

**2006
TOMATO
GRADING
MANUAL**

August 8, 2006

INTRODUCTION

The Independent Service Provider is responsible for grading all contracted loads of tomatoes for processing. Tomato grading was instituted at the request of the industry as a means of determining each grower's load payment and ensuring the quality of tomatoes delivered for processing. Since this service applies to both growers and processors, it is of prime importance that the Independent Service Provider grading staff, as a neutral third party, remain fair and unbiased in all cases. Uniformity of grade interpretation and the correct handling of procedures are essential.

Each option has a predetermined pricing schedule for tomatoes, which comply with the quality standards. The price for tomatoes is based on the level of juice colour in a blended sample as determined objectively by an Agron or LED colorimeter.

For all options, penalty factors are applied to the defective portion of each load and tare deductions are made against the gross weight. If the defects exceed the prescribed tolerances, the processor may elect to reject the load.

Grading tomatoes consists of the following components:

- Sampling the load
- Splitting the sample into 2 parts
- Blending a sub-sample and reading the colour in an Agron or LED colorimeter
- Grading the second portion of the sample for defects according to the quality standards
- Recording the information into a computer system and onto a certificate

NOTE: It is imperative that every Grader be familiar with and follow the instructions contained in this manual.

GENERAL INSTRUCTIONS

Grading staff should be aware of the following general instructions:

- Consult with your Crew Leader to determine your work schedule, i.e. number of hours per day, shift, factory receiving hours, etc. Report to work promptly!
- Grade in an accurate and positive manner – hesitation on the part of the grader leads to a loss of confidence in our grading by the industry.
- Keep the grading area and equipment clean and orderly.
- Report any accidents at work to your Group Leader immediately regardless of whether it is serious or not.
- Explain the final grade to a grower or processor if requested but do not discuss subjects which are not directly related to grading, e.g. cultural practices, Board or processor policies, calculation of load values, etc.
- Refer any disputes, difficult questions or challenges on grade interpretation to your Group Leader.
- Report to your Group Leader any incidents of attempted intimidation or undue influence by a grower or processor.
- Accepting gratuities, substance abuse, or other unacceptable behavior will not be tolerated and will be considered just cause for immediate suspension or dismissal.
- Report to your Group Leader any situation that might place you in a conflict of interest, e.g. grading a close relative/friend's tomatoes or financial interest in a crop.
- The processor is responsible for providing washroom and first aid facilities – ask the processor for

directions.

- Where possible, time your breaks around the normal ebb and flow of activity around the plant.
- ➤ There will be times when it is necessary to work in the rain – rain suits will be provided. You are not expected to remain out on a flume during a severe electrical storm – invoke the Averaging Provision if samples cannot be obtained safely (refer to the appeals section).
- Remain in the general grading area – stay clear of the processing plant and associated machinery and activities.

Your personal safety is of major importance – report any potentially dangerous situations to your Group Leader promptly – if you have reason to believe you are in immediate danger, retreat to a safe place – invoke the By-Pass provision if the situation persists (refer to the appeals section).

GRADING EQUIPMENT

The grading equipment required for 1 complete set-up is listed as follows:

The Independent Service Provider's Responsibility – (to set-up and ensure operable) (primarily portable equipment)

- Sub-sampler – Unless Yuba City Sampler and/or mechanical table supplied by processor. Note: Yuba City Samplers will be required at all processor locations - commencing with the 2004 season.
- Sunshine Grading Lamp (2)
- Dip Net
- Sample Buckets
- Blender
- Vacuum Pump
- Wire Mesh Sieve
- Ladle
- Vacuum Gauge
- Pipe Fittings (11 pieces)
- Extension Clamps (2)
- Frame Foot (2)
- Filter Flasks (2)
- Rubber Stoppers (2)
- Elbow Tubes (2)
- Rubber Tubing
- Agron E-5M or UCD LED colorimeter
- Petri Dishes
- Plastic Trays
- Defect Buckets
- Bench Scales
- Knives
- Pocket Calculator
- Aprons
- Vacuum Line Filter
- Rain Suits
- Refractometer (B&S RFM90) – for optional soluble solids procedure
- Cloth Filters
- Distilled Water
- Plastic Spoons
- Equipment cleaning supplies (to clean equipment listed under The Independent Service Provider responsibilities)

Processor's Responsibility – (to set-up and ensure operable) (primarily fixed equipment)

- Enclosed grading platform/area
- Dedicated hydro service (constant power supply)
- Sink with running water
- Grading table – either manual or mechanical (see Appendix A for detailed specifications)
- Work bench
- Yuba City sampler – optional
- Safe access for sampling (platform if required)
- Yard lighting
- Dedicated telephone line
- Stable, sheltered environment for grading equipment (free from drafts, protection from direct sunlight)
- Heat source (for temperatures below 10°C)
- Computer Printer – Equipment Requirements

- Grading station cleaning equipment and supplies (to clean station and surroundings, e.g. mop, broom, hose with nozzle, cleaning solution).

The equipment used for the purpose of grading is very expensive. Therefore, every Grader must ensure that during off-hours, the grading platform is either locked securely, or the equipment is safely stored. Report any missing equipment to your Crew Leader or the Office immediately.

RECEIVING OF LOADS

The exact method of receiving loads of tomatoes may vary from plant to plant. The basic procedure will be as follows:

- The grower drives his load up to the grading station.
- Double hook-ups will be treated as one load other than tomatoes for research purposes.
- Processors and growers are restricted from the grading area unless a request to enter is made to the Independent Service Provider and permission is granted
- The processor is responsible for arranging delivery schedules – consult with the scale house operator regarding the order of grading loads.
- A grower is entitled to a grade within 2 hours of his scheduled delivery time – schedules are often delayed, so continue to grade the loads in their proper sequence. Try to stay caught up, even if unloading is backed up.
- If a loaded load is re-scheduled by the processor for more than 8 hours past its original scheduled time, the grower may choose to invoke the “Averaging Provision” (see Exemptions) or have a regular grade conducted at the new time. [reference – Marketing agreement section 9(e)(iii)]
- In the event that loads are transferred from one processor to another, the sending processor must complete a Form 2. The grader must have a copy of the Form 2 before the load can be graded.

SAMPLING

The Independent Service Provider grader must obtain samples. Under no circumstances should a processor or grower select samples for grading.

There are 2 types of sampling procedures – wet sampling and dry sampling:

Wet Sampling (Available through the 2004 season)

True Bulk Loads

- In this procedure, bulk wagons are unloaded by flushing the tomatoes out with water
- Samples for grading are collected with a dip net as the tomatoes flow out of the wagon and before they hit the flume – tomatoes in the flume have lost their identity and must not be selected.

