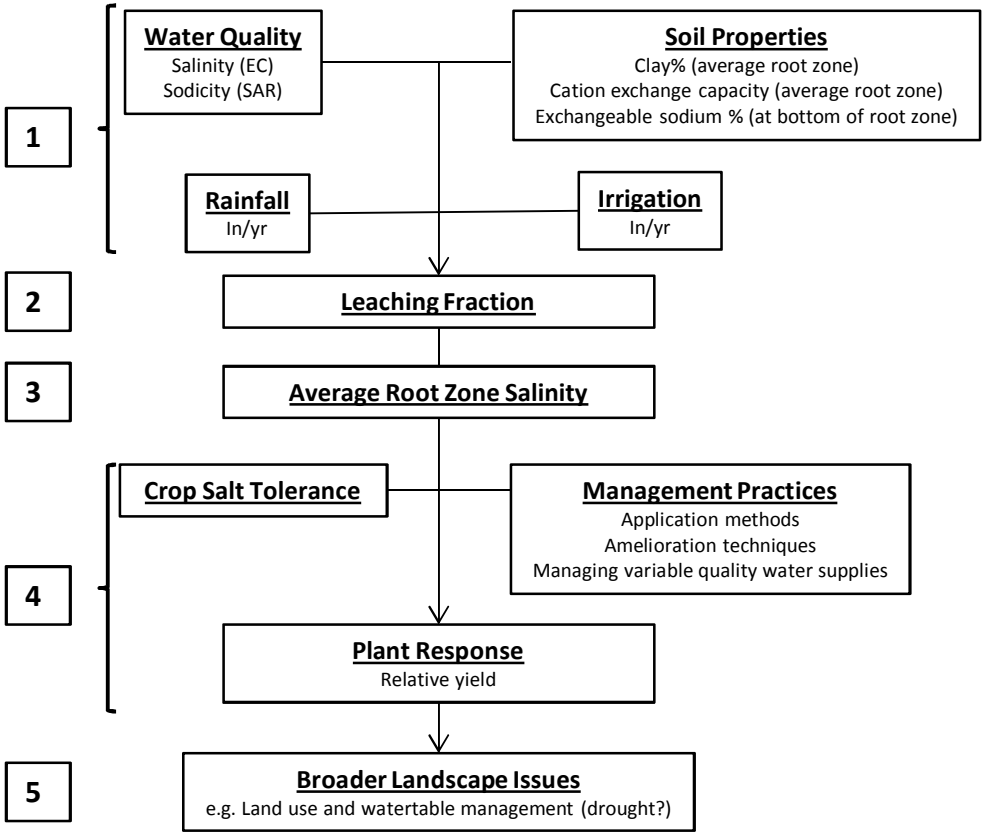
Figure 4.2.1. Flow diagram for evaluating salinity and sodicity impacts of irrigation water (Appendix from Australia and New Zealand Salinity Related Water Quality Guidelines for Irrigation



1. Identify the soil properties, water quality, climate (rainfall) and management (irrigation application rates) practices for the site (*management zone*) in question
2. Estimate the leaching fraction under the proposed irrigation regime. . .
3. Estimate the new average root zone salinity. . .
4. Estimate relative plant yield (although note that the impact of salinity and sodicity can be modified by management practices as discussed later. . .
5. Consider salinity and sodicity problems within the framework of broader catchment issues such as regional watertables, groundwater pollution and surface water quality. Watertable salinity develops in response to excess water and salts accumulating in sensitive parts of the landscape. Excess water can percolate to groundwaters as a result of changing climatic patterns (e.g. frequesncy and duration of rainfall events), land use or land management (including irrigation). Before an irrigation scheme is developed, the planning process should include investigation of the regional hydrogeology to avoid development of watertable salinity. The guidelines given here concentrate on localized effects of irrigation, but broader salinity issues should not be ignored. . .

Potential Policy Statements

- The AGR beneficial use will be considered reasonably protected if salinity water quality concentrations meet the objectives identified in Table X for the given management zone. (*from AGR Zone study*)
- To develop site specific objectives, the process outlined in Figure 4.2.1 will be utilized with the following defaults unless technical data justifies reasonable alternatives:
    - Average annual rainfall and irrigation amounts will be calculated for the available period of record but not less than 20-years.
    - A 15% leaching fraction.
    - Crops evaluated will represent 95% of the commercial acreage over the previous 20 years and those anticipated to be commercially viable at current average EC concentrations.
        - Commercial acreage are those that gross more than $1,000/year.
        - A commercially-viable crop has comprised more than 5% of the cultivated land within the area under review in any year during the previous 20-years or is likely to do so in the next 10-yrs given current planting trends.
    - No more than 5% yield reduction in any single year for the most salt sensitive of the crops evaluated.
    - Use of the Hoffman model (ref) or equivalent to calculate EC objectives

  For Groundwater. . . (Tim's discussion)
- For areas outside of management zones identified in Table X and in absence of site-specific data to the contrary, EC levels less than 700 uS/cm are presumed to reasonably protect AGR. (*or Tim's table?)*
- Where annual average water quality (irrigation season since 1968) documents lower salinity than the established water quality objective to protect AGR, the state antidegradation policy shall apply.
- An exception (waiver) to established EC or SAR limits for the protection of AGR beneficial uses may be made when affected landowners request use of the water and thereby accept any potential risk to crop production on their lands. The exception will only be granted in association with an irrigation management plan that provides reasonable assurance that the lower quality water will be confined to the targeted lands and not impact other applicable beneficial uses within the target area or downstream.

Drought??