

PINEAPPLE

1. Introduction

Pineapple (*Ananas comosus*) is an important fruit of India. Pineapple is cultivated in an area of 89 thousand ha and total production is 1,415.00 thousand tons. It is abundantly grown in almost entire North East region, West Bengal, Kerala, Karnataka, Bihar, Goa and Maharashtra states.

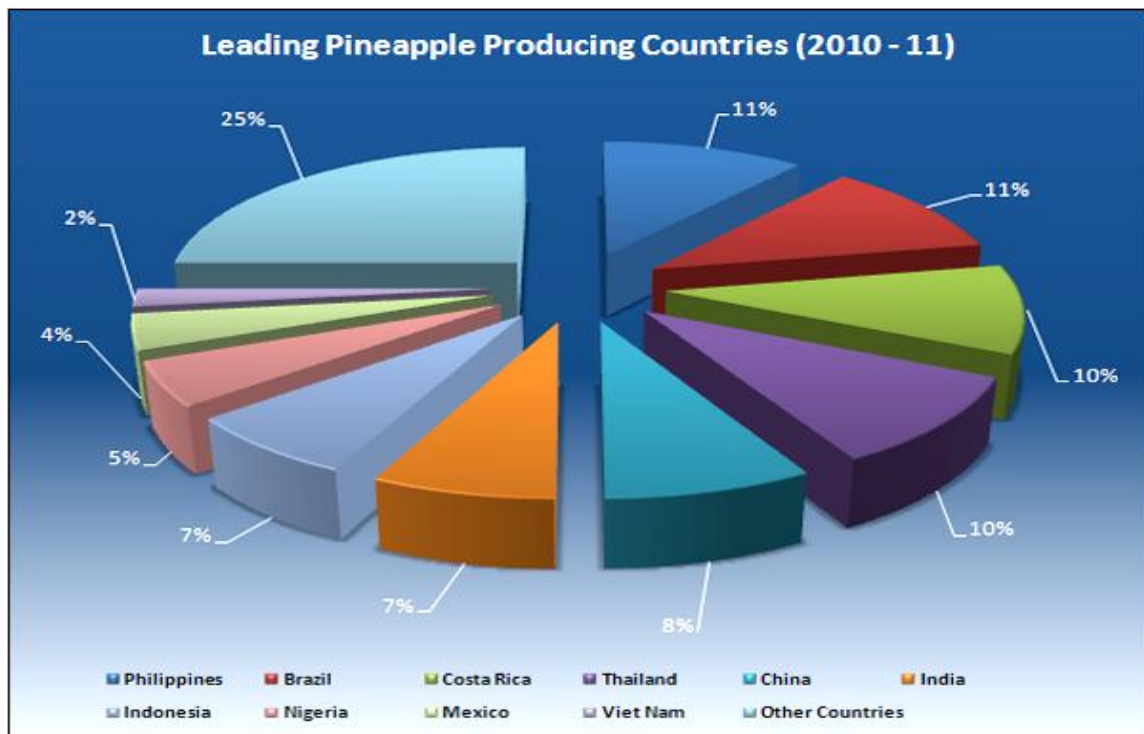
World Scenario

The major pineapple growing countries in the world are Brazil, Thailand, Philippines, Costa Rica, China and India. The total area under pineapple cultivation in the world is 909.84 thousand ha with production around 19412.91 thousand tons.

Area, Production and Productivity of Pineapple in the World.

| Country | Area in '000 ha | Production in '000 tons | PRODUCTIVITY in tons/ha | % SHARE OF WORLD PRODUCTION |
|--------------|-----------------|-------------------------|-------------------------|-----------------------------|
| Philippines | 58.55 | 2169.23 | 37 | 11 |
| Brazil | 54.07 | 2120.03 | 39.2 | 11 |
| Costa Rica | 45.00 | 1976.76 | 43.9 | 10 |
| Thailand | 93.31 | 1924.66 | 20.6 | 10 |
| China | 57.30 | 1518.90 | 26.5 | 8 |
| India | 89.00 | 1415.00 | 15.9 | 7 |
| Indonesia | 20.00 | 1390.38 | 69.5 | 7 |
| Nigeria | 159.20 | 1052.00 | 6.6 | 5 |
| Mexico | 16.60 | 701.75 | 42.3 | 4 |
| Viet Nam | 41.10 | 477.20 | 11.6 | 2 |
| Others | 275.71 | 4667.00 | 16.9 | 25 |
| World | 909.84 | 19412.91 | 21.3 | 100 |

