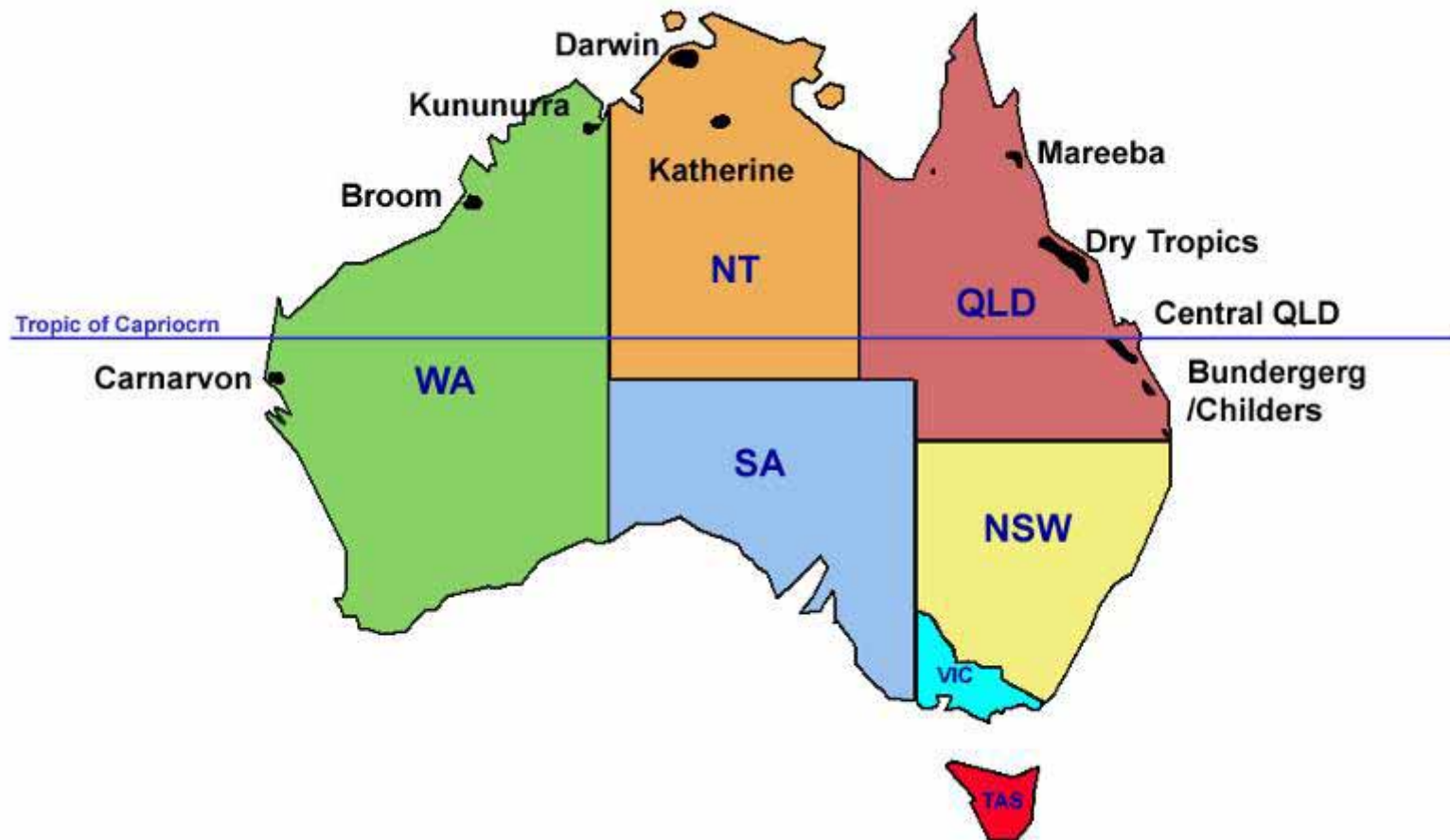




MANGO ORCHARD MANAGEMENT IN AUSTRALIA

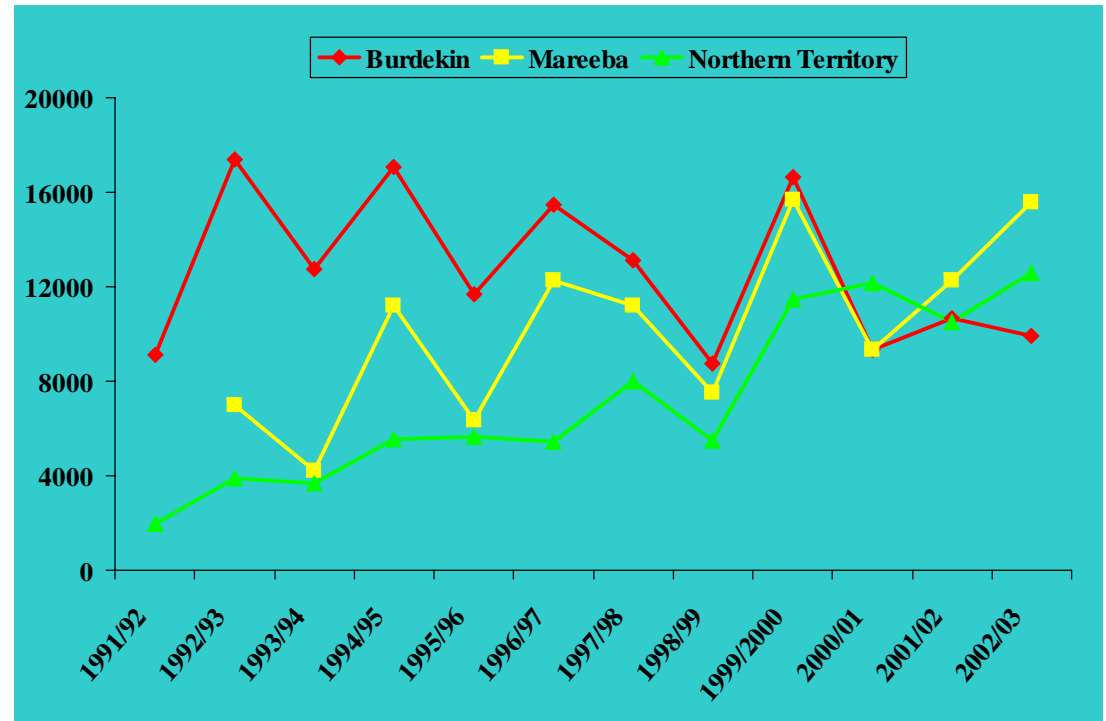


Production Regions



Production Issues

- Biennial fluctuations in production
- Low yielding cultivars 5 to 100 Kg per tree
- Sacrificing yield for fruit quality



Orchard Management

- Generally highly mechanised
- Timing of practices based on tree phenology
- Irrigated
- Use growth regulator Paclobutrazol
- Inorganic fertilisers
- Pruned annually
- Sprayed regularly to control pests and diseases



Orchard Management

Tree management is dependant on varieties and their responses to the differing agroclimatic growing regions

