

# Situation Analysis for Papaya Industry in Fiji



Shalendra Prasad  
Ministry of Agriculture  
Fiji









# Agriculture in Fiji

## ● Major crops

- Sugarcane
- Taro
- Coconut
- Cassava
- Vegetables
- Fruits



# Fruit Industry in Fiji

## ● Major Fruits grown

- Papaya
- Pineapple
- Banana
- Mango
- Citrus






# Papaya Production

- Papaya has become Fiji's most important fruit export commodity and offers the prospect of becoming a major industry.





○ Fiji is well placed to become a substantial papaya producer based on a number of factors:

- Favorable soil and climate
- Favorable pest and disease status
- A functioning commercial quarantine treatment
- A strong export and local market demand



○ The Fiji papaya industry is currently comprised of:

- 9 exporters
- 11 large farmers
- 150 small farmers
- 1 industry owned and operated quarantine treatment facility

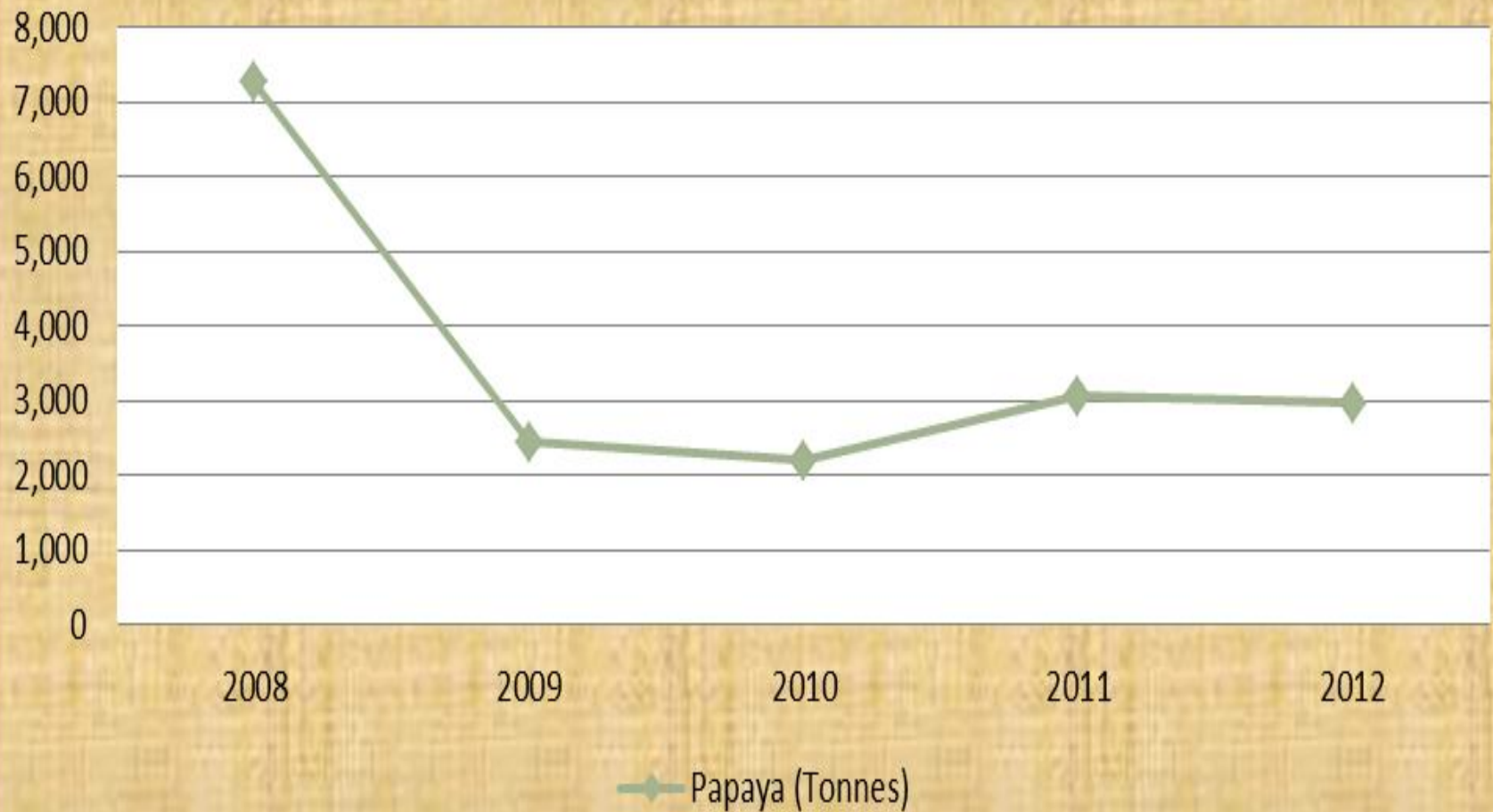


# Common Varieties

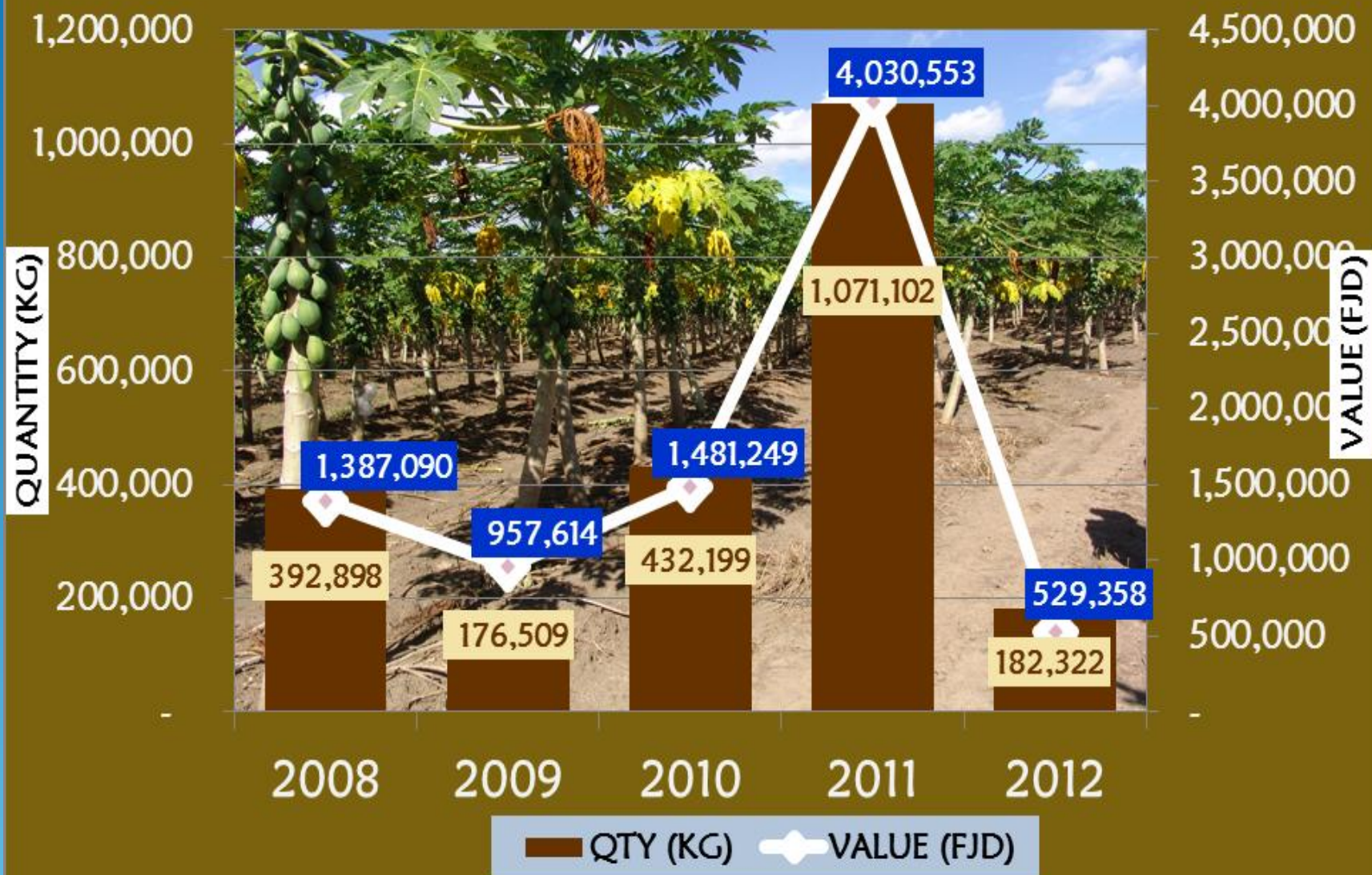
- Sunrise solo (Fiji Red) is the most common variety cultivated in Fiji



