

How to complete a damage and bruising assessment



Excessive levels of damage and bruising can make your product unacceptable to your customers and can lead to rotting in store and assist the spread of fungal diseases.

It is relatively straightforward to carry out your own assessment of any damage and bruising, which may occur during crop harvesting and handling operations. For peace of mind and self-assurance it is good practice to police your own work.

As a first step make sure that you know the preferred sampling, assessment and quality requirements of your buyer. If these are not available then the following guidelines are provided so that you can develop your own assessment plans.

Sampling

Damage and bruising levels will increase throughout harvesting and handling operations. You may wish to sample at more than one point in the harvesting process to identify causes of damage and bruising. In each case ensure machinery is safe to approach before collecting a sample. Depending on how much damage is being encountered you may need to repeat sampling at various times throughout the day, especially if you have changed variety and soil type or adjusted machinery settings.

A sample will need to comprise 15 - 20kg of tubers.

Damage Assessment

Carefully wash all traces of soil from the sample. This is best done by hand using copious amounts of water and a sponge (mechanical washers tend to cause some damage which may interfere with your assessment). Tubers should then be inspected and divided into categories - Undamaged, Scuffed, Slight, Severe.

“Scuffed” - is defined as broken skin only, with no flesh damage.

“Slight” - is defined as flesh damage removable by 2 strokes of a peeler.

“Severe” - is defined as damage not removed by 2 strokes of a peeler.

Once assessed, the weight of tubers (a) in each category should be recorded. From this an index can be calculated using the following table:

Damage Type	Weight of tubers	% total weight	Factor	Damage Index
Undamaged	(a)	(c) = (a/b*100)	0	= (c) x factor
Scuffed			1	
Slight			3	
Severe			7	
Total	(b)			(d)

Index (d) should be as low as possible (<100) but you, or more importantly your customers will set their own standards - the lower the index the less damage is being caused.

Bruising Assessment

A bruise on a potato will normally take 3 or 4 days to develop, but this process can be accelerated by storing a sample in warm humid conditions overnight. A hot box is ideal for this. These can be bought from various suppliers, or you can make your own. The hot box needs to be able to maintain 34-36°C and 95-98% RH. An old chest freezer, a glasshouse heater (with thermostat) and some damp capillary matting can produce a very usable hot box providing you take account of health and safety issues.

Once the sample has been “hot-boxed” overnight, the assessment can be completed. Carefully peel around the tuber to look for black/grey discolouration of the flesh below the skin.

Categorise as Nil, Slight or Severe. Slight bruises being removed by 2 peels, severe bruises not being removed by 2 peels. Assessing samples in batches of 25 tubers, makes it easy to calculate % bruising in each category. Check with your buyer since some companies use “minutes in the rumbler” rather than number of peels.