Kensington Pride in Burdekin district



Keitt Orchard Mareeba district



Varieties



Kensington Pride



Varieties



R2E2



Keitt



Varieties

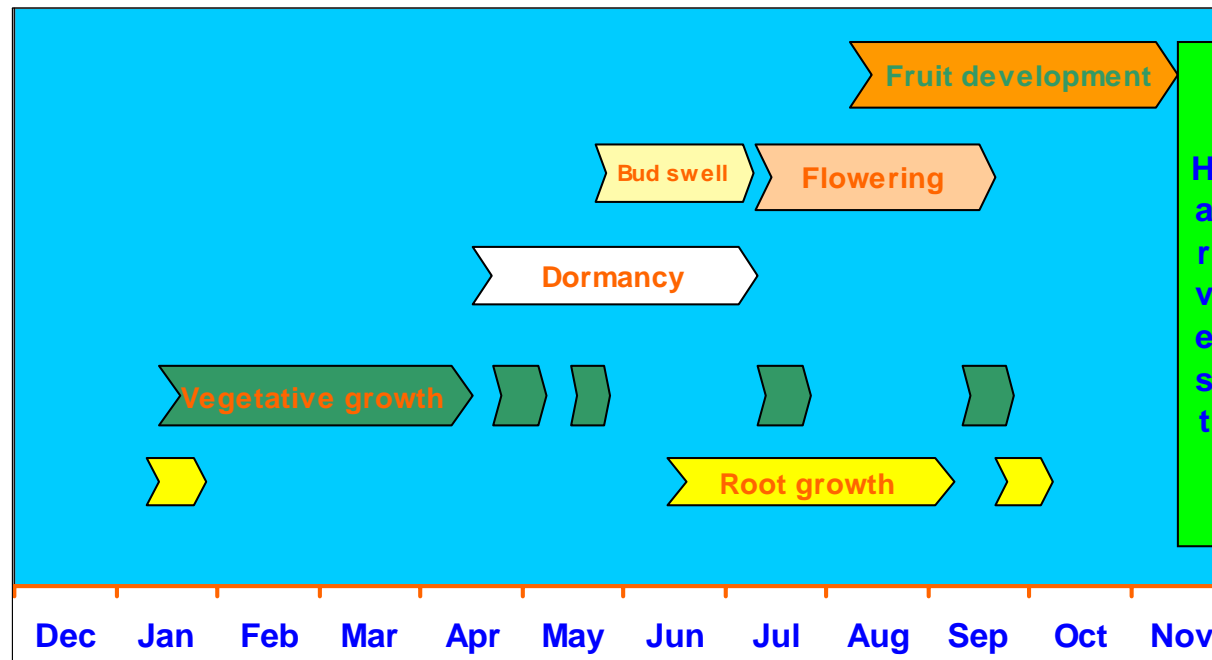


Calypso



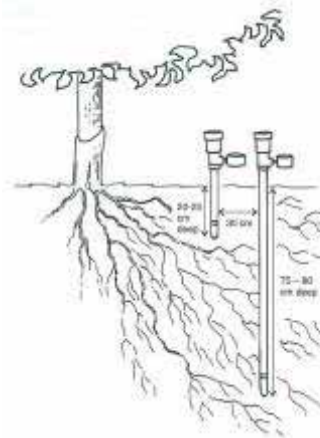
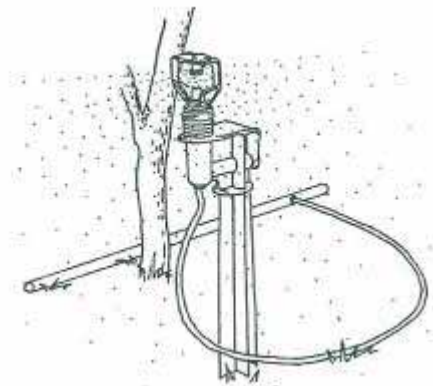
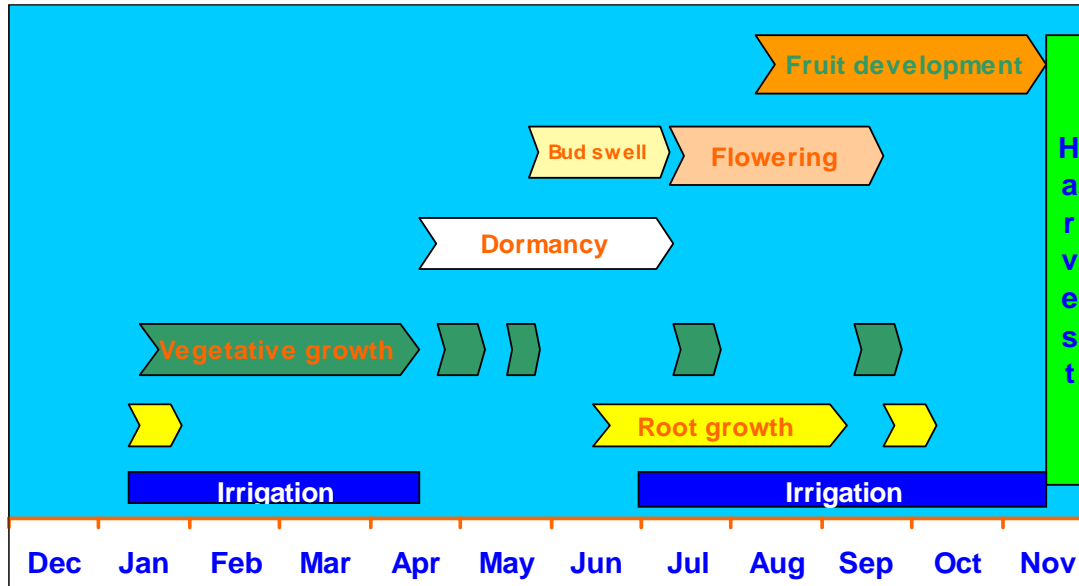
Phenological cycle

