



# WALNUT NOTES

---

## Irrigation

Some sites don't have enough moisture to grow good black walnut trees. This is especially a problem where drainage is excessive or where soil volume suitable for root development is limited by soil depth or impermeable soil layers. Unless other factors are limiting (and this is often the case), irrigating such sites may help to maintain tree growth during periods of inadequate precipitation and/or high evapotranspiration. But keep in mind: it probably won't pay to irrigate just to increase the value of merchantable trees.

The moisture necessary for tree growth can come from rainfall, subsurface moisture, or irrigation. Normally, if well distributed, trees do well without supplemental water in areas where 30 inches or more of rainfall occurs. Of course, the amount and frequency of rainfall required will depend on how much water the soil will hold.

On some sites, lack of available water is less of a problem than elsewhere because of "perched" water tables, where water is restricted from moving downward in the soil layer but, rather, collects in the rooting zone. In such cases, efforts to maintain an adequate supply of available water are overshadowed by the site's poor quality. Aside from texture, which also influences the soil's water holding capacity, both drainage and aeration affect tree growth and irrigation practice. A rise in the water table reduces the amount of oxygen available to roots. Increasing the available water also increases nutrient uptake, diminishing what may already be a limited supply in shallow soils.

Irrigation methods include flood, furrow, border strip, sprinkler, drip, and trickle. Flood, furrow, and border strip methods use soil-constructed diversions and a small amount of hardware to deliver water by gravity to trees. Sprinkler, drip, and trickle irrigation systems require more equipment and hardware to install and maintain.

If you decide to irrigate, you will need to estimate how much water to add. With flood, furrow, border strip, and sprinkler systems (also called surface irrigation methods), it is important to determine the amount of water the soil can hold, to prevent adding too much water and temporarily "waterlogging" the soil. For drip and trickle irrigation, this calculation is less important than for other methods because frequent, low-pressure irrigations continually replace water in the root zone as it is used.

The amount of water to apply during an irrigation can be determined with elaborate equipment. However, as a rule, trees need about 1 to 1½ inches of rain per week. Calibrate your equipment to deliver this amount of water over 1 week. Depending on your system, a watch and/or rain gauge may be all you will need. Dealers and suppliers of irrigation equipment are good sources of advice on determining water needs for your soil. You can also contact the Soil Conservation Service or the State and Private Forestry branch of the Forest Service.

*Felix Ponder, Jr. and F. Danny McBride*