

## Introduction

The Bundaberg/Childers/Gin Gin district is a rapidly growing horticultural area in SE Queensland. The hot subtropical climate provides ideal growing conditions for a range of subtropical and tropical crops (Table 1). The main crop in the district is sugar cane with an estimated 52,000 ha of cane producing 717,00 tonnes of sugar per annum worth \$140 million. This cane is processed through the districts 4 mills.

Of the tree crops grown in the district avocado is third in importance to macadamia and citrus in both the area under production and the gross value (Table 3). In the 1999 season it was estimated that there was some 640ha of avocado in the district producing 411,000 trays with a market value of approximately \$ 5.2million.

There is a large range of varieties grown in the district but as in most areas Hass has become the dominant variety. The district is generally warm enough to produce reliable crops of Shepard, though in some years and on some low lying blocks, fruit set can be adversely affected by low temperatures. Flowering generally occurs in September for all varieties. Depending on the year the Shepard season generally commences around mid-February and ends in late-April when the Hass season commences. The last Hass are usually picked by late-August. Early indications from the few bearing Lamb Hass blocks in the district indicate that this variety may extend the picking season into October.

Farm size in the district varies considerably with some larger growers having 30,000-40,000 trees but there are many smaller farms with 300-500 trees. While there is no cooperative pack house in the area many growers send their fruit to Natures Fruit Company at Nambour or are members of the Avocado Marketing Cooperative Ltd.

Root rot caused by *Phytophthora cinnamomi* is a major problem in the district due to the summer rainfall pattern. While the district average rainfall is some 1,035mm (41 inches), falls in summer can be quite heavy causing water logging and root rot problems. The heavy but sporadic nature of the rainfall pattern means that irrigation is essential in the district. Heavy falls of rain can often be followed by many weeks of little or no rain which, when coupled with the high summer temperatures and evaporation rates, leads to an extremely stressful climatic environment for avocado production.

While irrigation is essential for production in the district the availability of water is often limited. Most of the district's production lies within the boundaries of the Bundaberg Irrigation Area where the supply of water from the irrigation scheme and underground bores is highly regulated. Most land has a 'nominal' allocation of water attached to it, usually 2.5-4.5 MgL/ha, which is generally the maximum amount of water available to the grower for that farm from the irrigation scheme. However, in most years only a percentage of this nominal allocation can be supplied by the scheme. In the current year the percentage of the nominal allocation actually available from the surface water scheme is 75% for the north side of the Burnett river and 50% for the south side.

## **Route A - Goodwood/Childers**

### **① Dorrian Farms - John and Jay Dorrian**

John and Jay Dorrian started growing avocados in 1978 on the home farm. In the intervening years the enterprise has grown considerably and John and Jay now manage some 30,000 avocado trees and 4,000 mango trees. The home farm is also the site of the avocado and mango processing plant that is used to process all second grade fruit. As a result only a first grade line is packed.

In 1996 they purchased the 58 ha Clayton's farm which has been planted entirely to avocado. The Clayton's farm is approximately 75% Hass, 15% Wurtz and 10% Shepard. Trees range in age from 5 years at the back of the farm to 2.5 years closest to the road. At Clayton's John has used a unique planting design in order to maximise early returns while still ensuring long term viability. On mounds 12m apart John has planted Hass on either Velvick, Duke 7 or Reed rootstocks and in between each Hass he has planted Wurtz. On the flat between each mound he has planted Hass on rootstocks collected from the large seedling trees on the property. This year it is John's intention to remove the trees on the flat as there is now significant shading. This will leave the Hass on the mounds inter-planted with the less vigorous Wurtz. Once the Wurtz trees become shaded John intends to remove the Wurtz leaving a Hass block growing on the better rootstocks at a 12x10m spacing.

Close to the road at Clayton's John has established a block of Hass on clonal Velvick rootstocks. These rootstocks were cloned and grafted in the home farm nursery. This nursery is also providing trees for the extensive orchard replacement program that is occurring on the home farm. John is currently replacing former mango, lychee and old avocado blocks with Shepard and Hass on indexed Velvick rootstocks. This year John intends to plant some 12 ha of Shepard. John is also top-working the remaining 1500 Fuerte to Shepard.

