



HARVESTING AND POST HARVEST HANDLING OF MANGO



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WORLD OUTLOOK-MANGO

Area & Production

Country	Area (000 Ha)	Production (000 Mt)	Per Ha yield (Mt)
India	1,600	10,800	6.75
China	418.5	3,622	8.65
Thailand	290	1,750	6.03
Mexico	173.83	1,503	8.64
Pakistan	100	1,072	10.72
Philippines	138	890	6.44
Brazil	67	845	12.61
Indonesia	17	800	4.70
Nigeria	125	730	5.84
Israel	1.50	30	20.00

Mango Production

❖ Mango Producing Countries: 88

❖ Pakistan: 5th major mango producing country

	Production (m tones)	Area (000. ha)
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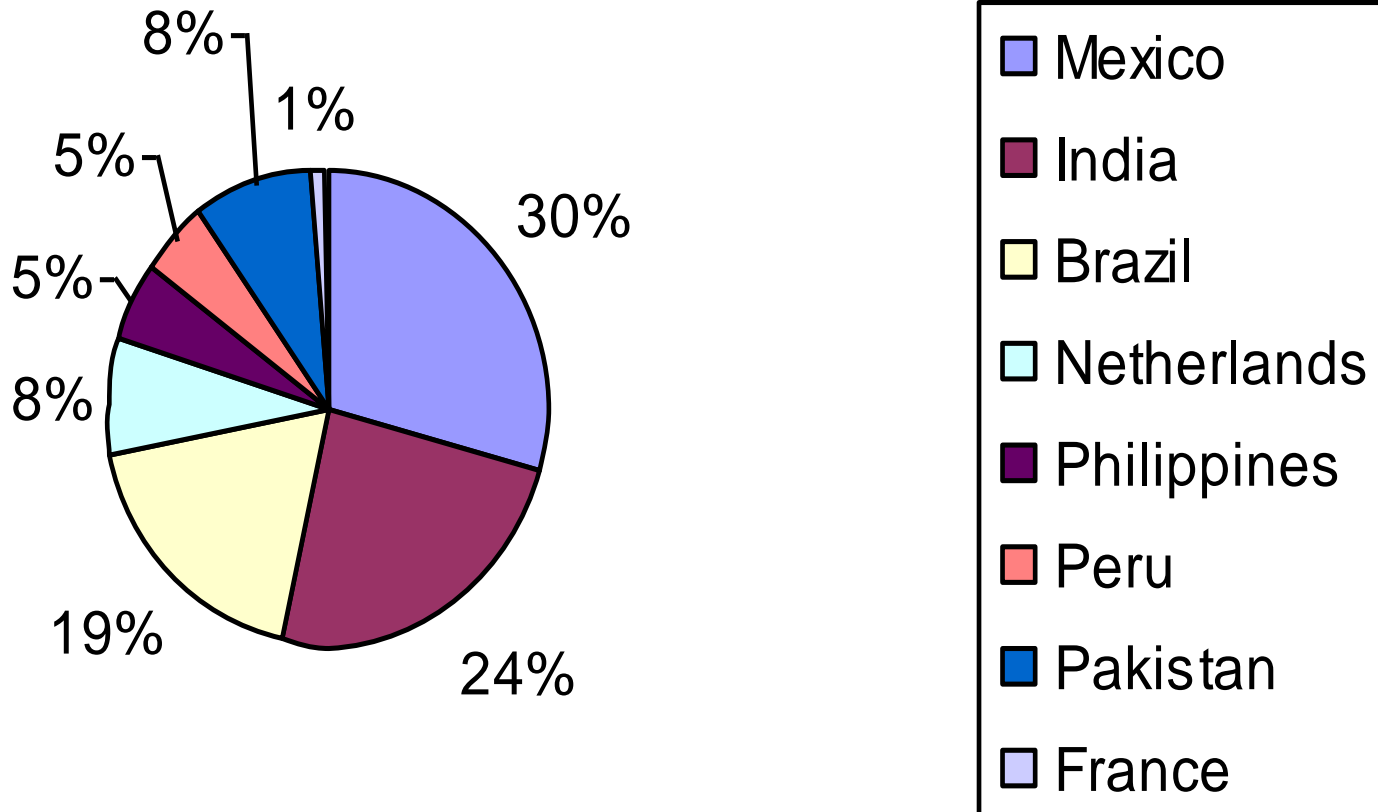
World	27.96(5.5%)	3870 (7.46%)
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Pakistan	1.67 (5.97%)	151.5 (3.92%)
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(PHDEB,2008)

