

LET'S TALK

Branch failure

WHY DO OAKS DROP BRANCHES?

Physics

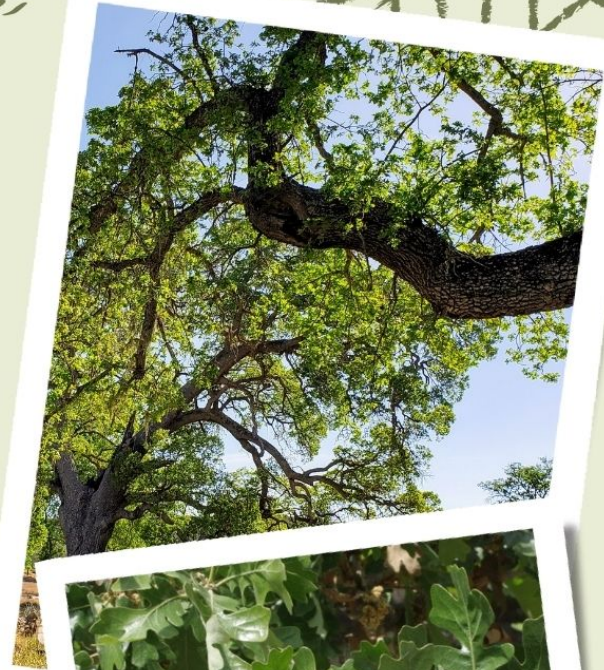
A mature oak tree can produce somewhere around 700,000-1M leaves in a year in three different flushes of growth that conclude in midsummer. Oaks grow from the their tips, adding weight at the ends of their branches late in the season. Each leaf also collects dust and pollen from the air. That means the branches are their heaviest towards autumn. Hot, dry conditions may exacerbate internal branch defects and branches are shed when their load-bearing capacity is exceeded.

Pheromones

Oaks are a communal species and they communicate via soil microbes (fungal mycelium) and pheromones in the air. When one oak senses threat or has a need, the others in the network receive this information as well. A hot, calm afternoon reduces the flow of water in the branch, causing the branch temperature and the concentration of ethylene to increase. Ethylene, a gaseous hormone found in all plants, is known to promote the process of cell aging. Elevated levels of ethylene may weaken the cell wall cementation which when coupled with reduced transpiration and increased root pressure, increases internal sap pressure, moisture content of branches, and limb weight, resulting in branch failure.

The Need for Nutrients

The end of the hot, dry growing season means the start of acorn and leaf drop. Acorns and their parents need soil nutrients for a life of hundreds of years in the same space. Dust and pollen collected on leaves is very nutritious after it has decomposed in the winter rain. The leaf duff and small branches provide a nursery for acorns to take root. Older trees will drop branches to feed the woodland at the best time of the year: in preparation for the acorns and overwintering. The mycelium and pheromone signals from other trees in the network may stimulate older trees to fill needs for the young.



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WHAT CAN YOU DO ABOUT IT?

Physics

Have your oak assessed by a professional arborist certified by the International Society of Arboriculture. Regularly observe oaks to watch for lowering branches, fractured bark, or open cavities. Have oaks maintained with professional pruning to keep weight balanced and take out dead wood. Keep in mind pruning that encourages uneven growth at the end of a limb, or over-pruning can put tremendous stress on limbs due to the added weight of the new growth.

Pheromones

Oaks are gonna oak. If there are environmental conditions that have stressed the tree or older trees are not maintained, branches can fall somewhat unexpectedly. It can be prudent to keep property out from under oaks that are prone to branch failure. Once an oak has lost a branch, it - or its neighbors - could be more likely to lose another. It is the oak way.

The Need for Nutrients

Look to the oak's environment to see if there is a nutrient need the oak is trying to fill. Oak roots that have been covered by concrete or asphalt are not able to benefit from decomposing leaf matter IF that leaf matter has been left on the ground. People are pretty good at cleaning up under oaks. You can leave the leaves for the tree and allow soil regeneration. OR you can ask us about our FEED A TREE program and provide those nutrients if the oak cannot!

PLEASE DO NOT WATER MATURE OAKS IN SUMMER!

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