Rice flower information kit

Reprint – information current in 1997

REPRINT INFORMATION – PLEASE READ!

For updated information please call 13 25 23 or visit the website www.deedi.qld.gov.au

This publication has been reprinted as a digital book without any changes to the content published in 1997. We advise readers to take particular note of the areas most likely to be out-of-date and so requiring further research: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- Financial information—costs and returns listed in this publication are out of date.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 1997. 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 marketing rice flower. 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

10. Budgets[6]

Capital investment

The capital investment required for rice flower production can be high. Around $80 000, excluding the cost of land, could be needed for new equipment on a 5 hectare plantation. About $40 000 should be allocated for buildings and property improvements, including packing shed and fittings, FAC and cool room, irrigation equipment, pumps, dam, a fertiliser injector, windbreaks and fencing. Machinery costs are estimated at $40 000 and include a tractor, slasher, spray equipment and a delivery vehicle (although couriers can be used). Costs can be reduced in the short term by the purchase of second-hand equipment or the seasonal hire of a cool room.

Cash flow budget

The cash flow budget and sensitivity analysis show the potential costs and returns of producing rice flower for an average grower. Good growers may be able to achieve major cost reductions, or superior yields or quality and better returns.

Table 8 shows the cost structure used to develop the cash flow budget. This scenario is for a standard medium density planting (4000 plants per hectare) in south-east Queensland. The budget allows for a medium mortality rate and medium market returns per stem for a one hectare planting of rice flower in single rows 3.3 metres apart (centre to centre), with an intra-row spacing of 0.75 metres.

The cumulative mortality is set at 10, 20, 30, 50 and 70 per cent in years 1 to 5 respectively. Strip fumigation costs are included in the establishment budget. Export returns are set at a mid-range point of $0.50 per stem, with domestic sales at $0.20 per stem. All labour inputs are costed.

The labour inputs of the budget, broken down by activity, will be available in the DPI publication *Rice flower—production guidelines for growers* by Peter Beal, Cynthia Carson, Lois Turnbull and Leif Forsberg, to be published in 1998. Labour productivity targets and a breakdown of capital costs will be contained in the same publication.

[6] This section has been reviewed by Roger Tomes, agricultural economist, DPI.

Table 8: Cash flow budget for one hectare of rice flower (4000 plants) in south-east Queensland assuming a medium mortality rate

	Year 1	Year 2	Year 3	Year 4	Year 5
Plant number (surviving from original planting)	3 600	3 200	2 800	2 000	1 200
Plant number (surviving from replants)		360	320	280	200
Harvested stems (original planting)	36 000	80 000	84 000	70 000	42 000
Harvested stems (replants)		3 600	8 000	8 400	7 000
Total harvested stems	36 000	83 600	92 000	78 400	49 000
Number of export stems*	25 200	66 520	73 600	55 720	34 300
Number of domestic stems*	10 800	17 080	18 400	22 680	14 700
Gross returns ($)					
Export grade	12 600	33 260	36 800	27 860	17 150
Domestic grade	2 160	3 416	3 680	4 536	2 940
Total income	14 760	36 676	40 480	32 396	20 090
Variable Costs ($)					
Establishment costs					
Soil preparation	800				
Contract soil fumigation (e.g. methyl bromide)	2 000				
Rooted cuttings	8 000	800			
Irrigation materials (in-paddock delivery and fittings, timer)	1 500				
Weed mat or plastic	2 000				
Basal fertiliser	300				
Sundries	1 000				
Post-planting costs					
Fertilisers	100	400	440	440	440
Irrigation	300	500	550	550	550
Sprays	400	440	500	500	500
Harvesting, dipping, packing, packaging and pre-cooling—incorporating labour costs	5 400	12 540	13 800	11 760	7 350
Fuel	100	110	121	121	121
Domestic freight for Australian and export markets	720	1 672	1 840	1 568	980
Sundries	1 000	1 200	1 500	1 500	1 500
Labour ($)					
All operations excluding harvest, on-farm postharvest handling and marketing activities	3 454	1 342	1 034	1 034	1 034
Total variable costs	27 074	19 004	19 785	17 473	12 475
Annual cash flow excluding capital costs	−12 314	17 672	20 695	14 923	7 615
Cumulative cash flow excluding capital costs	−12 314	5 358	26 053	40 976	48 591

Assumptions

Original planting: 4000 plants on one hectare. Replants: 400 in year 2.		
Price of plants	$2.00	per plant including transport
Harvesting, dipping, packing, packaging and pre-cooling	$15.00	per 100 stems
Freight (domestic)	$2.00	per 100 stems
Export price (net)	$0.50	per stem
Domestic price (net)	$0.20	per stem
Labour	$11.00	per hour

	Year 1	Year 2	Year 3	Year 4	Year 5
Cumulative mortality (%)	10	20	30	50	70
Marketable stems per plant	10	25	30	35	35
Per cent export grade	70	80	80	70	70
Per cent domestic grade	30	20	20	30	30

The budget costs exclude interest costs on borrowed capital and the cost of water. Irrigation costs are for electricity and maintenance costs on pumping equipment.

* The percentage of export and domestic grade stems for replants is allocated according to the age of the plant.