WORLD OUTLOOK-MANGO

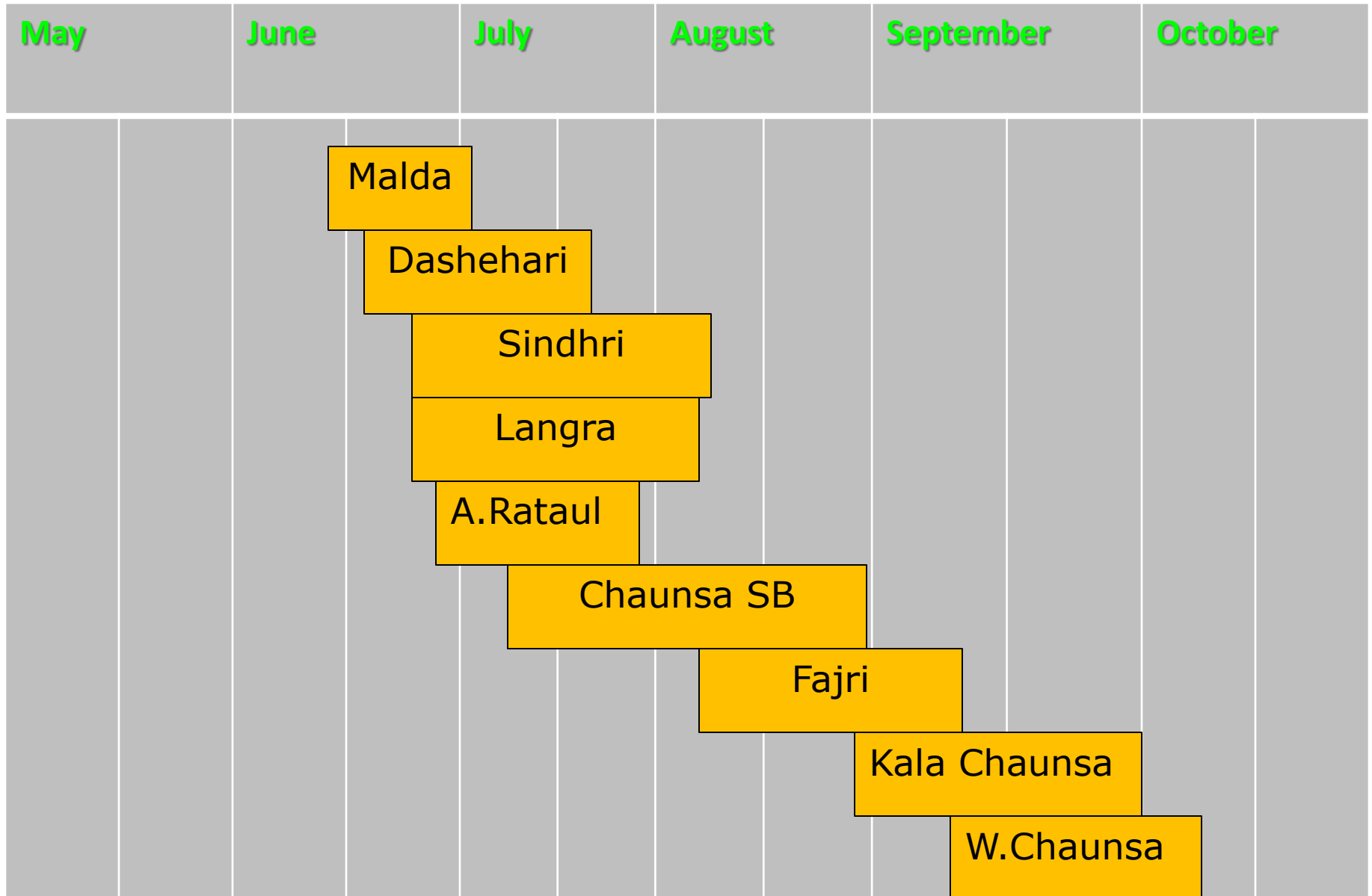
SHARE IN GLOBAL TRADE





Mango Growing Area

AVAILABILITY OF MANGO IN MARKET



Per Unit Export Price

Country	US\$/KG
• Philippines	0.86
• China	0.57
• Mexico	0.51
• Brazil	0.49
• Thailand	0.46
• India	0.39
• South Africa	0.38
• Pakistan	0.30

