



CMG GardenNotes #152

# Worksheet: Plant Processes #1

## Photosynthesis/Transpiration

### Situation/Symptoms

A homeowner calls about a tree in their yard that leafed out fine this spring. By late June, however, the leaves began to wilt, dry up and are now falling. They just moved into the home last fall and don't know how the landscape was maintained prior. Other trees in the yard are showing similar symptoms. There has been prolonged drought in the area for the past two years.

### Why are the leaves drying? Why were they fine this spring?

**How does a prolonged drought interrupt the plant processes of photosynthesis and respiration?**

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*Suggested References:*

GardenNotes 132 - Plant structures: Roots

GardenNotes 134 - Plant structures: Leaves

GardenNotes 141 - Plant Physiology: Photosynthesis, respiration, and transpiration

GardenNotes 144 - Plant growth factors: Water



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## Worksheet: Plant Processes #2

### Respiration

#### Situation/Symptoms

A homeowner planted a shade tree two years ago in a landscape with heavy clay soils. The tree has never thrived and is now showing dieback mostly in the lower canopy. They asked the advice of their neighbor, a Colorado Master Gardener, who noticed that the tree had been planted about 6 inches too deep and the homeowner has been overwatering trying to bring the tree back.

**What is causing the dieback and what plant process is being interrupted?**

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#### *Suggested Reference Materials:*

GardenNotes #132 Plant Structures: Roots  
GardenNotes #141 Plant Physiology: Photosynthesis, Respiration, and Transpiration  
GardenNotes #215: Soil Compaction  
GardenNotes #214: Estimating Soil Texture Sandy, Loamy or Clayey?  
GardenNotes #633: The Science of Planting Trees  
GardenNotes #636: Tree Planting Steps



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## Worksheet: Plant Processes #3

### Growth Regulators/Hormones

#### Situation/Symptoms

A client planted a 2-inch caliper, balled and burlapped, shade tree three years ago but it still hasn't really taken off the way it should. They believe that they did everything right when planting the tree including pruning some of the top of the tree to balance out the compromised root system.

**Why hasn't the tree come out of transplant shock and put on more top growth and how are hormones affecting the tree's growth?**

**Does the tree need more fertilizer?**

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#### *Suggested Reference Materials:*

GardenNotes #132 Plant Structures: Roots

GardenNotes #133 Plant Structures: Stems

GardenNotes #145 Plant Growth Factors: Plant Hormones

GardenNotes #633 The Science of Planting Trees

GardenNotes #635 Care of Recently Planted Trees

GardenNotes #651 Fertilizing Shade Trees

GardenNotes #659 Understanding Tree Roots