There are no major pests on either farm although *Monolepta* beetles (*Monolepta australis*) can be a problem on the Clayton's farm.

John has tried a range of canopy management options and has not found one that suits his operation. Presently trees are pruned annually with an Afron pruner. John is also cooperating with QHI staff involved in the AAGF/HAL funded 'Canopy Management Project'. At the Clayton's farm Dr John Leonardi and Dr Tony Whiley have imposed a wide range of treatments aimed at determining the optimum time to both prune and use plant growth regulators (PGRs) under Australian conditions.

## ② Simpson Farms - Ron and Fay Simpson

### Packhouse - Manager John Walsh

Simpson Farms, a family company, is located on 1600 hectares made up of the “Goodwood” and “Redridge” plantations at Goodwood and also “Avocado Hill” plantation at Childers. The family owned operation The three largest crops produced are avocados, sugar cane and melons. There are currently two hundred hectares of avocados producing approximately 400,000 trays annually though this is expected to increase to 600,000 trays when the orchard is fully mature. There are 3 main varieties of avocado in the plantations. They are Shepard (6,572 trees) Wurtz (7,475) and Hass (26,453) giving an overall total of 40,500 trees. The Shepard are harvested from the last week in February to mid-April and the Wurtz and Hass are harvested from the second half of April to September. These crops are produced on deep, red, volcanic clays (Krazsnozems). The farms employ a permanent full-time workforce of 20 people with another 40 casuals employed during peak production.

A 1400 m<sup>2</sup> packing shed is used to receive, pack, cool and dispatch the fruit. The shed includes computerised grading equipment and a sealed loading dock, which provides access to a 180m<sup>2</sup> cold room. The packline contains several innovative features. On arrival the fruit are unloaded by tipping the bin in a water bath to minimise bruising and remove any dirt and leaves. The pH and the specific gravity of the water in the bath are adjusted to ensure the fruit float and water does not move into the fruit via osmosis through the stem end. The water is also kept clean and sterile through constant filtration and chlorination. Fruit is lifted from the bath by elevating rotating brushes which have the advantage of keeping the fruit apart on each brush unit again minimising damage in the packline. Elevating rotating brushes do not rely on pressure from other fruit below the brushes to force fruit up the brush line. Damage has also been minimised by the installation of single rotating brush units at each drop point in the grading line. The packline also uses automatic box fillers that put the exact number of fruit in each box. This reduces staff numbers as the packer only has to rearrange the fruit in the box. Also the fruit coming off the line only land in the tray and not on top of other fruit as in a conventional bin system. Using the computerized grading system it is also possible to maximise efficiency by adjusting the program to ensure that fruit are evenly distributed across packing stations according to the size of fruit being picked that day.

Through a joint venture involving a New Zealand grower-based marketing group and a prominent Australian Exporter, Simpson Farms were the first Australian avocado producers to supply the New Zealand market. Accessing this market involved developing post harvest treatments to ensure quality, developing quarantine protocols, and developing a marketing strategy for New Zealand. Simpson Farms also plans to extend its export operations, which currently focus on Hong Kong, Singapore and New Zealand, to other areas of South East Asia, Europe and the United States of America when market access is available.

## Route B South Kolan/Moore Park

### ③ Kachana Orchard - George and Margy Green

In 1992 George and Margy Green purchased a 40 ha farm at South Kolan and established Kachana orchard. The orchard, which covers 13.5ha, includes a diverse range of tree crops including avocado, mango, custard apples, persimmon and figs. The orchard's soil is a well-structured, deep volcanic, red clay loam (Krasanozem) which is ideal for avocado production.

