Irrigation water is applied to agricultural crops by many different methods. Irrigation methods can be divided into three broad categories: surface, sprinkler, and microirrigation. Surface irrigation systems depend on gravity to spread the water across the surface of the land. Surface systems are also referred to as gravity or flood irrigation systems. The shape of the soil surface and how the water is directed across the surface determine the types of surface systems (i.e., furrow, border, or basin). Sprinkler systems mimic rainfall by spraying the water across the soil surface. The water is pressurized with a pump, distributed to areas of the fields through pipes or hoses, and sprayed across the soil surface with nozzles or sprayers. Types of sprinkler systems depend on the layout of the distribution pipelines and the way they are moved (i.e., solid set, hand move, center pivot, or rain gun). Microirrigation systems, also called drip or trickle systems, use small tubing to deliver water to individual plants or groups of plants. These systems use regularly spaced emitters on or in the tubing to drip or spray water onto or into the soil. Microirrigation systems are categorized by the placement and type of emitters (i.e., drip or microspray).

Until the 20th century, all irrigation depended on gravity to deliver water to the fields and to spread water across the surface of the land. Development of efficient engines, pumps, and impact sprinklers in the first half of the century allowed farmers to mimic rainfall with sprinkler irrigation. In the last 20 yr, the wide use of plastics has made it possible to deliver and slowly apply water to individual plants.

Surface irrigation remains the most common type of system worldwide and is used on nearly 90% of the irrigated land (FAO, 2005). It is the predominant method in Asia, which has >70% of the world's irrigated land. Sprinkler irrigation is widely used in the USA and Eastern Europe. Microirrigation systems, although