

PAKISTAN EXPORT CITRUS HARVEST HANDBOOK

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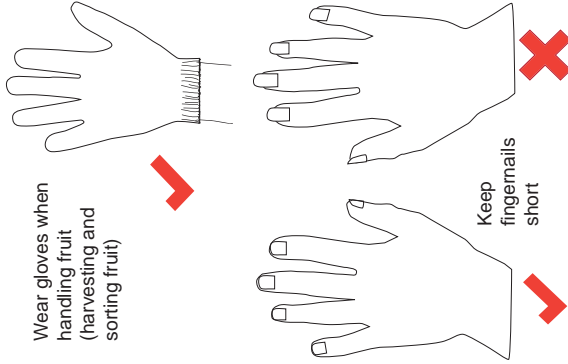
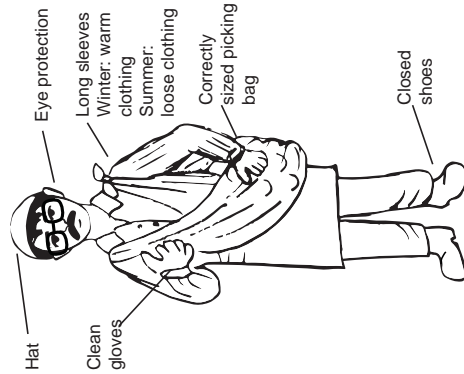
This booklet is based on the "Harvest the Rewards" booklet produced by Citrus Growers of South Australia Inc.

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PREPARATION Clothes, bags and gloves

Wear appropriate clothing.



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Pakistan Citrus Export Harvest Handbook

This booklet is an outcome of the Pakistan Australian Centre for International Agriculture Research (ACIAR), Department of Foreign Affairs and Trade (Australian Aid) and NSW Department of Primary Industries funded project.

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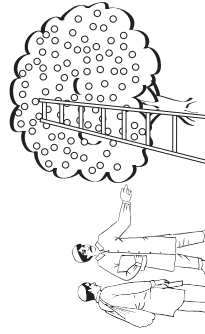
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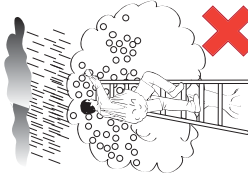
START PICKING

Check with your supervisor each morning when and where to harvest. Conditions can change overnight and during the day



- On cold (i.e. winter) days harvest starts between 10 - 12 am until dew on trees has dried and favourable weather conditions are present (p32-35).
- On some days harvest may not occur (i.e. too cold, heavy dew/fog or rain)
- Harvest can commence early morning in summer

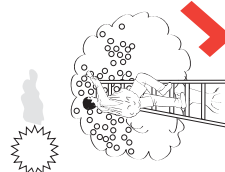
Fruit is damaged (oleocellosis, p32) or weakened when harvested in unfavourable conditions



Do not harvest when fruit is wet (rain or dew)



Fruit must be dry



Do not harvest if temperature is more than 35°C, or other unsuitable weather conditions (p32)

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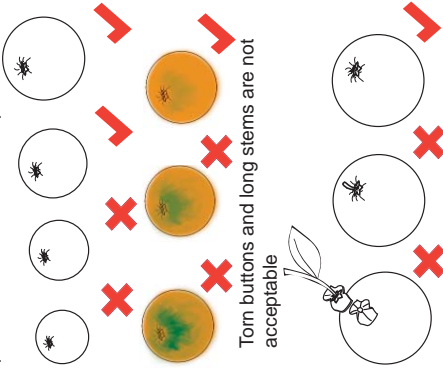
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PICKING PRACTICES

Size and colour

According to your supervisor's instructions pick fruit to size and colour specifications

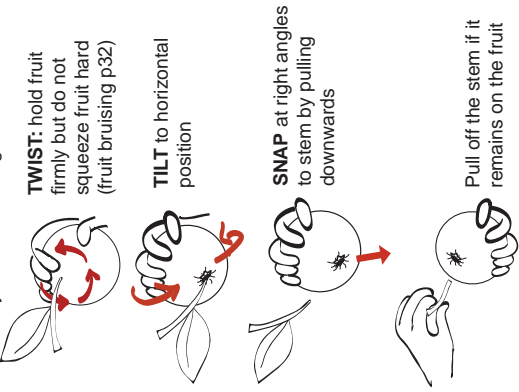


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Snap picking

Mostly used with oranges

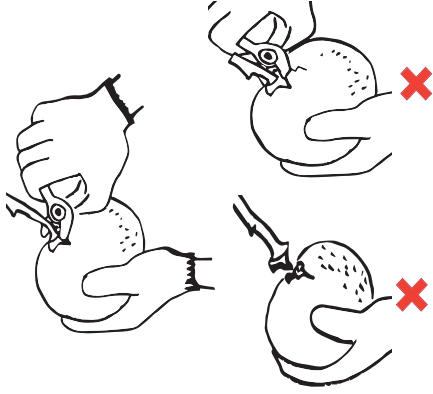


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Single snip picking

Always snip pick mandarins and check with your supervisor if required for other varieties