- Where time permits, every effort must be made to draw samples from throughout the entire load – however, at some locations, because of manpower limitations, samples may be taken from 1 spot in the load, selection cards will be provided and they will determine the locations for dipping i.e. front or back – your Group Leader will provide directions for the proper procedure at each plant.
- Any clinging vines or foreign matter caught in the dip net must be added to the sample for grading.
- The total sample size for grading will depend on the size of the load as follows:
- Standard Farm Wagons – a total of 50 lbs is required. Usually 25 lb pails are used to collect the samples. This will mean dipping 2 x 25 lbs from the load. The two pails should be filled at the same time with one pail designated for colour determination and the second for defect grading.
- Double Hook-Ups or Semi-Trailers – a total of 75 lbs is required. This will mean dipping 3 x 25 lb pails from the load. Three pails should be filled at the same time with one pail designated for colour determination and the other two for defect grading.

Dry Sampling – Yuba City Samplers

- Loads are sampled with hydraulic probes
- Core samples are taken out of the load mechanically and deposited into trays. The cone size should accommodate a 50 lb sample for grading (approx. 25 lbs deposited into tray for each core sample).
- 2 cores per load are taken regardless of size (for double hook-ups, 1 probe per wagon)
- The Independent Service Provider grader operates the Yuba City sampler. Your Group Leader will provide operating instructions, however, it is important to note that the grey sample tub must be swung fully into place BEFORE releasing the jaws of the probe
- A Bulk Load Sample Chart is supplied to determine the sampling locations on the load. The chart consists of 12 different cards; use them in sequence for each new load. **THIS IS MANDATORY!**
- Extreme care must be taken to ensure that the core sampler is not lowered down onto a cross-brace or chain which is submerged in the load.
- For mechanical tables, each tray is gently dumped onto the conveyor belt.
- An adjustable divider on the mechanical table will split the sample into 2 parts – one part runs onto the defect table and the balance is sub-sampled for colour determination.
- The divider must be set so that the appropriate sample size is provided for defect grading: 25 lbs.
- For manual tables, trays must be treated as follows:
- 2 core samples – dump an equal portion of each tray onto the grading table for defect grading – 25 lbs in total is required – save the remainder for pouring through the sub-sampler.

NOTE: When obtaining a defect sample, the top half of the first sample obtained should be poured onto the grading table while the bottom half (the opposite) of the second sample obtained is to be poured onto the grading table.

SAMPLING AND GRADING PROCEDURE FOR SMALL VOLUME PROCESSORS (Available through the 2004 season)

The following sampling and grading proposal is designed for processing locations where

- small volumes of tomatoes are processed on an hourly or daily basis
- loads are scheduled in groups
- all loads in a group are to be graded within a 4 to 5 hour time period

- grading to be performed during day and afternoon shifts only

Samples are to be obtained as outlined below by the Independent Service Provider. Under no circumstances should a processor or grower select samples for grading.

All appeal grade provisions and grading exemptions will be applicable with the exception of the pre-grade provision and are to be completed **prior** to the end of the grading shift.

Dry Sampling (Manually) (Available through the 2004 season)T

This method is to be used only where a Yuba City sampler is not available and small hourly or daily volumes are being processed. A proper platform, meeting required safety regulations **MUST** be provided. Specifications to be supplied by the Independent Service Provider.

- Random samples will be obtained by hand, by going down the outside edges of the wagon/trailer (corner and/or sides)
- Samples will be taken from 2 spots per load regardless of size (for double hook-ups, 1 spot per wagon/trailer)
- Selection cards will be provided to determine where the samples are to be taken from. This is mandatory!
- The total sample size for grading will depend on the size of the load as follows:
 - Standard Farm Wagons – a total of 50 lbs is required. Usually 25 lb pails are used to collect the samples. This will mean obtaining 2 x 25 lbs from the load by hand. The two pails should be filled at the same time with one pail designated for colour determination and the second for defect grading.
 - Double Hook-Ups or Semi-Trailers – a total of 75 lbs is required. This will mean obtaining 3 x 25 lb pails from the load by hand. Three pails should be filled at the same time with one pail designated for colour determination and the other two for defect grading.
- Any vines or foreign matter obtained while collecting the sample must be added to the sample for grading.

SUB-SAMPLING FOR COLOUR DETERMINATION

The procedures require that an 8.5 lb sub-sample is obtained for colour determination – the method is dependent on the type of grading table used.

- It is absolutely essential that you remain neutral during the sub-sampling procedure – do not discriminate in favour of red fruit or pale fruit – collect the samples in an unbiased manner.

Mechanical Table

- After the core samples are dumped on the conveyor belt, separation of the comminuted sample is done automatically by the table.
- Firstly, the sample is split into 2 parts by a divider – one portion is carried on an graded for defects while the second is further sub-sampled for colour determination.
 - By means of a rotating drum, the table randomly selects tomatoes and deposits them in a tray or belt.
 - The tray usually contains more than enough tomatoes and you may need to further sub-divide the colour sample – make sure that a portion of all core samples is included in the final sample – mix the final contents thoroughly and then randomly take the 8.5 lbs – discard the unused balance.

Manual Table

- The total colour sample, which weighs approximately 25 lbs is poured over the sub-sampler – it will randomly separate out 8.5 lbs for blending.
- It is essential that when the 25 lbs are sub-sampled, the tomatoes must be poured in a direction that is at right angles to the chute.
- The tomatoes, which go through the sub-sampler, are discarded and not added to the defect sample.
- In the unlikely case that less than 8.5 lbs are separated out, the portion of the colour sample which went straight through can be re-poured over the sub-sampler until sufficient tomatoes are collected for blending.
- Oversize tomatoes can sometimes become wedged between the inverted cone and the side wall – they should be poured slowly and, if necessary, gently pushed through in the same direction which they normally would have fallen.
- When obtaining a colour sample, the top half of the first sample obtained should be poured through the sub-sampler while the bottom half (the opposite) of the second sample obtained is to be poured through the sub-sampler.

COLOUR DETERMINATION

Blending

- The comminuted samples are ground into a puree according to the following instructions:
- Start with well rinsed-out equipment
- Wash each tomato in the 8.5 lb sample thoroughly – any adhering mud will artificially increase the Agtron/LED reading.
- In all cases remove grass green fruit and MOT (stems, vines, etc.)
- For Option 5 remove Processing Greens but leave Processing Breakers in the sample.
- For Options 6, 7, 8 and 9 leave Processing Greens and Processing Breakers in the sample
- To obtain a vacuum follow this procedure:
- Install the air-tight lid,
- Close the escape valve on the lid and open the shut-off valve next to the vacuum gauge
- Start the vacuum pump
- When a vacuum of 26 inches of mercury is obtained, run the blender at medium speed for exactly 40 seconds.
- Shut off the blender, and retain the vacuum for an additional 10 seconds.
- Close the shut-off valve and stop the vacuum pump.
- Open the escape valve to break vacuum and remove the lid.
- With a rotating motion, submerge the wire mesh sieve into the juice – gently mix the juice inside the sieve but be careful not to make air bubbles.
- Take one full ladle of juice (175 ml) from inside the sieve – if the juice is thick and exceeds the ladle rim, scrape it level with a straight edge.
- Transfer the ladle contents into a clean petri dish – make sure the juice settles to an equal depth at all points.
- If the juice sample is frothy or appears poorly blended (chunky), repeat the entire blending and vacuum

procedure with another sample first checking for air leaks.