Source : Indian Horticulture Database, 2011



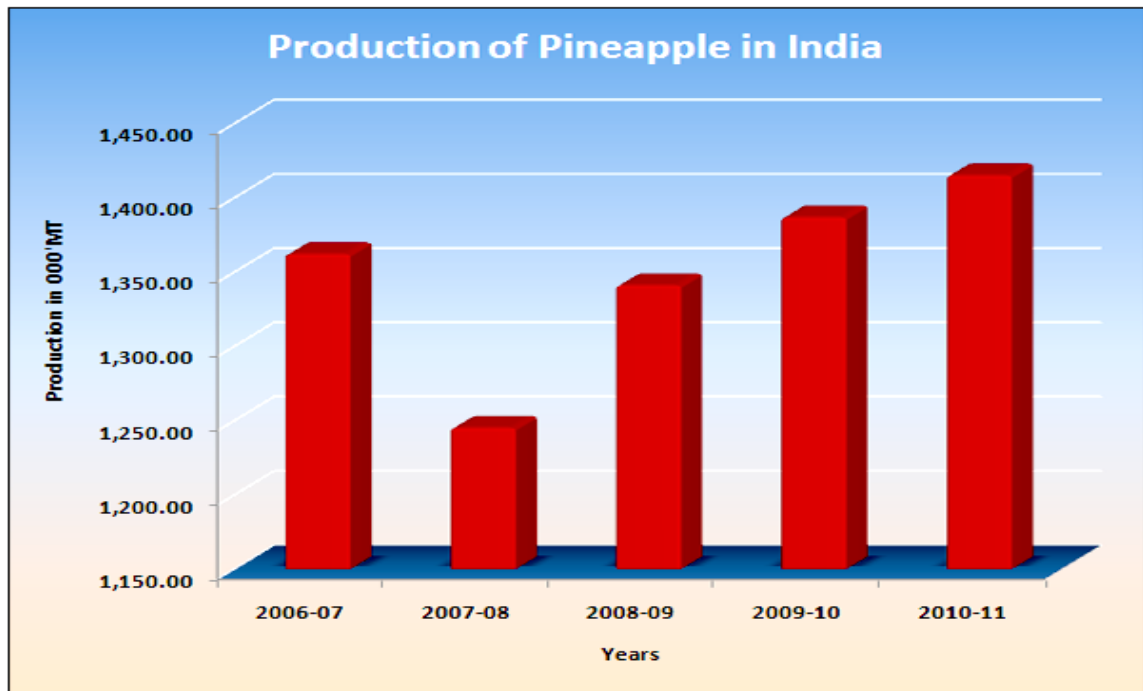
Indian Scenario

There is sizeable increase in acreage and production of pineapple in India. In acreage, there is an increase from 87 thousand ha in 2006-07 to 89 thousand ha in 2010-11. Similarly the production has increased from 1,362.00 thousand tons in 2006-07 to 1,415.00 thousand tons in 2010-11. The details are given in table.

Area, Production and Productivity of Pineapple in India

| Year | Area(000'ha) | Production(000'tons) | Productivity(tons/ha) |
|---------|---------------|----------------------|-----------------------|
| 2006-07 | 87.00 | 1,362.00 | 15.70 |
| 2007-08 | 80.00 | 1,245.00 | 15.60 |
| 2008-09 | 84.00 | 1,341.00 | 16.00 |
| 2009-10 | 91.90 | 1,386.80 | 15.10 |
| 2010-11 | 89.00 | 1,415.00 | 15.90 |

Source: Indian Horticulture Database,2011



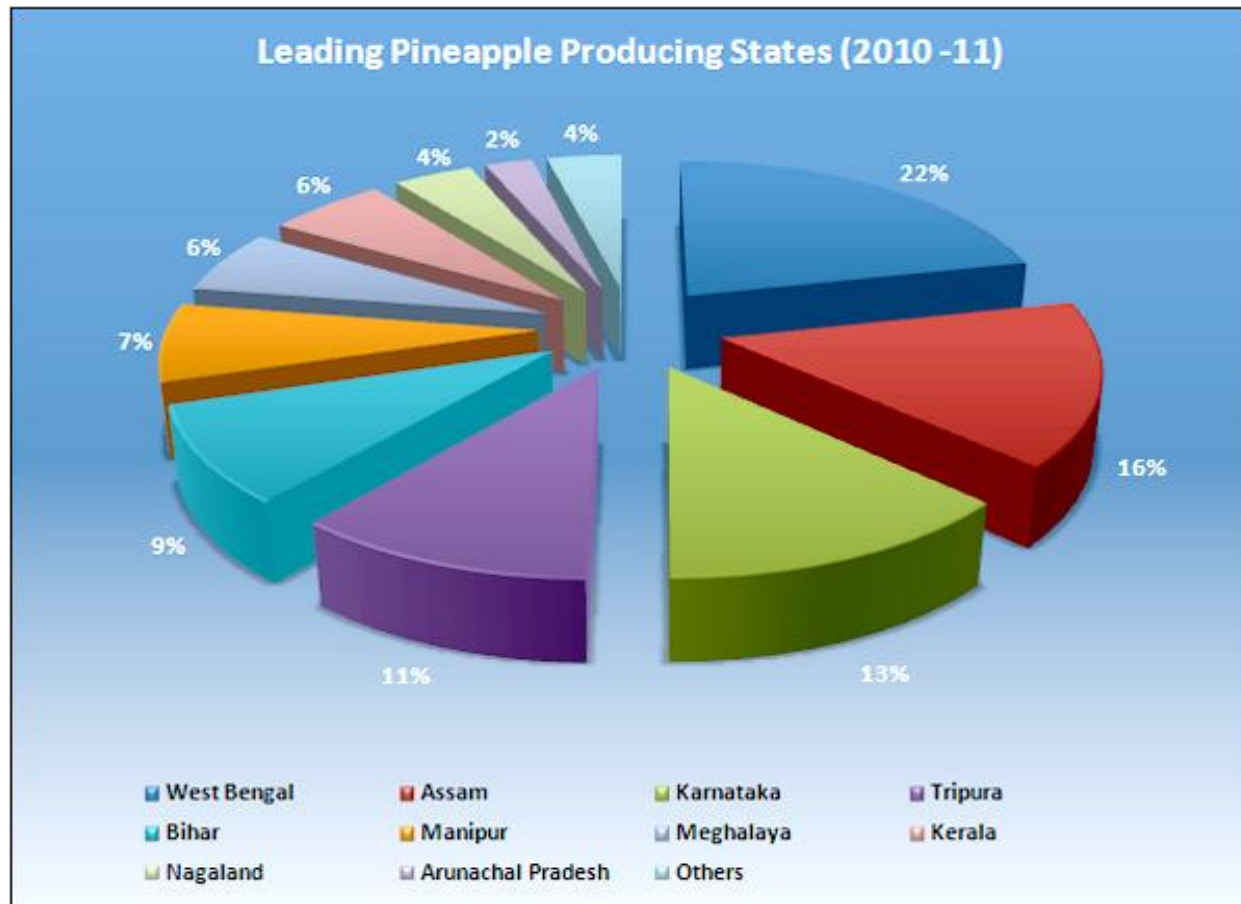
2. Major Producing States with Production of Last Three Years