- The cycle of annual growth phases of the tree



- Vegetative flush
- Dormancy
- Flowering
- Fruit development
- Harvest
- Root growth

Irrigation

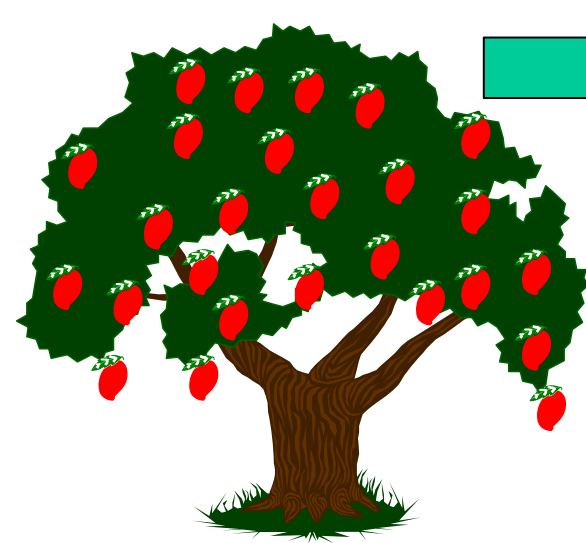


- Varied throughout the year according to tree demand
- Under tree sprinklers and some drippers
- Water supply – rivers, bores, irrigation schemes and farm storage
- Scheduling – tensiometers, evaporation, water budgeting, capacitance probes, or neutron probe,

Nutrition

- N, P, K, Ca, Mg, S, B, Zn, Fe, Cu are applied most years
- Nutritional status and application rates determined with annual leaf and soil analysis, and the size of previous crop.

Soil colour (Munsell)	Dark Grey Brown
Soil texture	Sandy Clay
pH(1:5 Water)	6.2
*pH(1:5 CaCl ₂)	5.2
*Buffer pH	6.1
Organic Carbon %C	0.9
Nitrate Nitrogen mg/kg	4.4
Sulfur (MCP) mg/kg	2
Phosphorus(BSES) mg/kg	113
Phosphorus(Colwell) mg/kg	70
Potassium(Ann.Ac.)meq/100g	0.37
Calcium (Ann.Ac.) meq/100g	4.70
Magnesium(Ann.Ac.)meq/100g	1.74
Sodium (Ann.Ac.) meq/100g	0.03
Chloride mg/kg	5
Electrical Conduct. dS/m	0.02
Copper (DTPA) mg/kg	1.2
Zinc (DTPA) mg/kg	1.3
Manganese (DTPA) mg/kg	14
Iron (DTPA) mg/kg	56
Boron (Hot CaCl ₂) mg/kg	0.3
----- Calculations -----	
Liming Requirement 6.5	2.2
Cation Exch. Cap. meq/100g	6.83
Calcium/Magnesium Ratio	2.70
Elec.Conductivity(see) dS/m	0.2
Sodium% of cations(ESP)	0.38



