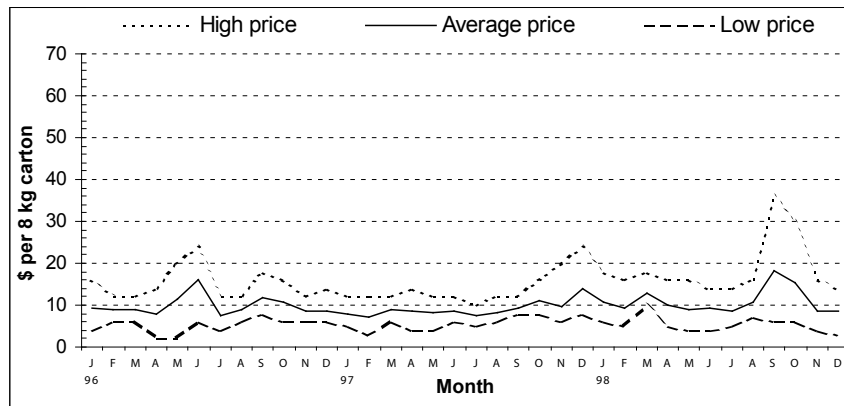


Figure 1. Average monthly price of *green capsicums* at the *Brisbane* market 1996 to 1998

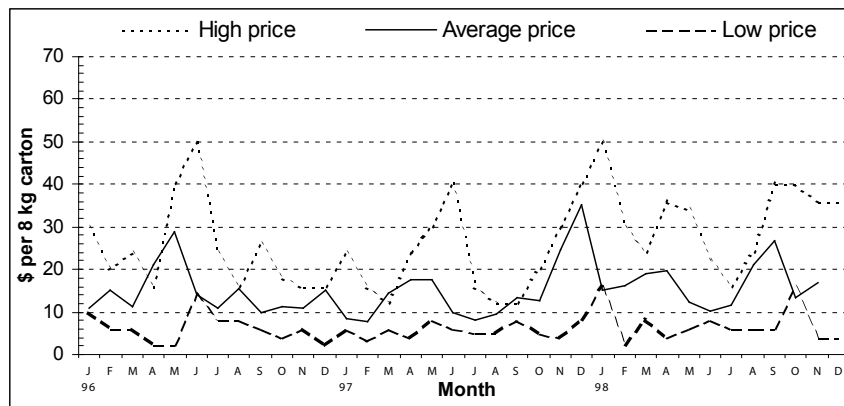


Figure 2. Average monthly price of *red capsicums* at the *Brisbane* market 1996 to 1998

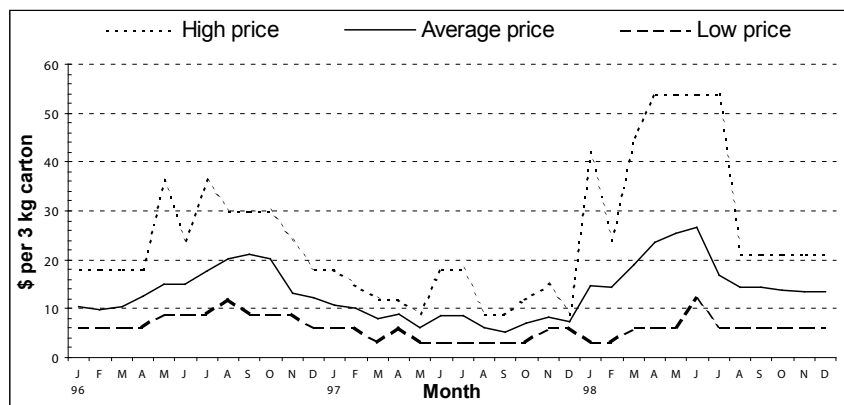


Figure 3. Average monthly price of *hot red chillies* at the *Brisbane* market 1996 to 1998

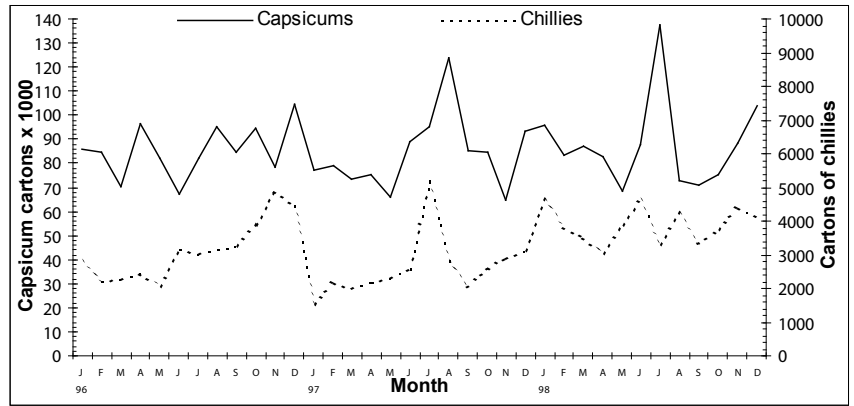


Figure 4. Throughput of *capsicums* and *chillies* at the *Brisbane* market 1996 to 1998

