## Adaptation

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## **Drip irrigation explained**

Drip irrigation is a water application technique aimed at improving water use to maximize crop yield. It involves slowly applying water directly to plant roots in order to minimize evaporation and leakage. Nuclear techniques are used to determine the precise amount of water a plant needs and the appropriate application times and intervals.

Scientists use a neutron probe to monitor moisture levels in soil. During measurements, the probe emits fast neutrons that collide with the hydrogen atoms of water in the soil. The collision slows down the neutrons, and the higher the number of hydrogen atoms, the more the neutrons slow down. The change in neutron speed is detected by the probe and provides a reading that corresponds to the moisture level in the soil.

Water is a vital resource for food production: an estimated 70% of fresh water usage in the world is for agriculture, and the demand is growing. The Food and Agriculture Organization of the United Nations (FAO) foresees that by 2050 water demand for agriculture will increase by 50% due in part to population growth.

— By Margot Dubertrand

## Nuclear Technology for Climate

(Photo: N. Jawerth/IAEA)