The main crop, avocado, covers some 8 ha (not including wind breaks and roads). Hass is the main variety (1100 trees) with Shepard (200 trees), Fuerte (200 trees), Sharwil (200) trees and Wurtz (200 trees). Trees range in age from 8 years though to a 4 year old block of Hass and Sharwil near the house. Tree spacing is 9x5m for Hass and 8x4m for the other varieties. Tree heights average 6m in the 8 year old trees and 4.5 m in the 4 year old trees. Yields across the farm averaged 13 t/ha in 1999 and 19 t/ha in 2000. Fruit is packed and marketed by Natures Fruit Company, Nambour, of which George is a Director.

One of the most problematic insect pests at Kachana is Monolepta beetles (*Monolepta australis*). Dense swarms of these beetles have the potential to rapidly defoliate trees and cause skin marking on the fruit. Spraying for all pests and diseases at Kachana is done with an air-blast sprayer fitted with 2 span spray heads which allow spray to be directed down into the top of the canopy.

In an effort to combat the 'small fruit' problem in Hass, a serious issue in the hot subtropical Bundaberg/Childers area, George has implemented an innovative range of orchard floor management practices. These include the annual use of mill mud (Table 2), mulching with cane trash, watering the entire orchard floor, and growing a large body of grass in the inter-row. The mill mud is applied at the rate of 100 t/ha to the inter-row. This mill mud provides approximately 80% of the orchards N requirements and also acts as a mulch. Under tree mulch is provided by applying 2 bales of cane trash annually to each tree and by growing a mulch in the inter-row which is side-slashed and dispersed under the trees. In order to increase the number of predatory mites and lacewings George only mows every alternate inter-row on a 6 weekly basis. The entire orchard floor is watered with Nelson sprinklers and is watered daily in summer at a rate close to pan evaporation. Water use is 8-10 MgL/ha/year.

George also uses the growth regulant 'Sunny' across the entire farm in order to increase fruit size and has inter-planted Sharwil as a pollinator in his young Hass block. As on many farms in the district George has an evolving canopy management strategy and he is using a modified hedge row approach with a late autumn/spring prune followed by a summer prune in February.

#### ④ Welcome Creek plantation -Andrew and Mandy Pearce

Macadamia are the fastest expanding crop in the Bundaberg/Childers district with an estimated 1500 ha of trees. This expansion is largely driven by the ideal climate coupled with the availability of large blocks of relatively low cost of land compared with the traditional production areas of northern New South Wales and the Sunshine Coast.

Welcome Creek Macadamia Plantation was established by the Pearce Family in 1987. The Plantation, which comprises 3 farms totalling 130ha, contains some 33,000 mature trees ranging in age from 11-13 years and a recent planting of 9,000 two year old trees. Most of the trees are Hawaiian varieties. Tree spacing is 8x4m which is typical of macadamia orchards in the Bundaberg area. Yields of nut-in-shell from the mature trees have averaged 4.5t/ha (14 kg/tree). Prices paid by processors over the last few years have ranged from \$2.00-\$2.50 kg nut-in shell delivered. Andrew manages the farm with the assistance of 3 permanent staff and 2 casuals used to grade nuts during the harvesting season. The major pests are fruit spotting bug (*Amblypelta nitida*) and macadamia nut borer (*Cryptophlebia ombrodelta*) which Andrew controls with 3-4 sprays during the season. The trees are fertigated throughout the season and water use is monitored via an Enviro-Scan soil moisture monitoring system.

Peak flowering generally occurs during August/September though in some seasons there may be several distinct flowering periods. This is followed by a period of immature nut shedding in November when the trees adjust their crop load. Oil accumulation in the nuts starts in December and continues in most varieties until February/March when the nuts are mature. Mature nuts fall naturally from the trees over a period of several months and for early varieties this starts in late-February and is generally over by the end of May. Late varieties may not start dropping nuts until the end of April and can continue into September. This can cause some disease cycling problems due to the overlap with the following seasons flowering. There are generally 2 vegetative flushes in the year, a spring and summer flush, though these are usually not as distinct as in avocado. Nuts are harvested directly from the ground using either finger wheel pickers or sweepers. For these machines to operate effectively it is essential to have bare earth under the tree. This may cause some problems with water infiltration and a decline in soil organic matter over time. Once picked up, the nuts are de-husked in the field before being transported to the sorting area and silos where the damaged and immature nuts are removed. The sound nuts are then dried to 10% moisture content in the silos using forced ambient air before they are sent for processing.

