

Citrus harvest exercise and nutrition guide

May 2017, Primefact 1525, first edition

Sarah Page (Sarah Page PT personal trainer, Mildura) and Steven Falivene (NSW DPI citrus development officer, Dareton)

Introduction

Citrus harvesting requires physical work throughout the day. Conditioning your body before the harvest season starts and maintaining your condition during the harvest will make the physical work less painful, safer and more productive. Eating correctly is also important to provide you with the fuel to efficiently work throughout the whole day. Run out of fuel and your picking rate will decline.

The following document is a guide to make your harvest safer and more productive. This guide is a supplement to the NSW DPI *Australian fresh citrus harvest handbook*. This guide is split into five sections:

1. Daily before work warm-up exercises
2. Stretching during harvest
3. Pre-season strengthening and conditioning (gym, home and cardiovascular exercises)
4. After work or after exercise cool down stretches
5. Food and nutrition

If you have any medical conditions or injuries, you should seek medical advice before doing any of the exercises suggested in this guide.

1. Daily before work warm-up exercises

Stretching and exercising your muscles before starting to pick or before you perform any exercise in the gym or at home will reduce the risk of injury and help you pick fruit more easily. The warm-up exercises are only meant to stretch and increase the circulation of blood to the muscles. They are meant to prepare them for

physical activity, not train them as done in other forms of exercise (e.g. strength or cardio).

Some suggested stretching and warm up exercises are outlined in figures one to six. The repetitions (reps) of each exercise is indicated in the figure captions. Do not use very vigorous and over extended motion; use a medium and smooth motion.

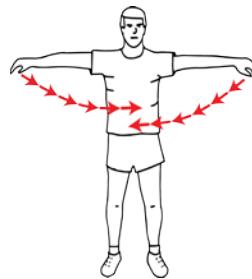


Figure 2: Arm swings
15–20 reps.



Figure 1: Leg swings, 10–15 reps.



Figure 3: Torso twists, 10 reps.



Figure 4: Side bends, 10 on each side.



Figure 5: Side lunges, 8–10 on each leg.

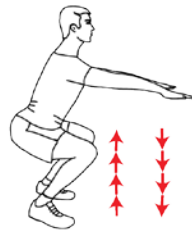


Figure 6: Squats, 10–15 reps.

2. Stretching during harvest

Carrying loads of fruit works the back muscles. The ‘touch sky stretch’ is advised to be conducted at least every hour (Figure 7). It can also be done before starting work, along with some warm-up exercises.

This stretch is completed by raising the arms, stretching upward to touch the sky and arch the back gently backwards. Holding a stretch for 10 seconds starts to stretch the muscle (minimum time for stretch), 30 seconds is reasonable and 60 seconds or more is optimal.



Figure 7: Touching the sky stretch.

3. Pre-season strengthening and conditioning

Three main reasons to condition your body before starting the harvest season are:

1. avoiding delayed onset muscle soreness (DOMS)
2. avoiding injury, especially back injury
3. increasing your strength so you can pick faster and longer.

DOMS is muscle pain after conducting strenuous physical exercise or activity for the first time. The soreness becomes less day by day as the body becomes conditioned to the activity. In most cases, the soreness goes away in 4–7 days. Conditioning your body before the harvest season will help to reduce DOMS. .

Joining a gym is the best way to gain strength and condition muscles, however, if this is not possible do some exercises at home. It is important to do these strengthening exercises two, possibly three, times a week. The program should work your whole body.

The extent of improvement depends on the intensity and length of the exercise program you conduct prior to harvest. It takes time to build and condition muscle; you should start the exercise program at least 4–6 weeks before the harvest season. The earlier you start the greater the benefit.

Starting the exercise program close to the beginning of the harvest season (e.g. within 7–14 days) is too late, because you will experience some muscle soreness (DOMS) from the exercise program and compound it with DOMS from harvesting.

Pre-season exercising will not eliminate DOMS, but it can reduce it. The key point with DOMS is to not stop moving when your muscles are sore but rather continue to move, pushing blood around your muscles and helping them to heal more quickly. However you should stop if you have a muscle injury.

If you have a medical issue (e.g. injury, back pain) or feel pain, you must immediately stop, advise your gym instructor and seek medical advice before starting or continuing the exercise program.

Gym strengthening exercises

When first joining the gym you must obtain professional advice from the gym instructor on how to perform the exercises correctly. Most gyms include an introductory consultation as a part of the joining fee. You can show them this factsheet to help guide them to develop a program that suits your needs and personal situation. Diagrams showing the exercises are not provided, because gym equipment does vary and the instructor needs to show you the correct technique for the type of equipment used.

There are a number of gym programs that you could adopt. A suggested program is to do a separate upper and lower body split workout. The leg group can be exercised on one day and back and chest group on another day. Leave at least two days between exercising a muscle group (e.g. a workout every second day means there will be a three-day break between exercising each muscle group). This provides time for the muscles to recover and be ready for the next workout.