The total area under pineapple production in India is 88.7 thousand ha and the production is 1415.4 thousand tons. Maximum area under pineapple cultivation is in Assam (14 thousand ha), where productivity is of medium scale. Total production is higher in West Bengal, where productivity is also high. Productivity is much lower in Karnataka, Kerala and Meghalaya states.

Area, Production and Productivity of Leading Pineapple Growing States in India

| State | Area (000'ha); Production (000'tons); Productivity (tons/ha) | | | | | | | | | % share in Production |
|-------------------|--|----------------|--------------|--------------|----------------|--------------|--------------|----------------|--------------|-----------------------|
| | 2008-09 | | | 2009-10 | | | 2010-11 | | | |
| | Area | Production | Pdy. | Area | Production | Pdy. | Area | Production | Pdy. | |
| West Bengal | 9.60 | 283.90 | 29.70 | 9.60 | 293.80 | 30.50 | 9.90 | 303.70 | 30.60 | 21.5 |
| Assam | 12.90 | 225.10 | 17.50 | 14.20 | 223.00 | 15.70 | 14.00 | 220.70 | 15.80 | 15.6 |
| Karnataka | 3.00 | 186.30 | 61.70 | 2.80 | 177.20 | 63.30 | 3.00 | 186.10 | 62.00 | 13.1 |
| Tripura | 6.30 | 101.20 | 16.10 | 6.80 | 117.50 | 17.30 | 6.80 | 153.30 | 22.60 | 10.8 |
| Bihar | 4.70 | 119.50 | 25.50 | 4.70 | 125.00 | 26.40 | 4.90 | 129.40 | 26.50 | 9.1 |
| Manipur | 8.60 | 78.50 | 9.10 | 12.10 | 103.50 | 8.60 | 12.20 | 104.40 | 8.60 | 7.4 |
| Meghalaya | 10.80 | 106.80 | 9.90 | 10.80 | 106.80 | 9.90 | 9.70 | 86.00 | 8.90 | 6.1 |
| Kerala | 12.50 | 102.40 | 8.20 | 9.80 | 80.80 | 8.20 | 10.20 | 85.50 | 8.40 | 6.0 |
| Nagaland | 3.70 | 57.50 | 15.50 | 8.00 | 80.10 | 10.00 | 3.70 | 57.50 | 15.50 | 4.1 |
| Arunachal Pradesh | 9.30 | 37.80 | 4.10 | 10.90 | 34.40 | 3.20 | 10.90 | 34.40 | 3.20 | 2.4 |
| Others | 2.40 | 41.90 | 17.30 | 2.20 | 44.80 | 20.60 | 3.50 | 54.50 | 15.60 | 3.9 |
| Total | 83.70 | 1340.80 | 16.00 | 91.90 | 1386.80 | 15.10 | 88.70 | 1415.40 | 15.90 | 100.0 |

Source : National Horticulture Board -2011



3. Description of Commercially Grown Varieties Showing the varietal characteristics of commercially grown Pineapples

| Variety/ Type | Characteristics |
|-----------------------|---|
| Kew or Giant Kew | Fruit is big in size, deep yellow to coppery yellow in colour, eyes are broad and flat, flesh colour is pale yellow to yellow, with T.S.S. of 12-14obrix. |
| Queen or Common Queen | Fruit is small in size, golden yellow in colour, eyes are small and raised, flesh colour is deep golden yellow, with T.S.S. of 15-16obrix. |
| Mauritius | Fruit is medium in size, yellow and red in colour. |

4. Good Agricultural Practices (GAP)

- Adoption of high density planting.
- Using different types of planting material and planting at different times of year.
- Management of nutrients.
- Interculture, weed control etc.
- Integrated management of pests and diseases.
- Inducing of flowering.
- Making fruits available throughout the year.