Export Markets for Pakistan

- United Kingdom
- Gulf Countries
- China
- Iran
- North America

Mango Industry Problems

High Fruit Drop

Irregular Bearing

Malformation of Inflorescence

Insect Attack

Mango Diseases

Post harvest losses

Factors Affecting Quality of The Fruit

Preharvest Factors

Irrigation

Fertilizer Application

Insect and pest management practices

Pruning

Method of harvesting

Post Harvest Factors

Maturity stage

Time of harvesting

Postharvest practices

Desapping

Washing

Sorting/Grading

Transportation

Storage conditions



Fruit fly



Fruit fly



Damage to fruit

FRUIT FLIES

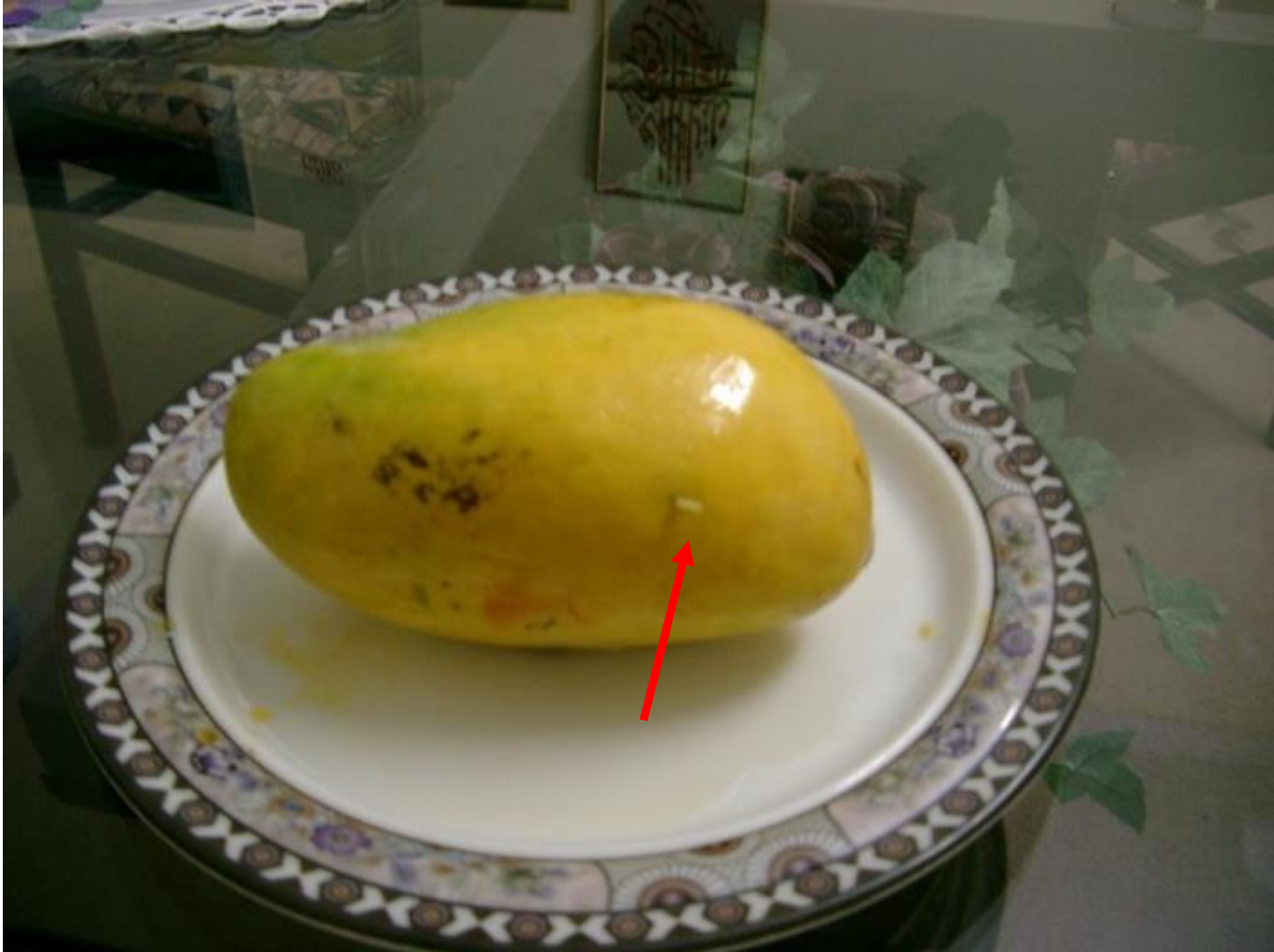


Fly ovipositing eggs

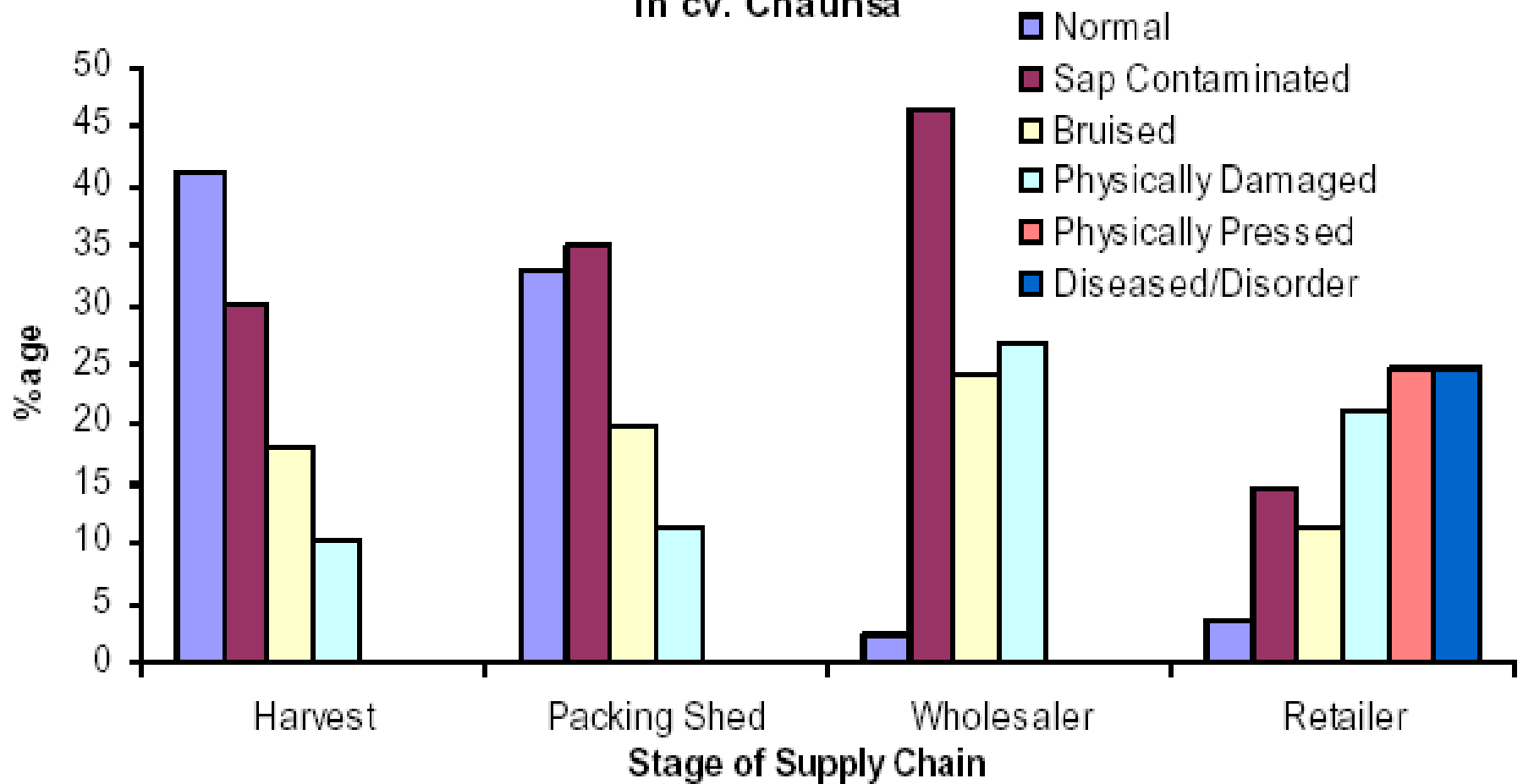


Larvae

SERIOUS ISSUES



Summary of Impact of Fruit Handling Practices on Fruit Quality in cv. Chaunsa

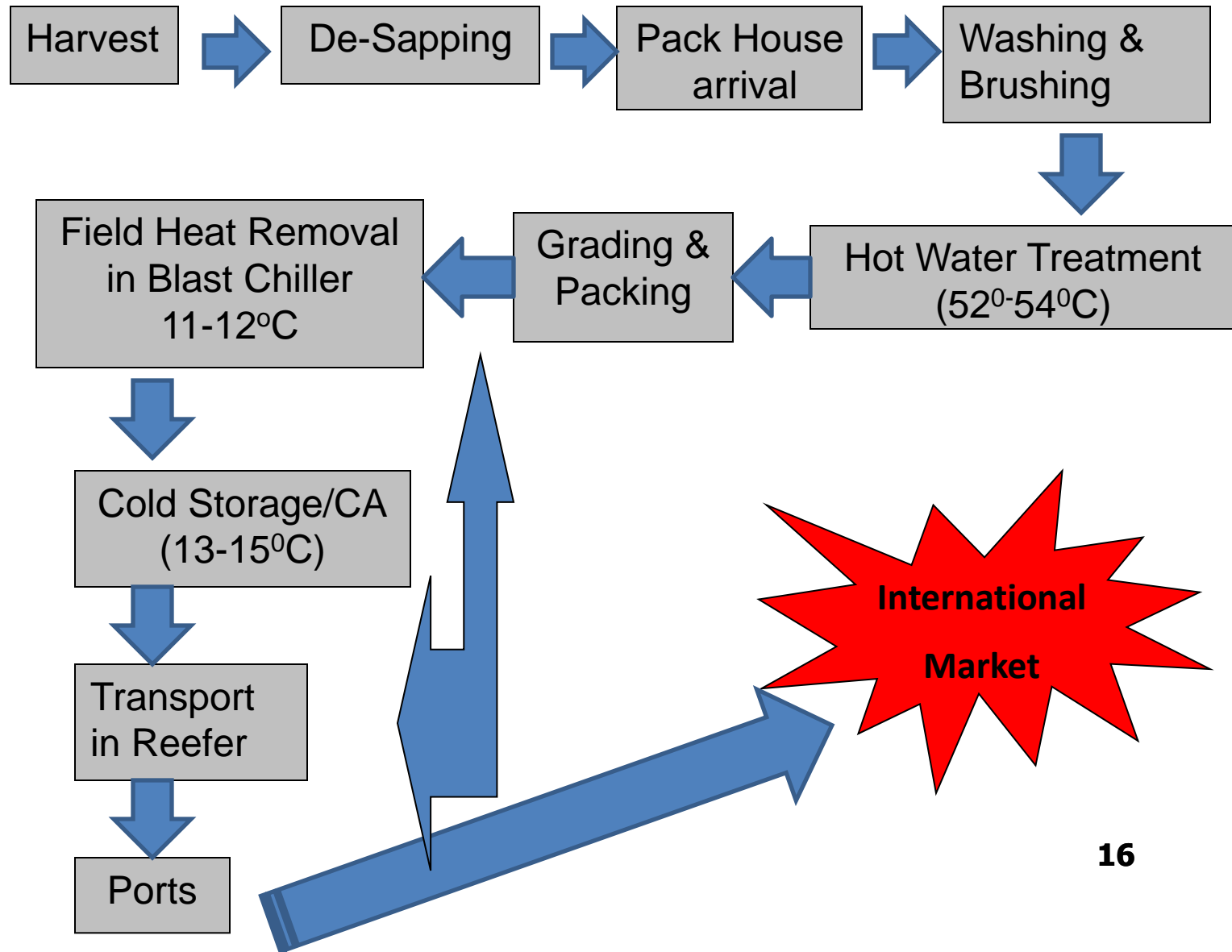


(ACIAR, 2007)