## Papaya Production Trend



## ANNUAL PAWPAW EXPORT TREND (2008-2012)



# Papaya export by country



Country	2011		2012	
	Export (Kg)	Export (\$ FJ)	Export (Kg)	Export (\$ FJ)
Australia	628,194	2,950,725	39,520	206,901
New Zealand	376,186	815,956	138,761	313,251
Hong Kong	36,485	171,596	2,019	8,877
Nauru	4,270	482	2,021	329
Canada	901	392		
Japan	14,516	88,726		
Tuvalu	10,000	150		
United States	550	2,526		
Total	1,071,102	4,030,553	182,322	529,358



○ Fiji's papaya export is governed by the Bilateral Quarantine Arrangement with New Zealand and Australia.

○ High Temperature Forced Air (HTFA) is used for treatment of fruit fly.



# FIJI PAPAYA EXPORT PATHWAY *(Carica papaya)*

## 1. Farm Registration

### Grower & Site Registration

- Registration Declaration signed by farmer and exporter
- Farmer & papaya sites registered by MOA and given registration number
- A map of the farm is also submitted

## 2. Field Control Measures

### Field Hygiene

- MOA Extension to ensure appropriate Phytosanitary measures are maintained
- Field should be clean at all times (weed free and well maintained)
- Spray with recommended chemicals for respective target pests
- Dried leaves should be removed and burned
- Papaya shoots emerging along trunk should be removed
- Proper irrigation practice with consistent water supply
- Ripe, over-ripe, fallen, discarded fruits removed and dispose (buried/burnt) to prevent breeding of fruit flies

### Harvest

- Papaya harvested only from :
  - registered sites
  - fields that received approved field sanitation measures
- Export papaya harvested at colour break (stage not susceptible to fruit fly attack)
- Only field bins used to collect fruits to reduce fruit damage

## 3. Exporter / Packhouse

**Licensing** - Exporter/ packhouse approved and licensed by MOA Quarantine

### Packhouse Fiji MOA Inspection

- Daily records of export papaya supplied by growers is maintained by packhouse staff
- Grading and inspection done by packhouse staff
- Packhouse staff inspect on grower line basis to detect any quarantine pest and remove fruits with insect damage, ripe, rot/decay and those that do not meet quality specification. These fruits are not acceptable for the export pathway
- Quarantine inspects papaya graded by packhouse staff (on a grower line basis)
- Quarantine inspects 450 < 1000 units or 600 for > 1000 units to be covered in 3 hours inspections time
- Quarantine Officer completes and signs the official Transfer Slip for inspected papaya to be treated for export
- Only the quantity inspected and recorded on the Transfer Slip is transferred to the Quarantine Treatment Centre along with the Grower supply record
- Exporter ensures that papaya is transferred promptly to the Quarantine Treatment Centre in field bins with the completed transfer slip

## 4. Quarantine Treatment

### High Temperature Forced Air (HTFA)

- Only the quantity of papaya indicated on the Official Transfer Slip is accepted by Quarantine at the Quarantine Treatment Centre for HTFA treatment
- Verification done on a grower line basis
- Quarantine Treatment: follow official procedures; (Treatment specification: 47.2 °C for 20 minutes)
- Papaya packed, weighed and labeled
- All treated and packed papaya stored in the pest proof facility at the Treatment Centre to maintain security of the consignment and prevent against re-contamination

## 5. Phytosanitary Certificate

- A Phytosanitary Certificate (PC) will be issued by Fiji MOA covering each shipment of papaya cleared for export to New Zealand if MOA Quarantine is satisfied that all pre-export procedures and pathway requirements have been successfully followed
- Treatment printout and additional declaration should also be attached to the PC

## 6. On Arrival Inspection and Clearance in New Zealand

- Accompanying documentations checked
- 600 unit sample inspected by NZMAF
- If required, commodity may be directed to a facility for further treatment
- Biosecurity clearance is given

## QUALITY ASSURANCE

### Audit of Export Pathway

- Fiji MOA formally audits the papaya export pathway of all papaya exporters to ensure compliance
- Fiji MOA maintains records of all the audits

### Compliance and Monitoring

#### On Farm Production

- Growers Producing papaya for export to NZ will comply with all field control and on farm production measures

#### Export Packhouse

- Packhouses will not accept papaya for export to NZ from any grower who is not registered.  
- Packhouses not complying with appropriate requirements would be suspended until such time non compliance are rectified.