5. Harvesting Season of Crop in Leading States



| STATE/UT'S | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC |
|-------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| West Bengal | | | | | | | | | | | | |
| Assam | | | | | | | | | | | | |
| Manipur | | | | | | | | | | | | |
| Bihar | | | | | | | | | | | | |
| Tripura | | | | | | | | | | | | |
| Karnataka | | | | | | | | | | | | |

*The above graph showing harvest pattern in leading Pineapple growing states.

6. Arrival pattern in market

Availability of pineapple in Delhi market is during June to November months and lasts up to February month. In major pineapple producing states comprising Meghalaya, Assam, West Bengal, Nagaland, Manipur, Tripura etc. season of availability is from July to December months. The details are given below in table.

Details of arrival pattern of Pineapple according to bahar treatment

| S.No. | States | Period of Harvest |
|-------|-------------|-------------------|
| 1 | West Bengal | July- December |
| 2 | Assam | July- December |
| 3 | Manipur | July- December |
| 4 | Tripura | July- December |

7. (a) Concentrated Pockets

The details of concentrated pockets of Pineapples in different states are given below in table.

Showing concentrated pockets of Pineapple in India.

| State | Districts |
|-------------|--|
| West Bengal | Darjeeling, Jalpaiguri, Dakshin Dinajpur, Uttar Dinajpur, Koch Bihar |
| Assam | Karbi-Anglong, Nagaon, Cachar, N.C.Hills |
| Manipur | Senapati, Thoubal, Charchandpur, Bishnupur, East Imphal |
| Bihar | Purnia, Kishanganj, Saharsa, Madhepura |
| Tripura | West Tripura, North Tripura, Dhalai Tripura |
| Karnataka | Shimoga, Kodagu, Uttar Kannada, Dakshin Kannada, Udupi. |

(b) Catchment Areas of Market

Showing the details of catchment Areas of Markets of Pineapple in Leading States

| States | Districts (Market) | Blocks |
|-------------|--------------------|--|
| West Bengal | Darjeeling | Takdah, Pedory, Thode, Sivok, Mirik, Matigara, Bagdogra, Ragtong, Sukna, Batasi. |
| | Jalpaiguri | Damdin, Ramshai, Goyerkata, Neora Nadi, Mainaguri. |
| | Dakshin Dinajpur | Kushmandi, Bansihari, Gangarampur, Balurghat, Hilli, Harsura, Patiram, Badalpur. |
| | Uttar Dinajpur | Daspara, Ramganj, Dhantola, Panjipara, Kanki, Karandighi |
| | Coochbehar | Natabari Hat, Jamaladaha Hat, Haldibari, Sitalkuchi, Tufanganj, Bhainkuchi, Dinhat. |
| Assam | Karbi - Anglong | Phang Chogaon, Kaliani, Jengpata, Erelang Kramsa, Tumpung, Dengaon, Burakek, Howang, Dhansipi, Char ka Heri, Lung Ding, Khainduli, Mynser. |
| | Nagaon | Koliabor, Dhing, Samaguri, Raha, Jamunamukh, Murajhar, Lanka, Lumding. |
| | Silchar | Jalapur, Kaksin, Barakhola, Udarbard, Kumbhir, Raja Bazaar, Banskandi, Lakhipur, Sonaimukh, Dullachara, Palanghat, Dwarband, Silkuri. |
| | N C Hills | Lungding, Langker, Thajjuari, Langlut, Garampani, Labang, Malangpa, Baladhan, Hungruni, Laisong, Darangiba, Lang Ting. |
| Manipur | Senapati | Kang Jang, Wilong, Tadubi, Gaziphema, Maram, Karog, Saikul, Laphuilak |
| | Thoubal | Yairipok, Wangjing, Wabagai, Kakchig. |
| | Charchandpur | Hanglep, Songsan, Tinaong, Senvon, Hanship, Molnom, Thinghat, Mulanil, Hangtam. |
| | Bishnupur | Ningthoukhong, Moirang, Thanga, Kumbi, Shuganu. |
| | East Imphal | Jirbam |
| Bihar | Purnia | Amour, Qasba, Banmankhi, Barhara, Kothi, Dhamdaha, Bhawanipur, Rupauli. |
| | Kishanganj | Dighalbank, Bahadurganj, Kochadhamin, Pothia, Thakurganj. |
| | Saharsa | Mariches, Nauhata, Mahishi, Chapram, Salkhua, Sonbarsa Raj, Sour Bazaar. |
| | Madhepura | Kumarkhad, Singheshwar, Sankarapur, Murliganj, Alamnagar, Chausa, Puraini |