A program might be structured as follows:

Leg session

- Squats
- Leg press
- Lunges
- Stiff leg deadlifts
- Calf raises.

The first three exercises will strengthen the muscles in the front of the legs. The stiff leg deadlifts will strengthen the lower back and the muscles in the buttocks and rear of the leg. The calf raises will strengthen the calf muscles.

These exercises will give you more strength for climbing and stabilising on ladders, especially when carrying a full bag of fruit down the ladder.

Back and chest session

- Deadlift (you must obtain proper instruction)
- Lat. pull down
- Seated row
- Barbell bench press
- Dumbbell bench press
- Barbell shoulder press or seated dumbbell shoulder press.

The first three exercises will help strengthen your back and core (i.e. muscles around your stomach and lower back) to avoid injury and make carrying and unloading the picking bag easier. If you have any form of back pain or injury, you must consult a medical doctor before performing the deadlift. Chest exercises are to counterbalance the back exercises. The shoulder press will make picking fruit above the head easier. A suggested harvest strength and conditioning program is two to three sets of 12–20 repetitions (reps) with a one to three minute break between repetitions. —

As you increase in strength, the weights lifted will feel lighter and you will be able to do more repetitions. When this occurs, the weight lifted can be slightly increased so you can just complete the targeted repetitions. If you are unable to reach the targeted repetition then you need to reduce the weight. Don't rush into lifting heavy weights as you could injure yourself.

Home strengthening exercises

Conducting strengthening exercises at home should be done safely. Do not lift weight that is too heavy and/or you cannot control.

Exercising with a lighter weight is much better than having an injury from a too heavy weight falling on your body. It is highly recommended to get help from a personal exercise trainer or a

sports teacher to initially show you the correct technique.

Instead of dumbbell and barbell weights you can use bricks, cans or other heavy objects.

Use something heavy enough that you are able to perform three sets of 12–20 repetitions and follow the guide discussed in the gym section for increasing or decreasing the weight lifted. Increasing the weight provides better strengthening results than increasing the repetitions. However, at some point, it will become impractical or unsafe to increase the weight and you should increase the repetitions. Continuing to exercise with increased repetitions will still provide significant benefits, improving strength and preparing your body for harvest work.

When performing strengthening exercises you **must hold the correct posture to avoid any injury** (e.g. back or shoulder injury). **Maintaining a straight back is very important** along with keeping your chest up and eyes looking slightly upwards. See the manual handling section in the NSW DPI *Australian fresh citrus harvest handbook* for more information on safe lifting practices. Suggested exercises are presented in figures 8–15.



Figure 8: Squats.



Figure 9: Shoulder press.



Figure 10: Lunge twists.



Figure 11: Side raises.

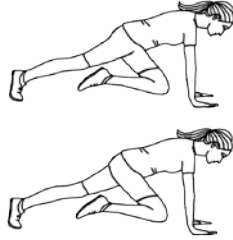


Figure 12: Mountain climbers.

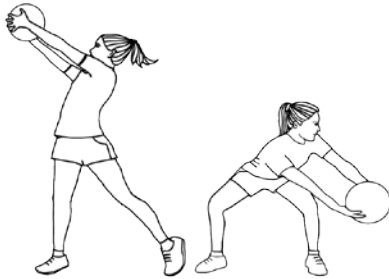


Figure 13: Woodchopper.

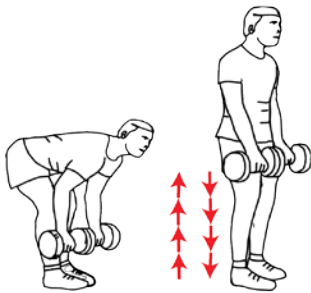


Figure 14: Deadlift.

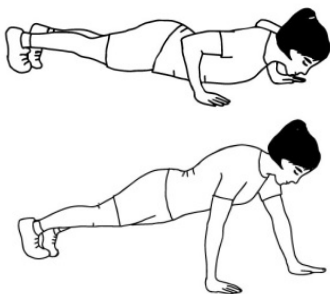


Figure 15: Push-ups (a weighted backpack can increase resistance).

Stamina (cardio) exercises

If you have any medical conditions or injuries you should seek medical advice before conducting cardio exercises.

Cardiovascular (cardio) exercises are any exercises that increase your heart rate. Doing cardio exercise will help with stamina, the ability to stay on your feet all day climbing up and down ladders. It will not help to reduce muscles soreness (DOMS).

Climbing stairs is a good way to prepare for ladder climbing work. Start by doing a flight of 50 steps as many times as you can and then increase up to 30 minutes per session as you become fitter. After a couple of days, start carrying weight (e.g. bricks, cans, backpack or sand bag). It is advisable to wear the shoes you will use for picking so that you get used to them.

There are many types of cardio exercises. Some suggested exercises include squats, lunges, burpees, mountain climbers, push-ups, sit-ups, dips, step-ups, box jumps and tap-ups. You can find instruction for these and many other cardio exercises on the internet.

