

Gardening in a Changing Climate

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Gardeners know that the climate is changing - they can see evidence in their own gardens and landscapes. Drier, hotter summers and unpredictable swings in weather throughout the year are challenging plant survival and soil health. This seminar will provide strategies that will help your plants and soils “weather the weather.”

Don't fall into the pseudoscience trap! These practices are NOT science-based and will NOT help

- 🌱 Amending the soil before planting
- 🌱 Avoiding hot weather watering
- 🌱 Hügelkultur
- 🌱 Lasagna mulching
- 🌱 Native plant superiority
- 🌱 Permaculture
- 🌱 Using water crystals

Claim: before planting trees and shrubs, work in organic material to improve soil

- 🌱 Based on an agricultural model for intensive crop production
- 🌱 Scientific summary
 - 🌱 Hydrology disruption
 - 🌱 Soil subsidence
 - 🌱 Nutrient overload

Claim: Watering during the hottest part of the day will scorch leaves

- 🌱 Water drops on the leaf surfaces act as tiny magnifying glasses
- 🌱 Wet leaf surfaces are more likely to burn than dry ones

Fact: Other factors can cause scorch, but not water

- 🌱 Symptoms of water deficit:
 - 🌱 tip and marginal leaf scorch, early leaf abscission
 - 🌱 shoot dieback and stunted growth
- 🌱 Causes of water deficits - all linked to decreased leaf water:
 - 🌱 Soil issues: lack of water, presence of salts, compaction, flooding
 - 🌱 Weather issues: lack of rainfall, high temperature, high light, wind
 - 🌱 Plant issues: poor root health (improperly prepared roots)

Claim: Hügelkultur is an ancient way to grow vegetables sustainably

- 🌱 About Hügelkultur
 - 🌱 Invented by a German gardeners and published in a booklet in the 1960's
 - 🌱 Promotes a method that doesn't occur in natural systems
 - 🌱 Is inherently unstable and therefore not sustainable

Claim: Lasagna mulching creates a healthy, nutrient rich soil

- 🌱 About lasagna mulching
 - 🌱 “a no-till method of layering brown and green materials to increase organic matter”
 - 🌱 Emotional appeal
- 🌱 Scientific summary
 - 🌱 Sheet mulches reduce water and air availability to roots
 - 🌱 Overuse of any nutrient can create soil, plant and water problems

Claim: Native species are the best choices to reduce irrigation needs

Facts:

- 🌱 Nativeness has nothing to do with irrigation needs
- 🌱 Urban areas do not have natural environmental conditions
- 🌱 Native species are often not adapted to urban conditions

- Introduced species provide ecological benefits
- Vegetation diversity, structure and function more important to biodiversity than nativeness

Claim: Permaculture is an ecology-based approach to gardening

Facts:

- Permaculture is a philosophy-based approach to gardening
- Includes scientific-sounding terms that are meaningless or incorrect (i.e., pseudoscience)
 - Dynamic nutrient accumulators, narcissistic plant species
 - Buffer plants, guilds
- Practices are not science-based and are damaging to plant and soil health
 - Sheet mulching
 - Recommended use of noxious weeds and other invasive species

Claim: Water crystals protect plants in heat-stressed, drought-prone situations, by absorbing water, then releasing it gradually as plants need it"

- About hydrogels
 - Acrylamide polymers
 - Absorb large amounts of water
 - Used in cosmetics, disposable diapers, tissue enhancement
- However, water crystals
 - ...are broken down quickly by microbes, sunlight and fertilizers, so...
 - ...are only a temporary fix to droughty soil conditions
- Scientific summary
 - Variable effectiveness in field studies; no long term benefit
 - As crystals dry out, they absorb water from the soil
 - Studies have found mulches to be more cost-effective

Science-based alternatives:

- Avoid soil tillage and minimize any soil disturbance
- If needed, add organic material as a top-dressing - do not incorporate
- Manage water carefully
 - Watch foliage for signs of wilt and water immediately
 - Use residential rainbarrels if legal in your community
- Use coarse woody mulches for optimizing soil moisture AND
 - Control weeds
 - Provide slow release nutrients
 - Protect and enhance soil health
 - Support native populations of beneficial microbes

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URL: <http://www.theinformedgardener.com> (white papers on many of these myths)

Blog: <http://www.gardenprofessors.com>

Books: <http://www.sustainablelandscapesandgardens.com>

Facebook page: <http://www.facebook.com/TheGardenProfessors>

Facebook group: <https://www.facebook.com/groups/GardenProfessors/>

Washington State University Extension publications: <http://gardening.wsu.edu/> (peer-reviewed fact sheets on many topics of interest)