Plants were grown in a University of Tasmania glasshouse between November 2007 and May 2008 in 10.0 l black plastic pots, with two plants per pot. The standard potting mix (70% composted pine bark; 20% coarse sand; 10% sphagnum peat; lime at 1.8 kg m$^{-3}$; and dolomite at 1.8 kg m$^{-3}$) was used. Ionic relations in quinoa | 187 Leaf sap Na$^+$ and K$^+$ content Young (third from the tip) and old (the lowest non-senescing leaf at the base) quinoa leaves were sampled, wrapped in aluminium foil, and immediately frozen at –18 C. Close to the time of measurements, frozen samples were thawed and hand squeezed to extract all the sap as described in Cuin et.

It is clearly impossible in a single chapter to discuss more than a few selected aspects of the ionic and osmotic relations of plant cells. Accordingly in this chapter we have elected to stress certain cellular and subcellular aspects of the topic while neglecting the vast literature on agronomic and whole plant studies. We have concentrated particularly on those electrolytes or solutes present in such large quantities that they contribute significantly to the osmotic potential of the cell. This emphasis arises from a desire to examine the relationships between the biochemical requirements for, or limitations on, certain solutes and their osmotic roles. In this context it is critically important to consider the compartmentation of solutes between the vacuole, cytosol and cytoplasmic organelles within a cell.

Keywords: Food Science Australia; Plant cells/Osmosis/Plants/Organelles; Plant Industry

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