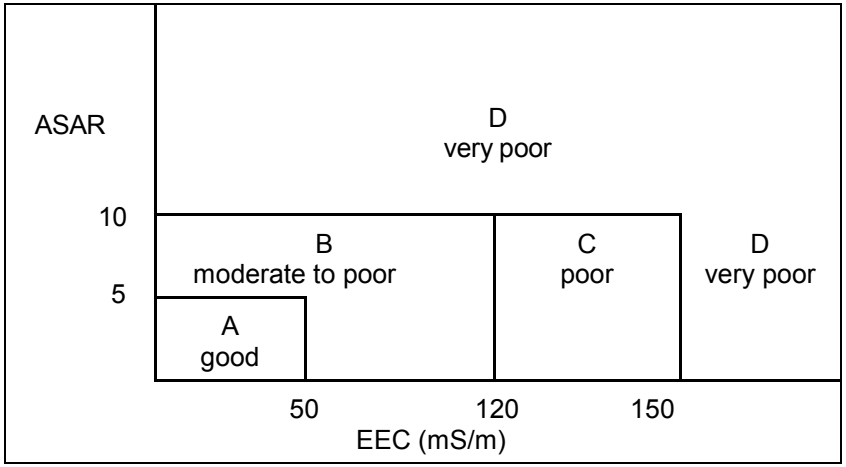
Better Management Practice	**Water monitoring, metering and recording`** • Irrigation water volume is measured at the point of abstraction to ensure compliance with authorized allocation and abstraction rates • A record of water used per annum should be kept	**Monitoring, measuring and recording water use** Section 26(1)(b) of the National Water Act, 36 of 1998 states that the Minister may make regulations requiring that the use of water from a water resource be monitored, measured and recorded. Water users may be required by written notice to measure the water that they take. This implies that for some measuring water volumes abstracted from a water resource is a legal requirement[1] while for others it is a best management practice. Despite the aforementioned, water users must limit the rate at which they take the water to a maximum abstraction rate.[2] Nevertheless, measuring of water used can be valuable for benchmarking and improving the performance of irrigation from season to season. It is difficult to make improvements without some sort of measurement.
Better Management Practice	**Monitoring Water Quality** The quality of irrigation water is monitored twice a year (during winter and summer) for irrigation suitability	**Water Quality** To keep soil degradation to a minimum and sustain crop yields, the quality of irrigation water must be regularly monitored by having samples analysed at the Fertiliser Advisory Service (FAS) laboratories at Mount Edgecombe. Collection of water samples using clean PVC containers (which have been rinsed at least twice with the water to be sampled) is discussed in the SASRI Information Sheet 5.12. The sampling point should be representative of the irrigation abstraction point. Samples should be taken during both low flow (winter) and high flow (summer) months. Water should be analysed to determine: • Electrical conductivity (representing total concentration of soluble salts), adjusted for dilution/leaching due to local rainfall (EEC [mS/m]). • Concentration of sodium (Na), calcium (Ca), magnesium (Mg), pH and bicarbonate, calculated as adjusted sodium adsorption ratio (ASAR). The relationship between ASAR and EEC, as shown in the figure overleaf, is used to determine the quality class of irrigation water

Note: [1] Where the authority has requested a water user to monitor the taking of water, Regulation 8 and 11 in Government Gazette No. 38311 applies
[2] The maximum abstraction rate can be found in the Government Gazette No. 38311 at Regulations 5 and 6, or dependant on the water users licence

Better Management Practice



For easy reference, this table can also be used to decide if the water quality is appropriate for irrigation:

Class	EEC (mS/m)	ASAR
A = Good	<50	<5
B = Moderate to poor	50 - 120	5 - 10
C = Poor	120 - 150	<10
D = Very poor	>150	>10

Class A
Suitable for use on all irrigated soils. Shrink-swell soil types may still show reduced infiltration and drainage, particularly if they already have excess Na present (reflected in high saturated paste SAR values or exchangeable sodium percentage (ESP) values from soil testing). Ensure drainage is adequate to prevent salt accumulation over time, particularly at high irrigation rates.

Class B
Suitable for irrigation on well-drained soils only (deep red and brown soils, sandy profiles e.g. Hutton, Griffin, Inanda, Magwa, Fernwood). Salinity and/or sodicity hazards make it unsuitable for irrigation of poorly drained soils, eg Bonheim, Estcourt, Katspruit, Kroonstad, Rensburg, Swartland and Valsrivier form soils. Where it is used, ensure drainage is adequate to prevent salt accumulation over time.

Class C
Poor quality water which can only be used on very well drained soils (well oxidised red soils and sandy profiles) if water of better quality is not available. Excessive salinity may reduce the normal crop growth response expected under irrigation. Particular care must be taken to avoid waterlogging, so manage application amounts and ensure good drainage.

Class D
Unsuitable for irrigation of sugarcane under normal irrigation practice. May need to consider water treatment to remove excess salt.