| | | |
|------------------|-----------------|--|
| Tripura | North Tripura | Dharmanagar, Unakot, Fatikrai, Kumarghat, Vanghmuri, Phuldurgsai, Sakhan. |
| | West Tripura | Khowal, Sidhai, Kalyanpur, Ranirbazaar, Jambal, Bisalgarh, Barjula, Sonamura, Kathalia, Khowal, Teliamura. |
| | Dhalai Tripura | Kamalpur, Halhari, Salema, Kanchanpur, Bahudurpura, Sakhn, Rabiraipara. |
| Karnataka | Shimoga | Telagadda, Thelagundi, Sagar, Shikharpur, Sagar, Tirthahalli, Hosanagara, Karur, Basavani |
| | Kodagu | Kodlipet, Virarajendrapet, Kuttandi, Hakattur, Madikeri, Parana, Perur, Teralu, Kantur. |
| | Uttar Kannada | Maliyal, Mundgod, Yellapur, Sirsi, Siddapur, Bhatkal, Ankola. |
| | Dakshin Kannada | Sullia, Puttur, Bantwal, Neithangady, Mani, Narau, Kedal, Muchli, Kolucheru. |
| | Udupi | Kundapura, Kokkaroni, Karkal, Goligudelej, Chittur, Harmanuu, Kokkaroni, Shivapura, Kodlamale, Yermal |

8. Criteria and description of grades

Details of grade designation and sizing of pineapple as per AGMARK standard

| Grade Designation | Grade Requirements | Total soluble solids in Brix degrees (Minimum) | Grade Tolerances |
|-------------------|---|--|--|
| 1 | 2 | 3 | 4 |
| Extra class | Pineapples must be of superior quality. They must be characteristic of variety and/or commercial type. They must be free of defects. Very slight superficial defects may be there, provided these do not affect general appearance of the produce, the quality, the keeping quality and presentation in the package. The crown, if present, shall be simple and straight with no sprouts and shall be between 50 and 150% of the length of the fruit with trimmed or untrimmed* crowns. | 12 | 5% by number or weight of Pineapples not satisfying the requirements of the grade, but meeting of those of Class I grade or, exceptionally coming within the tolerances of that grade. |
| Class I | Pineapples must be of good quality. They must be characteristics of the variety and/or commercial type. The following slight defects however, may be allowed, provided these do not affect the general appearance of the produce, the quality, the keeping quality and presentation in the package. - slight defects in shape - slight defects in colouring; including sunspots; - slight skin defects (i.e. scratches, scars, scraps and blemishes) not exceeding 4% of the total surface area. The defects must not, in any case, affect the pulp of the fruit. The crown, if present shall be simple and straight and slightly curved with no sprouts, and shall be between 50 and 150% of the length of the fruit for pineapples with trimmed or untrimmed crowns. | 12 | 10% by number or weight of Pineapples not satisfying the requirements of the grade, but meeting those of class II grade or exceptionally, coming within the tolerance of that grade. |

| | | | |
|----------|---|----|--|
| Class II | <p>Pineapples which do not qualify for inclusion in the higher grades but satisfy the minimum requirements. The following defects may be allowed, provided the pineapples retain their essential characteristics as regards the general appearance, quality, the keeping quality and presentation - defects in shape,</p> <ul style="list-style-type: none"> - defects in colouring; including sunspots; - skin defects (scratches, scars, bruises and blemishes) not exceeding 8% of the total surface area. <p>The defects must not, in any case, affect the pulp of the fruit.</p> <p>The crown, if present, shall be simple or double and straight or slightly curved, with no sprouts.</p> | 12 | 10% by number or weight of Pineapples not satisfying the requirements of the grade but meeting the minimum requirements. |
|----------|---|----|--|

PROVISION CONCERNING SIZING

Size is determined by the average weight of the fruit with a minimum weight of 700 g. except for small size varieties (such as victoria and queen) which can have a minimum weight of 250 g. in accordance with the following table:

Details of sizing in Pineapple fruits

| Size Code | Average Weight (+/-12%) (in grams) | |
|-----------|------------------------------------|---------------|
| | With Crown | Without Crown |
| A | 2750 | 2280 |
| B | 2300 | 1910 |
| C | 1900 | 1580 |
| D | 1600 | 1330 |
| E | 1400 | 1160 |
| F | 1200 | 1000 |
| G | 1000 | 830 |
| H | 700 | 560 |
| I | <700 | <560 |

Size tolerance

For all classes 10% by number or weight of pineapple corresponding to the size immediately above and/or below that indicated on the package.

9. Packaging & its details

(a) For Export Market

Packaging is normally done in corrugated or solid fibre board cartons. The container shall comprise of the inter-locking type preferably having a water-proof coating to prevent damage due to high humidity in cold stores.

