

# Cucumber Grading and Station Inspection Manual

2006

## **Cucumber Grading Station Inspection Manual**

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## **Cucumber Grading and Station Inspection Manual**

### **Introduction**

Payment to cucumber growers by processors is based on a sizing and defect grade out performed at processor contracted grading stations. It is the responsibility of UPGRADE CONSULTING LTD, to certify that the cucumber-sizing machine is operating properly and that the grade out for unacceptable cucumbers is done in accordance with the Marketing Agreement, established between the processor and the Ontario Processing Vegetable Growers.

UPGRADE CONSULTING LTD monitors all cucumber grading stations. The sizing and removal of unacceptable product is done by employees of the grading station only. Payment to growers is based on the actual weight of acceptable cucumbers received.

Sample grading of incoming cucumber loads by a processor is also acceptable at any grading location, provided that all growers and the Ontario Processing Vegetable Growers have been advised prior to contracting.

This manual is intended to be a reference for both grading and inspection procedures. It will provide processors with grading procedures and will provide UPGRADE CONSULTING LTD staff with guidelines for the certification of the grading machine, ensuring proper certification of weigh scales, monitoring the grade out performed by grading station operators, and ensuring that all procedures are in accordance with the Marketing Agreement.

### **Types of Grading Machines**

#### **A Backus Sample Grader**

The Backus Sample Grading System originates from the Netherlands. This system is licensed for use in Canada and introduced to Ontario as an alternative method for grading pickles. The benefits over traditional shaker or belt type grading machines are the speed of operation through computer-automated scales and certificate systems, the sample grading system, and the ability to more accurately sort pickles into a great number of separate size classes.

The Backus grading system combines the same grading principles as the conventional grading machines with the latest technology in electronics and computers. The use of plastic-capped sizing chains is another added feature resulting in remarkably precise product sizing.

The entire system is operated from a booth overlooking the receiving pit, which is connected to the grading equipment housed inside. The receiving pit layout allows several loads to be readily accessible to the system operator for immediate access. This feature allows the operator to supply the grading machine steadily with an interruption of only seconds between lots. The system operator enters the grower number at the beginning of the lot and signals the computer when the lot has finished. The computer then allows enough time for that particular lot to clear the end of the grading system. An "end lot pause" travels through the system and when it reaches the end, the computer will tabulate all the weights for each size division, the percentage of the load diverted for sample grading and the actual weight delivered by the grower. This information is recorded on a certificate in the office.

Once the cucumbers leave the receiving pit and enter the grading area, they will first pass over a "scalper" with sizing chains set at 2 1/8 " spacing. This will eliminate all the oversize cucumbers from the lot. Product will then move towards the main weigh hopper where the lot weight is recorded. Before the cucumbers enter the hopper, 4% - 7% of the load will be randomly diverted to the sample grading machine by a flap that intermittently redirects product.

The sample cucumbers move to the sample grading machine where they are sized in accordance with the Marketing Agreement. Employees of the grading station remove unacceptable cucumbers and nubs and crooks.

The balance of the lot is weighed and continues towards the main grading machine. This grading machine, very large in comparison to the sample grading machine, has the ability to separate the cucumbers into many more company specific sizes. Therefore, the grower is paid on the sample grade but the actual grading machine may use a completely different size separation, depending on the processor's requirements.

Receiving station employees are responsible for the removal of nubs and crooks. This is done after sizing on the main grading machine as opposed to before sizing on the sample grading machine. Each separate size is weighed on computerised scales before being forwarded to tote bins for storage and future transportation to the processing plant.

## B Belt/Shaker Grading Stations

This type of station, in use for many years, has many of the same principles as the Backus. Removal of nubs and crooks and unacceptable product is done by grading station employees. UPGRADE CONSULTING LTD's role is to certify the equipment as being properly calibrated, in good working order, scales recently certified, and that grading station employees are grading the product in accordance with the Marketing Agreement.

