

**Irrigation Training Toolbox  
Irrigation System Evaluation**

**Lesson Plan  
Evaluation of Center Pivot System**

**National Employee Development Center  
Natural Resources Conservation Service  
Fort Worth, Texas  
October 1996**

# **Irrigation Training Toolbox**

## **Irrigation Systems Evaluation**

**COURSE:** Irrigation Systems Evaluation

**LESSON TITLE:** Center Pivot Sprinkler Irrigation System Evaluation

**OBJECTIVES:** Upon completion of this training, students will be able to:  
1. Properly evaluate a center pivot irrigation system.

**REFERENCES:** Florida Irrigation Guide, Manufacturer's nozzle specifications

**TRAINING AIDS:** Transparencies of center pivot evaluation worksheet and Figures B-1 and B-2., Florida Irrigation Guide; overhead projector, slides and slide projector, chalkboard, evaluation equipment.

**TIME:** One to two days.

**DEVELOPED BY:** Florida

# Irrigation Systems Evaluation

## Center Pivot Sprinkler Irrigation Evaluation

### Introduction

A properly operating center pivot is a vital link to achieving irrigation water management on the field which it serves.

### Body

#### A. Evaluation Items

1. Uniformity of application.
2. Flow Characteristics.
3. Percent timer check.
4. Percent timer setting for proper application of water.
5. Teaching Aids: Transparencies of Center Pivot Evaluation Worksheet (draft) and Figure B-1, Florida Irrigation Guide.

#### B. Equipment Required

1. Flow rate for the total system.
2. Flow rate to propel the system.
3. Depth of water caught in catch containers.
4. Travel speed of end drive unit.
5. Lateral length to end drive unit.
6. Radius of field irrigated.
7. Width of wetted strip at end drive unit.
8. Nozzle pressure and diameter of largest sprinkler nozzles at end of lateral.
9. Differences in elevation along pivot.

#### C. Equipment Needed

1. Pressure gage.
2. Stopwatch.
3. Catch containers.
4. ML graduated cylinder.
5. Soil probe or auger.
6. Level and rod.
7. Shovel.
8. Forms for recording data.
9. Manufacturer's nozzle specifications.
10. 2 to 5 gallon bucket and flexible hose.

#### D. Field Procedure

1. Set out catch containers.
2. Spacing 30 ft. Maximum, but uniform.
3. The first one or two spans are not critical for the container catch.
4. Sequential numbering of containers.

5. Time per revolution.
6. Travel speed of outer drive unit.
7. Width of wetted pattern.
8. Watering time.
9. Measuring discharge from water drive motor.
10. Measure water flow to pivot.
11. Check evaporation losses.
12. Converting catch to depth.
13. Weigh the catches.
14. Average weighted system catch.
15. Average weighted catch of low 1/4 computing DU.
16. Plot volume of catch Vs distance.
17. Application Efficiencies (Eq).
18. Runoff Vs system speed.
19. Methods for reducing runoff.

## **Summary**