As in avocado production two of the main problems facing the macadamia industry are managing the tree to produce assured quality and canopy management. Growers have tried several canopy management options but at this stage growers are either conducting light side pruning or topping, or removing trees. The quality issue is being addressed by projects that are determining nut quality parameters and by a nutrition project. The macadamia industry is also funding a large breeding program to improve yields by pest and disease resistance and a large rootstock project which will determine the effect of rootstocks in macadamia and identify potentially superior rootstock scion combinations.

## Thursday - Canopy Management Field Day

### ⑤ Donovan Family Investments – Lachlan and Annaleise Donovan

In mid-1997 Donovan Family Investments purchased a farm on Dr Mays Crossing Road, Bundaberg. This was an expansion of the family business, which has been growing avocados on the Sunshine Coast since 1990. The farm is managed by Lachlan and Annaleise Donovan in conjunction with their farm manager Robert De Jong. The farm is 60ha in area, and already had an established orchard to which Lachlan and Annaleise have added. The orchard comprises some 9,000 trees, half of which are Hass with the rest Shepard (3,600 trees) and Sharwil (800 trees) with some Fuerte and Wurtz. Approximately one third of the total tree number is less than 5 years old. Most of the farm is planted at 10x5 m spacing though the original Shepard blocks are 9x7m. Yields for the mature trees have averaged 20-22 t/ha for both Shepard and Hass over the last few years. All fruit including that from the Sunshine Coast orchard fruit are packed on site.

The main orchard pests are Monolepta beetle (*Monolepta australis*) and Ectropis looper (*Ectropis sabulosa*). All orchard spraying is done with a single sided Electromiser.

Since the purchase of the property Lachlan has been using a modified tree rejuvenation approach to canopy management in an attempt to reduce tree size to a more manageable height while still maintaining yields. This approach involves cutting one side of the tree back to within 1m of the trunk immediately after harvest. The limbs are cut off with a chain saw, the smaller branches are mulched and the larger limbs are put through a woodchipper. The mulch is then put back under the trees. Shoots are allowed to re-grow and are pruned the following summer into a suitable structure. A light tip prune is also given every year to the 'unrejuvenated' side of the tree. Two years later the top of the tree is removed reducing height. Depending on seasons and yields, in a further 2 years the other side of the tree will be removed close to the stump. The advantages of this method are that the pruning is relatively cheap and so far yields have been maintained, for example, yields in Block 1 were 12 t/ha in the year before pruning and 24 t/ha the year after it was pruned.

Lachlan also applies mill mud annually at the rate of 220kg per tree through a modified Krone spreader. This allows the mill mud to be placed under the canopy where it supplies 80% of the orchard N requirements and acts as mulch. This is particularly important for the shallow sandy soils on which the orchard is growing. These soils also have a tendency to compact which has lead Lachlan to modify an old power shovel into an orchard aerator. The power assisted action of the aerating spikes means that the machine can break very compacted soil and is not dependant on weight or soil moisture content to assist spike penetration.

During summer the orchard is watered every 2-3 days using 70l/hr sprinklers. Water applications and use are monitored with an Enviro-Scan system and a Soilspec system. While the Enviro-scan system provides in-depth data for a few sites in the orchard the low cost Soilspec system means that all areas can be monitored.