#### The Fiji MOA Inspection

- Growers and packhouses will be suspended from exporting papaya to NZ if fruit fly (any stage) is found during Fiji MOA inspection until requirements of the procedure are again met.

### Feed-back on Non Compliance

NZMF will inform MOA of interception of regulated pests or non compliance



Fruit fly life stages



# Natures Way Cooperative

- Natures Way Cooperative (Fiji) Ltd (NWC) is a registered cooperative owned and operated by the Fiji fresh produce export industry. NWC's core business is the quarantine treatment of fruit fly host products.



# What is High Temperature Forced Air (HTFA) Quarantine Treatment?

- HTFA was developed in Hawaii as a quarantine treatment for papaya to replace the highly unsatisfactory double dip hot water treatment. The HTFA process involves slowly heating the fruit (5-6 hours) to a temperature that can kill fruit fly larvae and eggs (around 47.2 °C).






- An international patent on the HTFA technology is currently held by a New Zealand based company Quarantine Technologies International (QTI).

# Who is Natures Way Cooperative?

- Natures Way Cooperative (NWC) was established in 1995 to own and operate the new quarantine treatment facility on behalf of Fiji's fruit growers and exporters.

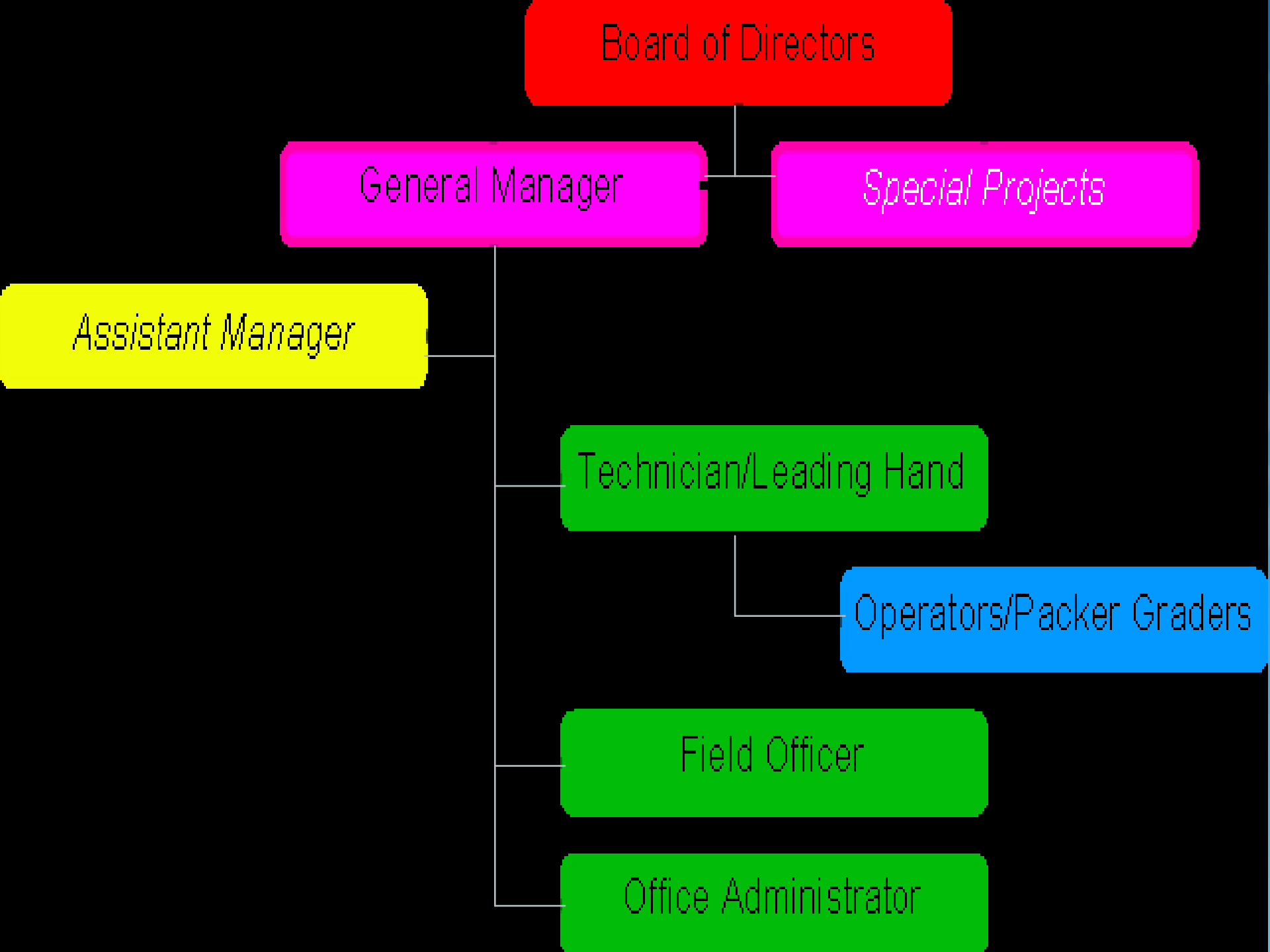




- Prior to the establishment of NWC, quarantine treatment throughout the Pacific islands was undertaken by government quarantine departments.
- These were chemical treatments such as ethyl dibromide (EDB) and methyl bromide and were usually provided free of charge or at highly subsidised rates. The concept that quarantine treatment would be undertaken by the industry itself was a major departure from this institutionalized norm.

- 
- NWC is a service cooperative that treats and packs fruit on behalf of its members. It is not involved in exporting, which is handled by individual exporters. The exporters must be NWC shareholders to utilise the HTFA facilities and they should purchase their produce for treatment from farmers who are also shareholders. Exporters pay a fee per kg of fruit treated.

- NWC now has around 152 shareholding members, most of which are small farmers.
- 





- 
- Over the last decade NWC has grown from a small business handling just 30 tonnes of papaya to an agribusiness treating 1,200 tonnes fruit (papaya, mango, eggplant and breadfruit) annually for export.