These stations are generally operated in the following manner:

- Growers bring their product into the station and when it is their turn they dump the cucumbers onto a belt that takes them up to the grading machine.
- Employees will pick unacceptable cucumbers, vines and other debris from this belt.
- The cucumbers then pass over a scalper that removes the oversize cucumbers. The remainder go to the grading machine. Usually nubs, crooks and foreign material are removed by grading station employees at this point.
- The remaining product then is sized on the grading machine. These machines have diverging slots that get wider the further down the deck that the cucumbers move.
- Smaller cucumbers fall between the slots first and as they move down larger and larger cucumbers will drop down.
- Bins placed under the machine collect the cucumbers according to the size range. After the grower's cucumbers have been graded and sized, the machine is shut down and the bin weights are recorded.
- Often these bins are resting on scales and it is a matter of the grading station simply determining the additional weight in each bin.
- The grower is paid according to the weight delivered in each of the four size ranges determined by the Marketing Agreement. The grading station may separate the cucumbers into more than four sizes but the payment to the grower is based on the weight in each of the four ranges.
- Cucumbers deemed acceptable under all contract options shall be fresh, free of caked on dirt, sound, green and fit for processing and shall be free from disease, physical damage and rot and shall not be yellow, spongy, sunburned, over-ripe, seedy or frozen.
- Nubs and crooks for the purposes of this Agreement shall be defined by the Pickle Packers International Inc. Official Chart, with the exception of pickles marked No.1 (top left-hand). (See Official Chart – Attached)

### **Pre-Grading Procedures (performed by Processor)**

- A load of incoming cucumbers may be selected by the processor for pre-grading prior to unloading as a result of a visual inspection by the processor
- A minimum of four random samples totalling no less than 50 lbs shall be taken from the load
- The sample is not to be washed
- Cucumbers may be cut to evaluate defects
- Immediately upon the completion of the pre-grade prior to unloading, the processor must provide the grower with a copy of the pre-grade certificate.

*(h) Quality standards and penalty factors to be applied to all pre-grades shall be as follows:*

<u>Category</u>	<u>Tolerance</u>	<u>Rejection Point</u>	<u>Tare Penalty</u>
<i>MOC-Vegetative Matter</i>	<i>1%</i>	<i>over 1%</i>	<i>0-1 x 0 Over 1 x 1</i>
<i>MOC-Non Vegetative Matter</i>	<i>5%</i>	<i>over 5%</i>	<i>0-5 x 0 6+ x 1</i>
<i>Decay, Rot, Disease</i>	<i>3%</i>	<i>over 3%</i>	<i>0-3 x 0 4+ x 1</i>
<i>Physical Damage, Spongy Sunburned, Over-ripe Seedy or Frozen</i>	<i>5%</i>	<i>over 5%</i>	<i>0-5 x 0 6+ x 1</i>
<i>Nubs &amp; Crooks</i>	<i>20%</i>	<i>over 20%</i>	<i>0-10 x 0 11+ x 1</i>
<i>Oversize</i>	<i>35%</i>	<i>over 35%</i>	<i>0-35 x 0 35+ x 1</i>

- Fresh cuts (breakage) are not considered to be culls

- Caked on dirt is to be scored under physical damage. Hand rub the dirt/mud from the cucumber to determine whether or not the dirt would come off under normal processing procedures.
- Complete a cucumber grading certificate detailing the factors to be applied to the load (tare penalties may only be applied to this sample graded load)

A grower may appeal the sample grade to UPGRADE CONSULTING LTD, who will regrade the load. The UPGRADE CONSULTING LTD grade shall be final. Any rejected loads will be returned to the grower.

### **Health & Safety Procedures (for UPGRADE CONSULTING LTD)**

All staff working for UPGRADE CONSULTING LTD will receive Occupational Health and Safety (OHS) and Workplace Hazardous Materials Information System (WHMIS) training prior to performing duties on behalf of UPGRADE CONSULTING LTD.

UPGRADE CONSULTING LTD staff is required to work in a safe and cautious manner. As this work is conducted on processor premises, UPGRADE CONSULTING LTD staff must follow all sanitation and health & safety policies issued by the grading station operator in addition to UPGRADE CONSULTING LTD policy. These policies could include the use of hard hats, safety footwear, hairnets, and ear protection as well as the removal of watches and jewellery.