Colour Determination

The colour of the puree sample is determined using an Agtron E-5M or a UCD LED colorimeter as follows:

- Open the Agtron/LED drawer until it is fully extended.
- Ensure that the tray is properly positioned, i.e. with the highest lip up and towards the back of the instrument, making sure the corners of the tray fit into the corner notches.
- Place the petri dish with the sample on the tray.
- Before closing the drawer on the Agtron, calibrate the machine by bringing the needle on the meter to 48.
- Gently close the drawer taking care not to splash the juice in the petri dish. **NOTE – see Lens Check section.**
- Read the Agtron value on the meter to the nearest whole number or the digital LED value and record it on the worksheet and then into the computer.
- If the Agtron/LED value is abnormally high considering the overall redness of the fruit and there are indications that a malfunction has occurred, it is permissible to blend another sample. Discard the original value and start again with a new sample. Inform your Group Leader when this occurs.
- If a grower and/or processor questions the accuracy of the colour reading, refer to the appeals section of this manual for instructions. Complete re-grades are available at their option.

Lens Check (LED)

- The LED lens is mounted less than ½ inch over the comminuted sample. A clean lens is essential for an accurate colour reading. Juice on the glass blocks the sensor's view of the sample. Close the drawer carefully and report a sticking drawer for adjustment to avoid spills.

CHECK THE LENS EVERY TEN LOADS OR WHEN:

- Drawer slams
- Drawer sticks and jerks
- Petri dish catches or scrapes inside LED
- Juice spills inside the LED
- There is a shift in readings

LED Lens Inspection

- Open drawer and remove petri dish tray by lifting front of tray over the stops and sliding the tray forward out from under the backstops.
- Remove the drawer or with the drawer about halfway open, hold the mirror in the drawer, tilted so that the lens is visible.
- Press lower right [lens-light] button on keypad. Tilt the mirror to get a good view of the lens.
- If a spot or spots of juice, film or dust are on the lens, it will need to be cleaned.
- After inspection, replace the tray by sliding the back of the tray under the backstops and fitting the front down behind the front stops. **BE SURE THAT THE TRAY IS LEVEL AND FULLY SEATED.**

Cleaning the Lens

Preferred Method – clean lens without opening LED

- Remove drawer
- Squirt distilled water onto LED cleaning tissue
- Wet any dried spots and give them a moment to soak
- Wipe off spots (careful not to rub grit into lens)
- Fold and/or replace tissue between wipes to avoid smearing and scratching
- Polish lens with a clean dry tissue. Repeat if needed.

HOW TO AVOID SCRATCHING LENS:

- Only use clean tissue
- Rinse away sand or gritty juice before scrubbing at lens
- Do not scrape lens with metal

Equipment Maintenance

It is absolutely critical that our grading equipment be in top-notch operating condition. Advise your Group Leader immediately if problems arise with any piece of equipment. Spare machines and parts are readily available – extra's are either stored on site, the Leamington Office or in an emergency may be borrowed from another factory.

The following maintenance instructions will help to reduce the possibility of inaccurate colour grading results:

- Make sure that the blender jar, sieve, ladle and petri dishes are properly rinsed between loads.
- Check for leaks in the vacuum line using the following procedure:
 - Install the lid on the empty blender, close the escape valve and open the shut-off valve next to the gauge,
 - Start the vacuum pump and obtain a vacuum of 26 inches of mercury,
 - Close the shut-off valve and observe the gauge – if the needle remains at 26, there are no leaks – if it drops over a period of time, every connection should be checked for tightness,
 - To determine the location of the leak, splash soapy water around each point of connection – close the escape valve, open the shut-off valve and start the pump – check each joint to find where the soap bubbles are drawn in – if this does not work run the test with a different blender jar.
- Ensure that the vacuum pump is operated as follows:
 - To break the vacuum, always use the escape valve to let air back into the blender jar – if the shut-off valve is opened first, air will be sucked back in through the pump, causing it to run backwards – running backwards will damage the rotary vanes in the pump, and could cause juice to be sucked back into the filters,
 - Check the oil level on the pump periodically to ensure that it is properly lubricated,
 - After a long period of non-use, a pump may be slow to attain the required 26 inches of vacuum – in such cases allow the pump to warm up for 5 minutes – during this time the vanes should expand and create a better internal seal.
- Clean the juice traps when necessary – be careful not to break any of the glass equipment, especially the L-shaped tube – 2 flasks are required per set-up – you may need to remove a flask for cleaning – to dismantle the assembly, first loosen the rubber stopper and then loosen off the clamp – this will allow the flask to drop down – do not try to pry the rubber stopper and tube out of the flask! The vacuum line also has a filter that contains a drying agent – maintenance personnel will look after replacing the filter.
- Operate the Agtron in the following manner:

- At the start of the shift, turn the Agtron on and allow it to warm up for at least 15 – 20 minutes before actual use. The red light indicates that the power is on.
- After warming it up, calibrate the machine for use as follows:
 - » Open the drawer completely
 - » Turn on the meter switch
 - » Set the needle on 48 by turning the control knob
 - » Close the drawer and switch the meter off but keep the power switch and red light on
- Always make sure that the floor of the Agtron and the tray are kept clean at all times – the presence of dirt and juice seriously affects the accuracy of the machine – wipe the floor gently with a damp Kleenex
- When the plant has quit receiving for the day, turn the Agtron’s power switch off. However, if there is a following shift, leave the power on.
- Do not make any other adjustments to the Agtron. Your Group Leader or the Agtron Technician will conduct routine maintenance as required.
- In addition to reading the colour of juice samples, the Agtron may also be used to read individual tomatoes.
- The breakpoint between an acceptable tomato and a processing breaker is 77 on the Agtron.
- Read borderline pale tomatoes on the Agtron using this procedure:
 - » Open the Agtron drawer until it is fully extended
 - » Remove the black tray
 - » Cut the sample tomato in half – make sure that the 2 halves are of equal size – cut through the “equator”, not through the stem
 - » Place the halves on the 2 holders with the cut surface facing up and level (the holders should be in the “down” position)

NOTE: Do not read exceptionally small tomatoes as they drop too far down into the holders

- Calibrate the Agtron by bringing the needle on meter to 48
- Gently close the drawer and raise the knob on the outside of the drawer – take care not to bounce the tomatoes
- Read the Agtron value to the nearest whole number
- Lower the knob and open the drawer
- Remove the 2 halves and place them in the appropriate bucket
- Clean any juice off of the bottom of the Agtron with a damp Kleenex
- Replace the black tray
- It is not necessary to read every pale tomato
- Just cut enough borderline samples to set your sights
- Operate the LED in the following manner:
 - » At the start of the shift, turn the LED on and allow it to warm up to 103°F. When the machine is turned on, it displays a flashing “HEATING UP” message until the core reaches 100°F. Then the

machine cycles between 110 and 108°F. Menu item 98 displays the temperature. As it heats up the machine will read samples but will only display the results for 1 second and then the “HEATING UP” display reappears.