Specification details for Corrugated Fiber Board (CFB) Boxes for packing Pineapples

| Mode of Transport | Sea | Sea | Sea | Sea | Air |
|-------------------|--|---------|---------|---------|-----------|
| Size of fruit* | A | B | B+C | D | 1.75-2 kg |
| Crown | Reduced | Reduced | Reduced | Reduced | Large |
| Orientation | Vert. | Vert. | Vert. | Vert. | Vert. |
| No. of fruits | 8 | 12 | 12 | 20 | 6 |
| Packing pattern | 4X2 | 4X3 | 4X3 | 5X4 | 3X2 |
| Construction | 10 | 10 | 10 | 6 | 6 |
| Internal length | 535 | 535 | 535 | 535 | 415 |
| Internal width | 290 | 395 | 375 | 430 | 275 |
| Internal height | 280 | 250 | 220 | 195 | 375 |
| Hand holes | Yes | Yes | Yes | Yes | Yes |
| Ventilation holes | One ventilation hole opposite each fruit | | | | |
| Short/long sides | 335X90 230X90 230X70 140X35 | | | | |
| Top and bottom | Partitions Corrugated Fibre board | | | | |
| Inserts | | | | | |
| Materials | | | | | |
| Number of flutes | | | | | |
| Box | 1 | 1 | 1 | 1 | 2 |
| partitions | 1 | 1 | 1 | 1 | 1 |
| Substance @ | | | | | |
| Lower part/total | 300-350 | 300-350 | 300-350 | 300-350 | 150-225 |
| Upper part | 200-225 | 200-225 | 200-225 | | |
| Partitions | 300-350 | 300-350 | 300-350 | 300-350 | 225-250 |

Source: Post- Harvest Manual for Export of Pineapples, APEDA, New Delhi

| All dimensions stated are in millimeters | |
|--|--------------------|
| A | 1500 gm and over |
| B | 1100 gm to 1500 gm |
| C | 800 gm to 1100 gm |
| D | Less than 800 gm |
| Baby | Approx 550 gm |
| Substance @ indications are in gm/m ² | |

(b) For Domestic Markets

For domestic markets, pineapples are packed in gunny bags.

10. Distribution of produce from primary to terminal market

- Pineapple grown in different parts of the country is transported to the big cities for marketing.
- Pineapple grown in North Bengal (Jalpaiguri) finds markets in Kolkata then shipped to Delhi, NCR, Lucknow, Mumbai and Pune.
- Pineapple grown in Kerala is consumed in Kerala and nearby markets of Southern states.

11. Exports and export potential

A. Domestic Strengths for Exporting Pineapple

Domestic strengths for exporting pineapple are given in the following points:-

- Pineapple is cultivated in India in North East, West Bengal, and Bihar in eastern side and in Karnataka, Goa, Maharashtra etc, to some extent, in western side.
- Western ports can be exploited for exporting to Gulf and European Union which will save on transport also.
- Entire technology for obtaining high yields and for harvesting fruits throughout the year is available for putting into practice right away.
- Internationally acceptable cultivars like Kew or Giant Kew which is also called Cayenne or Smooth Cayenne are grown extensively in India.
- Agri Export Zone for promoting exports of pineapple has already been established in North Bengal.
- From location point of view, India is better placed for exporting pineapple to Gulf countries as well as to European countries, compared to South East Asian countries like Philippines and Central and South American countries.
- There are good prospects for cultivation of organic pineapples in Kodagu district of Karnataka and Ratnagiri district in Maharashtra state.