UPGRADE CONSULTING LTD staff must, at all times, exercise caution on processor premises and avoid any potentially dangerous equipment or activities.

In the event of any injury, no matter how minor, contact your Supervisor as soon as possible to report it.

### **Inspection Procedures (performed by UPGRADE CONSULTING LTD)**

Inspection of the cucumber receiving station generally consists of one pre-harvest inspection of scales and the grading machine itself and then random inspections throughout the season of both the equipment and the product grade out performed by the grading station employees.

#### **A Pre-harvest Inspection**

- The grading machines should be inspected for cleanliness of the sizing bars or belts. Any amount of dirt build-up on these bars alters the sizing accuracy.
- Sizing bars or belts should be checked for proper spacing. Hand held aluminum sizers have been fabricated for this purpose. These are cylindrical, tapered

reference tools that are machined to match the various size categories. Also, ensure that the tarps are properly positioned so that the sized cucumbers land in the proper bin.

- The grading machine should be checked for any other mechanical problems such as missing or broken distribution bars or pegs. Any problems that will cause damage to the cucumbers such as sharp edges or projections should be corrected.
- Weigh scales should have current approval from Weights and Measures. (within the last two years)
- Any minor adjustments or corrections should be completed immediately and noted on the certificate that is then posted in a conspicuous place.
- Major repairs or corrections requiring a return visit by UPGRADE CONSULTING LTD staff is sometimes encountered. The first visit and the necessary repairs for certification should be documented on a certificate. Ensure that the operator is aware of all required repairs and then make an appointment for a return visit for certification.
- If all necessary corrections have been made and the station passes inspection on the return visit complete the certificate and post it. If corrections are not completed without good reason it will be necessary for the UPGRADE CONSULTING LTD inspector to document his findings on an Infraction Report.

## B Subsequent Inspections

Random inspections during the operating season of the station will include checking the sizing machine to ensure nothing has gone out of adjustment and also monitoring the grade outs performed by grading station staff to ensure that all procedures are in accordance with the Marketing Agreement.

- Check the nub and crook bin to see if the removal of nubs and crooks is being performed according to the Pickle Packers International Inc. Official Chart (copy attached - SCHEDULE 1). It should be noted that the top left hand cucumber shown under the heading "Crooked Pickle and Nubbins" is acceptable.

When acceptable cucumbers are found in the nub and crook bin, the operator should be advised and corrective action taken while the UPGRADE CONSULTING LTD inspector is still on site.

- Samples of cucumbers in each size range including any oversize should be checked for the correct size as shown in the current Marketing Agreement. Any significant variation should be reported to the station operator and further investigation carried out to determine the cause.
- Dirty, out of adjustment sizing bars, or some other mechanical breakdown could be causing the grading machine to perform improperly. The entire grading head should be checked for the correct spacing of the sizing bars.
- Each bin should be checked for unacceptable cucumbers as declared in the Marketing Agreement. Problem areas should be reported to the operator.
- Check the weighing procedure for receiving loads to determine if tare is properly deducted, weight determination is correct and that the correct information is recorded.
- A Cucumber Grading Station Report should be completed by checking off the appropriate boxes, indicating problem areas, and describing the action taken to correct areas of non-compliance. The completed report should be posted.
- Fully review the results of your inspection and any corrective action taken with the grading station operator.
- Serious areas of non-compliance will require the inspector to complete a Violation Report.

## **Certificates**

All visits to cucumber grading stations should be documented on a Cucumber Grading Station Report. One certificate is used for both systems, as much of the inspection criteria are common to both types of grading machines. The main difference is that the inspection of the Backus unit involves checking the transfer of weights from the bins to the certificate. A separate section on the certificate is available for this purpose.

The certificate has three main sections. The first is simply an identification of the processor, the station operator, his location and the grading station number. The second deals with the actual inspection through a checklist of factors that must be looked at. The third area for Comments or Action Taken allows the UPGRADE CONSULTING LTD inspector to make suggestions or further explain his findings.