200 Kg fruit =

196 g N

36 g P

257 g K

230 g Ca

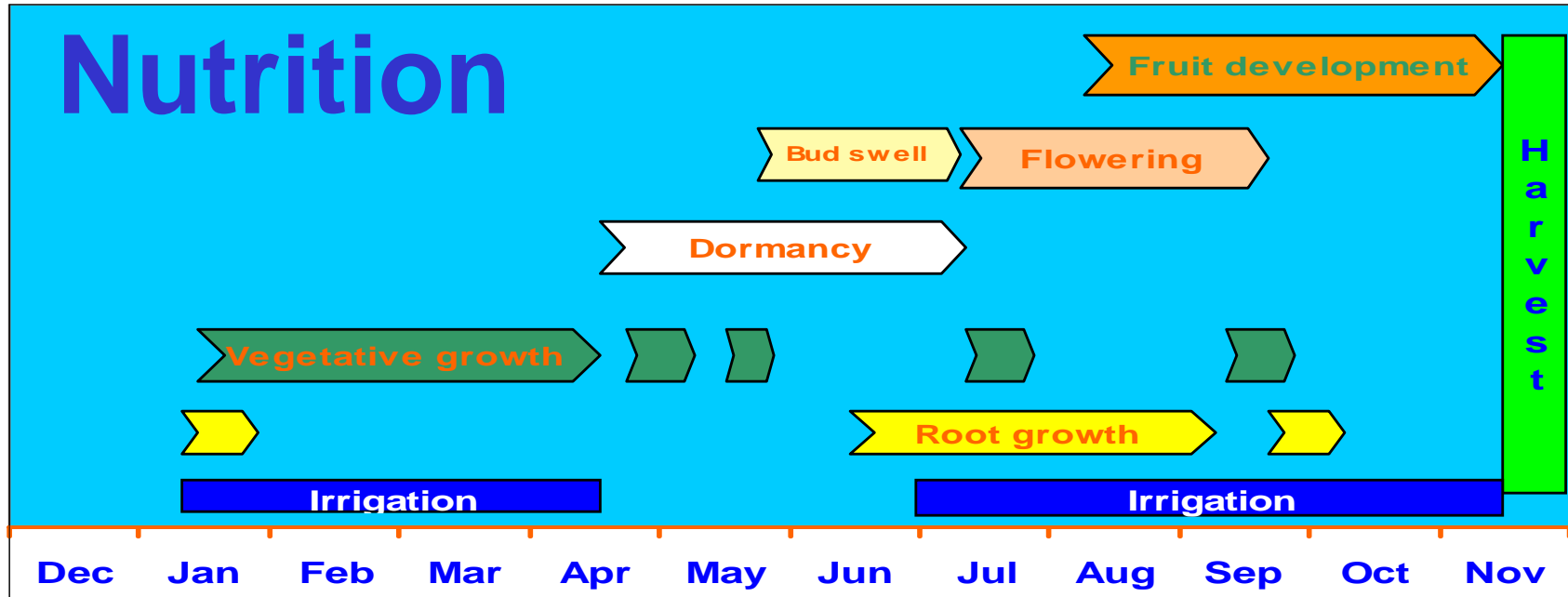
48 g Mg

0.4 g B

0.4 g Zn

1.2 g Fe

Nutrition



Dec Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov



N - 60-70%

P - 100%

K - 20%

Ca - 40-60%

B

N - 30-40%

K - 20%

Ca - 40-60%

B

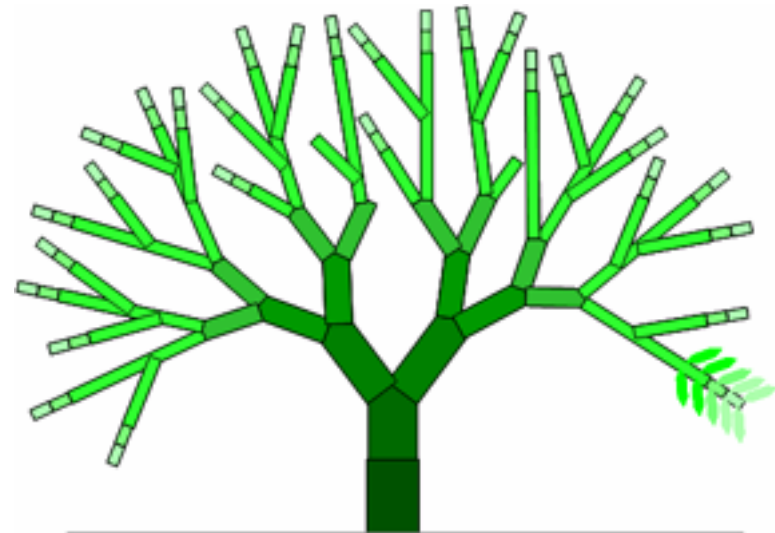
K - 40%

K - 20%

Canopy Development and Pruning

Young trees are pruned several times a year

- to develop a strong frame
- to Increase branching complexity
- to maximise future fruiting terminals