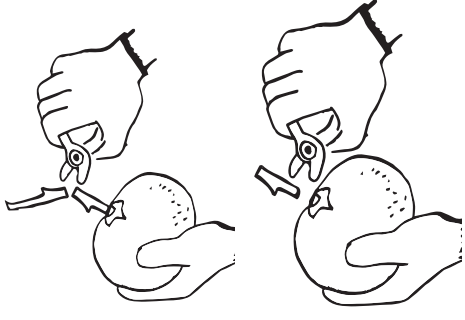
Do not to tear, scrape or cut fruit

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Double snip picking

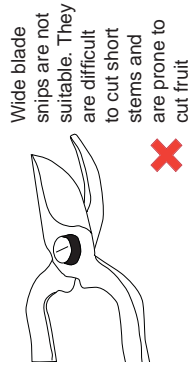
Use when first learning snip picking and or when fruits are not within comfortable reach



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Use correct snips



Wide blade snips are not suitable. They are difficult to cut short stems and are prone to cut fruit



Narrow blunt end fruit and vegetable snips are suitable



Blunt end narrow nose clippers are best

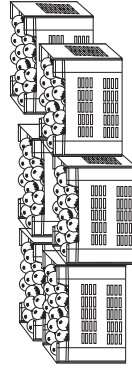
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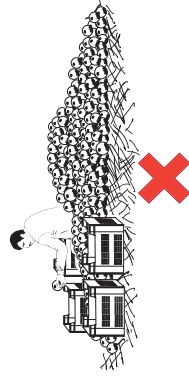
FRUIT HANDLING

Place fruit in crates

Crates will stop soil diseases, insects and other contaminants spoiling the fruit



Never place fruit on the ground



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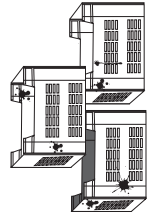
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Check crate

Report any broken or chemically contaminated crates to your supervisor



Remove any insects, sand, sticks, mud, rubbish, pieces of fruit etc.

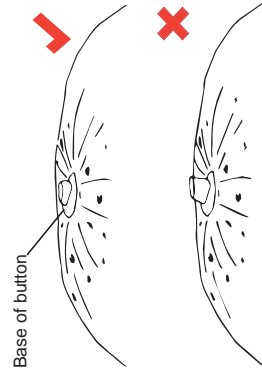


Put aside crates that need washing

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Stems must be short, no more than 1mm from base of button. Long stems can damage other fruit.



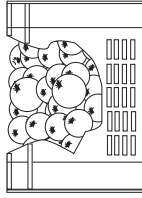
Keep snips sharp



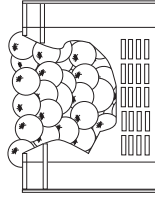
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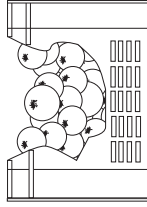
Fill crates properly



Fruit should just reach top of crate



Do not overfill crates



Do not under fill crates

Unloading the picking bag

Use a cloth at least 120cm wide to make the picking bag. Tie the ends short to ensure the the exit hole is as wide as possible



Narrow hole at end of bag will restrict the flow of fruit possibly damaging fruit

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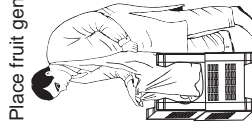
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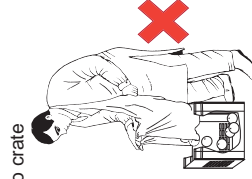
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Take care when Handling fruit

Citrus fruit can damage or bruise easily (oleocellosis p34)



Place fruit gently into crate

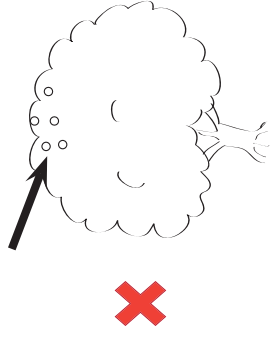


Raising the crate will make it easier to unload and cause less fruit damage



Fruit should not fall, it should roll out of bag and into the crate

Pick all the required fruit off the tree, before moving to the next



Never pick fruit from the ground.



