

cost, being an associated cost of irrigation, is not readily available in irrigation statistical sources. Most water-application systems fall into three main categories: ditch-furrow systems, piped water sprinkler systems, and field flooding. In the ditch-furrow system, the grower's fields are furrowed in such a way that each of several parallel furrows abuts a water supply ditch. When water is needed in the furrows, the grower usually inserts tubular plastic or metal siphons at the ends of the furrows to siphon water from the supply ditch, over an intervening few feet of ground, and into each furrow. The standard diameter and flow of the siphons assures an equal flow of water in each furrow. The crops are planted between water furrows, and their roots receive moisture soaking through the soil from the furrows.

The ditch-furrow system is employed where the land is quite flat, although the land may have the form of an inclined plane. Ditch-furrow systems are constructed with great care and effort to assure even, level water flow. Often the land itself is meticulously leveled before the furrows are made.

Water sprinkler systems are used in situations where they are more practical than ditch furrows because of somewhat irregular terrain, close planting of crops, or infrequency of irrigation need. The pipes are generally of an aluminum alloy, sometimes supplemented by plastic. They often have steel end connections. The pipes are usually movable; and, having irrigated one sector of a field, are rolled or carried on to the next sector.

Some wheeled pipe-sprinkler systems move themselves slowly across the fields as they spray water. Since piped water sprinkler systems are not inherently difficult to move, it is often not economical for a grower to build a large stationary pipe system that can spray his entire crop without being moved.

Field-flooding is used mainly to suit the characteristics of certain crops, such as rice, alfalfa, and some orchard fruits. Here again, the land is often carefully leveled.

In the dry areas of the United States, where water salinity and soil salinity present a problem, subterranean drainage tile systems are often constructed as an associated part of the irrigation systems. These systems fill with residual irrigation water and conduct soluble salts out of the irrigated fields. This prevents the irrigated soil from becoming increasingly saline because of constant evaporation of the slightly saline irrigation water.

Most of the elements of irrigation facilities, such as are described above, may be publicly owned or group owned as well as individually owned. Piped water sprinkler systems, for instance, may occasionally be owned by a group and moved from one grower's fields to another.

Available cost statistics concerning irrigation water supply systems as public or group facilities usually concern only the cost of supplying the water up to the point at which the grower receives it. Also, land preparation and other associated activities of irrigating crops are usually not done as a group enterprise employing public facilities. Therefore, the treatment of group and public facilities here will proceed only to the point at which water reaches the growers' fields.