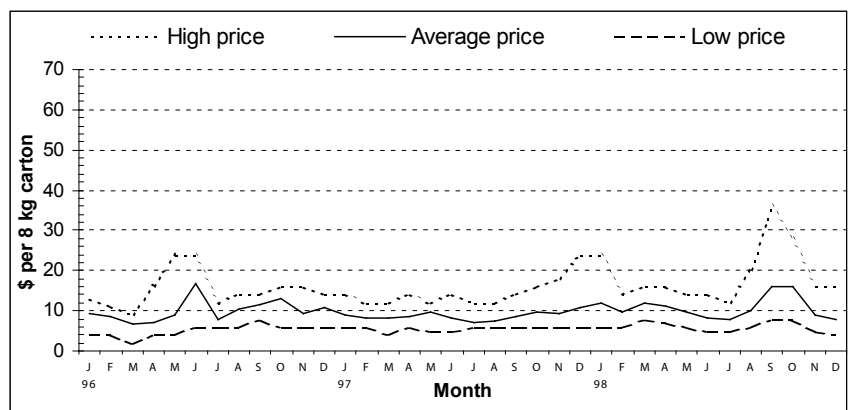


Figure 5. Average monthly price of *green capsicums* at the *Sydney* market 1996 to 1998

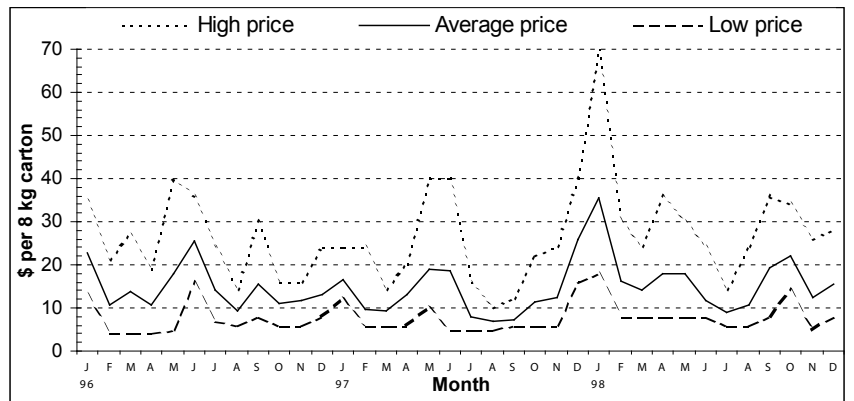


Figure 6. Average monthly price of *red capsicums* at the *Sydney* market 1996 to 1998



Figure 7. Throughput of capsicums at the Sydney market 1996 to 1998

Production costs

Table 2 shows the estimated average costs in \$/ha of producing capsicums in Bowen and chillies in Bundaberg.

Table 2. Estimated average costs in \$/ha

Costs cartons/ha)	Capsicums (4000 cartons/ha)		Chillies (6000)	
	\$/carton	\$/ha	\$/carton	\$/ha
Growing (preharvest)	\$2.27	\$9 067	\$1.66	\$9 932
Harvesting (pick, pack, cool and carton)	\$3.70	\$14 789	\$9.71	\$58 260
Marketing (freight and commission)	\$2.56	\$10 232	\$2.98	\$17 880
Total	\$8.52	\$34 087	\$14.35	\$86 072

Gross margin

The gross margin (income after deducting growing, harvesting and marketing costs) is shown in \$/ha and \$/carton in Table 2 for a market price of \$10 per 8 kg carton for capsicums and \$15 per 3 kg tray for chillies. To determine your net income, you need to deduct fixed costs such as rates, depreciation, electricity and living expenses.



Gross margins
Section 4 page 6

The capital you require

You would need about \$250 000, which includes the minimum amount of new equipment, to set up 10 to 20 ha of crop per year. Table 3 (page 8) shows essential and optional machinery and equipment.