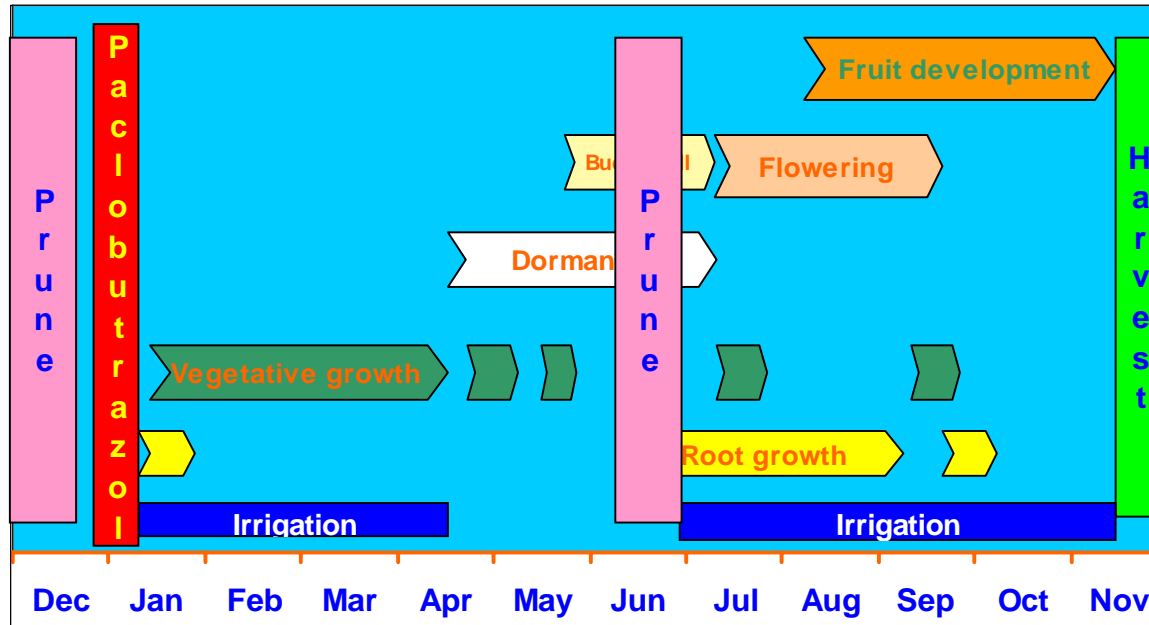


Pruning Mature Trees

- to maintain strong frame
- to encourage new fruiting terminals
- to open canopies for light and air circulation
- to synchronise vegetative flushing
- outside mechanically pruned, inside thinned by hand
- ease of disease and insect management