The Cucumber Grading Station Report is simple to complete and addresses all areas of the inspection with a series of yes/no questions.

The following areas require completion in full:

## A General Information

- Date: Date of inspection
- Time: Time of the completion of the inspection
- Processor's Name: Name of the contracting processor
- Grading Station Operator: Name of the contracted operator
- Grading Station Location: Operator's address
- Grading Station Number: Assigned by the processor
- Type of Grader: Check belt type, shaker type or Backus

## B Inspection Results

This area is designed with a series of yes/no questions for each of the areas that must be covered during an inspection. Check the proper box in each case.

- Sizers Clean: no build up of dirt which would affect the proper sizing operation should be present
- Sizers Properly Spaced: the unit is in proper adjustment at all sizing points; cucumbers are properly sized
- Sizing in Accordance with this Processor's Contract: specified in the Marketing Board Agreement (Appendix I)
- General Mechanical Condition of Grading Machine O.K.: grading machine operates properly without causing damage to the cucumbers
- Correct Performance of Weighing and Tare Procedures: weight of bins of sized cucumbers are properly recorded and credited to the proper grower

- Correct Removal of Nubs and Crooks: all nubs and crooks are separated; no acceptable cucumbers found in nub and crook bin
- Correct Removal of Unacceptable Cucumbers: defined under the Grade Standards in the Marketing Agreement (Appendix II), these cucumbers are separated into a bin other than nubs and crooks or acceptable cucumbers

## C Backus System Only

- Weight Information Correctly Transferred to Certificate: the electronic transfer of sample bin and hopper weights shows the correct figures on grower certificates

### Comments or Action Taken

- This section will allow the UPGRADE CONSULTING LTD inspector to provide details on the recommendations or corrections required of the grading station operator. It is a good practice to list all of these recommendations as copies of the certificate are given to the operator and the processor and the certificate can serve as a reference for follow-up inspections.

## Infraction Reports

Minor corrections, adjustments, or grading suggestions should be noted on the Cucumber Grading Station Report. Serious infractions or unfair grading practices will require that the UPGRADE CONSULTING LTD inspector complete a detailed Infraction Report. This report should be completed as soon as possible after the inspection visit and fully detail the incident. This report when complete should be forwarded to the UPGRADE CONSULTING LTD office immediately. The UPGRADE CONSULTING LTD Manager will forward a copy of the Infraction Report to the OFPA, OPVG, and processor.

Examples of a serious infraction would include:

- use of an uncertified grading machine
- use of uncertified scales
- tampering with the sizing adjustment of the grading machine or knowingly using a grading machine that is out of adjustment
- failing to record each grower's weights after grading
- failure to grade the cucumbers in accordance with the Marketing Agreement
- any other major violation of the terms of the Marketing Agreement

The UPGRADE CONSULTING LTD Manager and the UPGRADE CONSULTING LTD Inspector will attempt to resolve the infraction by convening a meeting of the station operator, the processor and representatives from the OPVG.

At this meeting, the details of the infraction need to be explained. The subsequent discussion should be directed toward reaching a mutually satisfactory solution. In some cases, UPGRADE CONSULTING LTD staff may be called on to make a final ruling on a contentious issue. The results of this meeting must be documented and later highlighted in the annual cucumber grading report.

**Appendix I**

Cucumber Sizes

<u>Grade</u>	<u>Size</u>
No. 1	up to 1 1/16"
No. 2	1 1/16" to 1 1/2"
No. 3	1 1/2" to 2"
No. 4	2" to 2 1/8"

**Appendix II**

Grade Standards

Cucumbers deemed acceptable under all contract options shall be fresh, free of caked on dirt, sound, green and fit for processing and shall be free from disease, physical damage and rot and shall not be yellow, spongy, sunburned, over-ripe, seedy or frozen.

**Appendix III**

Grade Standards

Nubs and crooks shall be defined by the Pickle Packers International Inc. Official Chart, with the exception of pickles marked No. 1 (top left-hand).