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# Irrigation Scheduling Made Easy: Using the "Look and Feel" method

**Why schedule irrigation?**

Accurate irrigation scheduling maximizes the benefits of irrigation while minimizing potential negative impacts of overirrigation or underirrigation.

Anyone can use a simple, effective method known as the "look and feel" method to determine when to irrigate. Photo: Missouri USDA-NRCS.

**Overirrigation (too much water)**

- Drowns roots, thus stressing plants
- Encourages root diseases
- Reduces nutrient uptake
- Cools soil, thus reducing root growth
- Leaches nutrients and pesticides from the root zone to groundwater
- Reduces crop quality
- Wastes money

**Underirrigation (too little water)**

- Reduces crop yield
- Reduces crop quality (fruit or vegetable size)
- Reduces plant growth
- Weakens plant

Many people schedule irrigation by the calendar rather than by plant need. Calendar-based scheduling can be very inaccurate since plant water needs and the amount of soil water available to plants are affected by factors such as climate, plant size, soil type and rooting depth.

The goal of accurate irrigation scheduling is to replace soil water lost by evaporation and plant use as precisely as possible. To accomplish this goal, you need to accurately assess soil moisture content. Then you can determine the need

for irrigation and how much water to deliver.

Irrigation scheduling can seem complicated. It doesn't have to be. Anyone can use a simple, effective method known as the "look and feel" method to determine when to irrigate.

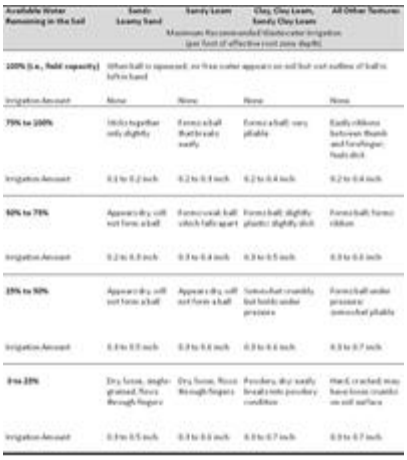

Table 2. "Feel" guidelines for estimating the amount of plant-available water to be replaced with irrigation as a function of soil texture.

**How does it work?**

This method is based on three simple ideas:

1. Soil is at "field capacity" when it is holding as much water as possible after the excess has drained away. Similarly, a wet sponge is at "field capacity" when it holds all the water it can without any dripping away.
2. It is best to irrigate when half of the water is depleted
3. Your goal when irrigating is to return the water to field capacity.

So all you need to know to schedule irrigation is:

- What is the effective root zone of your crop, pasture or orchard?
- What does the soil look like when half of that water is gone?
- How much water should be applied to return to field capacity?

**1. Effective root zone depth.**

Determine the rooting depth of the trees or plants to be irrigated based on site-specific considerations (Table 1). Be mindful of intrusive clay or plow layers that may prohibit water movement. Consult a crop production guide your LSU Extension agent if you have questions.

**Table 1. Effective rooting depths for common Louisiana crops.**

| Crop | Effective Rooting Depth (in) |
|---|---|
| Corn | 40 |
| Cotton | 55 |
| Soybeans | 40 |
| Rice | 20 |
| Sugarcane | 60 |
| Sorghum | 40 |
| Wheat (winter) | 47 |
| Wheat (spring) | 63 |
| Sweet potatoes | 47 |

| | |
|---|---|
| Pecans | 100 |
| ***Turgrasses*** | |
| Bermuda grass | 6 - 8 |
| Centipede grass | 6 - 12 |
| St. Augustine | 8 - 16 |
| Annual Ryegrass | 6 - 12 |

**2. Evaluate soil moisture.**

- Use a probe, auger or shovel to take a soil sample from the rooting depth(s).
- Squeeze each sample until it forms a ball. Usually, gentle pressure is sufficient.
- Look carefully at the soil ball:
    - Are there loose sand grains or small clumps of soil?
    - Are there clay stains on your fingers? A little? A lot?
    - Does the ball hold together when bounced gently in your hand? (A very fragile ball breaks up with one bounce; a fragile ball breaks up with two or three bounces.)
    - Using Table 2, estimate the soil texture and determine how much water is left in the soil. **If soil moisture is 50 percent depleted, it's time to irrigate.**

**3. Apply the correct amount of irrigation water.**

Multiply the recommended irrigation depth (from Step 2) by the depth of the effective root zone to find out how much irrigation water you need to apply to return the soil to field capacity.

***Example:*** *Suppose your irrigation field is a sandy loam soil with a 15-inch root zone. You feel the soil and observe that it forms a weak ball, which falls apart. Based on the guidelines given in Table 1, you can irrigate 0.3 to 0.4 inch of water per foot of root zone depth. For a 15-inch (1.25-foot) root zone depth, the permissible irrigation amount is:*

*0.3 inches/foot of root zone x 1.25 feet = 0.38 inches*

*0.4 inches/foot of root zone x 1.25 feet = 0.50 inches*

*The recommended irrigation amount is between 0.38 and 0.50 inches.*

Apply only the amount of water needed to return the soil to field capacity. Consider the efficiency of your irrigation system when calculating how much water to apply. Check with your parish LSU Extension agent or irrigation supplier for irrigation system efficiency estimates.

**You may want to know… What is the field capacity of my soil?**

- Determine the soil water-holding capacity of the different soil horizons within this rooting depth. This can found online at the Web Soil Survey. This map-based tool for use by the general public provides interpretations, data and soil maps for parishes all over Louisiana. Soil water-holding capacities are found in the Soils Data Explorer, Soil Reports, Soil Physical Properties, Physical Soil Properties.
- To determine how much water is in the rooting zone when the soil is at field capacity, multiply the rooting depth times the water-holding capacity.

  ***Example:*** *If the rooting depth of a soil is 10 inches and the water-holding capacity is 0.2 inch of water per inch of soil, then the rooting zone holds 2 inches of water at field capacity (10 inches x 0.2 inch = 2 inches).*

***Developed from:***

Neiberholzer, F. and L. Long. 1998. Simple irrigation scheduling. Oregon State University Extension Service. EM 8716.

Crouse, D, K.A. Shaffer, and R. Sheffield. 1997. Certification Training for Animal Waste Management System Operators. North Carolina State University. AG-538 A & B.

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