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Sugarcane production: integration among
sugar, alcohol, residue cycling and
sustainability

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DATA COLLECTION STANDARDS FOR SUGARCANE GROWTH MONITORING

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Detailed knowledge on the behaviour of sugarcane in different environments during its entire growth cycle would contribute enormously to the improved exploitation of differences in G x E x M relations of different varieties as well as to the prediction of their performance in untested environments. The generation of such knowledge, however, is hampered by a lack of experimental research capacity in individual research institutions on one hand, whereas, on the other hand, comparing trial results from different institutions (and even from different researchers within the same institute), is difficult because of differences in observation techniques as well as the inconsistent use of concepts and definitions across industries.

The objectives of this presentation are:

To review existing standards and terminology used in monitoring sugarcane growth and development; and

To present and discuss an outline of an internationally applicable set of data collection standards for sugarcane growth monitoring.

Examples are given of current inconsistencies in terminology and measurement techniques, and how these affect the interpretation of comparative studies. The set of standards being developed consists of a minimum data set, complemented with common additional measurements. It also includes guidelines regarding other critical aspects such as seed cane quality, trial layout, planting procedures etc. Criteria used to develop the standards include: (i) ease of operation, (ii) relevance and reproducibility across industries; (iii) possibility to conduct measurements without expensive high-tech instruments; (iv) non-destructive whenever possible, and (v) compatibility with the standards of the International Consortium for Agricultural Systems Analysis (ICA-SA). It is envisaged that the methods proposed will first be applied and tested for the creation and modelwise exploration of an international sugarcane growth monitoring dataset for the International Consortium for Sugarcane Modelling (ICSM).

Keywords: sugarcane physiology, crop monitoring, data collection