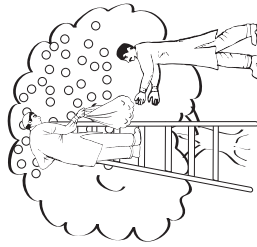
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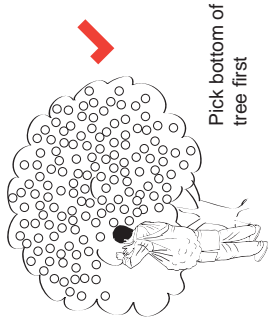
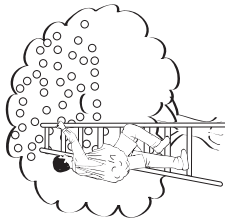
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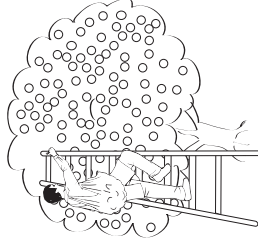
Do not pass fruit down



Climb down the ladder to unload fruit



Pick bottom of tree first



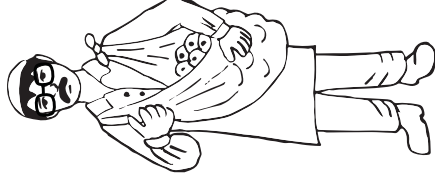
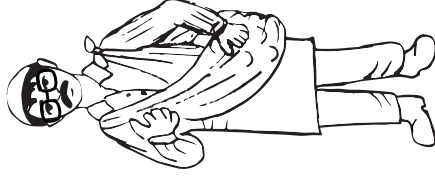
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Do not overfill bags (maximum 12kg), they are a health hazard and can damage fruit



Carrying crates carefully

Get help when lifting and lowering crates, carry crates carefully



Carefully handle crates of fruit



Do not drop crates of fruit

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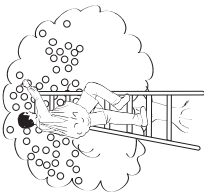
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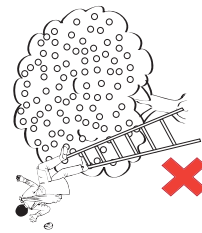
SAFETY

Position your ladder

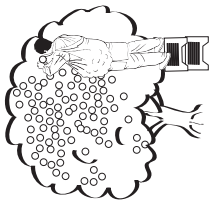


Use a ladder and position it in a stable manner

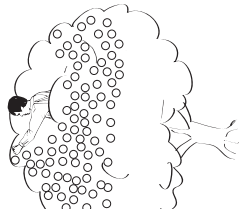
Do not bend over too far from the ladder



Do not stand on the top rungs of the ladder (top of ladder not below waist height). Do not use a faulty or broken ladder



Do not climb on two or more crates



Do not climb trees

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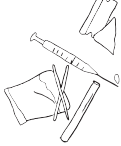
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Personal safety

Do not work if injured, sick or incapable of manual work



Do not work under the influence of drugs



Bring adequate food and water. Take regular breaks and keep hydrated

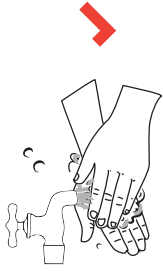


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Food safety

Wash hands with soap after using the toilet



Cover all cuts and wounds



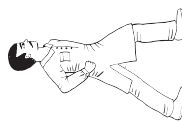
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Exercises

Carrying fruit works the lower spine (discs) and back muscles. Prior to starting work conduct stretching exercises. The touch sky stretch is advised to be conducted at least every hour to help avoid lower spine problems.

Holding a stretch for 10 sec starts to stretch the muscle (minimum time for stretch), 30 seconds is reasonable and 60 seconds or more is optimal.



Calf stretch
Lean forward and stretch hamstring and calf for each leg

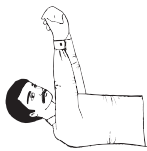


Shoulder stretch
Hold back each arm

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Arm stretch
Push arms forward



Touch sky stretch
Raise arms, stretch upward to "touch the sky" and arch back backwards. This exercise is good to conduct every hour during picking.

