The center pivot is a radial-move pipeline that rotates around a pivot point. These systems can be towable and thus moved from one field to another to reduce the cost per acre. They cover a circular area, but can be attached with an optional end gun or cornering mechanism to irrigate the corners of the field. The lateral move is a self-propelled sprinkler system that travels in a linear direction. These systems have guidance and water feed mechanisms that allow the irrigation of rectangular fields. Although similar to the center-pivot, the lateral move has higher labor and initial investment costs.

These systems are suitable for many crops and are adaptable to most soils and topography with slopes less than 15 percent. They can be used for fertigation and the application of other chemicals. The length of these systems ranges from 300 to 2600 ft with 1/4 mile being most common. Operating pressures range from 15 to 70 psi. The lower pressure systems are becoming more common due to reduced pumping costs. With proper design and operation, these systems can be very efficient; 70 to 80 percent efficiency is common. They require a water source capacity ranging from 5 to 8 gpm per acre. Center pivot and lateral move irrigation systems currently irrigate more than 130 thousand acres in Florida (Irrigation Journal, 1987). For more discussion on center pivot irrigation systems, see IFAS Extension Circular 804.

MICROIRRIGATION

Microirrigation systems are the most recent advancement in irrigation technology. These systems distribute water through a network of plastic pipe directly to the soil near the plant by small frequent applications through devices called emitters. A micro-irrigation system consists of a water source, pump, power unit, filtration and chemical injection equipment, main pipelines, manifold pipelines, lateral pipelines and emitters. The term microirrigation is a general term which includes several specific types of systems, including drip or trickle, microsprinklers, bubbler line sources, perforated pipes and seepage hoses.

Microirrigation can dramatically reduce the amount of water applied compared to some of the other irrigation methods. It also has other potential advantages such as:

* providing adequate moisture to the root zone at all times,
* minimizing weed growth since the entire soil surface is not irrigated, and
* controlling nutrient application, thus minimizing leaching.

Some of the disadvantages of the microirrigation systems are:

* medium to high initial cost,
* high level of management particularly on the sandy soils common in Florida, and
* emitter clogging can be a serious problem if proper precautions are not taken with regard to water treatment.

For more information on causes and prevention of emitter plugging, see IFAS Bulletin 258.

These irrigation systems operate at low pressures (less than 30 psi), thus reducing pumping costs in comparison to some other systems. The water capacity requirements generally range from 5 to 10 gpm/acre. Efficiencies are typically high, ranging from 75 to 90 percent if properly designed and operated. Currently in Florida over 350,000 acres are being irrigated by some form of microirrigation (Irrigation Journal, 1987).

There are two primary categories of microirrigation systems in use in Florida: drip and microsprinklers. Drip type microirrigation systems apply water from discrete point source emitters attached to or molded into lateral lines. Microsprinklers spray water through the air from a network of plastic lateral pipes.

Drip

In Florida, drip irrigation systems are common with vegetable, citrus and ornamental crops. There are two basic types of drip irrigation systems in use: permanent lateral lines (5 to 10 years of useful life), and disposal tubing that is replaced after each crop. The permanent lateral is common with citrus production while the disposable is used more often with vegetable production. Emitter discharge rates