Sugar Research Australia

HOW TO ASSESS BILLET QUALITY

Billet quality is an important determinate of cane quality. Ideally, billets should be cut cleanly at both ends (no squashed ends, no splits and no rind removed) and should be uniform in length. A low level of eye damage is important for billets used for planting.

The billet quality definitions presented here have been ratified by the International Society of Sugarcane Technologists (ISSCT) and are used as the international standard.

BILLET SAMPLING

Collecting a sample is the most critical step in the assessment process. It is important that the sample represents the performance of the harvester. For research trials, large samples are required; five samples, each of 20 kg, are recommended by ISSCT. Much smaller samples may be used to assess billet quality 'infield'.

Mixing of the cane product is important. It is preferable to collect a sample from the siding as elevator tippers provide some mixing of the cane product. For roll-on roll-off systems, collect a sample of billets from the bin siding.

BILLET LENGTH

Sort the billets into length categories of 0–100, 100–150, 150–200, 200–250, 250–300, and greater than 300 mm. Weigh each category.

Averaging billet lengths of 50, 125, 175, 225, 275 mm and an estimate of the average length of billets greater than 300 mm are used for each category. Average billet length is calculated as follows:

$$\text{Mean billet length [mm]} = \frac{50W_1 + 125W_2 + 175W_3 + 225W_4 + 275W_5 + (\text{Average length of >300 mm billets})\,W_6}{\text{Total weight of sample}}$$

** Where W1 to W6 represents the weight of each category.*

BILLET QUALITY

Sort each of the above length classifications into sound, damaged or mutilated categories according to the definitions below. Any billets less than 100 mm in length are classed as mutilated.

The suggested method for rating quality is to calculate the percentage of sound billets of acceptable length. Where only billet quality is required, sorting by billet length may be ignored and the sample sorted only by quality.

Sound

- Longer than 100 mm.
- No splits longer than 80 mm. Small rind splits shorter than 40 mm and growth cracks are not regarded as splits.
- Not more than a 400 mm^2 section of rind removed.
- No squashed ends.

Damaged

- Longer than 100 mm.
- Splits totalling more than 80 mm per billet.
- Sections of rind between 400 mm^2 and 2000 mm^2 removed.
- No squashed ends.

Mutilated

- Billets that are squashed, broken or damaged so that a portion of the cane is reduced to a pulpy condition.
- More than 2000 mm^2 of rind removed.
- Any billet that is shorter than 100 mm.

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