- » When the plant has quit receiving for the day, turn the LED power switch off, unless there is a shift following and then leave the power on
- » The LED does not read individual tomatoes like the Agtron does
- Treat the electronic scales with care – take note of the following points:
 - » Lower full trays onto the platform gently – don’t drop them!
 - » Always turn the scale off before unplugging – otherwise it may need re-calibrating
 - » Don’t use excessive force when punching in the “zero” button – never use a pen or sharp instrument on the keyboard
- Refer equipment problems to your Group Leader – in general, factory personnel should not be called on to fix grading equipment except for Yuba City samplers and mechanical grading tables.

SOLUBLE SOLIDS DETERMINATION

Note - Since soluble solids is not a basis for payment, procedures have been streamlined to facilitate grading efficiency.

Background

- Soluble solids are measured in “degrees Brix” on a refractometer
- Soluble solids testing is not mandatory at all grading locations. Graders will be advised as to the locations where soluble solids testing is required.

Equipment Set-Up

- Testing for soluble solids must be done on a Bellingham & Stanley RFM90 Automatic Refractometer. In the event of a breakdown, other approved refractometers (comparable accuracy) may be used on an interim basis. Procedures may vary with alternate equipment. Check with your Group Leader.
- The refractometer must be setup in a sheltered area of the grading station:
 - Free of drafts
 - Stable environment (no high humidity)
 - Temperature range of +10 to +40°C
 - Constant power supply (no fluctuations)
- Turn on the instrument using the power switch on the back panel. The readout will display a flashing “ON”
 - Allow the unit to warm up for 15 minutes prior to use to allow for temperature stabilization.
 - **Calibration Checks**
- Check the accuracy of the refractometer by conducting a zero calibration at the start of each shift and at 2 hour intervals minimum.
- Lift the Sample Press Arm and make sure the prism is clean and dry.
- Apply **distilled** water to the prism from the squeeze bottle supplied. Use just enough to cover the prism.

- Close the Sample Press.
- Press the button “READ SAMPLE” and check the readout. It should be 0.0 or ± 0.1 . If this is the case, continue on with the normal testing.
- If the readout is ± 0.2 or greater, repeat with another sample of distilled water. If your results continue to be ± 0.2 or greater, contact your Group Leader for adjustments.
- Record your zero calibration in the logbook. This information will be used to confirm the reliability of the equipment.
- Remember to dry the prism and Press Arm with a soft tissue.
- Never use anything abrasive on the prism.
- Refer equipment problems to your Group Leader promptly.

Tomato Solids Readings

- Always start with clean, dry equipment. Make sure that there is no dried on tomato material. Your hands must also be dry.
- Use the colour sample in the blender for the soluble solids test.
- After blending is complete, obtain a spoonful of the juice from within the center of the sieve. The spoonful of juice may also be obtained from the petri dish but only **after** the Agtron colour reading has been secured.
- Completely cover the prism area with the juice (4 or 5 drops will be sufficient).
- Do not allow water from your hands or gloves to drip onto the prism. If there is any contamination, repeat the procedure with a new sample.
- Close the Sample Press Arm gently and let the sample sit for 30 seconds to allow for temperature stabilization between the prism and sample.
- Press the “READ SAMPLE” button on the front panel and note the reading on the display – write it down on the scratch pad or enter it directly into the computer.
- Record the final soluble solids reading and the variety on the scratch pad and/or logbook or enter it directly into the computer.
- Lift the Press Arm and clean off the prism and press arm completely. Dry both surfaces with a clean dry tissue. Clean and dry the spoon.
- Enter the final reading on the certificate and record the variety as well.
- If a grower and/or processor questions the accuracy of the solids reading, refer to the appeals section of this manual for instructions.

DEFECT GRADING

Quality Standards

- The various grade options are described in a very similar format. The differences show up in the treatment of the three undercolour categories and in the tare penalties. The quality standards are outlined in the following chart. Refer to the marketing board contract for each processor's exact specifications.

OPTION 5

	0-37 (breakers included)	over 37	
1. Colour			
2. Undercolour			
(i) grass green	1%	over 1%	0-1% x 1 2+% x 2
(ii) processing green	2%	over 2%	0-2% x 1 3+% x 2
(iii) processing tomatoes	7%	over 7%	0-5% x nil 6-7% x 1 8+% x 2
3. Other Defects	7%	over 7%	0-7% x 1 8+% x 2
4. Limited Use	20%	over 20%	0-6% x nil 7-10% x ½ 11-20% x 1 21+% x 2
5. M.O.T.	3%	over 3%	0-1% x 1 2+% x 2

OPTION 6

	0-37 (breakers & proc. green included)	over 37	
1. Colour			
2. Undercolour			
(i) grass green	2%	over 2%	0-2% x 1 3+% x 2
(ii) processing green	3%	over 3%	0-3% x nil 4+% x 2
(iii) processing breakers	unlimited	nil	nil
3. Other defects	7%	over 7%	0-7% x 1 8+% x 2
4. Limited use	20%	over 20%	0-6% x nil 7-10% x ½ 11-20% x 1 21+% x 2
5. M.O.T.	3%	over 3%	0-1% x 1 2+% x 2

OPTION 7

	0-37 (breakers & proc. green included)	over 37
1. Colour		

2. Undercolour			
(i) grass green	3%	over 3%	0-3% x 1 4+% x 2
(ii) processing green	unlimited	nil	nil
(iii) processing breakers	unlimited	nil	nil
3. Other defects	7%	over 7%	0-7% x 1 8+% x 2
4. Limited use	20%	over 20%	0-6% x nil 7-10% x ½ 11-20% x 1 21+% x 2
5. M.O.T.	3%	over 3%	0-1% x 1 2+% x 2

OPTION 8

1. Colour	0-37 (breakers & proc. green included)	over 37	
2. Undercolour			
(i) grass green	3%	over 3%	0-3% x 1 4+% x 2
(ii) processing green	unlimited	nil	nil
(iii) processing breakers	unlimited	nil	nil
3. Other defects	7%	over 7%	0-7% x 1 8+% x 2
4. Limited use	20%	over 20%	0-6% x nil 7-10% x ½ 11-20% x 1 21+% x 2
5. M.O.T.	3%	over 3%	0-1% x 1 2+% x 2

OPTION 9

1. Colour	0-37 (breakers & proc. green included)	over 37	
2. Undercolour			
(i) grass green	4%	over 4%	0-3% x 0 4+% x 1
3. (a) Other defects	7%	over 7%	0-7% x 1 8+% x 1
(b) Blossom end rot	4%	over 4%	0-4% x 1 5+% x 1

OPTION 9 (continued)

A load is rejectable if the combination of Blossom End Rot and Other Defects exceeds 7%.