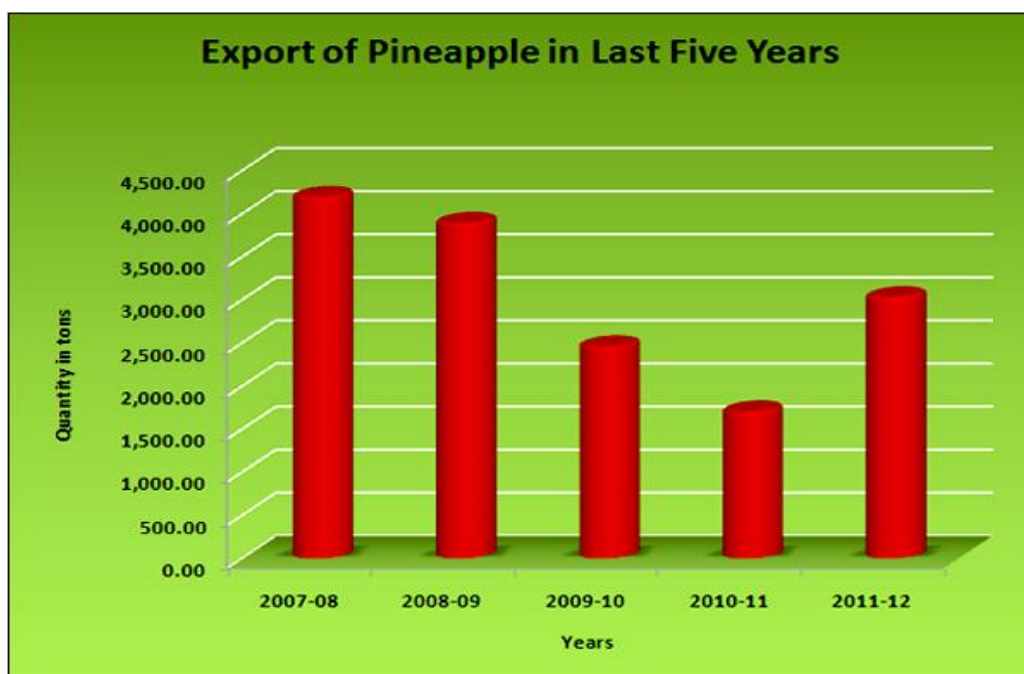
B. Exports

Export of Pineapples has significantly increased in last few years; however, the total quantity exported is negligible. Increase in exports has taken place from 4,194.99 tons in 2007-08 to 3030.66 tons in 2011-12 . Export, though has increased from 1705.99 tons in 2010-11 to 3030.66 tons in 2011-12.

Export of Pineapple from India in the Last Five Years

| Years | Qty. (ton's) | Value(in Rs. Lakh) |
|--------------|---------------------|---------------------------|
| 2007-08 | 4,194.99 | 339.76 |
| 2008-09 | 3893.44 | 367.81 |
| 2009-10 | 2462.33 | 402.7 |
| 2010-11 | 1705.99 | 390.28 |
| 2011-12 | 3030.66 | 603.08 |