  - 87% of the export are to New Zealand and only 13 % to Australia.
  - Of the total fruit treated papaya (49%), eggplant (43%), mango (7%), and bread fruit (1%) (
- 

- Papaya is regarded as a host to the Pacific Fruit Fly (*Bactrocera passiflorae*). Hence the need to use quarantine treatment for papaya exported from Fiji to Australia and New Zealand.
- There are no records of *B. passiflorae* infesting fruit at the colour break to half ripe stage that papaya is exported from Fiji at. As a consequence fruit flies are not a production pest for papaya in Fiji.

# The value chain for Fiji's papaya industry

Papaya in Fiji has somewhat complex value chain involving a large number of actors. These can be listed as:

- Six seedling suppliers
- Papaya Farmers (220 registered farmers)
- Research Partners (Ministry of Agriculture Research Division– Sigatoka Research Station (SRS) and the ACIAR Fiji Papaya Project)
- Extension Partners (Ministry of Agriculture Extension Division, Taiwan Technical Mission (TTM))
- Domestic Traders (road side sellers, market vendors, middlemen)
- Transporters and handlers (NWC staff, exporter staff, Air Terminal Services (ATS), freight companies)
- Exporters (9 exporters – with 4 handling most of the papaya)
- Biosecurity Authority of Fiji (BAF)



# Factors attributing to the success of NWC

A number of key factors have contributed the success of NWC. These are:

- The quality and continuity of management. The same Chairman and General Manager have served from the outset.
- There has been no government interference in the operations of the business.
- There has been an appropriate public private sector partnership.
- Shareholders have not interfered in the day to day operations.

- The business was able to quickly move to a level of plant utilisation that yielded to a positive cash flow. The key to this was the introduction of eggplant in 1998 to complement and then surpass papaya.

- Quarantine treatment fees have been set at an economic rate from the outset. This has enabled the business to run profitably and retain a sufficient level of earning to fund repairs and maintenance, to invest in the expansion of the business and to make —rainy day‖ provisions for events such as cyclones and trade bans.

- The ability to implement a succession plan to ensure the sustainability of operations.

Thank You