The farm you need

Soil

Capsicums grow best in deep, well-drained, medium-textured soil, for example, loams, but can be grown in a wide range of soil types. Soil should be at least 30 cm deep, the main requirement being good drainage.



Growing the crop
Section 3 page 3

Climate

Capsicums are particularly sensitive to cold and growth is inhibited below 10°C. When growing seedlings, plastic-covered igloos or any similar structure covered with plastic should be used to reduce frost risk.

Pollination is poor in very hot (above 32°C) or very cold (below 15°C) weather. For these reasons autumn, winter and spring production is most common in north Queensland and Bundaberg, and autumn and spring production in other south Queensland districts. Prolonged wet weather causes severe disease pressures so do not plant crops to grow through times when these conditions can be expected.

Rain and high humidity can increase development and spread of diseases, particularly bacterial spot. Low humidity favours mites and powdery mildew. Wind can cause fruit rub and blemish and increase water stress, resulting in the development of the fruit disorder blossom-end rot.

Slope

Uniform slopes are desirable, but not essential. Erosion can be a problem on steep slopes, while depressions can result in waterlogging. The slope can also govern the type of irrigation that can be used.

Slopes below 5% are not a limitation, but slopes above 5% require recognised soil conservation practices. Slopes above 10% make operations involving machinery hazardous and maintaining uniform irrigation can be difficult.

Water

All crops are grown using trickle irrigation and plastic mulch. Up to about four megalitres (ML) per hectare of water is required.

Capsicums will not tolerate saline irrigation water. At the seedling stage water conductivity should be below 1200 microSiemens per centimetre ($\mu\text{S}/\text{cm}$). When grown under furrow or trickle irrigation, water with an electrical conductivity (EC) up to 2000 $\mu\text{S}/\text{cm}$ can be used on some soils provided careful management practices are followed. Capsicums grown under overhead irrigation are more sensitive to saline irrigation water because of leaf contact with the water.



Irrigation management
Section 4 page 49

The machinery and equipment you need

Table 3 shows the essential and optional machinery and equipment for a capsicum production unit. The prices are estimates only. Second-hand machinery would normally cost less than half the new cost.

Table 3. *Estimated cost of new machinery and equipment*

Equipment	New price \$
Essential	
Tractor (26 kW) for planting, cultivation and spraying	30 000
Tractor (45 to 60 kW) for plough, ripper and rotary hoe	50 000
Farm truck	30 000
Bed-former, plastic and trickle tube layer with fertiliser box	8 500
Waterwheel transplanter	3 500
Grader (creep feed, brushes, inspection table, pack-off belt)	20 000
Bin tipper	1 000 – 5 000
Scales	1 800
Spray equipment for crop	10 000
Spray equipment for interrow herbicides	4 000
Half-tonne bins (each)	100 – 170
Buckets (each)	5
Shed fork-lift	30 000
Pallet jack	650
Cultivation equipment	20 000 – 25 000
Irrigation equipment (\$/ha)	2 500 – 4 500
12 to 20 pallet cold room	25 000
Mulch gatherer	8 500
Slasher/pulveriser	3 000 – 6 000
Optional	
Seedling nursery	5 000
Harvest aid	25 000

The labour you need

Two field workers could grow 20 ha of capsicums or chillies to the harvesting stage. The main labour requirement is for harvesting and packing.

A standard picking rate for capsicums is about 30 to 50 cartons per person per hour, depending on whether hand-picking into buckets or using a harvest aid, amount of fruit set, harvesting method and colour of fruit being harvested. A standard grading and packing rate is about 25 cartons per person per hour, but this depends on fruit quality and the equipment being used.

Chillies take much longer to pick and pack. Growers often pay a contract rate rather than an hourly rate for picking and packing chillies. For the larger chillies an average picking rate would be about 20 kg per hour, while for the small types the rate would be about 6 kg per hour.

Other considerations

Hard physical work is needed. There is a high labour requirement in all facets of production. These include land preparation, mulching and laying trickle tube, pest, disease and weed control, irrigation, picking and packing.



Fruit handling and marketing
Section 3 page 43

Management skills or access to consultants with these skills are required for managing finances, staff and the crop. Skills in machinery operation and maintenance, and the ability to read and understand chemical labels, are essential. Careful attention to detail is necessary to be a successful grower.

Some capsicums and chillies are sold to processors, which broadens the marketing options for these crops.

Quality of the end product is the most important factor in successful capsicum production. This starts with good land preparation and variety selection and continues through the growing of the crop to careful harvesting, grading and marketing of the fruit.