4. Limited Use	15%	over 15%	0-3% x nil
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			4-10% x ½
			11-15% x 1
			16+% x 2
5. M.O.T.	3%	over 3%	0-1% x 1
			2+% x 2

Definition of Defects

➤ Grass Green

- fruit whose external surface is totally green or greenish-white, or less than 50% yellow;
- the category Grass Green is based solely on external colour and these fruit should not be cut;
- some "green" tomatoes may show internal colour if cut. Evidence of internal colour is irrelevant.

➤ Processing Green

- a tomato whose external surface is more than 50% yellow or a tomato that shows an external blush of colour (pink, or orange) on more than 1% but less than 90% of its surface.

➤ Processing Breaker

- fruit which shows more than 90% external blush of colour (yellow, pink or orange) but exceeds 77 on the Agtron when determined on cut-halves.

NOTE: Refer to the colour photographs in the leaflet for further guidance on the 3 undercolour categories.

➤ **Other Defects**

- includes tomatoes which are affected by:
 - more than 1 spot of anthracnose
 - any defect causing the tomato to be sour
 - any tomato with an insect, worm or worm excrement present
- more than 15% cut-off for:
 - » black mould
 - » early or late blight
 - » decay
 - » frost injury
 - » insect damage
 - » white mould
 - » blossom end rot

➤ **Limited Use**

There are 2 types of Limited Use tomatoes:

- **tomatoes with less than 15% cut-off for group 1 defects:**
 - » black mould
 - » frost injury
 - » early or late blight
 - » insect injury
 - » blossom end rot
 - » 1 spot of anthracnose

» decay

· **tomatoes with more than 15% cut-off for Group 2 defects:**

- » sunscald
- » sunburn
- » shriveling
- » blotchy ripening
- » grey wall
- » growth cracks
- » catface
- » cracked or damaged fruit
- » broken locules
- » hail damage
- » bacterial speck or spot

➤ **M.O.T. (Material Other than Tomato)**

- M.O.T. includes dirt, vines, loose stems, and attached stems over 1" long or past the first joint. Attached stems less than 1" are ignored.
- in the case of attached stems which are over 1" in length, break off the complete stem portion and place it in the MOT bucket - then grade the tomato on its own merit.

Description of Defects

The descriptions in this section will provide guidance as to the proper scoring of defects. When determining the percentage of waste on a particular tomato, consider the nature and location of the injury. In the interests of uniformity, a straight cut should be used where the injury affects all, or practically all of the shoulder of the tomato. For other defects affecting smaller areas, a cone-shaped cut should be made. Graders are not expected to carefully carve out only the defective portion of the tomato. Neither are they expected to remove an excessive portion of uninjured flesh along with the defect. Common sense must prevail when cutting tomatoes in order to arrive at the percentage by weight of any defect.

As a further guide 15% cut-off scales will be supplied. All Graders should first practice with the scale in order to get a feeling for the correct relationship. After a few repeated attempts each Grader will be better able to rapidly estimate 15% waste without weighing every defective tomato. Occasional re-checking throughout the season will maintain this skill.

The following defect descriptions are applicable to Options 5 - 9.

➤ **Black Mould**

- black mould is a fungus which causes dark discoloured areas and puckering of the skin.
- it is usually adjacent to growth cracks or other injury to the skin.
- if it is severe, it may extend into the flesh of the fruit - to determine the severity, cut the tomato at right angles to the direction of the growth crack or injury and determine if any flesh is discoloured.
- if black mould is only present on the surface of the tomato it is acceptable.
- if it affects the flesh but causes less than 15% cut-off when removing it, it is scored under LIMITED USE.
- if it affects the flesh to such a degree that more than 15% of the fruit must be cut-off, it is scored under OTHER DEFECTS.

➤ **Early Blight**

- typical early blight spots are dark brown, leathery and somewhat sunken
- they almost always occur at the stem end especially during periods of moist weather.
- usually the spots are less than 1 inch in diameter and they occupy a defined area.
- if early blight is present and causes more than 15% cut-off, the tomato is scored under OTHER DEFECTS.
- if it causes less than 15% cut-off it is scored under LIMITED USE.

➤ **Late Blight**

- late blight spots are usually first seen on the exposed shoulder of the tomato - especially during wet seasons.
- the first stage shows a grey green water-soaked or greasy appearance.
- later it nearly always shows a slightly roughened or pebbly surface which is rusty tan in colour and in late stages turns to dark brown - the defective area is not well-defined and usually blends into the good portion.
- if late blight is present and causes more than 15% cut-off, the tomato is scored under OTHER DEFECTS.
- if it causes less than 15% cut-off it is scored under LIMITED USE.

➤ **Decay**

- decay is any advanced rotting condition
 - depending on the cause it may turn the flesh soft, pulpy, discoloured or sour.
- all tomatoes which have turned sour are scored under OTHER DEFECTS.
- decay which causes more than 15% cut-off is scored under OTHER DEFECTS.
 - otherwise if it causes less than 15% cut-off it is scored under LIMITED USE.

➤ **Frost Injury**

- fruit affected by frost have a glossy or water-soaked appearance.
- in addition to the glazed external appearance, the wall has broken down leaving a soft, watery blister - the skin separates from the wall and in extreme cases becomes a "water bag".
- frozen tomatoes break down quickly and often turn sour after thawing
- slight frost injury may turn the affected area pebbly and off-coloured.
- frost injury which causes more than 15% cut-off is scored under OTHER DEFECTS - all sour tomatoes go in OTHER DEFECTS.
- if the damage is less than 15% cut-off, it is scored under LIMITED USE.
- take note that some glazed blotches are the result of "chilling injury" which is compounded by bruising from handling during sampling and grading.
- damage caused by chilling injury is superficial - the skin has not separated from the wall of the tomato - the wall has not disintegrated to any significant degree - the tomato is completely intact and does not resemble a "water bag"
- fruit affected by chilling injury are considered to be "good tomatoes", i.e. not scored as a defect - this

is consistent with the scoring of slightly broken or cracked fruit

- remember that frost injury must be conclusive - consult your Group Leader before making a judgement - do not assume that all "water bags" are the result of frost injury!