## ② Simpson Farms - Ron and Fay Simpson

### Field practices

#### Farm manager -Chris Gordon, Orchard Manager - Denham Rackerman

The canopy management system on Simpson farms is still evolving with trees planted at 10m x 5m (200/ha) and mostly hedge pruned to a maximum height of 6m. A significant part of the orchard is still hand pruned and shaped using more traditional methods, particularly in the Shepards. Machine pruning is done with a specially designed tractor mounted, double sided radial saw pruner which can cut 2 sides of the row at once. Rows can therefore be shaped in only 1 or 2 passes. At present the trees are given a shape prune every 4 years though only 1 side is shape cut in any year with the other side of the tree cut the following year to maintain yields. With the shape cut tree height is reduced to 6m. The tree shape is maintained by spring and summer pruning but the bearing surface is allowed to move outwards from the original shape cut surface by approximately 20-30cm per year. After 4 years, or an increase in canopy depth of 1m-1.5 m from the original shape cut, the shape cut is repeated to return the canopy to the desired shape and size. Ron has found that while this produces the desired tree shape it can create a 'wall of leaves' effect which can reduce spray penetration. In order to overcome this and to keep vigorous water shoots in check some selective limb removal is undertaken to create 'windows' in the canopy. The shape cut is usually conducted immediately after harvest but the hand shaping is conducted throughout the year. In conjunction with the canopy management program plant growth regulators are used extensively across the farm to improve fruit size.

In order to minimise soil compaction and ensure worker safety, fruit on the terraced and sloping blocks is picked using a Fruit Commander system. The picking efficiency of the fully tracked vehicle is comparable to the same number of workers using cherry pickers but offers a higher degree of worker safety. The machine also transports fruit in water to minimise bruising. The machine has already been modified with the recent addition of two extra picking arms.

Simpson farms have also developed their own high capacity orchard sprayer as there was no suitable machine on the Australian market. This machine uses two Sylvan turbomiser avocado heads mounted on a hydrostatically driven base. The high capacity of this machine allows it to cover 160ha a week, a necessity in an orchard of this size. This machine is backed up by two tractor driven mist units and a medium to high volume span sprayer. In combination these machines can spray the entire orchard in 2 days.

Irrigation requirements are determined by Enviro-scan soil moisture probes positioned throughout the orchard. In summer, blocks are watered every 2-3 days with a deep irrigation once a week to ensure adequate sub-soil moisture.

## © White Bridge Park - Ivan and Robyn Philpott

White Bridge Park is a mixed enterprise growing mango, lychee, longan and avocado. The avocado orchard comprises 440 eight year old Hass spaced at 9x7.5m and 300 one year old Hass spaced at 9x6m. The soil in the orchard ranges from a sandy loam to a heavier red podzolic. The young trees planted on the red podzolic have been mounded to aid drainage. Yields from the mature trees were around 20 t/ha in the 2000 season. There are no major pest concerns in the orchard although *Ectropis looper* (*Ectropis sabulosa*) did cause some damage in 2001. All spraying in the orchard is done with an Electromiser.

As in many orchards canopy management was becoming of increasing concern to Ivan as the inter-row space was declining and the trees were getting too tall to spray effectively and to pick. In order to reduce tree size and maintain yields Ivan has embarked on a comprehensive canopy management program. The first step was the purchase of a locally manufactured (P&H Rural) pruning saw which could fit on the front-end loader of a tractor. Ivan felt this was an important step in that he could prune his avocado, lychee and mango at the correct time without being dependant on a contractor. With the saw Ivan pruned his avocados to a central leader hedge system (Christmas tree shaped hedge) immediately after harvest in June 2000. However, due to the amount of wood that needed to be removed in the first year and the limitation on the saw height, the trees were pruned at a 20° angle as opposed to the optimum 22° recommended in South African literature. Immediately after pruning white plastic paint was applied to the newly exposed limbs to reduce sunburn 'Sunny' was then applied to all trees in Block 1 at the recommended rate in September 2000 and the trees given another light prune in mid-December 2000. In Block 2 (220 trees) Ivan has agreed to cooperate with QHI staff involved in the AAGF/HAL funded 'Canopy Management Project'. In this block Dr John Leonardi has imposed a wide range of treatments aimed at determining the optimum time to prune and the use of growth regulators under Australian conditions.