The following exercises are good for at home for lower disc health and to reduce back pain. These are similar to the touch sky stretch.



or

Stretching before and after manual work can reduce muscle soreness by reducing micro muscle tears and lactic acid build up. (increased circulation)

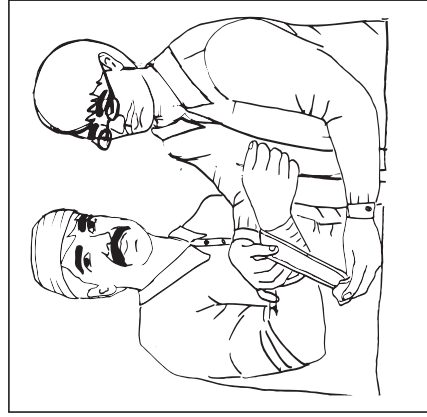
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Accidents

In case of accident or injury:

- Do not put yourself in danger to help injured, wait until the danger has been removed or stopped
- Take the injured person away from the danger. Try not to move them if they have a possible neck or spine injury, wait for professional first aid
- For a major injury immediately call the supervisor, for other injuries report to your supervisor and seek first aid.



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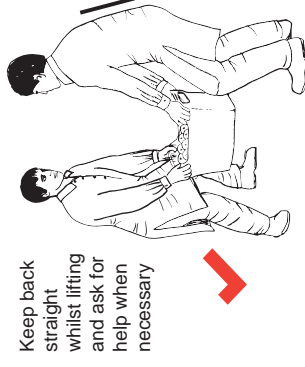
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Manual handling

- Warm up your muscles (i.e. warm up exercises or other low exertion activities)
- Ensure the load does not exceed your safe lifting weight. If too heavy ask for help
- Do not lift if you have an injury
- Lift by bending your knees and keeping your back straight, do not lift by bending over and lifting with your lower back muscles
- Keep the load close to your body
- Do not twist your back whilst carrying the load, reposition your legs to move around
- Regularly stretch your back (stretching exercises p 28)



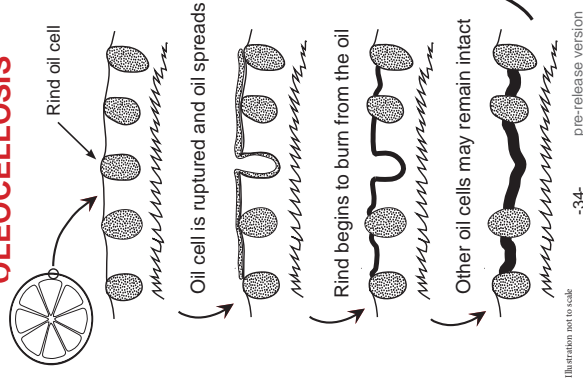
Do not bend back, a curved back whilst lifting can damage the spine



Keep back straight whilst lifting and ask for help when necessary

OLEOCELLOSIS

- Oleocellosis is a rind injury that can occur when harvesting too roughly (i.e. fruit squeezed or bumped) or during unsuitable weather conditions.
- It is caused when rind oil cells break and the oil burns the rind. A dark blemish on the rind with a slightly sunken surface appears within two to four days. Raised intact oil cells may be visible in the damaged area.



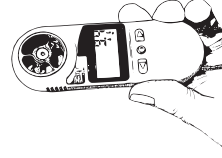
- Damage can lead to fruit decay.
- Fruit are most susceptible when the rind is turgid (swollen with water) from:
- Cold weather (below about 13°C).
- Water on fruit (rain or morning dew)
- Recent irrigation or rain (tree is charged with water)

Oleocellosis risk test

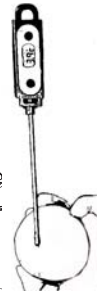
In high oleocellosis risk periods (i.e. cold temperatures) the supervisor may check fruit and/or weather conditions prior to harvest. Slightly immature fruit (pale or slightly green) have a higher risk to oleocellosis damage.

During oleocellosis risk periods (i.e. below 15°C) the following measurements and checks provide an indication of damage risk:

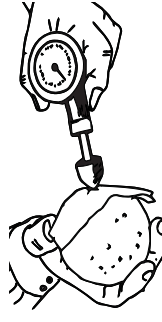
- Temperature and relative humidity to assess if good rind drying conditions are present (VPD more than 0.6 Kpa)
- The temperature of the rind compared to wet bulb temperature must be more than 2-3°C difference
- Penetrometer rind oil release pressure (RORP) test more than 3 kg pressure to rupture an oil gland



Digital weather meter (dry and wet bulb temperature and relative humidity)



Fruit rind temperature measurement



Penetrometer conducting a rind oil release pressure (RORP) test

NOTES

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