

Common Sense Solutions

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IPM Defined

- Common sense practices
 - Most economical
 - Protects people, property and environment
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Zilker Botanical joins EPA's PESP May 8, 2012



We're all in this together

- Widespread agricultural pollution of land and seas
- Accelerated soil loss
- Damage to fish and aquatic life
- Pesticide Buildup in our bodies
- Decline in nutritional value of our food



- Bees Pollinate approximately 75% of the fruits, nuts and vegetables grown in this country
- \$14 billion annually
- Disappearance of bees may be the biggest general threat to our food supply
- Neonicotinoids (imidacloprid) linked to colony collapse

Parkinsons linked to pesticide use

- Maneb, Ziram, Paraquat, Benomyl, Permethrin
- No only farmworkers

Pesticide Risks to Human Health & the Environment

- Organophosphates (Orthene, Cygon, Aztec)
- N-methyl carbamates (Temik, Ficam)
- Triazines (Atrazine, Weed and Feed)
- Chloroacetanilides, (alachlor-Lasso)
- Pyrethrins/pyrethroids (Ambush, Permethrin).

Reasons to Go Organic*

- Improved Health
- Cost-Effectiveness
- Time Savings
- Healthier Plants
- Plants are more stress tolerant
- Crops have improved food quality and taste
- Improved environment

*from Organic Management for the Professional, Howard Garrett, John Ferguson, Mike Amaranthus

Best Practices

- Healthy plants lessen the need for treatment
- Proper Design-Right Plant in the Right Place
- Improve Soil Health
- Proper Installation
- Proper Maintenance



Design Elements

- Mature height and width
- Consider plant hardiness, nutrient, light and water needs
- Choose well adapted, disease resistant varieties
- Order, balance, proportion
- Harmony, unity
- Flow, rhythm, transition

It all starts with the soil

- Soil test
 - Drainage
 - Compost
 - Soil amendments
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Soil Sampling

- Soil, Water and Forage Testing Laboratory
2474 TAMU
College Station, TX 77843
- Texas Plant & Soil Lab
5115 West Monte Cristo Rd.
Edinburg, TX 78541



*Metabolis -
 need zinc form
 fertilizer*

CUSTOMER NAME: CITY OF AUSTIN - ZILKER BOTANICAL GARDENS 02/20/2008
 ADDRESS: 2220 BARTON SPRINGS RD AUSTIN, TX 78746 elizabeth.mcveety@ci.austin.tx.us
 Sample ID: ROSE #1

SOIL TESTS ARE PERFORMED ACCORDING TO APPROVED UNIVERSITY PROCEDURES.

SOIL COMPOSITION					
ORGANIC MATTER	Low	Medium	High	Mix	
		X			
TEXTURE	Sandy	Loam	Clay	Alkaline	
		X			
pH	Acid	Neutral			
		7.1			

AVAILABLE SOIL NUTRIENTS:

Amounts of soluble soil nutrients that are immediately available to plants.

	Poor	Low	Medium	High	Remarks
NITRATES (NO ₃)			X		
PHOSPHORUS (P)			X		
POTASSIUM (K)			X		
CALCIUM (Ca)				X	

MICRONUTRIENTS:

Calculated Availability

	Poor	Low	Medium	High	Remarks
IRON (Fe)		X			
MANGANESE (Mn)		X			
ZINC (Zn)	X				

RECOMMENDATIONS:

ORGANIC MATTER the available humus fraction (slow release nitrogen) is the foundation of any soil fertility or plant nutrition program. Our tests measure only the humic (well decomposed - available) portion. To build O.M. is a long-term process. Use manure, composts, humates and other humus products for fast results in the soil-building program. Supplemental products such as Organic Formulas, humic/lignin products, soil inoculants, compost teas, fish products, vegetable meals, etc should also be beneficial.

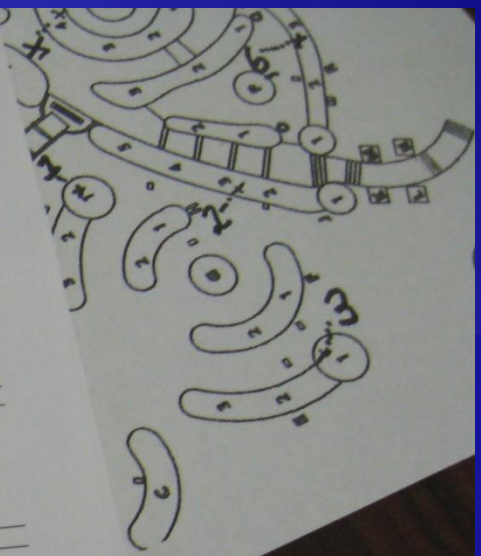
NITROGEN: tests adequate - keep to a minimum

