POSTER SUMMARY

EVALUATING THE ACCURACY OF CANESIM YIELD FORECASTS DERIVED FROM SEASONAL RAINFALL AND ENSO FORECASTS

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Abstract

Forecasting sugarcane yields is important for planning crop harvesting, milling and marketing of the sugar. The Canesim model is used to forecast sugarcane yields on a monthly basis for 14 mill areas in the South African sugar industry, using historical and likely future daily weather data. Future weather data are derived either from categorical seasonal rainfall forecasts (RAIN method) or from the forecast state of the El Niño Southern Oscillation phenomenon (ENSO method). The yield forecast consists of the central value (mean of several simulation runs) and forecast uncertainty (standard error of several simulation runs representing the uncertainty associated with weather forecasts), both expressed as percentages of the simulated yield of the preceding season. The objective of this study was to evaluate the accuracy of Canesim yield forecasts when using the RAIN and ENSO methods for generating expected future weather data for the 2010/11, 2011/12 and the 2012/13 milling seasons, by comparing yield forecasts to actual yields. The two methods produced very similar yield forecasts, with similar forecast errors (average absolute difference between forecast and actual yield, see Figure 1). The ENSO method resulted in slightly more accurate forecasts than the RAIN method in nine and 10 out of the 14 mill areas in 2010/11 and 2011/12, respectively. In 2012/13, the RAIN method was slightly more accurate in eight mill areas. There was no consistent forecast bias with either of the methods. The similarity between the forecasts from these two methods is reassuring. Although only yield forecasts from the RAIN method are reported to the industry, both methods will be continued for benchmarking purposes.

Keywords: Canesim, yield forecast, ENSO, rainfall

Figure 1. Average Canesim yield forecast errors (absolute difference between forecast and actual yields) for the ENSO and RAIN methods for 14 mill areas and the whole industry.