➤ **Anthracnose**

anthracnose lesions in the early stages are small, circular, slightly sunken, waxy, water-soaked spots.

- the central portion of the spot later turns very dark and depressed due to the presence of black fungus filaments just beneath the skin - under moist conditions, pink spores develop on the surface.
- if a tomato is affected by more than 1 spot of anthracnose it is scored under OTHER DEFECTS.
- if a tomato has only 1 spot of anthracnose it is scored under LIMITED USE.

➤ **Insect Injury**

- this refers to damage to the flesh of the tomato which is caused by the feeding of insects or worms - sometimes it is healed over.
- if the damaged area causes a loss of more than 15%, it is scored under OTHER DEFECTS.
- if the damaged area causes a loss of less than 15% cut-off, it is scored under LIMITED USE.

NOTE:

- 1) if the actual insect, worm or worm excrement is present, the problem is much more serious and scored under the category OTHER DEFECTS.
- 2) another form of insect injury is caused by the Stink Bug and it has particular significance for wholepack tomatoes - this damage becomes evident after peeling and appears as a small, white "snow flake".
 - if the injury can be removed by peeling, score this tomato as GOOD.
 - if the injury cannot be removed by peeling, score this tomato under LIMITED USE.

➤ **Blossom End Rot**

- the first symptom of blossom end rot is the appearance of a small, slightly sunken, water-soaked spot at or near the blossom scar.
- as the spot enlarges, the affected tissues dry out and become light brown to dark brown in colour.
- the spot becomes sunken and leathery in texture - it may extend up into the core of the tomato.
- while this defect is not actually a form of decay (really it is a physiological defect due to stress), it frequently leads to rotting from secondary infection.
- if blossom end rot causes a cut-off of greater than 15% it is scored under OTHER DEFECTS. (Except under Option 9 where it is scored under the Blossom End Rot category.)
- if it is less than 15% cut-off, it is scored under LIMITED USE.

➤ **White Mould**

- white mould usually originates in cuts, cracks or other skin breaks.
- the affected tissues turn soft and water-soaked
- it will eventually show a white scum-like growth of fungus on the surface
- an advanced infection will eventually cause the tomato to ferment and give off a characteristic sour smell.

- white mould which causes a cut-off of greater than 15% is score under OTHER DEFECTS
- white mould which can be easily removed from the skin break is considered acceptable and not scored.

➤ **Sunscald**

- sunscald occurs on the shoulders of fruit which are directly exposed to sunlight - especially during abnormally high temperatures.
- the first symptom is a whitish, shiny, blistered area on the shoulder.
- later the bleached tissue collapses forming a slightly sunken area that may become pale yellow and often wrinkled.
- when the fruit is ripe, the affected area will become darkened and watery and if sufficiently advanced, secondary infection will turn the area brown and rotten.
- if sunscald causes more than 15% cut-off it is scored under LIMITED USE.
- if it is less than 15% cut-off it is acceptable and not scored.

➤ **Sunburn**

- sunburn refers to a yellow or greenish yellow discolouration on the shoulder of the tomato
- quite often it is superficial and should be ignored.
- however, if it penetrates the wall of the tomato it is considered more serious.
- if sunburn causes a cut-off of more than 15%, it is scored under LIMITED USE.
- if it causes less than 15% cut-off, it is acceptable and not scored.

➤ **Shrivelling**

- shrivelling applies to tomatoes which have a rough, creased and rubbery skin and the inside pulp lacks firmness
- this defect is scored under LIMITED USE if the shrivelling is very severe.
- slight shrivelling is acceptable and not scored.

➤ **Blotchy Ripening**

- tomatoes affected by blotchy ripening show a tough, waxy, glazed appearance on the cheek with visible lines running through the affected area.
- this defect when cut in half through the blotch, may be assessed in 2 ways as follows:
 - » if dark strands are present (necrosis) assess the damage on the basis of cut-off.
 - » if the strands are not dark, assess the damage on the basis of an Agtron reading.
- score blotchy ripening under LIMITED USE if:
 - » the area with dark strands causes a cut-off of greater than 15%
 - » the area with no dark strands has an Agtron reading of over 77 as determined by cut-halves.

➤ **Grey Wall**

- damage caused by grey wall begins on the inside of the tomato and works its way to the outside.

- it has a greyish brown external appearance on the cheek which is caused by discolouration of the internal wall tissues showing through the healthy external tissues and skin
- on ripe fruit the affected area does not ripen properly and remains greenish or yellow in colour.
- score grey wall under LIMITED USE if it causes more than 15% cut-off.
- if the cut-off is less than 15% the fruit is considered acceptable.

➤ **Growth Cracks**

- growth cracks refer to rupture or splitting of the skin, usually near the stem end.
- there are 2 types of growth cracks:
 - » **concentric** - circular around the stem and **radial** - straight down from the stem and over the shoulder
- shallow growth cracks sometimes dry out and heal over.
- deep cracks allow the entry of decay causing organisms.
- in most cases growth cracks will show some dark discolouration of the surface which is probably caused by black mould.
- severely cracked fruit are scored under LIMITED USE if they cause more than 15% cut-off.
- if they cause less than 15% cut-off the tomato is considered acceptable.

➤ **Catfacing**

- catfacing refers to the scar tissue at the blossom end of the tomato
- these scars are usually dark brown to black in colour
- score catfaced fruit if the scar causes more than 15% cut-off
- do not score catfacing if it causes less than 15% cut-off.

➤ **Mechanical Damage**

- mechanical damage refers to cracked or broken fruit which have been damaged during harvest and delivery.
- usually it is caused by careless handling, overfilling containers, or delivery of over-ripe fruit.
- be careful not to damage any tomatoes when emptying the sample onto the grading table - if breakage is incurred because of the Grader's handling, ignore those particular damaged tomatoes.
- do not score fresh cuts caused by the probe
- score mechanical damage under LIMITED USE if 2 or more locules have been split open and their contents have spilled out or if it causes more than 15% cut off.
- tomatoes which have only 1 locule damaged or less than 15% cut-off are considered acceptable and not scored.

➤ **Hail Damage**

- hail damage is often visible as white healed-over marks and indentations on the shoulders and cheeks of the fruit.
- if these marks are accompanied by dark discolouration, the Grader should check for black mould.

- score hail damage under LIMITED USE if the damage causes more than 15% cut-off
- do not score hail damage if it can be removed with less than 15% cut-off

➤ **Bacterial Speck**

- bacterial speck appears as fine pinhead sized specks which are dark brown in colour.
- the specks are slightly raised from the skin and are usually only surface blemishes.
- score bacterial speck under LIMITED USE if it cannot be removed in normal peeling.
- otherwise it is acceptable and not scored.

