

Horticultural Zombies! Myths that will not die

Seminar roadmap

- 🌱 Sources of information
- 🌱 Evaluating information
- 🌱 Assessment examples
 - 🌱 Products
 - 🌱 Practices
- 🌱 Good and not-so-good science

Sources of information

- 🌱 Scientific - peer reviewed, academic audience
- 🌱 Gray - not peer reviewed, professional audience
- 🌱 Popular - not peer reviewed, general audience

Evaluating information using the CRAP test

- 🌱 Credibility of the source
 - 🌱 Author's credentials and qualifications?
 - 🌱 Publisher?
 - 🌱 Website urls?
- 🌱 Relevance to managed landscapes
 - 🌱 Crop production or urban landscapes?
 - 🌱 Geographic or other constraints on usability?
- 🌱 Accuracy
 - 🌱 Science-based?
 - 🌱 Objective?
 - 🌱 Current?
 - 🌱 Well-written?
- 🌱 Purpose
 - 🌱 Educational or commercial?
 - 🌱 Political, ideological, cultural, religious, or personal biases?
 - 🌱 When in doubt, consult with relevant discipline experts

Assessment of products and practices

- 🌱 No supporting science (no research; inconsistent or negative results; poor quality research or reporting)
- 🌱 Misapplied science (agricultural products and practices applied to nonagricultural settings)
- 🌱 Overextrapolated science (products and practices with limited efficacy applied to settings outside the efficacy window)

No consistent, reliable supporting science

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|-------------------------------------|----------------------------|
| 🌱 Products | 🌱 Practices |
| 🌱 Compost tea | 🌱 Biodynamics |
| 🌱 Conditioners | 🌱 Companion planting |
| 🌱 Kelp products | 🌱 Fertilizer injections |
| 🌱 Rock dust | 🌱 Hügelkultur |
| 🌱 Vitamin B-1 transplant fertilizer | 🌱 Lasagna mulching |
| 🌱 Wound dressings | 🌱 Leaving rootballs intact |
| | 🌱 Permaculture |

Because none of these products or practices are supported with sufficient scientific evidence, they should not be used or recommended.

2. Misapplied science

Products

- Antitranspirants
- Epsom salts
- Gypsum
- Hydrogels (“water crystals”)
- Phosphate fertilizer

Practices

- Amending soil before planting
- Foliar fertilizers

3. Overextrapolated science

- Corn gluten meal (CGM)
- Harpin
- Mycorrhizal and probiotic inoculants

Good and not-so-good science

1. Good quality research but poor reporting

- Often due to researcher bias
- Selective highlighting of results (often with statistical errors) in the abstract or summary
- Downplaying or omitting other results

2. Poor quality research

- Common with authors with no expertise in field
- Conflating correlation with causation
 - A correlation between two variables does not mean that one causes the other
 - Controlled studies can determine causation but not always feasible
 - Correlations can be valuable, but only if examined rigorously and eliminating other possible causes of the observed phenomenon

Look at the body of research. If a paper is at odds with the majority of other papers, it must withstand increased scrutiny.

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Email: lindacs@wsu.edu

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 including Scientific Literacy - <http://cru.cahe.wsu.edu/CEPublications/EM100E/EM100E.pdf>)