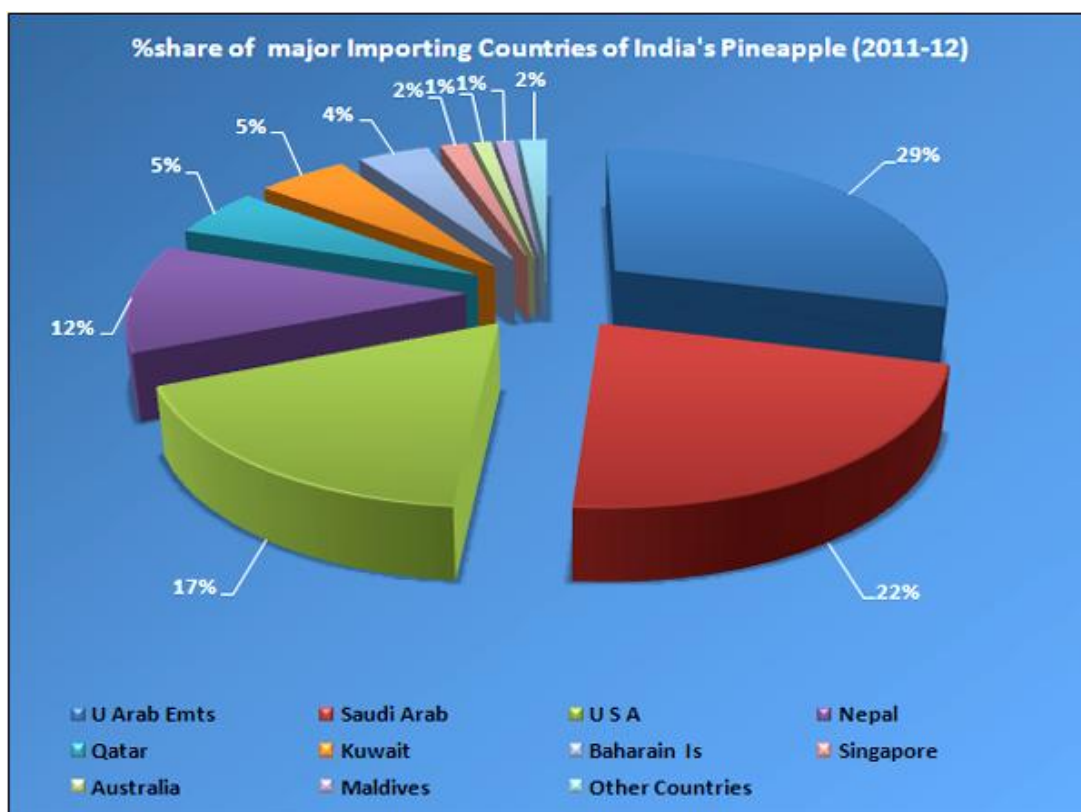
Source: APEDA Database, 2011-12



C. Countries Wise Export of Pineapple from India

| Export of Pineapple (HS Code : 20079930) | | | | | | | |
|--|---------------|--------------|--------------|--------------|---------------|--------------|------------------|
| Qty. in MT , Value In Rs. Lacs | | | | | | | |
| Country | 2009-2010 | | 2010-2011 | | 2011-2012 | | % Share in Value |
| | Qty. | Value | Qty. | Value | Qty. | Value | |
| U Arab Emts | 27.23 | 21.53 | 6.75 | 2.96 | 62.11 | 25.89 | 29.06 |
| Saudi Arab | 3.75 | 1.93 | 6.76 | 2.74 | 68.89 | 19.93 | 22.37 |
| U S A | 31.28 | 9.61 | 11.81 | 3.73 | 55.06 | 15.42 | 17.31 |
| Nepal | 0.54 | 0.24 | 0.00 | 0.00 | 13.43 | 10.39 | 11.66 |
| Qatar | 9.65 | 6.98 | 11.1 | 6.09 | 7.36 | 4.64 | 5.21 |
| Kuwait | 7.53 | 4.47 | 19.91 | 5.27 | 6.3 | 4.57 | 5.13 |
| Baharain Is | 1.02 | 1.08 | 1.57 | 0.65 | 5.13 | 3.64 | 4.09 |
| Singapore | 0.00 | 0.00 | 0.00 | 0.00 | 1.65 | 1.39 | 1.56 |
| Australia | 0.00 | 0.00 | 1.74 | 0.85 | 1.92 | 0.92 | 1.03 |
| Maldives | 0.00 | 0.00 | 0.31 | 0.12 | 1.80 | 0.92 | 1.03 |
| Other Countries | 30.53 | 9.60 | 14.38 | 7.43 | 2.66 | 1.39 | 1.56 |
| Total | 111.53 | 55.44 | 74.33 | 29.84 | 226.31 | 89.10 | 100.00 |

Source : DGCIS



D. Measures for enhancing competitiveness for export

Following measures need to be adopted to enhance competitiveness for export of pineapple:

- To save on transport, advantage of western ports needs to be taken for exporting to Gulf and European countries. For this, cultivation of pineapple in Karnataka, Maharashtra and Goa needs to be intensified.
- At present, to meet the huge demands of European Union, South American and Central American countries supply pineapple. But their supplies taper from February onwards, India can exploit this situation in its favour by making available pineapple in February month onwards by planting different planting materials and regulating flowering.
- Pineapple is very sensitive fruit to atmospheric temperatures when harvested after initiation of ripening. Therefore, in order to supply quality pineapple at par with South and Central American countries, pack houses and cool chain facilities need to be set up.
- For extending storage period, CA and MA storage technology needs to be perfected and adopted and with the availability of MA storage facilities, pineapple can be sent to EU countries.

12. Storage

| | |
|---------------------|--|
| Temperature: | 7 - 10 °C (Half ripe or fully ripe fruits) |
| | 10 - 13 °C (Fully green fruits) |
| Relative Humidity:. | 85 - 95% |
| Storage Period:. | 3-5 weeks (depending on cultivar and ripening stage) |
| Freezing point | - 1°C |

13. Documents required for exports

a). Documents related to goods

- Invoice
- Packing List
- Certificate of origin

b). Documents related to shipment

- Mate Receipt
- Shipping Bill
- Bill of lading
- Airway Bill

c). Documents related to Payment

- Letter of Credit (L/C)
- Bill of Exchange

d) Documents related to quality of goods

- Phytosanitary Certificate
- GLOBALGAP Certification
- Health Certificate
-

e) Organic Certification

- Certificate indicating material produce is based on organic farming.

f) Documents related to Foreign Exchange Regulations

- GR Form: Documents required by RBI which assures to RBI that the exporter will realize the proceeds of goods within 180 days from the date of Shipment.

g) Other Document

- Bank Realization Certification (BRC): This is the advice given by Foreign Exchange Bank after the realization of money from Importer.

14. Chain of events (pack house up to shipment)

FLOW DIAGRAM OF ESSENTIAL OPERATIONS OF PINEAPPLE EXPORTERS/PACKERS

- Receipt at pack house
- Trimming the stem to 2 cm if not cut already
- Rejection of unwanted fruits
- Washing with a disinfectant
- Removal of excess water
- Treatment with fungicide and wax
- Drying
- Sizing with weight sizers/ visual sorting
- Grading for quality

- Pack into cardboard boxes
- Precooling
- Palletisation
- Storage in cold store
- Container loading
- Transportation to port

15. Cost Calculation from harvest to packhouse to port Showing the cost involved in exporting Pineapple (as per information collected during 2008)

(a) Procurement price*:

| Variety | Approx. price (in Rs./kg) |
|------------------|---------------------------|
| Kew or Giant Kew | 6 - 8 |

*Price of pineapples varies according to variety like Kew or Giant Kew, Queen or Common Queen and month of procurement.

(b) Charges for pre cooling, cold storage, packing, transport, etc.

| Particulars | Rs. / Kg. |
|-------------------------------------|-----------|
| Transportation to packhouse | 1 |
| Labour charges | 1 |
| Pre cooling and cold storage charge | 3 |
| Packing cost | 8 |
| Transport to Port (for 400-500 km) | 3 |
| Total | 16 |

Source: Estimate of ITS Ltd

(c) Sea freight charges*:

Freight rates for reefer container are as follows:

| Countries | Reefer containers (Rates in US dollars) | |
|------------------------|---|------|
| | 20' | 40' |
| Dubai/Doha | 1100 | 1600 |
| Kuala Lumpur/Singapore | 600 | 900 |
| UK/Amsterdam | 1700 | 2700 |

* It varies from year to year /season to season, capacity of container and distance covered.