SOME DIRECT SHEAR TEST RESULTS ON CANE VARIETIES IN THE MACKAY REGION

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VARIATIONS of the soil direct shear test have been used over the past 40 years to investigate the grip on bagasse of surfaces with different roughnesses, in order to determine the required roughness on the roll surface of a milling unit. More recently, similar but more accurate tests have been carried out with the aim of determining the mechanical material behaviour of prepared cane and bagasse, using cane variety Q124. Also, the Bureau of Sugar Experiment Stations (BSES) uses a variation of the direct shear test, as well as several other tests, to determine the likely performance of a new cane variety during the milling process.

The direct shear test has the potential to provide a link between the measurements carried out during the development of a new cane variety and the compression, shear, and volume behaviour of the cane during the crushing process. Results are presented in the poster of a limited number of direct shear tests carried out in one day on different cane varieties in the Mackay region. Tests were carried out using prepared cane from Pleystowe Mill and Racecourse Mill with duplicate tests carried out on cane varieties Q124, H56-752, Q96, Q117, Q135, and Q136. The compression, shear, and volume behaviour is presented. The tests indicate (with the proviso that only a total of 16 tests were carried out) good reproducibility and differentiation between cane varieties.

Some interesting values were noted: for the same vertical pressure, variety H56-752 had both the highest shear stress and volume while variety Q136, with one of the highest fibre levels, occupied the smallest volume.