The key to cardio exercise is to work at a rate where your deeper breathing makes it difficult for you to talk. Conduct cardio exercises on the alternate days that you do not conduct the strengthening exercises.

General cardio fitness is also important and a medium to fast paced walk for half to one hour a day is also recommended.

4. After work or exercise cool down stretches

When work has finished at the end of the day or your workout exercises are completed, you should also do some static stretches. These stretches help to reduce muscle soreness.

Stretching should be done immediately after completing work or an exercise program. A recommended way to stretch is to hold the stretch for 10–15 seconds, then release for 2 seconds, then stretch again for a little longer, release and stretch again. Do not hold your breath whilst stretching.

There are many types of stretching exercises and some of the common ones are provided in figure 22 to figure 23.



Figure 16: Chest stretch.



Figure 17: Upper back stretch.



Figure 18: Back of arms stretch.



Figure 19: Back of thighs stretch



Figure 20: Front of thigh stretch.

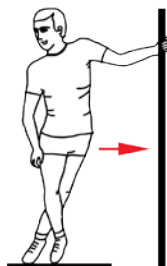


Figure 21: Outer thigh stretch.



Figure 22: Inner thigh stretch.



Figure 23: Torso stretch.

5. Food and nutrition

Food and nutrition is a very detailed topic and this section only provides a brief overview.

Fruit picking requires the muscles to work throughout the day. To do so efficiently they require fuel. This is provided by the food that you eat. If you do not eat enough food the muscles will not have enough fuel and you will begin to feel more sore, tired, increase the risk of injury and pick less fruit. For example, a piece of toast with peanut butter for breakfast, a sandwich for lunch and a piece of fruit for a snack are not enough to provide sustained energy to pick throughout the whole day.

Eating sufficiently means breakfast and lunch should be decent meals with snacks in between. For example:

- **Breakfast:** Cooked eggs and meat or bowl of oats with a couple of eggs.
- **Lunch:** One litre plastic container filled with good food (e.g. rice or pasta mixed with meat and vegetables).
- **Snacks:** non sweetened biscuits (e.g. crisp bread or cracker squares), yogurt, fruit, nuts or another portion of the lunch meal.

Sandwiches and wraps are convenient, however, on their own they will not provide enough energy for the whole day and you will risk getting tired. However they are good when accompanying other foods.

It is also essential to drink lots of water. A couple of bottles of soft drink are not enough and the high sugar content will cause a spike then slowdown in energy levels. Bring at least two litres (or more) of water during winter and more in summer.

Each meal should contain protein (e.g. meat), carbohydrates (e.g. pasta, rice, vegetables, potato or fruit) and a fat source (e.g. nuts or avocado). Some suggested foods that could be included in your meals are:

Carbohydrates

- Rye or whole-ground bread (note: whole-ground is different from wholemeal)
- Pasta, white or brown
- Rice, white or brown
- Quinoa
- Couscous
- Potato/sweet potato
- Oats
- Banana and all types of fruit

- Sandwiches or wraps
- All types of legumes and fresh vegetables.

Protein

- All types of meat
- All types of fish including fresh and canned salmon, sardines and tuna, white fish, shellfish, calamari and scallops
- Eggs
- Cheese, milk and yogurt.

Fats

- Nuts and seeds
- Nut spreads
- Avocado.

Avoid high sugar, highly processed foods (e.g. soft drinks, cakes, pastries, chocolate, packet crisps and sweetened biscuits) along with a high intake of alcohol. These types of foods will only provide a short energy spike, increase potential muscle soreness and make you feel more tired overall.

Contacts and acknowledgments

Thanks are given to various professionals in health, exercise and illustration drafting for providing in-kind information and work.

Sarah Page, Sarah Page PT, Mildura.

www.sarahpagept.com

0403 743 746

Megan Douglas, Kinetic Exercise Physiology,

Mildura, www.kineticcep.com.au

03 5021 0337

Jennifer Cooke, Mildura Physiotherapy & Rehabilitation Clinic, 03 5021 0302

Luisa Gonzalez, Black Kitty Design (illustrations)

www.blackkittydesign.com.au

042 8233 564

For updates go to

www.dpi.nsw.gov.au/factsheets

© State of New South Wales through the Department of Industry, Skills and Regional Development, 2017. You may copy, distribute and otherwise freely deal with this publication for any purpose, provided that you attribute the NSW Department of Primary Industries as the owner.

Disclaimer: The information contained in this publication is based on knowledge and understanding at the time of writing (April 2017). However, because of advances in knowledge, users are reminded of the need to ensure that information upon which they rely is up to date and to check currency of the information with the appropriate officer of the Department of Primary Industries or the user's independent advisor.

Recognising that some of the information in this document is provided by third parties, the State of New South Wales, the author and the publisher take no responsibility for the accuracy, currency, reliability and correctness of any information included in the document provided by third parties.

ISSN 1832 6668

RM8 INT17/71803