

Figure 8. Center pivots irrigate circular (or part-circle) land areas.

line. This extends the effective diameter of the irrigation lateral. In many systems, the end gun is operated only in the corners of the square field, thus increasing the acreage that can be irrigated.

Some center pivot systems are equipped with corner units which operate only in the corners of a square field to irrigate most of the square. Corner units typically consist of one additional tower and section of lateral pipeline which are extended for irrigation of the corners of the field and retracted along the sides of the field.

Because the laterals travel over the area to be irrigated, center pivots can effectively use low pressure spray nozzles to distribute water. When spray nozzles are used, pumping costs are reduced, however, application rates are high because the water is applied near the lateral rather than being distributed over a wide area. The high application rates can cause runoff from soils with low infiltration rates. This is normally not a problem in Florida because of the high infiltration rates of typical sandy soils. Thus low pressure center pivot systems equipped with spray nozzles are often used in Florida.

Because of the height of the lateral, center pivot systems are adaptable to most crops, including tall crops like corn. The cost of a center pivot system per acre irrigated decreases with increasing size up to the common size of 160 acres. Thus center pivots are often used to irrigate large acreages of lower cash value crops such as field crops. They are also adaptable to both small and large acreages of high cash value crops, but irrigation schedules are not as flexible as solid set system schedules. For example,

24 to 48 hours may be required to complete one revolution of a center pivot system, and this time may be excessive for shallow-rooted vegetable crops grown on sandy soils.

Center pivot systems are more expensive than portable systems, but less expensive than permanent solid set systems. Because they are self-propelled, irrigations are easily scheduled and adjusted, and labor costs are low.

Center pivot systems are widely used for field crop production throughout the world. They are used for field crops in north Florida, and for sod, forage crops, pasture, and waste disposal throughout Florida.

Lateral-move irrigation systems. Lateral-move irrigation systems are similar to center pivot systems with the exception that the A-frame supported lateral pipe travels in a lateral (linear) direction rather than pivoting around a central point (Fig. 9). Thus, lateral-move systems are better adapted to rectangular land areas than center pivots.

Because lateral-move systems do not rotate about a fixed pivot point, they must drag a large flexible hose, use a permanent underground pipeline with risers modified for automatic operation, or use an open ditch for the water supply. The hose-drag units are the most common. The open ditch systems require a pump to travel with the lateral pipe to pressurize the water. Lined ditches would be required in the deep sandy soil areas of Florida, but unlined ditches could be used in the flatwoods soil areas where high water tables exist. Permanent underground pipe systems with automatic

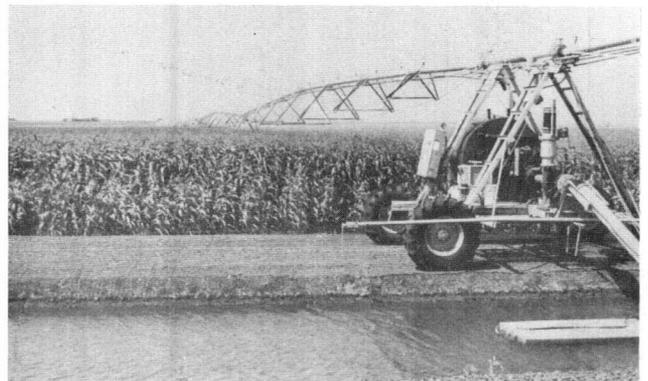


Figure 9. Lateral-move irrigation systems irrigate rectangular land areas. The pumping station travels with the lateral.