

couplers are more technically complicated and expensive than the other methods of supplying water to a lateral-move irrigation system.

Lateral-move irrigation systems are more expensive than center pivots. Thus, these systems are primarily used in areas where the value of land dictates the use of systems which are adapted to rectangular land areas, and for irrigation of very large land areas so that the cost per acre is lower. Lateral-move systems are not commonly used in Florida.

Single sprinkler (gun) irrigation systems

Gun sprinklers are very large sprinklers which operate at high pressures (Fig. 10). Nozzle sizes commonly range to over 1-inch in diameter. Pressures required for proper operation typically range from 80 to 120 psi, with 100 psi being very common. While flow rates may range up to 1000 gpm for very large guns, rates of 500 to 600 gpm are very common for large field scale guns. Typically only one or two guns are used in a gun irrigation system.

Gun irrigation systems require large energy inputs per unit of water delivered because of their high operating pressures. They also have relatively high labor requirements, both to move the portable guns between sets and to set up the self-propelled (traveling) guns. Despite these limitations, gun systems are popular in Florida. They are flexible, that is, they allow irrigation of oddly-shaped fields, they are available in a range of sizes to permit irrigation of small to relatively large (up to 90 acres

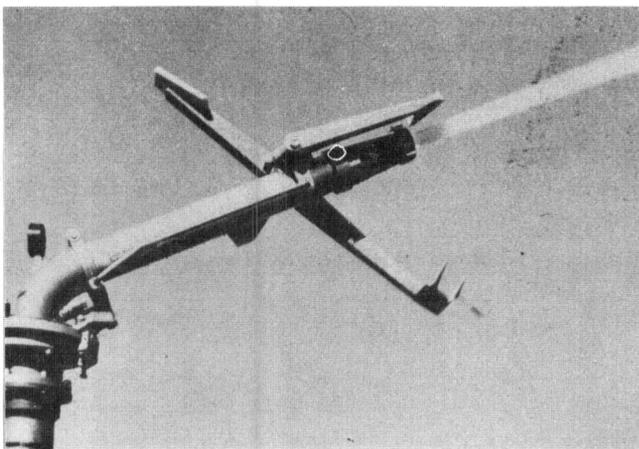


Figure 10. Gun sprinklers use large diameter nozzles to discharge high flow rates at high pressures.



Figure 11. Portable gun system for field crop irrigation in north Florida.

per gun) areas, and they are easily transported between fields. Guns also have relatively low initial costs as compared to permanent or portable solid set irrigation systems, and they require less labor than portable multi-sprinkler systems.

Portable gun systems

Portable gun irrigation systems (Fig. 11) are widely used in Florida. Guns may be moved by hand, but due to their size, they are typically towed with tractors.

Hand-moved portable guns

Hand-moved portable guns have larger labor requirements than other types of guns because they must be manually moved between sets, and a gun is a relatively large item of equipment. Hand-moved guns are most adaptable to relatively small acreages. They are commonly used to irrigate small fields of vegetables, melons, and tobacco, especially in north Florida. Water for hand-moved portable guns is typically supplied by either portable aluminum pipe or large diameter flexible hoses.

Tractor-moved portable guns

Tractor-moved guns are mounted on skids or wheels to facilitate moving them between sets. Less labor is required, thus permitting them to be used on larger acreages than hand-moved guns.

Self-propelled (traveling) gun systems

Traveling guns are widely used in Florida. These are self-propelled irrigation systems. Two types of