POSTHARVEST SUPPLY CHAIN ISSUES

- 1. Pre-mature harvesting (use of CaC_2)**
- 2. Improper harvest techniques**
- 3. Improper handling and transportation techniques.**
- 4. Grading**
- 5. Poor packing**
- 6. Packaging materials.**
- 7. Improper transport condition (lack of refrigerated transport).**
- 8. Time lag between harvest & processing (up to 30 h).**
- 9. Complexity of process (marketing)**
- 10. Lack of postharvest research / information/training**

Postharvest Steps for Mango



Fruit Maturity Determination

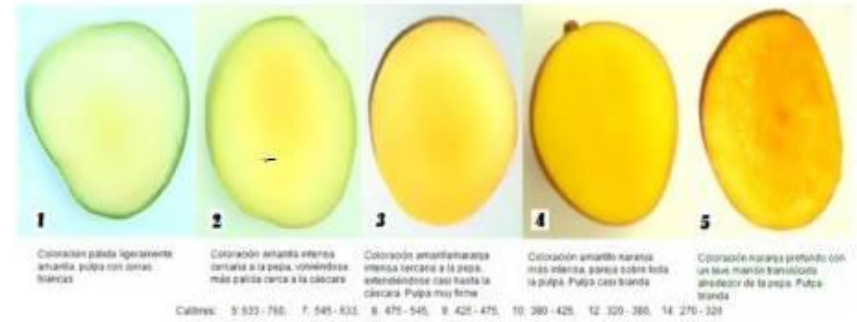
Maturity Guide

Refractometer

Visual Observation (Fullness of cheeks
and shoulders)

Harvesting

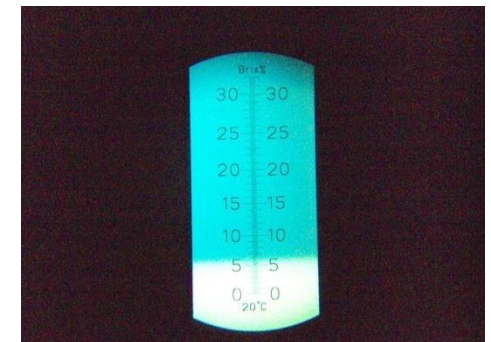
- **Pulp Color**



-

- **Brix**

-



MANGO skin colour guide

1



0 - 10% yellow

2



10 - 30% yellow

3



30 - 50% yellow

4



50 - 70% yellow

5



70 - 90% yellow

6



90 - 100% yellow

Photos by Peter Hedfoss



Queensland Government
Department of Primary Industries and Fisheries



Perfect mature Sindhri fruit ready to harvest



Internal pulp color is yellow to light orange



Over mature Sindhri fruit



After two days fruit turned yellow



Internal pulp is soft & orange in color



Fruit Harvesting

Harvest of fruit-four to six inches stem

Harvest-harvesting poles/secatures

Manage the temperature

Harvest early in the morning

Desapping and placing in shade during the day time

Transportation in the evening.