In 2001 Ivan again intends to prune the trees immediately after harvest but this year it will be a light prune to maintain canopy shape. He also intends to remove the top of the tree manually where the pruning saw cannot reach. Tree height will then be brought down to around 5.5 m.

Ivan has recently taken advantage of the Queensland State Government's Rural Water Use Efficiency Initiative to purchase a 'Diviner' soil moisture monitoring system. This will enable him to maximise his returns on what is a scarce resource in the Bundaberg/Childers area.



## ⑦ Rose Hill Estate - Jan and Zenta Toerien.

Jan and Zenta Toerien emigrated to Australia in 1998 from South Africa where Jan had been General Manager for Westfalia Estates and Zenta managed her own travel agency. Jan had been responsible for managing avocados from nursery to market and running an extensive research and development program. In March 2000 they purchased the 60 ha Rose Hill Estate. The avocado orchard covers some 15 ha and is comprised of 3200 trees. Fuerte dominates with 2,200 trees and the balance consists of 250 each of Hass, Sharwil, Wurtz and Rincon spaced at 9x5m with rows running north south. There are also 1100 lychee trees.

When Jan and Zenta purchased Rosehill Estate it had been badly neglected for several years and most of the trees were suffering from chronic root rot, boron deficiency, manganese toxicity and severe shading. There was also a severe anthracnose and looper (*Ectropis sabulosa*) problem causing extensive fruit loss. In addition, market requirements meant that the demand for the main variety in the orchard, Fuerte, was declining. In order to correct these problems while still maintaining cash flow Jan has implemented an extensive orchard rejuvenation program.

The first stage of the program involved replacing many of the laterals and sprinklers. An intensive root rot control program was started to revive the trees. The orchard is watered every 2-3 days with scheduling determined by tensiometer readings. The eastern side of the tree was then removed close to the trunk to reduce shading and promote the growth of new shoots that could then be grafted to Hass. The orchard was limed to increase the pH and reduce the availability of manganese in the soil. Mill mud was spread close to the trunk on the eastern side to provide mulch and nitrogen. Jan then introduced a spray program which has reduced fruit loss from <40% to >5%. This has involved repeat spraying with copper fungicides to which Bt (*Bacillus thuringiensis*) was added for the control of loopers.

The second stage (2001) involves further limb removal and pruning to increase light penetration in the orchards and an intensive grafting program by Zenta increases the number of Hass grafts. The pollinator Ettinger will be worked onto some shoots in the orchard to increase fruit set and fruit size. Depending on tree health Jan will may consider using a growth regulator on the healthier trees to increase fruit set and size.

The third stage will involve removal of the western side of the tree and the reworking of the shoots to Hass. The whole process of reworking the orchard is expected to take 3 to 4 years.

**Table 1 Climatic averages for Bundaberg**

Mean maximum temperature °C											
Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
29.7	29.6	28.9	27.1	24.4	22.4	21.7	23.0	25.1	26.5	28.2	29.1
Mean minimum temperature °C											
21.2	21.1	19.7	17.3	14.2	11.2	10.0	10.7	13.4	16.3	18.8	20.3
Mean daily evaporation (mm)											
7.0	6.2	6.3	4.2	3.7	2.8	3.1	3.8	4.9	5.1	7.0	7.0
Mean monthly rainfall (mm)											
184	153	104	62	76	42	45	34	38	73	92	127

**Mill Mud**

Mill mud, also known as filter press, is a by-product of the cane industry and is the material remaining after the cane juice is clarified and filtered. It contains all the soil that enters the factory on the cane as well as organic matter in the form of sugars and bagasse particles, lime used in the clarification process, and ash remaining from the burning of bagasse in the mill boilers. It is widely available in the Bundaberg/Childers area from the 4 mills in the district. The material is supplied inexpensively to producers with the main cost being transport as the material is supplied in a 'wet' form. Mill mud supplied directly from the mill during the season is approximately 75% water.