➤ **Bacterial Spot**

- bacterial spot refers to brown scab-like spots on the surface of the skin.
- they resemble slightly raised cinders with a narrow water-soaked border around each spot.
- it is usually a more serious problem than bacterial speck.
- score bacterial spot under LIMITED USE if it cannot be removed in normal peeling.
- otherwise it is acceptable and not scored.

➤ **Spotted Wilt Virus**

- spread by tiny flying insects known as thrips when they feed on the leaves.
- fruits show spots about one-half inch in diameter with concentric, circular markings.
- on ripe fruit these markings are alternate bands of red and yellow
- fruit can become malformed, with raised yellow, red, and green mottled bull's eye rings
- if spotted wilt virus causes a cut-off of greater than 15% it is scored under OTHER DEFECTS.
- if it is less than 15% cut-off, it is scored under LIMITED USE

➤ **Sprouted Seeds**

- internally sprouted seeds are a problem for wholepackers.
- strained product processors do not consider them a problem
- where a grader suspects a problem the processor should be notified.

➤ **Yellow Top**

- uneven ripening which is corky, yellow or greenish yellow blending into red and extending down over the shoulder is to be scored as LIMITED USE if over 15% cut-off

Procedures for Defect Grading

The procedures laid out in this section describe the steps necessary for grading on a manual table. At several plants, mechanical tables are supplied and your Group Leader will provide special instructions for weighing defects and recording weights.

1. Check the contract option, which is provided by the processor (instructional or posted list) to ensure that the proper standards are enforced.

2. Do not wash the sample.
 3. Visually inspect the tomatoes according to the applicable quality standards and deposit defective tomatoes in the appropriate bucket - there will be one spare bucket if one of the categories requires an overflow. **NOTE:** Processing Greens and Processing Breakers are not tared under some options - continue to score and separate these categories in the normal manner for all options (except Option 9)
 4. The categories for defects are colour coded as follows:
 1. Grass Green GREEN
 2. Processing Green BLUE
 3. Processing Breakers RED
 4. Other Defects BLACK
 5. Limited Use YELLOW
 6. M.O.T. BROWN
 5. Where tomatoes are delivered with a coating of mud on the skin which hides the presence of defects, assess the quality as follows:
 - (i) hand rub the mud from the skin
 - (ii) cut suspicious tomatoes to evaluate the colour category or hidden defects
 - (iii) do not wash any tomatoes in the defect sample, with the exception of Grass Green and Processing Green which may be washed in order to accurately determine their exterior colour
 6. Collect the acceptable tomatoes in the large trays.
 7. Gather all M.O.T. from the table top and scrape it into its bucket - in the case of dip netted samples, loosely squeeze excess moisture from waterlogged vines and stems before weighing M.O.T.
 8. Place an empty tray on the scale and press the "ZERO" button.
 9. Remove the empty tray and place a tray full of acceptable tomatoes on the scale - record the weight to 2 decimal place accuracy on a scratch pad.
 10. Repeat steps 8 and 9 for each tray of acceptable tomatoes.
 11. Add up the weights of acceptable tomatoes and record the sum on the certificate under "REMAINDER".
 12. Again place an empty tray on the scale and press the "ZERO" button.
 13. Dump the contents of the first defect bucket into the tray and record the weight to 2 decimal place accuracy under the appropriate category.
 14. Press the "ZERO" button and repeat step 13 for the next defect - and so on until all of the categories have been weighed and recorded
- NOTE:** remember to first press the "ZERO" button each time a defect is added.
15. Add up the weights of acceptable tomatoes and defects to determine the total sample weight.
 16. Calculate a percentage for each defect category to 3 decimal place accuracy.
 17. If the load is over the tolerance and rejectable, save the tray full of defective tomatoes for inspection by the grower and/or processor.
 18. When no longer required, dispose of the sample by dumping it into the flume, a container supplied by the processor or back onto the wagon.

RECORDING INFORMATION manually (when computer system is not functioning)

Grader's Responsibility

1. Complete the date and time of grading.
2. Add the weights of the defects and the acceptable Tomatoes to determine the total weight of the sample - record the sum on the certificate under TOTAL.
3. To perform this addition to 2 decimal place accuracy - follow these steps:
 - (i) press the ALL CLEAR button (AC),
 - (ii) enter the weight of acceptable tomatoes to 2 decimal places,
 - (iii) press the ADD button (+),
 - (iv) enter the weight of the first defect to 2 decimal places,
 - (v) repeat steps (iv) and (v) for all remaining defect categories.
 - (vi) the sum of these entries is the total weight of the sample.
4. Calculate a percentage to 3 decimal place accuracy for each defect category and record them on a scratch pad.

NOTE: the display on the calculator may show more than 3 decimal places -just read the first 3 and disregard the rest.

5. To perform this calculation on a calculator follow these steps -
 - (i) press the ALL CLEAR button (AC),
 - (ii) enter the weight of the defect to 2 decimal places
 - (iii) press the DIVIDE button (/)
 - (iv) enter the total weight of the sample
 - (v) press the PERCENTAGE button (%)
 - (vi) repeat the procedure for each category of defects
6. Convert the percentages on the scratch pad to whole numbers (no decimal places).
 - the rules for rounding-off all partial percentages are as follows:
 - (i) .499% or less is rounded down to 0%.
 - (ii) .500% or greater is rounded up to 1%.

NOTE: To obtain the percentage for the REMAINDER, subtract the sum of all the defects from 100%

- Double check your figures and then transfer the final figures for each category from the scratch pad to the certificate.

REMINDER: MAKE SURE YOUR CALCULATIONS ARE CORRECT

7. Compare the percentage for each defect category against its tolerance and determine the load status
8. Check off the appropriate load status on the certificate.
9. Sign the certificate when completed.
10. Give the certificate to the grower.
11. The H.J. Heinz Co. supplies their own forms which are printed on their computer.

12. If the grade of the load is questioned, refer to the appeals section for further instructions.
13. If a certificate is spoiled or an error is made, follow these instructions:
 - (i) do not cancel a certificate unless all four parts are still intact,
 - (ii) if a minor error has been made scratch out the error, replace it with the correct figure and write your initials beside the corrected number,
 - (iii) if a certificate is spoiled (e.g. dropped in the mud) or must be replaced, (e.g. on account of a re-grade)
 - write CANCELLED in large letters across the entire
 - form, initial it and write the replacement number on it
 - save the canceled certificate for your Group Leader.
14. Refer to the sample copies of the Tomato Grading Certificate for further details.
15. A list of factory numbers is included for your information.
16. In the event of a rejected load, make sure that you retain The Independent Service Provider copy of the certificate as a record of the occurrence.

Processors' Responsibility

When applicable it is the decision of the processor and grower to accept or reject over tolerance loads.

Computer Records

All grading stations are equipped with a laptop computer and laser printer for automatic certificate production. Graders enter their data directly into the computer. Refer to the Tomato Grading Program Application Software Manual for instructions (Appendix B).