Harvesting With Picking Pole

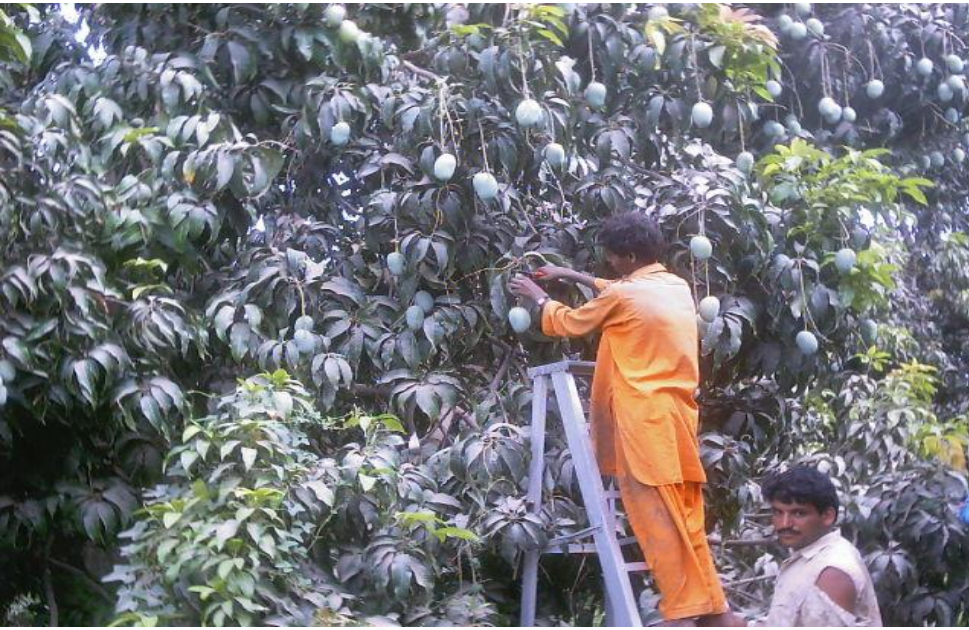


Harvesting With Picking Pole



Harvesting With Picking Pole

Mango Fruit Picking





Mechanical Injury during harvest



Fruit Desapping

Lime treatment

fruit harvested along with stem are de-stemmed and dipped in 0.5% lime solution for two minutes followed by washing in clean water and air drying.

keeping the fruit inverted for at least 30 minutes

Harvesting with Pedicle

Harvesting the fruit with about one inch stem followed by no treatment.



pH of Water before Adding Lime (7.5)



pH of Lime Solution (12.5)





Drying of Fruit



**Mango Harvesting and Desapping Machine
(Developed by NARC)**



Properly packed & riped Mangoes cv Sindhri



Properly packed & riped Mangoes cv Chaunsa



Company Name:	03-22-2500	Quality Control:
Packing Date:	03-05-2007	Every 10 days
Shipping Date:	03-05-2007	Price: 5.00 per
Success Packing Date:	03-05-2007	Value: 5.00 per
Success Shipping Date:	03-05-2007	Time: 0.10 per

Fruit Packing

- Packing provides protection to fruit
- Improves outlook of the commodity

Issues Observed

Mixed sizes in boxes

Mixed maturity, mixed colour

Sap damage

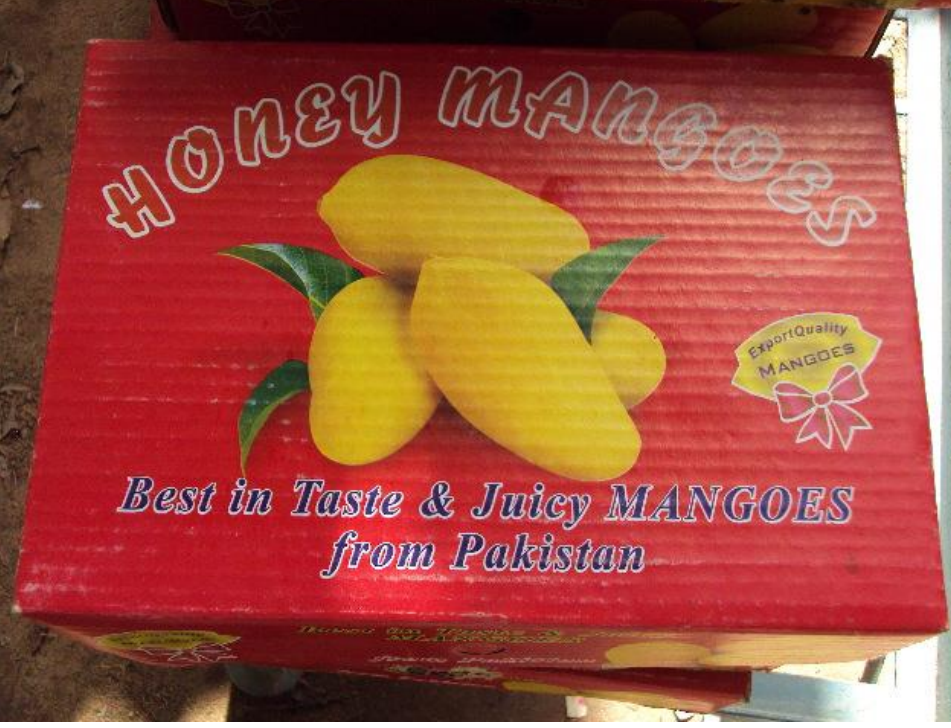
Skin marks/blemishes from insects

Physically pressed mangoes









Packing



Pakistani mango and Israeli mango in Western International Market, London



Local Defective Transportation



Reefer Truck



THANKS

Questions....? ? ? ?

Suggestions & Comments