Mill mud is widely used by avocado growers in the district as it has many beneficial properties. The material acts as a soil conditioner because it contains a substantial amount of organic matter and calcium. Application rates of 100 t/ha supplies calcium at a rate equivalent to 2t of gypsum. These factors in combination improve the environment for avocado root growth, an important factor in the relatively harsh Bundaberg/Childers environment. Mill mud can also supply large amounts of nitrogen mainly in an organic form. This means that only a proportion of the N (around 25-30%) is available in the first year. In some orchards mill mud is used to supply up to 80% of the orchard N requirements. Mill mud also contains a large amount of other elements (Table 1).

**Table 2. Approximate rates of nutrient application (kg/ha) when mill mud is applied at the rate of 100 wet t/ha.**

Nutrient	Application rate kg/ha	Nutrient	Application rate kg/ha
Nitrogen	163	Calcium	403
Phosphorous	110	Magnesium	173
Potassium	213	Copper	0.8
Sulphur	33	Zinc	2.9

Source: BSES Fact Sheet - "Filter Mud/Ash - Getting value for you investment".

**Table 3. PRODUCTION, ESTIMATED AREA GROWN AND GROSS VALUE OF  
HORTICULTURAL CROPS IN THE BUNDABERG DISTRICT - 1999**  
Compiled by J.L.LOVATT, DPI

CROP	ESTIMATED AREA PLANTED (Ha.)	PRODUCTION p = packages t = tonnes	EST.GROSS VALUE \$	PRODUCTION 1999 AS % OF 1994	GROSS VALUE 1999 AS % OF 1994
<b>FRUIT &amp; NUTS</b>					
AVOCADOS	640	410,850 p	5,188,250	130%	126%
BANANA	185	74,470 p	1,326,980	114%	141%
CITRUS	350	301,350 p	6,933,310	806%	1188%
CITRUS (process)		2 t	260	14%	13%
CUSTARD APPLE	50	27,880 p	321,610	273%	269%
LYCHEE	90	19,780 p	599,970	152%	163%
MACADAMIA NUTS	1,505	2,970 t	6,237,000	288%	227%
MANGOS	480	136,580 p	2,832,780	208%	281%
MANGOS (process)		3 t	1,580	5%	5%
NECTARINE	20	30,560 p	606,030	525%	779%
PASSIONFRUIT	25	19,130 p	366,460	127%	133%
PEACH	15	7,160 p	116,270	145%	184%
PINEAPPLE (fresh)	120	56,430 p	854,630	172%	307%
PINEAPPLE (process)		5,115 t	1,424,710	274%	284%
<b>VEGETABLES</b>					
BEANS	90	77,600 p	1,285,040	70%	44%
BUTTON SQUASH	295	294,210 p	3,782,630	170%	187%
CAPSICUM	325	1,463,370 p	14,501,980	139%	179%
CHILLI	45	184,830 p	5,537,500	287%	389%
CHERRY	25	120,780 p	1,568,830	56%	47%
<b>TOMATOES</b>					
CUCUMBER	75	295,230 p	3,060,290	121%	109%
EGG FRUIT	85	291,020 p	2,750,150	169%	186%
PUMPKINS (large)	400	4,020 t	1,173,820	87%	74%
PUMPKINS (small)	10	5,240 p	68,850	49%	39%
ROCKMELON	300	600,210 p	7,033,390	105%	91%
SNOW PEAS	320	239,740 p	4,708,560	248%	132%
SWEET CORN	215	205,520 p	2,506,480	314%	329%
SWEET POTATOES	215	257,830 p	4,759,970	156%	134%
TOMATOES	715	3,716,130 p	40,770,980	94%	114%
WATERMELON	390	7,830 t	2,761,450	70%	110%
ZUCCHINI (fresh)	935	932,870 p	12,819,160	130%	141%
MISCELLANEOUS CROPS, NURSERIES, ORNAMENTALS ETC.			5,276,260		
<b>TOTAL</b>	<b>8,095</b>	<b>-</b>	<b>141,175,180</b>	<b>-</b>	<b>-</b>

Note: The figures for avocados, citrus, passionfruit, some other fruit crops and potatoes are understated as some production figures are not available.