PHOSPHATE: Use 1/2 lb/1000 sq.ft. of P₂O₅ -OR- **PHOSPHATE:** (Natural/ Organic) Work into soil or broadcast at least 2-6 lb/1000 sq.ft. of a finely ground rock Phosphate, mix 20% as much fine Sulfur for natural acidification to help release P and other nutrients. Should last for several years when enough is used. Apply in band on alkaline soils. ---A good livestock compost, chicken litter or Guano can also supply P.

POTASH: Use 1 lb/1000 sq.ft. of K₂O - OR - **POTASH:** build reserves with rock minerals: greensand, lava, granite dust, etc. Also, commercial red 0-0-60 can be a mined natural mineral an economical source to correct major deficiencies.

SULFUR use up to 80 lb/ac (2 lbs/1000 sq. ft. of area) it is best when used 2 or 3 times a year. ----(S effect lasts only 45-90 days in most cases.) Sulfur improves the physical condition (tilth) of the soil for better water and root penetration and increase nutrient availability. Sulfur activates Ca & Mg by solubilizing them to the available water (H₂O) soluble form. Soluble Ca helps sodium to leach. S can also release P & Micronutrients.

MULCHING, when plants are established, with a good grade of compost can also be beneficial each season, to be worked into soil for next season. Course material on top for shading is beneficial.



Organic Soil Amendments

- Compost
- Cover crops
- Nitrogen: Greensand, Fish Emulsion, Cottonseed, Blood Meal, Worm Castings
- Phosphorus: Rock Phosphate
- Potassium: Alfalfa Meal
- Expanded Shale
- Use slow release 8-2-4 fertilizer

**Set plant at same soil depth
in which in grew in its
container**



Girdling Roots need to be dealt with before planting



Reasons for pruning

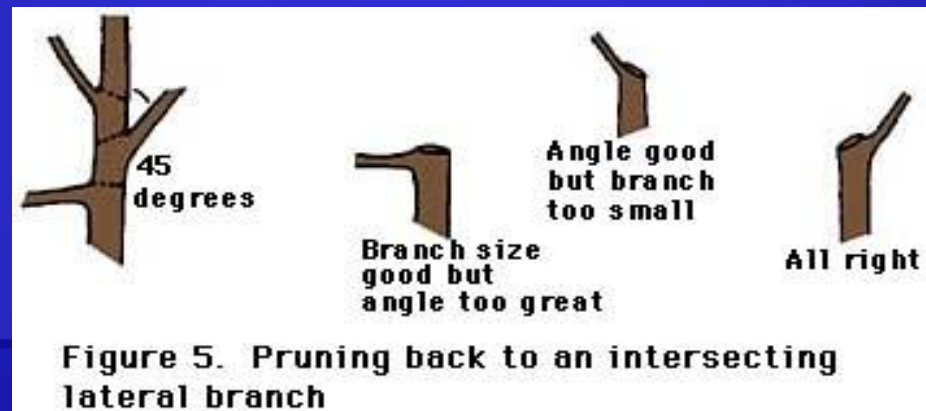
- Train the plant
- Maintain plant health
- Improve quality of flowers, fruit, foliage or stems
- Restrict or redirect growth
- Never top a tree!

Pruning Basics

- Keep your tools clean and sharp
- Sterilize your tools between trees, shrubs or after cutting diseased wood
- Make clean, directional cuts
- Prune for a good reason!

Proper Pruning Angles

TAMU Earthkind Landscaping Doug Welsh



When to Prune

- Early Spring (late February) generally best
- Prune Spring flowering shrubs after bloom.
- Avoid pruning Live Oaks February-June

Stop Crape Murder!