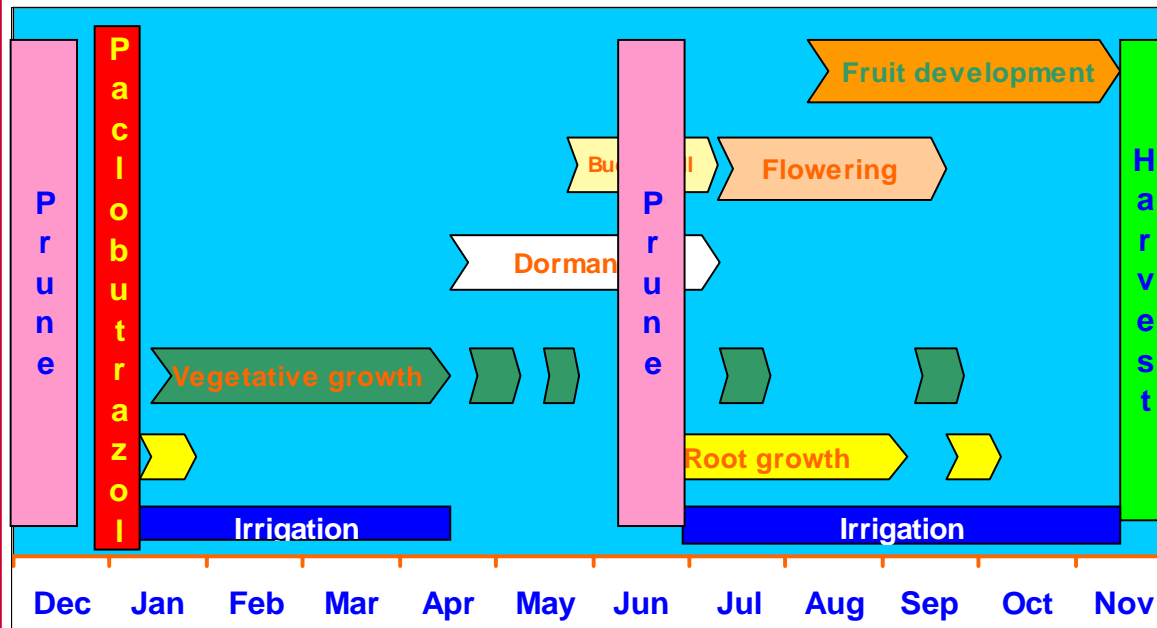


Pruning Mature Trees



- Trees pruned once or twice each year
- Main prune after harvest reduce tree height, width and remove low branches
- Second prune in winter months to remove internal growth

Growth Regulators



- Paclobutrazol used in all districts
- To improve flowering
- Manage vigour
- Increase yields
- Even out biennial cropping
- Applied as a trunk drench



Flower Management



A

Floral induction



B

- Induced dormancy through deficit irrigation in warmer districts



C

- In cooler districts temperature induced induction is sufficient



D



E

Floral bud burst



F

- Recommence irrigation



G

- Foliar potassium nitrate sprays



H

- Removal of early flowers in cooler districts



I



J



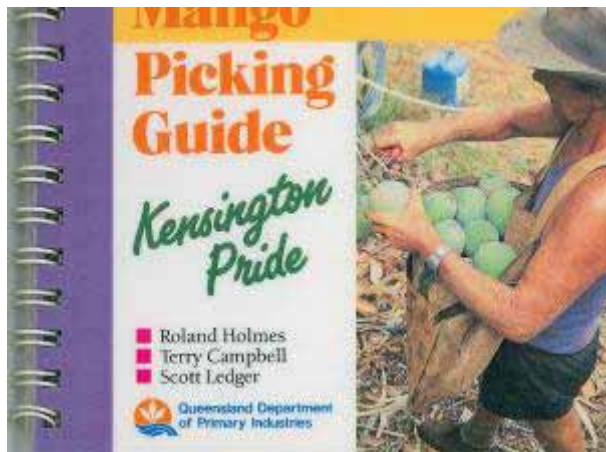
K



Harvesting

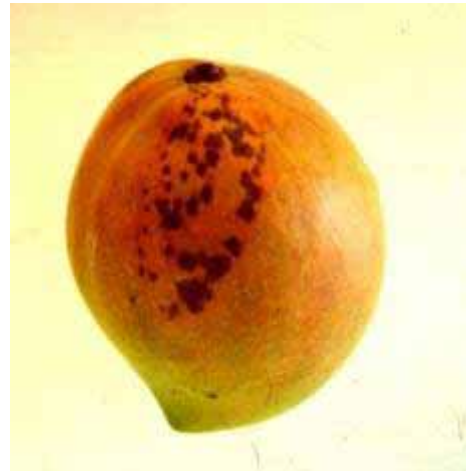
Maturity indicators

- 14 % dry matter
- Yellow flesh colour
- Beak and shoulders filled out



Harvesting

Sap burn and skin browning



Harvest

- Two methods of harvesting
- With stems attached and without stems attached





The end