NOTE: Some processors utilize their own individual computer systems and certificate entry/creation will vary from the procedures described in the above manual. All systems used outside of the Tomato Grading Program system must be approved by the Ontario Processing Tomato Advisory Committee.

LIST OF FACTORIES

Countryside Canners Co. Ltd.
H. J. Heinz Company of Canada Ltd.
Harvest-Pac Products Inc.
Jema International Food Products Inc.
Klassen Canning Inc.
Kraft Canada Inc.
Lassonde Juices Inc.
Nation Wide Canning Limited
Sun-Brite Canning Limited
Thomas Canning (Maidstone) Limited
Weil's Food Processing Ltd.

RE-GRADE PROVISIONS

There are 2 types of grades for processing tomatoes and they are described as follows:

Original Grade

- This refers to the grade applied to all contracted loads of tomatoes received for processing,
- this grade is used to determine the grower's payment for that load and if below grade, whether it is

rejectable.

Re-Grades

- a re-grade may be requested within a reasonable period of time only if the load is rejectable or when the M.O.T. category exceeds 2%.
- the load must still be intact (not received or partially un-loaded) and cannot have left the processor's premises,
- re-grade procedure - the same grader repeats the entire procedure with another sample of the same size.
- when a re-grade occurs:
 - the original grade is always discarded,
 - the results of the regrade stands as final.
- document the final re-grade findings on a new certificate
- void the Original Grade by writing "CANCELED" in large letters across the entire form - also write your initials and the replacement number on it - save the canceled certificate for your Group Leader.
- after the re-grade is completed, it's a good idea to show the graded sample to the grower and/or processor for their information.

NOTE: A special provision (an option available through the 2003 season) applies at locations where the samples are collected with a dip net - the purpose is to provide access to a re-grade.

- the processor may request the grader to dip net a second duplicate sample from each load
- the first sample is graded in the usual manner and becomes the Original Grade
- the second sample is graded if either the processor or grower requests a re-grade - the Original Grade is discarded and the results of the second sample stand as final (there is no averaging)
- if the load is acceptable, the second sample is discarded
- this provision will only be available at locations where the extra work can be accommodated without incurring additional costs
- the duration may be for a prescribed period or it may apply to the entire season

GRADING EXEMPTIONS

The Farm Products Grades & Sales Act requires that all loads of tomatoes be graded. However extenuating circumstances may develop and a sample may not be available for grading e.g. probe breakdown, shortfalls in deliveries, etc.

Every effort must be made to obtain a sample for grading. In the rare cases where a sample cannot be taken, the following options apply:

Averaging Provision

- the Averaging Provision may be used to alleviate a number of unusual circumstances:
 - shortfall of deliveries
 - equipment breakdowns
 - extreme scheduling difficulties

- temporary unsafe working conditions
- an interruption in grading service delivery by the Independent Service Provider.
- before applying this contingency plan, make sure the processor and grower are aware of the situation - there should be a mutual understanding of the reason for taking this action.
- For reference on the completion of an Averaging Provision certificate, the Grader should refer to the Tomato Grading Program Manual for Graders (Appendix B).
- If the computer system is unavailable, the grader should make out a manual certificate. The words "AVERAGING PROVISION" are to be marked in large letters in PART B over top of the grade defect section - the grader's signature is also entered.
- The grader's signature is confirmation of the Average Provision and allows the processor to purchase the ungraded load based on the average of that grower's previous 2 loads.
- If possible refer to your work sheets to obtain the grade data from the previous 2 loads
- An Averaging Provision certificate is determined using the calculations as follows:
 - Colour Reading – use a simple average of the previous 2 loads (ex. 25, 27 = 26 average)
 - Soluble Solids – use a simple average of the previous 2 loads (ex. 3.9, 4.7 = 4.3 average)
 - Defects (M.O.T., Grass Green, Processing Green, Processing Breakers, Other Defects, Limited Use) – use a weighted average which is calculated as follows:

	<u>Cert. 1</u>	<u>Cert. 2</u>	<u>Total</u>	<u>Percent</u>
M.O.T.	1.0 lbs	2	3	5%
G. Greens	2.3	1.2	3.5	6%
P. Greens	0.8	0.7	1.5	3%
P. Breakers	4.1	3.3	7.4	13%
O. Defects	0	0	0	0%
Ltd. Use	2.4	3.8	6.2	11%
Remainder	17.4	18.6	36	61%
Total	28.5	29.6	58.1	100%

- Defects are determined using weighted averages. The final percentage is calculated using the “Total” weights obtained from adding each defect category together from the previous two certificates.
 - this provision may be used for a period of 2 hours if it was caused by a shortfall in deliveries (usually weather related)
 - if the problem is caused by a breakdown in grading equipment (e.g. probe failure), the time limit is extended to a maximum of 8 hours
- another valid reason occurs when the load has been re-scheduled by the processor beyond 8 hours from the intended delivery time -in this case the grower may request the Averaging Provision or he may elect to have the load graded in the usual manner at the new time - this most commonly occurs at small processors where they have called in more loads than they can process in that day (banked loads are left waiting in the yard) - these banked loads may be graded in the usual manner the next day or the Averaging Provision may be applied in order to catch up.
 - the Averaging Provision may also be used to alleviate temporary drastic circumstances (e.g. during a lightning storm) where it is not feasible or safe to obtain a sample.
 - keep in touch with the scale house whenever this provision is applied

Alternative Sampling Method

- the averaging provision expires after 24 hours after which all loads are considered bypassed. In the event of extraordinary circumstances OPTAC may extend this time period at the request of the processor.

By-Passing

- if the processor fails to provide suitable arrangements, the Group Leader is authorized to invoke a special By-Pass provision
- in this case the grader completes a certificate as if it were a "perfect" load (Agtron reading of 30, no defects)
- for instructions on creating a By-Pass load certificate refer to the Tomato Grading Program Manual for Graders (Appendix B)
- in cases where the computer system is not available, a manual certificate can be created - draw a line through the defect section on the certificate, write the word "BY-PASSED" in large letters across section B and then sign the certificate
- the processor is then obligated to pay the full contract price for the load
- the By-Pass Provision may be used if the grading facilities are deemed to be "unsafe" i.e. an imminent potential risk exists - in such cases the grader will remain on duty in a safe location - the loads are not graded but a certificate is completed as previously described to record the occurrence.
- the By Pass Provision may also be used if there is undue interference in grading by the processor - consult with your Group Leader first.
- Group Leaders are required to notify the processor of any potential use of the By-Pass provision prior to actual implementation.
- Take note that whenever a grading exemption occurs, the grader must still complete a certificate to document that the processor received the load. All instances must be reported to the Office promptly and a special report will then be assembled.

August 10, 2004