In this example, productivity is well down by year 5 and the plantation life should not extend beyond four years. Income fluctuations can be reduced with a continuously rotated planting over a four year period. A staged planting, with 1 000 plants being removed and replaced every year (preferably on new ground), could achieve average yearly returns of $10 244 per hectare.[7]

With this budget, the average variable cost of production per stem was $0.28. With this cost structure domestic market sales at $0.20 per stem are actually incurring a loss, although many farmers do not cost their own labour. Most growers will sell seconds to the domestic market; however for improved profits every possible stem needs to be of export quality.

In the Japanese market, growers with consistent presentation and good quality can average over $0.60 per stem. Quality long stemmed pinks can return $0.90 per stem and long stemmed whites $0.75 per stem. There is a linear relationship between stem length and price paid. Short stems can incur similar field, harvesting and bunching costs to longer stemmed rice flower, and the lower net return may not cover outlays. Although some gains can be made in boxing costs (as more stems can be packed in each box), it pays to examine input costs very carefully before consigning 40 or 50 cm stems to Japan.

Sensitivity analysis for different mortality rates and prices

Table 9 provides details of the cumulative cash flows of medium density planting for three different export prices per stem and for high, medium and low plant mortalities.

Three preplanting fumigation treatments were used and have been assumed to result in low, medium and high mortality rates. Plant mortality in this instance is deemed to be primarily caused by nematodes or root disease. The preplant soil fumigation to combat this has been costed at the following rates: $8 000 for full area fumigation and a low mortality; $2 000 for strip fumigation and medium mortality; and no fumigation with no cost for the high plant mortality.

The budgets show little advantage in using high cost inputs such as full fumigation to achieve lowered mortality, with year 5 benefits not necessarily eventuating. Lower cost options such as partial fumigation may give similar benefits for a reduced investment; however each site needs to be evaluated on its own merits. Sites with a natural advantage for the cultivars being grown have the potential to be more profitable. For nematode infected sites in warm climates, another option is to crop rice flower for just two years and to use crop rotation.

[7] This can be calculated by dividing the cumulative net return in year 4 by 4.

Table 9: Sensitivity analysis—cumulative cash flow (excluding capital costs) of rice flower cash flow budgets for different mortality rates and export prices in years one to five

High mortality rate			**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**
Cumulative mortality rate			20	50	80	100	100
Fumigation costs = nil							
Net market return per stem	**Export**	**Domestic**	**Cumulative cash flow (excluding capital costs) per hectare**				
High	$0.80	$0.20	–$4 554	$18 234	$31 429	no yield	
Medium	$0.50	$0.20	–$11 274	–$1 830	$3 205	no yield	
Low	$0.20	$0.20	–$17 994	–$21 894	–$25 019	no yield	
Medium mortality rate			**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**
Cumulative mortality rate			10	20	30	50	70
Fumigation costs = $2 000							
Net market return per stem	**Export**	**Domestic**	**Cumulative cash flow (excluding capital costs) per hectare**				
High	$0.80	$0.20	–$4 754	$32 874	$75 649	$107 288	$125 193
Medium	$0.50	$0.20	–$12 314	$5 358	$26 053	$40 976	$48 591
Low	$0.20	$0.20	–$19 874	–$22 158	–$23 543	–$25 336	–$28 011
Low mortality rate			**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**
Cumulative mortality rate			10	20	30	40	50
Fumigation costs = $8 000							
Net market return per stem	**Export**	**Domestic**	**Cumulative cash flow (excluding capital costs) per hectare**				
High	$0.80	$0.20	–$10 754	$26 874	$69 649	$107 588	$138 723
Medium	$0.50	$0.20	–$18 314	–$642	$20 053	$38 336	$53 007
Low	$0.20	$0.20	–$25 874	–$28 158	–$29 543	–$30 916	–$32 709

All assumptions are as per Table 8 for 4 000 plants per hectare. Fumigation costs, mortality rates and export prices vary as stated.

Cash flow budgets are strongly sensitive to price movements and yield reductions. At high mortality rates it is possible to achieve a return on investment only if a high market price per stem is received. A plantation suffering high mortality may also not be producing high quality flowers and therefore would be unlikely to obtain high market returns. At low market prices major losses are sustained, even when plant survival is excellent. To succeed in the rice flower business, high prices—achieved through quality, innovation and service—along with low plant mortality rates, high yields, and an efficient cost structure, are required.

Conclusion

Rice flower can be a profitable crop if the major problem of plant deaths can be overcome and a premium product can be supplied to markets which pay good prices. These factors require a high level of crop management and marketing skills. Without them, rice flower is a high risk crop which can cause growers financial losses.

Businesslike growers will prosper. The future lies in containing costs—without sacrificing yield and quality—identifying markets, and supplying them with flowers of the right quality, consistency and presentation, in the right volumes and at the right time. Product standards can set the quality sent through the farm gate, but an active interest in the postharvest handling chain is needed to improve out-turn quality and financial returns. In addition to the product itself, the administrative and service needs of markets and client groups within the marketing chain have to be met.

Some of the other Asteraceae family have characteristics and potential similar to rice flower, allowing the product range and the supply season to be extended. Dried and preserved rice flower and allied products offer opportunities to growers, opening avenues for further exploration and development.