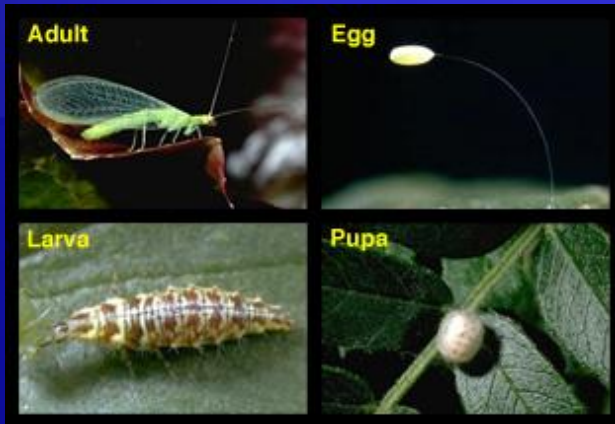
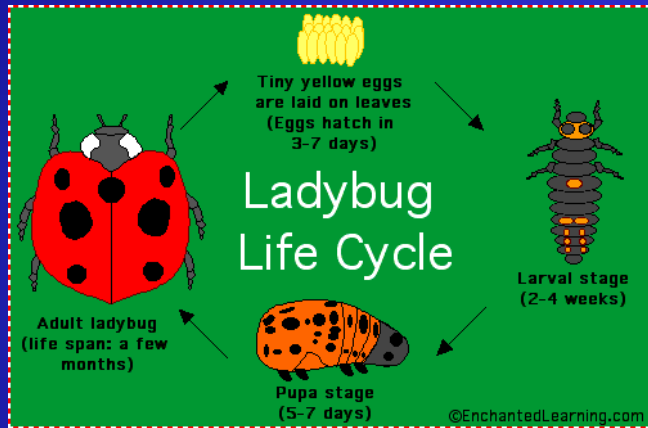
Photos by Greg Grant



Cultural Practices

- Irrigation schedule
- Air circulation
- Mulch
- Practice good sanitation
- Avoid plant stress
- Build soil microbes

Learn to recognize common beneficial insects



Common Pest & Disease Problems

Common Sense Solutions

Determine Cause of Damage



Nematodes

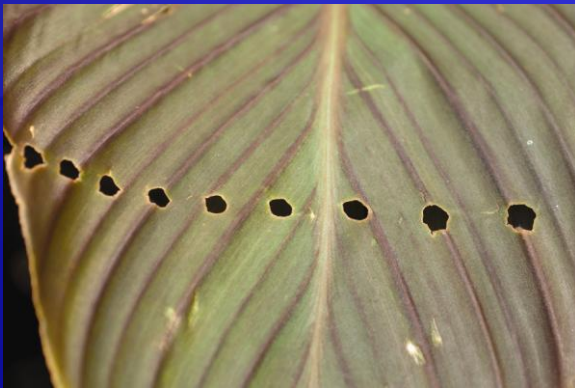
- Microscopic organisms in the soil
- More likely in light sandy soil, low in organic matter
- Symptoms include:
 - Wilting
 - Stunted plants
 - Chlorotic or pale leaves
 - Infected roots swell and form knots or galls



Organic controls for Nematodes

- Rotate plantings
- Use trap crops such as marigolds or annual rye grass
- Grow nematode-resistant varieties
- Destroy infected roots at harvest
- Add organic matter
- Solarize soil and leave fallow
- Stimulate soil biology with compost
- Citrus peelings tilled into soil
- Cedar flakes can be used as a repellent

Chewing Insects



- Spray with Neem as repellent
- Hand Pick
- Nolo (Nosema locustae) for grasshopper control
- Spray with Spinosad
- Bt for caterpillar control

Aphids & Spider Mites



Thrip Damage



Organic Solutions for Sucking Insects

- Encourage beneficial insect predators
- Strong spray of water (repeat every 3 days until aphids, mites are controlled)
- Neem Oil spray
- Horticultural Oil spray
- Insecticidal Soap spray
- Soil nematodes

Sooty Mold on Crape Myrtle



Fungal Disease Control

- Cultural Practices
- Compost tea
- Neem Oil spray
- Serenade Fungicide *Bacillus subtilis*
- “Cornell Formula”, 50/50 water/milk

Weed Control

- Cultural Practices
 - Mechanical removal
 - Vinegar/soap solution, Green Go
 - Corn Gluten
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Fire Ants

- Spinosad (Green Light , Fertlome)
- Spot treatments



Tool kit

- **Insecticidal soap:** aphids, whitefly, and spider mites
- **Horticultural oil:** scale, spider mites, aphids, and whitefly
- **B.t. (*Bacillus thuringiensis*):** caterpillars
- **Neem Oil :** aphids, mites, thrips, whitefly, fungal diseases
- **Spinosad:** caterpillars, Colorado potato beetle, fire ants
- ***Bacillus subtilis* (Serenade)** – controls leaf diseases
- **Potassium bicarbonate** – fungicide, ball moss control

**“No one can do everything, but everyone can do something”
- Helen Keller**

